



Places to Swim

A best practice guide to get in, on, and around water in NSW

Acknowledgment of Country

The Department of Planning, Housing and Infrastructure acknowledges the Traditional Custodians of the land and pays respect to Elders past, present and emerging.

We recognise Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to society.

Published by NSW Department of Planning, Housing and Infrastructure

planning.nsw.gov.au

Title: Places to Swim

Subtitle: A best-practice guide to get in, on, and around water in NSW

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Acknowledgement:

This guideline has been prepared by the Open Space Team in the Infrastructure Programs branch, supported by the generous input of the Places to Swim Advisory Panel.



Artwork (above):
Nikita Ridgeway

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01

Introduction



Long before there were backyard pools or aquatic centres, the community swam in rivers, creeks, or dams, as much as the beach. This guide is designed to create or renew swimming spots so that our communities can enjoy the benefits of a stronger connection to the outdoors.

Water is life. Our communities have a deep connection to water, valuing our waterways as places for recreation, and there is demand for more clean, safe, natural swimming sites. Places to Swim helps address this need across NSW with an easy to understand approach to the planning, design, delivery, and management of natural swim sites so that everyone can get in, on and around water.

Many people enjoy spending time outdoors, swimming in a natural setting and relaxing by a lake, river, or other natural waterway. By providing places to swim in inland waterways, we can encourage outdoor recreation and provide residents with a new way to enjoy and appreciate their local environment.

Creating places to swim in inland waterways can provide many benefits to a community, including promoting health and well-being, encouraging outdoor recreation, boosting tourism, and protecting the environment.

Inland waterways can also be a great draw for tourists looking for unique experiences, as getting in, on and around our natural waterways is often a memorable and exciting activity. We can protect damage to sensitive areas and promote the best parts of our public open spaces by designating places.

Places to Swim addresses the knowledge gap that exists in supporting safe access to waterways for people of all ages, abilities, and backgrounds, and will bring people closer to the water, while acknowledging that access to waterways for recreation varies significantly across NSW.

There are some challenges for organisations and government agencies when establishing public access to water, including water quality, safety and risk, and accessibility. The intention of the guideline is to help address these issues through the provision of practical advice, case studies demonstrating how it's done well, and the tools that are needed to navigate the complexities of establishing and managing swim sites.

Nambucca River, NSW
(Jamie Plaza Van Roon)

Penrith Beach, Penrith, NSW
(NSW Government)

The closer we are to waterways, the greater connection we develop. Our desire to care for, protect, and potentially regenerate our waterways increases. But there are not just environmental benefits.

All the scientific and anecdotal evidence tells us that being in nature and near water is good for our health.

Now is our opportunity to ensure that communities that need it most have equitable access to waterways, closer to home.

Whether you are creating a place to canoe on the Cooks River, making it safe to swim in the Murray or looking at launching into the Lachlan River, this is your guide to creating great Places to Swim.



NSW Public Open Space Strategy

Department of Planning,
Housing and Infrastructure 2022

The Public Open Space Strategy for NSW is a major step towards delivering more and better public open space. It sets out a collaborative, coordinated and evidence-based approach to unify planning, investment and delivery.

The strategy establishes 5 key objectives that will be achieved through specific, defined and targeted directions which can be adopted across all of government including:

- › Better recognition for public open space
- › Stronger First Nations involvement
- › Coordinated planning governance, policy and funding
- › Greater social, environmental and economic value
- › Better outcomes for regional NSW

Places to Swim acknowledges the deep cultural connection Aboriginal people have with water, and the social, environmental and economic benefits that can be delivered by connecting people to waterways across NSW.



What places to swim are about

When we refer to swim sites, we are talking about all places where community can get in, on or around the water. People are naturally drawn to water. Water and waterways are a significant part of Country, where Aboriginal people are deeply connected.

Our natural bodies of water help cool our suburbs and town areas. They regulate temperatures and mitigate urban heat, and are places that can be enjoyed during the hotter months. Walking and cycling trails along rivers are popular for their scenic beauty but also for the cooler environment they provide that encourages communities to get active throughout the year. The creation of these places allows people to meet and play, and improve well-being.

Relaxing, enjoying or getting active in water is one of the most popular activities for the people of NSW. Whether it's swimming and diving under the surface, or kayaking and exploring on a stand-up paddle board, natural water bodies are places where communities can enjoy free access to water sports.

Waterways are dynamic living entities, influenced by the urban environment and the community. To create places to swim, we must work together to improve our catchment health, through improvements to stormwater management, sediment runoff and biodiversity and habitat. Water quality that is safe for swimming means the waterway is healthy and safe for all.

The benefits of places to swim is not only the creation of places for relaxation and enjoyment, but also healthier environments for flora, fauna, and for the community.



How to use this guide

Wagga Beach, Wagga Wagga, NSW
(Visit Wagga Wagga)

This guide can be used to assist with the strategic planning and delivery of places to swim, scoping work, informing design briefs, identifying the specialist knowledge required, informing ongoing management plans and setting budgets for delivery and management.

This guideline is structured to be used as a reference as required, at each stage of a project from planning to delivery. This guide will help you understand:

- › The positive impact of providing places to swim
- › The challenges and opportunities to consider when planning, designing, delivering and managing public open space near water
- › How to create inclusive places to be in, on and around water
- › How to achieve best practice when planning, designing and delivering a place to swim

Stakeholders

This guide has been created to help anyone involved in planning, designing, delivering and managing access to natural waterways for recreation. It involves a wide cross-section of stakeholders, including:

- › Councils and government agencies
- › Landscape architects and designers
- › Open space and recreation planners
- › Policy makers
- › Construction and asset managers
- › Community champions
- › Non-government agencies



Case study

Lake Parramatta, Parramatta / Dharug Country

Lake Parramatta was the first large dam built in Australia, and is home to the oldest working weir. The lake was a popular swimming area until the 1940s when it was closed due to increasing water pollution. In January 2015 it was reopened, and recorded almost 75,000 visitors in 2019.

Swimming in a lake is unlike any other environment and at Lake Parramatta there is a large drop off just out from the shore, where the water visibility is low and the lake is deep and cold. While there are great benefits, they do come with risk and expense. City of Parramatta invests in an annual clearance dive, employs lifeguards who have experience with lakes during the summer months and maintains the site for the enjoyment of the community.

While Eastern Sydney residents are well serviced by numerous ocean beaches and harbour baths, Western Sydney residents can face a long and expensive trip to the beach. The activation of Lake Parramatta as a swim site has provided locals with a high quality open space to enjoy.



Starting with Country

Listening to and Connecting with Country is a critical element to the success of any viable swim site project. Water is fundamentally important to Aboriginal and Torres Strait Islander peoples. All public open space in NSW is 'on Country' and this represents the core of every Aboriginal person's identity and sense of belonging. It's where Aboriginal language and culture is derived and determines families, kinship ties and communities. Aboriginal people are the Traditional Custodians of all public open space in NSW.

Significance of water

Water is at the heart of the practical and spiritual life of Aboriginal and Torres Strait Islander peoples. The bedrock principles of this system of thinking about water in the landscape are based on a connected view of the world. For Aboriginal people, healthy water is intrinsically linked to healthy Country, which means a healthy culture and people.

Water has been used to determine ceremonial places and define language boundaries, and many Dreaming Stories show connections to water sources. Rivers are places to gather to bathe, drink, eat, hunt and heal, as well as a form of transportation.

Getting started

The Connecting with Country Draft Framework offers guidance for developing connections with Country that can inform the planning, design and delivery of built environment projects in NSW. Improving the health and wellbeing of Country will help realise 3 long-term strategic goals:

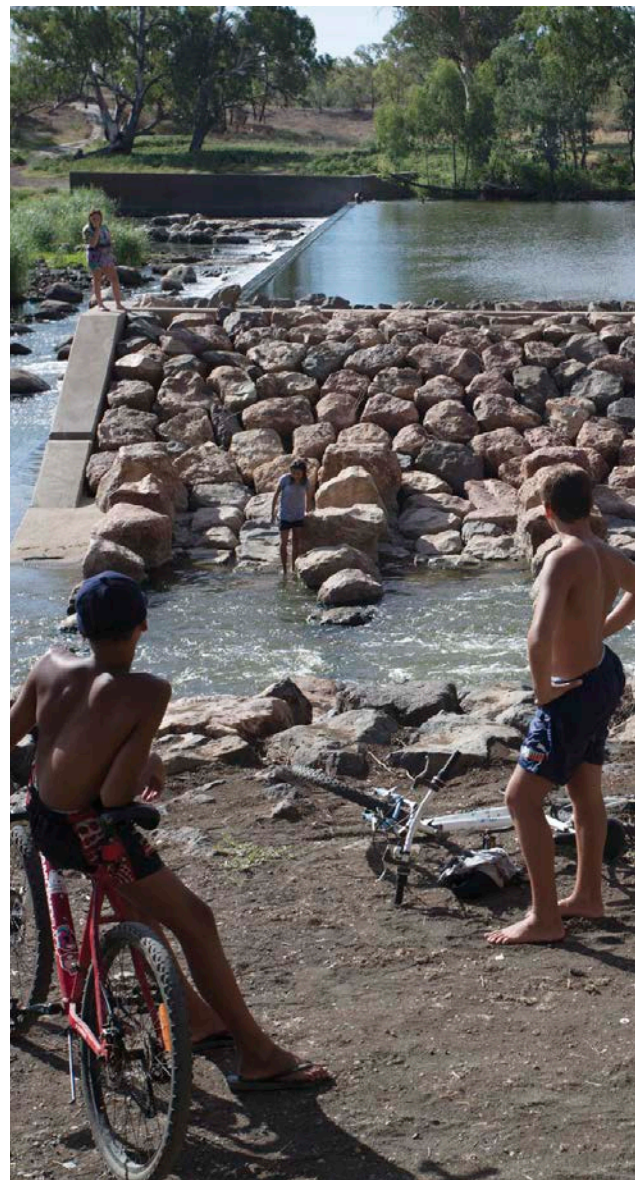
- › Reduce the impacts of natural events such as fire, drought and flooding through sustainable land and water use practices
- › Value and respect Aboriginal cultural knowledge, with Aboriginal people co-leading the design and development of all NSW infrastructure projects
- › Ensure Country is cared for appropriately and sensitive sites are protected by Aboriginal people having access to their homelands to continue their cultural practices

Lake Parramatta, Parramatta, NSW
(Dillon Seichik-Readon, Places we Swim)

More information

NSW Government Architect's Connecting with Country Draft Framework
www.governmentarchitect.nsw.gov.au

The ANZECC Water Quality Guidelines include resources and a proposed pathway for incorporating cultural and spiritual values into water quality planning
www.waterquality.gov.au



Barwon River, Brewarrina, NSW
(NSW Government)

Growing demand and equity

Everyone, no matter their age, ability or where they live, benefits from improved access to water. Water plays an incredibly important role in our landscapes and our lives.

Access to places where the community can safely get in, on, and around water was a key finding of the 2018 Greater Sydney Outdoor Survey and the draft 2022 Regional Outdoor Survey. More than 10,000 people across NSW told us that outdoor recreation plays an important role in their lives and more specifically:

- › Half of Sydneysiders enjoy outdoor recreation involving water at least once a week
- › Swimming in natural areas is increasingly popular
- › In regional areas of NSW, swimming for enjoyment or exercise is in the top 5 most popular recreational activities. Participation in aquatic recreation such as kayaking and paddle boarding is in the top ten most popular activities to enjoy
- › There is an increased demand for more clean, safe, natural swimming holes, improved access to and amenities at swimming locations
- › There is an increased demand for access points to water for activities, for example kayaking and paddle boarding, as well as storage for these activities
- › Existing swimming areas and access to waterways are sometimes under-utilised or prohibited for recreational use
- › Across regional NSW, the most visited swim locations are beaches and estuaries followed by rivers and natural pools. The popular locations for swimming are lakes and dams
- › Access to waterways for recreation varies significantly across Greater Sydney. The biggest barriers to access include travel distance and financial feasibility to deliver new access to waterways
- › Key barriers to access to waterways in regional NSW is distance and time. Many residents do not feel they have the time to drive to existing places to swim
- › There are concerns that access to water in regional locations would incur a fee for use
- › When visiting places to swim, people stay for an average of 2 hours
- › Aboriginal community is deeply connected to waterways, being able to access water freely and securely is highly demanded

Research from Western Sydney University states that perceptions of skills and risks are the primary barrier to swimming in waterways, but the health and wellbeing benefits point to an instinctive bond between human being and other living systems. The research says:

- › People are generally happier and healthier when they spend time outdoors
- › Places for outdoor recreation bolster community by bringing people together
- › Swimming in outdoor, natural places is good for our physical, mental, emotional and social health, and wellbeing
- › The immersive, multi-sensory aspects of swimming is what matters to people
- › Swimming at places that feel special creates connections between people, as well as to non-human aspects like water, animals, plants, rocks, sand and weather

More information

Greater Sydney Outdoor Survey 2018

A study looking at districts of Greater Sydney and the unique attributes that can influence requirements for open space.

Regional NSW Outdoor Survey 2023

Regional communities were asked what they love about the great outdoors. The findings of this survey can inform local and state government when planning.

Swim Perspectives Report 2023

The NSW Government commissioned Western Sydney University to investigate the issues, barriers, benefits and opportunities associated with opening waterways for recreation.

www.planning.nsw.gov.au

Benefits of places to swim

People love being around water. Whether it's a few laps to kickstart the day, a lazy paddle with mates or simply a stroll with a lovely view, access to water can enrich our lives, improve our environment and bring value and opportunity to a local economy. Investing in places to swim will not only support a healthy and active lifestyle, it also helps to create great places for people to live and visit across NSW.

Providing communities access to swim sites will result in a number of benefits, encompassing social, cultural, health, economic and environmental outcomes.

Community benefits

Creating places to swim can help nourish stronger connections between locals by bringing people together. This community engagement can:

- › Encourage group activities that connect people across a range of demographics and abilities
- › Provide places to build great memories for communities to share
- › Encourage intergenerational interaction
- › Promote inclusivity through shared enjoyment of a place
- › Foster civic awareness and pride of place
- › Offer potential spaces for community events
- › Provide opportunities to access waterways, connecting with Country and keep learning and knowledge sharing

An engaged community can help with the management of a swim site, providing information during each phase of the project from sharing historical uses when designing, through to reporting hazards throughout.

Environmental benefits

Investment in places to swim for people helps our landscapes and environment.

- › Healthy waterways mean healthier local ecosystems
- › More interaction by local communities in designated areas heightens environmental awareness

- › Data-gathering on water quality, fauna activity and plant life can help inform better decisions
- › Plans that incorporate Connection to Country perspectives can help reposition the way we think about our role in the landscape
- › Help develop greater awareness of the environment, including other creatures, plants and natural elements

Respect and understanding of the natural habitat and ecosystem attached to the swim site is an enduring benefit, and can positively impact catchment health.

Economic benefits

Bringing waterways to life for recreational purposes may have positive flow-on effects for local economies by:

- › Potentially contributing to local tourism
- › Improving liveability factors, making areas more attractive to families, workers and businesses
- › Creating great places that offer new business opportunities

A well managed swim site has the potential to provide savings on the cost of water management in addition to producing income streams.

Health and wellbeing benefits

Research tells us people are happier and healthier when they spend more time outdoors. Spending time in and around natural waterways can:

- › Encourage physical activity, which improves health
- › Reduce stress and enhance wellbeing
- › Encourage productivity and imagination

Providing places to swim can help reduce stress, improve mood, boost cognitive capacities and increase productivity,

02

Places to Swim



We naturally gravitate to the water's edge. Water calms the mind, activates the senses, and cools us in the heat of summer. There are many ways to enjoy our rivers, creeks and dams - in, on, and around the water.

Many different needs and leisure preferences can be met simultaneously with waterways providing great community value. While the ultimate goal is to create great spots to swim, Places to Swim is about more than just swimming. You can still take advantage of opportunities to enjoy local waterways as you build towards a safe, accessible natural swimming place.

The National Health and Medical Research Council Guidelines for Managing Risks in Recreational Water identify 3 levels of water contact and a related series of water quality thresholds for safe recreational use.

Getting in the water

Getting in the water requires primary contact with the water where the whole body or the face are frequently wet by water spray, and where it is likely that some water will be swallowed, inhaled, or come into contact with ears, nasal passages, mucous membranes or cuts in the skin.

Swim sites that support getting in the water will enable activities where the community can fully immerse themselves in the water, for swimming, diving or jumping, and snorkeling, scuba diving and canyoning. Examples include Wagga Beach, Murrumbidgee River and Lake Parramatta, Parramatta.

Getting in the water swim sites require the highest level of water quality and a commitment to a program of water testing from the establishment of the swim site to a program of ongoing testing to maintain a safe place for community enjoyment.

Accessible Kayak, Edward River National Park, NSW
(NSW Government)

Belmont Baths, Belmont, NSW
(Lake Macquarie Council)

Getting on the water

Getting on the water is one step away from full body immersion with only incidental contact or secondary contact made with the water. Activities that are enjoyed at **getting on the water** swim sites are those where only limbs are regularly wet and in which greater contact (including swallowing water) is unusual.

Getting on the water swim sites enable people to enjoy water activities without immersion, such as kayaking and canoeing, paddle boarding and rafting, and using lilos and model craft. This may involve incidental contact, with occasional and inadvertent immersion through accidents such as slipping into the water.

Water quality testing should be conducted regularly, with the results made available to the community through a website or signage.

Getting around the water

Natural waterways can be enjoyed when there is no contact with the water at all. **Getting around the water** swim sites are those locations where there is no contact with water yet offer a place where the landscape and setting of the natural waterway is enjoyed.

Getting around the water swim sites support opportunities to enjoy the aesthetic benefits of getting outdoors around water. Typical activities might include walking trails, picnics, fishing, bird watching and community events. These sites may have water quality issues that prevent users getting in the water, but may present opportunities to rehabilitate a site for swimming in the future.

In addition to the risks associated with water quality and potential exposure to waterborne contaminants, there is risk of injury and drowning to be considered. As new swimming sites are opened the risks need to be identified, monitored, and managed.

Natural waterways as places to swim

While the ultimate goal is to create great spots for a swim, Places to Swim is about more than just swimming. Take advantage of other opportunities to enjoy local waterways while building towards safe, accessible natural swim sites.



Creek

A small stream or tributary that may be fed by other rivers, often characterised by intermittent flow.



Dam

An enclosed body of water with banks or barriers on all sides. They may also have a wall. Dams vary in size and depth, from large recreational dams to small farm dams. Often the latter are used by agriculture as well as recreational users.



Lagoon

A small, pond-like body of water, usually connected with a major body of water. A lagoon may also refer to shallow water separated from the sea by dunes, or rock pools and gorge pools fed by waterfalls or rivers. Lagoons can be salt or fresh water.



Lake

An expanse of water that is surrounded by land and unconnected to the sea, except by rivers or streams, which may be fresh or salt water.



River

A large stream of fresh water that flows along a defined course, into an estuary or into other rivers, and is often fed by smaller streams or creeks.



Estuary

The place where a river or stream meets the open sea. Estuaries are affected by tides and have special ecosystems that thrive where fresh water meets salt water.

Photographs clockwise from top left: Warialda Creek, Warialda, NSW (Neil Fenelon), Sheba Dam at Hanging Rock, Nundle, NSW (Destination NSW), Nelson Lagoon, Mimoso Rocks, Nelson, NSW (NSW Government), Lake Illawarra, NSW (NSW Government), Bermagui River, Bermagui, NSW (Destination NSW) and Wallis Lake, Foster - Tuncurry, NSW (Destination NSW)

Swim settings

The landscape setting will affect the level of activation, type of uses and the management needed for a swim site's ongoing success and performance and environmental protection. The setting will influence the planning and also the design of the swim site should complement and improve this setting.

The setting of a swim site will inform the level of infrastructure and capacity of use which is important when planning and designing a sustainable site. Undertaking a detailed site analysis at the beginning of a project will define any limitations and opportunities for a site that can be used to inform the design, programming and management of the site.

Natural swim sites

Natural swim sites are those that retain their inherent natural character and have limited human and built intervention. Some natural setting sites will be defined by the presence of habitats or communities of particular conservation importance or sensitivity which will automatically trigger protection through relevant policies and legislation.

Natural swim sites generally have less capacity to support major permanent swim site infrastructure and should be subject to subtle and sensitive interventions, that encourage and support a more natural swim experience.

- › **Waterway type** - natural settings including ponds, rivers, estuaries, lakes and lagoons
- › **Foreshore edge** - reflects the natural, geomorphic character of the site and remains largely untouched
- › **Surrounding open spaces** - predominantly a natural landscape setting
- › **Water activation potential** - generally lower volumes and intensity of use with limited built facilities

Examples of natural swim sites include:

- › Wagga Beach, Wagga Wagga
- › The Needles, Engadine
- › Never Never River, Bellingen

Highly modified swim sites

Sites that have been subject to major change including to the lands adjoining the foreshore and at the waters edge (through seawalls and other structures) are defined as highly modified swim sites. Broadly speaking these sites may have higher potential for more significant interventions and possibly, (subject to environmental review) higher capacity of use.

- › **Waterway type** - natural river, creek or pond, or manufactured dam on a natural water course
- › **Foreshore edge** - generally modified, such as seawall or steps. Combination of natural edge and partly modified from past uses
- › **Surrounding open spaces** - predominantly modified landscapes
- › **Water activation potential** - generally higher volumes and intensity of use with built facilities

Examples of highly modified swim sites include:

- › Dawn Fraser Pool, Balmain
- › Penrith Lakes, Penrith
- › Como Tidal Baths, Como

Partially modified swim sites

Partially modified are sites that have had some modification to formalise the access to the water for swimming and other water recreation activities. When thinking about partially modified swim sites, there is opportunity to reinstate the natural character of the landscape and open space setting while creating an inclusive water environment for users.

- › **Waterway types** - natural river, creek or pond, or manufactured dam on a natural water course
- › **Foreshore edge** - modified to improved access to the water that can be design to reflect a more natural, geomorphic character
- › **Surrounding open spaces** - partly modified landscapes
- › **Water activation potential** - variable capacity for intensity of use with potential for built facilities

Examples of partially modified swim sites include:

- › Lake Parramatta, Parramatta
- › Marrinawi Cove, Barangaroo
- › Bayview Park Baths, Concord

Case study

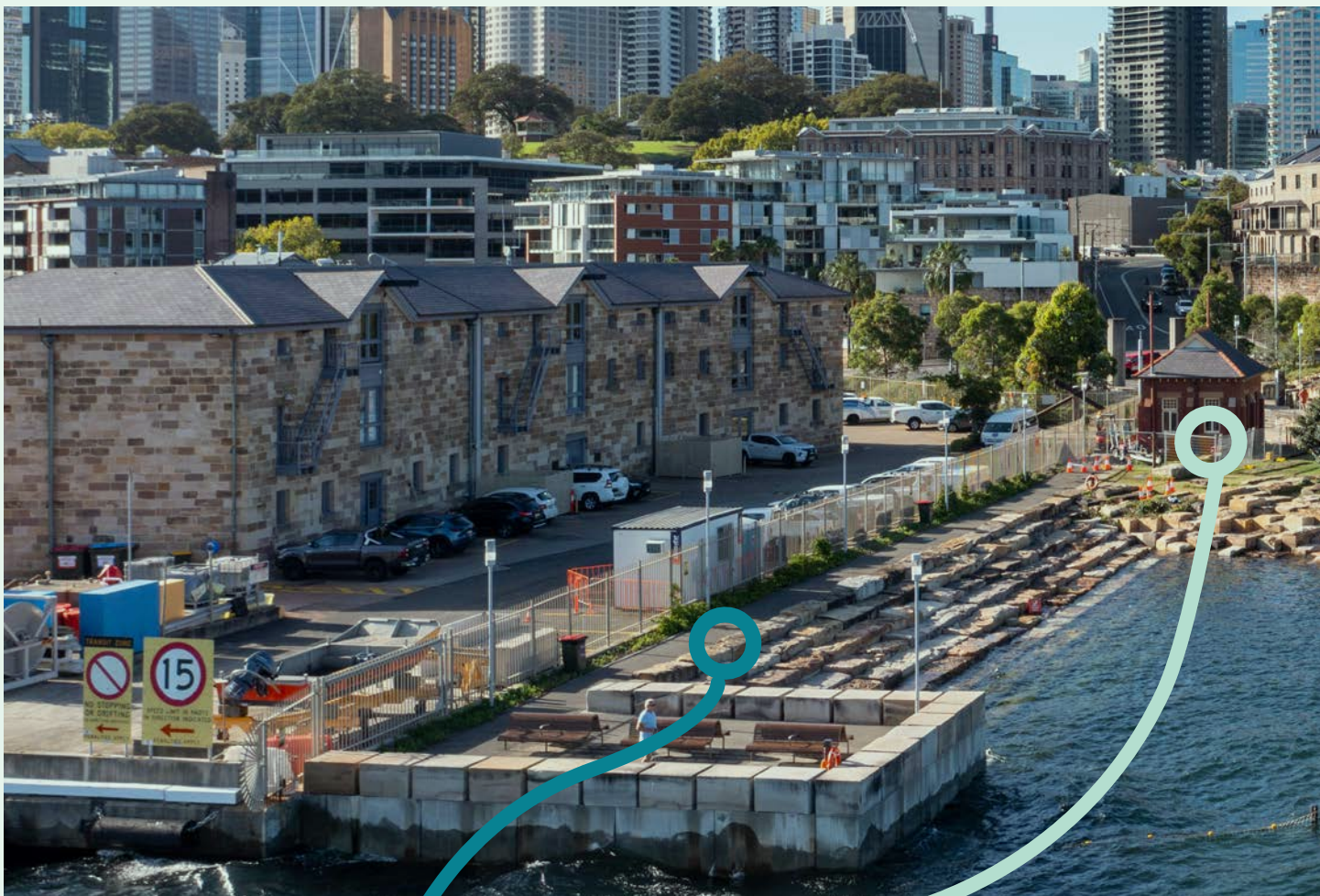
Marrinawi Cove Barangaroo / Gadigal Country

For thousands of years the Gadigal used Marrinawi Cove as an area for swimming, bathing, canoeing and fishing. After 1836, the original headland and foreshore was cut away to make space for wharves and stevedoring activities as Sydney became a major international port. Over the decades that followed, access to the water from the Sydney CBD foreshore was not encouraged due to safety and water quality concerns.

Marrinawi Cove is part of the Barangaroo Reserve and is now a destination for locals and visitors to enjoy direct access to Sydney Harbour.

The design is based on the pre-1836 shoreline, with the minimalistic construction favouring sustainable materials and practices. Along the edge of the cove are large sandstone blocks that line the tidal slope to the water and create opportunities for people to engage with a variety of natural features, including tidal pools and rocky beaches.

Marrinawi Cove is shallow, reaching depths of only one metre, making swimming accessible to a broad range of abilities and skill levels. It is the perfect place for swimming: sheltered, north facing, with lovely sandstone edging, and a caisson under



This is a site that has been partially modified to improve access while reflecting the natural shoreline.

Visitor experience facilities, such as car parking, toilets, change rooms and showers are provided for in the nearby Barangaroo Reserve and the adjoining refurbished pump house building.

water that keeps the high tide to a maximum of approximately one metre in the cove area. The works required to enable swimming were straight forward – safety net, steps for access in and out, a timber platform, and improved lighting and pathways.

While Barangaroo Reserve is a dedicated car-free zone, the site is connected to public transport with extensive vehicle parking nearby.

The Cove is constructed with placed sandstone designed to mimic the natural sandstone rock formations around Sydney Harbour. The sculpted sandstone foreshore edge provides opportunities to rest and relax on the waters edge or in the shallows and creates access points into the water.



Water quality is monitored

The new swim site has been designed to allow safe swimming within Sydney Harbour. The site has shark nets and ongoing water quality monitoring.

Swim scenarios

At the core of Places to Swim is a considered approach to the scope and scale of implementing facilities. The facilities approach will reflect the nature of the swim setting and guide what level of intervention is appropriate for the site.

Permanent facilities

Permanent facilities are considered where a long-term commitment to water activation is to be made 'on site'. These may most appropriately be considered where overlay facilities have been in place for a period that have enabled land managers to confirm the long-term safety and viability of the site and a commitment of resourcing to operations and monitoring.

Permanent facilities should only be considered when a long-term commitment to water activation and management of water quality on a site can be made.

Overlay facilities

Overlay facilities are minimal in scope and low impact in supply and installation. These can have a lifespan of 5 to 15 years and enable the long-term feasibility and desirability of the swim site to be established.

Facilities can be adapted and refined over time and where appropriate transition into more permanent facilities.

Temporary facilities

Temporary facilities are provided where a trial period of a water activation site is desired or to address short term need or objectives in an area. They can also be pop up swim sites, used for events.





Case Study

Urban Plunge Prospect / Dharug Country

The Greater Sydney Outdoor Study found that people in Western Sydney were travelling over 50 minutes to cool down on a hot summer's day to experience waterways for recreation. As a way of addressing this, Sydney Water worked with councils across Greater Sydney to establish sites where people can swim safely through the Urban Plunge program. However, as it can take months, or even years to establish suitable water quality through regular monitoring, a temporary facility is the answer at some locations.

Over 40 hot summer days, the Urban Plunge team opened a free entry pop-up swim site at Prospect Reservoir parklands to demonstrate short-term opportunities for swimming while long-term solutions are being explored. The temporary facility incorporated 2 shipping container pools surrounded by decking and shade and was always monitored by trained lifeguards. Supporting activities such as ping pong and other sports were offered to up to 100 visitors to the site at any given time, with 98% of visitors indicating that they would visit again when surveyed.

The pop-up operated for 40 days over the summer of 2022-2023. 98% of surveyed visitors said they would be interested in seeing more swimming and recreation opportunities in waterways nearby.



Set yourself up for success

Creating a place to swim and enjoy water can be a complex process, requiring an understanding of swim settings, and a commitment to collaboration with stakeholders and the community. For long-term success when planning a new project or enhancements to an existing site, it is important to think about:

- › Starting with Country
- › Engaging with the community and stakeholders early and often
- › Understanding what is needed to achieve the required water quality and water safety
- › Identifying the environmental co-benefits that can be achieved
- › Establishing a budget that can deliver a high-quality outcome and support ongoing site management into the future

Starting with Country

Understanding the site by starting with Country. Aboriginal and Torres Strait Islander people have a deep connection and wealth of knowledge of waterways through generations. Listening, walking, and engaging with Country throughout the process is important.

Community engagement

Understanding what the community wants out of a water recreation area is a great first step in creating a successful swim site.

People who live in your community are likely to have practical insights about possible locations for swim sites, as well as knowing how people currently use waterways or have used them in the past. They may be a valuable source of information on:

- › What the community values in a swim site and the activities they'd most like to be able to do
- › Local conditions and characteristics
- › Accessibility and amenities requirements
- › Community concerns about real or perceived barriers to using waterways for recreation

The sooner the community is involved, the more time there is to manage concerns and build grassroots enthusiasm for the project. It's vital for:

- › Encouraging community awareness, ownership and support for the project
- › Making sure planning and design solutions address community needs
- › Creating trust and confidence in the process
- › Promoting awareness and education of waterway values and hazards and swim safety

Water quality

Regular monitoring of water quality is essential. A range of factors can influence water quality, including rainfall and stormwater, wastewater treatment plants, algal blooms or microbes, and chemicals and pollution.

The National Health and Medical Research Council (NHMRC) guidelines require information on any local factors that may affect recreational water quality and the level of contaminants, which can be used to:

- › Classify beaches to inform personal choice
- › Provide onsite guidance on relative water safety
- › Help identify and promote better management practices
- › Help inform regulatory requirements and create benchmarks

The frequency, methodology used and reporting of water quality will depend on the location, types of water and types of recreational use. Factor in the minimum timeframes required before a swim site can be considered, such as over the swimming season (October to April), or throughout the year.

Monitoring program requirements may include:

- › A sanitary inspection that identifies and rates potential pollution sources at site
- › Microbial water quality assessment using physical samples
- › Daily, weekly or monthly water testing that looks at a range of potential hazards, such as stormwater, rainfall events, wastewater overflows, algal blooms and weather, tides and any relevant alerts

Water safety

Protecting people in the water is the highest priority. That means providing a means of communicating with water users about safety issues such as water quality, hazards, and changes in safety information.

The NSW Government provides the legislative and policy framework for water safety in NSW and regulates some water-based activities. Councils and water management authorities have responsibility to comply with this legislation to ensure all water safety functions are carried out safely and effectively to minimise the risk of injury or death.

Water safety organisations will help to develop risk management plans and undertake evaluations as you plan, design and manage your place to swim. The Australian Water Safety Council (AWSC) includes members who will work in partnership and provide resources to help you implement the Australian Water Safety Strategy 2030, which outlines where peak bodies can work together to prevent drownings at beaches, rivers and lakes, as well as swimming pools.

It is important to look at demographics, ensuring consideration is given to culturally and linguistically diverse communities, particularly those at risk of drowning

The community needs information about the current conditions of a swim site and it's important to take an active approach. Coordinated monitoring, smart communication and better awareness help a community be more capable of assessing and determining risk.

More information on water safety

Find detailed guidelines around water safety for open waterways in NSW.
www.olg.nsw.gov.au

Royal Life Saving Society provides information and resources on water safety and drowning prevention.
www.drowningprevention.org.au

Sharing water with fauna and flora

It is important to find a balance between what's good for the ecosystem and what's good for people.

Fauna, flora and insects are a natural part of waterway environments; their presence is often an indicator that the water quality is good and the ecosystem is healthy. Seagrasses, freshwater macrophytes and creatures such as water-bugs can be highly sensitive to changes in water and the diversity of species present and quality will vary according to the health of the waterway or waterbody.

What is great for the waterway may not be so great for the community, if they feel uncomfortable, unsafe or if they think they might get sick or injured. Common concerns tend to be about:

- › Danger from sharks or other biting aquatic life
- › Aquatic life that can sting
- › Shellfish or sharp fauna that can cause cuts
- › Water quality issues related to use by other fauna, such as birds, horses or cows
- › Insects such as mosquitoes or sand flies that may cause illness or discomfort

Community education is essential to create a swimming environment that supports a healthy aquatic ecosystem while being a place that will be enjoyed by and cared for by the community. Encouraging the community to participate in the reporting of observations of fauna and insects at their local swim site can also be a way to promote water interaction and to educate the community about biodiversity and the local environment.

When planning a place to swim, it is essential to understand the surrounding environment to inform the design and management of the place in a way that improves habitat and ecosystem health.

The community can become more environmentally motivated and feel responsible for protecting the waterways, helping them to aspire to live a more sustainable life knowing they can personally make a difference and value the amenity of natural waterways.

Case Study

Penrith Beach

Penrith / Dharug Country

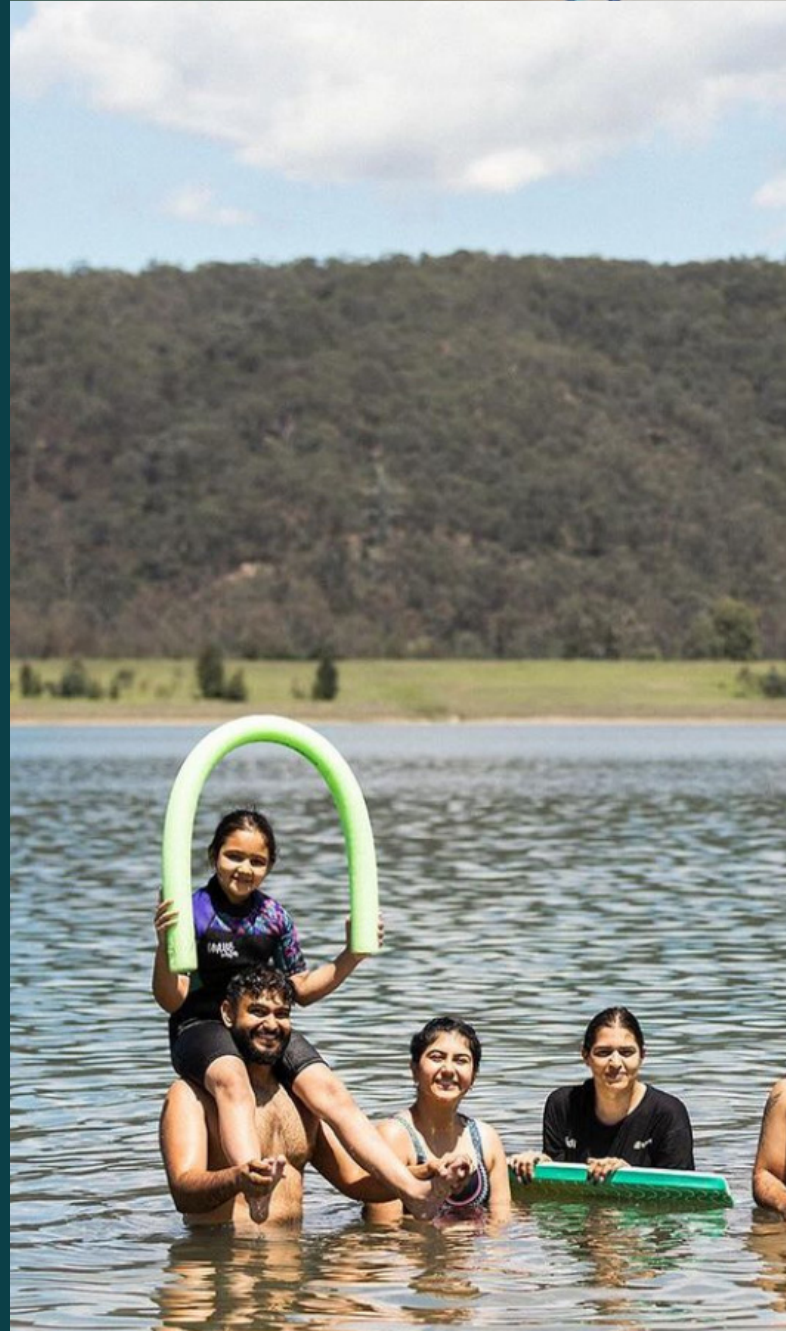
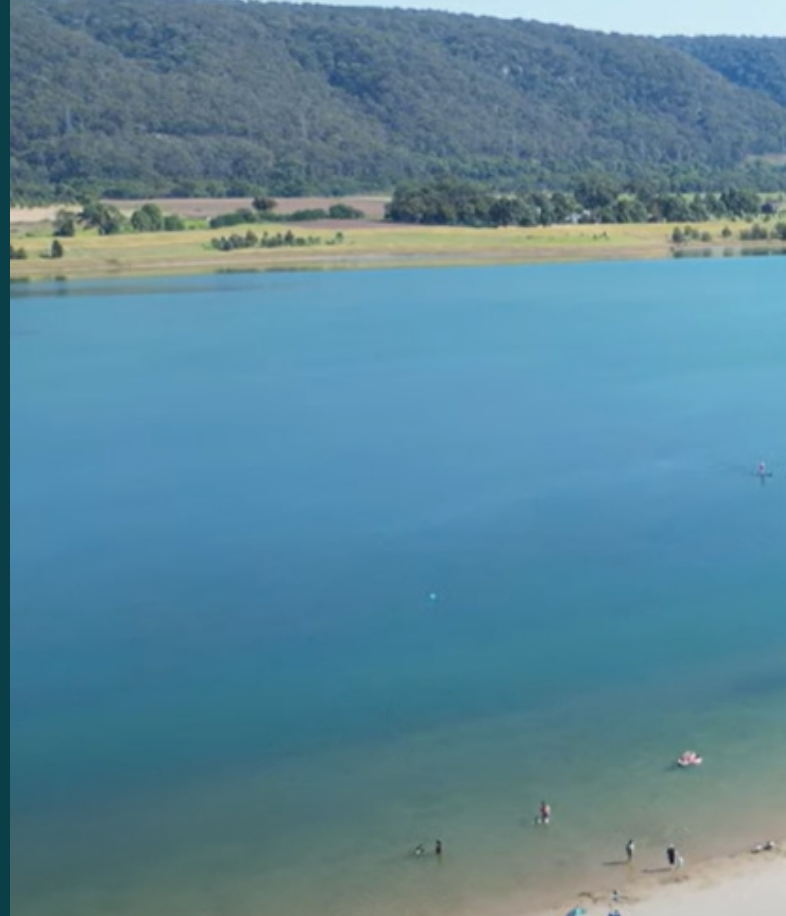
Penrith Beach, established as a temporary approach to providing a swimming spot in Western Sydney for the Summer 2023-24, stands as an exemplary demonstration of the Places to Swim design guideline. Nestled on the sandy shores of Lake B in Penrith Lakes, this site bears historical significance, once serving as the largest sand and gravel quarry in the Southern Hemisphere. Its transformation by the Penrith Lakes Development Corporation demonstrate innovation and environmental stewardship.

The vision to convert this 2000-hectare expanse included interconnected lakes, wetlands, and wildlife sanctuaries, began with the delivery of the 2000 Olympics Regatta Centre. Through a short-term license agreement with the Penrith Lakes Development Corporation, the site was temporarily unlocked to provide a place to swim for people in Western Sydney.

Addressing essential aspects like water quality, safety, and multiple risk assessments prior to opening ensured visitors' well-being. Temporary infrastructure, including roads, car parks, pathways, and amenities facilitated easy access, while controlled entry maintained security.

Safety measures included daily lifeguard patrols and water quality monitoring. The provision of supporting amenities such as a café, parking, change rooms, and toilets, alongside a focus on disability access, showcased inclusivity.

The success of Penrith Beach is evidenced by its popularity, attracting over 215,000 visitors who would otherwise have travelled considerable distances to coastal destinations like Bondi Beach. This influx of visitors not only highlights the region's demand for recreational water facilities but also underscores the potential for long-term utilisation.



Photographs clockwise from top left:
Penrith Beach, NSW (NSW Government)
Penrith Beach, NSW (NSW Government)
Penrith Beach, NSW (52 Suburbs)



Animal pollution

It is important to determine major sources of animal faecal pollution in natural waterways and to establish ongoing monitoring to identify any contamination and pollutants from animals at swim sites.

Episodes of animal pollutants can have significant impacts on microbial water quality and potential health risks. Regular site assessments and monitoring programs will enable authorities to determine if there are risks of contamination.

Aquatic pests and diseases

Both freshwater and marine ecosystems are vulnerable to invasion by aquatic pests and weeds. Introduced species such as carp can also increase water turbidity (how cloudy or hazy water gets) and nutrient concentrations, which can destroy plants and lead to toxic blue-green algae blooms.

The project may need to incorporate managing human activity 'on site' to reduce the impact this can have on the spread of invasive species.

Funding a project

When establishing a new swim site, allocation of funding across the lifespan of the project is necessary. Places to swim require initial capital investment to design and build infrastructure. Funding is also needed to ensure the ongoing management of the site meets water quality standards and offers a safe environment for the community to enjoy.

- › **Planning phase:** Funding will be required to complete technical studies to support the feasibility assessment of the project. This will ensure a safe, inclusive and environmentally responsive project is planned. Community engagement is an important part of this stage and will require financial investment. Water quality testing and reporting is also needed in the planning phase. This is a good time to review the current and upcoming grant availability on nsw.gov.au
- › **Design phase:** Funding will be required for the design of the new or improved facility. This can include landscape architects, engineers, and other professional services. This investment will help create the new place to swim which incorporates the community's needs while ensuring the buildability and long-term sustainable use of the facility.

- › **Delivery phase:** The funding at this phase is for the construction of the facility.
- › **Management and operational phase:** Funding needs to be found for day to day tasks such as water quality monitoring and site safety during the swim season, as well as the maintenance and renewal of facilities.

Creating a business plan will help clarify the level of investment needed to create a swim site. It will also demonstrate the value and benefits of the investment for the community. Some things to consider when developing a business case are:

1. Start small Costs for running a swim site may vary greatly depending on the season, as well as what skills and resources are available in house. To help gauge whether a long-term commitment is viable, a land manager may want to consider an overlay or temporary facilities approach, which lets the team gather information over time and adapt the swim site for long-term use, if it is feasible.

2. Collaborate with other neighbours Most likely, the swim site will draw users from neighbouring local government areas, benefiting a wider community. Consider ways to work with the adjoining councils to fund and manage the project.

3. Show the value There's a growing body of research that specifically examines aquatic recreation and the broader health of waterways. This can be a useful resource for justifying a feasibility assessment and ongoing operations in business planning.

4. Share initiatives There may be operational activities that could be shared with other organisations. Water quality and stormwater management initiatives can realise multiple goals and strategic targets for a council which may justify a collaborative approach to funding.

5. Commercial opportunities Major sites may offer potential for revenue generating activities that can help with costs such as kiosks or café licences, and recreational equipment hire. Income can offset ongoing operational and maintenance costs while providing community benefit and passive surveillance of the site.



Case study

Beachwatch, NSW Department of Planning, Housing and Infrastructure





Beachwatch is a NSW Government program that has been monitoring and reporting recreational water quality at swim sites for more than 30 years. This information includes water pollution forecasts that are shared with the public to assist in self-determination of risk when swimming.

The forecasts are generated daily to report on the likelihood of bacterial contamination at swimming sites. Forecasts are updated throughout the day if conditions change, using information provided by the Bureau of Meteorology, local councils, lifeguards, the Environment Protection Authority and local water authorities. Star ratings provide an indication of recent bacterial water quality results, based on NHMRC (2008) guidelines, and are updated weekly.

The NSW Beachwatch program data management process involves water quality results being regularly forwarded electronically to the Beachwatch program from councils or contracted laboratories. The water quality data is uploaded to the Beachwatch database (BACTO) for storage and data evaluation.

Quality assurance procedures for the storage of data on the centralised database follows a rigorous protocol that was developed as part of the Beachwatch program.

This simple swimming condition monitoring system used by Beachwatch tells the public what they need to know about pollution hazards:

-  Pollution is unlikely, enjoy your swim
-  Pollution is possible, take care
-  Pollution is likely, avoid swimming today
-  Updated information available





Case study

Yarrangobilly Cave Thermal Pools Kosciuszko / Walgalu Country

Yarrangobilly Caves thermal pool is a magical swimming spot located in Kosciuszko National Park.

The main pool, which is 20m long and 2.5m deep, gently flows like a waterfall into a children's wading pool. Fed by a natural spring around 1km below the surface, the subterranean waters are mildly mineralised and stay a constant 27 degrees Celsius all year.

Managed by NSW National Parks and Wildlife Service (NPWS), the Yarrangobilly Cave Thermal Pools are popular with visitors all year round. Access to the thermal pool area can be challenging for some guests, as the road down to the pool is steep and slippery. Entering and exiting the pool can also create issues, as there is no stepped or ramped access and supporting infrastructure was considered dated. The Yarrangobilly Caves Precinct Plan provided an opportunity to address these issues and plan for the future.

Solutions were identified during the planning process. There were suggestions to increase accessibility and experiences for all by creating a turn around zone for buses, adding additional seating inside the pools and around the edges, updating the ramps and handrails into the pools for better accessibility, widening the existing paved area, realigning and widening paths leading to change rooms and installing accessible toilets and refurbishing change rooms.

While funding was not available in 2021 when the plan was written, officers had a clear direction for future improvements to the swim site, and have used the plan in business cases and to support funding applications and requests.

Clockwise from top left:

Yarrangobilly Thermal Pool, Yarrangobilly Caves, NSW (Destination NSW), Yarrangobilly River Walk, Yarrangobilly Caves, NSW (NSW Government), Yarrangobilly Thermal Pool, Yarrangobilly Caves, NSW (Destination NSW) and Yarrangobilly River Walk, Yarrangobilly Caves, NSW (NSW Government)

High-quality public open space

As NSW grows, it is vital that the built environment responds with quality public open spaces that are vibrant, safe, welcoming and meet the needs of local communities.

Public open space is used and enjoyed for a variety of reasons; as places to socialise and relax, connect with nature and exercise. Well-maintained, well-loved, quality public open space have higher and longer visitation. By collaborating with stakeholders, engaging with the community and incorporating a thorough design process, quality public open space is created. These spaces generate many benefits, helping to create more liveable and dynamic places to live.

When planning, designing, delivering and managing swim sites, there are many factors that need to be taken into account. It is important to think about people, place and purpose when planning a project:

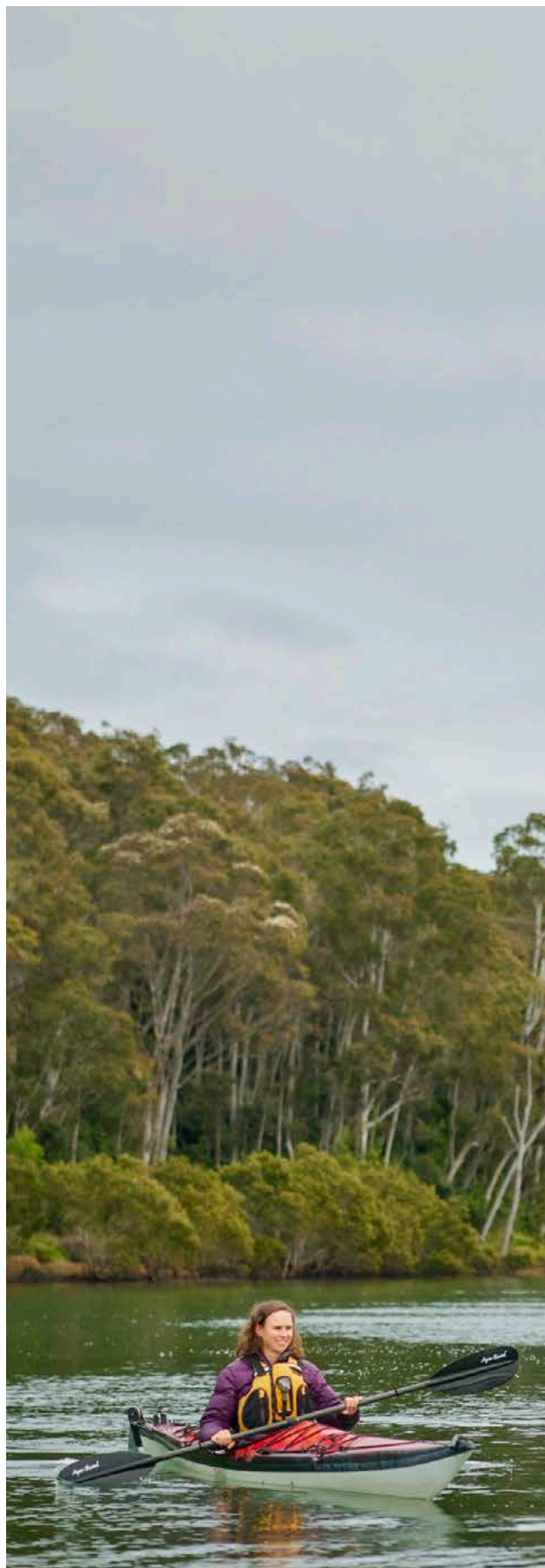
- › **People:** Who you are designing for? Think about the local community.
- › **Place:** What are the unique qualities of the site and surrounds?
- › **Purpose:** What type of facility is needed? What level of skill will the space cater to? Are there any particular features to be included into the design?

All three are interdependent and need to be addressed in order to deliver a quality swim site for the community.

Bermagui River, NSW
(Destination NSW)

Right page images:
Bore Baths, Lightning Ridge NSW
(Destination NSW)

Kayaking on the Lake Hume, NSW
(Albury City Council)



03

Guide



The process of planning, designing, delivering, and managing a public open space is dependent on the size, scale, and complexity of the project. It's often iterative, and should always be collaborative, taking into account a broad range of ideas and perspectives. This guide has been developed to assist you through these four important steps and that can be reviewed and referenced at anytime through the journey.

Good planning ensures that our public open spaces meet current and future needs of communities. Some projects can be complicated and required significant time and resource. Taking the time to plan and design can ensure your project is delivered within the budget and time constraints, to a high quality so that it can function

effectively and efficiently throughout its life cycle. Engaging stakeholders early and often promotes transparency, accountability, collaboration, and cooperation.

There are many things to consider when creating open space that can have a direct impact on the safety of the community. Proper planning and strong management principles can mitigate risk and ensure the safety of the public. Managing public open space becomes less challenging when good practice has been undertaken upfront. The following section provides guidance through all the project stages for developing open space, and will assist you in creating great public open spaces for your community to enjoy.

Plan

Think about the bigger picture; facility type, location, supporting amenities, use, responsibilities. Speak with the community to find out their needs.

Design

Engage in specialist consultants and involve the community and potential users throughout the process.

Deliver

Set yourself up for success with a good project brief, management practices, communication and evaluation processes.

Manage

Maintain and manage the site post-delivery to ensure longevity and uphold quality.

Plan

Design

Deliver

Manage

Creating places to swim requires innovative thinking, careful planning, and a collaborative approach. The planning phase establishes the basis of a water activation project from the identification of the initial opportunity, and validation of the project using a strategic perspective, to a detailed site assessment. Community and stakeholder collaboration is also an essential component of the planning stage and provides a foundation for the success of a swim site.

It is important when embarking on a water activation project journey to understand the complex steps that will need to occur across the project lifespan. This can include:

- › Strategic planning
- › Project visioning and feasibility
- › Site selection and analysis
- › Due diligence and technical studies
- › Planning framework
- › Country, community and stakeholder engagement
- › Business case and funding proposals
- › Management and delivery framework
- › Water quality testing

It is also critical to recognise that creating a place to swim can be a lengthy project that will require long-term commitment to the ultimate result of creating a place for people to swim. When planning your project, consider how you can stage delivery and possibly create a place to enjoy around the water while water testing is undertaken before opening up the area as a place to get in the water.

A project is often identified by community demand when there is a shortfall of existing swim sites. Land ownership and tenure are things to think about upfront and councils might be required to update open space strategic plans and park plans of management.

Planning stage deliverables:

- › Strategic review of legislation and planning pathways
- › Business case
- › Preliminary site appraisal
- › Detailed site assessment
- › Plan for ongoing site monitoring
- › Plan of management and open space and recreation strategy updates
- › Risk assessment

Who's involved at this stage:

- › Local Aboriginal land council or community representatives and landowners
- › Council planners or consultant planners
- › Landscape architects
- › Environmental planners and ecologists
- › Environment and waterway officers
- › Water quality experts
- › Risk managers
- › Community groups, clubs and stakeholders
- › Asset manager
- › Water safety experts

Strategic planning

When considering the creation of a place to get in, on or around the water, it is imperative to consider the regional context and what opportunities currently existing for the community to enjoy water. Placing swim activation projects in the context of relevant broader strategic directions can assist to better frame the role of the project, and may also identify opportunities for more holistic site objectives to be addressed.

Review strategies and policies

The potential of a water activation site needs to be considered in the context of the strategies and policies that guide decision making across the wider open space network. Reviewing relevant state and council strategies and policies can also assist to validate or discount a potential site. Documents to consider can include:

- › Plans of management
- › Biodiversity and habitat strategies
- › Recreation and open space strategies
- › Flooding and water quality strategies

Review the LEP, SEPP and Community Strategic Plan to understand the opportunities and constraints of the site. It is also important to consider that a Plan of Management is high level and even though a use might be permitted it will need further investigation to confirm the suitability of a site.

Equity of distribution of water activation sites

A characteristic of existing natural water activation sites is that they are intermittently distributed across NSW. As such there are significant gaps across these communities for easily accessible options and free places to swim. An approach to understanding current distribution is to map all the locations of swim sites and identify areas that do not have access to existing sites. This will assist in focusing on potential areas for further investigation.

Community education and awareness

The management of a swim site needs to be considered in the context of the land manager's broader approach to community education and awareness of water safety. The creation of natural water activation sites will require consideration of the following:

- Adapt existing water safety programs to adequately address natural swim locations.
- Collaborate with water safety bodies and leveraging existing programs and initiatives to support new swim sites.

Project visioning and feasibility

It is important when embarking on creating a new place to swim to understand the complex steps that will need to occur across the project lifespan by setting a vision for the project and testing feasibility at all stages of the project - plan, design, deliver, and manage.

Recognise that creating a place to swim can be a complex project and it can take many years from initial site identification of an opportunity, to opening a facility. To assist in keeping the momentum of the project:

- Identify a project timeframe taking into account planning pathways, due diligence, and technical investigations and approvals
- Manage expectations by having clear communication within your organisation and with the community about project timelines, steps, and stages
- Include community input into all phases of a project's lifespan



Case study

Parramatta River Catchment Group

The Parramatta River Catchment Group (PRCG) is a riverkeeper organisation that demonstrates the power of collaborative environmental stewardship. The group comprises a mix of stakeholders, from government agencies, local councils, community groups, and industry—coming together with the goal of improving the health of the Parramatta River catchment. Through collaborative strategies and initiatives such as the Our River campaign, they've tackled everything from water pollution to habitat degradation head-on.

The rapid growth of urbanisation and industrialisation throughout the Parramatta River catchment over much of the last two centuries saw an increasing degradation of the river system. Saltmarsh areas were further depleted due to the filling and reclamation of tidal lands for development. Ten years ago the PRCG set a mission to make the Parramatta River swimmable again by 2025, by focusing their efforts on driving catchment wide planning and research, coordination and advocacy for organisations responsible for the land and water along the water, and monitoring and reporting the outcomes.

Through the Places to Swim program, five projects identified in the Parramatta River Masterplan have been funded, including Bayview Park Baths, Putney Beach, Bedlam Beach, Lake Parramatta upgrades and Callan Park. www.ourlivingriver.com.au

From top: Parramatta River, Sydney Olympic Park, Lake Parramatta, Parramatta NSW (Parramatta River Catchment Group)

Parramatta River, Parramatta NSW (NSW Government)

Site selection and analysis

Every place to swim came from an idea that *'this might be a good place to be in, on, and around the water'*. This step provides an initial, quick, high-level evaluation of a site to determine if it is worth investigating at a more detailed level.

The criteria below provides a basis for a land manager to undertake their own evaluation and setting of priorities when selecting a site for a swim project.

Ownership and land management

Ideally, sites being considered for water activation will be owned by the proponent organisation. This will make considerations about consent approvals and liability simpler to manage. Alternatively, ownership needs to be established and an initial assessment made.

- Complete checks on land ownership status to confirm current status, above and below the mean high watermark
- Confirm land zoning and permissible uses can support the use of the land and water as a place to swim
- Confirm plans of management for community land categories and identify related implications for swim use and suitability
- Establish approvals pathways to be followed if proceeding
- Investigate if a lease or licence is required over the site

Accessibility

When undertaking an initial site assessment, it is essential to keep the principles of universal design and inclusion in mind.

Accessibility is a key consideration in establishing the initial potential of a site and includes:

- › Access to the site
- › Access within the site
- › Access to the water
- › Accessible facilities within the site
- › Potential to provide inclusive access
- › Suitability of the site for watercraft launching

- Consider the accessibility of the site by car, public transport and active transport options.
- Review existing pedestrian pathways to and within the site and what modifications are needed to support an inclusive swim site.
- Examine the topography of the site and determine if inclusive access be provided and what modification would be needed to improve access for all
- Review the pedestrian and watercraft access from the water, such as access via natural rock outcrops, sandy beaches or sea walls/ steps and consider the suitability of the site for personal watercraft launching. Consider impact of conflicting use between watercraft and swimmers.
- Consider the impact to the site from natural events such as floods, drought and bushfire.

Water quality and hazard assessment

Water quality is the pivotal factor determining feasibility of swim sites. At this early stage of the project, the aim of water quality and hazard assessment is to establish an initial understanding of water quality conditions, prior to undertaking more detailed testing, if applicable through a water quality monitoring regime. Assessment of the water body can include checks for obvious water hazards including water movement and hazards such as rocks and dumped materials and contaminated silts.

Understand the upstream activities and industry, which can impact the nutrient balance and chemical composition of water will help to combat nutrient overloads feeding algal bloom toxicity.

To assist in the assessment of water quality and hazards in the water, consider the following. *Note - as every site is different, this list does not represent a comprehensive list for assessment.*

- Establish regular water quality testing program to determine if the swim site will be suitable for primary contact.
- Identify location of stormwater and sewer outfalls on or near the site
- Undertake spot testing of water quality for microbial and cyanobacterial factors
- Review of foreshore and water body bed at high and low tides to identify hazards that are above and below the water line

- Complete a visual assessment of water clarity to determine turbidity and water flow as well as the likely depth of water at proposed swim locations
- Consider past uses of the site and whether there is any lingering contamination, such as pollution in the sediment.

Water safety

Water safety risk assessment should be undertaken, with a focus on drowning prevention. www.drowningprevention.org.au

Likely users and demographic factors

One of the real challenges for lifesaving organisations is managing the safety of the diverse groups visiting the swim site. These groups can have highly varied levels of knowledge and awareness of water safety and, as a consequence, a variety of programs are targeting this issue.

In this context it is necessary for managers of swim sites to consider the likely end user groups and identify a proactive approach to how the site will be sited, designed and managed

- Understand the local user catchment and the likely demographic characteristics and potential implications for water safety and site management
- Develop strategies to address these-seeking input from specialist water site managers where necessary
- Inclusive signage and wayfinding that reflects the needs of the users of the site.

Partnerships and collaboration

There is potential for swim sites to be the subject of effective collaborations. These could include:

- › Joint management of sites between councils, government agencies and nearby recreation clubs and associations.
- › Assistance in site management by state government bodies (for example Sydney Water)
- › Assistance in site management by organisations

Consultation with state agencies like the Department of Primary Industries (Fisheries) and

Department of Regional NSW to assess the need for temporary closures of the swim site during droughts or floods to assist a waterway's recovery or to maintain its ecological resilience.

When considering site locations, identify potential collaborations and partnerships that could make site management more sustainable and effective. This could include collaborations that help address shortfalls in resourcing and skills of a management body.

Companion animals and horses

Companion animals, particularly dogs, play a key role in the recreation and leisure time across NSW. Water edge locations are particularly sought after as places for off leash water play. The role and capacity of a swim site to cater for swimming and craft use as well as dog access needs to be carefully considered and where necessary and validated through community engagement, usage restrictions implemented.

- Determine the location of existing dog water play sites and assess the potential of a site for a new off-leash space for dogs
- Assess the impacts of restricting dog water play when expanding a water site to include swimming for the community, noting that co-existence of community swimming and dog play is likely to be unfeasible

A characteristic of Sydney's semirural north and south western areas are properties and agistments with horses. Traditionally waterways in these areas have been used for horse exercise and for touring/walking.

Inclusive access into the water

Foreshores and riverfronts can often be inaccessible by nature's design. Providing access to water for recreation is important for people of all abilities.

'Water is fundamental to our lived experience as Australians. Let's commit to everyone having options to connect in, on and around the water,' said Glenn Redmayne from Inner West Council, who lead the delivery of a physical and publicly accessible canoe launch on the Cooks River.

Due diligence and technical studies

Doing your due diligence upfront can ensure a successful swim site long term. It is important to understand and respect the ecological, cultural, and heritage impacts of a location.

Habitat and cultural values

Most water edge locations are likely to have some level of habitat and ecological value. It is important to gain an initial understanding of the level of sensitivity of the site and to be aware of the limitations this may place on water activation potential.

Significant habitats can include the land at the water's edge (for example salt marshes) as well as below the water line (for example sea grasses).

Additionally, there could be First Nations archaeological sites or other factors of heritage significance at the water's edge or within the activation site generally.

- Review biodiversity, habitat, and heritage mapping to ascertain if the site lies within an identified area of importance or protection
- Check if there is any existing habitat or heritage reporting for the site
- Liaise with ecology and heritage specialists to get initial advice on the potential importance or sensitivity of a site
- Walk the site with an ecological specialist to verify the above or to establish initial perspectives where no other information exists
- Work with Local Aboriginal Land Councils who are trained in cultural site surveying to identify sites of cultural significance such as shell middens, burials and artifacts.

The planning framework

When planning a swim site, it is important to understand that waterway governance can be complex as it is often the collaborative responsibility of many agencies. The key agencies that may have legislative, planning and operational roles in the establishment and management of swim sites across NSW include:

- › Crown Lands: manages a variety of waterways across NSW for recreational uses. Public land associated with tidal and non-tidal waterways, including oceans, rivers and lakes is Crown land — this covers most river, creek and lake beds, estuaries and beaches.
- › Transport for NSW: responsible for some waterways, notably Sydney Harbour
- › WaterNSW: manages their recreational areas and waterways (weirs, dams, lakes and catchments) which can have recreational activities including swimming
- › Local councils: manage certain recreation infrastructure and community lands which may form part of a proposed swim site.

The process for seeking land use planning approval for a proposed swim site generally depends on the who is proposing to carry out the works, location and potential impacts. A summary of the planning approval pathways in NSW is provided on the Department of Planning, Housing and Infrastructure website (www.planning.nsw.gov.au). A swim site proposed by a public authority on land they own or control is likely to be 'development without consent' under section 2.73 of the Transport and Infrastructure SEPP. In these circumstances, smaller minimal impact works for swim sites may be exempt from the need to obtain planning approval under section 2.74.

If the planning approval pathway for a proposed swim site is identified as 'development without consent', potential impacts may be assessed through a review of environmental factors (REF) report. Department of Planning, Housing and Infrastructure's Guidelines for Division 5.1 assessments (www.planning.nsw.gov.au) It is up to the proponent of the swim site to determine the planning approval pathway and meet the applicable legislative requirements before carrying out works. If necessary, advice can be sought from a planning or legal professional to help ensure the swim site meets these requirements.

Country, community and stakeholder engagement

Connect with Country

All public open space in NSW is 'on Country', and protecting and managing water is a custodial, intergenerational responsibility for Aboriginal and Torres Strait Islander peoples. In this preliminary phase of planning work it is important to consider Country in terms of collaboration and engagement with the local community.

Engage with community

Community engagement will help identify potential swim sites as well as related challenges and opportunities to be addressed.

When designing for a swim site, community engagement can help develop and refine proposals, and help ensure implemented works meet community needs.

The community's ideas for a swim site should be the starting point. A depth of knowledge is held by the people that live closest to a place and see it day to day and across the seasons, such as activity and patterns of use, climatic and comfort levels and movement.

- Approach the community for their ideas about potential swim sites
- Test your organisations' ideas about potential sites with the community
- Ask the community for its observations about water quality and hazards
- Put in place arrangements to maintain ongoing contact with the community

Once operational, community users will spend as much time as anyone on-site and can assist with monitoring of usage, visual water quality and other hazards.

Understand past and existing swim use

Past use of a site for swimming or craft use can be a useful indicator of its potential. This may be evidenced through the discovery of old foreshore steps or piles once used for swimming nets. Information could be uncovered less visually, through local knowledge. The local community

can hold a significant bank of knowledge of local waterways and past and current conditions which you can discover by:

- Asking the community for its knowledge of past swim sites
- Recording any advice from the community about past water access / swim sites

Business case and funding

While there are a range of readily available funding sources for capital works to implement a place to swim, there is also a need to fund the site identification and feasibility assessment for the project and the ongoing operations and maintenance of the project once constructed.

Consideration should also be given to potential for commercial partnerships that complement swim sites in the preparation of a business case.

Creating a place to swim project will benefit from the preparation of a business plan that articulates the community and economic benefits and the related environmental benefits of improved water quality. Outlining and justifying the social, health, environmental and economic values of a swim project will assist in building the case for whole of project funding (planning stage through to ongoing operation and management).

The Valuing Green Infrastructure and Public Spaces Framework provides a consistent set of values for common costs and benefits associated with green infrastructure and public spaces. The Framework seeks to support practitioners undertaking cost-benefit analysis to effectively promote investment in green infrastructure. It can be used when preparing cost benefit analyses to accompany business cases for new places to swim. This Framework can be used to support the development of business cases for the creation of new places to swim.



Case study

Nepean River, Yarramundi, NSW
(Hills District Mums)

Places to Swim, Perspectives Report - University of Western Sydney

To support the Places to Swim program, the NSW Government worked with Western Sydney University to better understand the perceived and real barriers to establishing swim sites.

The planning process plays a significant role in creating new swimming sites – and can be a useful process to identify potential barriers for future management of a swim site best addressed in the early planning stages. For example, the community may feel safer at a swim site if the area has adequate lighting, CCTV or restricted access afterhours.

The report identified that preparing a swim site in a natural waterway can be complex and requires coordinated planning and the cooperation of both state and local government along with strong community engagement. A number of examples of collaborative governance structures such as the Yarra River project are offered. This project has seen Melbourne Water, EPA Victoria and 3 councils have come together to help deliver 4 Yarra River swimming sites.



The perspectives report shares examples and information supporting the need to plan for the various requirements of managing each new site. This includes the need to maintain site facilities and associated activities, monitor water quality, and prepare a comprehensive business plan for ongoing resource and investment.

Management and delivery framework

A management and delivery framework for a swim site is a structured approach to the planning, design, delivery, and management of a swim site. The framework will look at project management practices, design and engineering, construction management, operations and maintenance and the health and safety both, of the environment, and the community.

Resourcing and capacity across the project lifespan

While there are a range of readily available funding sources for capital works to implement a swim site (for example capital works, grant funding), there is an identified gap in funding availability for site identification and feasibility assessment and for ongoing operations.

A swim site will benefit from a business plan that can articulate the community and economic benefits and the related environmental benefits of improved water quality, which work together to justify front and back end funding of the project.

At the same time, potential for commercial activities to complement swim sites is an important consideration when compatible with the site and context.

- Develop a business plan for your swim site
- Analyse the community benefits including health and wellbeing, water quality, care for environment
- Quantify the feasibility design and implementation costs of the project and the ongoing operational costs
- Explore synergies between the swim site and stormwater / environment programs to identify potential funding assistance
- Explore collaboration with other land managers to share resources and responsibilities
- Consider the cost of routine or seasonal maintenance and balance it against the community benefits of having access to recreational water.

Project partnerships

One of the most effective ways to create a sustainable swim site is to consider potential collaborations and partnerships with community clubs such as swimming or fishing clubs, environmental groups and other organisations. These could address shortfalls in resourcing and management skills, as well as make a swim site more valuable to a community by identifying potential multiple uses.

Project partnership could include collaboration between council and private business to combine the resources and expertise of public and private sectors to deliver swim sites that meet community needs and promotes the sustainable economic growth. In return, the business may provide public access to the swim site and contribute to the local economy through job creation and tourism. Examples of partnerships could include hosting events on-site or offering guided tours.

Collaborations could include jointly managed sites between councils, assistance in site management by state government agencies, or assistance in site management by organisations.

- Identify potential collaborations that could make site management more sustainable and effective while also reflecting the natural use of a site
- Identify collaborations that can help address shortfalls in the resourcing and skills of a management body

There are many benefits for the community when establishing a swim site - and it's not just the well documented physical and mental health impacts.

There is an opportunity to benefit from recreational tourism and leisure activities, attracting both visitors and vital funds. These resources could assist in the ongoing cost of maintaining a swim site, such as water testing, onsite operations or future plans for other projects.

Asset management and ongoing maintenance is an important consideration in the early planning stages. Engaging with the asset manager will allow for greater longevity in the project.

Water quality testing

Improved water quality is of broad benefit to the waterway and the environment, beyond the swim site. Health hazards related to poor water quality vary depending on the water type and activity. In general the more contact with the water the better the water quality must be to protect human health.

Recreational water requires regular monitoring as it can sometimes be unsuitable for swimming, especially after rainfall when stormwater and wastewater can overflow.

Basic requirements

Councils and other organisations carry out comprehensive water quality monitoring programs across NSW. Water is tested to inform land-use planning decisions and to assess long-term ecosystem health, stormwater harvesting programs and activities that influence water quality such as wastewater treatment plants.

The data is collected and collated in a number of different ways for specific testing purposes and to meet the requirements of water quality standards and regulations.

Monitoring for recreational water quality requires additional testing and monitoring requirements as set out in the NHMRC Health Guidelines for Managing Risks in Recreational Water.

Monitoring program requirements:

- › A categorisation of the recreational water quality at the specific location based on:
 - A sanitary inspection (identification and rating of potential pollution sources at a site based on a visual inspection)
 - Microbial water quality assessment (physical water sampling onsite), for enterococci levels i.e. signs of faecal contamination
- › Daily/weekly/monthly water testing and monitoring program which may include the following:
 - Microbial water quality testing regime
 - Other physical and chemical parameters
 - Monitoring of rainfall events, stormwater and wastewater overflows
 - Algae blooms
 - Data on pollution likelihoods, weather and tide information, and other relevant alerts

Investigation of the potential for, and testing,

of sediments and water quality for chemical contaminants (heavy metals, dioxins etc) and toxicity should have occurred prior to the site identification stages. Ongoing chemical assessment may need to be considered dependent on the site location and potential for any risks associated with recreational activities and human health.

Approach to testing and monitoring

The NHMRC guidelines provide guidance on monitoring approaches including when and how water quality monitoring should be undertaken. Approaches to recreational water quality testing and monitoring systems can vary from location to location. This is partially dependent types of water masses and sources of water (saline or freshwater) and type of recreational use.

Sites will have been assigned an initial categorisation/classification during planning and design steps. All recreational water environments should be subject to an annual sanitary inspection to determine whether pollution sources have changed. A sanitary inspection should also include full consideration of the temporal and spatial influences of pollution on water quality. The success of a sanitary inspection relies heavily on preparation and planning. It is important that as much accurate, relevant information as possible (including past monitoring results for faecal enterococci, be collected before the survey.

- Clearly define the recreational water body of interest in order to focus data collection.
- Understand what data needs to be collected to inform operational and strategic decisions - NHMRC guidelines provides a recommended monitoring schedule
- What type of testing is already in place and are other organisations already testing areas?
- Understand temporal and spatial distribution and consistency
- How is the data collected, collated and communicated currently?
- What else needs to be measured and why?
- Can real-time monitoring devices be installed?
- Applying consistent methods and techniques across catchments and local government areas to enable a consistent approach
- A quality assurance program to ensure data reported is accurate and reliable (field sampling, laboratory analysis, data management, community reporting).

- Look for ways to engage the community to have a role in testing and monitoring, for example Citizen Science

Stormwater

Stormwater flowing through a site, and outfalls of stormwater at the foreshore edge, need to be considered in site planning and design to prevent adverse impacts on-site and on recreational use.

Site investigations and research into local stormwater systems will identify piped and natural drainage lines influencing the site.

Investigations should include the interface with adjoining sites and roadways to identify potential flow impacts on the site, foreshore and waterway. These factors can then be considered in site feasibility, site planning and design.

This is an opportunity to address any issues found in the initial testing phase of the water quality program.

In addition the project provides an opportunity to take stock of the broader catchment situation influencing the waterway and pursue catchment wide water quality control and measures to enhance water quality generally.

- Identify incoming stormwater flows from wider catchments and local roads
- Implement water-sensitive urban design measures such as biofiltration swales and ponds to improve water quality
- Improve the wider catchment management issues

Community perceptions on water quality

84% of respondents to a survey conducted by Beachwatch and the Department of Planning, Housing and Infrastructure felt it's the responsibility of the government to provide information about water quality and swim safety at beaches, rivers and lakes in NSW, and that water quality at beaches, rivers and lakes is important when choosing if and where and when to swim.

There is opportunity for improvements in both water quality and the communication shared with community.

Of the 3,245 people across NSW who shared their views, 54% were satisfied with the water quality of rivers or lakes near their homes for swimming.

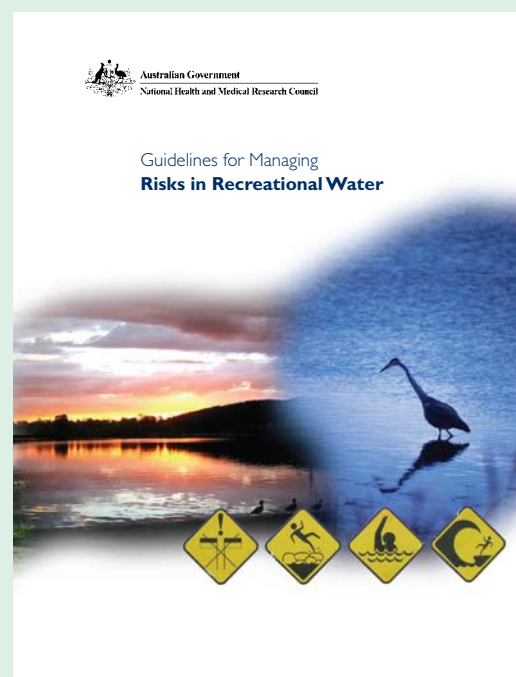
Guidelines for Managing Risks in Recreational Water

The primary aim of the National Health and Medical Research Council of the Australian Government (NHMRC) *Guidelines for Managing Risks in Recreational Water* is to protect the health of humans from threats posed by the recreational use of coastal, estuarine and fresh waters. Threats may include natural hazards such as surf, rip currents, and aquatic organisms, and those with an artificial aspect, such as discharges of wastewater.

These guidelines should be used to ensure that recreational water environments are managed as safely as possible so that as many people as possible can benefit from using the water.

The guidelines do not directly address environmental aspects of the recreational use of water, but the environmental impacts of such use should be considered, because a healthy environment has many benefits for human health.

The guideline can be downloaded at www.nhmrc.gov.au





Case study

The Outback Lifesavers Program

There are different dangers at regional swim sites and regional communities have less access to water safety lessons and education.

Research shows that there are more drownings in regional and remote areas due to a lack of knowledge about inland waterways and a lower level of swimming ability. This is why the Outback Lifesavers program is so beneficial to children in regional communities. It provides education and training on skills that they will use throughout their lifetime to possibly save themselves or others.

The Outback Lifesavers Program started as an 8-week water safety program in Wagga Wagga, NSW. The course was created to offer regional and remote communities access to education around lifesaving skills and water safety information.

Access to inland waterways is essential for the program as it allows communities to learn about water dangers in a safe and patrolled environment.

The feedback from parents has been positive and highlights the value they see in having their children learn about CPR, water safety and the river conditions.

Plan

Design

Deliver

Manage

The design of your swim site will need to be considered as part of a framework. It will require site and operational investigations that respond to conditions, character, use and community expectations.

Being conscious of innovative opportunities can help reduce environmental impacts, improve systems and processes and enhance the flow of critical information. Talking to bodies such as NSW Health or innovation hubs within educational institutions such as universities could help unlock innovation in the project.

When designing a swim site, it is important to thoroughly consider all potential future requirements for the project lifespan by going through the design steps listed below:

- › Site Analysis
- › Site management considerations
- › Country, community and stakeholder engagement
- › Design
- › Innovation
- › Safety by design

There are many expert advisors who can help determine the full project life cycle, including operations and maintenance costs, to ensure the facility remains safe and operational once constructed. When designing a swim site ask:

- › Does it respond to people's needs?
- › Does it respond to the place?
- › Is it fit for purpose?

Considering the principles of people, place and purpose through inclusive design, the natural environment, and needs of users, can help when designing a high-quality public open space that offers an enjoyable experience for the community.

Design stage deliverables:

- › Landscape site analysis
- › Engagement feedback
- › Identification of commercial opportunities
- › Water catchment management strategies
- › Design risk assessment and management plans
- › Concept design
- › Costing

Who's involved at this stage:

- › Local Aboriginal land council or community representatives and landowners
- › Landscape architect
- › Civil and structural engineer
- › Environmental planners and ecologists
- › Quantity surveyor
- › Operations team
- › Communications specialist
- › Council planner or consultant planners
- › Environmental planners and ecologists
- › Environment and waterway officers
- › Water quality experts
- › Access consultant
- › Risk managers
- › Community, groups, clubs and stakeholders

Understanding the site

Access

Accessibility is key to the success of creating a swim site. Consider access to the site, access to the water, and then the important objectives of access in, on and around the water.

- › **Access to the site** - Consider whether the site has access to active transport, including public transport, walking or cycling routes. Many swim sites are largely dependent on vehicle access, so this will be a critical part of the design considerations.
- › **Access within the site** - Access routes within a swim site needs to help users move from parking and entry points to the water's edge, as well as provide comfortable open space to enjoy the site.
When designing for moving into and around the site, think about maintenance and emergency access from the public domain, while minimising the impact on the amenity. Some of this will have been considered in the initial site assessments.
- › **Access to the water** - This needs to be considered carefully as it has the most potential to impact the environment. Generally, an existing sandy foreshore is a more environmentally resilient access route, as there is minimal to impact to habitat.

Site conditions

After reviewing the accessibility of the site, it's important to understand the other conditions that could affect the design of a swim site, such as topography, stormwater management and conserving flora and fauna habitat. Working with site drainage patterns to effectively manage stormwater runoff and water quality entering the waterway is important to delivering a safe site.

Environmental conditions

A swim site will either be natural, partially modified or highly modified, influenced by the location and natural environment. The type of swim setting will inform the design approach, and the capacity and level of use a site can tolerate while maintaining its natural character and environmental integrity. Consider the ongoing maintenance requirements relative to the setting.

Australian Standards for Accessibility

There are a number of Australian Standards that should be referred to when constructing a swim site. For example, when constructing an accessible ramp into the water, Lake Macquarie City Council referred to Australian Standards AS1428 and complied with the National Construction Code.

Councils and agencies planning for swim sites should conduct due diligence to ensure that their site is designed to be compliant, this may involve engaging with specialists if budget allows or reaching out to other organisations who have delivered similar projects.



Case study

Signage for Safe Swim Sites

Penrith Beach Site
(NSW Government)

Penrith Beach Signage
(NSW Government)

Water safety signage is an effective risk mitigation strategy. Installing signage allows users to make an informed decision, by providing guidance on the hazards and risks about a swim site.

A good time to start determining the appropriate signage for a swim site is when undertaking risk assessments through the planning phase of a project, looking at potential hazards, with a review at the design and final stage of construction. The most effective advisory signage will include risk and hazard symbols, as well as depth markers.

Water safety signage is universally pictorial, however supporting signage can also be translated into the most common languages spoken in the surrounding community.

Standards Australia has guidelines for the design and application of safety signage including:

- › AS/NZS 2416.1:2010 Water safety signs and beach safety flags - Specifications for water safety signs used in workplaces and public areas (ISO 20712-1:2008, MOD)
- › AS/NZS 2416.2:2010 Water safety signs and beach safety flags - Specifications for beach safety flags - Colour, shape, meaning and performance (ISO 20712-2:2007, MOD)
- › AS/NZS 2416.3:2010 Water safety signs and beach safety flags - Guidance for use
- › AS 1319-1994 (R2018) Safety signs for the occupational environment

Water safety signage should also include a street address for emergency services. For sites that do not have street address, you can use the What3words geocode system to identify the site location: <https://what3words.com/guard.cling.radio>

Penrith Beach

In case of emergency call 000 and quote location: //what3words - Disruption.hobbit.asks

WARNING



SHALLOW WATER



DEEP WATER



CHILDREN MUST BE ACTIVELY SUPERVISED AT ALL TIMES

SWIM AT OWN RISK



Lifeguards on duty

SWIM WITHIN THE BUOYS

No paddlecraft within buoys

			
No diving	No littering	No dogs	No fishing
			
No fires	No glass	No alcohol	No smoking
			
No kite surfing	No camping	No motorised water vessels	No feeding wildlife



الاستمتاع بالمياه هو أسلوب حياة استراتيجي... طريق مائي للحياة

وتنصح على Penrith في الجهة الغربية بما يلي: من وسائل السلامة والمعدات الخاصة بالبحر إلى ارتداء حذوة الكعبين على الماء والسباحة واستخدام سترات النجاة ورايات ومنحلات الأقدامين والشرايف حزام مائي

ما هو شاطئ بنرث؟

يقع الشاطئ بين جبل مونغ معبر مونغ وبنرث. الشاطئ هو شاطئ رملي جميل مع مياه عذبة. Penrith Beach Development Corporation

تم بناء Penrith Beach (Penrith Beach) من قبل Penrith Council. Penrith Beach هو شاطئ رملي جميل مع مياه عذبة. Penrith Beach Development Corporation

إنقاذ الحياة الملكية

معلومات سلامة مياه شاطئ بنرث

شعار بنرث بنرث

تعرفوا المزيد حول السلامة المتواجدة على شواطئ بنرث

الطريق الوقائية بعد زرع

تم توفير رسالة السلامة هذه اليك من قبل Penrith Beach Development Corporation Penrith Beach في Penrith

Country, community and stakeholder engagement

A collaborative approach to the design of a swim site that included First Nations people, community, stakeholders, specialists and organisations can guide the optimum outcome for the project.

Country and community engagement should be initiated at the outset of a swim site project and maintained as a continuum extending through design and into ongoing operation and monitoring of the site. The local community can hold a significant knowledge of local waterways and past and current conditions. This can inform the site analysis and placement, as well as informing any design interventions and ongoing site use and management.

You can also contact the Local Aboriginal Land Council, Aboriginal Water Interest Groups and Joint Management Committees.

When you are designing a swim site, carrying out community engagement can help develop and refine proposals, and help ensure implemented works meet with community needs. There is opportunity during the design for community and stakeholder engagement to help establish community groups that can monitor future site usage, visual water quality and other hazards.

When conducting your community and stakeholder engagement, consider the following questions to help shape the design of the project:

- How does the local community feel about swimming in waterways and how the space can be designed to be inclusive?
- What do swim sites mean as natural and or cultural places and how will the community use the space once constructed?
- What settings are not preferred including visitor experience and activities?
- Where do they like to swim or use watercraft and what could be improved at these sites?
- How can the community have a better understanding of when it is safe to swim and how can this be incorporated into the design of the space?
- How can the community participate in and assist with ongoing swim site management?

Stakeholder Engagement

Early involvement of relevant disciplines within a land managers organisation is also critical to project success. The design of a swim site project will likely require inputs from:

- › planners
- › landscape architects
- › civil environmental and flood engineers
- › open space planners
- › ecologists/environmental scientists
- › transport and traffic planners
- › property managers

Relevant officers should be involved in regular project collaboration and coordination, and assist the design team in:

- › Identifying key specialists within your organisation
- › Collaborating on how to identify and solve common challenges and opportunities
- › Identifying opportunities to create a swim site that offers water quality and stormwater management solutions that will realise multiple goals and strategic targets
- › Collaborating to support funding from multiple funding streams, such as operation, capital and maintenance funding

Collaboration with other land managers, and organisations such as Sydney Water, Transport for NSW, Royal Life Saving Society etc is a key opportunity to supplement the design of a project, to share resources and ideas, and to optimise project efficiency, sustainability and success.

In addition, this collaboration is a great opportunity to share information and research to benefit project outcomes.

- Liaise with other land managers and authorities to identify synergies and collaborative opportunities
- Maintain ongoing contact with collaborators and keep them updated on project progress and outcomes

Safety by design

Safety by design - Applying a safe design process

Safe Work Australia identifies safe design as the integration of hazard identification and risk assessment methods early in the design process to eliminate or minimise the risks of injury throughout the life of the project being designed. Safe Work Australia lists the following principles:

- › **Principle 1** - Persons with control. Persons who make decisions affecting the design are to promote health and safety at the source.
 - › **Principle 2** - Through the project life-cycle. Safe design applies to every stage in the life-cycle from conception through to closure. It involves eliminating hazards or minimising risks as early in the life-cycle as possible.
 - › **Principle 3** - Systematic risk management. The application of hazard identification, risk assessment and risk control processes to achieve safe design.
 - › **Principle 4** - Safe design knowledge and capability - should be either demonstrated or acquired by persons with control over design.
 - › **Principle 5** - Information transfer - effective communication and documentation of design and risk control information between all persons involved in the phases of the life-cycle is essential for the safe design approach.
-
- Apply the principles of safe design to the planning and design of swim sites
 - Apply the land managers preferred process for Design Risk Identification and Mitigation throughout the design process
 - Maintain a risk assessment and mitigation approach to site operations maintenance and management

Innovation

Innovation is the process of identifying new ideas systems and products that can improve outcomes. Being conscious of opportunities to innovate can help reduce environmental impacts, improve systems and processes and enhance the flow of critical information to key stakeholders and community. Talking to bodies such as Sydney Water or NSW Health or hubs within universities could help unlock an innovation for the project.

Given the complexity of scientific aspects to creating a place to swim, work is underway to improve systems and technology for water quality monitoring.

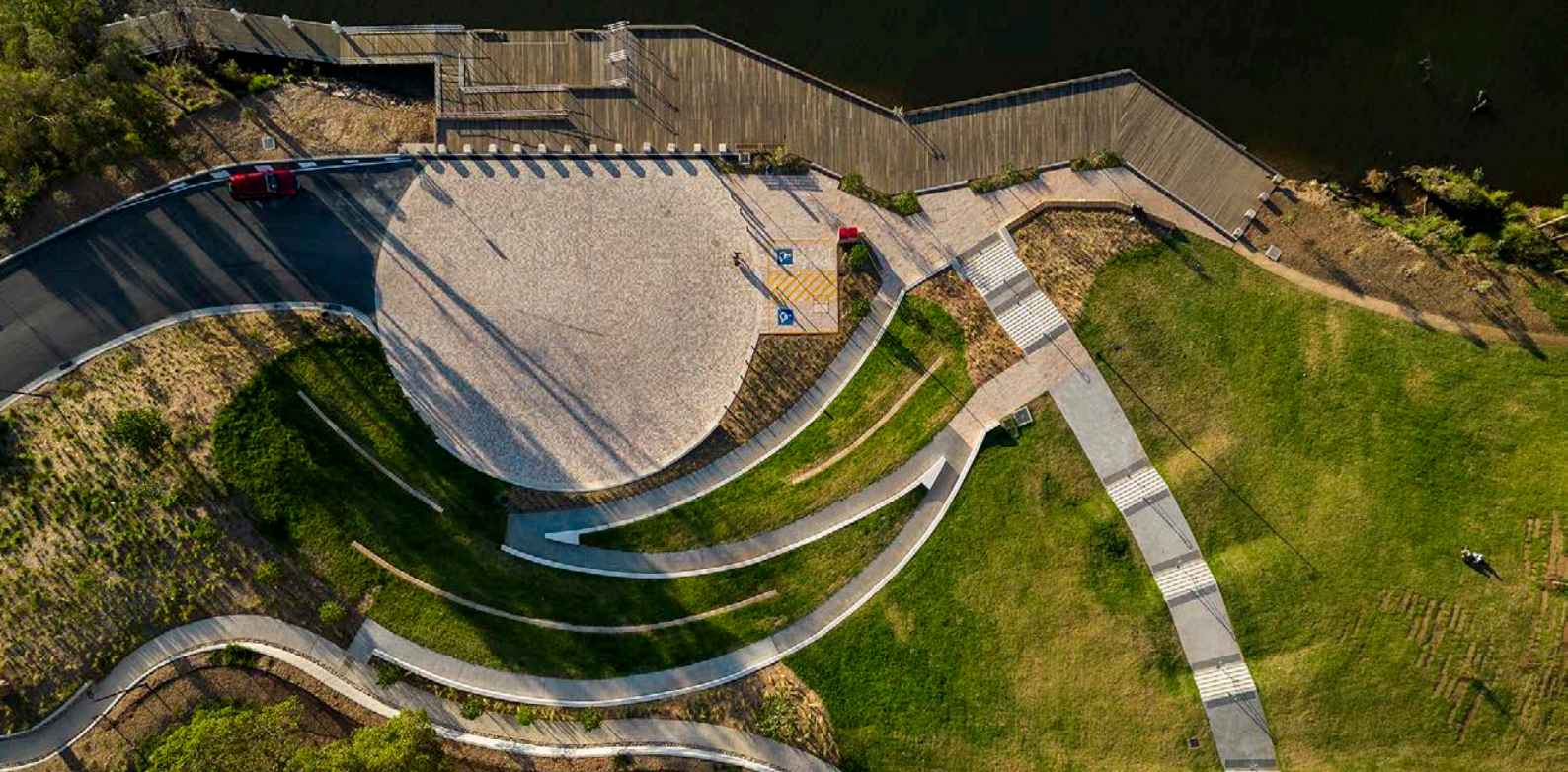
Life of project cost planning

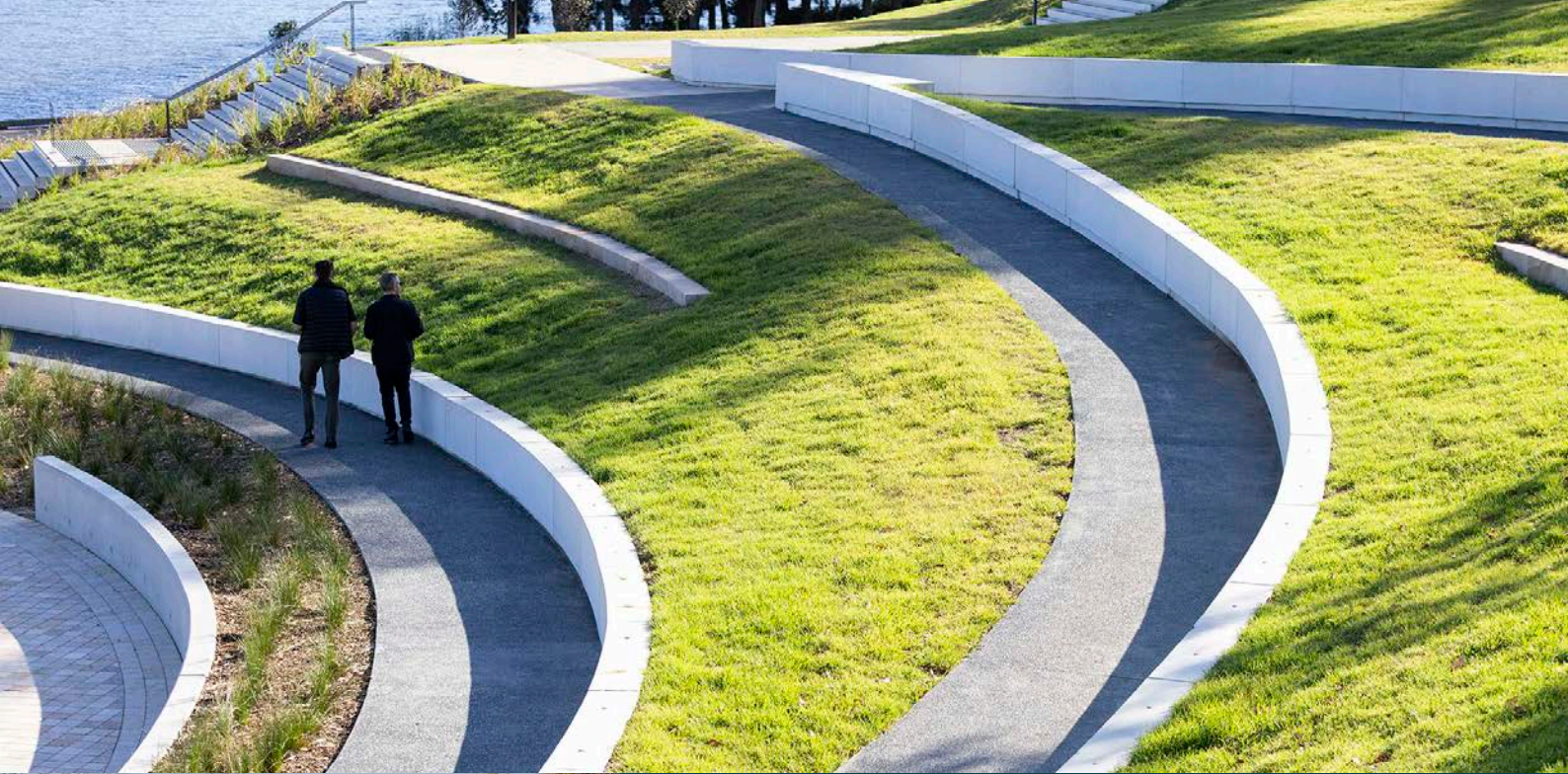
Cost estimates for the relevant stages of the project should be prepared and revised as the project progresses. This will assist in identifying what funding will be needed and may help with identifying sources.

While capital funding may be available to deliver a swim site, funding to plan, design and manage a site typically falls to the local council or agency to draw from operational budgets. As such it's critical to consider both the upfront costs as well as the ongoing maintenance costs.

Developing a project plan that will set out the community and economic benefits of the swim site and highlighting any environmental benefits such as improved water quality will help justify the whole of project costs.

It's helpful to consider any commercial activities that might complement the swim site, too. Explore possible collaboration with other land managers.





Case study

Tench Reserve, Jamisontown / Dharug Country

Delivered under the NSW Government's Parks for People program, Tench Reserve in Jamisontown showcases innovation in the design and delivery of inclusive public open space through collaboration with local government and local communities.

Tench Reserve is a linear open space parkland corridor, situated on the eastern bank of the Nepean River. The parkland is built into steep embankment, located across from a new commercial hospitality development, East Bank, and is home to a number of regular events and festivals.

Tench Reserve was upgraded in close collaboration with Penrith City Council, the local community, key stakeholders and experts through two rounds of community engagement, site studies, technical investigations and extensive design work.

The design of the project also aligns to the Penrith City Council's Living River masterplan, which looks to develop awareness of the river and its recreational uses through improved access to the foreshore, providing the opportunity to get down to the water's edge for passive or active recreation. The upgrades have transformed one of the Nepean River's best vantage points with better pedestrian access and a new promenade that makes the otherwise steep slopes of the river completely accessible.

Clockwise from top left:

Tench Reserve, Jamisontown, NSW (Brett Boardman)

Tench Reserve, Jamisontown, NSW (Brett Boardman)

Tench Reserve, Jamisontown, NSW (NSW Government)

Design considerations

Designing with risk

Establishing acceptance liability is critical. This can be a challenge for natural swim sites, where there is a wide variability. Understanding whether the community will accept the same level of risk for natural swimming as they do for ocean swimming is important. Making information on hazards and conditions clear and easily available will help mitigate some of these concerns.

The more environmentally vulnerable a site is, the more risk management measures will be required to make the site safe and acceptable to the community. These criteria are broadly based on the NHMRC Guidelines for Managing Risks in Recreational Waters.

Inclusive design

Swim sites by nature can be disabling, however when upgrading or creating a new swim site every effort should be made to make it inclusive and accessible so that all people can enjoy the experience. The design should accommodate accessibility to the water where technically feasible and of acceptable environmental and visual impact.

Environmental sustainability

Design interventions can be used to help create a more sustainable site and conserve the natural character.

Financial sustainability

The costs of operational activities such as water quality, hazard and safety monitoring during swim season can vary greatly. This is dependent on whether the service can be provided by the site manager or has to be outsourced.

Land managers need to assess the pros and cons of these scenarios and whether a long-term commitment is sustainable. In this context the ability for a site manager to implement overlay or temporary facilities offers flexibility to assess feasibility and to adapt the longer term approach where necessary. Likewise collaborative opportunities may also relate to sharing of hazard testing resources through collaboration with bodies such as Royal Life Saving Society.

Wayfinding

Ensure people can navigate to and get around the site safely and easily. Provide signage to identify the site and mark its entry. This will ensure protection to other areas of the site. The signage should be complementary to other open space.

Understanding swim settings

The swim setting describes the landscape setting of the water activation site in particular its level of natural character and capacity to absorb swim site activity and facilities. It explains the degree of modification that has occurred to a site from its original state.

Considering the swim setting in the design phase of a project will inform the approach to the level of use and facilities a site can support while conserving its natural character and environmental integrity.

Permanent facilities should only be considered when a long-term commitment to water activation can be made, and the feasibility of water based recreation on the site has been validated through past usage. Alternatively, overlay facilities or temporary facilities that limit the degree of intervention to the site and enable the long-term functional and operational feasibility of a site should be validated through its short- to medium-term use.

Consider the potential for each type of swim setting:

- › Permanent facilities when use is established and landscape setting and environmental values allow
- › Overlay facilities to new sites where landscape setting and environmental values allow
- › Temporary facilities to new sites where a short-term trial is appropriate and landscape setting and environmental values allow

Factors that will influence the swim setting and making decisions in the design phase:

- Determine the carrying capacity of the site. This is the number of people a site can safely and comfortably accommodate
- Determine the presence of threatened species or communities

- Understand the role of foreshore and adjoining site to river and stream management and in flood conditions
- Identify past use of site for swim site uses, swim site infrastructure present and any opportunities for adaptive re-use of existing facilities

Site management considerations

The site management approach will reflect the nature of the swim setting, the facilities developed and the intended use of the site. It is essential to understand how the site will be managed during the design phase.

Site management for places to swim looks at:

- › Onsite water safety
- › Site monitoring and assessment
- › Site maintenance

To incorporate these factors into the design of facilities, they must be considered at the outset of the project.

- Undertake a swim safety audit to determine if an onsite water safety presence will need to be provided. This will also inform the water safety elements to be incorporated into the design of the space
- Identify ongoing monitoring requirement - water quality, water clarity, riverbed sediments, water and land hazards, storm-water management etc. Ensure the design of the space supports these actions and provides a safe location for all ongoing monitoring activities to be conducted from
- Determine how the site will be monitored, such as through dedicated staff, rolling crews, by contract, community groups. Ensure their needs are catered for the design of the project
- CCTV could be installed to provide after hours monitoring of the website.

Design decisions will need to be made about the permanency of facilities to best reflect site conditions and sensitivities, community aspirations, and available resources.

Design checklist - habitat management

Swim sites are located in established natural habitats so it's important to consider how to protect and conserve these important places.

Land habitats

- Integrate council habitat/biodiversity specialist input to planning and design processes
- Protect existing natural vegetation (trees shrubs and ground-covers on-site) from physical works
- Consider anticipated user behaviour and potential for impacts on existing natural vegetation
- Subject to habitat / biodiversity specialist input, supplement existing site vegetation to enhance natural values

Aquatic habitats

- Integrate habitat / biodiversity specialist input as required to planning and design
- Protect existing aquatic habitats (e.g. seagrass beds) through effective planning of activities and access

Waters edge habitats

- Protect and conserve natural water edge conditions through planning design and management of swim sites
- Integrate low key platforms and access management at foreshore edge to limit negative impacts
- Consider integrating aquatic 'habitat friendly' measures to existing constructed sea wall edges
- Generally avoid structured foreshore access measures (platforms/decks) to natural sites but consider to difficult access management scenarios if validated by environmental assessment
- Consider integrating aquatic habitat friendly measures to existing constructed sea wall edges

Design checklist - site access

Access to site

Before you get in, on and around a swim site, you need to be able to get there. Consider equitable access when designing your swim site, such as active and public transport and physical accessibility. Examine the potential pedestrian and cycle catchment of the site and identify key routes that can potentially be enhanced to improve sustainable transport options.

- Improve key pedestrian access routes to site relative to level of access within site
- Improve cycle access routes to site
- Improve natural tree shade to access routes
- Make targeted or localised improvements to existing or potential pedestrian and cycle routes
- Improve safety and wayfinding to key pedestrian and cycle routes within 1km of site

Site parking

Car parking at swim sites is challenging, so consider how to design the best experience for users while minimising negative impact to the site, for example co-location with other facilities. Recognise that there will be a need for users to drive to water activation sites and there are parking and traffic implications at each site that require planning and design interventions. Planning and implementation of new parking spaces must consider impacts on environment and recreational opportunity within the open space and adjoining streets.

- Assess the existing parking (existing off road parking to adjoining open space and/or to adjoining streets) for shared use or for potential extension of capacity
- Assess likely parking and vehicular traffic implications of water activation site
- Mitigate the effect that on-street car parking has on the surrounding community. Consider trial parking arrangements to adjoining streets to measure impacts

- Provide off-street parking spaces where sustainable and not in conflict with natural values
- Allow space for accessibility needs when parking.

Access within the site

Aim for a clear line of sight, effective wayfinding and signage, and a dedicated path network to support good access to your swim site.

- Access routes within a site are required to move users from parking and entry points to the water's edge and supporting public open space and facilities
- Access should connect users from existing public domain in a positive and safe manner
- Consider maintenance and emergency access and liaise with maintenance staff and emergency services to coordinate approach
- Where feasible existing path access should be used for internal access, and extended where necessary to facilitate water access
- Integrate with recreational trails to natural areas/parklands to broaden recreational experiences on-site including walking and mountain biking



Mulwala Pool, Apex Pk, Mulwala NSW
(Federation Council)

Case study

Mulwala Pool, Apex Park / Mulwala and Yorta Yorta Country

Mulwala Pool offers the experience of swimming in Lake Mulwala on the Murray River, while providing safety barrier from nearby watercraft. The pool is Olympic sized and has been where the local community have learnt how to swim, and tourists have enjoyed visiting for decades. Located on the floodplain, the pool is quite shallow, with depths of up to one metre on a concrete base with handrails around 3 sides, and ladders for ease of entry and exit.

Federation Council planned to improve the design of this community asset by making the pool accessible and providing better connections to supporting amenities. An accessible ramp and handrails enabled people with mobility challenges to use the pool safely.

The comfort and safety of community has been considered in the design with lighting for afternoon and evening activities, updated safety and instruction signage, replacement of safety railings and entry ladders, site and safety fencing, and provision of rescue and resuscitation equipment are expected actions. In addition, there



is proposed refurbishment of the existing public toilets and installation of connecting pathways between the pool, playground, barbecues, and public toilets are proposed. Council has used smart design to leverage the use of the existing historic site, with innovative upgrades that reduce the impact on the Lower River Murray endangered ecological community.

Design checklist - access to the water

Inclusive access

Access to swim sites can be challenging by nature. Focus on the opportunities to provide an equitable access for all members of the community.

- Apply inclusive design features to water access where technically feasible and acceptable to environmental and visual impact.
- Assess potential impacts to land and aquatic ecology and foreshore stability
- Assess visual impact to unstructured natural character of site
- Provide non-slip ramp access leading from accessible path access

Sand and beach access

Use of existing sand beach foreshore for water access is preferable where land and aquatic habitat is not at risk.

- Provide access to vicinity of beach appropriate to site character and to usage volumes
- Assess potential impacts to land and aquatic ecology and foreshore stability
- Use existing beach access where sustainable

Rock platform access

Use of rock platforms and rocky foreshores is generally to be avoided due to environmental and safety concerns.

Deck landing / pontoon

Introducing launches can assist in opening up access to more people. There are many products and methods to consider.

- Incorporating the use of sensitively designed deck landings to enable access to water is an effective way of managing environmental impacts at water's edge and controlling and directing access

- Provide access to adjoining linkages and use landing that are appropriate to site character and usage volumes of the future swim site
- Assess potential impacts on land and aquatic ecology and foreshore stability
- Assess impact and resilience to potential flooding events
- Consider tidal implications for design and maintenance of any landings or pontoons.
- Provide non-slip decking surface integrating access steps and landings into water
- Consider demountable landings and floating pontoons as temporary strategies for swim sites.

Access to water

Steps can be a compact and low-cost solution to provide access to the water's edge.

- Use of water edge steps can negotiate level changes such as seawalls to provide access to foreshore beach areas and the riverbed level
- Provide access to link steps appropriate to site character and to usage volumes of the future swim site
- Consider where there is an existing foreshore seawall structure for steps to be integrated
- Assess potential impacts to land and aquatic ecology and foreshore stability
- Consider tidal implications for levels
- Provide non-slip surface

Design checklist - visitor experience

Toilets and amenities

Supporting amenities are important when planning your swim site, and the length of time a visitor can stay.

- Toilets will typically be in demand on sites that will be promoted as free swimming destinations and should provide inclusive access. Consider the availability of services

(water, sewer, onsite treatment) when you have decided what facilities you will provide

- Consider the location of a swim site to leverage availability of existing toilets to adjoining open space wherever possible
- Any new toilet structure should complement the character of the existing site
- Rubbish collection should be considered
- Include your amenities on the National Public Toilet Map to assist visitors planning their trip. www.toiletmap.gov.au

Change rooms

Changing facilities and showers can be useful and desired in highly patronised swim sites, particularly in urban areas.

- Change rooms may be in demand on high-use free swimming sites that will be promoted as destinations
- Consider potential integration with toilet structure
- Outdoor showers are generally desirable at water activation sites to enable users to rinse off after activity
- Locate along path access in a location that does not adversely affect on-site character
- Water should be harvested from site (for example rainwater tanks) where possible
- Implement as low key facilities similar to outdoor beach showers with on-site management of runoff
- Where possible, include changing places with MLAK to provide suitable accessible amenities to people with disabilities. www.changingplaces.org.au

Shade and shelter

Relying on the natural shade of trees is ideal, however some locations will require interventions.

- Shade protection from the sun will be a key amenity requirement for swim sites given the high focus of use across warmer months
- Optimise availability of natural shade from existing tree canopy-locate gathering and

rest areas to take advantage of existing canopy

- Supplement existing natural tree canopy with additional tree canopy as primary shade
- Consider built shade provision to highly modified sites where existing tree canopy is not sufficient or immature
- Work with biodiversity specialists provide selective site endemic native tree canopy planting where necessary to supplement shade

Seating

- Provide seating to enable users to
 - watch water activities
 - to view the water
 - to rest and eat
- Provide seating in a variety of forms including traditional park furniture in addition to incidental seating
- Focus on natural seating elements such as rocks and boulders
- Consider some seating adjoining maintained turf spaces near foreshore areas
- Ensure there are accessible seating options

Cycle facilities

- Cycle access will ideally play a major role in getting users to swim sites
- Provide cycle stands nears the site entry

Explore business opportunities

Having a cafe nearby can enhance swim site experiences and provide the comfort, refreshment, relaxation and socialisation communities enjoy. Other businesses that could support a swim site include watercraft hire such as kayaks and stand up paddle boards. An added bonus is the potential income could be used to support the ongoing maintenance, and the presence of operators assists with site surveillance.

- Link site access to bike and shared path networks
- Link to mountain bike access where compatible with council strategy and environmental values

Kiosks and cafes

Provide space for kayaks and other non-motorised watercraft whilst enjoying the other aspects of a swim site. Consider providing pay for use racks as a commercial opportunity.

- Consider kiosk and concessional licences to major sites where compatible with environmental and other recreational values
- Consider potential for pop-up or temporary arrangements given seasonality of activity

Night-time activation

Depends on suitabilities and operational management plan of the space, night time activation might be encouraged to extend stay and provide unique sun set or after dark experiences. if night time activation is expected:

- sufficient lighting design to meet the required safety measurements
- Consider permanent or programmed feature lighting to create points of interests and contributes to planned activities and events vibe

Off season

Activating a natural swim site during the off-season can elevate visitor experiences and promote sustainable tourism.

- Conduct tailored ecological assessments and implement habitat restoration projects
- Provide diverse nature-based activities like guided walks, wildlife tours, and outdoor workshops
- Collaborate with local businesses to offer enticing off-season promotions and packages, boosting the local economy while attracting tourists

Design checklist - water management

Catchment health is critical to the success of a swim site. Review stormwater treatment and look for opportunities to introduce WSUD.

Stormwater and water sensitive urban design (WSUD)

- Stormwater outfalls may occur within or adjacent to swim sites
- Limit impact of outfalls on amenity and use of site
- Limit infrastructure works on natural sites
- Consider WSUD swales and basins where compatible with environmental values and of general benefit to the open space and waterway

Overland flow

- Stormwater runoff from and through a site can impact soil stability and water quality
- Design surface drainage management to control velocities, reduce turbidity and possibly direct overland flow away from swim sites
- Limit infrastructure works on natural sites or minor low-key surface drainage works to control runoff and prevent erosion of track

Monitoring

- Implement regular testing regime in accordance with health requirements
- Provide an easy to access and understand means of advising community of swim conditions arising from water quality testing as a result of rain conditions or other influence
- Implement automated testing infrastructure when available and budget permitting



Case study

Dawn Fraser Baths Balmain / Walgal and Gadigal Country

Dawn Fraser Baths is a paid entry public swimming pool located in Balmain on the Parramatta River. The baths have a rich history and cultural significance as they were first opened in 1884, are listed on the National Trust Register, and are highly valued by the community.

The baths are used for a variety of activities, including swimming lessons, fitness classes, community gatherings and sports carnivals. The large timber building includes a tiered stand for spectators and is perfect to watch events within the complex. The pool itself is netted and tidal forming a curve that follows the shoreline. At low tide a sandy beach is revealed .

Water quality testing is conducted by Beachwatch in the summer months.

Dawn Fraser Pool, Balmain, NSW
(Inner West Council)

Case study

Campbelltown Billabong Parklands, Bradbury / Dharawal Country

The Campbelltown Billabong Parklands is located in Bradbury, a suburb 54kms from Sydney's CBD. The Billabong will become a gateway to Campbelltown's CBD, creating a landmark place to swim.

The project includes a range of recreational water play facilities, landscaped areas, parklands and amenities over the four hectare site, including a stream, swimming lagoon and a zero-depth play area.

The Billabong is a constructed lagoon that will be freely accessible to locals and visitors to the area, and will provide a catalyst for the revitalisation of



Comfort is enhanced with lush landscaping and tree planting integrated with shade structures that are both a design feature and provide cool respite.

Shaded seating is provided to support greater social connections, and encourage people to stay.

The lawn area is a flexible in use and provides both recreation opportunity and visibility to the Billabong.

the CBD. Everything has been considered to create a destination where people can gather, relax, play, make memories, get in, on and around water.

The design has allowed for high quality water treatment, with efficient filtration and pump systems to each of the pools.

Council was informed through a collaborative and engaging process, which is reflected in the final design. This includes extensive integrated art that represents the Campbelltown community and Aboriginal culture.



A water safety assessment was recommended. Lifeguards are on site during operational hours.

Amenities including toilets, change rooms and showers are located adjacent, providing visitors the option to stay and enjoy the space.

Inspiration for design was drawn from the nearby Dharawal National Park, incorporating rock pools, waterfalls, small rapids, rock formations, organic edges and key crossing points.

Design checklist - site activation

Once water quality is acceptable and the monitoring program is underway, it's time to activate the swimming site. Consider the features to be incorporated into the design as well as the ongoing management and potential maintenance commitments.

Swimming

- Does the site meet water quality targets established through 12-month monitoring?
- Is swimming to be patrolled, or is it to be unpatrolled with warning information on site about general and specific risks?
- Consider if swimming activity is to be demarcated by floating markers due to adjoining hazards, or to make supervision more effective and safe
- Consider swim infrastructure to aid and control swim use
- Provide safety and regulatory signage as required
- Provide swim enclosure markers as required
- Provide holding point for safety equipment minimising impact

Kayak and stand-up paddle board

Assess what forms of water access and use the site is able to cater for noting that:

- It is preferred to separate craft access and swimming access for swimmer safety
- Consider floating markers to swim area if water access happens off the same beach or foreshore
- Assess the ability to provide functional access carrying or transporting craft from parking areas to the launching point
- Consider the ergonomics of craft movement to the waters edge along access routes (slope and corners/bends are difficult to negotiate with long craft)
- Manage relationship with other water activities to ensure safety of all users

Model craft

- Assess likely ways a site would be used and the feasibility of model craft use
- Assess potential impacts on aquatic habitats of model craft movements near foreshore and on water
- Manage relationship with other water activities to ensure safety
- Refer to Deck / Landing / Pontoon for further considerations for model craft operating decks

Information about safety and conditions of use

- Site to be subject to swim safety audit to determine options for safety management
- Provide clear information on the swimming status of the swim site
- Provide site safety and safe use information at non-patrolled sites
- Provide site safety and safe use information at patrolled sites to address potential for after hours and out of season use
- Provide onsite safety equipment
- Implement legislative and best practice requirements for provision of signage



Plan Design **Deliver** Manage

Delivery overview

Councils often have staff with the skills for key delivery tasks. Major swim site projects, however, may require expert external consultants who will work under the management of a council landscape architect or project manager.

It is important to ensure a council communications officer is informed and involved in the project. They can make sure community and stakeholders, as well as relevant people within an organisation, are well informed and engaged about what is happening with the project.

Stage deliverables:

- › Project brief
- › Design development
- › Cost review and budget monitoring
- › Specialist assessment
- › Review of environmental factors
- › Tender and construction documentation
- › Construction
- › Defects inspection report
- › Engagement with community clubs and stakeholders
- › Engagement with local Aboriginal Land Council or community representatives and landowners.

Who's involved at this stage:

- › Landscape architect
- › Consultant engineer
- › Environmental planner/ecologist
- › Access consultant
- › Council procurement officer
- › Construction contractor and/or council day labour teams
- › Council project manager
- › Council communications officer
- › Local Aboriginal land council or community representatives and landowners

Project Delivery

There are 4 main steps you need to complete to bring a swim site project to life.

Design documentation

The project design should be based on a clear design brief, based on earlier assessments around the swim site setting and facilities, accessibility, impacts and objectives. This will be a collaborative process.

Allow for design development and testing to ensure the right settings and facilities approach, as well as site conditions. Make sure appropriate supporting technical information is provided.

Procurement

The time it takes for procurement varies, depending on the scale of the project. Larger, more complex projects will take longer. Clear and detailed design documentation can help to speed up the process.

Think about how best to implement the design vision such as potential for staging of works. If there are temporary works, make sure there is a clear understanding of responsibilities for the ongoing maintenance of the installation.

Construction testing and commissioning

High-quality construction and management is essential for robust, sustainable project delivery. Make sure open space managers or landscape architects are involved early to ensure the construction meets its objectives and is implemented as designed.

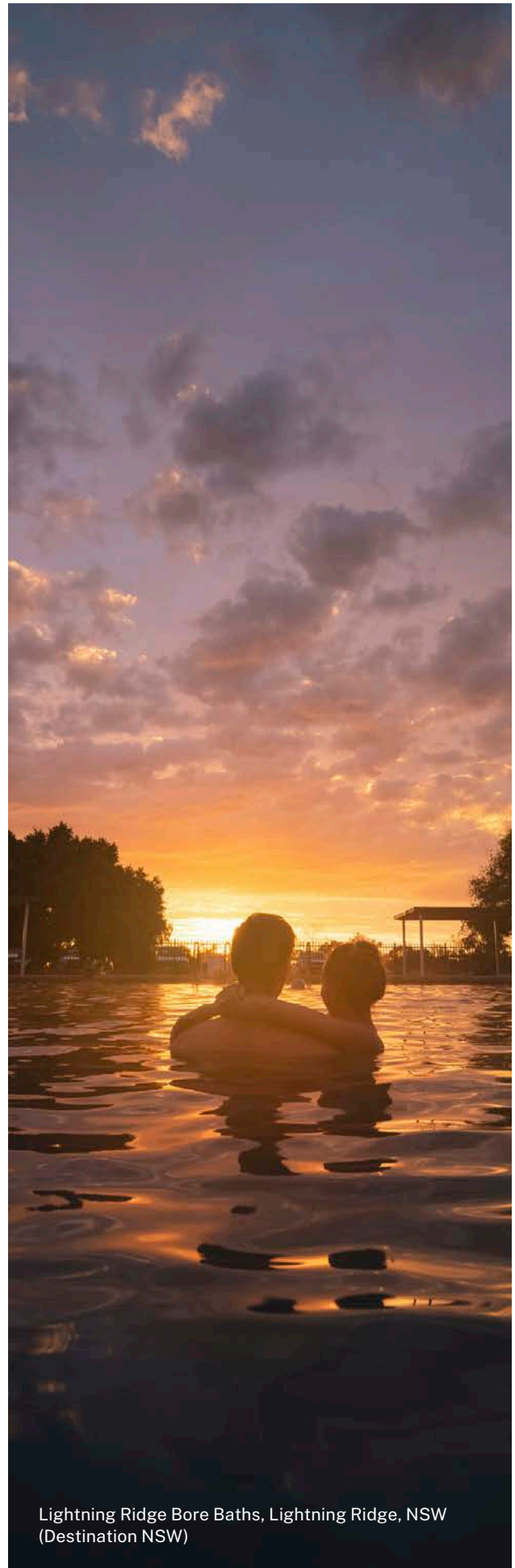
At this step, it's important to invest in high-quality construction governance, management and communications. Factor in quality control across production, delivery, risk management and cost.

Consider the environmental management in the construction phase of the project, particularly around water and pollution management.

Establishment

Swim sites may involve a degree of landscaping, which usually involves a plant establishment period, during which the contractor is responsible for the maintenance of the landscape until an agreed completion date.

Consider how opening a site to the public will impact plant establishment and any risks or conflicts that may need to be dealt with.



Lightning Ridge Bore Baths, Lightning Ridge, NSW
(Destination NSW)



Lake Mulwala NSW
(Destination NSW)



Case study

Bayview Park Baths Concord / Wangal Country

In 2022, swimming was re-established at Bayview Park Baths on the Parramatta River in Concord. The original baths were closed in 1969 due to water quality concerns, and the infrastructure was demolished around 1995.

The water quality has been tested since July 2019 against the National Health and Medical Research Council guidelines for managing risks in recreational water, with data showing that the site was safe for swimming. This was an important step in ensuring the baths were safe for the community.

The construction works involved piling and netting. With a series of piles driven into rock on the river floor, a crane on barge was used. This was then followed by the installation of stainless-steel netting to secure the site.

The design of the swim site separated the existing wharf from the enclosure to allow for watercraft to access the sandy beach and wharf, adding another level of safety for the swimmers. Supporting infrastructure such as new footpaths increased accessibility to the site, and additional amenities such as an outdoor shower, seating and picnic areas support greater amenities for visitors to Bayview Park Baths.



Bayview Park Baths, Concord NSW
(City of Canada Bay)

Bayview Park Baths in construction, Concord, NSW
(City of Canada Bay)

Plan

Design

Deliver

Manage

Activation and site management overview

The final phase of a swim project is, in some ways, the most challenging. Resourcing ongoing site management and collaboration between specialists are key to success. Site management practices will reflect the nature of the swim setting, the facilities developed and the intended uses of the site.

Most of the decisions that shape ongoing site management have been made in the planning phase, including the approach to water safety, maintenance, and monitoring and assessment.

Some of the areas that will need ongoing management and consideration in this phase can include:

- › Water safety management
- › Site management
- › Water quality monitoring
- › Operational hazard monitoring
- › Fauna and insects
- › Evaluation and improvement
- › Communication with the community

Maintaining and managing a natural swim site involves a commitment to protecting the environment, and providing enjoyable experiences to the users.

A well managed and activated swim site will be sustainable long term.

Who's involved at this stage:

- › Open space and asset manager
- › Risk manager
- › Environmental engineer or scientist
- › Maintenance team
- › Rangers and patrol staff
- › Community clubs and stakeholders
- › Water quality experts
- › Local Aboriginal land council or community representatives and landowners.

Manage stage deliverables:

- › Site management/operations risk plan
- › Liability management plan
- › Water safety plan (including hazards management)
- › Site maintenance plan
- › Asset management plan
- › Evaluation model
- › Updated plan of management

Water safety management

Water safety management covers a range of requirements, including physical surveillance, water quality, and monitoring and communication of hazards and conditions. During the planning and design phase many of the factors related to managing risk will have been considered. However, conditions in and around open water systems can change unexpectedly and it is essential to understand the related risks and hazards. This information will be used to manage the community use of the facility.

Consistent collaboration and communication with key agencies will create a successful water safety management program. Bring water safety, rescue and community organisations in early – and work together to come up with a clear plan for promoting water safety.

When using a risk management approach, communication with the community identifying risks and their mitigation and management of them is essential. This will include communicating daily changes in conditions, water quality, and hazards to users. It is also important to consider how users can access the right safety education to make informed decisions about their activities in, on and around the swim site.

- Each waterway has unique features. Landowners and operators of recreational programs should customise and contextualise safety efforts for a specific swim site
 - Adopt a risk management approach when making decisions about service provision and undertaking activities at aquatic locations under their care and control to ensure water safety
 - Develop risk management plans relevant to the selected environment and planned activities including identification of contributing risk factors as well as preventative and management actions for each site
 - Consider the following in the preparation of risk management planning:
 - The type of rescue equipment appropriate to the site.
 - The ability for people to contact emergency services while on-site.
- Access for emergency services.
 - How daily changes in conditions will be reported, managed and communicated.
- Importance of ongoing programs to equip users with suitable knowledge and skills to participate in open water activities throughout life
 - Leverage existing water safety campaigns and programs within their local government areas

Cross referencing to relevant guidelines and standards

The NSW Government provides the legislative and policy framework for water safety in NSW and regulates some water-based activities. Councils have a responsibility to ensure all water safety functions are carried out safely and effectively to minimise risks of injury or death.

There are detailed guidelines available for reference related to water safety for open waterways in NSW. These will assist site managers in developing tailored water safety risk management plans for water activation sites.

Collaboration with water safety organisations to develop risk management plans and evaluation is essential. Effective collaboration and communication among key agencies is essential to the success of water safety management programs

- Engage with organisations in state government agencies to provide advice on water safety tailored to your particular site
- Include water safety and rescue organisations and other community groups in promoting water safety
- Community engagement is a critical part of water safety management. Ensure your messaging is clear and easy to understand
- To assist in determining the appropriate personnel, safety equipment and signage needed at sites to manage water safety risks, undertake an audit and categorise the site using categorisation tools to suit local needs and circumstances
- The type of water safety personnel, equipment and facilities should reflect the council's risk assessment and will depend on the circumstances of each waterway

- Follow a clear and systematic approach when it comes to determining appropriate signage for each swim site within your jurisdiction
- Review water safety education programs in line with other resources and promote widely to increase public awareness and knowledge
- Refer to the National Aquatic and Recreational Signage Manual for guidance on signage. The Australian Standards provide guidance on the use and placement of the approved symbols in places where the public access water for recreation, and recommends the use of symbolic signs, which transcend language barriers.

Useful water safety references

NSW Office of Local Government Practice
Note 15 – Water Safety

NHMRC Guidelines for Managing Risks in
Recreational Water (2008)

Royal Life Saving Draft Guidelines for Inland
Waterways (2021)

Royal Life Saving Open Water Risk
Considerations for Schools Guide (2016)

Royal Life Saving Water Safety Tips
drowningprevention.org.au

National Aquatic and Recreation Signage
Manual: lifesavingsupport.com.au

Case study

Water Safety Education for CALD communities

In response to escalating drowning incidents in Greater Western Sydney, a collaborative effort between Liverpool City Council, Belgravia Leisure Group, and Liverpool Neighbourhood Connections created a 10-week swimming and CPR training program tailored for culturally and linguistically diverse (CALD) women with young children. The program's core objectives were to impart fundamental swimming skills, bolster participants' confidence in aquatic environments, and equip them with essential CPR techniques. This initiative provided crucial logistical support, including transportation and onsite childcare, to ensure accessibility for participants from diverse backgrounds.

The program's impact was profound, with over 60 women successfully graduating and an impressive 90% reporting heightened confidence in water-related activities. The demographic diversity of participants, representing Arabic, Urdu, Hindi, Vietnamese, and Chinese communities, underscored the initiative's broad reach and inclusivity. Survey findings revealed significant improvements in participants' confidence levels and acquisition of vital survival skills, aligning with the urgent need highlighted by a concurrent spike in drowning deaths across New South Wales.



Royal Life Saving NSW swimming and CPR Course
(Royal Life Saving, NSW)

Site management

The site management approach will reflect the nature of the swim setting, surrounding landscape, the facilities developed, and the intended activation of the site.

During the planning phase, the preferred approach to site management will have been reviewed, taking into consideration:

- › Audit of swim safety and the approach to a water safety presence on-site.
- › Likely approach to site monitoring and assessment
- › Likely approach to site maintenance

During design these approaches need to be confirmed and documented as the basis for ongoing operations. From swim safety perspective 2 options are:

- › Unpatrolled site where there is limited or no water safety patrolling
- › Patrolled site where there is seasonal patrolling of the swim area

Some things to think about when managing the place to swim that will affect the ongoing management and operation of the facility can include:

- Confirming and documenting the preferred approach to swim safety. This will have been considered at the feasibility testing stage of the project and influenced design decisions
- Will the site be closed after hours? How is this done and managed day to day?
- Provision of onsite safety information for low management sites and for managed sites after hours and out of season
- Potential for any site management to be specialised council staff or contracted staff (e.g. lifeguards) or a combination of both
- Resourcing of site management and maintenance.

Unpatrolled sites

Decide whether the swim safety plan involves an unpatrolled site with limited or no water safety assistance or a patrolled site involving a seasonal presence for the swim area.

Think about effective communication of water safety in the area, times of operation, and ongoing resources – such as the ability for council staff to manage, outsource, or a combination of both.

Unpatrolled sites need to:

- Comply with relevant policies and guidelines for human safety
- Provide clear information around swim conditions, risks, and warnings
- Consider where to locate water safety or lifesaving devices, if appropriate, and how people can contact emergency services from the site
- Consider how emergency services can access the site
- Consider leveraging water safety education programs in the local area or by neighbouring councils

Patrolled sites

This is a site where seasonal swimming is permitted with water safety surveillance, subject to water quality conditions. Think about what activities are permitted at the swim site, how many users can be safely accommodated, their ages and swimming ability.

In addition to all the considerations for an unpatrolled site, a patrolled site requires:

- Water safety surveillance point and temporary shade or shelter.
- Facilities for the water safety personnel such as toilets.
- Storage and facilities for lifesaving devices and maintenance.
- A plan for how the site will be managed day to day and if it is closed after hours.
- Temporal and spatial distribution and consistency

- How is the data collected, collated and communicated?
- What else needs to be measured and why?
- Can real-time monitoring devices be installed?
- Apply consistent methods and techniques across catchments, local government areas to enable a consistent approach
- Establish a quality assurance program to ensure data reported is accurate and reliable (field sampling, laboratory analysis, data management, community reporting)
- Can the community have a role in testing and monitoring?
- Use guidance provided within the NHMRC guidelines for managing risks in recreational water
- Resourcing of long-term hazard monitoring in and out of water. Consider the use of monitoring programs that can provide real-time information
- Identify all parties that need to be consulted (legislators, non-government organisations, local communities, laboratories) as part of reporting activities

Operational hazard monitoring

Regular hazard monitoring in and around recreational water is essential for the identification of potential hazards and implementation of risk reduction measures.

The approach to hazard monitoring will be based on the categorisation and classification provided during the planning phase. In addition to water quality hazards such as microbial contamination, toxic algae and cyanobacteria, hazards include:

- › Incidents and physical hazards
- › Heat, cold and ultraviolet radiation
- › Chemical contamination
- › Dangerous or venomous organisms
- › Aesthetic aspects such as murky water or increase sediment
- › Monitoring after flood events
- › Impact of drought

The approach to monitoring the spectrum of hazards for a swim project will vary, depending on the severity of the risk and the frequency of occurrence. Water quality hazards may be sporadic and require careful and regular monitoring.

- Integrate water safety, water quality and operations hazard monitoring to improve efficiencies and maximise reporting outputs

Monitoring techniques

To ensure safety in recreational water environments, the responsible management authorities should establish programs for evaluating existing hazards and monitoring the area for any changes that may occur.

Such programs should be based on a code of good practice for recreational water monitoring. To protect public health, it will often be necessary to develop programs for monitoring several aspects (beach safety, pollution control etc.) in parallel.

Monitoring of some hazards may be highly localised. The significance of locally important hazards will depend on the type of hazard. The assessment approach should take account of the hazard's magnitude and frequency, the severity and occurrence of health effects, and other local factors.

A good way to manage major water hazards uses a simple three-level action system:

- › **Green** – Surveillance level, involves routine sampling to measure contaminants
- › **Amber** – An alert level that requires investigation into the causes of elevated contaminant levels and increased sampling for a more accurate assessment of the risks
- › **Red** – Action level that requires councils and health authorities to warn the public that the water is considered unsuitable for recreational use



Case study

Toronto Baths Lake Macquarie / Awabakal Country

Across all council projects, Lake Macquarie City Council recognises operational and maintenance officers as key stakeholders. This means the team have regular opportunities to comment on design, attend site inspections during construction, and have a handover meeting to provide training and share knowledge prior to opening the project to public.

This approach recognises that maintenance costs should be considered early in the planning phase of a project. Costs should be regularly reviewed during the project lifecycle, from establishment to renewal.

To assist with management and maintenance of the much loved Toronto Baths, Lake Macquarie Council developed a Tidal Pool Management Plan, to identify and address the key items to monitor at the swim site, and the required frequency. The actions in the plan include regular swimming net inspections, cleaning, repair, general maintenance and unexpected finds.

Council also produces an operations maintenance manual with details on maintenance activities, and warranty information for specific materials used during construction.



Toronto Baths under construction, Lake Macquarie, NSW
(Lake Macquarie City Council)

Toronto Baths historical photo, Lake Macquarie, NSW
(Lake Macquarie Libraries)

Communicating information

The information gathered when monitoring operational hazards of a place to swim will be used by the community to make informed choices about where or whether they will go into the water. It is also used to provide critical information to better manage a site over time.

This information will also be used to provide the community in a way that's accessible, accurate and easy to understand. It is important to think about the kind of information that will be most useful for community.

- Consider how information is collated effectively and what information is needed to enable the public to make informed decisions
- Consider how to share this information – it could be a website, an app, or provided to users on-site. Explore if data can be integrated with existing systems, such as NSW Beachwatch
- Consider the demographic of the local community and visitors to the swim site. CALD communities are at the highest risk of drowning and are often unaware of the dangers associated with water, or are unable to swim. Signage and messages should target this group.

Water quality monitoring

Recreational water requires regular monitoring as it can sometimes become unsuitable for swimming, particularly after rainfall when stormwater and wastewater can overflow.

While councils and other organisations carry out comprehensive water quality monitoring programs, monitoring for recreational water quality requires additional testing, as set out in the NHMRC health guidelines.

Water quality of the swim site will be categorised based on:

- › A visual sanitary inspection that identifies and rates potential pollution sources
- › Physical water sampling to assess microbial levels of enterococci, which indicates faecal contamination

A regular monitoring program needs to be devised, whether daily, weekly or monthly, which includes ongoing microbial water testing and other physical and chemical parameters.

The program will need to monitor rainfall events and the impact on stormwater, wastewater overflows, algae blooms, and any other data on potential pollution, tides and relevant alerts.

Sediment tests and chemical contamination and toxicity should have been done at the site identification stage, but ongoing monitoring and assessment may need to be considered as detailed in the NHMRC guidelines.

Basic requirements

Councils and other organisations carry out comprehensive water quality monitoring programs across the metropolitan area. Water is tested to inform land-use planning decisions and to assess long-term ecosystem health, stormwater harvesting programs and activities that influence water quality such as wastewater treatment plants.

The data is collected and collated in a number of different ways for specific testing purposes and to meet the requirements of water quality standards and regulations.

Monitoring of recreational water quality requires additional testing and monitoring requirements as set out in the NHMRC guidelines.

Water quality for chemical contaminants (heavy metals, dioxins etc) and toxicity should have occurred before or at the site identification stages. Ongoing chemical assessment may need to be considered independent of the site location and potential for any risks associated with recreational activities and human health.

- Resource long term water quality monitoring
- Management of cyanobacteria and parasite presence
- The primary source of pathogens is human faecal contamination
- The success of a sanitary inspection relies heavily on preparation and planning. It is important that as much accurate, relevant information as possible (including past monitoring results for faecal enterococci, where available) be collected before the survey.

Approach to testing and monitoring

The NHMRC guidelines provides guidance on monitoring approaches including when and how water quality monitoring should be undertaken.

Approaches to recreational water quality testing and monitoring systems can vary from location to location in NSW. This is partially dependent on location, types of water masses and sources of water, saline or freshwater, and type of recreational use.

Sites will have been assigned an initial categorisation/classification during the planning and design steps - all recreational water environments should be subject to an annual sanitary inspection to determine whether pollution sources have changed.

- Clearly define the recreational water body of interest in order to focus data collection
- Understanding what data needs to be collected to inform operational and strategic decisions
- What type of testing is already in place and are other organisations already testing areas?
- Temporal and spatial distribution and consistency
- How is the data collected, collated and communicated?
- What else needs to be measured and why?
- Can real-time monitoring devices be installed?
- Apply consistent methods and techniques across catchments, local government areas to enable a consistent approach
- Establish a quality assurance program to ensure data reported is accurate and reliable (field sampling, laboratory analysis, data management, community reporting)
- Can the community have a role in testing and monitoring?

Fauna and insects

Fauna and insects are a natural part of waterway environments and play an important role in the ecosystem. The presence of fauna and insects in waterways can be an indicator that water quality is good and the ecosystem is healthy. Creatures such water bugs can be highly sensitive to changes in water and the diversity of species present and quantity will vary according to the health of the waterway or waterbody.

However, what may be great for the ecosystem can be off-putting to the community if they feel uncomfortable, unsafe or think there will be consequences to engaging with the water and its surrounds, such as becoming unwell or sustaining an injury.

The community may have concerns about dangers and risks to human health from:

- › Presence of sharks and or other biting fish/aquatic life and or stings
- › Insects that may be harmful and/or can cause discomfort such as mosquitoes, sandflies
- › The presence of shellfish and other organisms such as oyster shells on easily damaged reefs can injure people
- › Water bodies that are accessed by fauna for drinking water may contribute to water quality issues.

Visitors are more likely to have a good experience and return if you encourage them to take care and use the appropriate personal protection. Encouraging the community to record observations of fauna and insects at their local swim site can also be a fun way for them to interact and get to know their local environment.

Animal inputs

It is important to determine major sources of animal faecal pollution. Although these will generally be less important human health risks than human pollution, they may have a significant impact on microbial water quality and potential health risk. Regular site assessments and monitoring programs will enable authorities to determine if there are risks of contamination.

Aquatic pests and disease

Freshwater and marine ecosystems are very vulnerable to invasion by aquatic pests and weeds. Introduced species can also impact the health of the aquatic ecosystem by increasing water turbidity and nutrient concentrations, destroying aquatic plants, and potentially causing the recurrence of toxic blue-green algae blooms. Human activity can encourage the spread of invasive species and this needs to be considered in the ongoing management of sensitive swim site settings.

- Consider risk management processes. For example, if sharks may be present, consider fencing the swim spot
- Promote public awareness of when some fauna and insects may be more present at particular times of the day or year, such as breeding seasons for mosquitoes and fish species
- Understanding the site's environment, species and habitat requirements will help in determining the most appropriate location for water activation zone and types of water activity
- Investigate opportunities for public education and participation in monitoring the health of the waterway through citizen science projects for example; NSW Waterwatch and the National Waterbug Blitz

Citizen science programs

Inviting the community to participate in data collection creates a better understanding of the health of the local waterways. There are a few different programs that encourage community participation and data collection.

Waterwatch members can measure water quality attributes and participate in an annual water bug survey.
www.nswwaterwatch.org.au

Waterbug Blitz collects data through an app and is a great way for schools to get involved in understanding how healthy their local waterways are.
www.waterbugblitz.org.au

Evaluation and improvement

Evaluation is integral to ongoing site management. It's worth setting up a regular schedule of reviews to ensure greater understanding of the benefits and costs of the project over time.

Regular site evaluation, including capturing ongoing community feedback, benchmarks the operation and management of the swim site against the original goals in the planning phase.

Understand what's working – and what's not. This will determine the true benefits of the project, allow adaption where necessary and potentially provide a strong business case for further upgrades or alterations.

- Establish a program for project review and evaluation.
- As part of the evaluation process, identify strengths, weaknesses, and opportunities created by the project to date and areas that can be improved upon. Compare the evaluation outcome against the original vision and business case for the project. Consider trend analysis and make recommendations for improvements to the project in keeping with community preferences and environmental requirements.

Enabling, encouraging and inputting community observations and perspectives

A good evaluation program will seek feedback from users and people affected by the project. This review will provide information to better understand the strengths and weaknesses, as well as uncover hidden opportunities.

- Ensure information on the project and any evaluation or review of the project are easily accessible to the community, such as through council websites.
- Cater to diverse communities. Encourage and support multiple ways for the community to share views and observations on swim sites. This can be done by obtaining feedback through council websites, social media, in person sessions and engaging with community and user groups.

- Encourage the use and awareness of existing citizen science programs for reporting on waterway health where information can then be disseminated to other agencies/councils for evaluation and review.
- Complete observation, intercept, and exit surveys
- Monitor broadcast, print, digital, and social media platforms for feedback on the project, its management and activation

Taking steps

If the swim site is meeting its objectives, think about how to improve it. Consider taking the next step with an on-site commercial activity, or make temporary or overlay facilities more permanent.

If the swim site isn't delivering on its intended aims, consider what can be done to make changes that will bring it in line with the original goals. Think about reassessing objectives, facilities and the site management approach. Identify things from the review that can be done immediately for little or no cost.

- Reassessing objectives, facilities, and site management approach if required
- Identifying actions that arise from the review and evaluation can be addressed on site.
- Informing future decision making around funding
- Setting a timeline for ongoing reviews of site management operations and management.

Communication with the community

Presentation and dissemination of information on swim conditions and water safety to the community will be a fundamental aspect of swim site management. Provision of an easily accessible information source which can inform the community on the current conditions of the water activation site is essential.

Information on the local factors that may affect recreational water quality and on the level of contaminants must also be shared with the community. The results can be used to:

- › Classify the safety of swim sites to support informed personal choice
- › Provide onsite guidance to users on the relative safety of the water
- › Assist in identifying and promoting effective management actions
- › Provide a basis for regulatory requirements, and for an assessment of how well these requirements being met

The NSW Beachwatch program data management process involves water quality results being regularly forwarded electronically to the Beachwatch program from different contracted laboratories. The water quality data uploaded to the Beachwatch water quality database (BACTO) for storage and evaluation.

Quality assurance procedures for the storage of data on the centralised database follows a rigorous protocol that was developed as part of the Beachwatch program. This includes data validation procedures to identify anomalous results, restricting user access to the database, using fixed templates for upload of data, and database settings to prevent duplicate entries.

- Consider what information needs to be collated and conveyed
- Identify where the information will be presented, such as websites, on-site etc.
- Investigate opportunities to integrate with existing systems to provide a consistent approach

Glossary

Aquatic recreation: Water-related pastimes including swimming, boating, fishing, and those activities that take place in, on or around water.

Aquatic recreation sites: Places that support water-related pastimes in, on or around water.

Carrying capacity: The sustainable level of recreational use defined as the number of visitors or visits an area can sustain without degrading natural resources and visual amenity.

Catchment: A basin defined by landform and elevation where water is collected by the natural landscape.

Catchment health: The overall state of a geographic area indicated by various physical, chemical, biological or socio-economic measures. Catchment health can be adversely impacted by changes in land use, population growth, urbanisation, climate change, and changes in flow through things like stormwater management, pollutants and sediment runoff.

Demarcation area: An established boundary or limit separating 2 areas. In aquatic recreation sites, this may separate a place for varying recreation types, access requirements or may indicate patrolled and unpatrolled areas. This may also be used to establish exclusion zones.

Enterococci: Group of faecal bacteria common to the faecal matter of warm-blooded animals.

Hazard: A biological, chemical, physical or radiological agent that has the potential to cause harm.

Incidental contact: Activities where there is secondary contact with water and only the limbs regularly get wet.

Facilities approach: A design process that reflects the nature of the swim setting and guides a level of intervention appropriate to a water activation site. It also guides the scope and lifespan of facilities that support swim and craft uses, defined as temporary, overlay or permanent facilities.

Landholders: The individual or entity who has an interest in the land and/or who owns or occupies land under a relevant authority.

Landscape context: The combined measure of the quality of biotic and abiotic factors, structures, and processes surrounding an area of land and/or water.

Land tenure: Land tenure is the manner in which a party holds or occupies an area of land. It is a way of identifying who has the right to use and occupy land in accordance with the different types of ownership.

Natural swimming: Natural swimming is splashing, paddling, or swimming in a waterway, lake, river, waterhole or dam.

No contact: Activities where there are mainly aesthetic uses but no physical connection made with the water.

Primary contact: Activities where whole body contact with water is frequent.

Project lifespan: Timeframe for the swim site activation project including Planning, Design and Delivery.

Site capacity: The number of people a site can safely and comfortably accommodate both on land and in the water.

Site access: Entry to a site and circulation through the site to serve site use. May be pedestrian or vehicular or both

Site conditions: The physical and cultural considerations of a location

Swim setting: The Landscape character of a swim site. This includes considering how much the landscape has been changed from its natural state. In this document, we define the swim setting as having natural, partially modified or highly modified characteristics.

Swim site: Locations identified and endorsed as safe for aquatic recreation.

Turbidity: The cloudiness of water caused by the presence of fine suspended matter.

Water contact: The type and duration of exposure to water, defined as primary, incidental or no contact.

Water quality: The physical, chemical and biological characteristics of both water and sediment.

Water safety: The procedures, precautions and policies associated with safety in, on, and around bodies of water.



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