FISH ATLAS OF THE SOUTHERN OCEAN, BASED ON THE AKES 2008 EXPEDITION

RAPPORT FRA
HAVFORSKNINGEN
NR. 2024-62

Title (English and Norwegian):

Fish Atlas of the Southern Ocean, based on the AKES 2008 expedition

Fiskeatlas fra Sørishavet basert på AKES toktet i 2008

Report series:	Year - No.:	Date:
Rapport fra havforskningen	2024-62	17.12.2024

ISSN:1893-4536

Author(s):

, Herdis Langøy Mørk, Rupert Wienerroither (IMR), Jaime Alvarez, , Cecilie Thorsen Broms (IMR), Helga Gill, Tor Knutsen, Leif Nøttestad (IMR), Jostein Røttingen, Georg Skaret (IMR), Øyvind Tangen, and Bjørn Krafft (IMR)

Research group leader(s): Espen Johnsen (Pelagisk fisk)
Approved by: Research Director(s): Geir Huse Program leader(s): Ann-Lisbeth Agnalt

Distribution:

Open

Project No.:

15208

On request by:

Institute of Marine Research

Program:

Marine prosesser og menneskelig påvirkning

Research group(s):

Pelagisk fisk
Plankton
Økosystemprosesser
Fiskeridynamikk
Norsk marint datasenter (NMD)

Number of pages:

165

Partners

AKES was supported by the Royal Norwegian Ministry of Fisheries and Coastal affairs, the Institute of Marine Research (IMR), the University of Bergen, the Norwegian Antarctic Research Expeditions (NARE), the Norwegian Research Council, StatoilHydro, and the Norwegian Petroleum Directorate. We thank all the crew on RV GO Sars, the scientists and technical staff participating in the survey and its preparations during 2007- 2008. As part of the preparations for the Large Scale synoptic survey – 2019 in the Southern Ocean area 48, the work requirements for the final preparations and completion of this atlas to be used as a reference tool for future taxonomic work, was funded through the project Antarktis (IMR project number 15208).

Summary (English):

AKES (“Antarctic Krill and Ecosystem Studies”, 2008-2011) was an IMR project that focused on mapping the abundance and distribution of Antarctic krill (Euphausia superba) in the central to eastern parts of the Atlantic sector of the Southern Ocean. Through the project IMR has contributed with highly relevant science and new knowledge to the management of ecosystem resources within the management area of CCAMLR (“Commission for the Conservation of Marine Living Resources”). The expedition was conducted during two consecutive surveys carried out during the Austral summer of 2008. In these areas, detailed knowledge of the ecosystem is limited and poorly described. This report presents results from taxonomic analyses performed on fish worked up from trawl catches in the upper ~750 m of the water column. Taxonomic identifications are based on morphological characteristics using the most updated identification keys. Following identification, each species or genus is illustrated by an image, while its distribution and numbers caught are presented in associated figures and tables. This work is important for future surveys in the Southern Atlantic when assessing ecosystem change, bycatch related to ongoing and new fisheries, management as well as the functionality and design of future marine protected areas (MPA’s). For further descriptions of relevant survey design, methodology, trawl gear and associated investigations, see descriptions in Iversen et al. (2008) and Krafft et al. (2010).

Summary (Norwegian):

AKES («Antarctic Krill and Ecosystem Studies», 2008-2011) var et HI-prosjekt med primært fokus på kartlegging av forekomst og fordeling av Antarktisk krill (Euphausia superba) i de sentrale og østlige deler av den Atlantiske sektor i Sørishavet. Ved gjennomføringen av prosjektet har HI bidratt med en betydelig mengde ny kunnskap og vitenskapelige data til forvaltning av økosystemressursene i ansvarsområdet til CCAMLR («Commission for the Conservation of Marine Living Resources»). Den todelte ekspedisjonen ble gjennomført i løpet av den Australske sommeren i 2008. I store deler av nevnte havområde er kunnskapen om økosystemet begrenset og mangelfullt beskrevet. Denne rapporten presenterer resultater fra det taksonomiske arbeidet utført på fisk som ble opparbeidet fra trålfangster tatt i de øvre ~750 m av vannsøylen. Taksonomisk identifikasjon er basert på morfologiske karakteristika og bruk av tilgjengelige og oppdaterte identifikasjonsnøkler. Denne rapporten gir en systematisk fremstilling av artssammensetning, antall, utbredelse og størrelsesfordelte data. Dette arbeidet har stor nytteverdi ved fremtidige undersøkelser i denne delen av Sørishavet, særlig i forhold til komparative analyser av økosystem endringer, forvaltningshensyn i forhold til fiskerier og bifangst, samt funksjonalitet og design av fremtidige marine verneområder (MPA’er). For ytterligere dokumentasjon av survey design, metodikk, trålredskap og assosierte undersøkelser, vises til beskrivelser presentert i Iversen et al. (2008) og Krafft et al. (2010).

Content

1 - Background

AKES 2008-2011 (Antarctic Krill and Ecosystem Studies) was an IMR (Institute of Marine Research) project primarily aimed to investigate the abundance and distribution of Antarctic krill (*Euphausia superba*) in a region of the Atlantic sector of the Southern Ocean (Figure 1), where knowledge about the ecosystem is limited. The expedition consisting of two survey legs carried out during the Austral summer of 2008 (4 January to 28 March) in the CCAMLR (Convention on the Conservation of Antarctic Marine Living Resources) area.

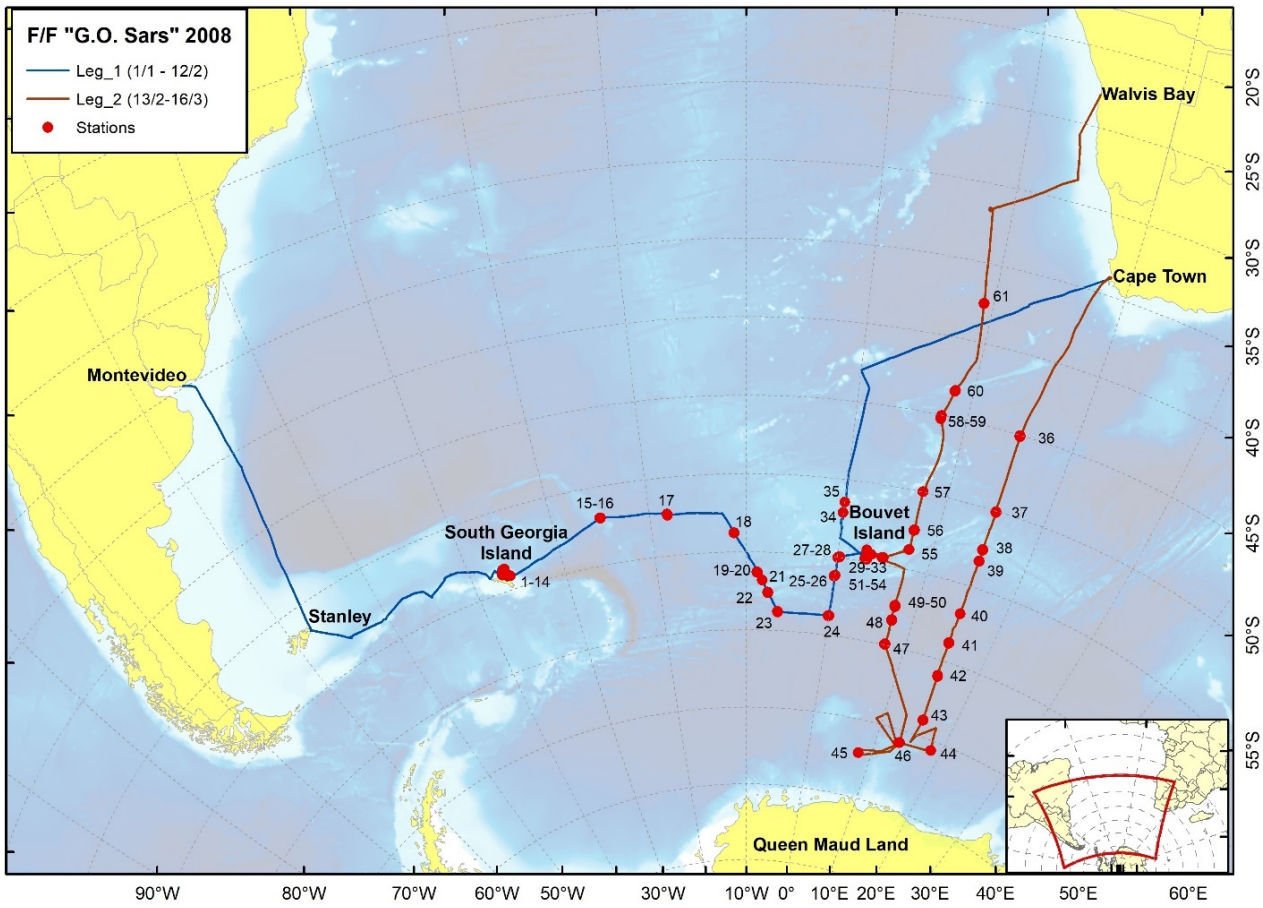

Figure 1. The AKES survey was conducted as two separate expeditions or legs. Leg_1 started from Montevideo, Uruguay 4th of January 2008 and ended in Cape Town, South Africa 14th of February. Leg_2 started when the vessel departed Cape Town 19th of February 2008 to survey the Southern Ocean along two transects, to and from the Astrid Ridge, and ended 28th of March 2008 in Walvis Bay, Namibia.

Trawling was carried out throughout the area to a maximum of ~750 m depth to the surface. For description of the survey design, methodology and trawl gear, see Krafft et al. (2010).

This report focuses on describing the results based on the fish that were sorted from the total catch where individuals were determined to the highest taxonomic level possible. Total weight per species and individual lengths were measured, following standard methodology described in Mjanger et al. (2007). Taxonomic identification was based on Gon & Heemstra (1990). In cases where taxonomic identification from the work carried out on board needed further validation; they were photographed and frozen for further onshore

analyses. Each identified species or taxon is presented with an image, distribution map, station information (including number of specimens, weight (W), total catch weight of fish (TW fish) and total weight of catch (TW catch)), and for the most abundant species a length histogram. Lengths of fish are normally measured as total length (TL) from tip of snout to the end of the caudal fin ("untouched") or as standard length (SL) from tip of snout to the posterior end of the last vertebra. Validity of scientific names was checked with Fricke et al. (2020), systematic order is according to van der Laan et al. (2020), and English common names according to Froese & Pauly (2019).

2 - List of species account

2.1 - Nemichthyidae

2.1.1 - *Avocettina paucipora* Nielsen & Smith, 1978

Figure 2a. Exemplary image of Avocettina paucipora.

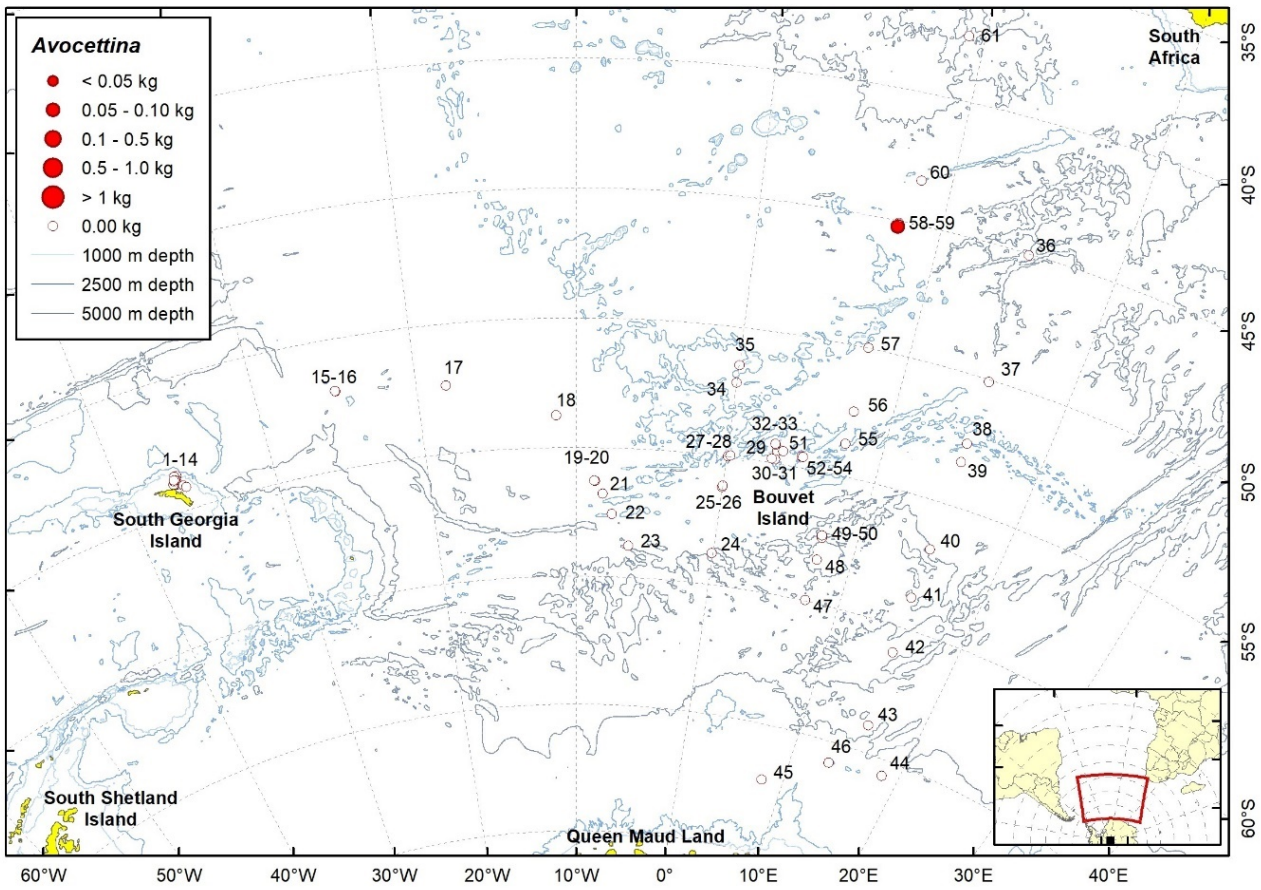

Figure 2b.Trawl stations with presence of Avocettina paucipora in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 1. Station information with presence of Avocettina paucipora.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	2	92,0	10,17	19,92

2.2 - Serrivomeridae

2.2.1 - *Serrivomer beanii*

Figure 3a. Exemplary image of Serrivomer beanii.

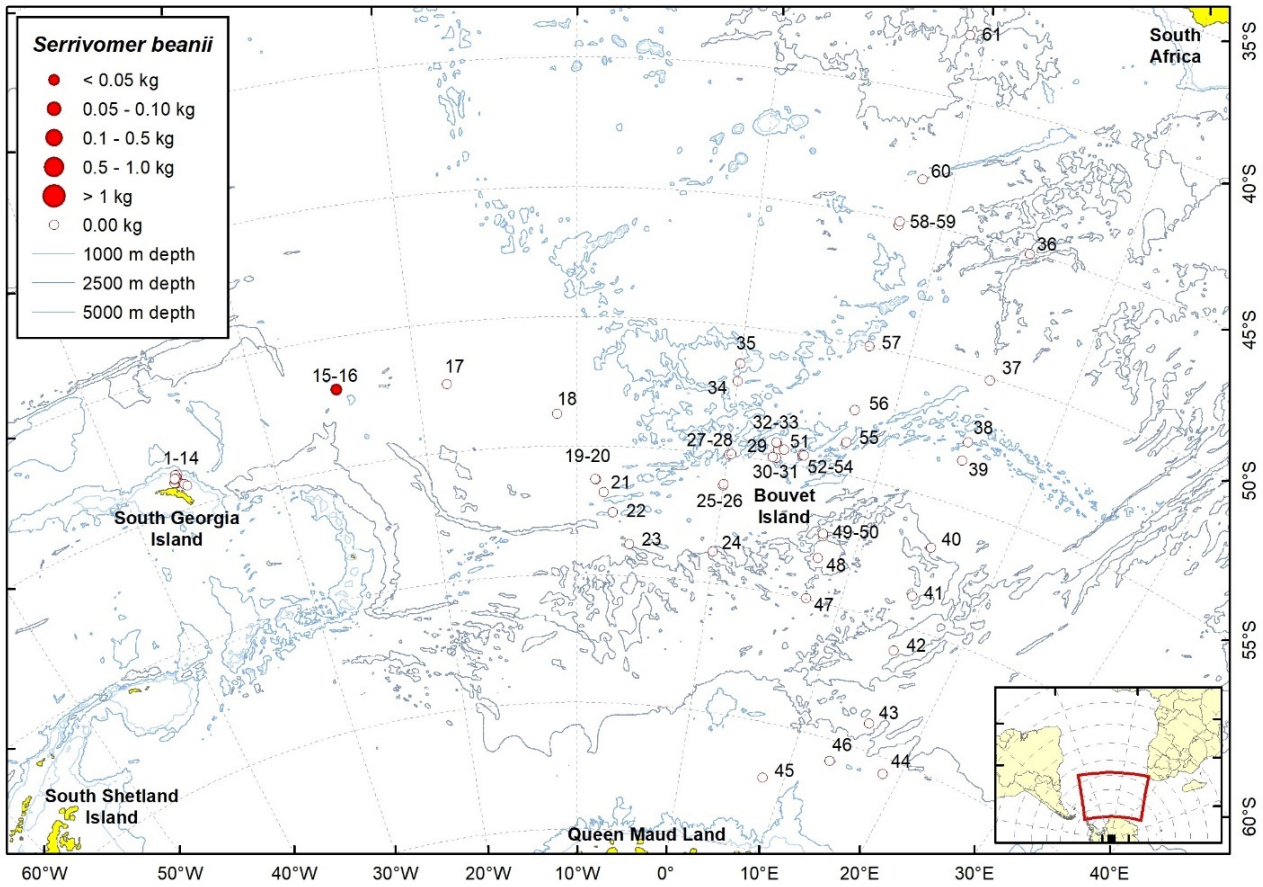

Figure 3b. Trawl stations with presence of Serrivomer beanii in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 2. Station information with presence of Serrivomer beanii.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	24.01.2008	51,99	S	25,00	W	1	3,4	3,23	45,05

2.3 - Microstomatidae

2.3.1 - *Nansenia antarctica* Kawaguchi & Butler, 1984

Figure 4a. Exemplary image of Nansenia antarctica.

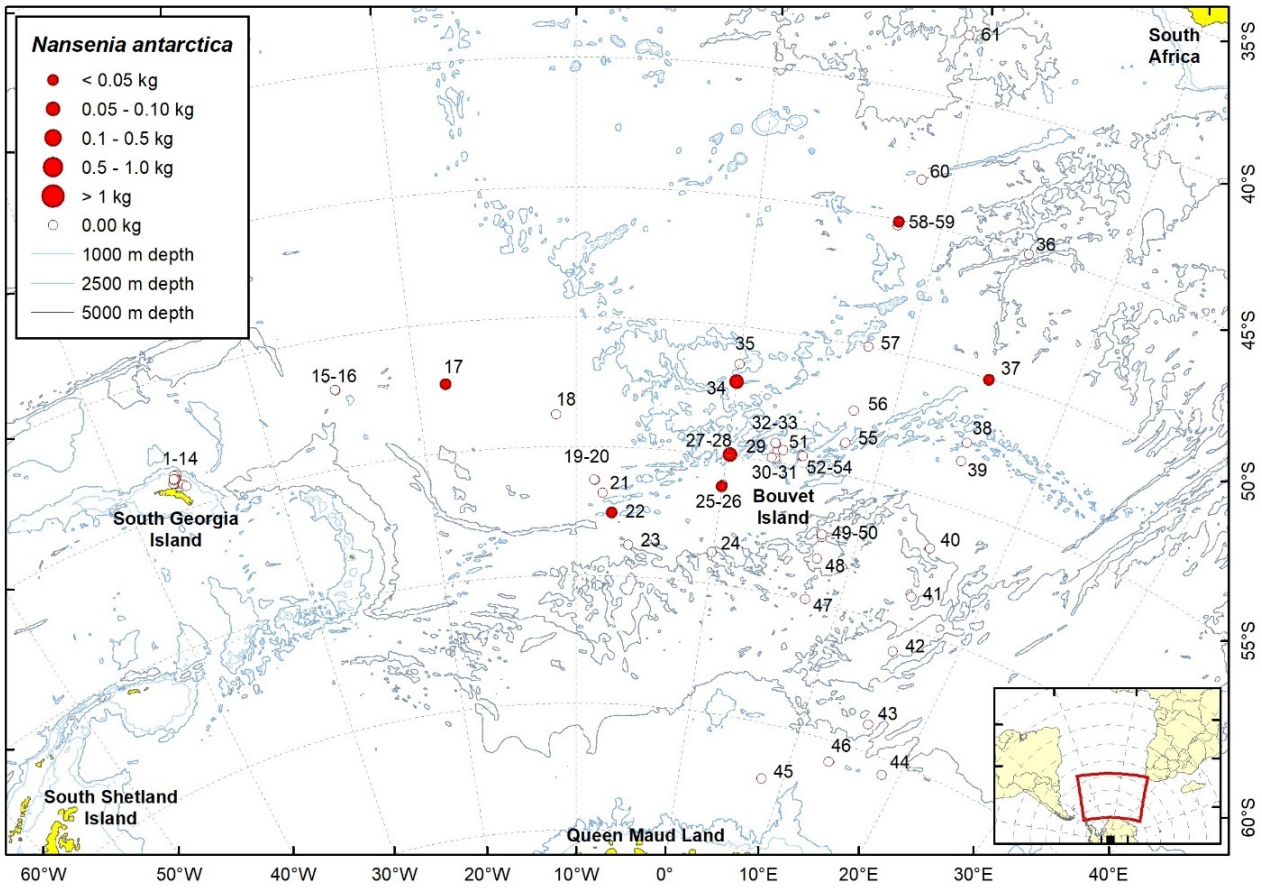

Figure 4b. Trawl stations with presence of Nansenia antarctica in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 3. Station information with presence of Nansenia antarctica.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
17	26.01.2008	52,33	S	18,16	W	2	13,2	1,20	26,43
22	30.01.2008	57,53	S	7,49	W	1	12,7	0,67	20,43

25	01.02.2008	56,21	S	0,05	W	3	31,0	0,18	44,71
28	02.02.2008	54,95	S	0,20	E	2	79,4	0,47	89,03
34	06.02.2008	52,12	S	0,02	W	3	83,6	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	1	22,0	3,32	14,43
59	17.03.2008	45,06	S	7,67	E	2	3,9	1,02	5,63

2.4 - Bathylagidae

2.4.1 - *Bathylagus antarcticus* Günther, 1878

Figure 5a. Exemplary image of Bathylagus antarcticus.

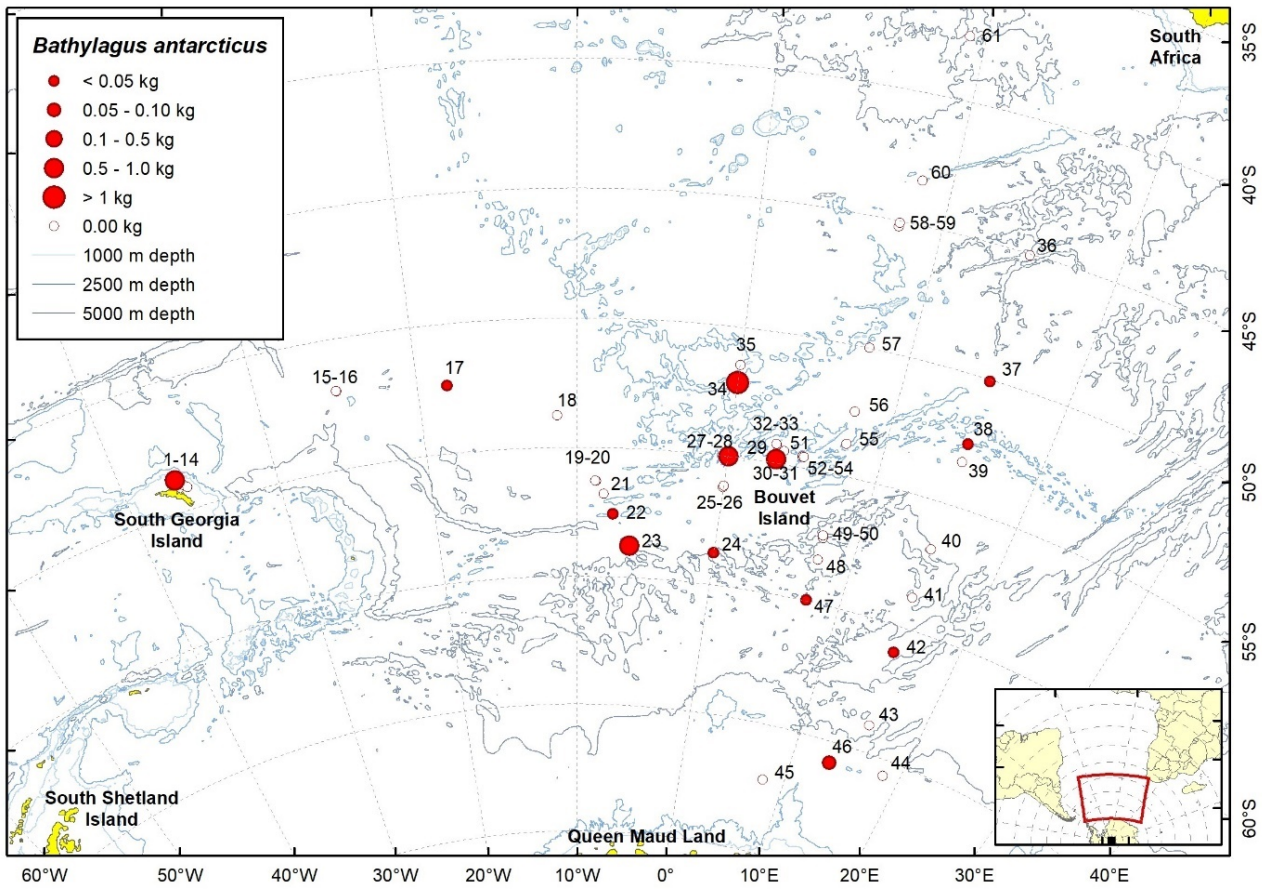

Figure 5b. Trawl stations with presence of Bathylagus antarcticus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 4. Station information with presence of Bathylagus antarcticus.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
12	22.01.2008	53,75	S	36,50	W	50	908,0	0,91	7,50
17	26.01.2008	52,33	S	18,16	W	17	10,9	1,20	26,43
22	30.01.2008	57,53	S	7,49	W	26	9,9	0,67	20,43
23	30.01.2008	58,76	S	6,22	W	142	721,6	4,14	13,02
24	31.01.2008	58,76	S	0,04	W	7	36,4	1,49	29,02
27	02.02.2008	54,99	S	0,06	E	50	908,0	0,91	0,91
30	03.02.2008	54,84	S	3,23	E	115	859,6	1,44	273,78
34	06.02.2008	52,12	S	0,02	W	131	1980,0	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	5	14,0	3,32	14,43
38	25.02.2008	52,57	S	15,00	E	48	14,1	3,66	49,50
42	28.02.2008	60,98	S	15,13	E	65	35,0	0,59	50,67
46	05.03.2008	65,80	S	13,38	E	87	83,0	1,59	32,17
47	07.03.2008	59,93	S	7,42	E	37	24,5	1,58	44,63

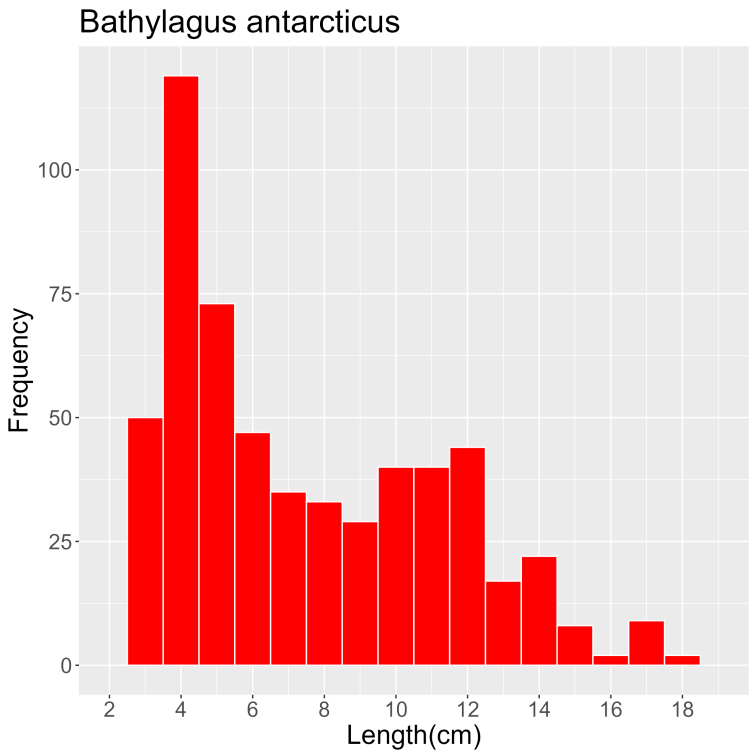

Figure 6. Length frequency of Bathylagus antarcticus for all trawl stations combined. Frequency shown as number of individuals.

2.4.2 - *Bathylagus tenuis* Kobyliansky, 1986

Figure 7a. Exemplary image of Bathulagus tenuis.

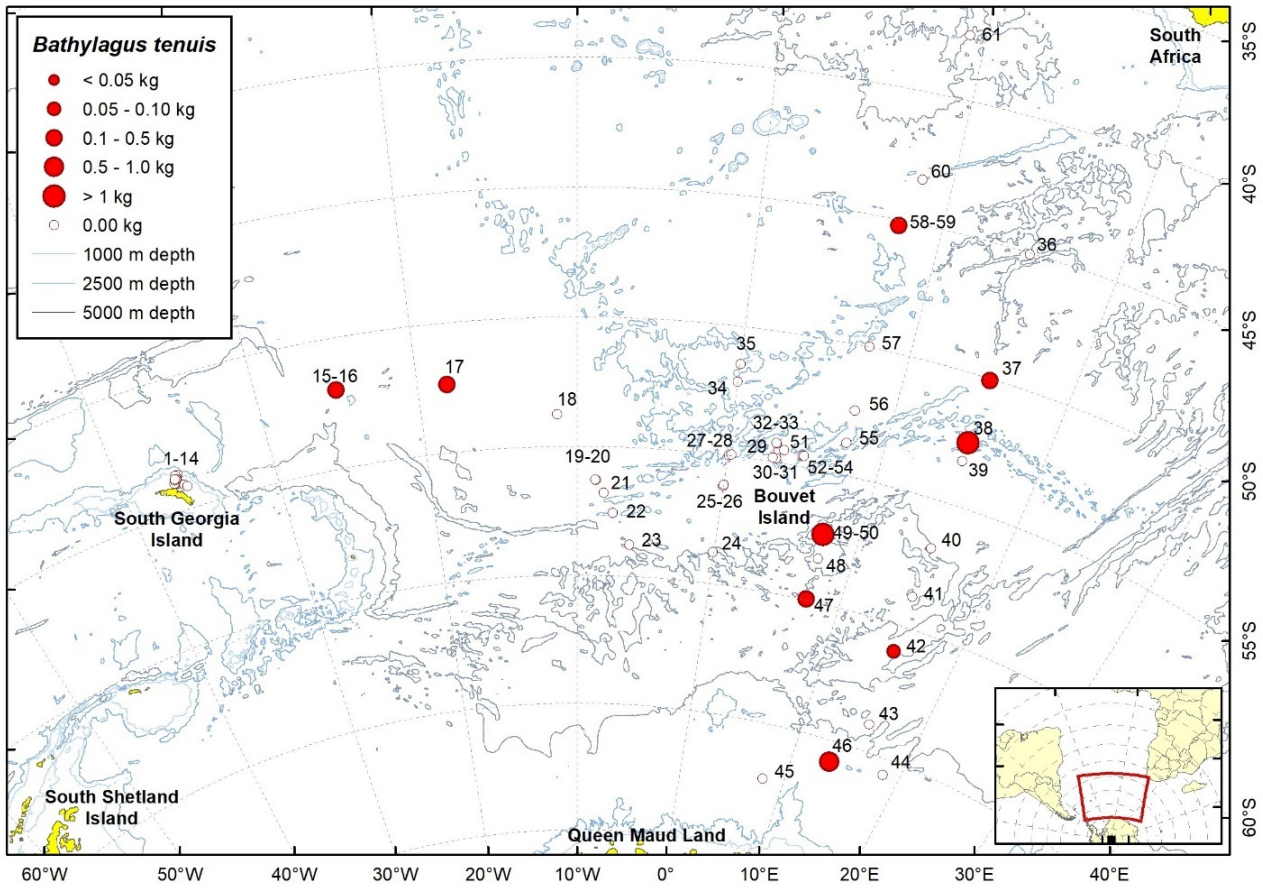

Figure 7b. Trawl stations with presence of Bathylagus tenuis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 5. Station information with presence of Bathylagus tenuis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	24.01.2008	51,99	S	25,00	W	13	231,3	3,23	45,05
17	26.01.2008	52,33	S	18,16	W	7	228,8	1,20	26,43
37	24.02.2008	50,04	S	15,02	E	10	243,7	3,32	14,43
38	25.02.2008	52,55	S	14,99	E	158	2456,0	3,66	49,50
42	28.02.2008	60,98	S	15,13	E	9	81,4	0,59	50,67
46	05.03.2008	65,80	S	13,38	E	55	955,0	1,59	32,17
47	07.03.2008	59,98	S	7,47	E	24	199,5	1,58	44,63
50	08.03.2008	57,39	S	7,44	E	183	4360,0	26,34	31,75
58	17.03.2008	45,20	S	7,65	E	9	332,0	10,17	19,92

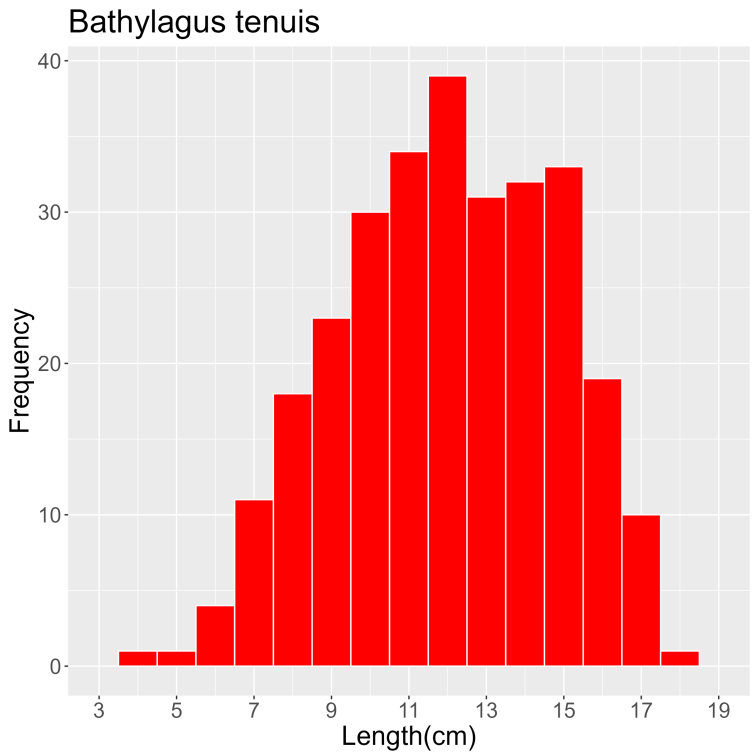

Figure 8. Length frequency of Bathylagus tenuis for all trawl stations combined. Frequency shown as number of individuals.

2.5 - Opisthoproctidae

2.5.1 - *Dolichopteryx* sp.

Figure 9a. Exemplary image of Dolichopteryx sp.

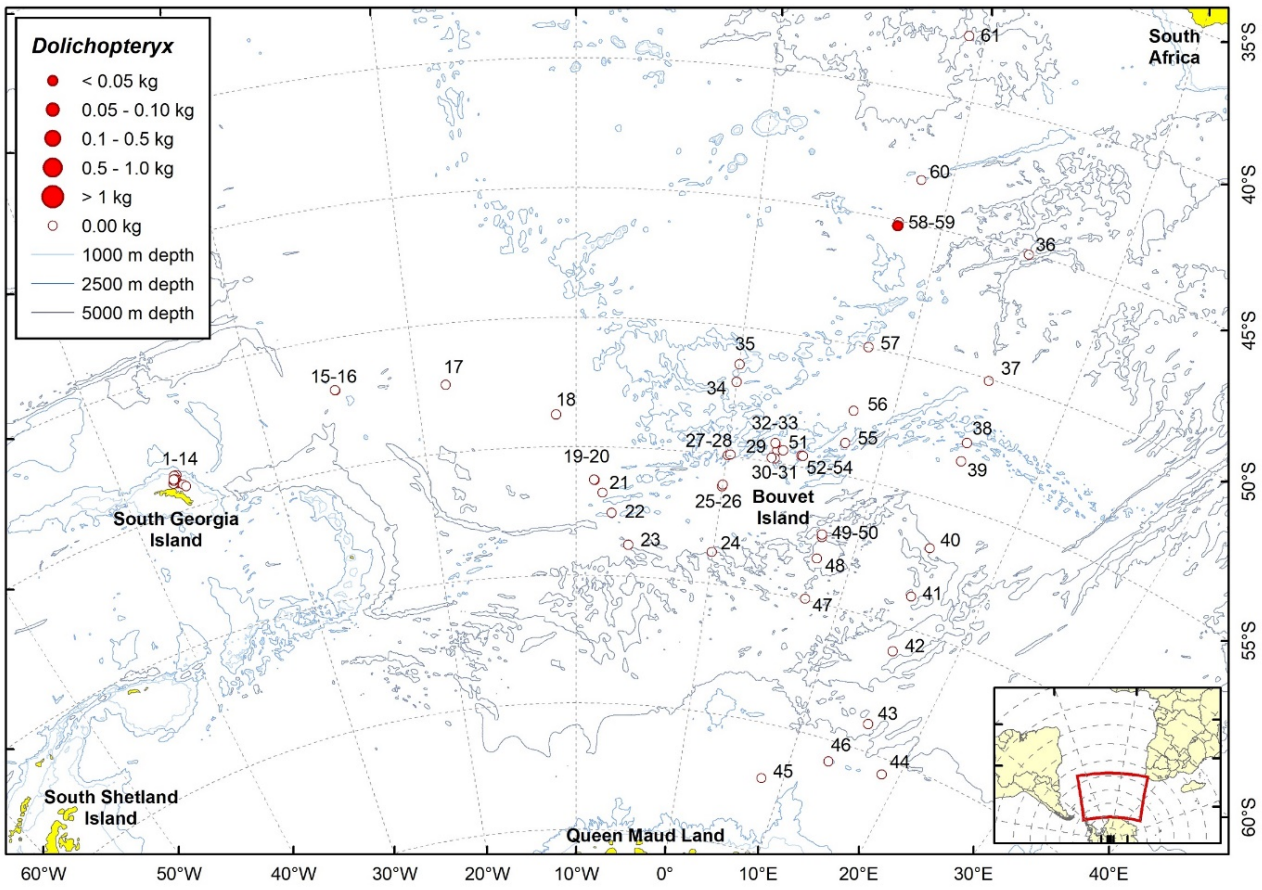

Figure 9b. Trawl stations with presence of Dolichopteryx sp. in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 6. Station information with presence of Dolichopteryx sp.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	1	16,0	10,17	19,92

2.6 - Gonostomatidae

2.6.1 - *Diplophos rebainsi* Krefft & Parin, 1972

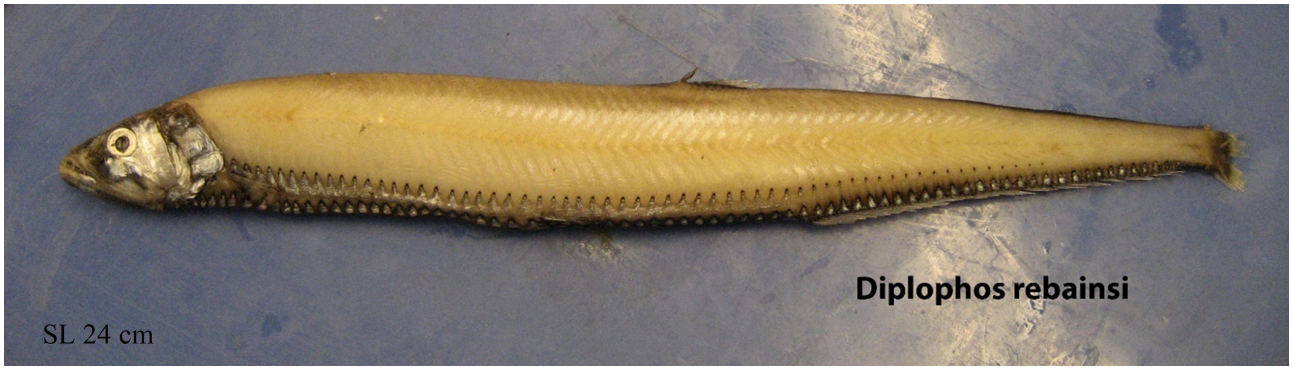

Figure 10a. Exemplary image of Diplophos rebainsi.

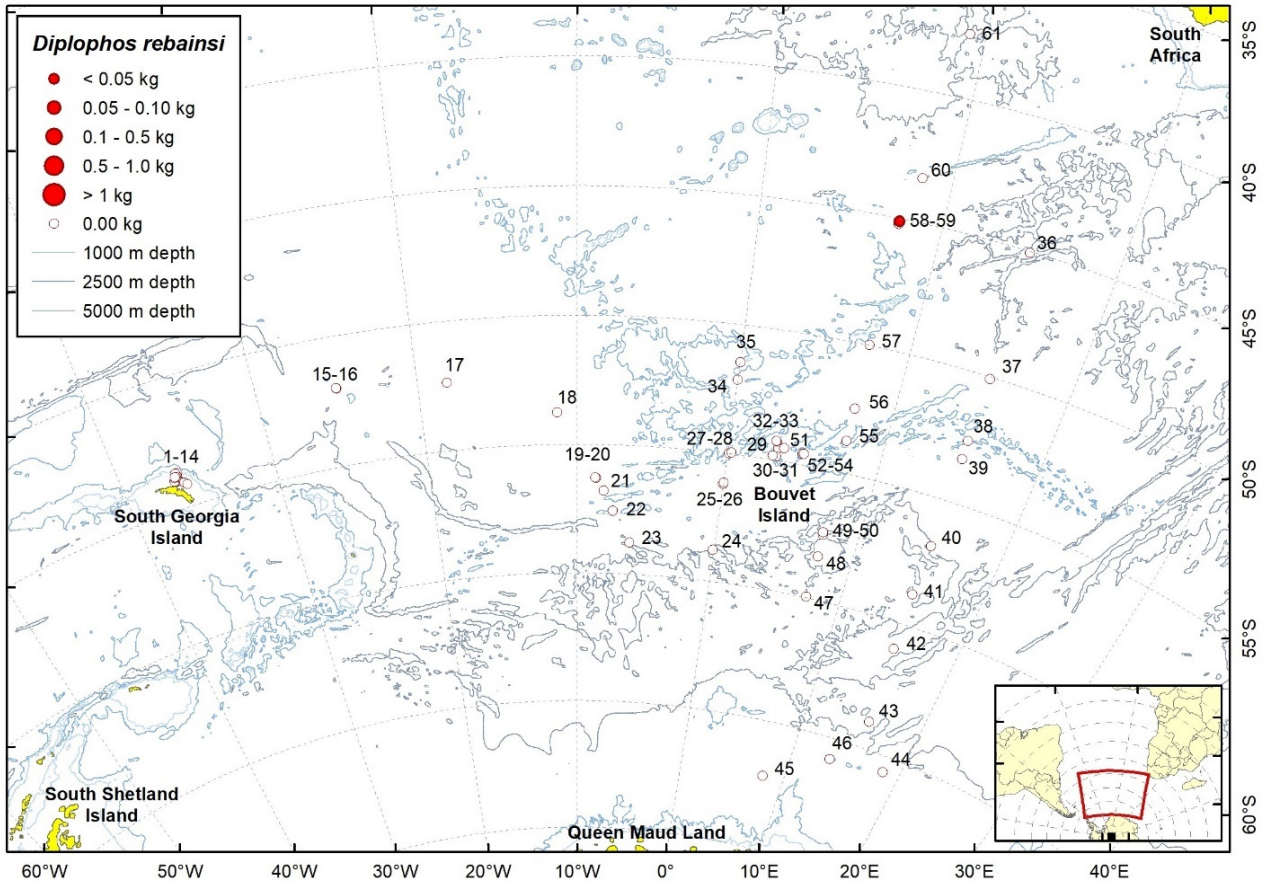

Figure 10b. Trawl stations with presence of Diplophos rebainsi in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 7. Station information with presence of Diplophos rebainsi.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

59	17.03.2008	45,11	S	7,66	E	1	41,0	1,02	5,63

2.7 - Sternoptychidae

2.7.1 - *Argyropelecus hemigymnus* Cocco, 1829

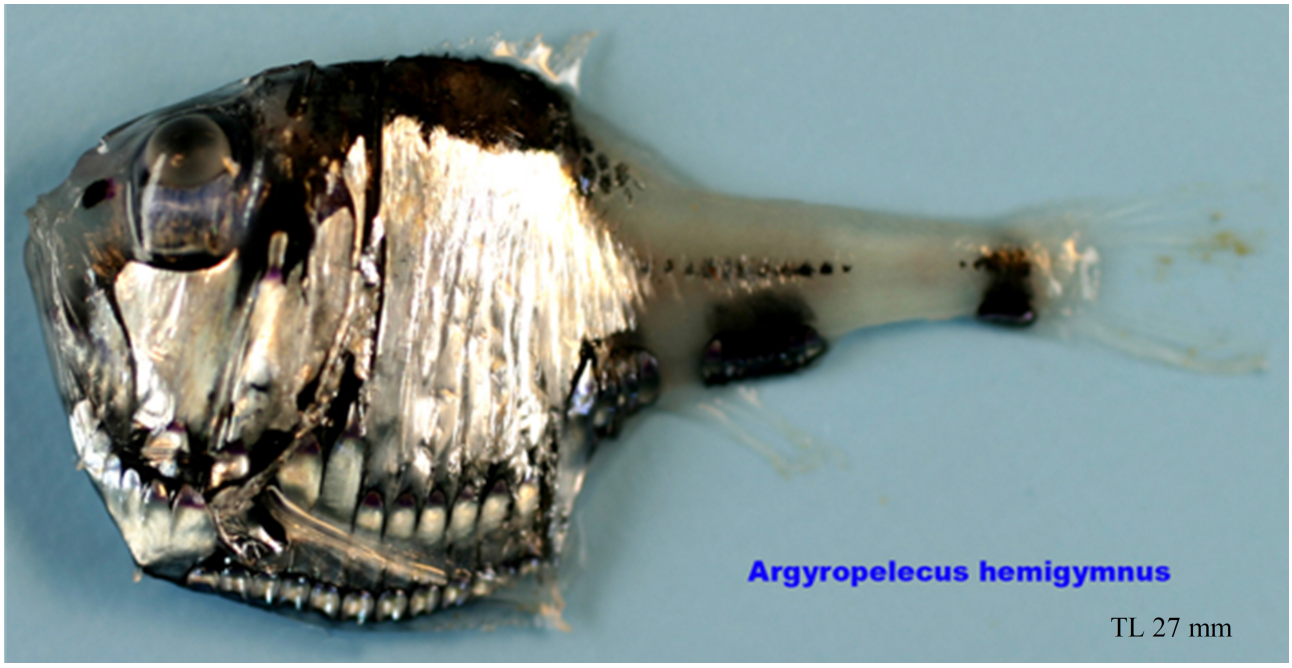

Figure 11a. Exemplary image of Argyropelecus hemigymnus.

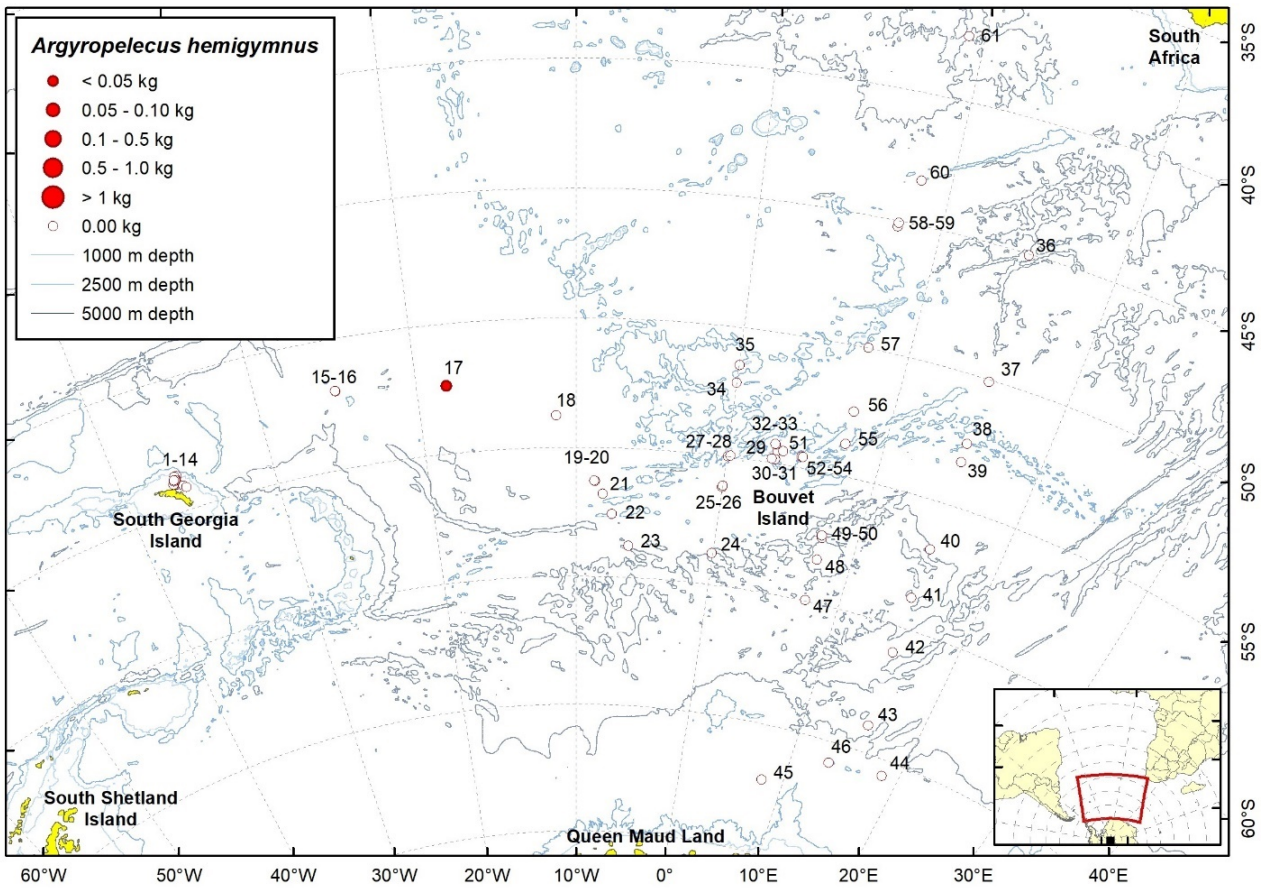

Figure 11b. Trawl stations with presence of Argyropelecus hemigymnus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 8. Station information with presence of Argyropelecus hemigymnus.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
17	26.01.2008	52,38	S	18,13	W	1	0,3	1,20	26,43

2.7.2 - *Maurolicus inventionis* Parin & Kobyliansky, 1993

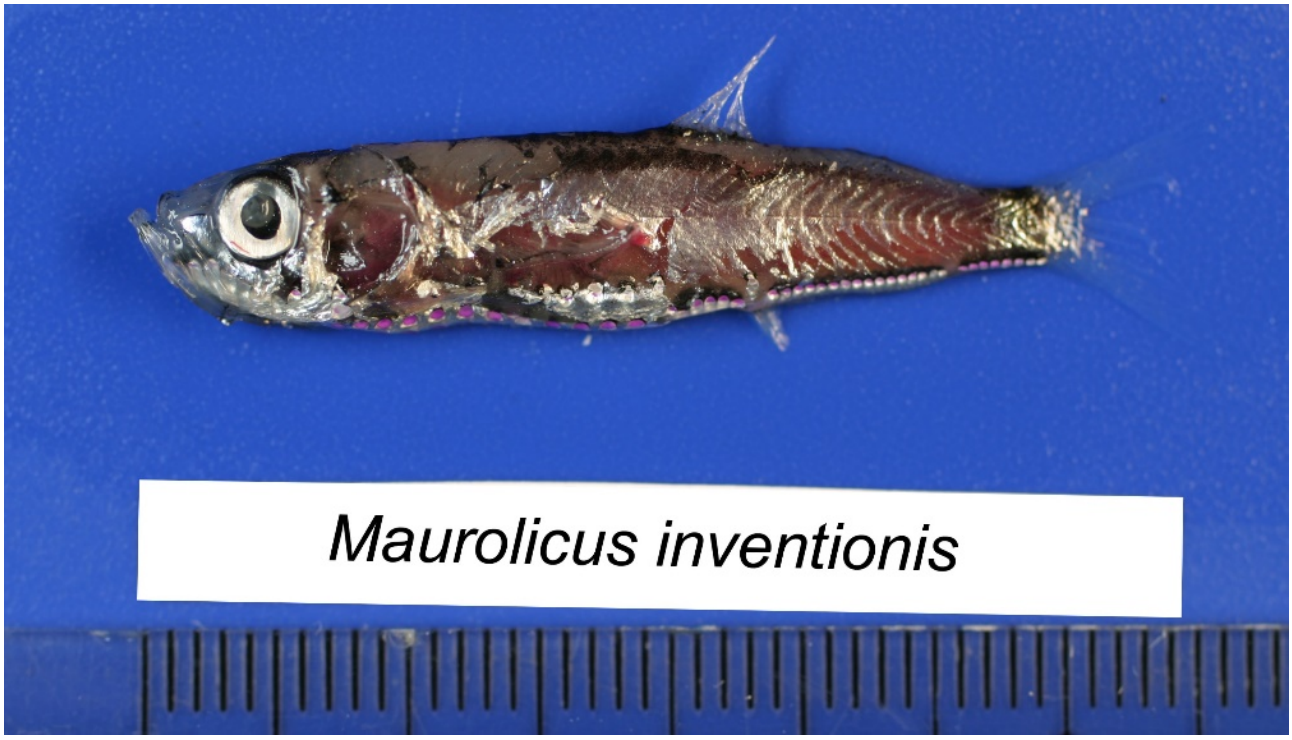

Figure 12a. Exemplary image of Maurolicus inventionis.

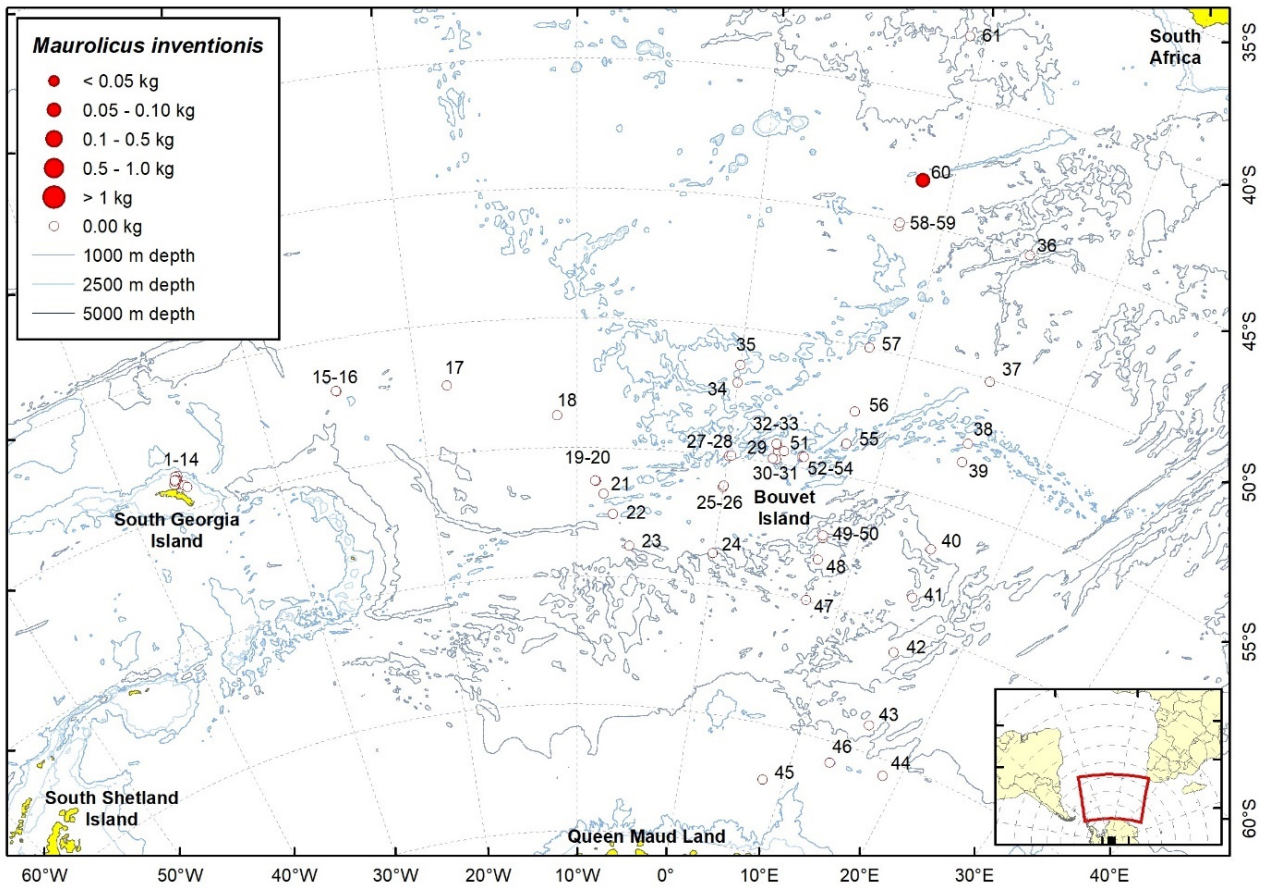

Figure 12b. Trawl stations with presence of Maurolicus inventionis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 9. Station information with presence of Maurolicus inventionis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
60	18.03.2008	43,33	S	8,37	E	361	51,7	110,70	332,36

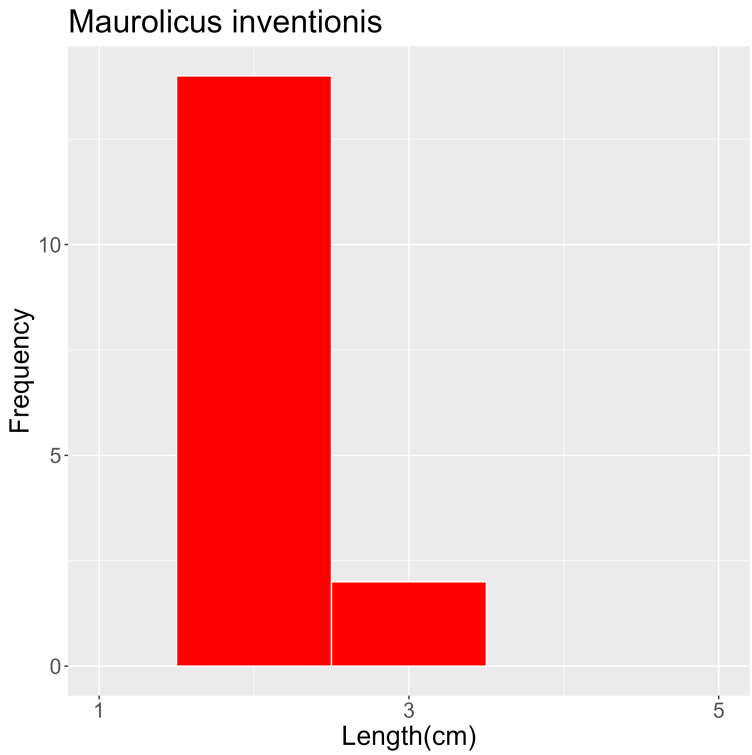

Figure 13. Length frequency of Maurolicus inventionis for all trawl stations combined. Frequency shown as number of individuals.

2.8 - Phosichthyidae

2.8.1 - *Phosichthys argenteus* Hutton, 1872

Figure 14a. Exemplary image of Phosichthys argenteus.

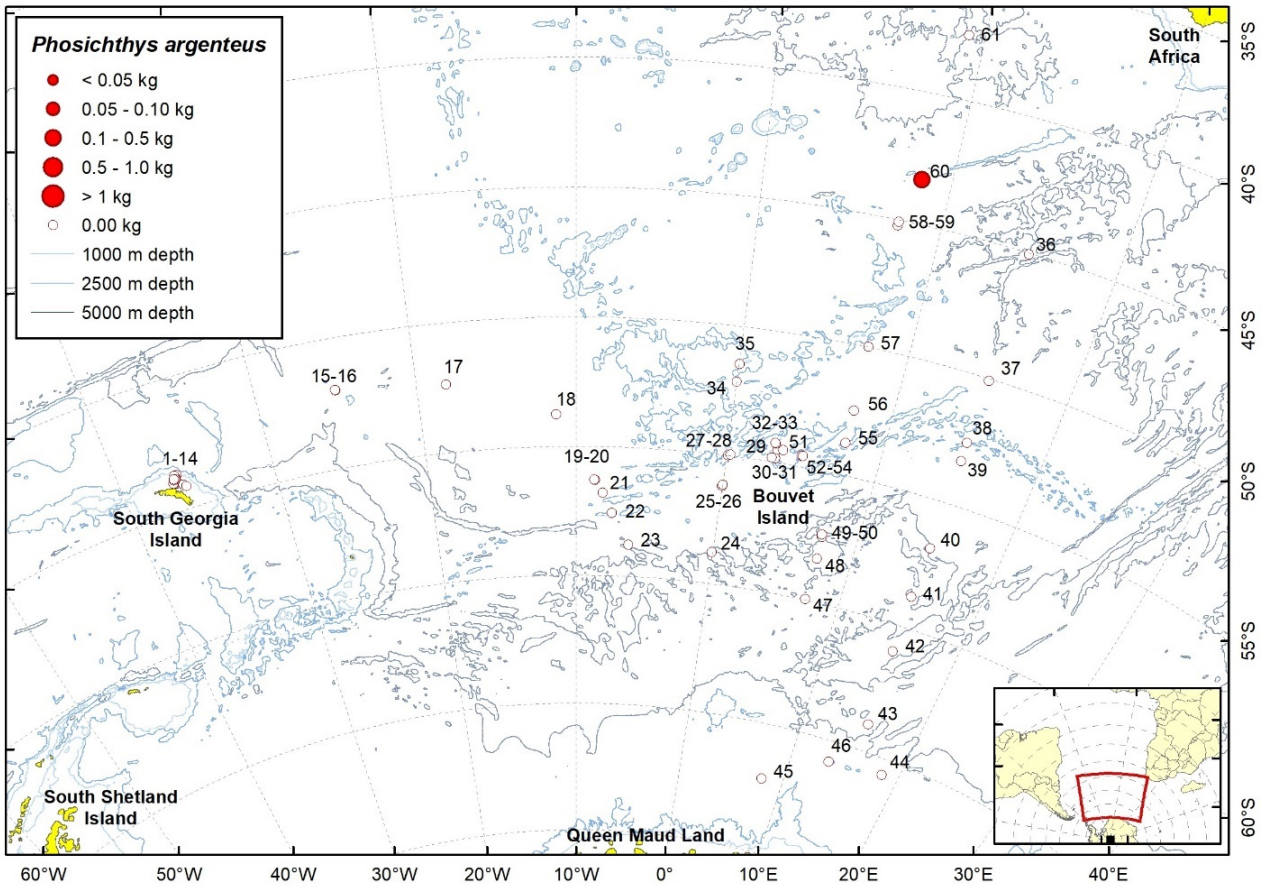

Figure 14b. Trawl stations with presence of Phosichthys argenteus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 10. Station information with presence of Phosichthys argenteus.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
60	18.03.2008	43,33	S	8,37	E	6	220,0	110,70	332,36

2.9 - Stomiidae

2.9.1 - *Astronesthes boulengeri* Gilchrist, 1902

Figure 15a. Exemplary image of Astronesthes boulengeri.

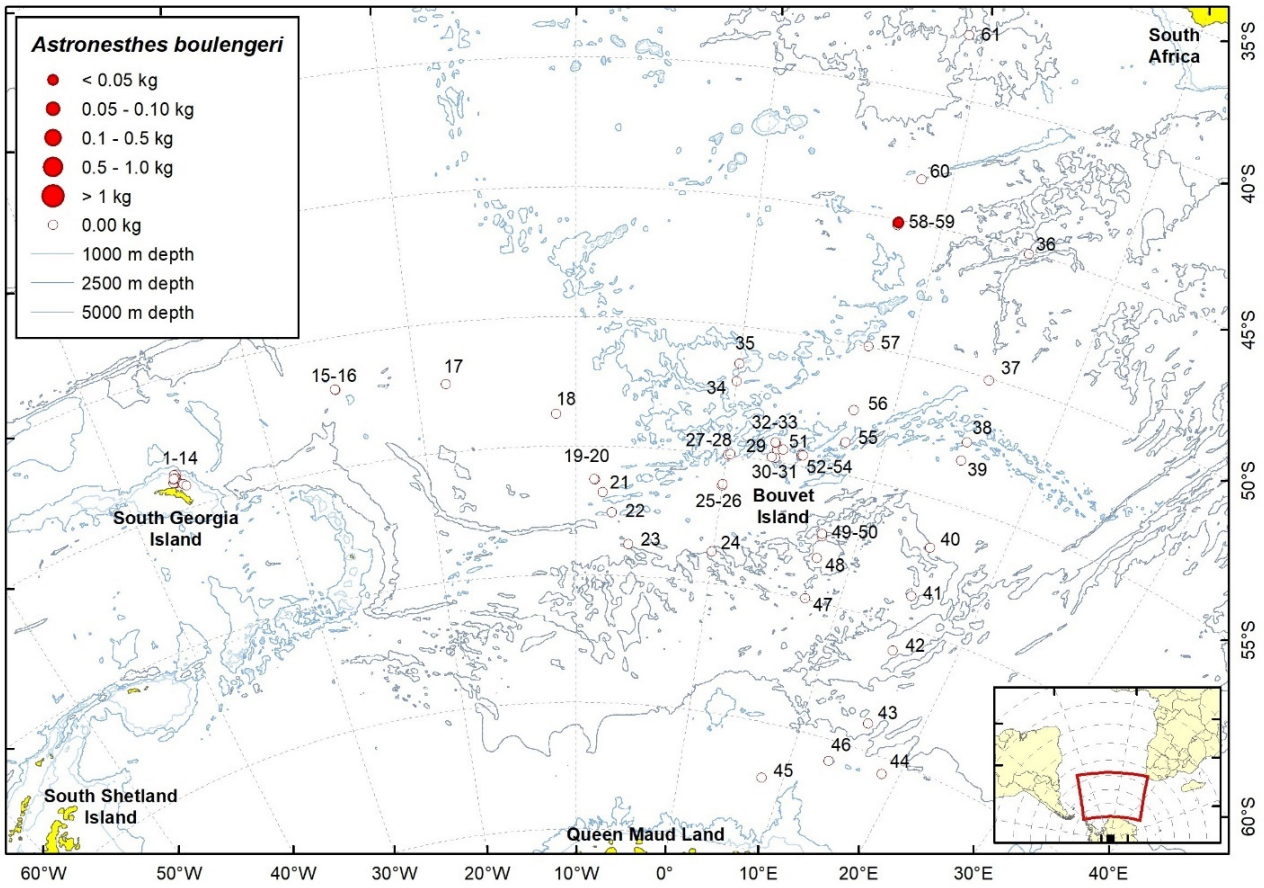

Figure 15b. Trawl stations with presence of Astronesthes boulengeri in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 11. Station information with presence of Astronesthes boulengeri.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
59	17.03.2008	45,11	S	7,66	E	1	21,0	1,02	5,63

2.9.2 - *Borostomias antarcticus* (Lönnberg, 1905)

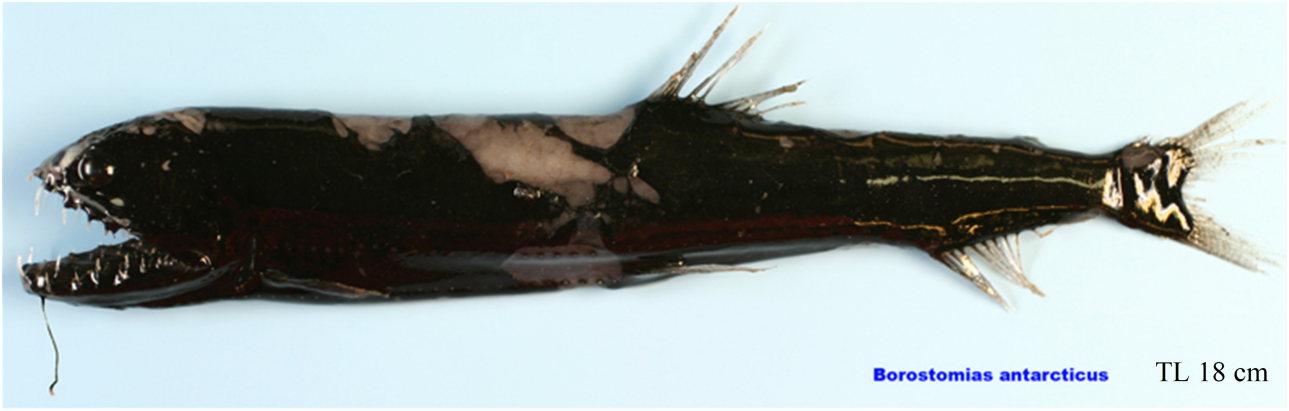

Figure 16a. Exemplary image of Borostomias antarcticus.

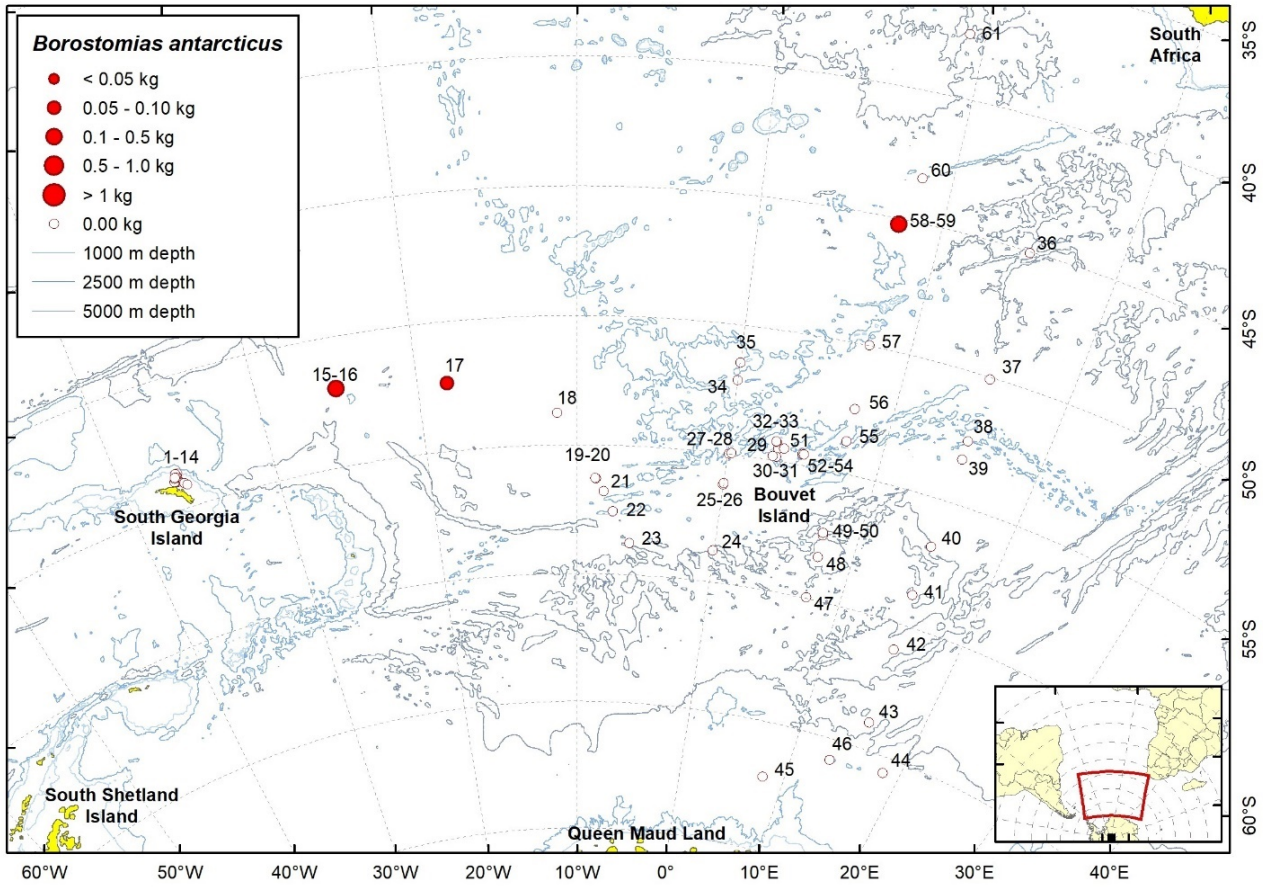

Figure 16b. Trawl stations with the presence of Borostomias antarcticus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 12. Station information with presence of Borostomias antarcticus.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

16	24.01.2008	51,99	S	25,00	W	5	151,0	3,23	45,05
17	26.01.2008	52,33	S	18,16	W	3	94,3	1,20	26,43
58	17.03.2008	45,20	S	7,65	E	2	173,0	10,17	19,92

2.9.3 - *Idiacanthus atlanticus* Brauer, 1906

Figure 17a. Exemplary image of Idiacanthus atlanticus.

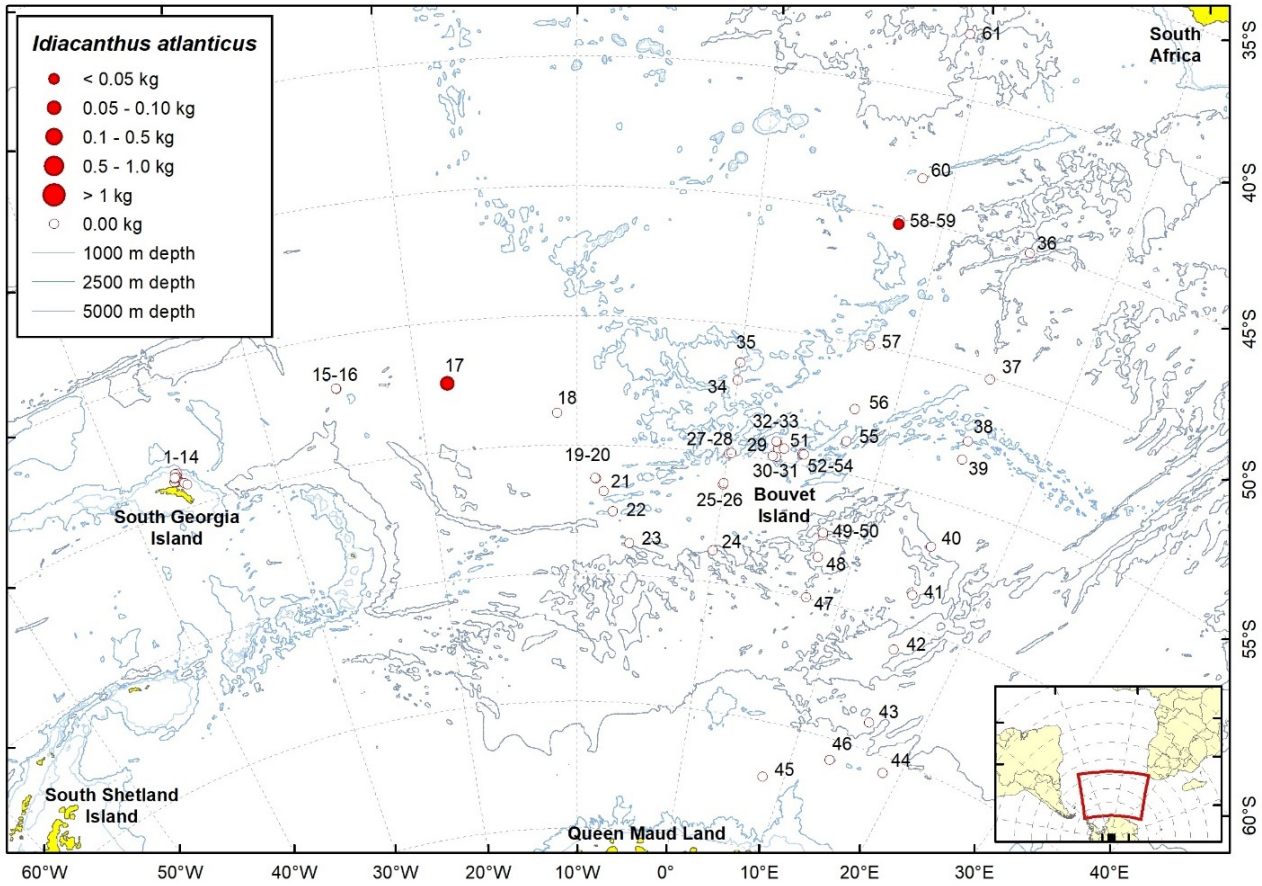

Figure 17b. Trawl stations with presence of Idiacanthus atlanticus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 13. Station information with presence of Idiacanthus atlanticus.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

17	26.01.2008	52,38	S	18,13	W	2	56,9	1,20	26,43
58	17.03.2008	45,20	S	7,65	E	1	44,0	10,17	19,92

2.9.4 - *Stomias boa* (Risso, 1810)

Figure 18a. Exemplary image of Stomias boa.

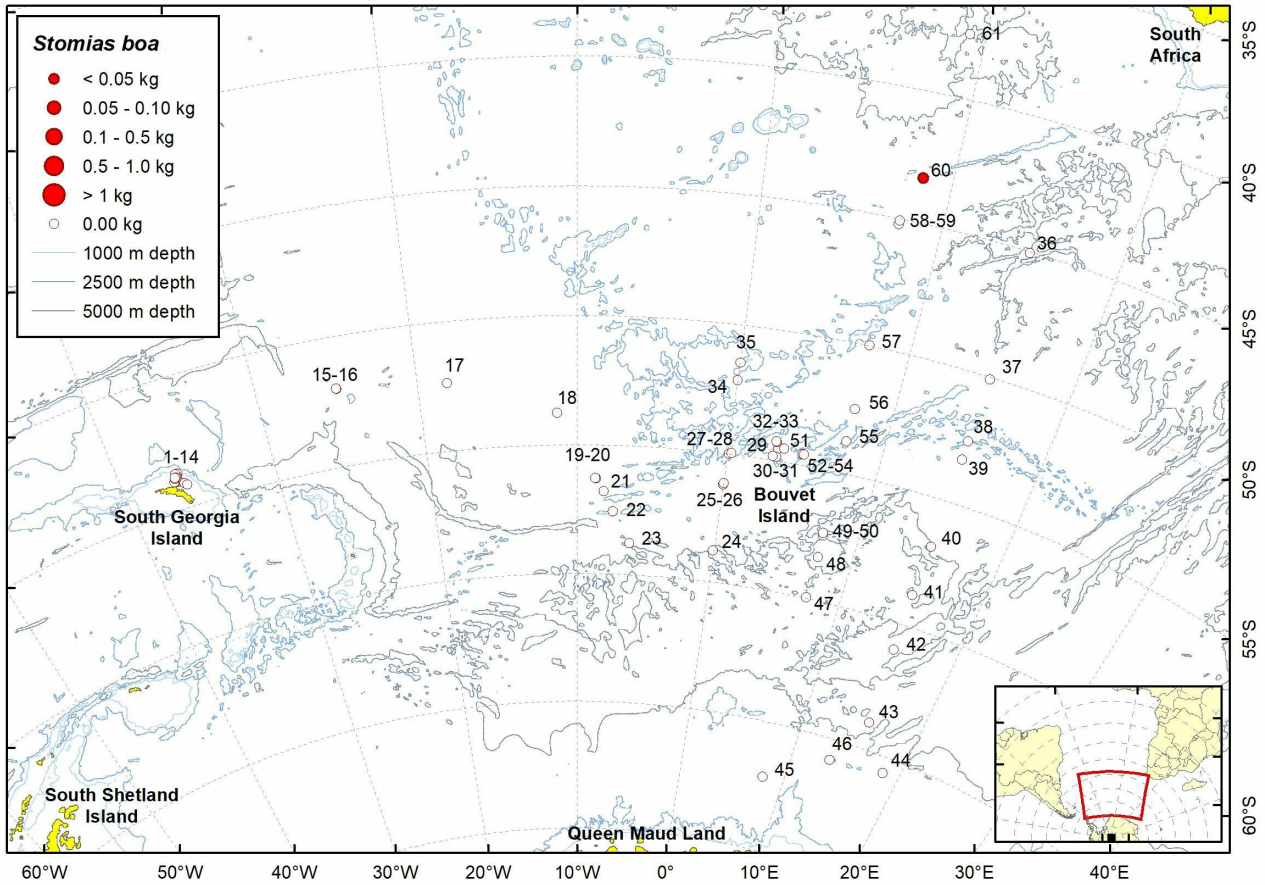

Figure 18b. Trawl stations with presence of Stomias boa in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 14. Station information with presence of Stomias boa.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
60	18.03.2008	43,29	S	8,40	E	2	3,0	110,70	332,36

2.9.5 - *Stomias gracilis* Garman, 1899

Figure 19a. Exemplary image of Stomias gracilis.

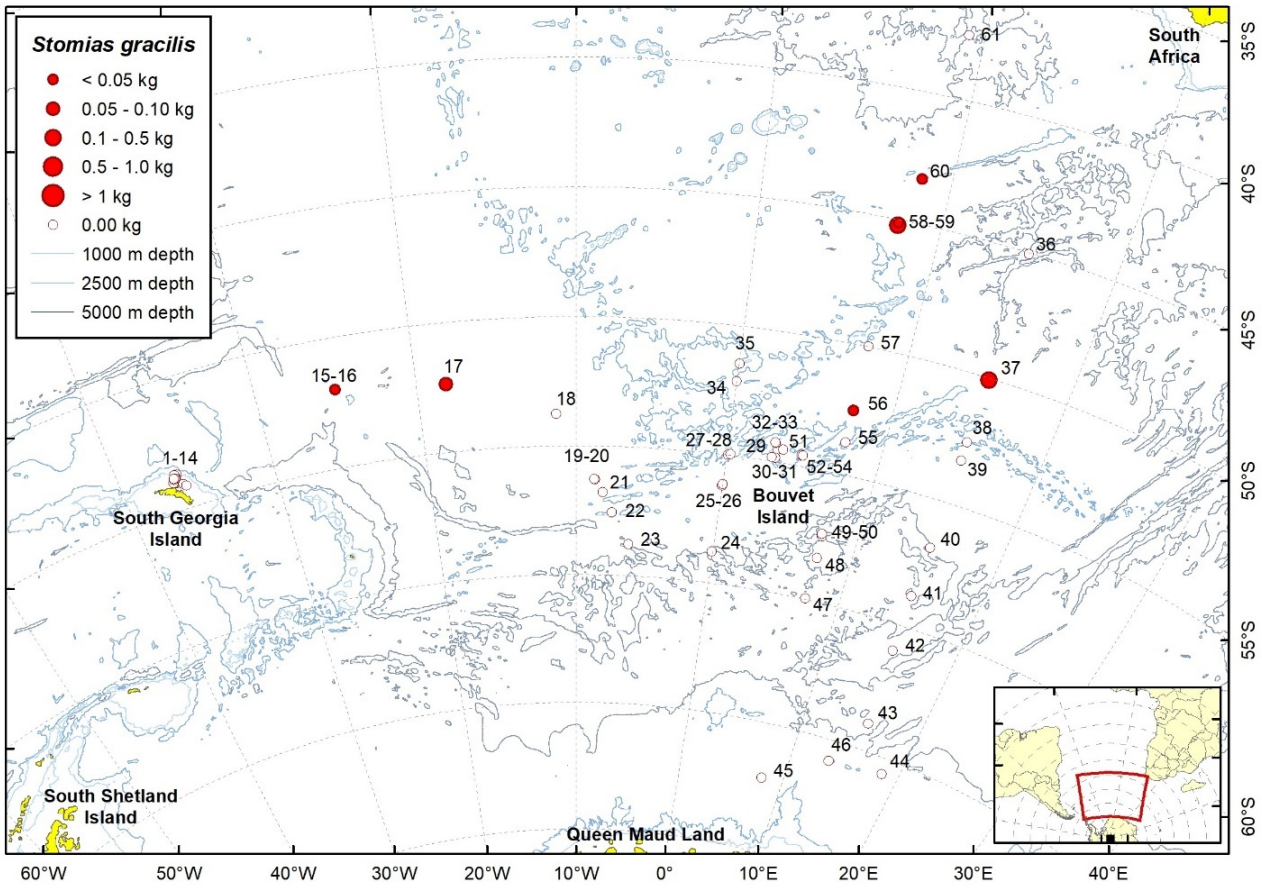

Figure 19b. Trawl stations with presence of Stomias gracilis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 15. Station information with presence of Stomias gracilis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	24.01.2008	51,98	S	25,04	W	1	16,0	3,23	45,05
17	26.01.2008	52,33	S	18,16	W	4	83,8	1,20	26,43

37	24.02.2008	50,04	S	15,02	E	12	242,0	3,32	14,43
56	14.03.2008	52,51	S	7,53	E	1	41,0	0,44	188,87
58	17.03.2008	45,20	S	7,65	E	8	174,0	10,17	19,92
59	17.03.2008	45,11	S	7,66	E	1	29,0	1,02	5,63
60	18.03.2008	43,29	S	8,40	E	1	1,6	110,70	332,36

2.10 - Scopelarchidae

2.10.1 - *Benthalbella elongata* (Norman, 1937)

Figure 20a. Exemplary image of Benthalbella elongata.

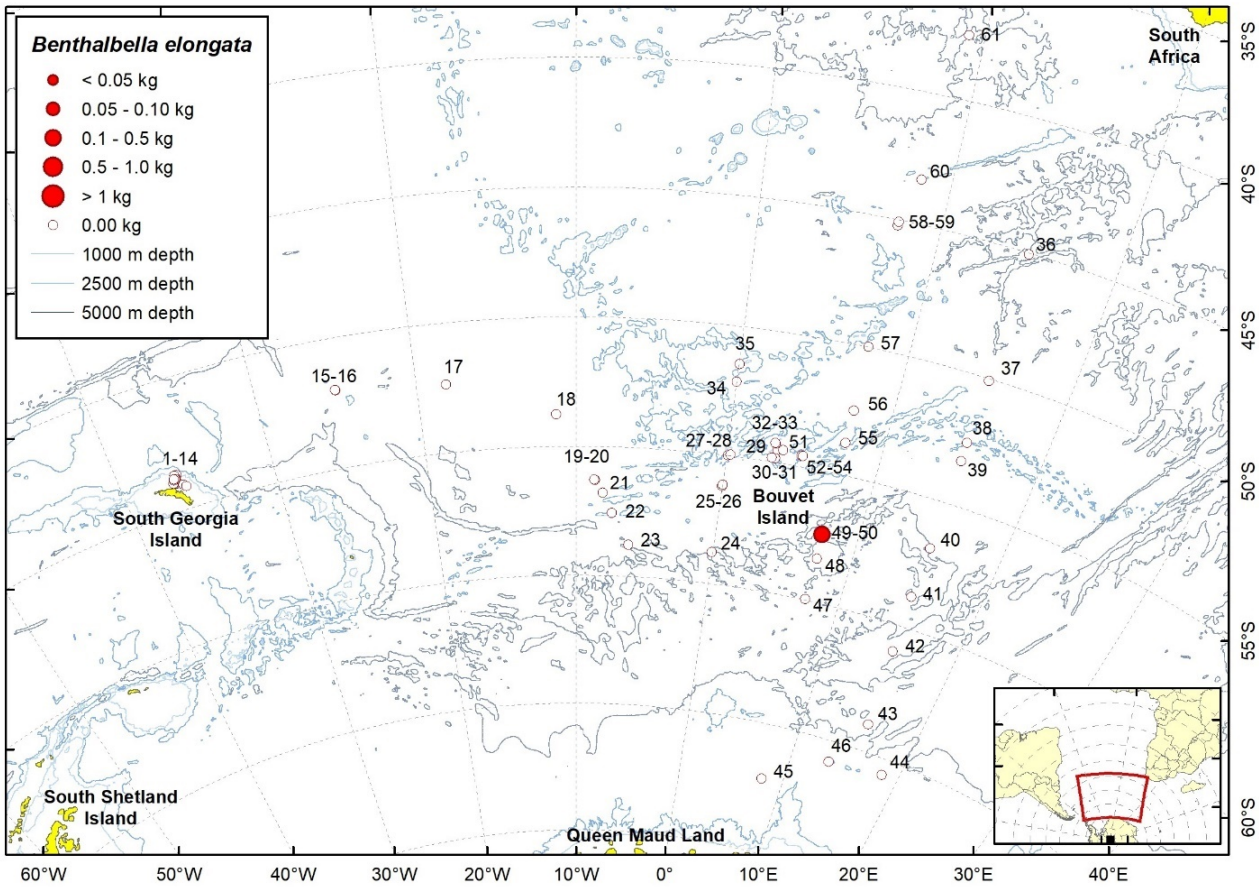

Figure 20b. Trawl stations with presence of Benthalbella elongata in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 16. Station information with presence of Benthalbella elongata.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
50	08.03.2008	57,39	S	7,44	E	1	103,0	26,34	31,75

2.10.2 - *Lagiacrusichthys macropinna* (Bussing & Bussing, 1966)

Figure 21a. Exemplary image of Lagiacrusichthys macropinna.

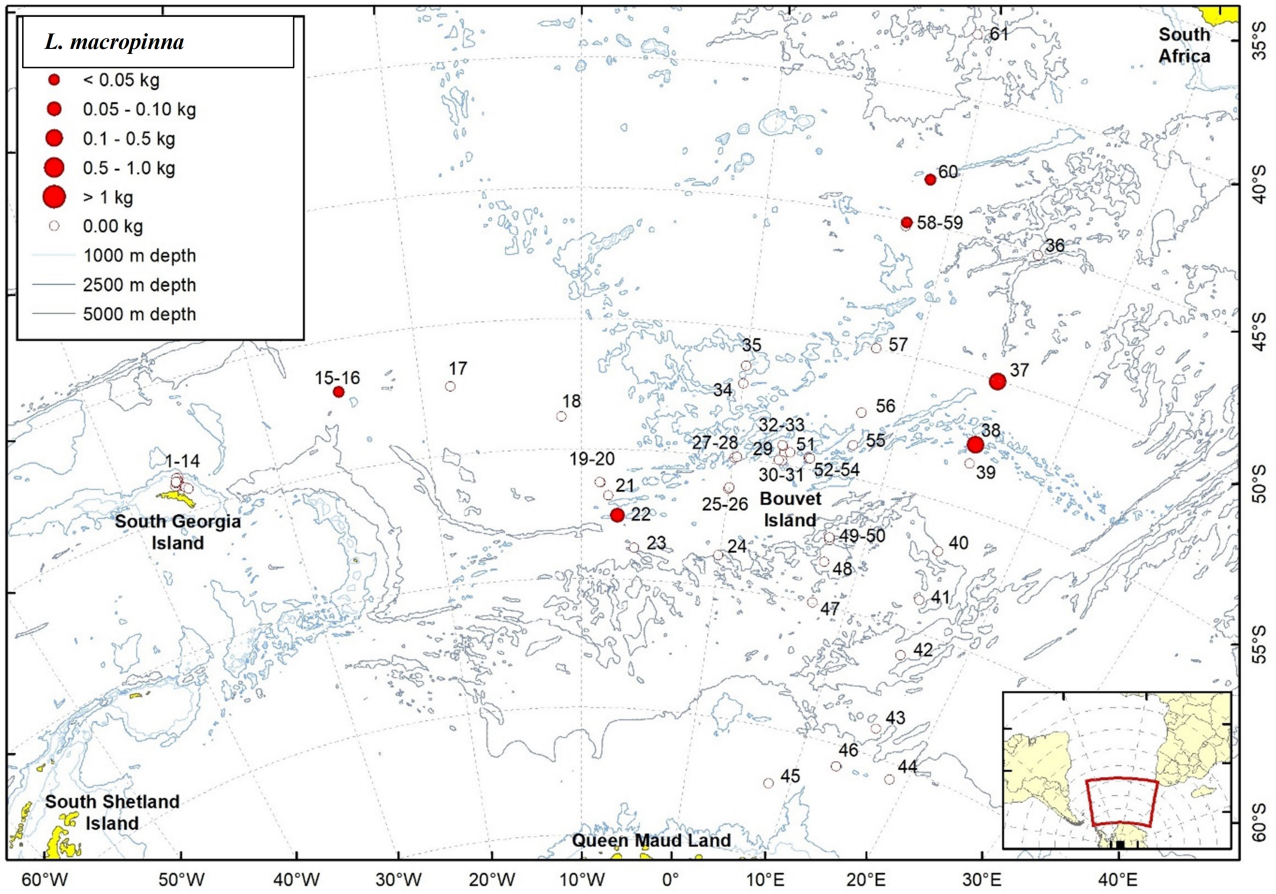

Figure 21b. Trawl stations with presence of Lagiacrusichthys macropinna in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 17. Station information with presence of Lagiacrusichthys macropinna.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	24.01.2008	51,99	S	25,00	W	1	41,1	3,23	45,05
22	30.01.2008	57,53	S	7,49	W	1	73,6	0,67	20,43
37	24.02.2008	50,04	S	15,02	E	2	138,0	3,32	14,43
38	25.02.2008	52,55	S	14,99	E	3	180,0	3,66	49,50
59	17.03.2008	45,11	S	7,66	E	21	34,4	1,02	5,63
60	18.03.2008	43,29	S	8,40	E	1	2,0	110,70	332,36

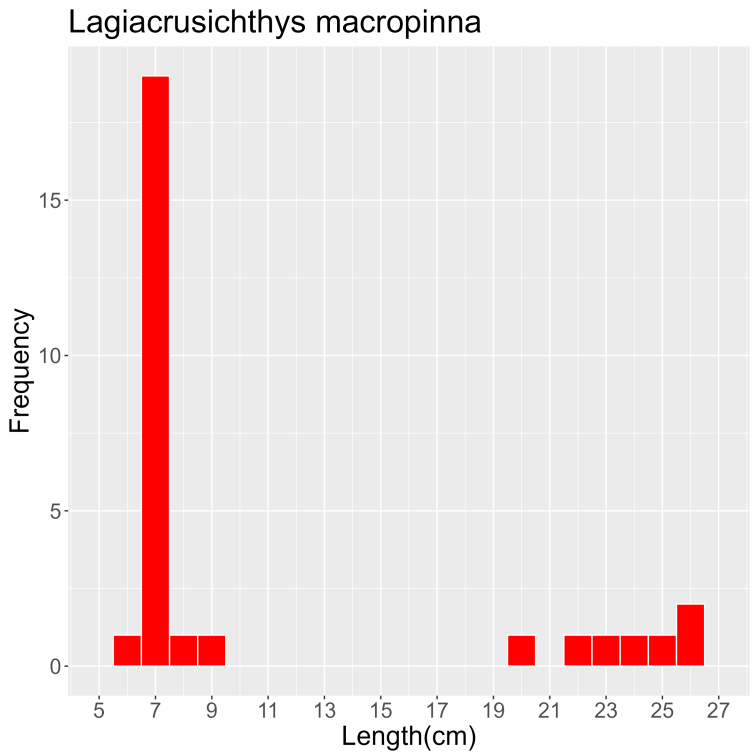

Figure 22. Length frequency of Lagiacrusichthys macropinna for all trawl stations combined. Frequency shown as number of individuals.

2.11 - Paralepididae

2.11.1 - *Magnisudis prionosa* (Rofen, 1963)

Figure 23a. Exemplary image of Magnisudis prionosa.

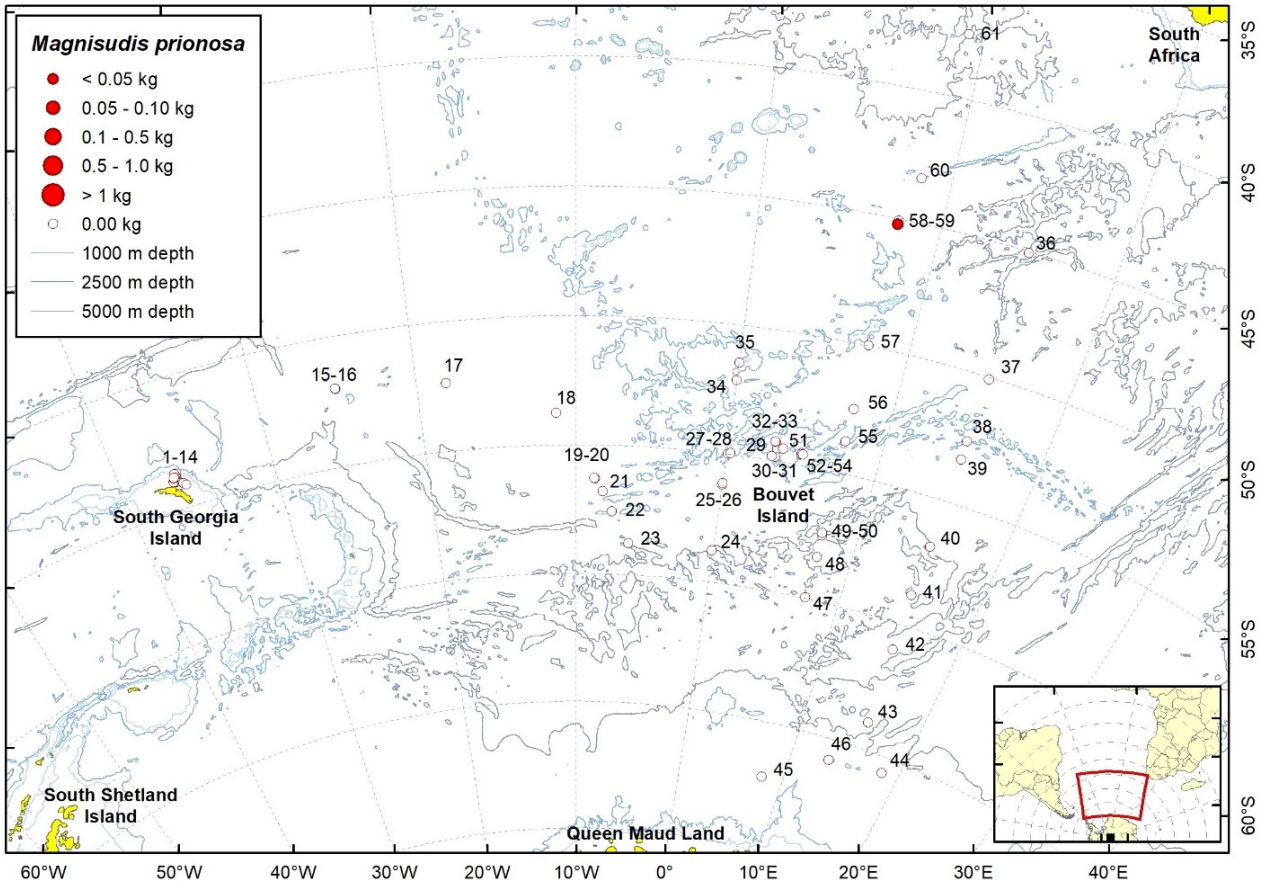

Figure 23b. Trawl stations with presence of Magnisudis prionosa in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 18. Station information with presence of Magnisudis prionosa.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	1	18,0	10,17	19,92

2.11.2 - *Notolepis annulata* Post, 1978

Figure 24a. Exemplary image of Notolepis annulata.

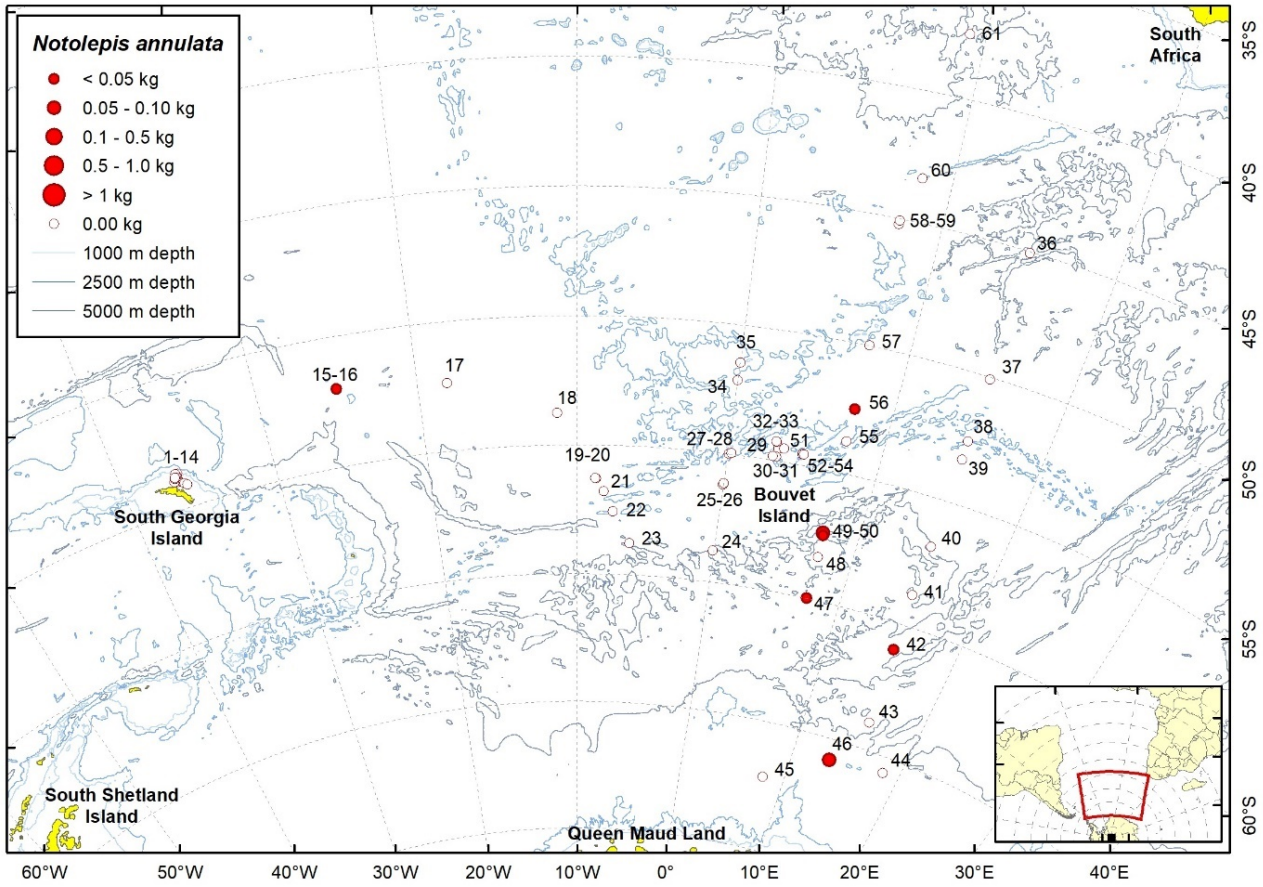

Figure 24b. Trawl stations with presence of Notolepis annulata in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 19. Station information with presence of Notolepis annulata.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
15	24.01.2008	52,00	S	25,01	W	1	13,0	1,28	28,00
42	28.02.2008	60,98	S	15,13	E	23	42,5	0,59	50,67
46	05.03.2008	65,80	S	13,38	E	94	72,2	1,59	32,17

47	07.03.2008	59,98	S	7,47	E	1	8,0	1,58	44,63
49	08.03.2008	57,49	S	7,49	E	1	3,0	0,00	46,36
50	08.03.2008	57,39	S	7,44	E	11	96,0	26,34	31,75
56	14.03.2008	52,45	S	7,56	E	9	4,6	0,44	188,87

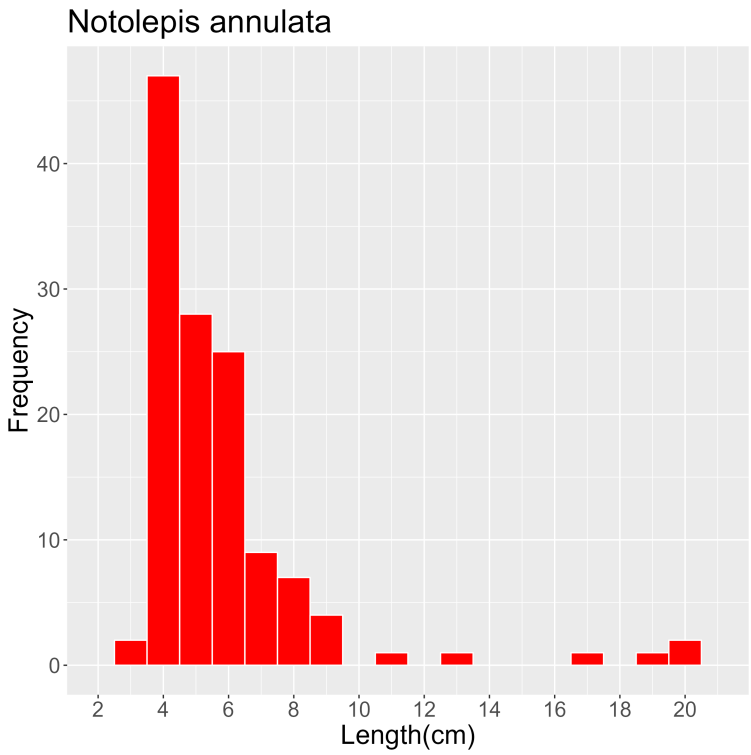

Figure 25. Length frequency of Notolepis annulata for all trawl stations combined. Frequency shown as number of individuals

2.11.3 - *Notolepis coatsorum* Dollo, 1908

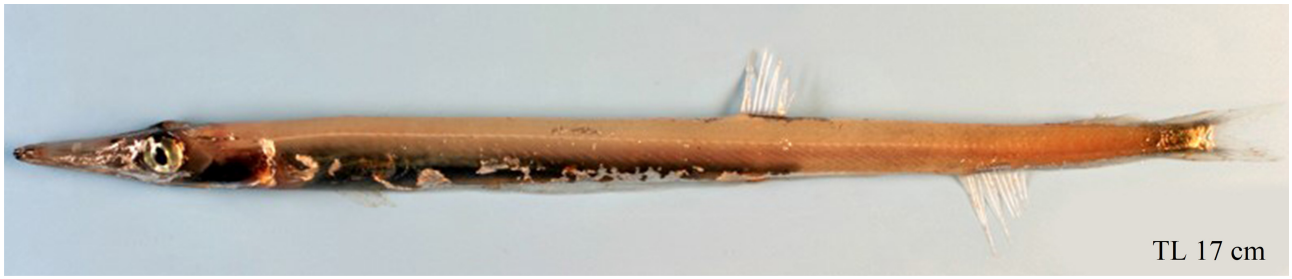

Figure 26a. Exemplary image of Notolepis coatsorum.

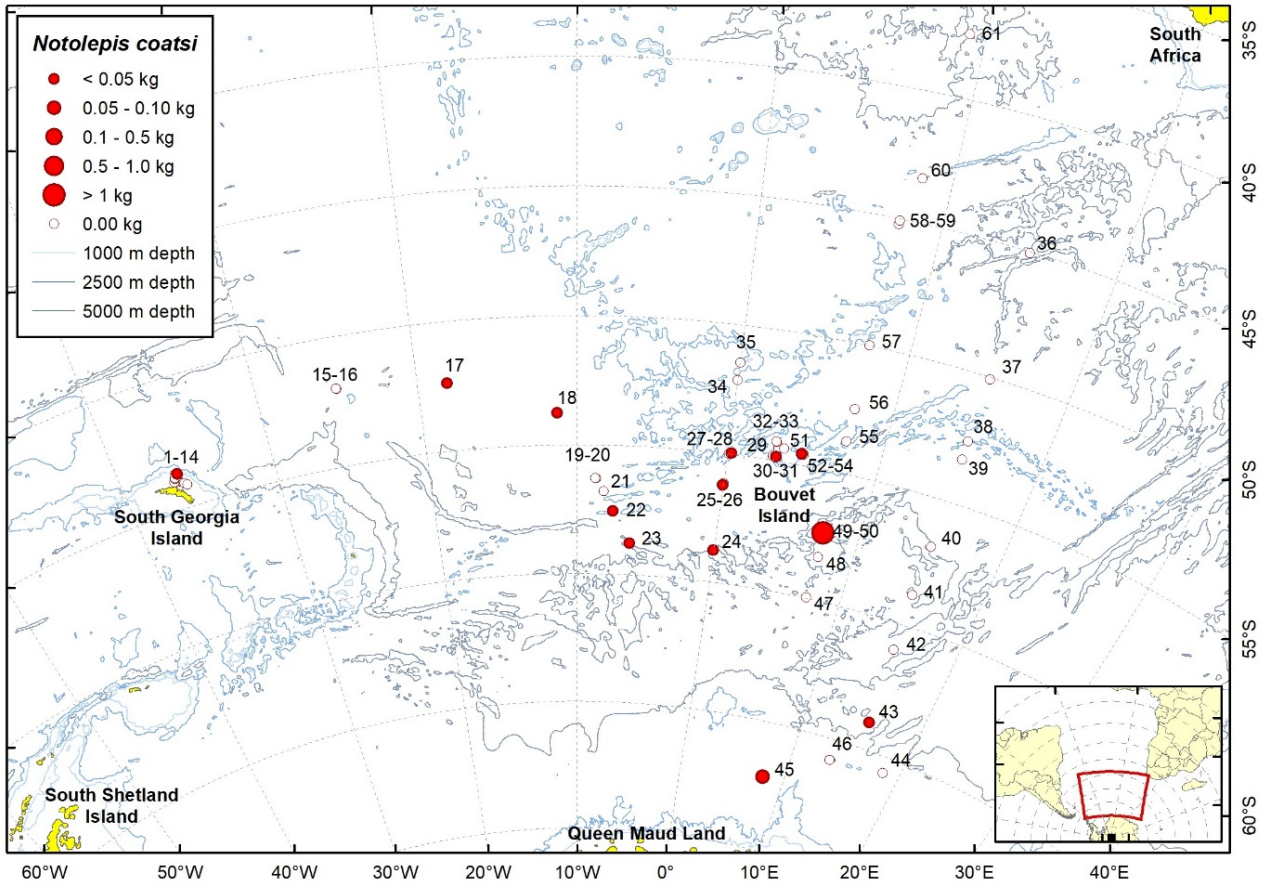

Figure 26b. Trawl stations with presence of Notolepis coatsorum in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 19. Station information with presence of Notolepis coatsorum.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
4	20.01.2008	53,64	S	36,27	W	2	1,5	0,42	4,32
17	26.01.2008	52,33	S	18,16	W	15	4,3	1,20	26,43
18	27.01.2008	53,75	S	11,29	W	10	1,0	3,07	24,11

22	30.01.2008	57,53	S	7,49	W	1	1,2	0,67	20,43
23	30.01.2008	58,76	S	6,22	W	19	34,0	4,14	13,02
24	31.01.2008	58,76	S	0,04	W	7	10,0	1,49	29,02
25	01.02.2008	56,21	S	0,05	W	3	6,0	0,18	44,71
28	02.02.2008	54,94	S	0,25	E	10	4,5	0,47	89,03
30	03.02.2008	54,84	S	3,19	E	15	5,9	1,44	273,78
43	28.02.2008	63,96	S	15,52	E	3	15,0	0,11	184,07
45	02.03.2008	67,12	S	7,95	E	7	68,0	0,07	3,91
50	08.03.2008	57,39	S	7,44	E	44	1844,0	26,34	31,75
53	12.03.2008	54,57	S	4,83	E	1	0,1	0,07	4,33

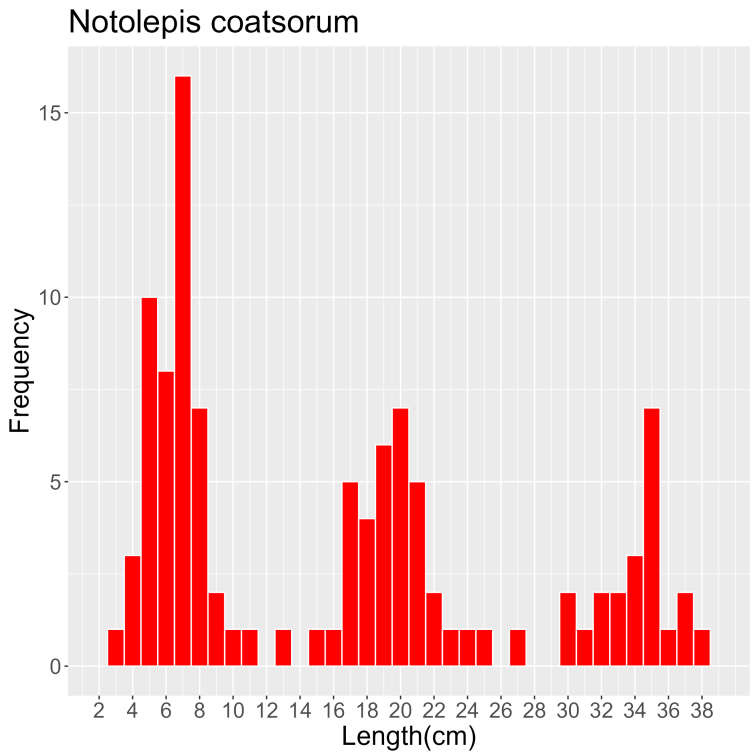

Figure 27. Length frequency of Notolepis coatsorum for all trawl stations combined. Frequency shown as number of individuals.

2.12 - Anotopteridae

2.12.1 - *Anotopterus vorax* (Regan, 1913)

Figure 28a. Exemplary image of Anotopterus vorax.

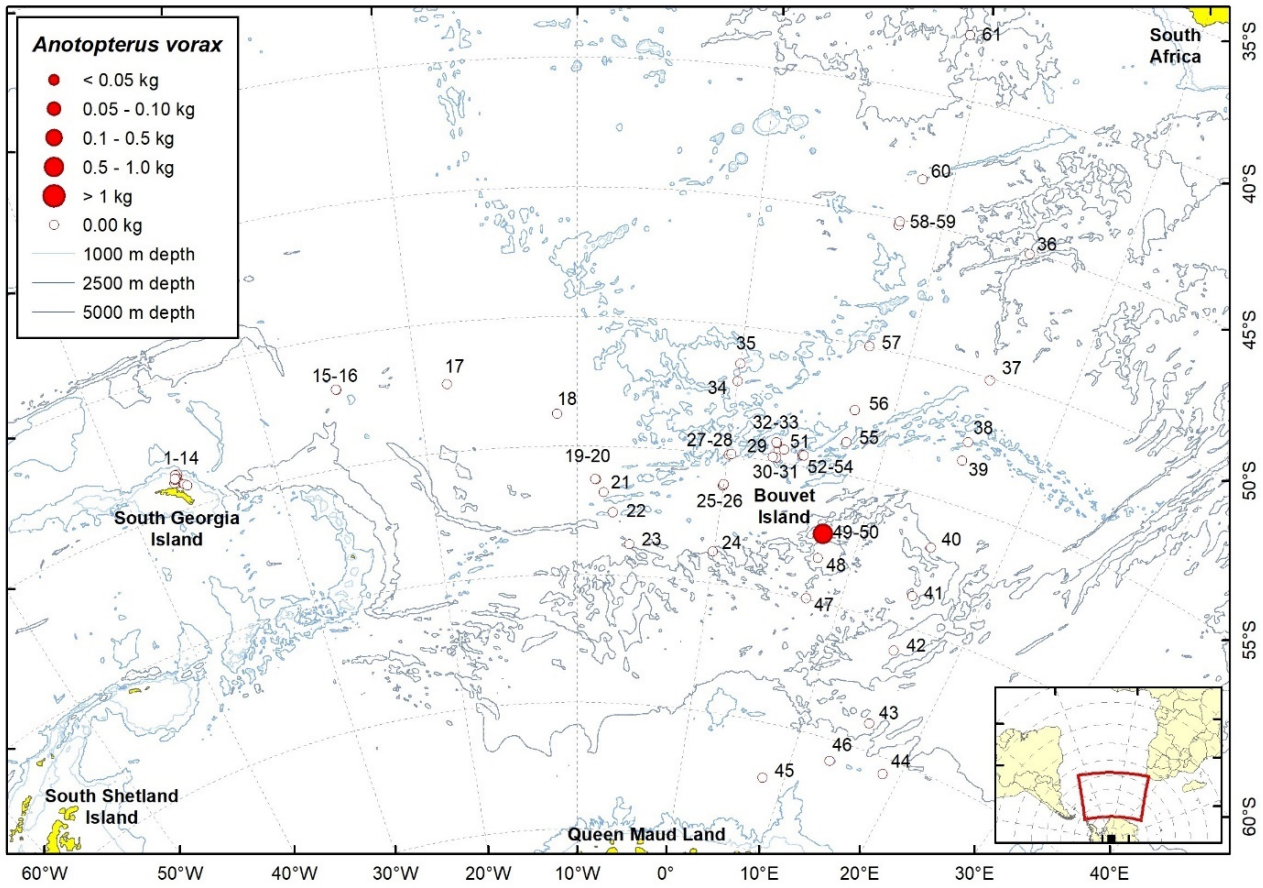

Figure 28b. Trawl stations with presence of Anotopterus vorax in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 20. Station information with presence of Anotopterus vorax.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
50	08.03.2008	57,39	S	7,44	E	3	647,0	26,34	31,75

2.13 - Myctophidae

2.13.1 - *Diaphus hudsoni* Zurbrigg & Scott, 1976

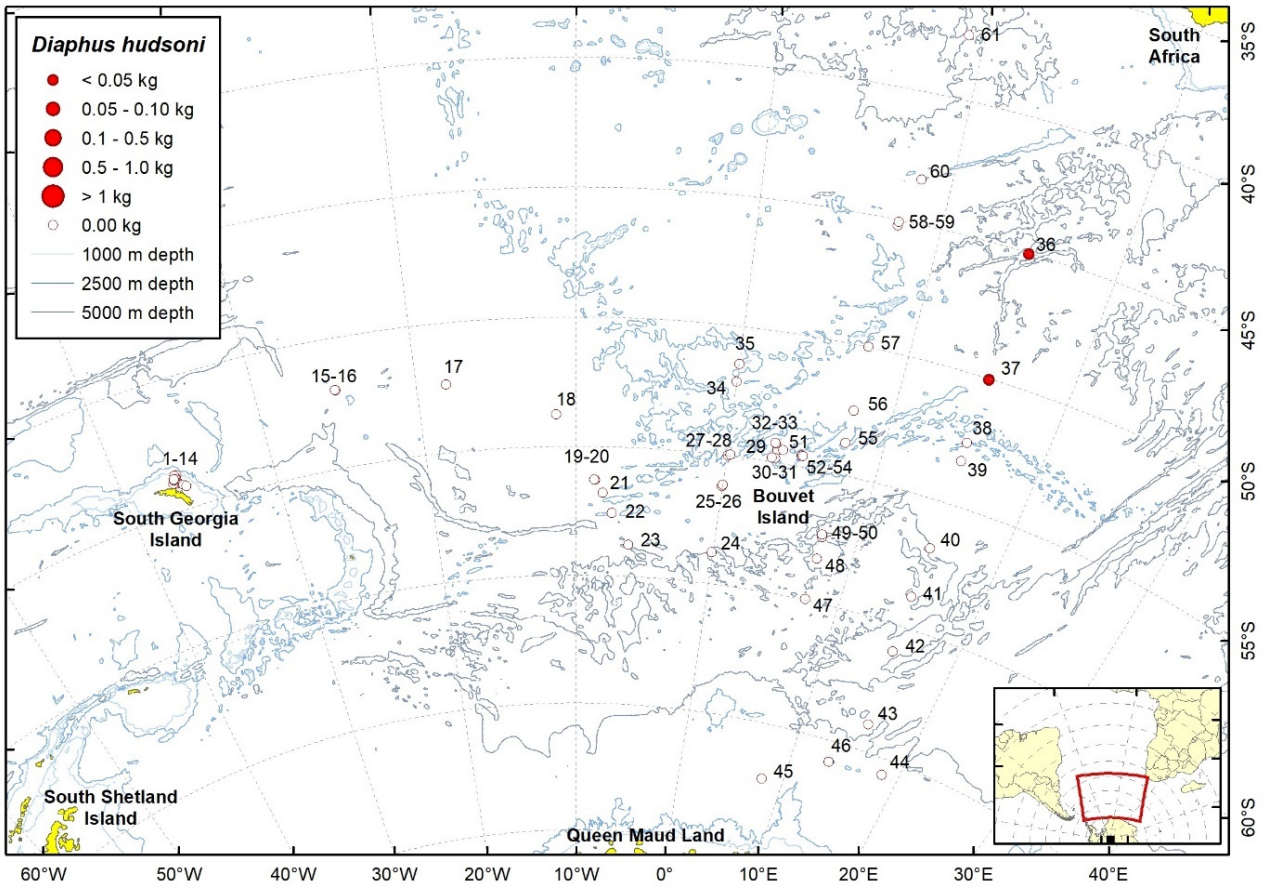

Figure 29. Trawl stations with presence of Diaphus hudsoni in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 21. Station information with presence of Diaphus hudsoni.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
36	22.02.2008	45,04	S	15,00	E	1	7,8	1,60	4,28
37	24.02.2008	50,04	S	15,02	E	1	2,0	3,32	14,43

2.13.2 - *Electrona antarctica* (Günther, 1878)

Figure 30a. Exemplary image of Electrona antarctica.

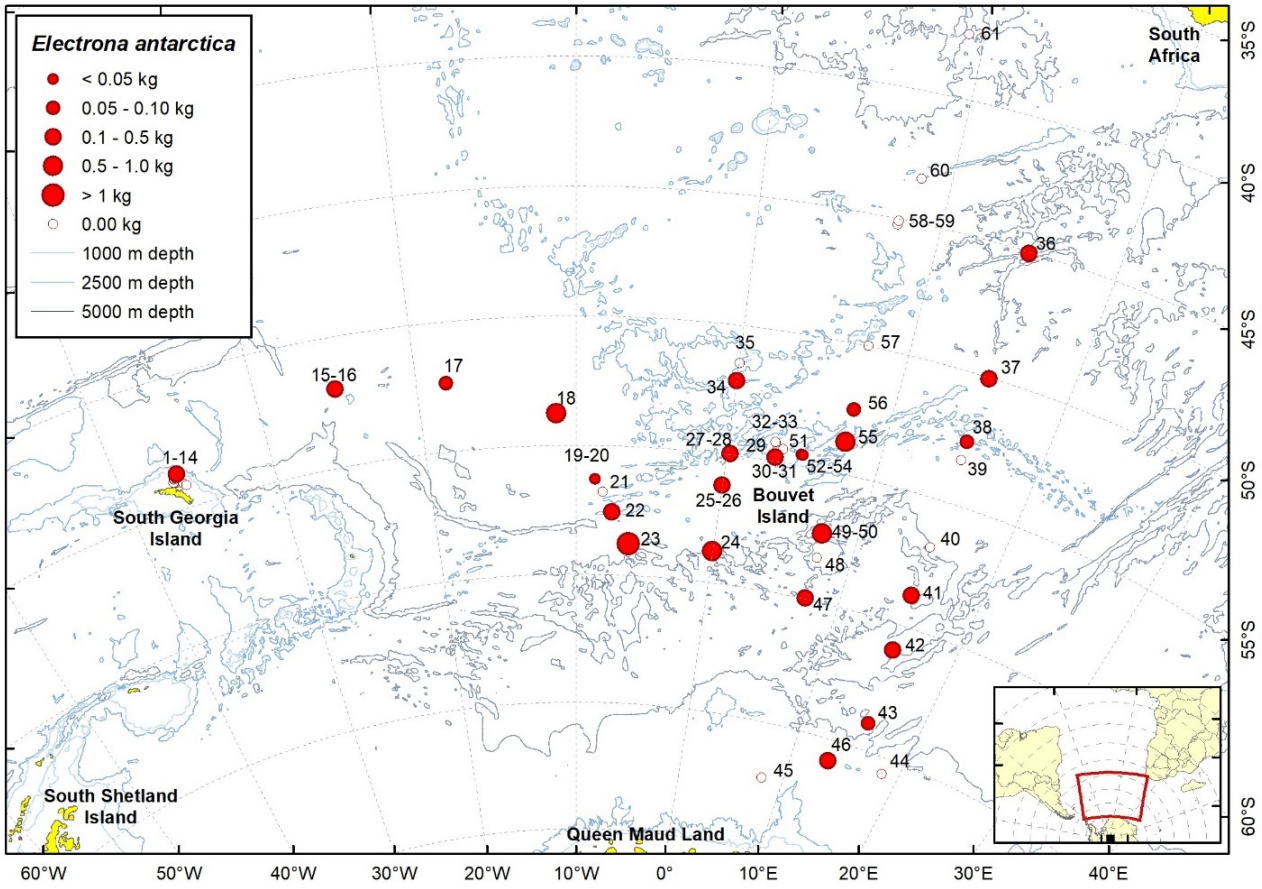

Figure 30b. Trawl stations with presence of Electrona antarctica in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 22. Station information with presence of Electrona antarctica.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
4	20.01.2008	53,64	S	36,27	W	97	251,7	0,42	4,32
16	24.01.2008	51,99	S	25,00	W	68	111,6	3,23	45,05
17	26.01.2008	52,33	S	18,16	W	19	69,4	1,20	26,43
18	27.01.2008	53,75	S	11,29	W	484	884,4	3,07	24,11
19	29.01.2008	56,28	S	8,71	W	4	11,8	0,16	49,45
22	30.01.2008	57,53	S	7,49	W	87	266,1	0,67	20,43
22	30.01.2008	57,53	S	7,49	W	24	88,5	0,67	20,43
23	30.01.2008	58,76	S	6,22	W	231	1085,1	4,14	13,02
24	31.01.2008	58,76	S	0,04	W	170	537,6	1,49	29,02
25	01.02.2008	56,21	S	0,05	W	63	135,5	0,18	44,71
28	02.02.2008	54,95	S	0,20	E	68	244,8	0,47	89,03
30	03.02.2008	54,84	S	3,23	E	211	411,0	1,44	273,78
34	06.02.2008	52,12	S	0,02	W	138	221,2	4,15	44,70
36	22.02.2008	45,03	S	15,00	E	466	230,3	1,60	4,28
37	24.02.2008	50,04	S	15,02	E	273	180,7	3,32	14,43
38	25.02.2008	52,55	S	14,99	E	73	98,2	3,66	49,50
41	27.02.2008	58,78	S	14,99	E	114	297,9	0,34	210,17
42	28.02.2008	60,98	S	15,13	E	187	244,0	0,59	50,67
43	28.02.2008	63,96	S	15,52	E	45	91,8	0,11	184,07
46	05.03.2008	65,80	S	13,38	E	130	212,3	1,59	32,17
47	07.03.2008	59,98	S	7,47	E	227	468,1	1,58	44,63
50	08.03.2008	57,39	S	7,44	E	75	661,6	26,34	31,75
53	12.03.2008	54,58	S	4,91	E	18	26,1	0,07	4,33
54	13.03.2008	54,58	S	4,98	E	1	4,0	0,26	85,64
55	13.03.2008	53,75	S	7,49	E	133	822,9	1,18	382,02
56	14.03.2008	52,45	S	7,56	E	114	64,7	0,44	188,87

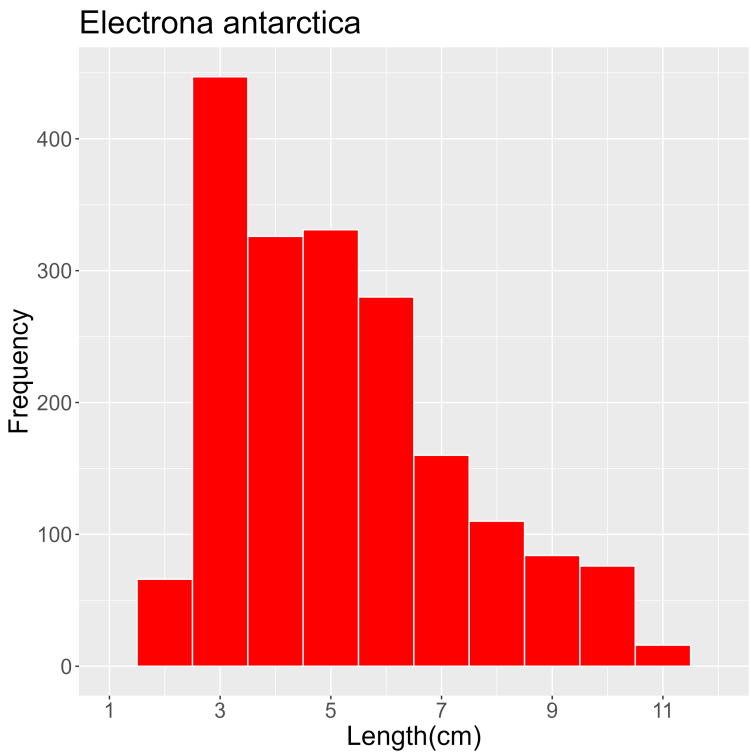

Figure 31. Length frequency of Electrona antarctica for all trawl stations combined. Frequency shown as number of individuals.

2.13.3 - *Electrona carlsbergi* (Tåning, 1932)

Figure 32a. Exemplary image of Electrona carlsbergi.

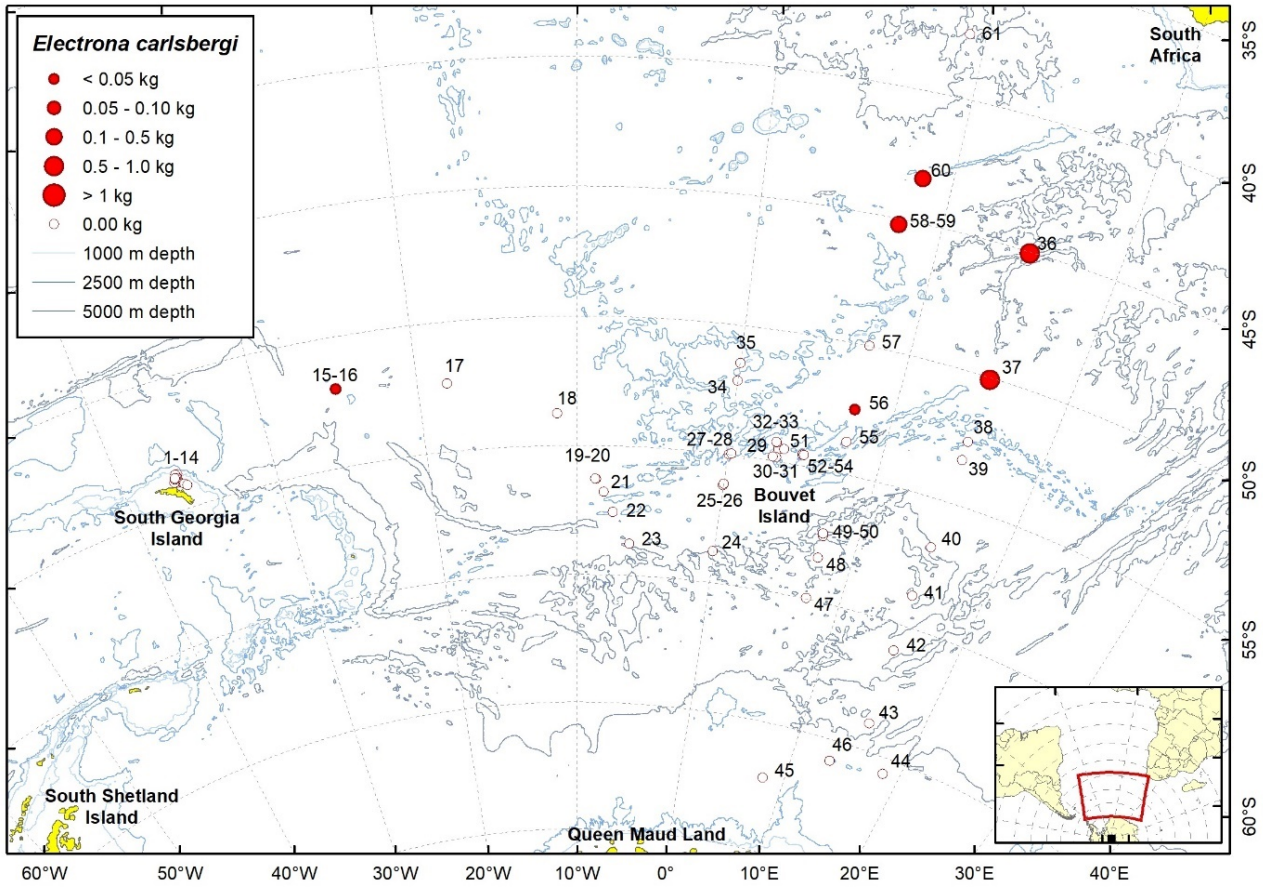

Figure 32b. Trawl stations with presence of Electrona carlsbergi in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 22. Station information with presence of Electrona carlsbergi.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

16	25.01.2008	51,98	S	25,05	W	1	6,6	3,23	45,05
36	22.02.2008	45,03	S	15,00	E	5045	788,5	1,60	4,28
37	24.02.2008	50,07	S	15,04	E	154	752,0	3,32	14,43
56	14.03.2008	52,49	S	7,54	E	1	18,7	0,44	188,87
58	17.03.2008	45,20	S	7,65	E	16	157,0	10,17	19,92
60	18.03.2008	43,29	S	8,40	E	498	160,3	110,70	332,36

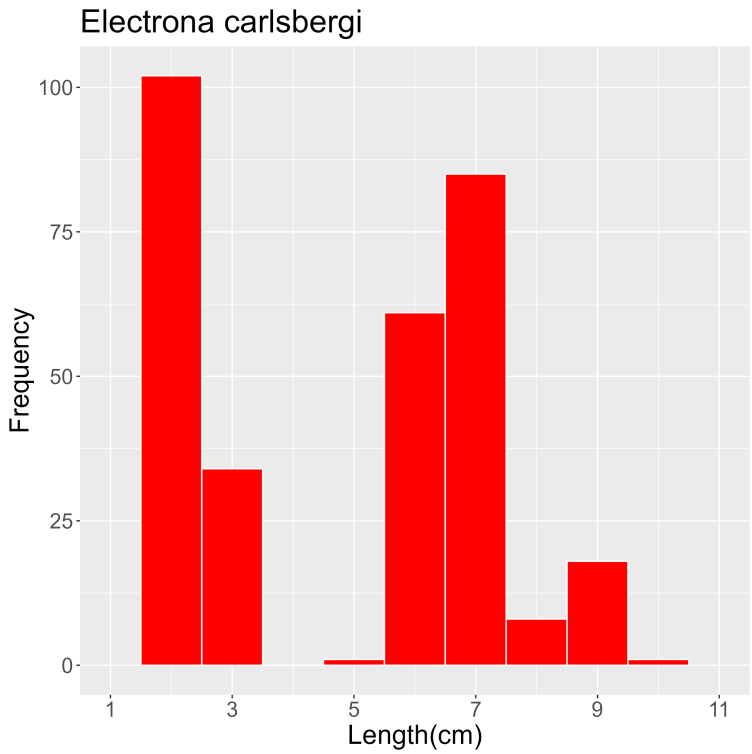

Figure 33. Length frequency of Electrona carlsbergi for all trawl stations combined. Frequency shown as number of individuals.

2.13.4 - *Electrona paucirastra* Bolin, 1962

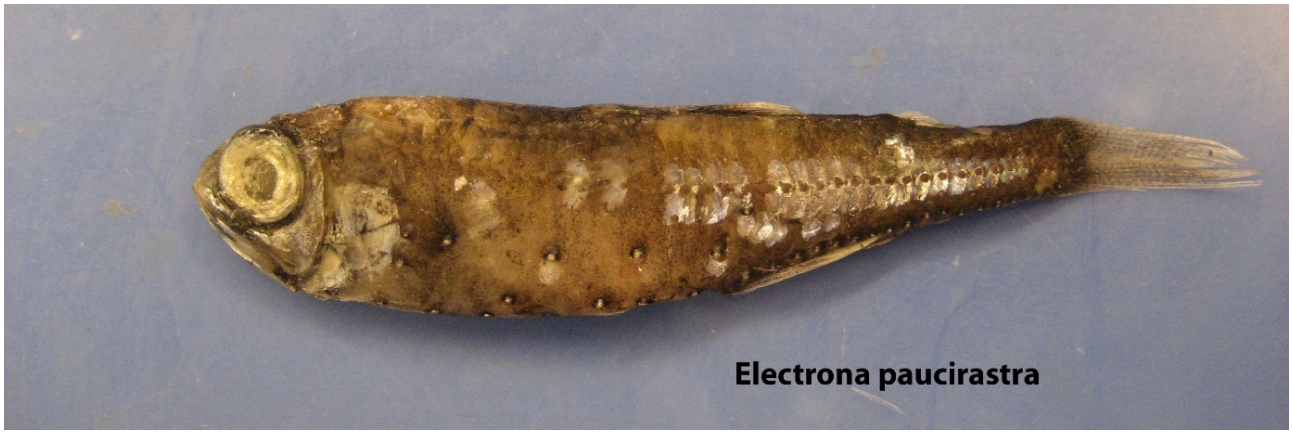

Figure 34a. Exemplary image of Electrona paucirastra.

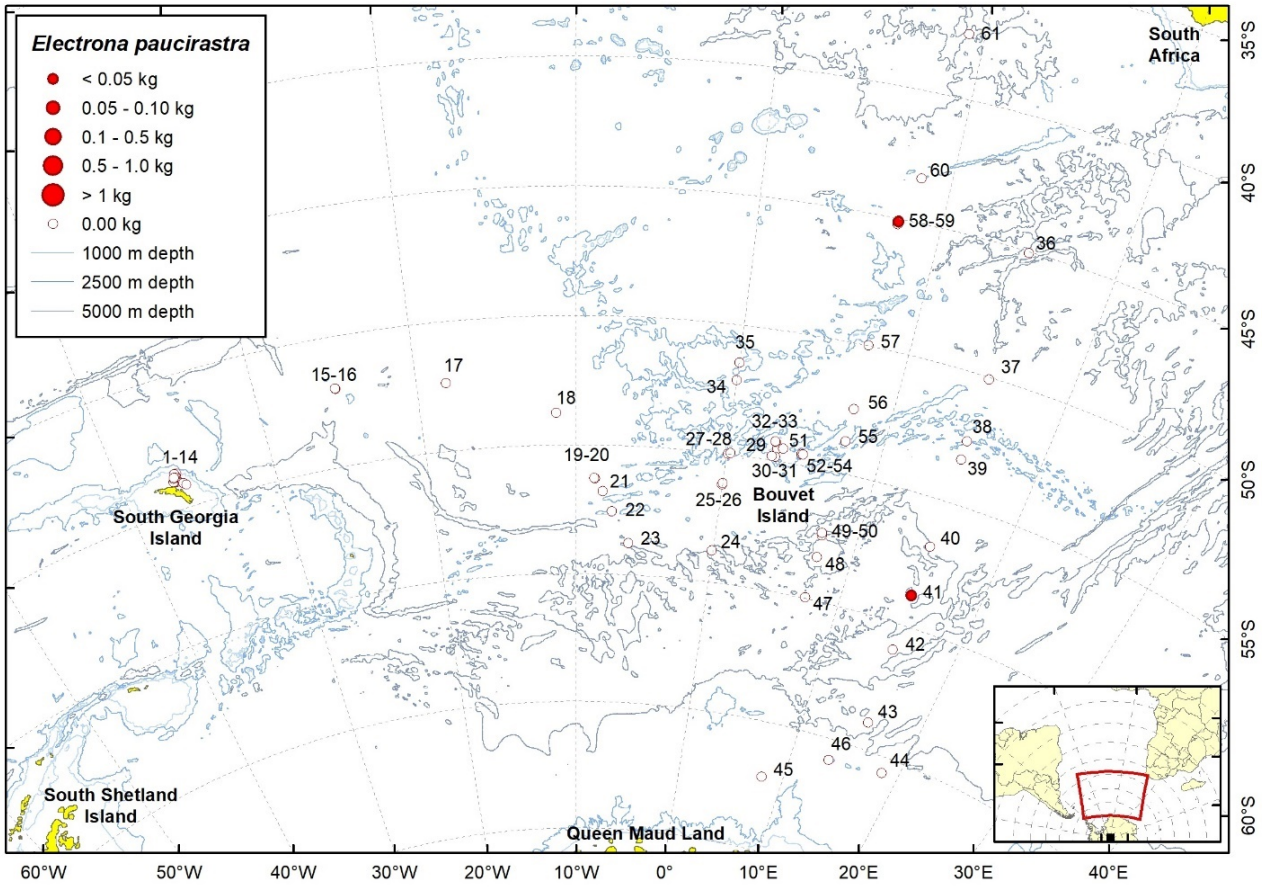

Figure 34b. Trawl stations with presence of Electrona paucirastra in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 23. Station information with presence of Electrona paucirastra.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

41	27.02.2008	58,81	S	15,00	E	1	0,3	0,34	210,17
59	17.03.2008	45,11	S	7,66	E	3	12,0	1,02	5,63

2.13.5 - *Electrona subaspera* (Günther, 1864)

Figure 35a. Exemplary image of Electrona subaspera.

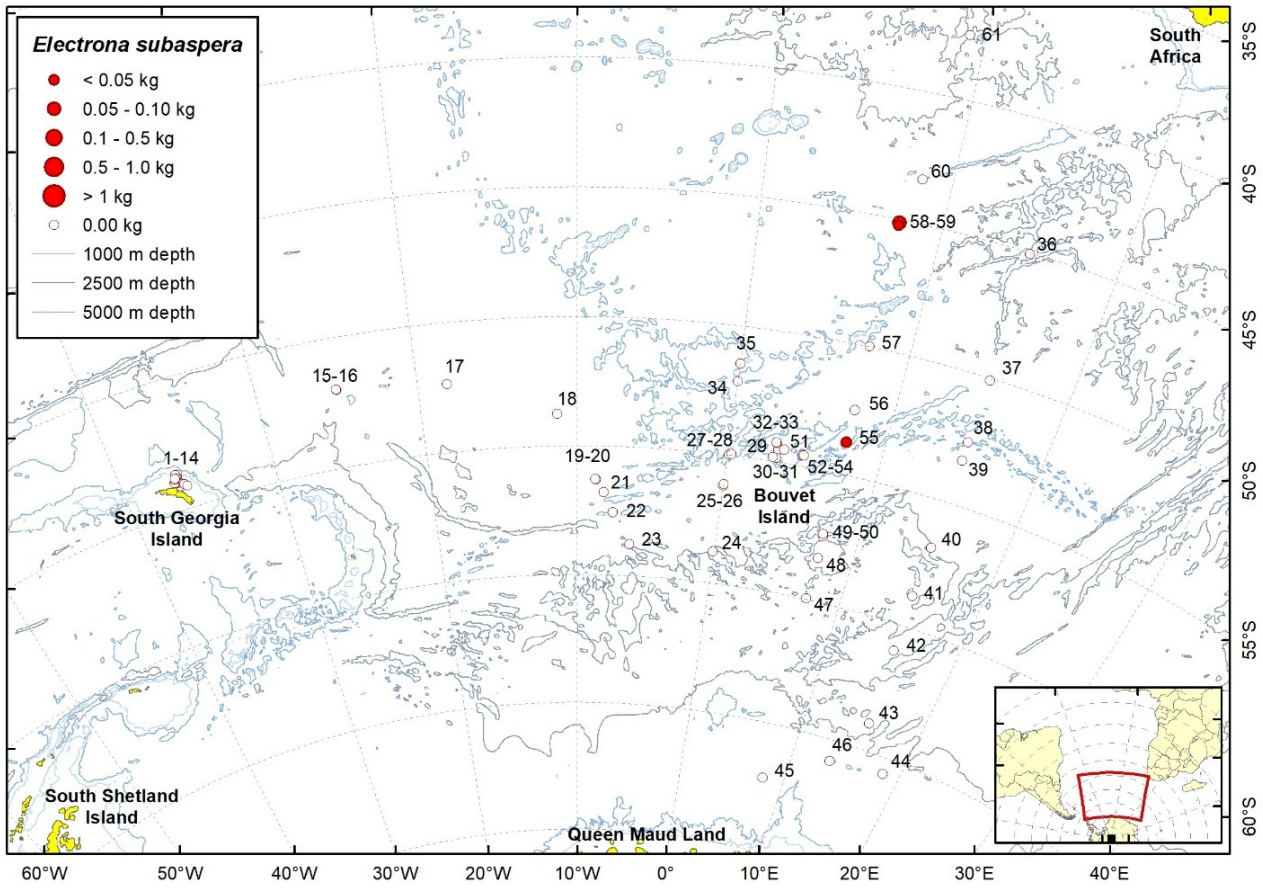

Figure 35b. Trawl stations with presence of Electrona subaspera in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 24. Station information with presence of Electrona subaspera.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
55	13.03.2008	53,75	S	7,49	E	1	40,0	1,18	382,02
58	17.03.2008	45,20	S	7,65	E	1	2,4	10,17	19,92
59	17.03.2008	45,11	S	7,66	E	21	82,0	1,02	5,63

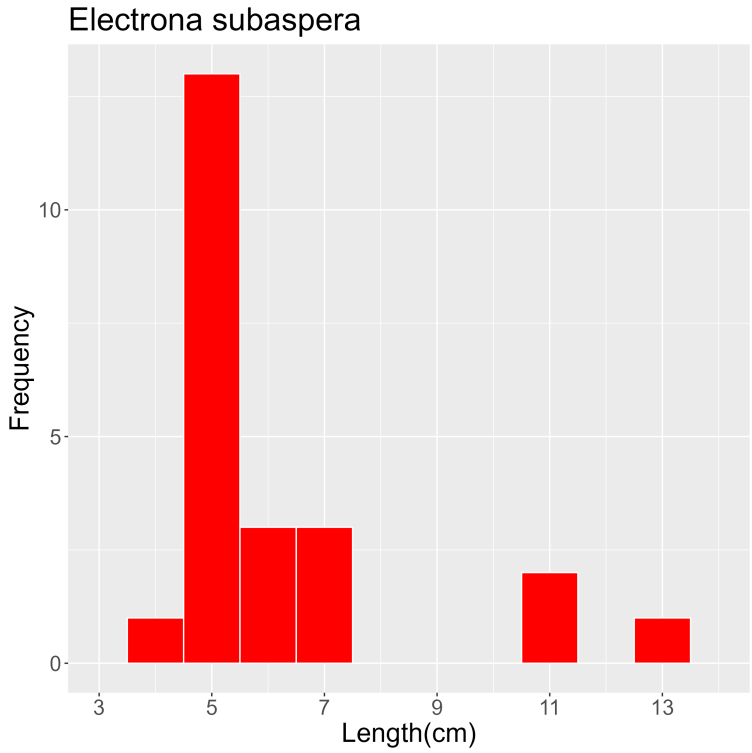

Figure 36. Length frequency of Electrona subaspera for all trawl stations combined. Frequency shown as number of individuals.

2.13.6 - *Gymnoscopelus bolini* Andriashev, 1962

Figure 37a. Exemplary image of Gymnoscopelus bolini.

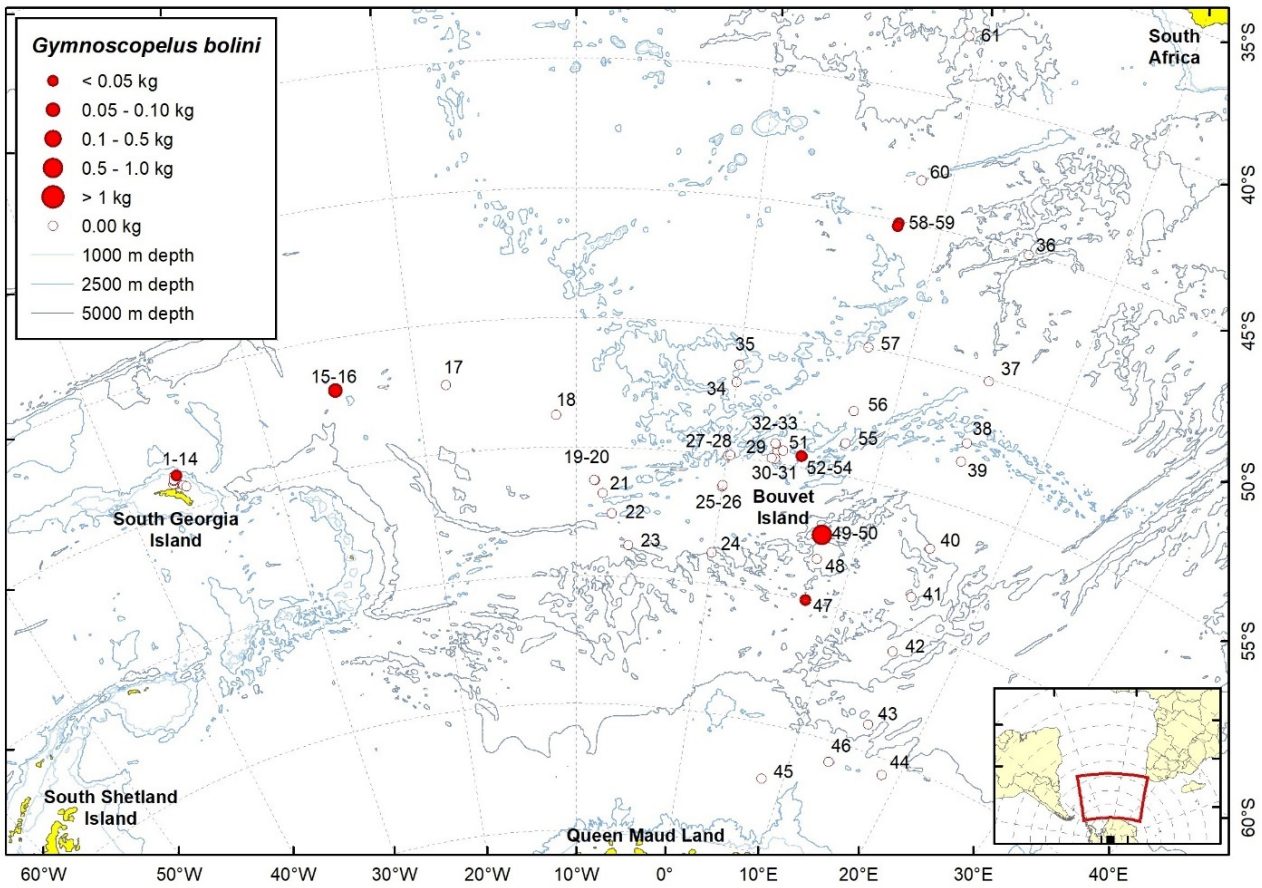

Figure 37b. Trawl stations with presence of Gymnoscopelus bolini in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 25. Station information with presence of Gymnoscopelus bolini.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
4	20.01.2008	53,64	S	36,26	W	1	29,2	0,42	4,32
16	24.01.2008	51,99	S	25,00	W	1	92,9	3,23	45,05

47	07.03.2008	59,98	S	7,47	E	1	21,0	1,58	44,63
50	08.03.2008	57,39	S	7,44	E	7	602,0	26,34	31,75
53	12.03.2008	54,57	S	4,87	E	1	2,7	0,07	4,33
58	17.03.2008	45,20	S	7,65	E	1	6,0	10,17	19,92
59	17.03.2008	45,06	S	7,67	E	5	34,0	1,02	5,63

2.13.7 - *Gymnoscopelus braueri* (Lönnberg, 1905)

Figure 38a. Exemplary image of Gymnoscopelus braueri.

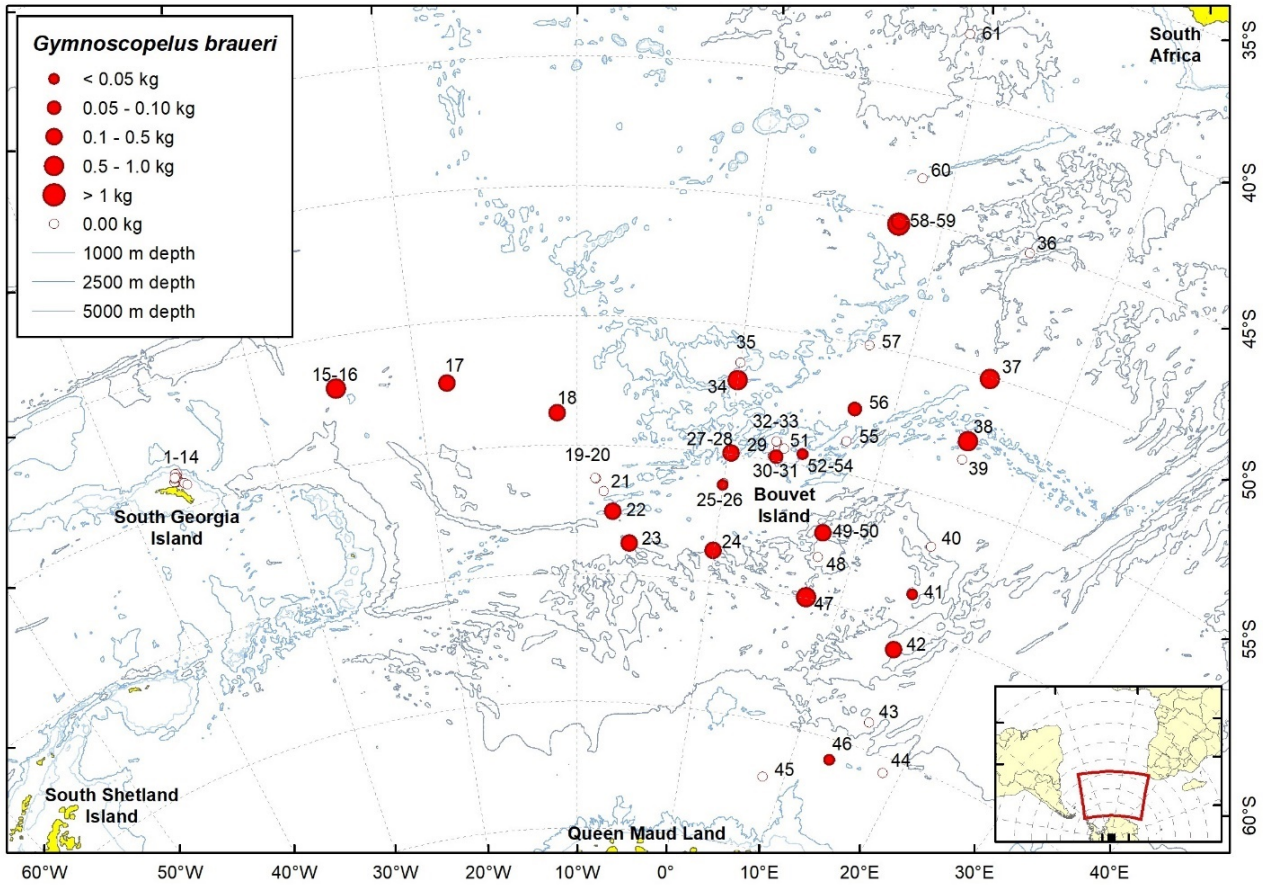

Figure 38a. Trawl stations with presence of Gymnoscopelus braueri in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 26. Station information with presence of Gymnoscopelus braueri.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

16	24.01.2008	51,99	S	25,00	W	62	721,6	3,23	45,05
17	26.01.2008	52,33	S	18,16	W	48	129,3	1,20	26,43
18	27.01.2008	53,75	S	11,29	W	43	121,0	3,07	24,11
22	30.01.2008	57,53	S	7,49	W	58	239,4	0,67	20,43
23	30.01.2008	58,76	S	6,22	W	17	214,8	4,14	13,02
24	31.01.2008	58,76	S	0,04	W	11	105,2	1,49	29,02
25	01.02.2008	56,21	S	0,05	W	1	2,3	0,18	44,71
28	02.02.2008	54,95	S	0,20	E	28	105,3	0,47	89,03
30	03.02.2008	54,85	S	3,19	E	16	57,9	1,44	273,78
34	06.02.2008	52,12	S	0,02	W	203	824,0	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	49	544,0	3,32	14,43
38	25.02.2008	52,55	S	14,99	E	106	507,8	3,66	49,50
41	27.02.2008	58,78	S	14,99	E	4	10,5	0,34	210,17
42	28.02.2008	60,98	S	15,13	E	28	143,5	0,59	50,67
46	05.03.2008	65,80	S	13,38	E	3	21,6	1,59	32,17
47	07.03.2008	59,98	S	7,47	E	107	800,0	1,58	44,63
50	08.03.2008	57,39	S	7,44	E	18	251,0	26,34	31,75
53	12.03.2008	54,57	S	4,87	E	1	2,5	0,07	4,33
56	14.03.2008	52,51	S	7,53	E	34	54,5	0,44	188,87
58	17.03.2008	45,20	S	7,65	E	180	1799,0	10,17	19,92
59	17.03.2008	45,11	S	7,66	E	102	287,0	1,02	5,63

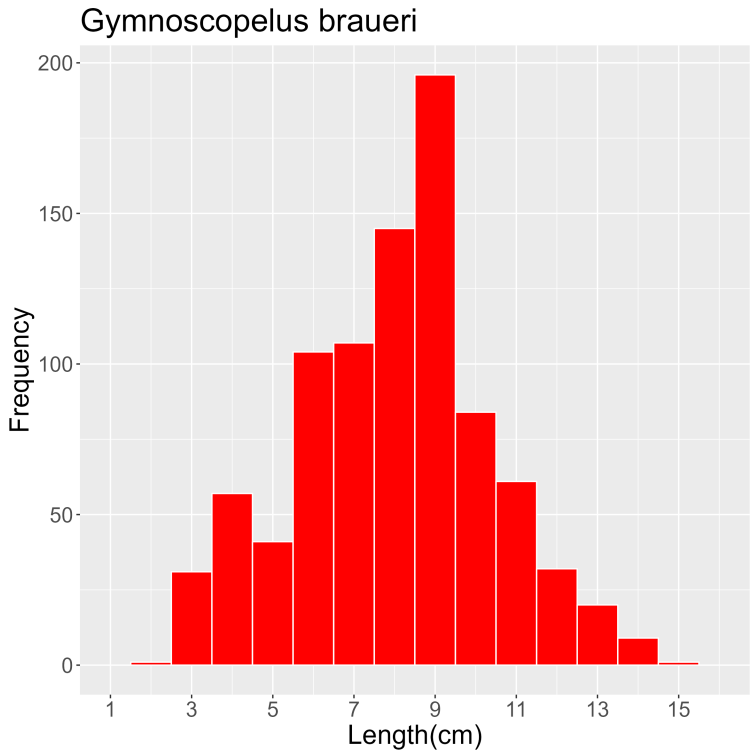

Figure 39. Length frequency of Gymnoscopelus braueri for all trawl stations combined. Frequency shown as number of individuals.

2.13.8 - *Gymnoscopelus fraseri* (Fraser-Brunner, 1931)

Figure 40a. Exemplary image of Gymnoscopelus fraseri.

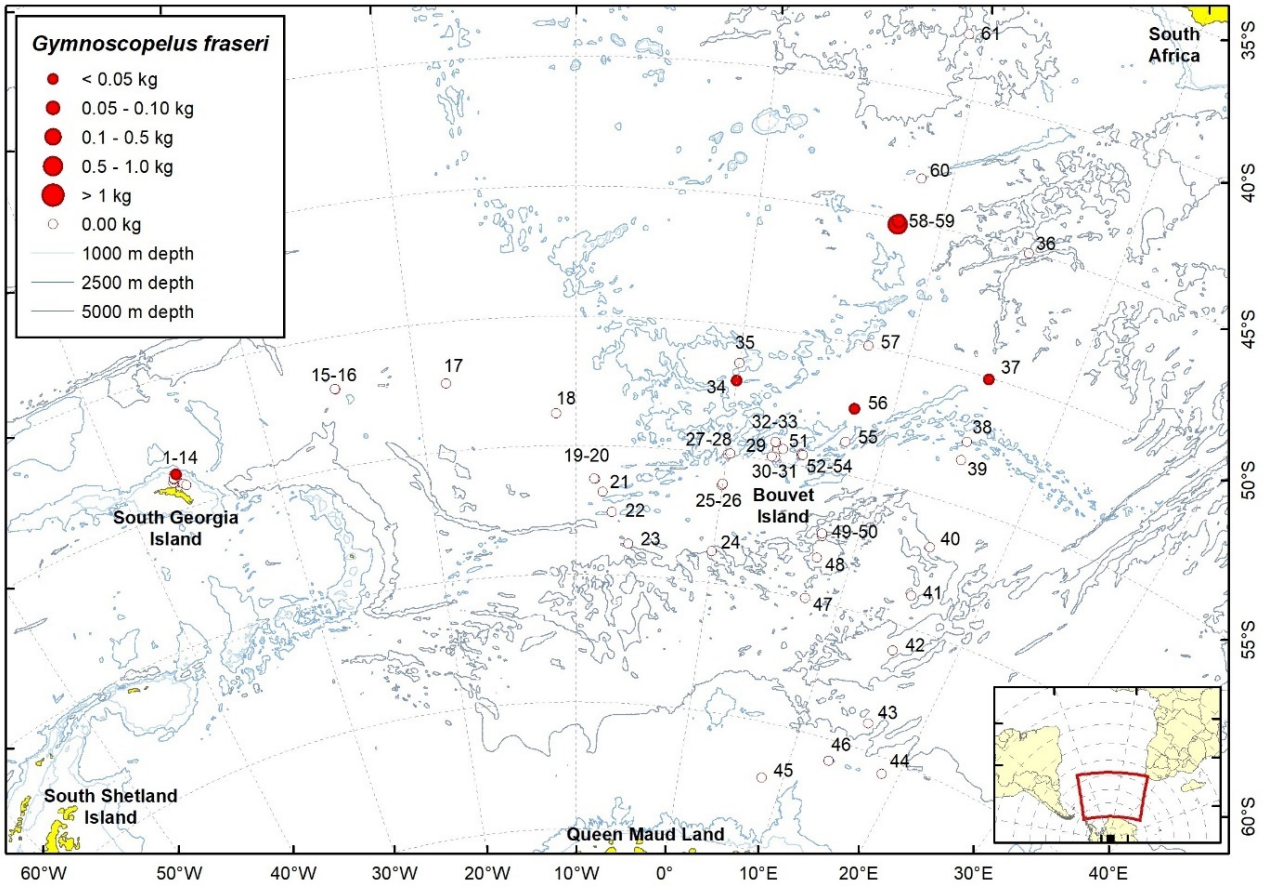

Figure 40b. Trawl stations with presence of Gymnoscopelus fraseri in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 27. Station information with presence of Gymnoscopelus fraseri.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
4	20.01.2008	53,64	S	36,27	W	1	0,03	0,42	4,32

34	06.02.2008	52,12	S	0,02	W	4	0,01	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	1	0,02	3,32	14,43
56	14.03.2008	52,51	S	7,53	E	1	0,00	0,44	188,87
58	17.03.2008	45,2	S	7,65	E	123	0,90	10,17	19,92
59	17.03.2008	45,11	S	7,66	E	1	0,07	1,02	5,63

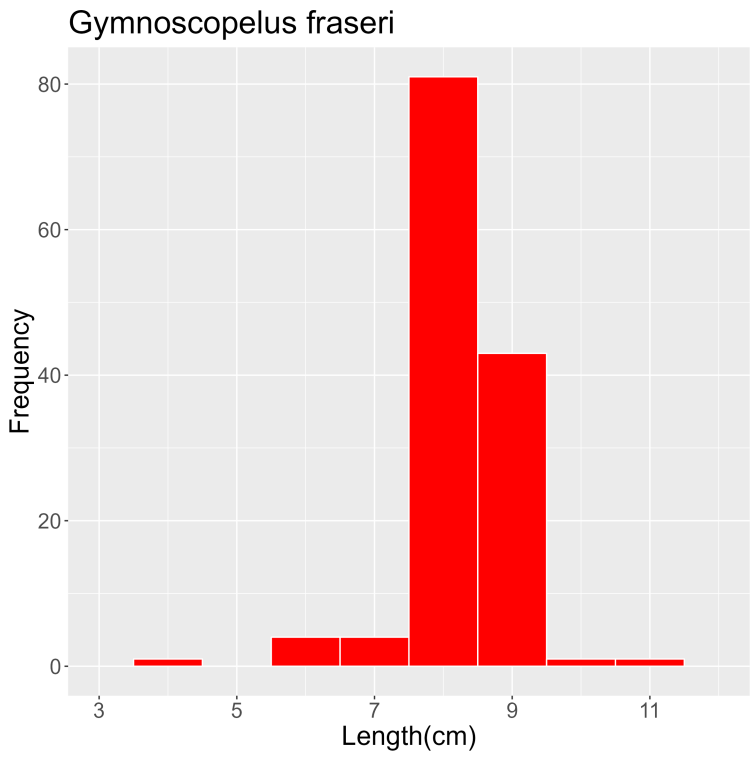

Figure 41. Length frequency of Gymnoscopelus fraseri for all trawl stations combined. Frequency shown as number of individuals.

2.13.9 - *Gymnoscopelus hintonoides* Hulley, 1981

Figure 42a. Exemplary image of Gymnoscopelus hintonoides.

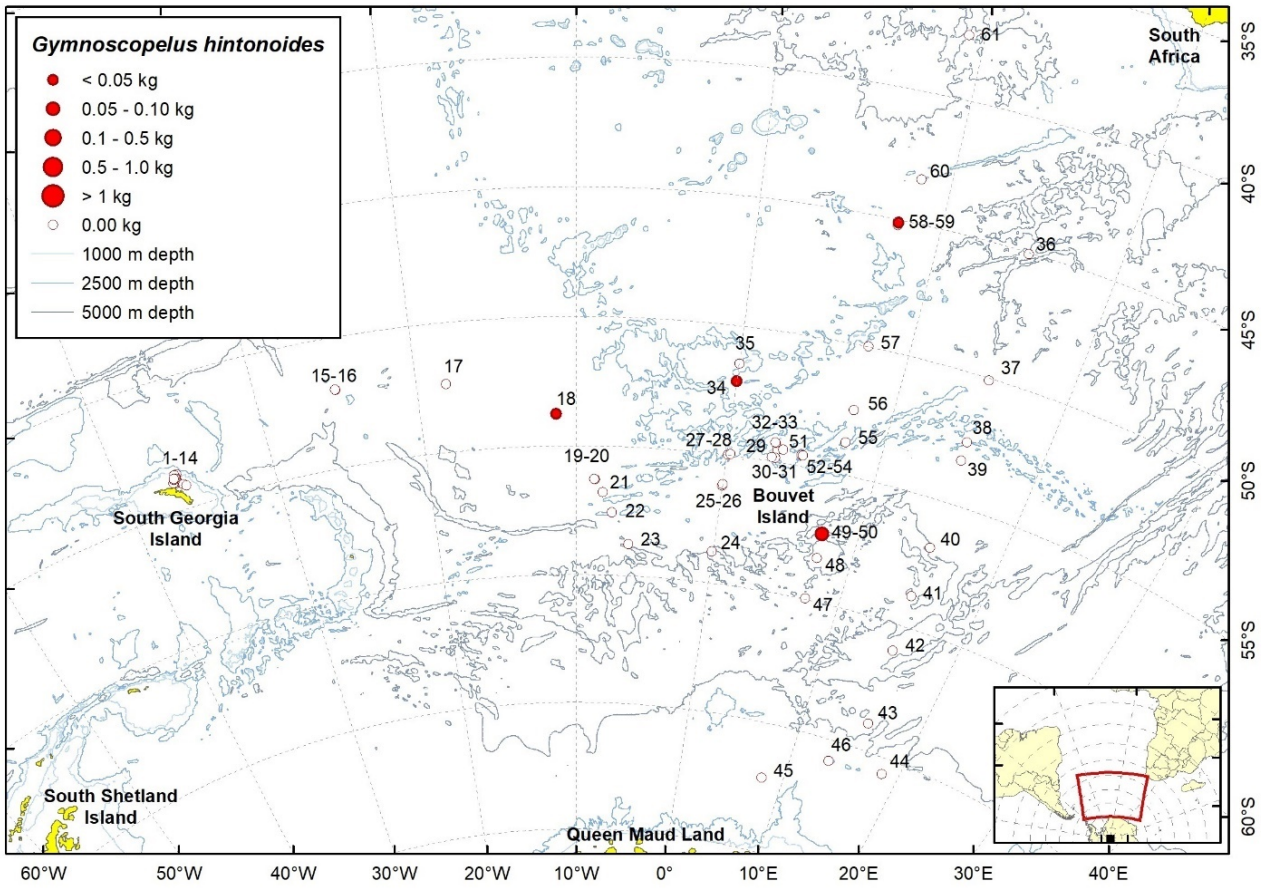

Figure 42b. Trawl stations with presence of Gymnoscopelus hintonoides in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 28. Station information with presence of Gymnoscopelus hintonoides.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

18	27.01.2008	53,75	S	11,29	W	1	2,8	3,07	24,11
34	06.02.2008	52,12	S	0,02	W	4	10,0	4,15	44,70
50	08.03.2008	57,39	S	7,44	E	3	81,0	26,34	31,75
59	17.03.2008	45,11	S	7,66	E	5	14,0	1,02	5,63

2.13.10 - *Gymnoscopelus microlampas* Hulley, 1981

Figure 43a. Exemplary image of Gymnoscopelus microlampas.

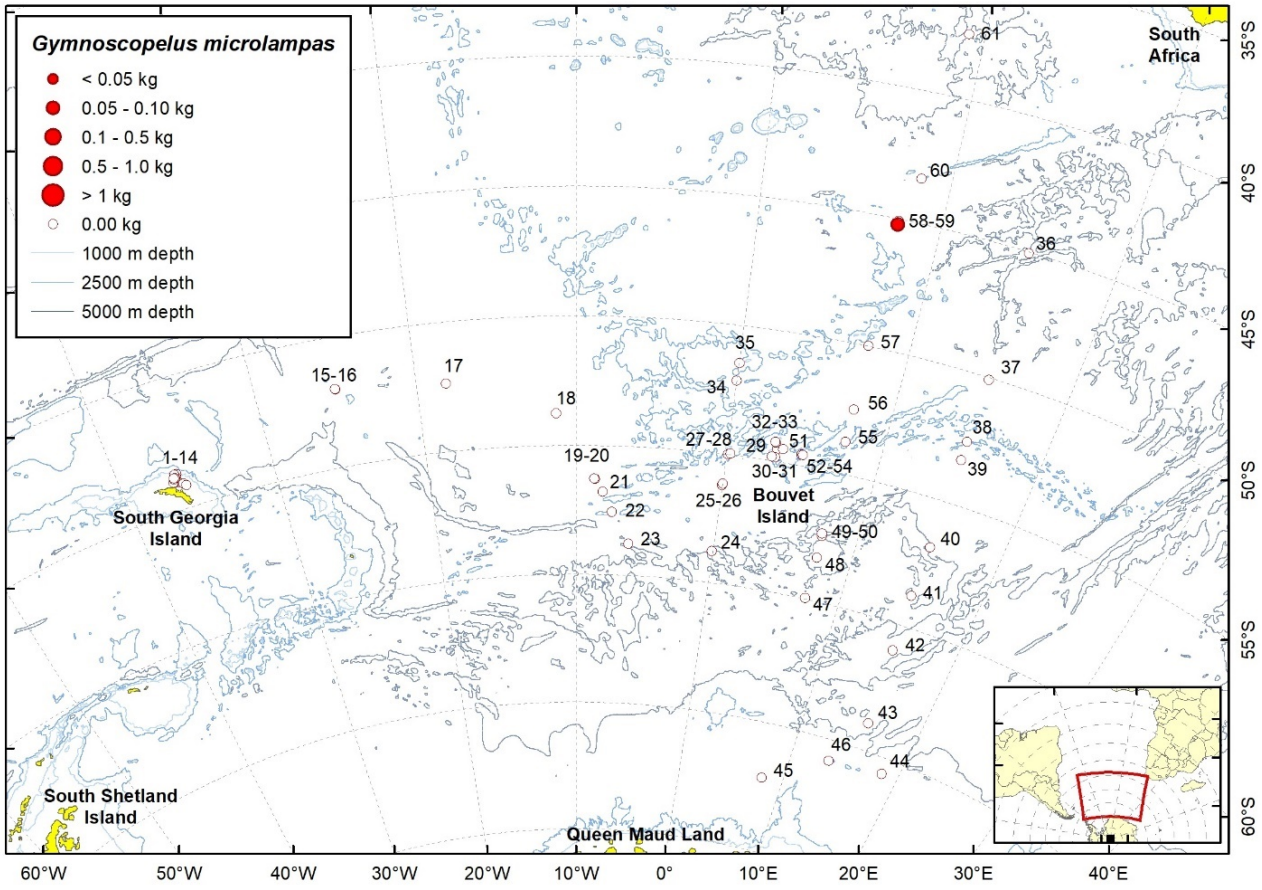

Figure 43b. Trawl stations with presence of Gymnoscopelus microlampas in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 29. Station information with presence of Gymnoscopelus microlampas.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	10	56,0	10,17	19,92

2.13.11 - *Gymnoscopelus nicholsi* (Gilbert, 1911)

Figure 44a. Exemplary image of Gymnoscopelus nicholsi.

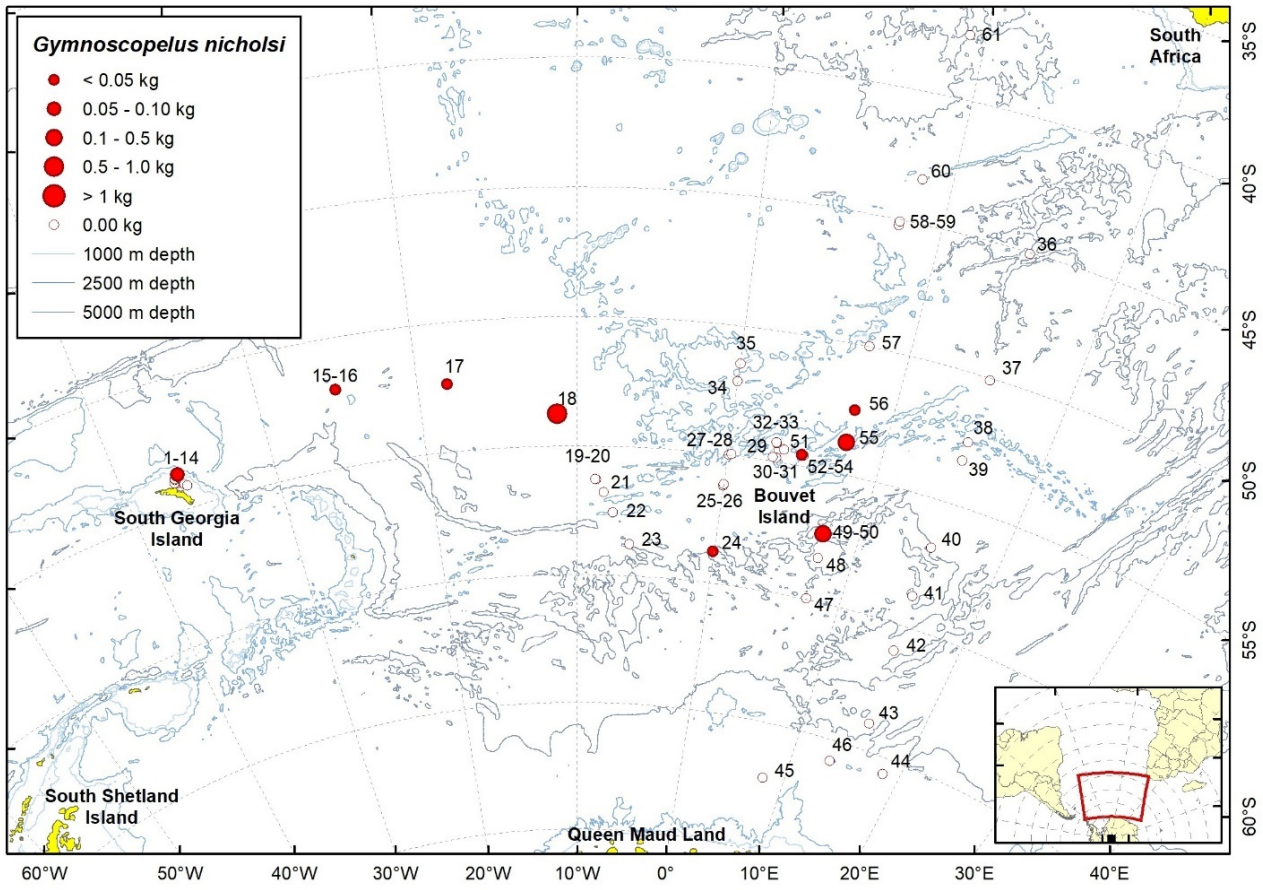

Figure 44b. Trawl stations with presence of Gymnoscopelus nicholsi in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 30. Station information with presence of Gymnoscopelus nicholsi.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

4	20.01.2008	53,64	S	36,26	W	1	82,7	0,42	4,32
16	25.01.2008	51,98	S	25,07	W	1	12,5	3,23	45,05
17	26.01.2008	52,36	S	18,15	W	3	36,1	1,20	26,43
18	27.01.2008	53,75	S	11,29	W	39	767,0	3,07	24,11
24	31.01.2008	58,77	S	0,08	W	1	39,0	1,49	29,02
50	08.03.2008	57,39	S	7,44	E	18	251,0	26,34	31,75
53	12.03.2008	54,57	S	4,83	E	1	16,0	0,07	4,33
55	13.03.2008	53,75	S	7,49	E	11	269,0	1,18	382,02
56	14.03.2008	52,49	S	7,54	E	2	38,0	0,44	188,87

2.13.12 - *Gymnoscopelus opisthopterus* Fraser-Brunner, 1949

Figure 45a. Exemplary image of Gymnoscopelus opisthopterus.

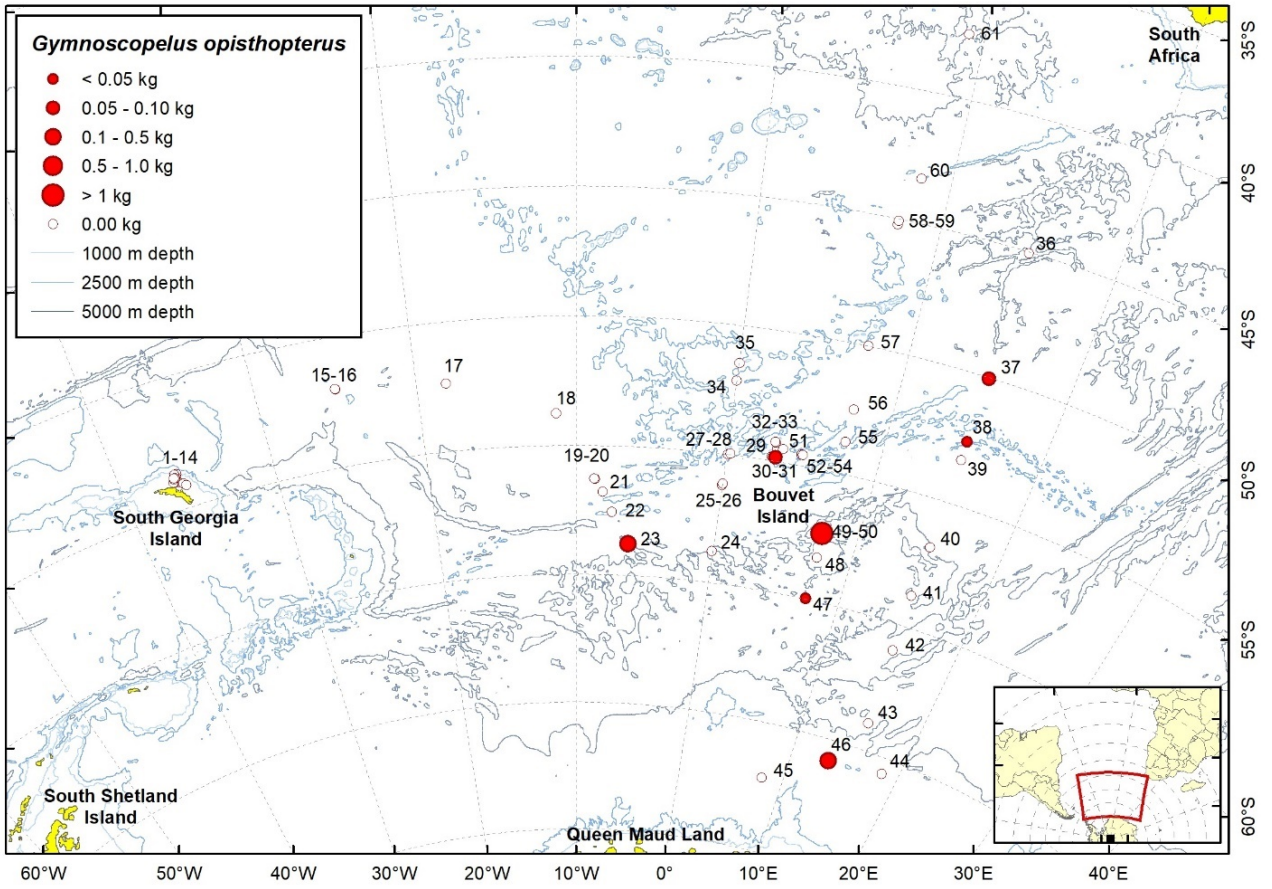

Figure 45b. Trawl stations with presence of Gymnoscopelus opisthopterus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 31. Station information with presence of Gymnoscopelus opisthopterus.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
23	30.01.2008	58,76	S	6,22	W	7	126,0	4,14	13,02
30	03.02.2008	54,84	S	3,23	E	5	51,6	1,44	273,78
37	24.02.2008	50,04	S	15,02	E	5	51,4	3,32	14,43
38	25.02.2008	52,57	S	15,00	E	1	29,0	3,66	49,50
46	05.03.2008	65,80	S	13,38	E	30	195,5	1,59	32,17
47	07.03.2008	59,98	S	7,47	E	3	42,0	1,58	44,63
50	08.03.2008	57,39	S	7,44	E	554	11685,0	26,34	31,75

2.13.13 - *Gymnoscopelus piabilis* (Whitley, 1931)

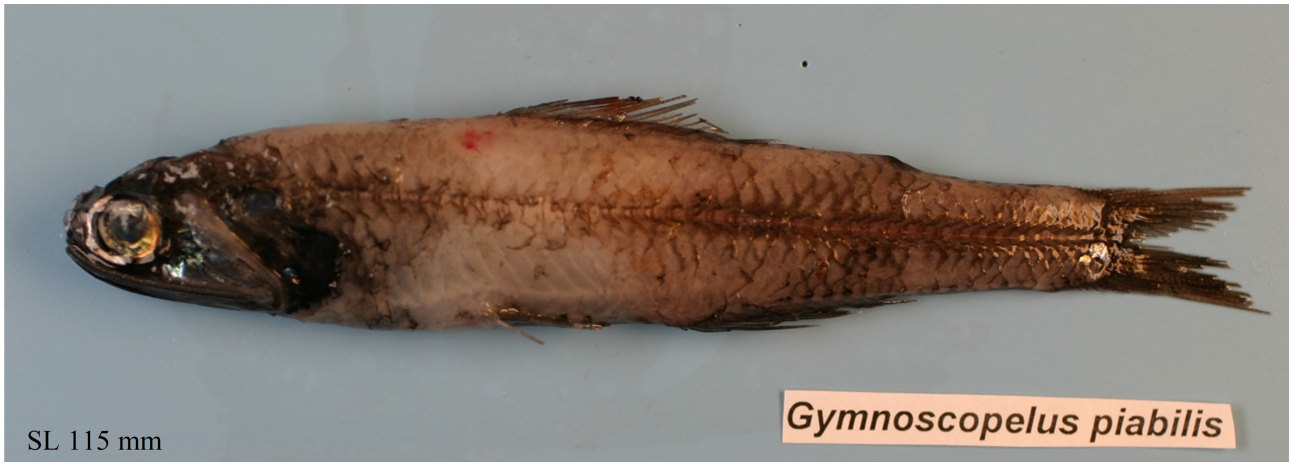

Figure 46a. Exemplary image of Gymnoscopelus piabilis.

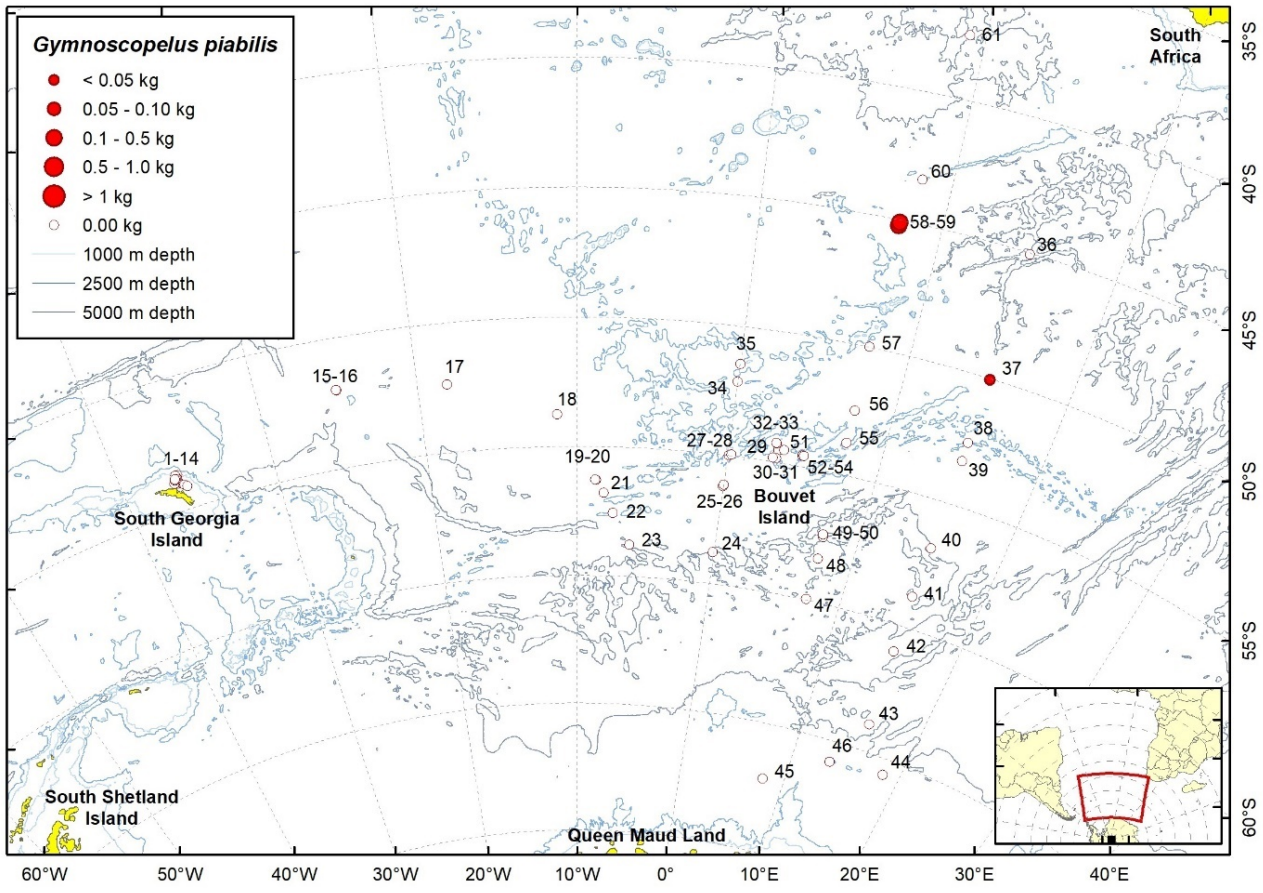

Figure 46b. Trawl stations with presence of Gymnoscopelus piabilis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 32. Station information with presence of Gymnoscopelus piabilis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
37	24.02.2008	50,04	S	15,02	E	2	34,6	3,32	14,43
58	17.03.2008	45,20	S	7,65	E	23	138,0	10,17	19,92
59	17.03.2008	45,06	S	7,67	E	15	115,0	1,02	5,63

2.13.14 - *Gymnoscopelus* spp .

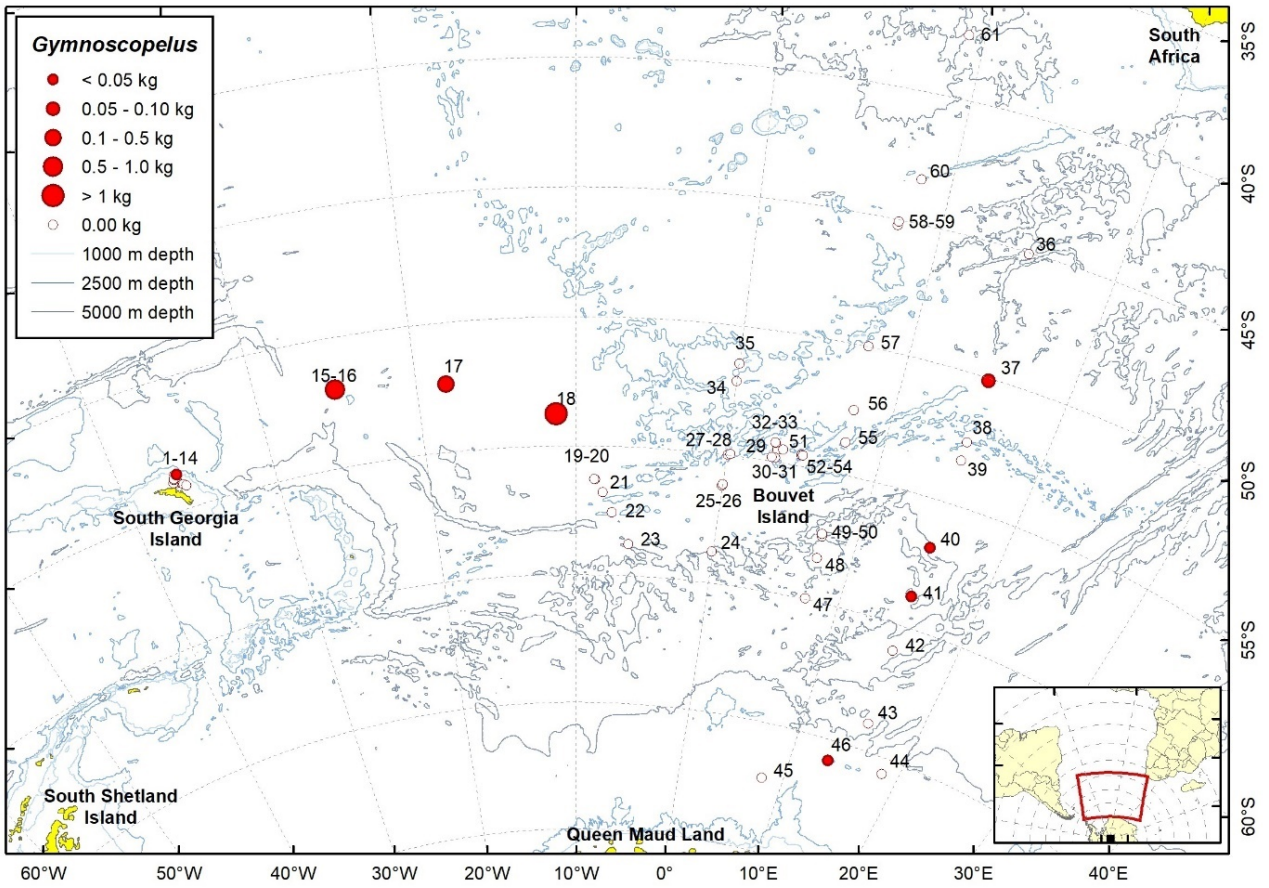

Figure 47. Trawl stations with presence of Gymnoscopelus spp. in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 33. Station information with presence of Gymnoscopelus spp.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
4	20.01.2008	53,64	S	36,26	W	5	16,0	0,42	4,32
16	24.01.2008	51,99	S	25,00	W	118	740,1	3,23	45,05
17	26.01.2008	52,33	S	18,16	W	186	155,9	1,20	26,43
18	27.01.2008	53,75	S	11,29	W	420	1181,0	3,07	24,11
37	24.02.2008	50,10	S	15,05	E	312	78,0	3,32	14,43
40	26.02.2008	56,82	S	15,03	E	13	3,0	0,00	3,35
41	27.02.2008	58,81	S	15,00	E	1	3,0	0,34	210,17
46	05.03.2008	65,80	S	13,38	E	2	0,5	1,59	32,17

2.13.15 - *Hintonia* candens Fraser-Brunner, 1949

Figure 48a. Exemplary image of Hintonia candens.

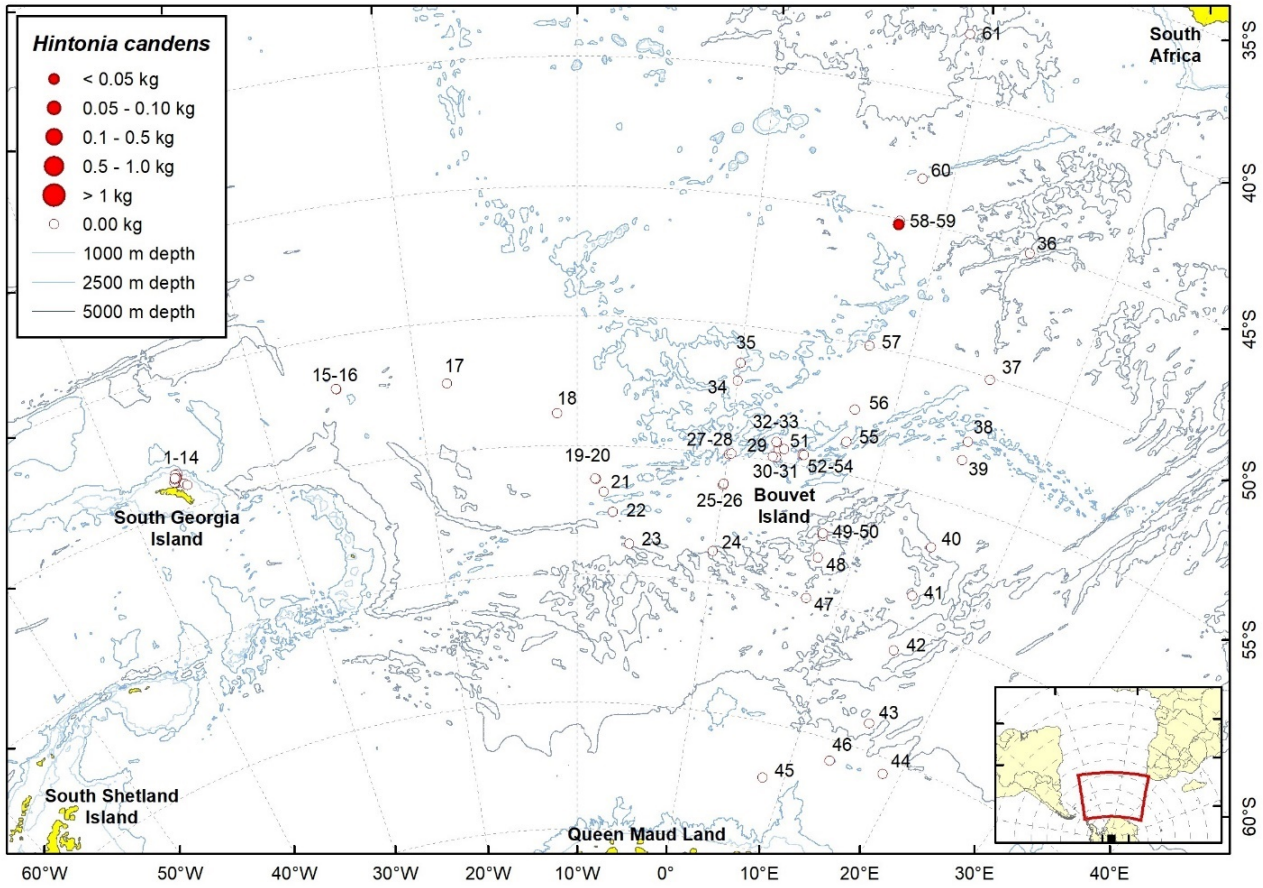

Figure 48b. Trawl stations with presence of Hintonia candens in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 34. Station information with presence of Hintonia candens.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	1	12,0	10,17	19,92

2.13.16 - Krefftichthys anderssoni (Lönnberg, 1905)

Figure 49a. Exemplary image of Krefftichthys anderssoni.

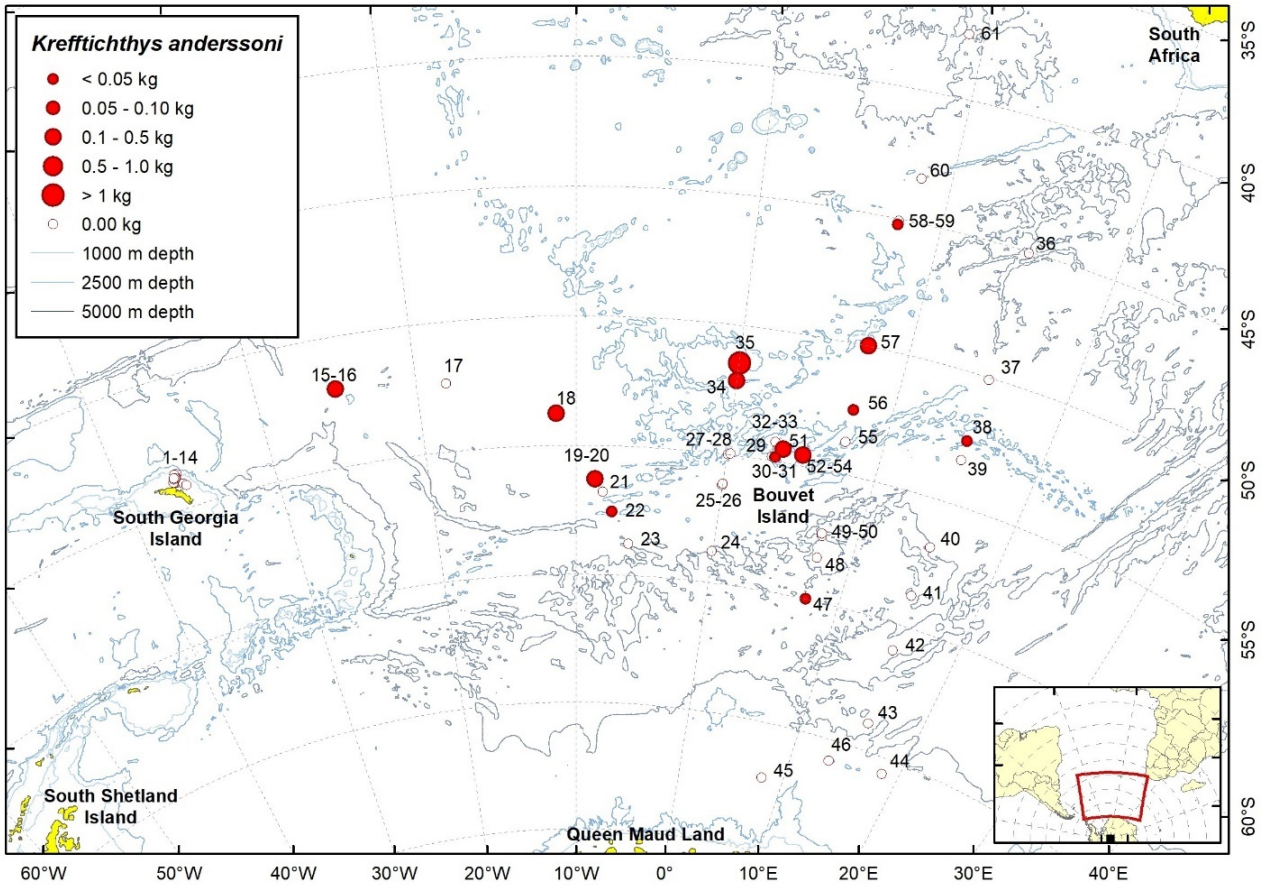

Figure 49b. Trawl stations with presence of Krefftichthys anderssoni in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 35. Station information with presence of Krefftichthys anderssoni.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	24.01.2008	51,99	S	25,00	W	261	312,6	3,23	45,05

18	27.01.2008	53,75	S	11,29	W	195	113,0	3,07	24,11
19	29.01.2008	56,28	S	8,71	W	241	135,4	0,16	49,45
22	30.01.2008	57,53	S	7,49	W	10	11,9	0,67	20,43
30	03.02.2008	54,84	S	3,23	E	3	5,3	1,44	273,78
34	06.02.2008	52,12	S	0,02	W	139	316,0	4,15	44,70
35	06.02.2008	51,44	S	0,02	E	1643	2664,0	2,71	38,52
38	25.02.2008	52,55	S	14,99	E	6	9,0	3,66	49,50
47	07.03.2008	59,98	S	7,47	E	1	5,0	1,58	44,63
51	11.03.2008	54,49	S	3,62	E	300	360,0	0,36	5000,36
54	13.03.2008	54,58	S	4,98	E	184	257,0	0,26	85,64
56	14.03.2008	52,51	S	7,53	E	4	3,8	0,44	188,87
57	15.03.2008	49,98	S	7,53	E	105	196,0	0,22	40,00
58	17.03.2008	45,20	S	7,65	E	1	2,0	10,17	19,92

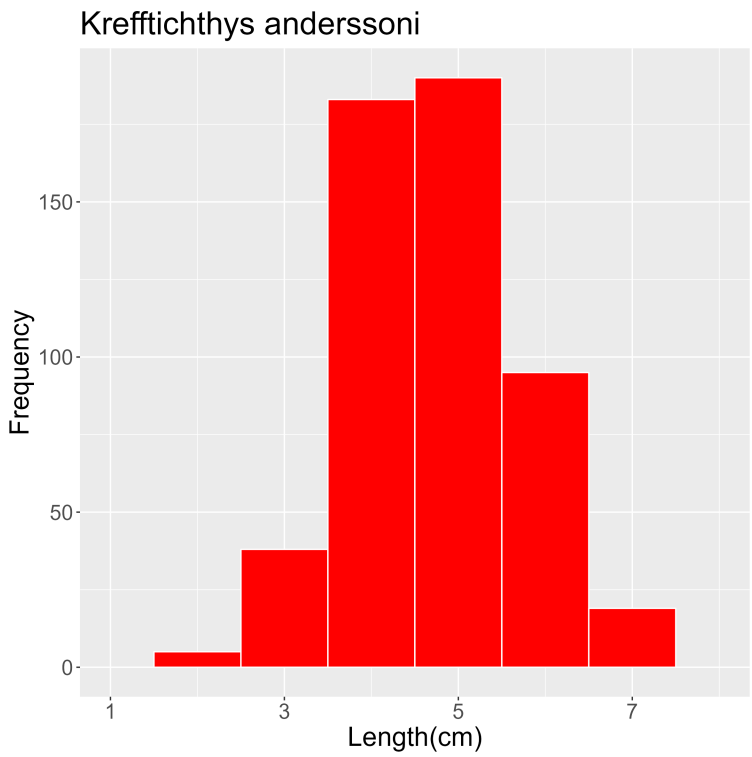

Figure 50. Length frequency of Krefftichthys anderssoni for all trawl stations combined. Frequency shown as number of individuals.

2.13.17 - *Lampanyctus achirus* Andriashev, 1962

Figure 51a. Exemplary image of Lampanyctus achirus.

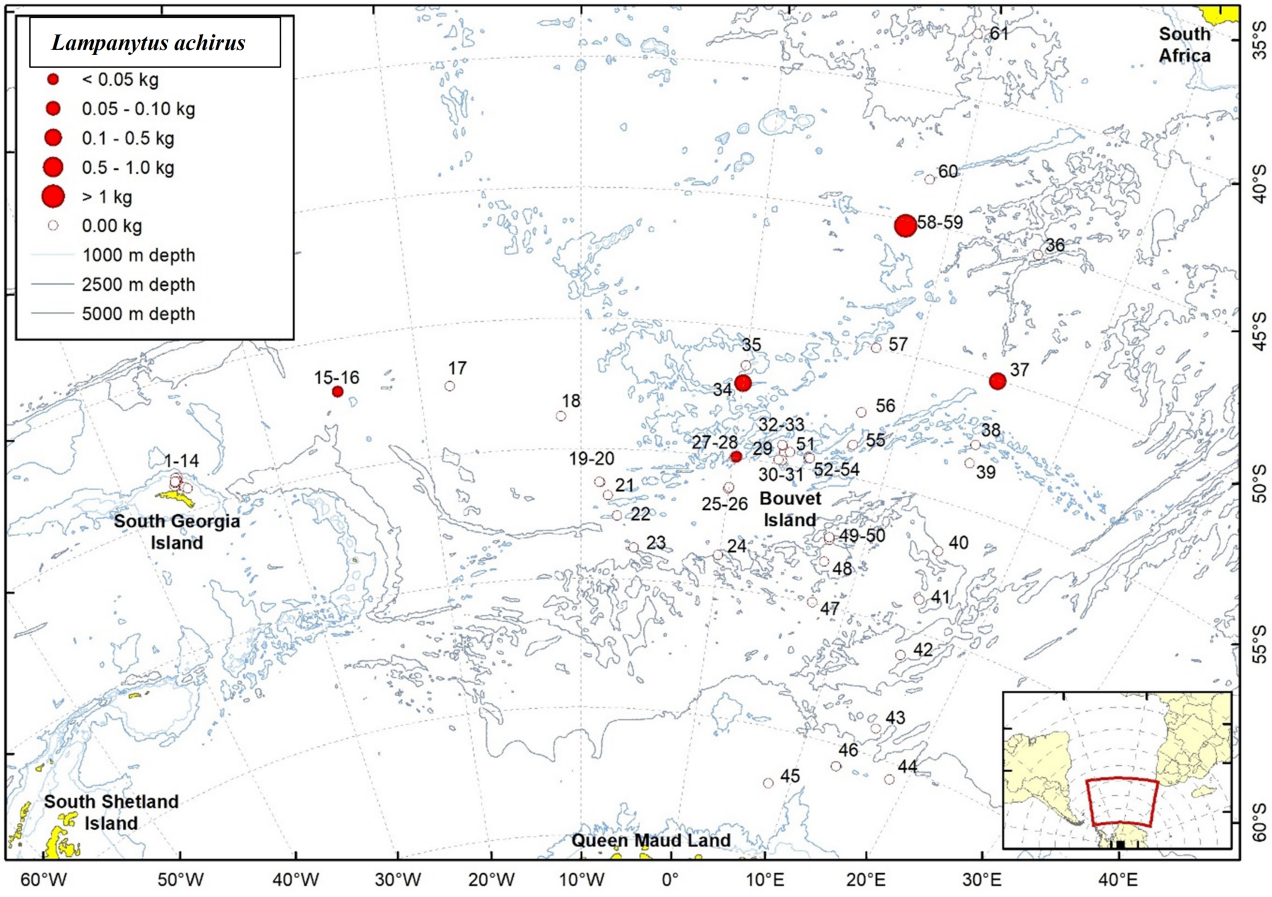

Figure 51b. Trawl stations with presence of Lampanyctus achirus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 36. Station information with presence of Lampanyctus achirus.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	24.01.2008	51,98	S	25,04	W	2	22,2	3,23	45,05
28	02.02.2008	54,95	S	0,20	E	1	17,4	0,47	89,03

34	06.02.2008	52,12	S	0,02	W	8	164,0	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	8	158,0	3,32	4,28
58	17.03.2008	45,20	S	7,65	E	154	3260,0	10,17	19,92

2.13.18 - *Lampanyctus ater* Tåning, 1928

Figure 52a. Exemplary image of Lampanyctus ater.

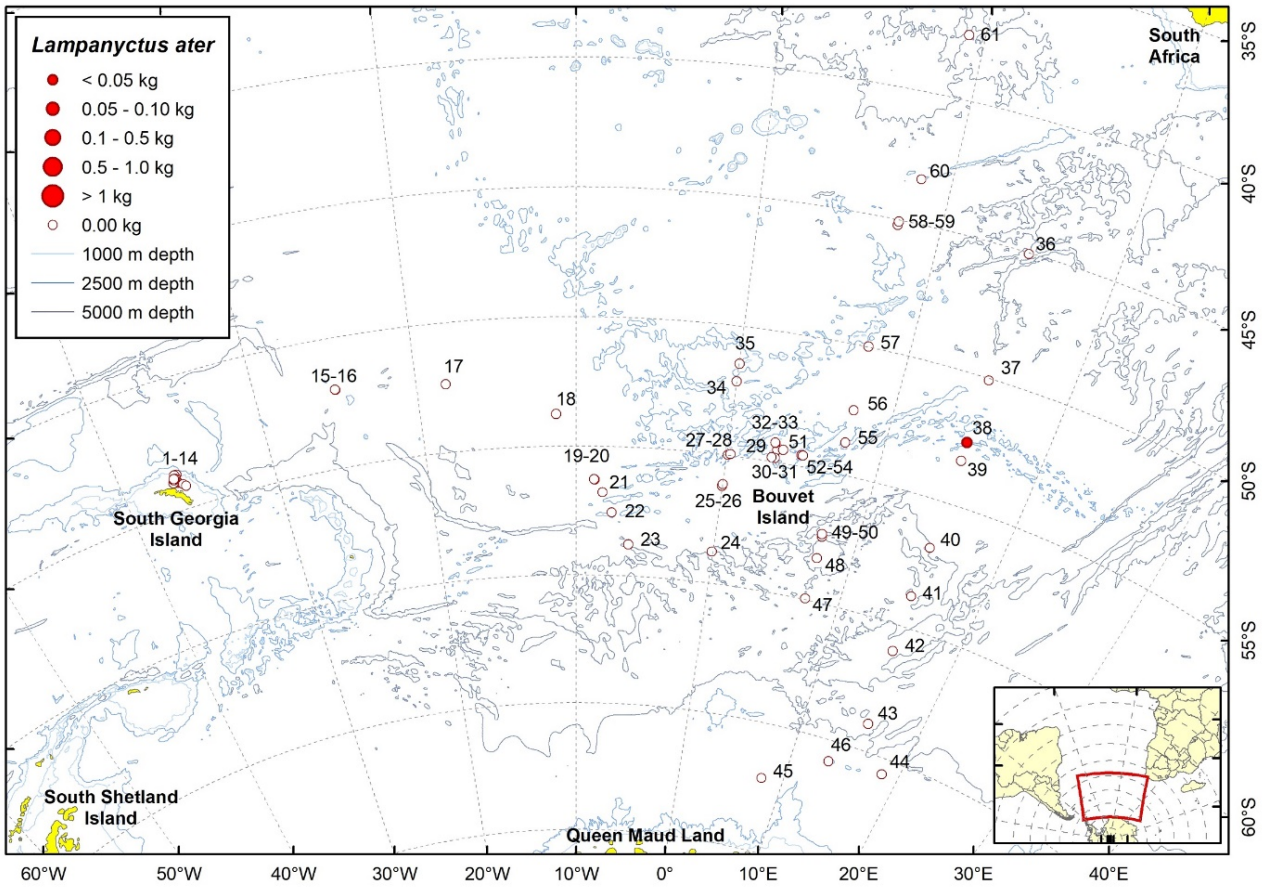

Figure 52b. Trawl stations with presence of Lampanyctus ater in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 37. Station information with presence of Lampanyctus ater.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

38	25.02.2008	52,57	S	15,00	E	1	4,5	3,66	49,50

2.13.19 - *Lampanyctus australis* Tåning, 1932

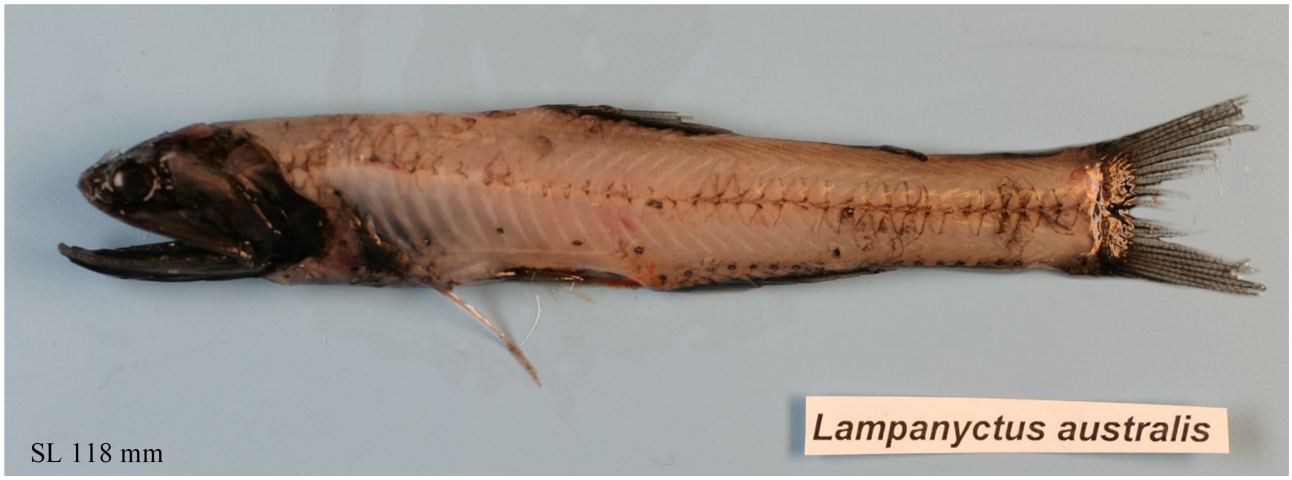

Figure 53a. Exemplary image of Lampanyctus australis.

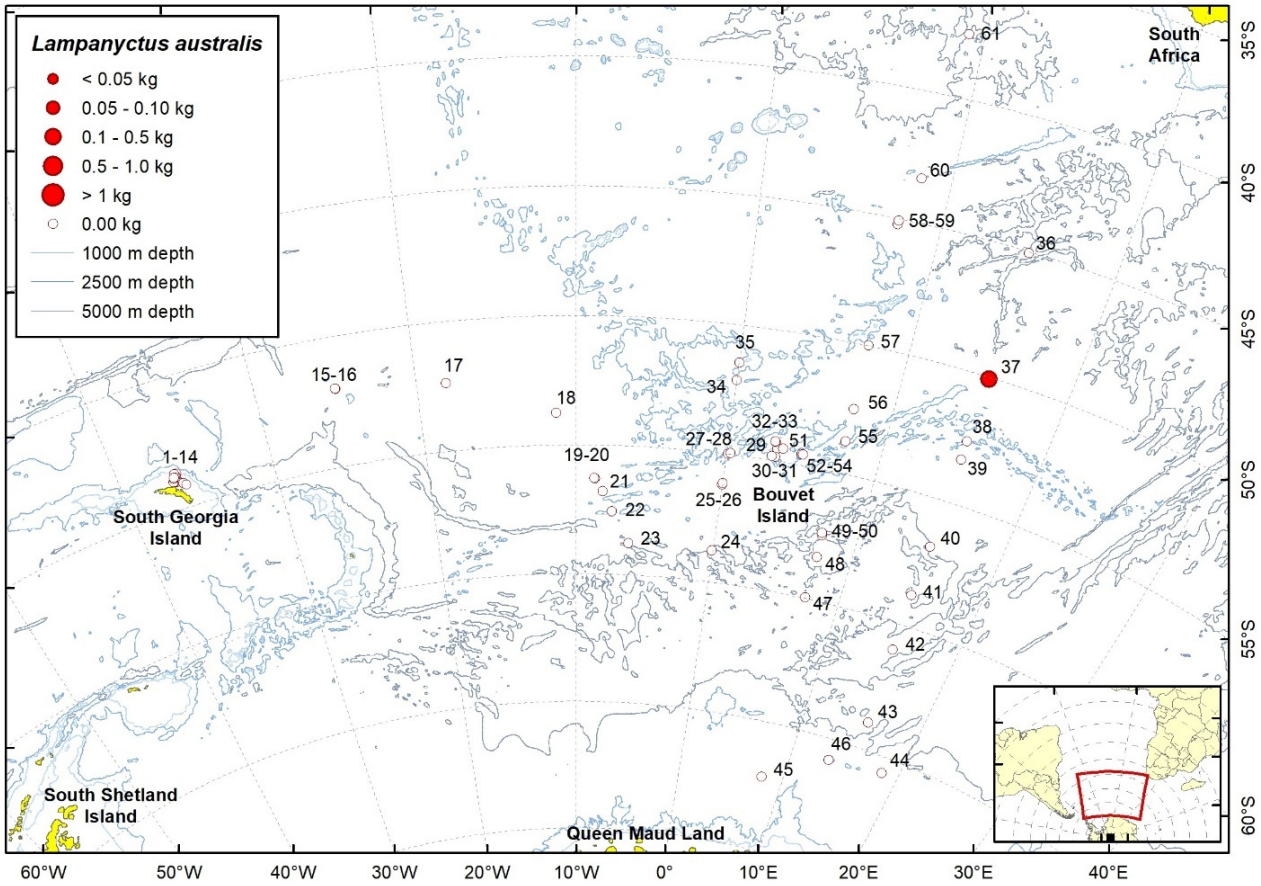

Figure 53b. Trawl stations with presence of Lampanyctus australis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 38. Station information with presence of Lampanyctus australis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
37	24.02.2008	50,04	S	15,02	E	10	229,0	3,32	14,43

2.13.20 - *Lampanyctus intricarius* Tåning, 1928

Figure 54a. Exemplary image of Lampanyctus intricarius.

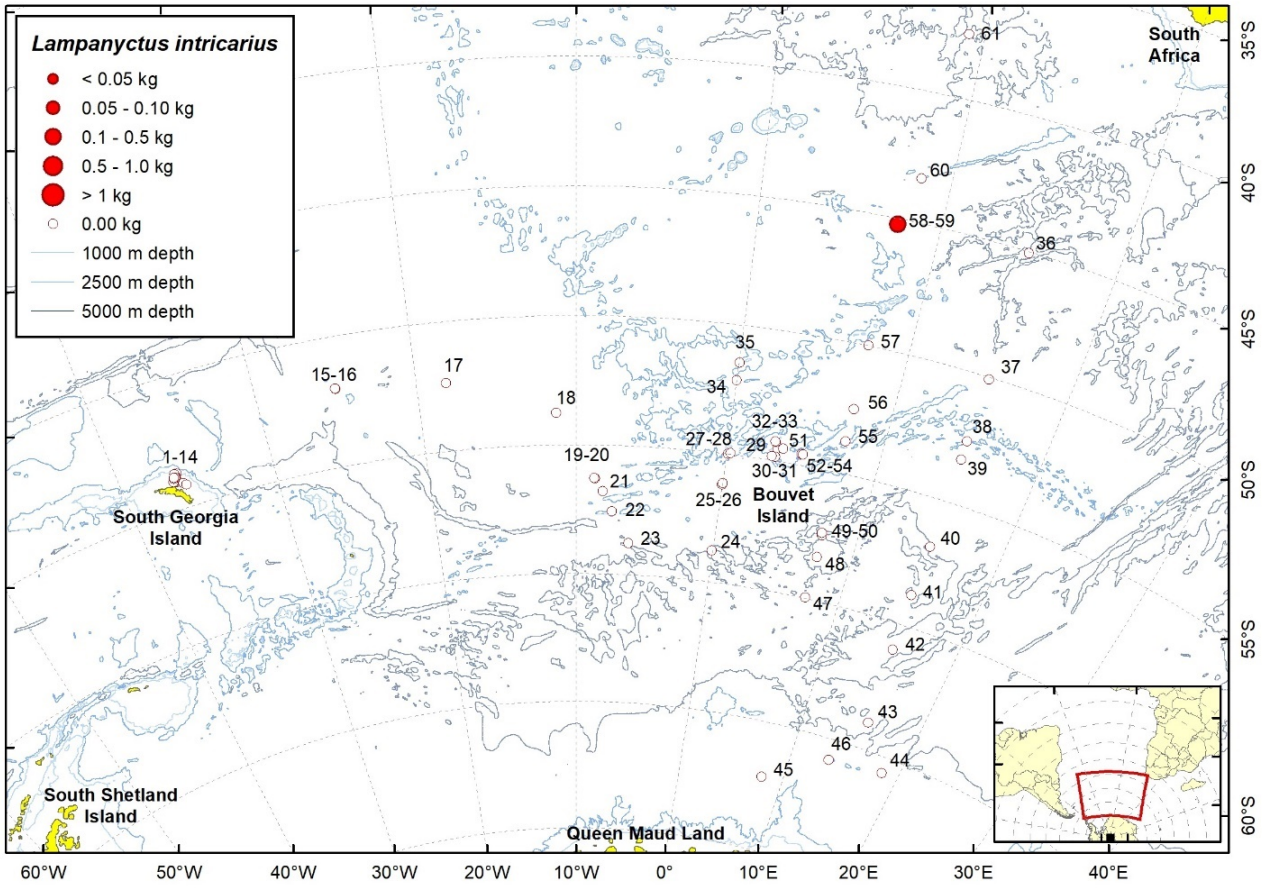

Figure 54b. Trawl stations with presence of Lampanyctus intricarius in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 39. Station information with presence of Lampanyctus intricarius.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

58	17.03.2008	45,20	S	7,65	E	3	133,0	10,17	19,92

2.13.21 - *Lampanyctus macdonaldi* (Goode & Bean, 1896)

Figure 55a. Exemplary image of Lampanyctus macdonaldi.

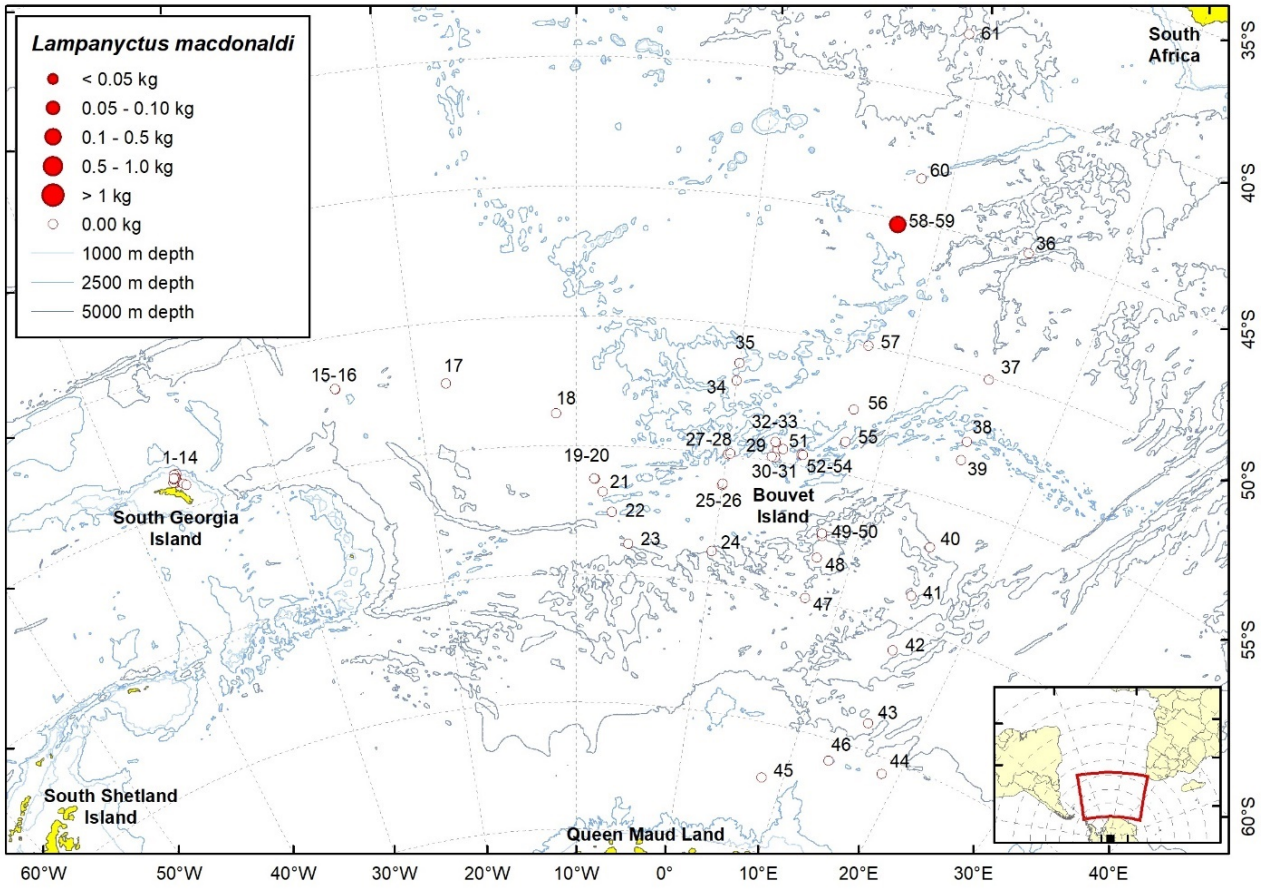

Figure 55b. Trawl stations with presence of Lampanyctus macdonaldi in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 40. Station information with presence of Lampanyctus macdonaldi.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	11	198,0	10,17	19,92

2.13.22 - *Metelectrona* spp.

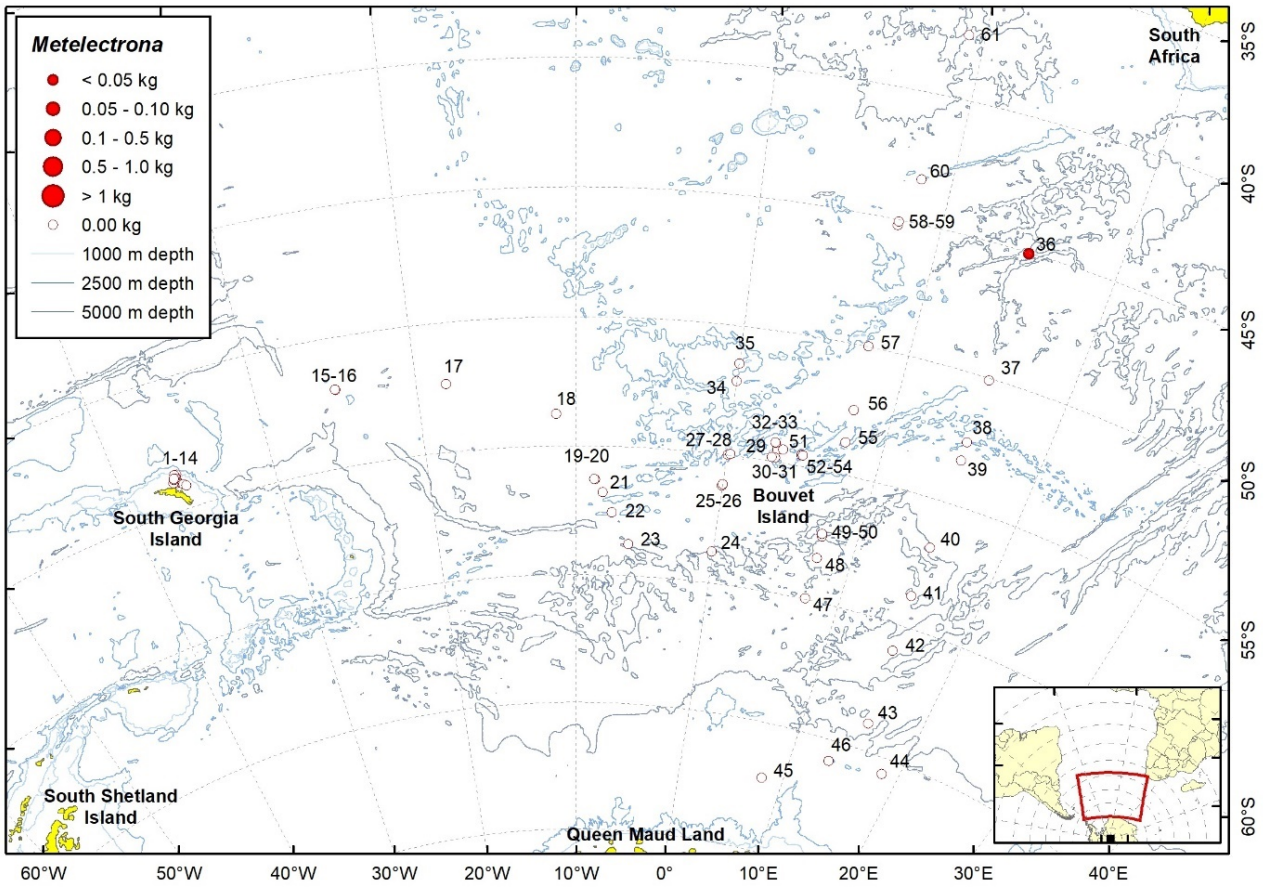

Figure 56. Trawl stations with presence of Metelectrona spp. in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 41. Station information with presence of Metelectrona spp.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
36	22.02.2008	45,04	S	15,00	E	2	4,9	1,60	4,28

2.13.23 - *Protomyctophum andriashevi* Becker, 1963

Figure 57a. Exemplary image of Protomyctophum andriashevi.

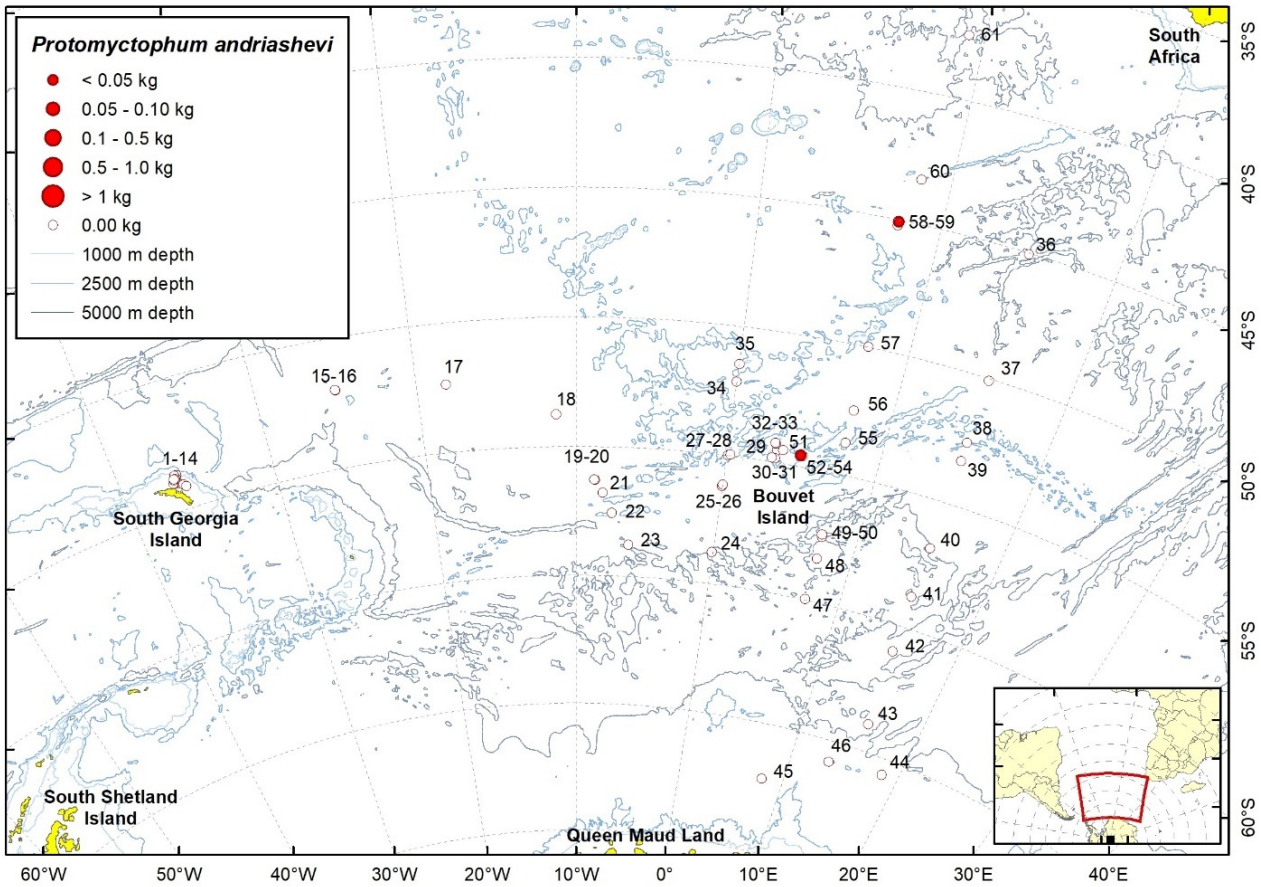

Figure 57b. Trawl stations with presence of Protomyctophum andriashevi in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 42. Station information with presence of Protomyctophum andriashevi.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
53	12.03.2008	54,57	S	4,83	E	1	1,1	0,07	4,33
59	17.03.2008	45,06	S	7,67	E	4	4,3	1,02	5,63

2.13.24 - *Protomyctophum bolini* (Fraser-Brunner, 1949)

Figure 58a. Exemplary image of Protomyctophum bolini.

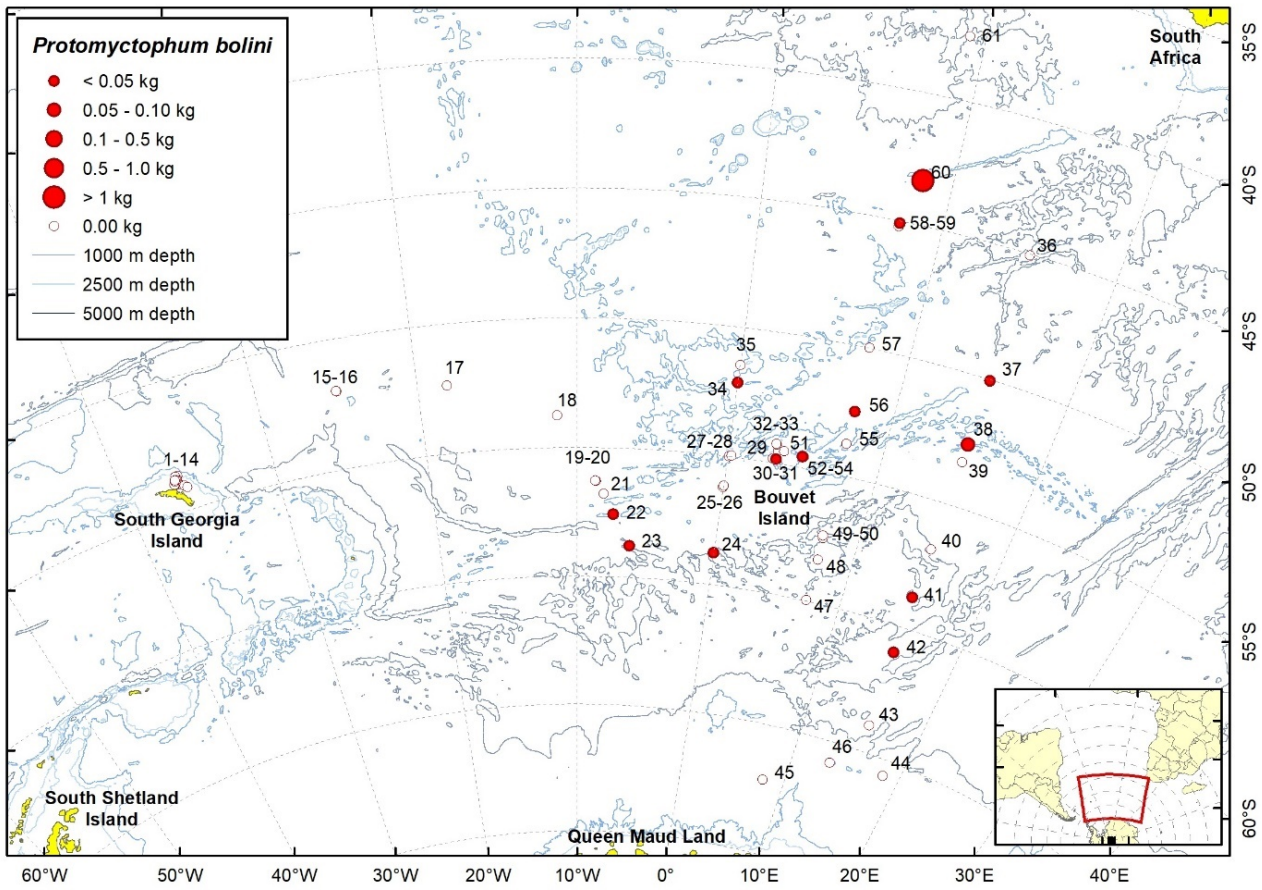

Figure 58b. Trawl stations with presence of Protomyctophum bolini in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 43. Station information with presence of Protomyctophum bolini.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
22	30.01.2008	57,57	S	7,47	W	1	0,9	0,67	20,43
23	30.01.2008	58,76	S	6,22	W	10	21,6	4,14	13,02
24	31.01.2008	58,76	S	0,04	W	1	3,0	1,49	29,02
30	03.02.2008	54,85	S	3,20	E	6	35,2	1,44	273,78
34	06.02.2008	52,12	S	0,02	W	16	36,0	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	1	2,4	3,32	14,43
38	25.02.2008	52,60	S	15,01	E	113	52,0	3,66	49,50
41	27.02.2008	58,78	S	14,99	E	6	10,2	0,34	210,17
42	28.02.2008	61,00	S	15,14	E	6	4,0	0,59	50,67
53	12.03.2008	54,58	S	4,91	E	7	7,3	0,07	4,33
56	14.03.2008	52,49	S	7,54	E	9	7,0	0,44	188,87
59	17.03.2008	45,11	S	7,66	E	3	12,7	1,02	5,63
60	18.03.2008	43,29	S	8,40	E	1121	110142,5	110,70	332,36

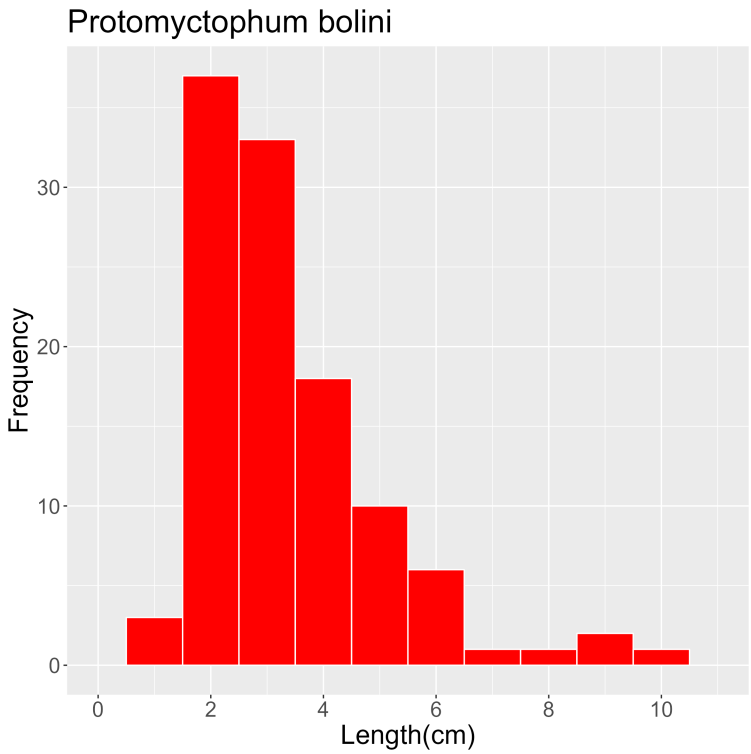

Figure 59. Length frequency of Protomyctophum bolini for all trawl stations combined. Frequency shown as number of individuals.

2.13.25 - *Protomyctophum choriodon* Hulley, 1981

Figure 60a. Exemplary image of Protomyctophum choriodon.

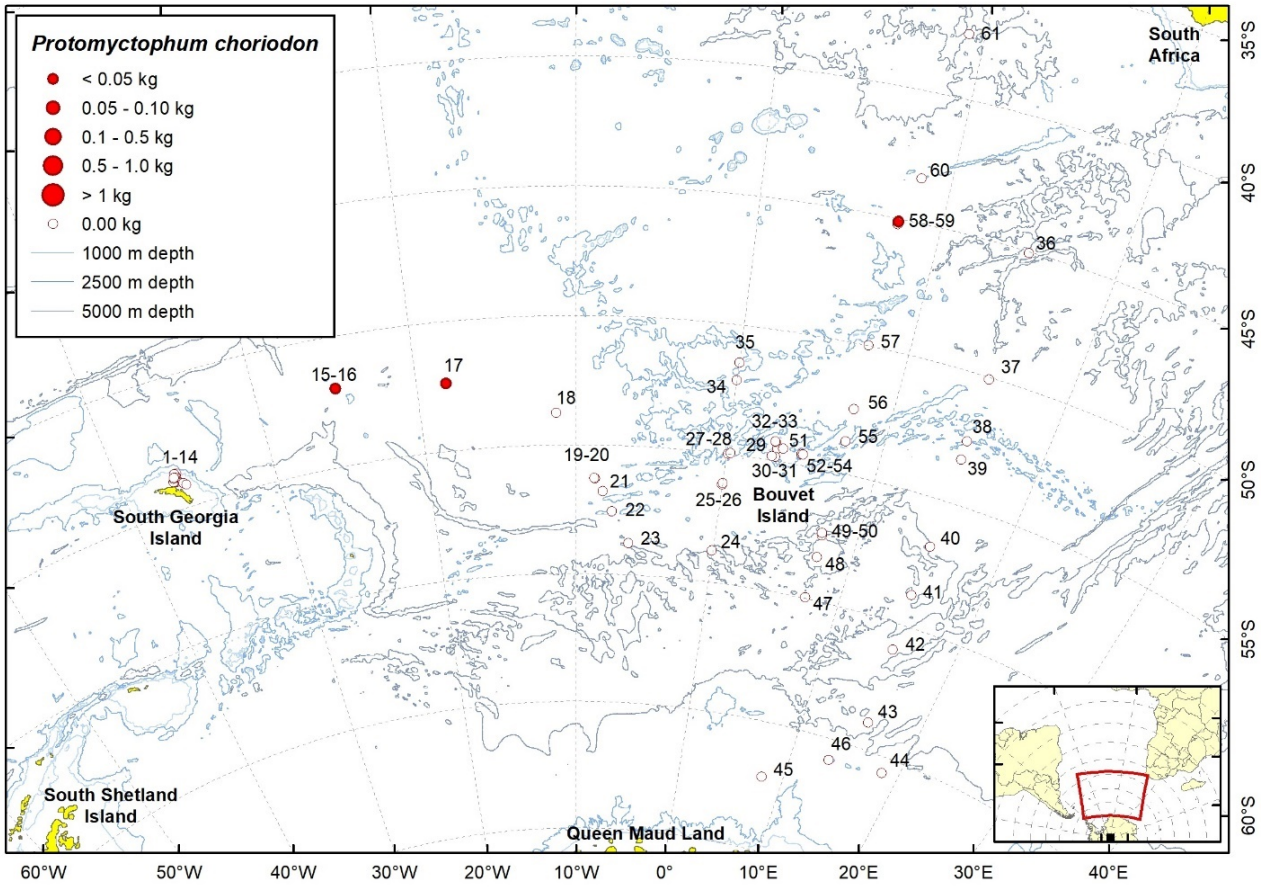

Figure 60b. Trawl stations with presence of Protomyctophum choriodon in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 44. Station information with presence of Protomyctophum choriodon.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	24.01.2008	51,99	S	25,00	W	20	22,5	3,23	45,05
17	26.01.2008	52,37	S	18,14	W	1	3,4	1,20	26,43
59	17.03.2008	45,11	S	7,66	E	2	9,0	1,02	5,63

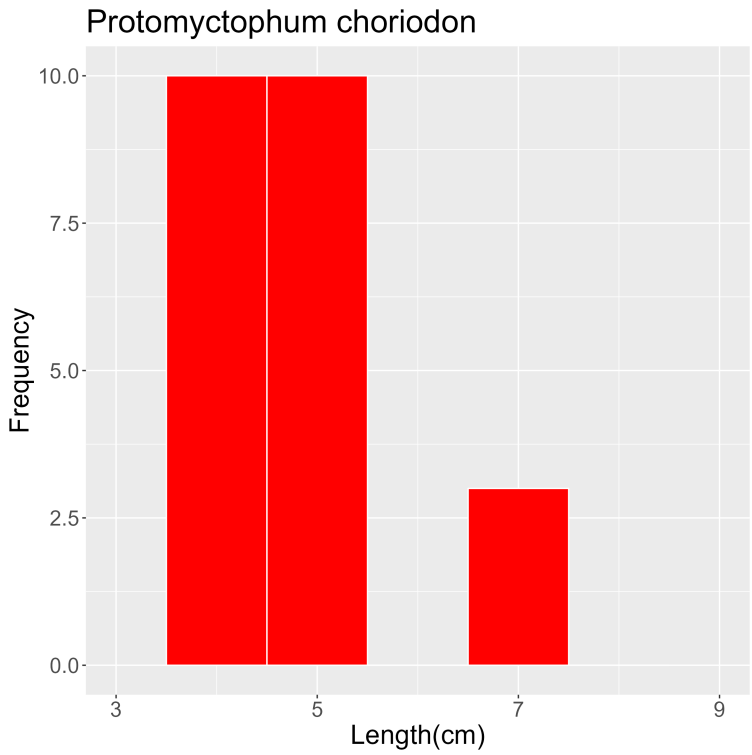

Figure 61. Length frequency of Protomyctophum choriodon for all trawl stations combined. Frequency shown as number of individuals.

2.13.26 - *Protomyctophum gemmatum* Hulley, 1981

Figure 62a. Exemplary image of Protomyctophum gemmatum.

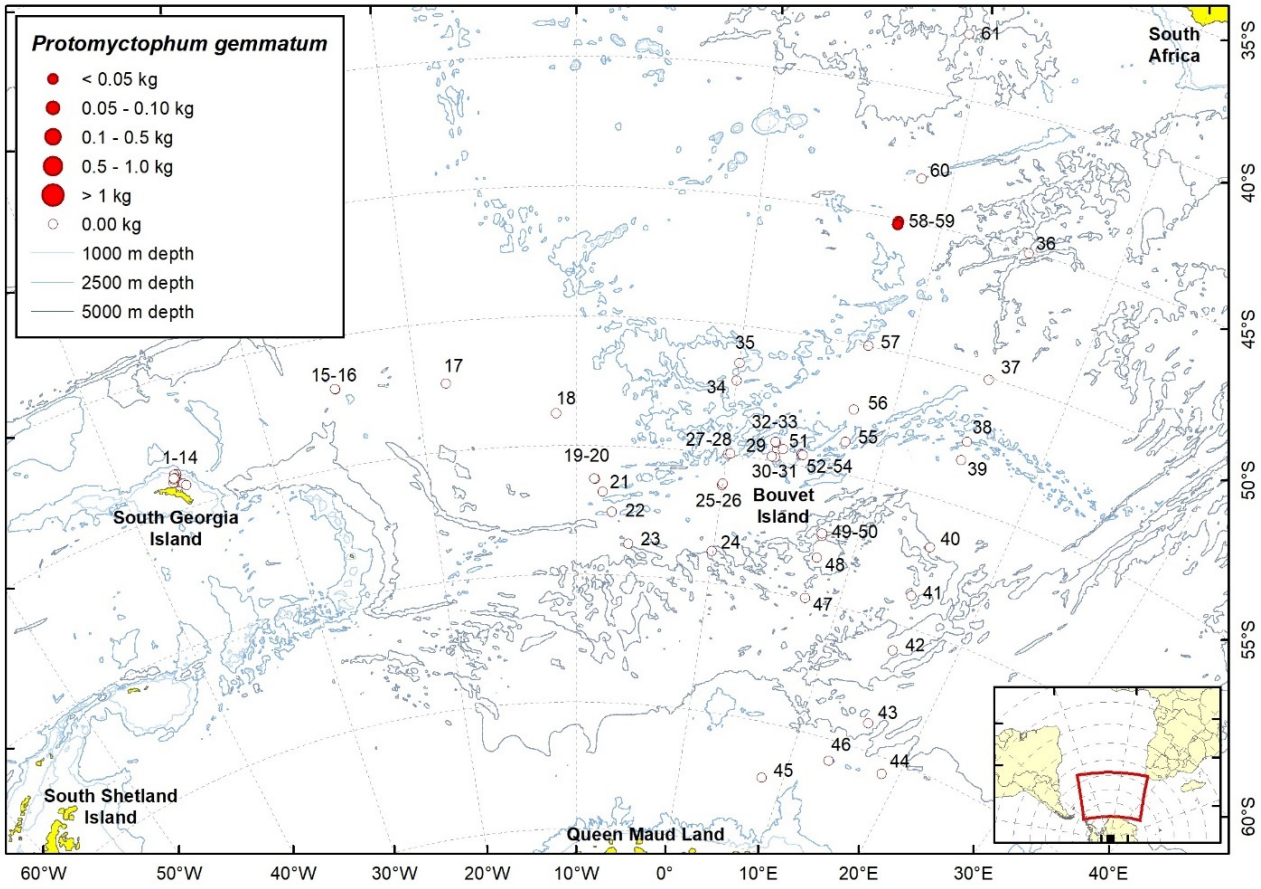

Figure 62b. Trawl stations with presence of Protomyctophum gemmatum in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 45. Station information with presence of Protomyctophum gemmatum.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	4	13,0	10,17	19,92
59	17.03.2008	45,11	S	7,66	E	4	24,0	1,02	5,63

2.13.27 - *Protomyctophum normani* (Tåning, 1932)

Figure 63a. Exemplary image of Protomyctophum normani.

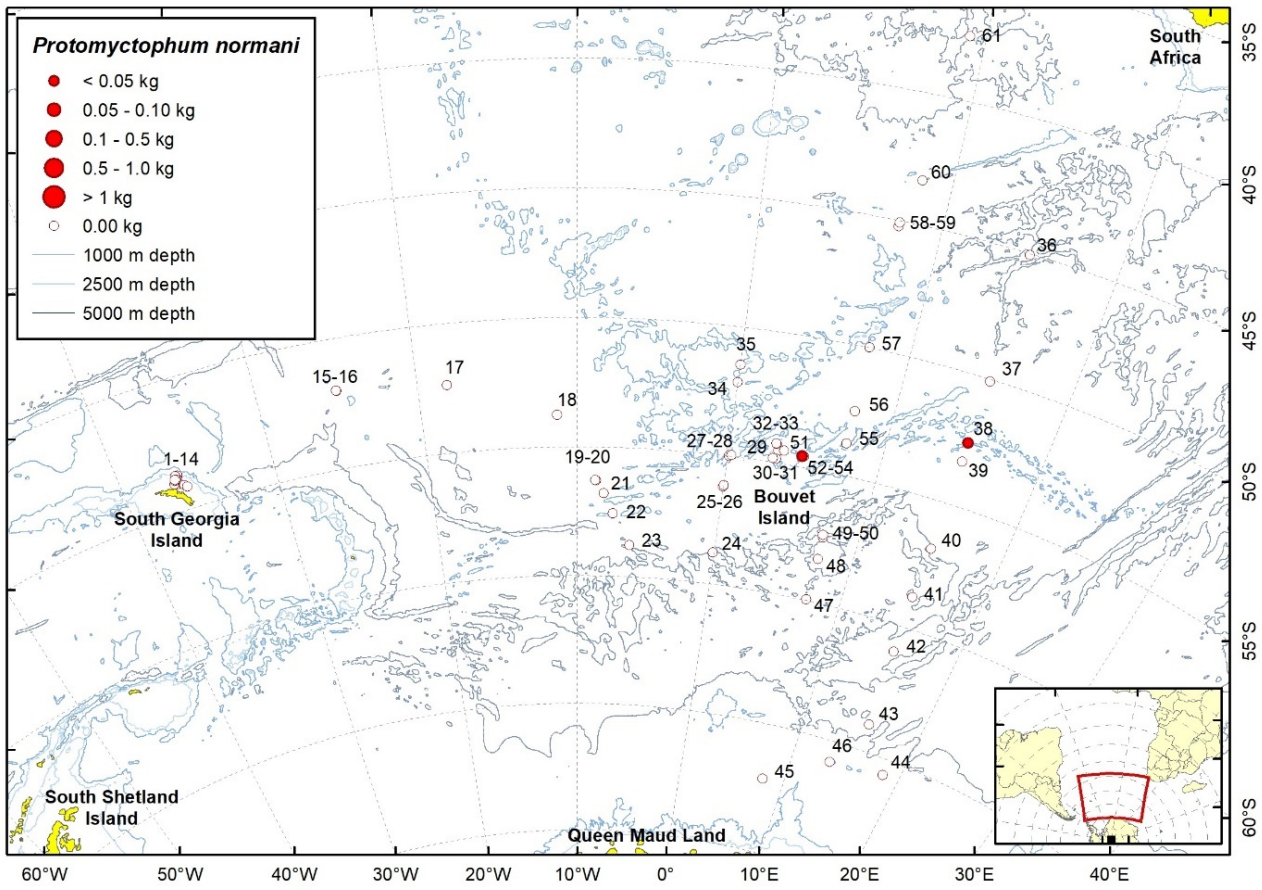

Figure 63b. Trawl stations with presence of Protomyctophum normani in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 46. Station information with presence of Protomyctophum normani.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
38	25.02.2008	52,55	S	14,99	E	15	8,8	3,66	49,50
53	12.03.2008	54,57	S	4,83	E	6	4,1	0,07	4,33

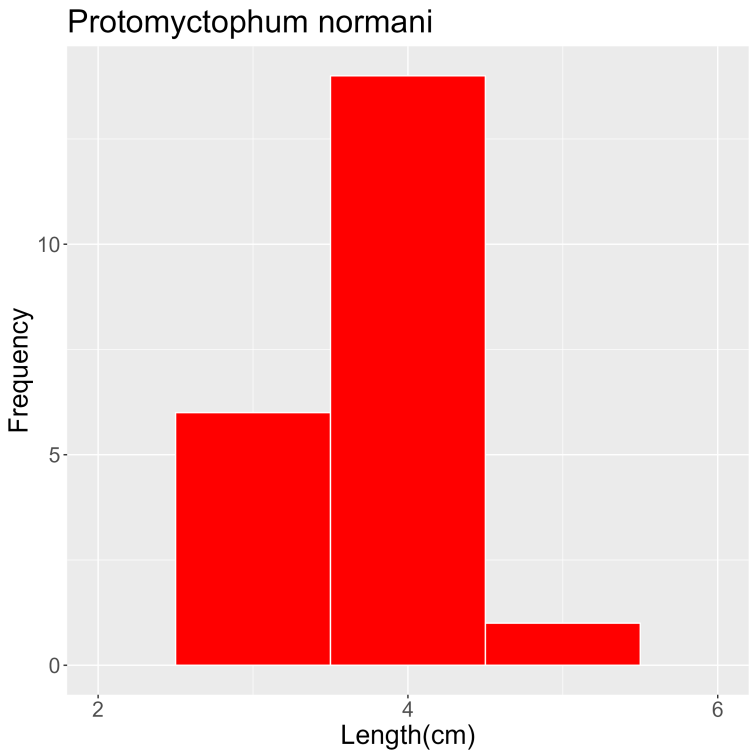

Figure 64. Length frequency of Protomyctophum normani for all trawl stations combined. Frequency shown as number of individuals.

2.13.28 - *Protomyctophum parallelum* (Lönnberg, 1905)

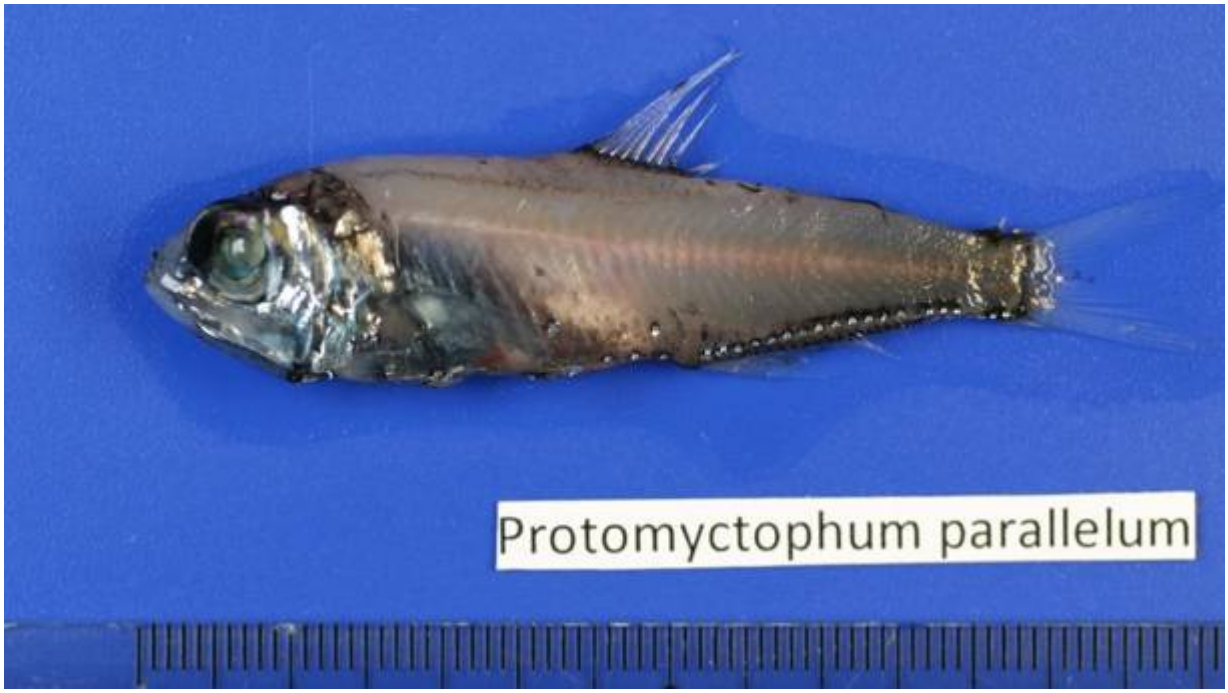

Figure 65a. Exemplary image of Protomyctophum parallelum.

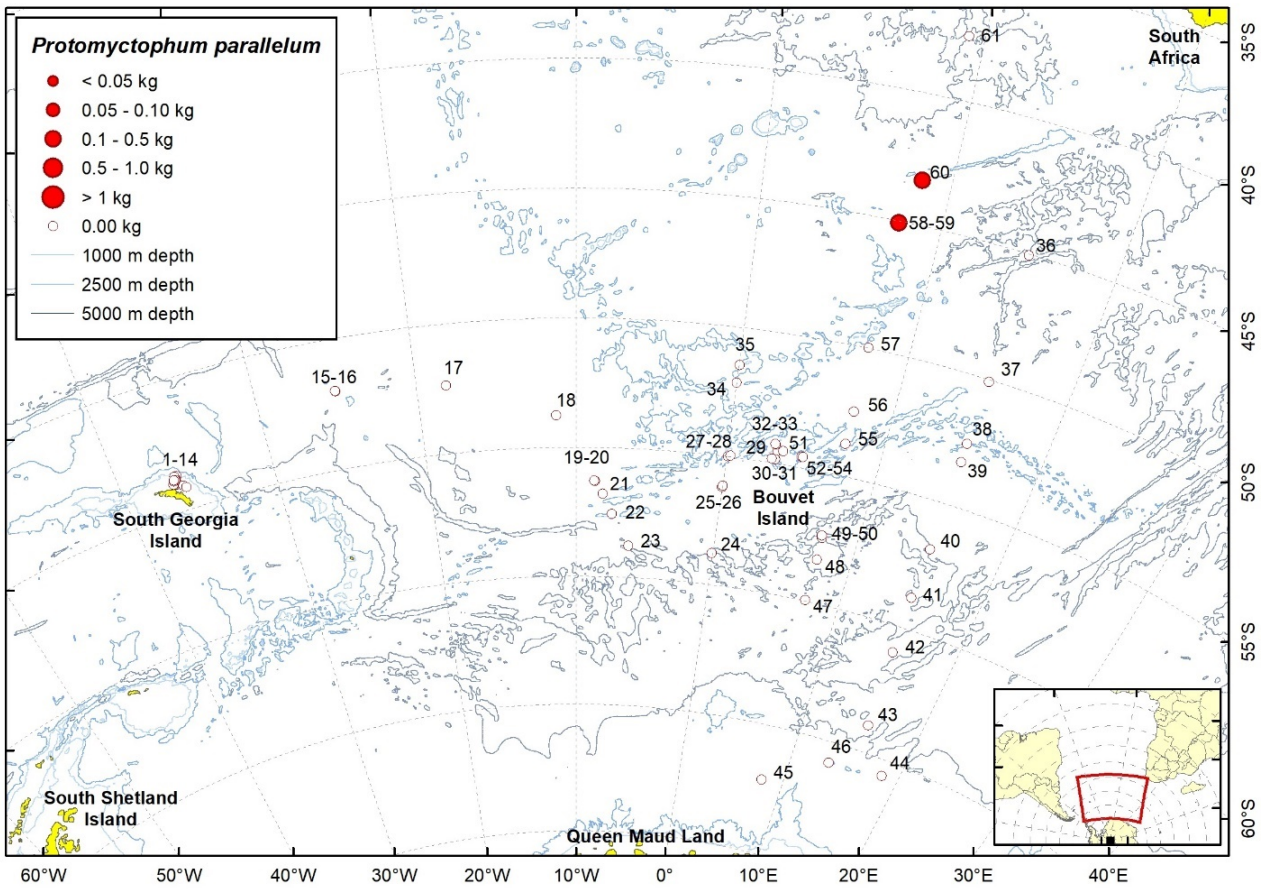

Figure 65b. Trawl stations with presence of Protomyctophum parallelum in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 47. Station information with presence of Protomyctophum parallelum.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
59	17.03.2008	45,11	S	7,66	E	183	160,2	1,02	5,63
60	18.03.2008	43,29	S	8,40	E	818	102,3	110,70	332,36

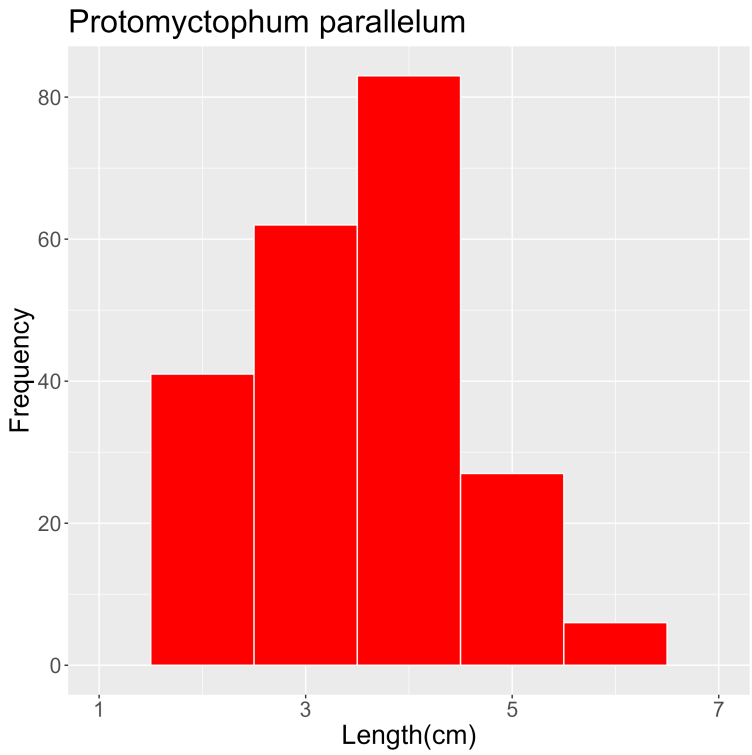

Figure 66. Length frequency of Protomyctophum parallelum for all trawl stations combined. Frequency shown as number of individuals.

2.13.29 - *Protomyctophum tenisoni* (Norman, 1930)

Figure 67a. Exemplary image of Protomyctophum tenisoni.

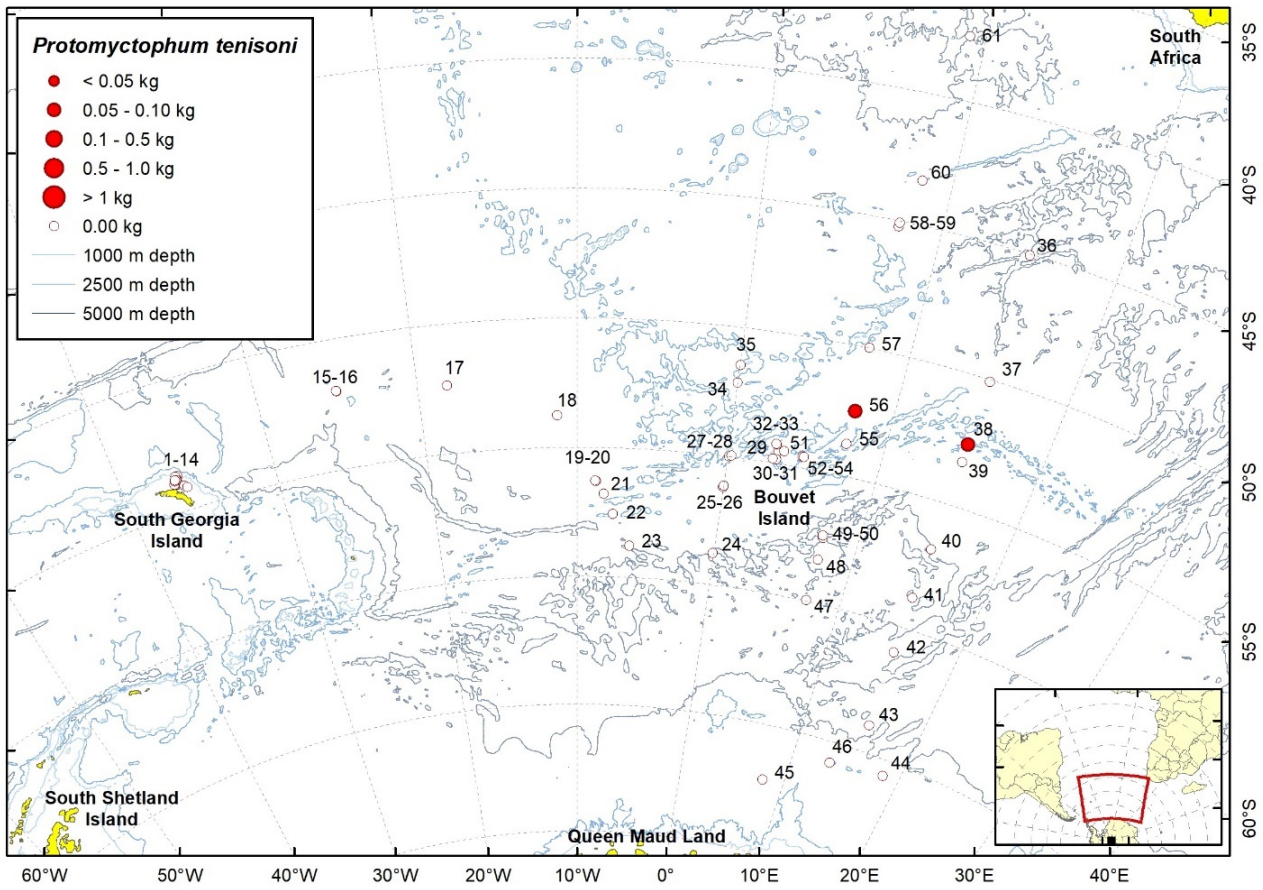

Figure 67b. Trawl stations with presence of Protomyctophum tenisoni in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 48. Station information with presence of Protomyctophum tenisoni.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
38	25.02.2008	52,58	S	15,00	E	28	69,9	3,66	49,50
56	14.03.2008	52,45	S	7,56	E	128	84,0	0,44	188,87

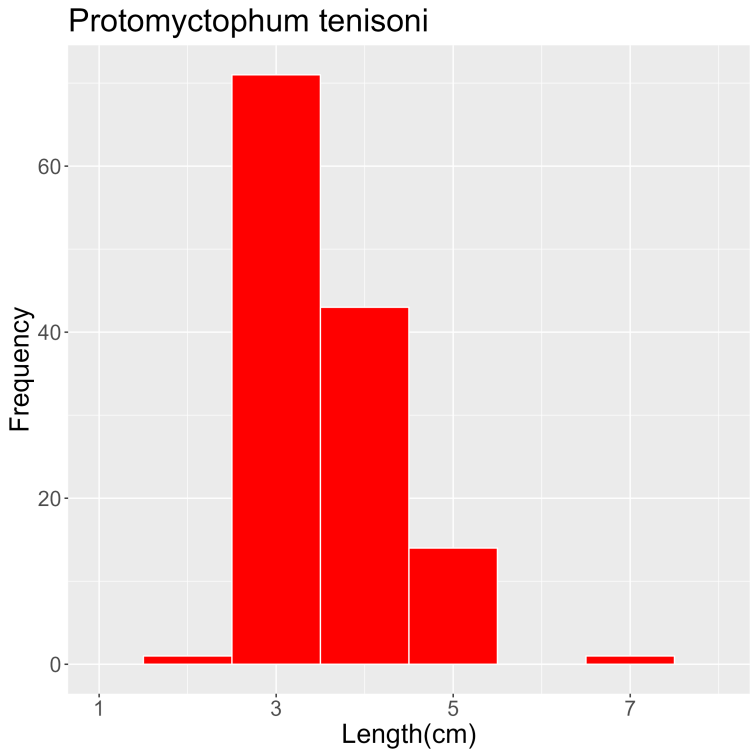

Figure 68. Length frequency of Protomyctophum tenisoni for all trawl stations combined. Frequency shown as number of individuals.

2.13.30 - *Symbolophorus boops* (Richardson, 1845)

Figure 69a. Exemplary image of Symbolophorus boops.

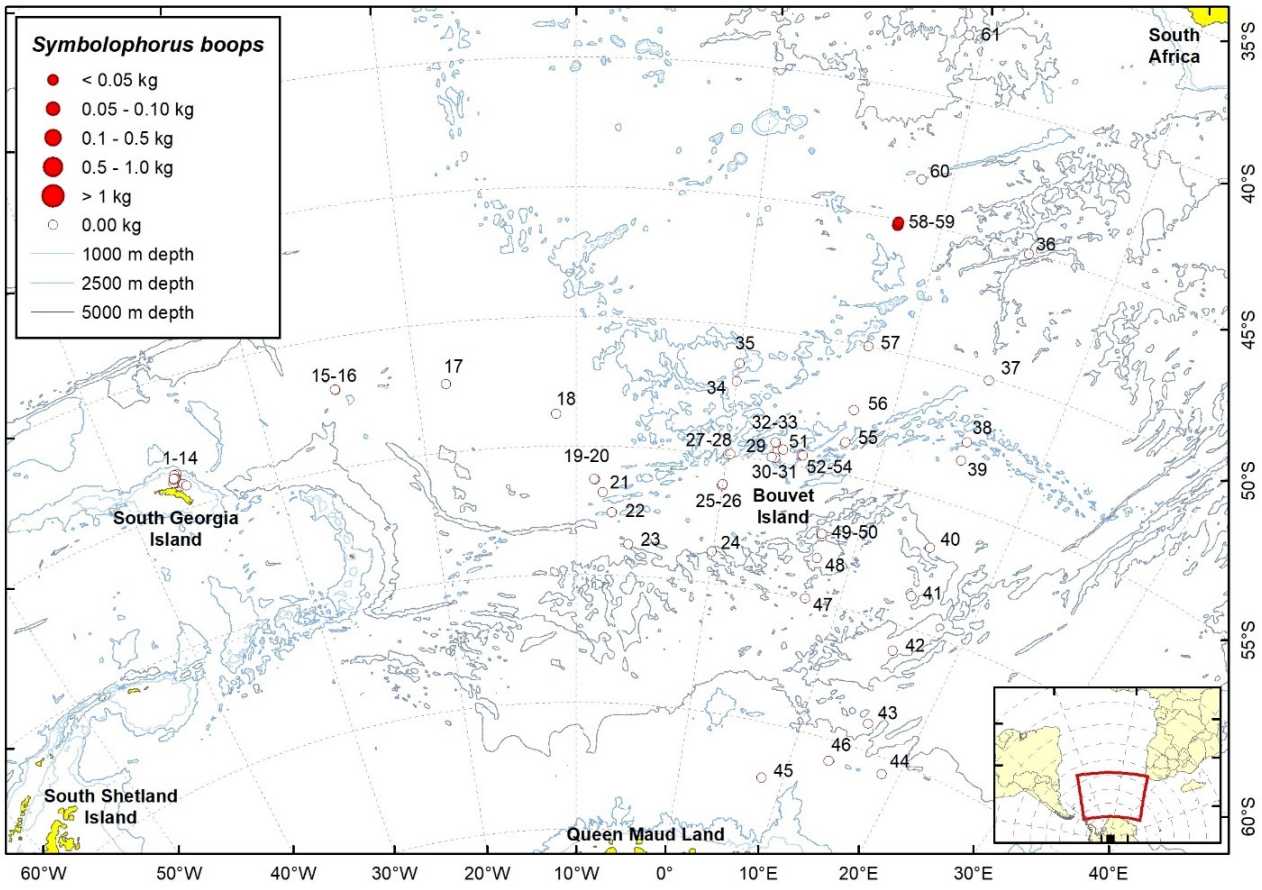

Figure 69b. Trawl stations with presence of Symbolophorus boops in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 49. Station information with presence of Symbolophorus boops.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	1	13,0	10,17	19,92
59	17.03.2008	45,11	S	7,66	E	2	8,0	1,02	5,63

2.14 - Macrouridae

2.14.1 - *Cynomacrurus piriei* Dollo, 1909

Figure 70a. Exemplary image of Cynomacrurus piriei.

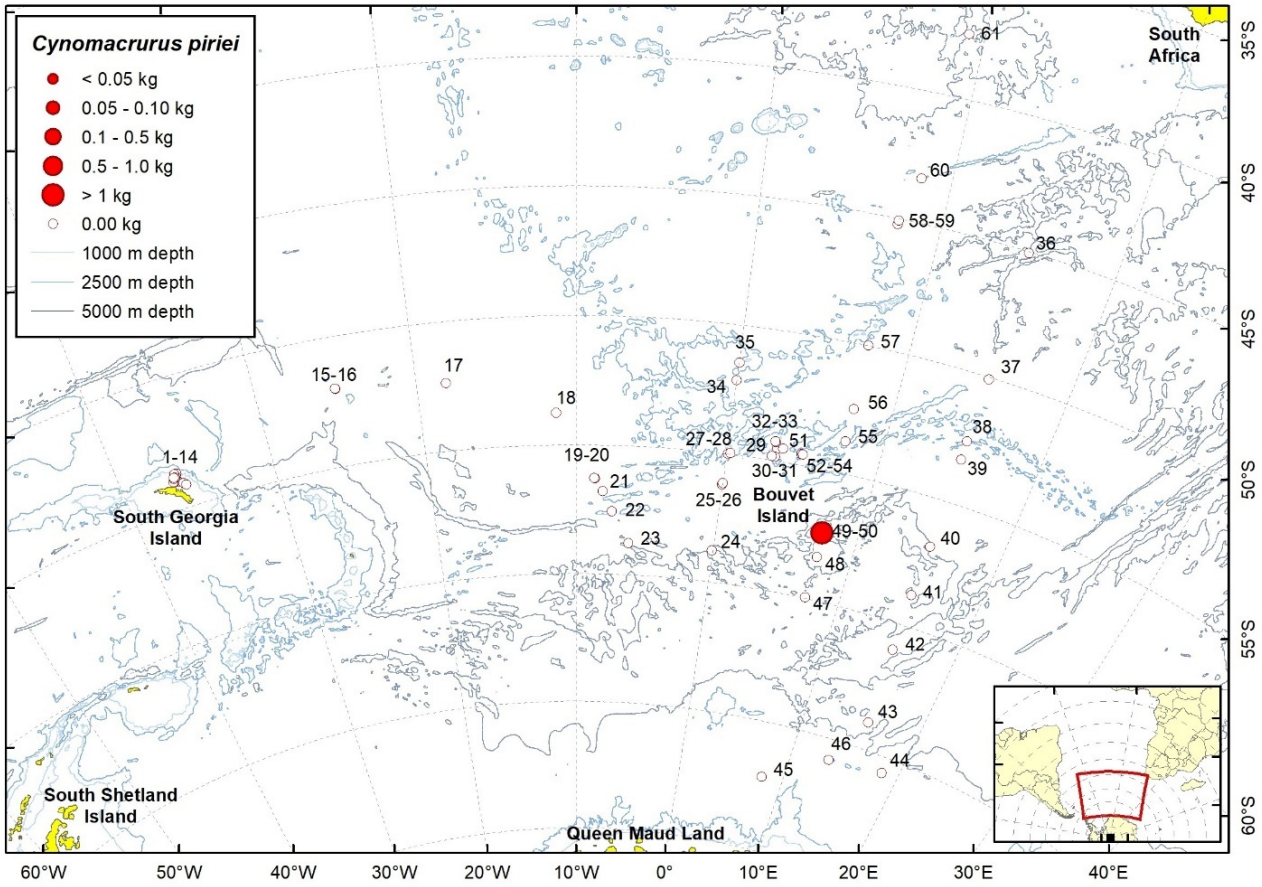

Figure 70b. Trawl stations with presence of Cynomacrurus piriei in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 49. Station information with presence of Cynomacrurus piriei.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
50	08.03.2008	57,39	S	7,44	E	10	1200,0	26,34	31,75

2.15 - Melanonidae

2.15.1 - *Melanonus gracilis* Günther, 1878

Figure 71a. Exemplary image of Melanonus gracilis.

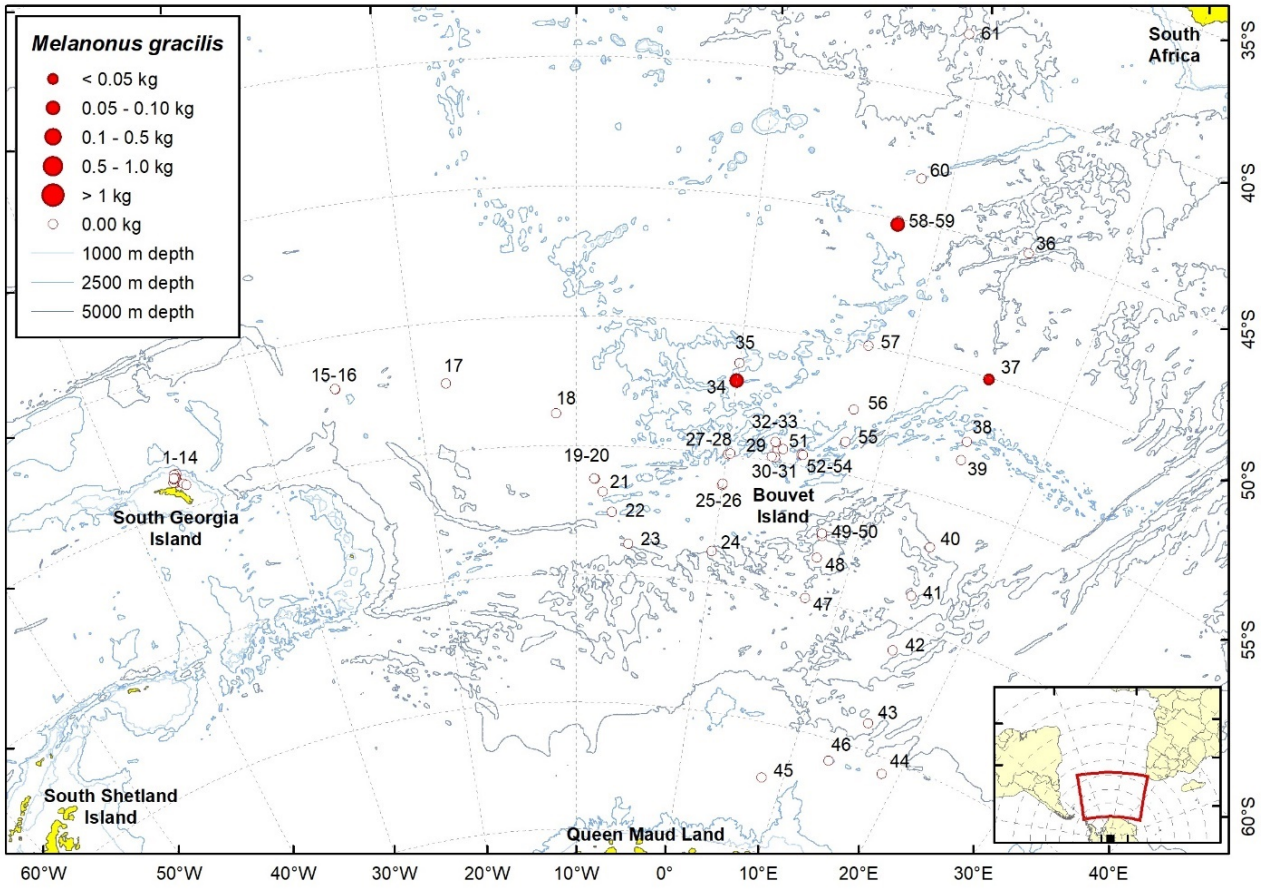

Figure 71b. Trawl stations with presence of Melanonus gracilis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 50. Station information with presence of Melanonus gracilis

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
34	06.02.2008	52,12	S	0,02	W	2	56,1	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	2	26,0	3,32	14,43
58	17.03.2008	45,20	S	7,65	E	2	59,0	10,17	19,92

2.16 - Melamphaidae

2.16.1 - *Melamphaes eulepis* Ebeling, 1962

Figure 72a. Exemplary image of Melamphaes eulepis.

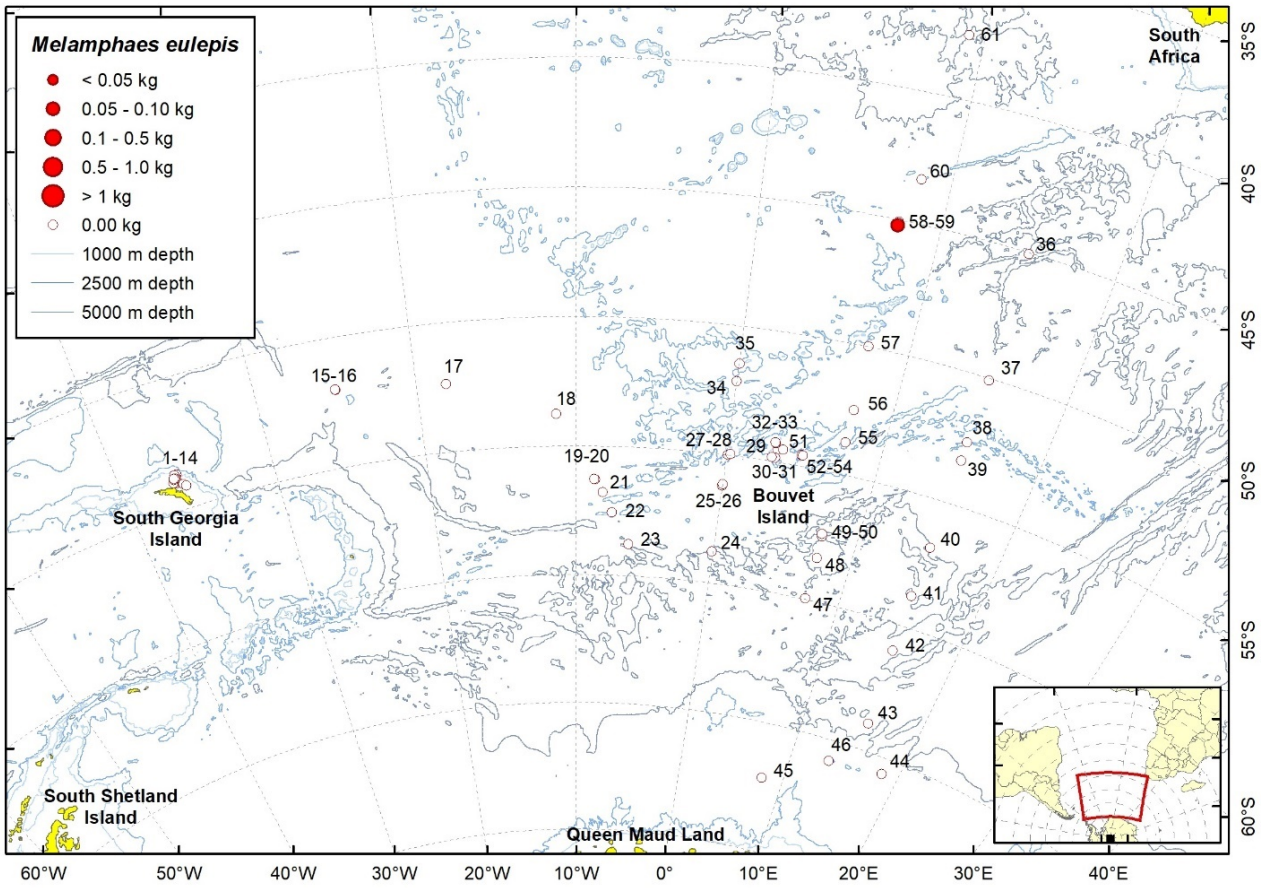

Figure 72b. Trawl stations with presence of Melamphaes eulepis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 51. Station information with presence of Melamphaes eulepis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	3	94,0	10,17	19,92

2.16.2 - *Melamphaes microps* (Günther, 1878)

Figure 73a. Exemplary image of Melamphaes microps.

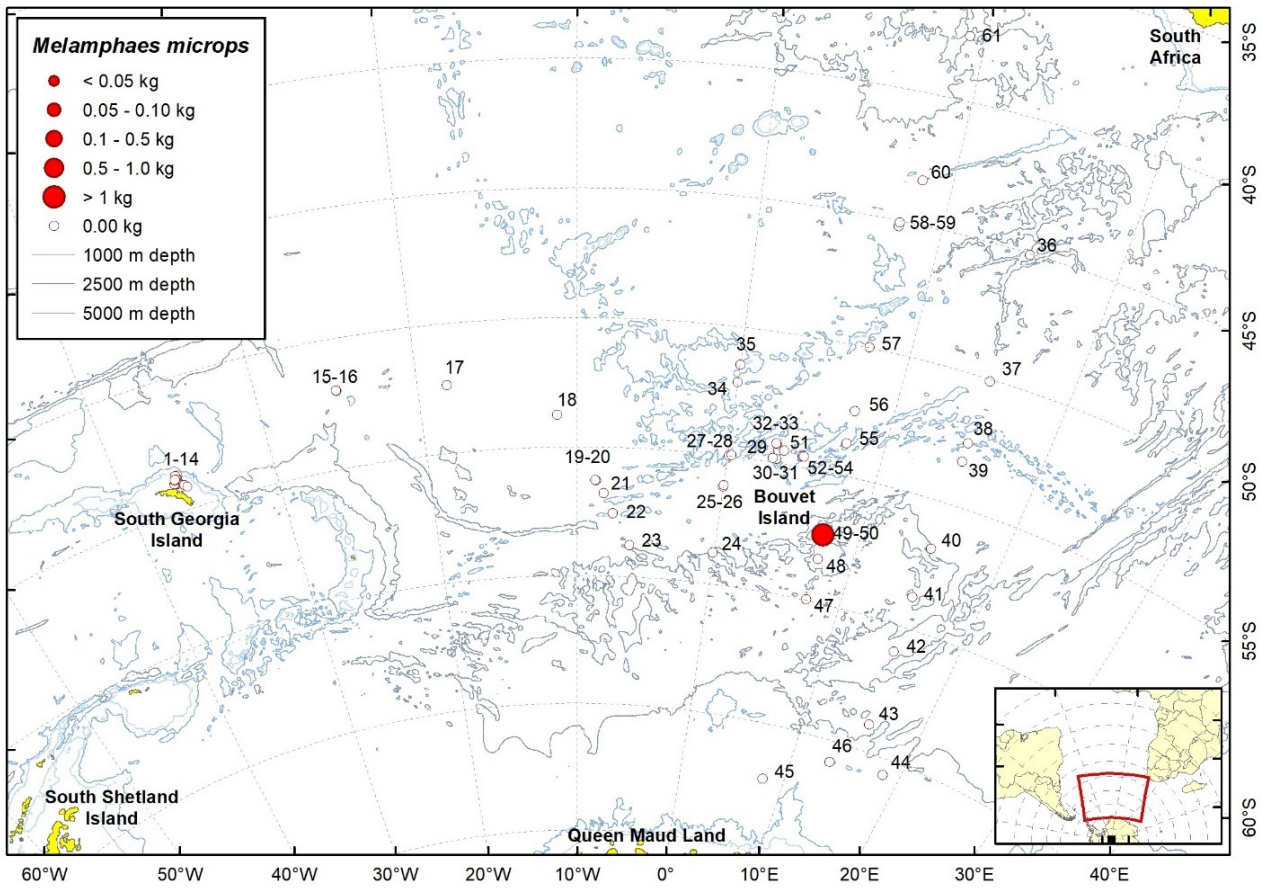

Figure 73b. Trawl stations with presence of Melamphaes microps in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 52. Station information with presence of Melamphaes microps.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
50	08.03.2008	57,39	S	7,44	E	54	1328,0	26,34	31,75

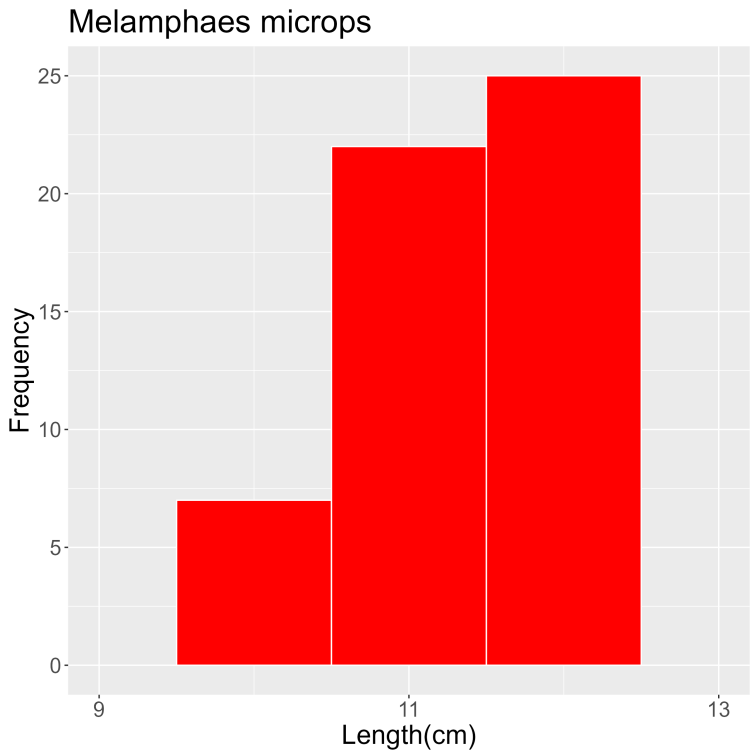

Figure 74. Length frequency of Melamphaes microps for all trawl stations combined. Frequency shown as number of individuals.

2.16.3 - *Sio nordenskjoldii* (Lönnberg, 1905)

Figure 75a. Exemplary image of Sio nordenskjoldii.

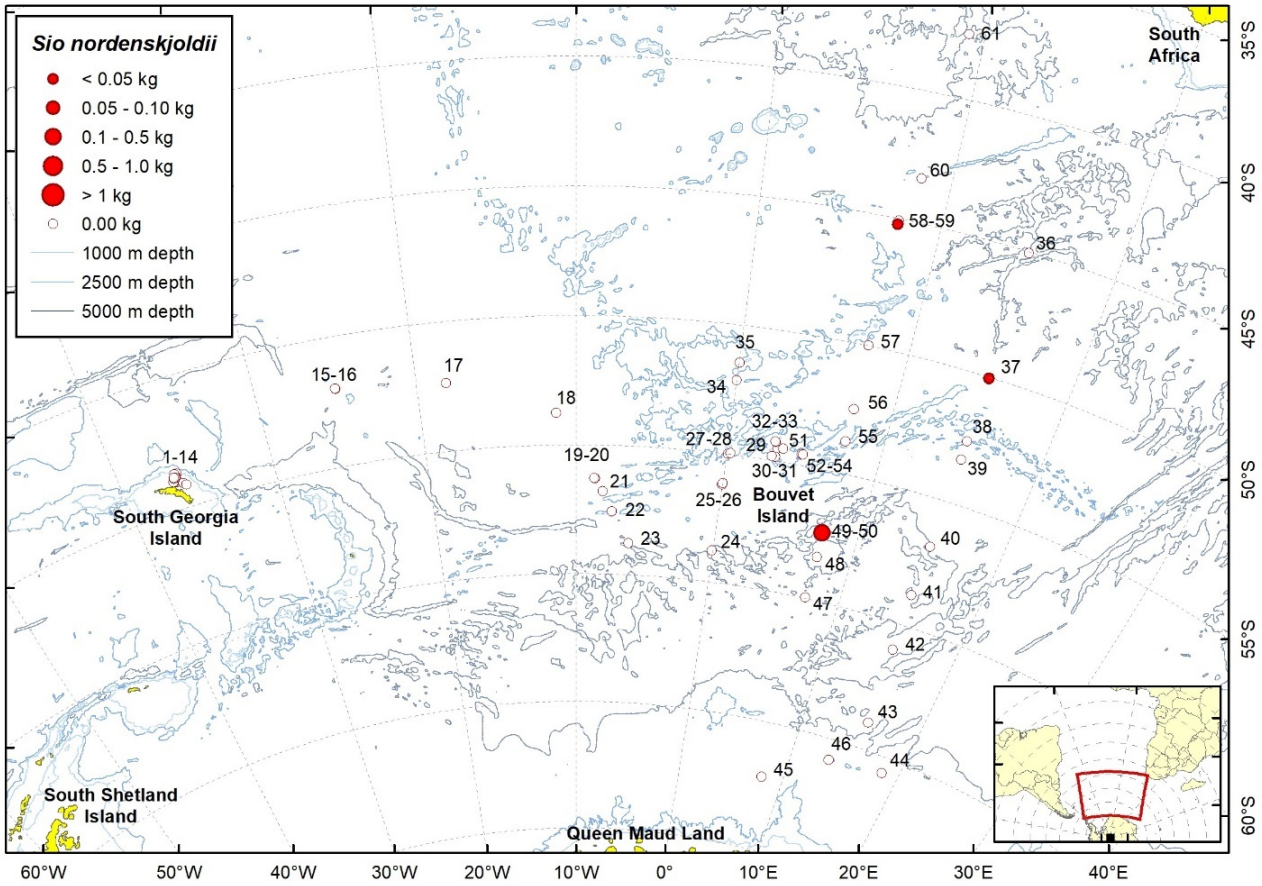

Figure 75b. Trawl stations with presence of Sio nordenskjoldii in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 53. Station information with presence of Sio nordenskjoldii.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
37	24.02.2008	50,04	S	15,02	E	2	23,0	3,32	14,43
50	08.03.2008	57,39	S	7,44	E	16	247,0	26,34	31,75
58	17.03.2008	45,20	S	7,65	E	3	24,0	10,17	19,92

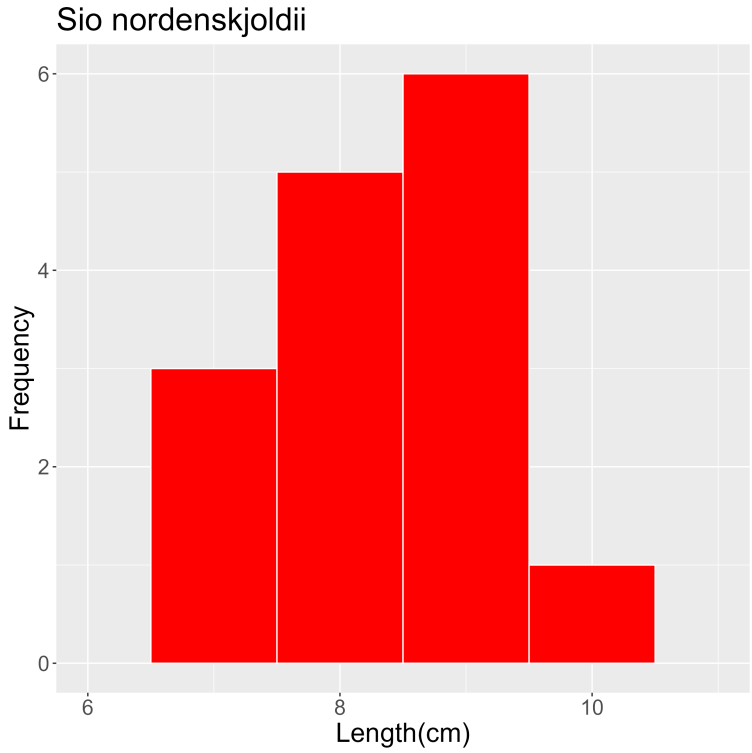

Figure 76. Length frequency of Sio nordenskjoldii for all trawl stations combined. Frequency shown as number of individuals.

2.17 - Gempylidae

2.17.1 - *Paradiplospinus antarcticus* Andriashev, 1960

Figure 77a. Exemplary image of Paradiplospinus antarcticus.

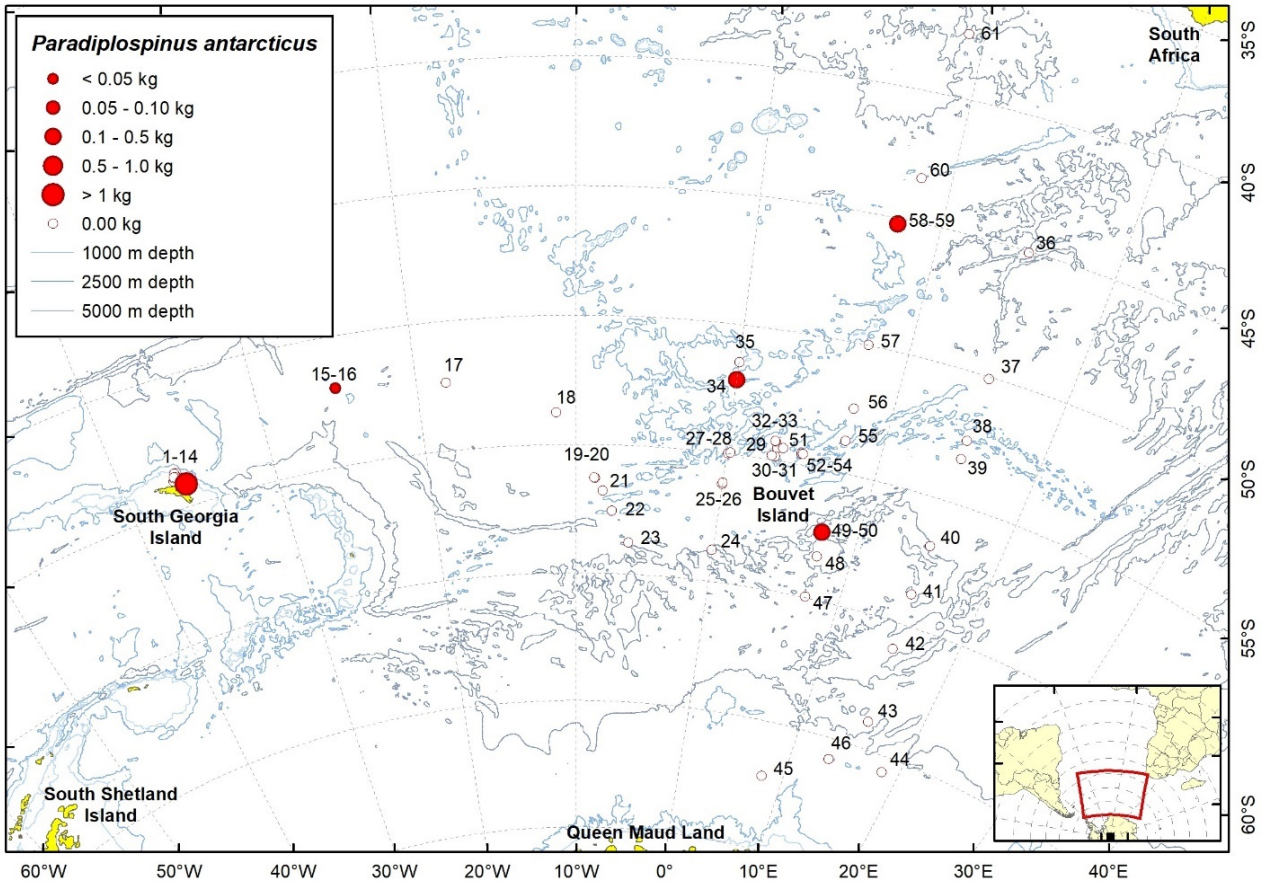

Figure 77b. Trawl stations with presence of Paradiplospinus antarcticus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 54. Station information with presence of Paradiplospinus antarcticus.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
14	23.01.2008	54,14	S	35,88	W	6	1326,0	311,92	311,92
16	24.01.2008	51,99	S	25,00	W	1	13,6	3,23	45,05

34	06.02.2008	52,12	S	0,02	W	19	250,4	4,15	44,70
50	08.03.2008	57,39	S	7,44	E	2	152,0	26,34	31,75
58	17.03.2008	45,20	S	7,65	E	8	194,0	10,17	19,92

2.17.2 - *Paradiplospinus gracilis* (Brauer, 1906)

Remarks: Due to taxonomic confusion both *P. antarcticus* and *P. gracilis* were registered, although only *P. antarcticus* is likely to occur in the area.

Figure 78a. Exemplary image of Paradiplospinus gracilis.

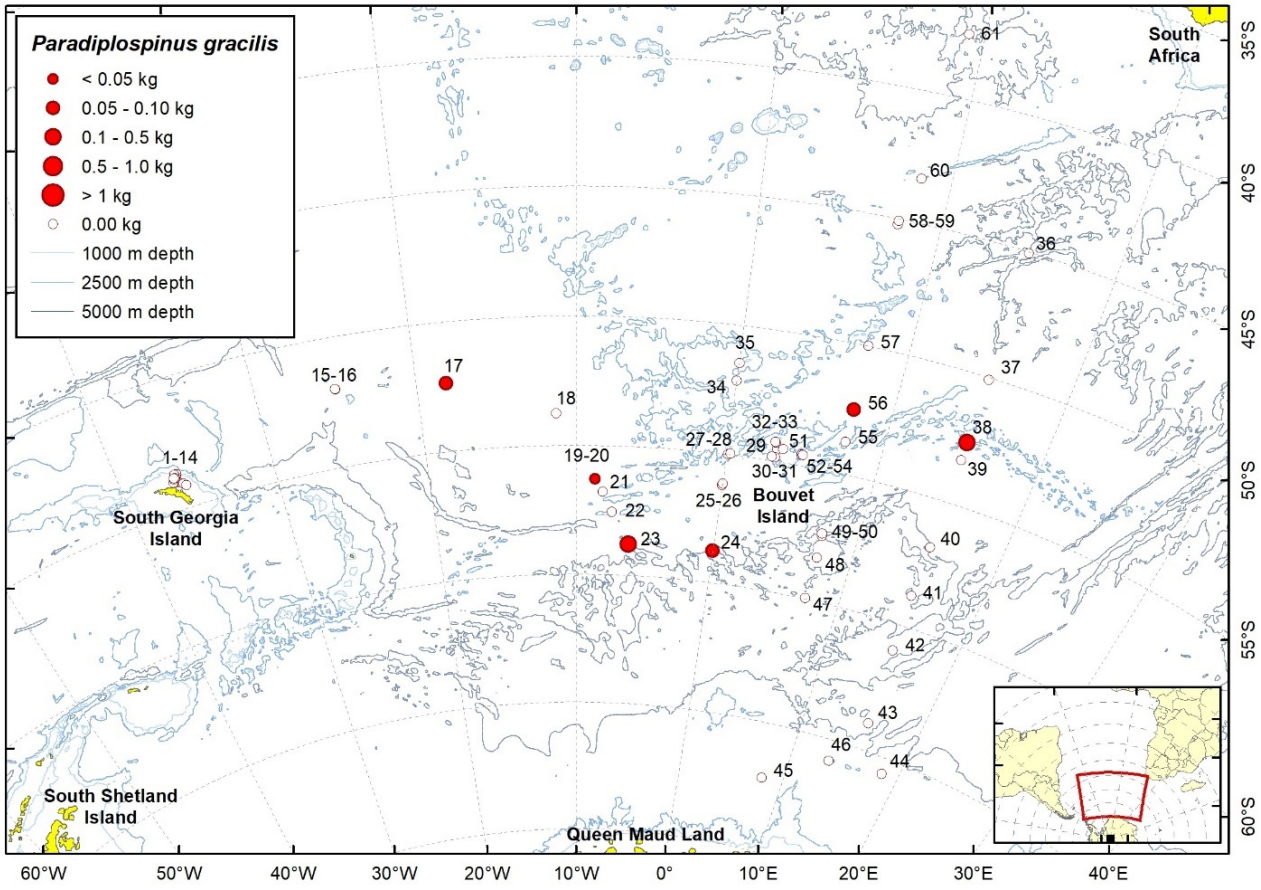

Figure 78b. Trawl stations with presence of Paradiplospinus gracilis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 54. Station information with presence of Paradiplospinus gracilis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
17	26.01.2008	52,33	S	18,16	W	5	67,1	1,20	26,43

19	29.01.2008	56,28	S	8,71	W	1	10,8	0,16	49,45
23	30.01.2008	58,77	S	6,20	W	1	113,0	4,14	13,02
24	31.01.2008	58,76	S	0,04	W	1	83,8	1,49	29,02
38	25.02.2008	52,60	S	15,01	E	5	122,0	3,66	49,50
56	14.03.2008	52,45	S	7,56	E	3	53,0	0,44	188,87

2.18 - Centrolophidae

2.18.1 - *Icichthys australis* (Haedrich, 1966)

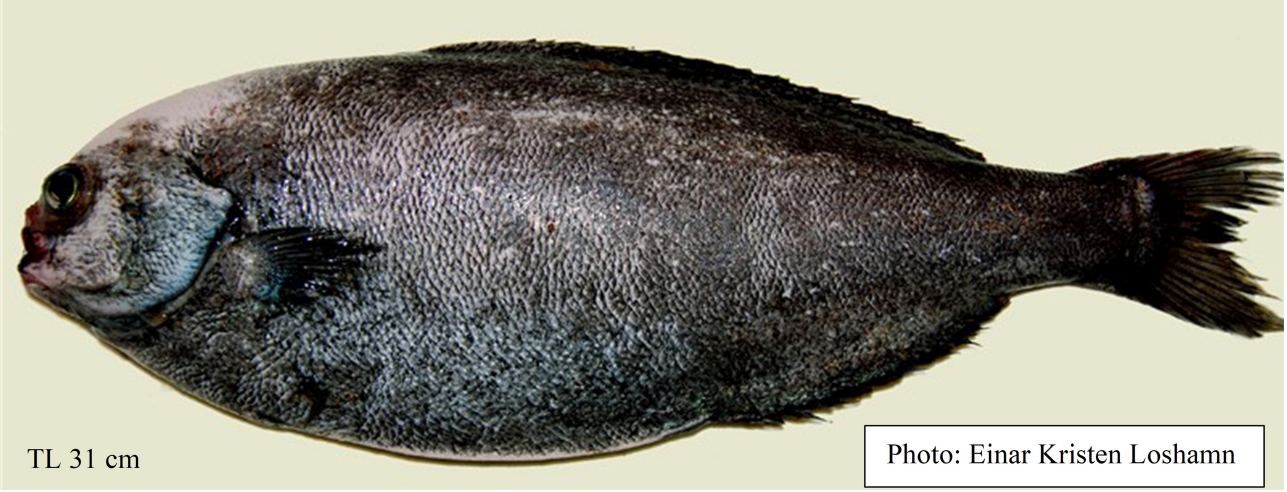

Figure 79a. Exemplary image of Pseudoicichthys australis.

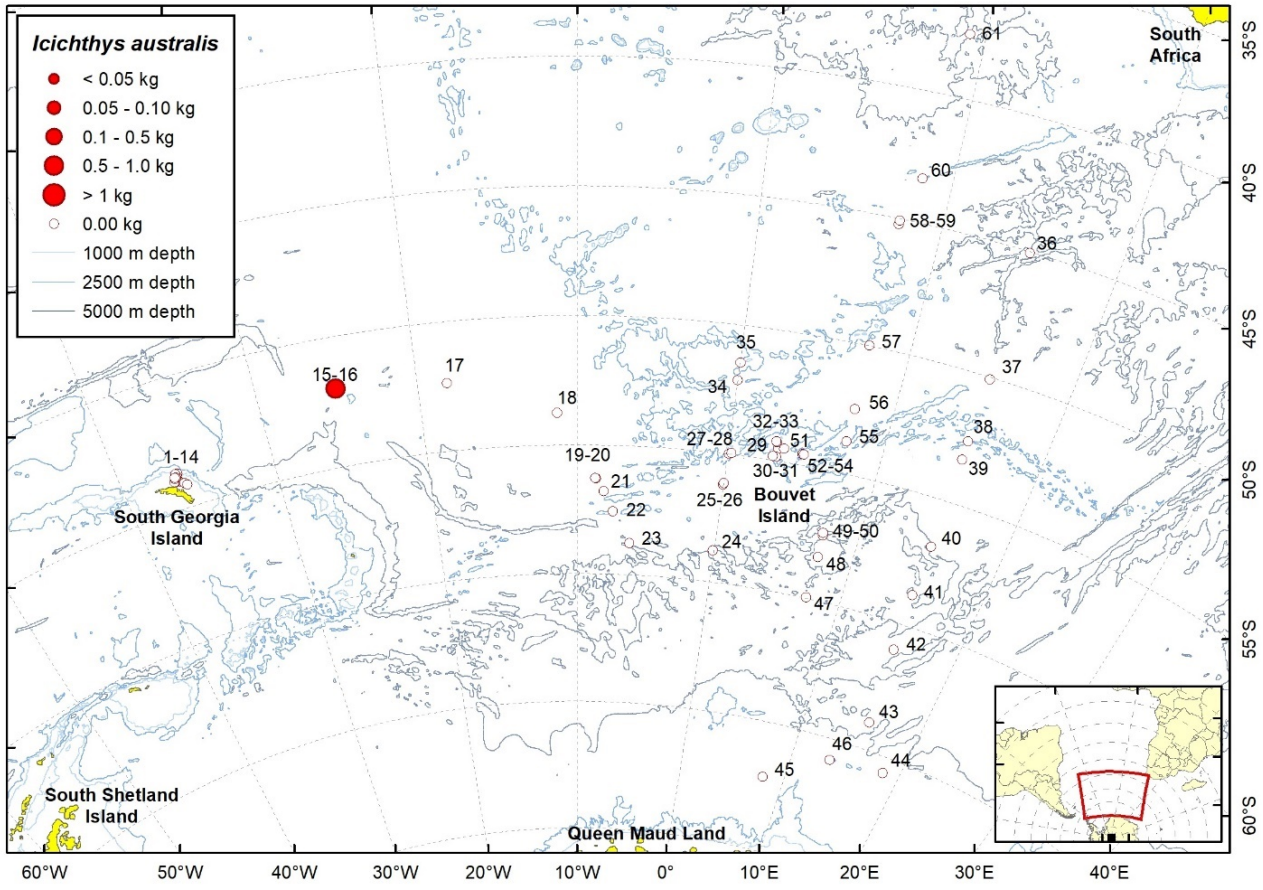

Figure 79b. Trawl stations with presence of Pseudoicichthys australis in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 50. Station information with presence of Pseudoicichthys australis.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
16	25.01.2008	51,98	S	25,06	W	1	540,0	3,23	45,05

2.19 - Oneirodidae

2.19.1 - *Oneirodes notius* Pietsch, 1974

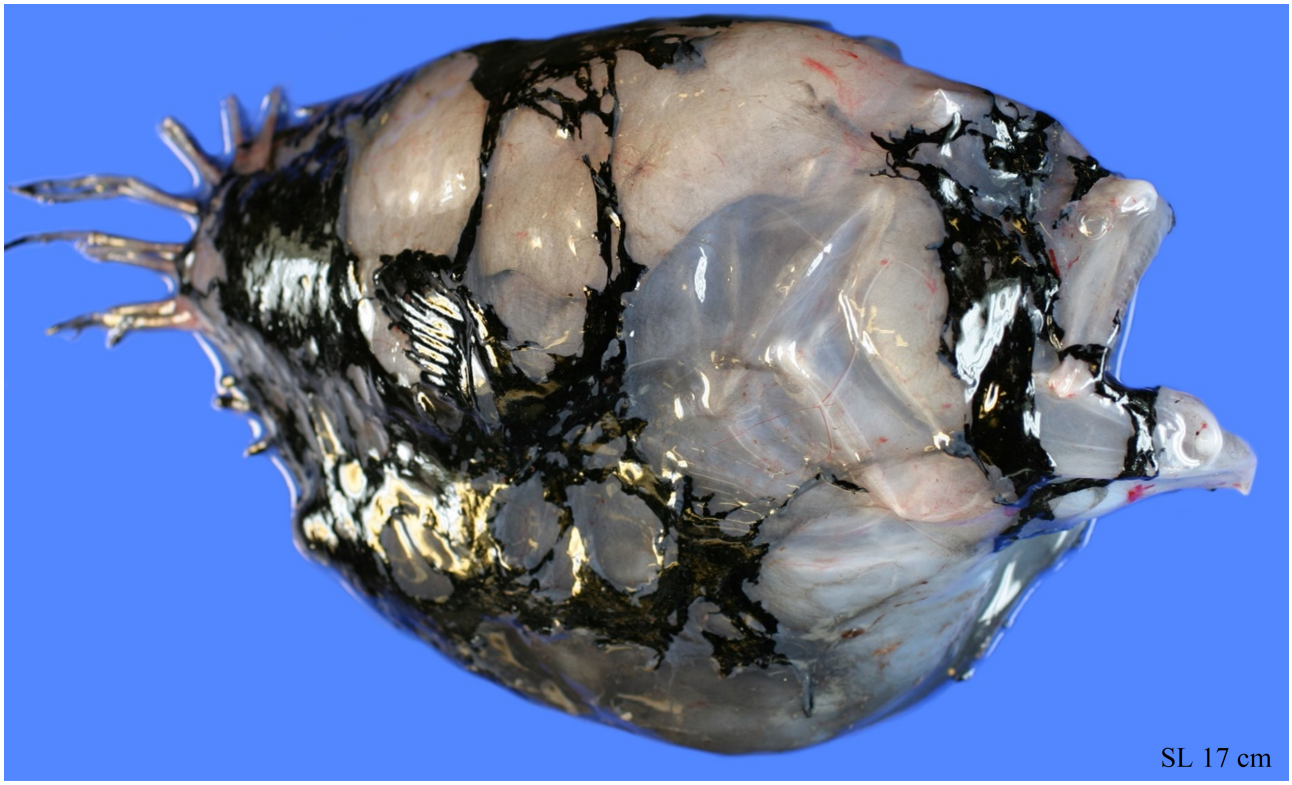

Figure 80a. Exemplary image of Oneirodes notius.

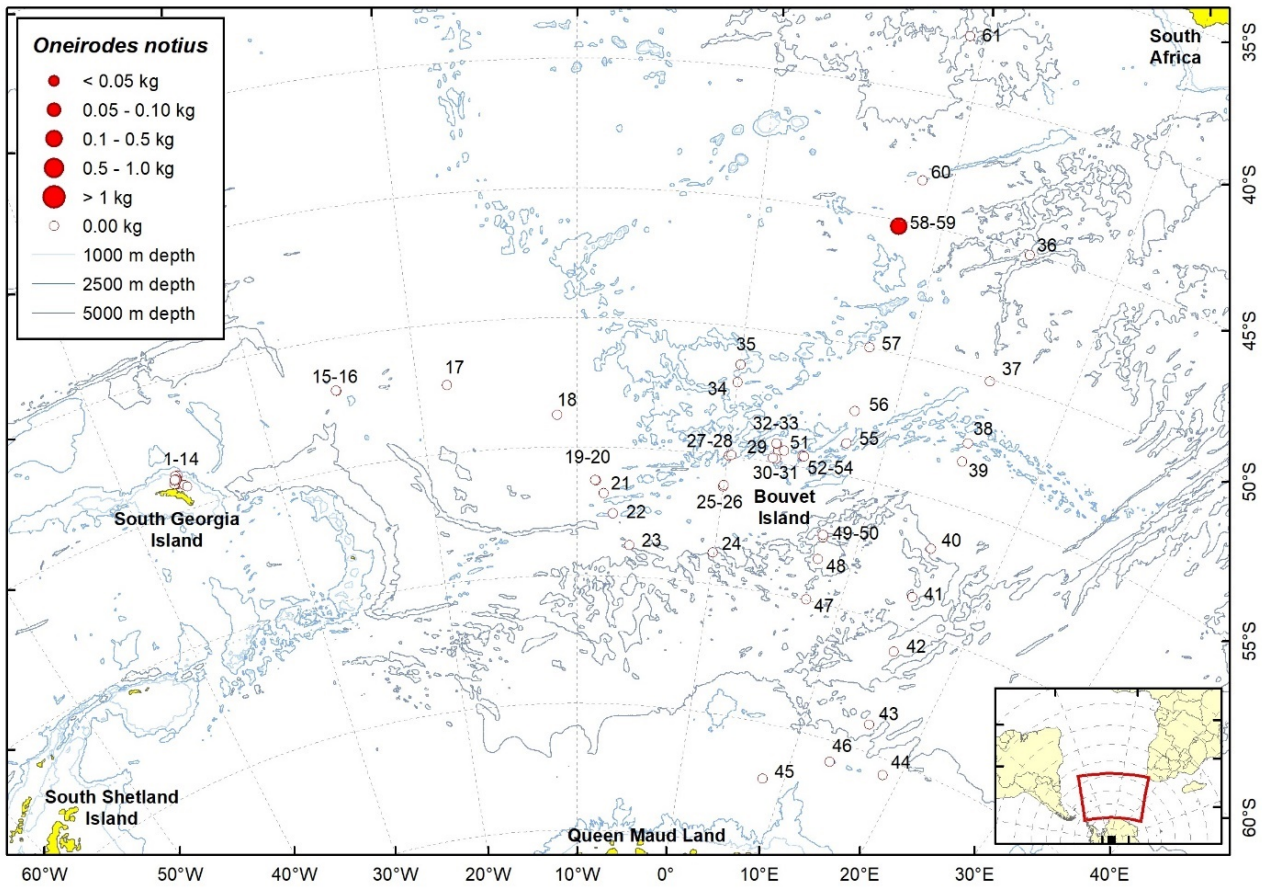

Figure 80b. Trawl stations with presence of Oneirodes notius in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 56. Station information with presence of Oneirodes notius.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	1	340,0	10,17	19,92

2.20 - Gigantactinidae

2.20.1 - *Gigantactis meadi* Bertelsen, Pietsch & Lavenberg, 1981

Figure 81a. Exemplary image of Gigantactis meadi.

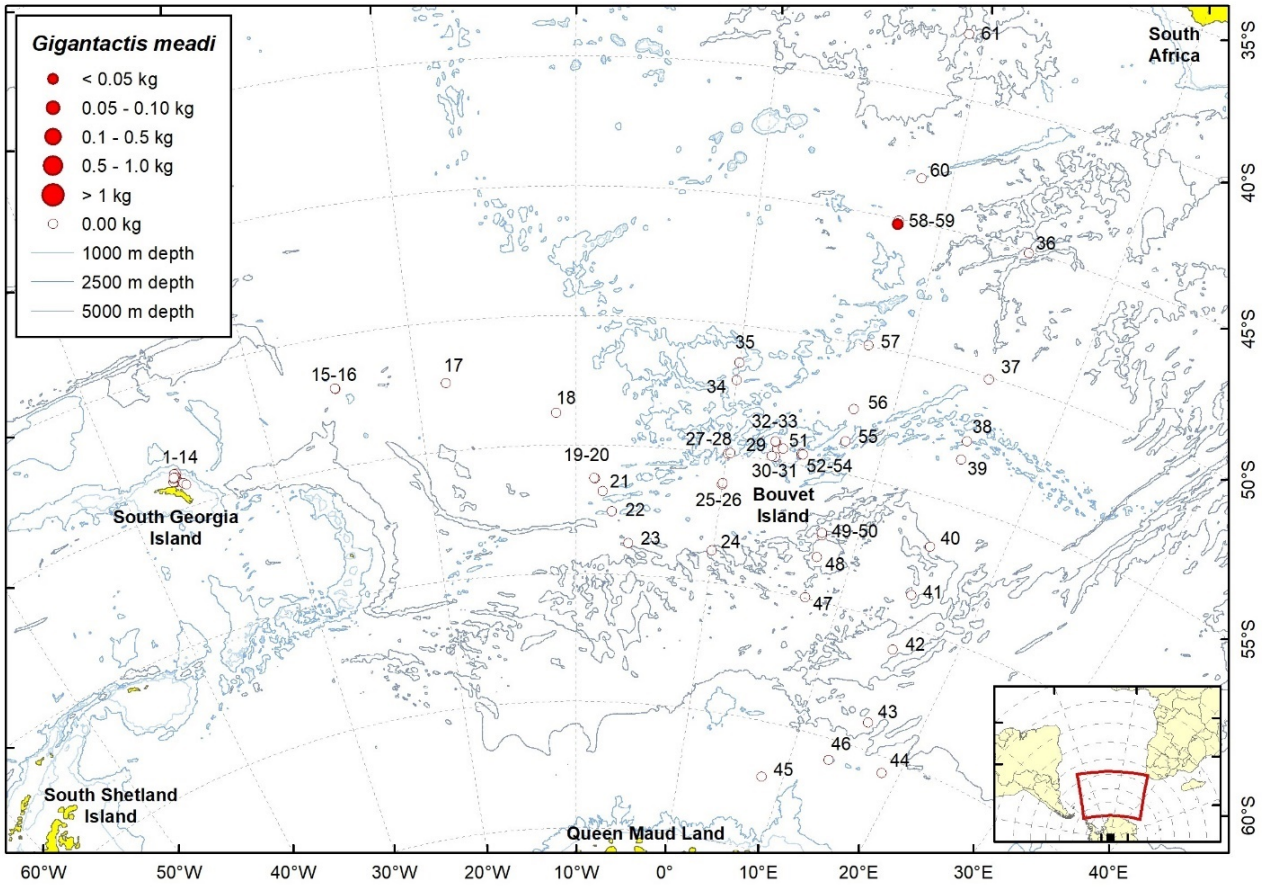

Figure 81b. Trawl stations with presence of Gigantactis meadi in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 57. Station information with presence of Gigantactis meadi.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	1	9,0	10,17	19,92

2.21 - Epigonidae

2.21.1 - *Rosenblattia robusta* Mead & De Falla, 1965

Figure 82a. Exemplary image of Rosenblattia robusta.

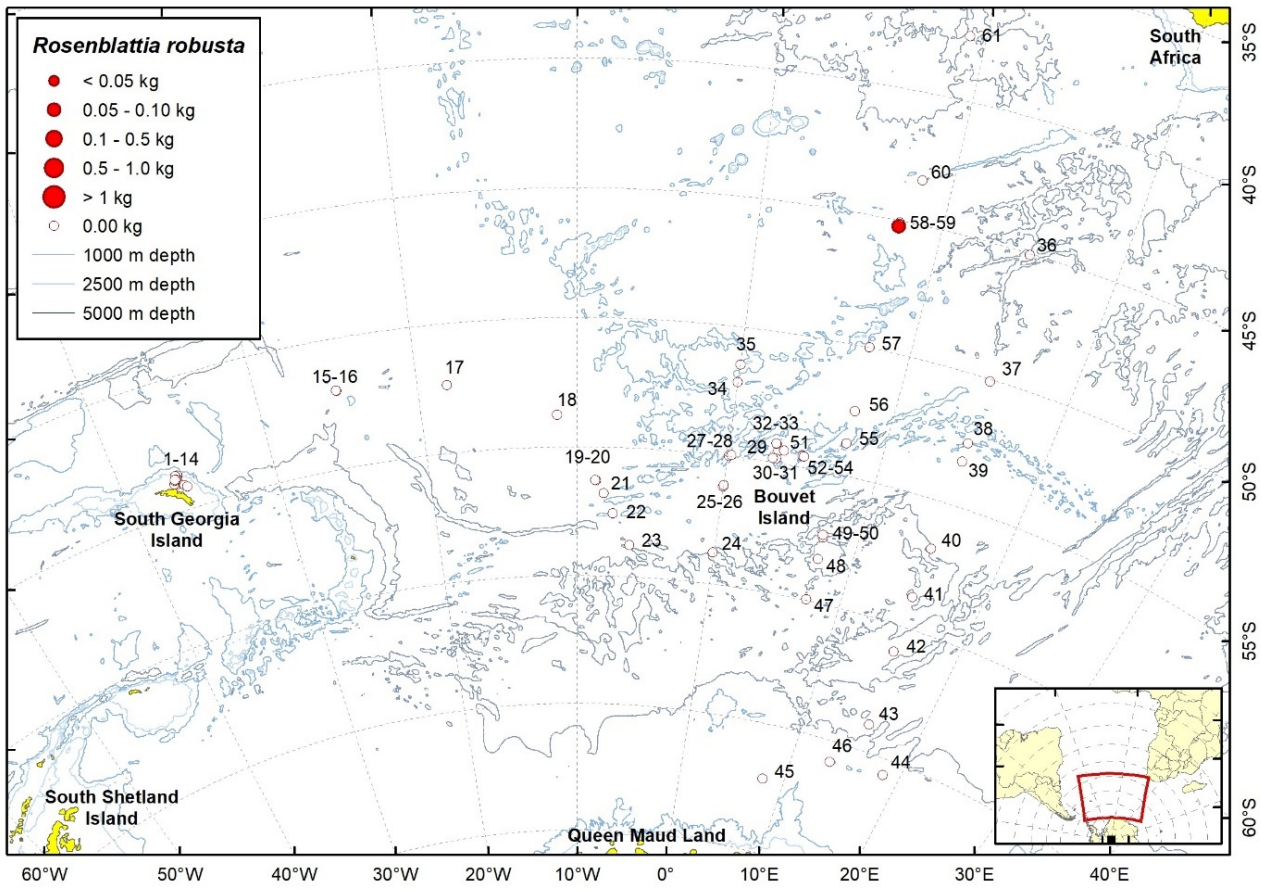

Figure 82b. Trawl stations with presence of Rosenblattia robusta in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 58. Station information with presence of Rosenblattia robusta.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
58	17.03.2008	45,20	S	7,65	E	3	60,0	10,17	19,92

2.22 - Notothenioidae

2.22.1 - *Lepidonotothen squamifrons* (Günther, 1880)

Figure 83a. Exemplary image of Lepidonotothen squamifrons.

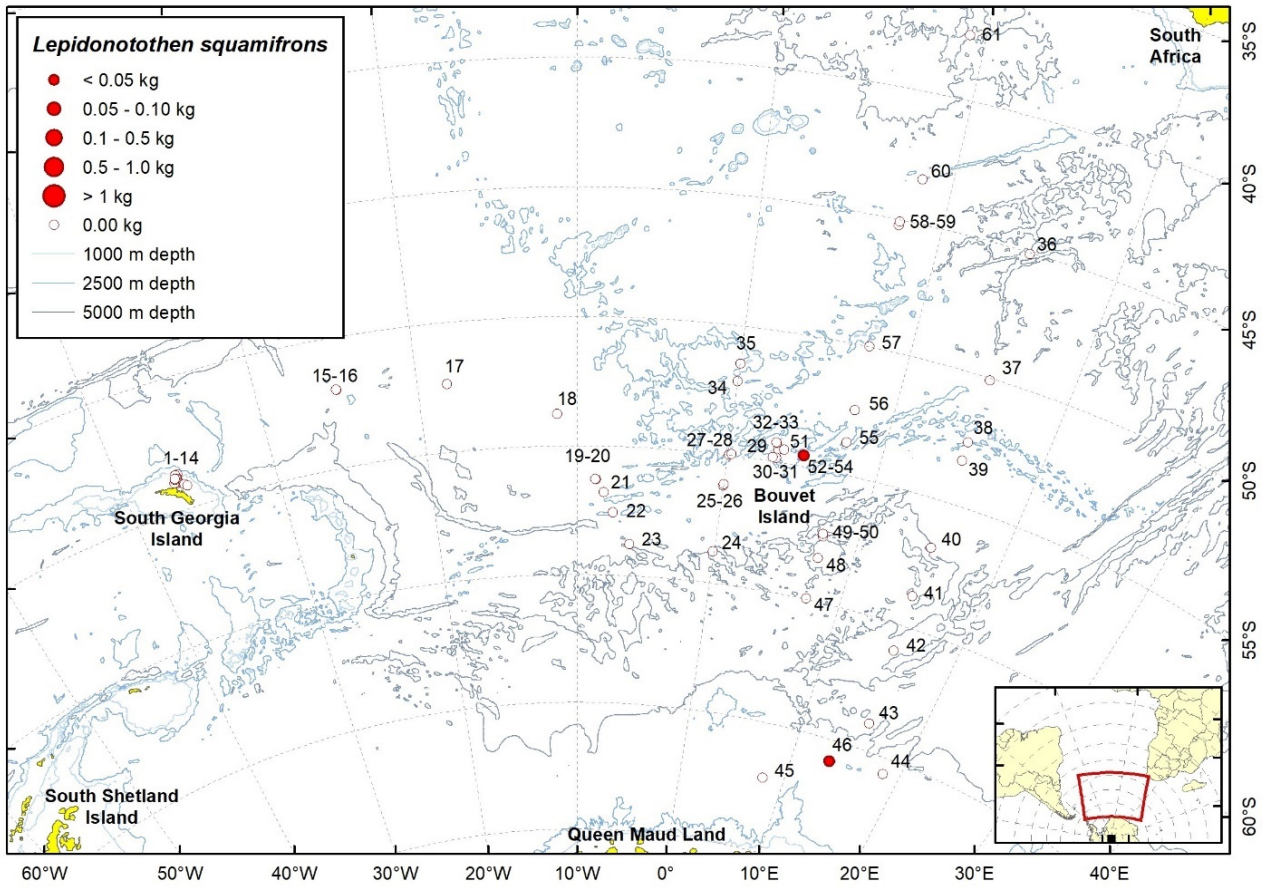

Figure 83b. Trawl stations with presence of Lepidonotothen squamifrons in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 59. Station information with presence of Lepidonotothen squamifrons.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

46	05.03.2008	65,81	S	13,45	E	1	0,7	1,59	32,17
54	13.03.2008	54,58	S	4,98	E	1	0,7	0,26	85,64

2.22.2 - *Nototheniops larseni* (Lönnberg, 1905)

Figure 84a. Exemplary image of Nototheniops larseni.

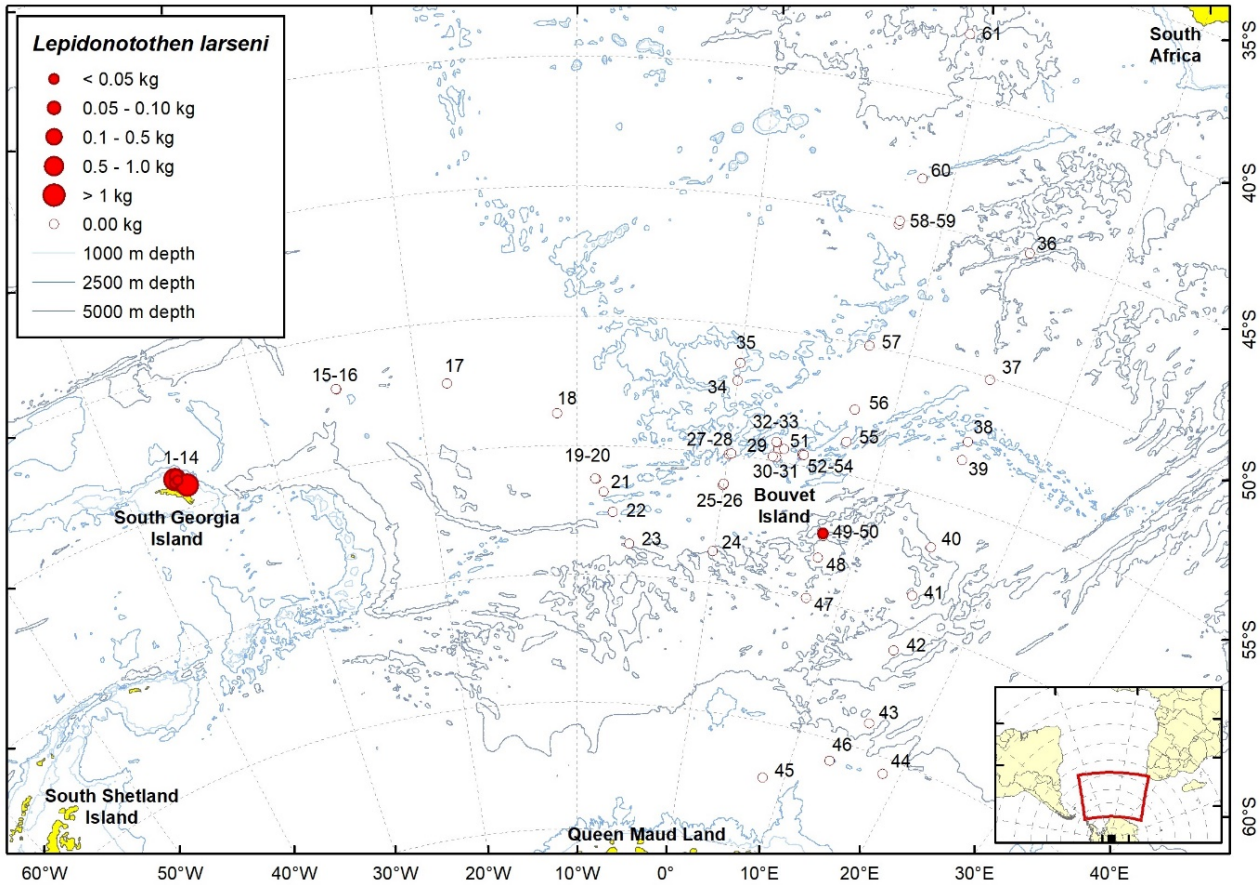

Figure 84b. Trawl stations with presence of Nototheniops larseni in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 60. Station information with presence of Nototheniops larseni.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
3	19.01.2008	53,87	S	36,37	W	1	0,3	0,01	0,15
5	20.01.2008	53,69	S	36,37	W	175	87,6	0,09	1000,00
8	21.01.2008	53,92	S	36,63	W	71	11,0	0,57	5,56
10	22.01.2008	53,79	S	36,52	W	653	10000,0	42,18	44,88
14	23.01.2008	54,14	S	35,88	W	78	1770,0	311,92	311,92
50	08.03.2008	57,39	S	7,44	E	1	28,0	26,34	31,75

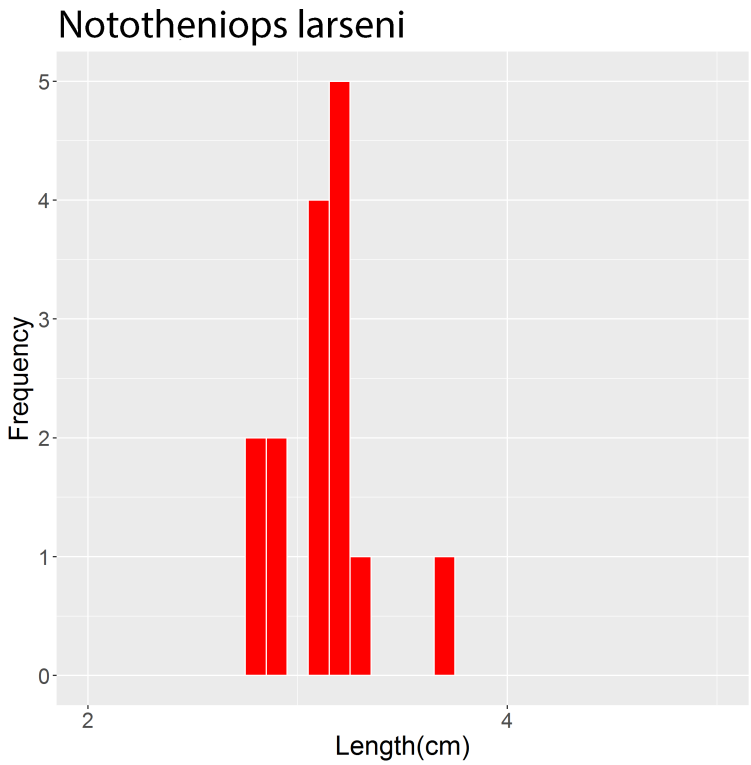

Figure 85. Length frequency of Notothenioops larseni for all trawl stations combined. Frequency shown as number of individuals.

2.22.3 - *Trematomus eulepidotus* (Regan, 1914)

Figure 86a. Exemplary image of Trematomus eulepidotus.

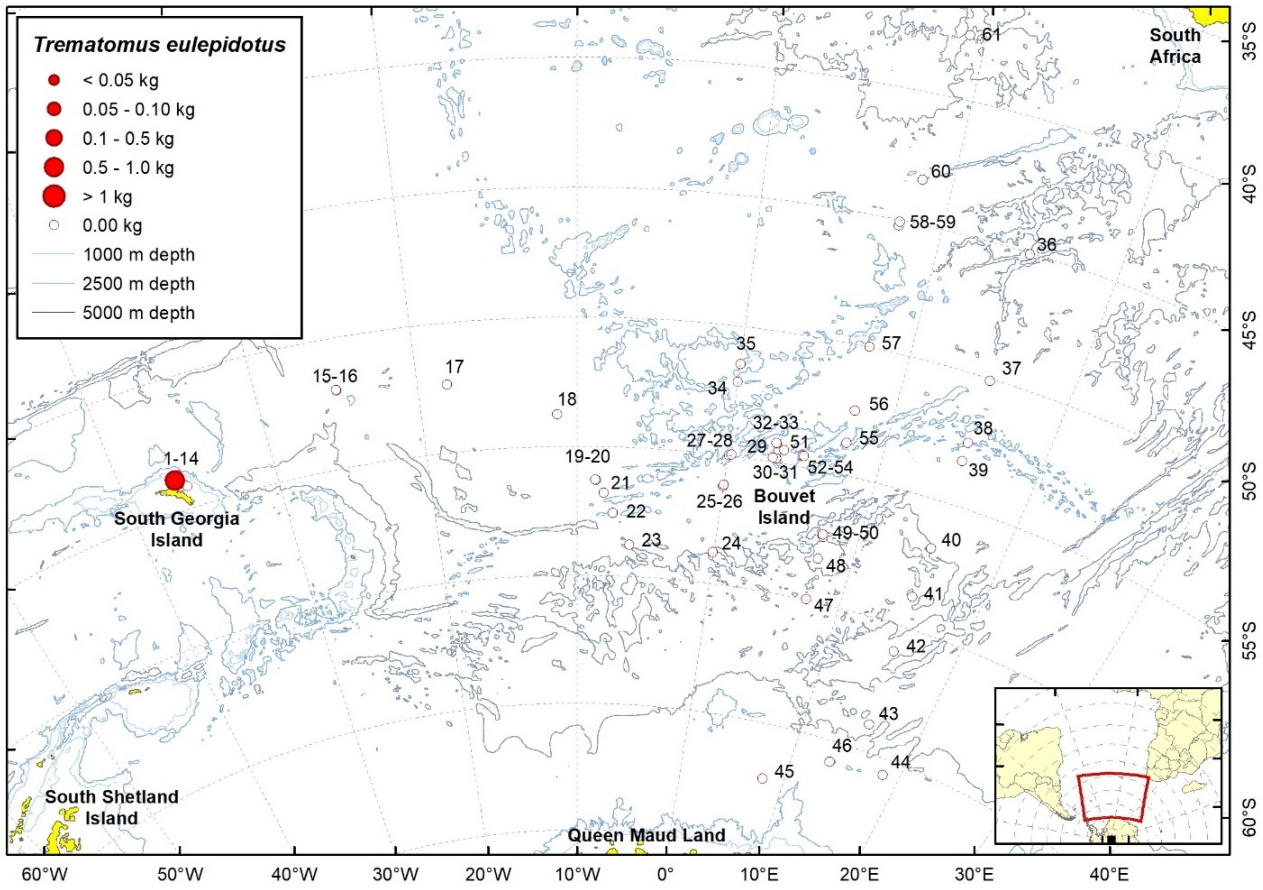

Figure 86b. Trawl stations with presence of Trematomus eulepidotus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 61. Station information with presence of Trematomus eulepidotus.

Station	Date	Latitude		Longitude		Ind. caught	W (g)	TW fish (kg)	TW catch (kg)
10	22.01.2008	53,79	S	36,52	W	4	741,0	42,18	44,88

2.23 - Bathydraconidae

Figure 87a. Exemplary image of Bathydraconidae.

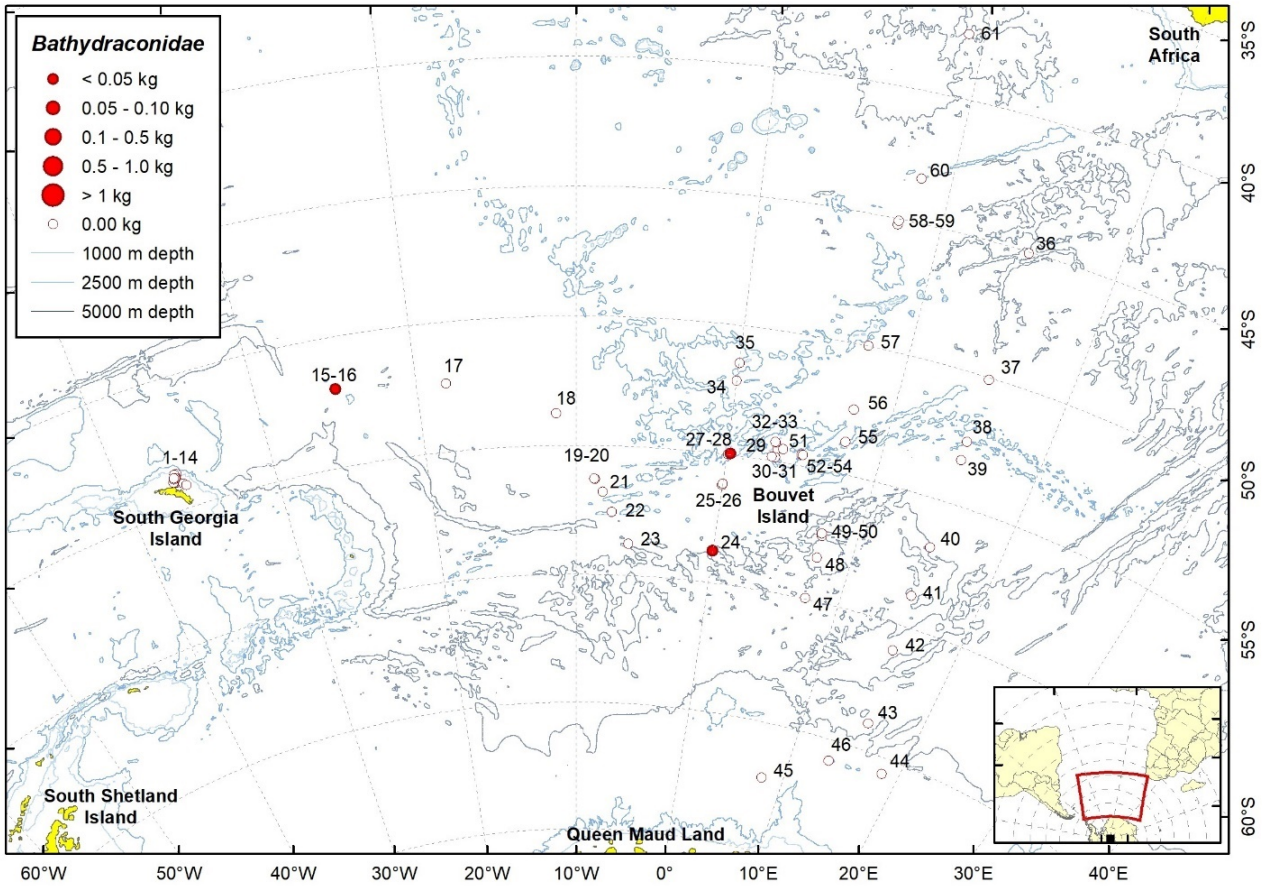

Figure 87b. Trawl stations with presence of Bathydraconidae in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 62. Station information with presence of Bathydraconidae.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

16	24.01.2008	51,99	S	25,00	W	6	4,4	3,23	45,05
24	31.01.2008	58,76	S	0,04	W	1	28,3	1,49	29,02
28	02.02.2008	54,94	S	0,25	E	13	5,2	0,47	89,03

2.24 - Channichthyidae

2.24.1 - *Chaenocephalus aceratus* (Lönnberg, 1906)

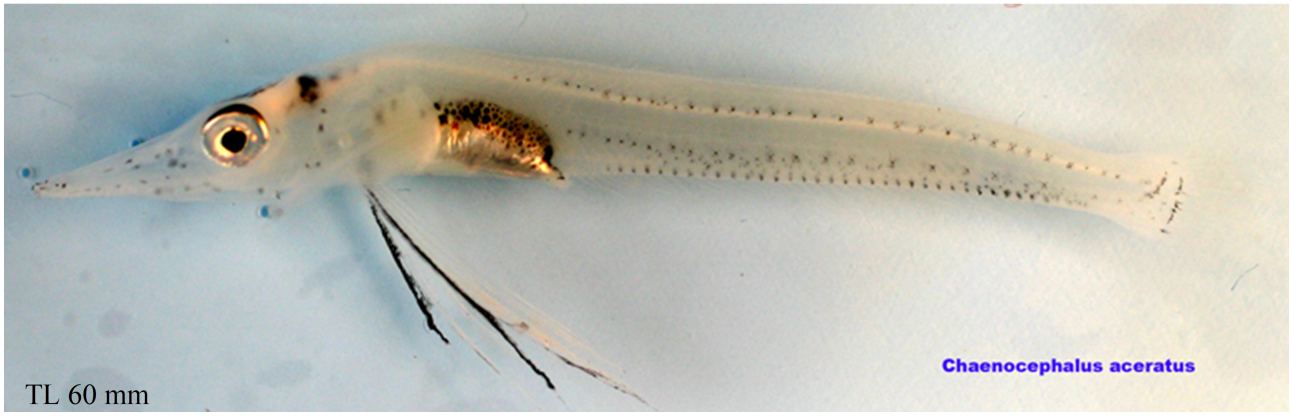

Figure 88a. Exemplary image of Chaenocephalus aceratus, juvenile.

Figure 88b. Exemplary image of Chaenocephalus aceratus with long pelvic fins.

Figure 88c. Exemplary image of Chaenocephalus aceratus. Pelvic fins becoming proportionally shorter with body lengt

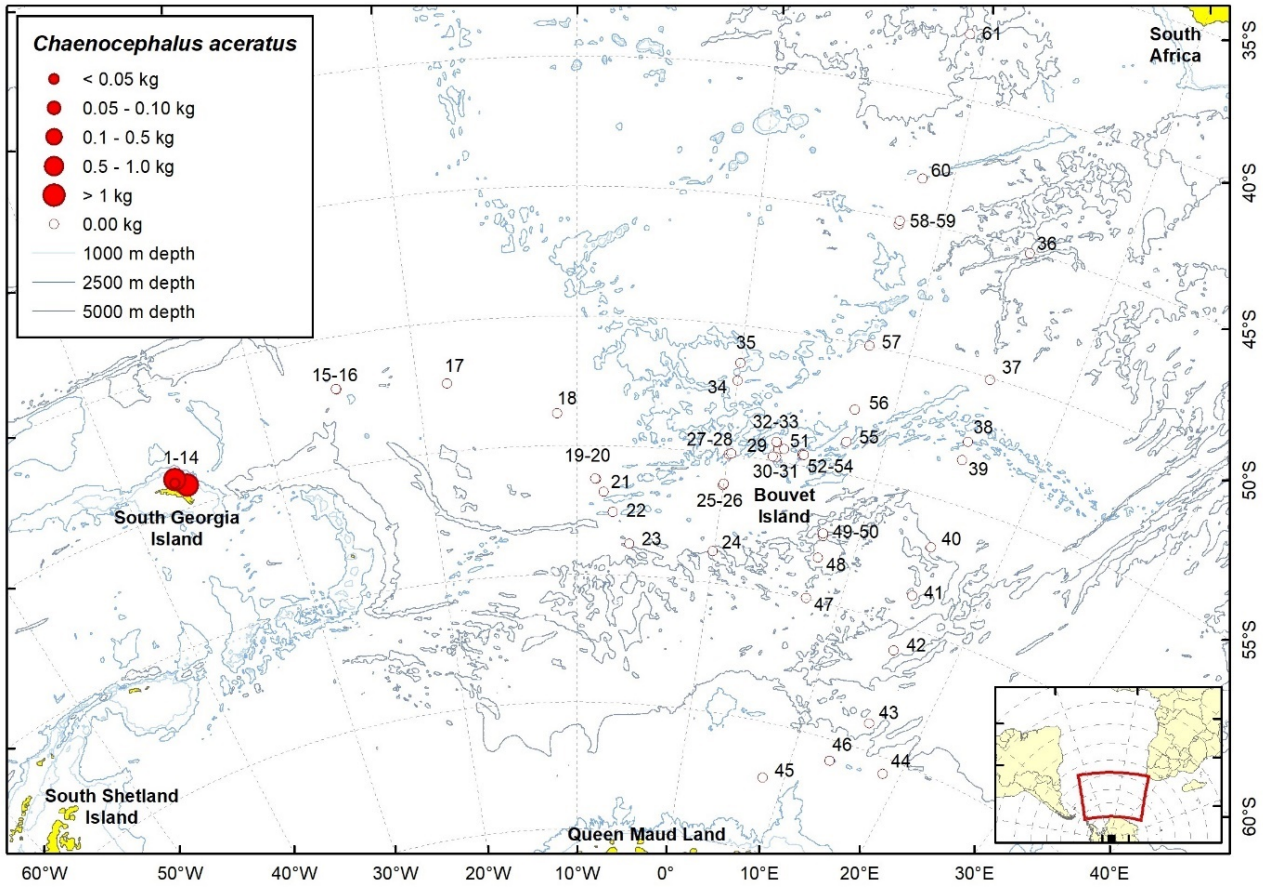

Figure 88d. Trawl stations with presence of Chaenocephalus aceratus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 63. Station information with presence of Chaenocephalus aceratus.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

8	21.01.2008	53,92	S	36,62	W	1	0,6	0,57	5,56
10	22.01.2008	53,79	S	36,52	W	45	1773,0	42,18	44,88
14	23.01.2008	54,14	S	35,88	W	26	7521,0	311,92	311,92

2.24.2 - *Champsocephalus gunnari* Lönnberg, 1905

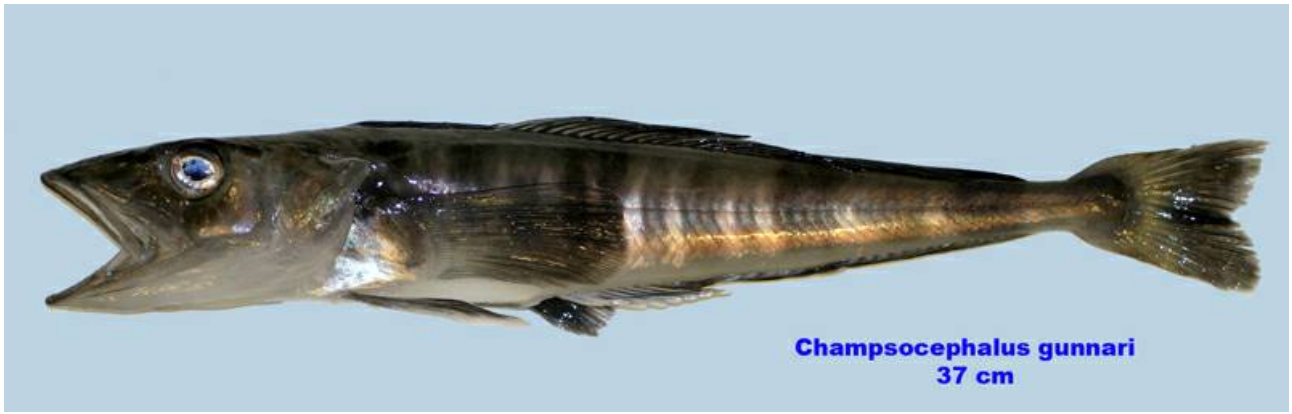

Figure 89a. Exemplary image of Champsocephalus gunnari.

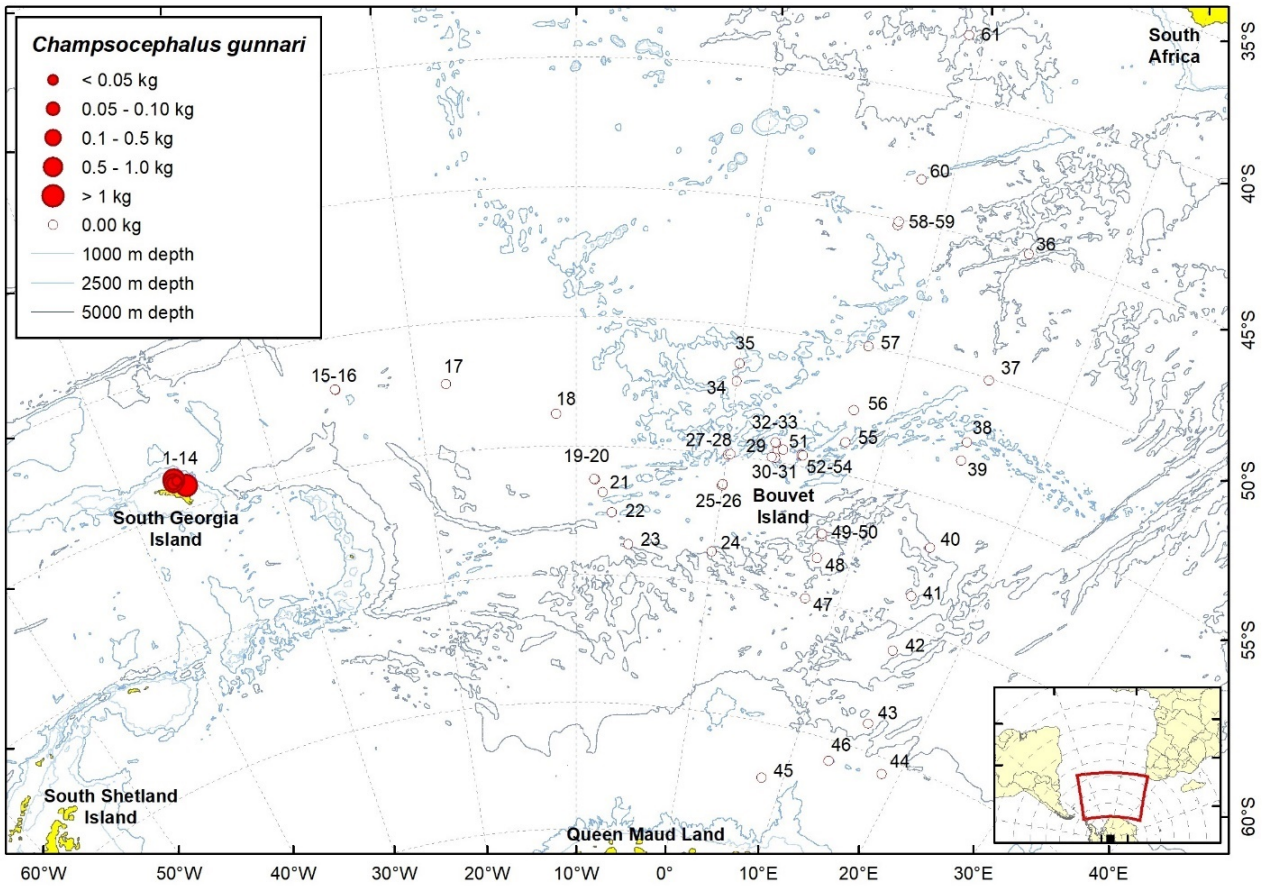

Figure 89b. Trawl stations with presence of Champsocephalus gunnari in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 64. Station information with presence of Champsocephalus gunnari.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

3	19.01.2008	53,88	S	36,37	W	12	3,2	0,01	0,15
8	21.01.2008	53,92	S	36,62	W	2409	535,9	0,57	5,56
9	21.01.2008	53,91	S	36,60	W	30	55,2	0,06	0,62
10	22.01.2008	53,79	S	36,52	W	118	14242,0	42,18	44,88
14	23.01.2008	54,14	S	35,88	W	2654	278496,0	311,92	311,92

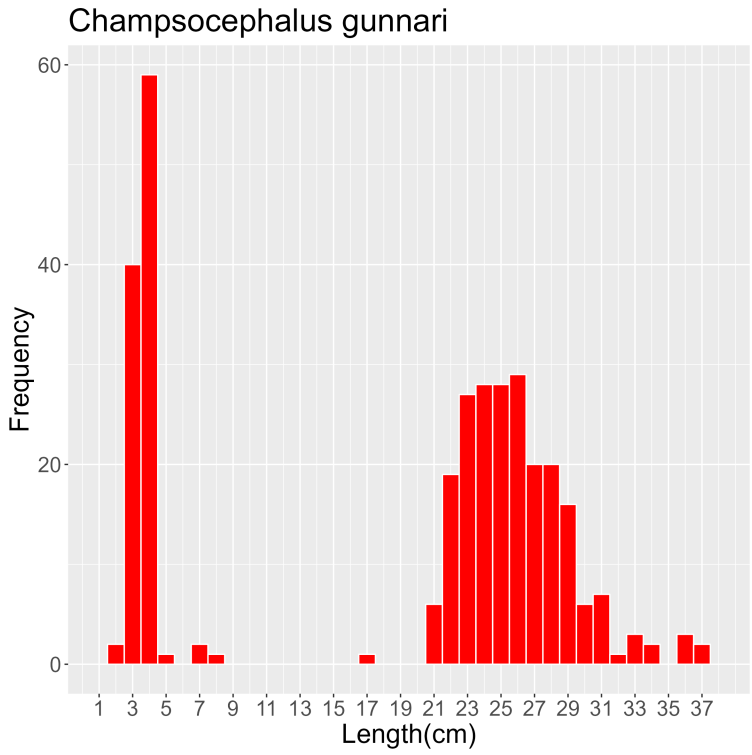

Figure 90. Length frequency of Champsocephalus gunnari for all trawl stations combined. Frequency shown as number of individuals.

2.24.3 - *Dacodraco hunteri* Waite, 1916

Figure 91a. Exemplary image of Dacodraco hunteri.

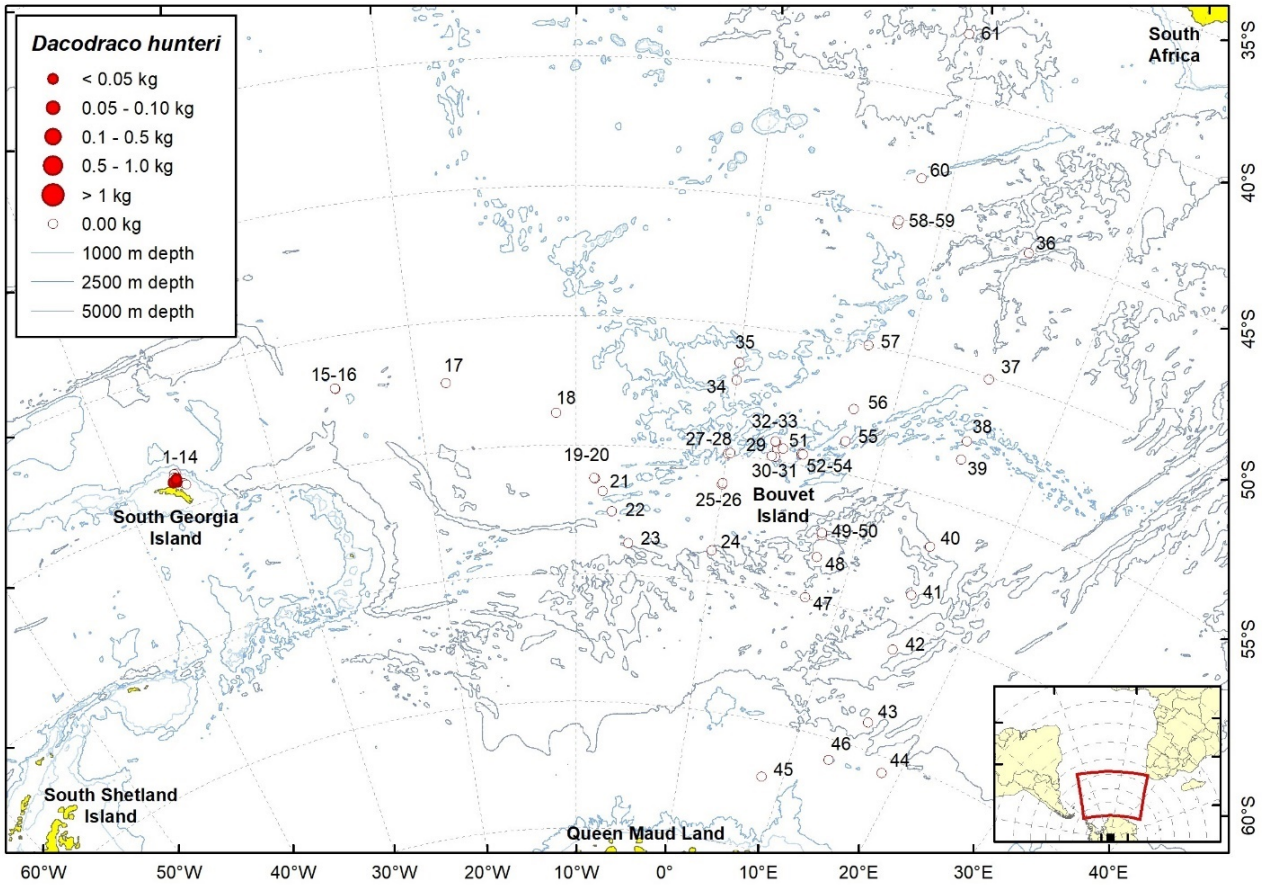

Figure 91b. Trawl stations with presence of Dacodraco hunteri in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 65. Station information with presence of Dacodraco hunteri.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

1	18.01.2008	53,94	S	36,40	W	2	2,0	0,00	2000,00
3	19.01.2008	53,85	S	36,38	W	1	0,1	0,01	0,15
8	21.01.2008	53,92	S	36,63	W	26	17,4	0,57	5,56

2.24.4 - *Pseudochaenichthys georgianus* Norman, 1937

Figure 92a. Exemplary image of Pseudochaenichthys georgianus.

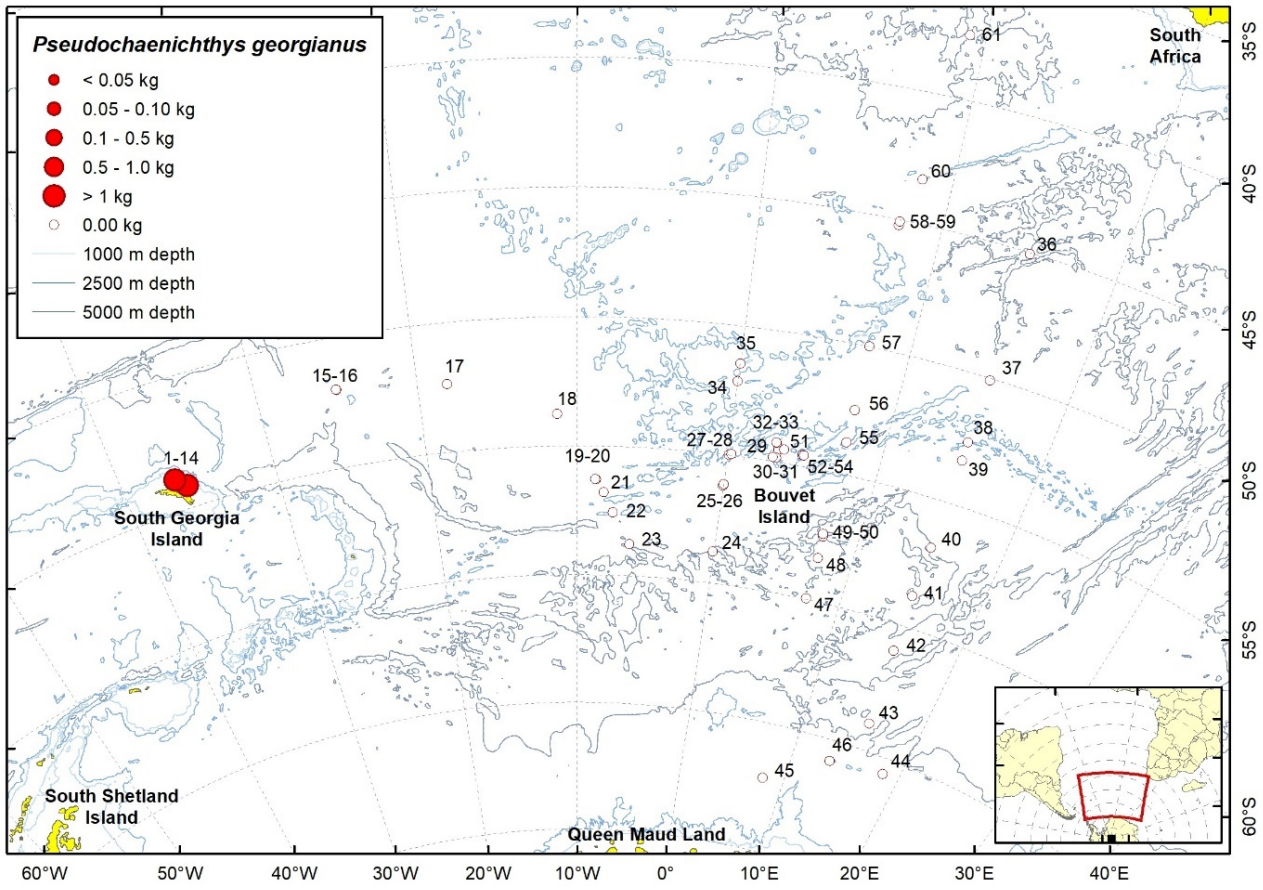

Figure 92b. Trawl stations with presence of Pseudochaenichthys georgianus in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 66. Station information with presence of Pseudochaenichthys georgianus.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

10	22.01.2008	53,79	S	36,52	W	54	15423,0	42,18	44,88
14	23.01.2008	54,14	S	35,88	W	22	22807,0	311,92	311,92

2.25 - Chiasmodontidae

2.25.1 - *Chiasmodon niger* Johnson, 1864

Figure 93a. Exemplary image of Chiasmodon niger.

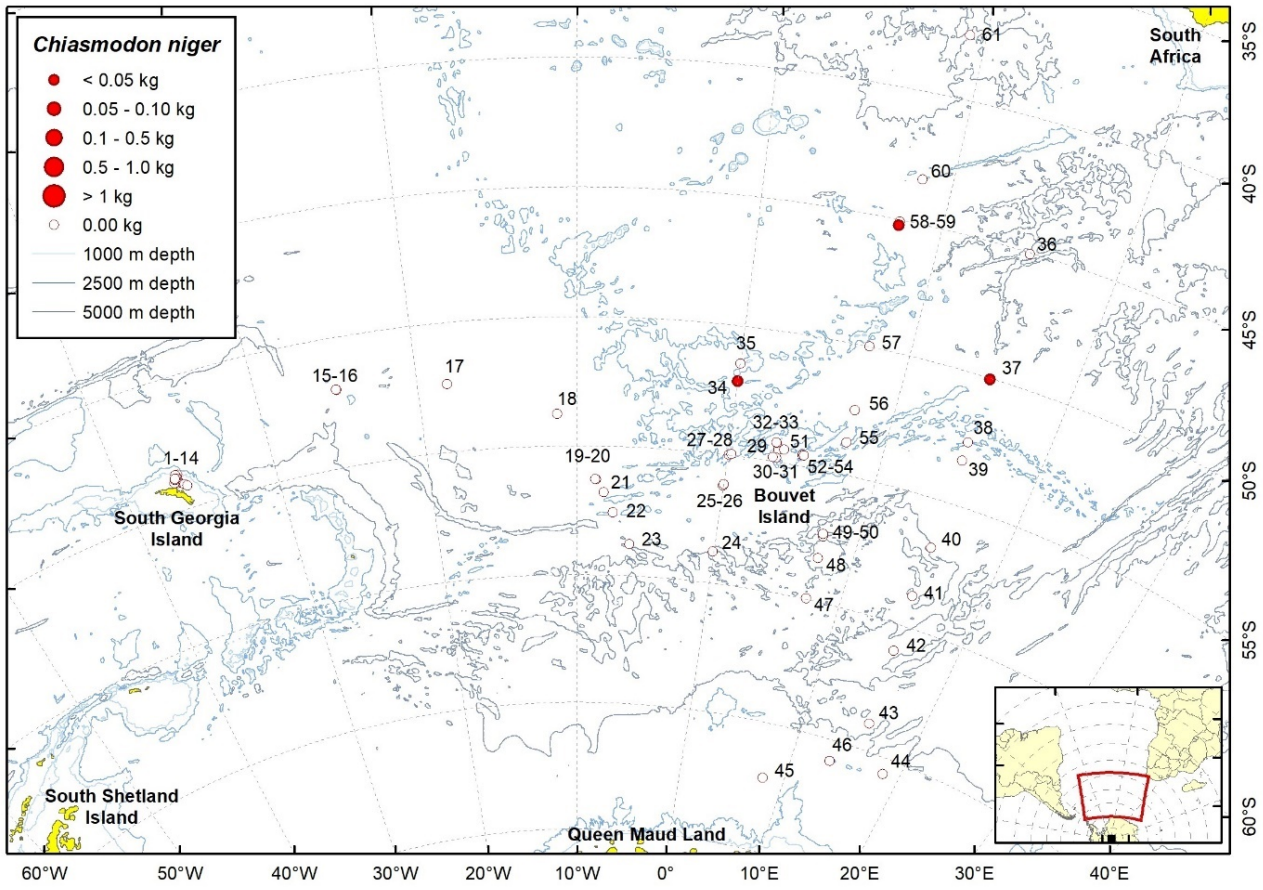

Figure 93b. Trawl stations with presence of Chiasmodon niger in the catch (red circles) and trawl stations with no identified presence (empty circles).

Table 67. Station information with presence of Chiasmodon niger.

Station	Date	Latitude	Longitude	Ind. caught	W (g)	TW fish (kg)	TW catch (kg)

34	06.02.2008	52,12	S	0,02	W	2	37,1	4,15	44,70
37	24.02.2008	50,04	S	15,02	E	1	8,4	3,32	14,43
58	17.03.2008	45,20	S	7,65	E	2	44,0	10,17	19,92

3 - Acknowledgements

AKES was supported by the Royal Norwegian Ministry of Fisheries and Coastal affairs, the Institute of Marine Research (IMR), the University of Bergen, the Norwegian Antarctic Research Expeditions (NARE), the Norwegian Research Council, StatoilHydro, and the Norwegian Petroleum Directorate. We thank all the crew on RV GO Sars, the scientists and technical staff participating in the survey and its preparations during 2007- 2008. As part of the preparations for the Large Scale synoptic survey - 2019 in the Southern Ocean area 48, the work requirements for the final preparations and completion of this atlas to be used as a reference tool for future taxonomic work, was funded through the project Antarktis (IMR p.no. 15208).

4 - References

Fricke R, Eschmeyer WN, van der Laan R (eds). 2020. Eschmeyer's Catalog of Fishes: Genera, Species, References. (http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp). Electronic version accessed 21 apr 2020.

Froese R, Pauly D (eds). 2019. FishBase. World Wide Web electronic publication. www.fishbase.org, version (12/2019), accessed 21 apr 2020.

Gon O, Heemstra PC (eds). 1990. Fishes of the Southern Ocean. J.L.B. Smith Institute of Ichthyology, Grahamstown, 462 pp.

Iversen, S.A., Melle, W., Bagøien, E., Chu, D., Edvardsen, B., Ellertsen, B., Grønningsæter, E., Jørstad, K., Karslbakk, E., Klevjer, T., Knutsen, T., Korneliussen, R., Kowall, H., Krafft, B., Kaartvedt, S., Lona, P.B., Murray, S., Naustvoll, L., Nøttestad, L., Ostrowski, M., Siegel, V., Skagseth, Ø., Skaret, G., Søiland, H. (2008). The Antarctic Krill and Ecosystem Survey with R/V "G.O. Sars" in 2008. CCAMLR WG-EMM-08/28, pp. 1-21.

Krafft BA, Melle W, Knutsen T, Bagøien E, Broms C, Ellertsen B, Siegel V. 2010. Distribution and demography of Antarctic krill in the Southeast Atlantic sector of the Southern Ocean during the austral summer 2008. Polar Biology 33:957-968.

van der Laan R, Fricke R, Eschmeyer WN (eds). 2020. Eschmeyer's Catalog of Fishes: Classification. (http://www.calacademy.org/scientists/catalog-of-fishes-classification). Electronic version accessed 21 apr 2020.

Mjanger H, Hestenes K, Svendsen BV, de Lange Wenneck T. 2007. Håndbok for prøvetaking av fisk og krepsdyr. Versjon 3.16. Havforskningsinstituttets kvalitetssystem, 185 pp, (in Norwegian).

HAVFORSKNINGSINSTITUTTET

Postboks 1870 Nordnes
5817 Bergen
Tlf: 55 23 85 00
E-post: post@hi.no
www.hi.no