

Ideas for recovery

Transforming crisis into opportunity: responding to
South Australia's algal bloom disaster



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Middleton Beach, Fleurieu Peninsula

Ideas for recovery

Bouncing back from the algal bloom disaster.

A message from David

South Australia faces an unprecedented marine environmental crisis following a devastating algal bloom that has decimated marine life, threatened coastal ecosystems and impacted species communities dependent on healthy waters. This crisis demands bold, transformative action that goes beyond incremental responses.

These Ideas for Recovery present a comprehensive, evidence-based framework for not merely recovering from this disaster, but that will use the bloom as a catalyst for both change and enduring environmental transformation. If implemented, these ideas will create a more resilient, thriving marine environment which will be able to withstand the inevitable challenges of the future.

Through nine integrated investment areas, this vision addresses both immediate remediation needs and the systemic changes required to build lasting resilience into South Australia's coastline.

The vision centres on two fundamental pillars: pollution management to address the reduced resilience of South Australia's coastline, and ecosystem restoration to rebuild the natural resilience of our marine environment. Success requires strong governance and legislative change, sustained investment from state and federal governments, deep community engagement, and a bipartisan commitment to drive transformational change.

David Speirs

South Australia's Minister for Environment and Water, 2018-2022



The challenge

South Australia's marine environment has suffered catastrophic damage from an extensive algal bloom. The impacts include:

- mass mortality of marine life
- destruction of sea grass habitats
- damage to shellfish populations
- loss of ecosystem services valued at tens of millions of dollars
- threats to coastal livelihoods
- loss of seafood supply chains
- severe impacts to commercial and recreational fisheries.



The underlying causes of the algal bloom are not clear and while our elected leaders have made efforts to establish reasons for what has happened, there is no decisive evidence as to why it has occurred, how its effects can be mitigated or how long it will last. While algae is a naturally occurring part of marine life, the extent of the bloom is likely caused by a range of factors which have culminated in a coastal environment in South Australia which has weakened resilience and a lower capacity to withstand this sort of occurrence. Excessive nutrient loading from agricultural runoff, urban stormwater, wastewater discharge, and degraded river systems could all be contributing to this. Climate change is amplifying these pressures through warming waters and changing ocean conditions.

Despite the scale of this disaster, the state government has shown insufficient vision or urgency in responding, focusing on monitoring the situation through enhanced data collection and trying to placate the community through public messaging and short term economic sugar hits, which in and of themselves are not a problem, but they fail to grasp the significance of this problem. There is little mention of environmental recovery, what that could look like and how it might be achieved. This piece of work seeks to fill that void, giving our sitting politicians an array of possible options to choose from.

I hope that our political leaders will look at these ideas and pick some or all of them as worthy projects for investment.

Note: This plan acknowledges that the algal bloom has caused very significant economic and social impacts to impacted coastal communities. However, it does not aim to address solutions for these matters, rather it is sharply and consistently focused on environmental outcomes.

Vision statement

By 2035, South Australia will have restored thriving, resilient marine and coastal ecosystems through science-based nutrient management, ambitious ecosystem restoration, and strong governance that protects our waters for current and future generations.

South Australians will be able to look back on this disaster as a moment in time when an opportunity was grasped and a challenge risen to. As a result the health of South Australia's marine environment is among the best in the world and the state has developed a reputation as a place of excellence in coast protection, management and recovery.

Engaging the community at every opportunity

Environmental recovery cannot be imposed from above - it must be built with the communities who depend on and care for our coastal waters. Every idea in this plan requires thorough, meaningful community engagement and, where possible, genuine co-design with the people who will be most affected.

To date, the response to the algal bloom has been characterised by one-way communication through public meetings, where 'experts' tell communities what is happening rather than working with them to shape solutions. This approach fails to harness the deep knowledge, experience, and passion that exists within our coastal communities, fishing organisations, environmental groups, Traditional Owners, and the broader South Australian public.

True recovery requires a fundamentally different approach. Community engagement must be:

Early and genuine: Communities must be involved from the very beginning of project planning, not consulted after decisions have already been made. Their input must genuinely shape outcomes, with clear feedback on how community views have influenced decisions.

Sustained and ongoing: Engagement cannot be a tick-box exercise. It must continue throughout the planning, implementation and evaluation phases, with regular opportunities for communities to provide input and see results.

Inclusive and accessible: Engagement processes must reach beyond the usual voices to include diverse perspectives: young people, culturally diverse communities, people with disabilities, and those who may not traditionally participate in environmental decision-making.

Co-designed: For projects with direct community impact, such as wetland creation, reservoir access, river restoration, and habitat restoration, communities should be active partners in designing solutions that meet both environmental and social needs.

Transparent and accountable: Communities deserve to see how their input influences decisions, understand trade-offs when their preferences cannot be fully accommodated, and hold government accountable for commitments made during engagement processes.

Resourced appropriately: Meaningful engagement requires adequate time, funding, and skilled facilitators. It cannot be rushed or under-resourced.

Each of the nine ideas in this plan will require tailored engagement approaches suited to the specific communities affected and the nature of the project. But the principle remains constant: South Australians must be partners in recovery, not simply recipients of government programs and lectures from experts. When communities are genuinely engaged, projects are better designed, more widely supported, and more likely to succeed.

This is not just good practice - it is essential to building the long-term community stewardship that our marine environment will need far beyond the immediate recovery period.

Ideas for recovery

1. Office of Marine and Coastal Recovery

Objective

Establish an enduring governance infrastructure with the authority, expertise, and resources to drive recovery, prevent future disasters and position South Australia as the world leader in coastal and marine protection and management.

The challenge

Fragmented responsibility across multiple agencies, insufficient coordination, and lack of dedicated focus on marine and coastal systems have contributed to this crisis and to mounting an adequate response. Recovery requires dedicated governance with clear authority and accountability.

Key actions

- establish the Office of Marine and Coastal Recovery through legislation with a clear mandate, dedicated funding, and statutory powers
- create an independent board of international standing to provide strategic oversight, bringing world-leading expertise in marine science, ecosystem restoration, and coastal management. The board could include members from overseas (acknowledging the international significance of this disaster and accepting that South Australia does not have all the answers, although we certainly have some of them)
- abolish the existing Coast Protection Board, its supporting bureaucracy and its outdated act (the *Coast Protection Act 1972*), replacing it with this new governance structure that reflects contemporary understanding of integrated coastal zone management and a new fit-for-purpose piece of legislation
- provide executive authority for cross-agency coordination, regulatory oversight, and implementation of recovery programs.

Board composition:

- Independent Chair with governance expertise (1)
- international marine scientists and restoration experts (2)
- South Australian marine scientists (2)
- SA Water representative (1)
- Green Adelaide board representative (1)
- community and industry representatives (2)
- Traditional Owner representative (1).

Powers and functions:

- authority to coordinate all state agencies on marine and coastal matters
- budget allocation powers for recovery programs
- regulatory oversight of nutrient discharge
- advice to minister and Cabinet on protected area management and expansion
- annual public reporting on recovery progress
- authority to commission research and monitoring programs.

Expected outcomes

- community understanding and confidence that there is a government body in charge of recovery.
- clear accountability for recovery
- world-class expertise guiding restoration efforts
- coordinated, strategic approach across government

Timeline

Legislation introduced 2026, office operational by mid-2026.



2. Zero Discharge 2035

Objective

Eliminate or drastically reduce nutrient discharge from rivers and wastewater treatment plants through ambitious water recycling and wetland filtration systems. Storm events will inevitably make total nutrient discharge near impossible to achieve, but an ambitious reduction target should not be shied away from. Sitting alongside this there is a need for a new strategic planning, governance and funding model for stormwater management, particularly in metropolitan Adelaide, if not statewide. With proper resourcing and governance this goal could be readily extended to regional towns situated on the coast such as Port Lincoln, Port Augusta and Victor Harbor.

The challenge

Rivers and wastewater systems are major sources of nitrogen, heavy metals, hydrocarbons as well as litter/debris entering coastal waters, reducing coastal resilience and driving algal blooms as well as other undesirable environmental outcomes such as loss of seagrass meadows and habitat. Reduced water quality, particularly after storms, can also reduce water quality hampering safe swimming and other forms of on-water recreation.

Treatment standards have improved significantly over recent decades, but in the face of the algal bloom there is an opportunity to add real ambition into these goals, reducing stormwater discharge dramatically and rebuilding the resilience of the marine environment.

Key actions

Governance transformation

Stormwater management in South Australia is fragmented and chronically underfunded. Responsibility is split between a poorly-resourced Stormwater Management Authority and 68 local councils with vastly different capacities and priorities. There is little in the way of a strategic, catchment-based approach. Funding is piecemeal and inadequate. The result is ad-hoc infrastructure, often inadequate treatment strategies and significant pollution loads flowing to our coast.

Required reform

Unified governance structure:

- establish a Metropolitan Stormwater Corporation (or strengthen and properly empower the existing Stormwater Management Authority) with:
 - clear statutory authority over all stormwater infrastructure planning and standards
 - catchment-based planning that crosses council boundaries
 - capital works delivery capacity
 - technical expertise and resources
 - potential accountability to the Office of Marine and Coastal Recovery
 - integration with Green Adelaide to help fast-track urban greening outcomes.

Council roles redefined:

- councils maintain responsibility for local maintenance and minor works
- strategic planning and major infrastructure delivered by Metropolitan Stormwater Corporation
- councils represented on regional catchment committees
- consistent standards applied across all councils
- support and technical assistance for under-resourced councils.

Sustainable funding model:

Funding for replacement and enhanced stormwater management infrastructure is currently inadequate. The algal bloom crisis presents a unique opportunity to increase and reframe how stormwater infrastructure is funded, which tier of government pays and how community charges such as council rates and other levies contribute to this. This should be subject of an immediate independent review to ensure adequate resources are in place to fund new and improved infrastructure, including green infrastructure such as wetlands.

Infrastructure program

Phase 1 (2026-2027): Assessment and planning

- comprehensive audit of all discharge points along South Australia's coastline
- quantify current nutrient loads from each source
- identify priority systems for intervention, including built engineering solutions (new drainage systems) and green infrastructure (wetlands, etc)
- engineering feasibility studies for new solutions
- regulatory framework development.

Phase 2 (2027-2035): Infrastructure transformation

During an intensive eight year build program, wetlands will be developed (see Idea 4b) and upgraded stormwater management and treatment systems constructed.

Expected outcomes

- dramatic reduction in nutrient loading to coastal waters
- prevention of future algal blooms
- creation of valuable wetland habitats
- water security benefits through recycling
- demonstration of world-leading water management

Timeline

2026-2035 (9-year intensive program).



Field River, Hallett Cove

3. Rebuilding native shellfish reefs

Objective

Restore South Australia's long-decimated native shellfish reefs to rebuild natural water filtration capacity, create habitat, absorb carbon and support fisheries recovery.

The challenge

Native oyster reefs that once thrived along South Australia's coastline were harvested to functional extinction by early European settlers. These reefs provided enormous ecosystem services: water filtration, habitat creation, carbon sequestration, and fisheries productivity. Their loss has reduced the ocean's natural resilience.

Building on success

Previous reef restoration projects at Windarra (Yorke Peninsula), Glenelg, O'Sullivan Beach, and Kangaroo Island have demonstrated the viability and benefits of shellfish reef restoration in South Australian waters. There is also significant and broad community support for shellfish reefs, this includes amongst conservationists, fishers and tourism operators.

Key actions

Expansion of existing sites:

- scale-up successful pilot sites to create expansive reef systems
- monitor and adaptively manage existing reefs for optimal performance
- document ecosystem and water quality benefits.

New Priority Sites (based on algal bloom impact zones):

- Gulf St Vincent: Multiple sites along metropolitan coastline including off Hallett Cove and Marino.
- Spencer Gulf: Northern and eastern shores
- Yorke Peninsula and Kangaroo Island shores
- Coffin Bay and Boston Bay (Eyre Peninsula).

Implementation approach:

- legislate for the ongoing building of native shellfish reefs with the *Native Shellfish Reef Establishment and Protection Act* to ensure they are constructed with generational impact on an ongoing basis. This Act would require the government of the day to build a certain (area) target per annum and appropriately fund the project. Alternatively this could be legislated within the modernised Coastal Protection Act (see Idea 1).
- establish reef construction program with dedicated hatchery capacity for native species
- engage commercial fishing industry and community volunteers in reef deployment
- create protected zones for reef establishment
- develop long-term monitoring protocols for reef health and water quality benefits.

Targets

- restore 500 hectares of native shellfish reef by 2035
- create habitat supporting diverse marine communities
- establish self-sustaining shellfish populations and nurseries of other species living in and around reefs.

Expected outcomes

- natural water filtration removing nutrients and particulates
- habitat for fish, crustaceans, and other marine life
- recovery of native shellfish populations
- coastal protection benefits
- educational and ecotourism opportunities.

Timeline

2026-2035 (expansion phase); ongoing roll out as per legislation thereafter.



Announcing the construction of the Glenelg Shellfish Reef with The Nature Conservancy

4. River protection and restoration

Objective

Transform South Australia's degraded river systems from sediment-laden highways into healthy, functioning ecosystems that support rather than threaten coastal waters.

The challenge

Urban and rural river systems have been degraded through channelisation, vegetation clearing, stormwater pollution, the arrival of pest species and inadequate protection. They now function as a way of fast tracking pollution directly to sensitive coastal waters.

4a. Effective governance and protection for rivers

Legal personhood and rights of rivers:

Drawing on successful international models (Whanganui River in New Zealand, Ganges and Yamuna Rivers in India, and others), South Australia should pioneer rights-based protection for its rivers. Legal personhood provides rivers with:

- right to exist, flow, and perform natural functions
- legal standing in court actions
- human guardians to act on the river's behalf
- priority consideration in planning and development decisions.

Corridors of state importance:

Designate priority urban rivers as "Corridors of State Importance" with special governance arrangements:

- Onkaparinga River
- Christies Creek
- Field River
- Sturt Creek
- Patawolonga River
- Gawler River
- River Torrens
- others to be identified.

Urban rivers act:

Establish comprehensive legislation to:

- grant legal personhood to designated rivers
- appoint guardian bodies (combining local communities, scientific experts, and Traditional Owners where appropriate)
- provide dedicated funding for river management
- establish a sub-committee of Green Adelaide, through legislation, to provide advice and direction on the implementation and ongoing management of the *Urban Rivers Act*.
- establish clear standards for stormwater management and riparian zone protection
- create enforcement mechanisms with meaningful penalties.

Regional rivers:

Empower South Australia's Landscape Boards with:

- enhanced authority for river management in regional areas
- additional resources for riparian restoration
- stronger regulatory powers over land use affecting rivers
- capacity to develop and implement river-specific management plans.

4b. Creating new wetlands

Objective: Construct strategic wetland systems along urban rivers to intercept nutrients, create habitat, and transform water quality before reaching the coast.

Key actions

Priority wetland sites:

- identify optimal locations along each priority river for maximum nutrient interception
- focus on sites that can treat both stormwater and base flows
- design wetlands for multiple benefits: water treatment, habitat, recreation, cultural values.

Design principles:

- large-scale systems (minimum 10-20 hectares per major wetland)
- native vegetation suited to local conditions
- hydraulic design for optimal retention time and nutrient removal
- integration with existing parks and open space
- accessibility for community connection and education
- cultural design elements in partnership with Traditional Owners where appropriate.

Target wetland locations:

- Lower Onkaparinga River: 50 hectares
- Gawler River: 40 hectares
- Torrens River (multiple sites): 60 hectares total
- Patawolonga/Sturt Creek: 30 hectares
- Field River: 25 hectares
- additional sites: 95 hectares.

Total target: 300 hectares of new wetlands by 2030

Expected outcomes

- removal of 70-90% of nutrients from stormwater and river flows
- creation of 300 hectares of high-value wetland habitat
- support for migratory birds and native wildlife
- enhanced community amenity and recreation
- natural climate resilience through water retention
- carbon sequestration benefits.

Timeline

2026-2030 (construction phase); ongoing restoration thereafter.



Wetlands at Glenthorne National Park, O'Halloran Hill



Mount Burr Swamp, Millicent

4c. Sturt Creek “Re-Rivering” trial project

Objective

Demonstrate that heavily modified urban waterways can be restored to functioning river systems that improve water quality, create habitat, and enhance community amenity - all while maintaining flood protection.

The challenge

Sturt Creek, like many urban waterways, was extensively concreted in the 1960s and 1970s, transforming a living creek into little more than a stormwater drain. This concrete channelisation increases flow velocity (worsening downstream flooding), completely eliminates habitat, provides zero water quality treatment, creates urban heat islands, and severs communities from connection to waterways. The result is a creek that efficiently delivers polluted stormwater directly to coastal waters while providing no ecological or social value.

The opportunity

Modern river restoration engineering demonstrates that concrete channels can be carefully restored to natural or naturalised stream systems while actually improving - not compromising - flood management. Strategic “re-rivering” of select sections can serve as proof-of-concept for broader urban waterway transformation.

Pilot Project: Sturt Creek trial restoration

Priority Section 1: Oaklands Park - alongside Oaklands Wetlands

This section offers ideal conditions for demonstration:

- adjacent to existing Oaklands Wetlands
- community park setting with high visibility
- sufficient width for channel modification
- active community interest in local environment
- manageable scale for pilot project.

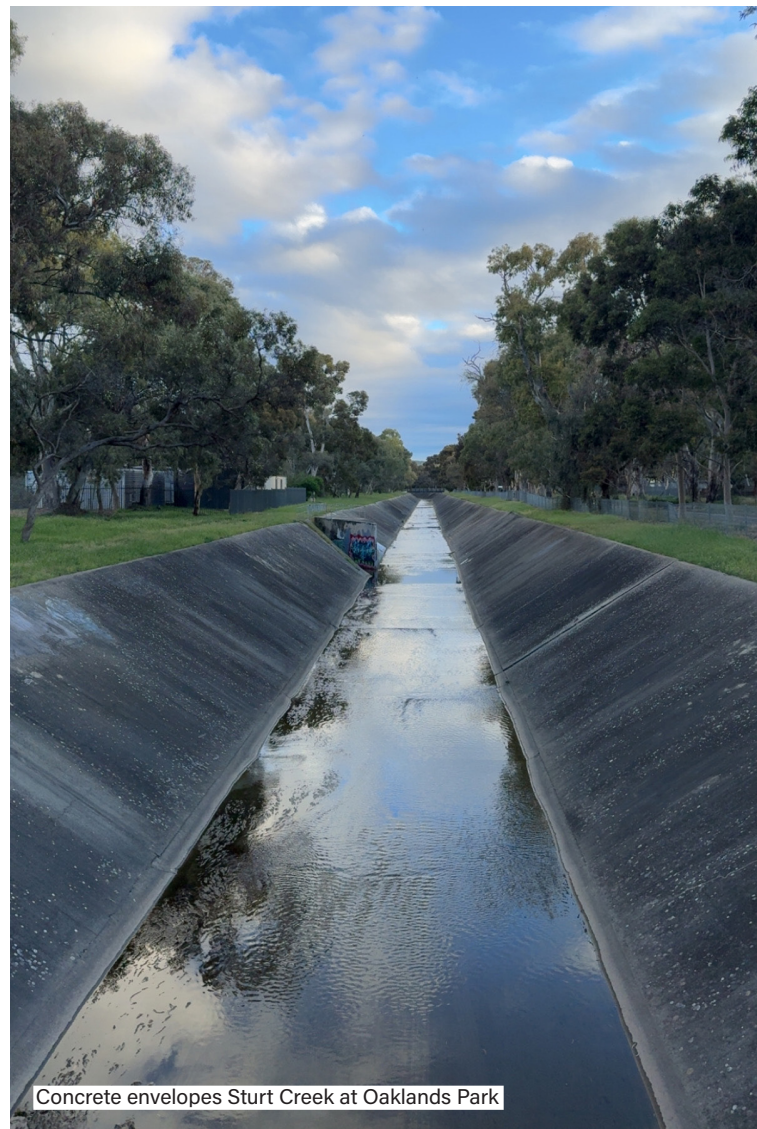
Restoration approach:

- remove concrete channel in 200-300 meter section
- create meandering, natural channel with varying depth and width
- install rock riffles and pools for habitat diversity
- establish riparian vegetation zones (native sedges, rushes, trees)
- create floodplain benches that activate during high flows (maintaining flood capacity)
- install interpretive signage showing “before and after”
- provide community access points (viewing platforms, walking paths).

Priority Section 2 and 3: [To be identified through assessment]

Additional sections of Sturt Creek to be selected based on:

- engineering feasibility
- community benefit potential
- ecological restoration opportunity
- integration with other infrastructure projects
- land ownership and access.



Concrete envelopes Sturt Creek at Oaklands Park

Design principles for re-rivering:

Flood management:

- maintain or improve flood conveyance through thoughtful design
- use floodplain benches and overbank areas for high-flow events
- incorporate detention/retention features where appropriate
- model all designs to demonstrate maintained flood protection
- engage community with transparent flood risk communication.

Water quality treatment:

- slower flow velocities allow sediment settling
- vegetation uptake of nutrients
- biofilm on rocks and substrate removes pollutants
- enhanced infiltration reduces volume to coast.

Ecological function:

- native fish passage and habitat
- macroinvertebrate colonization
- bird habitat (waterbirds, songbirds)
- riparian wildlife corridor
- urban biodiversity enhancement.

Community amenity:

- transformation from eyesore to community asset
- educational opportunities
- improved aesthetics and property values
- cooling effect (removes urban heat island)
- recreation and wellbeing benefits
- community pride and stewardship.

Technical innovation:

- demonstrate advanced urban stream restoration techniques
- generate data on performance (water quality, biodiversity, flood management)
- create replicable model for other concrete channels
- build South Australian expertise in urban river restoration

Implementation approach:

Phase 1: Planning and design (2026-2027)

- detailed hydraulic modeling of Sturt Creek system
- identify optimal sections for restoration
- community consultation and co-design
- engineering design maintaining flood protection
- secure necessary approvals and permits
- cultural heritage assessment.

Phase 2: Pilot construction (2027-2028)

- section 1 (Oaklands Park) construction
- monitoring infrastructure installation
- riparian planting and establishment
- community engagement and education program.

Phase 3: Evaluation and expansion (2028-2030)

- monitor performance (flood, water quality, ecology, community use)
- adaptive management refinements
- sections 2 and 3 construction if Section 1 successful
- document lessons learned for application elsewhere.

Integration with broader recovery:

- reduces nutrient and pollutant loads to coast
- demonstrates transformative potential of urban river restoration
- builds community connection and support for recovery programs
- creates template for river personhood implementation
- shows concrete (literally) results from investment.

Targets

- restore 600-1,000 meters of Sturt Creek by 2030 (3 sections)
- achieve 40-60% nutrient reduction in restored sections
- establish self-sustaining native vegetation communities
- zero increase in flood risk (maintain or improve current capacity)
- 80%+ community satisfaction with restoration
- measurable increase in biodiversity (fish, birds, invertebrates).

Expected outcomes

- proof-of-concept for urban creek restoration in Adelaide
- improved water quality flowing to coast
- habitat creation in highly urbanized landscape
- enhanced community connection to waterways
- model replicable across Adelaide's concrete channels
- international recognition for innovative urban restoration
- community pride and environmental stewardship
- cooling and urban heat mitigation benefits.

Timeline

2026-2030 (pilot program); potential broader rollout thereafter.

Why this matters

Sturt Creek is one of a number of concreted urban waterways across Adelaide. Successful restoration here opens the door to transforming Adelaide from a city where rivers are hidden away as drains, to one where living waterways are celebrated community assets. Every section restored means less pollution reaching the coast and more resilient urban ecosystems.

This pilot project turns a legacy of 1960s engineering mistakes into a 21st century vision of cities living in harmony with water.

5. Growing our seagrass meadows

Objective

Significantly expand South Australia's seagrass coverage to restore critical habitat, improve water quality, sequester carbon, and rebuild marine ecosystem resilience.

The challenge

Seagrass meadows are foundation species for healthy marine ecosystems. They provide nursery habitat for fish and invertebrates, stabilise sediments, improve water quality and sequester significant amounts of carbon. South Australia has lost substantial seagrass coverage since European colonisation and the algal bloom has caused additional damage.

Building on success

Between 2018 and 2020, SARDI led extensive seagrass restoration work demonstrating effective techniques for South Australian conditions.

Key actions

Scale-up of proven methods:

- expand successful restoration techniques across priority sites
- establish large-scale seagrass nurseries for seed and shoot production
- develop volunteer and community engagement programs for restoration efforts.

Priority restoration zones:

- Gulf St Vincent: Focus on areas of historical seagrass loss and recent algal bloom damage
- Spencer Gulf: Restore impacted areas and expand coverage
- Encounter Bay and Coorong region
- Coffin Bay and Boston Bay systems
- areas around restored shellfish reefs (synergistic benefits).

Innovation and research:

- trial heat-resistant and resilient seagrass varieties for climate adaptation
- optimise restoration techniques for different coastal environments
- develop rapid assessment tools for measuring restoration success
- study carbon sequestration rates for blue carbon credit opportunities.

Targets

- restore 2,000 hectares of seagrass by 2030
- achieve 80% survival rate of seagrass
- document measurable water quality improvements in restoration areas.

Expected outcomes

- restoration of critical fish and invertebrate habitat
- improved water clarity and quality
- enhanced coastal resilience against erosion
- significant carbon sequestration
- support for commercial and recreational fisheries
- potential blue carbon revenue streams
- scientific leadership in seagrass restoration techniques.

Timeline

2026-2030 (intensive restoration); 2030-2035 (continued expansion).



Coffin Bay National Park, Eyre Peninsula

6. Dry Creek Salt Fields national park integration and restoration

Objective

Secure the Dry Creek Salt Fields for permanent conservation through integration with the Adelaide International Bird Sanctuary National Park, and undertake comprehensive restoration to create a thriving coastal wetland system that supports marine recovery, sequesters carbon, and provides critical habitat for native fish and bird species.

The challenge

The Dry Creek Salt Fields, located in Adelaide's northern suburbs, represent a unique coastal landscape of mangroves, mudflats, saltmarsh and wetlands extending into Gulf St Vincent. In 2020-2021, the site experienced a hypersaline brine spill that caused dieback to approximately nine hectares of mangroves, 10 hectares of saltmarsh, and nearly five hectares of other vegetation within the adjacent Adelaide International Bird Sanctuary.

Currently under private ownership, the site remains vulnerable to development pressure and inadequate environmental management. Salt production ceased in 2014, and there have been ongoing proposals for housing development of up to 10,000 homes on and around this ecologically significant land. There are areas of the precinct which could accommodate housing and this should be explored carefully in the face of a housing shortage, however the 2020-2021 dieback event demonstrated the critical need for proper stewardship and restoration of these vital coastal wetlands and their partial integration into the national parks estate.

The opportunity

The algal bloom crisis creates a compelling case for bringing some or all of the Dry Creek Salt Fields into public ownership through integration with the Adelaide International Bird Sanctuary National Park. This would secure permanent protection for this unique landscape while enabling large-scale restoration that directly supports marine recovery in Gulf St Vincent.

Key actions

Securing public ownership:

- negotiate with the private landowner to acquire the Dry Creek Salt Fields, or at least the most significant ecologically sensitive parts of the precinct
- explore multiple acquisition mechanisms:
 - direct purchase
 - land swap arrangements with suitable alternative sites
 - conservation covenant agreements
 - combination approaches tailored to owner's interests
- formally integrate the acquired land into the Adelaide International Bird Sanctuary National Park
- establish clear boundaries and management authority under the *National Parks and Wildlife Act*, including establishing a management plan (required by legislation) and resourcing effectively with rangers and restoration investment.

Areas to be protected:

The Adelaide International Bird Sanctuary National Park (or the Dry Creek Salt Fields National Park, if viewed separately) should encompass:

- former salt crystallisation ponds (multiple sections covering several hundred hectares)
- adjacent mangrove forests and saltmarsh communities
- mudflat systems extending to Gulf St Vincent
- buffer zones to protect from urban encroachment
- tidal creek systems including connections to North Arm Creek and Barker Inlet
- total protected area: approximately 400-600 hectares (subject to negotiation and assessment).

Comprehensive restoration program

Mangrove and saltmarsh recovery:

- active restoration of the 2020-2021 dieback zones where natural recovery is slow
- mangrove propagule translocation from healthy areas to accelerate recolonisation
- saltmarsh revegetation using locally-sourced native species
- soil remediation in hypersaline-impacted areas
- long-term monitoring to track recovery and inform adaptive management.

Salt pond restoration and tidal reconnection:

- build on successful tidal reconnection pilot projects that have already demonstrated rapid revegetation of former salt ponds
- systematically reconnect additional salt ponds to natural tidal flows
- remove or remediate compromised gypsum linings that pose contamination risks
- create diverse habitat mosaics: shallow tidal pools, mudflats, vegetated wetlands
- design hydrology to support both marine species and waterbirds.

Blue carbon opportunities:

- capitalise on research showing high biomass and carbon sequestration potential in restored coastal wetlands
- establish the site as a blue carbon demonstration project
- generate carbon credits to partially offset restoration costs
- position South Australia as a leader in coastal carbon sequestration
- contribute to state and national emissions reduction targets.

Habitat creation for priority species:

Shorebirds and waders:

- restore and enhance mudflat feeding grounds for migratory species
- the Adelaide International Bird Sanctuary hosts species that migrate from Alaska and Siberia and is a key part of the East-Asian Australasian Flyway (one of the world's most significant bird migration routes)
- create shallow tidal pools for feeding during high tide
- protect roosting areas from disturbance
- work to eliminate/reduce pest species such as foxes, cats and deer which steal eggs, damage native vegetation (deer) and spread disease
- key bird species include the red necked stint, sharp tailed sandpiper, curlew sandpiper, and many others.



South Australian salt fields can be ideal restoration sites

Raptors:

- enhance habitat for ospreys (fish-eating specialists)
- restore conditions for white-bellied sea eagles
- maintain tall trees and structures for nesting
- protect fish populations that support these top predators
- create disturbance-free zones around nesting sites.

Native fish:

- restore nursery habitat for King George Whiting, blue swimmer crabs, western king prawns, and yellow eye mullet
- young fish use mangrove roots and saltmarsh as refuge from predators
- enhanced juvenile survival supports broader Gulf St Vincent fisheries recovery
- create connectivity between restored wetlands and open coastal waters
- monitor recruitment success to inform broader marine restocking efforts.

Resident waterbirds:

- support breeding colonies of cormorants, ibis, herons, egrets
- enhance habitat for australian pelicans
- protect nesting islands and roosting sites
- maintain water quality and fish populations for feeding.

Nutrient management and water quality:

- transform the site from a pollution source (brine leakage) to a nutrient sink
- restored wetlands will filter stormwater and urban runoff before reaching gulf st vincent
- reduce nutrient, sediment, and contaminant loads to coastal waters
- demonstrate wetlands' role in preventing algal blooms or reducing their impact
- install monitoring systems to quantify water quality improvements.

Community connection and education

- repair and expand the popular St Kilda mangrove boardwalk in partnership with the City of Salisbury
- create new walking trails and viewing platforms throughout the restored salt fields
- re-establish the City of Salisbury's interpretative centre explaining wetland restoration and blue carbon
- develop education programs for schools and community groups
- enable low-impact ecotourism that generates economic benefits
- engage volunteers in revegetation and monitoring programs.

Research and innovation hub:

- partner with universities already involved in dry creek research (e.g. Flinders, Adelaide, UniSA)
- establish long-term ecological monitoring programs
- study blue carbon sequestration rates and methods
- research climate adaptation strategies for coastal wetlands
- share knowledge nationally and internationally
- train the next generation of restoration practitioners.

Integration with marine recovery:

- direct connection to Gulf St Vincent means improved nearshore water quality
- enhanced fish nursery habitat supports restocking programs
- seabird populations connect marine and terrestrial food webs
- blue carbon credits can fund broader marine restoration efforts
- demonstrates ecosystem-based approach to coastal management
- creates resilience against future environmental shocks.

Expected outcomes

- permanent protection of 400–600 hectares of unique coastal wetland
- recovery of mangrove and saltmarsh communities impacted by 2020–2021 dieback
- restoration of former salt ponds to functioning tidal wetlands
- significant blue carbon sequestration (thousands of tonnes annually)
- enhanced habitat for dozens of migratory and resident bird species
- critical nursery grounds for commercial and recreational fish species
- breeding habitat for ospreys, white-bellied sea eagles, and other raptors
- improved water quality in northern gulf st vincent
- economic benefits through ecotourism and carbon credits
- world class demonstration of coastal wetland restoration
- community connection to a transformed landscape
- climate resilience through natural coastal protection.

Timeline

- 2026–2027: negotiate acquisition and integrate into national park
- 2027–2030: phase 1 restoration (mangrove recovery, initial pond reconnection)
- 2030–2035: phase 2 restoration (additional ponds, habitat enhancement)
- 2035+: ongoing management and continued natural succession.

Why this matters

The Dry Creek Salt Fields represent an extraordinary opportunity to transform a degraded, privately-owned former industrial site into a thriving national park that directly supports marine recovery. The site's location, adjacent to the existing Adelaide International Bird Sanctuary, connected to Gulf St Vincent, and close to metropolitan Adelaide, makes it uniquely valuable.

Securing this land prevents inappropriate development, addresses the legacy of the 2020-2021 hypersaline leak, and creates a landscape-scale restoration project that demonstrates what's possible when ambition meets opportunity.

This is about turning environmental liability into environmental asset, creating a place where nature can heal, carbon is sequestered, species thrive, and South Australians can connect with the extraordinary coastal wetlands on their doorstep.

7. Rewilding offshore islands

Objective

Transform South Australia's numerous offshore islands into thriving ecological refuges that support marine ecosystem recovery and provide havens for threatened species.

The challenge

South Australia has numerous offshore islands, many degraded by introduced pests (rats, cats, rabbits, goats) and vegetation clearing. These islands represent extraordinary opportunities for ecosystem restoration that supports both terrestrial and marine environments.

The land-sea connection: Healthy island ecosystems directly support marine recovery through:

- seabird colonies that deposit nutrients in precise, natural patterns (unlike agricultural runoff)
- birds connecting marine and terrestrial food webs
- protection of surrounding waters from development pressures
- genetic reservoirs for species that can recolonize the mainland
- reduced sediment and pollution runoff from stabilised, vegetated islands.

Building on success: The restoration of Flinders Island off the Eyre Peninsula's west coast provides an excellent model, demonstrating successful pest eradication and ecosystem recovery.

Key actions

Island assessment and prioritisation:

- complete inventory of all offshore islands and their current ecological condition
- assess feasibility for pest eradication and restoration
- prioritise islands based on:
 - proximity to algal bloom impact zones
 - presence of threatened species or critical habitat
 - feasibility of pest eradication
 - cultural significance
 - potential for marine ecosystem benefits.

Priority island candidates:

- Fleurieu Peninsula islands
- Yorke Peninsula islands
- Spencer Gulf islands
- islands adjacent to restored marine areas.

Restoration process:

- comprehensive pest eradication programs (rats, cats, rabbits, goats, etc.)
- biosecurity protocols to prevent pest reintroduction
- native vegetation restoration with locally-sourced species
- reintroduction of native mammals, birds, and reptiles
- seabird habitat enhancement
- long-term monitoring and adaptive management.

Species rewilding priorities:

- native mammals (using species appropriate to each island's historical ecology)
- seabird colonies (including shearwaters, penguins, terns)
- threatened species requiring predator-free habitat
- native reptiles and invertebrates.

Targets

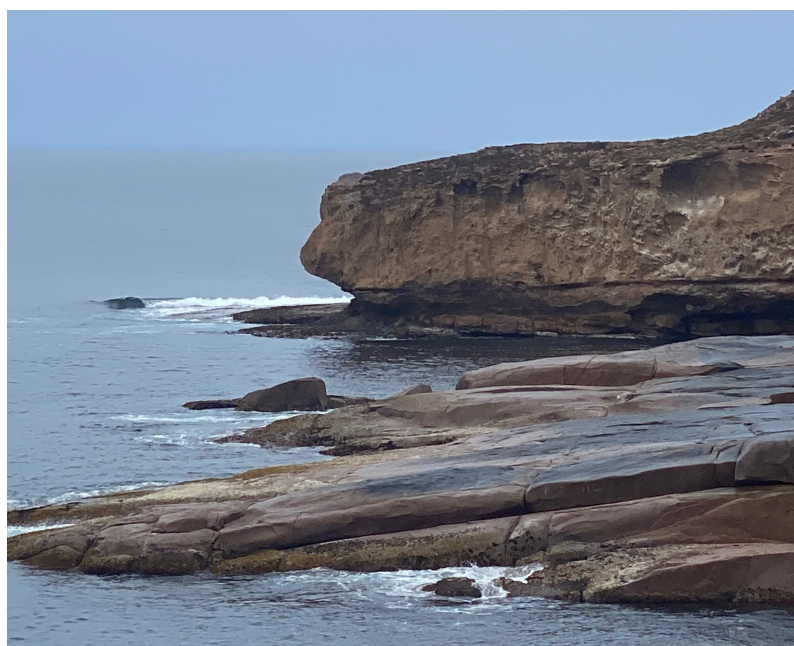
- complete pest eradication on priority islands by 2030
- establish self-sustaining native vegetation on restored islands
- reintroduce threatened species to island refuges
- establish new seabird breeding colonies
- create biosecurity management plans for all restored islands.

Expected outcomes

- thriving predator-free refuges for threatened species
- healthy seabird populations supporting marine food webs
- natural, balanced nutrient cycling in surrounding waters
- demonstration of successful rewilding techniques
- ecotourism and education opportunities
- insurance populations for species threatened on the mainland.

Timeline

2026-2035 (staged restoration program)



Flinders Island, Eyre Peninsula, subject of a national rewilding initiative

8. Restocking programs

Objective

Strategically rebuild depleted fish and marine invertebrate populations once ecosystem conditions support their survival and natural reproduction.

The challenge

The algal bloom has caused catastrophic mortality across multiple marine species. While natural recolonisation will occur to some degree, strategic restocking can accelerate recovery for key species, particularly those that were already depleted or have limited dispersal capacity.

Critical principle

Restocking must be conditional on ecosystem recovery. Releasing animals into degraded conditions wastes resources and causes animal suffering. This program must be carefully sequenced after water quality restoration and habitat reconstruction.

Key actions

Phase 1: Assessment and preparation (2026-2027)

- conduct comprehensive baseline surveys to quantify species losses
- identify priority species for restocking based on:
 - ecological importance
 - commercial/recreational significance
 - natural recovery capacity (or lack thereof)
 - technical feasibility of captive breeding
 - genetic diversity considerations
- develop species-specific restocking protocols
- establish or expand hatchery capacity at research institutions
- create genetic diversity management plans
- develop health screening protocols to prevent disease introduction.

Phase 2: Conditional restocking (2028-2035)

Water quality triggers: Restocking proceeds only when:

- nutrient levels are below algal bloom thresholds for 12+ consecutive months
- dissolved oxygen levels are suitable for species survival
- water clarity meets minimum requirements
- no signs of harmful algal bloom species.

Habitat readiness triggers:

- sufficient seagrass or reef habitat is available
- food resources (zooplankton, small invertebrates) are present
- predator-prey relationships are balanced.

Scale and approach:

- begin with small pilot releases to test survival and methodology
- scale up successful programs gradually
- maintain genetic diversity through multiple breeding lines
- mark released animals for monitoring
- integrate with commercial and recreational fishing communities
- consider temporary closures or restrictions to protect released cohorts.

Targets

- release appropriate numbers for each priority species
- achieve viable post-release survival rates
- document natural reproduction in released cohorts
- measurable population recovery in target areas.

Risk management

- disease surveillance and screening protocols
- genetic diversity management
- avoiding over-reliance on hatchery-origin fish (genetic fitness concerns)
- adaptive management based on monitoring results
- contingency plans if restocking proves ineffective.

Expected outcomes

- Accelerated recovery of key species
- Restored commercial and recreational fishing opportunities
- Rebuilt food web structure
- Community confidence in marine recovery
- Scientific knowledge about restocking effectiveness
- Potential for ongoing enhancement programs.

Timeline

- 2026-2027: Assessment and preparation
- 2028-2032: Conditional restocking (staged, adaptive)
- 2032-2035: Evaluation and potential ongoing programs.



9. Mount Bold Reservoir on-water access

Objective

Provide immediate alternative recreational fishing opportunities while coastal waters recover, maintaining community connection to fishing culture and outdoor recreation.

The challenge

The algal bloom has severely impacted not just marine ecosystems but the people who depend on them for recreation, wellbeing, and cultural connection. Recreational fishers, whether justified or not, feel unable to fish coastal waters safely. This perception is keeping families away from beaches and coastal recreation, with flow-on impacts to mental health, community cohesion, and coastal businesses. People need a safe, accessible alternative to maintain their fishing traditions during the recovery period.

Building on success

As Environment Minister, the opening of Happy Valley Reservoir and Myponga Reservoir for land-based activities (walking, picnicking, birdwatching) and water-based recreation (kayaking, fishing, but not swimming) demonstrated successful multi-use reservoir management. These openings proved immensely popular with South Australians seeking quality outdoor experiences close to Adelaide.

The opportunity

Mount Bold Reservoir in the southern Adelaide Hills represents an ideal next step in the reservoir recreation program. Located within easy reach of Adelaide's southern suburbs, it could provide thousands of South Australians with a safe, attractive alternative for recreational fishing while the coast recovers.

In 2021 extensive planning was undertaken to provide on water access at Mount Bold Reservoir, this is available and ready to go, meaning it could be achieved within a matter of months.

Key actions

Infrastructure development:

- construct accessible fishing platforms and jetties at strategic locations around the reservoir
- develop all-abilities access for inclusive recreation
- create parking facilities and access roads
- install amenities (toilets, picnic facilities, shelter, bins)
- establish walking trails around sections of the reservoir foreshore
- install signage (wayfinding, safety, environmental education).

Recreational management:

- develop fishing regulations appropriate to the reservoir ecosystem
- stock with suitable freshwater species (rainbow trout, brown trout, redfin, etc.)
- establish catch limits and size restrictions
- kayak and small boat access (electric motors only to protect water quality)
- ranger presence for education and compliance
- fishing license requirements (standard SA recreational fishing license).

Integration with marine recovery:

- frame opening as part of comprehensive response to algal bloom crisis
- educational signage about marine recovery efforts
- "while the coast recovers" messaging that maintains hope
- use as case study for adaptive recreation management.

Targets

- open Mount Bold Reservoir for recreational fishing by Easter 2026
- accommodate significant visitor numbers in first year
- achieve high visitor satisfaction
- maintain excellent water quality.

Expected outcomes

- immediate relief for recreational fishing community
- maintained connection to fishing culture and traditions
- mental health and wellbeing benefits from outdoor recreation
- reduced pressure on recovering coastal areas
- economic activity in southern Adelaide Hills
- demonstration of government responsiveness to community needs
- positive news story during difficult recovery period
- long-term recreational asset for South Australia
- intergenerational fishing memories continue uninterrupted.

Timeline

Reservoir open for on water access by Easter 2026.

Why this belongs in marine recovery

While Mount Bold is freshwater, not marine, this initiative is integral to recovery for several reasons:

1. Community resilience: People's connection to nature and fishing is part of what makes the algal bloom so devastating. Maintaining that connection supports community wellbeing during crisis.
2. Pressure relief: Providing alternatives reduces illegal fishing in closed areas and allows coastal ecosystems undisturbed recovery time.
3. Political and social license: Demonstrating responsive action to community needs builds trust and support for the longer-term, more complex marine restoration programs.
4. Economic bridge: Keeps fishing-related businesses viable while coastal tourism recovers.
5. Cultural continuity: Ensures children and families maintain fishing traditions that might otherwise be lost during a multi-year recovery period.
6. Adaptive management: Shows government can respond flexibly to crisis impacts beyond just environmental remediation.

This is practical, achievable, and meets people where they are - missing the simple pleasure of fishing with family and friends.



Visiting Mount Bold Reservoir trails



Launching water access at Happy Valley Reservoir

Call to action

South Australia stands at a crossroads. We can accept incremental responses to the algal bloom that may get us through but will not turbocharge real and exciting environmental recovery. Or we can seize this moment to transform how we relate to our coastal waters.

Ideas for Recovery provides a clear, achievable pathway to not merely repair the damage from the algal bloom, but to build marine and coastal ecosystems that are more resilient, productive, and valued than before the crisis.

The evidence is clear: The interventions outlined here are scientifically sound, economically justified, and practically achievable. What's required is political leadership, sustained investment and a commitment to transformative change.

The cost of inaction far exceeds the investment required. Another algal bloom, continued ecosystem degradation, and the loss of our marine heritage carry costs measured in billions of dollars and immeasurable loss of natural and cultural value.

The time is now. Ecosystems can recover, but only if we act decisively and sustain that action over time. Every year of delay means harder, more expensive recovery ahead.

South Australia has the opportunity to demonstrate national and international leadership in marine ecosystem restoration, creating environmental promise out of devastation. Let's seize it.

Acknowledgements

These Ideas for Recovery have been developed through careful consultation and conversation with people who care deeply about South Australia's marine environment. I am grateful to the many individuals and organisations who have generously shared their time, expertise, and passion to help shape this vision.

My thanks go to the dedicated public servants within the Department for Environment and Water, including Green Adelaide and regional landscape boards, and SA Water who quietly provided technical insights and honest assessments of what is possible. To the non-government organisations working tirelessly to protect and restore our coastal environments - your on-ground knowledge and commitment to conservation has been invaluable. And to the passionate South Australians from all walks of life who took the time to discuss these ideas with me - your love for our coast and determination to see it recovered has been inspiring.

While this document represents my synthesis of these conversations, any errors or omissions are mine alone. The ideas presented here reflect a shared hope that South Australia can emerge from this crisis with a marine environment that is healthier, more resilient, and better protected than ever before.

