Protecting South Australia's Fish, Sharks & Rays

Gobies including the Sicklefin Sand Goby *(Nesogobius sp.)*

FACT SHEET #2

Gobies (Family Gobiidae) are a large and diverse family of fish with around 1500 species distributed around the world and at least 370 species known from Australia. Surprisingly little is known about these fish and new species are regularly discovered. At least 90 undescribed species are currently recorded from Australia. It is acknowledged by scientists that, considering the number of undescribed species worldwide, some goby species may become extinct even before they are discovered.

HABITAT AND BIOLOGY

Gobies are generally bottom-dwelling (benthic) fish living on or in sand, rocks, seagrasses, in burrows, or amongst coral. Some species bury themselves in sand or soft sediments to rest and escape predators.
As with most gobies, the distribution of the sicklefin sand goby is poorly known. In South Australia it has been recorded from Kangaroo Island and Gulf St Vincent but considering the lack of targeted surveys for this and other smaller, cryptic fish, it is likely to be more widespread. Interstate, they have been recorded from Tasmania, the Bass Strait islands and the south coast of Victoria. As the name suggests sicklefin sand gobies are found on sand, and they are also found in shallow coastal seagrass beds, between 2-10 m deep. They grow up to 4 cm long and are often seen in small groups.
Most gobies take small prey (mainly invertebrates), and small fish have also been recorded in the diet of some species. Some temperate gobies take relatively large prey, but most filter microscopic organisms from sand. Marine and estuarine gobies are important food sources for some predatory fish species, such as Australian salmon and flathead species.
Most gobies have similar life cycles. The female lays between five to a few hundred eggs, attaches them to some form of vegetation, shell, rock or coral, and they are then fertilised by the male. The female departs and the male is left to guard the eggs and keep them clean until they hatch (one to a few days). The larvae disperse into the water column and swim for 3 to 20 days (depending on the species) before settling into suitable habitat where they rapidly develop colour to match their surroundings. In warm waters fish grow rapidly and mature in a few months, but in cooler areas growth is slower and maturity is not reached until one or two years of age. They are thought to survive for 2 to 10 years.
Other SA goby species of conservation concern include the two-spot fringed-fin goby, lagoon goby, large-mouth goby, frayed-fin goby, threadfin sand goby, Tamar River goby and the groove-cheek goby.

CURRENT CONSERVATION STATUS

No goby species are currently protected in South Australia. However, the conservation significance of gobies at an international level is partly reflected by the 57 Gobiidae species listed as endangered or data deficient in the IUCN Red List of endangered species.

The groovecheek goby
Photo: (c) E. Schlogl http://www.amonline.net.au/fishes/fishfacts/fish/nsp43.htm

The female lays between five and a few hundred eggs and attaches them to some form of vegetation, shell, rock or coral. They are then fertilised by the male who guards the eggs until they hatch.

Estuaries including mangrove and nearby samphire habitat are important to many SA fish species

Photo: (c) J. Coates

Damage to estuaries, mangroves and seagrass communities, is a major threat to gobies and a range of other fish species.

THREATS AND RESPONSES

The limited distributions, benthic habit, small populations and shallow depth ranges of many goby species, as well as the threatened status of many important goby habitats put them at great risk. The benthic nature of gobies makes them potentially vulnerable to localised impacts such as dredging, sedimentation or point source pollution.

Threats to goby habitats such as estuaries, mangroves, seagrass meadows and near-shore reefs include sedimentation, eutrophication, other pollution, changed freshwater flows, dredging and inappropriate coastal development. Many of these threats can be addressed through land-based actions such as revegetating river banks, and catching and reusing stormwater.

Introduced marine pest species can out-compete, predate and/or displace goby species. Even introduced goby species can be a problem as has been highlighted by the introduction of the Japanese goby, which is now found in high densities in some of the harbours and estuaries in NSW, VIC, and WA and in the Port River in South Australia. Prevention, monitoring and mitigation of pest species invasions will be assisted via implementation of the National System for the Prevention and Management of Introduced Marine Pests. The Reef Watch 'Feral or in Peril' program, run by the Conservation Council of SA, is an example of how the community can be involved in reporting sightings of specific introduced marine pest species. See www.reefwatch.asn.au

Preventing inappropriate coastal development that may impact on goby and other fish populations will assist shallow water marine fish to survive. This includes developments on or near mangrove sites, developments requiring dredging operations, or developments that will cause increased nutrient or sediment inputs via construction, clearing or changed stormwater drainage.

Marine Parks including well placed sanctuary zones across the range may assist recovery of depleted populations, and assist in addressing climate change by increasing population health and hence the ability to adapt to changing conditions.

While the exact impacts of climate change on the marine environment are uncertain, there is little doubt that it will negatively affect marine habitats through increases in water temperature, sea level rise and changes in storm activity.

The lack of knowledge about population size, habitat requirements and distribution of marine fish means that it is extremely difficult to identify and implement appropriate management actions. Increased research and monitoring for non-commercial species is needed.

For more information: www.ccsa.asn.au/fsr

ACKNOWLEDGEMENT

Information used in this fact sheet was compiled from:
Baker, J.L. (2007 in prep.) Status of Marine Species at Risk in South Australia: Technical Report – Bony and Cartilaginous Fish.

THE THREATENED SPECIES NETWORK is a community based partnership between WWF-Australia and the Australian Government.
http://wwf.org.au/ourwork/ species/tsn/

Threatened Species Network

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