Department of Sustainability and Environment

Effectively managing the Northern Pacific Seastar

What you can do to help

Marine Series No 1

Why manage Northern Pacific Seastars?

The Northern Pacific Seastar (NPS) was accidentally introduced into Port Phillip Bay in the 1990s, and is now common in many parts of the bay. Being an introduced species, it has few predators to reduce its numbers naturally.

There are concerns that the NPS will affect native marine biodiversity, mainly through predation on shellfish and other invertebrates that are important in the marine food chain. The NPS is also known to reduce shellfish production in farming industries in Tasmania.

On the mainland, Port Phillip Bay is the only known site at which the NPS has established. It is essential that no new colonies of NPS are allowed to establish elsewhere along Australia's coast line. To assist with this goal, all sightings outside Port Phillip Bay should be reported immediately.

Why are Northern Pacific Sea stars difficult to manage once established?

The NPS can breed very quickly, with each female producing up to 20 million eggs per year. A few mature NPS can be responsible for the establishment of a new colony within months of reaching a new area.

NPS larvae are very small and free floating, so are easily transported in water currents or in bay water trapped in boats and wet fishing or diving gear. However, Port Phillip Bay currents limit their spreading outside the Heads of the bay.

Now that NPS are established in Port Phillip Bay,

the economic costs (resource commitments) and environmental costs (damage from mechanical control methods) in eradicating them are prohibitively high. Chemical control is not an option for such a large body of water due to costs and damage to the marine ecosystem.

What is the Government doing about NPS and other marine pests?

The Victorian government works in partnership with other Australian states and territories to monitor marine waters for new pests. Prompt Nationally coordinated responses to new pest incursions try to prevent their establishment. Once established, marine pests are almost impossible to eradicate.

The Victorian Government participates in industry and community education about the importance of reporting new marine pest sightings and practicing strict hygiene to minimize the risk of spreading established pests. For example, ships are required to manage ballast water before discharging it in port.

Although established in Port Phillip Bay, NPS are considered are high priority pest species in all other mainland waters and are subject to a National control plan. Reports of NPS outside Port Phillip Bay may trigger a Government emergency response.

Should NPS collections be organised?

While collecting NPS might seem a good idea, there are a number of reasons why it is not considered worthwhile.

1. The vast number of larvae produced each year means that localised NPS collection in Port Phillip Bay will have little or no impact on their numbers in the long term.
2. The relatively small area that can be covered on collection days and rapid recolonisation by sea stars means that environmental benefits would be minimal.

What can you do to help?

3. Unsupervised NPS collection has, in the past, resulted in mass collection of the wrong species, especially the native 11 armed sea star. The 11 armed sea stars may actually prey upon NPS.
4. NPS are declared noxious under the Victorian Fisheries Act, and, therefore it is illegal to collect or transport them live without a permit.
5. NPS are difficult to dispose of once collected as
   - Seastars do not die immediately once they leave the water so can easily be transported live to other clean marine environments.
   - Seastars do not necessarily die when cut into pieces. Often 2-3 of these pieces will grow into new animals.
   - Large numbers of seastars are difficult to transport to suitable disposal sites. When left to rot on piers and beaches, they are unsightly and smelly.

How can you help manage North Pacific Seastars?

1. Know how to distinguish NPS from native seastars.
2. Report NPS found outside Port Phillip Bay to the DSE Customer Service Centre on 136 186.
3. Practice effective hygiene. Do not carry Port Phillip Bay water to another marine environment (e.g. in your boat, motor, fishing or diving gear).
4. Rinse and dry all diving and fishing gear in fresh water to kill any attached NPS larvae before entering a different marine environment (e.g. Westernport Bay or other beach or dive areas outside Port Phillip Bay).
5. Dispose of any accidentally carried NPS responsibly – by freezing them before placing in a rubbish or compost bin.

Know your sea stars

Northern Pacific Seastars

- Five arms
- Arms that taper into pointed, upturned tips
- Colour on the top and sides of arms that ranges from a uniform pale yellow with purple arm tips to mottled yellow /purple.
- The underside of the arms and central disc are a uniform yellow.

Native seastars

1. **Ocellate seastar** ***(Nectria ocellata)***
   - Arm tips rounded
   - Generally orange or yellow
   - Mosaic body pattern
2. **Zigzag seastar (*Uniphora granifera*)**
   - Resembles NPS.
   - Lacks the pointed turned-up arm tips.
   - Has more rounded, blunter spines on its upper surface often arranged in a zigzag-like pattern.
3. **Cushion seastar (*Patiriella calcar*)**
   - Arms are short.
   - Arms do not turn up at tips.
   - Smooth upper body surface.
4. **Eleven armed seastar (*Coscinasterias muricata*)**
   - Usually has 11 spiny arms (varies from 7–14).
   - Can grow to 40cm from tip-to-tip
   - Generally grey/green in colour (can be orange).
   - Often mistaken for a marine pest.

To become involved in local marine activities visit www.coastcare.com.au or www.reefwatchvic.asn.au.
For more information about the Northern Pacific Seastar and how government manages marine pests, visit the Victorian Department of Sustainability and Environment website on www.dse.vic.gov.au.