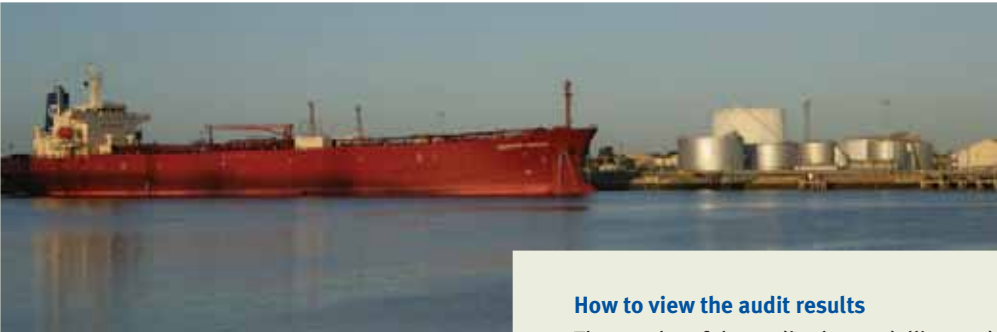


Port Waterways Water Quality Improvement Plan



Port Waterways Water Quality Improvement Project

How you can help us create a cleaner Port Waterways environment

The South Australian Environment Protection Authority (EPA) has developed targets for the clean-up of the Port Waterways. It has done this with financial support of the Australian Government-funded Coastal Catchment Initiative and other stakeholders.

We are creating a Water Quality Improvement Plan – and we need your feedback. At the end of this brochure are contact details.

About the Port Waterways

The Port River and Barker Inlet area – the Port Waterways – is an important place for all South Australians. We care for its ecosystem – especially the resident dolphins. Fishers, boaters and birdwatchers have grown to love this piece of Adelaide wilderness, and we all share in the prosperity that trade and industry nearby have brought us.

The Water Quality Improvement Plan

The waterways need to be restored, and many people are working hard to achieve it. The plan will help us achieve our objectives.

To create it, we began by asking residents, industries and interest groups what the waterway means to them. We also asked about how the waterway should be used and what hindered these uses. The resulting environmental values have been used to develop water quality objectives.

We completed a full audit of all discharges to the waterways. Then a computer model enabled us to understand how discharges to the waterway would have to change to meet the water quality standards.

How to view the audit results

The results of the audit, the modelling and the options are available in the draft plan. You can view it on the EPA website at www.epa.sa.gov.au.

While we have tested our computer model with real conditions in the waterways, experience tells us that models are only an approximation of what is really happening. There is no substitute for assessing the real world in making decisions – particularly where these involve large amounts of taxpayer's money or shareholder funds. We have applied a margin of safety to the discharge targets, which makes them a little conservative. However, as we continue to monitor the waterway, and refine our model with better information, we will refine the targets – possibly upwards a little.

How nutrient loads have changed

The table below shows how nutrient loads in the waterways have changed since 1995.

An excess of nutrients from discharges into the waterways – mostly nitrogen and phosphorus – have degraded the ecosystem. Excess nutrients are the cause of algal blooms (which have killed fish and clogged mangrove roots) as well as loss of seagrasses and unpleasant odours.

You can see that although we have a challenge in front of us, dischargers – particularly SA Water – have achieved a lot already.

The challenge

The proposed reductions represent a considerable challenge to industry and to the South Australian community. However, there is a real commitment from everyone to achieve a sustainable waterway.

The map shows where dischargers are in the waterway. It also shows the targets that the dischargers have set for the long term and what they are committed to achieving in the first Water Quality Improvement Plan. We will re-assess it and develop a new one every seven years.

Who are the discharge managers?

PENRICE SODA PRODUCTS

Penrice have been producing soda ash for detergents and glass making at Osborne since 1939. Their nitrogen discharge is in the form of ammonia, which they use in their process. Ammonia is expensive, and Penrice recover almost all of it except for a small portion that escapes to the Port River. Penrice have committed to plant modifications to retain more ammonia – committing to reduce their nitrogen discharge to less than 575 tonnes per year by 2010 through an Environment Improvement Program – legally enforceable by the EPA.

They are undertaking research to further reduce this discharge, and aim to discharge less than 250 tonnes per year by 2015 if technology allows. If they are unable to achieve this target by this time, they will pursue reductions continually through successive Environment Improvement Programs until their discharge is reduced to target levels.

SA WATER – BOLIVAR WASTEWATER TREATMENT PLAN (BOLIVAR PLANT)

SA Water is responsible for most of the nutrient load reductions to the waterway to date. Its nitrogen discharge has reduced from almost 1800 tonnes in 1995 to less than 500 tonnes in 2004. The cost of this to taxpayers has been over \$200 million.

Most of the Bolivar plant discharge travels north, out of the Port Waterways. A number of further options are available to reduce loads from Bolivar through engineering modifications, but they are all expensive.

SA Water is a leader in the supply of wastewater for crop production, and a large proportion of its discharge is diverted for this in summer. SA Water is working with the EPA with the intention of developing sustainable storage of winter wastewater discharges in underground aquifers for use during summer.

LOCAL COUNCILS

Local councils have a key role in ensuring that urban development does not result in polluted runoff to the Port Waterways. Making sure that developers apply best stormwater practice and Water Sensitive Urban Design features will also assist with implementing the Stormwater Management Plans.

Source	1995		2004		By 2010		Target	
	Nitrogen	Phosphorus	Nitrogen	Phosphorus	Nitrogen	Phosphorus	Nitrogen	Phosphorus
Catchment and Stormwater Sources	75	19.2	41	3	36.5	2.7	36.5	2.7
Regional groundwater	10	0.25	10	0.25	10	0.25	10	0.25
West Lakes	30	3	41	6	41	6	41	6
SA Water	1776	320	477	232	477	232	104	44
Penrice Soda Products	1300	3	820	0.7	575	0.2	200	0.2
Other Licensed	7	2.4	7	2.4	5.8	2.3	5.8	2.3
Recreation	10	2	10	2	8	1.6	8	1.6
Sediment	<100	<10	<100	<10	<100	<10	<100	<10
Atmospheric fallout	32	2	32	2	32	2	32	2
Total	3340	361.9	1538	258.4	1285.3	257.05	537.3	69.1

Local councils

Councils ensure that urban development does not result in polluted runoff to the Port waterways.

Sediments

Sediments absorb nutrients and also release them – depending on a number of factors. The present estimate for the overall release of nutrients is about 100 tonnes per year over the whole of the waterway.

SA Water (Bolivar)

Discharge load (tonnes per year)	Present	WQIP Target	Long term
Nitrogen	477	not defined	100
Phosphorus	232	not defined	40

Most of the Bolivar plant discharge travels north, out of the Port Waterways. Nutrient loads will further reduce with increased re-use, but these are difficult to quantify at present. Further capital works at the Bolivar plant are likely to be considered only after most re-use options have been explored.

Atmosphere

The waterways receive about 32 tonnes of nitrogen every year from the atmosphere. Motor vehicles are the major source.

Penrice Soda Products

Discharge load (tonnes per year)	Present	WQIP Target	Long term
Nitrogen	820	575	200

Penrice aim to further reduce their nitrogen load to 250 tonnes per year by 2015, if cost-effective technology can be further developed through their research and development program.

SA Environment Protection Authority

The SA EPA is developing codes of practice for boating and marinas, wharf management and stormwater management. These provide the tools minimise polluted runoff from day-to-day activities in and around the waterways. The EPA also monitors the water quality in the Port Waterways.

Nutrients

Nutrients in Adelaide's coastal waters are drawn into West Lakes, travel through the lake system and are discharged into the Port River through tidal flow.





What will the EPA do?

The EPA will continue to ensure that dischargers apply best available technology economically achievable and that Environment Improvement Plans reflect the targets in the WQIP. The EPA also has a key role in continuing to monitor the water quality of the Port Waterways, continuing to develop and use the Port waterways water quality model and to ensure that there is open reporting of the progress of the WQIP to the community.

Where to from here?

The reductions represent a considerable challenge to industry and to the South Australian community. However, there is a real commitment by everyone to meet community environmental values.

Although there will be a new plan every seven years, it will also be subject to minor review and possible changes every two years. This could result in changes to the discharge targets over time.

Please share with us your views

The draft Port Waterways Water Quality Improvement Plan will be finalised in March 2007. To incorporate your views, we need your feedback by 31 January 2007.

All submissions received by the EPA will be acknowledged.

The results of the audit, the modelling and the options are available in the draft plan. You can view it on the EPA website at www.epa.sa.gov.au.

You may provide your comments online at the EPA consultation web site: www.epacomments.sa.gov.au or you can forward them by mail, fax, phone or email to:

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