

Background report for the Adelaide Coastal Water Quality Improvement Plan

Report 1 Community consultation executive summaries

Information in the following three executive summaries of community consultation reports was provided through Arup Pty Ltd by Strategic Matters with some input from Eco Management Services Pty Ltd.

Executive summary 1

Summary of findings from six meetings held with community, industry and government personnel in August and September 2007

Context

During late August and early September 2007 the Environment Protection Authority (EPA) commissioned Stage 1 of the Adelaide Coastal Water Quality Improvement Plan (ACWQIP) to determine draft environmental values (EVs) and water quality objectives (WQOs) for Adelaide's coastal waters.

As part of the project a consortium comprising ARUP, Eco Management Services and Strategic Matters organised and conducted six meetings along the Adelaide metropolitan coastline—three meetings with community members and three with representatives from government, business and industry. A program of the meetings is provided at the end of this executive summary.

The meetings focused heavily on the development of EVs—those qualities of the waterways valued by the community. In addition to identifying the community's EVs, participants' comments and ideas on the desired state of the coastal waters 20 years into the future were also recorded.

This document highlights the key findings of the meetings.

Process

All meetings followed a similar process that involved:

- a welcome and overview on the purpose of the meeting from the project consortium
- a presentation from the EPA
- a short explanation on EVs from the project consortium
- a whole-of-group brainstorm about what people want the coastline and marine environment to look like in 20 years
- groupwork involving the use of an A0 sized map to identify the EVs important to participants. The notes of the different workshops and the EVs were then collated using six (6) predetermined coastal zones
- a second group exercise that used a 'program logic' framework asking participants to identify: the things (ie practices and attitudes) that need to change to achieve our desired EVs; those programs, processes and projects that we need to achieve our EVs; and those things we need to do to engage the community more effectively.

Meetings concluded with a quick feedback from participants and/or a wrap up by a consortium member and formal thanks from EPA personnel.

An example agenda is provided at the end of this executive summary.

Findings

1 What people want the coastline to look like in the future (20 years)

People are passionate about the Adelaide metropolitan coastline and feel a strong sense of connection with it. For many participants the coastline represents opportunities for activities and recreational pursuits that underpin the lifestyle in Adelaide.

In all meetings there was a vision of the coastal waters being free of stormwater discharge and nutrient-rich outflows in the future. Many advocated for 100% reuse of wastewater to prevent any discharge to the marine environment and espoused 'creative solutions to capture, clean and reuse stormwater'.

People envisioned a future where the coastal water quality and ecology were improved to the point where recreational activities including swimming, boating, walking and fishing were fruitful and could be enjoyed anywhere along the coastline—and at any time of day and year. Direct quotes include:

- ‘Kids catch fish off the jetties!’
- ‘Sandy beaches where people can play and enjoy what’s an important part of our lifestyle.’
- ‘Clean waters that enable me to go swimming and see my feet in afternoon sea waters and observe the sea floor 3–4 metres in depth.’

Importantly, participants noted that an informed and educated community who understood the impacts of their upstream behaviours on the downstream marine environment, was fundamental to achieving a healthy marine environment.

The ability to see the ‘blue line’ was cited by a number of participants as their future for the Adelaide metropolitan coastal waters. This was underpinned by a vision of healthy reefs along the coastline, no species loss due to water quality reduction or habitat loss, and no fisheries closures due to water quality issues.

The ‘health’ of the coastline was seen as very important to all participants who cited a future of healthy mangroves as breeding grounds for fish. The desire was for plenty of fish for recreational and food supply, and no coastal erosion!

Other comments included that the ‘coliform levels be consistent with natural levels and cycles’, that ‘there will be unfettered access to ports (for trading and commercial purposes)’, an ongoing ‘Open Coast with equitable access for all to all beaches’ and ‘car-free beaches’.

In a number of meetings participants cited a future where governments adopt a longer-term outlook and commitment to policies, programs and legislation relating to the coastal marine environment. This extended to an increase in government funds and resources directed to Coastal Care programs.

For participants of two meetings, the need for increased transparency around government programs and timeframes was an important part of the vision for a healthy marine environment into the future.

Finally for many, because the impacts on the marine environment are affected in part by the built form and development decisions that are made, the vision for the Adelaide metropolitan coastline is one of ‘healthy ecosystems and sustainable ESD principles applied to all built form’. This encapsulated the adoption of innovations in urban planning, particularly in relation to projected rising sea levels.

2 Environmental values

EVs were clustered along themes and are largely described moving north to south along the coastline:

Aesthetics

Views of the mangroves and Bird Park are recognised as important values of the Port Gawler and Port Adelaide environments. The open spaces for fishing and boating are also perceived as important for the community.

The dune systems from Semaphore to West Beach are valued for their recreational function and high-quality aesthetics:

- Semaphore Park—Best place for walking and fish and chips...
- West Beach—Not overly developed or very busy—can enjoy the beauty.

The River Torrens which is highly valued for its aesthetics and recreation values including—walking, cycling, linear park, and aesthetics. Glenelg is valued for its commercial activities, cafes, gathering hub, jetties, and high energy social environment.

Further south, the cliffs and geography at Hallett Cove are highly valued aesthetically as are the cliffs and views at Seacliff. The Onkaparinga Park and estuary reserve is recognised as having high aesthetic value—including its sapphire flats and sand dunes. The cliffs and beach at Port Willunga are valued as being ‘special’ to people.

Other areas of high aesthetic value include the Ochre Point Cliffs, Aldinga Reef and Sellicks Beach where the quality of the visual environment is highly valued by the community.

Commercial

The Adelaide metropolitan coastline is highly valued for its commercial outputs. Examples from the Port Gawler–Port Adelaide area include the cockle, blue crab and prawn industries, the port and container wharf, the commercial shipping hub of Port Adelaide, Cheetham Saltfields and the Torrens Island Power Station.

The relationship between the environment and commercial marine activities is recognised and also highly valued by the community with the following issues cited as being important—St Kilda Mangroves (a breeding ground for fish), Barker and Angus Inlets, and the dolphin sanctuary at Port Adelaide. Fishing, both recreational and commercial, is recognised as important along the southern metropolitan Adelaide coastline.

Accessible boating activities, such as the North Haven Marina, Port Quays and the North Haven and Outer Harbor developments, are highly valued by the community. These were identified as having a high commercial value.

The commercial benefits of coastal tourism are recognised and highly valued by the community. Sites that were particularly noted include the Semaphore–West Beach hub, West Beach Caravan Park, Glenelg precinct and marina, Henley Square and beach, Marine Discovery Centre, all marinas and jetties, the Kingston Park boat ramp and the Patawalonga boat harbour.

Further south, Hallett Cove is valued for its tourism and/or commercial value, as are the Port Noarlunga and Aldinga reefs, Port Noarlunga town centre, Maslin’s Beach, Port Willunga and Sellicks Beach. These locations were identified as having important maritime history and associated commercial value.

Cultural

The cultural value of the coastline along metropolitan Adelaide is significant. Access to the coast is perceived to be fundamental to how Adelaidians live their lives.

A range of Tjilbruke sites run along the entire length of the Adelaide metropolitan coastline. These are also highly valued, although less well understood.

The northern end of the coastline displays a range of cultural values that relate to both Indigenous and non-Indigenous activities. These include a ships’ graveyard, the Bird Park, jetties, European history relating to immigration, and Barker Inlet and Le Fevre Peninsula cultural sites (including former mangroves at Port Adelaide) that link with the Tjilbruke track.

The coastal pathway from Aldinga to North Haven is highly valued by the community as it provides unfettered access to the coast. The Semaphore to West Beach dune systems are recognised as a site of high cultural value.

Jetties are perceived as important gathering places that create ‘place making’ in the landscape and support the ‘Adelaide’ way of life.

The [Indigenous] Kurna site at Marino Rocks and the Tjilbruke Springs and trail that run from Kingston Park to Sellicks (and beyond) are highly valued by the community.

Hallett Cove reef and Conservation Park are locations of cultural significance and high value. The Onkaparinga Park with its sapphire flats and sand dunes is recognised as having high cultural value and is part of the Kurna Dreamtime areas. The ‘Washpool’ is also an important Kurna Dreamtime site.

The Port Willunga ‘Star of Greece’ shipwreck, Aldinga Scrub, Port Noarlunga, and Aldinga and the southern beaches are perceived as particularly important to the lifestyle of the local community. The McLaren Vale wine-growing district that links with the southern beaches is recognised as having high cultural, tourism and lifestyle values that creates ‘another dimension of vibrancy’ along the coast.

Ecological

- The relationship between the health of the coastal environment and ongoing access to the coast is well recognised and valued. Participants recognise that the ocean is often regarded as a dumping ground and are keen to challenge the perception that this is acceptable. Environmental issues that are highly valued by the community include:
- Port Gawler and Barker Inlet–sapphire, mangroves–tidal flats: shorebirds (sandpiper), international bird migration site(s), the Port Adelaide dolphins, mangroves as important breeding ground– fish nursery, Mutton Cove and marine reserves.
- The Gillman wetlands are perceived as an important feature designed and constructed to treat stormwater prior to it entering coastal waters.
- The Tyre Reef at Semaphore is seen as important by the community for ecological reasons.
- Remnant dunes from Semaphore to West Beach are highly valued with some suggesting that all built form should be removed from the dune system over time.
- The Patawalonga Lakes are recognised as having high ecological value.
- Further south, the reef off Seacliff, Hallett Cove Conservation Park and Marino Conservation Park are all valued by the community as places of ecological importance.
- The remnant dunes and cliffs and seagrass beds and marine reserve provide an important haven for aquatic life including breeding areas and protection for species.
- Horseshoe Reef at Christies Beach, Noarlunga Aquatic Reserve, Field River, and Onkaparinga River and estuary are valued by the community as having high ecological and geological value.
- The remnant vegetation at Port Stanvac was earmarked as needing protection. Aldinga scrub and the estuarine environment are highly valued as are the Aldinga reef, Sellicks Beach and the Washpool.

Recreational

There are a large range of recreational activities that people engage in along the coastline of metropolitan Adelaide. The longevity of access to the sea and a clean coastal environment are considered as paramount by the community to enable ongoing recreational enjoyment. Activities and sites that are particularly valued include:

- Water based: surf lifesaving, surfing, boating, yachting, diving, fishing, swimming and snorkelling at the reefs in Semaphore, Glenelg, Seacliff, Christies, Noarlunga and Aldinga.
- Land based: jetties, driving, fishing, walking and cycling.
- Port Gawler mangroves: tidal flats and crabbing, fishing and boating, Outer Harbour and North Haven marinas, fishing and swimming near/on jetties, coastal beach swimming and walking, fishing and boating.
- Hubs and beaches: Henley Beach, West Beach, Glenelg and Brighton.
- West Beach: recreation zone/hub—swimming and cycling.
- River Torrens: highly valued for recreation, walking, cycling, Linear Park and aesthetics.
- Marino Rocks: aquatic recreational activities.
- Port Stanvac: snapper fishing at the Barges Ground.
- Hallett Cove reef and Conservation Park: walking, education, Noarlunga–recreation hub, Port Willunga cliffs and beach–families, swimming, fishing.
- Maslin’s Beach: swimming and walking, nudist culture.

- Aldinga: driving on the beach.
- Southern beaches: clean seas, clean accessible beaches.
- Moana: high recreational value—swimming, walking and Sellicks Beach—cliff swimming, walking.

Issues of concern

There were opportunities for attendees to cite any issues of concern about the metropolitan coastline of Adelaide. Key issues of concern as highlighted by participants are noted below. For a more comprehensive list please refer to individual meeting notes.

Whole of coastline

- stormwater discharge and proper management of stormwater discharge
- all coastal dredging
- extra population growth—additional one million people will place pressures on the coastline
- desalination plant discharge highly saline water: Desalination by-product will create salinity issue
- sand dredging and carting
- impact of climate change: sea surges, rising sea levels, increasing water temperatures, and habitat degradation and loss
- blackwater pumping stations for boats at marinas—ballast water
- impacts from recreational fishing: overfishing and fishing debris
- coastal erosion
- seagrass beds dying along the whole coast
- industry: pollution and discharge into the marine environment
- introduced pests especially at marinas
- beach and marine litter (out of sight, out of mind)
- urban development has land and marine ecosystem impacts
- cars on beach: get them off!!!

Specific sites include:

- Christie Creek outflows: sediment and turbidity, effluent impacts
- Maslin's Beach: sediments and collapse and outflows
- Port Stanvac: needs cleaning up
- Bolivar treatment works
- Torrens River outlet: algal blooms, rubbish, flush out
- Patawalonga: wastewater treatment plant and dredging
- Onkaparinga River discharge
- Christies Beach: wastewater treatment plant, sewage spills
- Port Stanvac: refinery, ecological consequences
- Sellicks Beach: septic tank effluent disposal system (STEDS) discharge.

Questions

1 What are the practices and attitudes that need to change to achieve our environmental values?

When considering those practices and attitudes that need to change to achieve environmental values, participants focused on water management and reuse, and an enhanced attitude towards resource use generally. It was identified that this attitudinal shift needs to occur both at industry/business and broader community level.

[We need to] create an enthused and informed community who are prepared to take responsibility....

It was perceived that in order for business attitudes towards water quality to change, a range of economic incentives and/or disincentives will need to be created. Enforcement and exemptions were also highlighted as techniques that may be used to assist businesses in the more sensitive and sustainable use of water.

It was noted that best practice in coastal management will be most effectively achieved through enhanced coordination and partnerships across governments. Examples that were cited included updating the State Planning Strategy and aligning it with the AWQIP, eg stormwater harvesting and devising a management strategy and planning for zero stormwater discharge from local councils:

Enhance the ability for [local] councils to work more closely with each other on planning and environment management (eg combined councils get together to manage surface and sub-surface contaminants in drainage systems).

Participants noted the need to challenge the perception that being 'water wise' is difficult. This was underpinned by a range of possible education programs/practices including the need to change attitudes about:

- the impact of activities upstream to downstream environment
- the impacts of marine litter
- the benefits of reusing water
- how sewage can be cleaned/refined and used for other purposes.

A number of participants cited a desire to promote the ecosystems services provided by the marine environment. This would involve emphasising the actual dollar value of ecosystems, eg value carbon sequestration–seagrass loss—as leverage for climate change impacts.

Other changes that were noted include the need to focus on big things rather than little things. Examples included:

- increasing the understanding of the coastal and catchment systems as an integrated system
- honouring the urban boundary
- avoiding 'death by a thousand cuts'
- higher and sustained level of funding for the environment.

In addition, participants noted the desire for regulatory consequences to be more relevant and meaningful, and suggested an overhaul of legal practices that are currently perceived to be too lenient.

Finally, long-term monitoring and evaluation (of water quality) was identified as a desired practice that should be underpinned by a solid database and scientific knowledge.

For a more comprehensive list of practices and attitudes, please refer to notes from each meeting.

2 What projects and programs do we need in place to achieve our environmental values?

When asked to highlight those projects and programs that we need in place to achieve our desired EVs, a range of suggestions were put forth:

Possible programs:

- introduce ballast waters management practices
- increase community education, eg KESAB programs that are ‘end-user’ focused
- adopt a proactive ‘Rewards and Recognition’ scheme(s) for those doing the ‘right thing’
- develop an ‘Adopt-a-coast’ school program, especially for inland/regional schools
- more (and consistent) research and monitoring, eg impacts of prawn trawling in the Gulf of St Vincent
- expand the current Coastcare program with centralised coordination and resourcing
- more rehabilitation programs, especially for sand dunes.

Possible projects:

- emergency planning:
 - investigate more fully the likely impact of sea level rise, eg the possible effect of very high tides on the Port Adelaide area
 - develop a ‘disaster plan’ for emergency spills, eg enhance wetlands at Port Adelaide and on main arterial roads.
- innovative planning
 - develop greater incentives for ecologically sustainable development (ESD) to underpin planning and urban design eg wastewater reuse uptake/purple pipes
 - amend development plans so that the Port River and estuary are included in coastal zone strategy/development planning.

Resources for effective projects:

- follow-up research into revegetation along the coast, especially the sand dunes
- enhance resourcing for current ‘X Watch’ (eg ReefWatch, WaterWatch, Weed Warriors, etc) education programs via NRM Boards.

Education and compliance:

- introduce signs at marinas for rubbish bins and rubbish collection
- increase the compliance of industry and residential actions at a local government level (enforcement as a final ‘solution’).

Turbidity/runoff/discharge:

- address the sediment/turbidity of Angus Inlet
- reduce runoff through the expansion of wetlands, eg along the Torrens River
- address the discharge from Torrens/Glenelg, eg perception of persistent silt after high flows
- increase the capacity of trash racks to capture rubbish and filter water prior to it expelling into the sea.

A more comprehensive list of the programs and projects suggested at the workshops was included in the notes from each meeting.

3 How can we enhance community buy in?

This question was only asked at the final meeting, due to the mix of participants who attended. The suggestions included:

- linking resources to consistent support and administration of projects for community
- making NRM exciting [and dynamic] eg Al Gore's film *An Inconvenient Truth*
- ensuring all programs and projects are outcome based
- providing more education and information, eg working within the school system
- raising the profile of environmental values
- ensuring easy access to and digestible information from government
- improving signage of positive coastal activities
- running more information/awareness sessions
- providing regular information from a central location—avoiding stops and starts
- actively linking with locations/businesses such as the Marine Discovery Centre for all ages/community groups, eg aquariums.

2007 workshop times, locations and attendance figures

Date	Time	Location	Key Target
Thursday 30 August	6.00–8.30 pm	Lefevre Community Centre, Osborne	Community
Friday 31 August	9.30 am–12 noon	Seaford Ecumenical Centre, Seaford	Industry and government
Monday 3 September	9.30 am–12 noon	Port Adelaide Town Hall, Port Adelaide	Industry and government
Tuesday 4 September	6.00–8.30 pm	Adelaide Sailing Club, West Beach	Community
Wednesday 5 September	6.00–8.30 pm	Maslin's Community Centre, Maslin's Beach	Community
Thursday 6 September	2.00–4.30 pm	SARDI, West Beach	Industry and government

Executive summary 2

Summary of findings from focus groups held with community, industry and government personnel in May 2008

Context

In July 2007 the Water Quality Branch of the Environment Protection Authority (EPA) engaged a consortium (Arup, Eco Management Services Pty Ltd and Strategic Matters) to develop an Adelaide Coastal Water Quality Improvement Plan (ACWQIP). The geographical area of the project covers the Adelaide coastal waters from Port Gawler in the north to Sellicks Beach in the south.

The ACWQIP examines discharges and the way that they interact with the coastal marine environment. Importantly it provides appropriate responses aimed at arresting the decline and/or allowing recovery of the coastal marine environment.

The EPA is committed to the consultation of stakeholders on this important project. To this end, the EPA supported an inclusive consultation process that was divided into two stages:

- Stage 1 involved six independently run meetings held along the Adelaide metropolitan coastline in August and September 2007. These sessions resulted in the development of draft environmental values, water quality objectives, river flow objectives, and associated river flow regimes forming the foundation of the plan
- Stage 2 of the project is focused on testing and applying the draft EVs that have been developed and will initially involved four targeted focus groups. These four sessions were held in mid-May to late June 2008.

The notes contained within this document are from focus groups with representatives from state government, industry and NRM, local government and community associations. Three focus groups were held from 16–20 May 2008 at the South Australian Research and Development Institute (SARDI), and the Adelaide Sailing Club at West Beach.

The focus groups acknowledged the considerable amount of work already undertaken by the Adelaide Mount Lofty Ranges Natural Resources Management (AMLR NRM) Board, local government and key state government departments. Many of these organisations have developed plans with multiple outcomes for NRM, water resource management and water quality.

The focus groups actively concentrated on two core themes:

- the consolidation of the material from a range of documents (mentioned above) and an analysis of this material including comments on proposed environmental improvement targets
- how to collectively develop and implement actions that will improve the overall quality of the coastal waters of Adelaide.

A list of participants and a copy of the agendas are located at the end of this executive summary.

Advancing the environmental values, targets and actions

To assist with advancing the development of environmental values, targets and relevant actions, the study team in discussion with the EPA, selected five 'stressors' that could have an adverse impact on the coastal waters:

- suspended solids¹
- nitrogen and nutrients

¹ Suspended solids is a measure of the mass of fine inorganic particles suspended in the water.

- coloured dissolved organic matter (CDOM)²
- pathogens
- salinity.

The results from the three focus groups demonstrate the following key points.

Suspended solids

With regard to suspended solids, all groups perceived an opportunity for state government (Planning SA) and local councils to work more closely to identify open space where stormwater capture could occur. Dedicating open space to stormwater capture was identified as a sensible and much needed opportunity for the metropolis of Adelaide. This extended to the application of water sensitive urban design³.

Making better use of greenfield sites such as Cheltenham Race Course and other open space within metropolitan Adelaide was a recurring theme at all focus groups. Others noted the opportunity for all councils to divert and treat stormwater on the site. Another common theme was that of introducing financial incentives for the adoption of WSUD in all new developments.

A number of participants identified the opportunity to link stormwater management strategies with existing targets for stormwater and wastewater reuse in the Water Proofing Adelaide strategy (2006) being undertaken by SA Water. Others mentioned the need to identify and define the events that can be managed and 'controlled' with the aim of minimising extreme events.

For a reduction in suspended solids to be achieved, participants identified a range of organisations that need to be involved such as local government, Planning SA, Department for Transport, Energy and Infrastructure (DTEI), AMLR NRM Board, NRM Boards, development and building industry, the Department of Primary Industries and Resources SA (Fisheries), relevant federal government departments and the Stormwater Management Authority (SMA). It was also noted that increased coordination is required across urban councils (including priority setting and fiscal alignment).

As an educational device, one of the focus groups suggested the idea of a demonstration project. As a suggestion they cited using one waterway system on which actions from the Torrens Taskforce could be implemented. The project could successfully be used as a high-visibility demonstration project for Adelaidians. Another prospectively powerful education tool suggested was that of the widespread publication of aerial photos regarding stormwater and river output to the coastal waters following a first event/flush.

What was apparent in two of the three focus groups was the desire to develop a catchment modelling system (and sea level rise) for the whole of the coastline of Adelaide. For this to be successful, participants cited the need to underpin it with monitoring and evaluation (M&E) and dedicated actions.

One focus group suggested that all major development (on federal and state government land) should be subject to stringent environment controls regarding stormwater disposals. Another suggestion was making stormwater guidelines mandatory, with a particular focus on big polluters. Finally there was a recurring theme for increasing the enforcement of and penalties for pollution that might occur from construction and development activities.

² Coloured dissolved organic matter (CDOM) is the optically measurable component of the dissolved organic matter in water.

³ Water sensitive urban design (WSUD) refers to opportunities for stormwater and grey water harvesting and reuse, pollution reduction and innovative reductions in potable water demand.

Nitrogen and nutrients

One of the suggestions to reduce nitrogen and nutrients in coastal waters was that of capturing an increased level of wastewater and piping it through to locations where demand for wastewater might exist. For example, the areas of Barossa Valley and Adelaide Plains (Virginia). It was recognised that in order for this to occur there would need to be a substantial investment in appropriate infrastructure. The success of such project(s) would be predicated on investigations into the areas/industries where there may be a long-term demand for treated wastewater.

Other suggestions to manage nitrogens and nutrients included:

- removing all septic tanks across catchments—STEDS within the Adelaide Hills catchment
- developing a live monitoring and measuring program that could capture water quality and quantity measurements when needed
- introducing a 'Horsham' type approach to integrated capture process to whole of Adelaide coastline
- developing further commercial use of wastewater
- introducing a compulsory third-pipe system for greenfield and brownfield developments.

All groups were keen to increase the opportunity for aquifer storage and recharge (ASR) schemes that would collect and filter stormwater, before irrigation use on open space areas, ovals and trees. One group suggested that this could develop into an effective carbon absorption scheme over time.

Another suggestion was that of working with Penrice to improve 'use' of waste products eg nitrogen. Many participants cited the opportunity to develop a rating system for business regarding best practice for water management.

Parties who could sensibly be involved in exploration of wastewater reuse, and nitrogen and nutrient load reductions were identified by participants as SA Water, Penrice, local governments and Adelaide Plains' primary producers.

Colour dissolved organic matter

When discussing CDOM, participants identified the need to ascertain where the CDOM is originating from. In addition, participants highlighted the need to educate the public on what they could be doing to reduce the CDOM impact. Suggestions put forward included assisting people to undertake more composting, and a 'ban' on leaf blowers.

Further to this, participants cited the need for all councils to assess and improve their street sweeping operations to reduce sediment in drains, and to select street trees with minimim organic litter.

Other initiatives to reduce CDOM included enforcement of SEDMPs (soil and erosion drainage management plans) for all construction activities, and improvement of monitoring regarding the impact on coloured matter from construction and development activities.

Pathogens

When discussing pathogens, participants raised a range of opportunities. Two key (though unrelated) challenges identified were: 'poo' management eg horses and dogs, and the number of ministers currently involved in water issues. Participants also identified the need to investigate and monitor septic systems and take any management action that might be required. Further to this, there is a recognised need to introduce community waste management systems (CWMS) and STEDS where none exist.

The key ideas for 'managing' pathogens included:

- creating opportunity for increased stormwater capture with the possibility of reducing pathogens through retention ponds (shallow wetlands for pathogen disinfection)
- eliminating wastewater treatment outflows and catchment overflows—achieved through greater reuse of wastewater and stormwater.

Two of the three focus groups identified E coli from birds as a significant contributor to pathogens in Adelaide coastal waters. Although this issue is recognised as requiring management, it has been widely perceived as being in the ‘too hard basket’. The fishing industry was also identified as a group that should have tighter controls in place with regard to pathogens.

At a political and customer service level, one group suggested the idea of creating a ‘one stop’ water shop to streamline the ‘politics’ and information available on water.

Salinity

The issue of salinity was also raised in the focus groups. Participants noted a number of ideas including undertaking a pilot project to assess and study the hydrodynamics of concentrated brine likely to be discharge from the proposed Adelaide desalination plant. Participants felt strongly that a study to assess the impacts of salinity events and phytoplankton needs to be commissioned now. Others cited the need to underpin the development (including all phases of planning, implementation and regeneration) with triple bottom line (TBL) actions.

Participants highlighted the need to enforce long-term monitoring as a mandatory requirement for the desalination plant proposed for Port Stanvac.

Other comments

It was perceived that the Adelaide coastal waters could benefit greatly from increased control and management of the release of water from the ballasts of boats. Minimising the contamination of the marine environment from the release of oil and other material from ballast water was also seen as important.

Targets

Only one new target was suggested at the focus groups—a 25% reduction in suspended solids by 2018.

Key opportunities for action

All participants from the three focus groups were invited to identify those actions that were most important to them. The findings below highlight those areas that were allocated the highest number of ‘votes’ per group. It is important to note that the findings below are not ‘statistically valid’. What they provide is an insight into those actions that participants felt most strongly about:

- undertake integrated planning with regard to open space and stormwater capture across metropolitan Adelaide underpinned by the need to identify and ‘quarantine’ geographical locations where this can occur, eg Cheltenham Race Course
- maintain and enhance gross pollutant traps, especially during storm events
- engage in genuine and substantial investment in infrastructure and long-term management relating to reclamation of wastewater underpinned by research into supply and demand, as well as into the capacity to store reclaimed water
- invest in infrastructure, research and development to transfer reclaimed water to places for irrigation and other use, eg Barossa Valleys and Adelaide Plains
- give priority status to the integration of urban development with greater reuse of stormwater via developments such as Cheltenham Racecourse for aquifer recharge and invest in infrastructure that returns stormwater to groundwater where appropriate
- develop a strategy with long-term targets that integrates stormwater and wastewater reclamation across metropolitan Adelaide
- increase political will to confront and resolve water issues
- work with Penrice to improve ‘use’ of waste products

- develop a catchment modelling system (and sea level rise) underpinned by monitoring and evaluation (M&E) and dedicated actions
- establish baseline load related targets for catchments
- increase financial incentives for adoption of WSUD
- increase enforcement of and penalties for pollution caused by construction development activities
- ensure that one state government agency (participants touted the EPA) adopts overall carriage for the management/ coordination of Stage 2 of the ACWQIP.

Vision

As a final exercise, participants were invited to articulate their vision for the Adelaide metropolitan coastal waters in 20 years time. Sentiments and some verbatim comments are captured below:

- in 150 years, to watch a moderate flow from the River Torrens outlet and not see any impact on the receiving water body and also to know that it is not having any adverse impact that is not visible
- a city shaped around primary dependence on public transport, carbon neutral development and self sustained on rainfall from within its own catchments, with a drainage network reflecting national values
- to have a well managed water management system that provides protection for marine ecosystems and ensures an ecologically sustainable community
- to be world recognised as some of the best beaches in the world as pollution free
- to have a political leadership that has the will and intent to manage water for the betterment of the community.

Other visions

Ecosystem

- clean and beautiful coastal waters that support a healthy marine ecosystem and allow business and community to enjoy the use of coastal zone
- seagrass beds increasing in size
- a coastline that contains diverse and stable natural life
- safe, clean waterways where yabbies, frogs and creatures live in harmony with humans
- seagrass regrowth healthy
- clean seas in Gulf St Vincent
- restored marine and coastal environment 'a la' pre-European settlement
- gulf marine park for world unique ecosystems
- seaweed back to where it was 30 years ago
- the preservation and protection of the existing dunes system
- the encouragement of biodiversity and the return of species
- healthy coast and marine ecosystem for all species
- vision = healthy ecosystem
- recovery of *Amphibolies* and *Posidonia* loads into the current 'coastal slop' zone
- functionally and structurally sound natural ecosystems supporting natural, social and economic demands.

Recreation and public health

- an actively utilised coast safe for recreation

- clean, clear and protected
- clean beach water
- clean, healthy, accessible, productive = healthy urban coastline.

Public awareness and responsibility

- a healthy environment with people who are aware of their impacts and responsibilities
- water proofing Adelaide with potable water
- no degradation from human impacts
- incorporate the impacts of climate change
- stable equilibrium for coastal waters and associated ecosystems; better knowledge and management of outputs and big rethink on desalination plant
- restored water quality that support ecosystem recovery/health community enjoyment of the coastal environment and sustainable commercial practices.

Wastewater and water reuse

- a coast that meets the environmental, commercial and recreational needs of the state and local community
- reuse of water so no outflow to sea
- zero wastewater and zero stormwater to Gulf St Vincent.
- no stormwater and effluent discharge water going into the sea
- that in 20 years all stormwater and treated water will be reused and not enter the marine environment
- the collection of all/most stormwater in the catchment and a substantial reduction of sediment entering the Gulf St Vincent.

Other

- no desalination plant
- a column of clean sea water surrounded by ample volumes of clean sand
- no further development within 200 metres of the coast line
- a ban on all fish takes where species are threatened
- no more dumping of dredge spoil into the Gulf St Vincent
- state government to release marina strategy publicly.

List of participants involved in May 2008 workshops:

- Adelaide Mount Lofty Ranges NRM Board (AMLR NRM Board)
- Balance Carbon
- Boating Industry Association of SA
- CEPG Inc
- City of Charles Sturt
- City of Holdfast Bay
- City of Marion
- City of Mitcham
- City of Onkaparinga

- City of Port Adelaide–Enfield
- City of Salisbury
- City of West Torrens
- Conservation Council of South Australia
- Department for Environment & Heritage—Adelaide Living Beaches
- Department of the Environment, Water, Heritage and the Arts—Coastal Catchment Initiative
- District Council of Mallala
- Eco Management Service Pty Ltd
- Environment Protection Authority
- Friends of Gulf St Vincent
- Garden Island Yacht Club
- Office for Water Security
- OWA/Fishing Industry
- PIRSA
- SA Water
- Save our Gulf Coalition
- Stormwater Management Authority
- Western Adelaide Coastal Residents Association.

Executive summary 3

Summary of Kurna Nation workshop to explore the environmental values for Adelaide's coastal waters, 24 June 2008

Overview

In July 2007 the Water Quality Branch of the Environment Protection Authority (EPA) engaged a consortium (Arup, Eco Management Services Pty Ltd and Strategic Matters) to develop an Adelaide Coastal Water Quality Improvement Plan (ACWQIP). The geographical area of the project covers the Adelaide Coastal Waters from Port Gawler in the north to Sellicks Beach in the south.

The plan examines discharges and the way that they interact with the coastal marine environment. Importantly it provides appropriate responses aimed at arresting the decline and/or allowing recovery of the coastal marine environment.

The EPA is committed to the consultation of stakeholders on this important project and has to date held 10 meetings. The notes contained within this overview are from the Kurna Nation meeting held on 24 June 2008 at the Surf Life Saving Club, Somerton Park South Australia.

Key messages

- Aboriginal people cannot separate cultural and ecological values—they are the essence of the landscape.
- The coast is an integral part of the overall system and landscape for Aboriginal people and cannot be assessed and/or managed in isolation.
- The coastline is dying through a lack of respect for the integration of systems.
- Many small projects do not equate to a healthy overall system.
- All of the coast has cultural and ecological significance and cannot easily be simplified to a range of geographical locations.

General observations/discussions

First comments (verbatim)

- We need to acknowledge the destruction that has gone on to date.
- To ensure useful outcomes—invite early involvement from Kurna People in relevant projects ... avoid a quick meeting at the end of the project.
- Kurna Nation is seeking REAL partnerships with state government, local government and NRM Boards that need to be based on real agreements:

We want to leave a legacy to people and places ... leave a deed to the people.

- The waters have been destroyed eg dolphins dying in Port River. How can they live over the long term?

Structures and possible funding

- Keen to set up structures that are Indigenously owned and managed. We need Aboriginal Rangers for NRM—for land and sea.
- Allocation of funding for training via PIRSA.
- Need full ranger status—rangers need to be local to Country. (No one can speak for Country unless from that Country).
- The national 'Caring for Country' program includes a \$6-m Indigenous component available for Aboriginal programs.

- There is real opportunity for legislation to more effectively be brought together to strengthen Caring for Country and to acknowledge and respect Aboriginal people's spiritual and ecological connection with the land.

Legislation	Issue	Outcome
Native Vegetation Act 1981	Protection of sites and Country—needs to be underpinned with better linkages and integration	Move past loopholes
Heritage Act 1993		
Development Act 1993		
Environment Protection Act 1993		
Native Title Act 1994		

Partnerships

- This is must be based on the '3 Rs'—reciprocity, recognition, respect.
- Protection of sites—acknowledgment of sites and in some cases of the significance of sites that cannot be shared with non-Aboriginal persons.
- Partnerships need to be founded on the basis of respect—especially of timeframes. Avoid asking for advice at the eleventh hour—after decisions have been largely made. Kaurna people don't appreciate being pulled in for six minutes after something has been discussed for six years!
- Government 'killing' the natural system through development eg Sand Replenishment Program, building on dunes.
- Preservation of Country and continuity is of paramount importance, eg olive trees should be seen as pests and destruction of gum trees across landscape should be addressed.

Environmental/cultural/spiritual values of the coastline

Stewardship

- Meaningful partnership with EPA.
- Stewardship of Country important. Real partnerships that are meaningful.
- Learn from mistakes made in the past.
- Avoid 'patch on patch repairs' → need to look at things holistically—look at whole of Country creeks, rivers, springs and coast together.

Biological considerations

- Natural resources (wetlands/rushes)—natural filtration system—loss of natural resources is a concern.
- Biological diversity, eg seahorses live in seagrass (they need the seagrass), migrating birds used to visit/birdlife along the coast eg Lockleys/Onkaparinga River, all species of fish, butterflyfish (green morwong), whiting, etc.
- Mallee scrub → Adelaide Plains and sand hills along coastline to coastal reed bed/coastal estuary → all part of natural filtering system.
- Need protection of sites and Country.
- Mangroves/samphires = natural filtering system:
 - fish nursery/crustaceans—harvesting of food in these areas

- loss of these areas with building too close to these places.
- Part of process is to rehabilitate lands.
- Part of Caring for Country into the future.
- Natural filters, eg Barossa Valley limestone filters waters in the area → filters organisms/nutrients and pollutants.
- Filtration—scrub lands—natural filtration lost, eg Cheltenham—stop large developments—have natural filtration/springs and open space.
- Filtration—reserves along the Adelaide Plains coastline for filtration—need plant life—revegetation/rehabilitation plans for coastal precincts and creeks (flora and fauna).
- Crustaceans at opening of river—protection of sand dunes and protection of the end of Onkaparinga River.
- Torrens Weir—swans in the area in 1970s.
- Only River Torrens Spring left is the one near Coopers Brewery.

Cultural and recreational

- Onkaparinga River has springs too → cultural and spiritual significance. History > 5,000 years—red gums along river.
- There are seasonal overlays along the Adelaide coastline that have cultural and spiritual significance.
- Swimming in waters → coastal waters/beach and Rivers Torrens and Onkaparinga.
- Recreation/boating/regattas on Torrens Lake.
- Rivers and springs connected.
- Whole stretch of Adelaide coastline is of cultural and spiritual significance to Kaurna people, eg Tjilbruke Springs to Buckland Park.

Healthy waters—how to regain them?

- Fountain water in the Square and Adelaide ... people used to be able to drink them ... where have they gone?
- River Torrens has several springs (cultural and spiritual significance) → now polluted.
- Loss of birds ... reeds ... black swans habitat.
- The system needs rain ... the ocean also requires some fresh water, eg River Murray/estuaries to assist with balance of life/growth of aquatic plants and animals.
- Concerns about fertilisers on crops and impacts on waters, eg need organic crops and need to use less water.
- Some of the land should be left alone → in natural state.

Possible projects/actions

Local councils

- Local councils to undertake a water audit of the tributaries (creeks)—how much going to sea/how much can be harvested?
- Where does the run off go from roads and houses? To the sea?
- We need to introduce creative filtering systems further up in catchments to avoid pollution/contaminants making it to the ocean.

Household level

- People need rainwater tanks (not be charged) and tanks for gardens to be self sustaining, eg tanks the length of fence line, rainwater tanks under roads and grey water for gardens.

- People need to be educated to be self sustainable.
- Consider what Aboriginal culture has lost due to progress.

EPA & NRM Board (suggestions)

- Signage at sites to inform people of cultural and spiritual significance.
- Potential for food gardens with native plants ... Kurna community can assist with input to choice of plants for revegetation.
- Cultural kiosk, including cultural heritage.
- Adopt the '6 seasons' framework of Aboriginal people to inform and guide NRM projects.
- Kurna people advising NRM Boards on revegetation of creek banks → specific trees and scrub to location.
- EPA to consider the employment of a Kurna person to embed values in system....

Project ideas

- Undertake a cultural 'mapping of Country'.
- Opportunity for training/employment for Kurna people in water audits.
- The vision for coastline involves connectedness to Country: both in terms of significance for Indigenous and non-Indigenous people.
- Signage, eg Aboriginal and historical places around metropolitan Adelaide and south coast.
- Ngarrindjeri—sea Country plan
- Dolphin sanctuary—make it real.

Other notes

- 'Knowledge of waters of cultural and spiritual significance'
- 'Track' not trail.
- Tread lightly....
- 'Everyone has a responsibility'.
- Continuous process/linking → relationships with councils.
- Fixing culturally as well as environmentally.

Note that members of the Kurna Heritage Board and Kurna members of the Four Nations NRM Governance Group participated in this workshop, but individual names of participants will not be listed.