

An aerial photograph of a beach with waves crashing onto the shore. The water is a vibrant turquoise color, and the sand is a light beige. The sky is a clear, pale blue. The overall scene is bright and sunny.

Sunshine Coast Council Coastal Health Report 2023

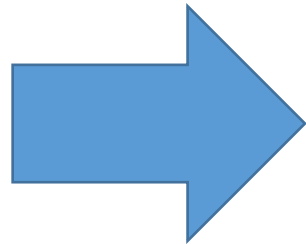
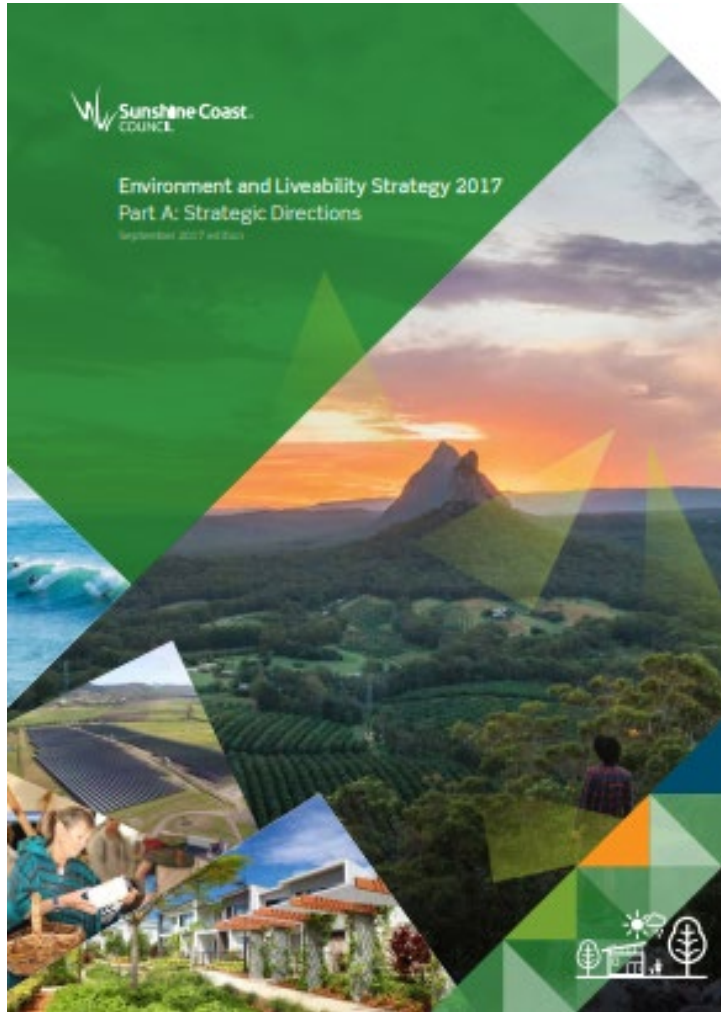
QCoast2100 Knowledge and Information Sharing Forum
21 November 2023



University of the
Sunshine Coast
Australia

Partnership for Framework Development and Biodiversity Monitoring

Strategic Context



**Australia's most sustainable region
– healthy, smart, creative**

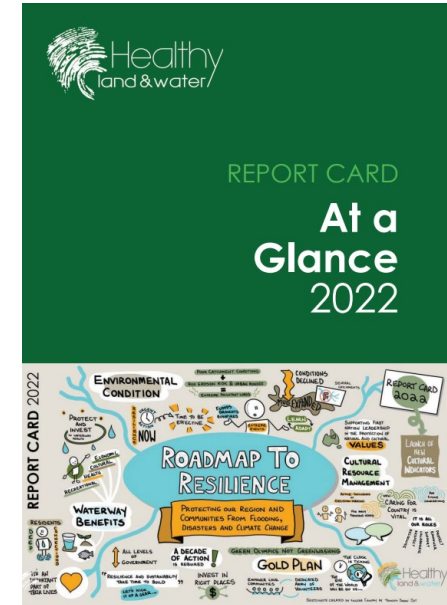
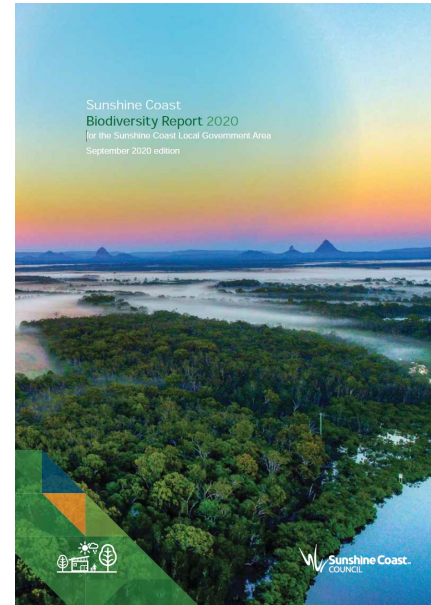
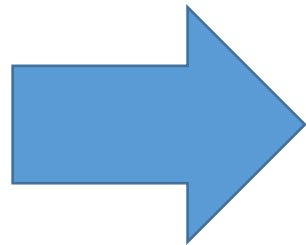
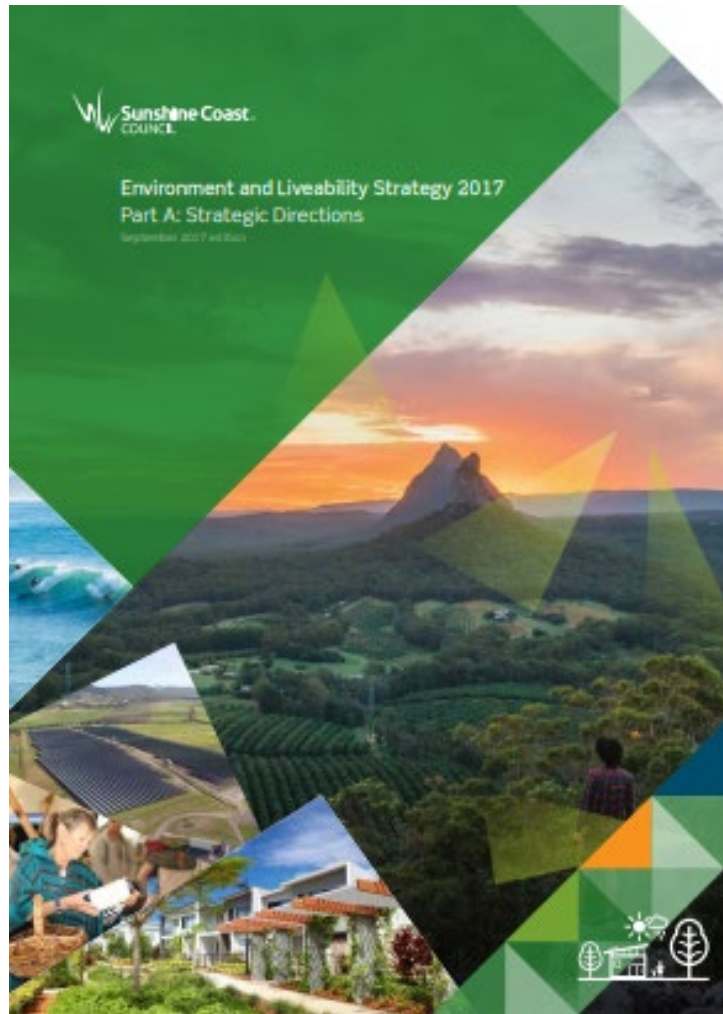
Coastal outcome at 2041:

Our coastal areas are healthy, resilient to climate change impacts and support sustainable use.

Coastal target:

Maintain and improve the health of our coast to good or excellent grade by 2041

Strategic Context



What is coastal health?

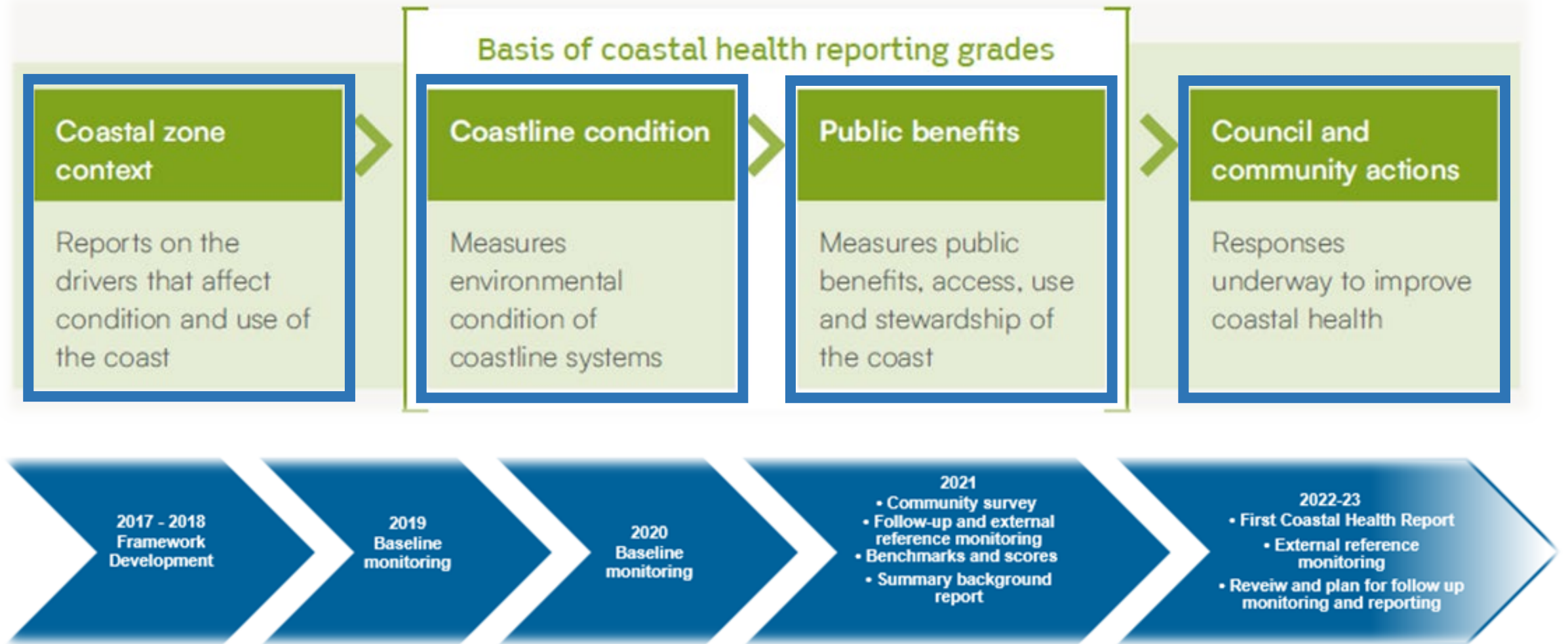
The capacity of coastal areas to support:

- Natural processes and ecosystems
- Recreation, social interaction and economic opportunities

The outcomes of the coastal health report provide a baseline to track and communicate progress towards Council's coastal health target and outcomes.



Coastal Health Report Framework



Coastal Zone Context

Summaries key characteristics of the broader coastal zone to help understand the finer-scale report card results.

Information gathered from established sources on:

- Development, economy, and growth
- Weather and coastal hazards:
- Catchment and waterway health
- Vegetated habitats



Coastline Ecosystems



Monitoring sites

A total of 32 reporting units across the four main ecosystem types were identified and data collected for each. This included:

- 20 beaches
- 5 headlands
- 3 lower estuaries
- 4 coastal lagoons.

Data for the biodiversity, beach and buffer widths, water quality and public benefits was collected and report cards with grades were then produced for each.

Table 1: Coastal health reporting units

Beaches		Headlands	
1	Coolum Beach	21	Point Perry to Point Arkwright
2	Yaromba Beach	22	Alexandra Headland
3	Mount Coolum Beach	23	Point Cartwright
4	Marcoola Beach	24	Moffat Head
5	Mudjimba Beach	25	Caloundra Head
6	Twin Waters Beach		
7	Maroochydore Beach		
8	Alexandra Headland Beach		
9	Mooloolaba Beach		
10	Buddina Beach		
11	Warana Beach		
12	Bolarina Beach		
13	Wurtulla Beach		
14	Currimundi Beach		
15	Dicky Beach		
16	Moffat Beach		
17	Shelly Beach		
18	Kings Beach		
19	Happy Valley		
20	Bribie Island Beach		
		Lower estuaries	
		26	Maroochy River
		27	Mooloolah River
		28	Pumicestone Passage
		Coastal lagoons	
		29	Stumers Creek
		30	Currimundi Creek
		31	Coondabah Creek
		32	Tooway Creek



Coastline Condition - Biodiversity

- Monitoring iconic coastal animals, vegetation, and ecosystems
- Defensible information on ecological condition
- Representative, modern, reliable, and engaging science
- Quantitative benchmarks
- Clear frameworks to convert ecological data to grades



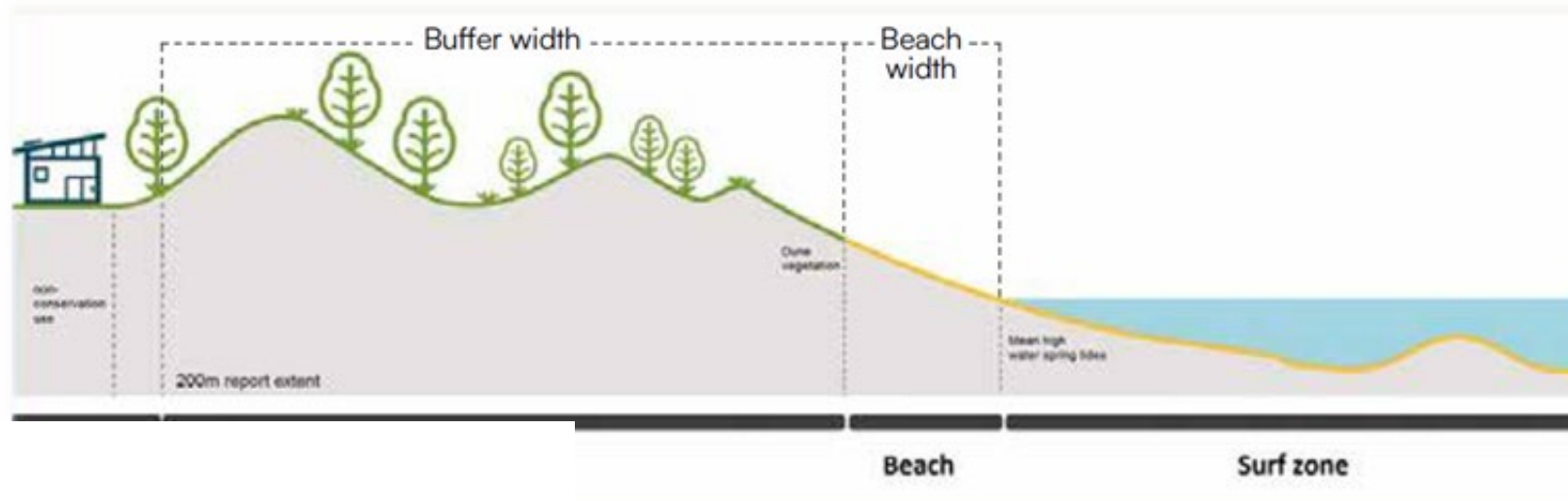
Coastline Condition - Biodiversity



Indicator	Where we measured it?			
	Beach	Headland	Lower Estuary	Coastal Lagoons
Fish Species richness	✓	✓	✓	✓
Fish abundance	✓	✓	✓	✓
Coastal vertebrate richness	✓	✓	✓	✓
Coastal vertebrate abundance	✓	✓	✓	✓
Carrion consumption	✓	✓	✓	✓
Scavenger species richness	✓	✓	✓	✓
Ghost crab abundance	✓			
Ghost crab hole size	✓			
Mobile invertebrate species richness		✓		
Encrusting invertebrate species richness		✓		
Understory plant cover	✓			
Understory species richness	✓			
Understory invasive species richness	✓			
Tree count	✓			
Tree diameter at breast height	✓			
Tree height	✓			
Tree species richness	✓			
Casuarina count	✓			

Coastline Condition - Beach and Buffer Widths

Indicator	Where we measured it?			
	Beach	Headland	Lower Estuary	Coastal Lagoons
Beach width - Distance from Mean High Water Springs to toe of dune (or development/ obstruction where no dune), using the latest aerial survey and ground-based measurements	✓			
Buffer width - Distance from toe of dune to development using the latest aerial survey and ground-based measurements	✓			



Coastline Condition - **Water quality**

- Lower Estuary and Coastal Lagoon systems monitored for water quality
- Environmental water quality supporting natural processes

Total nitrogen

Total phosphorus

Dissolved oxygen

Chlorophyll-a

Turbidity

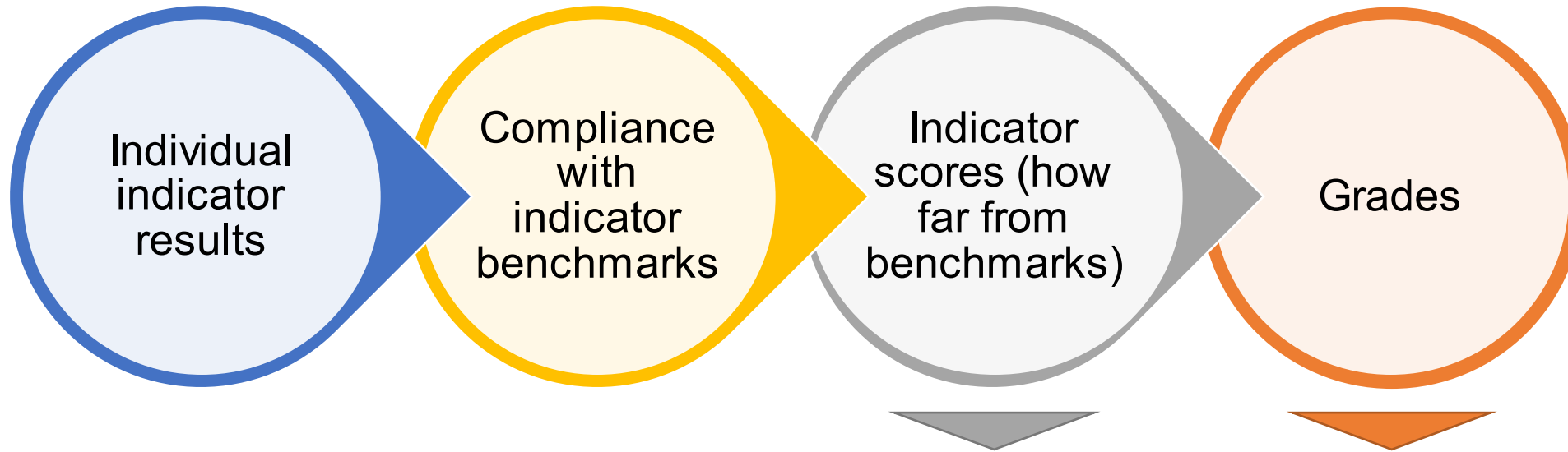


Public Benefits

Indicator	
Community use and values	Coastal community survey results (frequency or % positive reporting) for access and use, personal benefits, recreation benefits, connection, stewardship, and satisfaction
Public land uses and values	Extent of public land and either service or conservation / vegetated land uses (% of reporting area).



Calculating Scores and Grades



Score %	Grade
≥80	Excellent
≥60 — <80	Good
≥40 — <60	Fair
≥20 — <40	Poor
<20	Very poor

Results Summary

Coastal ecosystem	Overall health score	Coastline condition			Public benefits
		Biodiversity	Beach and buffer	Water quality	
Beaches	70%	45%	79%	—	85%
Headlands	75%	71%	—	—	79%
Lower estuaries	80%	59%	—	97%	83%
Coastal lagoons	74%	65%	—	77%	80%

Excellent ≥80%	Good ≥60 — <80%	Fair ≥40 — <60%	Poor ≥20 — <40%	Very poor <20%
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Recognising Council Actions

Council's makes a significant investment in coastal management, including;

- \$6M for coastal operational services
- \$7M on capital improvements to coastal parks, and
- \$2.2M on stormwater quality

The Coastal Health Report includes case studies on existing actions that support the generally positive report card results.



Testing Our Program

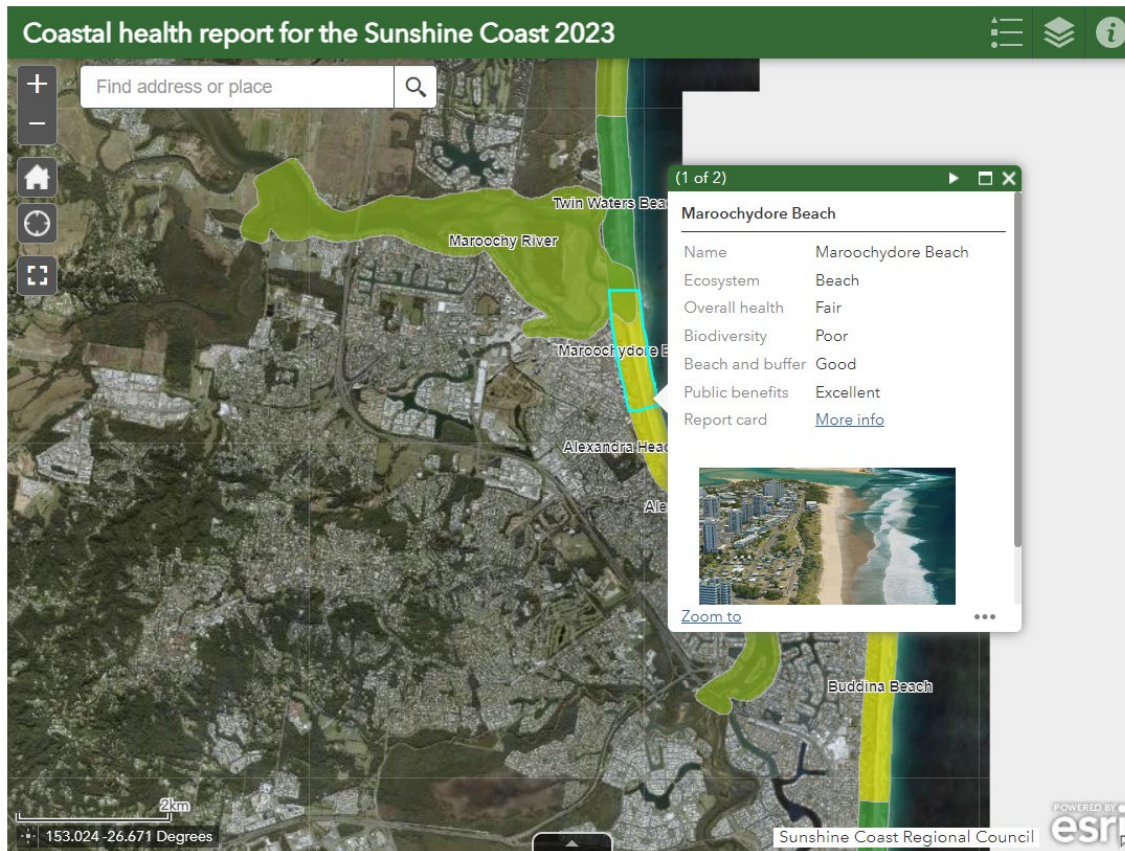
Independent peer review: -

- *“The robustness and thoroughness of the monitoring science underlying this report is particularly impressive. The biodiversity monitoring is outstanding.”*
- *“The beach monitoring program is excellent. I know of no other program as comprehensive as this.”*
- *“ ... the majority of the biodiversity data in the underlying reports are either published or under review in peer-reviewed international science journals.”*



Web Portal

The [Coastal Health Report](#) web portal is the key mechanism for sharing information with the community



Bokarina Beach

Beach overview

Bokarina Beach provides excellent public benefits and excellent beach and buffer widths. Biodiversity was good and the main land use is conservation.

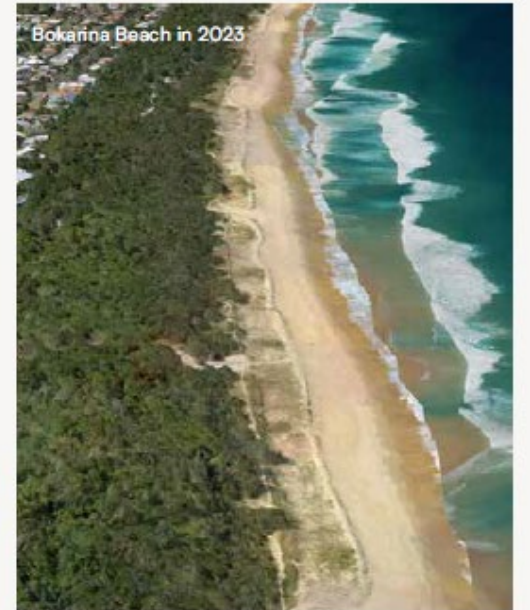
Overall health was excellent.

Beach length and reporting area

Beach length	1.7 kilometres
Reporting area:	29 hectares
Public land	89 percent
Conservation land use	81 percent

Summary scores and grades

Overall health	82%	Excellent
Biodiversity	65%	Good
Beach and buffer	90%	Excellent
Public benefits	91%	Excellent



Biodiversity

Biodiversity was good with fish numbers were close to average, but fish diversity below average.

Shoreline vertebrate indicators were above average and among the best results (including external reference sites).

Crab indicators were generally below average except for beach crab numbers, which were above average

Understorey invasive plant types were worse than average.

Beach and buffer

Beach width was excellent and buffer width was good, though buffer widths are reduced in some areas near north-south pathways. Taken together, beach and buffer widths are excellent and indicate long-term beach stability.

Public benefits

Public benefits were excellent with significant extents of vegetated land and conservation-focused public lands. The community survey for the locality showed excellent recreation benefits, usability and satisfaction.

Notable findings

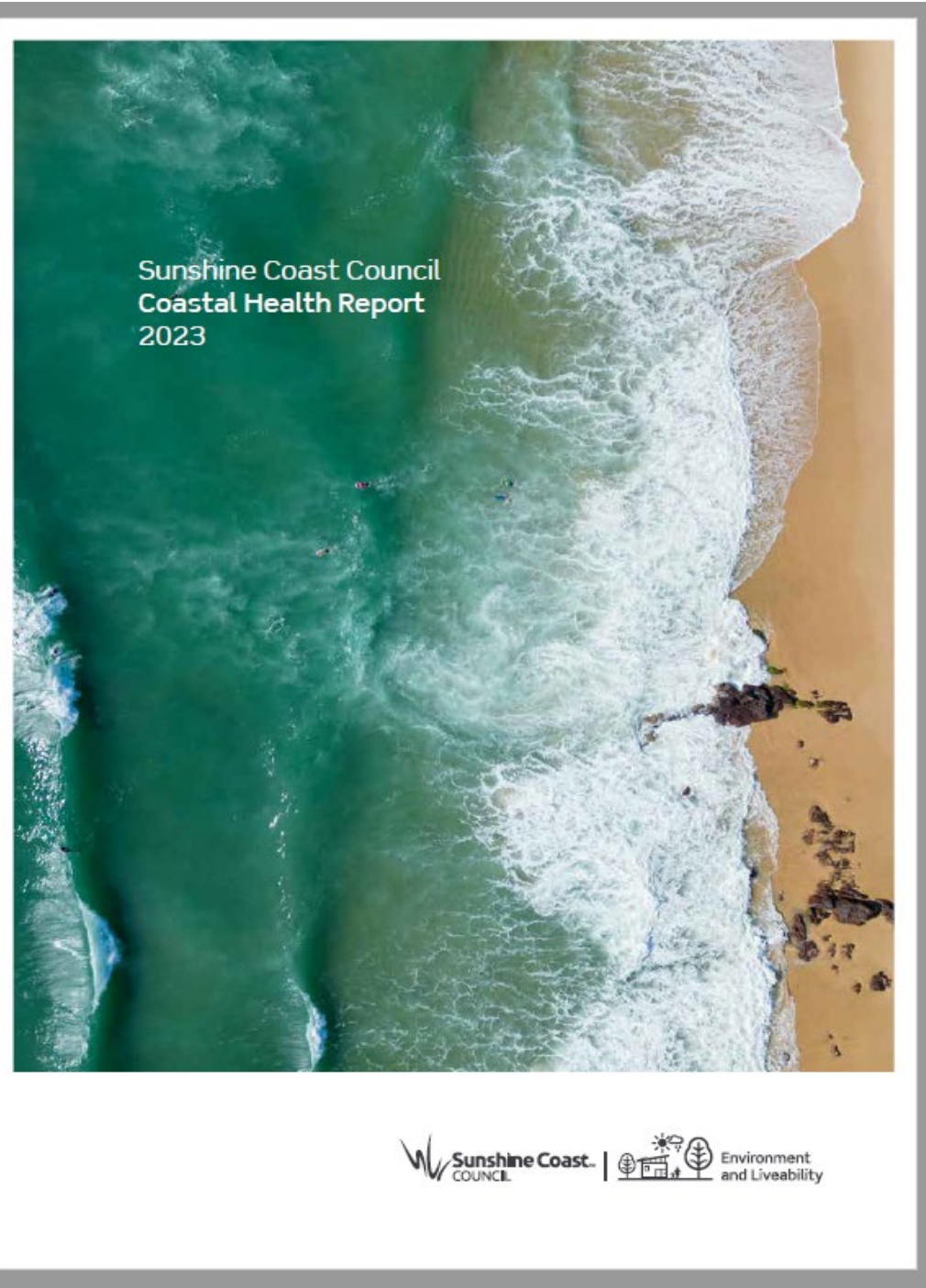
The overall biodiversity score is second highest of all beaches. 2021 Follow up monitoring showed fish numbers and diversity were above average and all crab indicators were above average.

Web Portal

The [Coastal Health Report](#) document can also be downloaded from the web portal



<https://els.sunshinecoast.qld.gov.au/discover-by-location/coastal-health-report-for-the-sunshine-coast>



Coastal Health Report Future

- Provides an evidence base to support coastal management activities, including implementation of the Coastal Hazard Adaptation Strategy and development of a new Healthy Coast Management Plan
- Report on ongoing coastal monitoring and track progress on target to maintain and improve the health of our coast to good or excellent grade by 2041
- Provide a feedback loop to operational work to address issues identified by the report
- The Coastal Health Report will be prepared every 3 years



Thank you

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