

Appendix 3 – Timeline for Brisbane River

Timeline is a summary of literature reviewed and is not intended to be comprehensive. Rather, it represents the start to a continuing process, whereby others will be able to add historical events via an interactive webpage.

1823—1860	<i>White settlement – Town landing</i>
1860—1945	<i>Rapid early expansion - Town port</i>
1945—1984	<i>Post war development – Lytton port</i>
1984—2001	<i>Consolidation – Lytton bulk port</i>

Year	General	Navigation/Construction/ Dredging - wharf/dam/weir/wall	Land tenure & land use	Reclamation/ Restoration	Political/Legislation/Administratio n
1799	Matthew Flinders explored Moreton Bay, and landed at Woody Point, Redcliffe. ³				
1823	Arrival of John Oxley on HMS <i>Mermaid</i> . River charted as far upstream as Goodna. ¹ The Brisbane River was named after Sir Thomas Brisbane, governor of New South Wales. ⁶	The Brisbane River bed, except for the upper reaches and on the bar, consisted almost entirely of sand, mud and silt, to a depth of about 15’ below datum. Below this, stiff mud and hard clays existed for the most part. Gravel areas occurred in the upper reaches and there were rock areas around Lytton and at one or two other patches upstream. ¹			

1824	<p>Return of John Oxley on HMS <i>Amity</i> colonial brig with the first shipload of troops and convicts. Initial settlement at Redcliffe moved to Brisbane town. Previous charts were revised, updated and extended.¹ September- Oxley and Cunningham noted signs of drought above College's Crossing.⁷</p>	<p>Establishment of landing sites in the river at Brisbane town. The river banks were notoriously sticky black mud. The bar at the mouth was a nuisance to shipping, also, but it did put off illegal entry to the colony.¹</p>	<p>Government owned penal colony which included settlement accommodation area, small crop farms and quarries.¹ First penal colony was established at Redcliffe.⁶</p>		<p>The first white settlement in the region was a penal colony. Free trade and settlement was not allowed.¹</p>
1825	<p>Arrival of Edmund Lockyer on HMS <i>Mermaid</i> to further examine the river – 'Eden Glassie' (=Brisbane). The river was surveyed up to the mountains and source.¹ Lockyer explored the middle section</p>	<p><i>Mermaid</i> was the first sea going vessel to enter the river and, after dropping supplies, to leave with a cargo of pine logs, 7 Sept. Most shipping in the river was, however, small shallow draft vessels ferrying passengers and cargo from drop-off points at Dunwich and Amity.¹</p>	<p>Exports were timber cut from along the banks of the river and floated to a pick-up point outside the bar.¹ Redcliffe penal colony was moved to North Quay.⁶</p>		

	of the Brisbane River. ⁸				
1826		The first wooden wharf constructed was ~300 yds downstream of where the northern end of Victoria Bridge is located today. Bar at river mouth was an obstruction to normal-sized vessels. ¹	As the settlement became well-established wheat production flourished and shiploads were sent to Sydney in Government vessels. ¹		
1827	Discovery of limestone on the Bremer near Ipswich. ¹	Flat bottom barges, operated by the settlement at Brisbane town, carried limestone for building purposes from Ipswich. ¹ Bridge built across Wheat Creek from corner of Adelaide and Albert Streets. ³			First pilot appointed – John Tosh. ¹
1828		Alan Cunningham reported a stone wharf used for landing stone ferried across the river from Kangaroo Point for construction of buildings in the settlement. This wharf was located at the Edward Street ferry landing. ¹			
1829	Explorer Cunningham traversed the	A wharf was constructed to service the Eagle Farm agricultural area, but this wharf			

	country to the north- Linville. ⁸	was not used much since it had a sand bar in front. ¹ Commissariat Stores with retaining wall completed at Queens Wharf. ³			
1835		Another bridge constructed across Wheat Creek, near corner of Queen and Creek Streets. ³			
1836	Major flood. ³	Bridge constructed over Breakfast Creek. ³			
1838	Severe drought. ³				
1841	Squatters (sheep farmers) on the Darling Downs given permission to land and pick-up supplies at Brisbane. Flood height at the Port Office gauge = 31'5", Jan 14; swept away bridges. ^{1,3}				
1842	Proclamation declaring Moreton Bay was no longer a penal settlement and it was now		Moreton Bay open for settlement and free trade. Building		Harbour Master, appointed from Sydney. ¹

	open for free settlement. ¹ (A) The road from the north marked out. ⁹		allotments in the Town of Brisbane sold at auction in Sydney. ¹		
1843	Flood height at the Port Office gauge = 12'10", Jun 9. ¹				
1844	Flood height at the Port Office gauge = 26'10", Jan 10. ¹	HRSN Co. wharf and stores built at South Brisbane. ³			
1845		A rapid increase in shipping to Moreton Bay with smaller ships crossing the bar and anchoring in the South Brisbane Reach. Larger ships anchored off the river mouth and received cargo from small tenders and lighters. ¹	<i>Eliza Kincaid</i> took on the first cargo of wool from the Moreton hinterland for sale in Sydney. ¹		
1846	Brisbane declared a Port of Entry. ¹		Moreton Bay is inhabited by approximately 4000 Aborigines and 2257 migrants. ¹⁰		
1848	<i>Artemisia</i> was the first immigrant ship to Brisbane and Moreton Bay bringing over 200 people from	Tonnage of shipping entering the Port of Moreton Bay was 8,000 tons. ¹ Bridge for traffic opened over Breakfast Creek (collapsed the following year). ²	<i>Artemisia</i> departed within a month laden with a cargo of wool. ¹		

	overseas. ¹				
1849	Brisbane declared a Warehousing Port. ¹	Shipping companies built commercial wharves and warehouses along the south bank, opposite the township. ¹			
1850	Customs House erected in 1850. ¹	<p>First survey of the navigation of the River Brisbane with a view to removal of the natural obstacles, especially at the river bar and at Eagle Farm Flats. The survey identified the works and cost but little was done until after Separation.¹</p> <p>Tender accepted for new Breakfast Creek bridge.³</p>	<p>Agriculture and grazing activities spread beyond inner Brisbane, to areas such as Bulimba, Coorparoo, Enoggera, Nundah, Sherwood and Stafford.¹⁰</p> <p>The Brisbane River valley sheep grazing was starting to cause erosion problems. After flooding rains, considerable soil was eroded and later deposited on sand river banks.⁸</p>	<p>Areas outside inner suburbs largely used for agricultural and pastoral purposes until 1880's (e.g. Bulimba, Coorparoo, Enoggera, Nundah, Sherwood and Stafford).³</p>	
1851		Customs Wharf constructed at Petrie Bight. ³			

1852	Flood height at the Port Office gauge = 13'4", Apr 16. ¹	Eagle Street warehouse and wharf constructed. ³			
1853		Tonnage of shipping entering the Port of Moreton Bay was 16,800 tons. ¹ Bridge built across Cabbage Tree Creek and improvement to the Brisbane road undertaken. ⁹			Steam Navigation Board of Moreton Bay (SNBMB). ¹
1857	Flood height at the Port Office gauge = 14'6", May 19. ¹	Three bridges built at Milton. ³			
1858		Some obstructions removed from Brisbane and Bremer Rivers. First permanent bridge constructed over Breakfast Creek. ³			
1859	Separation of Queensland from NSW. ¹ Queensland became its own state, with its own local government. ⁶	Tonnage of shipping entering the Port of Moreton Bay was 40,000 tons. Feasibility of dredging the mouth bar and upstream to Lytton, and removing rock bars above Lytton up to Eagle Farm Flats. Most ships had to anchor outside Brisbane River Bar and transfer cargo to and from smaller vessels – dredging of channel through Bar was of	The municipality of Brisbane consisted of ridges and swamps, the rainfall runoff finding its way naturally to the swamps without need of man-made drains, and then via a series	Large influx of immigrants. ³	Water supply and drainage were considered most urgent jobs for the government. ¹

		importance to trade economy. ¹ ASN new wharf below Mary Street. ³	of swamps and lagoons to the river. Spring high tides or flooding in the river flowed back into, and banked up, the natural runoff to these swamps, causing much of the surrounding land to be impassable in wet weather. ¹		
1860	Tenders for steam dredge called. ¹	Money available for clearing obstructions in Brisbane and Bremer Rivers. ¹	The first drainage system was constructed from Elizabeth Street down Albert Street to the creek at Margaret Street, which, although above ground level, had a very flat grade. ¹		
1861	The first census taken in Queensland in April. Population of				

	30,059. ¹				
1862	Severe drought. ³	The steam dredge <i>Lytton</i> arrived in Brisbane under the direction of Thomas Francis. It was used to cut a channel through the bar at the mouth of the river – channel would be 300' wide and 9' deep at LW. Work was needed on inner and outer ends. Material dredged in the inner cut was sand, shell and vegetable matter while it was sand and mud in the outer. ¹			SNBMB becomes the Marine Board. ¹
1863	Flood height at the Port Office gauge = 14'8", Feb 16. ¹	Improvements of channel at Seventeen Mile Rocks, but this resulted in blocking one of the channels, creating shoal across River below rocks. ¹	An 18' brick drain was built from Edward Street to Eagle Street. ¹		Oyster Fisheries Act 1863, reacting to the depletion of oysters on the banks in Moreton Bay, forbade the burning of live oysters for making lime, and issued permits for oyster beds. ¹
1864	Construction of the Enoggera Dam. Flood height at the Port Office gauge = 16'2", Mar 20. ¹ Construction of railway from Ipswich began. ³	Work on inner end of Bar channel completed and work started on outer end. Brady given contract to deepen shallow parts of Brisbane and Bremer Rivers. ¹ Qld Steam Navigation Co. wharf constructed. ³			
1865	The first railway opened from	Investigation revealed bar of coarse shingle at mouth of			

	<p>Ipswich to Grandchester. Rail and roads were used to ferry produce and supplies between the hinterland and port.¹</p>	<p>Bremer River, and rocky obstructions at Five Mile Rocks, Mile and a Half Rocks and Seventeen Mile Rocks in the Brisbane River. Rock obstructions were removed in the Brisbane and Bremer Rivers. A breakwater constructed at the junction of these rivers was designed to divert tidal waters into the Bremer leaving the upper Brisbane River fresh. Cutting commenced at Seventeen Mile Rocks. Channel cut through rock in Bremer from Basin to wharves at Ipswich. Obstructions at Two Mile Rocks, Five Mile Rocks and others removed. Construction of new timber jetty at Cleveland commenced. A wood pile bridge, Victoria Bridge, was built across the river from the town to the south bank.¹ First bridge constructed over Cabbage Tree Creek to Sandgate. Temporary wooden bridge constructed between North and South Brisbane (collapsed 1867).³</p>			
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1866	<p>A severe economic depression lasting until 1873. No money for construction or dredging besides essential. Dept. of Harbours and Rivers discontinued.¹ Storm and flooding 27 Oct. Floods 10 December.⁴</p>	<p>The steam dredge <i>Fitzroy</i> arrived in Brisbane to dig and maintain channels in Brisbane and Bremer Rivers. Dredging and construction works were discontinued due to the collapse of financial institutions in Great Britain. Work stopped at Seventeen Mile Rocks due to lack of funds. Much rock and shingle had been removed but obstacles dangerous to navigation still existed. A wharf at Lytton was constructed to tranship railway stores and plant. Queen's wharf in Brisbane was renewed.¹ Construction of Brisbane Bridge started.³</p>	<p>Large areas owned by the St Vincent's Orphanage (over 3000 acres), including the Boondall Wetlands, Dinah Beach and Nudgee Beach (cleared due to increasing timber needs).⁹</p>		
1867	<p>Flooding destroyed the original Victoria Bridge. This was replaced. Flood height at the Port Office gauge = 11'10", Apr 2. Tonnage arriving/ leaving port decreased by almost a third.¹</p>	<p>Dredging and cutting of the Francis channel and two smaller channels in the river (Fisherman Channel: cutting through sandbank to remove 40,000 cubic yards of sand; and Pelican Channel: shoal) by the dredge <i>Lytton</i> were completed allowing vessels of 16-17' draft to reach Lytton and Eagle Farm. Lanterns were used for lighting</p>			

		up the channel beacons through Eagle Farm Flats. Breakwater completed at junction of Bremer and Brisbane Rivers. By this time, 56 buoys and 120 beacons marked the 170 miles of channel in the port. ¹			
1868	Lytton designated as Brisbane's port. ¹	It was possible to wade at LW across the river in Quarries Reach along a sand bar from near Colmslie to Hamilton. The greatest depth on this bar was around 3'6" at LW. The flood in 1873 changed this to 6'. ¹			
1870	Oyster industry flourishing. Included harvesting of shallow and deepwater beds. Flood height at the Port Office gauge = 13'3", Mar 10. ¹	The whole of the cuttings in the Brisbane River were cleared out to width of 200' and a depth of 10'6" at LW, except in Francis Channel, where inner cutting was cleared to 250' wide and outer cutting to 175'. Part of dredging plant sold, part turned over to Dept. Ports and Harbours. ¹			
1873	End of the economic depression. Flooding of the river noted through	Dredging continued also in the Upper Brisbane River, particularly Cockatoo Shoals. Minimum depths for river sections (in brackets): The Bar	The pastoral industry was still the mainstay and the first wool sales were held in		

	the city area including Edward Street and the Botanic Gardens. Flood height at the Port Office gauge = 12'7", Jun 18. ¹	(4'). Inner Bar (9'), Luggage Point (18'), Pelican Bank (9'), Lytton Rocks (15'), Above Lytton (17'), Eagle Farm Flats (7'), Quarries Reach (13'), Hamilton Reach (6'), Town Reach (15') and South Brisbane Reach (14'). Flood removed Quarries Reach sand bar to 6'' and washed away Egg Islet (small islet mid channel off Parker Island). ¹	Brisbane. Sugar cane was first grown on the banks of the Brisbane River but disastrous frosts in three successive years caused a decline in this area. ¹		
1874	Financial situation improved. Engineer Francis Rose appointed to take care of dredging, wharf construction and harbour works. Re-establishment of Dept. of Harbours and Rivers. Increase in overseas and coastal vessels visiting Brisbane. ¹	Dredging of Brisbane River recommenced with upturn of economy. Cutting of a channel through Cockatoo Shoal (gravel), above Brisbane, was completed by the dredge <i>Cockatoo</i> in 1875. ¹ Iron Victoria Bridge opened between North and South Brisbane, but collapsed 1893. ³			The Oyster Act of 1874 extended granting of licences to dredge sections where oysters grew below 2' at LW. All vessels engaged in collection were to be identified with the word "OYSTER". Those on the banks were identified with "O.B." Report on the oyster Fisheries of Queensland. ¹
1875	Construction of the government wharves at Petrie's	The old bucket dredge <i>Lytton</i> was overhauled and recommissioned for work in the	Initial concerns primarily with the creek downstream		The Brisbane Drainage Act of 1875 sought to address the urgent need for controlling water supply and

	<p>Bight commenced in September, completed in 1877. Flood height at the Port Office gauge = 12'4", Mar 1.¹</p>	<p>Francis Channel (10'6" at LW) and Petrie's Bight (16-17' at LW). Further work was done in the Francis Channel, as well as the Hamilton Reach in 1876. Contract for South Brisbane Dock.¹</p> <p>Construction of Indooroopilly railway bridge (collapsed 1893). Construction of new government wharves at Petrie Bight began.³</p>	<p>of the Albert Street/ Adelaide Street intersection which was then the only open area developed, and in the knowledge that the Makerston Street culvert would be built as part of the Roma Street Railway project.¹</p>		<p>drainage.¹</p>
1876		<p><i>Lytton</i> works on dredging Francis Channel and improving No. 2 Cutting, Hamilton Reach. Work commenced on the South Brisbane Dock, the graving dock, and completed in 1881. Much of excavated material deposited on streets of South Brisbane (which needed raising, widening, etc.). A wharf and approaches were constructed near the mouth of Doughboy Creek.¹</p> <p>Albert railway bridge linking Brisbane and Ipswich opened at Indooroopilly.³</p>	<p>Small crop farming and dairying popular on city periphery.³</p>		<p>The Navigation Act of 1876.¹</p>

1877		<p>The new bucket dredge <i>Groper</i> was used extensively on permanent navigation channels in the river commencing at Pinkenba Flats. All channels were dredged to 10' below LW to Brisbane. Once this was completed work started on deepening the river channels to 15' below LW, and widening to 250'. By now, Lytton had removed a total of 59,672 cubic yards from Brisbane River. Spoil from dredging was mainly deposited in the bay, 12 miles offshore, and the rest in the blind channel behind Parker Island.¹</p> <p>Kennedy Wharf at Petrie Bight constructed.³</p>	<p>Storm culverts built along Adelaide and Creek Streets included a 9' by 9' masonry tunnel. Various other site drainage systems installed in the town area.¹</p>		<p>The Queensland Fisheries Act of 1877 sought to control commercial fishing and preserve some breeding and feeding grounds.¹</p>
1878		<p>Six tide gauges were installed between Brisbane and Lytton, and the marked high water datum supposedly represented a horizontal line between the beacons.¹</p> <p>Construction of South Brisbane Graving Dock commenced.³</p>			
1879	Flood height at the	Previously, there was a lack of			

	Port Office gauge = 11'10", Oct 16. ¹	suitable wharfage – vessels arriving in Town Reach had to anchor in the stream. Five moorings were installed in Town Reach for vessels waiting to unload or load. Survey of foreshores of Wynnum-Manly, and plans for proposed seawall. ¹			
1880		Countess St railway bridge completed. ³			
1881	The 'Queensland Navy' was equipped to fight off a possible threat from the Russians. ¹	Work completed deepening the river channels from Brisbane to Lytton to 15' below LW. Cuttings were made in the line of the river and siltation was a problem only in three places – Hamilton, Eagle Farm and the Francis Channel. South Brisbane Graving Dock completed and opened. ¹			
1882		A new straight channel across the Brisbane bar was completed by <i>Groper</i> and the new dredge <i>Octopus</i> (previously, the tortuous Francis Channel had given difficulty). Two lighthouses were erected in the middle of the mangroves on Fisherman Islands. A gangway			The Port Dues Revision Act of 1882. ¹

		was constructed between the two islands to allow access to the back light positioned in soft mud. ¹			
1883	Severe drought. Heavy gale January. ¹	Construction of the Pile Light marking the outer edge of the Brisbane Bar (16' at LW) and eastside of the entrance to the straight channel. This replaced the lightship. The structure originally included the lightkeepers house and telegraph station, and was only demolished in 1970. <i>Duke of Westminster</i> , 3,726 tons and 400', was the largest vessel to reach the town. The curve around Kangaroo Point was less than some vessels could turn unassisted, so controls and procedures were adopted for general navigation. ¹	Drought brought about a sustained decline in pastoral expansion until around 1886. ¹		
1884	Swamps drained around Kangaroo Point, Petrie Terrace and New Farm. ³	The new hopper dredge <i>Platypus</i> worked in the river and deposited spoil at Mud Island, a shallow mud island at the mouth of the river. The <i>Groper</i> , deepened the Bar Cutting channel to 15' below LW and a			

		<p>width of 200'. The Inner Bar Cutting was dredged to the same depth but a width of 150'. The cutting through the Flats at Eagle Farm and Pinkenba was dredged to the same depth and a width of 200'. The <i>Octopus</i> deepened the Rocky Channel below Lytton to the same depth and width of 100'. After this it was decided to widen the channel cuttings to 300'. By now, nearby places for deposit of dredged spoil from the <i>Groper</i> were becoming limited – spoil to be dumped on the SE side of Mud Island.¹</p> <p>Coal wharf opened at South Brisbane bight (demolished 1974). Wharf built at Kangaroo Point by Gibbs Bright and Co. Moar slip built at Kangaroo Point. Alterations to ASN Co. wharves at Eagle Street. Construction of new South Brisbane municipal wharves began.³</p>			
1885		<p>The <i>Octopus</i> was used to clear a swing basin in the South Brisbane Reach to a depth of 16'</p>	<p>A scheme for diverting flood waters of Victoria</p>		

		below LW. The Groper continued widening channels. ¹	Park and Spring Hollow into Breakfast Creek included a culvert of 660' and 8' in diameter running through Bowen Hills. This was expected to greatly improve drainage from Fortitude Valley. Other drainage works were undertaken near Milton, South Brisbane, New Farm, Kangaroo Point and Fortitude Valley. ¹		
1886	Drought ended. ¹	Boats plying between Brisbane and Ipswich included 18 steamers, 18 sailing vessels, 23 barges and ~70 market boats. Due to river works, boats drawing 21' water could go up with tide without problems. ¹ South Brisbane Council's Musgrave Wharf completed. Stanley Bridge constructed	As the drought ended, pastoral expansion increased again along with mining. ¹ Stormwater drainage at Spring Hill, Fortitude Valley,		The Oyster Act of 1886 repealed and updated the 1874 Act. ¹

		across Norman Creek. ³	New Farm and Petrie Terrace completed. ³		
1887	<p>Flooding of the river in February deposited soft material in the lower reaches of the river, as well as snags, and created shoals in the upper reaches. Flood height at the Port Office gauge = 16'2", Jan 23. Gale January.¹</p> <p>Closure to net fishing of the Brisbane river upstream from Bulimba Ck for 3 years.²</p>	<p>The full channel depth of 15' below LW and width of 300' was obtained in all river sections from Brisbane to the mouth. Considered deepening channel to 20' below LW, and Harbour of Brisbane needed further deepening. The SS <i>Jumna</i> with a draft of 21'4" came up to Brisbane and left largely unassisted. However, there were problems because of the limited berthing facilities for these larger vessels up river. Work commenced on cutting a central channel of 20' depth at LW. Additional moorings were installed abreast of the Botanic Gardens for vessels waiting to unload or load. Dredge <i>Hydra</i> recommissioned, deepening of Bulimba Reach Channel to 20' started.¹</p> <p>South Brisbane Graving Dock extended. North Quay embankment collapsed, mass concrete retaining wall</p>			<p>First Inspector of Fisheries appointed. The Queensland Fisheries Act of 1887 sought to better manage fisheries and preserve fish breeding and feeding grounds.^{1,2}</p>

		constructed along Coronation Drive. ³			
1888		New bridge at Breakfast Creek started. ³	Stormwater drainage of South Brisbane constructed. ³		
1889	Flood height at the Port Office gauge = 16'1", Jul 20. ¹	Two clam shell dredges cleared various wharves and removed silt/ blasted rock from Dock entrance. ¹ New Breakfast Creek Bridge completed. ³			
1890	Flooding of the river in March. Flood height at the Port Office gauge = 21'3", Mar 13. Heavy gales damage navigation aids. ¹	A measured mile (6,080'), used to check speed of vessels, was set out in Bulimba Reach. Navigation lights burnt oil and this required a light keeper. Clam-shell dredges cleared Websters Wharf, South Brisbane, and also ferry approach of Creek Street, and Harbours and Rivers and Port Office wharves. <i>Hydra</i> and <i>Groper</i> dredged berths of South Brisbane Reach, and then started deepening cuttings to 20'. ¹			
1891	Fish caught in Moreton Bay were brought up the river	First tables of predicted tide levels for the Brisbane River. ¹	First wool sales held in Brisbane. ¹		

	to Breakfast Creek where fish were distributed. Gales and heavy seas damaged buoys, etc. ¹				
1892	A cyclonic gale struck Brisbane with unusual violence on April 2 nd with wind gusts ~70-75 mph. ¹	Brisbane River had a dredged channel 300' wide and 15' deep at LW with the central channel of 100' width having a depth of 18' at LW. All back channels had been filled with dredge spoil so shore sites were investigated. Dredging plant were laid up and port work greatly reduced as economic conditions worsened. ¹ Norman Wharf built for ASN Co. at Eagle Street. ³			The Harbour Boards Act 1892 sought to control and administer the ports in Queensland. The Act made provision for the construction, regulation, management and improvement of harbours by local authorities constituted for that purpose. The Harbour Dues Act of 1892 made temporary provision for the management and improvement of harbours while providing funds for the new Board when constituted. ¹
1893	Crisis and disaster. Eight of the eleven banks in the colony closed and there was general economic collapse. Depression. Flooding of the river in February was the worst ever rising to at least	Severe flooding almost obliterated the dredged channels and closed the port to all but small craft. Minimum depths for cuttings (in brackets): Outer Bar (8'6"). Inner Bar (15'), Pelican Reach (12'), Lytton Rocks (13'6"), Above Lytton (15'), Eagle Farm Flats (6'), Quarries Reach (12'), and Hamilton Reach (8'). After			Harbour Dues Act of 1893. At this time, control of tidal waters remained with the Crown. Reclamation required an Act of Parliament. This was later amended to Governor in Council approval and the issue of an Order in Council. A Board was granted tenure over port lands for the purpose of wharfage or port purposes, and the power to levy harbour dues on all goods discharged

	<p>30'4" above LW twice in 2 weeks. River flooding left the gunship <i>Paluma</i> high and dry in the Botanic Gardens. Flood rose to 36' above LW at Victoria Bridge. Flood height at the Port Office gauge = 31'2", Feb 5. Flood height at the Port Office gauge = 10'10", Feb 12. Flood height at the Port Office gauge = 30'4", Feb 19. Flood height at the Port Office gauge = 15'8", Jun 12.¹</p>	<p>considerable effort all channel cuttings were re-established by dredges <i>Hydra</i>, <i>Groper</i> and <i>Platypus</i>. Port works later ceased again due to the poor economic conditions. The small dredge <i>Bremer</i> was used in the Upper Brisbane River including Pullen Pullen Creek, Gogg's Reach, Cockatoo Island, Moggill Race, Bremer River Basin and at the junction of the Bremer and Brisbane Rivers.¹ Indooroopilly railway bridge and N end of Victoria Bridge destroyed in floods.³</p>			<p>or shipped within the harbour together with the right to lease land and facilities.¹</p>
1894	<p>Strong gales and heavy rain occurred in January to March. The river remained closed to net fishing from the Magazine and Doughboy Creek upstream,</p>	<p>The small dredge <i>Bremer</i> was used to clear a minimum depth of 6-7' at HW between Victoria Bridge and the mouth of the Bremer. The river on the whole carried much less water than before. Most dredge plant were laid up again due to poor economic circumstances.¹</p>			<p>The amalgamation of the Marine Department. An amended regulation limited the speed of vessels within the river sought to protect the cutting.¹</p>

	reportedly providing a nursery for young fry. At least 12 boats fished the river and Boat Passage taking mullet, whiting, bream, tailor and jewfish. ¹				
1895	The Great Drought (until 1903). ³	Construction commenced on the new steel arch Victoria Bridge, and continued until 1896. Number of vessels using South Brisbane Dry Dock decreased: needed lengthening and entrance widened for larger vessels. All cuttings up to Hamilton restored (after flood) to depth of 16', width 300' (except Lytton Rocks Cutting, 200' wide). Town and South Brisbane Reaches also dredged. ¹ New Albert railway bridge opened, linking Indooroopilly and Chelmer. ³	Recovery of commercial and industrial building activity after Depression. ³		
1896	Mud worm disease found in oysters of Moreton Bay. The oyster industry was	The first gas buoys and transporters were used. The gas was produced locally from the refuse from shale oil plants.			

	<p>in bad shape and getting worse. Flood height at the Port Office gauge = 10'4", Feb 14. Flood height at the Port Office gauge = 6'7", Feb 22. Flood height at the Port Office gauge = 9'10", Feb 29.¹ Tidal separation of North and South Stradbroke Islands (to 1898).³</p>	<p>These lasted until the 1960s. Dredges <i>Hydra</i> and <i>Groper</i> maintained and deepened the river channels from the bar to Hamilton Reach. <i>Bonito</i> worked in the reaches above Hamilton up to South Brisbane Reach. <i>Bremer</i> was refitted with drilling equipment and used to break up rock in the Lytton Rocks cutting. Rock was removed by the dredge <i>Groper</i>. This rock was used to construct the training wall about 6 mi above Lytton. By 1899, this cutting was completed.¹ New Indooroopilly railway bridge opened. First half of Victoria Bridge opened.³</p>			
1897		<p>To assist compass adjusters, beacons were erected at Mud Island indicating the cardinal and quadrantal points of the compass. The suction dredge <i>Bonito</i> commenced dredging in the South Brisbane Reach and then went to Bulimba Reach dumping sand at Eagle Farm Flats which was then pumped ashore by the pump dredge</p>		<p>Future spoil from dredging to be deposited behind training walls to reduce carrying distance and allow for land reclamation.¹</p>	<p>The Navigation Act of 1897.¹</p>

		<p>stationed there. Work commenced on scheme to improve river, including training and regulation of lower reaches, dredging and cutting off certain points.¹</p> <p>Bridge over Brisbane River at Mt Crosby finished (destroyed 1898). Lytton Rocks blasted. By this time, South Brisbane wharves stretched from Kangaroo Point to Victoria Bridge. New Victoria Bridge opened (replaced 1969).³</p>			
1898	<p>Flooding of the river during the early part of the year. Flood height at the Port Office gauge = 20'3", Jan 13. Flood height at the Port Office gauge = 14'6", Mar 9.¹ Drought until 1903 (A).</p>	<p>In conjunction with dredging, and to direct and regulate water flow in the lower portion of the river, training walls were constructed and certain points were cut off. Construction of training walls commenced in March with the first wall at Hamilton. Walls had a top width of 4' with a 1.25-1 slope and comprised of one-man sized stone pieces. A trench 6-8' deep was dredged through the sand bank to receive the stone. Stone came from the Kangaroo Point quarry and with footing support</p>		<p>The suction dredge <i>Cleveland</i> pumped silt behind Hamilton training walls.¹</p>	

		using Lytton Rock cutting spoil. The growth of the River Bar seaward had been rapid. This was shown at the Pile Light which was built on the 18' contour in 1884, and in 1898 it stood on the 11' contour. ¹			
1899		A floating navigation light was placed at the turning point between the Inner Bar and Pelican Bank cutting. The Lytton Rocks cutting was completed with a width of 300' and depth of 20' at LW. River channels deepened to 20' below LW and 200' wide, so large vessels could reach wharves at Town and other Reaches easily. ¹		Low lying areas behind many of the training walls afforded admirable receptacles for large quantities of dredge spoil. ¹	
1900	A Marine Biologist, James Tosh, was appointed by the Marine Board to advise on all matters in connection with pearl shell and edible oysters, and on the fisheries of the colony.	As there was insufficient water at most wharves in Pinkenba Reach, large vessels used to moor nearby where the depth was dredged to 24' below LW. Kangaroo Point was cut back to allow safer navigation around this point. The Hamilton training wall was completed at 8,600' in length. The Doughboy wall was commenced. New	Coal was becoming an important item for export. ¹	Some spoil from Kangaroo Point was dumped at Coxen Point Wall while the bulk was dumped in the bay. ¹	Pressure from ship owners and masters of overseas vessels called for: 1) provision at wharves for vessels to lie afloat at all stages of the tide; 2) increased wharf and shed accommodation and modern loading appliances; and, 3) provision of better facilities for loading of coal. ¹

	<p>Increase in the market for Moreton Bay oysters. Water hyacinth became a troublesome pest in the Brisbane and Bremer Rivers. The weed interfered with navigation and stopped traffic in the Bremer. The only control was to physically remove the vegetation and dry it on the river bank.¹</p> <p>Attempts to revive the dugong industry at Amity Point in the period 1901-1910 were hampered as numbers were so low.²</p>	<p>wharf completed to replace old Port Office wharves. Every effort was made, by the construction of training walls and dredging, to bring ships up river to established wharves in Town and South Brisbane Reaches. However, as ships increased in size the difficulties increased in getting them upstream for depth and manoeuvrability. Wharf space and shore access was also increasingly congested. For these reasons, gradually new facilities were built downstream in Bulimba and Hamilton Reaches.¹</p> <p>River widening since 1900 to improve navigation & flood mitigation has removed about 22ha of river bank.²</p> <p>Temporary sandbag weir built across river due to drought.³</p>			
1901	<p>On January 1 the Commonwealth of Australia was proclaimed.¹</p>	<p>At Lytton Rocks cutting, drilling and blasting was done to increase the depth to 26'. Gardens Point was cut back to allow safer navigation around the point, increasing width to</p>			<p>Proclamation for the implementation of fishing exclusion zones at certain months in Moreton Bay to protect spawning fish.¹</p>

		250'. Work then ceased here until 1913. Training walls were constructed through and along Parker Island. Preliminary work for removing part of SE side of Parker Island for better navigation started. Work included: cutting mangroves (used for mattresses for river improvements) and opportunistic dredging. The SE side of the island had to be dredged away over the next eight years. The Coxen wall extending to Parker Island was commenced in February. Two small dredge plant jetties were erected in front of Marine Dept. at Hamilton. Timber wharf constructed at Pinkenba Wharf. Part of bottom of South Brisbane Dry Dock concreted over (previously, natural rock surface). ¹			
1902	Brisbane was declared a city. ⁶	The Parker wall was commenced in January and completed by September with length of 2,890'. The Doughboy wall was completed in June with a length of 7,040'.			Regulations stipulated minimum length for controlling fish size of marketed product. ¹

		<p>The Coxen wall was completed in June with a length of 3,200'. Mangrove 'mattresses' were used to reduce subsidence. The Lytton wall was commenced in September.¹</p> <p>First concrete weir for town water supply constructed at Mt. Crosby and introduction of river gauges.^{2,3}</p> <p>Temporary sandbag weir rebuilt across river due to drought.³</p>			
1903	Great Drought ended. ³	<p>The channel depth up to Pinkenba was increased to 24' at LW. The new cutter-suction dredge, <i>Hercules</i>, pumped stiff solidified mud together with clay in many parts of the river and in the new bar cutting. At Hamilton the dredge encountered clay which proved too hard for the machine and she was re-assigned to work at Eagle Farm cutting, then Queensport, and then Quarries Reach. The dredge had trouble there also with coarse sand overlying mud and hard dry clay. The Bulwer wall commenced in July but then discontinued (resumed</p>		<p><i>Hercules</i> was frequently used to pump ashore spoil dumped previously in the dump hole at Coxen Point.¹</p> <p>Following construction of the Bulwer wall, sand was progressively pumped to fill the space between Bulwer Island and Pinkenba, eventually joining the island to the mainland. Also, filling was commenced to expand the island out towards the training wall (until 1946).⁵</p>	

		1905). Lytton wall discontinued. ¹			
1904	Prawn trawling was fairly successful in the river, as well as collection of mud crabs. ¹	The grab dredge restored the upper river depth to 4' at LW at Daly's Flats, Junction Shoal, the Moggill Race and Cockatoo Island Crossing to assist the considerable number of barges using the river, chiefly carrying coal. Many of the dredge plant were laid up and little work was done. <i>Hydra</i> recommissioned to clean up old Quarries Reach Cutting. ¹ Even by 1904 combined effects of dredging the mouth of the river and constructing training walls increased mean tidal range by 0.25 m. ²			The Fisheries Act of 1904-7 sought to provide for the marketing of fish. ¹
1905		To facilitate access to wharves in South Brisbane and Town Reaches, a considerable area was dredged to a depth of 20-24' at LW. Siltation was rapid in these so on-going maintenance was essential. The Lytton wall was completed and raised to 6' above LW. Bulwer wall resumed. <i>Hydra</i>			

		successfully cleared clay from Hamilton Reach. <i>Hercules</i> worked on new Quarries Reach Cutting, where there was hard dry clay in places, difficult to dredge. ¹			
1906	Water hyacinth again became a troublesome pest in the Brisbane and Bremer Rivers. A lack of flooding had apparently led to its accumulation. The same method was used to control it. ¹	Almost all dredges in operation. A 24' channel had been dredged from the Bar to Kangaroo Point – “a truly memorable achievement fully deserving of perpetuation in the maritime annals of this city and state’. The dredge <i>Cleveland</i> was refitted for submarine rock drilling and operated in Lytton Rocks Cutting. Bulimba Point was cut back to allow safer navigation around the point. Spoil removed was mostly clay. Channel width increased from 500' to 700'. The Hamilton wall was raised to 10' above LW. The Bulwer wall was completed with an upper level of 6' above LW. ¹ First Bulimba wharf constructed at Teneriffe. ³			
1907	Size and number of	Removal of part of Bulimba			Legislation gave the Dept. of

	vessels visiting port had increased beyond available wharf accommodation. ¹	Point continued. Depth of 24' LW and width 300' available from Bay to Town Reach. South Brisbane and Town Reaches experienced rapid silt deposition, making it difficult to retain depth. Large wharf (Dalgety's) erected on New Farm side of Bulimba Reach, helping to relieve congestion of the Town and South Brisbane Reaches. Banks were protected with light random stone revetment. Work was carried out by the Dept. at cost to the owners. ¹			Harbours and Marine the authority to force land owners to protect their river banks. ¹
1908	Flooding of the river in March but recorded as slight. This flood brought down enormous amounts of hyacinth. Again the control was removal and drying. Shire Councils in the upper catchments were urged to control the weed in the small water	Lytton Rocks cutting was widened to 400' and depth of 26' at LW with further drilling and blasting up to 1911. Rock blasted and removed from Custom House Rocks. Further work in 1910 and 1911. Work commenced on a new cutting (and pile light) across the Bar. The Old Bar was being lengthened considerably with increased depths since axis was tangential to the 26' contour and the only way to get to that depth			

	<p>courses upstream. Flood height at the Port Office gauge = 14'9", Mar 15.¹</p>	<p>would have been to make a bend. Furthermore, the Old Bar Cutting required considerable maintenance. Dredges <i>Maryborough</i>, <i>Hydra</i> and <i>Hercules</i> were used to dig a channel 400' wide and 24' deep at LW. The New Bar Cutting was completed in 1912.¹ Bishop Island formed by dredging at the Brisbane River mouth (to 1910).³</p>			
1909		<p><i>Groper</i> worked at removing silt deposits from dredged area at Kangaroo Point. Much of SE side of Parker Island cut back.¹ Railway Wharf constructed at Pinkenba.^{1,3} Capricorn Wharf built at New Farm.³</p>			
1910		<p>With the exception of the Outer Bar Cutting and Lytton Rocks Cutting which were 300' wide, the dredged channels of over 15 mi had a depth of 24' at LW and minimum width of 400'. Bulimba Point was cut back further to allow safer navigation around the point. Borthwick's</p>		<p>Since hopper barges were not equipped to pump spoil ashore, the spoil was dumped in 'dump holes' in the river or in the bay. These holes in the river were dredged out once or twice a year and the spoil pumped to</p>	

		wharves in course of erection near Queensport. Further drilling and blasting of rock for deepwater berth at Kennedy Wharves, Petrie's Bight and at Doughboy Rock patch. ¹		reclamation areas behind the river walls. ¹	
1911		Further width of 100' was removed from Parker Island to facilitate the swing of large vessels berthing at Borthwicks Wharf. Lytton Rocks Cutting finally cleared to depth of 26', width 400'. Concrete section of Pinkenba wharf constructed. ¹	Brisbane area population 175,487 in 36,502 dwellings (city census total 146,991). ³		
1912	Dredging operations were affected by major industrial action at the time. ¹	The new stern suction dredge <i>Remora</i> assisted in dredging the new bar cutting. The New Bar Cutting was open for navigation providing a straight outlet to the sea. The Pile Lighthouse was re-positioned on new piles at the 5 fathom (30') contour at LW outside the bar. The bottom was soft mud down to 35' noted by the piles being installed sinking 20' under their own weight. The site was supported by 5,000 tons of coarse sand dredged from near Garden Point. The	Town planning movement became influential. ³	Dredge spoil from the inner end was pumped above HW to form Bishop Island which acted as partial protection to the cut from S-SE wave action. ¹ Construction of training walls, reclamation works and removal of points and restrictions along lower reaches to city reach completed. ² Bulwer Island spit reclaimed until 1929	

		<p>lighthouse was equipped as a signal and telephone station. New channel leads on Bulwer Island consisted of two lighthouses. Bulimba Point was cut back still further to allow safer navigation around the point. River width was increased from 600' to 1000' between LW lines.¹ Construction of retaining walls along Breakfast Creek started by Town of Hamilton.³</p>		<p>(previously, it had been without spit and covered with dense low mangroves).⁵</p>	
1913	<p>The largest steamer to have visited Australia, <i>Nestor</i>, safely berthed at Bulimba. The port of Brisbane was considered equal to any in the country. Rains early in the year again brought down enormous amounts of hyacinth. Again there was serious impediment to navigation downstream.¹</p>	<p>The old Pile Light was discontinued and the new one put in use in February. Large vessels in excess of 14,000 tons and 500' long were able to safely make their way unassisted up the river and berth at Bulimba Point. Gardens Point was cut back further to allow safer navigation around the point. Bulimba Point cut completed.¹</p>			

1914	Australia at war until 1918 resulted in a decline in overseas and coastal trade until 1920. Rains early in the year brought down additional large amounts of hyacinth. River navigation was seriously affected where 12 miles of the river was covered from bank to bank concealing large logs and snakes. Physical removal was the only control used. ¹	Minor dredging was done in the upper river with a grab dredger. Lack of resources and supplies made it almost impossible to maintain the dredge plant and to maintain channel maintenance. ¹		The Coxen Point ‘dump hole’ was abandoned after extensive use. A new dump hole was dredged out by <i>Hercules</i> in Aquarium Passage to receive spoil from Town and Upper Reaches. This spoil was to be used to reclaim nearby mangrove flats, and behind the Bulwer Island wall. ¹	The Fish and Oyster Act of 1914 sought to close loop holes evident in the old Acts, and to stipulate that everyone taking fish with a net, for sale or not, was required to have a licence. ¹
1915		The <i>Remora</i> was used to deepen the New Bar Cutting to 26’ at LW. Gardens Point was cut back still further to allow safer navigation around the point. ¹ Bowen Bridge reconstructed in reinforced concrete. Dredging and walling of Gardens Reach boundary of Botanic Gardens. Construction of Lytton jetty	Tar sealing of city streets commenced. Residential growth stimulated by tramways in outer areas. ³	Spoil was dumped in the Aquarium Passage dump hole. ¹	

		commenced. ³			
1916		Further works on the removal of Parker Island were done by the hydraulic dredger <i>Casuarina</i> and the <i>Platypus</i> up to 1918. The width of river was increased by 350'. The small grab dredge was used in the upper river particularly in Pope's Reach to 6' at LW. Reinforced concrete wharf and retaining wall for Fish Market at South Brisbane commenced. ¹ BCC concrete wharf built at Petrie Bight between Boundary St and Kennedy wharves. ³	Work commenced on building sewers in city and inner suburbs. ³		
1917	Water discolouration in the river was thought due to wave action disturbing fine sediment on the outer bar and spring tides carrying the suspended matter upstream. Observations were started to determine the amount of	After excavation of Gardens Point, the river was widened from 500' to 800'. The South Brisbane Fish Market and wharf was completed. ¹ Creation of Mt Crosby sedimentation basin to improve water quality. ³	Saltwater cleansing of Brisbane streets commenced. ³		

	suspended sediment in the river, sampling during winter in calm weather. ¹				
1918	Storm water and street runoff entering river through various sewers. Observations of suspended sediments showed larger amounts were along the wharves in Town Reach. The clearness of the water for most of the time was described as sufficient to permit an object to be seen at depths up to 2' under the surface in Town Reach. Some sewers at low water discharged a black offensive liquid but its effect was reportedly confined	Seawall construction at Sutton's beach, Redcliffe Peninsula. ² Trenches dug in river to maintain water supply during drought. ³			The Fish and Oyster Amendments Acts of 1918. ¹

	to small areas. At Hamilton objects were visible at 4' below the surface. ¹				
1919		River straightening works substantially completed. In the Brisbane River, the points were controlled by dredging and the banks by walls. Thus, the lower reaches of the river from Brisbane to the bay were confined. ¹			
1920		Of the 21.4 statute miles of waterway from the 5 fathom contour in Moreton Bay at the entrance to the Brisbane River to Victoria Bridge, 16.4 miles was dredged. Over half the dredge spoil was dumped in Moreton Bay. The new Bar Cut and Lytton Rock Cutting had widths of 400' while all other cuttings were from 450-600' wide. Depths below LW datum were between 26-28' up to and including Bulimba Reach while above that depths were around 24'. ¹	Medium to highrise buildings constructed for commercial and residential purposes (to World War II, then recommenced after war). ³	Just less than half the amount dredged from the river was pumped ashore in reclamation areas along the river. ¹	
1921			Brisbane area		

			population 257,905 in 53,648 dwellings (city census total 220,371). ³		
1922		The Cold Stores Wharf was completed at Hamilton. ¹	Reconstruction of Central and South Brisbane streets in concrete began. ³		
1923		The depth of the Lytton Rocks cutting was increased to 27' using the dredge <i>Hydra</i> . A berth at Pinkenba was dredged for an oil company. This was the first record of an oil company proposing to operate in the area. The Department of Health, concerned about the enormity of the rat population inhabiting the stone walls, attempted to have them rat proofed by grouting the spaces with cement. Work started on the Hamilton wall. ¹ First wharf constructed downstream at Hamilton. ³	Sewerage system operated in city centre. ³		
1924	A special punt, the <i>Hyacinth</i> , was used to control water				City of Brisbane Act established the Greater Brisbane. ⁶

	<p>hyacinth in the river. The coastal railway from Cairns to Coolangatta was completed.¹ Mosquito fish were relocated to the Brisbane River to try and alleviate mosquito larvae using these biological controls.⁸</p>				
1925	<p>In December 1924, there was no hyacinth in the tidal portions of the river but by May the river was thickly covered in the weed from Indooroopilly Bridge to Ipswich, a distance of around 32 miles. Rain in June flushed out the bulk into the sea where it died quickly. Number of overseas vessels to Brisbane increasing.¹</p>	<p>Commonwealth standard tide and dredger signals were adopted and used from November 1st. The channel depth was increased to 26' at LW from the Pile Light to New Farm with a minimum width of 400'. New wharf attached to Hamilton Cold Stores and several wharves in Bulimba Reach enlarged.¹</p>	<p>South Brisbane connected to sewerage scheme via siphon pipes on the riverbed.³</p>		

1926	Failure of summer rain brought on drought. ¹	The width of the Lytton Rocks cutting was increased to 500'. Plant was used then to clear Doughboy rocks below Queensport which had a minimum depth of 8'6" at LW. This was deepened to 20'. Next were Hawthorn rocks and deepening in front of the Railway Wharf at South Brisbane. Breakfast Creek was made navigable and provide a sheltered mooring basin for small craft by clearing of obstacles and dredging to 4'6" at LW. Hamilton dredge plant jetties rebuilt. ¹ Second (present) weir constructed at Mt. Crosby. ²			
1927	Moreton Bay was patrolled by two vessels with Fishing Inspectors to make sure fisherman complied with the Fisheries Act and regulations. Flood height at the Port Office gauge = 9'4", Jan 28. ¹	Mt Crosby weir abutment washed out with flood. ³			An Order in Council was issued under the provisions of the Fish and Oyster Act of 1914, increasing the minimum size at which all fish could be taken. ¹ Brisbane River Tidal Lands Improvement Act. ³

1928	<p>Strong freshwater flows in the early part of the year caused deposits of silt in dredged channels as far down as Pinkenba. Flood height at the Port Office gauge = 9'3", Feb 22. Flood height at the Port Office gauge = 10'10", Apr 21. The first Australian Fisheries Conference. The review by TC Roughley on the oyster grounds and industry in Queensland. UQ postgraduate, FW Moorehouse was specially commissioned by the Marine Dept to join the British Royal Society Expedition to Low Isles.¹</p>	<p>Dredges <i>Remora</i>, <i>Hydra</i>, <i>Maryborough</i> and <i>Platypus II</i> were used to restore navigational depths after the wet season. Similar work was required after each wet season. The points, Gardens, Kangaroo and Bulimba, had extended mud banks after the strong wet flows. These also needed to be dredged regularly to maintain channel depth and width.¹ Construction of Grey St Bridge commenced. Bretts Wharf constructed at Hamilton (re-developed 1994).³</p>	<p>Sealing of Pacific Highway was underway.³</p>		
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1929	<p>Downturn in the economy again. Some dugongs were still being caught in the bay mainly for oil. Mr Moorehouse appointed as Marine Biologist to investigate marine problems in Queensland fisheries. The focus was on trochus, sponges, good fish, turtles and oysters. Flood height at the Port Office gauge = 9'10", Jan 24.¹</p>	<p>By this time, the Port of Brisbane was well marked for navigation and few new lights or buoys were required. The river was still being developed and regulated. By 1959, training wall phase was drawing to a close, and removal of backwaters and preparation of lower reaches for commercial use was almost complete. Reportedly, the placement of training walls had removed backwaters that had sapped the energy of the tidal and flood flow and the river was now both navigable and virtually self flushing. At this time, the depth was 26' at LW from the bay to Bulimba, and 24' up to Victoria Bridge. Dredging in entrance to Wynnum Creek.¹ Bulwer Island lighthouses built.⁵</p>		<p>The Dept of Harbours and Marine realised that new lands around the lower reaches of the river would increase in value over the years, especially since there was a growing demand for berths for larger and larger vessels. The reclamation of lands around Pinkenba and Hamilton were the first step in this process. Just over a third of dredge spoil was pumped ashore by the <i>Remora</i> mostly into the reclamation area above Lytton where the training wall had to be raised from 5 to 10' above LW. The rest of the spoil was dumped in the bay.¹</p>	<p>Dept. of Harbours and Marine was formed in January amalgamating the earlier departments of Marine, and Harbours and Rivers.¹</p>
1930	<p>The standard gauge railway from NSW to South Brisbane was opened in September. Interstate transport</p>	<p>Lighting of buoys was converted from carbide gas to acetylene gas.¹ In 1930's, relief work in Sandgate included construction of retaining walls, concrete</p>		<p>New jetty and dolphin for pumping station just below Cold Stores Wharf built to enable <i>Remora</i> to discharge ashore and reclaim land there.¹</p>	

<p>of goods was no longer solely taken by sea. The relationship between railways and ports was no longer solely compatible, and it had become competitive both for interstate and within-state transport. This applied more broadly again considering the comparable increase in road transport. A regular air service was established by ANA between Sydney and Brisbane. Mud worm disease still badly affected oyster production. A Marine Biologist, FW Moorehouse, was commissioned to investigate the</p>	<p>seawall, shark-proofing and mangrove reclamation.³</p>			
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	problem and provide recommendations. He established a station on Stradbroke Island in March until July. ¹				
1931	The worldwide economic depression seriously affected local economies, employment and trade. Flood height at the Port Office gauge = 14'8", Feb 7. ¹	Hamilton training wall repaired. It had been damaged by the public who had removed large amounts of stone. ¹ Pacific Highway bridge across Logan River. ³			
1932	Large numbers of turtles were captured during the breeding season on islands off Gladstone and shipped to Brisbane for use in soup manufacture. This industry died out after 1933. ¹	The dredge <i>Platypus II</i> in conjunction with <i>Hydra</i> commenced deepening the Bar Cutting, Pelican Bank Cutting and Lytton Cutting to 30' at LW. Rat proofing of training wall fronting Botanical Gardens. ¹ Grey St Bridge (later renamed William Jolly Bridge) opened, connecting North Quay and South Brisbane. ^{3, 6}		Lytton wall was raised in preparation for future reclamation. The mangrove and saltpan behind the Hamilton wall and below the Cold Stores was rapidly converted into dry land. ¹	The Fish and Oyster Amendment Act of 1932 sought to control fishing using explosives and noxious chemicals. About this time, push nets for catching prawns in the Brisbane River were made legal. ¹

1933	Gale conditions experienced during February. ¹	In Quarries Reach, <i>Maryborough</i> and <i>Hydra</i> dredged a depth of 29' at LW. ¹ Planning for construction of Story Bridge commenced. ³	Brisbane area population 341,625 in 79,232 dwellings (city census total 299,748). ³	Reclamation fronting Hemmant was faced with stone which improved the appearance of Lytton Reach. Reclamation and log walling at Wellington Point. ¹	
1934	In January, a public scare occurred with people fearing that oysters caught off the mouth of the river were infected with typhoid bacteria. Although no evidence was found connecting to the oysters, it was of concern that the farm beds were about one mile from Luggage Point and the sewer outfall. This scare and the already depressed market made it very difficult for the local oyster industry. Unusually large catches of sea	The <i>Maryborough</i> made two cuts through the South Brisbane and Town Reaches to clear a depth of 26' at LW with a width of 200'. Silting in these reaches had always been heavy. <i>Remora</i> was used almost exclusively on maintenance dredging in the three upper reaches. Late in the year, point cutting was undertaken at Kangaroo Point to create a regularised bend with 800' width of river around the curve. New bridge (Story Bridge) to cross bend almost symmetrically. Cutoff completed 1938. ¹ Petrie Bight wharves rebuilt as Brisbane Central Wharves, forming a curve know as Circular Quay. ³		Protective work was done on Bishop Island where the northerly foreshore had eroded with the high summer tides. Special leases were issued for reclaimed lands around the Hamilton wall for river frontage properties. A large amount leased to wool dumping company – constructed wharfage and accommodation. ¹	To allay fears about contamination of oysters near the Luggage Point sewer outfall, this and adjacent banks were no longer granted a license and removal of oysters in the vicinity was prohibited under penalty. Fisherman were concerned at the time that Moreton Bay was being overfished, and called for controls to net fishing and area closures. By Order in Council net fishing was prohibited in the Port of Brisbane including Moreton Bay on Saturday to Sunday each week. ¹

	mullet were taken in the bay. Brisbane River flood study. ¹				
1935	A severe cyclone was experienced. After a period of nearly 10 years, water hyacinth, reappeared in the Bremer River after rains flushed it downstream. ¹	Berth at Abattoirs Wharf cut down to 30' LW and Borthwick's Wharf berth to 26' by chiselling sandstone rock. ¹ Construction of Story Bridge. ³		Occupation of the Hamilton lands was rapid with the installation of roads, roadside trees, water mains, power and lighting. ¹	The Fish and Oyster Amendments Acts of 1935. The Fish Board was constituted by the Fish Supply Management Act of 1935. The Whaling Act of 1935 made provision for the regulation of whaling in Queensland waters from shore stations in Queensland. The licence allowed the taking of 600 whales in the season over 5 years commencing in 1952. ¹
1936	By this time, line fishing had become very popular as recreation and sport. This resulted in several fishing clubs, and fishing competitions were extremely popular. This included big game fishing. The sale and marketing of fish in the Brisbane area was transferred to the	By this time, the depth of 30' at LW was obtained from the Bar Cutting up as far Upper Lytton Cutting. The diorite dyke at Lytton Rocks would take a bit more time. The Platypus II was able to remove very hard material. Realignment of wharves at Petrie's Bight and construction of central wharves. ¹ Coral dredging began at Mud Island. ² Breakfast Creek straightened and canalised for flood mitigation. Walter Taylor's		By this time, stone had been deposited and walls formed along the whole length as far up as Pinkenba. There was about 8,550' of wall planned. A new pumping station was established at Pinkenba by arrangement with the Shell Company of Australia for the use of their wharf to pump dredge spoil from Eagle Farm Flats, Pinkenba and Hamilton Reaches onto	Strict size limits were enforced on recreational fisherman as well as commercial operators, according to the Fish and Oyster Acts. ¹ Queensland Fish Board established. ¹¹

	Fish Board in July. Water hyacinth was extremely plentiful in the upper reaches of Bremer and Brisbane Rivers. ¹	bridge over Brisbane River between Indooroopilly and Chelmer opened. ³		low lying land at Pinkenba. ¹	
1937	Gale force winds and cyclonic conditions were experienced in February. Freshwater flows carried water hyacinth downstream where it was killed in the salty water of the estuary around March. The Queensland Game Fishing Association was formed in August. A weighing station was established at Hamilton. ¹	Trench dredged in Norman Creek for City Council sewerage pipes. Berths at new wharves at Newstead dredged to 29' in hard clay. Berth dredged for Hornibrook in Town Reach. Over 100,000 tons of maintenance dredging at private wharves over the year. ¹		Unloading the steam hopper of spoil for reclamation took the same time as driving the hopper offshore and dumping the contents in the bay. An additional cost in reclamation was therefore the cost of plant to pump the spoil ashore. From 1937 to 1938, greater than 50% of dredge spoil from the river was pumped to reclamation of tidal lands at Pinkenba, Hemmant and Lytton. The area reclaimed at Hemmant of 144 acres was surrounded by levees and ditches and was almost above HW but experienced subsidence due to water being squeezed from the	The previous order prohibiting net fishing in Moreton Bay on Saturday and Sunday was repealed as it did not produce an appreciable benefit and increase in the supply of marketable fish. ¹

				deposited material which was mostly mud. ¹	
1938	In July, a mail and passenger flying boat service was extended to Australia connecting to Europe and America via Singapore. The first records of sand crab fishing were presented, at least for commercial fisherman. ¹ Queensland state population passed over 1 million. ¹¹	By this time, the Brisbane River cuttings from the bar to Pinkenba had been cut down to 30' at LW, with the exception of Lytton Rocks where the depth was 28' at LW. From Pinkenba to New Farm the depth was at 28' at LW. A small basin at the end of the Parker Island wall was excavated for the Commonwealth Government moorings for flying boats. This was soon moved however. Wynnum Creek dredged again and protective wall built on E side of entrance channel to stop sand and mud being washed from nearby beach into cutting (completed 1940). Construction of training wall at Hamilton Golf Links, Brisbane River. ¹		More dredging spoil pumped to Hemmant reclamation. ¹	
1939	Australia at war in World War II until 1945. Initially this was a war in Europe. A cyclone occurred in March.	In Brisbane River, electric navigation lights were established in the upper reaches at Oxley Creek and Carrington Rocks. Leads at crossover below Indooroopilly Bridge.		By this time, the general layout of the reclaimed Hamilton lands had taken place. Operations were commenced late in the year on drainage of the	

	<p>A fertiliser and fish meal stock feed production industry was established on the south bank of the river using surplus and non-edible fish and fish offal.¹</p>	<p>The Mount Crosby Weir was found to prevent movement of mullet and other fish upstream, causing a serious decline in fish numbers above the weir. The Brisbane City Council was persuaded to build a fish ladder at the weir. A complete examination of the river cuttings showed that dredged channels to 30' had deteriorated very little although no recent maintenance had been done. There was no flooding during this period however.¹</p>		<p>tidal lands between Whinstanes and Meeandah which had been resumed for port purposes in 1910-1913.¹</p>	
1940	<p>There was a marked increase in turbidity in the Brisbane River. The shortage of edible fish oils in Australia increased demand for oil from dugong and other sources.¹ Main sewer at Pinkenba collapsed, sewerage diverted at Eagle Arm into tidal channel until 1945.³</p>	<p>Deepening of the cutting at Lytton Rocks was begun late in the year, but work was not completed due to commitments with the Defence Department. Many naval wharves built over next couple of years in Brisbane River (10 by 1945). Swinging area abreast Abattoirs Wharf completed to 30' LW, 800' clear room. Work began at Moar's Slip, Kangaroo Point, constructing buildings, slipways and wharves for shipbuilding, demolishing old wharves,</p>	<p>1940's rapid urban development and land clearing for agriculture and grazing in upper reaches caused increased siltation.²</p>	<p>Sub-divisional roads were constructed, leases negotiated and construction of further industrial facilities were commenced. Reclaimed land between Hamilton training walls and Eagle Farm Road used extensively for US army and navy during war. Some reclaimed land at Hamilton Wharf region leased to Wool Appraisalment</p>	

		grading the riverbank, and building retaining wall and storm water drainage system. ¹ The Story Bridge was completed and opened. ^{1,3}		Committee: wool shed constructed. Also cold store and road construction. ¹	
1941	Japanese air strikes on Pearl Harbour brought the war to the Pacific and Australia in December. ¹	The flying boat moorings were re-laid in the Hamilton Reach. The cutting back of Kinellan Point (5.5 acres dry land) was begun. 300' fitting out wharf built at Moar's Slip, Kangaroo Point. Middle berth at Brisbane Central Wharves, Petrie's Bight, completed. ¹			
1942	A huge influx in troops, ships and aircraft from the USA for the war in the Pacific continued until 1945. ¹	Anti-submarine boom constructed across lower reaches near Lytton. Work on training wall construction ceased in March but recommenced 1946. ¹ Port facilities at Pinkenba and Hamilton expanded. ³			
1943	Fisheries research was carried out in Moreton Bay by the Fisheries Division of the Council for Scientific and Industrial Research. One investigation	By this time, the lack of maintenance dredging had resulted in significant siltation of the channels. In the Town Reach, the depth was only 20' at LW. ¹	Beginning of the Somerset's dam use in flood mitigation (B)		

	was of <i>Gracilaria</i> in the hope it may lead to a new industry. The algae is found commonly at the mouth of the Brisbane River. ¹				
1944		Hamilton and Bulimba Reaches had silted badly and depths could only be maintained at 28' at LW. New 600' fitting out wharf built at Kangaroo Point for shipbuilders. Brisbane Graving Dock (Cairncross Dock, for ship repairing) built, dredged and opened at Colmslie (S side of lower end of Hamilton Reach). ¹			
1945	Around this time, an Economic Museum organised by TC Marshall was established to show edible fishes of Queensland. ¹		High-level sewer built linking Eagle Farm and Luggage Point. ³	The reclaimed land between Hamilton wall and the backwater had been extensively developed by 1945 for the use of the Royal Navy. The land had been given extensive top dressing, buildings and wharves erected and the area transformed into a	The Fish and Oyster Amendments Acts of 1945. ¹

				naval repair base. ¹	
1946	A cyclonic disturbance occurred in March causing a standstill to traffic in and around Moreton Bay for several days. ¹ Drought. ³	By this time, most leading lights in the river had been converted to electric neon lights. Work recommenced at Lytton Rocks Cutting and a depth of 33' was obtained with a width of 100'. <i>Morwong</i> and <i>Remora</i> were returned to maintenance dredging up to Hamilton Reach. <i>Maryborough</i> worked on Bulimba Reach and Town Reach. <i>Hydra</i> and <i>Maryborough</i> commenced restoration of Bulimba Point. Further dredging upstream involved the blasting and dredging of a rock bar to 9' at LW (completed 1948). Further dredging in Wynnum Creek. Breast wharf at Brisbane Graving Dock extended and berth extended further, with drilling and widening. One jetty built at Hamilton for dredges, 2 at Parker Island. Wall construction recommenced with walls at Lytton and Bulwer being extended and raised. A		Two more pumping stations built at Hamilton reach and Parker Island. Pumping stations at Pinkenba and Lytton continued to be used by dredges when in that part of river. ¹	

		wall around Kinellan Point was made to face off the cut made earlier, and to beautify the site with graded lawns and trees. ¹			
1947	Three periods of strong freshwater flow were experienced. The Harbours and Marine Department in conjunction with the CSIRO established a Fisheries Research Station at Dunwich. ¹	New leads with neon lights were built at the lower end of the Eagle Farm Flats Reach. Additions to South Brisbane Dry Dock to increase berthing space. Wall construction was done from Lytton Wharf to Crab Creek and Whyte Island, and on Bishop Island. Further deepening of the river was in progress at Lytton Rocks and Parker Island to achieve a depth of 33' at LW. There was a great effort put into maintenance dredging after the freshes, especially around Hamilton Reach. All point cuttings had to be restored again. However, large ships were no longer coming up to Town and South Brisbane Reaches. ¹	The Naval wharves D, E and F built on reclaimed lands by Allied Works Council for the Naval Authorities during the war were purchased by the H&M. These were then modified for commercial purposes. ¹ Brisbane area population 457,462 in 113,797 dwellings (city census total 402,030). ³	Levee banks to contain spoil from pumping were formed by bulldozer. This greatly accelerated work previously done by horse and scoop. ¹	
1948	In last years of 1940's, Brisbane assumed role of major port. ¹	Wall construction, as designed by EA Cullen with Harbours and Marine, were all but completed although work	In the 1940s, the levels of siltation had increased alarmingly	Dredges <i>Remora</i> and <i>Morwong</i> pumped large amounts of dredge spoil onto reclamation areas	

		<p>continued for several years raising, upgrading and maintaining lengths. <i>Maryborough</i> dredged the Town Reach. By this time, the blasting and dredging of the Lytton Rocks Cutting with a depth of 34' and 450' wide was completed. Less follow-up dredging in Town Reach and South Brisbane Wharves as large ships no longer came up this far.¹</p>	<p>possibly due to removal of trees and land clearing along the riverside for farms and housing development coupled with the heavy rains in the years 1947 to 1950.¹</p>	<p>behind the training walls. Large quantities of spoil were pumped ashore to reclaim the area between the old north bank of the river and Parker Island. Large section of land below Hamilton area was raised to 16' above LW.¹</p>	
1949		<p>The Pile Light was completely demolished in October when a tanker collided with the structure when entering the bar cutting. A temporary signal and telephone station was established on Bishop Island. Housing was provided with the buildings from Bulwer Island since the lights there had been converted to automatic gas lights. The damaged Pile Light was rebuilt with only a light and no accommodation. An automatic flashing light was established at Six Mile Rocks in the upper reaches opposite</p>		<p>Two more pumping stations were established in Hamilton Reach and Parker Island. These and the earlier stations were used to pump spoil ashore where it was convenient to the dredging at the time.¹</p>	<p>A special committee, the Hamilton Lands Committee, was formed to investigate the layout of wharves, roads and railway lines from Hamilton to Pinkenba.¹</p>

		Dutton Park. Many large and small jetties built in Brisbane. Maintenance dredging was unable to keep up with the siltation which had reduced channel depths by one to two feet in some reaches. Dredging in Hamilton and Bulimba Reaches, but difficulty maintaining depth. Borthwick's Wharf berth blasted and deepened to 28' LW to accommodate larger vessels loading frozen meat. ¹			
1950	For the first time a 4 fathom otter trawl was used in Moreton Bay. ¹	The main aim at this time was to get the channel cuttings back to pre-war depths. Siltation was a grave concern. Caisson of South Brisbane Dock repaired. ¹			By an Order in Council, green turtles (<i>Chleonia mydas</i>) were declared protected in Queensland waters. However it was still legal to collect turtle eggs. Net staking was legalised for the foreshores of Fisherman Islands and Mud Island. ¹
1951	Heavy rains and run off in February. The water was charged with silt and with the faster velocity of the river in recent years silt was deposited	An automatic electric light replaced the fixed oil light in front of the beacon in lower Hamilton Reach. A uniform system of buoyage and dredger signals for use in Australian ports was adopted in June. Lower reaches deepened to 31'		Reclamation works were still being done at Parker Island, Hamilton and Pinkenba with suction dredges pumping into the head of Hamilton Inlet. ¹	

	Quarries and Eagle Farm Reaches instead of Pinkenba as was the usual case. ¹	at LW. ¹			
1952	A whaling industry and factory was established at Tangalooma and licensed to catch 600 whales in the season. The first whale was killed in June. Oil was brought to storage tanks in the lower reaches of the Brisbane River. The industry collapsed after a few years. ¹ Otter trawling was introduced widely for catching prawns. ²	The Pile Light was automated with an acetylene light in October. The signal station at Bishop Island was retained. BHP's wharf extended upstream. Temporary wheat handling facilities installed at Pinkenba Railway Wharf. Ampol started using M-Wharf at Parker Island as tanker berth. ¹ Victoria Bridge to be replaced. ³		A further pumping station was set up at wharf F to facilitate reclamation of Hamilton Inlet. ¹	An Order in Council in June authorised the use of otter trawl nets for taking prawns in Queensland waters. ¹
1953	River water silt content and salinity were examined and recorded. Monthly	Dredging was done at 17 Mile Rocks Reach to clear a shoal patch which had developed below the rocks. <i>Echeneis</i>			

	<p>samples were collected at Lytton, Hamilton and Town Reach. It was believed that silt was coming upstream from the river mouth. This was contrary to expectation that silt might come from upstream with the flow. Silt loads were found to be highest during high tide rather than low tide periods. Therefore silt dumped out in the bay could find its way back into the river.¹</p>	<p>joined <i>Remora</i> and <i>Morwong</i> dredging Town Reach to Hamilton. Parker Island M-wharf extended to suit tankers. Vacuum Oil company built modern tanker berth at Colmslie, just upstream from Abattoirs.¹ Lighthouses on Bulwer Island converted to automatic gas flashing lights.⁵</p>			
1954	<p>A cyclone hit SE Queensland in February and caused severe damage and loss to the prawn fishery fleet. The GBR Committee</p>	<p>A wireless station was erected at Lytton for use of the pilot service and the Bishop Island station was closed. This station was later designated as the Control Tower for the Port of Brisbane. Only maintenance dredging was carried out in the</p>	<p>Brisbane area population 575,205 in 1952, 152,798 dwellings (city census total 502,320).³</p>	<p>Another pumping station was set up at Pinkenba to facilitate reclamation works. At this time, around 73% of dredge spoil was being used for reclamation with the rest being dumped in the</p>	<p>By this time, there were three fulltime Fisheries Inspectors stationed in Brisbane. In September, the Fish Board assumed some measure of control over the marketing of prawns.¹</p>

	<p>conducted a survey of Low Isles comparing results with the 1928 expedition.¹</p>	<p>river cuttings and berths, as well as the points upstream. Maintenance dredging at Pinkenba Wharf, Hamilton Reach, Bulimba Reach, Town Reach, Bulimba Point and Kangaroo Point.¹ New Norman Creek Bridge opened.³ Bulwer Island training wall built up (rocks cemented to keep rats out) and extended.⁵</p>		<p>bay.¹</p>	
1955	<p>Frequent heavy rains were experienced in March (flood: 11'6"), and these carried particularly high silt loads from cultivation on banks in upper reaches, dumping sediment in the upper reaches.¹ Eagle Farm sewerage pumping station and outlet operated at Luggage Point.³</p>	<p>A black buoy was placed near the Clara Rock buoy to mark the southern extent of the shallow water in the Lytton Rocks Cutting. Much dredging after flood. Removal of 15,000 tons per day was not sufficient to reverse a decrease in depth in the Hamilton Reach. Construction of Shell oil terminal at Pinkenba with berth 33', plans for 800' wharf.¹</p>			<p>The Harbours Act of 1955 consolidated and amended earlier laws, and among other things sought to control reclamation, dredging & structures below high water mark. Foreshores and land lying under the sea within Queensland waters as well as lying under harbours were deemed to be the property of the Crown. Special leases for land lying below high water mark could be granted by the Governor in Council. The Fish and Oyster Amendments Acts of 1955 prohibited jags, gaffs and like apparatus from being used solely to catch fish. The Commonwealth Fisheries Acts of 1952 and 1953 were enacted. These</p>

					sought to regulate and control Australian fisheries, defining territorial limits of the states. ¹
1956	Very wet period in early part of year. ¹	The western and eastern Bar Beacons were replaced with a pile structure and automatic light. Dredges busy removing silt. Navigation depth from mouth to Pinkenba still only 24' LW: claimed not safe, too shallow. Cable trench dredged in Canoe Reach (up-river). ¹		Dredged sand pumped ashore at Pinkenba. ¹	
1957		Eagle Farm Flats and Parker Island Cuttings had been widened to 450' and swinging basins enlarged. Further dredging by <i>Tridacna</i> in Wynnum Creek and Seventeen Mile Rocks, as well as approach and basin at Manly in preparation for small harbour. ¹ New bridge constructed at Breakfast Creek. New Indooroopilly railway bridge completed. ³			Licenses were issued for the removal of shell grit and coral, restricting the location and types of equipment used. In February, an exclusive licence was granted to QCL to take coral from Mud Island which it did do until 1983. After this it moved this operation to St Helena Island, where it continued until 1988. The Fisheries Act of 1957 sought to consolidate and update all Queensland fisheries namely, whaling, pearling, oystering and others. ¹
1958	An exceptionally dry early summer meant that there	Pinkenba and Upper Lytton Cuttings were widened by bucket dredges, <i>Groper</i> and			The Queensland Marine Act of 1958 sought to control and regulate merchant shipping. The Canals Act

	was some cessation to channel siltation. ¹	<i>Platypus II</i> . Installation for bulk handling of wheat completed at Pinkenba Railway Wharf. ¹			1958 sought to control canal developments. ¹
1959		Somerset Dam completed. ²			There continued to be three fulltime Fisheries Inspectors stationed in Brisbane. ¹
1960	<p>The use of ports had changed. Passengers were far fewer and trade was more international with bulk cargos. Ports had to change to meet this new demand.¹</p> <p>During February and March, diatom (<i>Melosira ranulata</i>) blooms were recorded in the upper estuary. Later that same year and again in 1963, very large blooms of the diatom (<i>Coscinodiscus centralis</i>) were recorded in the estuary.⁸</p>	<p>The least depth of water in the river channel up to New Farm was 26' at LW. Rock removed from Seventeen Mile Rocks and placed along banks as river wall. Two walls (Bulwer Island and Fisherman Islands) remaining to complete wall development of lower Brisbane River, although some others needed raising and finishing. South Brisbane Railway Wharf (coal wharf) demolished in 1960's to make way for Captain Cook Bridge.¹</p>		Active filling and mangrove expansion towards Bulwer Island training wall. ⁵	The Pollution of Water by Oil Acts of 1960 to 1961 provided penalties for oil spillage in Queensland. ¹

1961	<p>The 1961 census taken in Queensland. Population of 1,518,828.¹ Closure of the Tangalooma whaling station.²</p>	<p>Commencement of considerable development and wharf construction. Extension to Stevedoring and Wool Dumping general cargo wharf in Hamilton.¹ Moogerah Dam completed.²</p>	<p>Dispersal of industry from CBD to outer industrial areas and estates (60's and 70's).³</p>	<p>Much reclamation of tidal wetland started at Bulwer Island, from spoil adjacent to site, and from various cuttings. Total area of 500 acres to be made available to Amoco for tanker terminal and refinery. Before reclamation, 170 acres of mangroves had to be cleared, and sand pumped to raise level. Amoco to build refinery on reclaimed land on N bank of Bulwer Island. This required extensive reclamation, with fill pumped to island by suction dredges.¹ By this time, 260,000 cubic yards of fill had been pumped onto Bulwer Island.⁵</p>	
1962		<p>Seventeen Mile Rocks cutting deepened to 5'6" in LW and 90' wide. Amoco and Phillips Petroleum built oil terminal in Pinkenba Reach. Wharves constructed by Ampol and</p>		<p>200 acres of Bulwer Island cleared for future Amoco refinery.⁵ First areas of Amoco refinery property on Bulwer Island filled.⁵</p>	

		Amoco to serve oil refineries at river mouth. Many old unsightly wharves removed along river. ¹			
1963		New suction dredge <i>Saurian</i> commenced work. Rehabilitation of South Brisbane Graving Dock commenced. ¹		<i>Saurian</i> worked on reclamation at Bulwer Island and then reclamation in vicinity of river for wharf and industry. ¹ Entire northern end of Bulwer Island cleared of mangroves. Felled mangroves left on site and covered with sand. ⁵	
1964		Developmental dredging and maintenance dredging up to and including Bulimba Reach, approaches to Amoco Wharf, deepening of Parker Island Cutting and Hamilton Reach, and new berth for BHP wharf extension at Hamilton. Dredging of Bay channels and swing basin at Luggage Point. Construction of Ampol product wharf at Lytton. Upstream section of South Brisbane Railway Wharf reconstructed. ¹	New BCC building code facilitated highrise development. Centenary Bridge opened Jindalee area up for suburban development. ³	Further 200 acres of reclamation at Bulwer Island pumped from river deposits. Approximately half of spoil from river dredging works pumped ashore, half dumped in Bay. Dredge spoil from Bar Cutting and Luggage Point swing basin pumped to reclamation on Fisherman Islands. Spoil from Ampol Terminal Berth pumped	

		Centenary Bridge over river in Jindalee area. ³		to reclamation on Ampol Refinery site. ¹ Major construction of refinery on Bulwer Island began (completed 1965). ⁵	
1965	Planning for future development of Port of Brisbane from Bulimba Reach to mouth. Needed larger dredge fleet to keep up with maintenance dredging. Cabinet decided South Brisbane Dock to be closed, transferring activities to Cairncross Dock. Operations ceased 1972. ¹	Further removal of the Seventeen-Mile-Rocks, dredging new channel on S side to 12' LW. The port was prepared for the larger modern ships, especially tankers. From the Pile Light to Luggage Point depth of 38', Luggage Point to Pinkenba depth of 28', Pinkenba to Norris Point depth of 27', Norris to Circular Quay depth 22', and Circular Quay to Victoria Bridge depth of 17'. Cairncross Dockyard (Brisbane Graving Dock) upgraded. Improvements to M-Berth at Pinkenba but major reconstruction required. Old Redbank Wharf demolished in Quarries Reach. ¹ Ampol oil refinery opened at Lytton. ³		Area (1 acre) upstream of ACF and Shirley's Wharf and downstream of Pinkenba Wharf reclaimed by landfill of ash and breeze – leased to ACF and Shirley's. Dredges continued to pump ashore to reclamation at Hamilton, Parker Island and Lytton. Stone and gravel revetment of river frontage completed to prevent erosion of sand reclamation of Amoco tank farm area. Final section of refinery lease reclaimed at Bulwer Island, pumping sand from Boggy Creek. Further reclamation in area until 1967 for road access, Brisbane City Council Park, etc. Little	

				sand for reclamation left in lower Brisbane River. Sand for Imperial Chemical Industries ammonia and fertiliser plant reclamation at Pinkenba taken from Moreton Bay, as not enough left in river. ¹	
1966		Construction of Ampol crude oil wharf on N bank at Luggage Point. Department's old dredge wharf at Hamilton had deteriorated and was demolished, making way for new extensions to Brett's Wharf. Demolition of D-Berth downstream from Messageries Wharf and old wharf at Colmslie Fish Board site to make way for new jetties. ¹	Brisbane area population 778,193 in 215,668 dwellings (city census total 593,668). CBD building boom in highrise construction until 1971. ³	Another substantial pump out station constructed at Fisherman Islands to allow progressive reclamation of valuable area in development of Port of Brisbane. New jetties (at old D-Berth and Colmslie Fish Board Site) to be main discharge point for dredge <i>Sir Thomas Hiley</i> . Also used for <i>Morwong</i> in 1969/ 1970 for spoil from Fisherman Islands swinging basins, and lower reaches and berths. Reclamation of 300 acres progressively carried out (ultimately 2000 acres required). Spoil from	

				Ampol and Amoco oil berths and the deepwater Fisherman Islands swing basin. ¹	
1967	Floods in June. ¹	New beacons replacing old at outer Bar Cutting entrance. Pile Light at Bar Cutting demolished. Brisbane River wooden leading beacons replaced with steel structures. <i>Groper</i> excavated rock at Lytton Rocks cutting, deepening it to 34' LW. Australian National Line roll-on roll-off terminal at Newstead. Extension of berth at Bretts Wharf, Hamilton. Cairns Cross Dockyard to undergo improvements (starting 1969, completed 1972). ¹ Construction of new Victoria Bridge commenced. ³ Bulwer Island training wall extended to tip of island (work until 1972). ⁵	First CBD highrise to exceed height of City Hall (MMI building, Queen Street). ³	Saurian completed land reclamation for Amoco refinery on Bulwer Island. ⁵	
1968	Jan 28 announcement of State Government plan to allow the construction of	No difficulties were experienced in handling the large oil tankers following the construction of two oil refineries in the lower reaches of the river. Increased		Parker Island reclamation area closed and pump out jetty demolished. Dredges upstream then had to discharge most	The Beach Protection Act of 1968 enabled the creation of the Authority responsible for investigations into coastal erosion problems and providing advice on mitigation to

	<p>“Alberta City” on Coomera island. Strongly opposed by the Australian Littoral Society and Wildlife Preservation Society. Project abandoned. Start of 15 yr campaign to have area protected. Minor flood January.²</p>	<p>rate of siltation (from flood) in lower reaches required maintenance dredging. Main overseas terminal constructed by Brisbane Wharves and wool dumping company at their Hamilton No. 2 Wharf.¹</p>		<p>spoil at Lytton/ Fisherman Islands pump outs. Approximately 65 acres at Lytton acquired from Commonwealth for filling by reclamation: bundwall constructed with imported solid fill, and diversion drainage channel excavated.¹</p>	<p>local authorities.¹ Protection of all species of sea turtles in Queensland since 1968 under the Fisheries Act.²</p>
1969		<p><i>Groper</i> and <i>Morwong</i> dredged Outer Bar Cutting where shoaling had decreased depth. Channels to Hamilton Reach dredged to 28'. Container load facility and roll-on roll-off terminal at Newstead completed, with wharf, crane and ramp. Austral Pacific Fertilizers completed complex at Gibson Island, with wharf and dredged berths.¹ Modern container facilities for Stevedoring built at Pinkenba. New Victoria Bridge opened.³</p>		<p>An area of almost 50 acres at Parker Island reclamation topped with sand to permit early leasing for industry. Development of Hemmant Industrial lands: reclamation with sand from Aquarium Passage started, a long-term project.¹</p>	<p>Fisheries Section. Declaration of Pumicestone Passage, Deception Bay, Kippa-Ring, Hay’s Inlet, Moreton Banks, Myora and Jumpinpin - Broadwater Fish Habitat Areas.²</p>
1970	1970’s large scale	<i>Saurian</i> dredged river to		By this time, a large part	

	seagrass loss in Deception Bay area. ²	Cairncross Slipway. Preparation work commenced for deepening river channels to 30'. Deep trench excavated across Town Reach opposite Creek Street for telephone cable conduit. ¹ Between 1900 & 1970 at least 12 million cubic metres of gravel & sand had been removed from the Brisbane river for local construction industry. Extraction peaked in the 1970's at 1.45M cubic metres per year. Annual production now is ~1Mcubic metres. ²		of the original Parker Island reclamation had been developed for industry. Filling commences at Lytton reclamation: initial reclamation was 125 acres. ¹	
1971	Flooding, heavy rainfall runoff and siltation in February. ¹	Siltation (from flood) leaves Bulimba to Fisherman Islands seriously affected and heavy maintenance dredging carried out. <i>Saurian</i> used for developmental dredging in Scarborough Boat Harbour. Second grain terminal to be built at Pinkenba. <i>Tridacna</i> maintenance dredging at various points, e.g. Cairncross Dock and Wynnum Creek. <i>Sir Thomas Hiley</i> started dredging channels. ¹	Brisbane area population 867,794 in 251,037 dwellings (city census total 717,330). ³	Over half spoil from Brisbane River Reaches pumped ashore. Spoil from channels dredged by <i>Sir Thomas Hiley</i> pumped to reclamation on Fisherman Islands or dumped in bay. Spoil from Scarborough Boat Harbour dredged by <i>Saurian</i> used in reclamation of tidal flats on Boat Harbour frontage. ¹	Beach Protection Authority. Clean waters Act 1971. Declaration of Peel Island Fish Habitat Area. ²

1972	South Brisbane Dock ceases operation. ¹ Flood February. ⁴	Improvements of Cairncross Dockyard completed and new complex opened. <i>Sir Thomas Hiley</i> dredged reaches from Fisherman Islands to Hamilton to 30'. Blasting of bedrock at Pelican Banks Reach. Dredging of Qld Cement and Lime Co. berth and approaches at Bulwer Island for new clinker plant. ¹ Captain Cook Bridge opened. ³	Most Brisbane streets were now sealed. ³	Dredged mud, clay and rock pumped ashore at Fisherman Islands, Lytton and Hamilton reclamation, and the rest dumped in Moreton Bay. Spoil from new Qld Cement and Lime Co. berth at Bulwer Island pumped to reclamation. ¹	
1973	Queensland state population reaches over 2 million. ¹¹ South-east freeway-Juliette to Springwood opens. ¹²	<i>Mourilyan</i> removed some of displaced mud of N bank of South Brisbane Reach caused by construction of Riverside Expressway. Three dolphins at M-berth and old coal berth at South Brisbane demolished. ¹ Maroon Dam completed. ²			The Pollution of Waters by Oil Act of 1973 enabled action to be taken against the owner or master of any ship or occupier of land where a discharge of oil occurred into the water. ¹
1974	Flooding of the river in January. ¹ 1:100 year flood associated with reported loss of coral communities from Raby and Waterloo Bays. ² The 5.5m flood caused an estimated	Powerful day and night lights established on shoulder beacons at Bulwer Island. New leads marking cuttings at upper Quarries Reach. Heavy siltation, dredging to regain depths. Dolphin-type wharf built at Pinkenba Wharves Wheat Board Bulk Handling area to serve larger grain ships.	1974 study by QDPI found 14% rural land in the catchment subject to severe soil erosion as a result of agricultural practices, 73% less severe erosion & 13%	Spoil from Fisherman Islands dredging (<i>Saurian</i>) pumped to adjacent reclamations. ¹	Environment Protection (Impact and Proposals) Act 1974 – ensures that matters significantly affecting the environment are fully taken into account by or on behalf of Aust. Gov. ²

	\$200 million dollars of damage and 14 lives were lost. ⁴	Maynegrain completed and commissioned second grain storage and loading facility at Pinkenba. Maynegrain commenced construction of silica sand export complex at Pinkenba, with large shed, wharf and dredged berth. Oil seeds processing plant constructed at Pinkenba. <i>Saurian</i> dredged at Fisherman Islands, extending approaches to pump-out stations downstream from Ampol Crude Oil Wharf. ¹	negligible erosion. Report of the working committee on long term planning between Jumpinpin Bar & the Nerang river bridge. 1974 Moreton region non-urban land suitability study. ²		
1975	1975 Coastal management investigation. ²	Maynegrain large silica sand storage shed and barge unloading wharf completed in Pinkenba wharf area. <i>Saurian</i> dredged Cairncross Dockyard Slipway to remove flood siltation. New road built at Bulwer Island to service development of Queensland Cement and Lime Company's new mill complex on waterfront lease land. ¹			Australian Heritage Commission Act 1975 inventory of Australia's natural and cultural heritage. Great Barrier Reef Marine Park Act 1975 – establishment, control, care and development of marine parks in the Great Barrier Reef Region. National Parks and Wildlife Act 1975. ²
1976	Port of Brisbane Authority took over full control and	Construction of service roads and associated underground drainage works for Hemmant	Brisbane city census population 724,801. ³	Port of Brisbane Authority initiated development of	Port of Brisbane Authority Act of 1976 established the Authority as a separate and autonomous body. ¹

	management of port. Soil investigation work at new port complex site, Fisherman Islands. ¹ 1976 Moreton region growth strategy investigation. ² The Riverside Expressway was completed, which was part of the developing South-East Freeway. ⁶	Industrial Port Land completed. ¹ North Pine Dam completed. Hinze Dam completed. Bulwer Island grinding plant completed. ² Last cargo ship used Newstead wharf, as port moved downstream to service larger container ships. ³		Fisherman Islands near river mouth (until 1978). ³ Spoil from SE side of Inner Bar Cutting pumped onto Fisherman Islands for reclamation. ¹	Fisheries Act 1976. Historic Shipwrecks Act 1976. Fauna Conservation Act 1976. ²
1977	Design work for Port of Brisbane Fisherman Islands container wharves. ¹				AMSA guidelines for protection and management of estuaries & estuarine wetlands. ² Inaugural Brisbane River Symposium. ⁸
1978	1978 study delineated mangrove & saltmarsh distribution on a 1:1000 000 scale vegetation map. ²	Following successful field trials in 1975, the first conversions of navigation light systems to solar power were made. ¹		Section of mangroves cleared on Bulwer Island. Boggy Creek redirected to connect with airport drainage channels (work until 1981). ⁵	The National Plan to Combat Pollution of the Sea by Oil was presented in June 1978 to the Commonwealth Parliament. This Act provided an effective administrative environment under which first response equipment, personnel and training were

					described. ¹
1979	<p>The 1979 census taken in Queensland. Population of 2,222,700.¹ Olsen brief description of habitat reserves & maps indicating boundaries. 1979 Dowling provided a field key and generalised account of Moreton Bay mangroves.²</p>			<p>Pilot project revegetating Bulimba Creek began by Australian Littoral Society.³</p>	
1980		<p>New Brisbane Airport developments relocated last resident from Cribb Island community and redevelopment occurred near the mouth of the river. Wharves on Fisherman Islands were opened by the Port of Brisbane Authority.^{3,12} New lights on limit leads at Bulwer Island and swing basin leads for new wharves at Fisherman Islands.¹</p>			<p>Trawlers >14m length with Moreton Bay permits were restricted to fishing grounds south of Sandy Cape.² St Helena Island was gazetted as a historic area. Moreton Island was listed on the National Heritage register.¹²</p>

1981			Brisbane city census population 731,230. ³		Environment Protection (Sea Dumping) Act 1981 – disposal of dredge spoil from Queensland's major trading ports. ²
1982	Cited study of Southern Moreton Bay measured mangroves as 6950 ha and saltmarshes 2870 ha. ²				Queensland Marine Parks Act 1982. ²
1983	Main trade: import of crude oil and general cargo; and export of grain, meat, coal and refined petroleum products. ¹ Economic boom. ³	New oil storage tank erected at Amoco Oil Refinery obscured rear Bulwer Island lead so new higher leading beacon erected. By this time, Port of Brisbane Authority completed construction of 2 container terminals, bulk coal export facility and bulk cement import installation at Fisherman Islands and were constructing a bulk grain installation. ¹		Hamilton and Pinkenba reclamations were completed. Last pump-out was pulled down, ending 85 years of pumping fill to these reclamations. Pinkenba and Hamilton were rapidly developing into industrial estates. ¹	World Heritage Properties Conservation Act 1983 – protects and conserves those places under Aust. control which contain outstanding universal values. Declaration of Bribie Island, Pimpama, Coomera and Coombabah Fish Habitat Areas. Nov 19, threatened tidal wetlands became protected as Coomera Island Wetland Reserve. ²
1984			158 blocks of land for sale at the controversial Raby Bay Canal. ¹²	BP acquired Amoco refinery on Bulwer Island. ⁵	Aboriginal and Torres Strait Island Heritage Protection Act 1984 protecting Aboriginal and Torres Strait Islander archaeological sites and traditional places. ²
1985	Gold Coast Seaway	Wivenhoe Dam completed on			

	opened. ²	the Brisbane River. ³ Dredging for airport work in Boggy Creek. ⁵			
1986		Gateway Bridge finished and opened over river between Eagle Farm and Murrarrie. ³			
1987	Reported loss of 8.4% of mangrove and 10.5% of saltmarsh/ claypan communities since 1973. Reported return of seagrass to Deception Bay since 1975. ²	Max dimensions of shipping channel reached 11.6m deep, 180m wide at river mouth; 9.1m deep, 120m wide at Hamilton. ²	Brisbane city population 736,080. ³		
1988	Coral dredging at St Helena Is ceased. ³				
1989	Reported 38% loss of Melaleuca wetland in SE Qld since 1974. ²	The operation of Wivenhoe Dam helped mitigate moderate flood levels in April. However, after the dam water flow was shut off there was massive riverbank slumping downstream. Rates were slowed down to try a fix the problem and no major riverbank slumping was recorded after a second flood later that year. ⁸	Brisbane city population 744,828. ³		

		Admiralty Wharf development with boardwalk access. ³			
1990		1990's Cleveland Point and Raby Bay entirely enclosed by seawalls. ² Crude oil pipeline construction commences on Bulwer Island (until 1994). ⁵		Approval given for R/O marine plant regrowth from 80 ha reclaimed tidal land at Lamerough Ck, Caloundra. ²	Dugong listed as vulnerable to extinction. ²
1991	Flash flood Feb 8. ³		Brisbane city census population 763,038. ³	Approval given for reclamation of 150 ha of tidal land at Dux Ck, Pumicestone Passage. ²	
1992		Dredging of Cabbage Tree Creek with spoil disposal at Dynah Island. ²	Brisbane city population 767,324. ³	Approval given for reclamation of 145 ha of tidal land at Fisherman Islands, Brisbane River. ²	Nature conservation Act 1992. Declaration of Extension to Myora Fish Habitat Area. ²
1993			Brisbane city population 777,280. ³		Government establishment of the Brisbane River Management Group. Moreton Bay Marine Park declared. ^{2,3} Land claims prepared for Peel Islands and North Stradbroke Islands. ¹²
1994			Brisbane city population 786,442. ³		Environmental Protection Act 1994. ²
1995	Reported 38% gain of seagrass and some loss of species		Brisbane city population 801,879. ³		Moreton Island declared a National Park. ¹²

	since 1987 in Southport Broadwater. ²				
1996	Reported approval given for removal or disturbance of 4 ha of mangroves and saltmarsh in Moreton Bay region. Reported complete loss of seagrass from mouth of Logan River since 1987. May 1996 flood significant. Affected coral and seagrass communities. Rated as 1 in 20 year event resulting in medium to high flows & flushing pollutants out of the estuaries into the bay. Resulting algal blooms may be linked back to mainly Brisbane river. ²		Brisbane city census population 819,592. ³		Coastal Protection Act of 1996. ²

	<p>All the seagrass from Southern Deception Bay was lost.⁷</p> <p>Queensland state population of 3,374,000.¹¹</p> <p>Brisbane City Council first high speed city cat commenced at Bulimba.⁶</p>				
1997	<p>Dieback of 280 ha of mangroves associated with hail storm damage reported for southern Bay islands. Moreton Bay Trawl Discussion Paper released.²</p>	<p>75% of residential properties “protected” by seawalls.²</p>	<p>Heavy metals and hydrocarbons in sediments from urban runoff were recorded in some urban creeks after heavy rain. Recent tests on mud crabs showed only low levels of metals and persistent insecticides. However, a broader analysis of all intertidal fish and crustaceans has</p>		<p>Moreton Bay Marine Park extended.²</p>

			not been undertaken. ²		
1998		Extractive dredging in the Brisbane river ceased in December, 1998, however, ongoing navigational dredging in the lower reach continues. ²			
2000/ 2001	Mangrove dieback, possibly from altered drainage patterns, under investigation at Hay's Inlet, Luggage Point and Fisherman Islands. Start of nutrient removal upgrades for municipal waste water processing units (Logan, Brisbane, Pine Rivers, Caboolture and Redcliffe). ²				The amended East Coast Trawl Fishery Management Plan comes into force. ²
2003	Major oil spill (~ 1.2 million litres) in mangrove-lined channels and drains in the Lytton area. Approximately 1-2				

hectares of mangrove dieback as a result.				
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