



Nationally and internationally significant

DESPITE the intrusion of humans the tall podocarp forests surrounding Paterson Inlet have remained relatively undisturbed. The largely pristine catchment results in very low rates of sedimentation which may explain why a variety of brachiopods (sometimes called "lampshells") are common on the floor of the inlet.

Brachiopods have a long fossil history, first appearing over 500 million years ago. Abundant up to about 70 million years ago there are now only 300-odd species world-wide, about 30 of which live in the seas around New Zealand. While superficially resembling bi-valve molluscs such as scallops, brachiopods represent an unrelated group.

Paterson Inlet is of special interest to scientists because here the brachiopods are within easy diving depths, compared with almost everywhere else where researchers have to dredge for them. Two species in Paterson Inlet, unlike the vast majority of brachiopods

which are permanently attached to a hard substrate, become free-lying on the sea bed. In the words of one palaeontologist, the Paterson Inlet brachiopods are "the closest thing in today's world to the Palaeozoic". The study of these living brachiopods provides clues to life in ancient seas and changes in past marine environments.

Seaweeds grow in a great profusion of colourful gardens in the inlet – about 270 species altogether – making it one of New Zealand's richest and most diverse seaweed communities.

Massive bull kelps and luxuriant submarine *Macrocystis* forests cling to the rocky shores of the outer inlet and islands. Among these forests the blue cod, blue moki and greenbones along with many other reef fish hide and feed. In the more sheltered middle sections of the inlet bright red *Rhodymenia* seaweeds cover the muds, stabilising them and providing suitable habitats for several brachiopod species.

In shallower waters unusually extensive meadows of another red algae, *Lenormandia*, provide homes for a wide range of worms, shellfish, sea squirts and sponges. Scallops too are often

found buried in the mud amongst the red algal fronds. Their young recruits find refuge on the seaweeds.

Why is there such a diversity of seaweeds in Paterson's Inlet? The answer lies in the many different habitats from reefs and various types of rocky shores, beaches and sand dunes, to clean sandy bottoms and open mud flats. An almost completely unmodified range of vegetation types stretches from the highest slopes of the catchment down to the shoreline into the inlet through a diverse group of communities on the sea floor and out into Foveaux Strait.

Estuarine mud flats at the head of the inlet and around the upper reaches of its bays and arms are some of the few in New Zealand still in their natural state. They are vital for the functioning of the entire inlet. They are nursery areas for many fish species, and feeding grounds for the many wading birds which come here to feed on the cockles, crabs and worms. One oyster-catcher alone can eat more than 350 cockles in one day; over a year a large flock might eat millions.

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