THE FISHES OF TRISTAN DA CUNHA, GOUGH ISLAND AND THE VEMA SEAMOUNT

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(With 2 text-figures and 1 plate)

Contents

Introduction

In the south-east Atlantic Ocean there are three known areas of very shallow water (not counting the African coast). Two of these are around the shores of islands, the Tristan da Cunha group and Gough Island, while the third is the Vema Seamount.

Tristan da Cunha

The island of Tristan da Cunha, together with the two smaller islands of Inaccessible and Nightingale, lies almost midway between South Africa and South America (37° 05′ S., 17° 40′ W.). It is permanently inhabited and has been the subject of several scientific expeditions and reports.

Capt. Dugal Carmichael, F.L.S. (army surgeon to the garrison in the island, 1816–17) was the first to publish a report on the flora and fauna of Tristan. In this paper (1818) he described four species of fishes from the island and listed five others as being common to both Tristan and the Cape. Carmichael's work was referred to by Regan (1913*a*) but no further fishes were added to the nine already known from the island until Barnard (1923, 1925) listed two more species which he considered to be conspecific with South African species. Norman (1935*a*) described a further species believed by him to be endemic to the island group. After the Norwegian expedition of 1937–8, Sivertsen (1945) could add a further seven species to the fish fauna of the island, two of them being new species and believed by him to be endemic to Tristan da Cunha. Finally, Rowan & Rowan (1955) added three more records of oceanic fishes from the island.

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At present the known fish fauna of Tristan consists of 19 species which Sivertsen (1945) divided into an oceanic component and a coastal component. (In the list below, the first reference to the species occurring at Tristan is given in parenthesis after the author of the species.) The islanders' common name for the species is also given where known.

(*a*) *Oceanic species*

Prionace glauca (Linn.) (Sivertsen, 1945)	Blue shark
Maurolicus muelleri (Gmelin) (Barnard, 1925) . .	—
Myctophum humboldti (Risso) (Sivertsen, 1945) . .	—
Scomberesox saurus (Walbaum) (Sivertsen, 1945) . .	—
Exocoetus exiliens Bloch (Carmichael, 1818) . . .	—
Alepisaurus ferox Lowe (Rowan & Rowan, 1955) .	—
Notopogon lilliei Regan (Sivertsen, 1945)	—
Seriola lalandi Valenc. (Rowan & Rowan, 1955) .	Yellowtail
Polyprion americanus (Bloch) (Rowan & Rowan, 1955)	Steambrass
Thyrsites atun (Euphrasen) (Carmichael, 1818) . .	Snoek

(*b*) *Coastal species*

Ariosoma australis (Barnard) (Barnard, 1923) . . .	—
[1]*Gaidropsarus insularum* Sivertsen (Sivertsen, 1945). .	—
Acantholatris monodactylus (Carmichael) (Carmichael, 1818)	Fivefinger
Bovichthys diacanthus (Carmichael) (Carmichael, 1818)	Klipfish
[2]*Decapterus longimanus* Norman (Norman, 1935*a*) . .	Mackerel
Labrichthys ornatus (Carmichael) (Carmichael, 1818)	Concha or Conger
[3]*Helicolenus tristanensis* Sivertsen (Sivertsen, 1945) .	Soldier
Sebastichthys capensis (Gmelin) (Carmichael, 1818) .	Soldier
Seriolella antarctica (Carmichael) (Carmichael, 1818)	Bluefish
Seriolella christopherseni Sivertsen (Sivertsen, 1945) .	Stumpnose

The identity of the fish recorded by Carmichael as the 'Roman fish' *Sparus* ———, is not known. The South African 'Roman' is a Sparid (*Chrysoblephus laticeps*) but has not been recorded from Tristan.

Gough Island

Gough Island lies slightly farther south than Tristan (40° 20′ S., 9° 55′ W.), and is not permanently inhabited, although the South African Government has maintained a weather station on the island for several years.

Although several expeditions have called at the island, it has not been subject to the same degree of collecting as has Tristan. Only one expedition, the Gough Island Scientific Survey 1955–6, has spent much time on the island, but they have not published any data on the fishes obtained.

[1] As *G. capensis* (Kaup) by Barnard (1925).
[2] Probably the fish recorded by Carmichael as *Scomber trachurus*.
[3] Recorded by Carmichael as *Sebastichthys maculata*.

Accounts of fish collected by the *Scotia*, which called on the way back from the Antarctic (Regan, 1913*b*) and by the R.V. *William Scoresby* (Norman, 1935*b*), have been published.

The fishes recorded are:

[1]*Helicolenus tristanensis* Sivertsen (Regan, 1935*b*)
Sebastichthys capensis (Gmelin) (Regan, 1913*b*)
Bovichthys diacanthus (Carmichael) (Regan, 1913*b*)
Caesioperca coatsi Regan (Regan, 1913*b*)
Acantholatris monodactylus (Carmichael) (Norman, 1935*b*)

Holdgate (1958), in a popular account of the Gough Island Scientific Survey, listed the following species of fish under their Tristan common names: five-fingers, soldiers, klipfish, congers.

Vema Seamount

This exceptionally shallow seamount was discovered in 1957 by the R.V. *Vema*, and traverses were made then as well as in 1959 by the *Vema* and in 1963 by the R.V. *Robert D. Conrad.* In November 1964 a detailed survey of the peak was undertaken by the South African National Committee for Oceanographic Research, using the diamond prospecting tug, *Emerson K* (Simpson & Heydorn, 1965). The peak was found to have a position 31° 38′ S., 8° 20′ E. and a least depth of only 14 fathoms, with a well-defined plateau about five square miles in extent and of approximately 35 fathoms depth. Subsequent to the visit by the *Emerson K* there have been many visits by commercial fishing vessels from Cape Town as well as a short visit by the R.V. *Africana II* in April 1965.

Material

The material used for the present paper was obtained from several sources. The South African Museum has been slowly building up a collection of Tristan fish for many years, mainly obtained as donations from Mr. Keytel (1907), the rock-lobster survey of 1949, and small but valuable donations from Tristan and Gough Islands by the Division of Sea Fisheries and Capt. M. T. Scott, master of the rock-lobster fishing vessel, *Tristania.*

Specimens of fishes from the Vema Seamount were obtained from the Division of Sea Fisheries (those from the *Emerson K* collection, and commercial fishing vessels, and a collection made from R.V. *Africana II* by Mr. A. C. Paterson), as well as directly from the fishing companies.

These collections have resulted in several further species being added to the fish fauna of Tristan da Cunha and Gough Island as well as adding to our knowledge of the species already recorded from the islands, and in addition have enabled their fauna to be compared with that from the Vema Seamount.

[1] Recorded as *Sebastes maculatus* C. & V.

Systematic Account

Exocoetidae

Cypsilurus lineatus (Cuvier & Valenciennes)

Cypsilurus lineatus (Cuvier & Valenciennes) Bruun, 1935: 47.

Only one specimen, of 382 mm standard length, was examined. The fish was found in a drum of unsorted material from Tristan in the Department of Ichthyology, Rhodes University.

The body proportions as thousandths of standard length are as follows: pectoral fin 675, pelvic fin 309, dorsal height 111, depth 157, head 199, predorsal distance 728, preventral distance 560, preanal distance 754, snout 50, eye 65. Fin counts are dorsal 12, anal 10 and pectoral 15.

This is an extremely large specimen of the species.

Gadidae

Gaidropsarus Rafinesque

Kaup (1858) described a small gadid as *Motella capensis* but gave only a brief description and no locality, although on the basis of the trivial name it is believed to be South Africa.

Small rocklings were described from St. Paul Island as *M. capensis* by Kner (1868) and Sauvage (1879), while Barnard (1925) published a description of material in the South African Museum which he also assigned to Kaup's species.

Sivertsen described specimens from Tristan and showed that while they were very similar to those described from St. Paul Island, they showed marked differences from the South African specimens as described by Barnard. Since South Africa was believed to be the type locality of *capensis*, Sivertsen proposed a new name, *G. insularum* for the Tristan and St. Paul Island specimens.

On re-examining the material used by Barnard, I find that only one of the two fish he examined exactly fits the description he published, and that the two fish he examined appear to belong to two distinct species. This view is shared by Mr. A. Wheeler of the British Museum (Natural History), who has also examined the South African Museum material, and Professor J. L. B. Smith, who informs me that he has reached a similar opinion from examination of material in his collection (Table 1).

Table 1

Comparison of *Gaidropsarus*

Table 1*a* gives body proportions of two species of *Gaidropsarus* in millimetres and as thousandths of standard length in parenthesis.

Table 1*b* compares body proportions of *Gaidropsarus* from various sources.

12719	*G. insularum* from False Bay
12528	*G. capensis*. Port Elizabeth
7858	*G. capensis*. East London
A	*G. insularum* from Tristan da Cunha (from Sivertsen, 1945)
B	*G. capensis* from South Africa (Barnard, 1925)

TABLE 1*a*

	12719	12528	7858
Standard length	153	91	156
Depth	22·5 (147)	15 (165)	27 (173)
Head	29 (190)	20·5 (226)	33 (212)
Eye	4·6 (30)	3·8 (42)	5·3 (34)
Snout	8 (52)	6·8 (75)	9·3 (60)
Interorbital	6 (39)	4 (44)	4·5 (29)
Maxilla	13 (85)	10 (110)	17·2 (110)
Base of first dorsal	13 (85)	12 (132)	19 (122)
Base of anal	77 (500)	44 (485)	76·5 (490)

TABLE 1*b*

	A	12719	B	12528	7858
Depth/length	$6\frac{1}{2}-7$	$6\frac{3}{4}$	6	6	6
Head/length	$4\frac{4}{5}-5$	$5\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{2}{3}$
Eye/head	$6\frac{2}{3}-7$	$6\frac{1}{3}$	5	$5\frac{4}{5}$	$6\frac{1}{4}$
Eye/interorbital	$1-1\frac{1}{5}$	$1\frac{1}{3}$	±1	±1	$1\frac{1}{5}$
2nd Pelvic ray/Origin ray to vent	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Caudal peduncle/head	$2\frac{2}{3}-2\frac{4}{5}$	$2\frac{7}{8}$	—	$3\frac{1}{2}$	$3\frac{1}{2}$
Rays, first dorsal	47–49	±45	55	65	56
Rays, second dorsal	62–64	62	45	44	43
Rays, anal fin	52–54	50	40	37	39

One specimen from Kalk Bay in the Cape Peninsula as well as some juveniles from Table Bay and Lambert's Bay fitted the description of the Tristan fishes as given by Sivertsen and the St. Paul Island fishes as described by Kner and Sauvage, while the specimens from East London and Port Elizabeth are clearly different, and are assumed to be *G. capensis*.

Gaidropsarus insularum Sivertsen

Motella capensis (*non* Kaup) Kner, 1868: 279. Sauvage, 1879: 42.
Gaidropsarus capensis (*non* Kaup) Barnard, 1925: 323 (*partim*). Blanc, 1961: 145. Blanc & Paulian, 1957: 327.
Gaidropsarus insularum Sivertsen, 1945: 8.

Recorded from Tristan da Cunha, St. Paul Island, the Cape Peninsula and west coast of South Africa.

Body proportions and fin counts given in Table 1.

Gaidropsarus capensis (Kaup)

Motella capensis Kaup, 1858: 90.
Gaidropsarus capensis (Kaup) Barnard, 1925: 323 (*partim*).

Depth 6 in standard length, head about $4\frac{1}{2}$. Eye equal to interorbital about 6 in head. Second pelvic ray $\frac{3}{4}$ distance origin pelvic to vent. Caudal peduncle $3\frac{1}{2}$ in head. Fin counts: Free dorsal rays 55–65, Dorsal rays 42–45, Anal rays 36–40.

Description based on two specimens, one of 91 mm standard length

deposited in the South African Museum (Reg. No. SAM 12528), collected in Algoa Bay at a depth of 25 fathoms by the *Pieter Faure*, and a second of 156 mm standard length in the collection of the Department of Ichthyology, Rhodes University, Grahamstown (Reg. No. 7858), collected at East London.

Body proportions and fin counts are given in Table 1.

G. capensis differs from *insularum* in having a relatively longer first dorsal base (12—13·5% of body length as opposed to about 8·5%), a longer head, larger eye, slimmer caudal peduncle and rather marked differences in fin counts.

Berycidae

Beryx decadactylus Cuvier

Beryx decadactylus Cuvier. Fowler, 1936: 542.

One specimen obtained from Captain Scott, caught in 'Tristan waters'. Tears in the mouth suggest that the fish was caught with hook and line but depth of capture is unknown.

The fish is 362 mm standard length and has the following body proportions (expressed as thousandths of standard length): head 359, depth 472, eye 152, maxilla 185, base of anal fin 348, base of dorsal fin 290. Fin counts are dorsal IV 19, anal IV 27, pectoral 15, pelvic I 10.

B. decadactylus has not been recorded from South Africa although the related *B. splendens* is trawled quite regularly. In the course of this work an unrecorded specimen of *B. decadactylus* was found in the collection of the South African Museum, trawled off Table Bay in 1948. It was 345 mm in standard length and had the following body proportions (in thousandths of Ls): head 322, depth 446, eye 125, maxilla 174, base of anal fin 359, base of dorsal fin 293. Fin counts are dorsal IV 20, anal IV 27, pectoral 15, pelvic I 10.

Macrorhamphosidae

Notopogon lilliei Regan

Notopogon lilliei Regan, 1914: 14. Mohr, 1937: 50.

Sivertsen (1945) records two specimens of *Notopogon* which were found washed up dead on Tristan. He assigned them to *N. lilliei*, a species known from South Africa, Australia and New Zealand. It should be noted, however, that his published figure (fig. 5) resembles *N. macrosolen* Barnard rather than *N. lilliei*, especially as neither the figure nor the text makes any reference to the dorsal brush which is a conspicuous feature of *N. lilliei* but is absent in *N. macrosolen*.

Chilodactylidae

Sivertsen (1945) recorded only one species of fish belonging to the family Chilodactylidae, *Acantholatris monodactylus* (Carmichael); called by the islanders the 'Fivefinger'.

He claimed that the islanders spoke of a second fish very like the fivefinger which they were said to call the 'yellowtail'. Rowan & Rowan (1955) have shown that the fish called yellowtail is *Seriola lalandi*. No additional species of chilodactylids have been received from Tristan but a species which appears to be new has been obtained from Vema Seamount.

An additional species which appears to be undescribed has been obtained from Gough Island, but is not described here as only one specimen was obtained. It is known to fishermen as the 'funny fish'.

Acantholatris monodactylus (Carmichael)

(Plate XXIB)

Chaetodon monodactylus Carmichael, 1818: 500.
Cheilodactylus carmichaelis Cuvier & Valenciennes, 1830: 360. Kner, 1868: 90.
Chilodactylus monodactylus (Carmichael) Sauvage, 1879: 23; Regan, 1913*a*: 466. Norman, 1935*b*: 57.
Acantholatris monodactylus (Carmichael) Gill, 1863: 119. Sivertsen, 1945: 10.

This species is known from Tristan and Gough Islands and has also been found to be common at the Vema Seamount. Gunther (1860) recorded this species from Chile but Norman (1935*b*) has shown this to be a misidentification, the Chilean species being the related *A. gayi* (Kner). In Table 2 below are given body proportions and counts of several examples of the species from Tristan da Cunha, Gough Island and the Vema Seamount.

TABLE 2

Body proportions and fin counts of *Acantholatris monodactylus* in thousandths of standard length.

Origin of the specimen is:

Cat. No. SAM 10500 Tristan da Cunha
10501 Tristan da Cunha
11764 No history, but register says 'Very likely Tristan'
21284 Tristan (perhaps!!)
22890 Gough
24288 Vema Seamount
24291 Vema Seamount

Cat. No. SAM	11764	11784	11764	10500	10501	10501	21284	10501	24291	24288	22890
Standard length	131	153	153	175	227	238	301	353	338	443	444
Head	314	320	316	309	321	336	355	351	325	329	336
Depth	405	385	405	389	379	391	396	391	370	381	405
Eye	84	78	82	75	75	76	67	62	62	59	56
Interorbital	69	78	76	75	84	92	93	88	74	79	88
Base of dorsal	656	620	634	657	625	630	638	636	636	663	605
Base of anal	183	163	177	172	154	160	153	147	148	153	169
Length of pectoral	351	340	336	349	365	353	349	306	328	309	320
Snout to dorsal origin	351	334	329	315	339	344	379	360	343	350	334
Snout to anal origin	679	700	715	680	693	705	687	673	674	665	736
Snout to pectoral origin	313	308	323	303	334	332	342	340	332	332	356
Dorsal spines	17	16	17	17	16	17	17	17	17	17	17
Dorsal rays	25	25	25	25	26	25	26	25	25	25	22
Anal spines	3	3	3	3	3	3	3	3	3	3	3
Anal rays	12	11	12	11	11	11	11	11	11	11	10
Gillrakers	7+14	8+15	8+15	8+14	8+15	7+15	7+15		7+15		

One specimen (SAM 22890) obtained by Captain Scott at Gough Island has been assigned to *A. monodactylus* although the fin counts are lower than normal for the species. The body proportions fit within the range for *A. monodactylus* however and coloration in formalin is identical.

Acantholatris vemae sp.n.

(Plate XXIA, Table 3)

MATERIAL

Two specimens from the Vema Seamount collected by the *Emerson K*, November 1964, donated by the Division of Sea Fisheries, Sea Point (SAM 24290, 24292).

Five specimens (all gutted) from the Vema Seamount collected by commercial fishing vessels and donated by Messrs. Friedman & Rabinowitz (Pty.) Ltd. (SAM 24289, 24293, 24296–8).

Two specimens from the Vema Seamount collected by Mr. A. C. Paterson, April 1965, and donated by the Division of Sea Fisheries (SAM 24525, 24527).

Depth of body about 3, length of head about $3\frac{3}{4}$ in standard length. Eye diameter 5 in length of head, 2 in snout and $1\frac{1}{3}$ in interorbital width.

Dorsal fin XVII 24–26, the eighth spine longest, about equal to snout, 4 in body depth. Last spine $2\frac{1}{2}$ in first ray. Base of dorsal a little over $1\frac{1}{2}$ in body length, distance snout to origin dorsal $3\frac{1}{2}$ in body, about equal to length of pectoral.

Anal fin III 10–11, base short only $\frac{1}{4}$ of dorsal base. Second spine very stout, only a little longer than third, shorter than first ray.

Pectoral having 9 branched, 6 simple rays, first simple ray elongate, $\frac{1}{3}$ body length, free portion $3\frac{1}{3}$ in length of ray.

Forehead scaled to level of posterior nostril, both nostrils of similar size, round.

Scales fairly large, very thin, lateral line 55–58, transverse $\frac{7}{13}$, cheeks scaled. Gill rakers, upper 6–7, lower 14–16, total 21–23.

Colour: in formalin, dark blue-black dorsally; fading to silver below.

Edge of fins dark, caudal with a few dark bands.

In life said to be bright blue.

Detailed body proportions of the seven specimens are given in Table 3.

TABLE 3

Catalogue No.:	24289	24290	24292	24293	24296	24297	24298	24525	24527
Standard length . .	327	320	385	249	372	338	392	384	383
Head	288	271	260	277	255	264	263	266	253
Depth	345	347	343	333	352	329	349	359	350
Eye	58	57	52	56	54	53	51	50	55
Interorbital	80	75	75	76	75	71	79	78	78
Base of dorsal . . .	624	660	673	650	683	663	666	690	682
Base of anal	165	161	174	169	172	178	168	174	175

TABLE 3 (continued)

Catalogue No.:	24289	24290	24292	24293	24296	24297	24298	24525	24527
Length of pectoral .	327	328	294	321	328	340	319	354	329
Snout to dorsal origin	306	306	288	297	272	278	283	294	287
Snout to anal origin	686	627	607	650	650	642	654		
Snout to pectoral . .	303	278	299	273	253	255	268	263	264
Dorsal spines . . .	17	17	17	17	17	17	17		
Dorsal rays	24	25	26	24	25	24	25		
Anal spines	3	3	3	3	3	3	3		
Anal rays	10	10	11	11	11	11	11		

Body proportions (in thousandths of standard length) of *Acantholatris vemae* sp.n. from the Vema Seamount.

Dates of collection of the various specimens given in the text.

SAM 24527 the Holotype.

The specimen deposited in the South African Museum (Reg. No. SAM 24527) is designated as the type.

A. vemae is very close to *A. monodactylus* (both having 9 branched and 6 simple pectoral rays) which is also found on the Vema Seamount. It differs, however, in colour and colour pattern, lacking the six dark vertical bars found in *monodactylus*; also it has a markedly shorter head and slightly less deep body when compared to *monodactylus*. As a result of the shorter head, the distances of the snout to the origin of dorsal fin, the origin of anal fin and the origin of pectoral fin are proportionately less. The slope of the forehead in *vemae* too is steeper, and whereas it has the upper corner of the pectoral fin angular it is rounded in *monodactylus*. Finally it has much thinner lips than *monodactylus*.

It differs from *A. gayi* and *A. aspersus* in the pectoral not reaching the soft anal.

Latris lineata (Bloch & Schneider)

Cichla lineata Bloch & Schneider 1801: 342.
Latris hecateia Richardson, 1839: 99. Richardson, 1842: 106. Gunther, 1860: 86. Kner, 1868: 95. Sauvage, 1879: 17. Angot, 1951: 19. Blanc & Paulian, 1957: 331. Blanc, 1961: 152.

Two specimens, SAM 22623, 22891, both collected by Captain Scott at Gough Island. The former is a skin with standard length of about 900 mm and the latter a complete specimen of 904 mm.

The body proportions of the 904 mm specimen (as thousandths of L's) are as follows: head 324, depth 303, pectoral fin 192, snout 149, base of dorsal fin 638, base of anal fin 207.

Fin counts are dorsal XVIII 35, anal III 26, pectoral 9 + 9.

Counts of the skin are dorsal XVIII 36, anal III 26, pectoral 9 + 9, gill rakers 8 + 16.

L. lineata was originally described from Australia and New Zealand, but has been recorded from St. Paul Island by Kner (1868), Sauvage (1879) and Angot (1951). This is the only species that is without doubt common to the Atlantic islands and Australasia.

Serranidae

Polyprion americanus (Bloch & Schneider)

Amphiprion americanus Bloch & Schneider, 1801: 205.
Polyprion americanus (Bloch & Schneider) Barnard, 1925: 488. Smith, 1949*a*: 199. Blanc, 1961: 147.
Polyprion cernium Gunther, 1859: 169. Angot, 1951: 15.

As noted above, Sivertsen listed two species of fish known to the Tristan islanders by common names that he was unable to identify due to lack of specimens. The fish called by the islanders the steambrass was said to be a very large fish, nearly as large as a shark (± 2 metres) 'but much broader and with soft rays in the fin'. Rowan & Rowan (1955) record an 8-foot long specimen of *Polyprion americanus* from Tristan and state that it is the species the islanders refer to as the steambrass.

Specimens were received from the Vema Seamount. Two examples from the Seamount of 465 and 602 mm standard length were found to have the length $2\frac{3}{4}-3$ times depth and $2\frac{2}{5}-2\frac{2}{3}$ of head length. In both the pectoral fin was slightly greater than half the head, while the longest dorsal spine went $2\frac{1}{3}-2\frac{4}{5}$ into head. The species occurring at Vema is thus clearly *P. americanus* rather than the related *P. prognathus*.

Ephinephelus aeneus (Geoffroy St. Hilaire)

Serranus aeneus Geoffroy St. Hilaire, 1809: 317. Fowler, 1936: 756.
Epinephelus aeneus (Geoffroy St. Hilaire) Norman, 1935*b*: 9.

One specimen (SAM 24299) presented by Messrs. Friedman & Rabinowitz, Ltd., one of several landed by commercial fishing vessels from the Vema Seamount.

Body proportions as thousandths of the standard length of 465 mm are as follows: head 402, depth 331, length pectoral fin 219, height longest (fifth) dorsal spine 123, eye 62, interorbital 64, snout 114, pelvis 172.

The cheeks are scaled with cycloid scales, as is body above lateral line; scales ctenoid below lateral line. Caudal slightly rounded. Bottom opercular spine posterior to top spine. Pre-operculum serrated, angle produced with very long serrations, operculum acutely pointed.

Mandible with two rows of teeth.

Colour in formalin: Dark brown above shading to lighter below. Sparse scattered very dark brown spots. Unpaired fins dark edged, paired fins light grey-brown. Three dark stripes on face; one from posterior of eye to lowest opercular spine, one from below eye to edge of operculum opposite base of pectoral fin and the third above maxilla to pre-operculum below the angle.

Carangidae

Seriola lalandi Cuvier & Valenciennes

Seriola lalandi Cuvier & Valenciennes, 1833: 208. Barnard, 1925: 555. Smith, 1949*a*: 221. Rowan & Rowan, 1955: 129.
Seriola pappei (Castelnau) Smith, 1959: 256.

One specimen was donated by the Division of Sea Fisheries, caught at the Vema Seamount. It appears to be a very common fish there, as one commercial fishing vessel returned with over a thousand large specimens.

It has also been recorded from Tristan da Cunha (Rowan & Rowan, 1955).

Decapterus longimanus Norman

Decapterus longimanus Norman, 1935*a*: 255.

Two specimens from the Vema Seamount (SAM 24294) presented by the Division of Sea Fisheries. The species was formerly considered endemic to Tristan da Cunha.

The two specimens are the smallest yet recorded being 215 and 225 mm in standard length. Body proportions of the 215 mm specimen in thousandths of standard length are: head 288, depth 204, pectoral fin 260, base of soft dorsal 400, base of anal 335, gillrakers 44, scutes 42.

Measurements could not be made on the other specimen as it was rather damaged, having been obtained from the gut of a larger fish.

Emmelichthyidae

Plagiogeneion rubiginosus (Hutton)

Therapon rubiginosus (Hutton) 1876.
Plagiogeneion rubiginosus (Hutton) McCulloch, 1914. Barnard, 1927. Smith, 1949*a*.

A single specimen was donated by Messrs. Friedman & Rabinowitz (Pty.) Ltd. The fish was about 330 mm in standard length and was caught by handline on the Vema Seamount. Unfortunately the fish had been cleaned and somewhat distorted in freezing so that accurate measurements were not possible. It could readily be distinguished from the related *P. macrolepis* by its lateral line count of 68 as opposed to about 50 in *macrolepis*.

P. rubiginosus is recorded from Australasia and St. Paul Island, is not uncommon off the east coast of South Africa (Smith, 1949) and a single specimen has been recorded off Table Bay (Barnard, 1927).

Pentacerotidae

Pentaceros richardsoni Smith

Pentaceros richardsoni A. Smith, 1844 (Plate XXI and 2 pages unnumbered text). Follett & Dempster, 1963: 315. Smith, 1964: 572.
Pentaceros kneri Steindachner, 1866: 208.
Pseudopentaceros richardsoni (Smith) Barnard, 1927: 621. Smith, 1949*a*: 242.
Griffinetta nelsonensis, Whitley & Phillips, 1939: 233.

Only a partial bibliography is given here; a more complete one is given by Follett & Dempster (1963). It should be pointed out, however, that in Follett & Dempster the references to Andrew Smith's original description are incorrect. The plates each with a page or more of unnumbered text were

published separately between 1838 and 1847 but were not dated while only the index and title page were dated and published in 1849. (See Waterhouse, 1880, and Barnard, 1956.)

Pentaceros richardsoni was for long thought to be an extremely rare species of fish, being known from the type, an adult caught off Cape Point, South Africa, on a deep handline, and a few juveniles from Australia and New Zealand. Recently, however, many medium-sized fish have been obtained from the North Pacific (Follett & Dempster, 1963, give a complete set of published records) while Smith (1964) has described in detail a second adult fish from the Cape of Good Hope, and pointed out that the fish described from Cape Horn by Steindachner as *P. kneri* is clearly a juvenile of *P. richardsoni*.

A juvenile of *P. richardsoni* obtained at Tristan was presented to the Museum by Captain Scott. Unfortunately there are no data as to its method or depth of capture. Measurements and counts of this juvenile are given in Table 4, and compared with published measurements and with those of two specimens in the South African Museum; a large adult specimen trawled off Cape Town in 300 fathoms during March 1961 (SAM 23076) and a slightly smaller specimen trawled off Cape Columbine in April 1965 (SAM 24541) both presented to the Museum by Messrs. Irvin & Johnson, Ltd.

TABLE 4

Standard length	286[1]	240[2]	254[2]	80[3]	451[4]	358[5]
Head	325	325	319	338	321	319
Depth	413	433	422	425	418	422
Eye	87	79	83	100	91	76
Interorbital distance	115	117	118	135	109	106
Least depth caudal peduncle	93	100	102	112	106	109
Dorsal spines	14	14	14	14	14	14
Dorsal rays	8–9	9	9	10	9	10
Anal spines	4	4	4	4	4	4
Anal rays	7	7	7	8	8	7
Pectoral	17–18	17	17	18	17	18
Gillrakers total	25	22–25	22–24	—	—	—
Lateral line scales	68–69	71	76	—	86	—

Body proportions (in thousandths of standard length) and counts of *Pentaceros richardsoni* from various localities.

[1] Japan (Abe, 1957).
[2] North Pacific (Welander *et al.*, 1957).
[3] Tristan da Cunha (Reg. No. SAM 21791).
[4] Cape of Good Hope (Reg. No. SAM 23076).
[5] Cape of Good Hope (Reg. No. SAM 24541).

P. richardsoni is probably found throughout the world in the warm temperate waters, but the published records of its occurrence are confined to a few scattered localities. At most of these places it has been found more than once. Both Follett & Dempster (1963) and Smith (1964) suggested reasons for this, but it seems likely that the known distribution of the species bears no relation

to the true distribution but is due mainly to the widely scattered areas of intensive fishing and the introduction of new fishing techniques in various areas.

Thunnidae

Thunnus spp.

Several species of the genus *Thunnus* have been landed by commercial fishing vessels from the Vema Seamount. Unfortunately all specimens have been brought ashore gutted and without heads or fins. Many small tuna (about 50—75 lb. whole weight) had bright yellow peduncle keels which is characteristic of the southern bluefin (*T. maccoyi* Castelnau) (known from South Africa and Australia), while others were stated by the fishermen to be yellowfins (*T. albacares* (Bonaterre)) and bigeyes (*T. obesus* (Lowe)). Mr. A. Heydorn (Division of Sea Fisheries) (*pers. comm.*) informs me that he saw a yellowfin while diving on the Vema Seamount.

Until whole examples are obtained nothing definite can be stated concerning the species of tuna congregating about the Seamount.

Stromateidae

Palinurichthys antarcticus (Carmichael)

Perca antarctica Carmichael, 1818: 501.
Seriollella antarctica (Carmichael) Regan, 1913*a*: 467.
Seriolella antarctica (Carmichael) Sivertsen, 1945: 21.
Palinurichthys porosus (Carmichael) Barnard, 1948: 395. Smith, 1949*a*: 304.
Mupus perciformis (Mitchill, 1818: 244). Smith, 1949*b*: 843.

The Tristan bluefish was first described and figured by Carmichael (1818). It was not discussed by Regan in his review of the Stromateidae (1902), but in a later paper Regan (1913) reviewed the fishes described by Carmichael and suggested, but without giving reasons, that *antarctica* was 'rather closely related to Sauvage's *Seriollella velaini* from the Island of St. Paul'.

Sivertsen (1945) placed *antarctica* in the genus *Seriolella*, but again no reasons for doing so were given; nor was the generic definition modified. According to Regan (1902) the genus *Seriolella* had *inter alia* the following characters: a fin formula of VIII 27–40; anal III 19–24, and a lateral line concurrent with the dorsal profile. The fin formula of *antarctica* on the other hand is dorsal IX 18–20, anal III 14–15, and the lateral line becomes straight before the caudal peduncle.

The correct genus for *antarctica* would thus appear to be *Palinurichthys* Bleeker 1859.

A specimen of *P. antarcticus* was donated to the Museum by the Director, Division of Sea Fisheries, after it had died while on display in the Sea Point Aquarium. The fish was unquestionably a Tristan bluefish although actually obtained from Gough Island. When compared with other *Palinurichthys* material in the Museum collection it showed a marked resemblance to two similar sized fish in the collection recorded by Barnard (1948) as *P. porosus* (Richardson).

TABLE 5

	24532	19573	19557	23311	[1]	[1]
Standard length	884	436	453	432	35	34
Head	339	351	356	358	370	380
Depth	347	344	335	358	400	380
Length anal fin base	191	222	212	226	230	235
Diameter eye	75	66	75	72	103	103
Length pectoral fin	—	266	274	306	260	265
Length pelvic fin	152	160	166	158	245	235
Snout	105	88	95	102	86	88
Maxilla	153	138	150	150	145	147
Pectoral rays	21	21	21	20	—	—
Dorsal spines	8 + 1	8 + 1	8 + 1	8 + 1	8 + 1	8 + 1
Dorsal rays	19	19	18	20	19	19
Anal spines	3	3	3	3	3	3
Anal rays	14	15	14	14	14	14

Body proportions in thousandths of standard length and counts of *P. antarcticus* from the Cape and Gough Island and *P. porosa* from the Kermadac Islands.

SAM 19573 NW. of Cape Town
19557 NW. of Cape Town
23311 Gough Island
24532 Vema Seamount

[1] Kermadec Islands. Collection of the British Museum (Natural History).

Body proportions and counts are given (Table 5) for the Gough Island fish, the two Cape fish and a larger specimen caught at the Vema Seamount by Mr. A. C. Paterson and presented by the Division of Sea Fisheries. As far as proportions and fin counts are concerned it is clear that there are no significant differences between the fish that could be construed as being of a specific nature.

In all four examples the pectoral fin is long and falcate, reaching the anal origin. The preoperculum has a curved scaled patch and the operculum is completely scaled. There is also a small patch of scales on the head above the preoperculum, as shown in Barnard (1948, fig. 14). The mouth is large, reaching the posterior edge of the pupil. The origin of the dorsal fin is posterior to the pectoral fin base.

P. porosus is known from the coast of Australia and the Kermadec Islands. Seven juveniles from the latter locality, kindly lent by the British Museum (Natural History), were compared with *P. antarcticus*. Several differences in body proportions were apparent (Table 5), as well as the shape of the pectoral fin. Regan (1902), however, mentioned that the stromatid fishes changed considerably in body shape during growth, especially in that the pelvic fin becomes shorter and the pectoral fin becomes falcate in shape.

Although there are marked differences in the size of the fishes examined (over 430 mm as opposed to about 35 mm in total length), the similarity in pattern of the scales of the head suggest that *P. porosus* is at least very closely related to *P. antarcticus*.

In recent years large numbers of stromatid fishes assigned to the species

P. porosus have been reported from Australian waters (Cowper, 1960) but no redescription or figure of a specimen larger than the type of 140 mm has been published.

Two stromatids have been recorded from St. Paul Island, *Seriolella velaini* which has a fin formula of dorsal VIII 27 and anal III 20 (Sauvage, 1879), and *P. porosus*, which was recorded and briefly described by Angot (1951). His brief description could apply equally to *porosus* or *antarcticus*, but the sketch shows a fish with a long falcate pectoral fin characteristic of *antarcticus* rather than the short rounded fin as shown in Richardson's figures of the type of *porosus*.

In the North Atlantic there is another related species, *P. perciformis* (Mitchill) which Smith (1949*b*) recorded from the west coast of South Africa.

This species appears to be generally smaller than *antarcticus*; it is said to be dark green in colour (Jordan & Evermann, 1896) whereas *antarcticus* is blue; the dorsal spines after the fourth are subequal (Regan, 1902) whereas in *antarcticus* and *porosus* they decrease in size and, finally, the pectoral fin in *perciformis* (as figured by Merriman, 1945) is markedly shorter and less falcate than in *antarcticus*, even at the largest recorded size (284 mm L's).

It would appear therefore that there are two closely related species of *Palinurichthys* in the Atlantic Ocean, a northern species *P. perciformis* (Mitchill, 1818) and a southern species *P. antarcticus* (Carmichael, 1818). *P. antarcticus* has been found in South Africa, at Tristan and Gough Islands, the Vema Seamount and also appears to be present at St. Paul Island in the southern Indian Ocean. If adult specimens of *porosus* and *antarcticus* are compared and found to be conspecific *P. porosus* (Richardson, 1845) must be relegated to the synonomy of *antarcticus*.

Mupus imperialis Cocco

Mupus imperialis Cocco 1833: 20. Smith, 1949*b*: 843.
Mupus ovalis Smith, 1949*a*: 303.
Lirius ovalis Barnard, 1948: 392.

This species seems very common on the Seamount and grows to a large size, probably at least to 1 metre in length. In view of its rounded head it is called 'stumpnose' or 'biskop' by South African fishermen visiting Vema. Two specimens have been examined. In thousandths of standard lengths of 590 mm and 762 mm the present specimens have the following respective body proportions: head 289–297, depth at pelvic origin 334–343, max. depth 393–370, snout 76–79, eye 68–66, pectoral fin 263–244, base of dorsal fin 728. Counts were dorsal VI–VII 28, —28, anal III 20–21.

M. imperialis has been recorded from wide areas of the Atlantic and the Mediterranean and appears to grow to a large size. Sivertsen (1945) described as new a stromatid fish collected at Tristan which he named *Seriolella christopherseni*. From the description I can find no significant characters whereby this species differs from *M. imperialis*. Both have similar body proportions, especially

the large eye and rounded head, rather small mouth and a body which is deepest posterior to the pelvic fin origin. The counts for the unique specimen of *christopherseni* are all within the range for *M. imperialis*.

Coryphaenidae

Coryphaena hippurus Linnaeus

Coryphaena hippurus Linnaeus, 1758: 261. Fowler, 1936: 649. Gibbs & Collette, 1959: 117.

Two small specimens of this species were collected at the Vema Seamount by Mr. Paterson of the Division of Sea Fisheries. Both specimens (SAM 24531) are immature, being only 352 and 375 mm in standard length, but are clearly *hippurus* rather than the related *equiselis*, having total gillraker counts of 9–10 and 62–63 dorsal rays.

Scorpaenidae

Scorpaena scrofa Linnaeus

Scorpaena scrofa Linnaeus, 1758: 266. Smith, 1957: 51
Scorpaena natalensis Regan, 1906: 5. Barnard, 1927: 902. Smith, 1949*a*: 371.

One specimen from a commercial fishing vessel at the Vema Seamount. Body proportions as thousandths of standard length (313 mm) are as follows: head 418, depth 313, eye 80, interorbital 73, snout 130, dorsal base 534, anal base 125, pectoral 265.

Congridae

Ariosoma australis (Barnard)

Congermuraena australis Barnard, 1923: 442. Barnard, 1925: 190. Sivertsen, 1945: 4.
Arissoma balearica (*non* de la Roche) Smith, 1949*a*: 393 *partim*.
Congermuraena ?habenata (Richardson, 1845: 109). Sivertsen, 1945: 4.

Barnard (1923) described two species of congrid eels as *Congermuraena australis* and *C. albescens*, the former from shallow water at the Cape of Good Hope and Tristan da Cunha and the latter from deep water at the Cape. Sivertsen (1945) obtained one specimen at Tristan, and, although he assigned it to *C. australis*, he stated that there were minor differences between his specimen and Barnard's description, and suggested that the Tristan species may be *C. habanata* Richardson, known from New Zealand and St. Paul Island.

Smith (1949*a*) reduced both *australis* and *albescens* to the synonymy of the Mediterranean species *Ariosoma balearica* (de la Roche) but gave no reasons for doing so.

A careful examination of *A. australis* from shallow water at the Cape and Tristan and *A. albescens* (from deep water off the Cape) has shown the two eels to have clear differences. Body proportions are given in Table 6. There is little difference between the fish in so far as the body proportions are concerned except that the eye in *albescens* is proportionally smaller and the interorbital width greater than in *australis* from the Cape and with the Tristan fish having an intermediate eye size but a narrow interorbital width.

In general appearance, however, the fish from Tristan are very similar to *australis*, which differs from *albescens* in the following characters: in *australis* the rays in the vertical fins are clearly visible, the fin has a dark edge, the lateral line has one tiny pore to each myotome, the upper dentition has a rather

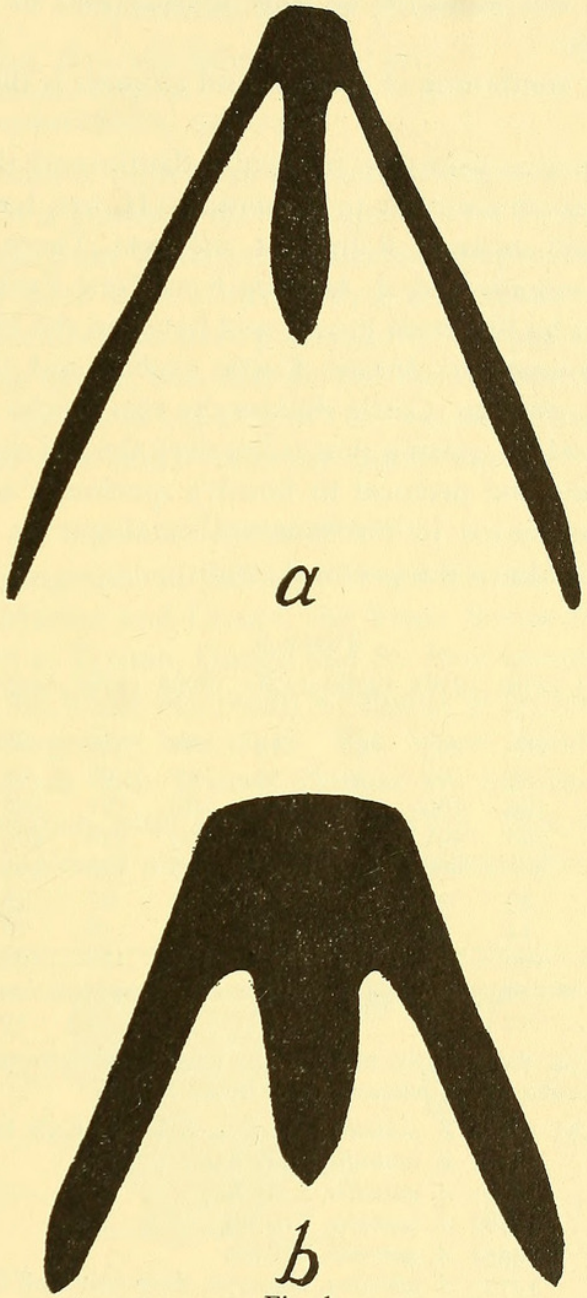

Fig. 1
Upper tooth patterns of *a*, *Ariosoma australis* syntype; *b*, *Ariosoma albescens* holotype. (Diagrammatic and not to scale.)

elongate, slender pattern (fig. 1*a*), the body is well formed and firm, and I can find no trace of the epidermal processes stated by Castle (1960) to occur on the body of *A. balearica*. In *albescens* the vertical fins are enclosed in a thick gelatinous envelope, the fins are pale edged, the lateral line is a distinct ridge and has a

large lower pore and a small upper one to each myotome, the pattern of the upper dentition is shorter and heavier (fig. 1*b*), there are distinct epidermal processes present and, finally, the body is soft and flabby. It is unlikely that the differences are due to changes taking place during growth, as a specimen of *australis* at 280 mm was found to be fully mature and to have ripe ovaries containing large eggs.

Smith's (1949*a*) combining of *australis* and *albescens* is therefore considered to be incorrect.

A. balearica is known from the tropical Atlantic and the Mediterranean (Fowler, 1936) and is very similar to *A. australis*. It, too, has a very indistinct lateral line which will separate it from *A. albescens*. There is also very little difference between *australis* and *A. habenata* from New Zealand and St. Paul Island as pointed out by Sivertsen (1945) and between the New Zealand deep-water species *Pseudoxenomystax hirsutus* Castle (1960) and the South African deepwater species *A. albescens*. Castle divides the two species by the position of the origin of the dorsal fin, stating that it lies over the gill slit in *hirsutus* and at a level half-way along the pectoral in Smith's specimens of '*balerica*'. In the type of *albescens* (designated in the museum catalogue as SAM 12775) the origin of the dorsal is above the pectoral origin.

TABLE 6

Catalogue No. SAM:	12781	12781	12780	12781	18097	12782	24551	12775	18097	18097
Standard length	206	225	238	274	281	186	368	668	737	879
Depth	53	67	51	55	47	56	65	88	73	74
Head	160	160	160	150	160	161	160	157	151	147
Head to vent	398	391	406	392	403	376	405	454	400	409
Vent to tail	606	608	592	607	597	635	595	550	596	587
Eye	39	38	38	40	32	37	33	25	26	23
Interorbital	14	16	13	16	11	16	18	37	26	26
Snout to origin dorsal	180	182	189	172	182	178	188	178	162	174
Snout to origin anal	417	405	420	405	—	403	—	481	—	—
Height, gill slit	17	18	17	18	18	21	19	25	—	—

Body proportions (in thousandths of standard length) of *Ariosoma australis* from South Africa and Tristan da Cunha and *A. albescens* from South Africa.

SAM 12780 *A. australis* paratype, collected Kalk Bay
12781 *A. australis*, Kalk Bay
18097 *A. australis*, Kalk Bay
12782 *A. australis*, Tristan
24551 *A. australis*, Tristan
12775 *A. albescens*, holotype, deep water off Cape Town
23189 *A. albescens*, deep water off Cape Town

The systematics of this group of eels is in a very confused state, there being little agreement even at the generic level, and until such time as a careful revision of the family is made on a world-wide basis it will be impossible to decide whether *A. habenata*, *A. australis* from the Cape, *A. australis* from Tristan and several other species are in fact distinct species or are only geographical variants. It is considered advisable therefore that the existing species be retained

in the meantime. It would be surprising, however, if the Tristan and St. Paul Island eels are specifically different.

Lagocephalidae

Sphaeroides cutaneus (Gunther)

Tetrodon cutaneus Gunther, 1870: 287. Barnard, 1927: 971.
Sphaeroides dubius von Bonde, 1923: 40.
Sphaeroides cutaneus (Gunther) Smith, 1949*a*: 417.

This large species of puffer fish is found throughout the warm, temperate and tropical seas. It is known from the Cape and St. Helena Island.

Three specimens from Vema were collected and presented by Mr. Paterson (SAM 24524). All three were a dirty grey-green dorsally with a white belly. Dorsal, anal and pectoral fins were pale yellow. The pectoral fin has a characteristic shape, being broad, rounded on the lower distal corner, and pointed at the upper. The species is capable of very extensive inflation and all three examples examined were much distorted due to this.

Zoogeography

The relative geographical positions of the islands of Tristan da Cunha, Gough, St. Paul, Marion and Crozet, the Vema Seamount and South Africa are shown in figure 2. Tristan, Gough and St. Paul islands lie on very similar latitudes, whereas the Vema Seamount is roughly as far north of Tristan as the Marion and Crozet groups are south. The Vema Seamount, however, has several fish in common with Tristan whereas the Marion and Crozet groups have no fish in common with Tristan or St. Paul. This, as was suggested by Sivertsen (1945), is almost certainly due to hydrographic conditions, mainly water temperatures.

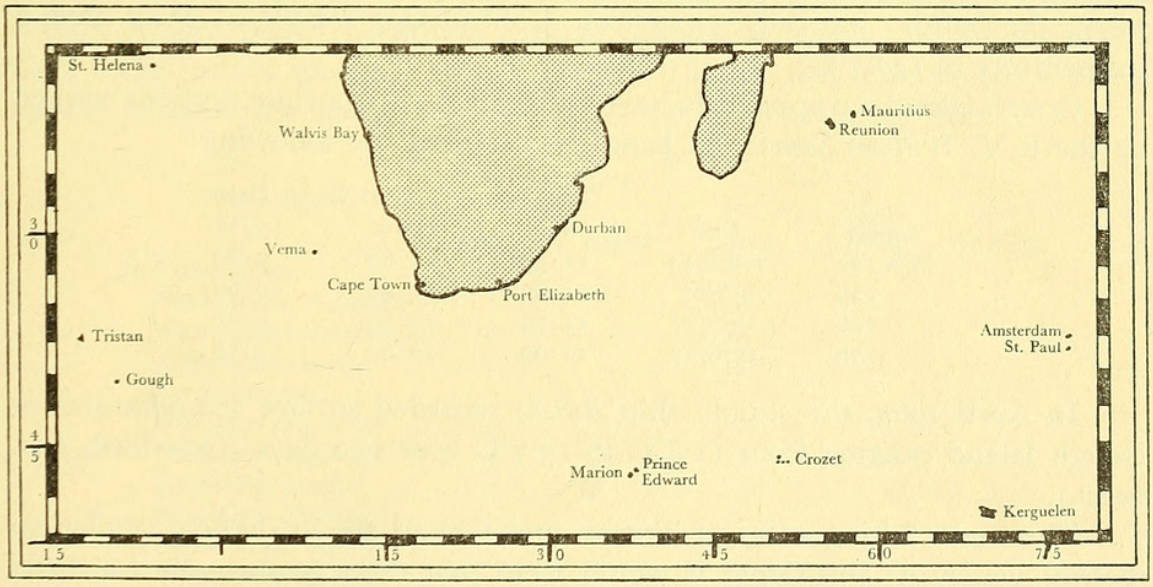

Fig. 2
Shallow-water areas in the southern Atlantic and Indian Oceans.

There are two areas of sudden temperature change in the Southern Ocean, the Sub-Tropical Convergence, where the surface temperature rapidly changes from about 13°C to about 9°C and a more southerly line, the Antarctic Convergence, where the surface temperature again drops, from 6°C to about 2°C. The Antarctic Convergence is quite narrow but the Sub-Tropical Convergence is much broader and Sverdrup *et al.* (1942) refer to it as a Region of Convergence. The Sub-Tropical Convergence fluctuates in latitude, at times the whole zone is 5–6° South of the Island and at other times Deacon (1937) suggests that it may be north of Tristan. Temperatures taken at Gough Island at a time when he suggested this do not support it, however.

Gough Island is approximately 3° 20′ south of Tristan, thus it may lie north or south of the Convergence according to the conditions prevailing in the ocean. Both, however, probably normally lie north of or within the Convergence zone, while Vema always lies well to the north and the Marion and Crozet group well to the south.

There is little published data available giving water temperatures at Tristan and even less for Vema or Gough. Christophersen & Schon (1942) published detailed sea surface temperature records taken during the Norwegian expedition to Tristan. The main features were:

	Temperatures in °C		
Month	*Average*	*Lowest*	*Highest*
December 1937 . . .	15·7	15·0	16·4
January 1938	16·7	14·8	17·9
February 1938	18·4	17·6	19·8
March 1938	18·9	18·0	20·0

The above are all surface temperatures taken from the shore. Two stations worked by R.V. *Discovery* gave surface temperatures of 14·59°C (Station 4) in January and 12·95°C (Station 397) in May. Station 4 was taken close inshore where the bottom was only 37 metres. A subsurface sample at 35 m gave a temperature of 13·64°C.

Gough Island too appears to have a very deep thermocline, stations worked by the R.V. *William Scoresby* in June 1927 showed the following:

		Temperatures in °C at Sample Depth		
Station	*Date*	0 *m*	100 *m*	150 *m*
W/s 122	7–8/6/27	11·59	11·69	9·89
125	9/6/27	11·63	11·49	10·99
126	10/6/27	11·79	11·70	9·69
130	12/6/27	12·09	12·09	10·71

In April 1965, the supply ship *R.S.A.* recorded surface temperatures at Gough Island ranging from 11·8°C to 13·7°C over two days (Crawford, *pers. comm.*).

The main fishing areas at Tristan and Gough are in shallow (under 50 metres) water. At this depth it would seem that there is normally but little difference between surface and ambient temperature of the bottom living species.

The surface temperatures at Vema are significantly higher, the *Emerson K* found surface temperatures of between 18·3°C and 18·8°C in November 1964 (Simpson & Heydorn, 1965) and in April 1965 the R.V. *Africana II* obtained the following temperatures on and about the Seamount:

Station	*Sounding (metres)*	*Sampling depth (metres)*	*Temperature °C*
A.3617	90	0	20·44
		50	20·13
		80	18·50
A.3620	900	0	20·37
		50	20·35
		100	16·15
A.3624	480	0	20·40
		50	20·38
		100	16·63
A.3625	73	0	20·36
		50	20·33
A.3626	900	0	20·35
		50	20·28
		100	15·51

There is a more rapid decrease in water temperature in the first hundred metres at Vema than at the two southern islands, but the ambient temperature of the bottom living species (main fishing areas are 70–80 metres deep) is still several degrees higher than at Tristan or Gough.

It is probable that this bottom temperature is close to the maximum for the fish at Vema which are more normally associated with cooler water (*Acantholatris* spp. and *Palinurichthys antarctica*) and yet still suitable for sub-tropical species (*Seriola lalandii* and *Epinephalus aeneus*).

The surface water temperature at Vema throughout the year, and at Tristan occasionally in the summer is suitable for tropical and subtropical surface pelagic species (*Coryphaena hippurus*, *Sphaeroides cutaneus* and Exocoetidae). Cool water surface species, however, such as *Thyrsites atun*, common at Tristan, appear to avoid the warm water and have not been found at Vema.

TABLE 7

	Tristan	*Gough*	*Vema*	*South Africa*	*St. Paul*
(*a*) Coast fishes					
Gaidropsarus insularum	+			+	+
Acantholatris monodactylus	+	+	+		
Acantholatris vemae			+		
Latris lineata		+			+
Bovichthys diacanthus	+	+			
Decapterus longimanus	+		+		
Labrichthys ornatus	+	?+	?+		+
Helicolenus tristanensis	+	+			
Sebastichthys capensis	+	+		+	
Scorpaena scrofa			+	+	
Epinephalus aeneus			+		
Caesioperca coatsi		+			
Ariosoma australis	+			+	

	Tristan	*Gough*	*Vema*	*South Africa*	*St. Paul*
(*b*) Oceanic fishes					
Prionace glauca	+			+	
Alepisaurus ferox	+			+	
Maurolicus muelleri	+			+	
Myctophum humboldti	+			+	
Scomberesox saurus	+			+	
Exocoetus exsiliens	+			+	
Cypsilurus lineatus	+			+	
Beryx decadactylus	+			+	
Seriola lalandi	+		+	+	
Plagiogeneion rubiginosus			+	+	+
Pentaceros richardsoni	+			+	
Polyprion americanus	+		+	+	+
Notopogon ?macrosolen	+			+	
Thunnus spp.			+	+	
Thyrsites atun	+			+	+
Mupus imperialis	+		+	+	
Palinurichthys antarcticus	+	+	+	+	?
Coryphaena hippurus			+	+	+
Sphaeroides cutaneus			+	+	

Distribution of fishes, known from the Islands of Tristan da Cunha and Gough and the Vema Seamount.

Sivertsen felt that there was a large number of fish endemic to Tristan (33% of the known fish) and a greater similarity with St. Paul Island than South Africa.

Table 7, which lists all the fish known from Tristan, Vema and Gough, is divided into oceanic and coastal species in much the same manner as arranged by Sivertsen. It is never easy, however, to distinguish between oceanic and coastal species and some, considered to be coastal by Sivertsen, are here listed as oceanic. Thirteen species are considered coastal, of these eight are found at Tristan, seven at Gough and six at Vema. Three of these species also occur definitely at St. Paul Island and four in South Africa. None of the species definitely occur at all five localities and only one at Tristan, Gough and Vema.

It is not agreed with Sivertsen that Tristan has a large proportion of endemic fish, in fact it is a surprising conclusion that this isolated island has no endemic fish species. Vema, however, appears to have one, as does Gough. It is also surprising that such an apparently successful species as *A. monodactylus* has reached Vema but not South Africa.

Almost all the oceanic species listed in Table 7 are known from Tristan, only the tropical species being absent. All species recorded from Tristan are also known from South Africa, a few from Vema and almost none from Gough. This pattern is almost certainly due more to the varying intensities to which the various areas have been fished than to any real differences.

Some of the species recorded from Tristan are deep-living bathypelagic species that have either been caught on the surface at night or have come into shallow water due to the abrupt elevation of the ocean floor. Such species are *Maurolicus muelleri*, *Myctophum humboldti*, *Alepisaurus ferox*, and *Pentaceros rich-*

ardsoni. All are species which have been found in widely scattered parts of the world.

Other fish again are surface-living pelagic forms not normally found close to land but presumably attracted by the rich food available at the edges of the oceanic islands and in the shallow water over the Vema Seamount. Fish of this type recorded are *Coryphaena hippurus* and *Thunnus* spp. from Vema, and *Scomberesox saurus*, *Prionace glauca* and *Exocoetus exsiliens* from Tristan.

Another group of pelagic fishes are also wide ranging but normally congregate close to land. *Seriola lalandi*, *Thyrsites atun* and *Sphaeroides cutaneus* are of this type. The first has been taken at both Vema and Tristan, the second only at Tristan and the third only at Vema. All three, however, are known from South Africa and the east coast of America. *Palinurichthys antarcticus* is possibly a similar fish but has a deep pelagic habitat rather than occurring close to the surface. It appears to have a very wide distribution, being known from all three areas discussed, South Africa, probably St. Paul Island and possibly Australia and New Zealand.

Some of the species which have a wide geographic distribution are small, weakly swimming, species, e.g. *Labrichthys ornatus* which is known from Tristan and St. Paul islands, and probably also Gough (Holdgate 1948) and Vema (Heydorn, *pers. comm.*, underwater sighting). Other widely distributed, but weakly swimming species are *Ariosoma australis* which occurs in South Africa and Tristan, and possibly St. Paul as well and *Gaidropsarus insularum* known from South Africa, Tristan and St. Paul. Both the latter two species have pelagic larval stages.

Rowan & Rowan (1955) mention large fish seen jumping in the vicinity of Tristan. At times, in summer, the surface water temperature at Tristan reaches a temperature quite suitable for Tuna, Blue and White Marlin and Broadbill Swordfish. *Isurus glaucus* has been recorded from St. Paul (Blanc, 1961).

It is interesting that no elasmobranchs other than *Prionace glauca* have been recorded from the areas discussed, although 'spiny dog fish' *Squalus fernandinus*, are common at St. Paul (Blanc & Paulian, 1957).

None of the gadids, thought by Rowan & Rowan (1955) to belong to at least two species, have been obtained. They thought that one belonged to the genus *Haloporphyrus* but as they obtained only damaged specimens washed ashore by storms, identification was not possible.

Summary

The fishes known from the newly discovered Vema Seamount are described and compared with those found off Tristan da Cunha and Gough Island. A new species of chilodactylid, *Acantholatris vemae*, is described from Vema. The genus *Gaidropsarus* from Tristan and South Africa is discussed and the South African material shown to belong to two species, *G. insularum*, also known from

Tristan and St. Paul Island, and *G. capensis* from the south-east coast of South Africa.

An attempt is made to relate the fish fauna to what is known of the hydrographic conditions around the islands.

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