

Taxonomy and biogeography of macrofaunal Bryozoa, with a focus on the abyssal benthic fauna relevant to the CCFZ

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Bryozoa is a phylum of colonial invertebrates with about 6000 described living species and 15,000 fossil species. They are distributed from the intertidal zone to possibly more than 8000 m depth. Colonies range in size from virtually a single individual (zooid) living interstitially among sediment grains to massive coral-like growths about 1 m diameter. In shallow water and at continental-shelf depths bryozoans can form a significant part of rock-wall and shelf assemblages in some parts of the world, dominating the benthos in areas of bryomol gravel. They can live on hard or soft substrata and some are shell-boring. There are three living orders, in two classes: Ctenostomata and Cheilostomata (Gymnolaemata) and Cyclostomata (Stenolaemata). Bryozoan colonial morphologies include encrusting (a majority), flexibly erect, rigidly erect, free-living, conical, and shell-boring forms. In the deep sea, erect morphologies tend to be more lightly calcified and more attenuated in shape; they can attach to hard substrata or be rooted in soft sediments. Tiny conical and related forms can also live on soft sediment, with rootlets attached to foram grains; some have even been mistaken for foraminifera. Encrusters of hard substrata tend to be much smaller than at shelf depths, encrusting a variety of substrata ranging from rock (mostly volcanic), shell, coral, hexactinellid sponges, phosphoritic and polymetallic nodules and fossilised whalebone. There are at least 2500 named deep-sea bryozoan species. Some seamount bryofaunas can be relatively speciose. One seamount complex in New Zealand yielded 110 species. The highest single-station occurrences anywhere comprise around 30 species. The kinds of taxa one finds depend very much on the type of substratum. Trends in the deep-sea are both in the direction of dwarfism, measured as small colony (and consequently zooidal) size, and, on the other hand gigantism (of zooids). The only bryozoans so far recorded from the vicinity of the CCFZ are three species of the cheilostome family Bifaxariidae.