

Double-banded plover
Pied stilt
Whimbrel
Teak sandpiper
Sharp-tailed sandpiper
Curlew sandpiper
Red-necked stint
Sanderling
Hooded plover
Pacific golden plover
Greenshank
Ruddy turnstone
Masked lapwing

10. BUNURONG - Coal Point to Flat Rocks (IL = 1)

This area extends to 1 km off-shore from high water mark.

The information sources for this area are 5, 6a, 8 and 18.

Subtidal rocky reefs occurring at Bunurong are particularly attractive to fish because of diversity of protective niches and abundance of food such as plankton, algae and small invertebrates.

23 sites have been sampled in waters between Coal Point and Flat Rocks by Wilson *et.al.* (1990).

Sites or localities that:

- * contain a high diversity of habitats

Bunurong has extensive (wide) intertidal rock platforms: the broad intertidal rocky platforms and rocky reefs extend several kilometres from shore and at all times are within the depth of light penetration (most of the area is between 6 and 9 m, the maximum depth recorded is 15 m). These platforms and reefs have numerous microhabitats, and subtidal sand and shell bottoms in a relatively small area. In addition, Bunurong contains seagrass beds, sandy beaches, subtidal soft substrata and pelagic environments. Major biological communities include: intertidal

rocky community, a subtidal rocky reef *Cystophora-Sargassum* community, a seagrass community of *Amphibolis antarctica*, a rocky reef sponge-bryozoa community, encrusting invertebrates inhabiting dark habitats (such as caves crevices and ledges) and sandy beaches.

* contains a high diversity of species

Many green and red algae occur in the *Cystophora-Sargassum* community and particularly diverse flora and fauna on the intertidal rocky platforms.

The complex topography of the extensive intertidal rock platforms between Inverloch and Cape Paterson encourages development of a rich and diverse fauna and flora.

This environment is best developed at Twin Reefs and has several habitats each with its own characteristic fauna and flora. These are from the highest (supralittoral) to lowest (subtidal):

- (i) Large boulders and cliffs beyond the reach of the tide support only littorinid molluscs (*Nodilittorina unifasciata*) and the trochid (*Bembicium nanum*). Lower down, below the high water mark, the nestling mussel *Brachydontes rostratus* and the barnacles *Chthamalus antennatus*, *Chamaesipho columna* and *Catomerus polymerus*.
- (ii) The extensive mid-tide platform is dotted with small rock pools and small crevices in which the algae *Hormosira banksii*, *Ulva lactuca*, *Cystophora* spp. and species of coralline algae grow. Several species of limpets, nestling mussels, the trochid *Austrocochlea constricta*, and *Chamaesipho columna* shared this habitat.
- (iii) The lower intertidal platform provides a wide range of habitats for numerous invertebrate groups: under stable boulders, in rock pools on shaded vertical surfaces and in channels open to the sea, even at low water. The algae and animals found here are typical of shallow subtidal environments. Notable species are abalone (*Haliotis ruber*), elephant snails (*Scutus antipodes*), several crabs

(e.g. *Notomithrax ursus*, *Lomis hirta*), several sea-stars (*Patiriella* spp., *Coscinasterias calamaria*), echinoids, crinoids, and ophiuroids, numerous gastropods and smaller crustaceans. Dozens of algal species, particularly browns and corallines, inhabit the rock pools.

A similar range of habitats is found at other localities. The best known are Flat Rock, Eagles Nest, The Oaks, Cape Paterson and Harmers Haven. The most conspicuous differences between these are in their horizontal extent and the level of the platform with respect to mean sea-level. For example, at The Oaks, where much of the platform is in the upper intertidal region, a steep rock face and deep rock pools occurs at low water mark.

The region has, by far, the most diverse intertidal and shallow subtidal shore platform fauna in eastern Victoria according to the Marine Research Group, as shown by the diversity index values below.

Site	Diversity index (DI)	Field work effort	DI level
Harmer's Haven	46.5%	low	high
Cape Paterson	32.3%	medium	medium
Twin Reefs	36.9%	medium	high
Schanck Bay	23.0%	medium	medium
Eagles Nest/The caves	39.7%	medium	high
Flat Rock	35.8%	medium	medium
For the whole area	62.8%		high

A very high proportion of some species from the taxa included in the 1984 Marine Research Group database have been recorded at Bunurong; for example, 7 of 8 Ophiuroids (brittle stars); 9 of 11 Holothurians (sea cucumbers); 8 of 11 Cirripedia (barnacles); all 5 Actinarians (sea anemones); and 15 of 20 Polyplacophorans (chitons).

The chiton fauna recorded for the area is, to Marine Research Group knowledge, unmatched in any other locality in Victoria. (Other non-database species have been recorded that will increase the total spp. count above the 20 indicated above, including the 4 rare species of chitons mentioned below.)

Bunurong (Area DI 62.8%) recorded the highest DI on the mudstone/sandstone substrate with overall less field work effort than the area from Apollo Bay to Cinema Point (Area DI 58.2%), a similar effort to the area from Point Flinders-Point Bunurong (Area DI 42.9%), and a moderately greater effort than the area from Pebble Point to Aire River mouth (Area DI 50.7%). The Marine Research Group work at Bunurong to date has lacked attention to Opisthobranchs and small molluscs with just 7 non-database Opisthobranchs recorded. A 16% enhancement effect[(see Appendix III, point (vi)] is regarded by the Marine Research Group as a good indication of microhabitat diversity across locations.

- * contain habitats for rare, endangered, uncommon, depleted species

At present, Bunurong appears to be particular rich location for sponges and bryozoans. Several species of sponges and bryozoans have been found which have not been identified, indicating probably not only low level of knowledge of but also high diversity of these particular marine groups at Bunurong.

Four chitons, rarely found in Victoria, have been recorded here in the 1980s:

Loricella angasi (very rare in shallow water)

Aulalochiton cimolia (recorded only from 5 areas in Victoria
by MRG)

Chiton oruktus (appears rare throughout its range)

Chiton calliazonas

Bunurong is the only known Victorian site for *Pentocnus bursatis* - a brooding sea cucumber

- * contain nursery, feeding, breeding or rest areas

Hooded plover nests on Bunurong coastline.

- * contain rare or unique habitats

The Bunurong has extensive shore platform of Cretaceous sandstone/mudstone in Victoria. Intertidal platforms such as Twin Reefs are rare along the Victorian coast due to their large size and high diversity (see above).