



Marine pests in Victoria

A quick reference guide

What are marine pests?

Marine pests are highly invasive, non-native animals and plants that cause significant damage to the health of marine ecosystems.

Marine pests reproduce quickly and produce large numbers of offspring that can rapidly spread to new areas. If established, they compete with native species by preying upon them, outcompeting them, or overgrowing them.

What is at stake?

Over 90% of the plants and animals living in Australia's southern waters are found nowhere else in the world. Victoria's marine national parks and sanctuaries have been established to represent and protect the diversity of our marine environment, its habitats and associated plants and animals.

The most effective control of marine pests is to prevent their introduction and stop their spread. Once a marine pest becomes established in a new location they can rarely be eradicated and pose a significant threat to biodiversity.

Report suspected sightings

People who spend time on the water or visit the coast can provide early warning of new marine pests or the spread of existing pests.

If you suspect you have seen a marine pest not currently known to the location please report your sighting.

Reports should include:

- A clear photograph, preferably with a scale (e.g. shoe, coin or pen) to show the size of the pest
- The date and time of the sighting
- The location of where it was found (e.g. GPS coordinates or a marked map)
- Contact details to follow up for further information about the sighting.

Email suspected marine pest sightings to marine.pests@ecodev.vic.gov.au or call **136 186**

Please do not collect or remove suspected marine pests. Some pests can easily be mistaken for native species.

Parks Victoria

13 1963

www.parks.vic.gov.au

What can you do?

Marine pests are spread by both natural means and with human help. Moving boats and other water craft from areas with marine pests to different waterbodies can increase the risk of spread.

To help prevent the spread of marine pests:

- Use fresh water to thoroughly wash down boats, other watercraft, fishing gear, wetsuits, water toys, and other marine equipment after use.
- Dry boats and marine equipment thoroughly before moving to other areas.
- Be particularly vigilant when moving boats or equipment from water bodies known to have marine pests, particularly Port Phillip, to any other part of Victoria.
- Apply appropriate anti-fouling paints to boat hulls as per instructions for use.
- Never use marine pests as bait.

Native species moving south

As the East Australian Current extends further south bringing warmer waters to the Tasman Sea, so too does the range of marine species previously restricted to more northern waters. The consequence of the southward migration of native northern species on Victorian fish, invertebrates and plants is currently unknown but has the potential to cause pest-like environmental changes.

Overabundant native species

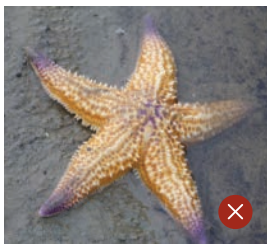
Sometimes native marine species can become over-abundant and behave like a pest causing significant damage to the health of marine ecosystems. For example, over-abundant populations of the native Purple Urchin, *Heliocidaris erythrogramma*, has caused significant loss of broadleaf seagrass habitat in the Ramsar recognised Nooramunga Marine and Coastal Park. Parks Victoria continually monitors and controls native urchin populations to reduce the impact of urchin barrens in protected areas.



Northern Pacific Seastar, *Asterias amurensis*

Status

Well established in Port Phillip but currently not present in other Victorian locations. Was discovered at San Remo, Inverloch, Tidal River and Gippsland Lakes but has been controlled. More recently found again at Tidal River and at Waratah Bay.



Impacts

A highly voracious predator that feeds on a wide variety of native marine species including bivalves (e.g. pippies and mussels), other molluscs, crabs and barnacles. Few known predators, reproduces quickly and rapidly spreads to new areas.

Identification features

- Five broad arms with pointed tips that are often upturned.
- Varies in colour on the upper surface from yellow to purple, while underside is uniform yellow.
- Irregularly arranged pointed spines on upper surface of arms.
- Up to 50cm in diameter.

Native species

Native seastars are an important part of Victoria's marine environment and are protected in marine national parks and sanctuaries. Removing the native Eleven Armed Seastar, *Coscinasterias muricata*, one of the few known predators, can inadvertently assist in the survival of the Northern Pacific Seastar.

The following seastars are native to Victoria.

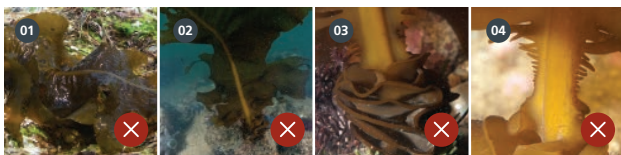


1. Ocellate Seastar *Nectria ocellata* 2. Eleven-armed Seastar *Coscinasterias muricata*
3. Granular Seastar *Uniophora granifera* 4. Vermillion Seastar *Pentagonaster duebeni*
5. Common Seastar *Meridiastra calcar*

What can you do?

Sightings of suspected Northern Pacific Seastars outside of Port Phillip should be reported immediately to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

Wakame, *Undaria pinnatifida*



1. *Undaria* washed up on the shore 2. A mature *Undaria* plant 3. Frilly sporophyll 4. Juvenile *Undaria* plant without sporophyll

Status

Well established in Port Phillip but currently not present in other Victorian locations, apart from Apollo Bay Harbour.

Impacts

Grows rapidly and forms dense underwater forests, outcompeting native kelp and algae for light and space, then dies back in summer, changing kelp habitat. It can quickly colonise disturbed areas with preference for solid surfaces such as rocks. There are few known predators.

Identification features

- Frilly sporophyll near the base of mature plant (near the holdfast).
- Mature plant only observed with sporophyll from early winter until late summer.
- Thick midrib/vein that runs down the middle of mature plants.
- Brown coloured; size usually up to 1m long, can grow up to 3m.

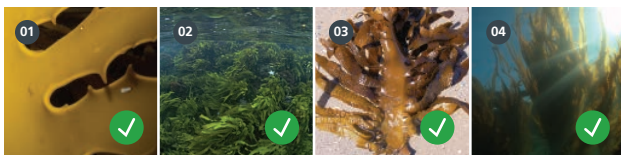
Native species

Kelp forests formed by large brown algae are important habitat on subtidal rocky reefs and provide food and shelter for a wide range of other species.

Common Kelp *Ecklonia radiata*

Key features:

- No midrib / middle vein or frilly sporophyll at the base.
- Rough blades, not smooth.
- Note that juvenile *E. radiata* is hard to distinguish from *U. pinnatifida*; *E. radiata* is more leathery.



1. Detailed image of *Ecklonia radiata* 2. A dense stand of *Ecklonia radiata* 3. *Ecklonia radiata* washed up on the shore 4. Giant Kelp *Macrocyctis pyrifera*

What can you do?

Sightings of suspected Wakame outside of Port Phillip and Apollo Bay Harbour should be reported immediately to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

Pacific Oyster, *Crassostrea gigas*

Status

Known pest in Western Port. Also observed in Port Phillip, Tidal River, Corner Inlet and Nooramunga Marine and Coastal Park however not considered a pest in these locations.



Pacific Oyster upper shell surface

Impacts

Pacific Oysters alter habitats by covering substrates, forming reefs and over growing native species. It is fast growing and is a filter feeder, competing with native species for food.



Pacific Oyster wavy shell edges

Identification features

- Outer shell is white-purple in colour including the interior.
- Can grow up to 15-20cm.
- Usually, one valve is entirely cemented to the substrate or rock surface.
- The shell is sharp with jagged edges with large, irregular, rounded, radial folds.

Native species

Native shellfish including oysters are an important part of Victoria's marine environment and are protected in marine national parks and sanctuaries.

Mud Oyster *Ostrea angasi*

Key Features:

- Triangular to round shaped shell that is coloured ash-grey to off-white and usually darker towards the hinge; inside the shell is white.
- Upper valve is thick, heavy and flat to concave, with an irregular margin (edge).
- Grows to a size of 10-18cm in length.



What can you do?

Sightings of suspected Pacific Oysters outside of known locations should be reported to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

Green Shore Crab, *Carcinus maenas*

Status

Widespread across Victoria and common in Port Phillip and Western Port. This crab has been present in Victoria since the 1800s.

Impacts

A voracious and aggressive predator with a broad diet, it out-competes native crabs for food and habitat. It is a major cause of mortality of native crabs and mollusc populations.



Identification features

- Four distinct notches in the carapace located on both sides of the eyes.
- Can grow up to 8cm across.
- Green coloured upper surface. The under-surface colour varies, can be red, orange or green.
- Broad, triangular carapace that is deeply sculptured on top.
- The last pair of legs are pointed and not used for swimming.

Native species

Native crabs are an important part of Victoria's marine and environment and are protected in marine national parks and sanctuaries. Some species that look similar include:

Sand Crab

Ovalipes australiensis

Key features:

- Distinctive purple spots towards rear of carapace.
- Swimming paddles on last pair of legs.
- Shell is coloured pale grey and up to 10cm wide.

- First walking legs have felt patch on inner side.
- Shell to 30mm wide and coloured yellow/brown with black spots.

Rock crab

Nectocarcinus species

Key features:

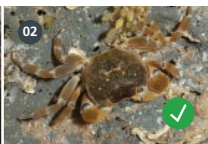
- Shell covered in fine hairs.
- Pincers/fingers of claws are black/darker.
- Last pair of legs not swimming paddles.
- Shell up to 8cm wide.

Notched Shore Crab

Paragrapsus quadridentatus

Key features:

- A flat rounded carapace with a single notch.



1. Sand Crab *Ovalipes australiensis* 2. Notched Shore Crab *Paragrapsus quadridentatus*
3. Rock Crab *Nectocarcinus species*

What can you do?

Although considered a serious marine pest, due to widespread distribution in Victoria, there is little that can be done to control the Green Shore Crab. Do not use for bait.

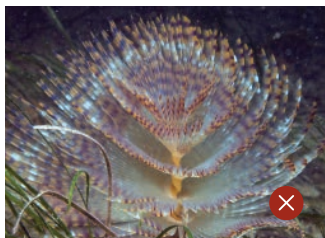
European Fanworm, *Sabella spallanzanii*

Status

Well established in Port Phillip and some other local ports but not yet observed in Western Port or elsewhere.

Impacts

Can form dense colonies and competes with native filter feeding organisms for food and space. Can cause ecological changes, particularly by removing plankton, reducing nutrients in the ecosystem. This species poses a high risk to soft sediment communities. There are no known predators.



Identification features

- Large tube dwelling worm with a crown of feeding tentacles formed in two layers. Only one layer of the tentacles is distinctly spiralled.
- The fan colour is variable comprising bands of orange, purple/ brown and white, resulting in an overall colour ranging between orange, fawn or grey.
- A long flexible leathery tube that can grow over 30cm.
- Crown can be completely withdrawn into tube if worm is disturbed.

Native Species

There are many native fanworms (*Sabellastarte* spp.) that can be distinguished by the following features:

- Feeding tentacles have crowns with symmetrical circular whorls.
- Fans are white or purple, with orange, purple or brown bands.
- Usually grows as a solitary worm, rather than in clumps.
- Shorter tube, grows up to 5cm long.



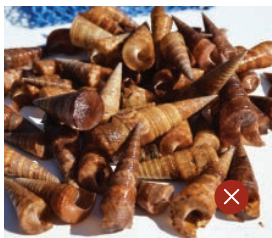
What can you do?

Sightings of suspected European Fan Worms outside of Port Phillip should be reported to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

New Zealand Screw Shell, *Maoricolpus roseus*

Status

This species is widespread in coastal areas of Eastern Victoria, including Corner Inlet and has been found west of Wilsons Promontory in Waratah Bay and Shallow Inlet. Its range is slowly expanding westward. Not currently known in Port Phillip or Western Port.



Impacts

New Zealand Screw Shells are filter feeders and compete with native species for food. They densely cover the sea floor with live and dead shells which prevents native screw shells inhabiting the area. Few known predators.

Identification features

- Variable in colour from yellowish to reddish or purple-brown with a faintly marbled pattern or darker brown streaks on the surface.
- Strongly pointed and grows up to 9cm long and 2.5cm wide, with up to 18 whorls.
- Shell surface is closely (but irregularly) spiralled.
- Animal body is yellow-green in colour.

Native species

Native screw shells are important scavengers in both shallow and deep marine environments. The following native screw shells are common to the Port Phillip and Western Port region:

Gunn's Screw Shell

Gazameda gunnii

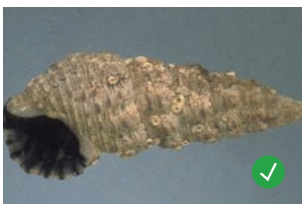


Key features:

- Grows to 7cm in length, more commonly 3-4cm.

Mud Whelk

Velacumantus australis



Key features:

- Dirty grey coloured shell with ridges.
- Grows up to 4.5cm in length.

What can you do?

Sightings of suspected New Zealand Screw Shells outside of its known range should be reported to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

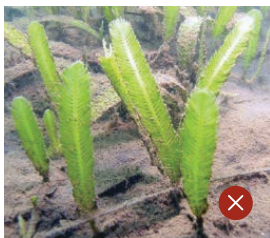
Aquarium Caulerpa, *Caulerpa taxifolia*

Status

Potential major threat. Well established in NSW and SA but not yet present outside of aquariums in Victoria.

Impacts

Highly invasive plant that, smothers other algal species, seagrasses and immobile invertebrate communities such as mussels. This species can cover thousands of hectares preventing other native species of algae from growing.



Pinnules pointing upwards and attach directly opposite

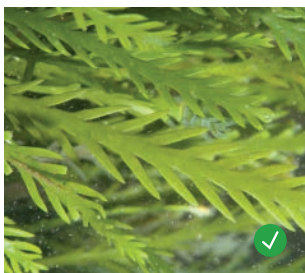
Identification features

- Light green in colour with upright leaf-like fronds that arise from a horizontal stolon / branch.
- The fronds are flat, and have a midrib.
- The fronds have little branches that extend out from the midrib in an opposite arrangement (as opposed to alternating) and point upwards.
- Frond diameter is 6-8 mm; frond length is 3-15cm long in shallow areas and up to 60cm in deeper water.

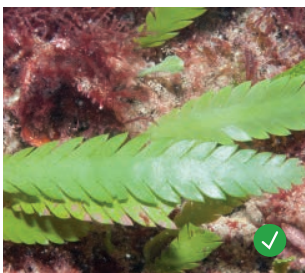
Native species

The following native *Caulerpa* that look similar to *C. taxifolia* are commonly observed in Victoria:

Caulerpa remotifolia



Caulerpa scalpelliformis



Key features:

- Branches that extend outwards from the midrib are arranged alternately (not oppositely).

What can you do?

Aquarium Caulerpa is not yet known in Victoria. It is very important to report suspected sightings of the algae to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

Red Algae, *Grateloupia turuturu*

Status

Widespread in northern Port Phillip.

Impacts

The large size of the plant shades out native algae on the reef. It grows rapidly in summer and dies back in winter causing large change in the availability of food for grazers such as snails.

Identifying features

- Large red algae with thin blades often with smaller bladelets at the base of the plant.
- Is slippery to the touch.
- Grows to 3m in length during summer.



What can you do?

Report suspected sightings outside of Port Phillip to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

Dead Man's Fingers, *Codium fragile ssp. fragile*

Status

Widespread in Port Phillip, known to inhabit San Remo and Newhaven in Western Port.

Impacts

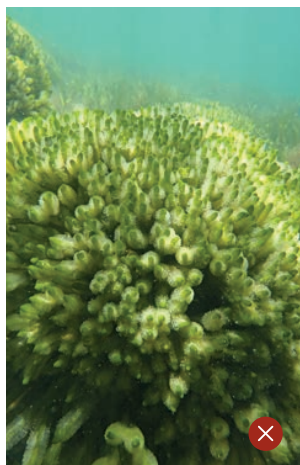
It grows rapidly, shades out native algae and can regenerate from a broken fragment enabling easy transfer from one area to another.

Identifying features

- Green spongy seaweed with cylindrical branches.
- Attaches to subtidal rocky reef or other hard surfaces.

Correct identification

Due to the similarity to native *Codium*, it can only be confirmed by checking a sample under a microscope.



What can you do?

Report suspected sightings outside of Port Phillip to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to **marine.pests@ecodev.vic.gov.au**.

Asian Date Mussel, *Musculista senhousia*

Status

Found in Port Phillip and Western Port, including Yaringa and French Island Marine National Parks; some records from eastern Victoria, particularly the Gippsland Lakes.

Impacts

Date mussels can form dense mats that dramatically alter the natural sea floor habitat, changing both the physical environment and the types of species that survive there.

What can you do?

Keep an eye out for this pest buried in soft sediment. Immediately report sightings outside of Yaringa and French Island Marine National Parks to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to marine.pests@ecodev.vic.gov.au



Identifying features

- Olive green to brown in colour with zig zag markings or radial lines.
- Shell is easily crushed.
- Grows to 3cm, commonly 1-2.5cm.
- Preferred habitat is under soft sediment, lying in a vertical position with the posterior end slightly protruding.

Cord Grass, *Spartina anglica* and *Spartina x townsendii* sp

Status

Found in Lake Connewarre in Barwon Heads and at the mouth of Bass River and in drain outlets near Tooradin in Western Port. Widespread in South Gippsland including Andersons Inlet, Corner Inlet and Nooramunga Marine and Coastal Park.

Impacts

Spartina aggressively invades native saltmarsh, mangroves and mudflats, rapidly binding sediments and altering the mud habitat, excluding other species. Spreads by seeds and from plant parts and can cover thousands of hectares.

Identifying features

- Light green grass with long leaves that are smooth and hairless.
- Leaf blades are flat or folded and taper to a fine hard point.
- Leaves grow up to 45cm long and 1.5cm wide.
- A 2-3mm long ligule (collar of dense hairs) forms at the base of the leaves.
- Initially grows in clumps but can spread into extensive swards.



What can you do?

Immediately report sightings of Cord Grass outside its known range to the Department of Economic Development, Jobs, Transport and Resources on **136 186** or to marine.pests@ecodev.vic.gov.au.