

Historical changes of the lower Brisbane River

Abstract

The waterways and catchments of the Moreton Bay Region, including the Brisbane River, have changed significantly since non-Indigenous settlers first arrived in the 1820s. The choice of a river bank location for the initial convict settlement reflected transport and security logistics of the time, and influenced subsequent economic and historical expansion. This focus on the river also changed and degraded the surrounding environment. Increased use of the Pine, Brisbane, Albert, Logan and Coomera rivers, and development of their catchments and floodplains, coupled with widespread clearing, resulted in the loss of many native species and natural resources. Colonial activities and industry, especially river dredging, together with the impact of droughts and floods, modified river depths and flows, and dramatically increased run-off and pollution. Changing uses of landscape, including for transport, development, fishing and recreation, are illustrated in archival records, newspapers and secondary books and articles about Moreton Bay, the adjacent hinterland and coastal rivers. This paper discusses such changes as revealed in documents and historical accounts.

Keywords: archives, Brisbane River history, colonisation, dredging, flooding, bridges

Introduction

Moreton Bay, the coastal waters between the mainland of eastern Australia, the massive sand islands ([Moreton and Stradbroke](#)) to the east, and the connected estuaries and inlets were for many decades the primary gateway for migration to Brisbane and the rest of south east Queensland. Human impacts on the coastal waters and adjacent rivers have been steadily and significantly increasing since non-Indigenous colonists began arriving. This paper will focus on the historical changes observed in the coastal river systems and adjacent landscapes, and the impact of these transformations on the region's socio-economic use of the environment.

This paper discusses the changes revealed in documents and historical accounts (created by the incomers) using the interchangeable terms 'non-Indigenous', 'white' or

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'European' in reference to the colonists of the nineteenth century. Some changes predating non-Indigenous colonisation (and broader transformations) are worth noting. For example, climate shifts and warming oceans affected the region's rivers and coastal waters. The long period of lower sea level reached its lowest point 21,000 years ago, pushing the coast eastwards of Moreton and Stradbroke Islands, and rejuvenated the lower reaches of the [Brisbane River](#) (1, 2). The increased velocity resulting from this invigoration meant the river transported more material and a deep channel, carved into the bedrock over successive intervals of low sea level, was re-occupied across the Moreton Bay coastal plain. When sea levels rose again, between about 21,000 and 7,000 years ago, landscape changes caused major upheaval for ecological communities and human activity (3, 4). Aboriginal groups who had occupied the rich coastal plains, now the floor of Moreton Bay, were forced to relocate inland, increasing pressure on resources and territories (5).

Historical changes in catchments and rivers

The Brisbane River catchment, the dominant river basin in the Moreton Bay Region, occupies two-thirds of the total area and carries 40% of the region's total run-off. The Logan-Albert river system is the next largest. Other coastal watercourses, the [Caboolture](#), [Coomera](#), [Nerang](#) and [Pine](#) rivers, are relatively short. Alterations in the Brisbane River, such as the expansion of mangrove areas following bed dredging, reflect the patterns of change in the broader area. These clearly show how the catchment and environs of Moreton Bay have experienced significant disruption since non-Indigenous settlers arrived in the 1820s. According to marine scientists, 'little of the Moreton Bay catchment, apart from isolated areas such as the Southern Bay Islands, remains unaltered' (4, 6 p127).

The major climatic changes mentioned above had important consequences for Moreton Bay and the Brisbane River. Moreton Bay is a drowned river valley, and the river still flows in a shallow bedrock gorge through Brisbane city. Underwater investigations have shown that thick layers of debris carried from above the [Bremer River junction](#) have been deposited below [Hamilton](#) (7). According to one observer, at the time of European arrival the river from Hamilton to the Bremer closely resembled a flight of stairs - deep rapids separating still narrow deep beds (8). The explorer, Oxley, observed around the mouth of [Breakfast Creek](#) that 'the River is not fresh, but there is plenty of fresh water ... no obstacles exist with the Interior by the River itself' (9, p36). According to environmental scientists, the river's mouth at the time of European settlement was

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'characterised by numerous "mangrove" islands and shallow channels with slow river flow' (6 p154).

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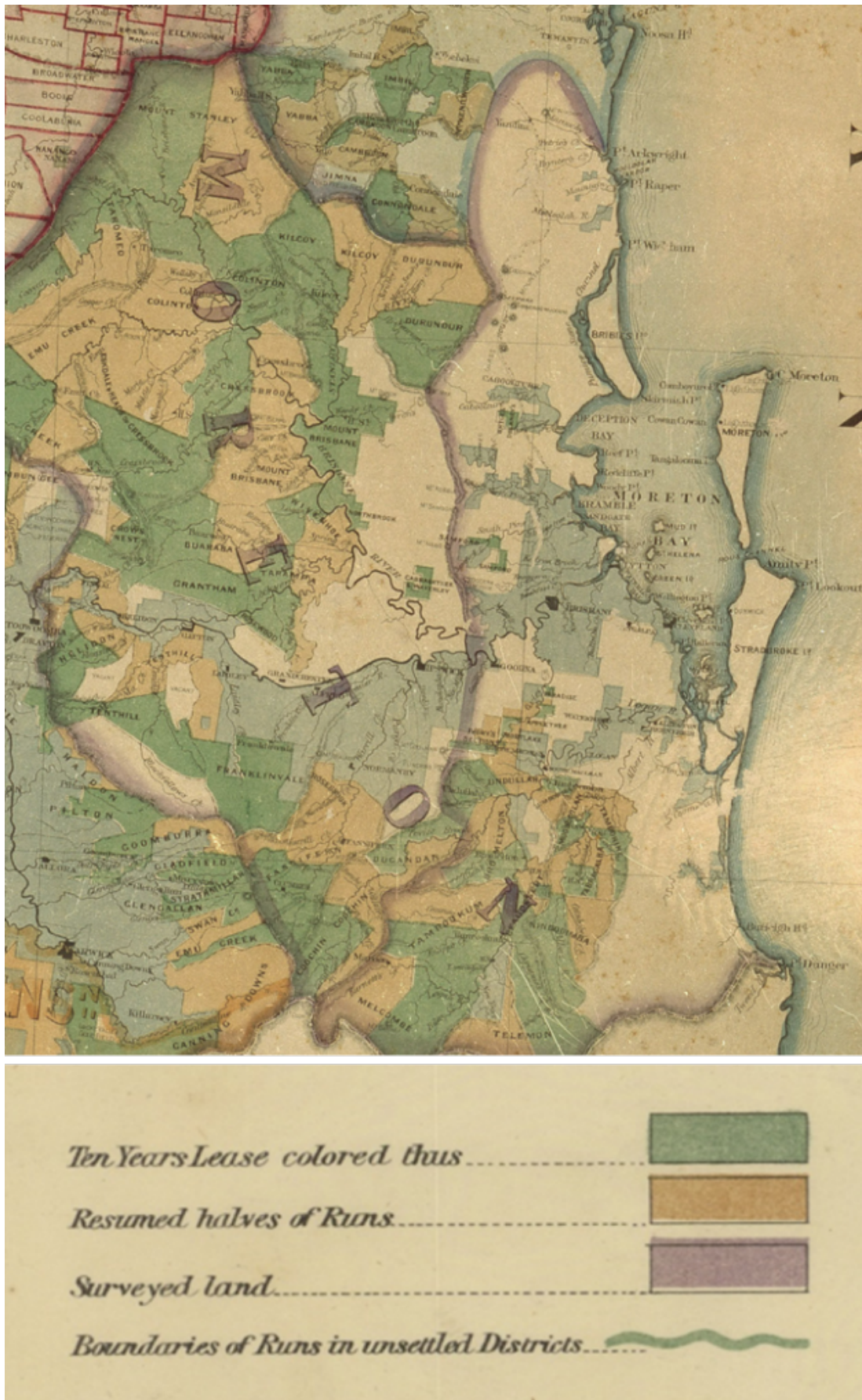


Figure 1. Map of surveyed runs 1872 (Reproduced from QSA item

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634880).

Geologist Augustus Gregory observed that the lack of springs meant the upper reaches of the Brisbane River, above the Bremer River junction, during drought were mainly 'long reaches of stagnant water, with a small flow over the intervening banks of sand and gravel' (10 p3). Explorer and surveyor John Oxley observed that the river, at this point, was 'shoal and wide' (11 p137). Historical changes in the Upper Brisbane River are effectively illustrated by maps, historic paintings and photographs (12). For example, the map (Fig. 1) shows surveyed runs in the Moreton Bay district in 1872 and reveals how much land non-Indigenous graziers had selected. A surveyed run is pastoral land that a white settler has leased from the colonial government.

Explorers' journals and diaries offer useful descriptions of the coastal waterways and catchments at the arrival of non-Indigenous settlers, and sometimes offer insights into Aboriginal relationships with country. In 1823, John Oxley recorded his explorations in Moreton Bay as he approached the mouth of the Brisbane River: 'The muddiness of the water and the abundance of fresh water mollusca convinced us we were entering a large river' (9 p36). He described the river thus. 'The slowness of the current and the depth of water induce me to conclude that the river will be found navigable for vessels of burden to a very considerable distance, probably at least fifty miles' (9 p36).

Early non-Indigenous explorers also noted freshwater levels and flood heights. Oxley's assistant, John Uniacke, wrote: 'The water became fresh after they had travelled eighteen miles up river, even at high tide' (11 p100). Oxley noted flood heights exceeding fifty feet (15 m) above the Bremer River junction (11 p136). Major Edmund Lockyer observed flood heights of one hundred feet (about 30m) at Mt Crosby (11 p189). Records show that major floods of the Brisbane River during 1825, 1841 and 1843, which were similar in height to 1893, inundated much of the riverine floodplain without causing widespread erosion or sedimentation (12).

Differing observations of the river's depth and character probably originated in varying local environmental conditions, from intermittent floods to extended droughts. In 1846 the steamer *Experiment* reached Ipswich one day after leaving Brisbane. The vessel ran aground near the crossing place at Woogooroo, but had an easy return voyage. Soon after, the steamer *Sovereign* travelled from Brisbane to Ipswich. The local newspaper described the river in 1846. 'The tide extends to the crossing-place at Canoe Creek [[Oxley Creek](#)]' [Seventeen Mile Rocks](#), about seven miles below Canoe Creek, 'form an insurmountable barrier to vessels drawing more than eight feet [about 2.5m] water'. 'There is but one channel, which is very narrow, and the tide rushes through it with great rapidity' (13 p3). Coal mining at Ipswich began at this time, and shipping traffic increased leading to early changes in the river and catchment (12).

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During the 1850s, much of Brisbane's present-day inner city was subject to inundation from a combination of high tides and river flows, as revealed by Charles Melton (under the pen-name 'Nut Quad'). 'The whole length of Albert Street was a swamp, known in the early days as Frog's Hollow. On the occasion of high spring tides water from the river flowed up the creek and invaded backyards in Elizabeth, Charlotte, Mary and Margaret Streets. In flood time, Albert Street from the Gardens to Elizabeth Street was submerged to a depth of several feet' (14 p12). At this stage, the river was still being regularly fished for eels, mullet, jewfish and codfish (15 p3). River (or bull) sharks were observed in the Bremer, and in the Brisbane River upstream of the Bremer junction (16 p8).

Dredging

The main navigational river hazards for white colonists were the bar at the mouth of the Brisbane River, Five Mile Rocks and Seventeen Mile Rocks, and extensive shoals at [Lytton](#) and [Eagle Farm](#). Until 1839, the bar at the mouth of the Brisbane River restricted the size of ships entering the river to a nine feet (3m) draught at high tide. In 1856, a survey of the Brisbane and Bremer rivers 'to determine obstructions to navigation' was ordered (17). Galloway reported that 'banks of very large gravel and silt' near [Redbank](#) 'had a very great effect in keeping back the tide' and there was 'a very great current at certain times over the narrowest and shallowest parts' (17).

Queensland became a separate British colony in 1859, and the arrival of the steam dredge *Lytton* in 1862 heralded major changes to the river and nearby coastal waters (18 p90-91). Within four years, the bar at the river's mouth had been 'cut' and shipping began using the newly completed Francis Channel (19-20). Dredging progressively extended upriver, including at Seventeen Mile Rocks in 1863.

Dredging continued at Seventeen Mile Rocks in 1866, and a breakwater was built at the junction of the Bremer and Brisbane rivers. A turning basin constructed in the same year allowed Ipswich to briefly become the major transport hub for many inland pastoralists. River shipping reached a peak in 1866. By 1872, Brisbane displaced Ipswich as the most important shipping destination, and the river channel was dredged from the mouth to the Town Reach. "Reach" is a nautical term (recorded by marine surveyors) for a portion of a river between bends.

The construction of the dredge *Groper* in 1876 hastened work on the shipping channel. In 1877, a turning basin for newly constructed Brisbane wharves at [Petrie Bight](#) allowed ships to dock in the heart of the new municipality for the first time. A 6 m deep channel to the city was completed in 1892; as one historian noted, only an aspect of the further alteration to the River's course which continued almost without interruption between

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1894 and 1914 (18). Coal was carried from Ipswich to South Brisbane by rail or by river-barge and loaded at the South Brisbane coal wharves (Fig. 2) from the 1870s to the 1970s. These were eventually replaced by a new deep water coal terminal at [Fisherman Island](#) in 1983.



Figure 2. Dredges at South Brisbane coal wharves in 1964 (From author's private collection)

About half of the material on the river bed was eventually removed, and significant changes to the river caused by dredging (for navigation, and to supply sand and gravel) became evident above the William Jolly Bridge after the 1930s. Coral dredged from the Bay was dumped in the river bed at Seventeen Mile Rocks for use at the Darra cement factory, causing an unknown impact on river flows (22). Dredging, which reached a peak in the 1940s, resulted in the extraction of 26 million cubic metres of aggregate by the mid-1980s; the end of dredging in the river's central city reaches subsequently caused increased siltation and reduced flows. River dredging in the lower and middle reaches stopped during the late 1990s, thus increasing potential flood levels in the river. By this stage, the tidal reach extended to College's Crossing, over 80 km upstream from the river's mouth. Compounding anthropogenic changes, droughts and floods had marked effects on river depths and flows (23).

Dredging for shipping and wharves also caused significant changes in parts of the Bay

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near the mouth of the Brisbane River. Dumping of large quantities of dredge spoil from the lower reaches of the river in the western Bay would have increased the availability of sediment, and dredging of the river facilitated the transport of suspended fine sediments from locations upstream (24).

Historical photographs from the 1930s show crowds of swimmers at places such as [Indooroopilly](#), where the water was so clear that the bottom was easily visible (2, 18). One interviewee recalled changes in the river since the 1930s. 'When I first started [work on the river] the clarity was good...but once they started dredging it got dirty....It was dark green. You could see a depth of five to six feet [1.5-1.8 m] up until World War 2" (21 p47). Increasing pollution levels, including sediment, particularly in the river and on the Bay's western side, clearly demonstrate the major changes that have occurred since non-Indigenous colonisation began and development started (4, 12).

Scientists have noted that vegetation clearing and the introduction of exotic livestock associated with non-Indigenous settlement resulted in an increase in channel and hillslope erosion (7, 12, 25). Further downstream in the Bay, the loss of coral and seagrass owing to the increasingly turbid waters reduced the number and range of marine organisms (2). Parts of Moreton Bay are now classified as being in 'poor health' due to seasonal toxic algal blooms (26). All reaches of the Brisbane River are also judged to be 'poor' because of high sediment loads, and high nutrient concentrations; the Bremer and Lockyer catchments are described as 'in very poor health' (26). One problem was water hyacinth (*Eichhornia crassipes*), an invasive South American waterborne weed, which was washed from the Bremer into the Brisbane River in 1937 (Fig. 3).

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Figure 3. Invasive water hyacinth clumps floating down the Brisbane River 1937 (Reproduced from QSA item 1243115)

Historical changes in the landscape

According to ecologists, about 80% of Queensland's land surface, including the catchments of the Moreton Bay rivers, supported forests, shrublands and heathlands until non-Indigenous settlement began (27). Valley bottoms and some areas of gentler topography were maintained as grasslands by Indigenous societies in much of the Moreton Bay hinterland (25). Before non-Indigenous settlers arrived, patches of rainforest known as 'scrubs' occurred on one or other bank of the river through most of what is now Brisbane and in a large area west from above the junction of the Bremer River. Similar scrubs have been found on the [North Pine River](#), and probably along [Pumicestone Passage](#) (28). There were also extensive scrubs further upstream on the Brisbane, on the [Logan](#) and its catchment, and in the Border Ranges. The area of scrubs within the region was widespread, and may have exceeded the better known "Big Scrub" of the Richmond River district in northern New South Wales (28).

European colonists attacked the powerful connection between Aboriginal people and country, disrupting their lives, access to food and participation in traditional laws. Indigenous tribes and nations were unused to coping with permanent invaders, and their greed for water and other resources. Government and settlers took part in forced relocations of Aboriginal people after violence, disease and starvation had massively

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reduced their population size. Development and increased use of the Pine, Brisbane, [Albert](#) and Logan rivers and their floodplains followed the arrival of non-Indigenous settlers. Changing uses of rivers and coastal waters, including transport, fishing and recreation, led to significant modifications that often spread to the adjacent landscape. Once again, the accounts of explorers and early surveyors offer us insights into the original vegetation and how it was altered.

In 1824, botanist and explorer Allan Cunningham described the land near Pumicestone Passage, declaring: 'a somewhat shaded forest of stately timber trees, whose vast growth and present luxuriance indicated a depth of rich subsoil' (29 p536). According to historian Judith Powell, 'the association between stands of large timber and the lure of rich agricultural soil was to have a powerful effect on the future settlement of south east Queensland. Large trees suggested fertile soils and pressure from pastoralists and farmers for access to this soil through land clearing is a constant theme during the nineteenth century and the first half of the twentieth century' (30 pp6-7).

Oxley's 1825 map of the Brisbane River included descriptions of the landscape's economic potential. As he navigated up the river, he saw 'rich flats and land' at [South Brisbane](#), [Chelmer](#), Fig Tree Pocket and [Moggill](#). 'Open country' was noted at [Bulimba](#), [Highgate Hill](#), [Kenmore](#) and [Wacol](#), while useful stands of timber were seen at Bulimba and Fig Tree Pocket (31).

Several years later, colonial botanist Charles Frazer described the landscape near 'a stream of fresh water' on the river's north side (present-day Eagle Farm); 'The high dry land next to the stream was well adapted to the growth of wheat. It is formed of undulating ridges of gentle height. The soil is a rich brown loam, covered with a luxuriant crop of Brome or kangaroo grass. The land on the banks of the river is extremely rich, and is covered with a species of panicum or panic grass, averaging from four and a half to five feet. The soil is evidently too rich for wheat but will produce enormous crops of maize. It is lightly timbered, averaging not more than twelve trees an acre. The timber is good blue gum' (32).

Frazer brought fruiting trees and bushes, grasses, roots, herbs and seeds from Sydney to Moreton Bay, and soon after, in the early 1840s, the first pastoral stations east of the Great Dividing Range were established. In 1844, surveyor Henry Wade mapped the 'Town of Brisbane and Environs' and noted economic possibilities: 'rich scrubby soil' at West End, 'good pasturage' and 'open forest' at [Lutwyche](#), [Enoggera Creek](#), [Bowen Hills](#) and [New Farm](#). Mangrove swamps were observed at Eagle Farm and Enoggera Creek; 'poor' country was found at [Clayfield](#), [Wilston](#), [Spring Hill](#), [Kelvin Grove](#), [Highgate Hill](#) and [East Brisbane](#) (33). Although the area of wetland has massively decreased since that time, mangroves have colonised further upstream as a result of hydrological

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changes, particularly dredging and the resultant saltwater intrusion (6, 12).

Articles in the local newspaper in 1858 directed attention to the clearing of riverine vegetation: 'There is a sweeping destruction of trees and bushes lately growing there' [along the river] (34 p2); and 'If no care is taken of the few [trees] left on the river banks, etc., soon nothing in the shape of a native tree will be discoverable in the environs of Brisbane' (35 p2). One decade earlier, George Fairholme had sketched '[Kangaroo Point](#), 1845' clearly showing timbered hills behind the comparatively more open riverside settlement (Fig. 4, (36)).

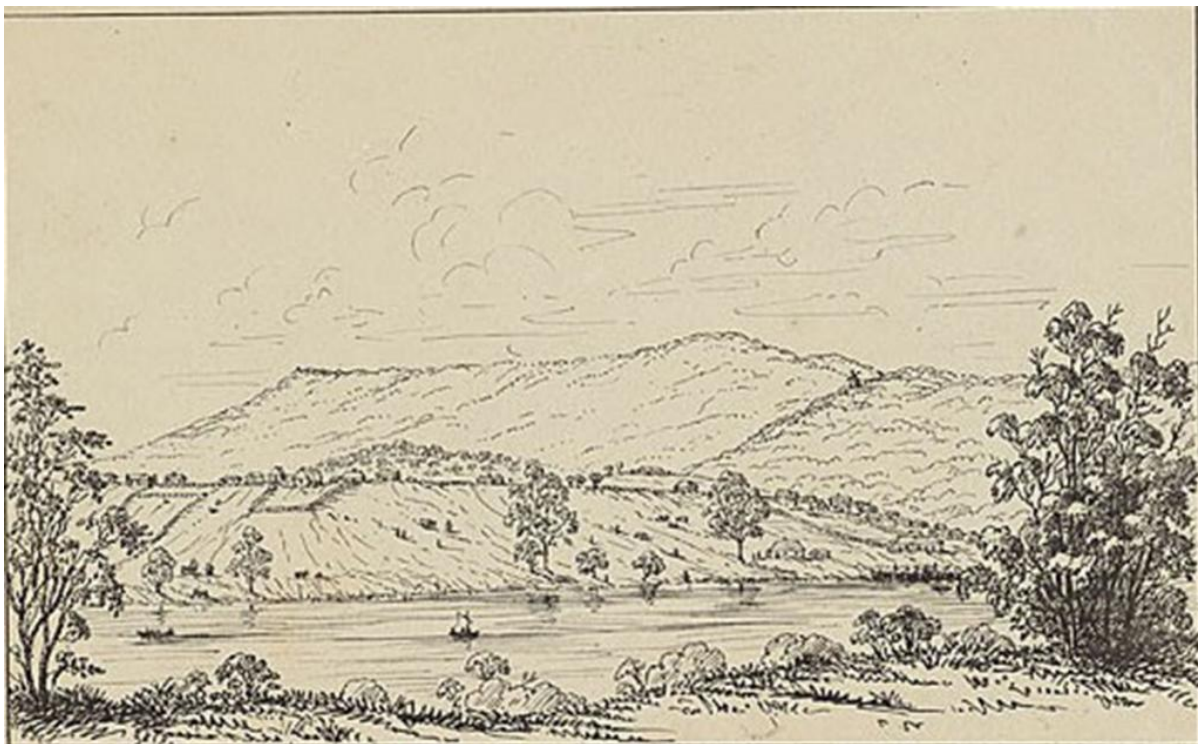


Figure 4. Fairholme G. drawing of Kangaroo Point 1845. NGA. Accession no 2009.44.1.

One local historian described the river as it would have appeared to the first Europeans who sighted it in 1823: banks 'fringed with foliage trees, and the upper reaches were lined with pine; the waters teemed with bird and fish' (37 p12). In 1893 a keen fishing and hunting enthusiast, in an article titled 'Shooting Spots', identified one remaining piece of original vegetation after the riparian forest was severely damaged by a series of large floods earlier that year: 'After reaching the Indooroopilly railway station, a fair-sized scrub lies about three miles along the river bank to the right of the bridge' (38 p494).

Local author and artist Jack Lindsay wrote of his childhood in Brisbane during the early decades of the twentieth century: 'I used to row up the river in our dinghy. The region was still sparsely inhabited. Across the river were a few small farms and up past the reach [Graceville] where my uncle had built his house the country was wild. I landed in

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the more entangled parts, on slopes of fir trees, where I climbed by clinging to bushes and tree roots, into a thick resinous silence, or among clumps of lantana – that verbena introduced as an ornamental shrub from tropical America’ (39 p68). Others recalled the river’s past, and a wide range of artistic, literary and photographic references to the Brisbane River formed the basis of an exhibition, ‘The River: A History of Brisbane’, hosted by the Museum of Brisbane.

Tallowood, ironbark and blue gum, which grew on the hills throughout Brisbane, were used for building construction. The timber-getting was followed by large-scale clearing on river flats, initially for farming and grazing, and later for industry or residential development (40). Until the 1940s, most suburban areas were restricted to a six-mile (10-km) radius of Brisbane’s centre, reflecting the dependence on public transport and the rarity of private motor vehicles (41).

The Second World War changed many aspects of Brisbane, as new cars, roads and estates encouraged residents to build outside the old established districts. One emphatic expression of the motorcar’s triumph, published during the 1960s, stated the Brisbane River ‘tended to deter vehicular travel’ but ‘there should be a complete freedom in selection of travel mode for all individuals involved’ and ‘public transport will be hard pressed to maintain a favourable position with private motor car travel in the future’ (42 pp171-72).

Extensive logging of hardwood in the [D’Aguilar Range](#) did not occur until immediately after the Second World War, and less fertile slopes were also not disturbed until the middle of the twentieth century (43). Intensive cropping and grazing, particularly in the Lockyer and Fassifern valleys, increased sediment loads from the 1950s (7, 25). Since the 1970s, some of the greatest rates of forest clearing in Australia have occurred in south east Queensland (27). Increased sediment loads, particularly during floods, resulted from habitat clearing and modification (44).

Analysis of sediment deposits in Moreton Bay provides information on the source of eroded material. Fine sediments from the [Lockyer Valley](#) dominate (7). Studies show that the erosion of gullies connected to the rivers and streams is the dominant eroding process, but the extensive land clearing that began this erosion also inevitably led to the loss of species and resources (25, 45). At least two-thirds of the original woody vegetation in south east Queensland has been cleared to date, and this process continues (mainly for urban development).

Bridges and flooding

Stark changes in the region’s economic uses began with the establishment of a penal

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colony in 1824 (46). The choice of a river bank location for convict settlement reflected logistics of maritime transport, penal containment and water supply. The first actions of colonial administrators were to provide law and order (judges and police), followed by funds for public works such as roads, bridges and wharves (47).

Navigation buoys were laid in the Moreton Bay channel during 1825, and the schooner *Talbot* was constructed at Brisbane in 1826. One year later, the first riverside landing stage was built (48). A second schooner, the *Letitia Bingham*, was constructed at Brisbane in 1829. The first steamship, the *James Watt*, arrived at Moreton Bay in 1837, and a second, the *Shamrock*, in 1842. Cross-river vehicular ferry services between Queen's Wharf and South Brisbane began in 1843.

A limekiln operated by convict labour was established at Ipswich in 1827, and riverboats connected the two settlements. Surveyors Robert Dixon, Granville Stapylton and James Warner started work in the Moreton Bay district from the late 1830s, and land sales (held in Sydney), initially for blocks in North and South Brisbane, began in 1842 (49). Land sales at Ipswich, which were at first more successful than land sales at Brisbane, began in 1843 (50). The 1846 census showed 483 Europeans residing at North Brisbane, with 346 at South Brisbane, and 103 living at Ipswich. At this time, land at North Brisbane sold for £100 per block and at South Brisbane for £1 per acre; Ipswich land was selling for £8 per block.

The establishment of the Acclimatisation Society Garden at [Bowen Hills](#) in 1862 led to a surge in the introduction of economic plant species (and weeds), and the resulting displacement of native plants (51). Society members 'played a key role in the importation and experimentation' of plants (52). Apart from introducing animal and bird species (such as sparrows and rabbits, now regarded as pests), the Society disseminated many commercial plants. The Society's work became 'consumed with economic botany', importing 'many plants that are now important agricultural crops in Queensland. These included sugar cane, bananas, cotton, apples, pineapples, pasture grasses, maize, olives, mangoes, and macadamia nuts' (52). Native forests also attracted the Society's attention; in 1873, one member decried the 'wholesale work of destruction practised under the protection of Government by the licensed timber getters' (53 p3).

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Figure 5. Debris being cleared from the temporary wooden section of the Victoria Bridge in 1896 (From author's private collection).

Constructing cross-river links was an important step in colonial development. These included the first Victoria Bridge (opened for traffic during 1865) and which collapsed owing to poor construction two years later in 1867. A second structure with the same name, opened in 1874, was partly destroyed in the 1893 flood. A temporary wooden bridge was used from 1893 to 1896 (Fig. 5), and a third Victoria Bridge opened in 1897. The first railway bridge at Indooroopilly, constructed in 1875, was also washed away in the 1893 flood. Most bridges over the river were overwhelmed by traffic as well as by floods. For example, in 1886, the Brisbane Town Council asked for the Victoria Bridge to be widened or an additional bridge to be erected 'adjacent thereto', saying: 'It is reasonable to suppose the increase of traffic between North and South Brisbane for the next five years will be equal to that of the last five years' (54).

Some developments did not last much longer than the timber bridges. In 1849, there was no wharf at North Brisbane so punts were used to unload ships anchored mid-river. Architect and builder Andrew Petrie constructed the town's first wharf ('Raff's' on the north bank): 'Over 100 tons of loose stone were thrown into the river, until the piles of stone reached high water mark. Stringers were then placed on the stone, and the wharf

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erected on the top. We came down one morning and there was no wharf left. It had disappeared in the fresh' (55 p7). The serpentine river's influence on suburban development, noticeably the lack of cross-river bridges and ferries except in the inner city, created 'pockets' of development interspersed with rural areas well into the twentieth century.

Urban water reticulation from the Enoggera Creek Dam commenced in 1866, and from the Gold Creek Dam in 1886. The Mt. Crosby Pumping Station was constructed on the river in 1893. A detailed 1907 report on Brisbane's water supply and Brisbane River catchment stated: 'the most obvious and important source of pollution is the cattle'(56 p4), and that 'in general, it is a hilly region, and the hills are generally wooded. The population upon it is comparatively small. There are no considerable towns, and no sewage enters it' (56 p8). Engineers recommended that water supply reservoirs be constructed on [Cabbage Tree Creek](#) and the [Stanley River](#), and in 1916 [Lake Manchester](#) was built on Cabbage Tree Creek followed by the [Somerset Dam](#) on the Stanley River in 1954 (57, 58).

Flood mitigation

Flood mitigation was (and remains) a major concern, especially following the disastrous 1893 floods (59, 60). In 1896, the Government Engineer's recommendation for cutting a deeper and wider channel at [Gardens Point](#), Kangaroo Point and New Farm was accepted (61). A 'Report on rivers and harbours of Queensland', submitted in 1898, noted: 'the effect on navigation of ordinary floods is to silt up the Hamilton Reach, Eagle Farm Flats and the Bar Cuttings first. Practically no deposits of material occur between Kangaroo Point and the lower end of Bulimba Reach'. The 1893 floods 'raised all the shoals' between the Victoria Bridge and the Bremer River, and the acquisition of a rock-removing dredge was recommended (62).

In 1899, one 'Flood prevention' proposal suggested cutting a canal from Milton to the mouth of Breakfast Creek (63 p6, 64). 'The report on scheme for the abatement of floods in the Brisbane River', prepared in 1899, stated that flooding could not be reduced except by a substantial reduction of the maximum quantity of water passing down the river at a given time, and this can only be done either by a diversion canal or a regulating reservoir (65). One engineer was 'absolutely sceptical as to the value of increased waterway obtained by deep dredging', saying that 'this space being occupied by sea water which has to be pushed back before it can be available for the discharge of river water'. Instead, he recommended constructing a storage reservoir seventeen miles (30 km) below the junction of the Brisbane and Stanley rivers (65 p1050).

Somerset Dam, on the Brisbane River's major tributary (the Stanley River), was

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completed in 1954, with more than half of the capacity reserved as flood mitigation (59). Yet, as experts warned, the dam's construction would not totally prevent future floods (66 p2). Ten years later, similar questions were asked: 'The heaviest rain so far recorded had always fallen on the 10 per cent of the catchment above the Somerset Dam' (67 p1). The 1974 flood confirmed this fear. The completion of the Wivenhoe Dam in 1984 prompted a further round of anxious questions and government reassurances, many of which were acutely answered during the 2011 flood that submerged much of inner Brisbane (68).

Habitat clearing, increased erosion and massively increased sedimentation in Moreton Bay, caused by land clearing, began after the arrival of non-Indigenous colonists during the nineteenth century and increased during the twentieth century (25). Dredging of the Brisbane River, which reached a peak during the 1940s, continued. By 1941, when complaints were made about dredging noise, officials reported that 'the remaining deposits of sand and gravel are limited practically to the area between Indooroopilly Bridge and Oxley Creek' (69). In 1965, the obstruction at Seventeen Miles Rocks was fully removed, 100 years after major river modification began. Within three decades, dredging ceased altogether. Long-term significant effects of dredging included accelerated riverbank erosion, increased salinity and the extension of the tidal estuary upstream (23).

Conclusion

The Brisbane River, Moreton Bay, and the sheltered coastal waters between the mainland and sand islands to the east were for many decades the primary access routes for trade and movement to and from south east Queensland. The effects of human activities on the Bay and adjacent rivers have been increasing since non-Indigenous settlers arrived. The Brisbane River catchment, which occupies two-thirds of the total area and carries 40% of the region's total run-off, is the dominant geographical feature. Therefore, significant changes in the Brisbane River illustrate broader anthropogenic environmental modifications in the region. These clearly show that the catchment and environs of Moreton Bay have experienced significant disruption since non-Indigenous colonisation began in the 1820s. History, in the form of records, photographs and written descriptions, can tell us much about changes in Moreton Bay and adjacent catchments.

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