Predation on the exotic starfish *Asterias amurensis* by the native starfish *Coscinasterias muricata*.

**Parks Victoria and Marine Ecological Solutions**

**Background**

*Asterias amurensis* is a sea star native to the northern Pacific that was introduced into Port Phillip Bay in 1995. While it is widely viewed as one of the most serious invasive marine pests in Australia, there are few methods available to control new or established populations.

**Aims**

This study was undertaken to determine if predation by the native sea star *Coscinasterias muricata* could be used to augment diver collections to eliminate any new *Asterias* infestations in locations such as Tidal River.

**Progress and findings to date**

Laboratory-based feeding trials showed that small *Asterias* were usually pinned and eaten quickly by *Coscinasterias*, but larger *Asterias* wrestled with *Coscinasterias* for up to six hours before they were eaten or escaped. A few were partially eaten after they autolysed one or more arms.

Field studies indicated that in Port Phillip Bay that *Coscinasterias* is mostly found in water shallower than 15 m, while *Asterias* is mostly found in water deeper than 15 m, with the relative density of *Asterias* to *Coscinasterias* increasing with depth.

In the laboratory trials *Coscinasterias* consumed *Asterias* in the presence of alternative mussel prey at the rate of ~50/year. Consequently, if they fed at a similar rate in the field, they would be expected to exert significant control over *Asterias* populations at all depths where the ratio of *Asterias*/*Coscinasterias* was less than ~50, i.e. at all depths less than ~15 m (see Figure).

**Implications**

This study suggests that *Coscinasterias* may be very helpful in eliminating newly-established populations of *Asterias*, but the efficacy of deploying large numbers of *Coscinasterias* on a new *Asterias* infestation would be difficult to evaluate. Consequently, it is recommended that a field trial is undertaken at a location where *Asterias* is already abundant, and where the effectiveness of increasing the *Coscinasterias* population could be evaluated in the field.