

Parks Victoria Signs of Healthy Parks Summary

Subtidal Reef Monitoring at Popes Eye – Port Phillip Heads Marine National Park

February 2015

Background

Shallow reef habitat covers extensive areas along the Victorian coast and is dominated by seaweeds, mobile invertebrates and fishes. To effectively manage and conserve these important and biologically rich habitats, the Victorian Government established a long-term Subtidal Reef Monitoring Program (SRMP) on reefs located throughout Victoria.

Port Phillip Heads Marine National Park (MNP) is located at the entrance to Port Phillip Bay and includes a

diverse range of reef habitats from highly exposed open coast, to enclosed bays subject to fast tidal currents and deep canyons. The unique habitats in the area are known to be a biodiversity hotspot for seaweeds, sponges, hydroids and bryozoans.

The Popes Eye component of the MNP has been a sanctuary zone since 1979 and is unique in having a high abundance and large sizes of fishes.

Aims

The Subtidal Reef Monitoring Program provides long-term monitoring of biological communities and populations at

a range of sites inside and outside the Marine National Park. The surveys include fishes, invertebrates such as abalone and seastars and seaweeds and seagrass. The program is designed to:

- detect important community and population changes over time;
- provide data on species associations and ecosystem processes;
- identify any unusual biological phenomena, such as any disease events or pest infestations;
- provide indicators for assessing the status of the Marine National Park and



Figure 1. Giant cuttlefish *Sepia apama* at Popes Eye.

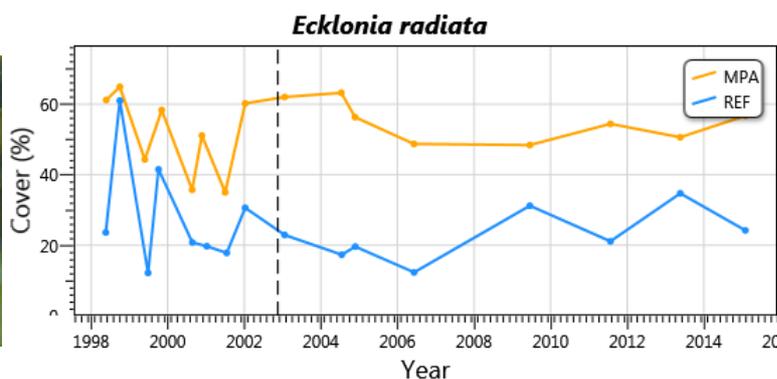


Figure 2. Changes in abundance of the common kelp *Ecklonia radiata* at (MPA) Popes Eye and (REF) South Channel Fort.

- implementing management procedures.

The methods involve scientific diver surveys of fish, invertebrates and seaweeds. The surveys commenced in May 1998 with the 16th survey completed in February 2015.

Results

- The seaweed community at Popes Eye was stable over time. The community at South Channel fort was comparatively variable and changed significantly over time from the initial monitoring period.
- There was a gradual decline in the abundance of the tufting alga *Cladophora prolifera* at both sites.
- There was a decline in the abundance and habitat formation by giant kelp *Macrocystis pyrifera* from the start of the program in 1998 to 2002, after which it was largely absent. This change is attributable to climate change.
- Invertebrate abundances were generally low and variable, with the two most abundant species being the feather star *Comanthus trichoptera* and sea urchin *Heliocidaris erythrogramma*.
- *Comanthus trichoptera* was generally stable in abundance at both sites.

- Popes Eye is unique in having very high fish abundances and much larger sizes, compared with most monitoring sites throughout Victoria. South Channel Fort is characterised by low abundances of fishes.
- There was a marked reduction in abundance of the southern hulafish *Trachinops caudimaculatus* at both sites from 2009 onwards.
- The scalyfin *Parma victoriae* and magpie morwong *Cheilodactylus nigripes* were stable in abundance over time.
- There was a consistent decline in abundance of purple wrasse *Notolabrus fucicola* at Popes Eye from 2006.
- There were some unusual fish observations at South Channel Fort in 2015, including a female eastern blue groper *Achoerodus viridis*.
- There were no marine pest species observed at Popes Eye MPA. The Mediterranean fanworm was observed at South Channel Fort on two occasions.
- There was no manufactured debris observed at the monitoring sites.

Implications

The management implications of the findings include:

- The 17 years of monitoring data is invaluable in understanding reef systems.
- The fish assemblage structure at Popes Eye is unique and has been generally stable over the monitoring period.
- The large fish sizes and abundances indicate the Park is having a positive effect on fished populations.
- The loss of giant kelp at Popes Eye by 2002 is attributable to climate change.
- The more recent decline in the southern hulafish *Trachinops caudimaculatus* is potentially a climate change response.

Reference

Edmunds M (2015) Victorian Subtidal Reef Monitoring Program: The Reef Biota at Popes Eye – Port Phillip Heads Marine National Park, February 2015. Parks Victoria Technical Series. Parks Victoria, Melbourne.

More information

Visit www.parks.vic.gov.au or call 13 1963.

Prepared date

10 February 2015

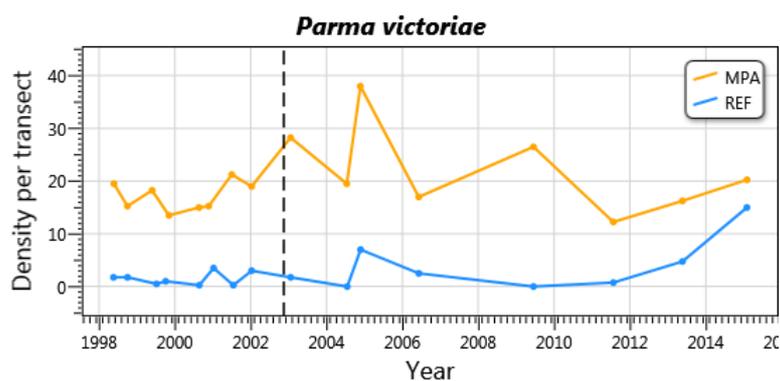


Figure 3. Changes in abundance of scalyfin damselfish *Parma victoriae* at (MPA) Popes Eye and (REF) South Channel Fort.