

A RECREATIONAL AND SOCIAL HISTORY OF THE AVON-HEATHCOTE ESTUARY



Felicity Boyd

Supervised by Dr Greg Ryan and Dr Jo Fountain

A report prepared for Lincoln University (Faculty of Environment, Society and Design Summer Scholarship, 2009/2010), Environment Canterbury, the Avon-Heathcote Estuary Ihutai Trust and the Tertiary Education Commission



INTRODUCTION

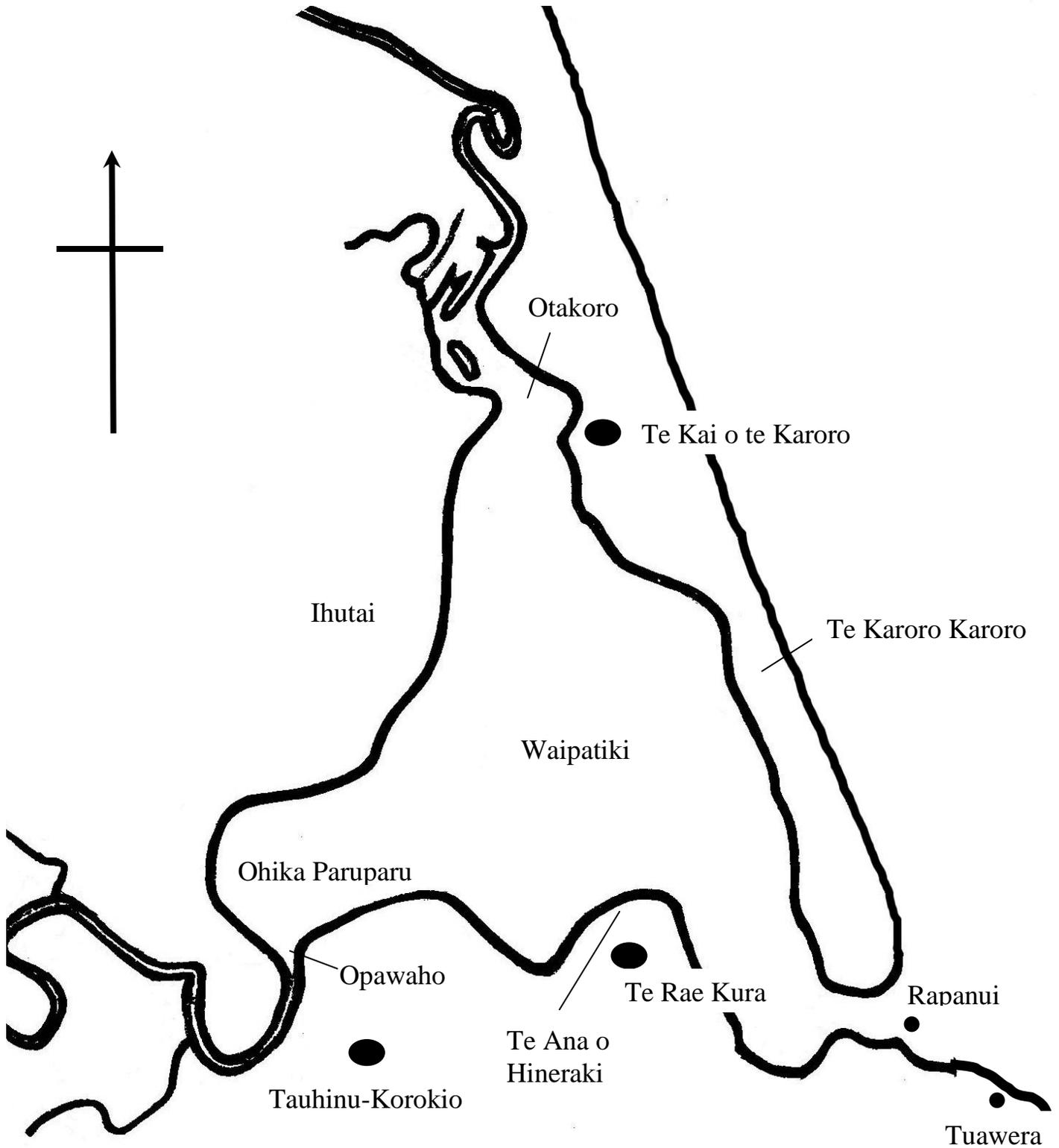
The Avon-Heathcote Estuary has long been an important resource for the people of Canterbury. Prior to European settlement, Maori throughout the South Island used the Estuary as a mahinga kai (seafood gathering) source. As European settlers began to arrive, the Estuary became an important transport route and, later, a popular area for many different types of recreation. The suburbs around the Estuary were among some of the first to be developed by settlers due to the proximity to the sea. Since the beginning of settlement in Christchurch, the Estuary has been subjected to high levels of pollution. In the late nineteenth century and early twentieth century, waste from industrial areas and factories was drained into the Heathcote and Avon rivers, making the Estuary water increasingly more polluted.

By mid-twentieth century, the Avon-Heathcote Estuary was regarded by many as nothing but a waste water discharge area. The construction of the Bromley Waste Water Treatment Plant did little to enhance the area. However, since the 1960s there have been a number of concerted efforts to improve the water quality of the Estuary and enhance the conservation and recreation values of the area. There has also been resurgence in recreational activities on and around the Estuary.

It is hoped that with the completion of the ocean outfall pipe from the Bromley Waste Water Treatment Plant to offshore Pegasus Bay, the Estuary will once again become an important recreation resource for the people of Christchurch.

PRE-EUROPEAN SETTLEMENT

Derived from Christchurch Area Showing Swamps & Vegetation Cover (Penney, 1982, p. 2) and Estuary in Pre-European times (Harris, As it was: early Maori and European Settlement, 1992, p. 17)



PRE-1945

Pre-1840

The Avon-Heathcote Estuary was formed around 450 years ago.¹ Sand from the mouths of the Ashley and Waimakariri rivers was carried down the east coast of the South Island and built up along the shoreline of modern day Christchurch, gradually forming what is today known as the Southshore Spit.² The Spit closed off the water body from Pegasus Bay, producing an estuarine environment. The Estuary was a very important food source for South Island Maori. It was home to a wide range of edible shellfish, birds and plants including ducks, pukeko, weka, oyster catchers, godwits, pipi, paua, mussels, kina, eels, kahikatea berries and raupo roots.³ But the Estuary provided Maori with more than just food: with approximately 5000 Maori living between Timaru and Kaikoura, the Estuary maintained tribal connections through the trading of resources.⁴ It also provided access to the waterway network of Canterbury, allowing coastal Maori to travel further inland in search of resources.⁵

In the mid-seventeenth century, Tahupotiki arrived in the South Island and became the founding ancestor of the Ngai Tahu tribe.⁶ The Ngai Tahu people quickly established kaika (settlements) around the South Island.⁷ The Maori of Te Wai Pounamu (the South Island) moved from site to site around the island in search of food sources – they would use resources in a seasonal manner, relocating at particular times of the year.⁸

Consequently, much of the early kaika were temporary settlements rather than permanent villages. One such site was located on the Spit, known to local Maori as Te Karoro Karoro (“seagulls’ clatter”), and used for mahinga kai – many years later, European settlers discovered Maori fishing equipment, eel traps and ovens for cooking fresh seafood along Te Karoro Karoro.⁹

Waitaha developed two initial kaika at Te Rae Kura on the southern Estuary boundary (today’s Redcliffs) and at Te Kai o Te Karoro on the north eastern boundary (now known

as the Pleasant Point Domain).¹⁰ Te Rae Kura (“red glowing headland”) was named for the red volcanic rock found in the area. This rock was used by Maori for decorative and ceremonial purposes – particularly rock drawings and carvings. Te Kai o Te Karoro (“the food of the seagull”) received its name after a battle between Ngai Tahu and Ngati Mamoe. Ngai Tahu defeated Ngati Mamoe at Matariki, leaving so many for dead that the seagulls fed for days on their bodies.¹¹

As the South Island population grew, a number of further settlements were established around the Estuary. The mouth of the Avon River was named Otakoro, meaning “place of games and sports”, indicating the long history of recreation at the Estuary.¹² The area that lay on the north west boundary of the Estuary was filled with sand hills and was known as Ihutai, a burial place for local Maori. Opawaho, the mouth of the Heathcote River, was used as a seasonal gathering place and fishing camp. A track, Pohoareare, was formed from Opawaho, through the Ihutai sand hills to Te Karoro Karoro where Maori would swim in the ocean. Located in the centre of the Estuary at low tide were vast mud flats named Waipatiki (“abundance of flounder”) after the fish caught there.¹³ Mudflats covering the area now known as Ferrymead were a popular place for women to gather shellfish – the name Ohika Paruparu refers to times when the women would sink and become covered in mud.¹⁴ Ngati Mamoe established a pā at Tauhinu-Korokio (later Mount Pleasant) but were eventually subjugated by Ngai Tahu – the name of this settlement refers to the way in which korokio (a small bushy plant) was slowly smothered by the growth of tauhinu (a heath scrub and noxious weed) in the area.¹⁵

Between Ferrymead and Sumner lay a number of caves within the hillside facing the Estuary. Each of these caves was used for shelter by local Maori at some point.¹⁶ The biggest cave, now known as Moa Bone Point Cave, was also known as Te Ana o Hineraki and was inhabited by early moa hunters, and later by shellfish gatherers presumed to be Waitaha, who preceded Ngati Mamoe in the South Island. Just half a mile away from Te Ana o Hineraki was the smaller Monck’s Cave, last occupied by North Island Maori and buried by a slip for at least one century. The Richmond Hill Cave, located behind the former Marine Hotel, was said to be used by Maori as a look-

out point – enemy canoes coming around Whitewash Head could be spotted from the cave.¹⁷

At the mouth of the Estuary lay Rapanui, “the great sternpost”, later known as Shag Rock.¹⁸ This great landmark acted as a guide to the entrance of the Estuary due to its location by the main channel in from the ocean.¹⁹ Another landmark of importance was located at Matuku Tako-tako (Sumner): Cave Rock, or Tuawera. Tuawera means “destroyed by fire” however this is not a literal translation – it refers to the legend of Te Ake of Akaroa and Turakipo of Opawaho. Te Ao, daughter of Te Ake, was courted by Turakipo. She rejected him, and so he called on his powers as tohunga to bring evil forces against her until she died. Te Ake travelled to the West Coast where he learned the art of black magic in order to revenge his daughter’s death. He returned to the Estuary area and made his way to the top of the hill overlooking Cave Rock and sent out evil against Turakipo and his people. Shortly after, a whale was stranded on the beach by the rock and all of Turakipo’s people except Turakipo himself flocked to feast. They soon began to fall and the only one who woke to join Turakipo was a young woman related to Te Ake. The name Tuawera refers to the swift manner in which Turakipo’s people were killed.²⁰

As per Maori custom, land throughout Canterbury was divided into wakawaka (sections) which were each looked after by certain hapu or whanau with gathering rights. In the case of the Estuary, Ngai Tuahuriri were the kaitiako (caretakers) of the area and therefore had gathering rights. Rahui (restrictions) controlled hunting and gathering within these areas.²¹

Population growth in the South Island through the seventeenth and eighteenth centuries led to a depletion of resources, with many bird species (such as the moa) becoming extinct.²² Many people moved to coastal areas in order to fish and gather shellfish. This depletion of resources led to the first kumara cultivation in the South Island, which in turn led to the development of storage facilities at kaika, allowing settlements to become

permanent villages.²³ During the eighteenth century and the early nineteenth century, kumara and aruhe were grown by Maori at the mouth of the Otakaro.²⁴

1770 saw the arrival of Captain Cook to the waters of the east coast of the South Island. Through the mist of the wetlands, he declared Banks Peninsula an island, and returned to the United Kingdom with this information. It was not until 1809 that Captain Chase realised Cook's error and renamed the land Banks Peninsula. During this time there was much flax trade between local Maori and the European visitors.²⁵ The early nineteenth century saw Maori in turmoil due to inter-tribal war – by the 1840s a huge number of Maori had been killed through the attacks of Te Rauparaha and Ngati Toa.²⁶ At the turn of the century there were approximately 5000 Maori between Kaikoura and Timaru; by the 1840s there were barely 1000 living at Banks Peninsula, Christchurch and Kaiapoi.²⁷ Most Ngai Tahu fled to Port Levy and Banks Peninsula.²⁸

From 1837 onwards, European settlers began “purchasing” land.²⁹ This caused some confusion between Europeans and Maori as Maori did not traditionally buy or sell land in the way Europeans did.³⁰ The 1830s and 1840s saw the Maori population further devastated by the introduction of disease into the country; particularly destructive were influenza, whooping cough, measles, mumps, tuberculosis and venereal disease. Due to the upheaval of civil war, by the end of this period the tangata whenua for the Estuary were the hapu at Tuahiwi.³¹

1841 – 1890

In 1841 Captain Daniell, aboard a survey ship, was the first person to explore the reaches of the Estuary. He sailed over the Sumner bar, through the Estuary and up one of the rivers – presumably the Heathcote, as the ship managed to progress some eight miles from the Estuary.³² It is thought that William Deans, of the Riccarton Deans brothers, was aboard this ship.

During the 1840s there was a small amount of European activity in Canterbury, primarily on Banks Peninsula. It was here that sealers and whalers came ashore and engaged in trades with local Maori. With the formation of the Canterbury Association, 1850 onwards saw a huge increase in European settlers arriving in Canterbury and the Christchurch area in particular.

During the 1840s, Ngai Tahu Maori began developing tribal farming to complement their mahinga kai resources.³³ As European settlers began taking up more land, it was important for Maori to utilise their land in the most productive way. By the 1850s, groups of Maori were only occasionally seen around the Estuary.³⁴ It was during this time that the well-known Kemp's Purchase was made.

Captain George Grey became the Governor of New Zealand in 1845 and was given money by the British Government in 1847 to buy as much of the South Island as possible. In 1848 Henry Tracy Kemp negotiated the purchase of around eight million hectares of Canterbury land for £2000. This purchase was agreed to by Ngai Tahu on the terms that all mahinga kai would be kept and ample reserve lands were provided for their descendants. The boundaries agreed to by Maori were from the east coast west to the foothills from Maungatere (Mount Grey) south to Maungaatua (the boundary of the Otakou purchase), excluding Lake Waihora, Banks Peninsula and the Kaitorete Spit. The offer of £2000 (to be shared between 1500 Ngai Tahu) was initially rejected, then later accepted on the conditions that the terms agreed to by Grey would be included in the deed, which was then signed by 36 chiefs.³⁵ The promised reserves were not marked out before the deed was signed.

Commissioner Mantell arrived in New Zealand to sort out the Maori reserves; however his main aim was to appease Governor Grey. Mantell's map showed the Kemp's Purchase boundary as extending right across the island to the West Coast. The Ngai Tahu chiefs were understandably indignant, so Mantell promised larger reserves later on as well as hospitals, schools and extra money for Ngai Tahu. This was not to become a reality. Mantell's reserves averaged only four hectares and when the Crown transferred

the Kemp's Purchase land to the New Zealand Company there was no provision for mahinga kai (much of which was lost due to the draining of the Canterbury wetlands for building and farming).³⁶

In 1868 Ngai Tahu took their claim to the Native Land Court, challenging the validity of Kemp's Purchase and later claiming for the loss of mahinga kai.³⁷ Their claim failed, although Chief Judge Fenton did award four acres per person on top of Mantell's ten acres (four hectares). In 1879 a Royal Commission was set up to investigate the Ngai Tahu claim. Commissioners Smith and Nairn were highly critical of Judge Fenton's decisions – it was at this point that Native Minister John Bryce promptly cut funding and closed the Royal Commission.³⁸

The Estuary quickly became an important transport route for settlers. Transporting goods over the Port Hills from the Lyttelton port to the Christchurch settlement was impractical and in many cases impossible. Therefore, settlers utilised ships running from Lyttelton through the Estuary and up either the Avon or Heathcote Rivers. The Heathcote River quickly became more popular due to its depth and width – ships could not progress far down the Avon as it became too shallow, while on the Heathcote they were able to travel as far as the Christchurch Quay, near the Radley Street Bridge.³⁹ The Heathcote Wharf opened in 1852 and the Railway Wharf in 1863, both providing employment for settlers and unloading points for ships entering the Estuary.⁴⁰ Ferrymead became the fastest growing area outside the city boundaries with industry, inns and farms appearing on an almost daily basis. Land near the wharves became highly sought after.

In 1852 the majority of Mount Pleasant land was bought by Major Alfred Hornbrook. Hornbrook was well known within the community for his volunteer work: from the top of Mount Pleasant, Hornbrook signalled all ships visible. In 1853 he was provided with an array of coloured flags, a telescope and a flagstaff.⁴¹ This land was eventually taken over by R. M. Morten. Both Mount Pleasant and St Andrews Hill were early sheep grazing stations. The area of Southshore was at this time known as “Sandhills Run” – a large station stretch far up the coast line. As more settlers arrived, squatters erected baches

along the spit and grew wild strawberries, spinach and asparagus.⁴² In the 1860s, New Brighton was described as being “an unutterably dreary desolate waste of sand.”⁴³ However as early as the 1870s, it had become known as a pleasure resort to the people of Christchurch, many of whom built holiday cottages there.⁴⁴ With the development of a tramway and the Stanmore Road Bridge people were able to live in New Brighton and work in the city centre. New Brighton offered regular trams and a range of entertainment activities: baths, a hotel, open-air concerts, pony rides and Bligh’s Gardens.⁴⁵ Upon arriving in New Brighton, John Bligh built a house and created an expanse of gardens which became very popular as a party and entertainment venue.⁴⁶ Nurse Maude established a sanatorium near the New Brighton bridge during this time. The sanatorium consisted of seven or eight tents sheltered by local broom for those people unable to afford expensive treatment in the city centre.⁴⁷

By 1851 Charles Crawford, an entrepreneurial settler, was operating a ferry between the southern banks of the Heathcote river and the northern banks, where people were able to continue their journey to Christchurch via Ferry Road. His prices were exorbitant, and many people chose to take their chances crossing the Heathcote further downstream, holding their belongings above their heads.⁴⁸ Similarly outrageous were the shipping costs between Lyttelton and Ferrymead, which soon exceeded the cost of shipping between England and Lyttelton. These prices can be attributed to both the treacherous Sumner bar crossing, and the greedy nature of the operators, who were well aware of the monopoly they held.⁴⁹ Ferrymead became home to the first railway line to open in New Zealand in 1861.⁵⁰ The paddle steamer “Colleen” was operating by this time, transporting passengers between Ferrymead and Sumner.⁵¹

The first bridge over the Heathcote was opened in 1864 and offered a much lower toll than the ferries of the time.⁵² Almost overnight, the ferry trade became defunct. When the railway tunnel to Lyttelton opened in 1867, it signalled the end of the busy river trade.⁵³ After twenty years of prosperity, river traffic was effectively dead by 1870. The first railway line to open in New Zealand also became the first railway line to close.

By 1850 there were approximately 500 Europeans in the whole of Canterbury – by 1875 there were around 10,600 in Christchurch alone.⁵⁴ Consequently, the beginnings of many of the Estuary suburbs can be dated to this time. John Stanley Monck bought most of the bay now known as Monck's Bay in 1869 and by 1882 owned most of Monck's Spur and 120 hectares at Redcliffs. Monck was an enthusiastic athlete, partaking in ice skating, rowing, running and cricket, and allowed the main valley of his land to be used for encampments and shooting championships. He went on to become a founding member of the Christchurch Sailing Club. During this period, the Estuary side of Redcliffs was known as Fisherman's Flat due to the wide beach found there that was the home to a large number of eels, flounder and shrimp. Redcliffs shrimp was a delicacy of the time that was sent all over New Zealand.⁵⁵

In 1855 Rapanui became known as Shag Rock due to the birds which gathered around the landmark. Between Monck's Spur and Moa Bone Point lay a valley known at the time as Watsonville, after Alfred Claypon Watson's 1872 purchase.⁵⁶ Further south, Sumner was settled early but faced transport difficulties due to the steep hill faces encountered on route to Christchurch. A transport became easier with roads around the base of the hills, Sumner became a popular beach resort for the people of Christchurch.

In 1844 the water of the Avon River was said to be crystal clear. However by as early as the 1860s boiling water before use was the recommended practice.⁵⁷ Run-off, discharge, liquid slops and effluent from houses and factories alike drained into both the Avon and Heathcote Rivers, inevitably ending up in the Estuary. By 1876 Christchurch had the highest incidences in New Zealand of typhoid, diphtheria and dysentery.⁵⁸ Sewage systems catering for hillside residents were often poor, overflowing into the Estuary. Drainage on hillside properties was also lacking – storm water mostly ran down the hills into the Estuary. In 1883, 18.4 hectares of land at Bromley (known to Maori as Ihutai) became the site of the first sewage farm. Sewage from the surrounding suburbs was pumped to the sand hills, treated and then discharged into the Estuary.⁵⁹ This essentially put an end to the Estuary as a mahinga kai source, as it is against Maori custom to eat

food that has been in contact with even treated human waste. Prior to the sewage farm, early settlers would picnic on the sand hills.⁶⁰

All around the Estuary, industry flourished. But with industry came waste, and during this period waste was pumped straight into the Estuary. Woolston alone was home to eleven tanneries and one skinnery – effluent from these operations as well as wool scours, glue factories and metal works was discharged into the Heathcote River, eventually ending up in the Estuary.⁶¹ By 1900, Woolston was one of the most densely populated suburbs in the greater Christchurch area.⁶² There was a rubbish dump located in Ferrymead which often burned for days on end, smothering the area in thick, foul-smelling smoke. Also at Ferrymead was the soap and candle factory, which also discharged its waste into the Heathcote River; the factory burned down in the early twentieth century and was not rebuilt. The ink factory on Ferry Road was known for leaving hot drums of ink outside the factory to cool – the smell from these drums was highly offensive to nearby residents. A tanker from the local gasworks discharged liquid waste onto the banks of the Heathcote, as the effluent was considered too offensive to put down normal drains.⁶³

Sewage disposal became a problem for hillside residents. A septic tank was established in St Andrews Hill and received sewage from that area as well as Heathcote Valley and McCormack's Bay. The septic tank was often overloaded and raw sewage was seen floating in the Estuary nearby. The quarry at St Andrews Hill was busy during this time and was another contributor to Estuary pollution through loose dust and gravel falling down the hillside.⁶⁴ The Estuary was becoming a sump for the waste of Christchurch.

Despite the growing problems of pollution, the Estuary was described by settlers as the “ideal playground for aquatic sportsmen.”⁶⁵ This description was proved true by the flourishing of English style rowing and canoeing clubs around the area. Between 1860 and 1866 the first Christchurch and interprovincial rowing regattas were held on the Estuary and the Union and Avon clubs had sheds in Monck's Bay, however the sandbars and sandbanks caused problems as the sport became more competitive, and the regattas

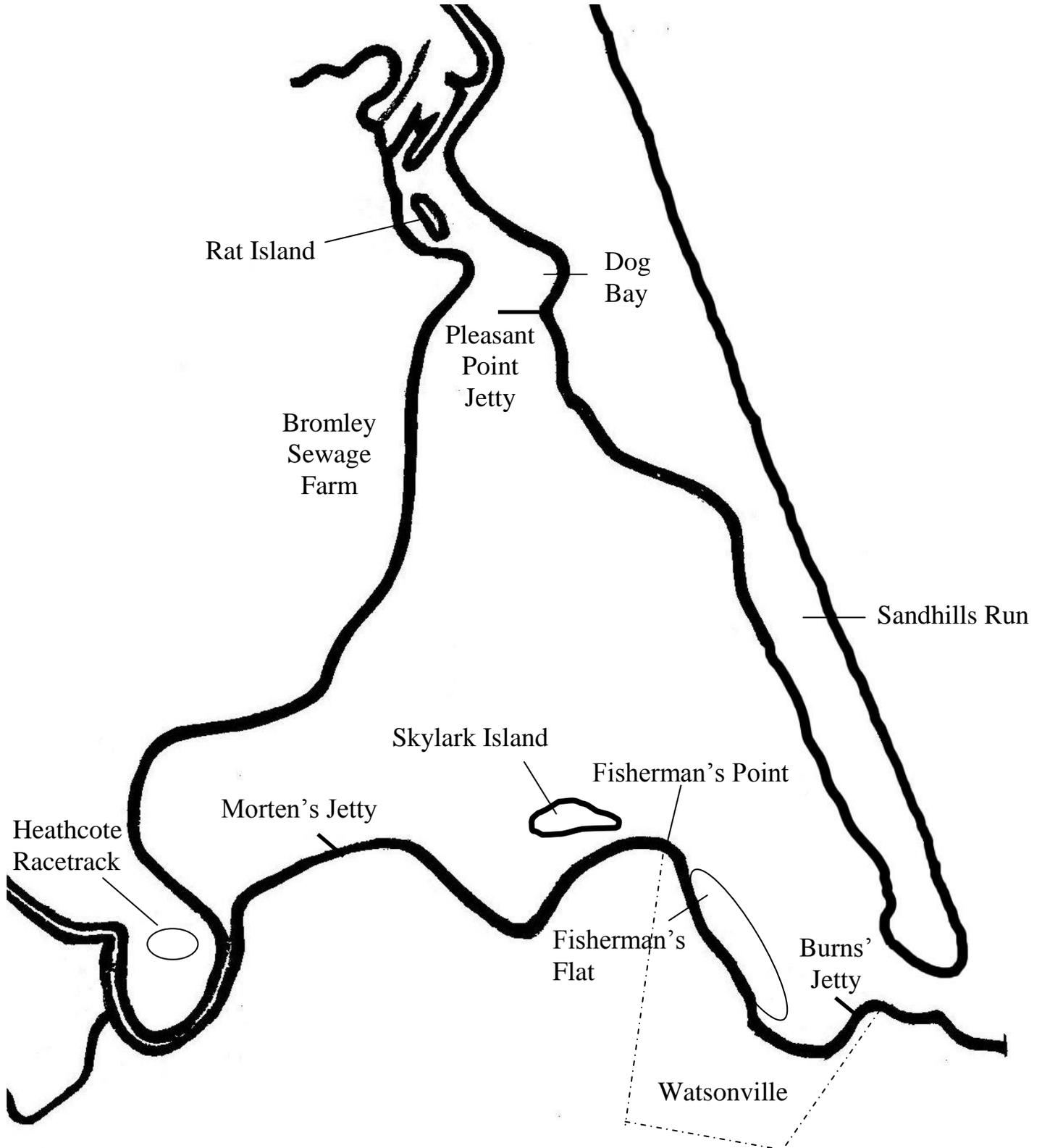
were moved to Lake Forsyth by 1888.⁶⁶ European settlers encouraged sports which provided opportunities for self-discipline and conformity rather than individualism, hence the popularity of rowing and sailing.⁶⁷ Yachting became a popular past time for the more wealthy settlers in the mid nineteenth century.

By 1880 trotting was an organised sport in the area, although match races had been held at New Brighton well before this time. The Lower Heathcote Racing Club was formed and ran meetings at Ferrymead at the track opposite the Heathcote Arms Hotel which was home to a large grandstand. Cricket was being played at Beach Glen by 1878. The grounds soon shifted from Monck's Bay to St Leonard's Square.⁶⁸

1890 saw the first annual meeting of the New Brighton Sailing Club.⁶⁹ The opening of the club was celebrated with a procession of boats covered in Chinese lanterns from Bligh's Garden to the Avon mouth.⁷⁰ There was a large party and fireworks were let off by the club's members.⁷¹

LATE 1890s – EARLY 1900s

Derived from information contained in Penney's The Estuary of Christchurch.



1891 – 1913

The New Brighton Sailing Club grew quickly with many people eager to participate in organized competition. From 1892 the Club held regular picnics at Bligh's Garden where members would dance and eat for many hours.⁷² The Club was dealt a harsh blow in 1896 when three of its members drowned on the Estuary during a sailing accident.⁷³ Members of the Club were instrumental in changing the name of Dog Bay (named for being the location of washed up dog's bodies drowned by their owners further up the Avon) to Pleasant Point. They were also heavily involved in tree planting activities within Pleasant Point Domain. The Pleasant Point jetty was the first on the Estuary and attracted many day visitors, catering for yachts, launches and punts alike. The early twentieth century saw the jetty rebuilt and a well, fireplace, gates and bathing shelters constructed nearby for jetty users and picnickers.⁷⁴

The Christchurch Sailing Club was formed in 1891. The Club celebrated Opening Day each year and regular regattas. These events drew hundreds of spectators to the shores of the Estuary. Soon they grew to include other community groups such as the Sumner Band, the Sumner Lifeboat Crew and the Sumner Rowing Club.⁷⁵ Membership grew rapidly and by the end of 1891 inter-club racing had begun – initially between the New Brighton Sailing Club and the Christchurch Sailing Club. In 1906 the Club changed its name to the Christchurch Yacht and Power Boat Club to reflect the growing interest in engine-powered boats on the Estuary.⁷⁶ Women were not permitted to be members of the Club, but the Ladies Committee was very much involved in the running of the Club – they organized afternoon teas, catering, and sewing. The Club picnic was held at either the Pines or the Ihutai/Bromley sand hills during early years, with the location eventually changed to Purau.⁷⁷

In 1894 a special Sumner lifeboat was purchased for the purpose of aiding emergencies on the bar. This boat was found to be inadequate for the task, and so in 1898 a more practical boat was constructed and launched at a special ceremony.⁷⁸ Finding enough

reliable volunteers with the skills required for this kind of rescue was difficult. 1909 saw the formation of the Sumner Amateur Rowing Club, and 1911 the Sumner Royal Surf and Life Saving Club. In 1913 the Surf and Life Saving Club constructed a pavilion on the beach. Members attended regular practices and training, and would enter competitions against nearby rivals – New Brighton, North Beach and Taylor’s Mistake.⁷⁹ Bowling, tennis, croquet and cricket clubs began to appear around the Estuary during this period, particularly in New Brighton and Sumner. Richmond Hill opened its first golf club. The rifle range in Redcliffs Valley was still in use at the beginning of the twentieth century, but was eventually moved to Burnham.⁸⁰ Similarly, the army camp at Monck’s Bay was well utilised in the pre-war years, providing a training ground away from the city boundaries.⁸¹ In 1903 the British Columbian war canoe Tilikum visited the waters of the Estuary, drawing in huge crowds from wider Christchurch.⁸²

Sections in Southshore were not the prime real estate imagined by a number of hopeful settlers. Sections changed hands from their owners to anyone who was willing to pay the outstanding rates on the properties, often unpaid due to frustration with the utter lack of facilities at Southshore.⁸³ The New Brighton Improvement Society was formed in 1891 and sought to address the concerns of residents. These were mainly with regards to the state of roads in the area, which were often in very poor condition, containing no drainage and many potholes. 1908 saw the beginning of Estuary Road as it is known today. Residential settlements in Mount Pleasant grew during the early twentieth century and a well was sunk at the toe of the hill to supply the new residents.⁸⁴ The first subdivision at Clifton was completed in 1906, creating more hillside homes for settlers.⁸⁵

The Christchurch Tramway Act of 1903 officially introduced public passenger transport to Christchurch and regulated the activities of trams. Transport systems advanced relatively quickly, with horse-drawn transport being replaced by steam engines in New Brighton by 1906 and Sumner by 1907.⁸⁶ 1907 saw the construction of the McCormack’s Bay causeway.⁸⁷ The causeway was intended to make the journey from Ferrymead to Sumner via tram a safer experience – rock fall along certain parts of the route meant travelling was a nerve-wracking experience at times – and shorter in distance. One

unforeseen effect of the causeway was its impact on nearby Skylark Island off the cutting. Until 1906 the island was often used for grazing as well as picnicking, however after the causeway was constructed the island began to erode at a fairly rapid pace.⁸⁸

1914 – 1945

During this period, construction on and around the Estuary began to impact on the area. From 1914 Skylark Island was rapidly eroded due to the change in the Estuary waters caused by the construction of the McCormack's Bay causeway.⁸⁹ By 1926 the island had disappeared altogether.⁹⁰ Between 1917 and 1923 erosion of the Spit tip changed the mouth of the Estuary regularly.⁹¹ With the redirection of the Waimakariri River mouth in 1940, the Spit tip was rapidly eroded and formed the hook shape now seen today.⁹² Eventually only 11 of the original 49 acres remained.⁹³ By 1938 the water colour in the Estuary near Bromley had noticeably changed, becoming murkier than in earlier years.⁹⁴ A mechanical river sweeper in use on the Avon River from 1925 swept huge amounts of silt down to the Estuary, reducing the depth of the water.⁹⁵

In 1916 a large part of the Spit was subdivided into residential sections. Often spoken about was the possible construction of a bridge from the tip of the Spit over the Estuary bar to Sumner. It was thought that this connection between New Brighton and Sumner would increase the popularity of both places, allowing visitors to enjoy the two seaside resort suburbs in one day. This proposal ultimately failed primarily due to the prohibitive cost of construction. During this period Southshore had few permanent residents and buildings were often vandalised.⁹⁶ The Spit was used as a rifle range for volunteers during World War I due to the lack of permanent residents nearby.⁹⁷ Progress was slow in Southshore, with residents not receiving a reticulated water supply until 1922.⁹⁸

The South Brighton Progress League was formed in 1923 and ran regular galas until 1936. These galas were used as fundraising events for the community and the profits were put towards the construction of a playground, seats in the domain, and the band

rotunda, among other things.⁹⁹ These galas (held in North, Central and South Brighton) attracted large crowds from all around Canterbury.¹⁰⁰ Rawhiti Domain, with an area of 155 acres, was classed as a recreation reserve during this time. The Pleasant Point Domain was a popular picnic and party location for the people of Christchurch, and the upgraded tram service (offering roomy, electrified cars and regular trips) running to New Brighton helped make the area more available to non-residents. Easily accessible artesian wells provided clean, fresh water for New Brighton residents. During the war years, New Brighton was the headquarters of the A Company 5th Cadet Battalion, Canterbury Regiment.¹⁰¹ During the 1920s the boat “Tuariki” ran from New Brighton to Sumner and back providing a much quicker transport route for people wishing to visit both locations than the traditional tramway.¹⁰²

The 1930s saw the formation of Humphrey’s Drive which created another access point to the Estuary waters.¹⁰³ Also in the 1930s a roadway was added to the McCormack’s Bay causeway to reflect the growing popularity of motor vehicles for private transport.¹⁰⁴ The causeway effectively closed in McCormack’s Bay from the Estuary and people began to talk about turning the bay into an aquatic recreation area. This was not to be - the area soon became polluted, being used as a convenient dump for the area as well as a storage spot for road metal.¹⁰⁵ Many people supported the filling in of the bay to improve the amenity of the area, but this did not come to pass. The suburb of Mount Pleasant underwent significant growth in the 1920s, with the number of residents increasing rapidly.¹⁰⁶ Redcliffs was provided with an improved mail system in 1915 and electric power and lighting in 1917. The mudflats off Beachville Road were swallowed by reclamation and became the site for the Redcliffs sports grounds. During World War II, Sumner became a “fortress town” with an army camp established near Summit Road.¹⁰⁷

The Sumner Royal Surf and Life Saving Club shortened their name to the Sumner Life Saving Club in 1917 and continued their competitions against nearby clubs.¹⁰⁸ The New Brighton Sailing Club became the New Brighton Power Boat Club in 1919, reflecting the change in interest of recreational sailors on the Estuary. With the depression affecting the finances of the Club, construction of a new boat shed was put on hold. During World

War II the Club faced two main difficulties: severe petrol rations (which limited the amount of sailing possible and forced the introduction of short courses) and absent members due to active service duties.¹⁰⁹

In 1921 Arthur Morten built a jetty at the base of St Andrews Hill which was used by both sailors and recreational swimmers. Before long, swimming at the jetty was prohibited due to the highly polluted state of the water.¹¹⁰ The Sumner Sea Scouts group was formed in the 1920s. The group moored a boat in Monck's Bay and regularly sailed on the Estuary, using their boat for training and, for some cadets, accommodation.¹¹¹

The Pleasant Point Yacht Club was formed in 1921 at the site of the Pleasant Point Jetty.¹¹² The Club moved from this initial location to Rat Island in 1929 where they constructed stilts for their Club shed to sit on due to the thick mud. The years 1932-33 saw a number of New Brighton Power Boat Club members leave and join the Pleasant Point Yacht Club as sailing on the Estuary was far easier from the latter.¹¹³ The Club was the first in New Zealand to allow female members but faced financial difficulties during the depression.¹¹⁴ Social activities were a key part of the Club's functioning from the very beginning – during the 1920s the Club held weekend regattas, and through the 1930s held picnics at the Spit (occasionally joined by members of the Christchurch Yacht and Power Boat Club and New Brighton Power Boat Club) and weekly dances at the New Brighton Surf Club.¹¹⁵ Members raced their boats on Opening Days and on Sullivan Cup Days – the Sullivan Cup was a sailing competition open to all Estuary clubs.¹¹⁶ The Club faced problems with tides and mud banks when attempting to run national competitions on the Estuary; it was inevitable that these competitions would be shifted to more suitable locations. Social activities waned during the war years, and the Club struggled during World War II due to the loss of a number of senior members. A limit on the number of junior members was imposed during this time as there were simply not enough senior members available to properly supervise the juniors.¹¹⁷

1930 saw the opening of the Mount Pleasant Yacht Club located at Morten's Jetty.¹¹⁸ The years 1934-1944 saw continuous developments and upgrades to the Club's facilities,

attracting new members and cementing the Club as a permanent fixture on the shores of the Estuary.¹¹⁹ The Christchurch Yacht and Power Boat Club became the Christchurch Yacht Club in 1936 signalling a clear focus of the members.¹²⁰ The Club continued to run a racing programme throughout the war years and members who remained in Christchurch helped to care for the boats of absent members, maintain the Club house and raise money for the Red Cross.¹²¹ Upgrades to the Club's facilities were carried out regularly as membership grew.

The 1920s saw a resurgence of interest in the Sumner Amateur Rowing Club. Women were permitted to join as members and regular dances were held. This interest was short lived and soon the number of members fell again, forcing the club to close during World War II.¹²²

Around the Estuary recreation activities were flourishing. New Brighton had become home to a wide range of activities: trotting, bowls, tennis, cricket, croquet, golf, football and hockey. The New Brighton Trotting Club was one of the most important clubs in the country at the time.¹²³ After tennis courts were built on the old quarry site in 1924 the Mount Pleasant Tennis, Croquet and Bowling Club was established in 1925. Redcliffs welcomed not only a new sports ground but a bowling club (1923) and a hockey club (1933) – this club became well known for producing very skilled hockey players. The Sumner Rugby Club, formed in 1929, played an annual match against the New Brighton team which was a big occasion for both areas.¹²⁴ At the 1932 Olympics in Los Angeles the Estuary-trained rowing crew of Thompson and Styles won a silver medal, highlighting the importance of the Estuary as a training ground for rowers.¹²⁵ This period was difficult for most clubs due to the depression and the two World Wars; however due to the dedication of members most clubs were able to continue running, if in modified fashion.

MID-TWENTIETH CENTURY ONWARDS



Google Maps. (2010). Retrieved March 12, 2010 from <http://maps.google.co.nz/maps?hl=en&tab=wl>

POST-1945

Residential Development around the Estuary

The years immediately following World War II saw residential areas grow rapidly. Particularly in the cases of Mount Pleasant and St Andrews Hill, government subsidies were available for house building.¹²⁶ Monck's Bay and Redcliffs received electricity in 1948 and after amalgamation with the Christchurch City Council water reticulation was much improved in 1960 and 1961.¹²⁷ The area faced serious flooding and damage to yachts during the 1950s and 1960s due to storms and heavy gales.¹²⁸ In 1968 Morten's Jetty was demolished due to disrepair, signalling the end of an era where swimming was popular in the Estuary.¹²⁹ In the early 1970s, a proposal was put forward by the Christchurch City Council to reclaim all of McCormack's Bay due to the level of pollution in the bay's waters.¹³⁰ The proposal was unsuccessful, particularly because of the protests made by the newly formed Combined Estuary Association. By 1978 there were over 2500 people living in Redcliffs, Monck's Bay and Clifton alone.¹³¹

In 1957 there was a proposal for an open sewage pond south of Ferry Road to cater for residents living on the south side of the Estuary. There was great opposition to this scheme, which ultimately failed – instead, a temporary relief sewer was put in place across the Heathcote River to the treatment plant at Bromley.¹³² Ferrymead Historic Park was opened in 1964 as a way to commemorate the past importance of this former shipping port.¹³³

On the other side of the Estuary, Southshore continued to face many difficulties. The Southshore Ratepayers Association was formed in 1946 by residents who felt that despite paying their rates the area was not receiving any attention by the Christchurch City Council.¹³⁴ By 1948 there were seven buildings on the Spit and Rockinghorse Road was officially recognised.¹³⁵ The main problem Southshore faced during this time was inaccessibility: when the Spit was subdivided, Mr Cargeeg retained ownership of his

property which stretched from the Estuary to Pegasus Bay. He then refused access across his land, so those with property to the south of Mr Cargeeg were only able to reach the area via the mudflats at low tide.¹³⁶ In 1953 the demands of Southshore residents were heeded and the area received electricity – 35 years after New Brighton.¹³⁷ Southshore received a sewerage system in 1967 and in 1969, after 22 years of requests, kerbs and channelling were finally added to Rockinghorse Road, which had often flooded completely during rainy periods.¹³⁸ 1952 saw buses on the New Brighton and Sumner lines.¹³⁹

New Brighton was Christchurch's busiest Saturday shopping centre from 1945-1981.¹⁴⁰ In fact, during the 1960s it was the city's only Saturday shopping centre.¹⁴¹ The booming trade encouraged business and retail in the district, with thousands of people travelling to the seaside suburb to shop on Saturdays.¹⁴² New Brighton was a busy, popular destination for people throughout Canterbury. Brighton Mall, opened in 1978, further encouraged visitors to the area.¹⁴³ This major influx of visitors each Saturday significantly aided the development of New Brighton and its reputation as a resort town. With entertainment activities on offer throughout the day visitors were able to spend an entire day in New Brighton, experiencing a vastly different shopping experience to that of the city centre. Family outings to New Brighton were not uncommon as the area offered a range of activities for all ages. With the passing of new legislation in 1981, New Brighton lost this monopoly as Saturday trading was allowed throughout the country. The impact of this legislation was clear throughout the 1980s as the area went into somewhat of a decline in popularity.

During the 1970s, horses at the end of Rockinghorse Road were a problem for local residents, who continued to support the area despite its slow beginnings. In 1981 the new South New Brighton Bridge at Bridge Street was officially opened and the bus service to Southshore finally reached the end of Rockinghorse Road. The Southshore Beacon, a small local newspaper, was established in 1989 by a Southshore community group, reflecting the significant growth of the area through the twentieth century. In 1994 the residents of Southshore announced publicly that they were not supportive of any

development of tourism and/or recreation in the Spit Beach Park area. The Southshore Community Club was formed in 1996 and provided outings, at home gatherings and meals out to members. From just seven buildings in the area in 1948, in 2006 the Southshore Beacon was delivered to over 600 homes.¹⁴⁴

The Estuary suburbs, particularly on the southern edge, have continued to be popular areas for residential development in the early twenty first century. The southern edge has become a relatively wealthy area, while the eastern, northern and western edges have attracted more people from lower socio-economic backgrounds. These latter areas have been subject to continued vandalism issues.

Recreation

The Pleasant Point Yacht Club enjoyed great years between 1946 and 1958. Extensive reclamation meant that in 1947 the Club was able to move off their muddy site and onto the 'hard.' During the early 1950s picnics at the Spit were a regular occurrence; however by the late 1950s the picnics were stopped due to difficult times within the club. Membership began to fall steadily and there was a significant loss of senior members. In an attempt to attract new membership the 1960s saw the reintroduction of boat-building schemes where groups of members built vessels to sail.¹⁴⁵ In 1964 the Club hosted the biggest yacht club building programme Christchurch had ever seen. Also during the 1960s the Club tapped certain groups for membership – mainly local Sea Scout groups and high schools (particularly Shirley Boys High School, Avonside Girls High School and Aranui High School).¹⁴⁶ To encourage new members, the Club introduced a number of social activities such as the Yachting Ball, car rallies, film evenings and family picnics away from the Estuary. A new clubhouse was constructed in 1967.¹⁴⁷ On days when sailing was impossible, members played table tennis at the new clubhouse and helped out with general maintenance of the club's facilities.¹⁴⁸

The Pleasant Point Yacht Club celebrated 50 years of sailing in the 1971/1972 season. A special regatta was held over an entire weekend: there was a Friday afternoon get

together, followed by Saturday afternoon racing, a ball on Saturday night in the old New Brighton lounge (part of the pier), a Sunday morning church service at St Ambrose Church in Aranui and more racing early Sunday afternoon.¹⁴⁹ The restrictions placed on powerboat racing meant the water was once again the territory of yachts, although there was significant hostility between the Club and the New Brighton Power Boat Club.¹⁵⁰ In the 1978/1979 season, the Club had 160 members and throughout the 1980s continued to upgrade their facilities.¹⁵¹

The Mount Pleasant Yacht Club faced similar difficulties to the Pleasant Point Yacht Club in the post-war years. The Club was able to recover relatively quickly, and throughout the 1950s and 1960s there were regular upgrades to the Club's facilities, such as a new concrete ramp and extensions to the clubroom. The Club purchased a number of boats to be used by those who did not have their own in order to appeal to a wider range of potential members. In the late 1950s the Club introduced their first set of radios which were to be used primarily for rescue purposes. Further reclamation of the shore occurred during this period as the Club gradually moved more of their facilities onto the 'hard' and away from the soft mud lining the shore.¹⁵² The Club's membership moved from being primarily pleasure sailors to more serious competitors during this period.¹⁵³

In the later part of the twentieth century the Mount Pleasant Yacht Club became the biggest yacht club in the province.¹⁵⁴ Beginning in the early 1970s, the Club put considerable time and effort into long term development of the Club's facilities. Boat building schemes continued through this time, with members building record numbers of hulls. The Club supported an instruction scheme organised by the Canterbury Yachting Association to provide younger members with good quality instruction and coaching. This proved very popular with younger members with 75 people attending during the 1972/1973 season.¹⁵⁵

Following World War II, the Christchurch Yacht Club developed a number of new competitions to encourage new members and develop the skills of existing members. 1946 saw the addition of 60 new members to the club. As seen in the Mount Pleasant

Yacht Club, members became far more serious about their sailing during the 1950s and entries in Club competitions grew substantially.¹⁵⁶ With the influx of new young members, safety became a concern for those sailing on the Estuary and so Club rules and regulations surrounding safety were well developed during this time.¹⁵⁷ The 1950s and 1960s saw a further 170 new members enrol with the Club. The clubhouse and facilities underwent many upgrades during this time in order to cope with the more competitive nature of the members and the sheer increase in people using the facilities.¹⁵⁸ Two Club members, Peter Mander and Jack Cropp, became the country's first Olympic yachting representatives and won gold at the Melbourne Olympics in 1956. The 1960s were a prosperous time for the Club with growing membership, larger competitions and considerable improvement to the facilities. Social events were well patronised by members and included senior socials on a Saturday afternoon and a wine, dine and dance event two or three times a year.¹⁵⁹

By 1970, the Christchurch Yacht Club had a strong base of promising young sailors.¹⁶⁰ Enrolment was high throughout these decades (the 1978/1979 season saw membership at 360) and the Club was able to put considerable effort into upgrading facilities due to the number of skilled tradesmen in the Club's membership. Social activities became popular, although the Club faced difficulties regarding liquor licensing – licences were expensive, but cash bars run by members were illegal. There were further safety developments within the Club as membership grew and the Estuary waters were busy with sailors. The Club was represented by Brett de Thier at the 1972 Olympics.¹⁶¹

The Interschool Yachting Committee was established in 1962. This organisation set up the Peter Mander Trophy in 1964, a sailing competition between schools. Races were held annually at the Waimakariri Yacht Club, the Pleasant Point Yacht Club, the Mount Pleasant Yacht Club and the Christchurch Yacht Club. The most prominent schools in these competitions were Aranui High School, Christchurch Boys' High School, Christ's College, Hagley High School, Linwood High School and St Andrews College. These competitions allowed youth from all over Christchurch to experience the sport of sailing.¹⁶²

The Canterbury Secondary Schools Yachting Association was formed in 1979 after a disappointing turnout in the Peter Mander Trophy in 1978 – just three schools were entered. The Association was affiliated to the Canterbury Yachting Association. The formation of the Association proved to be a success, with the next regatta in 1979 attracting 18 schools to enter.¹⁶³ It is unsurprising that clubs around the Estuary welcomed more and more junior members to their clubs during this time.

The Sumner Amateur Rowing Club held their opening day in 1951, but by the season of 1953/1954 there were only four members still training. In 1955 the Club went into recess and in 1963 the Christchurch Yacht Club purchased the Rowing Club's disused building.¹⁶⁴ In 1953 the Sumner Sea Scouts became the T. S. Cornwell Sea Cadets as per name changes initiated by the Navy League. The group purchased property at Monck's Bay to use as a base.¹⁶⁵

The Pegasus Sea Scouts formed in 1956 with 22 boys enrolled as an off-shoot of the South New Brighton Scouts group and tied their boats at the Pleasant Point Yacht Club's jetty. The Pegasus Sea Scouts continued to operate during the 1970s and 1980s. The 1970s saw a reorganisation of all Scouts groups, particularly with regards to the age groups. 1975 brought a new boatshed and by 1982 the group was flourishing. In 1981 the group was organised into divisions based on age: Kea (6-8 years), Cub (8-11 years), Sea Scouts (11-15 years) and Venturers (15-19 years).¹⁶⁶ The success of the group was short-lived and it was shut down in the 1990s.

Recreation activities continued to flourish on and around the Estuary towards the end of the twentieth century. During this time, the Estuary was home to yachting, power boating, canoeing, boating, swimming, fishing, waterskiing, rowing, bird watching, shell collecting, walking and model boating, among many other activities.¹⁶⁷ The Christchurch City Council funded the construction of a boat launching ramp opposite the Redcliffs sports ground in the early 1970s which became popular with water skiers. In 1975 a

speed limit of ten miles per hour was imposed on the Estuary, which spelled the end of virtually all water skiing activities.¹⁶⁸

The New Brighton Power Boat Club ran large regattas on the Estuary during the 1970s which attracted large crowds and competitors from around the country.¹⁶⁹ A hearing in 1982 held by the Christchurch City Council regarding the banning of powerboat racing on the Estuary caused much distress for the club; however the final decision was to restrict racing to 16 days a year rather than an outright ban. The popularity of powerboat racing declined during the 1980s for a number of reasons: the cost of racing had increased with fuel prices, the imposed speed limit made practice difficult, there was much local opposition to powerboat racing in the area, and after the 1982 hearing the racing course was moved to shallow water.¹⁷⁰

In the mid-1970s, a surprising visitor to the Estuary became somewhat of a permanent resident. Elizabeth the sea elephant arrived in the Estuary waters and, despite being chased out to sea a number of times, decided to stay in the area.¹⁷¹ Elizabeth was not an affectionate visitor and had a particular dislike of dogs. Despite her status as a local celebrity, it was with a significant amount of relief that her passing was announced in the early 1980s.¹⁷²

The former rifle range at Monck's Bay was by this time a sports ground for local residents.¹⁷³ The Sumner Tennis and Squash Club was set up in the early 1970s.¹⁷⁴ In 1987 there was a proposal to allow hovercraft on the Estuary – this was quickly declined by the Christchurch City Council.¹⁷⁵ From the early 1980s, the New Zealand Ornithological Society began to take small groups of overseas visitors to the Spit to observe the habitat of a number of bird species.¹⁷⁶

Wind surfing was not established in New Zealand until the early 1980s although there were a small number of wind surfers prior to this. The sport quickly became popular and the somewhat neglected area of the Estuary near Humphreys Drive was chosen as the sport's base in Christchurch due to the proximity of a beginner's area and an advanced

area; and the relatively constant wind across the water. The Estuary has become home to the South Island Cup and the Canterbury Slalom Championships, attracting windsurfers from around the country.¹⁷⁷

Between 1987 and 1991 there was great debate regarding private structures on the Estuary. Included in the discussion were jetties, boat ramps, moorings and fences. Many people felt that these structures should not be allowed on the Estuary as it was a public recreation area. It was finally decided by the Christchurch City Council that these structures would only be approved for conditional use and would have a number of restrictions placed on them.¹⁷⁸

The 1990s saw a wide range of recreation activities on and around the Estuary: fishing, shooting (the controlled cull of Canadian Geese in Te Huingi Manu Wildlife Reserve), life saving, surfing, wave skiing, rowing, canoeing, kayaking, yachting, windsurfing, power boating, walking, jogging and bird watching.¹⁷⁹ The few water skiers left and power boat racing was confined to the established ski lanes.¹⁸⁰ The three yacht clubs of the Estuary continued to attract members throughout this period, all offering membership to everyone from beginners to the experienced sailor. Regular sailing competitions are run by the clubs and the Canterbury Yachting Association.

The Estuary is one of the best places in New Zealand for bird watching with between 15000 and 32000 birds using the Estuary each year, particularly at the Te Huingi Manu Wildlife Reserve on the oxidation ponds of the wastewater treatment plant and at the Spit – the Estuary has even been classified as having international importance under the International Union for the Conservation of Nature.¹⁸¹ 1996 saw the first “Farewell to the Godwits” celebration in which people were able to witness the bar-tailed godwits departing from the Spit on their journey to Alaska.¹⁸²



Farewell to the Godwits 2010 – a popular Christchurch event.

Over the summer of 2006 and 2007 Rob Greenaway completed a survey of recreational users of the Estuary. His research showed that the most popular recreation activities at the Estuary during this period were walking, dog walking, cycling, wind/kite surfing and sailing respectively.¹⁸³ South New Brighton Domain, Tidal View and the Windsurf Reserve off Humphreys Drive were the most popular entry sites to the Estuary. Seventy per cent of respondents had had some kind of interaction with other visitors to the Estuary – of these interactions, 91% were positive. The main reasons users stated for experiencing dissatisfaction with the Estuary area were rubbish/litter and poor water quality.¹⁸⁴ It is clear that by the beginning of the twenty first century, environmental issues surrounding the Estuary were impacting on recreational use of the area.

Environmental Issues at the Estuary

By the mid-twentieth century, the Estuary had become a stinking sump due to the enormous quantities of waste disposed of into its waters. Prior to the 1950s, sea lettuce was barely seen in the Estuary.¹⁸⁵ Rotting vegetation around the shore and outfall from the sewage farm led to a foul stench in the area.¹⁸⁶ In 1956 the Christchurch City Council, through the Public Works Act, marked out a large area at Bromley for a new sewage treatment station.¹⁸⁷ Between 1958 and 1962 the Bromley plant was expanded to

the present day system and the change from sewage farm to wastewater treatment plant seemed to relieve some of the worst influences on amenity and health. The number of sewer connections around the Estuary tripled between 1952 and 1962.¹⁸⁸

A proposal to reclaim McCormack's Bay spurred the formation of the Combined Estuary Association in 1971, led by local property developer Geoff de Thier.¹⁸⁹ The group consisted of representatives from a wide range of local community groups including the Canterbury Yachting Association, Christchurch Yacht Club, Mount Pleasant Yacht Club, Pleasant Point Yacht Club, New Brighton Power Boat Club, ratepayers of the suburbs surrounding the Estuary, Mount Pleasant Community Centre, Ecology Action (Christchurch), Royal Forest and Bird Protection Society, Sumner-Redcliffs Navy League, Canterbury Rowing Association and the Christchurch Civic Trust. The Combined Estuary Association met with the Christchurch City Council and the Drainage Board regularly to discuss issues surrounding the Estuary.¹⁹⁰ In the case of McCormack's Bay, the group was successful and plans for reclamation were halted.

1978 saw Roger Lusby join the group. He went on to chair the Association for five years. Under his leadership, the group became a force to be reckoned with for the Christchurch City Council, becoming involved in every facet of Estuary management and planning. Lusby also aided the establishment of the sister group Friends of the Avon-Heathcote Estuary Association. The main aim of this group was to educate the public on the Estuary. They took on the task of environmental educator, travelling to schools and taking field trips around the Estuary in order to share their knowledge of the Estuary and its unique biological systems.¹⁹¹

The problem of sea lettuce in the Estuary was well established by the 1970s. Local residents and recreational users of the Estuary were unhappy with the huge amounts of sea lettuce littering the shores – particularly in the warmer months, when the weed would quickly rot in the heat.¹⁹² However, this was not the only biological change seen within the area. In 1973 the discharge from the Bromley wastewater treatment plant was changed from being continuous to being released at ebb tide only. Shrimp in the Estuary

had been plentiful prior to this period, but by the mid-1970s they had all but disappeared – it is thought that this alarming change is due to the modified discharge of wastewater.¹⁹³

The fish population of the Estuary declined rapidly primarily due to pollution and overfishing of the area.¹⁹⁴ Between 1970 and 1985 elephant fish, yellow-eyed mullet, kahawai, red cod, moki, Piper and flounder were all caught regularly by Estuary fishermen; however since 1985 fishermen say it has become increasingly difficult to catch anything at all.¹⁹⁵ Toxic ammonia from the wastewater discharge has been identified by many as a leading cause of fish population decline and the nutrients found in the discharge as promoting the growth of sea lettuce and other sea weeds.¹⁹⁶ During the 1990s a series of surveys on the fish population of the Estuary were abandoned due to sea lettuce getting caught in the nets. In 2005 the Christchurch City Council commissioned another fish survey, to be carried out by the National Institute of Water and Atmospheric Research (NIWA). A complementary survey will be carried out after the ocean outfall pipeline is established to monitor the effect of this pipeline on the fish population of the Estuary.¹⁹⁷

Efforts were made to clean up the Estuary waters. In the late 1970s an industrial sewer was constructed between Woolston and Bromley, reducing the amount of effluent being discharged into the Heathcote River. This meant that the Bromley wastewater treatment plant now handled almost all the industrial and domestic effluent of Christchurch. In 1981 the gasworks, known for discharging effluent directly into the Heathcote River, was closed.¹⁹⁸

Throughout the later half of the twentieth century, the Estuary began to garner attention from the Christchurch City Council, whose position concerning the Estuary had always been somewhat unsure. A 1980 report by the Christchurch City Council clearly illustrates this point: the report begins by saying that the Estuary “does not have the unique or rare elements of places like Farewell Spit, an area of international importance” but later states that “the Estuary is a rare example of a nutrient-enriched estuary which has adjusted to its new nutrient levels.”¹⁹⁹ The Christchurch City Council remained firm

in its belief that the treated wastewater entering the Estuary everyday was not harmful to the biological systems of the area despite the smell, appearance of sea lettuce and decline in fish populations. The Estuary was managed by three main pieces of legislation: the Town and Country Planning Act 1977, the Harbours Act 1977 and the Reserves Act 1977.²⁰⁰ A 1987 report by the Christchurch City Council placed the Estuary within the Recreation Five Zone; however its first priority was declared to be the protection and enhancement of the “geologic, physical, chemical and biological characteristics” of the Estuary, with the facilitation of recreation activities coming next.²⁰¹

The Resource Management Act (RMA) came into effect in 1991. This new piece of legislation provided local and regional councils with an effects-based approach to resource management and planning. The Estuary and the lower reaches of the Avon and Heathcote Rivers were classified as a Coastal Marine Area and as a matter of national importance under the guidelines of the RMA.²⁰² This change to the environmental management of New Zealand further reinforced the efforts of those who had been attempting to improve the water quality and general integrity of the Estuary since the 1950s. Some of the main problems encountered at the Estuary during the 1990s were scum, the colour of the water, unpleasant odours, floatable material in the water, heavy metals from wastewater discharge and the adverse effects on natural organisms within the area.²⁰³

Reports produced by the Canterbury Regional Council and the Christchurch City Council during the 1990s show a significant change in focus regarding the Estuary. The two bodies have a clear focus on recognising the cultural and historic values of the rivers and Estuary, protecting and enhancing these cultural and historical sites, and mitigating the adverse effects of recreation activities and structures on natural values. Different areas around the Estuary were zoned according to the types of activities present in each location such as passive recreation (such as walking) and physically sensitive dune areas.²⁰⁴

In 2001 the Christchurch City Council put forward an application to discharge treated wastewater into the Estuary for another 15 years.²⁰⁵ An independent body of commissioners made the decision to disallow wastewater discharge into the Estuary from 2009.²⁰⁶ In 2004 the Christchurch City Council chose the three kilometre long ocean outfall pipe as their preferred alternate method of discharge.²⁰⁷ The ocean outfall pipe was expected to be completed in September 2009 however dangerous weather conditions during the last section of construction have held up the project considerably.

The Friends of the Avon-Heathcote Estuary Association was sponsored by the Christchurch City Council and Environment Canterbury, the regional council, to visit schools and take field trips in order to educate the wider public.²⁰⁸ In 2003 the Avon-Heathcote Estuary Ihutai Trust was established from a number of existing advocacy groups (such as the Christchurch Estuary Association and the Friends of the Avon-Heathcote Estuary Association).²⁰⁹ Representatives from recreational groups and the wider Estuary community attended the first meeting as well. The Avon-Heathcote Estuary Ihutai Trust Board was formed and included representatives from the Christchurch City Council, Environment Canterbury and local Runanga Ngai Tuahuriri.²¹⁰ The Trust put together a Management Plan for the area in 2004 which sets out a number of objectives for the future.²¹¹ The Trust is now heavily involved in everything Estuary-related, from community work groups to research publications and management plans.

An Education Resource

The Avon-Heathcote Estuary has been the topic of more theses per square metre than any other estuary in New Zealand. In the 1970s and 1980s the Canterbury Education Board placed an embargo on primary schools using the Estuary as a place of learning. Despite the rare ecosystem of the Estuary, the water quality of the area was considered to have high health risks. During the 1990s, primary and secondary schools began to once again use the Estuary as a teaching resource for students, primarily in the areas of water quality, ecology, conservation awareness, history, geography, outdoor recreation, drawing and

poetry. Schools, universities, individuals and clubs have all used the Estuary for formal and informal education and self-education due to its unique characteristics and proximity to the city centre of Christchurch. Schools which used the Estuary for education purposes tended to participate most frequently in regular water sports than those who did not. Some users of the Estuary have voiced concern regarding the lack of access to teaching material and problems with access and safety.²¹²

Local Maori and the Estuary

In the 1950s the land marked out for the Bromley treatment plant was classified as a Maori reserve. Under the Public Works Act, the Christchurch City Council was able to take this land and develop it into a wastewater treatment plant. The Maori owners of this area were offered compensation for the land but the amount was so small it was initially refused – instead, land as similar as possible to that of the Estuary was requested. This was not possible, and so monetary compensation was accepted. Local Maori were not consulted regarding the construction of the wastewater treatment plant and its effects on the Estuary, despite the intended location.²¹³ The discharge of human effluent, even after treatment, into a food collection area is unacceptable to many Maori. A rahui (temporary ritual prohibition) was placed on the Estuary by local Ngai Tahu, who no longer collect shellfish there.²¹⁴

The payment Maori owners received for the former Ihutai land in the 1950s was used during the 1990s to fund research for Ngai Tahu Treaty of Waitangi claims.²¹⁵ While the rahui was still in place on the Estuary during this time often hungry and/or disadvantaged people were not deterred from fishing and gathering shellfish in the area despite clear signage warning against human consumption of these food sources.²¹⁶ During the 1990s Ngai Tahu developed a resource management strategy for the Canterbury region known as Te Whakatau Kaupapa.²¹⁷ This was an important development for local Maori as it reflected the regional and local councils' desire to include Maori in planning and resource management issues within the region. 2001 saw the introduction of a memorandum of understanding between Ngai Tahu and the Christchurch City Council regarding the

western edge of the Estuary – a joint working committee was proposed to manage any issues arising out of the development of the area and wastewater discharge.²¹⁸

In 2007 a report entitled State of the Takiwa was carried out in order to assess the cultural health of the Estuary and its catchment.²¹⁹ This report tested 30 sites across the rivers, Estuary and coast using the Takiwa environmental monitoring system, a combination of Mātauranga Māori and Western science approaches to collecting information about the environment. The findings of the report showed that the area had a poor to very poor state of cultural health.²²⁰ This goes some way in explaining the lack of Māori usage of the Estuary during the twentieth century. The lingering feelings of bitterness at the disposal of human effluent into the Estuary means there is a long way to go before the Estuary is restored as a mahinga kai source.

CONCLUSION

The Avon-Heathcote Estuary has a rich social and recreational history. From its beginnings as a mahinga kai source for tangata whenua, the Estuary has served as an important trade and transport route, sailing mecca, dump for the city's wastewater and effluent, and internationally recognised conservation area. The damage inflicted on the Estuary by the residents of Christchurch throughout the nineteenth and twentieth centuries is slowly beginning to be reversed through public awareness of the unique biophysical ecosystems in the Estuary and the local and regional councils' commitment to protecting and enhancing this area. Pollution and health risks have been a significant factor in the decline of some recreational activities on the Estuary. With the discharge of wastewater into the Estuary finally coming to an end in the twenty first century it is hoped that water quality in the Estuary will improve and fish and shellfish will return to the waters. The removal of wastewater discharge can only be a positive action for recreational users of the Estuary, who have long complained about the sea lettuce problem and the smell of the water. The future of the Estuary will be in maintaining a precarious balance between conservation and recreation.²²¹

ENDNOTES

- ¹ Harris, R. (1992). A sense of place and time. In S. J. Owen (Ed.), *The Estuary – where our rivers meet the sea* (pp. 2-8). Christchurch: Christchurch City Council, p. 2
- ² Harris, *A sense of place and time*, p. 5
- ³ Brailsford, B. (1981). *The tattooed land*. Auckland: A. H. & A. W. Reed Ltd, p. 182
- ⁴ Rowlands, D. (2006). Tangata whenua. In D. Rowlands, P. Moore & L. Osborn (Eds.), *Sand dunes to suburb: Ihutai (the nose of the tides) – the history and people of Southshore, Christchurch* (pp. 7-19). Christchurch: Southshore Residents Association History Group, p. 11
- ⁵ Harris, R. (1992). As it was: early Maori and European settlement. In S. J. Owen (Ed.), *The Estuary – where our rivers meet the sea* (pp. 9-28). Christchurch: Christchurch City Council, p. 12
- ⁶ Harris, *As it was: early Maori and European settlement*, p. 14
- ⁷ Rowlands, p. 11
- ⁸ Harris, *As it was: early Maori and European settlement*, p. 12
- ⁹ Taylor, W. A. (2001). *Lore and history of the South Island Maori*. Christchurch: Kiwi Publishers, p. 46
- ¹⁰ Harris, *A sense of time and place*, p. 5
- ¹¹ Rowlands, pp. 7-19
- ¹² Harris, R. (1992). Recreation. In S. J. Owen (Ed.), *The Estuary – where our rivers meet the sea* (pp. 123-138). Christchurch: Christchurch City Council, p. 124
- ¹³ Harris, *As it was: early Maori and European settlement*, p. 15
- ¹⁴ Taylor, p. 49-50
- ¹⁵ Menzies, J. F. (1941). *Sumner*. Christchurch: Simpson & Williams Ltd, p. 39
- ¹⁶ Taylor, p. 49
- ¹⁷ Menzies, pp. 34-36
- ¹⁸ Adams, M. & Evison, H. (1993). *Land of memories: a contemporary view of places of historical significance in the South Island of New Zealand*. Auckland: Tandem Press, p. ?
- ¹⁹ Adams & Evison, p ?
- ²⁰ Rowlands, p. 7
- ²¹ Rowlands, pp. 7-19
- ²² Penney, S. E. W. (1982). *The Estuary of Christchurch*. Christchurch: Penny Ash Publications, p. 5
- ²³ Penney, p. 6
- ²⁴ Rowlands, p. 11
- ²⁵ Harris, *As it was: early Maori and European settlement* p. 18
- ²⁶ Rowlands, p. 9
- ²⁷ Harris, *As it was: early Maori and European settlement* p. 17
- ²⁸ Rowlands, p. 9
- ²⁹ Harris, *As it was: early Maori and European settlement* p. 18

-
- ³⁰ Harris, *As it was: early Maori and European settlement* p. 18
- ³¹ Rowlands, p. 9
- ³² Penney, p. 9
- ³³ Evison, H. C. (1988). Kemp's Purchase. In H. C. Evison (Ed.), *The Treaty of Waitangi and the Ngai Tahu Claim: a summary* (pp. 22-26). Christchurch: Ngai Tahu Maori Trust Board, p. 22.
- ³⁴ Penney, p. 137
- ³⁵ Evison, *Kemp's Purchase*, p. 24
- ³⁶ Evison, *Kemp's Purchase*, p. 25
- ³⁷ Evison, H. C. (1988). Government responses to the Ngai Tahu Claim. In H. C. Evison (Ed.), *The Treaty of Waitangi and the Ngai Tahu Claim: a summary* (pp. 50-53). Christchurch: Ngai Tahu Maori Trust Board, p. 51
- ³⁸ Evison, *Government responses to the Ngai Tahu Claim*, pp. 51-52
- ³⁹ Harrison, R. J. (1991). *Ebb and flow: a centennial history of the Christchurch Yacht Club 1891-1991*. Christchurch: Photo Process Printers Ltd, p. 5
- ⁴⁰ Ogilvie, G. (1978). *The Port Hills of Christchurch*. Wellington: A. H. & A. W. Reed Ltd, p. 77
- ⁴¹ Ogilvie, p. 65
- ⁴² Penney, pp. 191-192
- ⁴³ Mosley, M. (1889). *New Brighton: past, present and future*. Christchurch: M. Mosley, p. 1
- ⁴⁴ Morrison, p. 19
- ⁴⁵ Mosley, p. 5
- ⁴⁶ Penney, p. 157
- ⁴⁷ Baker, T. D. (2007). *Aranui and Wainoni history: Christchurch, New Zealand*. Christchurch: T. D. Baker, p. 47
- ⁴⁸ Ogilvie, p. 76
- ⁴⁹ Harrison, p. 5
- ⁵⁰ de Thier, W. (1976). *Sumner to Ferrymead: a Christchurch history*. Christchurch: Pegasus Press, p. 173
- ⁵¹ Penney, p. 77
- ⁵² Harrison, p. 8
- ⁵³ Morrison, J. P. (1948). *The evolution of a city: the story of the growth of the city and suburbs of Christchurch, the capital of Canterbury, in the years from 1850 to 1903*. Christchurch: Christchurch City Council, p. 22
- ⁵⁴ Harris, *As it was: early Maori and European settlement*, p. 19
- ⁵⁵ Ogilvie, pp. 51-60
- ⁵⁶ Ogilvie, pp. 48-57
- ⁵⁷ Deely, J. (1992). The last 150 years – the effect of urbanization. In S. J. Owen (Ed.), *The Estuary: where our rivers meet the sea*. Christchurch: Christchurch City Council, p. 110

-
- ⁵⁸ Batcheler, C. L. (2002). C. L. Batcheler's case for the Estuary. In C. L. Batcheler & K. F. O'Connor (Eds.), *In defence of the Avon-Heathcote Estuary*. Christchurch: Christchurch Estuary Association, p. 25
- ⁵⁹ Deely, p. 110
- ⁶⁰ Penney, p. 137
- ⁶¹ Hansen, B. (2002). B. Hansen's case for the Estuary. In C. L. Batcheler & K. F. O'Connor (Eds.), *In defence of the Avon-Heathcote Estuary* (pp. ??-??). Christchurch: Christchurch Estuary Association, p. 61
- ⁶² Morrison, p. 154
- ⁶³ de Thier, p. 121
- ⁶⁴ de Thier, pp. 121-122
- ⁶⁵ Menzies, J. F. (1941). *Sumner: early days, pioneers, progress*. Christchurch: Simpson & Williams Ltd, p. 25
- ⁶⁶ Penney, p. 203
- ⁶⁷ Ryan, G. (2000). Sport in Christchurch. In J. Cookson & G. Dunstall (Eds.), *Southern capital Christchurch: towards a city biography 1850-2000* (pp. 325-353). Christchurch: Canterbury University Press, p. 326
- ⁶⁸ de Thier, pp. 192-195
- ⁶⁹ Penney, p. 204
- ⁷⁰ Harris, R. (1992). Recreation. In S. J. Owen (Ed.), *The Estuary: where our rivers meet the sea* (pp. 124-138). Christchurch: Christchurch City Council, p. 131
- ⁷¹ Harris, *Recreation*, p. 131
- ⁷² Calder, B. (2006). Recreation. In D. Rowlands, P. Moore & L. Osborn (Eds.), *Sand dunes to suburb: Ihutai (the nose of the tides) – the history, environment and people of Southshore, Christchurch* (pp. 124-??). Christchurch: Southshore Residents Association History Group, p. 124
- ⁷³ Calder, p. 124
- ⁷⁴ Penney, p. 173
- ⁷⁵ Penney, pp. 173-219
- ⁷⁶ Harrison, pp. 20-37
- ⁷⁷ Penney, pp. 219-220
- ⁷⁸ de Thier, p. 139
- ⁷⁹ Penney, pp. 253-256
- ⁸⁰ Penney, p. 87
- ⁸¹ de Thier, p. 37
- ⁸² de Thier, p. 162
- ⁸³ O'Brien, R. (2008). *Memories of the Pleasant Point Yacht Club 1921-1980*. Christchurch: Pleasant Point Yacht Club, p. 12
- ⁸⁴ Penney, pp. 125-159

-
- ⁸⁵ Menzies, p. 24
- ⁸⁶ Penney, p. 199
- ⁸⁷ Findlay, R. H. (1984). *The mouth of the Avon-Heathcote Estuary: a review of the historical development of the mouth of the Estuary of the Avon and Heathcote River*. Christchurch: Christchurch City Council, p. ?????
- ⁸⁸ Findlay, p. ???
- ⁸⁹ Findlay, p. ???
- ⁹⁰ de Thier, p. 127
- ⁹¹ Penney, p. 192
- ⁹² Findlay, p. ???
- ⁹³ Penney, p. 193
- ⁹⁴ de Thier, p. 122
- ⁹⁵ Deely, p. 112
- ⁹⁶ Penney, pp. 192-197
- ⁹⁷ Hillier, L. (2006). Early European life 1776-1946. In D. Rowlands, P. Moore & L. Osborn (Eds.), *Sand dunes to suburb: Ihutai (the nose of the tides) - the history, environment and people of Southshore, Christchurch* (pp. 35-50). Christchurch: Southshore Residents Association History Group, p. 44
- ⁹⁸ Hillier, p. 46
- ⁹⁹ Penney, p. 175
- ¹⁰⁰ New Brighton Publicity Committee. (1923). *New Brighton: Canterbury's playground*. Christchurch: New Brighton Publicity Committee and the Canterbury Progress League, p. 4
- ¹⁰¹ New Brighton Publicity Committee, pp. 4-6
- ¹⁰² de Thier, p. 44
- ¹⁰³ de Thier, p. 166
- ¹⁰⁴ Penney, p. 79
- ¹⁰⁵ de Thier, p. 107
- ¹⁰⁶ Penney, p. 273
- ¹⁰⁷ Penney, p. 115
- ¹⁰⁸ Penney, p. 256
- ¹⁰⁹ Penney, pp. 207-208
- ¹¹⁰ de Thier, pp. 122-165
- ¹¹¹ Penney, p. 262
- ¹¹² Penney, p. 262
- ¹¹³ O'Brien, p. 15
- ¹¹⁴ Penney, p. 264
- ¹¹⁵ O'Brien, p. 69
- ¹¹⁶ Penney, p. 267

-
- ¹¹⁷ O'Brien, pp. 47-58
- ¹¹⁸ de Thier, p. 195
- ¹¹⁹ Penney, pp. 274-275
- ¹²⁰ Harrison, p. 63
- ¹²¹ Penney, p. 221
- ¹²² Penney, p. 253
- ¹²³ New Brighton Publicity Committee, pp. 4-5
- ¹²⁴ de Thier, pp. 193-194
- ¹²⁵ Penney, p. 203
- ¹²⁶ de Thier, p. 46
- ¹²⁷ Penney, p. 115
- ¹²⁸ Ogilvie, p. 62
- ¹²⁹ Findlay, p. ??
- ¹³⁰ Hansen, p. 74
- ¹³¹ Ogilvie, p. 62
- ¹³² de Thier, p. 122
- ¹³³ Ogilvie, p. 83
- ¹³⁴ Wright, K., & Rowlands, D. (2006). Southshore Ratepayers Association. In D. Rowlands, P. Moore & L. Osborn (Eds.), *Sand dunes to suburb: Ihutai (the nose of the tides) - the history, environment and people of Southshore, Christchurch* (pp. 50-107). Christchurch: Southshore Residents Association History Group, p. 50
- ¹³⁵ Wright & Rowlands, p. 58
- ¹³⁶ Hillier, p. 38
- ¹³⁷ Penney, p. 194
- ¹³⁸ Wright & Rowlands, p. 59
- ¹³⁹ Penney, p. 199
- ¹⁴⁰ Dorothy. (2002, April 12). *New Brighton and the Pier*. Retrieved March 3, 2010, from http://www.nzine.co.nz/features/brighton_pier.html#
- ¹⁴¹ *Brighton Mall*. (2010). Retrieved March 3, 2010, from the Christchurch City Council Libraries website: <http://christchurchcitylibraries.com/Heritage/Places/Public/BrightonMall/>
- ¹⁴² Penney, p. 170
- ¹⁴³ *Brighton Mall*.
- ¹⁴⁴ Wright & Rowlands, pp. 50-80
- ¹⁴⁵ O'Brien, pp. 41-63
- ¹⁴⁶ Penney, p. 269
- ¹⁴⁷ O'Brien, pp. 70-79
- ¹⁴⁸ Penney, p. 265

-
- ¹⁴⁹ O'Brien, p. 130
- ¹⁵⁰ O'Brien, p. 73
- ¹⁵¹ Christchurch City Council & City Health Department. (1980). *Planning for the Avon-Heathcote Estuary: a report on the resources, activities and values of the Estuary of the Avon and Heathcote Rivers*. Christchurch: Christchurch City Council, p. 35
- ¹⁵² Penney, pp. 277-280
- ¹⁵³ Harrison, p. 75
- ¹⁵⁴ de Thier, p. 195
- ¹⁵⁵ Penney, pp. 276-280
- ¹⁵⁶ Penney, p. 231
- ¹⁵⁷ Harrison, p. 78
- ¹⁵⁸ Penney, pp. 227-232
- ¹⁵⁹ Harrison, pp. 86-94
- ¹⁶⁰ Penney, p. 232
- ¹⁶¹ Harrison, pp. 105-122
- ¹⁶² Penney, p. 291
- ¹⁶³ Penney, pp. 291-292
- ¹⁶⁴ Penney, pp. 227-255
- ¹⁶⁵ Penney, p. 290
- ¹⁶⁶ Penney, pp. 290-291
- ¹⁶⁷ CCC & City Health Department, pp. 35-39
- ¹⁶⁸ de Thier, pp. 99-100
- ¹⁶⁹ Penney, p. 207
- ¹⁷⁰ O'Brien, p. 76
- ¹⁷¹ O'Brien, p. 58-76
- ¹⁷² Harrison, pp. 118-119
- ¹⁷³ de Thier, p. 107
- ¹⁷⁴ de Thier, p. 194
- ¹⁷⁵ Wright & Rowlands, p. 74
- ¹⁷⁶ Neal, P. A. (2002). P. A. Neal's case for the Estuary. In C. L. Batcheler & K. F. O'Connor (Eds.), *In defence of the Avon-Heathcote Estuary*. Christchurch: Christchurch Estuary Association, p. 107
- ¹⁷⁷ Harris, *Recreation*, p. 132
- ¹⁷⁸ Wright & Rowlands, p. 74
- ¹⁷⁹ Harris, *Recreation*, pp. 126-133
- ¹⁸⁰ Briggs, L., Keller, J., Flaws, B. & Lake, P. (1991). *The Estuary and its environment: issues and opportunities*. Christchurch: Christchurch City Council Planning Policy Unit, p. 2

-
- ¹⁸¹ Bell, K. (1991). *Educational use and values of the Avon-Heathcote Estuary and rivers*. Christchurch: Canterbury Regional Council, p. 5
- ¹⁸² Neal, p. 107
- ¹⁸³ Greenaway, R. (2007). *Avon-Heathcote Estuary recreation survey 2006-2007*. Christchurch: Rob Greenaway and Associates, p. 12
- ¹⁸⁴ Greenaway, pp. 16-26
- ¹⁸⁵ Batcheler, p. 39
- ¹⁸⁶ Crean, M. (2000, August 7). Christchurch and its estuary. The Press, p. 5
- ¹⁸⁷ Batcheler, p. 61
- ¹⁸⁸ Deely, p. 115
- ¹⁸⁹ Crean, p. 5
- ¹⁹⁰ CCC & City Health Department, p. 66
- ¹⁹¹ Crean, p. 5
- ¹⁹² Penney, p. 195
- ¹⁹³ Batcheler, p. 36
- ¹⁹⁴ Batcheler, p. 36
- ¹⁹⁵ Neal, p. 83
- ¹⁹⁶ Batcheler, C. L., & O'Connor, K. F. (2002). Foreword. In C. L. Batcheler & K. F. O'Connor (Eds.), *In defence of the Avon-Heathcote Estuary*. Christchurch: Christchurch Estuary Association, p. ii
- ¹⁹⁷ Eleven
- ¹⁹⁸ Deely, p. 113
- ¹⁹⁹ Christchurch City Council Town Planning Division. (1987). *The Avon-Heathcote Estuary management plan: Christchurch City Recreation Five Zone*. Christchurch: Christchurch City Council, p. 1
- ²⁰⁰ CCC & City Health Department, pp. 7-10
- ²⁰¹ CCC Town Planning Division, p. 2
- ²⁰² Canterbury Regional Council. (1991). *Avon and Heathcote Rivers and Estuary catchment and floodplain management plan: investigation programme*. Christchurch: Christchurch City Council & Department of Conservation, p. 3
- ²⁰³ Batcheler & O'Connor, p. iv
- ²⁰⁴ Briggs, Keller, Flaws & Lake, p. 2
- ²⁰⁵ Batcheler & O'Connor, p. i
- ²⁰⁶ Christchurch City Council. (July 30, 2004). *Council gives go ahead for 3km pipeline*. Press release. Retrieved 23 February, 2010 from <http://www.scoop.co.nz/stories/AK0407/S00252.htm>.
- ²⁰⁷ Christchurch City Council, *Council gives go ahead for 3km pipeline*.
- ²⁰⁸ Crean, p. 5
- ²⁰⁹ Avon-Heathcote Estuary Ihutai Trust. (2010). *History*. Retrieved February 23, 2010 from <http://estuary.org.nz/about/History>

-
- ²¹⁰ Avon-Heathcote Estuary Ihutai Trust, *History*.
- ²¹¹ Avon-Heathcote Estuary Ihutai Trust. (2010). *Ihutai Management Plan*. Retrieved February 23, 2010 from <http://estuary.org.nz/WorkProgramme/IhutaiManagementPlan>
- ²¹² Bell, pp. 1-4
- ²¹³ Batcheler, pp. 61-62
- ²¹⁴ Deely, p. 117
- ²¹⁵ Hansen, p. 61
- ²¹⁶ Batcheler, p. 43
- ²¹⁷ Canterbury Regional Council & Christchurch City Council. (1992). *Avon and Heathcote catchment, rivers and Estuary: issues and options for managing these resources*. Christchurch: Canterbury Regional Council and Christchurch City Council, p. 16
- ²¹⁸ Council, Ngai Tahu in Estuary agreement. (2001, April 26). The Press, p. 7
- ²¹⁹ Pauling, C., Lenihan, T. M., Rupene, M., Tirikatene-Nash, N. & Couch, R. (2007). *State of the Takiwa: cultural health assessment of the Avon-Heathcote Estuary and its catchment*. Christchurch: Te Runanga o Ngai Tahu, p. i
- ²²⁰ Pauling, Lenihan, Rupene, Tirikatene-Nash & Couch, p. i