

# Cottesloe Ocean Pool Feasibility Study

Community meeting

Annabel Knipe, Advisian  
Martijn Klabbers, Advisian  
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## Scope of Current Study (1)

- High Level Feasibility Study, considering:
  - Planning approvals
  - Environmental factors
  - Aboriginal and European Heritage
  - Social impacts
  - Geotechnical
  - Civil and coastal engineering
  - Community consultation

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Preparation of the Feasibility Study involved brainstorm sessions involving Subject Matter Experts of the following disciplines:

Potential planning approvals that may be required include:

Cmwth

- Department of Environment and Energy – EPBC Act
- DoEE – Aboriginal and Torres Strait Islander Heritage Protection Act
- National Native Title Tribunal – Native Title Act

State

- Department of Planning, Lands and Heritage – Aboriginal Heritage Act
- Department of Water and Environmental Regulation – Environmental Protection Act
- WA Planning Commission and/or Cottesloe Council – Metropolitan Region Scheme
- Department of Water and Environmental Regulation – Environmental Protection (Clearing of Native Vegetation) Regulations
- Department of Planning, Lands and Heritage – Heritage of Western Australia Act

Environmental:

- Relevant environmental factors identified based on the statement of Environmental Principles, Factors and Objectives (EPA, 2016):
- Fish Habitat Protection Area –encompassing Cottesloe Reef (Attachment 1) – special ecological and community significance deserving special management with attributes unique to Perth Metropolitan Area
- Sand, reef, seagrass
- Weedy and leafy sea dragon, abundance of finfish, sharks, rays, migratory shorebirds (breeding and foraging habitat)



## Scope of Current Study (2)

- High Level Feasibility Study, considering:
  - Planning approvals
  - Environmental factors
  - Aboriginal and European Heritage
  - Social impacts
  - Geotechnical
  - Civil and coastal engineering
  - Community consultation

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### Aboriginal and European Heritage

- A search of the Aboriginal Heritage Inquiry System revealed one registered site, Moonderup (Site ID 435)
- Same site is also listed as Mudurup or Moodoorup Rocks in the Municipal Inventory (Site 7982).
- Mudurup Rocks (Attachment 2) is one of the last known and surviving indigenous mythological, ceremonial and fishing sites located on the Western Australian metropolitan coast.
- The site included the limestone headland or promontory, the fringing reef platform and the rocky beachfront area which once extended north and south of the present day groyne. The construction of the groyne in the early 1960's altered aspects of the shoreline and reef topography of the original site.

### Social impacts

- Considered for both the construction (temporary) and operation (long term) phases
- Factors considered include impacts to traffic, parking, access to beach, existing activities and local business

### Geotechnical

- Bearing capacity of subsoil and acceptable levels of settlement
- Additional surveys which may be required to enable geophysical properties of the locations to be understood

### Civil and coastal engineering

- Design considerations of the pool structures including wave forces, overtopping, wind, currents, sea level rise
- The effect of the proposed structures on wave climate, beach profile and coastal processes
- Pool water quality and risk of sand/sea wrack ingress
- Constructability and durability of structural designs



## Background

- Ocean pools in NSW – major attractions
- None in WA
- Cottesloe timeline:
  - 1925 – fatal shark attack
  - 1930's – attempt to create shark-proof pool
  - 1936 & 1937 - storm damage to pool under construction, abandoned
  - 1960's – 'kiddies pool'
  - 2000 & 2012 – fatal shark attacks

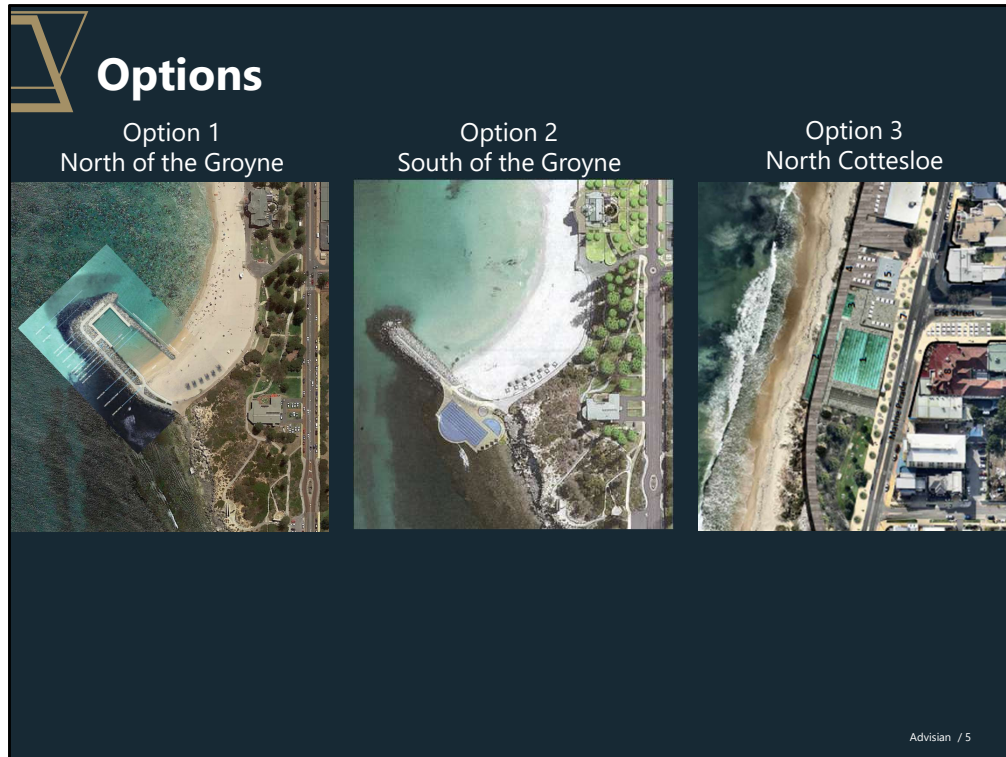


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There are around 90 ocean and estuary swimming pools across Australia, the majority in New South Wales (NSW). Along the Sydney coastline, from Palm Beach in the north to Cronulla in the south, there are up to 35 ocean pools which are considered major attractions.

No new ocean pools have been built in NSW since the 1960's and new swimming developments consisted of in ground swimming pools and aquatic centres. There are no real ocean pools in Western Australia

Cottesloe is a popular beach location and surf spot in Western Australia, occurrence of shark attacks in the areas has sparked an interest by some in a shark proof swimming area, such as an ocean pool. The 'kiddies pool' (photo) was well used by young families with small children. Water for this pool was sourced by a bore but was eventually closed over concerns about the water quality.



Potential options under consideration are at the concept stage, design may change should any option be progressed to the next stage.

#### Option 1

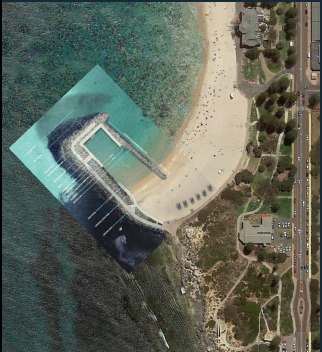
- Extension of existing Cottesloe groyne comprising a rock construction, creating a closed off basin at the northern side of the groyne. The ocean pool is accessible from the beach.
- Swimming lane length of 25 and a length of approximately 75 from the beach
- Features include coaching and officials area, starting boards, steps, lane ropes (for races only), a turning board, a water polo area and a universal access ramp connected to the existing universal access path.
- Natural flushing of the water through the rock and additional culverts
- Studies have been conducted to investigate this flushing behaviour as well as the influence of the increased groyne structure on the wave climate

#### Option 2

- Located on the rock/reef shelf just south of the existing groyne.
- Features include 50 m pool with 8 lanes, a widened area for adult recreation / therapeutic swimming, a dedicated kids pool (approx. 21 x 10.5 m), tiered seating, a control building with access control, lifesaving, kiosk, lockers and toilet and disabled access directly off the existing universal access path.
- Water pumped into pool from ocean

#### Option 3

- Located at the Eric Street entrance to Cottesloe situated next to Barchetta, the Blue Duck and North Cottesloe Lifesaving Club and opposite of the Ocean Beach Hotel.
- The complex consists of a 10-lane lap pool, a water polo pool and a settling pool
- Located approximately 5m above ocean level and the pools are situated along a landscaped promenade and an elevated boardwalk.
- Located in close proximity to pre-existing change rooms and cafes which are open all year round.
- Water pumped into pool from ocean



## Option 1 – North of the Groyne

Positives	Key Concerns
<ul style="list-style-type: none"> <li>• Shelter from sea breeze</li> <li>• Low environmental impact</li> <li>• Low cost</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of amenities</li> <li>• Accessibility</li> <li>• Swimming experience</li> <li>• Water quality</li> <li>• Heritage areas</li> <li>• Impacts on existing activities</li> </ul>

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#### Positives:

- Sheltered from the SW sea breeze during summer.
- Relatively low environmental impact given the type of infrastructure installed and the existing habitat at the location. Groyne extension may attract marine life
- Low cost solution (capex & opex)

#### Concerns:

- Lack of additional amenities, increasing pressure on existing facilities
- Significant distance from main car parks, potentially reducing the accessibility for certain user groups
- Rock structure may block the view of ocean and horizon which may affect the experience of swimmers and beachgoers;
- Self-flushing capacity to be confirmed in detailed studies to guarantee clean swimming water all year around
- May be difficult to clean from potential ingress of sand and sea wrack over time and due to storms;
- Although not at boundary: the proximity of pool to aboriginal heritage area (Moondoorup Rocks) may be an issue in approval process
- May impact on existing activities including surfing



## Option 2 – South of the Groyne



### Positives

- Similarity to classic rock pool
- Exciting swimming experience
- Located away from main beach

### Key Concerns

- Heritage
- Environmental impact
- Pool foundation
- Exposure to seabreeze
- Accessibility
- Isolated location
- Irreversible

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#### Positives:

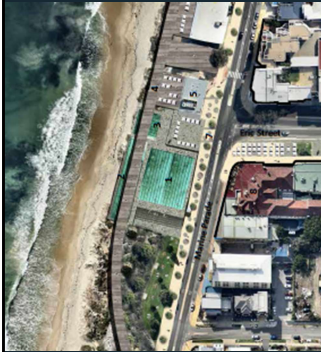
- Most similar to classic rock pool designs that are popular on the east coast
- Views would be expansive and uninterrupted offering an exciting swimming experience
- Located away from the main beach area, preventing displacement of existing activities

#### Concerns:

- Located partly on aboriginal heritage land (Moondoorup Rocks)
- To be constructed in the intertidal area of a reef located in a marine protection zone. Potential impact to the reef area due to geotechnical investigations and construction activities
- High exposure to the sea breeze during the summer months
- Significant distance from main car parks, reducing the accessibility for certain user groups
- Uncertainty in suitability of existing reef as foundation of a pool
- Isolated location may invite undesired activities during after-hours
- Due to construction on the reef, returning the site to previous state in future would not be possible



## Option 3 – North Cottesloe



### Positives

- Accessibility
- Amenities
- Less impact on environment
- Spreading of activities along coastline

### Key Concerns

- Swimming pool experience
- Potential need for coastal protection
- High cost

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#### Positives:

- Easily accessible being next to Marine Parade and close to Napier Street carpark
- Close to existing amenities, potential to include additional amenities within proposed design. A water polo pool is considered an important amenity.
- Relatively low impact on coastal processes and environmental impact given there is no interface with the ocean and marine environment
- Spreading of activities along coast potentially alleviating traffic/parking around the main Cottesloe beach

#### Concerns:

- Location in a more urban environment than the other options with proximity to road and amenities will give it less of an ocean pool swimming experience
- Potential future coastal erosion may affect pool structures and other assets built near the coastline. This may need mitigating measures in time such as coastal protection if pool foundation does not extend to Tamala limestone.
- Relatively high cost of construction and operation.



## Options - recap

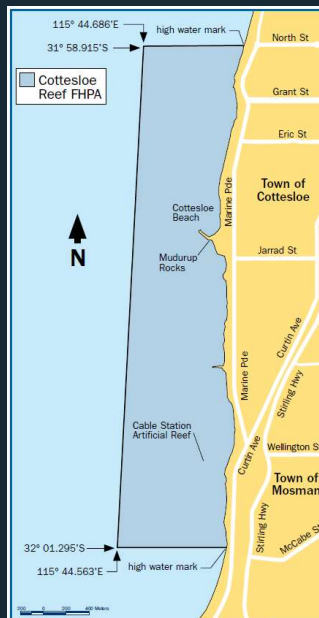
Option 1 North of the Groyne	Option 2 South of the Groyne	Option 3 North Cottesloe
 <ul style="list-style-type: none"> <li>+ Shelter from seabreeze</li> <li>+ Low environmental impact</li> <li>+ Low cost</li> <li>- Lack of amenities</li> <li>- Accessibility</li> <li>- Swimming experience</li> <li>- Water quality</li> <li>- Heritage areas</li> <li>- Impacts on existing activities</li> </ul>	 <ul style="list-style-type: none"> <li>+ Similarity to classic rock pool</li> <li>+ Exciting swimming experience</li> <li>+ Located away from main beach</li> <li>- Heritage</li> <li>- Environmental impact</li> <li>- Pool foundation</li> <li>- Exposure to seabreeze</li> <li>- Accessibility</li> <li>- Isolated location</li> <li>- Irreversible</li> </ul>	 <ul style="list-style-type: none"> <li>+ Accessibility</li> <li>+ Amenities</li> <li>+ Less impact on environment</li> <li>+ Spreading of activities along coastline</li> <li>- Swimming pool experience</li> <li>- Potential need for coastal protection</li> <li>- High cost</li> </ul>

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Please note that the proponents for all 3 assessed options have advised that they have funding options available, and that they have received public support



## Attachment 1: Cottesloe Reef Fish Habitat Protection Area



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## Attachment 2: Mudurup or Moodoorup Rocks Heritage site



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