



Richard Bowyer

Western Blue Groper



Hugh Rederson

Japanese Kelp

Feral or in Peril Program




How often do you see our marine emblem?

Brochure version 4 (December 2005)
 go to:
www.reefwatch.asn.au

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Credit for some photos and illustrations appearing on this brochure can be found on the accompanying slides.

Supported by:

Can you tell the difference between friend or foe?

Photos: Bob Baldock, SA Herbarium

SOUTHERN AUSTRALIA'S MARINE ENVIRONMENT IS UNIQUE, PROTECT IT OR LOSE IT!

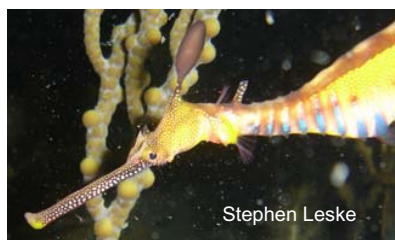
OUR MARINE HERITAGE IS UNDER THREAT



Caulerpa taxifolia & Mediterranean fan worm

If you dive, snorkel or just spend time in the water then Reef Watch needs your help. Over recent decades, life in our oceans

has begun to show signs of stress. Symptoms of a degraded environment include a reduction in native species present and invasion by feral pests. You can assist in protecting marine ecosystems simply by using our free kit to keep an eye out. The earlier a problem is detected, the greater the chance of dealing with it successfully. As relatively few people ever see the underwater environment, it is important that every diver and snorkeller keeps a look out for these species, on these slates.

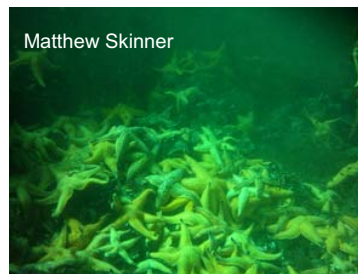


Weedy Seadragon

This program has received widespread support from government, community and the commercial sector, and is an important step towards safeguarding local marine ecosystems.

MONITORING INVASIVE ("FERAL") SPECIES

Australia, like many other countries, is facing an onslaught of invasive marine pests. Some of these arrive here by accident, transported in ballast water and on the hulls of ships. Others are introduced deliberately (e.g. for the aquarium trade or aquaculture) and later become a problem. Either way, invasive species have the potential to wreak havoc in the Australian marine environment, taking over huge areas of coastal habitat and destroying the natural balance.



Northern Pacific Seastar

It is almost impossible to eradicate a pest once it becomes established, unless the population is discovered early enough.

MONITORING VULNERABLE ("IN PERIL") SPECIES

Many native Australian species are virtually unknown, some have yet to be scientifically described, and for the rest there is precious little information regarding how they live or their



Black Cowry

importance to the rest of the ecosystem.

The 'In Peril' native species included in this kit are only some of those for which we have some concerns or lack of knowledge about their conservation status. This program includes and builds on the highly successful Dragon Search program.



Western Blue Groper

HOW TO USE THE KIT

The 'Feral or in Peril' kit is self-contained and easy to use, requiring no prior knowledge, and is backed up by a range of other resources on our website. If you see any of the Red Alert species, follow the instructions on the reverse side of that slate. For future or historical sightings of species on the other slates, you can enter your sighting on-line if you have internet access, otherwise contact Reef Watch on 8223 5155. Please provide us with the date, location, depth, number and size of the sighted species.



European Sea Squirt

WITH THIS KIT YOU CAN HELP PROTECT OUR MARINE HERITAGE

RED ALERT FERAL SPECIES

Japanese Seaweed (*Undaria pinnatifida*)

Threat: This species is very hardy and has an amazing growth rate. Hence *Undaria* overgrows surrounding species, depriving them of light, and smothering the understorey. As the native species die off, fish move away, in turn changing the surrounding ecosystem.

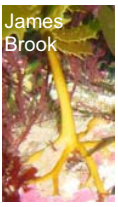
Habitat: Moderately exposed reefs to 10 m deep

Native Comparison: *Undaria* has a very distinctive sporophyll (reproductive organ) located just above the holdfast ("root" system), that clearly distinguishes it from the native kelp species, *Ecklonia radiata* (pictured).



Hugh Rederson

Native Species



James Brook

Northern Pacific Seastar (*Asterias amurensis*)

Threat: It is a voracious predator and is a threat to aquaculture industries and native shellfish species.

Habitat: It is reported from the intertidal zone down to 25 m and occurs in mud, sand or rocky habitats, restricted to sheltered areas.

Native Comparison: The native species *Uniophora granifera*, (top picture) has some similar features to the Northern Pacific seastar. *Echinaster arcystatus* (bottom picture) has some similar colouration. The pointed, curled arm tips are the key feature that distinguish the foreign species.



Native Species



David Muirhead



James Brook

European Sea Squirt (*Ciona intestinalis*)

Threat: Excludes similar native species.

Habitat: Dense colonies of this hardy ascidian (sea squirt) generally form on hard substrates such as rocks and jetty pilings. They are found from the low water mark down to 500 m.

Native Comparison: *Phallusia obesa* (pictured) is a native ascidian that can also be white but has a much brighter body, sometimes has dark spots, is much taller (up to 30 cm) and is stout and plump in appearance.



Native Species



James Brook

IN PERIL SPECIES

Western Blue Groper (*Achoerodus gouldii*)

Threats: These fish are slow growing, reaching sexual maturity at about 15 years old (60 cm) and possibly live over 50 years. They have a friendly/curious character and can grow to a large size (up to 1.2 m long), making them vulnerable to spearfishers.

Habitat: They are territorial and have a home range, occupied by a male and female pair, of about 70,000 square metres, often also occupied by some juveniles.



Western Blue Devil (*Paraplesiops meleagris*)

Threats: Their habit of staying in the same area for most of their adult lives has made them vulnerable to spearfishers.

Habitat: They are highly solitary fish and are usually found alone, observed on offshore reefs.

Aquarium Caulerpa (*Caulerpa taxifolia*)

Threat: This species is able to out-compete native algae, displace invertebrate communities and is considered a threat to native seagrass species. It contains toxins that deter herbivorous animals including fish.

Habitat: *C. taxifolia* was recently eradicated from West Lakes but resisted attempts to control it in the Port River.

Native Comparison: The fronds of *C. taxifolia* lie flat in one plane opposite each other on either side of a thin round stem, but *C. trifaria* (top picture) looks like a three-spoked propeller when looking from the end; *C. remotifolia* (middle picture) has fronds that are spaced out - at least as much as their width; and like *C. scalpelliformis* (bottom picture), has its fronds, staggered on either side, merged into a flattened stem.



Native Species



Bob Baldock



Bob Baldock



David Muirhead

OTHER FERAL SPECIES (*Caulerpa racemosa*)

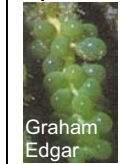
Threat: This species is known for fast growth rates and its highly competitive nature.

Habitat: It inhabits depths between 1-60 m, and has been found recently in the Port river and surrounding coastal areas.

Native Comparison: It is very similar to *Caulerpa geminata* (pictured). The key difference between them is that the fronds of *C. racemosa* are club shaped whereas the fronds of *C. geminata* are egg shaped.



Native Species



Graham Edgar

They show little fear of divers, but will retreat into a 'home' refuge under a ledge, when approached.

Harlequin Fish (*Othos dentex*)

Threats: This species is solitary and is known to have an inquisitive nature, making it vulnerable to spearfishing. Harlequin fish are also targeted by recreational line fishers. Because it has a slow growth rate, population recovery from fishing pressure is likely to be slow.

Habitat: They inhabit reefs to a depth of at least 30 m.



Leafy Seadragon (*Phycodurus eques*)

Threats: Although protected by the SA Fisheries Act 1982, there is still much that is unknown about the species. Seadragons can potentially be targeted for aquarium trade.

Habitat: Seadragons inhabit moderately exposed rocky reefs or other structures colonised by algae (e.g. jetties) to 50 m deep, or adjacent seagrass meadows.



Weedy Seadragon (*Phyllopteryx taeniolatus*)

Threats: The weedy seadragon is not protected in SA but is subject to the same threats as the leafy seadragon and is being considered for protection by the current Government.

Habitat: As for the leafy seadragon.



Mediterranean Fanworm (*Sabella spallanzanii*)

Threat: Fast-growing worms can form vast, dense meadows and may compete with native suspension feeders for food.

Habitat: Prefers sheltered shallow subtidal areas (1-30 m) and attaches to hard substrates like shells, jetty pylons, wrecks and rocks, but can also be found in sand.

Native Comparison: The native has no tentacle layers compared with the obvious layers of tentacles *Sabella spallanzanii* exhibits.



Native Species



David Muirhead



European Shore Crab (*Carcinus maenas*)

Threat: Excludes native species.

Habitat: As its name suggests it is found on the shore, in rock, mud and sand habitats, in estuaries, seagrass beds and marshes. It is very hardy, able to tolerate extremes of temperature and salinity. This species likes to forage at high tide and hide under rocks during low tide.

Native Comparison: There are no very similar species in SA.



Asian Mussel (*Musculista senhousia*)

Threat: Excludes similar native species.

Habitat: This small mussel prefers enclosed intertidal and shallow subtidal flats (to 8 m) and will colonise on soft or hard substrates.

Native Comparison: There are many native mussel species but the Asian Mussel has distinctive markings. Combined with its small size it should be fairly easy to identify.



Black Cowry (*Zoila friendii*)

Threats: This species is of some value to commercial and recreational collectors and is vulnerable to exploitation.

Habitat: This is a large cowry, commonly found on grey cup sponges when brooding eggs, or feeding on orange or yellow sponges. Although the shell colour is mottled with dark blotches against a light background, the animal often covers its shell with a black mantle.



Striped Pyjama Squid (*Sepioloidea lineolata*)

Threats: Very restricted range. Currently only known from only one location (Edithburgh) in SA.

Habitat: These animals are generally nocturnal and during the day they bury themselves under sand with only the eyes protruding. They are found around sand and rubble substrates, often near seagrass beds and to a depth of 20 m.



Reef Coral (*Plesiastrea versipora*)

Threats: Larger colonies were once widespread, but are not seen very much anymore, possibly due to net dragging by trawlers.

Habitat: This is one of only a few large, stony corals present in the temperate waters of southern Australia. The colony grows in either an encrusting form, or a mound. Colony sizes vary from a few cms to approximately 3 m in diameter.

