

Factsheet: August 2009

# Rock scour and deep reef assessment at the Entrance

A requirement of the Environmental Management Plan (EMP) is to conduct a series of assessments of rock scour at the Entrance. These assessments will be conducted three, six, nine, twelve and twenty-four months and four and 10 years after dredging of the Entrance.

An effect of dredging is the creation of loose rock which is moved by the currents creating scour (erosion) or accretion (build up) mounds.

The Supplementary Environment Effects Statement (SEES) predicted scour may occur to a maximum depth of 22m below water level and accretion of up to 2m high. Independent three-month post Entrance dredging assessment of rock scour was conducted by Sinclair Knight Merz (SKM).

The report was the first in a series to provide data to define scour across the Great Ship Channel. The report found that all scour and related accretions observed in the Entrance during the assessment were within the SEES predictions, with rock scour occurring in areas to a depth of about 20m and accretion mounds to a maximum height of 1.2m.

The strong ebb and flood tides that occurs in the Entrance move the loose rock causing scouring of banks and forms accretion mounds of loose rocks.

The report found that most of the loose rock on Nepean Bank has broken down or moved into the canyon.

Loose rock on Rip Bank reflects the relatively small volumes of material being transported to the canyon and the remainder moving towards Bass Strait. Most of the larger rock material on Rip Bank is expected to stabilise while smaller rock material will move south towards Bass Strait or break-down to sand as it moves across the sea-bed.

Video traverses have shown plant growth in the recently dredged areas. These areas are also stabilising and scour and accretion rates are likely to slow down over time.

Information and data from the bathymetric survey and video traverses taken during Entrance post-construction monitoring programs shows the scour and accretion are consistent with the SEES predictions.

The latest deep reef habitat assessment by Australian Marine Ecology (AME) provided additional scientific information to examine recovery at the Entrance three months after dredging.

Underwater video was collected by scientific divers for depths to 27m and by remotely operated vehicle for depths below 27m. The assessment also re-sampled reef patches that were surveyed in 2006 prior to dredging of the Great Ship Channel.

Sponge communities continued to be observed at various locations and depths along Rip Bank and Nepean Bank. At Rip Bank, some rubble patches had strong signs of rapid recolonisation and recruitment, and sponge growth rates for some species were much faster than anticipated.

At both banks, it was apparent that physical impacts were largely in the form of scouring of reef surfaces and rubble, more so prevalent along sections of Rip Bank.

On-going rock fall was limited to a few areas, and was within SEES predictions at Nepean Bank. Recovery of the plants was well advanced.

At Rip Bank, rockfall impacts were greater than SEES predictions with a depth between 37m and 57m. Recovery in some parts of Rip Bank varied, with signs of slower than expected recolonisation and recruitment, on-going rockfall in some patches with scouring and smothering from fresh rockfall material, and the recolonisation of seaweeds. In other areas of Rip Bank recolonisation was well advanced.

Overall the rockfall impacts on Nepean and Rip Banks were consistent with the SEES predictions.

It was noted that rockfall and biological impacts in the Port Phillip Heads Marine National Park were relatively minor and lower than the SEES predictions.

With the canyon, changes in community structure were largely attributable to decreases in abundance of encrusting ruffled grey sponges, and possibly attributable to natural causes, dredging or a combination of both, although the causes of the changes are unknown.

Periodic monitoring will continue to assess rates of recovery at the Entrance.

## For more information:

**Telephone:** 1800 731 022  
**Visit:** [www.channelproject.com](http://www.channelproject.com)  
**Email:** [channelproject@portofmelbourne.com](mailto:channelproject@portofmelbourne.com)