MARINE PEST IDENTIFICATION GUIDE

KEEP MARINE PESTS
OUT OF AUSTRALIAN WATERS

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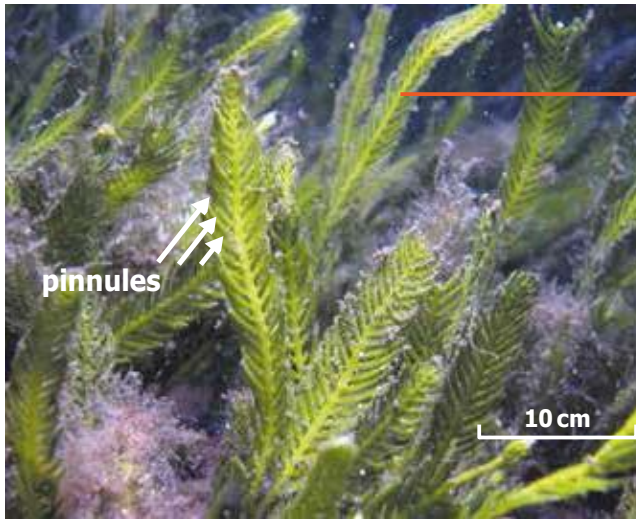
www.vic.gov.au/marine-pests

MARINE PEST:

Aquarium Caulerpa

Caulerpa taxifolia



Key features

- Flattened 2D fronds
- Pinnules upward curving
- Pinnules attach directly opposite one another
- Up to 15 cm long (>60 cm in deep water)

Habitat

- Up to 100 m depth; exposed & sheltered estuaries, coastal lagoons & bays
- Rock, sand, mud & seagrass beds

Impacts

- Overgrows native habitat & can establish vast beds on soft sediment, degrading fish habitat
- Tangles in nets & anchors

Known locations

- Native in subtropical to tropical Australia from Port Denison, WA, to Southport, QLD
- Introduced to Port River & North Haven Marina, SA; 14 coastal lakes and estuaries in NSW (see www.dpi.nsw.gov.au for all current locations).

Native distribution

Likely to establish

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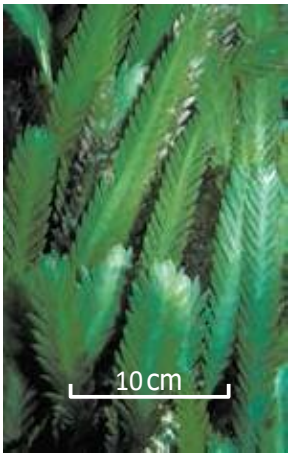
What it is **not**

Native species that look similar to the pest

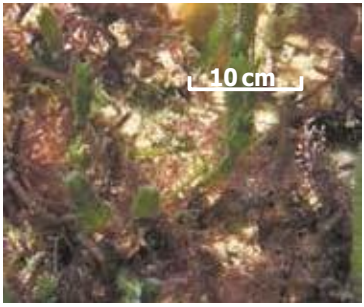


Caulerpa scalpelliformis

Key Features
- Pinnules attach alternately, not opposite
- Fronds to 20 cm long

Habitat
- Primarily exposed rocky reef but also sand, mud and seagrass beds
- To 36 m depth

Known Locations
- Jervis Bay, NSW, to Whitford Beach WA; Tas

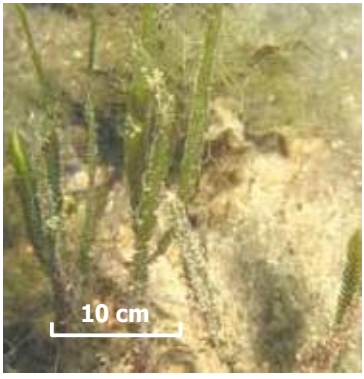


Caulerpa distichophylla

Key Features
- Short pinnules attach opposite, closely spaced along midrib
- Fronds to 15 cm long

Habitat
- Soft substrate and reef in coastal areas, up to 7 m depth

Known Locations
- WA only: Dongara sound to King George Sound



Caulerpa cupressoides

Key Features
- Short pinnules, attach opposite, widely spaced along midrib

Habitat
- Soft/hard substrates; coastal areas

Known Locations
- Houtman Abrolhos, WA, around northern Australia, to Lord Howe Island, NSW.

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location
- Check anchors, trailers & other equipment for tangled algae – *Caulerpa taxifolia* can live for two weeks out of water & reproduce from fragments as small as 2 mm

Learn more

Read the national Biofouling management guidelines for your sector.

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MARINE PEST:

Japanese seaweed or Wakame

Undaria pinnatifida

Mature *Undaria pinnatifida* showing frilly sporophyll

Frilly sporophyll

Key features

- Frilly sporophyll near base of mature plant
- Mature plant only found from early winter to late summer
- Strap-like midrib
- Smooth thin blades stop well short of base
- Generally brown/green
- Up to 1 m long, sometimes to 3 m

Habitat

- Cold temperate ocean waters
- Lower intertidal to 20 m depth
- Rock, reef and stones, artificial structures and aquaculture equipment

Impacts

- Can rapidly form dense forests on any available space & overgrows natives

Known locations

- Near-shore habitats south–east & east coast of Tas; Port Phillip Bay, Apollo Bay, Port Welshpool, Vic

Likely to establish

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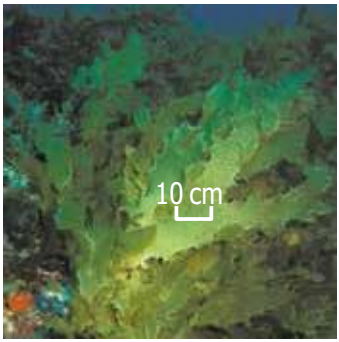
What it is **not**

Native species that look similar to the pest



Common kelp *Ecklonia radiata*

Key Features

- No midrib or frilly sporophyll
- Rough blades not smooth Note: *E. radiata* is hard to distinguish from juvenile *U. pinnatifida*; *E. radiata* is more leathery

Habitat

- Rocky shores
- Moderate exposures
- Subtidal to 44 m depth

Known Locations

- Southern Australia from Caloundra, Qld, to Kalbarri, WA; Tas

Phyllospora comosa

Key Features

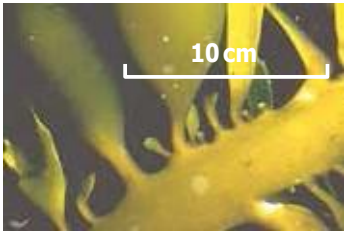
- No midrib or frilly sporophyll
- Sawtooth edged fronds
- Branches close together
- Blades terminate at base

Habitat

- Hard substrates
- Exposed coasts
- Subtidal to 20 m depth

Known Locations

- From Port Macquarie, NSW, to Robe, SA; Tas



What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location
- Check anchors & other equipment for tangled algae

Learn more

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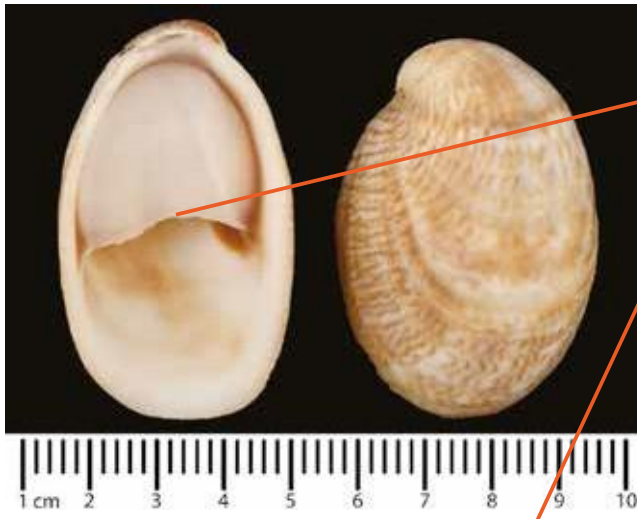
MARINE PEST:

American slipper limpet

Crepidula fornicata



A stack of *C. fornicata*

Key features

- Large internal aperture with a shelf extending half its length
- Oval shaped, smooth shell
- Irregular growth lines
- Commonly found in stacks
- Shell colour white, yellow or pink with red/brown streaks
- Up to 5 cm long

Habitat

- Intertidal
- Shallow estuaries & coastal bays
- Mostly found on other shells or hard substrates in muddy areas, also found on sand, gravel & rocks

Impacts

- Competes with natives for food & space
- Impacts commercial oyster beds

Known locations

- Not yet in Australia

Likely to establish

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What it is **not**

Native species that look similar to the pest

Northern slipper shell
Bostrycapulus pritzkeri
(formerly *Crepidula aculeata*)

Key Features
- Exterior of shell not smooth, with spines or bumps
- Shell brown & white
- Up to 3 cm long

Habitat
- Intertidal to subtidal
- Found attached to other shells, stones or mangroves in sand or mud

Known Locations
- From Shark Bay, WA, around northern Australia, to south-east Vic

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

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MARINE PEST:

New Zealand screwshell

Maoricolpus roseus

Key features

- Smooth conical shell
- Generally brown, fading to purple/white with age
- Broader tapering shell with up to 18 whorls
- Up to 9 cm long, usually ~6 cm

Habitat

- Lying on or partially buried in sand, mud or gravel
- Also found in crevices
- Low intertidal & subtidal up to 130 m depth

Impacts

- Densely blankets the sea floor with live & dead shells
- Can compete with scallops & commercially farmed shellfish for food

Known locations

- South–east to north–west Tas; Bass Strait, Wilsons Promontory, Vic, north to Botany Bay, NSW (up to 80 m depth on the continental shelf possibly to 200 m depth)

Likely to establish

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What it is **not**

Native species that look similar to the pest

Native screwshell
Gazameda gunnii

Key Features
- Narrow tapering shell with marked ridges
- Off-white to light brown
- Up to 5 cm long (usually ~3 cm)

Habitat
- Up to ~140 m depth

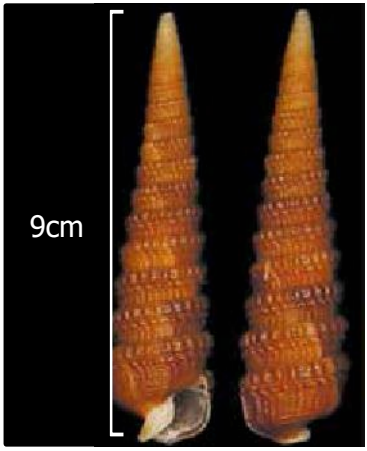
Known locations
- Tas

Mud whelk
Velacumantus australis

Key Features
- Dirty grey shell with ridges
- Up to 4.5 cm long

Habitat
- Soft sediments in shallow, sheltered areas, usually among seagrass
- Estuaries, mangroves, tidal flats

Known Locations
- South Qld; NSW; Vic; Tas; SA; WA



Cinguloterebra lima

Key Features
- Flaring lip
- Up to 9 cm long

Habitat
- Soft sediments including mud & sand
- Subtidal from 35 to 350 m depth

Known Locations
- Qld; NSW, as far south as Trail Bay

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

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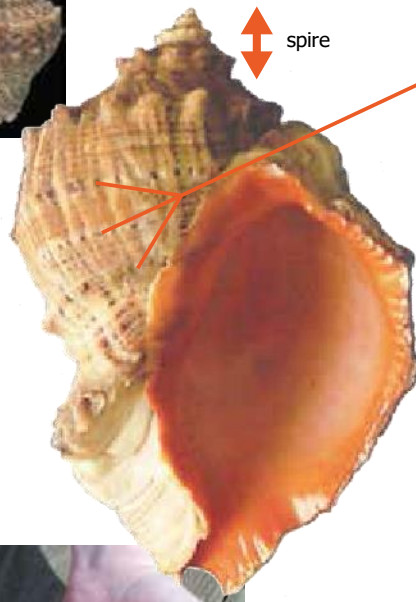
MARINE PEST:

Rapa or veined whelk

Rapana venosa



Key features

- Black vein-like pattern on entire shell
- Distinctive deep orange interior
- Large, heavy grey to red/brown shell
- Shell has short spire
- Up to 18 cm long

Habitat

- Intertidal to subtidal
- Estuaries & coastal bays
- Sandy or hard substrates

Impacts

- Predator of native shellfish & aquaculture species
- Affects the ecology of bottom-dwelling organisms

Known locations

- Not yet in Australia

Likely to establish

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What it is **not**

Native species that look similar to the pest

Cartrut snail

Dicathais orbita

Key Features

- Shell sculpted with prominent grooves, but sculpture varies considerably between individuals
- Shell colour grey/brown to green
- Shell height to 8 cm

Habitat

- Found attached to rock platforms & rocky reefs, up to 10 m depth
- One of the most abundant snails intertidally & subtidally on southern coasts of Australia

Known Locations

- Southern Qld to Barrow Island, WA, & around Tas

Helmet snail

Semicassis pyrum

Key Features

- Smooth helmet shell
- Shell cream with brown blotches
- Shell height to 7 cm

Habitat

- Found buried under sand during the day, forages at night
- Exposed sand to 480 m depth

Known Locations

- From NSW to Fremantle, WA, & around Tas

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

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MARINE PEST:

Asian bag mussel

Arcuatula senhousia

Key features

- Shell has zig zag markings & iridescent radiating bands
- Shell olive green/brown & is easily crushed by fingers
- Up to 3 cm long

Habitat

- Prefers soft sediments but also fouls artificial hard surfaces
- Up to 20 m depth

Impacts

- Can form mats on soft sediments smothering bottom communities & altering food availability

Known locations

- Portland & Port Phillip Bay, Gippsland Lakes, Vic; estuary mouths northern Tas; SA; Cockburn Sound, Lower Swan River & Fremantle, WA

Likely to establish

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What it is **not**

Native species that look similar to the pest

Cuming's bag mussel

Musculus cumingianus

Key Features

- Shell is uniformly brown
- Shell has ribs on front & rear but not centre

Habitat

- On rocky reefs inside sea squirts

Known Locations

- Widespread in tropical & warm temperate Australia (i.e. Qld, WA, NT)

Flea mussels

Xenostrobus species

Key Features

- Shell smooth & elongate with radial markings
- Variable shell colour ranging from blue to brown/black
- Shell 3 to 4 cm long

Habitat

- Found in clusters attached to rocks or shells on rocky reefs

Known Locations

- Southern Qld; NSW; Vic; Tas; SA; southern WA

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

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MARINE PEST:

New Zealand green mussel

Perna canaliculus

Key features

- Shell up to 24 cm long
- Dark brown to bright green shell often with thin reddish brown colour rays
- Smooth shell with concentric growth lines
- Shell thin at the edges and thickens towards narrow end
- Straight and proportionally long hinge line

Habitat

- Hard substrates
- Subtidal and intertidal

Impacts

- Fast growing; outcompetes native species, forming dense colonies, may impact aquaculture

Known locations

- Not yet in Australia

Likely to establish

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What it is **not**

Native species that look similar to the

Brachidontes erosus
Western Australia, Albany
NMR 17228. Actual size 45 mm

Brachidontes erosus

Key Features

- Shell to 70mm
- Strong grooving in shell forms keels
- Several hinge teeth
- Base colour brown, opal green or horn coloured

Habitat

- Sheltered rocks and reefs down to 4m

Known locations

- Southern Australia from Albany, WA to Western Port, Vic and nth Tasmania

Mytilus galloprovincialis
Turkey, Istanbul, Halic
NMR 38122. Common size 70 mm

Mytilus galloprovincialis

Key Features

- Shell to 120mm
- Shell elongated triangle shape with rounded edges.
- Smooth shell with fine concentric growth lines but no radiating ribs
- Several hinge teeth

Habitat

- Rocky reef and rubble, mooring lines, wharves and jetty piles in
- Sheltered to moderately exposed coasts

Known locations

What you can do

Inspect & clean niche areas & antifoul your vessel regularly

Clean & dry equipment before transporting & using in a different location

Learn more

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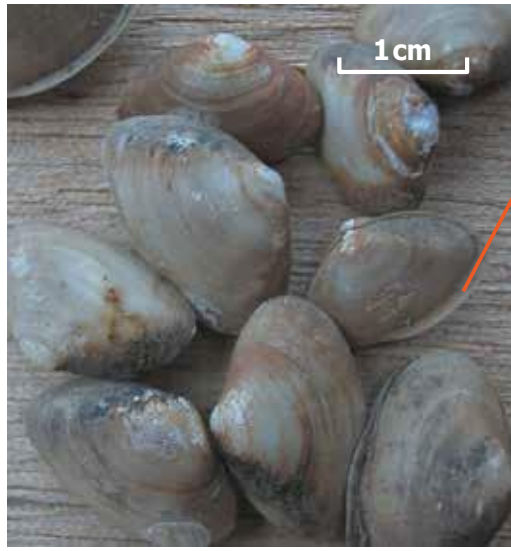
MARINE PEST:

Asian basket clam

Potamocorbula amurensis



Key features

- Shell valve unequal in size, one is larger than the other with a distinctive overlap
- Thin & smooth shell (older shells may be wrinkled at edges)
- Shell colour is dirty white, tan or yellow, no exterior markings
- Up to 3 cm long

Habitat

- Partially buried in soft bottom habitats most abundant on mixed sand & mud bottoms
- Mostly subtidal, but also intertidal
- Upper estuarine to fully marine
- Subtropical to cold temperate waters

Impacts

- Reduces planktonic food sources & causes decline in native species

Known locations

- Not yet in Australia

Likely to establish

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What it is **not**
Native species that look similar to the pest

Serracorbula verconis

Key Features
- Shell valves of unequal size, one valve is larger & overlaps the other
- Shell has concentric grooves
- Solid, compressed, glossy shell - hard to crush
- White shell with small, translucent brown spots
- Up to 10 cm long

Habitat
- Found in sand & mud up to 65 m depth

Known Locations
- Northern to southern Qld; SA

Paphies angusta

Key Features
- White/cream shell with brown covering
- Interior white
- Up to 2.5 cm long

Habitat
- Sandy intertidal

Known Locations
- NSW; Vic; Tas; SA; WA

Macomona deltoidalis

Key Features
- Usually white, sometimes pink shell
- Up to 1.6 cm long

Habitat
- Sandy intertidal

Known Locations
- South Qld to NSW; Vic; SA

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

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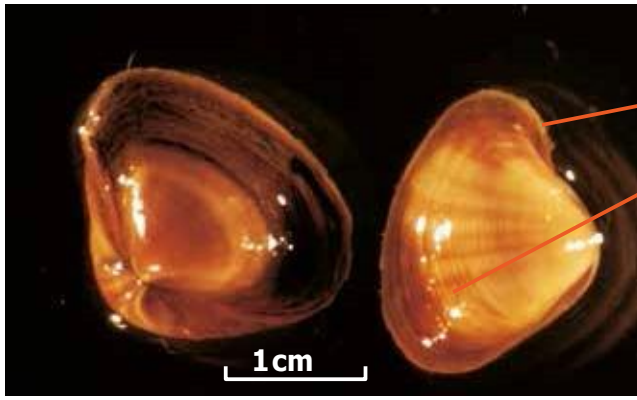
MARINE PEST:

European or basket clam

Varicorbula gibba



Key features

- Shell valves unequal in size, one valve is larger & fits like a lid, overlapping the other
- Coarse grooves & ridges
- Shell is plump, broadly oval coming to a triangular end
- Shell colour white to pink with radiating red/brown rays
- Up to 2 cm long

Habitat

- Burrows into soft bottom habitats, may attach to gravel & stones
- Intertidal to 150 m depth
- Temperate waters; highly tolerant of polluted waters

Impacts

- Fast growing & competes with native species for food & space (e.g. commercially grown scallops)

Known locations

- Coastal & Port Phillip Bay & Western Port Vic; northern & south–eastern Tas

Likely to establish

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What it is **not**

Native species that look similar to the pest

Spisula trigonella

Key Features

- Shells identical in size & shape (both curved & meet together evenly)
- Shell is smooth & cream coloured with brown "skin" covering
- Up to 2 cm long

Habitat

- Sandy intertidal

Known Locations

- Qld; NSW; Vic; Tas; SA; southern WA; NT

Mactra pura

Key Features

- Shells identical in size & shape
- Shell is smooth & cream coloured with brown "skin" covering
- Up to 2.5 cm long

Habitat

- Sandy intertidal

Known Locations

- NSW; Vic; Tas; SA; WA

What you can do

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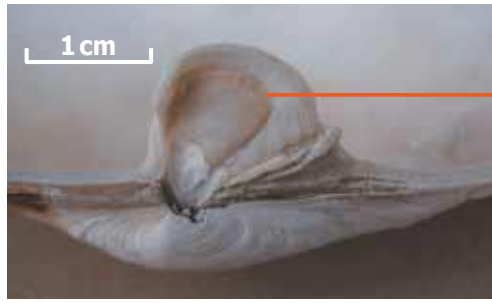
MARINE PEST:

Japanese softshell clam

Mya japonica

One half of ***Mya japonica*** shell showing scooped-out projection



Key features

- Very different shells; one has a distinctive large scooped out projection & the other a pit. They fit together but gape at both ends when closed
- Shell is thin, oval, chalky, white with rough exterior & uneven growth lines
- Up to 15 cm long

Habitat

- Buried up to 30 cm deep in sand, mud, clay & gravel mixes
- Mainly upper intertidal; also in shallow subtidal

Impacts

- Outcompetes native bivalves, changes characteristics of sediments & composition of bottom dwelling communities

sieved from mud

***Mya japonica* showing protruding brown siphon**

Known locations

- South east Tasmania

Likely to establish

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What it is **not**

Native species that look similar to the pest

Gaper clam

Lutraria rhynchaena

Key Features

- Shell is solid, elongated & gapes when shut
- Fine concentric ridges
- Shell colour is off-white often covered with a brown "skin"
- Up to 12 cm long

Habitat

- Usually deeply buried in sheltered intertidal sand & mud

Known Locations

- NSW; Vic; Tas; SA; southern WA

Venus cockle

Venerupis galactites

Key Features

- Solid white shell with identical valves that close completely without a gape
- No scooped out projection
- Up to 5 cm long

Habitat

- In sand, estuaries, bays & sheltered coasts
- Intertidal

Known Locations

NSW; Vic; Tas; SA; southern WA

Lantern/gaper shell

Laternula rostrata

Key Features

- Shell elongate & gapes at both ends when closed
- Shell sculpted with fine, concentric ridges & growth lines
- Shell colour white
- Up to 6 cm long

Habitat

- In mud or sand

Known Locations

- NSW; Vic; SA

What you can do

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MARINE

Brown mussel

Perna perna

Key features

- Shell up to 12 cm long
- Dark brown shell
- Smooth shell with concentric growth lines
- Shell thin at the edges and thickens towards narrow end
- Straight and proportionally long hinge line

Habitat

- Hard and soft substrates
- Intertidal occupying sublittoral and littoral waters
- Prefers areas rich in organic matter and plankton, carrying low loads of suspended sediments

Impacts

- Fast growing; outcompetes native species, forming dense colonies
- Can clog seawater cooling pipes and intake systems

Known locations

- Not yet in Australia

Likely to establish

Report marine pests outside of known locations

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What it is **not**

Native species that look similar to the

Brachidontes erosus
Western Australia, Albany
NMR 17228. Actual size 45 mm

Brachidontes erosus

Key Features

- Shell to 70mm
- Strong grooving in shell forms keels
- Several hinge teeth
- Base colour brown, opal green or horn coloured

Habitat

- Sheltered rocks and reefs down to 4m

Known locations

- Southern Australia from Albany, WA to Western Port, Vic and nth Tasmania

Mytilus galloprovincialis
Turkey, Istanbul, Halic
NMR 38122. Common size 70 mm

Mytilus galloprovincialis

Key Features

- Shell to 120mm
- Shell elongated triangle shape with rounded edges.
- Smooth shell with fine concentric growth lines but no radiating ribs
- Several hinge teeth

Habitat

- Rocky reef and rubble, mooring lines, wharves and jetty piles in sheltered to moderately exposed coasts

Known locations

- South eastern Australia (NSW, VIC, TAS , SA), Perth, WA

What you can do

Inspect & clean niche areas & antifoul your vessel regularly

Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits

This side: Joop Trausel and Frans Slieker Reverse side: Amy Benson US Geological Survey (top). Richard Willan, Museum and Art Gallery of the Northern Territory (bottom)

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Last revised November 2018

MARINE PEST:

Black-striped false mussel

Mytilopsis sallei

Key features

- Shells unequal in size, one side overlaps the other
- Shell is smooth, small and easily crushed with fingers
- Forms dense clusters
- Shell sometimes zig zagged or striped
- Up to 2.5 cm long

Habitat

- Subtropical to tropical
- Estuarine to marine
- Up to a few metres depth
- Hard vertical surfaces (e.g. hulls & pylons)

Impacts

- Fast growing & can displace native species
- Mass fouling of wharf pylons, marinas, vessel water intake systems & marine farms

Known locations

- Not yet in Australia

Likely to establish

Report marine pests outside of known locations

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www.vic.gov.au/marine-pests

What it is **not**

Native species that look similar to the pest

Brachidontes crebristriatus

Key Features

- Thicker, black/brown shell
- Strong longitudinal ribs along the length of the shell (not radially striped)
- Up to 4.5 cm

Habitat

- Rocky shores & hard substrates
- Tropical marine waters

Known Locations

- Northern coast of Australia (i.e. Qld, WA & NT)

Goose barnacle

Lepas species

Key Features

- White shells on top of a rubbery brown contractile stalk attached to floating objects

Habitat

- Attached to drift wood and other floating objects

Known Locations

- Cosmopolitan in all tropical and warm temperate oceans

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits

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Last revised November 2018

MARINE PEST:
Asian green mussel
Perna viridis

Key features

- Juvenile shell bright green; older shells dark green to brown
- Smooth exterior with concentric growth lines
- Adults 8–16 cm long

Habitat

- Hard substrates (vessels, artificial structures, wharves, aquaculture equipment, intake pipes, buoys, etc.)
- Low tide mark to 42 m depth, lower estuarine to marine
- Tropical to warm temperate

Impacts

- Fast growing & outcompetes native species, forming dense colonies
- Can clog seawater cooling pipes and intake systems

Known locations

- Not yet in Australia

Likely to establish

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What it is **not**

Native species that look similar to the pest

Septifer bilocularis

Key Features

- Strong radial ridges
- Variable colour (red, blue or green), internally blue
- Up to 5 cm long

Habitat

- Attached to rocks or debris
- Tropical

Known Locations

- Northern Qld; NT to Albany, WA

Stavelia subdistorta

Key Features

- Dense, concentric ridges
- Brown shell, inside blue/white
- Up to 15 cm long

Habitat

- Attached to rock or debris up to 30 m depth
- Tropical

Known Locations

- Northern Qld to northern WA

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits

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Reverse side: Graham Wharton, Tropical Reef Shipyard (bottom left); all other images provided by Richard Willan, Museum & Art Gallery of the Northern Territory

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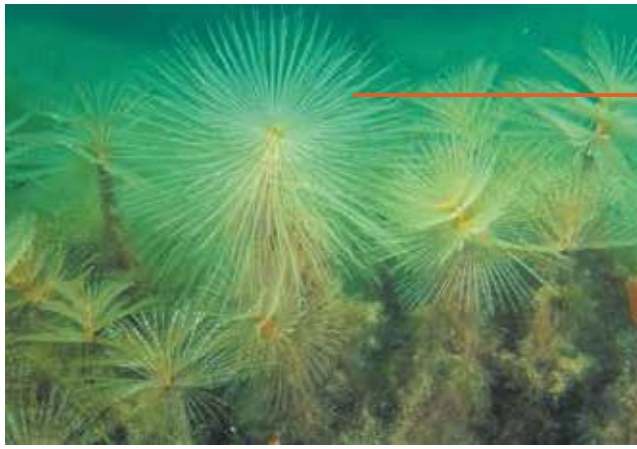
MARINE PEST:

European fan worm

Sabella spallanzanii



Key features

- Spiral fan of feeding tentacles
- Flexible, leathery tube
- Fan white/pale fawn/orange/ banded red/brown
- Tubes up to 40 cm long, solitary or in groups

Habitat

- Tubes attach to hard surfaces, artificial structures, rocks, shells & seagrass on soft sediments
- Sheltered temperate waters, to 30 m depth

Impacts

- Forms dense colonies consuming vast amounts of food
- No known predators in Australia
- Fouls aquaculture structures increasing cost for industry

Known locations

- Cockburn Sound, Fremantle, Bunbury, Albany & Esperance WA; metropolitan Adelaide coast, SA; Port Phillip Bay, Vic; Devonport, Tas; Eden, NSW

Likely to establish

Report marine pests outside of known locations

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What it is **not**

Native species that look similar to the pest

Sabellastarte australiensis

Key Features

- Fan is U-shaped not spiral shaped
- Fans are white or purple with orange/purple/brown bands
- Usually solitary, not densely clumped
- Tube up to 5 cm long

Habitat

- Exposed rocky reef and artificial structures
- Subtidal to 200 m depth

Known Locations

- Widely distributed: NSW; Vic; Tas; SA, north–west coast WA

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location
- Check anchors & other equipment for tangled organisms

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits
This side: Mark Norman, Museum Victoria (top)
Reverse side: CSIRO Marine & Atmospheric Research (top and bottom left); Tim Glasby, NSW Dept. Primary Industries (bottom right)

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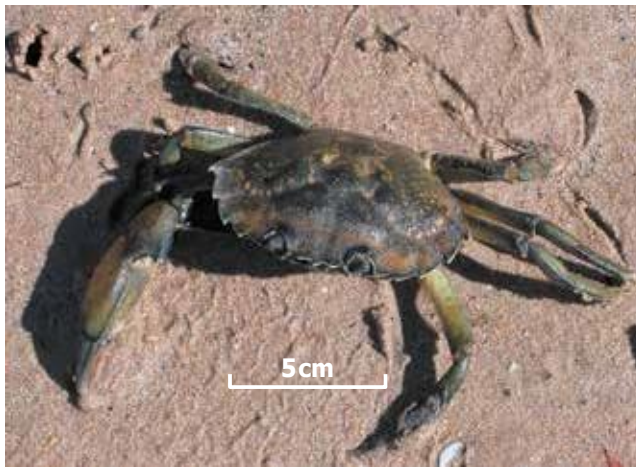
MARINE PEST:

European green shore crab

Carcinus maenas



Key features

- 5 spines on each side of eyes
- Last pair of legs sharp & slightly flattened at tips - no swimming paddles
- Smooth green/brown shell with pale orange underside
- Shell up to 7 cm wide

Habitat

- Prefers bays/estuaries but found on all types of shores up to 60 m depth
- Tolerates temperatures up to 30°C

Impacts

- Aggressive predator, outcompetes natives for food & habitat

Known locations

- NSW; Vic; Tas; SA

Likely to establish

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What it is **not**

Native species that look similar to the pest

Sand crab
Ovalipes australiensis

Key Features
- Distinctive purple spots towards rear
- Swimming paddles on last set of legs
- Pale grey shell, up to 10 cm wide

Habitat
- Burrows into sand
- Intertidal & subtidal to 60 m depth

Known Locations
- Qld; NSW; Vic; Tas; SA; WA

Paragrapsus species

Key Features
- 3 spines on each side of eyes
- First walking legs have felt patch on inner side
- Yellow/brown shell with dark red spots
- Shell up to 4.5 cm wide

Habitat
- Under stones & burrows in mud
- Intertidal to shallow subtidal
- Estuaries & sheltered coasts

Known Locations
- South of Narooma, NSW; Vic; Tas; SA

Rough rock crab
Nectocarcinus integrifons

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

Habitat
- Rocky bottoms, sandy/muddy shores, sheltered seagrass beds
- Intertidal to 15 m depth

Known Locations
- Fremantle, WA, to Port Stephens, NSW; around Tas

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits
This side: Michael Marmach, Museum Victoria (top & centre); Graham Edgar, University of Tasmania (bottom)
Reverse side: P. Gibson NSW Dept. Primary Industries (top). CSIRO Marine & Atmospheric Research (bottom)

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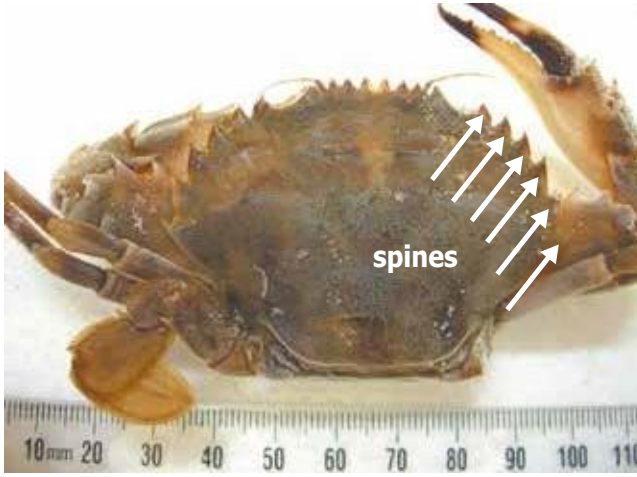
Last revised August 2008

MARINE PEST:

Asian paddle crab

Charybdis japonica



Key features

- 5 distinct spines on upper surface of foreclaw
- 6 spines on each side of eyes
- Swimming paddles on last set of legs
- Red/purple/orange to pale green & off-white shell
- Shell up to 12 cm wide

Habitat

- Mobile; found on or buried in firm, fine sand or mud
- Subtidal to 15 m depth
- Estuarine & marine areas

Impacts

- Aggressive, can out-compete native crabs

Known locations

- Not yet in Australia

Likely to establish

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What it is **not**

Native species that look similar to the pest

Pacific swimming crab
Charybdis helleri

Key Features
- 4 spines on foreclaw
- 6–8 spines on either side of eyes
- Shell up to 14.5 cm wide

Habitat
- Under rocks & coral; on rocky, sandy & muddy shores & coral reefs to 30 m depth
- Lower intertidal, subtidal

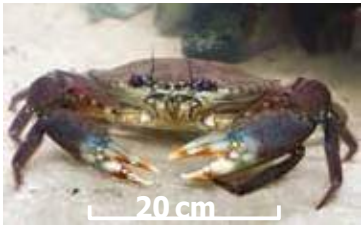
Known Locations
- Native to tropical Australia (north coast NT, central east & north–east coast Qld, north–west coast WA); Indo-west central Pacific Oceans

Blue swimmer crab
Portunus pelagicus

Key Features
- No spines on either side of eyes
- Bright blue legs & claws

Habitat
- Sheltered sand, intertidal & subtidal to 70 m depth
- Sheltered bays & inlets
- Shell up to 21 cm wide

Known Locations
- Tropical Australia, south to Cape Naturaliste, WA, & Eden, NSW; South Australian gulfs



Mud crab
Scylla serrata

Key Features
- 9 spines either side of eyes
- Large robust claws
- Shell up to 25 cm wide

Habitat
- Mangroves, sheltered estuaries & coastal tidal flats

Known Locations
- Northern Australia (Exmouth, WA, to Bega River, NSW); isolated records from Mallacoota estuary, Vic, Swan River, WA & south–west WA estuaries

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits
This side: Darryl Felder, University of Louisiana USA (top); Keith Davey (centre & bottom)
Reverse side: All images provided by Aroha Millar, NIWA

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Last revised November 2018

MARINE PEST:

Chinese mitten crab

Eriocheir sinensis

Key features

- Hairy "mittens" on claws unlike any Australian crab
- 4 spines on either side of eyes
- 4 sharp spines in between eyes
- Shell is smooth & up to 8 cm wide

Habitat

- Burrows into mud on river banks, estuaries & coastal areas
- Adults in freshwater for first 4–5 years
- Usually tropical waters

Impacts

- Burrowing causes erosion; damages fishing gear & impacts aquaculture activities
- Hosts liver fluke (*Paragonimus* species) that is harmful to human health

Known locations

- Not yet in Australia

Likely to establish

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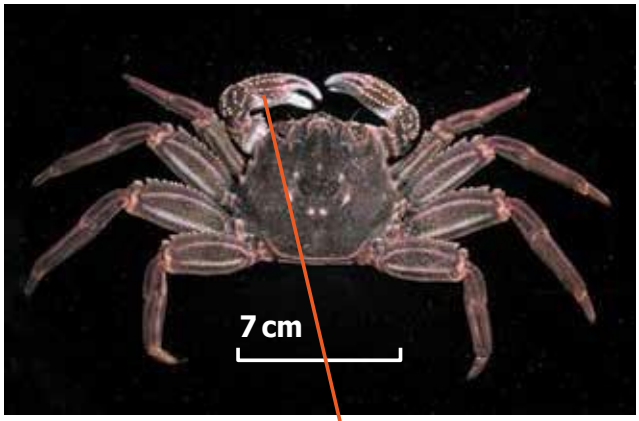
What it is **not**

Native species that look similar to the pest



Red bait crab
Plagusia chabrus

Key Features
- Front of shell deeply notched between the eyes
- Claws hairless with bumps & ridges
- Orange/red shell covered with dense fine hair, darker red on walking legs
- Shell up to 7 cm wide

Habitat
- Exposed rocky shores
- Lower intertidal, usually subtidal (to 50 m depth)

Known Locations
- Hervey Bay, Qld; NSW; Vic, Tas; SA; southern WA to Bunbury

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits
This side: Michael Marmach, Museum Victoria
Reverse side: All images provided by Stephan Gollasch, GoConsult

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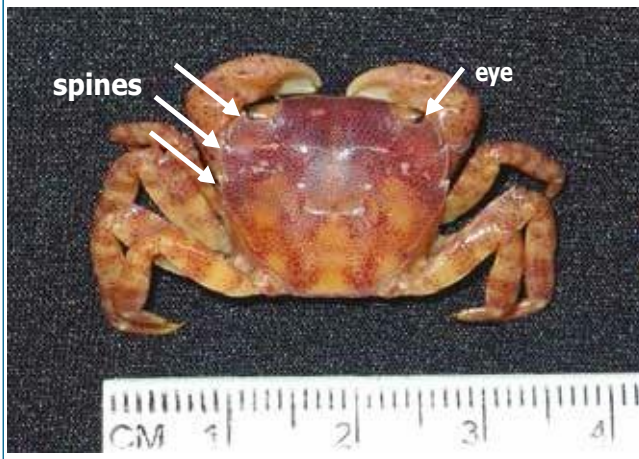
MARINE PEST:

Asian shore crab

Hemigrapsus sanguineus



Live specimen of *H. sanguineus* under water

Key features

- 3 spines on each side of eyes
- Banding pattern on walking legs & spots on claws
- Square shaped green/purple to orange/brown shell
- Shell up to 4 cm wide

Habitat

- Under rocks, shells, debris & artificial structures
- Intertidal to shallow subtidal
- Estuaries, exposed rocky coasts & tidal flats
- Tolerates a wide range of temperatures

Impacts

- Broad diet, competes with & predates on native species (crabs, fish & shellfish)

Known locations

- Not yet in Australia

Likely to establish

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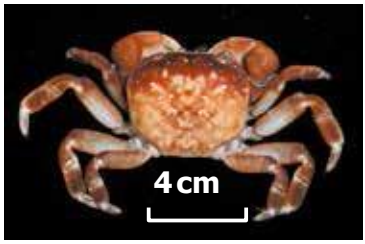
What it is **not**

Native species that look similar to the pest



Cyclograpsus species

Key Features

- No spines on side of eyes
- Mottled red/brown/purple markings on yellow shell
- Shell up to 4 cm wide

Habitat

- Intertidal
- Sheltered, moderately exposed rocky & boulder covered shores

Known Locations

- NSW; Vic; Tas; SA; WA (north to Shark Bay); Qld

Paragrapsus species

Key Features

- 3 spines on each side of eyes
- First walking legs have felt patch on inner side
- Yellow/brown shell with dark red spots
- Shell up to 4.5 cm wide

Habitat

- Under stones & burrows in mud
- Intertidal to 1.5 m depth
- Estuaries & sheltered coasts

Known Locations

- South of Narooma, NSW; Vic; Tas; SA

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits
This side: All images provided by Michael Marmach, Museum Victoria
Reverse side: Amy Benson, US Geological Survey (top); Jerry Preszioso, NOAA/NMFS Narragansett Lab (bottom)

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MARINE PEST:

Harris' mud crab

Rhithropanopeus harrisii

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Key features

- Adult shell width 10-20mm
- Greenish brown to olive green with white tipped claws
- Claws of unequal size
- Shell has 4 blunt spines on each side

Habitat

- Sandy and muddy sub-strates with a sheltered structure
- Lives in subtidal estuaries in areas of low salinity
- Tolerates wide range of temperature and salinity

Impacts

- Alters food webs, displaces native crabs, crayfish and bottom-dwelling fish
- Fouls water intake pipes and clogs power plant cooling systems

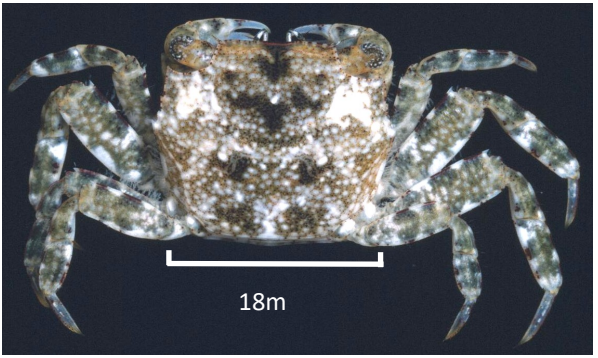
Known locations

- Not yet in Australia

Likely to establish

What it is **not**

Native species that look similar to the



Little shore crab—*Brachynotus spinosus*

Key Features

- Shell to 18mm wide
- Colour variable grey to green brown
- Legs sometime banded.
- Distinctive thick mat of hairs on inner and outer fingers of claws

Habitat

- Intertidal, reef and rocky shore, estuaries and sheltered shores to 10m

Known Locations

What you can do

Inspect & clean niche areas & antifoul your vessel regularly

Clean & dry equipment before transporting & using in a different location

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits

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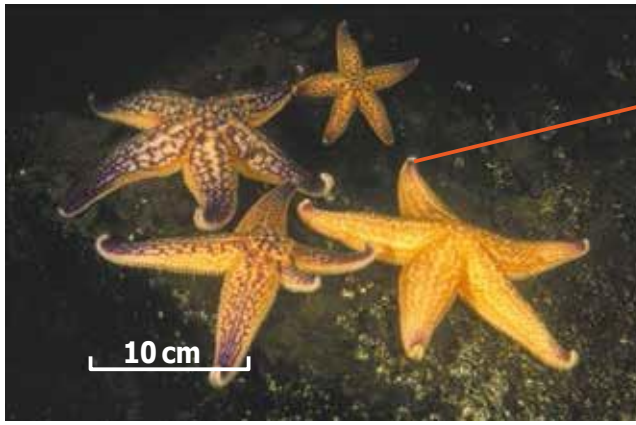
MARINE PEST:

Northern Pacific seastar

Asterias amurensis



Key features

- 5 arms with pointed upturned tips
- Yellow/orange with purple marking, & yellow underneath
- Up to 50 cm across

Habitat

- Soft sediment; also artificial structures & rocky reefs
- Estuaries, bays, rock pools
- Intertidal to 200 m depth (usually <25 m depth)
- Prefers temperate waters. but adapted to warmer waters

Impacts

- Aggressive predator of native species & economically important bivalves
- Impacts aquaculture & fisheries

Known locations

- South–east to north–east coasts from Recherche Bay to Binalong Bay and Banks Strait, Tas; Port Phillip Bay, Vic

Likely to establish

Report marine pests outside of known locations

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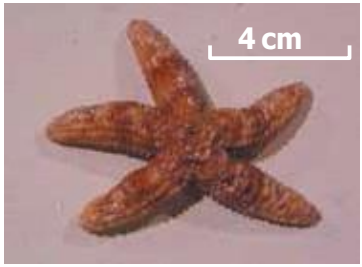
What it is **not**
Native species that look similar to the pest

Uniophora species

Key Features
- 5 arms, rounded not pointed tips
- Up to 20 cm across

Habitat
- Rocky bottoms, seagrass beds
- Also mud or sand in sheltered areas
- Up to 143 m depth

Known Locations
- North–west Solitary Island, NSW, to Great Australian Bight, SA; Bass Strait; around Tas



Coscinasterias muricata

Key Features
- 7–14 arms (usually 11), pointed tips not upturned
- Colour usually blue to brown
- Up to 50 cm across

Habitat
- Sheltered reefs & soft substrates
- Up to 140 m depth

Known Locations
- Port Denison, Qld, to Houtman Abrolhos, WA, incl. Great Australian Bight; Bass Strait; around Tas; Norfolk & Lord Howe Islands

What you can do

- Inspect & clean niche areas & antifoul your vessel regularly
- Clean & dry equipment before transporting & using in a different location
- Check anchors & other equipment for tangled organisms

Learn more

Read the national biofouling management guidelines for your sector.

Photograph credits
This side: Graham Edgar, University of Tasmania (top & third); Ingrid Holliday, Dept. Sustainability & Environment Vic (second & bottom)
Reverse side: Martina Doblin, University of Technology, Sydney (bottom right); all other images supplied by CSIRO Marine and Atmospheric Research

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Last revised August 2008

How to report marine pests

Report immediately outside known locations!

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 think you have found or seen a marine pest:

1. Take a clear photograph of the species preferably with a scale (e.g. shoe, coin or pen) to show the size of the pest.
2. Make a note of when and where you found or saw it and provide accurate date, time and location including GPS readings if possible.
3. Email marine.pests@ecodev.vic.gov.au or call **136 186**
4. Please do not collect or remove suspected marine pests unless you are advised to do so. Some pests can easily be mistaken for native species.