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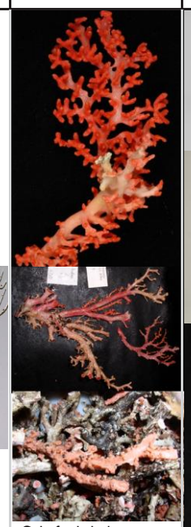
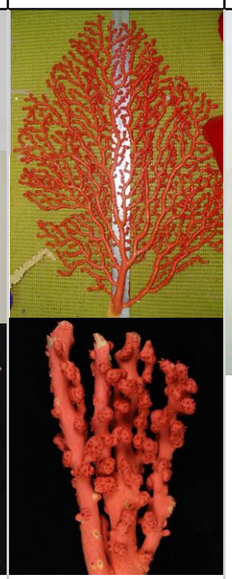
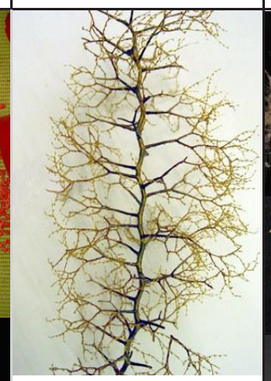
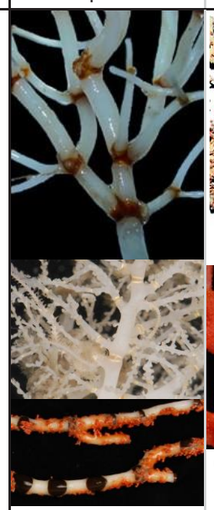
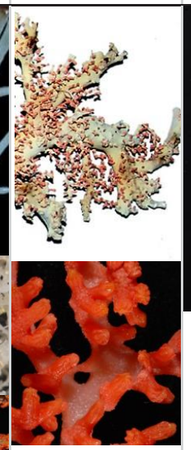
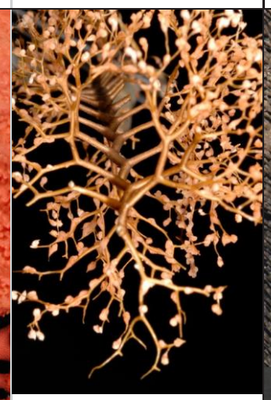
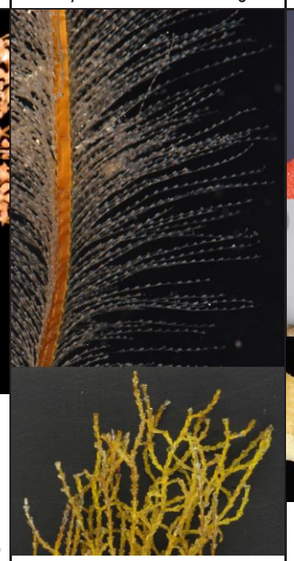
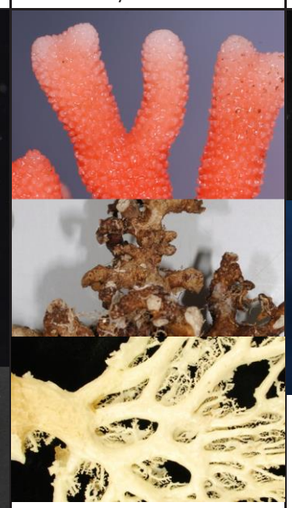
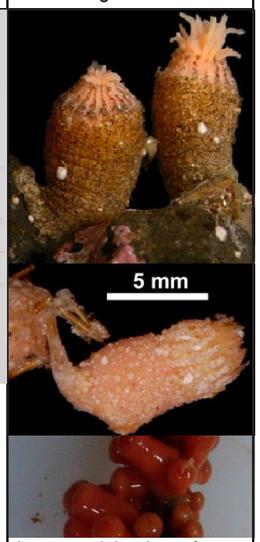
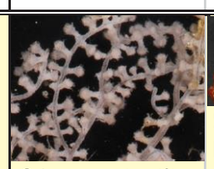
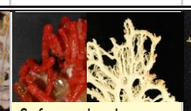
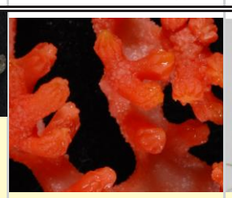
CCAMLR VME Taxa Classification Guide 2023 Version 2

These groups are **not** included: Snails, Starfish, Crabs

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

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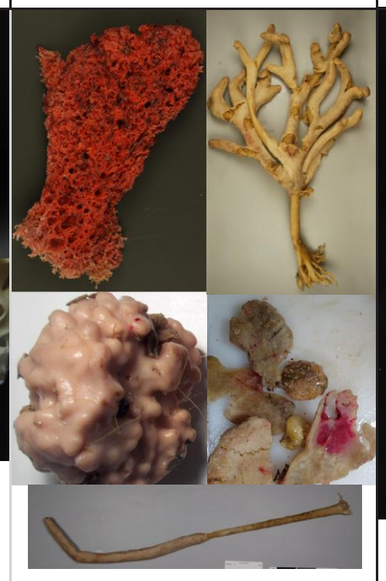
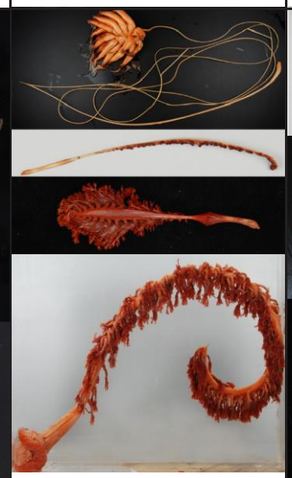
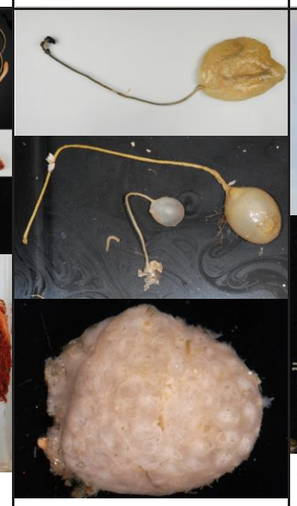
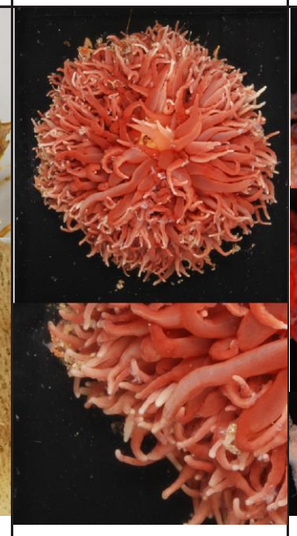
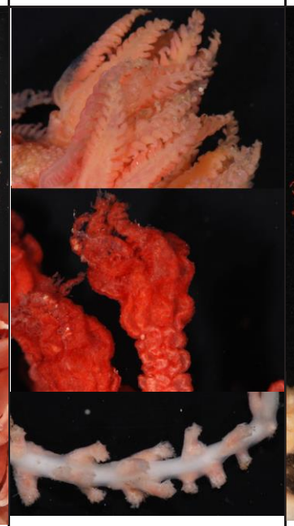
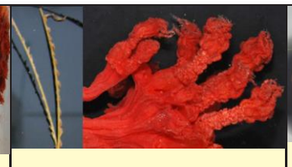
These groups are **not** included: Snails, Starfish, Crabs

Phylum	Porifera (PFR)		Cnidaria (CNI)			Chordata (CZ1)	Bryozoa	Chemosynthetic
Code	HXY	DMO	ATX	DWQ	NTW	SSX	BZN	CX1
Level	Hexactinellida (Class)	Demospongiae (Class)	Actiniaria (Order)	Malacalcyonacea (Order)	Pennatuloidea (Superfamily)	Ascidiacea (Class)	Bryozoa (Phylum)	Various groups
Taxon	Glass sponges	Siliceous sponges	Anemones	True soft corals	Sea pens	Sea squirts	Lacy bryozoans	Chemosynthetic communities
Form, size	 Diverse shapes: hollow central chamber spiky & vase-like, egg-shaped with hairy mass at base, honeycombed tubular crystalline forms	 Much variety: fans, spheres, solid masses, tubes, and encrusting	 Rubbery bottom with single polyp with lots of tentacles. Usually in retracted hardened cylinder form when captured	 Can be mushroom shaped. Floppy or soft, leather-like surface texture. Usually multiple large polyps, body not symmetrical, no foot or stalk	 Feather-shaped with fleshy polyps. Non-branching to whip-like cartilaginous stalk. Fleshy foot or anchor present, body symmetrical. Can be tall, >1 m	 No tentacles or polyps. Stalked solitary or colonial. No skeleton, stalk-like or encrusting over substrate	 Typically small, (<30 cm). Variable forms. Can be hard or soft (most commonly hard) branching, lace-like, or cornflake shaped, calcified, and brittle, surface cannot be scraped off	Chemosynthetic habitat sites, including cold seeps, vents, whale falls and sunken wood include some of the following associated biota:  Sediment or organisms may smell of rotten eggs - sulphurous
Detail (texture, colour, polyps)	 Surface frequently spiny, always very siliceous or like fibre-glass, ice-like, delicate, crunchy	 Varied textures: fleshy, rubbery, fibrous, woody, flexible, elastic, stony, hairy	 Tentacles sometimes look like worms when detached	 Similar polyps to seapens, but soft corals are not stalked	 Fleshy polyps. Flower or feather like polyp mass	 Regularly spaced surface pores.  Zooids visible in transluscent bodies. Gelatinous, soft and fleshy, leathery, flexible	 No polyps	Sediment or organisms may smell of rotten eggs - sulphurous
Commonly mistaken for other indicator groups, such as:	 Bryozoans or scleractinians that are small and of a hard matrix	 Some Alcyonaceans, Ascidians, which are not spongy but fleshy and have polyps or siphons, and Bryozoans.	 Alcyonaceans, which usually have several polyps	 Small pieces of Corallidae or some sea pens	 Alcyonaceans or some gorgonians due to large polyps and size	 Spherical demosponges or piece of sea pen	 Stylasterids if hard, hydroids if soft, carnivorous demosponge	Species belonging to the same taxa – to date only the white squat lobsters have been recorded in the Antarctic region. Because these communities are little known, **retain samples to be identified by experts**

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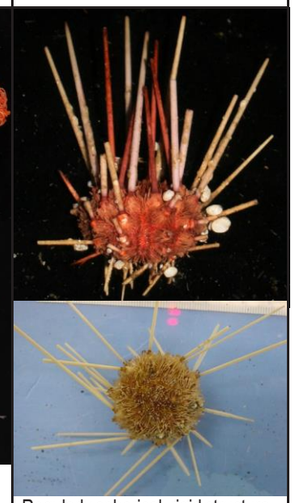
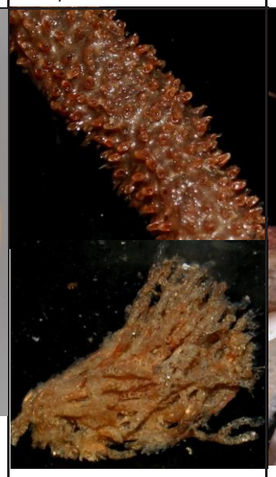
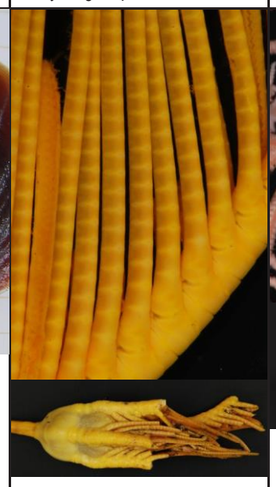
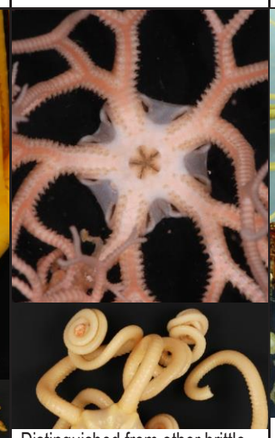
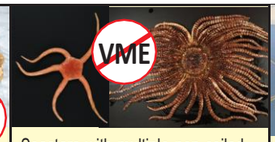
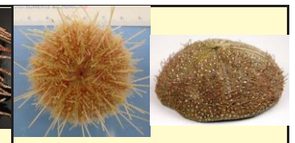
These groups are **not** included: Snails, Starfish, Crabs

Phylum	Brachiopoda	Hemichordata	Annelida (NHE)	Xenophyophoroidea within order Astrorhizida	Arthropoda	Mollusca (MOL)	Echinodermata (ECH)		
Code	BVH	PBQ	SZS	XEF	AX1	DMK	CWD	OEQ	DWL
Level	Brachiopoda (Phylum)	Pterobranchia (Class)	Serpulidae (Family)	Xenophyophoroidea (Suborder)	Cirripedia (Subclass) Bathylasmatidae BWY (Family) Scalpellomorpha DWI (Order)	*Adamussium colbecki* (Species)	Crinoidea (Class)	Euryalida (Order)	Cidaroida (Order)
Taxon	Lamp shells	Pterobranchs *Cephalodiscus* (genus)	Serpulid tube worms	Xenophyophores	Acorn & goose/stalked barnacles	Antarctic scallop	Stalked crinoids (Sea lilies)	Basket stars and snake stars	Pencil spine urchins
Form, size	 Valves enclose the body dorsally and ventrally rather than laterally. Ventral valve typically larger than the dorsal. Attached species have a short stalk emerging from the hinge area of the valves	 Tubes conjoined into colonies. Usually gelatinous, often semi-transparent	 Tube dwelling marine worms. Each tube flange is about 3.5 mm diameter. Forms large clumps, somewhat coral-like, typically Subantarctic distribution	 A specialised group, is among the largest single-celled protozoans. Colony size can be 10-20 cm in diameter	 These are stalked (goose barnacles)  and non-stalked (acorn barnacles)	 Scallop shaped bivalve. Laterally compressed with two shells, hinged dorsally, that completely enclose the body in most species	 Stalked. Small tulip-like body. Arms usually branched. Crinoids are generally fragile, often only fragments. A long stalk, some bearing whorls of hooklike cirri. Body length up to 20 cm	 *Gorgonocephalus* spp (QCX) Gorgons head basket-stars. Large disc with 5 arms splitting at the disc into many coiled branches	 Regularly spherical, rigid structure, typically 2–10 cm in diameter. Covered with small spines and 10 distinct columns of large pencil-like spines
Detail (texture, colour, polyps)	 Delicate shell; clam like. Each valve is bilaterally symmetrical and may be ornamented with concentric growth lines and a fluted or spiny surface	 Red-orange to brown. Tubes closely or loosely bound	 Serpulid worms in hard calcareous tubes	Varied appearance ranging from spherical to flat. Many species have a rounded, lumpy form and irregular netlike surface structure. Most are fragile but one group is felt-like & robust. Found >500 m	 The mantle surface of any barnacle bears at least 5 major plates, which are pulled together for protection. Heavily armoured	 Ribbed scallop-like shell	 Fragile, not flexible. Brittle and segmented	 Distinguished from other brittle stars by branched or highly coiled arms and from sea stars by lack of ventral groove on underside of arms	 Usually shades of beige, burgundy or purple. Spines paler, they can be a substrate for other organisms. Large spines can be cylindrical or flattened
Commonly mistaken for other indicator groups, such as:	Resemble bivalve molluscs but one valve is much larger, and overhangs the smaller valve	 Algae, marine tube worms, tunicates or demosponges	 Other worm like forms in sediment tubes	 Fragments of demosponges sponges (see image), colonial ascidians, bryozoans, or 'inorganic concretions'	 Cup corals or clusters of tube worm casings	 Other bivalves or lamp shells	 Arm fragments can look like other animals such as basketstars, or feather stars if stalk not present	 Seastars with multiple non-coiled arms, and more common sea and brittle stars (in other Orders) with non-branching arms.	 Urchins that lack the large pencil-like spines

CCAMLR VME Taxa Classification Guide

Conservation Measure 22-07 requires vessels to monitor bycatch for the presence of vulnerable marine ecosystem (VME) taxa as defined by the Commission.
The level of classification required is relatively coarse for most taxa, where phylum, class or order is sufficient. However, some groups may require classification to family or even species. In addition, several groups can be confused at first sight. Therefore, a classification guide is needed to assist in the rapid and efficient classification of VME taxa.

Instructions

This CCAMLR VME Taxa Classification Guide provides observers, fishers, and biologists at sea with a taxon-specific, quick, on-deck guide to aid in the classification of macroscopic marine invertebrate bycatch into the required VME groupings. VME taxa are a subset of the total invertebrate taxa encountered as fishery bycatch, and therefore additional processes are still required to collect information on non-VME taxonomic groups. Typically, invertebrate identification is not done at sea because it requires specialised tools. The format of the VME guide is a "compare and contrast table", using photographs and key characteristics to correctly assign VME taxa to the appropriate grouping. It also highlights commonly confused groups. Symbols representing non-VME groups are listed in the top right-hand margin.

The guide is organised into columns, each describing a taxonomic group and colour coded by phylum. Those groups that appear similar have been placed next to each other where possible. The top row for each column is a parent column that identifies the phylum for the vulnerable groups below. The FAO 3-letter taxonomic code for each group is provided at the top of each column and for the parent group. Below the codes are the scientific and common names for each group. The first row contains photographs and brief descriptions of the overall size and shape of specimens for each group. The next row then provides details of the specimen's appearance, such as texture, colour, or polyp characteristics, and also includes close-up images as examples. A final row (with a yellow background) has images and descriptions of specimens representing other phyla. This row shows how these specimens can be commonly mistaken for other taxa and flags details on what to look out for during classification. Text in this row should be read beginning with the phrase in the row heading to aid in clarity.

Photographs of Antarctic specimens have been used where possible to aid in the identification of VME groups. The guide has been linked through colour coding to phyla in the "Guide to common deepsea invertebrates in New Zealand waters" (Tracey et al. 2011), the SPRFMO VME taxa guide (Tracey et al. 2008), and the Field identification guide to Heard Island and McDonald Island (HIMI) benthic invertebrates (Hibberd and Moore 2009). Invertebrate specimens that cannot be identified with confidence need to be identified to the lowest taxonomic level possible, retained on board, and returned frozen as biological specimens for formal identification.

Acknowledgments

The revised and updated Guide was developed by J. Devine[1], D. Tracey[1], S. Mills[1], D. Macpherson[1], D. Gordon[1], E. Mackay[1], P. Marriott[1], O. Anderson[1], K. Schnabel[1], D. Bowden[1], M. Kelly[1], S. Shand[1], S. Lockhart[2], Steve Parker[3], Daphnis De Pooter[3], and Jack Fenaughty[4], in consultation with and funded by Fisheries New Zealand (Nathan Walker) and Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR),

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Photographs: Protected by copyrights either of National Institute of Water & Atmospheric Research Ltd, Land Information New Zealand, the New Zealand Fisheries, the New Zealand Department of Conservation, the US Antarctic Marine Living Resources Program, or Peter Batson www.deepseaphotography.com. Photographs were also contributed by CCAMLR fishery observers.

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Tracey D.M.; Parker, S.J.; Mackay, E.; Anderson, O.; Ramm, K. (2008). Classification guide for potentially vulnerable invertebrate taxa in the SPRFMO Area. New Zealand Ministry of Fisheries, Wellington, New Zealand.

Hibberd, T.; Moore, K. (2009). Field identification guide to Heard Island and McDonald Island (HIMI) benthic invertebrates: a guide for scientific observers aboard fishing vessels. The Department of Environment, Water, Heritage, and the Arts, Australian Antarctic Division and the Fisheries Research and Development Corporation. 158 p.