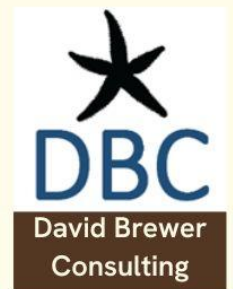


Sedimentation impacts in Moreton Bay: a priority  
knowledge synthesis

**IMPACTS:**

**Traditional  
Custodian Values**



This impact statement is drawn from

***Sedimentation Impacts in Moreton Bay, a priority knowledge-synthesis***

The report was commissioned by The Moreton Bay Foundation in 2025 to summarise key evidence on how sedimentation affects Moreton Bay’s coastal and marine ecosystems, and the ecological and cultural values they support. The report brings together published and grey literature, conceptual models, and expert review to provide a clear, high-level understanding of sedimentation pressures, their impacts, and remaining knowledge gaps.

This standalone document can be found in the full report. Where references are made to other sections, these are indicated by this symbol: †. A full list of external citations, data sources, and methods used in this document is included in the complete report, available at **[moretonbayfoundation.org](https://moretonbayfoundation.org)**

David Brewer Consulting (DBC) has prepared this report for The Moreton Bay Foundation under the contract titled ‘TMBF Priority Knowledge Synthesis: Sedimentation Impacts in Moreton Bay’. Information about the Moreton Bay Foundation can be found at: <https://moretonbayfoundation.org/>

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## Traditional Custodian Values: Sedimentation Impact Statement

Quandamooka Traditional Custodian: ‘white man came and cut the trees down and loosened all the dirt up and then the rain would come and then wash it [away]... to make it so muddy, because when the floods come through... it's just like a big sheet of mud going over the bridge...’. (Pinner *et al.*, 2019).

### Summary

The Traditional Custodians of Moreton Bay (part of Quandamooka Country) have continuously inhabited and cared for this region for over 25,000 years. Their cultural values also include deep ancestral connections to water, as reflected in place names, dreaming stories, and totemic associations with habitats, animals, and plants, such as the dugong, oysters, sea snakes, mud crabs, dolphins, sea eagles, and curlews. They continue to harvest culturally important species such as Mullet and Quampies (Pearl shell), and continue to recognise and subscribe to customary law regarding communal ownership rights over their native estate.

The Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) (see [Quandamooka Yoolooburrabee Aboriginal Corporation](#)) manages the recognised Native Title rights and interests on behalf of the Quandamooka People, which includes a focus on fostering Quandamooka culture and environmental protection for their land and sea country. Their current custodianship encompasses roles in management and monitoring the health of key habitats and species, often in partnership with government, non-governmental organisations, and researchers. However, the impacts of water quality and sedimentation on their cultural values are deeply felt and have created a great sense of loss and despair for many Aboriginal people.

### Overview

#### *Traditional Custodian history in Moreton Bay*

Moreton Bay, also known as Quandamooka, has a rich history of Traditional Custodian occupation and custodianship of its ecological values, which continues to evolve and strengthen in contemporary management practices (Fischer *et al.*, 2019).

Quandamooka Country, encompassing Moreton Bay, its islands (Mulgumpin/Moreton Island, Minjerribah/Stradbroke Island, and southern Bay islands) and adjacent mainland areas, is the ancestral homeland of the Nunukul, Goenpul, and Ngugi peoples, collectively known as the Quandamooka People (Adams *et al.*, 2019). They have continuously inhabited and cared for this region for over 50,000 years (Fischer *et al.*, 2019). Their clans have upheld their own laws, customs, beliefs, and culture throughout their occupation and have never ceded sovereignty of their Country (Fischer *et al.*, 2019).

European settlement began around 1825, which displaced many Traditional Custodian groups and disrupted their ability to care for their Country in traditional ways (Fischer *et al.*, 2019). However, the Quandamooka People continue to maintain their cultural practices on their Country (Fischer *et al.*, 2019).

On July 4, 2011, the Federal Court of Australia recognised the Quandamooka People as the Traditional Custodians and original inhabitants of Minjerribah and parts of Moreton Bay (Fischer *et al.*, 2019; see [also Native Title | Quandamooka Yoolooburrabee Aboriginal Corporation](#)). This determination recognised their Native Title rights and interests over 54,408 hectares of land and sea in the Moreton Bay area, including exclusive and non-exclusive rights (Fischer *et al.*, 2019). The non-exclusive rights allow them to be present on the location, access and traverse it, and take, use, share, and exchange traditional natural resources for non-commercial purposes (Fischer *et al.*, 2019; Thurstan *et al.*, 2019).

#### *Traditional custodianship of Moreton Bay ecological values*

QYAC, established in 2011 as a Prescribed Body Corporate (PBC), manages the recognised Native Title rights and interests on behalf of the Quandamooka People (Fischer *et al.*, 2019). QYAC has one of the largest memberships of any Native Title Body Corporate in Australia (Nasplezes *et al.*, 2019) and employs a visionary and professional management approach to land and sea management, based on contemporary practices with an evidence-based approach (Fischer *et al.*, 2019). What makes QYAC's approach unique is its focus on fostering Quandamooka culture and environmental protection for their land and sea country (Fischer *et al.*, 2019). This involves 'blending Traditional Knowledge and Traditional Science with Western Science to inform policy and management decisions' (Fischer *et al.*, 2019).

The Quandamooka People's customary arrangements are based on a holistic belief system where humans and the natural world are closely intertwined (Ross *et al.*, 2019b), and an appreciation of natural processes is described as 'a beautiful chain of command by Mother Nature' (Pinner *et al.*, 2019). Environmental management is considered a customary responsibility, informed by deep traditional ecological knowledge (Ross *et al.*, 2019b).

Historically, Indigenous Australians have been important fishers in the region, harvesting seafood such as finfish (e.g., mullet), crustaceans, shellfish (e.g., rock oysters), turtles, and Dugong for thousands of years (Olds *et al.*, 2019). They were active stewards of resources, such as oyster beds (Ross *et al.*, 2019b). They made practical use of rivers, creeks, and the Bay for drinking water, food sources, and livelihoods (Pinner *et al.*, 2019).

Their cultural values also include deep ancestral connections to water, as evidenced by place names and totemic associations. For example, they have dreaming stories and totems about many of the Bay's habitats, animals and plants, including Dugong, oysters, sea snakes, mud crabs, dolphins, sea eagles and curlews (Delaney, 2013) (Table 1).

### *Current activities and interactions*

#### 1. Caring for Country responsibilities

The Quandamooka Land and Sea Management Agency (QALSMA) is the unit within QYAC responsible for planning, managing, and protecting the Quandamooka Estate (see [QALSMA | Quandamooka Yoolooburrabee Aboriginal Corporation](#)). QYAC rangers are actively involved in managing and monitoring Sea Country (Fischer *et al.*, 2019). Examples include implementing (and improving) their skills in seagrass assessments, coral reef monitoring, understanding dugong and turtle populations, and assessing the health of mangrove-fringed coastlines within the Quandamooka Native Title area (Fischer *et al.*, 2019).

#### 2. Partnerships and Collaboration

QYAC collaborates with various organisations, including the Queensland Parks and Wildlife Service, State government departments, local authorities, non-government organisations, and research institutions like the University of Queensland, Griffith University, Queensland University of Technology and James Cook University as well as Healthy Land & Water (Nasplezes *et al.*, 2019). They have expanded the protected area of Minjerribah from 2% in 2010 to currently 50% through work with the Queensland Parks and Wildlife Service (Nasplezes *et al.*, 2019).

#### 3. Resource Use

Fishing and traditional hunting are important affirmations of cultural identity and continue to be essential aspects of Quandamooka life (Townsend *et al.*, 2019). Quandamooka people continue to fish and harvest shellfish, with mullet being culturally and economically significant (Thurstan *et al.*, 2019). They recognise and subscribe to customary law regarding communal ownership rights over their native estate, in addition to state law (Thurstan *et al.*, 2019). While Queensland fisheries regulations require permits for commercial-sized nets for traditional or ceremonial purposes, fish traps and recreational gear do not require a licence, and seasonal closures or size/possession limits typically do not apply when fishing in traditionally accessed waters or with permission from Traditional Custodians (Thurstan *et al.*, 2019). Indigenous peoples have also historically imposed their own moratoria on hunting dugong when populations were deemed too low (Thurstan *et al.*, 2019).

#### 4. Ecotourism

QYAC's growing role in land and sea management provides opportunities for new sources of economic development, such as ecotourism (Fischer *et al.*, 2019).

#### 5. World Heritage Listing

Quandamooka Country is being proposed for a World Heritage listing due to its outstanding and unique cultural and natural values. QYAC are leading the submission in partnership with the Queensland and Australian Governments to ensure it reflects the Quandamooka People's ancient and living heritage, connection to Country, and aspirations (Queensland Government and QYAC, 2025).

## Impacts of sedimentation

The Quandamooka people deeply value the overall health of the ecosystem, the ecological functions of Moreton Bay (Quandamooka), and the diversity of animal and plant species in the region, linking these to moralistic values and a desire to enhance knowledge for better care (Fischer *et al.*, 2019; Ross *et al.*, 2019a). This highlights a custodial ethic and a deep sense of identity tied to their Country, with a strong sense of personal loss associated with damaged waterways (Fischer *et al.*, 2019). Fisher *et al.* (2019) stated that ‘Colonisation displaced many Traditional Custodian groups from their Country and resulted in their inability to be on, and to care for, their Country in traditional ways. This has created a great sense of loss and despair for many Aboriginal people’.

Both the status and trends of the selected culturally important ecological groups indicate that the Quandamooka people’s values in Moreton Bay have been substantially degraded by the impacts of sedimentation (**Error! Reference source not found.**). Fischer *et al.* (2019) noted the threat to marine values, such as sacred or heritage sites, through erosion and sediment loading. They note changes have occurred to water quality, impacting marine habitats (like seagrass and mangroves) used for cultural harvesting and state that ‘the disruption of spiritual and cultural practices due to ecosystem degradation caused by runoff and altered hydrology’.

The Quandamooka people are clearly not responsible for this degradation of Moreton Bay ecology, which has its source in the catchments of the Bay (see † **Section 4**). Rather, their traditional management practices are aimed at working with nature, not seeking to control it (Pinner *et al.*, 2019).

## Recommendations

The following recommendations are a summary from the published literature.

### *1. Integrate traditional knowledge and Western science in management*

Actively weave ‘Traditional Knowledge and Traditional Science with Western Science’ to inform policy development and management decisions (Fischer *et al.*, 2019). This approach leverages the Quandamooka People's observations and repeated practices over thousands of years, which often align with Western scientific practice and offer a more extended dataset than post-colonisation scientific observations (Fischer *et al.*, 2019).

Recognise that Quandamooka knowledge encompasses all aspects of the natural environment and tells stories that enable future custodians to build upon it (Fischer *et al.*, 2019).

Table 1. Ecological groups with high cultural value to the Quandamooka people and the status and trend of these groups, as described in other Impact Statements within the report. References used are: 1. Saeck et al., 2019a; 2. Fischer et al., 2019; 3. Pinner et al., 2019; 4. Olds et al., 2019; 5. Thurstan et al., 2019; 6. Delaney, 2013.

Culturally important group	Customary role	Current condition	Trend
Seagrass	Traditional harvesting and ceremony <sup>1</sup>	Fair*	Declining
Mangrove-fringed coastlines	Spiritual and totemic importance <sup>3</sup>	Good	Stable
Oyster and shellfish reefs	Supporting culturally important food species <sup>3</sup>	Poor	Declining
Coral reefs	Significant in Dreaming stories and totems <sup>2</sup>	Fair	Declining
Crustaceans	Culturally important species <sup>5</sup>	Variable	Stable
Mud crabs	Culturally important food species <sup>3</sup>	Good	Stable
Beche-de-mer	Culturally important species <sup>2</sup>	Poor	Declining
Shovel-nosed shark	Totemic importance <sup>3</sup>	Poor	Declining
Finfish	Culturally important group <sup>4</sup>	Variable	Declining
Sea snakes	Significant in Dreaming stories and totems <sup>6</sup>	Variable	Stable
Turtles	Spiritual and totemic importance <sup>3</sup>	Poor	Declining
Sea eagles	Significant in Dreaming stories and totems <sup>6</sup>	Good	Stable
Curlews	Significant in Dreaming stories and totems <sup>6</sup>	Poor	Declining
Dugong	Spiritual and totemic importance <sup>3</sup>	Good	Stable
Dolphins	Spiritual and totemic importance <sup>3</sup>	Good	Stable
Whales	Spiritual and totemic importance <sup>3</sup>	Good	Stable

\* depending on the region in the Bay, as per the Healthy Land & Water report card (Healthy Land & Water, 2023).

### 3. Promote a holistic and place-based management approach

Adopt a management philosophy of ‘shared use’ that safeguards Quandamooka's values, interests, and vision, recognising Quandamooka Country as a sanctuary managed for thousands of generations (Fischer et al., 2019).

Embrace the Indigenous holistic and social-ecological perspective of land and sea management, which contrasts with the sectoral approach of government. This includes connecting land and sea management, similar to how Indigenous people view their coastal estates (Ross et al., 2019b).

### 4. Enhance stewardship and environmental education

Foster the ‘custodial ethic’ that is a core part of Indigenous values, emphasising the obligation to maintain a reciprocal relationship with the environment (Pinner et al., 2019).

Prioritise education of younger generations and the broader community on environmental sustainability and the ecological significance of waterways (Pinner et al., 2019; Ross et al., 2019b).

Use experiential and place-based learning strategies, such as hands-on exploration and investigation of local real-life issues, to foster a connection to place and encourage care for the Bay (Casey *et al.*, 2019).

Support the Quandamooka Ranger Program, which is key to managing cultural heritage rights and interests, and contributing to collaborative research initiatives (Fischer *et al.*, 2019).

Encourage partnerships between Quandamooka and environmental not-for-profit groups, which have proven to produce mutually beneficial outcomes for land and sea country management and build community capacity (Fischer *et al.*, 2019).

#### *5. Safeguard cultural heritage and natural values*

Protect and manage archaeological heritage sites (e.g. shell middens, stone artefact scatters, burials, scarred trees, fish traps) as they are tangible evidence of cultural identity, belonging, and knowledge of the place (Pinner *et al.*, 2019).

Maintain the ecological integrity of the Bay, including its diverse habitats (seagrass, mangroves, coral reefs), as Traditional Custodians value these as indicators of ecosystem health (Pinner *et al.*, 2019; Ross *et al.*, 2019b).

#### *6. Implement adaptive and collaborative management practices*

Continue and strengthen collaborative environmental monitoring programs that collect ongoing data about key habitat types in the Bay, such as coral reefs (Reef Check), seagrass communities (Seagrass-Watch), and mangroves (MangroveWatch) (Fischer *et al.*, 2019).

Adopt sustainable management practices for resource use, such as the cautious assessment of fisheries (e.g. beche-de-mer) to prevent declines in populations (Fischer *et al.*, 2019).

Move towards a 'new governance' approach that recognises and formalises the contributions of both formal and informal management actors, including Traditional Custodians, rather than focusing solely on top-down control (Ross *et al.*, 2019b).

Expand monitoring and evaluation beyond biophysical threats to include social, economic, and cultural benefits and contributions of management efforts (Ross *et al.*, 2019b).

#### *7. Pursue World Heritage listing*

Continue to progress the Quandamooka submission for inclusion on Australia's World Heritage Tentative List, recognising its unique cultural and natural values. The proposed listing includes the Moreton Bay Marine Park, Minjerribah, and Mulgumpin, with a focus on Criterion (v) for traditional human land and sea-use and Criterion (x) for significant natural habitats for biodiversity conservation. This could offer integrated management opportunities and increased tourism and employment benefits.

## Expert reviews

Dr Djarra Delaney (Quandamooka), Prof Helen Ross (School of Agriculture and Food Sustainability, University of Queensland) and Darren Burns (Quandamooka, QYAC) have kindly provided an expert review of the Traditional Custodian Values: Sedimentation Impact Statement.

## References

- Casey, E., Roe, T., Tibbetts, I.R. and Aylward, D. (2019). 'Education in Quandamooka – A long and evolving tradition'. In Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds.) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 105–118. doi: 10.6084/m9.figshare.8085686.
- Dean, A.J., Fielding, K.S., Newton, F. and Ross, H. (2019). 'Community knowledge about water and engagement in waterway protection in south east Queensland'. In Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds.) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia, pp. 61–72. The Moreton Bay Foundation. doi: 10.6084/m9.figshare.8072528.
- Delaney, S. (2013) *Dreaming stories and totems about bays habitats, animals and plants*. Brisbane: Boolarong Press. 51pp.
- Fischer, M., Burns, D., Bolzenius, J., Costello, C. and Low Choy, D. (2019) 'Quandamooka Country: The role of science and knowledge in Traditional Owner-led land and sea management'. In Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds.) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 3–28. doi: 10.6084/m9.figshare.6713297.
- Kemp, J., Olley, J. and Capon, S. (2019) 'An environmental history of Moreton Bay hinterlands', in Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 121–136. doi: 10.6084/m9.figshare.8072567.
- Nasplezes, R., Bolzenius, J., Wood, A., Davis, R., Cleary, A., Maxwell, P., Rissik, D. and Ross, H. (2019) 'Stewardship as a driver for environmental improvement in Moreton Bay', in Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 73–88. doi: 10.6084/m9.figshare.8072513.
- Olds, A.D., Gilby, B.L., Connolly, R.M., Tibbetts, I.R., Henderson, C.J., Stevens, T., Thackwray, S.K., Schlacher, T.A. (2019) 'Fishes of Moreton Bay: Ecology, human impacts, and conservation'. In Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T., Arthington, A.H. (eds.) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 379–400. doi: 10.6084/m9.figshare.8074232.

- Pinner, B., Ross, H., Jones, N., Babidge, S., Shaw, S., Witt, K. and Rissik, D. (2019) 'A custodial ethic: Indigenous values towards water in Moreton Bay and Catchments'. In Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 29–44. doi: 10.6084/m9.figshare.6713312.
- Queensland Government and Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC). (2025). *Quandamooka World Heritage Tentative List Submission*, Queensland Government (Accessed: 7 June 2025).
- Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC). (2025) QALSMA: *Quandamooka Land and Sea Management Agency*. Available at: <https://qyac.net.au/qalsma/> (Accessed: 5 July 2025).
- Queensland Government and Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) (2025). *Quandamooka World Heritage Tentative List Submission*, Queensland Government (Accessed: 7 June 2025).
- Ross, H., Jones, N., Witt, K., Pinner, B., Shaw, S., Rissik, D. and Udy, J. (2019a) 'Values towards Moreton Bay and catchments', in Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 47–60. doi: 10.6084/m9.figshare.8072498.
- Ross, H., Rissik, D., Jones, N., Witt, K., Pinner, B. and Shaw, S. (2019b) 'Managing for the multiple uses and values of Moreton Bay and its catchments', in Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. and Arthington, A.H. (eds) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 563–638. doi: 10.6084/m9.figshare.8085710.
- Saeck E., Udy J., Maxwell P., Grinham A., Moffatt D., Senthikumar S., Udy D. and Weber, T. (2019a) 'Water quality in Moreton Bay and its major estuaries: Change over two decades (2000-2018)'. In Tibbetts I.R., Rothlisberg P.C., Neil D.T., Homburg T.A., Brewer D.T., and Arthington AH (eds.) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane: The Moreton Bay Foundation, pp 187-210. doi:10.6084/m9.figshare.8072597.
- Thurstan, R., Fraser, K., Brewer, D., Buckley, S., Dinesen, Z., Skewes, T., Courtney, T. and Pollock, B. (2019) 'Fishers and fisheries of Moreton Bay'. In Tibbetts, I. R., Rothlisberg, P. C., Neil, D. T., Homburg, T. A., Brewer, D. T., and Arthington, A. H. (eds.) *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp 521-536. doi: 10.6084/m9.figshare.8085695.

Townsend, K., Baduel, C., Hall, V., Loder, J., Matthews, V., Mueller, J., Nasplezes, R., Schuyler, Q., Taylor, H., van de Merwe, J., Villa, C.A. and Weijs, L. (2019) 'The impact of marine pollutants and marine debris in Moreton Bay'. In Tibbetts, I.R., Rothlisberg, P.C., Neil, D.T., Homburg, T.A., Brewer, D.T. & Arthington, A.H. (eds), *Moreton Bay Quandamooka & Catchment: Past, present, and future*. Brisbane, Australia: The Moreton Bay Foundation, pp. 227–244. doi: 10.6084/m9.figshare.8073851.

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This standalone document corresponds to **Section 5.1** of the full report. A full list of external citations, data sources, and methods used in this document is included in the complete report, available at

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