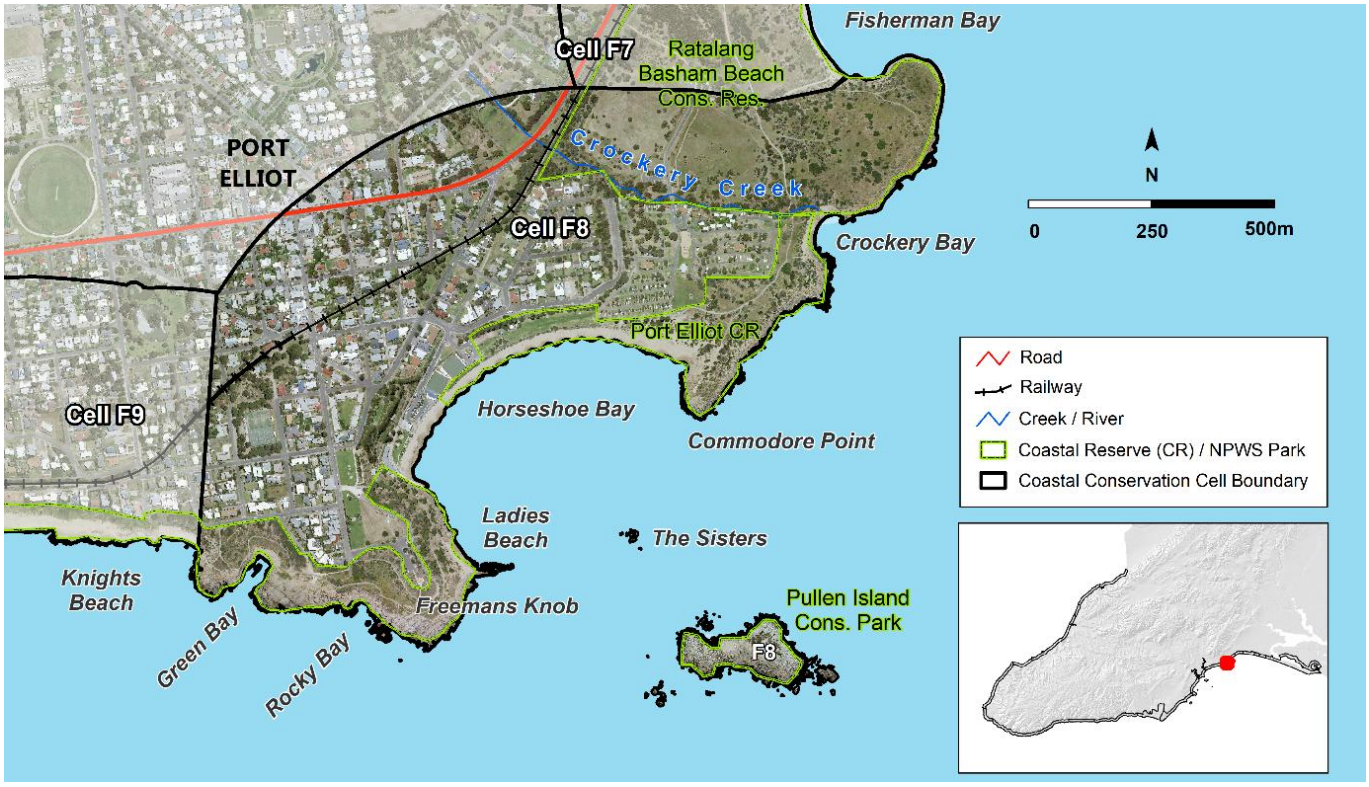
Southern Fleurieu Coastal Action Plan

Fisherman Bay Headland (Camp Kondili) to Knights Beach (Port Elliot) (Kaindjeinuwald) including Pullen Island (Witung)

Cell F8

Overview

Despite covering a small geographic area, this cell supports a large variety of coastal habitats, including coastal dunes, cliffs, headlands, pocket beaches, an offshore island and rocky shores. Remnant patches of flora remain in some habitats, with concerted efforts from land managers and community groups being undertaken to reconnect and restore many of these areas through targeted weed control and revegetation. A very popular tourist and recreational area and increasing local development places pressure on the capacity for natural areas to support local population and tourism capacity needs. Nearshore environments support healthy seagrass communities, rocky shore habitats and offshore, Southern Right Whale nursery areas, with the offshore Pullen Island an important breeding habitat for seabirds and shorebirds.



Cell detail

This cell extends from Fisherman Beach headland approximately 1.5km to Knights Beach. It also includes Crockery Bay, Commodore Point, Horseshoe Bay, Ladies Beach, Freeman's Knob, Rocky Bay, Green Bay and Pullen Island. This cell is in the Alexandrina Council local government area.

Tenure, Land Use and Values

Crown Land coastal reserves (managed by Council) at the two large headlands are visually dominating. Substantial areas of privately owned residential land, with a large Council-managed caravan park. The popular tourist area with beachfront Café/Restaurant, playground, jetty, Surf Life Saving Club, Bowling Club, walking trails, car parking and viewing points on headlands. Includes three pocket beaches (Crockery Bay, Ladies Beach and Green Bay).

Pullen Island, offshore of Horseshoe Bay, was declared a closed area to protect birds in 1948 and was proclaimed a Fauna Conservation Reserve in 1967 (Telfer and Milne 2016). In 1972 the island became a Conservation Park under the *National Parks and Wildlife Act*. In 2012 the island and the waters surrounding this cell were included in Encounter Marine Park as part of the Encounter Bay Sanctuary Zone (see Fig 8.1) and are managed by National Parks (DEW).

Native title has been determined for Ngarrindjeri people over land and sea Country within this cell under the *Native Title Act 1993 (Cth).*

The SteamRanger railway corridor occupies a linear area of the northern boundary of this cell and is Crown Land (Minister Environment and Conservation).

High scenic amenity values are associated with headlands, providing elevated high quality coastal views to Horseshoe Bay, Freeman's Knob and Pullen Island. European heritage values rate highly in this cell, through shipwrecks and a variety of buildings and remains linked to former uses of the area, which have maritime connections. A heavily used safe swimming beach and grassed reserve at Horseshoe Bay. Fishing, recreational surfing, diving, snorkelling, walking. The area is Alexandrina Council's most popular tourist beach/area. Horseshoe Bay also contains a historic breakwater, which was constructed between 1853 and 1855 to provide a safe harbour and jetty for docking ships, although the port was abandoned in 1866. By the turn of the century, Port Elliot had become a 'resort' town and remains the most popular holiday destination in Alexandrina to this day.

The beaches are important habitat and fishing areas for species such as School Whiting (*Sillago bassensis),* Mulloway (*Argyrosomus japonicus)* and Yelloweye Mullet (*Aldrichetta forsteri*) (Bryars 2013).

Several coastal community groups working on the coastal slopes of Horseshoe Bay, Freeman's Knob and Green Bay have undertaken a range of conservation and restoration activities across this cell, including extensive weed control and revegetation, significantly increasing habitats and species diversity values. Friends of the Hooded Plover Fleurieu Peninsula (supported by BirdLife Australia) and Team Oystercatcher volunteers (SA Shorebird Foundation) monitor and raise awareness of beach nesting and shorebird species within the cell.

Landforms

Horseshoe Bay is a small, semicircular, southeast facing bay, wedged in between the prominent 30m high granite headland of Commodore Point and Freeman's Knob (pictured below). The bay is protected by Pullen Island, granite reefs and a stone groyne at its western end. Once a major port with a working jetty, the bay is now a prime recreation beach. Semicircular sand beach of Horseshoe Bay, facing SE, protected by large composite granite headlands of Commodore Point and Freeman's Knob.

Western et al (2019) describes outcrops of Encounter Bay Granite dominating the cell, forming headlands, islands, and reefs. This resistant granite strongly influences wave orientation, shaping sandy embayments such as Horseshoe Bay and Crockery Bay. Green Bay has been progressively eroded where waves and weathering exploited natural weaknesses in the granite.

The Encounter Bay region - Port Elliot geological monument (reference 1330) occupies nearly the entire cell and displays Semaphore Sand Member and Encounter Bay Granite. The cell also has two State Heritage places listed as the Port Elliot Breakwater & Quarry (reference 14092), which are significant as relics of the extensive public works undertaken by the South Australian Government to establish Port Elliot as the seaport for the River Murray trade.

Knights Beach, Green Bay, Freemans Knob, Horseshoe Bay, Commodore Point and The Sisters rocks (Coast Protection Board, March 2024)

First Nations cultural heritage and connection to land and sea Country

This cell holds high cultural value and significance for the Ramindjeri people of the Ngarrindjeri Nation. It forms part of their Dreaming stories and contains numerous stories, places, and artefacts of cultural importance. Ramindjeri cultural heritage is present throughout the entire cell, everywhere you tread. The Ramindjeri lived, hunted, played, swam, and danced here. Those working within and restoring these areas may encounter artefacts or evidence of cultural significance to the Ramindjeri people and the broader Ngarrindjeri Nation. These areas must be known, recognised, respected, and protected.

Creeks, wetlands, estuaries, dunes, cliff lines, islands and coastal areas are important gathering places that support a variety of habitats and food sources essential for sustaining and protecting Nga:tji. Nga:tji are the personal totems of the Ngarrindjeri people. They embody deep cultural values, symbolising kinship, spiritual protection, and an embedded responsibility to care for the land, waters, and ecosystems they inhabit.

This cell contains a range of culturally significant landscape features, including important sites and traditional camping grounds such as Camp Kondili, located between Fisherman and Crockery Bays. Tool-making areas and midden deposits found throughout the area reflect ongoing cultural connection and long-term occupation. Several rock formations are associated with Dreaming stories, including Pungari Rock (Seal Ancestor), Keli Ruwi (Dingo Ancestor), and Witung (Pullen Island). One of the last remaining spring sites, located inland from the cell boundary, aligns with a traditional trade route used by Clans. This route illustrates the enduring relationships between neighbouring clan groups and the exchange of locally sourced materials such as stone tools, food, and other cultural items. A significant ceremonial site is also located within the area, positioned above the beach at the eastern end of Horseshoe Bay.

This cell is also a particularly important site in the Ngurunderi Creation and Dreaming story, which tells of the Ngarrindjeri people's creation of the land and waters, including the River Murray and its mouth, Kandukang (west) and Tapalwora (east). This ancestral narrative extends westward along the southern coast of the Fleurieu Peninsula, encompassing the rugged shoreline, estuaries, and coastal landscapes all the way to Cape Jervis (Parrewar-angk). These areas hold deep cultural and spiritual significance for the Ramindjeri people, with Dreaming tracks, songlines, and important sites embedded throughout the region.

The coastline with its cliffs, beaches, and native vegetation reflects Ngurunderi's journey as he shaped the land, rested at key locations, and followed the tracks of his wives. Cape Jervis (Parrewar-angk) marks an important point in

this story, serving as both a physical and spiritual place in the landscape. It connects the mainland to Kangaroo Island (Ngurungaui), continuing the cultural narrative of creation, movement, and connection to Country.

Within this cell, the Dreaming story shares how Ngurunderi came upon Pungari, the ancestral seal, resting on the rocks. When Ngurunderi cast his spear, Pungari transformed into stone with his presence still felt today at the site of the blowhole. This area is also known as a place where Ngurunderi paused to rest, shaping freshwater springs along the shoreline. Upon hearing signs of his wives nearby, he rose to follow their tracks, leaving behind his woven fishnet in the sea, which formed Witung (Pullen Island).

Please respect that cultural concepts and content included in this plan are the Aboriginal Cultural and Intellectual property (ACIP) of the Ramindjeri people of the Ngarrindjeri Nation (provided by Cedric Varcoe, Ramindjeri Cultural Leader living on Country) (cells 1-20). They may not be used or adapted by any other parties without consent.

Terrestrial biodiversity

Whole cell

The cell contains a variety of coastal habitats, including coastal dunes, cliffs, headlands, pocket beaches, offshore island and rocky shores. This variety of habitats support wide diversity of species, each occupying their own niche environments. Many areas are pressured by invasive weeds and garden escapes (particularly the coastal cliffs, including Freemans Knob).

There are conservation values for remnant vegetation communities (and individual species) across this cell, including threatened communities and flora, rarity within South Australia, and endemic plant communities (more than 50% of such communities found in the Southern Fleurieu region).

Species of conservation significance recorded in this cell include Hop-bush Wattle (*Acacia dodonaeifolia*), Weeping Myall (*Acacia pendula*), Leafy Twig-rush (*Cladium procerum*), Fringed Pseudanthus (*Pseudanthus micranthus*), Wiry Dock (*Rumex dumosus*) and Butterfly Spyridium (*Spyridium coactilifolium*).

Freshwater inputs to Crockery Bay are provided through Crockery Creek and support limited riparian and freshwater dependent flora species.

The headlands support coastal cliff and heathland vegetation species, including locally valuable species such as Cushion Fanflower (*Scaevola crassifolia),* Sticky Goodenia *(Goodenia varia),* Thyme Riceflower (*Pimelea serpyllifolia* ssp. *serpyllifolia), Coast Logania (Logania crassifolia),* Muntries *(Kunzea pomifera),* Coast Tussock Grass *(Poa poiformis var. poiformis*) and Southern Sea-heath (*Frankenia pauciflora* var. *gunnii)*, with several remnant patches including Knights, Green Bay and Commodore Reserve.

Coastal heathland is very low growing on Knights Cliffs including Cushion Fanflower (Scaevola crassifolia) and Sticky Goodenia (Goodenia varia) (C Jackson)

Commodore Headland and Pullen Island in background (R Lewis)

Green Bay and Freeman's Knob have had a significant amount of restoration work from volunteers. The volunteers have undertaken extensive weed control work and many revegetation programs to protect and improve Common Boobialla (*Myoporum insulare)* remnants. Green Bay to Commodore Reserve is highly degraded and limited remnant vegetation persist. However, recent volunteer efforts to undertake weed control and revegetate Green Bay and Freeman's Knob has seen significant improvement in species diversity. A small population of Coast Blown-grass (*Lachnagrostis billardierei ssp. billardierei)* which is regionally rare is located at Freeman's Knob. Efforts to increase the size of this patch and inclusion in other coastal revegetation projects should be encouraged.

Green Bay pocket beach with tall coastal slopes that have had extensive revegetation and walking trail (C Jackson)

Horseshoe Bay, Ladies Beach, Freemans Knob, Rocky Bay and Green Bay (Coast Protection Board, March 2024)

Commodore Reserve has a remnant Coast Saltbush (*Atriplex cinerea)* community. Efforts to protect these plants have been made in the past by moving fence lines to accommodate the plants, rather than pruning.

Pullen Island vegetation is restricted to a small patch on the north eastern portion, and consists of several weed species including New Zealand Mirror-bush (*Coprosma repens),* African Boxthorn *(Lycium ferocissimum)*, Tree Mallow (*Malva arborea)* Shrubland with small amounts of the native shrub Common Boobialla (*Myoporum insulare*) (Telfer and Milne, 2016).

Butterfly species of conservation concern known to exist within the cell include Mottled Grass Skipper (*Anisynta cynone cynone*), along with multiple common species that are observed across the Fleurieu Peninsula (Stolarski 2024). Mottled Grass Skipper (*Anisynta cynone cynone)* is very localised and restricted to coastal areas where its larval food plants, *Poaceae* (Grasses), both native and introduced, are present. *A. cynone cynone* has a patchy distribution within the region occurring at; Hindmarsh Island, Sir Richard Peninsula, Goolwa foreshore, Surfers to Goolwa Dunes, Port Elliot, Victor Harbor including Granite Island, and Newland Head CP (Stolarski 2024).

The state Endangered Fairy Tern *(Sternula nereis)*, the state vulnerable Black-chinned Honeyeater (*Melithreptus gularis*), and the state rare Pacific Reef Heron (*Egretta sacra sacra)*, Common Sandpiper (*Actitus hypoleucos*), Kelp Gull *(Larus dominicanus)* Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus),* White-bellied Sea Eagle (*Haliaeetus leucogaster*)) and Australasian Gannet *(Morus serrator)*, have been recorded or observed in this cell.

Black-faced Cormorant (Phalacrocorax fuscescens) (M David)

Shorebirds and coastal seabirds are sighted in this cell, including the White-bellied Sea Eagle (*Haliaeetus leucogaster*), Eastern Osprey (*Pandion haliaetus cristatus*), Little Black Cormorant (*Phalacrocorax sulcirostris*), Black-faced Cormorant (*Phalacrocorax fuscescens*), Pacific Gull (*Larus pacificus georgii*), Silver Gull (*Chroicocephalus novaehollandiae)* and Kelp Gull *(Larus dominicanus*). Pullen Island provides suitable roosting and nesting habitats for multiple species, including Sooty Oystercatchers (*Haematopus fuliginosus fuliginosus*), Black-faced Cormorant (*Phalacrocorax fuscescens*), Greater Crested Tern (*Thalasseus bergii cristatus*), Little Penguin (*Eudyptula minor*), Silver Gull (*Chroicocephalus novaehollandiae*) and Feral Pigeon (*Columba livia*) (Telfer and Milne 2016). Irregular sightings of a range of pelagic birds are also reported in this and adjacent cells, including albatrosses, petrels, albatrosses, petrels, shearwaters and gannets.

Multiple Cormorant species and other shorebird and seabird species are found on Pullen Island (M Turner)

Seagrass wrack (also known as Beach cast wrack) found regularly on these beaches has an important ecological function recycling nutrients back to coastal waters as well as protection and stabilisation of the shoreline and coastal dunes by acting as a trap that binds drifting sands and reduces sand erosion during winter (PIRSA 2014). Beach wrack also provides an important role as habitat and shelter for Hooded Plovers (*Thinornis cucullatus cucullatus*) and Pied *(Haematopus longirostris)* and Sooty Oystercatchers *(Haematopus fuliginosus fuliginosus)* as well as other shorebirds and juvenile fish. Beach cast wrack collection within Encounter Marine Park is prohibited in all zones except general managed use zones. Therefore, no removal of beach wrack is permitted in this cell or the Encounter Bay area.

Vegetation Communities

Knights cliff/ Headlands
Coastal Cliff Low Shrublands, Hummock Grasslands & Very Low Open Woodlands

Cushion Fanflower (*Scaevola crassifolia) +/-* Sticky Goodenia (*Goodenia varia) +/-* Thyme Riceflower (*Pimelea serpyllifolia* ssp. *serpyllifolia) +/-* Coast Logania (*Logania crassifolia)* low shrubland over Coast Tussock-grass (*Poa poiformis var. poiformis) +/-* Southern Sea-heath (*Frankenia pauciflora* var. *gunnii)*

Coastal dunes
Coast Daisy-bush (*Olearia axillaris) +* Coast Beard-heath (*Leucopogon parviflorus)* Shrubland

Coastal slopes behind dunes
Drooping Sheoak (Allocasuarina verticillata) Low Woodland over an open grassy and herbaceous understorey of Hard Mat-rush (*Lomandra multiflora ssp. dura) +* Scented Mat-rush *(Lomandra effusa) +* Wallaby Grass *(Rytidosperma spp.) +* Spear Grass *(Austrostipa spp.).*

Pullen Island
*African Boxthorn (*Lycium ferocissimum) +* Common Boobialla (*Myoporum insulare)* tall shrubland over *Tree Mallow (*Malva arborea)* + * Blowfly Bush (*Rhamnus alaternus)*

Nearshore Habitats

This cell forms part of the Encounter Marine Park. Most of the marine areas of cell F6 are within a Sanctuary Zone (SZ-6) (Fisherman Bay to Commodore Point), while parts of the cell are within a Habitat Protection Zone (HPZ-7) (Horseshoe Bay to Knights Beach). These areas include part of the nursery grounds for the endangered Southern Right Whale and is part of the designated *Encounter Bay Whale Nursery Protection Area* from the Murray Mouth to The Bluff Victor Harbor. A Special Purpose Area (SPA-10) allows for Rod and Line fishing only from the shore within the Sanctuary Zone (SZ-6).

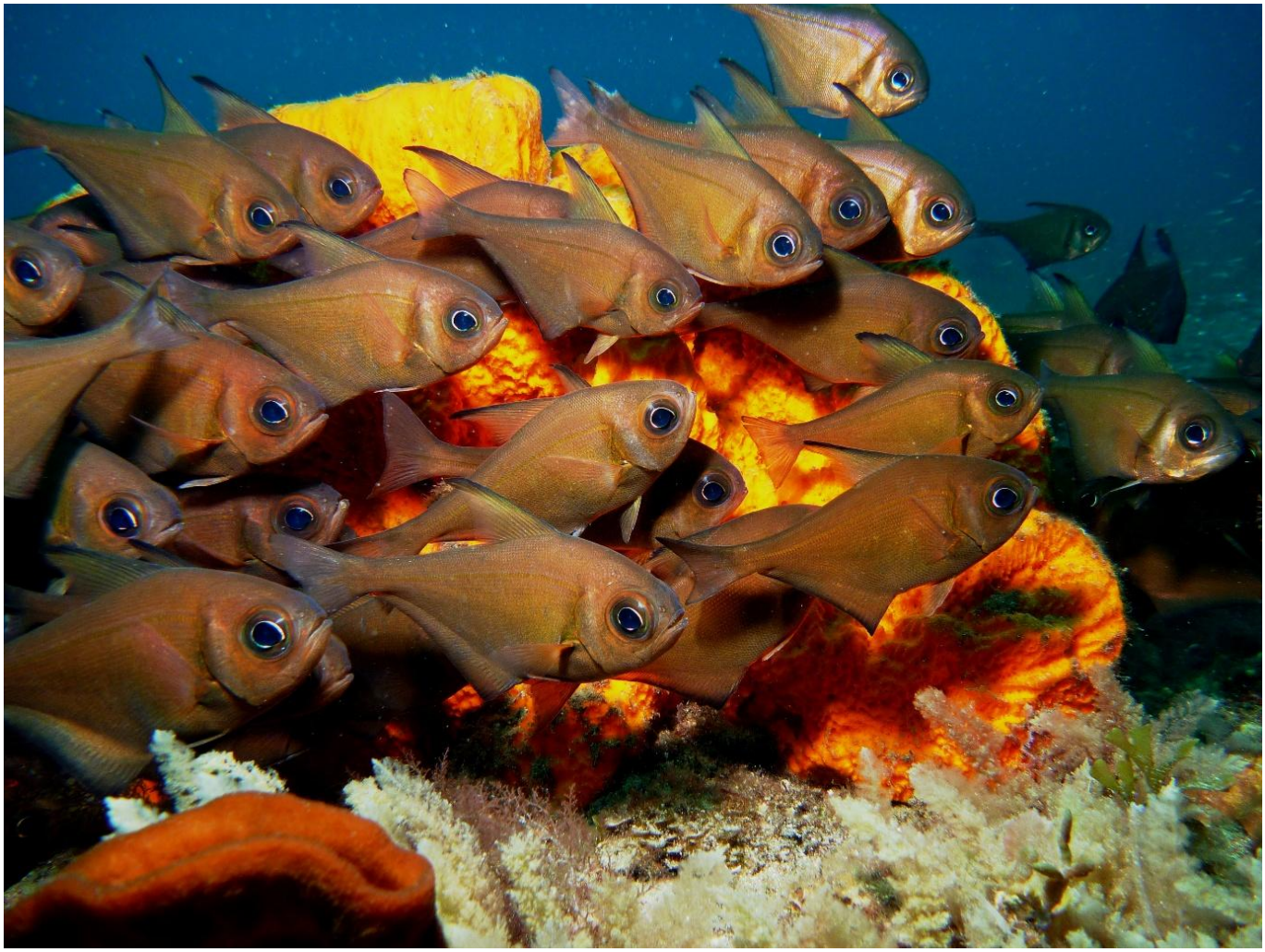
Inshore limestone reef, grading to low profile reef offshore (Caton et al 2007).

Bryars (2013) describes this cell as dominated by patchy/continuous low profile reef and bare sand (including the beach within Horseshoe Bay), with some continuous sparse seagrass in Horseshoe Bay (Figure 8.1).

The seagrass in Horseshoe Bay was reported by Haig et al. (2006) to be *Heterozostera nigricaulis* and *H. polychlamys*, but it apparently represents the only known occurrence of *H. tasmanica* in South Australia (Bailey et al. 2012). Subtidal reefs in the Encounter Bay region are typically composed of granite or limestone with a cover of macroalgae and sessile invertebrates (e.g. Turner et al. 2007, DEH 2008, Baker et al. 2009, Brook and Bryars 2014, Brook et al. 2020, Brock et al. 2023). Artificial reefs occur within the cell in the form of a jetty and breakwater at Port Elliot. The inshore bare sand within Horseshoe Bay is characterised by a steep reflective beach system with medium to coarse sand (Short 2001).

No recognised estuaries occur in this cell.

Bryars (2013) notes the cell is regionally significant due to the reef, seagrass and beach (bare sand) habitats, and that the unique seagrass meadow within Horseshoe Bay is particularly significant.



Rough bullseye (Pempheris klunzingeri) (S Bryars)

Surveys of the subtidal reefs at Pullen Island and other locations within the cell have found a high diversity of fishes, invertebrates and macroalgae (Haig et al. 2006, Turner et al. 2007, Brook and Bryars 2014). The cell lies inside the Encounter Bay region, which is a known 'hot-spot' for macroalgal species diversity (see Baker and Gurgel 2010).

The reef ecosystem baseline study (Brook et al. 2020) and current study by Brock *et al.* (2023) assessing the trends in the condition of rocky reef ecosystems of the greater Adelaide and Fleurieu Peninsula region, found that the overall status of rocky reefs was stable or improving, based on several key indicators of condition (e.g. fish and macroinvertebrate species richness, community structure, large fish biomass, macroalgae percentage cover, and reef thermal index). The Encounter subregion (cells F7-F12) indicate that macroinvertebrate and fish species richness, large fish biomass and the percentage cover of canopy-forming algae has remained stable or is increasing at these sites (Brock *et al.* 2023). Marine species in the Encounter subregion include 52 bony fish, three shark and ray, 41 species of marine invertebrate, and seven species of crustacean (Brock et al. 2023).

Zebrafish (Girella Zebra) (M Katz)

Pullen Island and Port Elliot reef are two of eight sites used in the previous reef baseline study (Brook et al 2020) but repeat RLS sampling at the sites is required to be included in any future trend analysis. Current reef biodiversity data (2012-2020) for Pullen Island and Port Elliot reef sites list 31 species of fish, and 41 invertebrate species (Brock et al. 2023, Edgar and Stuart-Smith (2014), Edgar et al. (2020), Edgar and Barrett (2012)).

The SA Coast Protection Board (CPB) Beach Profile Survey Program was first established in 1977 along the Fleurieu Peninsula to monitor and evaluate changes in beach and seabed level, with a network of over 600 profiles maintained across the state. Profiles are usually established perpendicular to the shoreline and may extend 1 to 10km offshore. Erosion hotspots are monitored annually to identify risks to natural assets and infrastructure. Profiles are also used to monitor a range of coastal ecosystems and landforms, including saltmarsh and mangroves, seagrass, sand dunes and cliff profiles, and provide a rare and long-term dataset that informs evidence-based decision making and for coastal adaptation planning. The program utilises a range of terrestrial and hydrographic survey techniques involving high precision GPS equipment and, at some locations, photogrammetry surveys using drones.

Horseshoe Bay has one historical beach profile monitoring site (615002), which has been monitored since 1975 by the Coast Unit, DEW, with annual funding from the CPB. In 2014, profile 615016 was established by the Coast Unit, DEW to support the Seagrass Condition Monitoring Program, in conjunction with SARDI Aquatic Sciences, with funding from the former AMLR NRM Board, now Green Adelaide and Landscapes Hills and Fleurieu.

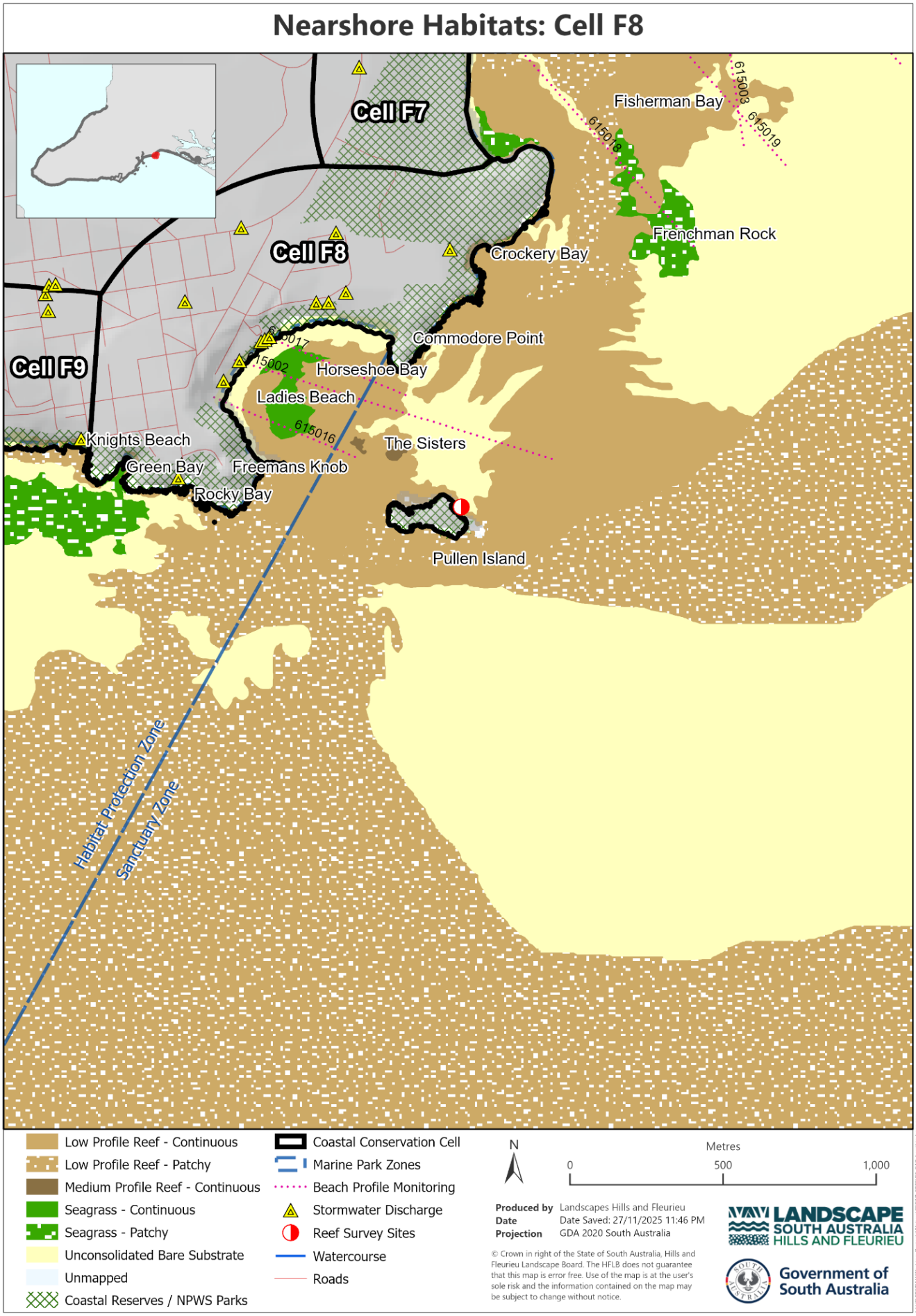


Figure 8.1. Nearshore habitats of Cell F8

Threats

Whole cell

Development pressure is very high in this area, leading to urban infill and expansion, and placing pressure on all coastal resources, including public land. While a coastal reserve has been retained, it is relatively narrow and, as a result, development pressure threats are high. Increasing visitation, including mountain bike, walker and whale watching pressure on Commodore Headland (Port Elliot is a key tourism destination). With increased visitor and residential pressure, as well as ongoing erosion impacts, a master plan has been completed in 2024 by Alexandrina Council for Port Elliot. The Masterplan did not include Horseshoe Bay as further investigation of the potential erosion risk for build and natural assets is required.

Areas of erosion leading to cliff instability exist within the cell and often align with areas of weed incursion from coastal weed species, introduced plants and garden escapes, as a result of soil disturbance. Garden encroachments and deliberate planting of invasive garden plants are occurring by local residents. Garden escapes, such as Gazania and succulents from local residences, threaten coastal biodiversity by degrading condition and habitat values.

Freemans Knob has multiple walking trails across the headland (S Sutherland)

Gazanias at Green Bay. Substantial weed control and revegetation efforts from the coastal community group and land managers has transformed this area in the last decade (see image above) (B Doyle, 2008)

The following red alert weeds are found within this cell: Bridal creeper (*Asparagus asparagoides),* Gazania *(Gazania linearis),* African Boxthorn *(Lycium ferocissimum),* Boneseed *(Chrysanthemoides monilifera ssp. Monilifera),* Coast Tea-tree *(Gaudium laevigatum),* Golden Wreath Wattle *(Acacia saligna),* Sea Spurge *(Euphorbia paralias),* False Caper *(Euphorbia terracina),* Madeira Vine (*Anredera cordifolia),* Asparagus Fern (*Asparagus aethiopicus),* Horehound (*Marrubium vulgare),* Myrtle-leaf Milkwort (*Polygala myrtifolia),* White Weeping Broom (*Retama raetam),* Blowfly Bush (*Rhamnus alaternus),* Sweet Briar (*Rosa rubiginosa),* Tamarisk *(Tamarix ramosissima),* Broad-leaf Aloe (*Aloe maculata),* Marram Grass (*Ammophila arenaria),* Cape Weed (*Arctotheca calendula),* White Arctotis (*Arctotis stoechadifolia),* Onion Weed (*Asphodelus fistulosus),* Kikuyu (*Cenchrus clandestinus),* Green Poison-berry (*Cestrum parqui),* Old Man's Beard (*Clematis flammula),* Cotoneaster (*Cotoneaster pannosus),* Drain Flat-sedge (*Cyperus eragrostis),* Trailing African Daisy (*Dimorphotheca fruticose),* Cape Marigold (*Dimorphotheca pluvialis),* Rodondo Creeper (*Drosanthemum candens),* Freesia (*Freesia leichtlinii),* Pyramid Tree (*Lagunaria patersonii),* Sea-lavender (*Limonium companyonis),* Sicilian Sea-lavender (*Limonium hyblaeum),* Tree Mallow (*Malva arborea),* Bracelet Honey-myrtle (*Melaleuca armillaris ssp. armillaris),* Angled Iceplant (*Mesembryanthemum aitonis),* Common Iceplant (*Mesembryanthemum crystallinum),* Olive (*Olea europaea ssp. europaea),* Star Of Africa (*Ornithogalum arabicum),* Purple Broom (*Polygala virgata),* Pigface (*Ruschia tumidula),* Pincushion (*Sixalix atropurpurea),* Sparaxis (*Sparaxis bulbifera),* Rat-tail Grass *(Sporobolus africanus),* Buffalo Grass (*Stenotaphrum secundatum),* Soursob *(Oxalis pes-caprae),* Marguerite Daisy *(Argyranthemum frutescens ssp.),* New Zealand Mirror-bush *(Coprosma repens),* Black Flag *(Ferraria crispa subsp. crispa),* Perennial Veldt Grass *(Ehrharta calycina),* Aleppo (*Pinus halepensis*) and other Pines *(Pinus spp.).*

Invasive succulents, such as Tree Aloe and Broad-leaf Aloe (*Aloe arborescens* and *A. maculata),* Sicilian Sea-lavender (*Limonium hyblaeum*) and Aleppo Pine (*Pinus halepensis*), are a key weed issue at Freemans Knob and Commodore Point, due to previous deliberate planting and maintenance by community members. Populations of Tree Mallow (*Malva arborea*), Sea Spurge and False Caper (*Euphorbia paralias* and *E. terracina*), Coast Tea-tree (*Gaudium laevigatum*) and introduced Acacia species (*Acacia cyclops and A. saligna*) at Horseshoe Bay across Commodore Point and Crockery Bay require management and removal. These weeds are a key threat to bushland, impacting habitat values by out-competing native vegetation and harbouring pest animals such as rabbits.

Large stands of Aleppo Pine (Pinus halepensis) are considered a weed species within coastal areas however they also provide a valuable feed source for Yellow-tailed Black Cockatoo (Zanda funerea whiteae) so any removal needs to consider alternate food sources for this species. (R Lewis)

Erosion at Horseshoe Bay and Knights Beach impacts coastal geomorphology and biodiversity, with no retreat zones available. Dune fencing at Horseshoe Bay has been replaced for short term protection, with revegetation of local species to assist with bank stabilisation. There is a need to consider coastal biodiversity impacts when addressing erosion management and adaptation measures. Informal access tracks degrade local habitats and can be consolidated and managed through strategic plantings and other on-ground strategies.

Tracks and viewing platform on Commodore Headland (R Lewis)

Pullen Island threats include weed invasions, predation or habitat loss from pest species, and recreational activities such as boating/ kayaking and swimmer visitation. Telfer and Milne (2016) note three weed species of concern, including Tree Mallow (*Malva arborea*), New Zealand Mirror-bush (*Coprosma repens*) and African Boxthorn (*Lycium ferocissium*), and large numbers of introduced Common Starling (*Sturnus vulgaris*) and Feral Pigeon (*Columba livia*) breed and or roost on Pullen Island. Introduced bird species are forming large colonies that may be competing with native species and present a disease spread risk. Control of these species is difficult and may be achieved indirectly by eradicating invasive woody plants.

Feral pigeons (Columba livia) on Pullen Island roost and breed forming large colonies that move between the islands and mainland areas. (C Axford)

Pullen Island with woody weeds that are slowly spreading and harbouring feral birds (C Axford)

Pullen Island across to Horseshoe Bay (Coast Protection Board, March 2024)

Visitation by kayakers and swimmers to the island, despite local strong swell and surge or clear landing areas, needs to be monitored to determine impacts from access, and to protect the valuable nesting habitats and the fragile soils where much of the nesting seems to occur (Telfer and Milne 2016). Recreational and commercial boat tourism and SLSC activities occur regularly in this cell, which is a known whale migration and nursery area. Speed and distance restrictions exist to protect these species and reduce disturbance and contact between vessels and marine mammals.

Illegal boat-based fishing inside the Sanctuary Zone (SZ-6) within the Encounter Marine Park is a threat to the resident fish communities. These no-take areas are located at core conservation areas within marine parks, protecting vital feeding, breeding, nursery, and resting areas for marine life.

Several butterfly and skipper species that have localised populations are limited in capacity for dispersal and/or colonisation of new sites. The lack of suitable habitats, weed invasion and interconnectivity between habitats prohibits movements and, therefore, creates localised isolation of populations. Urbanisation of coastal areas reduces the efficiency of species movements that could otherwise occur. Several species are now restricted to pockets of isolated habitats, resulting in some being vulnerable to population collapse (Stolarski 2024).

Potential pest animal threats to coastal fauna and flora from rabbits (*Oryctolagus cuniculus*), foxes (*Vulpes vulpes*), and cats (*Felis catus*). Rabbits occupy the headland above Fisherman's Bay. Ongoing rabbit control programs on the headland and adjacent areas are needed to support coordinated collaboration between landowners and managers to manage pest animals (refer to regional pest management strategies).

A sighting of the declared pest Common Myna (*Acridotheres tristis*) in Encounter Bay (on the coastal slopes adjacent to cell F12) was reported in 2024, and this is the only known location of the bird in South Australia. This aggressive invasive species, also known as the Indian Myna, is established throughout eastern Australia and poses a threat by evicting native birds from their nests, destroying eggs, and killing chicks. They also damage crops and orchards and are a nuisance for residents. A pest alert remains in place for any sightings to be reported via MynaScan to aid eradication efforts.

The coastline is densely populated (Port Elliot settlement) and has intermittent (but unquantified) freshwater inputs from stormwater drains that are directed into the surrounding nearshore environments (See fig 8.1).

Outflow from the River Murray has also been significant in recent times (and during flooding events), with associated turbid waters extending westward from the Murray Mouth across Encounter Bay to The Bluff and possibly further. The impacts of these episodic flows on nearshore habitats are unknown.

Threats to seagrass and reef from land-based impacts were considered low to moderate and no measurable threats to sand habitats were identified by Bryars (2013). The increased threat to seagrass compared to reef from catchment water and stormwater is due to the relatively small amount of seagrass in the cell, and because it represents the only known occurrence of *Heterozostera tasmanica* in SA.

Opportunities

Manage visitor numbers and impacts to ensure coastal areas can support growing demand, while maintaining and improving the quality of experiences without diminishing the values of the cell. Investigate improved infrastructure and fencing to ensure for environmentally and culturally sensitive path formalisation and low-impact walking trails, and further opportunities to reduce impacts on the coastal environment. Education, restrictions and compliance regarding off-leash dogs. Work with First Nation communities, tourism operators and agencies to support visitor education about coastal ecological and cultural values and appropriate behaviors.

Community education opportunities regarding:

- Migratory and residential shorebirds and sea birds (dogs on leads, nesting sites, citizen science projects, managing visitor disturbance) and interpretive signage at high use areas.
- Fragile nature of coastal areas that are sensitive to foot traffic, soil compaction and erosion.
- Education and targeted communications regarding Marine Parks (including no-fishing in Sanctuary Zones), nearshore habitats and estuary values
- Increased cultural awareness training and knowledge of culturally appropriate processes to respect known cultural heritage sites for land managers and coastal community groups
- Citizen science monitoring to contribute to intertidal reef monitoring, Seagrass restoration, dolphin watch, beach pole monitoring, Fleurieu seabird monitoring program and beach nesting birds.
- Coastal gardens and resident/business owner education
- Value of place and coastal values, responsible beach use and reducing human impact on dunes.
- There is opportunity for signage renewal across coastal areas to educate the community about coastal conservation, cultural significance and appropriate behaviours.

Horseshoe bay is a very popular coastal beach with multiple facilities and activities centred around the beach and coastal slopes (S Sutherland)

Through a unique arrangement, proceeds from Port Elliot Caravan Park are returned to the local area under guidance of the Ratalang Basham Beach and Horseshoe Bay Advisory Committee, and help to support conservation work within this cell in collaboration with Council. These resources will need to be maintained to ensure longer term protection and enhancement of the conservation values of this cell and address ongoing pest (plant and animal) issues.

Opportunity to work with nature-based tourism (commercial and recreational) operators and community volunteers through SLSSA to increase education and stewardship of local coastal environments and protection of species.

Protect and enhance remnant coastal heath plant communities and rare species on headlands through strategies such as targeted weed control, access management, rare plant reintroductions, focal species focus, and community education.

Access management at Knights cliffs that allows visitors to experience the cliff line and beach whilst maintaining protection for a number of regionally significant plant communities (R Lewis)

Opportunity for SteamRanger to develop an Environmental Management Plan to address weed control and pest animals, support train sight lines, manage erosion, and support community education along the railway corridor.

Maintain and expand coastal restoration actions, including revegetation with local native plants and priority weed control. Increase suitable habitat for coastal butterfly populations, including planting of host plants (including *Gahnia filum* and *Poa spp.*) in coastal areas to increase habitat suitability for local introductions.

This cell is important for coastal raptors and ongoing monitoring and management is critical to minimise visitor disturbance and to support habitat condition for raptor populations. Investigate opportunities to support and implement the recovery plan for Eastern Osprey and White-bellied Sea Eagles (2022). Monitor, maintain and improve the quality of vegetation for the provision of wildlife habitat for priority species.

On Pullen Island, vegetation needs to be managed to allow for open habitat areas to support bird populations – woody weeds and Tree Mallow are species that require control, followed by revegetation with Common Boobialla (*Myoporum insulare*) in a carefully staged manner. Care should be taken to minimise disturbance to fragile soils and nesting birds. The open sandy habitats that terns prefer should be retained.

Shorebird nesting areas on Pullen Island with large woody weeds surrounding (C Axford)

To minimise the impacts of visitors to Pullen Island, regular monitoring is required, and boats and/or kayaks are prohibited from landing during tern and cormorant breeding times (i.e. December – January). Manage informal visitation to Pullen Island, which disturbs bird populations, via options such as signage and buoys. Monitoring of seabirds and shorebirds on Pullen Island should be supported to ensure suitable breeding habitats are maintained or improved.

Multiple species establish breeding colonies on Pullen Island over summer that are easily disturbed when people on watercraft approach the island (D Weinert)

As part of the *Coastal Dune and Clifftop Vegetation Surveys* (1995–1997) (Opperman 1999), long-term monitoring sites were established across South Australia and the Southern Fleurieu region to assess the structure and composition of coastal dune and clifftop plant communities, and their relationships to regional and environmental factors. Given that nearly 30 years have passed since these surveys were undertaken, there is strong potential for shifts in geographical range and changes in species composition due to the long-term impacts of climate change.

The *Survey of Remnant Vegetation of the Southern Fleurieu Peninsula* involved biological surveys conducted between 1987 and 1991 to establish baseline data on remnant vegetation and swamps in the region south of Adelaide, South Australia.

During the development of this plan, and through the assessment of flora and fauna (both native and introduced) species lists available via the Biological Database of South Australia (BDBSA), significant gaps were identified between recorded species and known species distributions within cells. To address these data deficiencies and improve the accuracy of long-term ecological records, both above foundational vegetation survey projects should be repeated and incorporated into an ongoing monitoring program. Fauna assessments across cells to establish population baselines, update existing records and species distribution, particularly of underrepresented groups (reptiles and invertebrates) should be undertaken.

There are opportunities for collaboration between partners, such as National Parks, Marine Parks, First Nations, landscape boards, volunteer groups, community and nature-based tourism operators for monitoring of sea birds, coastal raptors, marine mammals and other wildlife.

Continue to support community group conservation efforts in this cell, including providing technical advice and assisting community planting efforts. Opportunities for increased coordination between, First Nations, community groups and volunteers to support landscape-scale conservation approach to coastal management. There is a high diversity of vegetation types throughout this cell and a need to build resilience for vegetation remnants by improving connectivity.

Continue to implement Alexandrina Council's Coastal Adaptation Plan (Wavelength 2022), with funding recently secured to address gaps in knowledge identified in Western et al (2019), and modelling to underpin master planning and future-proofing the bay and its intrinsic value to the community. The key objectives of the data collection and modelling study include:

- Confirm the required setback (erosion buffer) for the medium (2030 - 2050) and longer term (2100).
- Test viable management options in terms of effectiveness; and
- Assess the economic, social, environmental trade-offs of viable management options and present for consideration to key stakeholders and the community.

Collaborate with the SA Climate Ready Coasts program to enhance, resource, and implement coastal management initiatives and accelerate coastal hazard adaptation planning across South Australia. This program supports the development and delivery of Coastal Hazard Adaptation Plans (CHAPs), led by the Local Government Association (LGA) of South Australia in partnership with the SA Coast Protection Board, the Department for Environment and Water, the Adelaide Coastal Councils Network, and the SA Coastal Councils Alliance.

Investigate opportunities to repeat and continue to survey bathymetry of cell, to monitor changes in seafloor in response to benthic changes over time.

Improved stormwater management and identification of the potential impacts of threat on nearshore habitats with increasing catchment development. Investigate improved stormwater and flood mitigation strategies while maintaining integrity of the dune system (WSUD). Support initiatives to collect and reuse stormwater (e.g. Alexandrina Council's Stormwater Detention and Retention Standards). Undertake development of stormwater management plan for Port Elliot and surrounding coastal areas.

Biological surveys of the seagrass and bare sand habitats are required to better understand habitat values and compile meaningful species lists for the cell.

Climate change threats to coastal biodiversity (see BMT 2025)

Potential climate change threats to coastal biodiversity

Cell F8 includes beaches, dunes, algal reef and seagrasses. Much of this cell is protected from direct ocean swells by Pullen Island, an important refuge for seabird species. The geomorphology of the bay will restrict flushing and may make it more susceptible to pollutants in stormwater that will occur under more intense rainfall events.

Biodiversity Assets potentially vulnerable to climate change in this cell include:

- Coastal dunes and vegetation
- Native vegetation
- Reef and seagrass ecosystems
- Coastal cliffs and rocky shores

These ecosystems may be particularly vulnerable to the direct impacts of climate change, particularly sea level rise, coastal erosion, increased drought, higher temperatures and more intense storms.

Over time, increasing aridity will slow natural recovery from damage to the small areas of dune vegetation. Rising sea levels will see increased storm damage to beaches and foredunes; Bruun Rule calculations of beach recession suggest an order 5–30m over 50 years could be likely, given current IPCC forecasts. Changes in wave climate, which increased the long period swell component, would increase the likelihood of foredune damage. This cell is resilient to projected changes due to the massive headlands and lack of floodable land; however, the lack of a buffer zone allowing the recession of Horseshoe Bay beach creates a potential long-term threat of beach loss (Caton et al 2007).

Green Bay assessment by Western et al. (2019) identifies no formal evaluation methodologies exist to estimate the rate of erosion at the rear of Green Bay. Modelling demonstrates that should sea levels rise as projected, the embankment at the rear of the bay will come under increasing pressure from impacts of the sea. The boulders and cobbles at the rear of the bay are unlikely to be sufficient to prevent the undermining of the embankment.

At Crockery Bay, the modelling for 2100 does show increased impact at the back of the bay, which is likely to cause the breakdown of the embankment (likely to also include imported fill). However, even in the worst-case scenario, recession of the backshore would be limited by the nature of the geological layout (rocky outcrops and rocky beach). Recession beyond 5–10 m is unlikely (Western et al., 2019).

Within Horseshoe Bay, the storm flood scenarios and high tide scenarios indicate that the existing dune/embankment will come under increasing pressure. If sea level rises by the projected 1m, it is very unlikely that the bay could retain its existing formation (dune line and position of assets). Using two erosion methodologies it is estimated ~26m to 29m erosion by 2100 (with projected rises of 1m), and ~8m by 2050 (with projected rises of 0.3m) (Western et al., 2019).

Increased runoff, particularly after heavy rains, can lead to erosion of beaches, rocky shores and reefs. Excessive sedimentation can also reduce biodiversity and disrupt the biodiversity of local ecosystems.

Changes in ocean temperatures, salinity, and acidity (from increased CO2 levels) can directly affect the health of temperate reefs. Warmer waters and increased acidification may hinder the growth of calcareous organisms, such as marine molluscs and phytoplankton.

Cell Action Table

Component	Issue	Proposed Action	Priority	Key Players
Whole Cell	Threats and opportunities to improve protection of cultural heritage within cell.	Cultural consultation and collaboration to appropriately manage cultural heritage within this area. Prevent damage, disturbance, or interference to cultural heritage by adhering to the Aboriginal Heritage Act 1988.	High (cons/ threat)	NAC, Council, LHF, Coastal Community groups, Aboriginal Affairs and Reconciliation - Department of Premier and Cabinet
	Increased permanent population, visitation and recreational pressure on dunes and viewing points due to increased local population and tourist promotion (Whale watching, mountain bike, walking trails).	Assess increased visitation capacity at known sites, repair or upgrade fencing to restrict unauthorised access and review car parking capacity. Manage visitor impacts within sustainable limits in ecologically and culturally sensitive and significant areas - consult with First Nations groups.	High (cons/ threat)	Council, NAC, land managers
		Investigate opportunities for community education and engagement regarding unique and valuable coastal landscape and fragile nature of coastal areas. Dedicated cultural education and training for land managers, agency staff and land stewards	High (Cons/ Soc)	Council, LHF, NPWSSA, NAC, coastal community groups, Community groups
		Opportunity to work with nature-based tourism operators to enhance education and stewardship of local coastal environments, including opportunities to partner with First Nations groups who hold cultural obligations and authority to Sea Country	Medium (Cons)	Tourism operators, land managers, NAC, NPWSSA, coastal community groups
		Development of consistent signage and messaging for coastal values and compliance for conservation areas (public managed lands, coastal reserves) across the Fleurieu Peninsula coast. Co-design signage with First Nations/ knowledge holders.	Medium (Soc/ Cons)	Council, land managers, NAC, NPWSSA, coastal community groups
		Collaborate and manage access with beach-based users and businesses (e.g. SLSC, Surfing SA, surf/paddle boarders, swim/surf schools), to ensure protection of coastal areas and groups do not impact conservation and cultural value areas and species.	Medium (threat)	Council, DEW, land managers, NAC, coastal community groups, beach users and businesses
		Monitor, educate, and advocate to ensure that recreational activities (e.g., boating, paddleboarding, jet-skiing) do not increase interactions with marine wildlife or place additional pressure on coastal species and habitats.	High (threat)	DEW, NPWSSA and land managers
		Events on beaches and coastal habitats must not impact on natural values, especially listed threatened species and communities, in the area or vicinity of events. Event organisers should be informed, where appropriate via permits, on their obligations to not inflict environmental harm and to undertake actions in accordance with relevant legislation and by-laws.	Medium (threat)	Council, DEW, NPWSSA, BirdLife Australia, event managers
	Ongoing weed incursions and weed control.	Target residences with educational materials, with regard to weeds particularly garden escapes.	High (Soc / Econ)	Council, coastal community groups, LHF,
		Mapping of pest plant populations particularly weedy Acacia species and Coastal Tea tree followed by targeted removal from Horseshoe Bay to Crockery Bay.	High (cons/ threat)	Council, coastal community groups, LHF, NAC business/ contractors/rangers
		Target large stands and encroachments of succulents that encourage residents to plant similar species that spread into coastal reserves reducing biodiversity values.	High (cons/ threat)	Council, coastal community groups, NAC business/ contractors/rangers

Whole Cell	Ongoing weed incursions and weed control.	Review, control and monitoring of garden escape weeds from local residences to public lands and intentional plantings and encroachments within the dunes and reserves.	High (cons/ threat)	Council, coastal community groups
		Monitor changes to dunes through BushRAT or similar monitoring to measure condition assessment and change.	High (cons/ threat)	Council, LHF, Community Groups.
	Increased erosion and weed spread on informal and unauthorised tracks.	Review existing and unauthorised tracks throughout cell. Consolidate and manage through fencing, strategic plantings and monitoring.	Medium (threat)	Council, NAC business/ contractors/rangers
	Threat to coastal fauna and flora from pest animals (rabbits, foxes and cats).	Coordinated collaboration between landowners and managers is required to manage pest animals.	High (Cons/ threat)	Councils, land owners, LHF, NAC business/ contractors/rangers
		Report sightings of feral animals (deer, fox, rabbit, cat and declared species) through the feral scan pest animal recording and management tool	High (cons)	Land managers, community, coastal community groups
	Introduced bird species (including Common Starling and Feral Pigeon) utilising rocky outcrops (mainland and island) and forming large colonies. May also be a vector for disease spread.	Monitor and control Feral Pigeon populations to manage in numbers and pressure on native species.	High (threat)	Council, DEW, NPWSSA, LHF
	Protection of significant flora (particularly coastal heath plant communities on clifftops) and fauna.	Protect existing populations through targeted weed control and restoration of habitats with local coastal species.	High (Cons/ threat)	Council, NPWSSA, land managers, NAC business/ contractors/rangers, LHF, coastal community groups,
		Propagate local plants for reintroduction to other sites to maintain genetic diversity and increase source populations.	High (cons)	Council, NPWSSA, land managers, LHF, NAC business/ contractors/rangers, coastal community groups, local coastal plant nurseries
		Targeted interventions for threatened/ rare plant species and communities.	High (cons)	DEW, NPWSSA, LHF, Council, coastal community groups
		Explore opportunities for greater local awareness of conservation value of area.	Medium (cons)	Council, NPWSSA, LHF, coastal community groups
		Update of resources to guide coastal community group restoration activities. See Ron Taylor Coastal Community handbook.	Medium (cons)	Council, NPWSSA, LHF, coastal community groups
	Butterfly habitats and host plant protection.	Identify locations of potential butterfly habitats and host plants with the cell.	High (cons)	Council, DEW, LHF, coastal community groups
		Extension of existing habitats and reintroduction of locally extinct butterfly species.	Medium (cons)	Council, DEW, LHF, NAC business/ contractors/rangers, coastal community groups
		Undertake weed management and enhance habitat for Mottled Grass Skipper (*Anisynta cynone cynone).*	Medium (cons)	Council, coastal community groups
	Valuable habitat for coastal raptors (White-bellied Sea Eagle and Eastern Osprey)	Ongoing monitoring and management of high values nesting and foraging areas.	High (cons)	NPWSSA, DEW, LHF, NAC business/ contractors/rangers, Council
		Implement the recovery plan for Eastern Osprey and White-bellied Sea Eagles (2022).	High (cons)	DEW, NPWSSA, LHF
	Coordinated approach to monitoring of coastal wildlife.	Collaboration between land manager and stakeholders to support research and citizen science of beach-nesting birds, seabirds, coastal raptors, marine mammals and other wildlife.	Medium (cons)	DEW, NPWSSA, NAC business/ contractors/rangers, Birdife Australia, LHF, Council, SA Whale Centre, Encounter Bay Southern Right whale study group, Ecotourism operators

Whole Cell	Aged baseline data and significant gaps in recorded flora and fauna species across the Southern Fleurieu region.	Repeat and integrate historical vegetation surveys into a long-term monitoring program to update records and address data deficiencies.	Medium (cons/ threat)	DEW, LHF, councils, coastal community groups
		Undertake fauna assessments across cells to establish baselines, update records and species distribution, particularly of underrepresented groups (reptiles and invertebrates).	Medium (cons/ threat)	DEW, LHF, councils, coastal community groups
		Identify potential funding sources to repeat these long-term flora monitoring sites and fauna assessments.	High (cons/ threat)	DEW, LHF, councils.
	Stormwater impacts from inland development are likely to impact marine intertidal habitats and may accelerate seabed deepening and coastal erosion. Turbidity from suspended sediments and nutrients are a significant threat to reef and seagrass habitats.	Consider locations within existing open space to install/retrofit sedimentation or detention areas increasing water quality and improve biodiversity values.	High (Cons/ threat)	Council, LHF
		Undertake development of stormwater management plan for Port Elliot including coastal areas.	High (Cons/ threat)	Council, LHF, Stormwater Management Authority
		Monitor and manage stormwater to minimise impacts in the coast and marine environment. Improvements in the stormwater system to reduce gross pollutants and erosive impact of stormwater discharge into the dunes. Implement Water Sensitive Urban Design (WSUD).	High (Threat)	Council, LHF, CPB, Water Sensitive SA
		Develop guidelines for projects within Council areas to support improved stormwater management and reduce land-based impacts on coastal and nearshore marine environments.	Medium (cons/ threat)	Council, LHF, DEW, CPB
	Physical changes on the coast and natural assets from sea level rise (such as coastal squeeze on tidal habitats, erosion, vegetation loss, marine turbidity and light reduction)	Implementation of the Coastal Adaptation Plan, including key locations, recommendations and priorities for funding. Support partnerships for ongoing investigation and monitoring in the coastal zone, working with the Coast Protection Board to identify adaptation options and pathways for the future.	High (Cons. Threat)	DEW, CPB, Council, community, university and research agencies, Climate Ready Coasts Program
	Multiple community groups and volunteers across coastal areas.	Acknowledge significant value, contribution and knowledge of coastal community groups. Facilitate opportunities for increased coordination and sharing of skills and information between community groups and volunteers to support landscape scale approach to coastal conservation and management.	High (cons)	Council, land managers, LHF, NAC, coastal community groups
SteamRanger rail corridor	Weed control within the rail corridor does not align with priority weed control and restoration activities in surrounding dunes and reserves.	SteamRanger to develop an Environmental Management Plan referencing regional weed and restoration priorities and other local environmental plans.	High (cons/ threat)	SteamRanger, NAC business/ contractors/rangers, Council, LHF
		Restore areas of targeted weed control with local native coastal plants to increase biodiversity and reduce erosion.	High (cons)	SteamRanger, NAC business/ contractors/rangers, Council, coastal community groups
	Safety for pedestrians crossing rail corridor via unauthorised and informal access paths.	Assessment of unauthorised and informal access paths and support for sight line safety within rail corridor. Closing of identified pathways through revegetation with local coastal species or temporary fencing.	High (threat)	SteamRanger, Council, LHF
Beach and dune	Maintenance of high value recreational beach.	Implement recommendations from the Coastal Adaptation Plan drawing on modelling and data collected in 2025 which will help to formulate options on adaptation and mitigation options for the infrastructure and beach now and into the future.	High (Soc / Econ)	Council, CPB, consultancies and research institutes

Beach and dune	Stability of dune at eastern end of bay. Conservation of sediment within the beach/ dune system.	Use of access control fences.	Medium (threat)	Council, Community, NAC business/ contractors/rangers,
	Beach change in Horseshoe Bay due to erosion and increased sea level	Continue beach profile monitoring. Remediate or retreat / remove certain infrastructure over time. Continue education and collaboration with stakeholders, local & state gov departments.	Medium (hazard)	CPB, Council, DEW, Local community and businesses, SLSC, LHF
	Erosion at Horseshoe Bay and Knights Beach impacts coastal biodiversity, with no or limited retreat zones available.	Consider coastal biodiversity impacts when addressing erosion management and adaptation measures.	Medium (cons/ threat)	Council, CPB, consultancies and research institutes
Freemans Knob	Substantial succulent population reducing habitat values and harbouring pest species (rabbits).	Remove plantings of invasive succulents (Garden escapes and Aloes) and replace with local coastal species.	High (threat)	Council, coastal community groups
Pullen Island	Valued as a bird nesting site.	Monitoring of seabird and shorebird populations including introduced species impacts. Implementation of Fleurieu islands BAP recommendations.	High (cons)	NPWSSA, BirdLife Australia, NAC business/ contractors/rangers, LHF
		Visitation by kayakers and swimmers to the island needs to be monitored and managed to determine impacts from access and habitat disturbance.	Medium (threat)	NPWSSA, DEW
	Vegetation needs to be managed to allow for open vegetation to support bird populations.	Woody weeds and Tree Mallow are species that require control (ref BAP). Stage removal with native habitat plantings.	High (cons/ threat)	NPWSSA, LHF, NAC business/ contractors/rangers, coastal community groups
Nearshore Habitats (Reef and Seagrass)	Sediments and nutrients from Port Elliot stormwater.	Support initiatives to collect and reuse stormwater (e.g. Alexandrina Council's Stormwater Detention and Retention Standards).	Medium (cons)	Council, LHF
	Data collection of beach profile monitoring.	Continue delivery of and repeat and continue to survey all bathymetry profiles in cell to monitor changes in seafloor in response to benthic changes over time.	Medium (cons/ hazard)	CPB, Council
	Lack of knowledge of seagrass condition and species diversity in Encounter Bay.	Collaboration between government agencies, researchers, and community to monitor seagrass cover, species diversity, condition and inform active management.	Medium (cons)	DEW, SARDI, EPA, SA Water, LHF, NPWSSA, Universities, Council, community
		Investigate opportunities to support reduction of land based impacts to avoid further loss, promote natural recovery of seagrasses and investigate potential for assisted restoration of seagrass habitats with community	High (threat)	DEW, LHF, SARDI, NPWSSA, Council
	Limited data available for reef habitats located within and adjacent to this cell.	Repeat sampling of reefs is required to be included in any future trend analysis.	High (cons)	DEW, Landscape Boards, SARDI, NPWSSA, Council
Climate (Cliffs and rocky headlands)	More intense rainfall events likely to increase soil erosion.	Restoration of native plant species to assist soil stabilisation.	High (Cons/threat)	Council, coastal community groups, LHF
	Increased aridity likely to make growing conditions less suitable to native vegetation fragments.	Restoration of native plant species to assist soil stabilisation, increase biodiversity and resilience to change	High (Cons/threat)	Council, coastal community groups, LHF
	Increased sea levels contribute to more frequent and intense wave action, which accelerates cliff erosion.	Restoration of native plant species to assist soil stabilisation.	Medium (threat)	Council, coastal community groups, LHF
Climate (Beach and dunes)	Increased sea levels and more intense storms and higher winds can contribute to more frequent and intense wave action, which accelerates beach and dune erosion. Predicted increases in aridity can lead to reduced vegetation cover and increased dune drift and dune mobility.	Restrict public access to fragile dunes and implement restoration of native plant species.	Medium (threat)	Council, coastal community groups, LHF
		Implement restoration of native plant species.	Medium (threat)	Council, coastal community groups, LHF

Climate (Beach and dunes)	Increased sea levels and more intense storms and higher winds can contribute to more frequent and intense wave action, which accelerates beach and dune erosion. Predicted increases in aridity can lead to reduced vegetation cover and increased dune drift and dune mobility.	A shoreline erosion assessment has been informed by a wave buoy installed by Flinders University that has provided valuable wave data into models that improve our understanding of coastal risk, coastal change and to inform adaptation options. Monitor recession rate of beaches and sand dunes and impacts of storm surge.	Medium (threat)	Council, coastal community groups, CPB, LHF, consultancies, research institutes
		Support cultural monitoring and communications to protect significant known heritage sites	High (threat)	NAC, First nations business/ contractors/ rangers, Council, DEW, LHF, coastal community groups
		Update DEW Coastal Hazard Mapping spatial layer identifying the change in extent and stability of coastal dunes across South Australia since the previous hazard mapping was undertaken approximately 20 years ago.	Medium (Cons/threat	DEW, CPB, Universities and research institutes
Climate (Macroalgal reefs)	More intense rainfall events likely to lead to increased pollutants, nutrients and suspended sediments washed into coastal waters especially during first flush.	Monitor stormwater quality to reduce stressors on benthic flora.	Medium (threat)	DEW, EPA, PIRSA, LHF
	Increased storm surge can cause dislodgment of algae and seagrasses.	Monitor stormwater quality.	Medium (threat)	DEW, EPA, LHF
	Higher temperatures can lead to increased incidence and persistence of marine heatwaves and increased stress on temperate reefs and seagrasses, reducing biodiversity.	Monitor stormwater quality.	Medium (threat)	DEW, EPA, LHF
	Ocean acidification can impact the life history of marine species.	Improve stormwater quality to reduce stressors on benthic flora. Undertake benthic mapping to determine areas or opportunities for restoration.	Medium (threat)	Council, DEW, LHF
		Undertake benthic flora mapping to determine areas or opportunities for restoration.	High (cons)	DEW, Landscape Boards

Relevant management plans

- A handbook for revegetation and weed control in the Southern Fleurieu Dunes (2000). Prepared by Ron Taylor for South Coast Dune Care.
- Five Southern Fleurieu Islands Biodiversity Action Plan (2016) Prepared by T&M Ecologists (Telfer, S. and Milne, T.) for Natural Resources Adelaide and Mount Lofty Ranges.
- Master Plan for Ratalang Basham Beach Conservation Reserve (Alexandrina Council, 2018)
- Alexandrina Council Environmental Action Plan 2030. (2023), Alexandrina Council.
- Caton B. Fotheringham D. Lock C. Royal M, Sandercock R. Taylor R. (2007). Southern Fleurieu Coastal Action Plan and Conservation Priority Study. Prepared for Adelaide and Mount Lofty NRM Board, Alexandrina Council, City of Victor Harbor, District Council of Yankalilla, Goolwa to Wellington Local Action Plan and Department for Environment and Heritage.
- Landscapes Hills and Fleurieu (2024) Hills and Fleurieu Regional Pest Plant and Animal Strategy 2024 - 2029.
- South Australian Recovery Plan for Eastern Osprey and White-bellied Sea Eagle (2022) Department for Environment and Water
- Ngarrindjeri Nation (2007) Ngarrindjeri Nation Yarluwar-Ruwe Plan. Caring for Ngarrindjeri Sea Country and Culture. (Ngarrindjeri Tendi, Ngarrindjeri Heritage Committee and Ngarrindjeri Native Title Management Committee, Ngarrindjeri Land and Progress Association, Meningie).
- Ngarrindjeri and Others Native Title Claim (Part A) settlement Indigenous Land Use Agreement (ILUA) (2017) Government of SA Attorney General's Department
- Kungun Ngarrindjeri Yunnan Agreement (2009) between South Australian Government and the Ngarrindjeri Regional Authority (NRA).
- Wavelength (2022) Coastal Adaptation Plan prepared for Alexandrina Council.

- Western, M, Hesp, P, Bourman, R (2019), Coastal Adaptation Study for Alexandrina Council, Integrated Coasts, South Australia
- Western, M, Bourman, R., Hesp, P (2019a) Coastal Adaptation Study for Alexandrina Council (Cell SF8 Horseshoe Bay) prepared by Integrated Coasts, South Australia.
- Western, M, Bourman, R., Hesp, P (2019b) Coastal Adaptation Study for Alexandrina Council (Cell SF8 Green Bay / Crockery Bay) prepared by Integrated Coasts, South Australia.
- Data Collection and Modelling Study: Horseshoe Bay, Port Elliot, South Australia (in progress) Alexandrina Council
- Encounter Marine Park Management Plan (2012, amended 2020). Department for Environment and Water.
- Stolarski A., (2024) Southern Fleurieu Peninsula coastal butterfly species assessment, A revision of the Butterfly Section of the Southern Fleurieu Coastal Action Plan and Conservation Priority Study 2007.
- BMT (2025), Climate Change Threats to Coastal Biodiversity in the Southern Fleurieu Region. Report prepared for Hills and Fleurieu Landscape Board as part of the review of the Southern Fleurieu Coastal Action Plan and Conservation Priority study (2007). BMT, Adelaide.

References

Bailey, H., Bryars, S., Spoehr, J., Morison, J., Brook, J., Barnett, K., Hordacre, A., Kirkman, H., and Rippin, L. (2012) Encounter Marine Park Regional Impact Statement. A report prepared for Department of Environment, Water and Natural Resources by EconSearch in association with the Australian Workplace Innovation and Social Research Centre, Dr Hugh Kirkman, Dr Simon Bryars and James Brook. 2 August 2012, Adelaide.

Baker, J.L. and Gurgel, C.F.D. (2010) Biodiversity and conservation of macroalgae in the Adelaide and Mt Lofty Ranges NRM region including an assessment of biodiversity and distribution of macroalgae in the Gulf St Vincent bioregion. Report to the Adelaide and Mount Lofty Ranges Natural Resources Management Board. J.L. Baker (Marine Ecologist) and School of Earth and Environmental Sciences, University of Adelaide.

BMT (2025), Climate Change Threats to Coastal Biodiversity in the Southern Fleurieu Region. Report prepared for Hills and Fleurieu Landscape Board as part of the review of the Southern Fleurieu Coastal Action Plan and Conservation Priority study (2007). BMT, Adelaide.

Brock D., Brook J., Mellin C., Peters K., Bryars S., Hicks J., Miller D., Easton D. and Meakin, C. (2023). Green Adelaide Rocky Reef Program: Trends in the condition of rocky reef ecosystems of the greater Adelaide and the Fleurieu Peninsula, Gulf St Vincent, South Australia. DEW Technical report 2023/79, Government of South Australia, Department for Environment and Water, Adelaide.

Brook J and Bryars S (2014). Condition status of selected subtidal reefs on the Fleurieu Peninsula. Report to the Adelaide and Mount Lofty Ranges Natural Resources Management Board, South Australia.

Brook J, Peters K, Bryars S, Owen S, Hicks J, Miller D, Easton D, Eglington Y, Meakin C and Brock D (2020). Subtidal Reef Health Program: Baseline status of subtidal reefs and associated biodiversity patterns in the AMLR region. DEW Technical report DEW-TR-2020-01.

Bryars, S. (2003) An Inventory of Important Coastal Fisheries Habitats in South Australia. Fish Habitat Program, (Primary Industries and Resources South Australia: Adelaide).

Bryars, S. (2013) Nearshore marine habitats of the Adelaide and Mount Lofty Ranges NRM region: values, threats and actions. Report to the Adelaide and Mount Lofty Ranges Natural Resources Management Board, Dr Simon Richard Bryars, Adelaide.

Baker, J., Crawford, H., Muirhead, D., Shepherd, S., Brook, J., Brown, A., and Hall, C. (2009) Uncommon, cryptic and site-associated reef fishes: Results of surveys along Fleurieu Peninsula and in Encounter Bay, 2009. Report for Adelaide and Mount Lofty Ranges Natural Resources Management Board, August 2009.

Caton B. Fotheringham D. Lock C. Royal M, Sandercock R. Taylor R. (2007). Southern Fleurieu Coastal Action Plan and Conservation Priority Study. Prepared for Adelaide and Mount Lofty NRM Board, Alexandrina Council, City of Victor Harbor, District Council of Yankalilla, Goolwa to Wellington Local Action Plan and Department for Environment and Heritage.

Department for Environment and Heritage (2008). Marine Habitats in the Adelaide and Mount Lofty Ranges NRM Region. Final Report to the Adelaide and Mount Lofty Ranges Natural Resources Management Board for the program: Facilitate Coast, Marine and Estuarine Planning and Management by Establishing Regional Baselines. Prepared by the Department for Environment and Heritage, Coast and Marine Conservation Branch.

Edgar, G., and Barrett, N. (2012). An assessment of population responses of common inshore fishes and invertebrates following declaration of five Australian marine protected areas. Environmental Conservation, 39(3), 271-281.

Edgar, G., and Stuart-Smith, R. (2014). Systematic global assessment of reef fish communities by the Reef Life Survey program. Sci Data 1, 140007.

Edgar, G.J., Cooper, A., Baker, S.C., Barker, W., Barrett, N.S., Becerro, M.A., Bates, A.E., Brock, D., Ceccarelli, D.M., Clausius, E., Davey, M., Davis, T.R., Day, P.B., Green, A., Griffiths, S.R., Hicks, J., Hinojosa, I.A., Jones, B.K., Kininmonth, S., Larkin, M.F., Lazzari, N., Lefcheck, J.S., Ling, S.D., Mooney, P., Oh, E., Perez-Matus, A., Pocklington, J.B., Riera, R., Sanabria-Fernandez, J.A., Seroussi, Y., Shaw, I., Shields, D., Shields, J., Smith, M., Soler, G.A., Stuart-Smith, J., Turnbull, J., Stuart-Smith. R.D., (2020) Establishing the ecological basis for conservation of shallow marine life using Reef Life Survey, Biological Conservation, Volume 252.

Opperman, A.,1999, A Biological Survey of the South Australian Coastal Dune and Clifftop Vegetation, Environment Protection Agency, Department for Environment, Heritage and Aboriginal Affairs, Adelaide.

PIRSA. (2014). Ecological Assessment of the South Australian Beach-Cast Seagrass and Marine Algae Fishery. Assessment report prepared for the Department of the Environment for the purposes of part 13 and 13(a) of the Environment and Protection and Biodiversity Conservation Act 1999.

Short, A.D. (2001) Beaches of the South Australian Coast and Kangaroo Island: A guide to their nature, characteristics, surf and safety. Australian Beach Safety and Management Program, Sydney.

Stolarski A., (2024) Southern Fleurieu Peninsula coastal butterfly species assessment, A revision of the Butterfly Section of the Southern Fleurieu Coastal Action Plan and Conservation Priority Study 2007.

Telfer, S. and Milne, T. (2016) Five Southern Fleurieu Islands Biodiversity Action Plan. Prepared by T&M Ecologists for Natural Resources Adelaide and Mount Lofty Ranges

Turner D., Kildea T. & Westphalen G. (2007). Examining the health of subtidal reef environments in SA. 2. Status of selected reefs based on the results of the 2005 surveys. SARDI Publication No. RD 03/0252-6. SARDI, Adelaide.

Cell Biota (Flora and Fauna)

Lists provided are specific to this cell from Biological Database of South Australia (BDBSA), technical updates, review of publications and local input. Conservation ratings (National, State and Sub regional) are included for flora and fauna.

Note: Restricted species as per Department for Environment and Water (DEW) specifications have been omitted from the tables due to the size of cells and requirement for 10km^2 buffering of data. However, records are included in the total species numbers per cell. Please contact DEW directly for restricted data requests.

FLORA Summary

Vegetation Block Metrics	Coastal Reserves (Council) Pullen Island (Encounter Marine Park)			
Terrestrial Habitat Description/s	See Terrestrial biodiversity vegetation communities in cell description.			
# Flora in cell	351			
# Native Flora in cell	214			
# Introduced Flora in cell	137			
# Conservation Rated Flora in cell	6 (1 National, 6 State)			
# Threatened Ecological Communities (EPBC Act)	-			
Conservation Rated Flora	**Species**	**Common Name**	**EPBC Act Status**	**NPW Status**
	Acacia dodonaeifolia	Hop-bush Wattle		R
	Acacia pendula	Weeping Myall		V
	Cladium procerum	Leafy Twig-rush		R
	Pseudanthus micranthus	Fringed Pseudanthus		R
	Rumex dumosus	Wiry Dock		R
	Spyridium coactilifolium	Butterfly Spyridium	VU	V

All Native Flora in cell

Species	**Common Name**	**EPBC Status**	**NPW Act Status**	**Subregional Status***
Acacia cupularis	Cup Wattle			RA
Acacia dodonaeifolia	Hop-bush Wattle		R	RA
Acacia longifolia ssp. sophorae	Coastal Wattle			LC
Acacia paradoxa	Kangaroo Thorn			LC
Acacia pendula	Weeping Myall		V	
Acacia verticillata ssp. ovoidea	Prickly Moses			NT
Acaena echinata	Sheep's Burr			LC
Acaena novae-zelandiae	Biddy-biddy			LC
Acianthus pusillus	Mosquito Orchid			LC
Acrotriche cordata	Blunt-leaf Ground-berry			RA
Actites megalocarpus	Coast Sow-thistle			NT
Adriana quadripartita	Coast Bitter-bush			NT
Allocasuarina pusilla	Dwarf Oak-bush			NT
Allocasuarina striata	Stalked Oak-bush			LC
Allocasuarina verticillata	Drooping Sheoak			LC
Alyxia buxifolia	Sea Box			RA
Amphibolis antarctica	Sea Nymph			

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Angianthus preissianus	Salt Angianthus			RA
Apium annuum	Annual Celery			RA
Apium prostratum var. filiforme	Native Celery			LC
Apium prostratum var. prostratum	Native Celery			LC
Apjohnia laetevirens				
Argentipallium blandowskianum	Woolly Everlasting			NT
Argentipallium obtusifolium	Blunt Everlasting			NT
Atriplex cinerea	Coast Saltbush			LC
Atriplex nummularia ssp. nummularia	Old-man Saltbush			
Atriplex paludosa ssp. cordata	Marsh Saltbush			LC
Atriplex paludosa ssp. paludosa	Marsh Saltbush			
Atriplex semibaccata	Berry Saltbush			LC
Atriplex suberecta	Lagoon Saltbush			NT
Austrostipa flavescens	Coast Spear-grass			LC
Austrostipa nodosa	Tall Spear-grass			LC
Austrostipa scabra ssp. falcata	Slender Spear-grass			LC
*Austrostipa spp.^*	Spear Grass			
Billardiera cymosa ssp. cymosa	Sweet Apple-berry			LC
Boerhavia dominii	Tar-vine			
Brachyscome lineariloba	Hard-head Daisy			NT
Caesia calliantha	Blue Grass-lily			LC
Caladenia cardiochila	Heart-lip Spider-orchid			VU
Caladenia latifolia	Pink Caladenia			NT
Callitris gracilis	Southern Cypress Pine			LC
Calocephalus citreus	Lemon Beauty-heads			RA
Calostemma purpureum	Pink Garland-lily			LC
Carex tereticaulis	Rush Sedge			LC
Carpobrotus rossii	Native Pigface			
Cassinia complanata	Sticky Cassinia			
Caulerpa brownii				
Caulerpa obscura				
Centrolepis aristata	Pointed Centrolepis			LC
Centrolepis polygyna	Wiry Centrolepis			NT
Centrolepis strigosa ssp. strigosa	Hairy Centrolepis			LC
Chrysocephalum apiculatum	Common Everlasting			LC
Chrysocephalum semipapposum	Clustered Everlasting			NT
Cladium procerum	Leafy Twig-rush		R	RA
Clematis microphylla	Old Man's Beard			
Codium galeatum				
Colacodasya australica				
Comesperma polygaloides	Mauve Milkwort			VU
Comesperma volubile	Love Creeper			RA
Convolvulus angustissimus	Narrow-leaf Bindweed			
Convolvulus remotus	Grassy Bindweed			LC
Craspedocarpus ramentaceus				
Crassilingua marginifera				
Crassula colligata ssp. lamprosperma				LC
Crassula colorata var. colorata	Dense Crassula			LC
Crassula decumbens var. decumbens	Spreading Crassula			LC

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Cynoglossum australe	Australian Hound's-tongue			RA
Cyperus gymnocaulos	Spiny Flat-sedge			LC
Cyperus laevigatus	Bore-drain Sedge			RA
Cyperus vaginatus	Stiff Flat-sedge			LC
Cyrtostylis reniformis	Small Gnat-orchid			LC
Daucus glochidiatus	Native Carrot			LC
Dianella brevicaulis	Short-stem Flax-lily			LC
Dichondra repens	Kidney Weed			LC
Dictyomenia harveyana				
Dillwynia sericea	Showy Parrot-pea			NT
Disphyma crassifolium ssp. clavellatum	Round-leaf Pigface			LC
Distichlis distichophylla	Emu-grass			LC
Dysphania pumilio	Small Crumbweed			LC
Einadia nutans ssp. nutans	Climbing Saltbush			LC
Enchylaena tomentosa var. tomentosa	Ruby Saltbush			LC
Eucalyptus leucoxylon ssp. leucoxylon	South Australian Blue Gum			NT
Eucalyptus odorata	Peppermint Box			NT
Eucalyptus viminalis ssp. cygnetensis	Rough-bark Manna Gum			NT
Euphorbia dallachyana	Caustic Weed			
Euryomyrtus ramosissima ssp. ramosissima	Rosy Baeckea			LC
Ficinia nodosa	Knobby Club-rush			LC
Frankenia pauciflora var. gunnii	Southern Sea-heath			
Galium compactum	Compact Bedstraw			RA
Geranium potentilloides var. potentilloides	Downy Geranium			LC
Gnaphalium indutum ssp. indutum	Tiny Cudweed			NT
Gonocarpus mezianus	Broad-leaf Raspwort			LC
Gonocarpus tetragynus	Small-leaf Raspwort			LC
Goodenia varia	Sticky Goodenia			NT
Grevillea lavandulacea ssp. lavandulacea	Spider-flower			
Hakea rugosa	Dwarf Hakea			NT
Halicnide similans				
Halopteris paniculata				
Haloragis acutangula f. tetraptera	Smooth Raspwort			
Haloragis aspera	Rough Raspwort			RA
Helichrysum leucopsideum	Satin Everlasting			LC
Hibbertia exutiacies	Prickly Guinea-flower			LC
Hyalosperma demissum	Dwarf Sunray			LC
Hydrocotyle callicarpa	Tiny Pennywort			LC
Hypolaena fastigiata	Tassel Rope-rush			LC
Isolepis hookeriana	Grassy Club-rush			RA
Isolepis platycarpa	Flat-fruit Club-rush			NT
Juncus pallidus	Pale Rush			LC
Kennedia prostrata	Scarlet Runner			LC
Kunzea pomifera	Muntries			RA
Lachnagrostis billardierei ssp. billardierei	Coast Blown-grass			RA
Lasiopetalum baueri	Slender Velvet-bush			RA
Laxmannia orientalis	Dwarf Wire-lily			LC
Leiocarpa supina	Coast Plover-daisy			RA
Lepidobolus drapetocoleus	Scale Shedder			NT

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Lepidosperma carphoides	Black Rapier-sedge			LC
Lepidosperma congestum	Clustered Sword-sedge			NT
Lepidosperma gladiatum	Coast Sword-sedge			NT
Leporella fimbriata	Fringed Hare-orchid			LC
Leptoceras menziesii	Hare Orchid			LC
Leptorhynchos squamatus ssp. squamatus	Scaly Buttons			LC
Leptospermum continentale	Prickly Tea-tree			LC
Leptospermum lanigerum	Silky Tea-tree			RA
Leucophyta brownii	Coast Cushion Bush			LC
Leucopogon concurvus	Scrambling Beard-heath			LC
Leucopogon costatus	Twiggy Beard-heath			
Leucopogon parviflorus	Coast Beard-heath			LC
Leucopogon virgatus var. virgatus	Common Beard-heath			LC
Levenhookia dubia	Hairy Stylewort			LC
Lobelia anceps	Angled Lobelia			LC
Logania crassifolia	Coast Logania			RA
Logania linifolia	Flax-leaf Logania			RA
Logania minor	Spoon-leaf Logania			EN
Lomandra densiflora	Soft Tussock Mat-rush			LC
Lomandra effusa	Scented Mat-rush			LC
Lomandra juncea	Desert Mat-rush			NT
Lomandra micrantha ssp. micrantha	Small-flower Mat-rush			LC
*Lomandra multiflora ssp. dura^*	Hard Mat-rush			LC
Lomandra nana	Small Mat-rush			LC
Lomandra sororia	Sword Mat-rush			NT
Lotus australis	Austral Trefoil			NT
Luzula meridionalis	Common Wood-rush			LC
Maireana enchylaenoides	Wingless Fissure-plant			LC
Melaleuca decussata	Totem-poles			LC
Melaleuca halmaturorum	Swamp Paper-bark			VU
Melaleuca lanceolata	Dryland Tea-tree			NT
Millotia muelleri	Common Bow-flower			LC
Muehlenbeckia gunnii	Coastal Climbing Lignum			LC
Myoporum insulare	Common Boobialla			LC
Nemalion helminthoides				
Nicotiana maritima	Coast Tobacco			NT
Olearia axillaris	Coast Daisy-bush			LC
Olearia ramulosa	Twiggy Daisy-bush			LC
Opercularia varia	Variable Stinkweed			LC
Ophioglossum lusitanicum	Austral Adder's-tongue			NT
Ozothamnus turbinatus	Coast Bush-everlasting			EN
Pelargonium australe	Austral Stork's-bill			NT
Pheladenia deformis	Bluebeard Orchid			NT
Phyllangium divergens	Wiry Mitrewort			LC
Pimelea glauca	Smooth Riceflower			LC
Pimelea humilis	Low Riceflower			LC
Pimelea octophylla	Woolly Riceflower			LC
Pimelea serpyllifolia ssp. serpyllifolia	Thyme Riceflower			LC
Plantago varia	Variable Plantain			NT

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Poa clelandii	Matted Tussock-grass			LC
Poa poiformis var. poiformis	Coast Tussock-grass			LC
Pogonolepis muelleriana	Stiff Cup-flower			NT
Prasophyllum occidentale	Plains Leek-orchid			
Prostanthera aspalathoides	Scarlet Mintbush			VU
Pseudanthus micranthus	Fringed Pseudanthus		R	RA
Pseudognaphalium luteoalbum	Jersey Cudweed			LC
Pterostylis nana	Dwarf Greenhood			
Pterostylis nutans	Nodding Greenhood			LC
Pterostylis robusta	Large Shell-orchid			RA
Pterostylis sanguinea	Blood Greenhood			NT
Pultenaea acerosa	Bristly Bush-pea			LC
Pultenaea largiflorens	Twiggy Bush-pea			LC
Pultenaea tenuifolia	Narrow-leaf Bush-pea			NT
Rhagodia candolleana ssp. candolleana	Sea-berry Saltbush			LC
Rhagodia spinescens	Spiny Saltbush			RA
Rhodanthe pygmaea	Pigmy Daisy			NT
Rumex dumosus	Wiry Dock		R	EN
*Rytidosperma spp.^*	Wallaby Grass			
Sagina maritima	Sea Pearlwort			LC
Salicornia quinqueflora ssp. quinqueflora	Beaded Samphire			NT
Samolus repens	Creeping Brookweed			NT
Scaevola albida	Pale Fanflower			LC
Scaevola angustata	Coast Fanflower			CR
Scaevola crassifolia	Cushion Fanflower			RA
Schoenus nitens	Shiny Bog-rush			NT
Senecio cunninghamii var. cunninghamii	Shrubby Groundsel			CR
Senecio odoratus	Scented Groundsel			
Senecio pinnatifolius group	Variable Groundsel			
Senecio spanomerus	Native Groundsel			NT
Spergularia tasmanica	Coast Sand-spurrey			
Spinifex hirsutus	Rolling Spinifex			
Sporobolus virginicus	Salt Couch			LC
Sporocladopsis novae-zelandiae				
Spyridium coactilifolium	Butterfly Spyridium	VU	V	VU
Stuartina muelleri	Spoon Cudweed			LC
Stylidium calcaratum	Spurred Trigger-plant			NT
Styphelia exarrhena	Desert Heath			RA
Suaeda australis	Austral Seablite			NT
Templetonia retusa	Cockies Tongue			
Tetragonia implexicoma	Bower Spinach			LC
Themeda triandra	Kangaroo Grass			LC
Threlkeldia diffusa	Coast Bonefruit			NT
Veronica hillebrandii	Rigid Speedwell			VU
Vittadinia blackii	Narrow-leaf New Holland Daisy			RA
Wahlenbergia stricta ssp. stricta	Tall Bluebell			LC
Wilsonia humilis	Silky Wilsonia			VU
Wilsonia rotundifolia	Round-leaf Wilsonia			VU
Wurmbea dioica ssp. brevifolia	Early Nancy			NT

Species	Common Name	EPBC Status	NPW Act Status	Subregional Status*
Xanthosia huegelii	Hairy Xanthosia			LC

^ denotes records from technical updates, review of publications and local input
*See Appendices for subregional map

Regional Conservation status, Mount Lofty Ranges IBRA (Interim Biogeographical Regionalisation for Australia) subregion (Gillam & Urban (2014). Regional Species Conservation Assessment Project, Phase 1 Report - Regional Species Status Assessments, Adelaide and Mount Lofty Ranges NRM Region. DEWNR: SA)

RE = Regionally Extinct
VU = Vulnerable
LC = Least Concern
CR = Critically Endangered
RA = Rare
DD = Data Deficient
EN = Endangered
NT = Near Threatened
NE = Not Evaluated

All Introduced Flora in cell

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
*Acacia cyclops**	Western Coastal Wattle	IC		
Acacia saligna	Golden Wreath Wattle	HP		
Agrostis capillaris	Brown-top Bent			
Allium ampeloprasum	Wild Leek			
Aloe arborescens	Tree Aloe			
Aloe maculata	Broad-leaf Aloe	HP		
Amaryllis belladonna	Belladonna Lily			
Ammophila arenaria	Marram Grass	HP		
Anredera cordifolia	Madeira Vine	IC	Yes	Yes
Arctotheca calendula	Cape Weed	HP		
Arctotis stoechadifolia	White Arctotis	IC		
Argyranthemum frutescens ssp.	Marguerite Daisy			
*Argyranthemum frutescens ssp. frutescens**	Marguerite Daisy	HP		
Artemisia arborescens	Silver Wormwood			
Asparagus aethiopicus	Asparagus Fern	IC	Yes	
Asparagus asparagoides f. asparagoides	Bridal Creeper (form)	IC	Yes	Yes
Asphodelus fistulosus	Onion Weed	HP		
Atriplex prostrata	Creeping Saltbush			
Avena barbata	Bearded Oat			
Bellis perennis				
Beta vulgaris ssp. maritima	Sea Beet			
Bromus catharticus	Prairie Grass			
Bromus diandrus	Great Brome			
Bromus madritensis	Compact Brome			
Bromus rubens	Red Brome			
Cakile maritima ssp. maritima	Two-horned Sea Rocket			
Cenchrus clandestinus	Kikuyu	HP		
Centranthus ruber ssp. ruber	Red Valerian			
Cestrum parqui	Green Poison-berry	HP		
Chenopodium album	Fat Hen			
Chenopodium murale	Nettle-leaf Goosefoot			
Chrysanthemoides monilifera ssp. monilifera	Boneseed	IC	Yes	Yes

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
Cichorium intybus	Chicory			
Clematis flammula		IC		
Coprosma repens	New Zealand Mirror-bush	IC	Yes	
Cotoneaster pannosus	Cotoneaster	IC		
Cotyledon orbiculata var. oblonga	Cotyledon			
Cynodon dactylon var. dactylon	Couch			
Cyperus eragrostis	Drain Flat-sedge	HP		
Dimorphotheca fruticosa	Trailing African Daisy	HP		
Dimorphotheca pluvialis	Cape Marigold	HP		
Diplotaxis muralis	Wall Rocket			
Drosanthemum candens	Rodondo Creeper	IC		
Ehrharta calycina	Perennial Veldt Grass	HP		
Ehrharta erecta	Panic Veldt Grass			
Eleusine indica	Crowsfoot Grass			
Erigeron karvinskianus	Bony-tip Fleabane			
Euphorbia dendroides	Tree Spurge			
Euphorbia paralias	Sea Spurge	HP		
Euphorbia terracina	False Caper	HP	Yes	
*Ferraria crispa ssp. crispa**	Black Flag	IC		
Foeniculum vulgare	Fennel			
Freesia leichtlinii	Freesia	HP		
Fumaria bastardii	Bastard Fumitory			
Fumaria capreolata	White-flower Fumitory			
Gasteria carinata var. verrucosa	Keeled Gasteria			
Gaudium laevigatum	Coast Tea-tree		Yes	
Gazania linearis	Gazania	IC	Yes	
Geranium dissectum	Cut-leaf Geranium			
Hordeum marinum	Sea Barley-grass			
Ipomoea indica	Purple Morning-glory			
Juncus capitatus	Dwarf Rush			
Lactuca serriola f. serriola	Prickly Lettuce			
Lagunaria patersonii	Pyramid Tree	HP		
Lagurus ovatus	Hare's Tail Grass			
Lepidium didymum	Lesser Swine's-cress			
Limonium companyonis	Sea-lavender	IC		
Limonium hyblaeum	Sicilian Sea-lavender	IC		
Limonium perezii				
Limonium sinuatum	Notch-leaf Sea-lavender			
Lobularia maritima	Sweet Alyssum			
Lolium loliaceum	Stiff Ryegrass			
Lycium ferocissimum	African Boxthorn	IC	Yes	Yes
Malva arborea	Tree Mallow	HP		
Malva parviflora	Small-flower Marshmallow			
Marrubium vulgare	Horehound	IC	Yes	
Matthiola incana	Common Stock			
Medicago polymorpha	Burr-medic			
Medicago truncatula	Barrel Medic			

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
Melaleuca armillaris ssp. armillaris	Bracelet Honey-myrtle	HP		
Melilotus indicus	King Island Melilot			
Mesembryanthemum aitonis	Angled Iceplant	HP		
Mesembryanthemum crystallinum	Common Iceplant	HP		
Modiola caroliniana	Red-flowered Mallow			
Moraea setifolia	Thread Iris			
Oenothera glazioviana				
Oenothera speciosa	Rose Evening Primrose			
Oenothera stricta ssp. stricta	Common Evening Primrose			
Olea europaea ssp. europaea	Olive	IC		
Ornithogalum arabicum	Star Of Africa	HP		
Oxalis articulata	Bent Wood-sorrel			
Oxalis pes-caprae	Soursob			
Panicum hillmanii	Witch-grass			
Paspalum dilatatum	Paspalum			
Picnomon acarna	Soldier Thistle			
Pinus halepensis	Aleppo Pine	IC	Yes	
*Pinus sp.**	Pine			
Pittosporum crassifolium				
Plantago coronopus ssp. coronopus	Bucks-horn Plantain			
Poa pratensis	Kentucky Blue-grass			
Polycarpon tetraphyllum	Four-leaf Allseed			
Polygala myrtifolia	Myrtle-leaf Milkwort	IC	Yes	
Polygala virgata	Purple Broom	IC		
Polygonum aviculare	Wireweed			
Reichardia tingitana	False Sowthistle			
Retama raetam	White Weeping Broom	IC	Yes	
Rhamnus alaternus	Blowfly Bush	IC	Yes	
Rosa rubiginosa	Sweet Briar	HP	Yes	
Rostraria cristata	Annual Cat's-tail			
Rumex obtusifolius	Broad-leaf Dock			
Ruschia tumidula	Pigface	HP		
Sagina apetala	Annual Pearlwort			
Salvia verbenaca var. verbenaca	Wild Sage			
Schismus barbatus	Arabian Grass			
Sherardia arvensis	Field Madder			
Silene gallica var. gallica	French Catchfly			
Sisymbrium irio	London Mustard			
Sixalix atropurpurea	Pincushion	IC		
Sonchus oleraceus	Common Sow-thistle			
Sorghum halepense	Johnson Grass			
Sparaxis bulbifera	Sparaxis	HP		
Spartium junceum	Spanish Broom			
Sporobolus africanus	Rat-tail Grass	HP		
Stellaria media	Chickweed			
Stellaria pallida	Lesser Starwort			
Stenotaphrum secundatum	Buffalo Grass	HP		

Species	Common Name	Red Alert Weeds	Declared Weeds	WONS
Tamarix ramosissima			Yes	
Tetragonia decumbens	Sea Spinach			
Trifolium fragiferum var. fragiferum	Strawberry Clover			
Trifolium repens	White Clover			
Trifolium scabrum	Rough Clover			
Trifolium subterraneum	Subterranean Clover			
Urospermum picroides	False Hawkbit			
Urtica urens	Small Nettle			
Veronica arvensis	Wall Speedwell			
Veronica persica	Persian Speedwell			
Vulpia muralis	Wall Fescue			

WONS = Weeds of National Significance.

Declared = Declared under the Landscape South Australia Act 2019. Pest plants that are a significant threat to agriculture, the natural environment and public health and safety are called declared plants. Land owners have a legal responsibility to manage these plants.

Red Alert = Weed Threat Level of four or greater out of nine. Plants in this categorised are either designated as requiring immediate control (IC – 6-9) or as a high priority for control (HP – 4-5). See Department for Environment and Water (2024)

Reference – Department for Environment and Water (2024). Threatening Processes - Environmental and Priority Weed Species. Southern Fleurieu Coastal Action Plan Review 2024. Prepared by SA Herbarium

FAUNA Summary

# Fauna in cell	82
# Native Fauna in cell	70
# Introduced Fauna in cell	12
# Conservation Rated Fauna in cell	12 (3 national, 12 state)

Conservation Rated Fauna				
Species	**Common Name**	**Class**	**EPBC Act Status**	**NPW Act Status**
Actitis hypoleucos	Common Sandpiper	AVES		R
Egretta sacra sacra	Pacific Reef Heron	AVES		R
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	AVES		R
*Haliaeetus leucogaster^*	White-bellied Sea Eagle	AVES		E
*Larus dominicanus dominicanus^*	Kelp Gull	AVES		R
Melithreptus gularis	Black-chinned Honeyeater	AVES		ssp
*Melithreptus gularis gularis^*	Black-chinned Honeyeater	AVES		V
*Pandion haliaetus cristatus^*	Eastern Osprey	AVES		E
*Sternula nereis nereis^*	Fairy Tern	AVES	VU	E
*Zanda funerea whiteae^*	Yellow-tailed Black Cockatoo	AVES		V
*Pteropus poliocephalus^*	Grey-headed Flying-fox	MAM	VU	R
*Tachyglossus aculeatus^*	Short-beaked Echidna	MAM	ssp	ssp

All Native Fauna in cell

Species Name	**Common Name**	**Class**	**EPBC Act Status**	**NPW Act Status**	**Subregional Status**
*Aldrichetta forsteri^*	Yelloweye Mullet	ACT			
*Argyrosomus japonicus^*	Mulloway	ACT			
Crinia signifera	Common Froglet	AMP			LC
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	AVES			NT
Acrocephalus australis australis	Australian Reed Warbler	AVES			LC
Actitis hypoleucos	Common Sandpiper	AVES		R	EN
Anas castanea	Chestnut Teal	AVES			LC
Anas gracilis gracilis	Grey Teal	AVES			
Anas superciliosa	Pacific Black Duck	AVES			RA
Anthochaera carunculata	Red Wattlebird	AVES			LC
Anthochaera chrysoptera chrysoptera	Little Wattlebird (mainland SA)	AVES			
Anthus australis	Australian Pipit	AVES			LC
Apus pacificus pacificus	Pacific Swift	AVES			RA
Chroicocephalus novaehollandiae novaehollandiae	Silver Gull	AVES			LC
Corvus mellori	Little Raven	AVES			LC
Daption capense	Cape Petrel	AVES			
Egretta novaehollandiae	White-faced Heron	AVES			LC
Egretta sacra sacra	Pacific Reef Heron	AVES		R	CR
Elanus axillaris	Black-shouldered Kite	AVES			LC
Eolophus roseicapilla	Galah	AVES			LC
Eudyptula minor novaehollandiae	Little Penguin	AVES			
Falco cenchroides cenchroides	Nankeen Kestrel	AVES			LC
Gavicalis virescens	Singing Honeyeater	AVES			LC
Glossopsitta concinna	Musk Lorikeet	AVES			LC
Grallina cyanoleuca cyanoleuca	Magpielark	AVES			LC

Species Name	Common Name	Class	EPBC Act Status	NPW Act Status	Subregional Status
Gymnorhina tibicen	Australian Magpie	AVES			LC
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	AVES		R	EN
*Haliaeetus leucogaster^*	White-bellied Sea Eagle	AVES		E	EN
Hirundo neoxena neoxena	Welcome Swallow	AVES			LC
*Larus dominicanus dominicanus^*	Kelp Gull	AVES		R	
*Larus pacificus georgii^*	Pacific Gull	AVES			VU
Malurus cyaneus	Superb Fairywren	AVES			LC
Melithreptus gularis	Black-chinned Honeyeater	AVES		ssp	CR
*Melithreptus gularis gularis^*	Black-chinned Honeyeater	AVES		V	
Microcarbo melanoleucos melanoleucos	Little Pied Cormorant	AVES			LC
*Morus serrator^*	Australasian Gannet	AVES			
Ocyphaps lophotes lophotes	Crested Pigeon	AVES			LC
*Pandion haliaetus cristatus^*	Eastern Osprey	AVES		E	RA
Phalacrocorax carbo	Great Cormorant	AVES			RA
*Phalacrocorax fuscescens^*	Black-faced Cormorant	AVES			RA
*Phalacrocorax sulcirostris^*	Little Black Cormorant	AVES			LC
Phylidonyris novaehollandiae	New Holland Honeyeater	AVES			LC
Platalea regia	Royal Spoonbill	AVES			VU
Poodytes gramineus goulburni	Little Grassbird	AVES			LC
Porzana fluminea	Australian Crake (Australian Spotted Crake)	AVES			RA
Ptilotula penicillata	White-plumed Honeyeater	AVES			LC
Rhipidura albiscapa	Grey Fantail	AVES			LC
Rhipidura leucophrys leucophrys	Willie Wagtail	AVES			NT
*Sternula nereis nereis^*	Fairy Tern	AVES	VU	E	CR
Thalasseus bergii cristatus	Greater Crested Tern	AVES			VU
*Thalasseus bergii cristatus (NC)^*	Crested Tern	AVES			
Trichoglossus moluccanus moluccanus	Rainbow Lorikeet	AVES			LC
Vanellus miles	Masked Lapwing	AVES			LC
*Zanda funerea whiteae^*	Yellow-tailed Black Cockatoo	AVES		V	VU
*Anisynta cynone cynone^*	Mottled Grass Skipper	INV			
*Danaus petilia^*	Lesser Wanderer	INV			
*Danaus plexippus plexippus^*	Monarch	INV			
*Junonia villida calybe^*	Meadow Argus	INV			
*Lampides boeticus^*	Long-tailed Pea-blue	INV			
*Nacaduba biocellata biocellata^*	Two-spotted Line-blue	INV			
*Ocybadistes walkeri hypochlora^*	Southern Grass-dart	INV			
*Pieris rapae rapae^*	Cabbage White	INV			
*Taractrocera papyria papyria^*	White-banded Grass-dart	INV			
*Theclinesthes miskini miskini^*	Wattle Blue	INV			
*Theclinesthes serpentatus serpentatus^*	Salt-bush Blue	INV			
*Vanessa itea^*	Australian Admiral	INV			
*Vanessa kershawi^*	Australian Painted Lady	INV			
*Zizina otis labradus^*	Common Grass-blue	INV			
*Pteropus poliocephalus^*	Grey-headed Flying-fox	MAM	VU	R	
*Tachyglossus aculeatus^*	Short-beaked Echidna	MAM	ssp	ssp	NT

Class: ACT = Actinopteri, **AMP** = Amphibia, **AVES** = Aves, **INV** = Invertebrates, **MAM** = Mammalia, **REP**= Reptilia

All Introduced Fauna in cell

Species	Common Name
*Acridotheres tristis^*	Common Myna
Alauda arvensis arvensis	Eurasian Skylark
Carduelis carduelis britannica	European Goldfinch
Columba livia	Feral Pigeon
*Felis catus^*	Domestic Cat (Feral Cat)
*Mus musculus^*	House Mouse
*Oryctolagus cuniculus^*	Rabbit (European Rabbit)
Passer domesticus domesticus	House Sparrow
Spilopelia chinensis	Spotted Dove
Sturnus vulgaris vulgaris	Common Starling
Turdus merula merula	Common Blackbird
*Vulpes vulpes^*	Fox (Red Fox)