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FERAL OR IN PERIL

South Australia

www.reefwatch.asn.au



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Reef Watch**

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Cover Photo: Blue devil by Simon Bryars



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INTRODUCTION

SOME SPECIES WE RARELY SEE NO MATTER HOW OFTEN WE EXPLORE THE UNDERWATER WORLD. OTHER SPECIES WE WISH WE DID NOT SEE, THE INTRODUCED PESTS, THESE INVADERS THREATEN OUR LOCAL MARINE LIFE AND COASTAL INDUSTRIES.

Scientists and resource managers will be better placed to manage SA's marine environments with information collected by monitoring the introduced species as well as the locals.

This booklet provides details on how you can play a role in protecting our marine life for future generations – both human and marine. It has been developed by Reef Watch SA, with assistance from Reef Watch Victoria and funding from a SA Community NRM Grant.

The booklet is designed to be used on its own or in conjunction with our Feral or In Peril identification slates, which are available for FREE in waterproof (for divers) and water resistant (for boats and fishing) versions. The slates are compact, easy to carry and can be easily attached to other equipment so you can keep your hands free and won't lose them.

To get a **FREE** set of Feral or In Peril identification slates go to your local boating or tackle store, or email feralperil@conservationsa.org.au

Dive in today and discover who's who in our waters!



SPECIES OF INTEREST

This booklet includes information on 21 species of interest in three groups:

- Species that are not native to SA but are established in our marine communities
- Species that may soon invade SA waters
- Native species of conservation concern that require further information to ensure their survival

The species represent marine life that is either 'feral' or 'in peril' in SA waters. The feral species are pests. They have, or may soon, invade our waters with negative impacts on our native species and industries. The species in peril are native species of conservation concern.

WHAT TO DO IF YOU SEE ONE OF THE SPECIES

We want to know more about the species in this program. In each section of this manual there is information on reporting these species if you see them.

REEF WATCH SA

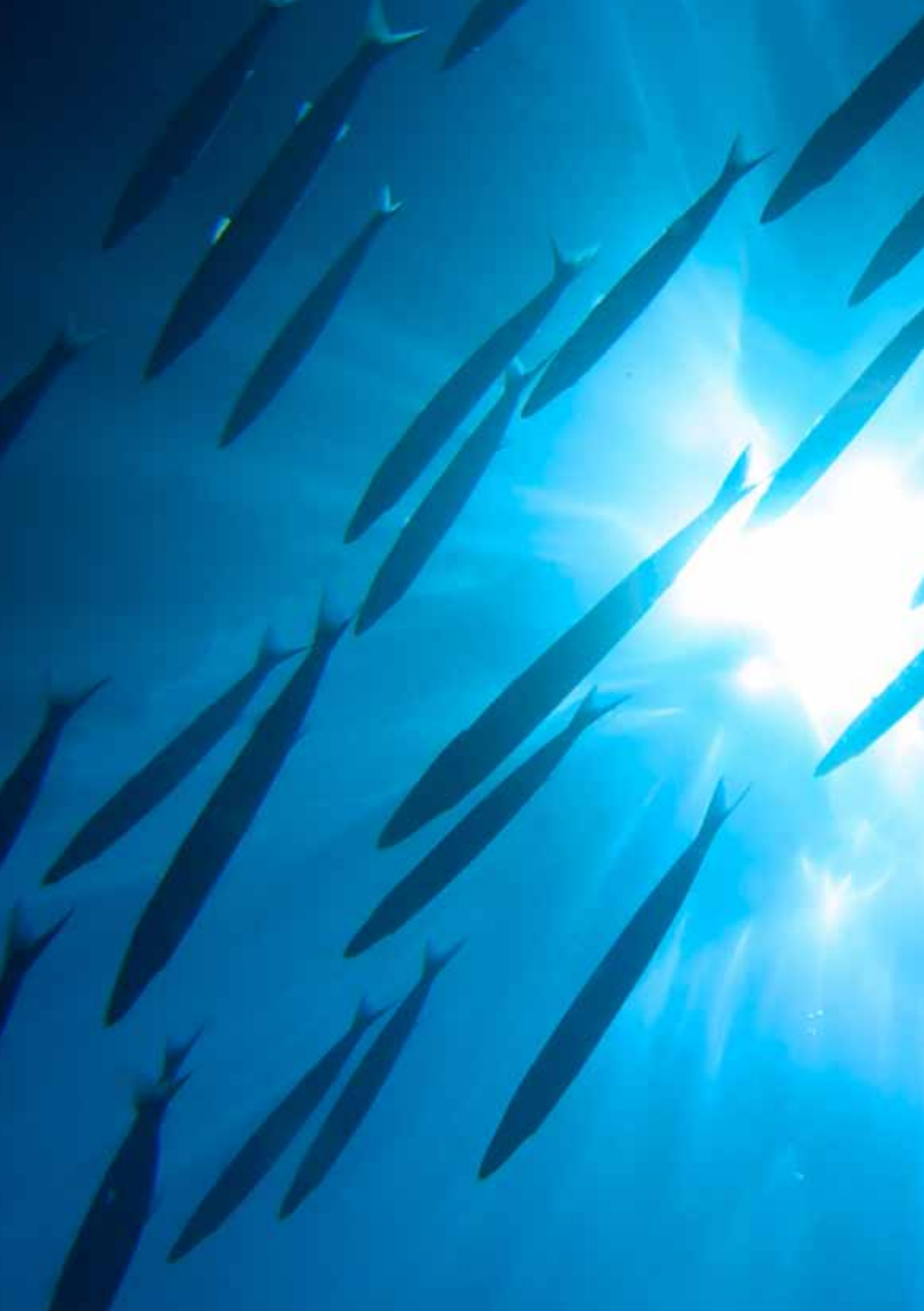
Reef Watch is an award-winning community marine monitoring program that encourages people to monitor marine life along South Australia's coast. The feral or in peril species in this booklet are part of that monitoring program.

The goal of the Feral or In Peril program is to develop an early warning network to protect our native marine life. We do this by supporting and encouraging community members to identify and report the feral or in peril species in this booklet, and by encouraging boat owners, divers and fishers to keep their boats and gear clean.

The Reef Watch SA website www.reefwatch.asn.au is a great way to discover the wonders of our temperate marine life and learn how to monitor species not included in this booklet.

REEF WATCH SAFETY

Reef Watch is a program that encourages all participants to follow standard safety practices when carrying out their diving, snorkelling, fishing and boating activities.



There are over 250 introduced marine species in Australia and numerous others are threatening to invade our waters. Most are harmless but several have become pests in South Australia, affecting native species and marine industries.

FERAL SPECIES

Feral species, or pests, arrive by hitch-hiking rides on or in ships, boats, fishing and diving gear or may be spread by aquaculture and the aquarium trade.

Feral species threaten our local environment because they can:

- compete with native species for food and space
- reduce the attractiveness of our coastal areas
- damage infrastructure and gear with encrusting growth
- cause human poisoning

Pests survive because they are usually very fertile, grow quickly, can live in several types of habitat and are not fussy about what they eat. Size may also be a factor.

Erradicating marine pests is difficult, expensive and often ineffective. Prevention is cheaper and easier and therefore the Australian Government has adopted a national strategy to prevent new pests entering our waters and to manage the ones already here.

We can help reduce the spread of pests if we follow these practices:

- wash down boat and trailer equipment with freshwater and dry for 48 hours before transporting to a new location
- remove fouling organisms from vessels
- check anchors, fishing gear, dive gear and other equipment for tangled organisms

Included in this booklet are some of the established and potential pest species that you are likely to see in South Australian waters. A list of all known introduced species and local pests can be found on the websites listed as further reading.

RED ALERT FERAL SPECIES

PEST SPECIES NOT YET IN SOUTH AUSTRALIAN WATERS.

NORTHERN PACIFIC SEA STAR

Asterias amurensis

Variable in colour with its top ranging from white, yellow to orange with purple markings while its underside is yellow. Characterised by numerous small spines and five plump arms that taper down to pointed and upturned tips.



▲ Two colour patterns on *Asterias amurensis*
Photo by CSIRO Marine and Atmospheric Research

SIZE

Grows up to 40-50 cm in diameter.

HABITAT

It is found in coastal areas protected from wave action such as estuaries, bays and rock pools. Occurs most abundantly on soft sediment and also on artificial structures and rocky reefs from the intertidal to 200 m deep. Prefers temperate waters but can withstand warmer conditions.

THREAT

A predator of many native species including economically important bivalves. Impacts aquaculture, fisheries and native marine biodiversity.

WHERE HAS IT BEEN FOUND?

Tasmania: South-east to north-east coasts from Recherche Bay to Binalong Bay and Banks Strait, including the Derwent Estuary.
Victoria: Port Phillip Bay.

WHERE DID IT COME FROM?

Native to the coasts of northern China, Korea, Russia and Japan.

HOW COULD IT GET HERE?

Most likely as larvae in ship ballast water.

NATIVE SPECIES THAT LOOK SIMILAR

Easily confused with the native species, *Uniophora granifera*, which can be distinguished by a zig zag of small spines down each arm.

This zig zag is not found on the northern Pacific seastar.



Uniophora granifera

Report ASAP to Fishwatch **1800 065 522**
and to **reefwatch.asn.au/fpreport**

JAPANESE KELP (WAKAME)

Undaria pinnatifida

Brown to green in colour this kelp is identified by its frilly 'sporophyll' near the base of mature plants. Mature plants are only found from early winter to late summer. Strap-like midrib. Smooth, thin blades stop well short of the base, creating a long stalk.

SIZE

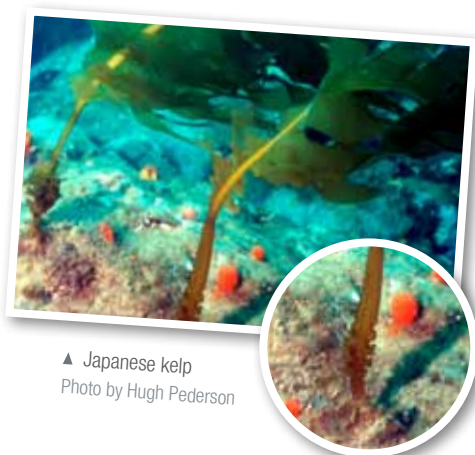
Can grow up to 3 m but is usually around 1 m.

HABITAT

Found in cold temperate waters in lower intertidal zone to 20 m deep on reef and artificial structures including aquaculture equipment.

THREAT

Can rapidly form dense forests on any available space and outgrow native kelp species.



▲ Japanese kelp

Photo by Hugh Pederson

WHERE HAS IT BEEN FOUND?

Tasmania: south-east and east coast

Victoria: Port Phillip Bay and Apollo Bay

WHERE DID IT COME FROM?

Native to Japan.

HOW COULD IT GET HERE?

Most likely attached to hull of a ship or recreational vessel.

RED ALERT FERAL SPECIES

PEST SPECIES INTRODUCED TO SOUTH AUSTRALIAN WATERS BUT CURRENTLY

Caulerpa taxifolia

A bright green alga with creeping stolons (stems) from which arise erect flat feather-like fronds (like leaves). Fronds are slightly narrowed at the base and upwardly curved, tapering at the tip.



▲ Fronds of *Caulerpa taxifolia* extend from the sea bed
Photo by Tim Glasby Department of Primary Industries NSW

The frond tips are pointed, never spherical or club-shaped (like *Caulerpa racemosa*) and are in one flat plane. Can be found as individual plants or dense blankets. It is capable of extremely rapid growth – as much as 25 mm per day in ideal conditions.

It usually spreads vegetatively by growth of the stolons, but can also regenerate from small fragments. Monitoring and control programs are ongoing where it has been found in South Australia.

SIZE

Each stolon can grow up to 3 m in length and have up to 200 fronds.

HABITAT

Caulerpa taxifolia is found up to 100 m deep on rock, sand, mud and amongst seagrass meadows in exposed and sheltered estuaries, coastal lagoons, marinas and bays.

THREAT

This is a tropical species that occurs in northern Australia but with invasive strains. In the Mediterranean the alga's rapid growth rate enables it to outcompete native seaweeds and displace bottom-dwelling communities, forming dense colonies and is considered a serious threat to seagrass meadows.

Report to Fishwatch **1800 065 522**
if seen outside Port River and North Haven Marina

LIMITED TO THE PORT RIVER AND BARKER INLET AREA

Caulerpa taxifolia has the potential to threaten aquatic biodiversity and significantly impact established marine ecosystems. It has been shown to change the chemistry of seawater in its vicinity and where it has established the 'infauna' (organisms living in soft sediments underneath the alga) changes substantially from the infauna found underneath native algal species.

It easily tangles in nets and anchors and can clog seawater cooling pipes and intake systems. Consequently, the economies of many coastal communities that are heavily reliant on recreational and commercial fishing and other aquatic activities may be seriously threatened.

WHERE HAS IT BEEN FOUND?

SA: PortRiver and Barker Inlet.
Successfully eradicated at West Lakes and North Haven Marina.

NSW: 14 coastal lakes and estuaries.

WHERE DID IT COME FROM?

Native to subtropical and tropical Australia from Port Denison, Western Australia to Southport, Queensland, with a wide native distribution through the tropical Atlantic, Indian and Pacific oceans.

HOW COULD IT GET HERE?

Caulerpa taxifolia has been used in the aquarium trade, although it is illegal to possess it in South Australia. It is highly likely that the introduction was human-mediated.

NATIVE SPECIES THAT LOOK SIMILAR

Caulerpa trifaria is often mistaken for *Caulerpa taxifolia*. *Caulerpa trifaria* is identified by **three** rows of fine blades running up the erect fronds instead of **two**.

Caulerpa trifaria



FERAL SPECIES

PEST SPECIES INTRODUCED TO AND ESTABLISHED IN SA

EUROPEAN GREEN SHORE CRAB

Carcinus maenas

Colour varies from green and black through to orange and red, although small juveniles can be much paler (almost sand coloured). Five spines on each side of eyes. Last pair of legs sharp and slightly flattened at tips – no swimming paddles. Predators include fish and birds.

SIZE

Deeply sculptured triangular carapace up to 8 cm wide, but commonly 5 - 6 cm.

HABITAT

Found in bays and estuaries in a variety of habitats including seagrass, mangroves, sand, mud and rocks.

THREAT

Can reproduce up to three times a year with females capable of holding 200,000 eggs. An aggressive predator that outcompetes native species for food and habitat.



▲ *Carcinus maenas* on the sand

Photo by P Gibson Department of Primary Industries NSW

WHERE HAS IT BEEN FOUND?

Port Adelaide, Barker Inlet, Outer Harbour, Adelaide coast, Yorke Peninsula, Fleurieu Peninsula and the Coorong.

It has also been recorded in Tasmania, Victoria, NSW and WA.

WHERE DID IT COME FROM?

Native to the north west coast of Africa and Europe as well as south and eastern waters of Greenland.

HOW DID IT GET HERE?

Shipping and then natural dispersal are the most likely pathways for introduction.

EUROPEAN FAN WORM

Sabella spallanzanii

Multi-layered spiral fan of feeding tentacles protruding from a long, flexible semi-hardened mucus tube. Fan colour varies from white/pale fawn/orange/banded to red/brown.



▲ The swirl of *Sabella spallanzanii*'s feeding tentacles Photo by Julian Finn

SIZE

Feeding tentacles extend up to 20 cm. Tubes up to 40 cm long, solitary or in dense groups.

HABITAT

Found in sheltered temperate waters to 30 m deep attached to hard surfaces, artificial structures, rocks, shell, sediment and amongst seagrass.

THREAT

Forms dense colonies consuming large amounts of plankton. No known predators in Australia. Fouls aquaculture structures increasing costs for industry.

WHERE HAS IT BEEN FOUND?

SA: Metropolitan Adelaide coast, Port Adelaide - Barker Inlet system, St Vincent Marina, Port Vincent Marina, Port Lincoln, Whyalla and Kangaroo Island.

WA: Cockburn Sound, Fremantle, Bunbury, Albany and Esperance

Victoria: Port Phillip Bay

Tasmania: Devonport

NSW: Eden

WHERE DID IT COME FROM?

Native to the Mediterranean.

HOW DID IT GET HERE?

Most likely attached to hull or in ballast water of large international ships and then translocated within Australian waters via coastal shipping and recreational vessels.

NATIVE SPECIES THAT LOOK SIMILAR

The native fan worm is often mistaken for the European fan worm but has **no** spiral form to its feeding tentacles.

FERAL SPECIES

PEST SPECIES INTRODUCED TO AND ESTABLISHED IN SA

EUROPEAN SEA SQUIRT

Ciona intestinalis

The European sea squirt is a solitary ascidian, commonly found in dense aggregations. There are 8 lobes on the cone-shaped inhalant siphon and 6 on the exhalant siphon. The siphon openings may have yellow margins and orange/red spots. The body wall is generally soft and translucent with the internal organs visible, however, may be hard and leathery due to fouling. It is pale yellow-green with five muscle bands running lengthways, clearly visible on each side. Short projections (villi) at the base anchor the ascidian.

SIZE

100-150 mm in length.

HABITAT

Occurs in low intertidal and shallow subtidal zones. Commonly found in dense aggregations on rocks, algal holdfasts, seagrass, shells and artificial structures such as jetty pilings, buoys and ship hulls. It is found in enclosed and semi-protected bays, marinas and estuaries.



▲ European sea squirt Photo by Vicki Billings

THREAT

Large colonies can outcompete native species for food and habitat. Causes a nuisance with the fouling of aquaculture and leisure facilities.

WHERE HAS IT BEEN FOUND?

SA: Port Adelaide - Barker Inlet system, North Haven, West Lakes and Outer Harbour with records from Port Lincoln, Wallaroo and American River on Kangaroo Island.

Also in WA and Tasmania.

WHERE DID IT COME FROM?

Native to the north Atlantic.

HOW DID IT GET HERE?

Ciona intestinalis is a widely distributed species assumed to have been spread by shipping.



ASIAN DATE MUSSEL

Musculista senhousia

The outer coating on its smooth shell surface is dull olive green-brown in colour. Shell usually has a pattern of up to 16 fine purple to brown lines radiating from the pointed end, crossed by more zigzag lines. Interior of shell has high lustre and wavy purple to red lines. Solitary mussels are usually vertically anchored into a soft substrate and surrounded by a byssal bag (cocoon of hair-like threads). Generally occurs just below low-tide level where individuals typically bind together in clumps to form a byssal mat. No hinge teeth inside shell valves. Hinge side of shell straight or slightly curved while the other side is slightly concave.

SIZE

Small, up to 3 cm in length.

HABITAT

Enclosed intertidal and shallow subtidal flats to 20 m. Prefers soft sediments but also fouls artificial hard surfaces.

► Asian date mussel



THREAT

Can form dense mats on soft sediments, smothering bottom communities by competing for space and altering food availability.

WHERE HAS IT BEEN FOUND?

SA: Port River and Port Adelaide.

(but not found recently)

Victoria: Portland and Port Phillip Bay.

Tasmania: estuary mouths in the north.

WA: Cockburn Sound, lower Swan River and Fremantle.

WHERE DID IT COME FROM?

Native to a large area in the north-west Pacific from Siberia to Singapore.

HOW DID IT GET HERE?

Shipping and then natural dispersal are likely pathways for introduction.

FERAL SPECIES

PEST SPECIES NOT YET IN SOUTH AUSTRALIAN WATERS

GREEN-LIPPED MUSSEL

Perna canaliculus

Juveniles are bright green. Adults are dark purple to black with distinct radial rays of brown or red towards the shell margins. They have a distinct green lip along inside margin of shell.

SIZE

Up to 14.5 cm long.

HABITAT

Usually found below the intertidal zone, attached to hard substrates such as vessels, artificial structures, wharves, aquaculture equipment, intake pipes and buoys.

THREAT

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

WHERE HAS IT BEEN FOUND?

Outer Harbour and Port Adelaide.

WHERE DID IT COME FROM?

Native to New Zealand.

HOW DID IT GET HERE?

Probably attached to the hull of ships.



▲ Green-lipped mussels Photo by PIRSA



PEST SPECIES INTRODUCED TO AND ESTABLISHED IN SA

Caulerpa racemosa* var. *cylindracea

Green club-shaped fronds (like leaves) are in one or more planes around branches with no narrowing at stolon (stem) attachment point. Rapidly forms tangled mats in shallow water and amongst seagrass meadows.

SIZE

Stolons up to 10 cm in length.

HABITAT

Caulerpa racemosa is found up to 4 m deep in exposed and sheltered estuaries, coastal lagoons and bays on rock, sand, mud and seagrass meadows.

THREAT

This is an Australian native species with invasive characteristics. In Europe the weed's rapid growth rate enables it to outcompete native seaweeds and displace bottom-dwelling communities, and is considered a serious threat to seagrass meadows. The plant is capable of rapid propagation from fragments even when partly covered by sediment.

WHERE HAS IT BEEN FOUND?

Well established in the Port River system and boat ramps along the Adelaide metropolitan coast as far as O'Sullivan Beach.



▲ *Caulerpa racemosa*
Photos by Greg Collings

WHERE DID IT COME FROM?

Native to WA. Originally found only as far east as Albany.

HOW DID IT GET HERE?

There is evidence that its occurrence in South Australia could be the result of a human-mediated translocation given its relatively recent discovery and occurrence around Port Adelaide and metropolitan boat ramps.

NATIVE SPECIES THAT LOOK SIMILAR

It is similar in appearance to a South Australian native species, *Caulerpa geminata*, and it is often difficult to distinguish between the two. It may also be confused with another introduced species, *Caulerpa taxifolia*.

REPORTING FERAL SPECIES

Reef Watch and the Australian Government are monitoring the feral species in this booklet.

Report feral species and play an active and important role in securing the future of SA marine life. If you suspect you have seen a marine pest, you should report it online at www.reefwatch.asn.au/fpreport

For pest species already established in SA, report them if you see them outside their known locations.

For **red alert** pest species that have not been seen in SA, report them immediately to Fishwatch on **1800 065 022** and online at www.reefwatch.asn.au/fpreport as this may be the first known presence of them in our waters.

Many pests look similar to our native plants and animals, therefore it is important not to remove any suspected pests without permission. Record your location and take a photo if you can.

The photo can be emailed to Reef Watch at feralperil@conservationsa.org.au for identification and confirmation.

Early and prompt detection is particularly important because there may be an opportunity to successfully remove the pest from the site.

Remember, you can minimise the spread of marine pests by cleaning and drying all your gear and boat after your diving, sailing or fishing trip.





SPECIES IN PERIL

There are several native marine species of conservation concern in South Australia, but many are not protected due to a lack of knowledge.

You can contribute significant information through reporting sightings and photographs of these species. Sightings data is freely available and contributes to research, management and species protection. The lack of knowledge of our native marine species has been recognised for many years by marine scientists in the SA Research and Development Institute and the Department for Environment and Natural Resources.

The National Parks and Wildlife Act 1972 provides for the listing of species of plants and animals that are threatened in South Australia.

The Fisheries Management Act 2007 governs the taking of fish by recreational anglers and spear fishing.

The Feral or in Peril Program is encouraging coastal users including boaters, anglers and SCUBA divers to report sightings of species of conservation concern to us at www.reefwatch.asn.au/fpreport email a photo to feralperil@conservationsa.org.au

HARLEQUIN AND BLUE DEVIL SIGHTINGS

If you have any photographs of harlequin fish or blue devils from the Adelaide Metro coast and you would like to help with an ongoing project, then please email them to sbryars@bigpond.com. When taking photos it is important to focus on the sides of the head and in particular the gill cover region. It is also useful (but not essential) if both sides of each fish can be photographed as the patterns differ between the left and right hand sides. Any photos submitted will remain the property of the photographer and will be acknowledged in any reports or presentations that are generated as part of the project.

SPECIES IN PERIL

MARINE SPECIES ABOUT WHICH SCIENTISTS REQUIRE MORE INFORMATION FOR FUTURE MANAGEMENT

BLUE DEVIL

Paraplesiops meleagris

A brilliant deep blue-coloured fish, the blue devil is one of the most entrancing sights for divers on South Australian rocky reefs. They have many small, evenly scattered, bright blue spots, and sometimes faint dark bars on their side. Recent photographic ID work indicates that the species is highly site-attached. New research shows they can live up to 59 years. Blue devils are described as 'generalist carnivores', eating other bony fish and benthic crustaceans.

SIZE

Blue devils can grow to around 36 cm. The heaviest recorded specimen was 1.13 kg.

HABITAT

The species is rarely seen in large numbers as adults form pair bonds or are solitary. Blue devils are territorial fish that occur in the vicinity of rocky reefs, often in caves and crevices, and under ledges and overhangs, usually between 5 m and 45 m deep.

DISTRIBUTION

Houtman Abrolhos, WA to Port Philip Bay, Victoria.



▲ Blue devil Photo by Simon Bryars

THREATS

Blue devils are of conservation concern because they are site-attached, and vulnerable to localised depletion.

PROTECTION STATUS

None.

TAKE A PHOTO



We need photos of both sides of the head of blue devils for an ongoing research project. Send your photos, with the location, to sbryars@bigpond.com. Any photos submitted will remain the property of the photographer and will be acknowledged in any reports or presentations that are generated as part of the project.



▲ Blue devil Photo by Simon Bryars

BLUE MORWONG (QUEEN SNAPPER)

Nemadactylus valenciennesi

The blue morwong can be recognised by its colour and pectoral fin shape. Adults are blue above, paler below; they have narrow yellow lines on the head radiating from the eye. They have a faint dark blotch midway along their upper body. The lower rays of the pectoral fins are very extended. Often remains in caves during the day but may also school.

SIZE

The species grows to >1 m.

HABITAT

Found in shallow to moderately deep water on reefs or adjacent to rocky bottoms where they feed at night. Found at depths 10 - 100 m.

DISTRIBUTION

Shark Bay, WA to Wilsons Promontory in Victoria and Kind Island, Tasmania.



▲ Blue morwong Photo by David Muirhead

THREATS

Blue morwong are of conservation concern because they are relatively long-lived (to 20 + years), use inshore nursery areas and are migratory. The aggressive nature of this fish makes it vulnerable to exploitation.

PROTECTION STATUS

Recreational fishing limits:

- Minimum legal length: 38 cm
- Bag limit: 5
- Boat limit: 15

SPECIES IN PERIL

HARLEQUIN FISH

Othos dentex

The harlequin fish is a magnificent reef fish, closely-related and similar in appearance to the coral trout. Harlequin fish can be red, orange, pink, green or brown in colour, but all have bright blue spots on the head and upper sides and feature a large red blotch on the side, which is covered by the pectoral fin. They are an ambush predator that feeds on various small fish.

Harlequin fish inhabit moderately exposed coastal rocky reefs and reef drop-offs to around 50 m deep. Adults of the species are site-attached, permanently residing in the same area of reef.

SIZE

Harlequin fish can grow to around 75 cm in length and can weigh well over 3 kg (one recorded specimen weighed in at 5.94 kg)

DISTRIBUTION

The harlequin fish is found only in South Australian and temperate Western Australian waters.

THREATS

Harlequin fish are of conservation concern because they are long-lived, site-attached and vulnerable to localised depletion.

PROTECTION STATUS

None.

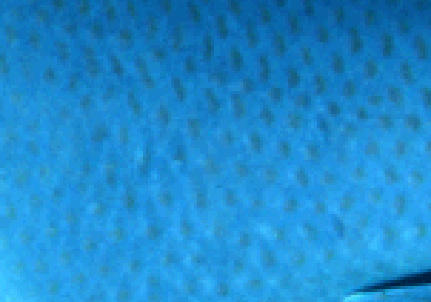


▲ Showing the many colours of the Harlequin fish

TAKE A PHOTO



We need photos of both sides of the head of harlequin fish for an ongoing research project. Send your photos, with the location, to sbryars@bigpond.com. Any photos submitted will remain the property of the photographer and will be acknowledged in any reports or presentations that are generated as part of the project.



Western blue groper (females) ►

Photo by James Brook



▲ Western blue groper (male)

WESTERN BLUE GROPER

Achoerodus gouldii

Western blue groper are sex-changing fish with adults that are site-attached, permanently residing in the same area of reef. They usually live in small social groups, consisting of one large male and two to three females.

Females may take up to 15 years before reaching sexual maturity and may take 30-40 years before they transform into males and only do so when the male is absent from the group. They can live up to 70 years.

Juveniles are brown, sometimes with yellowish or whitish spots scattered on their back. Females are green and males blue. Green females are often mistaken for other fish species such as mullet or parrotfish.

SIZE

The western blue groper grows to 1.75 m. It is the largest bony fish in South Australian waters.

HABITAT

Within South Australia, juvenile western blue groper are known to inhabit shallow sheltered reefs, with the sub-adults and adults being found on more wave-exposed and deeper reefs to 40 m depth.

DISTRIBUTION

Western blue groper are found on the exposed coasts of southern Australia from Cape Leeuwin, WA to Victoria, but are rarely seen east of the River Murray mouth.

THREATS

Western blue groper are of conservation concern because they are long-lived, site-attached, vulnerable to localised depletion and exploitation. Groper are caught as bycatch in shark and scalefish fisheries.

PROTECTION STATUS

In South Australia, take of western blue groper is prohibited in Spencer Gulf, Gulf St Vincent, Investigator Strait and Backstairs Passage, under the South Australian Fisheries Management Act 2007.

Outside of these areas there are recreational size and bag limits:

- Minimum legal length: 60 cm
- Maximum legal length: 100 cm
- Bag limit: 2
- Boat limit: 6

The western blue groper is listed as Vulnerable in the IUCN Red List of threatened species.

SPECIES IN PERIL

COASTAL STINGAREE

Urolophus orarius

The coastal stingaree has a subcircular, disk-shaped body, a stout tail about three-quarters the length of the body disk, a spear-shaped tail fin, and no dorsal fin. It bears a stout and prominent, serrated, poisonous spine on the middle reaches of its tail. Its upper side is coloured greyish to brown, with dark blotches across the eyes, body and base of the tail. Its underside is pale whitish-grey.

SIZE

Grows up to 31 cm in total length.

HABITAT

The coastal stingaree utilises inshore habitats with sand substrates and a depth range between 14-50 m.

DISTRIBUTION

The coastal stingaree is endemic to inshore areas of South Australia's coastlines, from Beachport to Ceduna. It is also present in the southern areas of both Spencer Gulf and Gulf St Vincent.



▲ Coastal stingaree

Illustration by CSIRO Marine and Atmospheric Research

THREATS

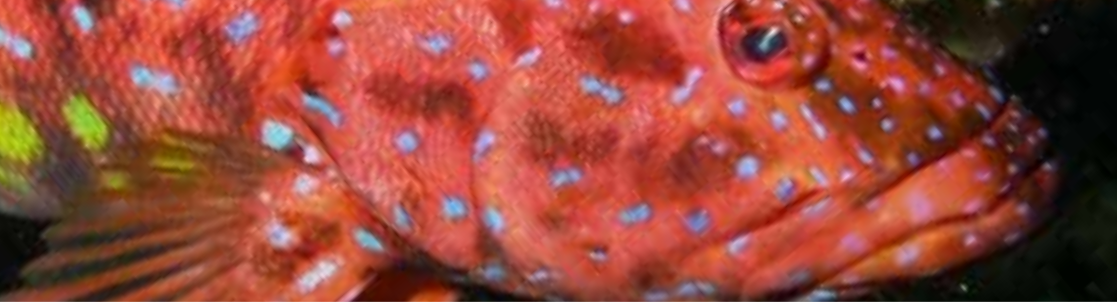
Coastal stingarees are of conservation concern because they are restricted to SA waters and likely to have low fecundity (1 to 2 young/year). Coastal stingarees are also renowned for aborting embryos upon capture and handling.

PROTECTION STATUS

The coastal stingaree is not currently protected in South Australia.

Currently listed as Endangered on the IUCN Red List of threatened species.

The conservation and management of all Australian sharks and rays is overseen by the 'National Plan of Action for the Conservation and Management of Sharks'.



▲ Harlequin fish Photo by Simon Bryars



▲ Gulf wobbegong
Photo by CSIRO Marine and Atmospheric Research

GULF WOBBERGONG

Orectolobus halei

Gulf wobbegong are yellow-brown to grey-brown with prominent black-edged dark saddles with blotches. They have fewer growths (dermal lobes) around their head than other species and are usually darker colour than spotted wobbegongs.

SIZE

Up to 2 – 2.9 m long.

HABITAT

Gulf wobbegong are found in shallow waters to 100 m deep. They are typically found in shallow inshore waters on rocky reefs along the coast and around offshore islands, in lagoons, on reef-flats and in reef channels.

DISTRIBUTION

They are found from southern QLD around to southern WA.

THREATS

Gulf wobbegong are a vulnerable species, site-attached within its relatively shallow water range (0–195 m) and caught in commercial and recreational fisheries as a target species and as bycatch.

PROTECTION STATUS

Wobbegongs are not currently protected in South Australia. However, the conservation and management of all Australian sharks is overseen by the 'National Plan of Action for the Conservation and Management of Sharks'.

SPECIES IN PERIL

SPOTTED WOBBERGONG

Orectolobus maculatus

Spotted wobbegongs have a flattened body, a very broad and flattened head with small tassel-like lobes and a large mouth. Spotted wobbegongs are pale yellowish to greenish brown with dark blotches and numerous white rings. Spotted wobbegongs have a brown triangle between their eyes.

SIZE

Can grow to 3.2 m, but the average size is 1.5 - 1.8 m.

HABITAT

Spotted wobbegongs live in shallow coastal water down to the mid-continental shelf. The spotted wobbegong is endemic to Australian waters. In South Australia spotted wobbegongs are often found in bays, associated with algae (seaweed) covered rocky reef areas (including lagoons, reef flats, reef faces and channels), and around offshore islands.

DISTRIBUTION

They are found from central QLD around to Perth (WA).



▲ Spotted wobbegong

Photo by CSIRO Marine and Atmospheric Research

THREATS

Site attachment is likely to increase the susceptibility of spotted wobbegongs to fishing pressure. Wobbegongs are commonly caught in trawls, beach seines, gillnets, lobster pots and traps, by hook-and-line, and also by spearfishing.

PROTECTION STATUS

Wobbegongs are not currently protected in South Australia. However, the conservation and management of all Australian sharks is overseen by the 'National Plan of Action for the Conservation and Management of Sharks'.



▲ Cobbler wobbegong

Photo by CSIRO Marine and Atmospheric Research

COBBLER WOBBERGONG

Sutorectus tentaculatus

Cobbler wobbegong are pale brown with darker brown saddles and blotches. They have fine black spots on the upper surface and fins, very few dermal lobes around head and two rows of distinct growths along the back.

SIZE

They grow to only 92 cm, much smaller than other wobbegongs.

HABITAT

Found in shallow coastal areas near rocks and weed.

DISTRIBUTION

Cobbler wobbegong are found from Gulf St Vincent and Kangaroo Island around to Perth (WA).

THREATS

They are susceptible to gillnet fishers across their home range.

PROTECTION STATUS

Wobbegongs are not currently protected in South Australia. However, the conservation and management of all Australian sharks is overseen by the 'National Plan of Action for the Conservation and Management of Sharks'.

SPECIES IN PERIL

WEEDY SEADRAGON

Phyllopteryx taeniolatus

Small leaf-like appendages occur singularly or in pairs along the body. A few short spines also occur along the body. Adults are usually reddish with yellow spots and purple-blue bars. A male weedy seadragon has a shallower body width and is generally darker in colour than the female. Males carry 200-300 eggs on their tails.



▲ Weedy seadragon
Photo by Mark Norman

SIZE

Weedy seadragons grow to about 46 cm in length.

HABITAT

Weedy seadragons are found in a variety of habitats including shallow estuaries, kelp forests, reef edges, seagrass meadows, near jetty pilings and deeper offshore reefs. They are found in shallow coastal waters (3-50 m deep). Juveniles are often found among kelp and seagrass.

DISTRIBUTION

Weedy seadragons are found from Geraldton, WA along the southern Australian coastline - including Tasmania - to Port Stephens, NSW.

THREATS

The main threats to the weedy seadragon include intrinsic life history traits thought to limit dispersal, habitat degradation, and collection for trade.

PROTECTION

All fishes in the Syngnathidae family (sea dragons, pipefishes/pipehorses, seahorses,) are formally protected in SA under the Fisheries Management Act 2007, and nationally under the EPBC Act 1999.

Weedy seadragons are also currently listed as Near Threatened on the IUCN Red List of threatened species.



LEAFY SEADRAGON

Phycodurus eques

As with many species of seahorse, leafy seadragons (leafies) are able to change colour depending on age, diet, location or even their stress level. Adults are green to yellow-brown with thin, pale, dark-edged vertical bands.



▲ Leafy seadragon Photo by Paul Macdonald

Their numerous leafy appendages look distinctly like fronds of brown seaweed. Leafies have several long sharp spines along the sides of the body. Males carry 200-300 eggs on their tails.

SIZE

Leafies can grow up to 43 cm, however most reach an average size of 30 cm.

HABITAT

Leafies inhabit rocky reefs, seaweed beds, seagrass meadows and structures colonised by seaweed. They can be found to depths up to 30 m.

DISTRIBUTION

Leafies have been recorded from Geraldton, WA along the southern Australian coastline to Wilsons Promontory, Victoria.

THREATS

Leafies are of conservation concern because they lack a tail fin and are weak swimmers. This, in conjunction with limited egg dispersal, makes them potentially vulnerable to habitat loss and degradation as well as to incidental harvesting during commercial fishing. Leafies may be harvested illegally for the aquarium, private collection and traditional medicine trades.

PROTECTION STATUS

All fishes in the Syngnathidae family (sea dragons, pipefishes/pipehorses, seahorses,) are formally protected in SA under the Fisheries Management Act 2007, and nationally under the EPBC Act 1999.

Leafy seadragons are also currently listed as Near Threatened on the IUCN Red List of threatened species.

SPECIES IN PERIL

LONGSNOUT BOARFISH

Pentaceropsis recurvirostris

The longsnout boarfish can be easily recognised by its distinctive colour pattern and body shape. It has a long, almost tubular snout and a long-based dorsal fin with widely spaced venomous spines.



▲ Longsnout boarfish Photo by Carl Charter

The upper rays of the pectoral fins are longer than the lower rays. The adult longsnout boarfish is silvery-white with a series of broad dark stripes on each side. The first band runs through the eye, onto the snout and lower jaw.

SIZE

Up to 61 cm.

HABITAT

The species occurs on rocky reefs and under jetties ranging from a few metres down to 260 m.

DISTRIBUTION

The longsnout boarfish occurs from Botany Bay, NSW, around the south of the country, including Tasmania, to Rottnest Island, WA.

THREATS

Longsnout boarfish are not currently protected in South Australia and are of conservation concern due to their territorial nature around near shore reefs and slow movements, which means they can be easy targets for spear fishers.

PROTECTION STATUS

None.

NATIVE SPECIES THAT LOOK SIMILAR

Brown-spotted boarfish (*Paristiopaterus gallipavo*)



Brown-spotted boarfish ►
Photo by Carl Charter

BLACK COWRY

Zoila friendii thersites

Black cowries have a characteristic brown spotted shell pattern when they mature and a black mantle from which they derive their name.

SIZE

The shell is up to 13 cm long.

HABITAT

Black cowries can be found on reefs, sponges, in seagrass and on jetty pilings.

DISTRIBUTION

Found along the South Australian coast to western Victoria.



▲ Black cowry Photo by Carl Charter

THREATS

The black cowry is of conservation concern because they are a long-lived (> 12 years) species, and their large, polished shell makes them very popular with shell collectors.

PROTECTION STATUS

Harvesting is controlled under the Fisheries Management Act 2007. Although there is a bag limit of one per person per day in SA, Reef Watch advises a no take on this species.



▲ Black cowry with eggs Photo by Carl Charter



▲ Photo by John Gaskell

FURTHER INFORMATION

National Marine Pest information

(National System for the Prevention and Management of Marine Pest Incursions)

www.marinepests.gov.au

Biosecurity SA

www.pir.sa.gov.au/biosecuritysa/aquatic

Primary Industries and Resources SA (PIRSA)

www.pir.sa.gov.au/fishing

Conservation Council SA

www.conservation.sa.gov.au

Reef Watch Feral or in Peril Program

www.reefwatch.asn.au/feralInPeril

National Pests and Diseases Image Library

www.padil.gov.au

Global Invasive Species Database

www.issg.org

International Union for Conservation of Nature Red List

www.iucn.org

Adelaide & Mount Lofty Ranges Natural Resources Management Board

www.amlrnm.sa.gov.au

Department of Environment and Natural Resources

www.environment.sa.gov.au

Atlas of Living Australia

www.ala.org.au

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