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Report of the Select Committee on Dolphins in the Adelaide Dolphin Sanctuary and Port River

Interim Report

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SELECT COMMITTEE ON DOLPHINS IN THE ADELAIDE DOLPHIN SANCTUARY AND PORT RIVER

The Select Committee on Dolphins in the Adelaide Dolphin Sanctuary and Port River is a Parliamentary Committee established by the Legislative Council.

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EXECUTIVE SUMMARY

On 15 June 2022, a Select Committee of the Legislative Council (the Committee) was established to inquire into and report on further legislative and policy measures to better protect the dolphins in the Adelaide Dolphin Sanctuary (ADS) (the Inquiry). This interim report has been tabled to address the urgency with which the Committee believes management responses need to be undertaken. A final report will be tabled in 2023.

The ADS sits within the Gulf St Vincent in South Australia, about 13.5 kms from the City of Adelaide, encompassing Barker Inlet (Yerta Bulti) and the Port Adelaide River, and extending from the North Haven Marina to Port Gawler and the Adelaide International Bird Sanctuary (AIBS). It is home to a resident population of about 30 Indo-Pacific bottlenose dolphins (*Tursiops aduncus*). Around 400 dolphins also visit the ADS, including common bottlenose dolphins (*Tursiops truncatus*) and short-beaked common dolphins (*Delphinus delphis*).

The ADS is also home to a major shipping port, urban residential developments/areas, and other industries, as well as adjacent wastewater treatment works and historic and active landfill repositories. Tourism is popular in the ADS with a variety of on- and off-water sports and recreational activities available. Urban density is increasing in the area and there are mining leases adjacent to the ADS.

Submitters to the Inquiry expressed concerns about the health of the ADS dolphins and the ecosystem more broadly. Concerns were specifically about the:

1. Declining health of the resident population of ADS dolphins;
2. Recent mortalities and/or disappearances of the ADS dolphins; and
3. Number of ADS calves that are not surviving until weaning.

Submitters also identified potential threats to the ADS ecosystem and suggested management responses to the threats identified. Threats to the ADS identified by submitters were:

1. The lack of clarity over who has authority and responsibility;
2. Dredging;
3. Some fishing practices;
4. Industry and wastewater discharges into the ADS;
5. The speed of boats and other on-water motorised vehicles;
6. The lack of visible enforcement; and
7. The loss of mangroves and other native vegetation.

The Committee received 24 submissions and heard from 30 witnesses. The Committee also conducted a site visit on 25 October 2022 to the St Kilda Mangrove Trail, Garden Island, Torrens Island and Outer Harbor.

The Committee found that the objects of the *Adelaide Dolphin Sanctuary Act 2005* are not being met. Although a single cause for the dolphins' declining health and mortalities has not been

discovered, the Minister for Environment and Water should continue to support research into the health of the ADS ecosystem and dolphin population structure.

Further, the Minister for Environment and Water should work with stakeholders on a transparent governance framework to provide clarity of regulatory authority of the ADS. The Minister should also consider establishment of an advocate for the ADS or specialist advisory board to help guide adaptive management and mechanisms to allow the Minister to act proactively and reactively to mitigate impacts.

The Committee made 14 recommendations.

FINDINGS AND RECOMMENDATIONS

After carefully considering the evidence, the Committee makes the following findings and recommendations:

TERM OF REFERENCE I: LIMITING DREDGING

The Committee found that there is potential for dredging to negatively impact the ADS.

Recommendations:

The Committee made no specific recommendations for dredging, but notes that a lack of information about toxicants in the sediment is dealt with in Terms of Reference III and VII.

TERM OF REFERENCE II: RECREATIONAL FISHING

The Committee found that:

1. The ADS dolphins are being negatively impacted by fishing gear and that this is contrary to the objects of the ADS Act.
2. Heightened public awareness of individual dolphins that reside in the Port River and Barker Inlet means a very high risk of public outrage from entanglements of, and injury to, those dolphins.
3. There is community concern about the lack of signage and educative material at the ADS, particularly about wildlife entanglements in fishing line/gear.
4. Options 2 and 3 (particularly if combined) from PIRSA's proposed management options for recreational fishing in the ADS are likely to help mitigate impacts, but further information is required from PIRSA on proposed spatial and temporal restrictions.
5. PIRSA's management options paper does not provide a review of the dolphins' spatial and temporal use of the ADS and whether dolphins are more likely to become entangled with fishing gear from certain fishing practices within certain parts of the ADS.

Recommendation 1:

- a) PIRSA should lead a review of recreational fishing within the ADS that has aims, first and foremost, to protect the dolphins from entanglements and meets the objects of the ADS Act;
- b) PIRSA should acknowledge that there is a very high level of community investment in individual dolphins residing within the ADS, and that there is a very high level of risk of public outrage and media attention from dolphin entanglements;
- c) The Minister for Environment and Water works collaboratively with the Minister for Fisheries and other stakeholders to develop a holistic approach to education and

awareness-raising of the threats some types of fishing gear and practices can pose to dolphins; and

- d) PIRSA should lead a collaborative review of recreational fishing that:
- i. identifies and examines different fishing practices and gear in the ADS;
 - ii. analyses patterns of use by the ADS dolphins; and
 - iii. describes appropriate management options for recreational fishing.

TERM OF REFERENCE III: LARGER FINES FOR INDUSTRY DISCHARGES INTO WATER

The Committee found that:

1. Penalties for polluting the ADS are inadequate and need stronger enforcement.
2. Although direct causes of the declining health and mortalities of the ADS dolphins is unknown, toxicants are likely to be implicated.
3. Not enough is understood about legacy toxicants lying in the sediment in the ADS, particularly PFAS and microplastics, and the potential to impact the health of the ADS dolphins.
4. There is no plan for funding and actioning rehabilitation of legacy toxicants in the ADS.
5. The community expects monitoring of water quality to be targeted and conducted more regularly in the ADS (Barker Inlet and Port River) to allow threats to be detected in a timely manner, and appropriate management responses to be undertaken.
6. There has been a lack of leadership in efforts to fund and action rehabilitation of legacy toxicants in the ADS.

The Committee found in relation to the discharge into the RSAYS marina that:

7. It is concerning that investigations into the RSAYS's issues with the stormwater outlet halted after initial investigations were undertaken in early 2021 without the cause of water flowing from the outlet on non-rainy days being discovered, particularly as this was deemed to have an impact on the ADS.
8. There is insufficient clarity on who is responsible for leading investigations on the cause of water flowing from the outlet on non-rainy days and how the water may have impacted upon the ADS.
9. There has been a lack of leadership in working with the RSAYS and local and state government agencies to undertake further investigations into the origin of the discharge, and deciding adaptive management actions, as a precaution, to protect the ADS.

Recommendation 2:

The Committee recommends that the Minister for Environment and Water should consider:

- a) reviewing the level of enforcement and penalties for polluting into the ADS;

- b) a toxicant audit of the ADS be undertaken in the water and sediment as soon as possible (taking into account what is already understood about toxicants in the ADS) and the results made publicly available;
- c) a baseline of acceptable levels of toxicants in the water and sediment be developed, taking into account the potential for bioaccumulation of some toxicants;
- d) a review of global best practice approaches to rehabilitation of legacy toxicants in rivers.
- e) an action plan be developed and funding secured to clean-up toxicants in the water and sediment if levels are unacceptably high; and
- f) monitoring of water quality within the inner parts of the ADS to detect threats to the ADS early and provide information for management responses.

Recommendation 3:

The Committee recommends that the Minister for Environment and Water should consider governance mechanisms to coordinate and action investigations, reporting and management responses to ensure issues within the ADS are comprehensively followed up and resolved.

TERM OF REFERENCE IV: BOAT SPEEDS

The Committee found that slowing down boats and other vessels in the ADS is likely to reduce the risks of injuries to dolphins caused by propellor or hull strikes.

Recommendation 4:

The Committee recommends that the Department for Infrastructure and Transport reviews:

- a) the speed limit at North Arm with the view that vessel speeds be limited to 7 knots at all times when there are no spotters present (i.e. spotters must be present when boats are practising if going above 7 knots); and
- b) the speed limits in the ADS in consultation with stakeholders and consideration given to lowering the speed limit from unlimited to 9 knots (between beacons 22 to 35) to lower the speed but allow for vessels to turn safely.

TERM OF REFERENCE V: INCREASING MARINE AND SAFETY OFFICERS

The Committee found that:

1. The objects of the *Adelaide Dolphin Sanctuary Act 2005* are not being met.
2. The impacts on the ADS have caused a decline in the health, and most likely the deaths/ disappearances, of resident dolphins.
3. Despite improvements to the ADS, urgent action is required to address the decline in the dolphin's health.

4. There is a disconnect between identifying potential impacts to the Adelaide Dolphin Sanctuary and undertaking proactive and/or reactive measures to mitigate those impacts, and that this has helped contribute to the decline in health and deaths/ disappearances of resident dolphins.
5. Although government agencies (including local government) are meant to be working together to implement the object of the ADS Act, there is a lack of central coordination for adaptive management which has helped contribute to the decline in health and deaths/disappearances of resident dolphins.
6. A lack of understanding of the biological or ecological reasons for the recent deaths of resident dolphins should not be used as an excuse for not immediately actioning management responses to identified impacts to the ADS.
7. The number of marine safety officers and park rangers needs to be increased to provide high visibility within the ADS and respond to threats within the sanctuary.
8. There needs to be a sustainable funding base to support an increase in the number of marine safety officers and park rangers dedicated to the ADS.
9. The Department for Environment and Water's marine mammals' intervention policy and procedures need reviewing, in collaboration with stakeholders, because of the high visibility of the ADS population of dolphins, and the community's concerns about perceived (or real) lack of interventions or mishandling of interventions.
10. There needs to be an appropriate mechanism(s) in place that allows community/volunteer rescue organisations to operate collaboratively with park rangers and other stakeholders within the ADS to undertake marine mammal rescues in a safe, transparent and accountable manner.

Recommendation 7:

The Committee recommends that the Department for Environment and Water develops and works within a new framework, with local government and other stakeholders, to ensure the objects of the ADS Act are being met, and that the new governance framework brings clarity and accessibility to the community.

In particular, the community needs to be clear on who makes decisions about management of the ADS and who undertakes mitigating actions in respect of threats to ecosystem health and dolphin health and welfare.

Recommendation 8:

The Committee recommends that the Minister for Environment and Water appoints an appropriately qualified body or person to:

- a) advocate for the ecosystem health of the ADS and advise the Minister on appropriate proactive measures to meet the objects of the ADS Act;
- b) advise the Minister on the research and monitoring of estuarine and coastal ecosystem health and management responses to mitigate impacts to the ADS if indicators show ecosystem health is declining;

- c) advise the Minister on regular water and/or sediment quality monitoring; and
- d) advise the Minister on all development, dredging and energy and mining (exploration and production) applications (within or adjacent to the ADS) that may be a direct or indirect impact to ecosystem health.

Recommendation 9:

The Committee recommends that the Minister for Environment and Water considers undertaking a review of the *Adelaide Dolphin Sanctuary Act 2005* to ensure that the Minister has appropriate authority to act in the face of threats to the ADS.

Recommendation 10:

The Committee recommends that the Minister for Environment and Water:

- a) secures a sustainable funding base for the ADS to allow for development and finalisation of a management plan, as well as appropriate management to proactively or reactively address any declines in ecosystem health and maintain a visible regulatory presence; and
- b) continues to support and funds researchers undertaking further investigations into ecosystem health and/or dolphin population dynamics.

Recommendation 11:

The Committee recommends that the Minister for Environment and Water considers funding and establishing an ADS interpretive and education centre.

TERM OF REFERENCE VI: SHELLFISH REEFS

The Committee found that installation of shellfish reefs in the ADS is desirable and would help improve water quality.

Recommendation 12:

The Committee recommends that the Department for Environment and Water works collaboratively with state and local agencies and other stakeholders to support efforts to trial shellfish reefs within the ADS.

TERM OF REFERENCE VII: WATER QUALITY MONITORING

The Committee found that:

1. There is community concern about toxicants in the sediment within the ADS;
2. The community is concerned about new toxicants in the ADS in the form of PFAS and microplastics; and

3. There is insufficient information to determine whether the toxicants and other pollutants are harming the health of the dolphins.

Recommendation 13:

The Committee recommends that the Minister for Environment and Water considers:

- a) supporting further research into toxicants and other pollutants to identify at what point the level of impact on the ADS will be considered unacceptable and what rehabilitation and management needs to be undertaken to decrease impacts to an acceptable level; and
- b) the EPA undertake targeted water quality and sediment testing in the ADS and be appropriately resourced.

TERM OF REFERENCE VIII: MANGROVES AND SALTMARSH AT ST KILDA

The Committee found that the sectoral approach to environmental regulation is resulting in confusion within the community about procedures for compensation and/or rehabilitation as a result of impacts to the mangroves caused by the spillage of brine.

Recommendation 14:

The Committee recommends that the Minister for Environment and Water should collaborate with the Minister for Energy and Mining, local councils and stakeholders on developing a framework of governance for the ADS that will provide clarity over responsibilities for adaptive and/or rehabilitative management and compensation from industrial and mining activities.

LIST OF ACRONYMS AND ABBREVIATIONS

ADS	Adelaide Dolphin Sanctuary
ADS Act	<i>Adelaide Dolphin Sanctuary Act 2005</i>
Committee	Select Committee on the Adelaide Dolphin Sanctuary and Port River
DEM	Department for Energy and Mining
DEW	Department for Environment and Water
EPA	Environment Protection Authority (SA)
Inquiry	The inquiry into further legislative and policy measures to better protect the dolphins in the Adelaide Dolphin Sanctuary (ADS)
Minister	Minister for Environment and Water
PFAS	Per- and poly-fluoroalkyl substances . The two most well-known PFAS are PFOS (perfluorooctane sulfonate) and PFOA (perfluorooctanoic acid)
PIRSA	Department of Primary Industries and Regions SA
RSAYS	Royal South Australian Yacht Squadron
SA	South Australia(n)

INTRODUCTION

On 15 June 2022, a Select Committee of the Legislative Council (the Committee) was established to inquire into and report on further legislative and policy measures to better protect the dolphins in the Adelaide Dolphin Sanctuary (ADS) (the Inquiry). This interim report has been tabled to address the urgency with which the Committee believes management responses need to be undertaken. A final report will be tabled in 2023.

The ADS sits within the Gulf St Vincent in South Australia, about 13.5 kms from the City of Adelaide, encompassing Barker Inlet (Yerta Bulti) and the Port Adelaide River, and extending from the North Haven Marina to Port Gawler and the Adelaide International Bird Sanctuary (AIBS). It is home to a resident population of about 30 Indo-Pacific bottlenose dolphins (*Tursiops aduncus*). Around 400 dolphins also visit the ADS, including common bottlenose dolphins (*Tursiops truncatus*) and short-beaked common dolphins (*Delphinus delphis*).

The ADS is also home to a major shipping port, urban residential developments/areas, and other industries, as well as adjacent wastewater treatment works and historic and active landfill repositories. Tourism is popular in the ADS with a variety of on- and off-water sports and recreational activities available. Urban density is increasing in the area and there are mining leases adjacent to the ADS.

M. Horrill expressed how important the dolphins were to them personally: ‘... my relationship with the dolphins, how they helped me personally heal from a childhood wracked by domestic violence ...’¹. S. Bremner expressed a similar sentiment: ‘... I sat and watched that dolphin for 45 minutes, feeling calmer than I had in a long time and like I had experienced something truly magical’². The Conservation Council SA stated that: ‘the presence of dolphins in an industrial port so close to a major city is a unique and wonderful gift to the people of South Australia’³.

In 2021, the Minister for Environment and Water (the Minister) launched an investigation into the reported declining health, deaths and disappearances of dolphins known to be residents of the ADS. As part of the investigations, the Minister was to recommend research and/or management responses. The investigation focussed upon five lines of inquiry to help inform appropriate management responses, being:

- nutrients and toxicology;
- disease;
- harmful algae;
- trends in ADS dolphin mortalities; and
- ADS dolphin population and structure.

¹ Submission #3 Horrill, pg. 2

² Submission #9 Bremner, pg. 1

³ Submission #24 Conservation Council SA, pg. 1

Of particular concern is that the dolphins reported dead or disappeared have core home ranges within the inner areas of the ADS⁴. Sightings of the number of resident dolphins show population numbers have been declining since 2011⁵. Also, long-term monitoring shows that no calves have survived to weaning for the past three (3) years⁶. An investigation working group was formed and included a range of state government agencies, local councils, SA Museum and CSIRO, and community groups⁷. A Veterinary Reference Group was formed in 2019⁸.

The Minister's investigation has concluded that because there has been no evidence of a single cause responsible for the recent dolphins' deaths that there is likely to be multiple anthropogenic (historic and current) contributors of stress to the population⁹. Investigations are, however, ongoing because the government does not have complete information on the ADS dolphins' population structure and genetic mating system.

Governance arrangements

The Adelaide Dolphin Sanctuary was proclaimed in 2005 with commencement of the *Adelaide Dolphin Sanctuary Act 2005* (the ADS Act) (and its associated regulations).

The objects of this Act are—

- (a) to protect the dolphin population of the Port Adelaide River estuary and Barker Inlet; and
- (b) to protect the natural habitat of that population.

Adelaide Dolphin Sanctuary Act 2005

The Department for Environment and Water (DEW) has primary jurisdiction of the ADS. Other state agencies and local councils have some legislative responsibility in ensuring the objects of the ADS Act are met. In particular:

- Environment Protection Authority SA (EPA) monitors for water quality and regulates discharges into the water and dredging activities;
- Department for Energy and Mines (DEM) regulates mining and exploration;
- Department of Infrastructure and Transport regulates maritime activity and state strategic infrastructure;
- Primary Industries and Regions SA (PIRSA) regulates recreational and commercial fishing;
- Native Vegetation Council regulates the removal of vegetation for the purposes of development activity;
- Renewal SA owns land adjacent to the ADS and has an interest in increasing urban density in the area; and

⁴ Submission #6 Bossley, pg. 5

⁵ Submission #6 Bossley; pg. 3

⁶ Submission #6 Bossley; pg. 4

⁷ Submission #1 City of Port Adelaide Enfield; #19 DEW

⁸ Submission #19 DEW

⁹ Submission #19 DEW

- SA Water and the Stormwater Management Authority share responsibility for stormwater management with relevant councils and Landscape Boards (Green Adelaide).

These regulated activities can have negative impacts upon the ADS dolphins and the broader ecosystem and have the potential to be cumulative stressors. It is not currently known what impacts such cumulative stressors may have upon the ADS ecosystem.

DEW undertakes broad responsibilities within the ADS, including regulation, education and awareness-raising activities, animal welfare and research, and information management. There are currently two full-time employees and one 0.6 part-time employee that work in the ADS and broader Encounter Marine Park¹⁰.

The ADS Act has not been reviewed since its commencement in 2005. DEW commenced a review of the ADS Management Plan (2008) in 2017/18 but this has not yet been finalised. The Adelaide Dolphin Sanctuary Board was abolished by the *Statutes Amendment (Boards and Committees—Abolition and Reform) Act 2015* with its functions being adopted by the SA Parks and Wilderness Council, which is supported by DEW:

A second important positive characteristic of the *Adelaide Dolphin Sanctuary* is that it has a defined management plan, though its targets remain vague. Our Advisory Board was engaged in the important task of defining objective and quantifiable measures to go with the management plan when the Government, in its wisdom, disbanded the Board. It is an important task that needs to be completed.

Bossley, M. 2022, *Dolphins, Whales & Me*, pg. 191

Terms of Reference

To inquire into and report on further legislative and policy measures to better protect the dolphins in the Adelaide Dolphin Sanctuary and the Port River, with particular consideration to be given to:

1. limiting dredging;
2. banning heavy gauge fishing practices and the use of large hooks, live bait and trawling (trolling);
3. larger fines for industry discharge into the Port River;
4. further speed restrictions on the Port River;
5. increasing marine safety officers and park rangers;
6. installation of shellfish reefs;
7. regular and increased water quality monitoring; and
8. the impact of the die-off of mangroves and saltmarsh at St Kilda on the Port River dolphins.

¹⁰ Evidence, Emmett, DEW, pg. 118

Conduct of the Inquiry

The Committee advertised the Inquiry in the Advertiser, InDaily and Parliament website in late July 2022. The Committee received written submissions from 24 interested stakeholders. Details of the submissions received are included in Appendix 1.

The Committee subsequently met on 8 occasions to deliberate and/or hear evidence from 30 witnesses.¹¹ A list of witnesses is included in Appendix 2. All public hearings were held in Adelaide.

The Committee conducted a site visit on 25 October 2022 to the St Kilda Mangrove Trail, Garden Island, AMWRRO on Torrens Island and Outer Harbor.

¹¹ Please note, Committee Hansard is cited throughout this report as: Evidence, [Name of Witness], [Organisation], [page reference in the Committee Hansard].

Submitters' concerns

Submitters to the Inquiry expressed concerns about the health of the ADS dolphins and the ecosystem more broadly. Concerns were specifically about the:

1. Declining health of the resident population of ADS dolphins¹²;
2. Recent mortalities and/or disappearances of the ADS dolphins¹³; and
3. Number of ADS calves that are not surviving until weaning¹⁴.

Submitters also identified potential threats to the ADS ecosystem and suggested management responses to the threats identified. Threats to the ADS identified by submitters were:

1. The lack of clarity over who has authority and responsibility;
2. Dredging;
3. Some fishing practices;
4. Industry and wastewater discharges into the ADS;
5. The speed of boats and other on-water motorised vehicles;
6. The lack of visible enforcement; and
7. The loss of mangroves and other native vegetation.

Term of Reference I: Limiting dredging

Dredging of more than 2 million m³ of sediment was undertaken by Flinders Ports in 2019 to enable passage for vessels at Outer Harbor (the Port River Channel Widening Project):

Dredging is a highly regulated activity, subject to stringent EPA licence conditions.

All licensed dredge operators are required to develop a Dredge Management Plan (DMP) for EPA approval prior to dredge activities. Management plans for Port River dredging take into consideration numerous studies around the benthic habitat and assessments of the sediments that are targeted prior to dredging for contaminants to inform methods of removal to reduce resuspension and disposal options. Based on that information the impact to marine environments can be minimised or prevented.

Submission #22 Environment Protection Authority SA (EPA), pg. 2

Flinders Ports also undertakes maintenance dredging every two (2) years. Submitters noted that dredging has the potential to remove seagrasses (which provide habitat for fish that are prey species for dolphins)¹⁵ and produce excessive noise and vibration that could interfere with the dolphins' ability to echolocate¹⁶. Submitters also noted that dredging may cause turbidity in the

¹² Submissions #3 Horrill; #5 Russo; #6 Bossley; #9 Bremmer; #17 Freeman; #20 Elland; #21 Brice

¹³ Submissions #2 Cornelius; #3 Horrill; #5 Russo; #6 Bossley; #8 Wystra; #9 Bremmer; #11 Butler; #12 Anonymous; #17 Freeman; #18 Townsley; #21 Brice; #24 Conservation Council SA

¹⁴ Submissions #2 Cornelius; #6 Bossley

¹⁵ Submissions #5 Russo; #8 Wyrsta; #11 Butler; #12 Anonymous; #15 Faulkner; #17 Freeman

¹⁶ Submissions #3 Horrill; #15 Faulkner

water, reducing visibility and breathability for marine mammals and fish¹⁷, and impacting seagrasses¹⁸.

As a condition of the permit to undertake the Port River Channel Widening Project in 2019 (authorised by the Environment Protection Authority SA (EPA)), Flinders Ports was required to undertake surveys 'to measure any impacts to seagrass directly related to the dredging activity'¹⁹. Flinders Ports also undertook surveys of dolphin and other marine mammals' behaviours at the time of dredging²⁰. Spotters were used during dredging, and turbidity, noise and vibrations levels were monitored. The EPA concluded at the end of the Channel Widening Project that neither was seagrass impacted, nor marine mammals disturbed²¹, by dredging activities.

Friends of Gulf St Vincent noted, in their submission, from the data published by Flinders Ports that turbidity limits were exceeded during dredging and expressed concern that there appeared to be no action to mitigate the situation. The Committee heard that dredging actions were managed in real-time by the EPA with stop actions ordered when data showed that hold levels were exceeded, and re-commencement of actions when data showed levels had dropped below the trigger thresholds:

There were four: the yellow line is an alarm line, the red line is a hold line, and you can see that on four occasions the turbidity surpassed, exceeded, the hold criteria. On each of those occasions dredging was stopped, as per the requirements of the licence, so within three hours of the exceedance the dredge stopped operation.

Flinders Ports then engaged with the EPA, and the EPA every time issued a hold determination, and they are all available on the EPA website. In that hold determination they gave a direction as to whether we could restart dredging, with some limitations; it may be that we could use only one of the pieces of plant or specific locations or change the operational way that dredging was done to implement it.

Evidence, Kolokas, Flinders Ports, pg. 77

Submitters expressed concerns that dredging stirred up legacy contaminants in the sediment and that this has impacted upon the health of the ADS²². M. Horrill noted that:

... re-animated contaminated sediment, which may contain pollutants and heavy metals is ingested by small crustaceans, invertebrates and fish ... [and] because dolphins are at the top of the food chain, it stands to reason they will consume prey which may have accumulated contaminants in their system. I also know that some contaminants ... can be passed from mothers who have stored such contaminants in their blubber to calves, via milk.

Submission #3 Horrill, pg. 3

¹⁷ Submissions #2 Cornelius; #6 Bossley

¹⁸ Submission #6 Bossley

¹⁹ Submission #14 Flinders Ports, pg. 1

²⁰ Submissions #14 Flinders Ports; #6 Bossley

²¹ Submissions #14 Flinders Ports; #22 EPA

²² Submissions #3 Horrill; #5 Russo; #8 Wyrsta; #11 Butler; #12 Anonymous; #15 Faulkner; #16 Friends of Gulf St Vincent Inc.; #18 Townsley

Further, there were concerns that the dredge spoil was disposed of in the Gulf St Vincent rather than on-land²³.

Flinders Ports acknowledges the legacy of pollutants in the water and sediment, and stated in their submission that 'Flinders Ports seeks to better understand the historic contamination by continuing to test marine and land sediments (soil) and investigating historic [[per- and poly-fluoroalkyl substances](#)] PFAS, heavy metals and other contaminants'²⁴. The Committee heard that Flinders Ports tested sediments for the purpose of deciding if sediment was suitable for off-shore disposal²⁵. Sediment (or spoil) removed by maintenance dredging is stored on-shore and tested prior to being used for other projects.²⁶

The EPA concluded in its submission to the Inquiry that 'there is insufficient evidence to warrant further limitation on Port River dredging for the specific purpose of preventing or minimising mortality in the Port River dolphin population'²⁷.

Committee findings

The Committee found that there is potential for dredging to negatively impact the ADS.

Recommendation:

The Committee made no specific recommendations for dredging, but notes that a lack of information about toxicants in the sediment is dealt with in Terms of Reference III and VII.

Term of Reference II: Banning heavy gauge fishing practices and the use of large hooks, live bait and trawling

The Department of Primary Industries and Regions (PIRSA) has jurisdiction for recreational and commercial fishing in the ADS and throughout SA.

Recreational fishing in the ADS is a very popular pastime. Fish species sought within the ADS include Australian salmon, mulloway, yellowtail kingfish, yellowfin whiting, King George whiting, yelloweye mullet, southern garfish, black bream, Australian herring, smooth stingray, southern fiddler ray, bronze whaler and dusky whaler²⁸. Fishers use a variety of 'light fishing tackle, lures

²³ Submissions #3 Horrill; #7 Dundon; #13 Marine Life Society of SA Inc.; #16 Friends of Gulf St Vincent Inc.

²⁴ Submission #14 Flinders Ports, pg. 3

²⁵ Evidence, Kolokas, Flinders Ports, pg. 80

²⁶ Evidence, Kolokas, Flinders Ports, pg. 81

²⁷ Submission #22 EPA, pg. 2

²⁸ Submission #23 PIRSA

and dead baits for smaller species and heavier gauge tackle, lures and both live and dead baits for larger predatory species²⁹.

The Committee heard that heavy gauge fishing practices are used to capture predominantly mulloway and yellowtail kingfish³⁰ in the ADS. On-shore fishing tends to be light line fishing, while fishers in boats target both small and large fish, necessitating heavier gauge fishing line and larger hooks³¹.

Submitters suggested reviewing and limiting or banning heavy gauge fishing lines, large hooks, trawling or trolling and the use of live baits³² and reviewing commercial fishing within the ADS³³. Anecdotal evidence suggests that the ADS dolphins may chase live baits³⁴. The health of the ADS dolphins is impacted by fishing gear through line entanglements and ingestion of hooks:

... records held since 1989 reveal a total of 34 dolphin interactions with fishing gear incidents observed in the ADS ... In 11 cases, the entanglement was considered sufficiently life threatening to warrant intervention [see Figure 1], including the capture and disentanglement of the animals. One dolphin died due to a severe entanglement. Four of the last 6 incidents have involved heavy fishing gear commonly used to target larger fish species ...

Necropsy reports have revealed fish hooks present in the stomachs of several dolphins [see Figure 2].

Submission #19 DEW, pg. 5



Figure 1: Fishing line on the tail flukes of dolphin Twinkle (submission #6 Bossley, pg. 9)

²⁹ Submission #23 PIRSA, pg. 2

³⁰ Evidence, Brown, RecFish SA, pg. 110

³¹ Evidence, Brown, RecFish SA, pg. 111

³² Submissions #2 Cornelius; #5 Russo; #6 Bossley; #8 Wyrsta; #12 Anonymous; #13 Marine Life Society of SA Inc.; #15 Faulkner; #17 Freeman; #18 Townsley; #24 Conservation Council SA

³³ Submission #6 Bossley

³⁴ Submissions #6 Bossley; #19 DEW

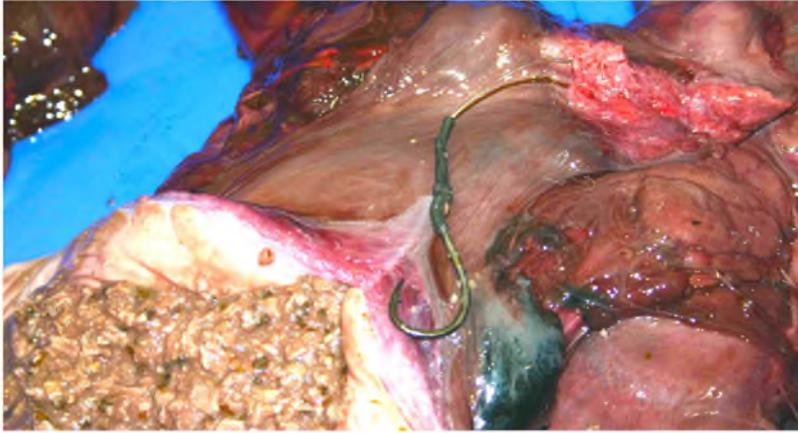


Figure 2: Large fishhook in stomach of deceased dolphin “Flat Point” (submission #6 Bossley, pg. 10)

As a temporary management response to recent community concerns:

... the Executive Director, Fisheries and Aquaculture, implemented temporary management arrangements under a Section 79 notice under the *Fisheries Management Act 2007* to prohibit the use of a handline, rod and line or a teaser line within 50 metres of a visible dolphin of any species in the ADS. The temporary arrangements are in effect from 1 October 2022 to 31 January 2023 unless varied or revoked earlier.

Submission #23 PIRSA, pg. 3

Community concerns about dolphin injuries and mortalities has prompted PIRSA to review management options for recreational fishing in the ADS. PIRSA released an options paper and consultation through the YourSAy consultation platform which closed 31 October 2022. PIRSA conducted a risk assessment to develop the options paper and proposed options for management are:

1. No changes to regulations for recreational fishing, but increased education and awareness;
2. Spatial restrictions on heavy fishing gear; and
3. Seasonal restrictions on the use of heavy fishing gear.

None of the management options contemplates a total ban on the use of heavy gauge fishing line, live bait and trawling or trolling for recreational fishing within the ADS.

Further, the Committee heard from RecFish SA (28 October 2022) that there is a lack of information from PIRSA on the evidence for spatially and temporally restricting the use of heavy fishing gear in the ADS³⁵.

³⁵ Evidence, 28 October 2022, RecFish SA, pg. 11

The Committee found that:

1. The ADS dolphins are being negatively impacted by fishing gear and that this is contrary to the objects of the ADS Act.
2. Heightened public awareness of individual dolphins that reside in the Port River and Barker Inlet means a very high risk of public outrage from entanglements of, and injury to, those dolphins.
3. There is community concern about the lack of signage and educative material at the ADS, particularly about wildlife entanglements in fishing line/gear.
4. Options 2 and 3 (particularly if combined) from PIRSA's proposed management options for recreational fishing in the ADS are likely to help mitigate impacts, but further information is required from PIRSA on proposed spatial and temporal restrictions.
5. PIRSA's management options paper does not provide a review of the dolphins' spatial and temporal use of the ADS and whether dolphins are more likely to become entangled with fishing gear from certain fishing practices within certain parts of the ADS.

Recommendation 1:

- a) PIRSA should lead a review of recreational fishing within the ADS that has aims, first and foremost, to protect the dolphins from entanglements and meets the objects of the ADS Act;
- b) PIRSA should acknowledge that there is a very high level of community investment in individual dolphins residing within the ADS, and that there is a very high level of risk of public outrage and media attention from dolphin entanglements;
- c) The Minister for Environment and Water works collaboratively with the Minister for Fisheries and other stakeholders to develop a holistic approach to education and awareness-raising of the threats some types of fishing gear and practices can pose to dolphins; and
- d) PIRSA should lead a collaborative review of recreational fishing that:
 - i. identifies and examines different fishing practices and gear in the ADS;
 - ii. analyses patterns of use by the ADS dolphins; and
 - iii. describes appropriate management options for recreational fishing.

Term of Reference III: Larger fines for industry discharge into the Port River

Industries that discharge to the Port River are regulated by the EPA in accordance with the *Environment Protection Act 1993*. Wastewater and contaminated stormwater are regulated in accordance with the *Environment Protection (Water Quality) Policy 2015*. Stormwater management is a shared issue that needs a great deal of coordination if threats are to be

mitigated³⁶. The Committee heard that there are 65 outlets in the general area of the ADS and approximately 230 industrial facilities in the catchment area³⁷.

Water quality and the history of contaminants entering the Port River is of concern to submitters, with suggestions that state government considers larger fines for industry discharges in the Port River³⁸. Submitters noted that recent fines were not in line with community expectations: 'two large companies have been given laughable fines for allowing toxic pollution to go into the river, knowing that it was occurring'³⁹.

Submitters also expressed concerns that polluters did not appear to immediately try to mitigate their impacts:

In 2020 there was a jet fuel leak in the Port River near Snowdens. BP was ordered to pay \$65,000. When this actually happened residents and myself and others could actually smell the fuel, but didn't see any attempt from the company to clean it up. From the Dolphin Explorer river cruise we could see the coloured sheen on the water from this leak ... Such a big company should have put out barriers to contain the leak immediately instead of allowing it to spread north of the point of origin and right across the river. And such a small fine for this big company.

Submission #8 Wyrsta, pg. 1

M. Bossley noted, in their submission⁴⁰, that a potential solution to pollution may be that current industries deposit a sum of money into a rehabilitation fund to pay for rehabilitation in the event a company is liquidated and unable to fulfil its obligations to rehabilitate.

Necropsies on dolphins since 2019 have failed to find evidence that heavy metals and other toxicants are directly causing ill health and mortalities. Rather, the cause of deaths of ADS dolphins would appear to be compromised immune responses⁴¹ that leave dolphins vulnerable to infections. It is unknown whether the dolphins' compromised immune response is genetic or due to environmental or other factors, or a combination of these.

Stormwater

The Royal South Australian Yacht Squadron, in its submission, drew the Committee's attention to stormwater outlets in the ADS: 'for some four years, The Royal South Australian Yacht Squadron [RSAYS] has been corresponding with Renewal SA and the Port Adelaide Enfield Council regarding silt and pollutants flowing in the club's marina from a Coghlan Road storm water drain'⁴² (see Figures 3-6).

³⁶ Evidence, Jenkins, EPA, pg. 98

³⁷ Evidence, Baldry, EPA, pg. 90

³⁸ Submissions #3 Horrill; #5 Russo; #8 Wyrsta; #12 Anonymous; #15 Faulkner; #16 Friends of Gulf St Vincent Inc.; #18 Townsley

³⁹ Submission #5 Russo

⁴⁰ Submission #6 Bossley

⁴¹ Submissions #6 Bossley; #19 DEW

⁴² Submission #10 Royal South Australia Yacht Squadron, pg. 1



Figure 3: close up of the outlet at the RSAYS marina (submission #10 RSAYS)



Figure 4: plume spreading within the marina (submission #10 RSAYS)



Figure 5: discharge is visible on a clear, sunny day (submission #10 RSAYS)



Figure 6: Location of the outlet (left arrow) within the marina (submission #10 RSAYS)

The Committee invited representatives from RSAYS to give evidence in front of the Committee regarding this incident. RSAYS expressed in its submission that it had noticed that the stormwater outlet flowed with coloured discharge at times ‘... when it was not raining and had not been raining for days’⁴³ (see Figure 5). Further, RSAYS noted in its submission that the discharge contained a great deal of silt, which required removal from the marina. RSAYS also took samples of the discharge to be analysed. RSAYS stated in its submission that ‘the maintenance staff at the club have also noticed an increase of dead animals and birds in the pool with a notable increase of deaths of Australian indigenous water rats that call our club home’⁴⁴.

The Committee conducted a site visit at the RSAYS club on Tuesday 25 October 2022.

The RSAYS made it clear to the Committee that the discharge was not simply stormwater from Coghlan Road, but that it has come from elsewhere. The EPA conducted investigations at an adjoining (to Coghlan Road) property:

We've [EPA] seen those photographs [Figures 3-5] and so we engaged the alleged shipping container company that was responsible for that water. At the time, we didn't observe any poor stormwater practice. It was made clear to us that the shipping container company did wash down those containers, but that the run-off from the shipping containers was being retained and temporarily stored in a stormwater sump, a little detention pond on the site. At the time we didn't observe any overflow.

Evidence, Jenkins, EPA, pg. 92

The Committee also, however, heard that the position of drains and stormwater pipes beneath Coghlan Road and elsewhere in the area is not accurately mapped⁴⁵.

The Committee heard that Renewal SA has undertaken to send a camera into the outlet and through the drain network to map drain connections:

⁴³ Submission #10 RSAYS, pg. 1

⁴⁴ Submission #10 RSAYS, pg. 1

⁴⁵ Evidence, Jenkins, EPA, pg. 92

Renewal SA is going to do some investigative work to figure out exactly what is the pipe network design. That's in a matter of maybe the next two or three weeks hopefully. But the EPA is going to collaborate with the yacht squadron to be rapidly responsive to actually go out and visit the site when it's flowing with the intention of following up with the relevant industrial activity in the catchment.

Evidence, Jenkins, EPA, pg. 93

The Committee heard evidence from Renewal SA that its hypothesis is that the cause is tidal but investigations are ongoing and the Committee awaits further information.

Committee findings

The Committee found that:

1. Penalties for polluting the ADS are inadequate and need stronger enforcement.
2. Although direct causes of the declining health and mortalities of the ADS dolphins is unknown, toxicants are likely to be implicated.
3. Not enough is understood about legacy toxicants lying in the sediment in the ADS, particularly PFAS and microplastics, and the potential to impact the health of the ADS dolphins.
4. There is no plan for funding and actioning rehabilitation of legacy toxicants in the ADS.
5. The community expects monitoring of water quality to be targeted and conducted more regularly in the ADS (Barker Inlet and Port River) to allow threats to be detected in a timely manner, and appropriate management responses to be undertaken.
6. There has been a lack of leadership in efforts to fund and action rehabilitation of legacy toxicants in the ADS.

The Committee found in relation to the discharge into the RSAYS marina that:

7. It is concerning that investigations into the RSAYS's issues with the stormwater outlet halted after initial investigations were undertaken in early 2021 without the cause of water flowing from the outlet on non-rainy days being discovered, particularly as this was deemed to have an impact on the ADS.
8. There is insufficient clarity on who is responsible for leading investigations on the cause of water flowing from the outlet on non-rainy days and how the water may have impacted upon the ADS.
9. There has been a lack of leadership in working with the RSAYS and local and state government agencies to undertake further investigations into the origin of the discharge, and deciding adaptive management actions, as a precaution, to protect the ADS.

Recommendation 2:

The Committee recommends that the Minister for Environment and Water should consider:

- a) reviewing the level of enforcement and penalties for polluting into the ADS;

- b) a toxicant audit of the ADS be undertaken in the water and sediment as soon as possible (taking into account what is already understood about toxicants in the ADS) and the results made publicly available;
- c) a baseline of acceptable levels of toxicants in the water and sediment be developed, taking into account the potential for bioaccumulation of some toxicants;
- d) a review of global best practice approaches to rehabilitation of legacy toxicants in rivers.
- e) an action plan be developed and funding secured to clean-up toxicants in the water and sediment if levels are unacceptably high; and
- f) monitoring of water quality within the inner parts of the ADS to detect threats to the ADS early and provide information for management responses.

Recommendation 3:

The Committee recommends that the Minister for Environment and Water should consider governance mechanisms to coordinate and action investigations, reporting and management responses to ensure issues within the ADS are comprehensively followed up and resolved.

Term of Reference IV: Further speed restrictions on the Port River

Boats and potentially other vessels can cause injuries to dolphins through propellor or hull strike. ADS dolphins have shown injuries consistent with propellor strikes and also show injuries consistent with blunt trauma (e.g. tissue damage and broken bones). Although it is not possible at this stage to say with any certainty that all blunt trauma injuries are being caused by hull strike, submitters⁴⁶ believed that hull strike must account for at least some of these types of injuries.

Vessel speeds within the ADS currently range from 4-7 knots within the inner sanctuary to unlimited speeds beyond beacons 22 and 35 (see Figure 7). There is also a narrow corridor of unlimited speed within Barker Inlet, presumably associated with deeper inlet waters, and a small stretch of unlimited speed to the south of Garden Island (North Arm), to accommodate a speedboat club on race days. To mitigate impacts to dolphins caused by speedboats, dolphin spotters are positioned on race days.

The Committee heard that vessels take a turn at Outer Harbour (between beacons 22 and 35) at higher speeds in order to navigate safely:

When we [Flinders Ports] are taking the larger vessels through, again it depends on the wind conditions which are there because, as you can imagine, the larger vessels have a lot of windage and therefore get affected quite a lot by the wind. Usually about nine knots is the max that we would actually take the turn. We go from four knots when passing ships, which

⁴⁶ Submission #6 Bossley; Evidence, Wilkins, Conservation Council SA, pg. 64

is always on a straight line, seven knots in those speed limit zones and, when we are taking the bend, it usually goes up to nine knots.

Evidence, Kavina, Flinders Ports, pg. 82



Figure 7. Speed limits within the ADS https://www.sa.gov.au/_data/assets/pdf_file/0009/524754/Speed-Limits-900x1200-20r-Outer-Harbour.pdf (note that dark blue shading = unlimited speed). Department for Infrastructure and Transport. Accessed 7th November 2022.

The Committee heard that changes to the speed limits for the Barker Inlet and Port Adelaide River were implemented in 2019 (see Figure 7). Despite the changes that have been made, the Committee heard evidence that ‘... necropsy results confirm three deceased dolphins have presented with blunt trauma injuries. Only one of these has been determined to be a result of boat strike.’⁴⁷ Although it is not known how fast the vessel was travelling when it struck the dolphin, the Committee is concerned that there are significant areas of the ADS where speed is unlimited.

⁴⁷ Questions on Notice, 10 October 2022, DEW, Attachment 1

Committee findings

The Committee found that slowing down boats and other vessels in the ADS is likely to reduce the risks of injuries to dolphins caused by propellor or hull strikes.

Recommendation 4:

The Committee recommends that the Department for Infrastructure and Transport reviews:

- a) the speed limit at North Arm with the view that vessel speeds be limited to 7 knots at all times when there are no spotters present (i.e. spotters must be present when boats are practising if going above 7 knots); and
- b) the speed limits in the ADS in consultation with stakeholders and consideration given to lowering the speed limit from unlimited to 9 knots (between beacons 22 to 35) to lower the speed but allow for vessels to turn safely.

Term of Reference V: Increasing marine safety officers and park rangers

Dolphins are a protected animal in accordance with *National Parks and Wildlife Act 1972*⁴⁸. DEW undertakes rescues of sick or injured dolphins in accordance with the *Animal Welfare Act 1985* and *National Parks and Wildlife Act 1972*, and associated regulations, and its policy and procedures on marine mammals. The Committee heard that development of DEW's policy and procedures on marine mammals was guided by the Veterinary Reference Group and is based on national and global best practice⁴⁹. Further, that the Veterinary Reference Group provides '... expert veterinary advice for the management of dolphin health incidents.'⁵⁰ M. Bossley expressed support for DEW's approach to managing injured or sick marine mammals:

Making decisions on interventions requires careful consideration of multiple factors. DEW has sensibly established a panel of national and international experts to provide best available advice on if, when and how to undertake interventions. DEW has also developed a policy document ... as a general guide.

I recommend that the advisory panel and current interventions policy be maintained.

Submission #6 Bossley, pg. 9

The Committee heard that the dolphins in the ADS, although beloved by members of the community, are wild animals that need to be managed as such.⁵¹ The Committee also heard that anthropogenic impacts, such as entanglements in fishing gear, are going to be much more visible

⁴⁸ Evidence, Williams, DEW, pg. 114

⁴⁹ Evidence, Loan, DEW, pg. 114

⁵⁰ Questions on Notice, 10 October 2022, DEW Attachment 1

⁵¹ Evidence, Williams, DEW

to the community in the ADS dolphins, and therefore some flexibility in managing interventions is required.⁵²

The Committee heard from DEW that the possibility for inbreeding is one potential impact on the health of the ADS dolphin population: 'so we are looking to try to see if we can fund some further research to understand the significance of this finding [inbreeding] and how much that is contributing or not to the condition of the dolphins in the inner waters.'⁵³

The intervention and rescue of sick and/or injured dolphins in the ADS is contentious, with submitters expressing concern that DEW's actions, or lack of action, is resulting in the deaths of dolphins:

The department stuffed the first dis-entanglement rescue attempt, by calling off the rescue at 4pm because they had had a long day following her around the river ... by 4pm she was in shallow waters circling their boats. Instead of following through with the capture when they had her where they wanted her, they called it off for the day. By the time the next rescue attempt was called, it was a body recovery instead.

Submission #8 Wyrsta, pg. 1

The Committee heard that DEW's policies and procedures for marine mammals focusses upon the safety and wellbeing of DEW's officers and volunteers, as well as the welfare of marine mammals⁵⁴.

A matter of some concern for submitters⁵⁵ was the lack of visible marine safety officers and park rangers in the ADS. Submitters expressed concerns that insufficient numbers of marine safety officers and park rangers dedicated to the ADS may result in a lack of enforcement of boat speeds with an increased risk for injuries to dolphins through boat strike.

Submitters were also concerned about the workload of the park rangers:

It is unrealistic in the extreme to expect three part time rangers to keep informed of the diverse impacts on the ADS, undertake regular compliance surveys, participate in community education, collect data, process infringements, write "ministerials", facilitate the ADS Action Group (effectively the "Friends of" for the ADS), manage dolphin interventions, undertake routine training, maintain their knowledge base, etc. This is in no way a criticism of current or former rangers, who are capable and committed professionals, and have undertaken their duties in an exemplary manner within the time parameters allocated to them.

Submission #6 Bossley, pg. 15

The other thing I would recommend that this committee focus on is around a level of resources. As I said, we have a fabulous network of volunteers and I personally honour and thank them for the work that they do. But this is a complex piece of public land and there

⁵² Evidence, Williams, DEW

⁵³ Evidence, Williams, DEW, pg. 116

⁵⁴ Evidence, Loan, DEW, pg. 114-5

⁵⁵ Submissions #3 Horrill; #8 Wyrsta; #12 Anonymous; #15 Faulkner; #18 Townsley

aren't enough paid departmental staff to do the appropriate level of regulation, compliance, monitoring and trialling that are ideally required to ensure that this area thrives.

Evidence, Wilkins, Conservation Council SA, pg. 63

The complexity of governance for the ADS, compounded by the high media profile of dolphins, and values that the community has placed upon the dolphins, had submitters⁵⁶ expressing the view that an advisory board be established (or re-established) to advise the Minister on the health of, and management responses to threats to, the ADS:

I would strongly recommend that this committee consider recommendation of re-establishing a separate evidence-based and expert-based sanctuary advisory board to provide that overview and that ability to collate all the different threads which exist here because there are so many different potential causes of issues for the dolphins. Collate it, prioritise it and then provide really good advice to government. Alongside that is having a review about the ability to intervene and the ability to act. Advice is one thing; the ability to act is another.

Evidence, Wilkins, Conservation Council SA, pg. 63

The City of Port Adelaide Enfield submitted that a new governance structure for the ADS needs to be considered because:

The core issue facing the river is that no one individual or organisation is accountable for the quality of the water ... [and] there is a lack of clarity ... on who is responsible for what within the catchment. There are areas or issues for which no-one is taking responsibility and there differing views about who should be responsible.

Submission #1 City of Port Adelaide Enfield, pg. 1

The City of Port Adelaide Enfield also advocated in their submission for a system wide, integrated approach to governance and suggested:

... that the lack of a system wide, integrated and well-resourced governance arrangements and an estuary management plan for the Port River and Barker Inlet (Yerta Bulti) system needs to be addressed as a matter of priority. Council considers this a pre-requisite in ensuring long term improvements to water quality and the dolphins' habitat.

Submission #1 City of Port Adelaide Enfield, pg. 4

Finally, M. Bossley (2022) pointed out the need for an ADS interpretive/ education centre to be established:

The best way to provide education to achieve soft compliance is to formalise it in a Dolphin Interpretive Centre ... my vision has been for it to provide a simulated underwater experience which lets people see the beauty and grace of dolphins and learn something of their behaviour and biology ... nothing like this exists anywhere in the world yet, so Port Adelaide could become a leader in dolphin conservation education.

Bossley, M. 2022, Dolphins, Whales & Me, pg. 189

⁵⁶ Submissions #6 Bossley; #17 Freeman

Committee findings

The Committee found that:

1. The objects of the *Adelaide Dolphin Sanctuary Act 2005* are not being met.
2. The impacts on the ADS have caused a decline in the health, and most likely the deaths/ disappearances, of resident dolphins.
3. Despite improvements to the ADS, urgent action is required to address the decline in the dolphin's health.
4. There is a disconnect between identifying potential impacts to the Adelaide Dolphin Sanctuary and undertaking proactive and/or reactive measures to mitigate those impacts, and that this has helped contribute to the decline in health and deaths/ disappearances of resident dolphins.
5. Although government agencies (including local government) are meant to be working together to implement the object of the ADS Act, there is a lack of central coordination for adaptive management which has helped contribute to the decline in health and deaths/disappearances of resident dolphins.
6. A lack of understanding of the biological or ecological reasons for the recent deaths of resident dolphins should not be used as an excuse for not immediately actioning management responses to identified impacts to the ADS.
7. The number of marine safety officers and park rangers needs to be increased to provide high visibility within the ADS and respond to threats within the sanctuary.
8. There needs to be a sustainable funding base to support an increase in the number of marine safety officers and park rangers dedicated to the ADS.
9. The Department for Environment and Water's marine mammals' intervention policy and procedures need reviewing, in collaboration with stakeholders, because of the high visibility of the ADS population of dolphins, and the community's concerns about perceived (or real) lack of interventions or mishandling of interventions.
10. There needs to be an appropriate mechanism(s) in place that allows community/ volunteer rescue organisations to operate collaboratively with park rangers and other stakeholders within the ADS to undertake marine mammal rescues in a safe, transparent and accountable manner.

Recommendation 7:

The Committee recommends that the Department for Environment and Water develops and works within a new framework, with local government and other stakeholders, to ensure the objects of the ADS Act are being met, and that the new governance framework brings clarity and accessibility to the community.

In particular, the community needs to be clear on who makes decisions about management of the ADS and who undertakes mitigating actions in respect of threats to ecosystem health and dolphin health and welfare.

Recommendation 8:

The Committee recommends that the Minister for Environment and Water appoints an appropriately qualified body or person to:

- a) advocate for the ecosystem health of the ADS and advise the Minister on appropriate proactive measures to meet the objects of the ADS Act;
- b) advise the Minister on the research and monitoring of estuarine and coastal ecosystem health and management responses to mitigate impacts to the ADS if indicators show ecosystem health is declining;
- c) advise the Minister on regular water and/or sediment quality monitoring; and
- d) advise the Minister on all development, dredging and energy and mining (exploration and production) applications (within or adjacent to the ADS) that may be a direct or indirect impact to ecosystem health.

Recommendation 9:

The Committee recommends that the Minister for Environment and Water considers undertaking a review of the *Adelaide Dolphin Sanctuary Act 2005* to ensure that the Minister has appropriate authority to act in the face of threats to the ADS.

Recommendation 10:

The Committee recommends that the Minister for Environment and Water:

- a) secures a sustainable funding base for the ADS to allow for development and finalisation of a management plan, as well as appropriate management to proactively or reactively address any declines in ecosystem health and maintain a visible regulatory presence; and
- b) continues to support and funds researchers undertaking further investigations into ecosystem health and/or dolphin population dynamics.

Recommendation 11:

The Committee recommends that the Minister for Environment and Water considers funding and establishing an ADS interpretive and education centre.

Term of Reference VI: Installation of shellfish reefs

In 2021, shellfish reefs were installed off the coast of SA metropolitan beaches; i.e. Sellicks and Glenelg. These shellfish reefs will be open for recreational fishing and diving in 2023. The Windara shellfish reef was completed in 2018 off the coast of Ardrossan in the Upper Gulf St Vincent Marine Park and is already available for recreational fishing and diving.

The Committee heard that small-scale trials of shellfish reefs are being undertaken around Hart's Mill⁵⁷.

Submitters⁵⁸ were, in principle, supportive of the installation of shellfish reefs to help clean the water in the ADS through filtrate feeding.

Committee findings

The Committee found that installation of shellfish reefs in the ADS is desirable and would help improve water quality.

Recommendation 12:

The Committee recommends that the Department for Environment and Water works collaboratively with state and local agencies and other stakeholders to support efforts to trial shellfish reefs within the ADS.

Term of Reference VII: Regular and increased water quality monitoring

Water quality regulation and monitoring is undertaken by the EPA in accordance with the *Environment Protection (Water Quality) Policy 2015*. The Committee heard that monthly targeted monitoring in the ADS that was undertaken by the EPA has been broadened into an ecosystem assessment of water quality that incorporates more lines of evidence⁵⁹.

Pollution in the ADS was of great concern to submitters⁶⁰ who noted that regular and increased water quality monitoring should be done in the future with the results made publicly available⁶¹.

The EPA noted in its submission that '... nitrogen pollution into the Port River has been significantly reduced through the closure of the Port Adelaide Wastewater Treatment Plant in 2004, closure of the Penrice Holdings soda-ash plant at Osborne in 2013 and SA government-funded improvement of processes at the Bolivar Wastewater Treatment Plant'⁶². The EPA also noted in its submission that it '... was able to clearly confirm the large decreases in ammonia and nitrate in the Port River, which can be attributed to the above-mentioned decreases in wastewater discharge'⁶³.

⁵⁷ Evidence, McMahon, Estuary Care Foundation, pg. 103

⁵⁸ Submissions #1 City of Port Adelaide Enfield; #3 Horrill; #6 Bossley; #8 Wyrsta; #13 Marine Life Society of SA Inc.; #14 Flinders Ports; #15 Faulkner; #18 Townsley; #19 DEW

⁵⁹ Evidence, Jenkins, EPA, pg. 96; submission #22 EPA

⁶⁰ Submissions #3 Horrill; #8 Wyrsta; #12 Anonymous; #15 Faulkner; #18 Townsley

⁶¹ Submission #8 Wyrsta

⁶² Submission #22 EPA, pg. 3

⁶³ Submission #22 EPA, pg. 3

The Committee noted from the EPA's submission that the EPA has undertaken work on toxicants in the water and the potential for bioaccumulation of toxicants in the ADS, including studies in 2000, 2005, 2009/10 and 2017⁶⁴. Of some concern to the Committee were levels of PFAS detected in ADS dolphins and that it is unknown at what level the accumulation of PFAS is likely to be detrimental to the dolphins' health⁶⁵. Of further concern to the Committee is the level of microplastics in West Lakes and its potential to impact the environment and the health of ADS dolphins:

The monitoring of microplastics is an active area of further development. The CSIRO, for instance, is trying to establish what is the appropriate protocol for sampling and analysis of microplastics. Microplastics have been defined as any bit of plastic less than five millimetres diameter. It is an area of ongoing very vigorous research in Australia and around the world.

Evidence, Jenkins, EPA, pg. 94

Committee findings

The Committee found that:

1. There is community concern about toxicants in the sediment within the ADS;
2. The community is concerned about new toxicants in the ADS in the form of PFAS and microplastics; and
3. There is insufficient information to determine whether the toxicants and other pollutants are harming the health of the dolphins.

Recommendation 13:

The Committee recommends that the Minister for Environment and Water considers:

- a) supporting further research into toxicants and other pollutants to identify at what point the level of impact on the ADS will be considered unacceptable and what rehabilitation and management needs to be undertaken to decrease impacts to an acceptable level; and
- a) the EPA undertake targeted water quality and sediment testing in the ADS and be appropriately resourced.

⁶⁴ Submission #22 EPA

⁶⁵ Evidence, Jenkins, EPA, pg. 97

Term of Reference VIII: The impact of the die-off of mangroves and saltmarsh at St Kilda on the Port River Dolphins

An impact of considerable concern to submitters was the leakage of hypersaline brine into the mangroves from the adjacent salt mines.

In 2020, the Department for Energy and Mines (DEM) was alerted to a breach of conditions associated with bunding on the western side of salt evaporation pond PA6 on Mining Lease 421 (ML421), held by Buckland Dry Creek Pty Ltd. DEM's investigations revealed leakage from pond PA6 of brine into the surrounding mangroves and saltmarsh that has caused the vegetation to die: 'approximately 9 hectares of mangrove, 10 hectares of saltmarsh, and nearly 5 hectares of bare, sparsely vegetated, or aquatic ecosystems have been impacted'⁶⁶. Following investigations, the Minister for Energy and Mining declared a stop production order on the salt mine and instituted a care/maintenance order on the mining lease and other associated leases. In accordance with the care/maintenance order, the state government has ordered that brine from pond PA6 be pumped to the Bolivar outlet to be diluted before being discharged into the ADS. The care and maintenance order on the salt mining leases adjacent to the ADS and held by Buckland Dry Creek Pty Ltd is still in place.

Although die-off of vegetation has been limited to approximately 35 hectares, the indirect impacts of the spill of brine into the forest is likely being felt more broadly in the ADS. The Committee heard that a further approximately 196 hectares of mangrove forests are under stress⁶⁷. The Committee heard that the mangroves that have been killed filtered water for the Barker Inlet. Historic toxicants that were held by the mangroves and prevented from entering the ADS ecosystem have now been released by the dead vegetation. It is unknown what toxicants may have now entered, and are still entering the ADS ecosystem, and potentially impacting upon its health, as a result.

⁶⁶ Department for Energy and Mining, <https://www.energymining.sa.gov.au/industry/minerals-and-mining/mining/major-projects-and-mining-activities/major-operating-quarries/dry-creek-salt-field>. Accessed 3/11/2022.

⁶⁷ Evidence, F. Coleman, St Kilda Mangrove Alliance, pg. 69



Figure 7: die-off of the mangroves at St Kilda (25 October 2022, St Kilda, SA)



Figure 8: the Committee witnessing dead mangroves at St Kilda (25 October 2022, St Kilda, SA)

The Committee heard that the precautionary principle has not been appropriately applied to mitigate ongoing impacts from the mining leases adjacent to the ADS⁶⁸. The Committee heard that mitigating actions for further impacts on the ADS, although currently being undertaken, should have been undertaken earlier⁶⁹.

F. & P. Coleman expressed, in their submission, their frustration in trying to understand why prosecution of the St Kilda waste brine leakage was undertaken with the *Environment Protection Act 1993*:

We both had hope the St Kilda waste brine leakage disaster would be an ideal test case for the ADS legislation, however the DEW staff involved chose to pursue a conviction solely under the EP Act, rather than the Dolphin Sanctuary Act, or any of the five other state and

⁶⁸ Evidence, Wilkins, Conservation Council SA, pg. 62-3

⁶⁹ Evidence, Wilkins, Conservation Council SA, pg. 63

commonwealth acts that clearly apply in this case (national parks, mining, fisheries, native veg or EPBC).

Submission #4 F. & P. Coleman, pg. 1

Committee findings

The Committee found that the sectoral approach to environmental regulation is resulting in confusion within the community about procedures for compensation and/or rehabilitation as a result of impacts to the mangroves caused by the spillage of brine.

Recommendation 14:

The Committee recommends that the Minister for Environment and Water should collaborate with the Minister for Energy and Mining, local councils and stakeholders on developing a framework of governance for the ADS that will provide clarity over responsibilities for adaptive and/or rehabilitative management and compensation from industrial and mining activities.

ACKNOWLEDGEMENTS

The Committee extends its thanks to those who have provided information and evidence to its Inquiry.

I recommend reading Mike Bossley's book entitled 'Dolphins, Whales & Me' (2022), published by Moonglow Publishing in SA.

The Hon. Tammy Franks MLC

Chair

Select Committee on the Adelaide Dolphin Sanctuary and Port River

APPENDIX 1 – SUBMISSIONS

The following persons and organisations made written submissions to the Committee which were resolved to be published by the Committee:

- 1 City of Port Adelaide Enfield
- 2 Diane and Phil Cornelius
- 3 Melody Horrill
- 4 Faith and Peri Coleman
- 5 Louise Russo
- 6 Dr Mike Bossley
- 7 John Dundon – Save West Beach Sand
- 8 Jenni Wystra
- 9 Sharna Bremner
- 10 Royal South Australian Yacht Squadron.
- 11 Angela Butler
- 12 Anonymous
- 13 Marine Life Society of South Australia Inc
- 14 Flinders Ports
- 15 Carol Faulkner
- 16 Friends of Guld St Vincent Inc
- 17 Gail Freeman
- 18 Sally Townsley
- 19 Department of Environment and Water
- 20 Fleur Elland
- 21 Graham Brice
- 22 Environment Protection Authority
- 23 Department of Primary Industries and Regions
- 24 Conservation Council SA

APPENDIX 2 – INDEX TO WITNESSES

Evidence was taken at Parliament House, North Terrace, Adelaide.

Ms Jenni Wrysta - Port River Dolphin Watch

Whale and Dolphin Conservation Australasia

Dr Mike Bossley

Ms Marianna Boorman

Mr Aaron Machado, Director of Operations/Founder, Australian Marine Wildlife Research and Rescue Organisation Inc (AMWRRO)

Mr Steve Reynolds, President, Marine Life Society of SA

Mr Mark Pierson, Chairperson, Friends of Gulf St Vincent

Ms Melody Horrill

City of Port Adelaide Enfield

Abby Dickson, Director Corporate Services

Maggie Hine, A/Manager City Development

Royal South Australian Yacht Squadron

David Eldridge, Chair, Infrastructure Advisory Panel

Adam South, General Manager

Craig Wilkins, Chief Executive, Conservation Council

Peri Coleman

Faith Coleman,

Flinders Ports

Carl Kavina, General Manager

Lee Kolokas, Assets and Engineering Manager

Environment Protection Authority

Keith Baldry, Acting Chief Executive

Dr Clive Jenkins, Acting Manager Water Quality Group;

Principal Scientific Officer (Water Chemistry)

Catherine McMahon, Honorary Executive Officer, Estuary Care Foundation

Barry Brown, Chair, RecFish SA

Department of Environment and Water

Mike Williams, Executive Director National Parks and Wildlife Service
Lisien Loan, Director Conservation and Wildlife
Verity Gibbs, Senior Project Officer Marine
Jon Emmett, Regional Coordinator Marine Parks

Primary Industries and Regions (including SARDI)

Prof Gavin Begg, Executive Director, Fisheries and Aquaculture
Dr Michael Steer, Senior Research Scientist, SARDI
Dr Roger Kirkwood, Senior Research Scientist, SARDI

Renewal SA

Mr Chris Menz, Chief Executive,
Zvonko Vuksan, Senior Asset Manager



Parliament of
South Australia
