

Foreword

The Estuary Management Plan for GyMEA Bay was prepared under the direction of the GyMEA Bay Working Party (GBWP) and was jointly funded by Sutherland Shire Council (SSC) and the Department of Infrastructure, Planning and Natural Resources (DIPNR), under the State Government's Estuary Management Program. This document was prepared by Nelson Consulting with input from WBM Oceanics.

It follows on from the Estuary Processes Study (WBM 2002), which summarises general conditions including status and trends for the various physical, chemical and biological estuarine processes and interactions between them and between other land and water uses. This information is based on past studies and data collection carried out as part of the Estuary Processes Study. The Estuary Management Plan is based on the findings of the Processes Study, other background information and the results of community and stakeholder consultation, [including comments received during the public exhibition of the Draft Estuary Management Plan in November 2003](#).

The Estuary Management Plan is the application of the State Government's *Estuary Management Policy* to GyMEA Bay. The general goal of this policy is to achieve an integrated, balanced, responsible and ecologically sustainable use of the State's estuaries. Specific objectives of the Policy (NSW Government 1992) are:

- The protection of estuarine habitats and ecosystems in the long-term, including maintenance in each estuary of the necessary hydraulic regime.
- The preparation and implementation of a balanced long-term management plan for the sustainable use of each estuary and its catchment, in which all values and uses are considered, and which defines management strategies for :
 - conservation of aquatic and other wildlife habitats
 - conservation of the aesthetic values of estuaries and wetlands
 - prevention of further estuary degradation
 - repair of damage to the estuarine environment
 - sustainable use of estuarine resources including commercial uses and recreational uses as appropriate.

Summary

The GyMEA Bay Management Plan goals are to:

- **Enhance the quality of the Bay's waters and tributary creeks**
- **Enhance the biodiversity of GyMEA Bay**
- **Enhance the scenic amenity and natural values of GyMEA Bay and its foreshores and conserve cultural heritage features**
- **Provide a safe and pleasant environment and access for water-based recreational pursuits which relate to the natural values of the Bay**

A summary of Management Plan actions to achieve these goals is provided below. These actions are not listed in any particular order of priority.

- Design, implement and coordinate a targeted water quality monitoring program to:
 - detect sources of sewage pollution;
 - assess suitability of waters for public recreation and ecosystem health; and
 - assess performance of stormwater quality improvement devices/programs.
- Address identified sources of sewage pollution, eg undertake sewer pipe remediation as required, and encourage a reduction in other possible pollution sources, eg repair of house service lines.
- Address erosion within the catchment through slope stabilisation, planting with indigenous species, formalisation of pedestrian access and control of stormwater runoff.
- Investigate removal of sediment within GyMEA Baths to restore depths for swimming competitions.
- Undertake weed control and planting programs, using indigenous species, to enhance the structure and diversity of vegetation in bushland reserves and to augment vegetated corridors and linkages.
- Encourage active bushland management on private properties and review development controls to further protect and augment remnant bushland, enhance scenic amenity and conserve cultural heritage.

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1 Introduction

1.1 Background

Gymea Bay is located on the northern side of the Port Hacking estuary in the southern Sydney metropolitan area. It is surrounded by the Sutherland Shire suburbs of Gymea Bay, Miranda and Yowie Bay.

Land uses within the catchment of Gymea Bay are predominantly residential, with the main public access to the waterway being via Coonong Creek Reserve and Gymea Baths. See **Figure 1.1**, which shows the catchment area and features of Gymea Bay.

The bay is wide and deep with maximum depths of about 19 m. The underwater slopes are steep with shallow areas confined to the northern coves. The bay has a waterway area of approximately 49 ha and catchment of about 202 ha. Flushing times are estimated at over 20-30 days (WBM 2002).

1.2 Planning Context

The *Port Hacking Management Plan* (SSC 1992) provides an overall framework for the management of Port Hacking, the Hacking River and its entire catchment. The Estuary Management Study and Plan follows on from this and the preceding Estuary Processes Study (WBM 2002), to set the direction for management of Gymea Bay.

A number of other plans will also influence development around Gymea Bay and management of the waterway. These include the Port Hacking Boating Plan of Management (the draft is currently under review by the Waterways Authority) and local environmental planning controls. Sutherland Shire Council (SSC) is currently reviewing principles relating to environmental planning controls for a new Local Environmental Plan.

2 Values of GyMEA Bay

The following values of GyMEA Bay are based primarily on information contained in existing reports, plus feed back from the community through a questionnaire distributed to foreshore residents (see **Appendix A**). Areas of natural and cultural heritage value are shown in **Figure 2.1**.

2.1 Ecological Values

Intermingled amongst remnant vegetation communities around GyMEA Bay are large patches of urban bushland which, together with remnant vegetation communities, form a mosaic of vegetation types.

Small pockets of rainforest occur amongst stands of dense Eucalypt bushland, most importantly within Coonong Creek Reserve and the watercourse situated adjacent to Alkaringa Road (referred to as Alkaringa Creek). This Sutherland Shire Littoral Rainforest, which also occurs in other areas around the foreshore, is listed as endangered under the *Threatened Species Conservation (TSC) Act*.

The locally threatened plant Shining Guinea Flower (*Hibertia nitida*) and locally significant species, eg Mueller's Cypress (*Callitris muelleri*), Corkwood (*Endiandra sieberi*) and Yellow Rock Orchid (*Liparis reflexa*) have been identified for the GyMEA Bay area (WBM 2002).

2.2 Scenic Values

PPK and Clouston (2001) undertook a scenic assessment of the Sutherland Shire foreshores. Based on a number of criteria, scenic quality was rated as either high, high-medium, medium, medium-low or low in relation to a range of settings (eg semi-natural, suburban, semi-urban, urban). The overall classification for GyMEA Bay was medium.

However, some aspects of GyMEA Bay rated highly. These were "scenic accessibility" associated with GyMEA Baths, no visible impacts from infrastructure (power lines, aerials etc) and visibly clear water, generally clear of rubbish.

The urban bushland setting, clean and protected waters and beautiful views are highly valued by the GyMEA Bay community (see **Appendix A**).

2.3 Heritage Values

Non-indigenous Heritage

GyMEA Baths, which dates from the 1950s, conserves an open timber and steel mesh structure. Although once common, these structures are now becoming rare. The significance of the baths is recognised through listing in the *Sutherland Local Environmental Plan (LEP) 2000*.

Indigenous Heritage

A study by Dallas (2002) identified 217 Aboriginal sites within Kurnell Peninsula and the northern bays of Port Hacking. Scattered sites have been recorded at GyMEA Bay around the foreshore and along Coonong Creek (approximately 12 sites). Recorded sites include a shelter with midden, and axe grinding grooves.

An area approximately 100 m around the foreshore of the bay has been identified as being of high archaeological sensitivity (ie it is likely that further surveys would reveal as yet unrecorded Aboriginal sites). Significant sandstone features, plateau edges and creek lines, in particular, have high archaeological potential.

2.4 Recreation Values

The waters of Gymea Bay and its nearby swimming enclosure (Gymea Baths) are valued by families and water sport enthusiasts who enjoy activities such as water-skiing, swimming, kayaking, sailing and the like. Additionally, members of the fishing community value Gymea Bay for its supplies of bream, leatherjacket, tailor and whiting (Waterways 2001).

Gymea Baths, being the most accessible public area on the foreshore, is a focus for informal and organised recreational use. The Gymea Bay Swimming Club holds training and competition races at the Baths.

3 Issues Affecting Gymea Bay

Following is a summary of the main issues or problems currently affecting, or potentially affecting, Gymea Bay (see also, **Figure 3.1**). Refer to **Appendix B** and **Appendix C** for further information.

3.1 Water quality

The water quality of Gymea Bay is generally good, apart from periods immediately following rainfall, when catchment runoff results in temporary and generally localised deterioration in water quality (WBM 2002).

Monitoring at the Gymea Baths has shown high levels of bacteria at times of heavy rainfall, indicating sewage pollution. High levels of bacterial contamination were also evident in the upper catchment of both Coonong Creek and Alkaringa Creek during dry and wet weather monitoring in 2001 (WBM 2002). Sydney Water has re-lined some sewer pipes around Gymea Bay to help address this problem. However, sewage from cracked or partially blocked house service lines is also likely to be contributing to pollution of the bay.

Council has advised that paint, detergents and petroleum products have been observed entering Coonong Creek via the stormwater system, as a result of activities by residents. In addition, dog faeces, nutrients from fertilisers and other garden products are likely to enter the bay via runoff and groundwater seepage. Illegal connections of pool backwash outlets to the stormwater system are also thought to occur in the catchment.

A considerable amount of litter (plastic bottles etc washed down water courses) has been observed at the mouth of Coonong Creek and at the end of Alkaringa Road. To reduce the amount of litter entering the bay, Council has installed a trash rack in the Coonong Creek catchment and is installing a trash rack in Alkaringa Reserve.

3.2 Erosion and Sedimentation

Poorly controlled stormwater runoff has led to erosion in some locations, particularly around the access and steps down to Gymea Baths. Increased impervious surfaces, exposed tracks, excavation for buildings, removal of vegetation and concentration of stormwater have all contributed to erosion in the catchment.

Sedimentation at the mouths of Coonong and Alkaringa Creeks increased with urban development in the 1950s and 1960s, with accelerated sedimentation at Alkaringa Creek continuing after this time (WBM 2002).

Although sedimentation at the mouth of Coonong Creek slowed considerably after the 1960s, accumulated sand in Gymea Baths has reduced water depths in and around swimming lane 6.

3.3 Waterway related development

Changes on the waterfront have included removal of trees and the planting of introduced species, the proliferation of jetties, boatsheds, swimming pools, stairs etc; together with an increase in the scale of new houses. This has had an impact on the scenic qualities of steep sites, due to the loss of significant areas of bushland (PPK and Clouston 2001).

3.4 Water-based recreational activities and facilities

The impacts of powered craft on other activities and the environment (noise and safety) were raised by some questionnaire respondents. However, few complaints have been received by Waterways over the last 12 months. Note that a 4 knot speed limit applies near GyMEA Baths.

Other safety/amenity issues are:

- hooks, lines and bait discarded by recreational anglers around GyMEA Baths; and
- vandalism/condition of bath amenities.

3.5 Aquatic flora and fauna and foreshore vegetation

The invasive algae species, *Caulerpa taxifolia*, has been found at Lilli Pilli and other locations within Port Hacking. This algae is a threat to aquatic habitats and its potential to spread to GyMEA Bay (as well as other northern bays within Port Hacking) is of concern. Exotic weed species occur along the foreshore and in the surrounding catchment, most of which are 'garden escapees'. Residents have also identified that trees have been cutback or removed, presumably for views.

Sedimentation at the mouth of Coonong Creek is affecting mangroves by the smothering of peg roots (pneumatophores) near GyMEA Baths. Several questionnaire respondents noted the taking of undersized fish at GyMEA Baths.

4 Action Plan

Goals and objectives for the management of GyMEA Bay are set out in the following pages. They flow from the goals and objectives contained in broader planning documents, such as Sutherland Shire's *Blueprint for Action* (2002) and the *Port Hacking Management Plan* (SSC 1992).

The associated strategies and actions have been formulated to protect the identified values of GyMEA Bay (as set out in **Section 2**) and to address issues and problems (summarised in **Section 3**). Several of these actions have been identified in past studies, see **Appendix B**.

A summary of Management Plan Actions is shown in **Figure 4.1** and more information on further studies is provided in **Section 5**.

The authority or organisation primarily responsible for implementing individual actions is shown in bold. The following abbreviations have been used.

DEC	Department of Environment and Conservation
Dept. of Lands	Department of Lands
DIPNR	Department of Infrastructure, Planning and Natural Resources
Fisheries	NSW Fisheries
GBWP	GyMEA Bay Working Party
SCCG	Sydney Coastal Councils Group
SCMB	Southern Catchment Management Board
SSC	Sutherland Shire Council
Waterways	Waterways Authority

Priorities for actions were identified by the GBWP with associated timeframes as follows:

- high implementation within one to two years
- medium implementation within three to five years
- low implementation within six to 10 years

4.1 Goal: To enhance the quality of the Bay's waters and tributary creeks

4.1.1 Objective: To address sewage pollution sources and associated public health risks.

Strategy	Action	Priority	Responsibility
Coordinate and expand existing water quality monitoring programs to target sewage pollution	<p>Design and implement a water quality monitoring to detect sources of pollution (see Section 5.1 for more information) and include:</p> <ul style="list-style-type: none"> - short-term monitoring of selected stormwater systems, particularly to identify the location of cross contamination between sewer and stormwater systems upstream of Coonong Road and Forest Road - establishment of Streamwatch sites (as support for sewage pollution detection and monitoring program) 	high	SSC, Sydney Water, DEC, DIPNR
Support programs to address sewage pollution and inform the public	Based on monitoring results, rehabilitate sewer pipes as required under the Sewerfix Program.	high	Sydney Water
	Support 'Pipecheck' initiatives, eg inspection and repair/replacement of damaged house service lines at time of sale and as condition of consent for dwelling alterations/renovations.	high	SSC, SCCG
	As part of Harbourwatch, install signage advising that the Baths may be polluted after heavy rain.	high	SSC

4.1.2 Objective: To address erosion in the catchment and improve the quality of runoff to the Bay

Strategy	Action	Priority	Responsibility
Investigate/ implement measures to address erosion	Address erosion in parks and reserves through slope stabilisation, planting, formalisation of pedestrian access and control of stormwater runoff, particularly around the access and steps down to GyMEA Baths.	high	SSC
	Monitor the mouth of Alkaringa Creek to assess if further measures are needed to address sedimentation.		
	Ensure construction site erosion and runoff controls are effectively designed and maintained.	ongoing	SSC
Investigate/ implement measures to improve the quality of runoff to the Bay	Review frequency of Council programs/prepare formal maintenance plans for street sweeping and maintenance of stormwater quality improvement devices, particularly Ellesmere Road CDS to reduce blockage by leaves etc.	high	SSC
	Investigate illegal discharge of private pool water into the catchment via the stormwater system.	high	SSC

Strategy	Action	Priority	Responsibility
Investigate/ implement measures to improve the quality of runoff to the Bay (continued)	Distribute educational material to residents on measures they can take to prevent water pollution and contacts to report different types of pollution incidents.	medium	SSC
	Undertake periodical 'clean-ups' of GyMEA Baths. Promote GyMEA Baths as a site for Clean-up Australia Day.	high	SSC

4.2 Goal: To enhance the biodiversity of GyMEA Bay

4.2.1 Objective: To identify and manage threats to ecological communities

Strategy	Action	Priority	Responsibility
Identify changes in aquatic ecosystem health	As part of a regional program, monitor water quality and appropriate biological parameters.	low	SCMB, SSC
Prevent the invasion of <i>Caulerpa taxifolia</i>	Encourage reporting of any outbreaks of <i>Caulerpa taxifolia</i> .	ongoing	Fisheries, Waterways, SSC
	Continue boater education to avoid infested areas and minimise the likelihood of transport of <i>Caulerpa taxifolia</i> on trailers and boating gear.	ongoing	Fisheries, Waterways
Improve compliance with Fisheries regulations	Install regulatory/educational signage at GyMEA Baths to assist in enforcement.	in hand	Fisheries, SSC
	Continue periodical patrols to police the taking of undersized fish, as well as littering (hooks, lines etc).	ongoing	Fisheries, SSC
Protect existing bushland and terrestrial habitats	Continue to investigate and prosecute property owners for illegal tree removal/vegetation damage, particularly to foreshore vegetation near the end of Yellambie Street.	high	SSC
	Publicise penalties for illegal tree removal under Council's Tree and Bushland Preservation Order.	high	SSC

4.2.2 Objective: To maintain and enhance catchment and foreshore vegetation, habitats and 'green corridors'

Strategy	Action	Priority	Responsibility
Enhance and augment indigenous vegetation and habitats on public lands	Develop Plans of Management for significant natural areas owned/controlled by Council, eg Coonong Creek Reserve.	high	SSC
	Undertake weed control (using appropriate methods to minimise impacts on the aquatic environment) and planting programs in parks and reserves using a mixture of indigenous species to enhance vegetation structure and diversity, and improve habitat for native fauna.	high	SSC

Strategy	Action	Priority	Responsibility
Enhance and augment indigenous vegetation on public lands (continued)	Review Urban Tree Policy to augment/restore key habitat areas and existing/proposed linkages (vegetated corridors) within the Council's 'Greenweb'.	in hand	SSC
	Continue support for and expand Council's Bushcare program for public lands.	ongoing	SSC
Encourage retention and more planting of indigenous canopy trees and shrub species on private lands.	Support Greenweb program for bushland management on private property.	ongoing	SSC, DEC

4.3 Goal: To enhance the scenic amenity and natural values of GyMEA Bay and its foreshores and conserve cultural heritage features

4.3.1 Objective: To minimise the impact of development on scenic amenity

Strategy	Action	Priority	Responsibility
Review current development controls and foreshore building lines	In accordance with the <i>Blue Print for Action</i> (SSC 2002) and Draft Sutherland LEP 2003:	in hand	SSC
	<ul style="list-style-type: none"> - define new 'environmentally-sensitive' zone for residential areas fronting GyMEA Bay to protect and enhance landscape features including remnant vegetation; and - introduce new development controls to ensure development along the foreshore respects the natural and built scenic amenity. 	complete	SSC
Encourage rationalisation and a coordinated approach to provision of boating facilities	Update the Waterfront DCP to reflect DIPNR, NSW Fisheries and Waterways Authority policies for foreshore/waterway structures.		
	<p>Carry out survey to identify and investigate the removal of unauthorised and/or inappropriate private foreshore structures on Crown land. Undertake follow-up surveys to identify new illegal structures.</p> <p>Encourage sharing of private foreshore structures (eg jetties, pontoons) between adjoining landholders to minimise the number of structures.</p>	high	Dept. of Lands SSC
		ongoing	SSC, DIPNR

4.3.2 Objective: To increase awareness and appreciation of the natural and cultural heritage features of the bay

Strategy	Action	Priority	Responsibility
Protect known and as yet unrecorded Aboriginal sites of significance	Introduce new development requirements to identify and assess sites based on archaeological sensitivity of the location and the extent/nature of development proposed.	in hand	SSC

Strategy	Action	Priority	Responsibility
Protect known and as yet unrecorded Aboriginal sites of significance (continued)	Prepare Aboriginal Cultural Heritage Management Strategy addressing: <ul style="list-style-type: none"> - conservation of sites and places of significance to Aboriginal people - identification of as yet unrecorded archaeological sites - assessment of development applications affecting Aboriginal sites - consultation with and involvement of the Aboriginal community - means to increase community interest and understanding of the management of Aboriginal sites. 	in hand	SSC
Make information on natural and Aboriginal/non-Aboriginal cultural heritage values readily available to residents and visitors	Consider installation of interpretive signage at the GyMEA Baths to provide information on natural, cultural and built heritage values.	low	SSC
	Produce brochure that explains how Aboriginal sites are protected and how developments can be planned to minimise impacts on the archaeological resource.	medium	SSC

4.4 Goal: To provide a safe and pleasant environment for water-based recreational pursuits which relate to the natural values of the Bay

4.4.1 Objective: To improve the amenity of the head of GyMEA Bay

Strategy	Action	Priority	Responsibility
Maintain depths suitable for swimming competitions	Investigate selective removal of sediment from baths area (see Section 5.2 for more details).	high	SSC
Improve 'house keeping' by recreational anglers	Undertake periodical patrols to discourage anglers from discarding hooks, lines and bait in and around the baths. Consider provision of signage/bin to encourage appropriate disposal of these items.	high	SSC
Improve bath amenities block	Upgrade bath amenities block , including measures to reduce vandalism.	medium	SSC
Improve Alkaringa Creek delta area	Undertaken clean-up to remove accumulated litter and other items and assess need for removal of accumulated sediment .	high	SSC

4.4.2 Objective: To improve public access to the foreshore

Strategy	Action	Priority	Responsibility
Review the Crown Lands Assessment	Identify any opportunities to create additional, practical public access to the foreshore while protecting the foreshore environment.	medium	Dept. of Lands
Improve access to Gynea Baths	Improve pedestrian and vehicle access and parking for baths, including formalising parking, control of stormwater runoff and improved path and steps.	high	SSC

4.4.3 Objective: To minimise conflicts between user groups

Strategy	Action	Priority	Responsibility
Increase compliance with boating regulations	Continue boater education and enforcement program to target distance off requirements, wash, noise and speed.	ongoing	Waterways
Ensure sufficient open waterway area for recreational pursuits	Prepare mooring plan designating areas for future moorings which do not diminish opportunities for current recreational uses or natural values.	medium	Waterways

5 Further Studies

5.1 Water Quality Monitoring

A framework for a water quality monitoring program is presented in **Table 5.1**. It reflects identified problems at GyMEA Bay, regional priorities and available/potential resources for water quality monitoring. [As a number of authorities are involved, sampling and analysis needs to be coordinated and procedures put in place for the exchange of information.](#)

Table 5.1 Water Quality Monitoring Framework

Objective of Monitoring	Suggested Monitoring Sites	Parameters Monitored	Frequency/Longevity/Responsibility
Determine suitability of water for human uses (ie public health)	Designated swimming area ie: - GyMEA Baths	faecal coliforms enterococci	Every 6 days as part of Harbourwatch Program (baths have been part of Harbourwatch program since 1999)
	Selected areas used for recreation (particularly creeks/ open drainage channels) eg: - Coonong Creek Reserve - Coonong Creek delta - Alkaringa Creek delta	faecal coliforms enterococci	Periodical wet and dry weather monitoring by Sydney Water/ SCC Routine monitoring of faecal coliforms under Sydney Water's Streamwatch Program (in support role)
Identify pollutant sources within the catchment	Principally identified 'hotspots' within the stormwater network, systematically targeting different subcatchment drainage lines eg: - Coonong Creek upper catchment - Alkaringa Creek upper catchment	faecal coliforms enterococci nutrients biological oxygen demand	Periodical wet and dry weather monitoring by Sydney Water/ SCC Limited duration only, with follow-up monitoring after remediation works have been carried out
Assess effectiveness and performance of SQIDs	- Coonong Creek trashrack - Ellesmere Road CDS	Sediment organics litter (as appropriate)	SSC as part of routine maintenance
Assess ecosystem health	Main waterway area at approximately 3 sites evenly distributed around the Bay	based on National Land and Water Resources Audit Index, eg chlorophyll-a, turbidity, nutrients and biological parameters, such as critical habitat loss, invasive species	Infrequent, long-term monitoring under future Southern Catchment Management Board program

The information in **Table 5.1** would be used to develop [a targeted water quality monitoring program](#) (including implementation costs) in accordance with best practice and statistically valid methods. [Data from this program would be used to:](#)

- [advise residents when the Baths were likely to be affected by pollution \(eg after heavy rainfall\);](#)
- [inform the Sydney Water Sewerfix Program;](#)
- [identify contamination sources in the catchment, eg where sewage is making its way into the stormwater system and remedial action to be taken by Council, Sydney Water or private property owners;](#)

- assess the performance of SQIDs and assist in identifying design modifications for future devices or tailoring maintenance routines; and
- assess ecosystem health, set priorities for funding particular water quality improvement programs and provide information for Council's State of the Environment Report.

5.2 GyMEA Baths Sediment Removal Investigations

GyMEA Baths is affected by sedimentation, from the mouth of Coonong Creek, which reduces the number of lanes available for swimming races, particularly during low tides (see questionnaire responses, **Appendix A**). To restore depths within the baths, approximately 300m³ of material would need to be removed.

Core samples near the mouth of Coonong Creek were taken as part of the Estuary Processes Study (WBM 2002). Generally the cores showed that the top layer of sediment (approximately 500 mm thick) was sand with occasional shell and that contamination was unlikely to be an issue.

It is recommended that the nature of the sediments within the baths be confirmed and methods to remove accumulated sand be investigated.

Due to restricted access from the land, water-based plant would be the most likely method for sand removal (eg excavator on a barge). Costs associated with this method are in the order of \$10,000 - \$20,000, due mostly to the high equipment mobilisation and access-related costs. Disposal costs would be minimal as it is anticipated that any material removed from the baths would be suitable for beach nourishment or for local park improvements.

6 Assessment and Reporting

The Estuary Management Plan would be periodically reviewed by the GBWP. The role of the GBWP would be to report to the community on the implementation of the Plan. This could be via inclusion of information in Council's State of the Environment Report, website or articles in the local newspaper, *The Leader*.

Measures to assess the effectiveness of actions in meeting objectives include:

- The results of water quality monitoring (ie compliance with guidelines).
- Amount of litter and sediment collected in stormwater quality improvement devices.
- Monitoring of sedimentation rates at the mouth of Alkaringa Creek (eg through installation of survey markers in the shorter-term and analysis of aerial photography in the longer-term).
- Surveys of foreshore vegetation to map changes in canopy cover and extent of weed invasion (eg quadrat surveys identifying percentage weed cover, interpretation and ground truthing of aerial photographs to identify changes in the extent of vegetation communities, and repeat photomontages to identify changes in canopy cover/visual impact of development).
- Follow-up discussions with the Gynea Bay Swimming Club on satisfaction with measures to improve the amenity of the baths area and reduce vandalism.

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