



The Royal Geographical Society of Queensland Ltd. South Island, New Zealand Tour

19 October - 2 November

2023



DAY #	DATE	TIME	ACTIVITY / LOCATION	MEALS	COMMENTS
1	Thurs 19 Oct	6.00am 8.40am 3.05pm	BNE-Wellington BNE check in Air NZ flight 272 Arr. Wellington		We will be met for transfer to hotel by Airport shuttle bus
		O/N 6.30pm	Ramada by Wyndham, Wellington, Taranaki St. Group Dinner at Southern Cross Hotel, 39 Abel Smith St. Te Aro	D own choice/cost	
2	Fri 20 Oct	9.30am 2.30pm 4.00pm 7.30pm	Wellington to Picton • Te Papa Museum tour (1 hour) • Transfer to ferry terminal • Inter-Islander Ferry • Arr Picton	B at Microtel (2mins walk from hotel) L&D own choice/cost	We will be met in Picton by Ayo International 2x12 seater mini buses for transfer to hotel
		O/N	Jasmine Crt Motel, Picton		
3	Sat 21 Oct	7.30am 8.00-12.30	Marlborough Sound • Check-in for Beachcomber Cruise (5mins walk from motel) • Half day cruise to Motuara Is bird sanctuary Free afternoon	B L&D own choice/cost	
		O/N	Jasmine Crt Motel, Picton		
4	Sun 22 Oct	9.00am	Picton to Christchurch • Coach pick up • Lunch at Kaikoura • Point Kean Seal colony lookout	B L&D own choice/cost	Tranzit Coachlines
		O/N	Centrepont on Columbo, Christchurch		
5	Mon 23 Oct (Labour Day hol NZ)	9.00am 9.30am	Christchurch Coach pick-up • Antarctic Centre (tickets booked) • Possible tour to Lyttleton Free afternoon	B L&D own choice/cost	Transfer by coach
		O/N	Centrepont on Columbo, Christchurch		
6	Tues 24 Oct	9.00am-12 noon	Christchurch • Univ. of Canterbury • Presentations by Geography Dept • CBD Red Zone • Group Dinner with Jamie & Val	B L&D Own choice/cost	Meeting & guided by Prof. Jamie Shulmeister Coach will wait during morning Dinner venue TBA
		O/N	Centrepont on Columbo, Christchurch		
7	Wed 25 Oct		Christchurch to Geraldine • Rakaia Gorge • Ashburton Lakes • Mt. Somers • Peel Forest Reserve • Dinner at Village Inn	B L sandwich lunch included D Own choice/cost	Guided by Jamie
		7pm O/N	Andorra Motel, Geraldine 16 Mackenzie St.		

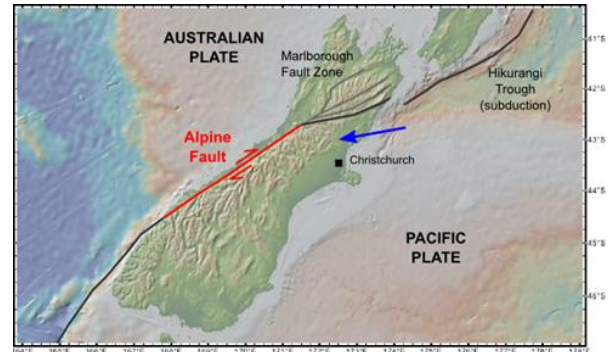
8	Thurs 26 Oct		Geraldine to Mt. Cook <ul style="list-style-type: none">FairlieLake TekapoMt. John ObservatoryEarth & Sky CaféLake PukakiGlentannerLake Tasman/Tasman GlacierHooker Valley	B at Mundells (5mins walk from motel) L (Jamie arranging) D own choice/cost (in Hermitage)	Guided by Jamie
		O/N	Mt. Cook Motel		
9	Fri 27 Oct		Mt Cook to Wanaka <ul style="list-style-type: none">Omarama Clay cliffsLindis PassWanaka	B in Hermitage D Own choice/cost	Jamie leaves us at Twizel bus station
		O/N	Oakridge Resort Lake Wanaka		
10	Sat 28 Oct	Leave 8.00am 12.00 12.30	Wanaka to Manapouri to Doubtful Sound <ul style="list-style-type: none">ManapouriCheck in by 12 noonDepart on cruise on Fiordland Navigator	B L own choice/cost D	Overnight cruise
		O/N	On board Fiordland Navigator		
11	Sun 29 Oct	12 noon 4.30pm 5.30pm	Manapouri to Bluff to Stewart Island <ul style="list-style-type: none">End cruiseCoach to BluffFerry to Stewart IslandArr. Stewart Island	B L own choice & cost D (pre-booked orders)	Dinner venue TBA
		O/N	South Sea Hotel		
12	Mon 30 Oct	11.00am-12.30pm 12.45-3.15pm	Stewart Island <ul style="list-style-type: none">Island village & Bays tourPatterson Inlet & Ulva Is wildlife sanctuary	B L D	Mini-bus tour Ulva Island Explorer & guided walk
		O/N	South Sea Hotel		
13	Tues 31 Oct		Stewart Island to Dunedin <ul style="list-style-type: none">Ferry to BluffCatlins Forest ParkPapatowai	B L & D own choice & cost	Coach to Dunedin
		O/N	Alcala Motor Lodge, 704 George St Dunedin North		
14	Wed 1 Nov	6.15pm	Dunedin <ul style="list-style-type: none">Royal Albatross Centre (tour booked) Free afternoon <ul style="list-style-type: none">Group farewell dinner Plato Cafe	B D	
		O/N	Alcala Motor Lodge, Dunedin		
15	Thursday 2 Nov	8.00am 9.45am 11.35am 4.05pm 4.50pm	Dunedin to Brisbane <ul style="list-style-type: none">Transfer to Dunedin airportAir NZ 676Arr. AucklandTransfer to Int'l terminalAir NZ 147Arr. BNE	B	Coach transfer to airport

SOUTH ISLAND – TE WAIPOUNAMU- GEOGRAPHY

Notes prepared by Iraphne Childs

Landforms

The Southern Alps, stretch 600km from north to south. Although geologically young, hard sedimentary “greywacke”, the base rocks formed some 250 million years ago as part of the Gondwana supercontinent. As the Pacific and Indo-Australian plates collided, sea-floor spreading occurred and NZ began breaking away from Gondwana about 85 million years ago. Uplift and mountain building followed & continues today. The present landscape has been forming over the past 1.8 million years. NZ’s highest peak, **Aoraki/Mt. Cook**, reaches 3754m; there are 18 peaks of more than 3,000m. The Alpine Fault runs through most of the South Island resulting in many small earthquakes. The seismic motion is strike-slip (side to side), with the West coast moving north and Canterbury and Otago moving south; slip rates are about 38mm (1.5 in) a year, very fast by global standards. Major recent seismic events have rocked Christchurch in 2010-2011 and Kaikoura in 2016. The Alps watershed divides the island into two distinct geographic regions: the east and west coasts with rivers and glaciers draining to the east or west, carving out valleys and deep gorges.



Fiordland

Fiordland, UNESCO Southwest World Heritage Area, is NZ’s largest national park. Lying close to the Alpine fault, the area has been folded, faulted, uplifted and submerged many times. Ancient rock fragments from Gondwana are found in Fiordland. Over the past 2 million years glaciers have created a landscape where waterfalls cascade hundreds of metres into 14 deep fiords including Milford, Dusky and Doubtful Sounds. The peaks are largely hard crystalline metamorphic rocks (gneiss and schist) and igneous granite, covered in temperate rainforest.

The Canterbury Plain is NZ’s largest alluvial flood plain approx. 160km long by 50km wide created by a number of braided rivers, the largest are the Rakaia and the Waimakariri rivers. These rivers have laid down gravel, sand and mud. During the last ice-age (120,000-11,700 years ago) when sea-level was lower rivers and glaciers deposited Canterbury sediments out beneath the present-day coastline.

Climate

The climate in the South Island is mostly maritime temperate (Köppen Cfb). Conditions vary sharply across the regions. The southern and south-western parts of South Island have a cooler and cloudier climate. Inland mountain areas have an Alpine climate with colder winter and summer temperatures. The very wet west coast has an annual average of 200 rainy days and annual rainfall with 8,000 millimetres (310 in) in Milford Sound to the semi-arid inland Canterbury. Christchurch is the driest city, receiving about 640 millimetres (25 in) of rain per year while Invercargill is the wettest, receiving about 1,150 millimetres (45 in).

Flora and fauna

NZ’s long geological isolation allowed the survival a variety of endemic plants, birds, bats and insects. The extinct flightless *moa* grew to 3.5m tall and weighed over 200kg. The flightless kiwi is nocturnal. Native birds include the *tui*, *bellbird*, *pukeko* (swamp hen), *takahe*, *kakapo* and *kea*. The arrival of humans brought threats and extinctions. Exotic Australian possums are responsible for much of the damage to the NZ bush and endemic species. In 2016 the NZ government initiated “Predator free 2050” with the aim of ridding NZ of introduced species that prey on native flora and fauna. Prized native timber trees are the *rimu* (red pine) and *totara* (favoured for Maori war canoes). NZ has around 200 species of endemic ferns including the 10m high *ponga* silver tree fern (*Cyathea dealbata*) the national symbol. At 25 million in 2022 sheep outnumber humans by 5 to 1 !



Human Settlement

Maori: Oral histories tell of the discovery of NZ by the navigator Kupe who sailed from *Hawaiki* (legendary ancestral home of the Polynesians, probably around Tahiti) to *Aotearoa* – *Land of the long white cloud*. Legend tells how the demigod *Māui* fished up the South Island from his canoe around the Kaikōura Peninsula. *Stewart Island (Rakiura)* is believed to be the anchor from Maui's canoe. Archaeological evidence suggests that migrations took place from eastern Polynesia over several generations from around AD1200. Still today Maori trace their ancestry back to the particular *waka* (canoe) on which their ancestors arrived. They brought Polynesian food plants such as sweet potato, gourd, yam and taro. There were no native land mammals, but moa, sea mammals and birds were hunted. Farming and fishing developed and complex tribal organisations were established with fortified villages (*pa*) built during inter-tribal conflict. The early Maori had no written language but traditional Maori culture from around 1500 including the *haka* dance, visual art, wood-carving, weaponry and greenstone *pounamu* endure today. Originally from Gisborne in the North Island, the *Ngāi Tahu*, or *Kāi Tahu* is the principal Māori tribe (*iwi*) of the South Island with an estimated 74,000 affiliated members. Their tribal area is the largest in NZ, extending from the White Bluffs southeast of Blenheim in the north to Stewart Island in the south.

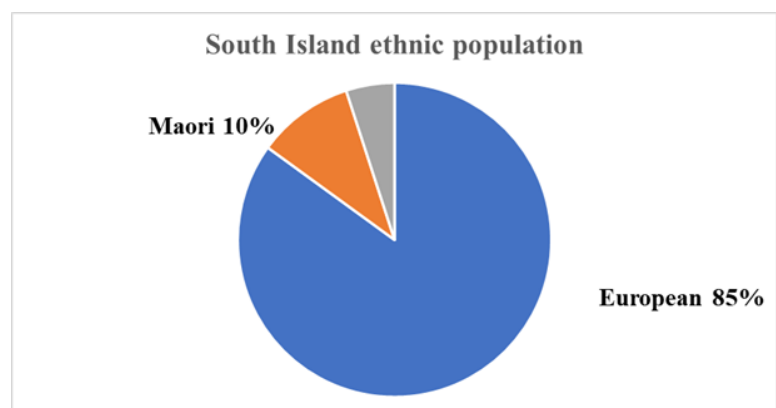
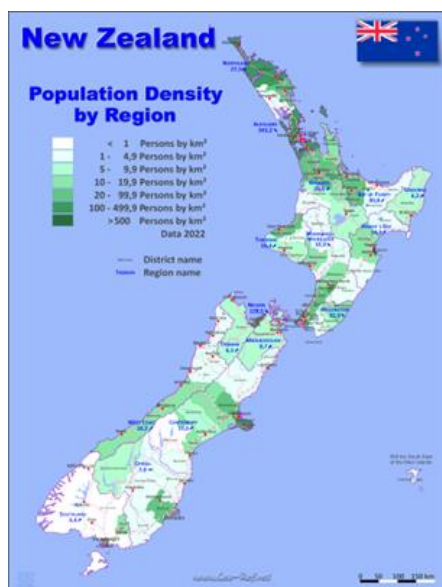


Europeans: Pakeha. The first contact between Maori and European explorers took place on the South Island in 1642 when Abel Tasman's Dutch ships sailed east from Tasmania. They anchored in Wainui Inlet, north of present-day Abel Tasman National Park but did not go ashore. Following a skirmish during which four Dutch crewmen were killed the Dutch ship left. It was not until 1769 that English (James Cook) and French (Jean de Surville) explorers arrived to resume contact with the Maori. The Maori population at the time was estimated to be around 100,000. Whaling ships and missionaries followed. British settlement and influence prevailed and in 1840 the Treaty of Waitangi between Britain and 43 Maori chiefs was signed at Waitangi on the shore of the Bay of Islands, north Island.



Current Population

New Zealand's total population in June 2023 was 5.2 million. South Island has a population of 1.2 million compared with 4 million in the North Island. South Island's population is more homogeneous than the North Island with 85% of inhabitants being of European descent, 10% Maori and the remaining 5% being Asian, Pacific Islander and South American.



Geographical notes

WELLINGTON / Te Whanganui-a-Tara – “great harbour of Tara”.

Tara, son of Polynesian explorer Whatonga. Also known as *Pōneke* - phonetic Māori for "Port Nick" (Port Nicholson)

41° 17' S, 174° 46' E

- SW tip of the North Island on Cook Strait

Geology & Landforms

- **Greywacke** low-grade metamorphosed sedimentary rocks that constitute the Wellington Peninsula
- High seismic activity- major **Wellington Fault**, runs through the city; several other minor faults nearby
- The **1855 Wairarapa earthquake** east of Wellington probably the most powerful earthquake recorded in NZ so far, estimated magnitude 8.2 - lifted Wellington Harbour area by 6 ft
- Around every 5 years “**Slow-slip**” **seismic events** observed stretching from Kapiti coast (NW of Wellington) to Marlborough Sound. First measured in 2003, reappeared in 2008 and 2013. These events release as much energy as a magnitude 7 quake, but as it happens slowly there is little damage
- Steep landforms & hills constrain landuse in Wellington city
- The **Miramar Peninsula**, connected to the rest of the city by a low-lying isthmus at **Rongotai**, the site of Wellington International Airport

Climate

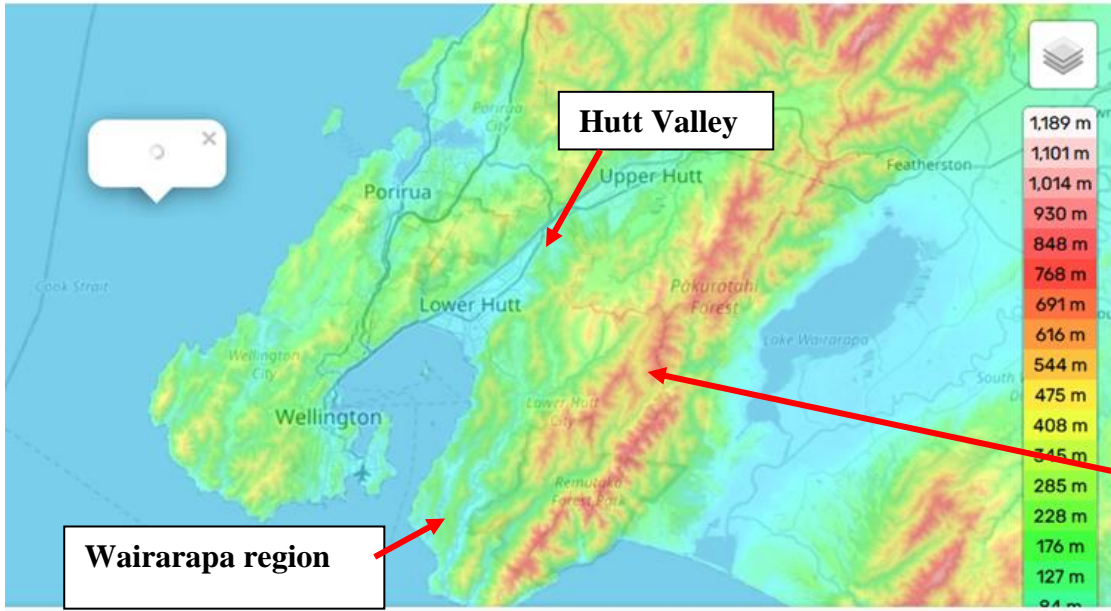
- Maritime temperate (Köppen Cfb)
- Warm summers, mild winters, temps rarely above 30 °C or below 4 °C
- Average annual rainfall 1,250 mm (49in) June and July wettest months
- “Windy Wellington” – in the path of the **Roaring Forties** - strong westerly winds that occur between the latitudes of 40° and 50° south
- To the east, the **Remutaka Range**
- **Wairarapa** broad plains, a famous wine region

Population & settlement

- Wellington region 422,000 (2023)
- Restricted amount of flat land between the harbour and surrounding hills, so fairly dense settlement pattern
- **Lambton Quay**, CBD, site of the original European settlement in NZ 1840 – formerly “the Beach” – reclaimed land since 1850s.

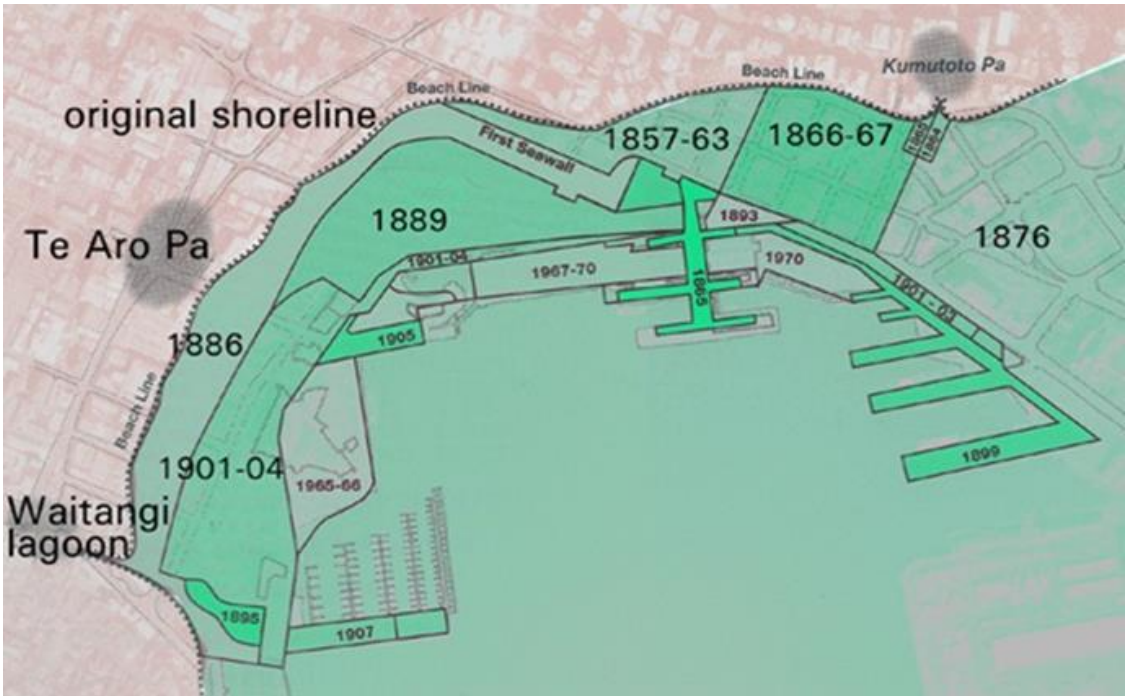
Economy

- Capital city of NZ – parliament, nationally significant buildings
- Politics & government
- One of New Zealand's chief seaports – both international & domestic
- Education: 3 universities (Victoria, Otago campus, Massey)
- Finance, business services, film industry, IT
- NZ’s “culture and creative capital”
- Tourism
- **Hutt Valley** – industrial centre: food-processing, engineering, vehicle assembly and oil refineries



**Wellington
Region
landforms**

Remutaka Range



**Reclamation of
Wellington
foreshore**

Geographical notes

PICTON / Waitohi & MARLBOROUGH SOUNDS / Te Tauihu-o-te-Waka

Picton

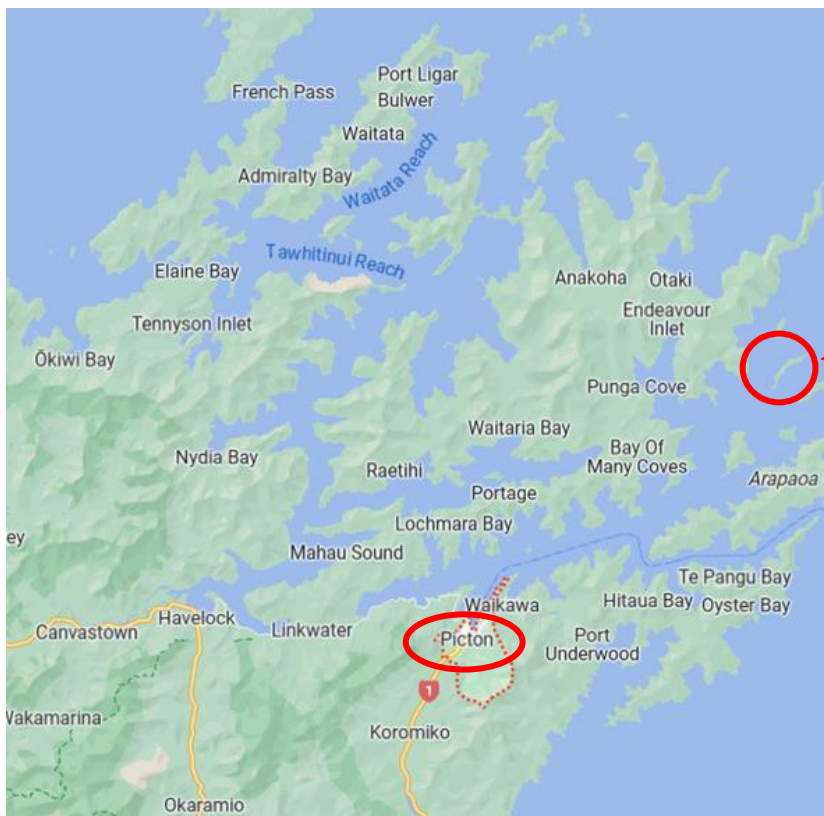
- Population 4,800 (2022)
- The majority of the population is concentrated on the **Wairau plain** and **Wairau River valley** in and around **Blenheim** with **Picton** being the second largest town
- Picton is a major hub in New Zealand's transport network, connecting the South Island road and rail network with ferries across Cook Strait to Wellington and the North Island
- Located at the head of **Picton Harbour**
- Economy largely related to transport & tourism

Marlborough Sounds

- A **ria** coast - drowned river valley system
- Tilting and sinking of the Sounds and rising sea levels since the last ice age have contributed to their current form
- The **Alpine Fault** which follows the plate boundary between the Australian and Pacific plates passes through the region
- Many smaller faults contribute to the shape of the landscape
- The largest flat area is the **Wairau** plain.
- Past glaciation has also contributed significantly to the shape of Marlborough Sounds.
- Over 50 percent of Marlborough is steep hill or mountain country
- Climate varies from mild and humid in areas such as the Marlborough Sounds through to semi-arid in parts of the east coast. Temperature also varies with some northern coastal areas being virtually frost free, while the interior areas experience frosts almost two thirds of the year.
- **Temperate forest** in the north to **grasslands and scrub in drier areas**. A few wetland areas of **flax swamp** and coastal salt marsh also exist. A number of endangered species are found only in the Marlborough region

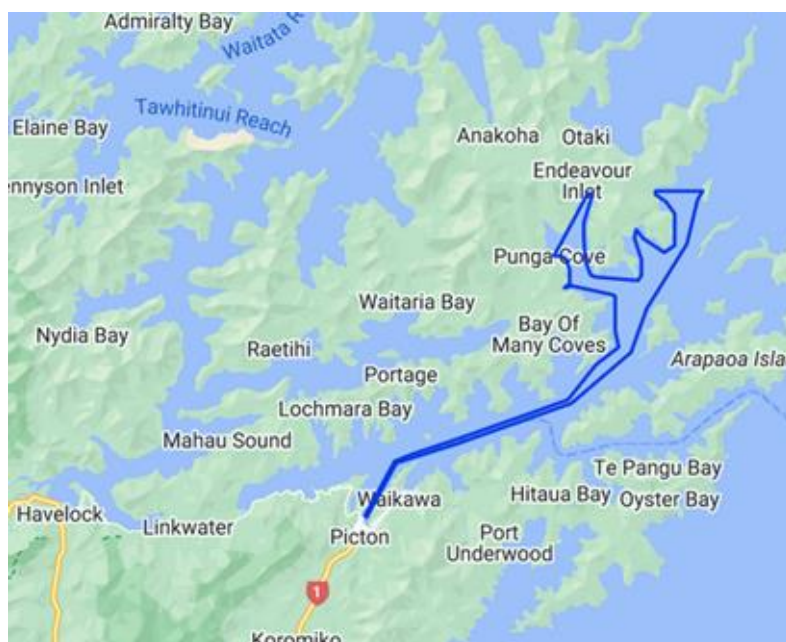
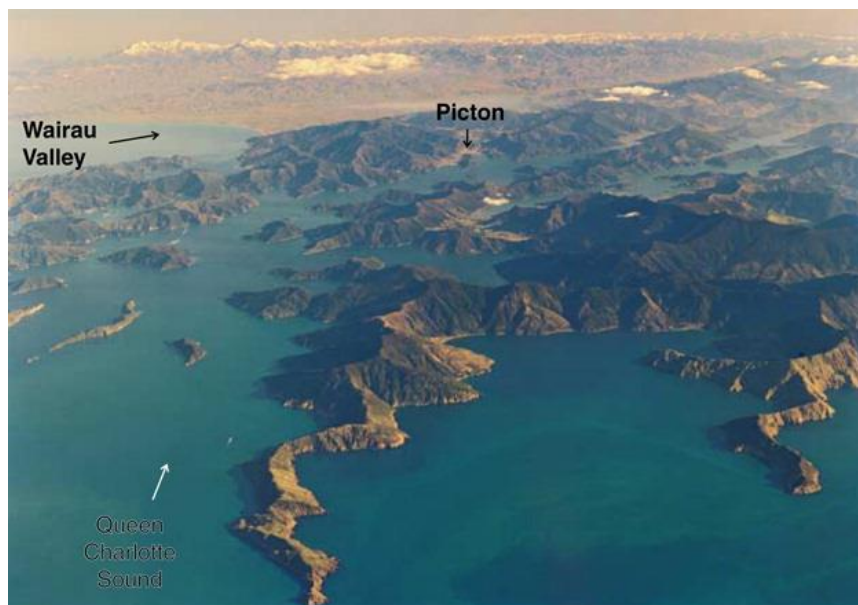
Motuara Island Bird Sanctuary

- Important point of arrival and departure for Maori trading **waka (canoes)** crossing **Cook Strait**
- In 1770 Captain James Cook proclaimed British sovereignty over the South Island here
- Rats eradicated in 1992
- Now a **predator-free bird reserve** at the entrance to **Queen Charlotte Sound**
- **Native Birds** e.g. saddleback/tīeke, South Island robin/toutouwai, yellow-crowned parakeet/kākāriki



Marlborough Sounds

Motuara Island Reserve



**Half-day cruise route
to Motuara Island
Bird sanctuary**

Day 4 Sunday 22 October

Geographical notes

KAIKOURA

Kaikoura coast

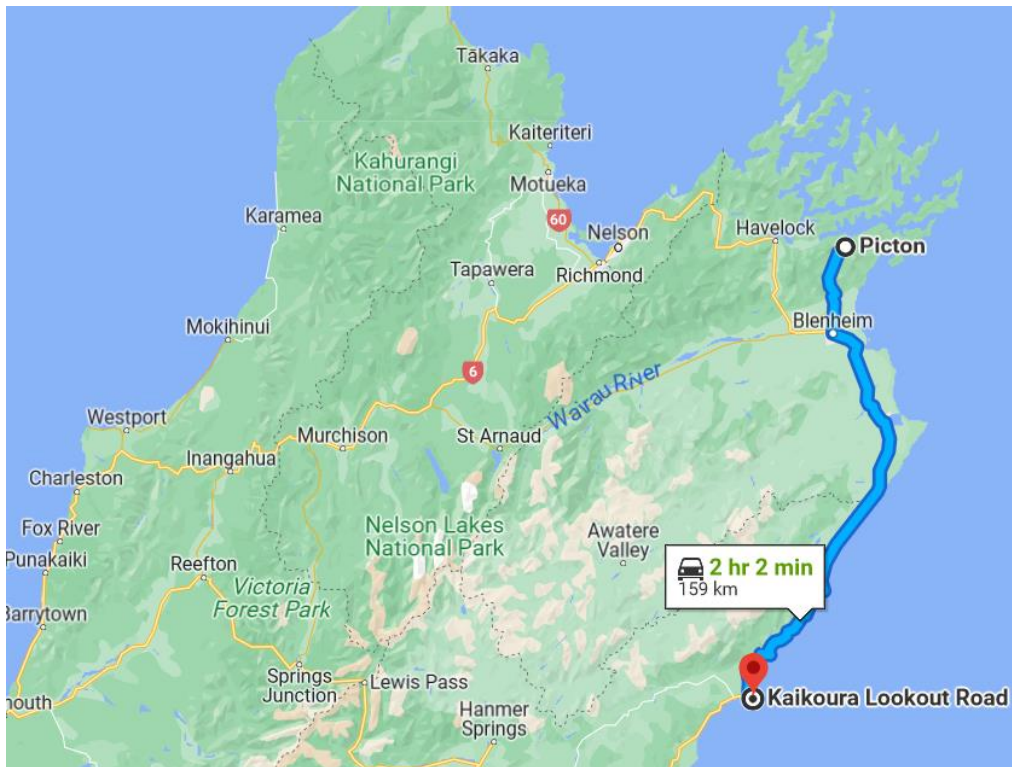
- Kaikoura village population 2,330 (2022)
- In the Māori language 'kai' means food, 'kōura' means *crayfish*
- Crayfish are a speciality food of Kaikoura – look out for sampling in cafes !
- Very little coastal plain here with the ***Seaward Kaikōura Range*** rising very close to the Pacific ocean.
- On the inland side, the ***Clarence*** and ***Wairau Valleys*** formed along the ***Wairau fault*** depression
- Māori have long been resident in Kaikōura; archeological evidence of ***moa bones*** suggesting moa were hunted there
- A ***whaling station*** existed in Kaikoura between 1842-1922

2016 earthquake (M7.8)

- The bay and surrounding region were uplifted by as much as 2m
- Wide-ranging impacts: thousands of people were affected; 2 people died; significant damage to transportation networks & lifeline utilities; disruption to the agriculture and tourism industries

Marine Wildlife

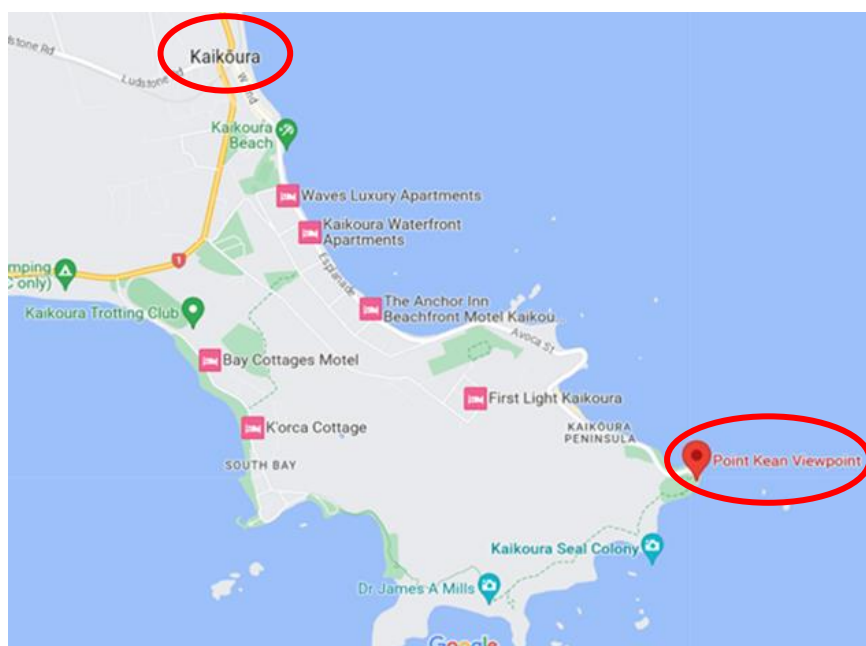
- The ***Kaikōura submarine canyon*** plunges 900m just offshore - a branch of the ***Hikurangi Trench*** that extends along the NZ east coast, creating strong upwelling ocean currents and providing feeding grounds for whales, dolphins, fur seals, albatross, petrel and shearwaters.
- The ***Hikurangi Marine Reserve*** and the ***Kaikōura whale sanctuary*** were established in 2014
- ***Point Kean*** seal lookout



**Route from
Picton to
Kaikoura**



**Kaikoura Seaward
Range and
Kaikoura village**



**Kaikoura
Peninsula and
Point Kean
seal lookout**

Day 5 Monday 23 October – Labour Day in New Zealand

Day 6 Tuesday 24 October – with Prof. Jamie Shulmeister

Geographical notes

CHRISTCHURCH / Ōtautahi

43.53° S, 172.63° E

Canterbury Plain

- NZ's largest alluvial plain (750,000 ha)
- Braided rivers form a network of ever-changing channels weaving between temporary shingle islands; in some places the gravel transported by rivers from the mountains is 500m deep
- The ***Rangitata, Rakaia, and Waimakariri rivers*** flow east from the Southern Alps
- Hot summers, generally low humidity, mean annual rainfall of less than 30 inches (750 mm)
- ***Intensive mechanized agriculture***; grains, pasture, fodder crops, sheep
- ***Around Christchurch*** dairy, poultry, fruit and vegetable farming

Banks Peninsula

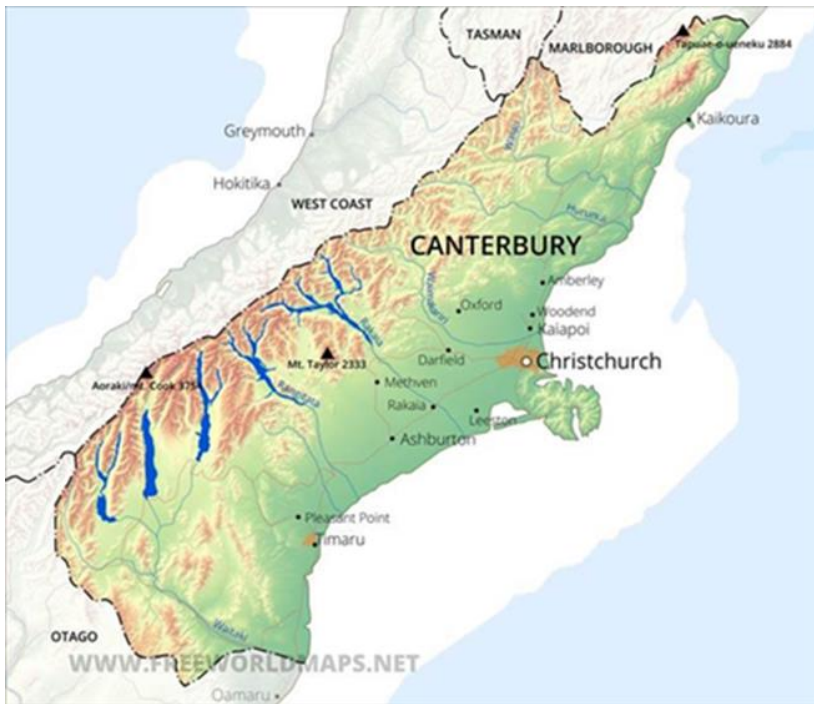
- Named after James Cook's botanist Joseph Banks
- Two overlapping extinct volcanoes, the ***Lyttelton Volcano*** and the ***Akaroa Volcano***
- Heavily eroded since the last eruptive activity some 6 million years ago
- Two large harbours and many smaller bays and coves
- ***Lyttelton*** is the port for Christchurch
- ***Akaroa French settlement and influence***

Climate

- Maritime temperate (Köppen: *Cfb*)
- Mild summers, cool winter
- Regular moderate rainfall of 635mm (25in) /year

Population

- Population 320,000 (2023)
- NZ's 2nd largest city.
- Bounded to the north by the ***Waimakariri River*** and to the south by the old crater complex of the ***Port Hills*** and ***Banks Peninsula***
- The ***Avon River*** flows through the city
- Traditionally the most English of NZ cities
- 1850 settled by British
- 2010-2011 major earthquake
- “***Red Zone***” earthquake reconstruction area
- ***International Antarctic Centre***
- ***University of Canterbury Dept. of Geography***



Canterbury region

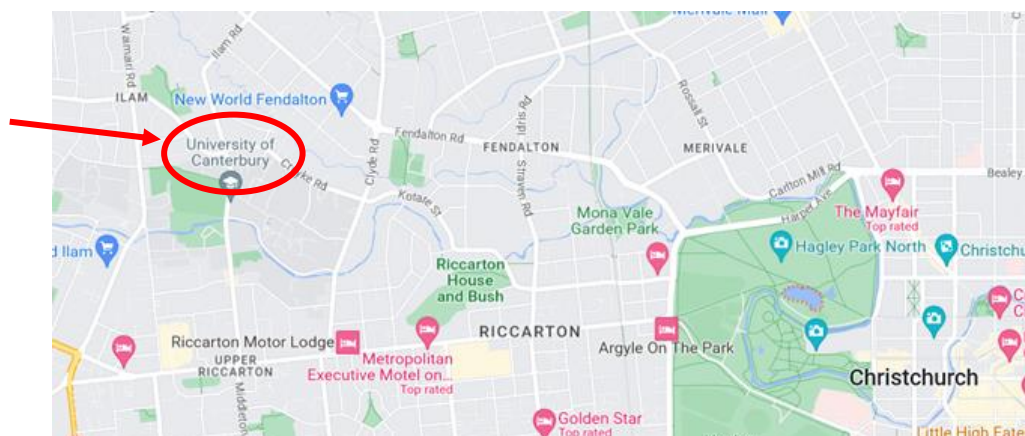


Banks Peninsula



**Our motel ,
CentrePoint on
Columbo
859 Colombo St
Central City**

**University of
Canterbury,
Upper
Riccarton**



Geographical notes

CHRISTCHURCH TO GERALDINE

Rakaia River

- Rises in the ***Lyell*** and ***Ramsay glaciers*** of the Southern Alps near Whitcombe Pass
- Runs through wide shingle beds for much of its length, but is forced through a narrow canyon as it approaches the Canterbury Plains.
- Deposits of fine, ***windblown loess*** on the lowlands provide fertile soil for grain crops and salmon are taken from the stream

Rakaia Gorge

- Bridge was completed in 1882 - provides an inland alternative to the more frequently used Rakaia River bridge just north of the town of Rakaia

Ashburton Lakes

- One of the ***few remaining areas of native biodiversity*** in mid-Canterbury

Mt Somers

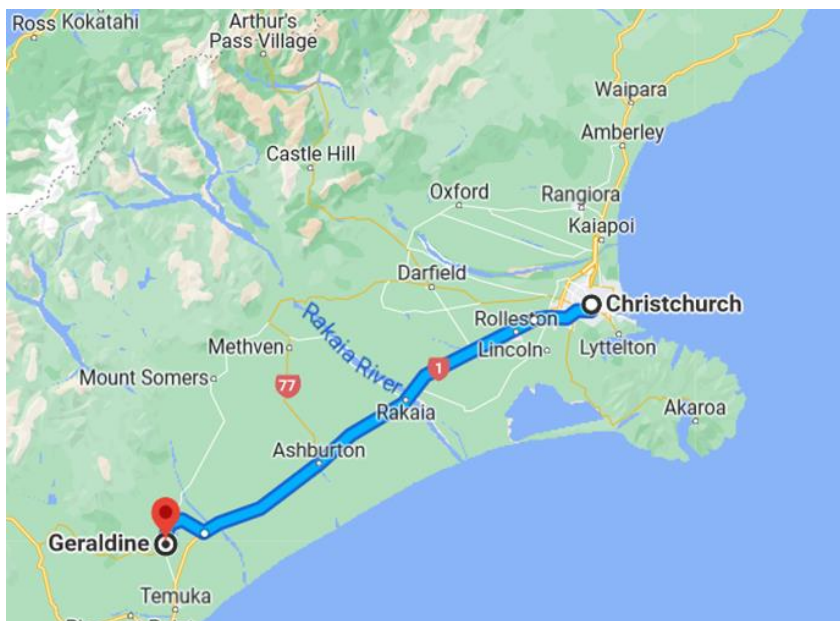
- The ***Mount Somers*** volcanic group erupted 89 million years ago
- Mt. Somers small town was established when coal was discovered in 1856
- ***Coal, clay, sand, and limestone*** have been mined in the hills behind the town
- Mt Somers tavern is a favourite dining & watering spot for “trampers” (hikers)

Peel Forest Reserve

- Near the ***Rangitata river***
- Remnant of a large ***Podocarpaceae*** forest with some ancient species
- At least ten species of native bird occur in the forest
- the ***Rangitata*** riverbed provides habitat for a number of waders and coastal visitors

Geraldine

- Population 2,820 (2022)
- ***Waihi River*** runs through town
- ***Talbot Forest Reserve*** – remnants of a native forest that covered Geraldine and surrounding areas. Includes native hardwoods, including one tree estimated to be 800 years old, and colonies of the ***native long-tailed bat***
- ***Agriculture*** is the mainstay the local economy – sheep, beef, deer, mixed farming, vegetables & fruit, service & agricultural processing industries, jams, chutney, sauces, syrups and blackcurrant juice
- Well known for its population of ***artists and crafts people***



**Route from
Christchurch
to Geraldine**



Rakaia Gorge bridge built in 1882



Rakaia Gorge

Geographical notes

GERALDINE to AORAKI / Mt. COOK

Aoraki/Mt. Cook

- NZ's highest mountain at 3724m
- World heritage area national park
- Part of *Te Wahipounamu – South West New Zealand world heritage area*
- 1/3 of the park has permanent snow & glacial ice
- Glaciers that have shaped the landscape's 5 major valley systems: *Godley, Murchison, Tasman, Hooker and Mueller*
- Alpine climate and vegetation
- 40 species of birds including the *kea* the world's only *Alpine parrot*

Tasman Glacier

- NZ's largest glacier
- 23km long, 4km wide
- Melting fast with climate change

Fairlie

- Service town for Mackenzie district

Lakes Tekapo and Pukaki

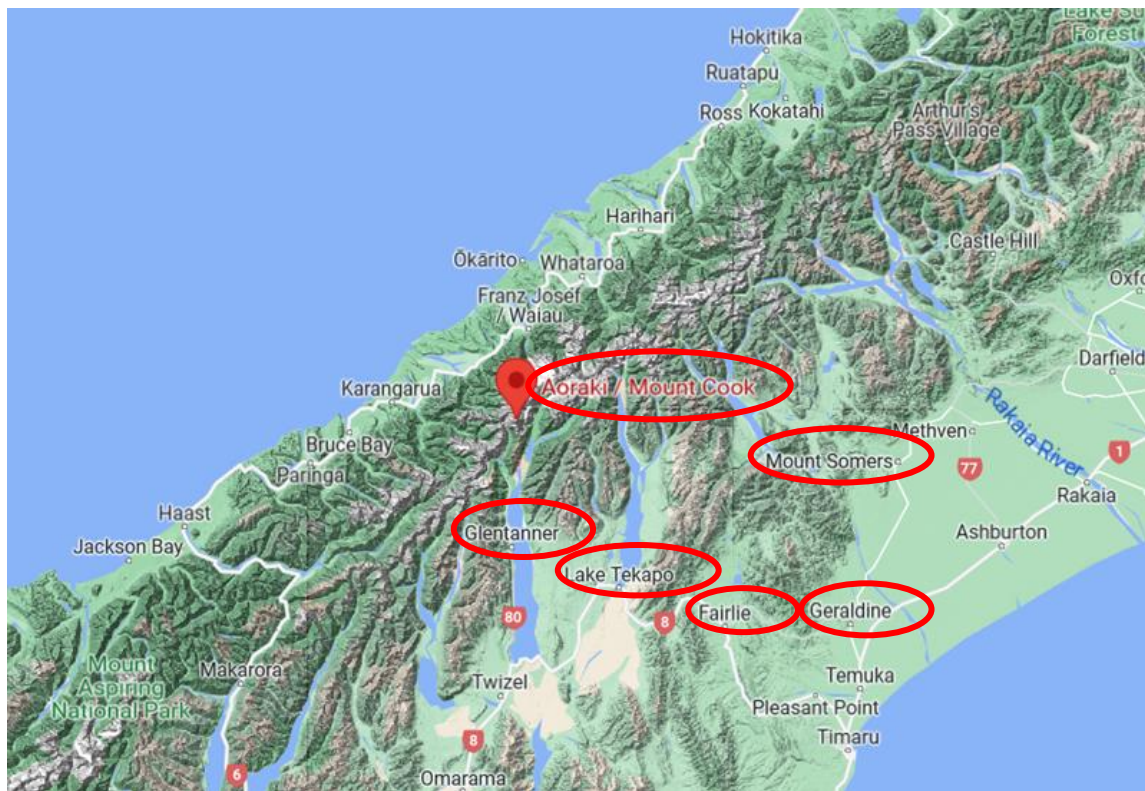
- Two large **glacial lakes** in the central part of the Southern Alps, both dammed by moraines
- *Turquoise colour* is caused by finely ground rock flour suspended in the water
- Both lakes are part of the *Waitaki hydro scheme*

Glentanner

- Population 250
- On the shores of *Lake Pūkaki*, largest of the Mackenzie district's lakes

Mt. John Observatory

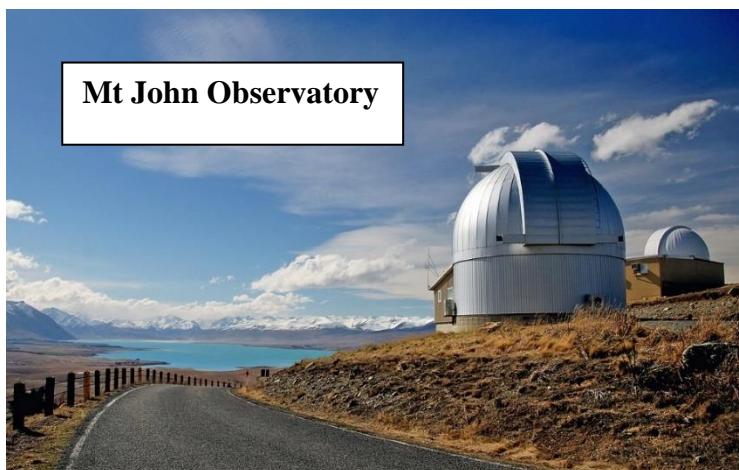
- *University of Canterbury*, School of Physical and Chemical Science
- NZ's premier astronomical research observatory
- In 2012 the Aoraki Mackenzie area was declared an *International Dark Sky Reserve*



Aoraki/ Mt Cook



Glenfarg Park sheep station



Mt John Observatory



Lake Tekapo hydro power plant

Geographical notes

AORAKI / Mt. COOK to WANAKA

The Waitaki District is a territorial authority district between the Canterbury region in the north and Otago region in the south. The Waitaki River provides a dividing line between the regions. **Omarama** is the district's main town.

Omarama cliffs

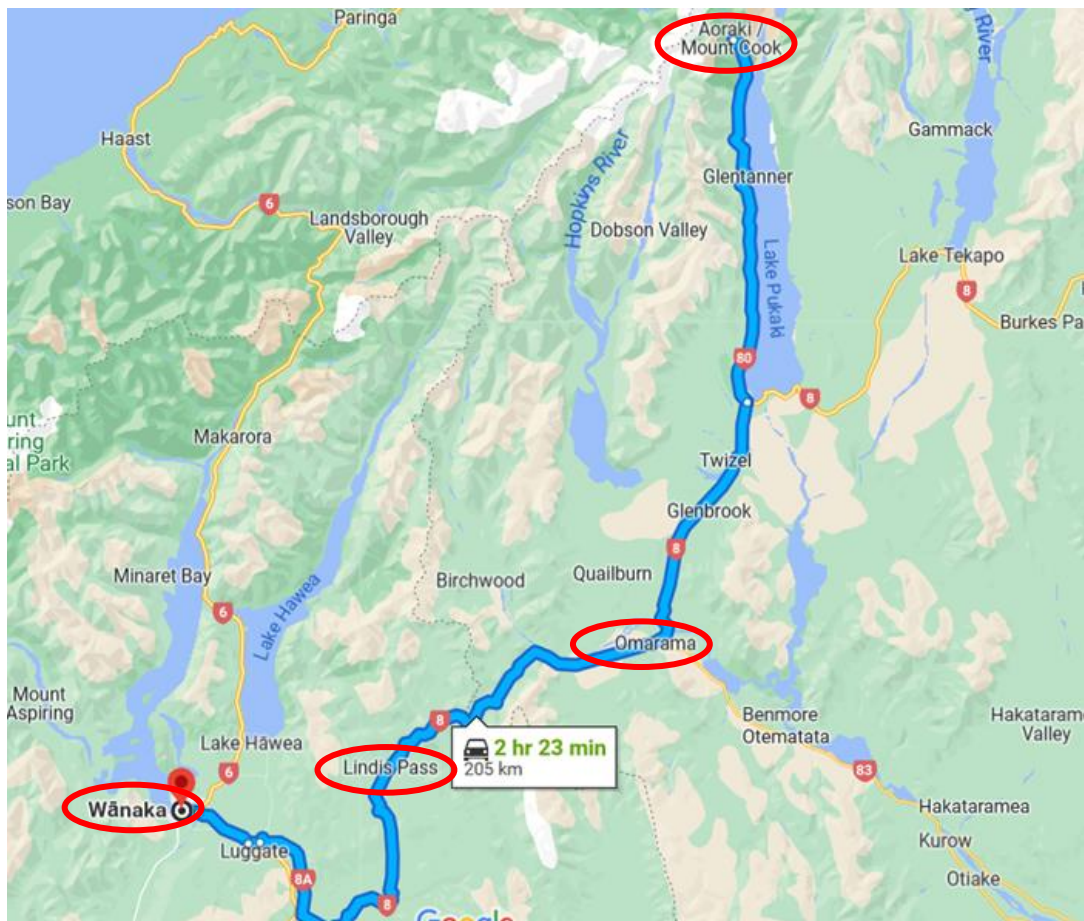
- **Clay cliffs**, tall pinnacles separated by narrow ravines
- Silt and gravel deposited by ancient lakes and rivers around 2 million years ago
- Compared to the nearby Alpine mountains, the cliffs are relatively young
- Uplifted and tilted by the nearby active **Ostler Fault**
- On private land, an honesty box at the gate
- Walk to the cliffs is 10-15 mins from carpark one way
- Inside the cliffs is rocky and sometimes slippery underfoot. Closed, sturdy footwear is advised.

Lindis Pass

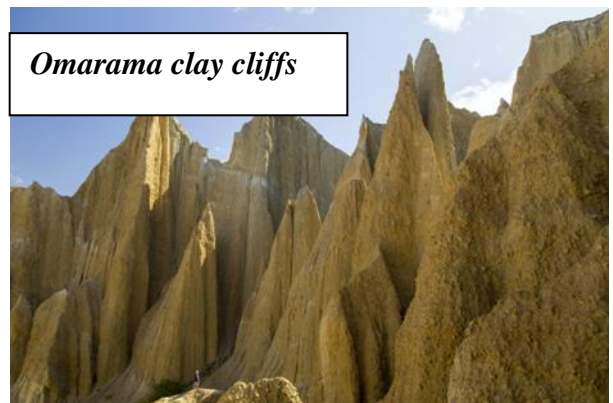
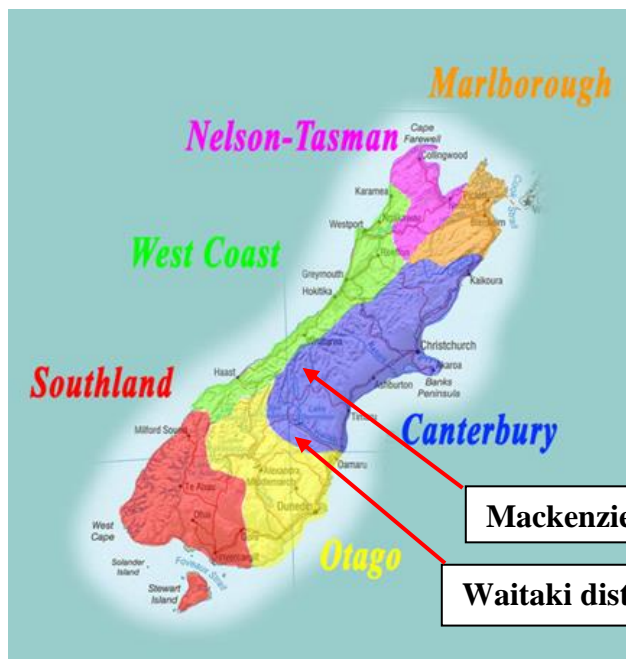
- **Lindis Pass** (971m) crosses a saddle between the valleys of the **Lindis** and **Ahuriri Rivers**
- **Lindis Conservation Area** - snow tussock grassland
- **Longslip Mountain** (1494m) most extensive site of the **alpine buttercup *ranunculus haastii*** in the Mackenzie Basin.
- **Native bird species** include titipounamu (rifleman), riroriro (grey warbler), piwakawaka (fantail) and karearea (falcon)

Wanaka

- Pop. 2,150 (2022)
- Popular ski and summer resort town
- On the southern end of **Lake Wanaka**
- To the SW is the **Crown Range** and **Queenstown**, 120 km away.
- To the north the **Haast Pass** cuts through the Southern Alps
- The gateway to **Mount Aspiring National Park**, a wilderness of glaciers, beech forests, alpine lakes and ski resorts
- Wānaka is a sub-region of the **Central Otago wine region** with several top wineries and vineyards. The main grape variety is pinot noir
- Actor Sam Neill has his pinot noir vineyard in this area. If you haven't seen it Sam Neill's ABC 3-part program "*The Pacific, in the wake of Captain Cook*" is worth catching on ABCiview <https://iview.abc.net.au/show/pacific-in-the-wake-of-captain-cook-with-sam-neill>. A different perspective on NZ history.



**Aoraki to
Wanaka route**



Omarama clay cliffs



**Haast's Alpine
buttercup**



**Wanaka town on
Lake Wanaka**

Geographical notes

WANAKA to DOUBTFUL SOUND

“There are just a few areas left in the world where no human has ever set foot. That one of them should be in a country so civilized and so advanced as New Zealand may seem incredible, unless one has visited the south-west corner of the South Island”

(Charles John Lyttelton, Governor-General of New Zealand (1957–1962))

Te Anau (we are not visiting this town)

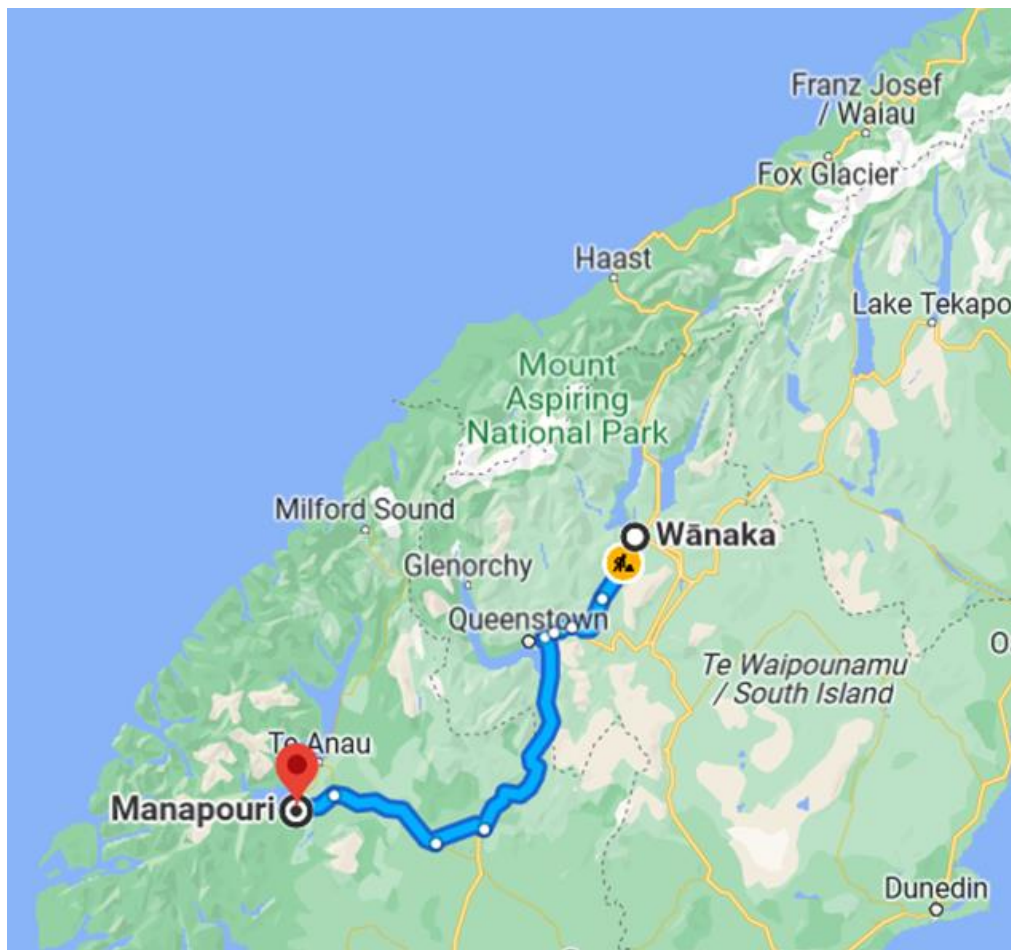
- Population 2970 (2022)
- Gateway to Fiordland National Park and Milford Sound
- Home to the endangered, flightless *takahē*
- Abundant trout in **Lake Te Anau**
- **Te Anau Caves** a limestone grotto of glow worms and an underground waterfall
- To the SW the **Kepler Track** winds through beech forests, glacial valleys and mountains

Manapouri

- Population 240 (2022)
- The westernmost municipality in NZ
- **Lake Manapouri** was formed by glaciers during the last ice age; NZ's 2nd deepest lake – bottom of lake lies 267m below SL
- A natural flow from Lake Te Anau has been diverted to develop **Manapouri Hydroelectric Power**
- 73% of New Zealand's *longfin eel* in Lake Manapouri habitat is protected from commercial fishing; eels experienced a decline due to the construction of the hydro-electric dam blocking eel migration. A vertical slot fish pass was installed in 1999 and trap and transfer of elvers (young eels) has had some success
- In 1959 it was proposed to raise the lake by up to 30m for increasing hydro power for the development of an aluminium smelter. Strong nationwide protest, the **Save Manapouri campaign**, the 1st environmental movement in NZ, was successful in stopping the raising of the lake

Doubtful Sound / Patea (“place of silence”)

- 45.32° S, 166.99° E
- Carved by glaciers, one of NZ's largest fiords; 3x length of famous Milford Sound
- Unusually, contains 2 distinct layers of water that scarcely mix: (a) surface low salinity layer LSL 2–10 metres, fed from the freshwater inflows from the surrounding mountains; stained brown with tannins from the forest. The outflow of freshwater from the discharge from the Manapouri Power Station also influences the thickness of the LSL (b) a layer of warmer, undiluted seawater with a higher salinity
- Forested valleys where *Nothofagus* trees are dominant
- **Fur seals, bottlenose dolphins, Fiordland penguins, whales, orcas**
- **Black corals** (*Antipathes fiordensis*) usually a deep water species grow here in shallow waters because the dark tannins in the fresh water layer make it difficult for light to penetrate.



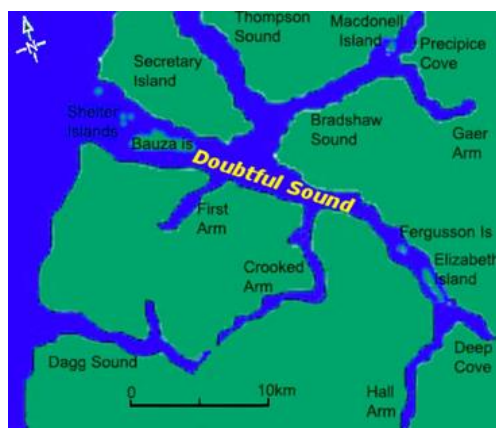
**Route from
Wanaka to
Manapouri**



Manapouri



Doubtful Sound



Geographical notes

MANAPOURI to BLUFF to STEWART ISLAND

Bluff / Motupōhue (previously Campbelltown)

- Dominated by **Bluff Hill** which provides some shelter from the prevailing westerly winds
- The port is located in a relatively narrow entrance channel
- **Tiwai Point** is an important home to a breeding colony of **Foveaux shags**

Tiwai Point aluminium smelter

- One of the largest industrial facilities in NZ
- Owned by Rio Tinto and Sumitomo, a joint venture NZ Aluminium Smelters Ltd
- A major employer with 800 F/T employees and contractors and indirectly creating jobs for 3,000 people
- Alumina supplied from refineries in Qld & NT in Australia
- Power supply from Manapouri Power Station
- Largest electricity consumer in NZ; 1/3 of the total electricity consumed in the South Island
- Concerns re. the environmental legacy of significant amounts of hazardous waste stored at the site

Foveaux Strait

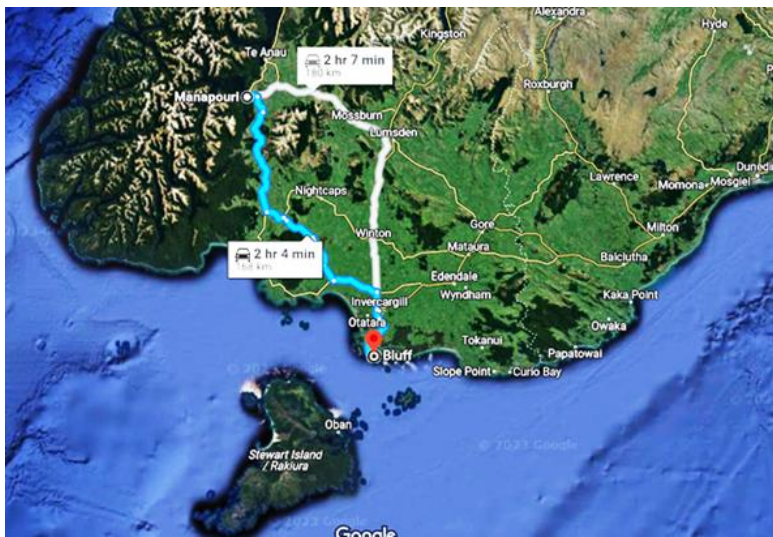
- Separates Stewart Island from the South Island
- Rough and often treacherous stretch of water; take raincoat & sea-sickness pills!
- 130 long lying within the continental shelf area of New Zealand
- Bluff oyster fishery

Stewart Island

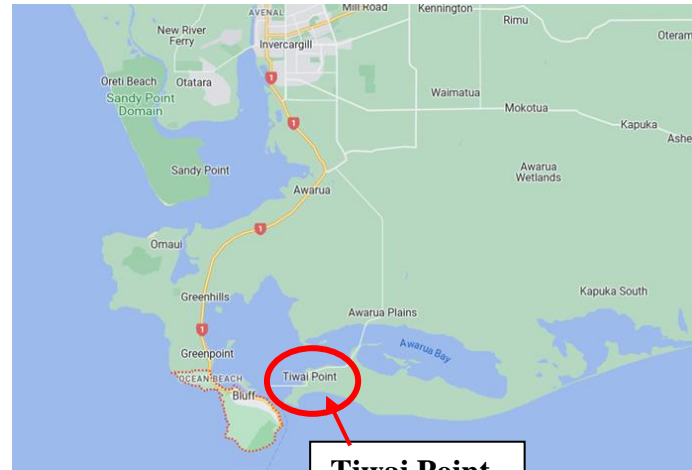
- Permanent population 408 (2018)
- **Oban** town
- Coastline is deeply indented by **Paterson Inlet**, **Port Pegasus** and **Mason Bay**
- Highest peak is **Mount Anglem** (980m) close to the northern coast
- Swampy valley of the Freshwater River
- **Maritime temperate climate** (Köppen Cfb)
- Weather patterns which originate from the sub-Antarctic ocean. Dramatic changes with calm, sunny days suddenly becoming cool, wet and windy
- Over 80% owned by the NZ government in **Rakiura National Park**
- Economy depends on fishing and summer tourism
- **Flightless birds**, including **penguins, kiwis & weka**, thrive because there are few introduced predators
- 2019 Stewart Island/ Rakiura was accredited as a **Dark Sky Sanctuary**

Ulva Island

- Located within Paterson Inlet
- Part of Rakiura National Park
- 1997 declared rat-free
- **Sanctuary for native birds and plants**, holding species that on the mainland of NZ are rare or have died out
- Rakiura to Ulva Island is only 800 metres, within the swimming range of **Norway rats** - more than 20 rat incursions detected between 1997 and 2022
- Department of Conservation maintains the public portion of the island including its predator free status.



Manapouri to Bluff

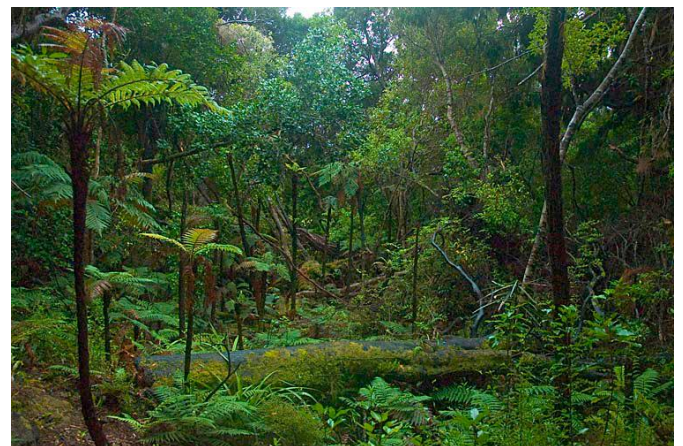


Tiwai Point



Stewart Island

Ulva Island temperate rainforest



We are Wekas (Maori woodhen) *Gallirallus australis*

Geographical notes

STEWART ISLAND to DUNEDIN

Catlins coast and forest park

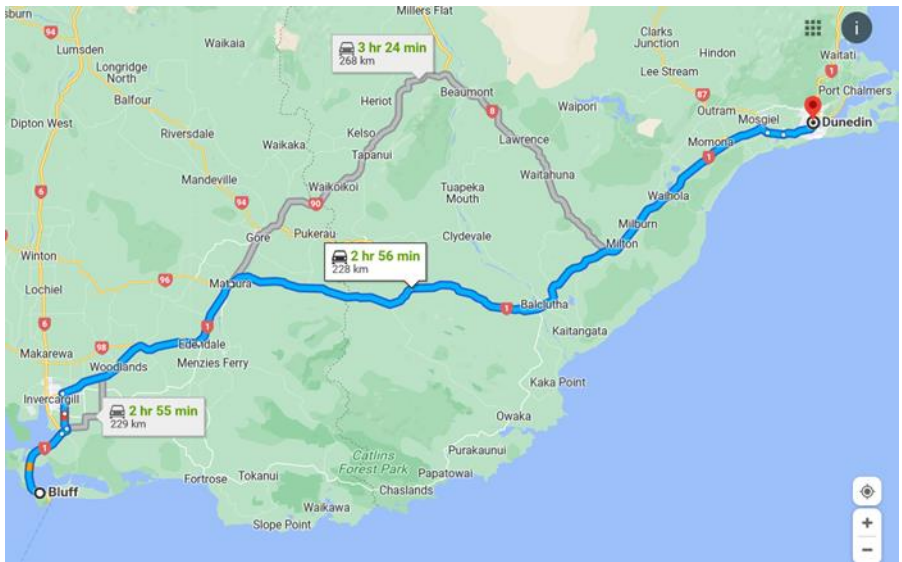
- Straddling the boundary between the Otago and Southland regions
- Rugged, sparsely populated area
- Low ridges running in a north-west/southeast direction
- Many unmodified river, coastal and estuarine ecosystems
- Extensive conservation lands and rainforests
- Sandy beaches, blowholes and Cathedral Caves
- Temperate rainforest dominated by *podocarps*, *ferns*, *endangered species of native birds*
- NZ fur seals, NZ sea lions, southern elephant seals can be seen, penguins, the rare yellow-eyed penguin, mollymawks, Australasian gannets

Population

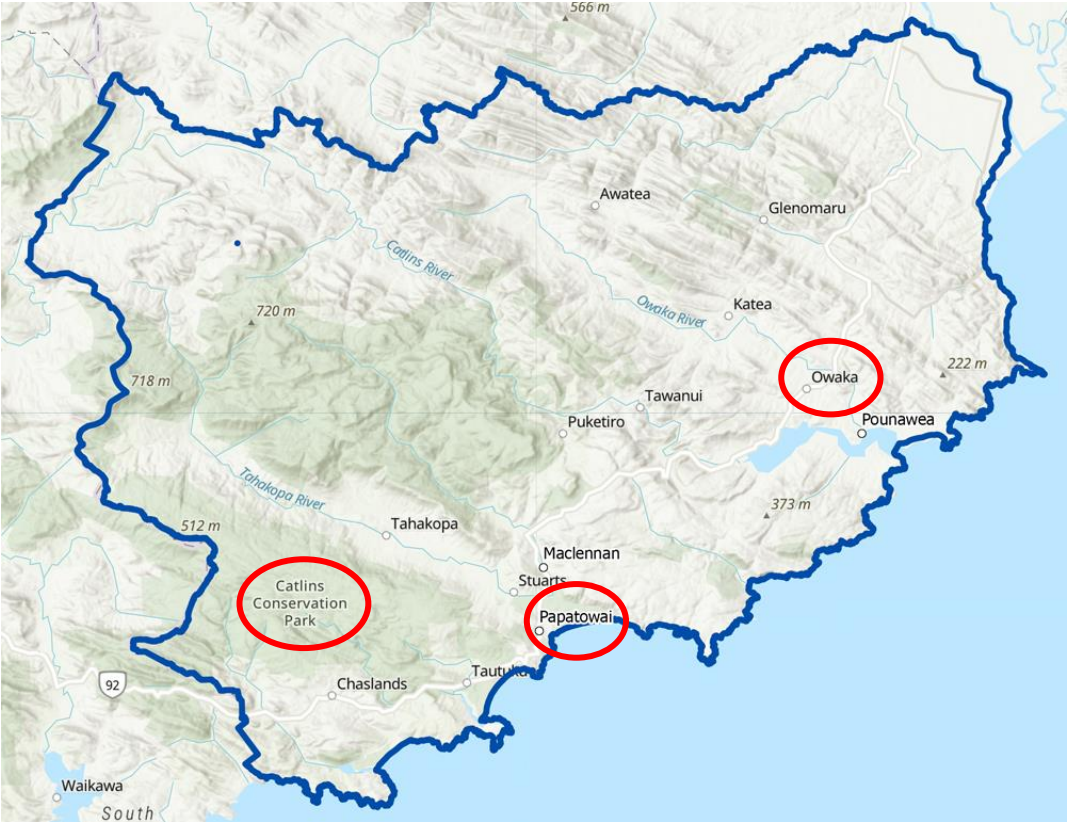
- Largest town *Owaka*, population 309 (2018).
- Smaller settlements include *Papatowai*, Tokanui, Macleennan, Glenomaru

Economy

- Farming communities or seasonally populated holiday communities with few permanent residents
- Sheep, beef, dairy grazing, forestry
- Popular holiday destination
- Catlins coast notoriously dangerous, many shipwrecks on the headlands.
- Two lighthouses stand at opposite ends of the Catlins to help prevent further mishaps



Bluff to Dunedin route



Catlins district



We are Yellow-eyed penguins
Megadyptes antipodes



I'm a NZ Sea lion *Phocarctos hookeri*

Geographical notes

DUNEDIN / OTEPOTI

45.88° S, 170.50° E

Landforms

- The **Dunedin Volcano** is an extensively eroded multi-vent shield volcano that was active between 16 and 10 million years ago; traces are seen in the Dunedin Botanic Garden & the cliffs at Aramoana
- Most of Dunedin's urban geology is basalt, schist, sandstone and mudstone
- Located in one of the *least seismically active areas* in NZ; frequency of severe earthquake shaking is lower in Dunedin than for Christchurch or Wellington
- **Otago Peninsula** a long, hilly indented finger of land that forms the easternmost part of Dunedin. Volcanic in origin, it forms one wall of the eroded valley that now forms Otago Harbour

Climate

- Maritime temperate (Köppen: *Cfb*)
- Dominated by cold fronts which result in changeable, cloudy weather throughout the year

Population and settlement

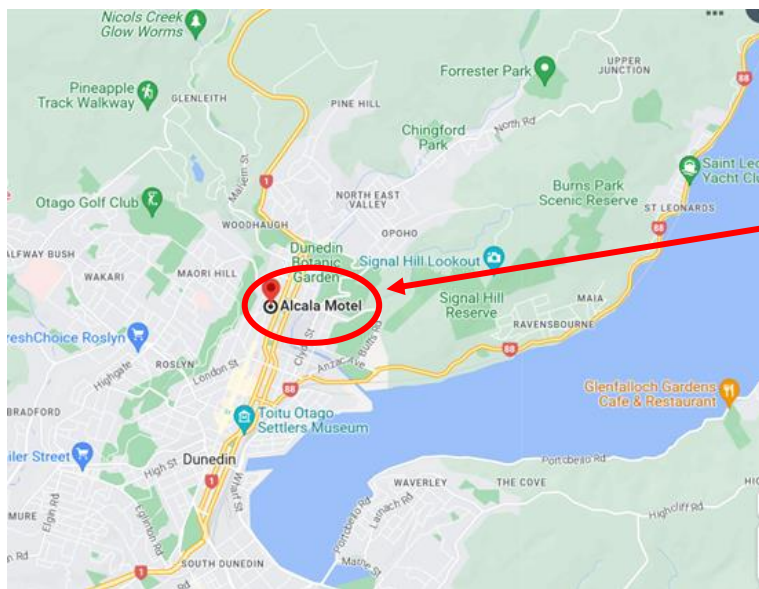
- 130,400 (2022)
- Multi-ethnic population
- Lengthy Maori heritage; archeological sites especially on Otago Peninsula
- Scottish heritage "Dunedin" is the Celtic name for Edinburgh; 1848 Scottish settlement established by the Free Church of Scotland
- Chinese community
- Large student population
- University of Otago
- Victorian and Edwardian architecture
- Dunedin linked to Christchurch by rail in 1878; historic station building opened in 1906
- Baldwin Street claims to be the steepest street in the world.

Economy

- 1860s **Central Otago Gold Rush**; NZ's biggest gold strike; rapid influx of foreign miners to the area
- Manufacturing, publishing, arts, tourism and technology-based industries
- Mainstay centred around *tertiary education*: **University of Otago**, New Zealand's oldest university; **Otago Polytechnic**

Royal Albatross Centre

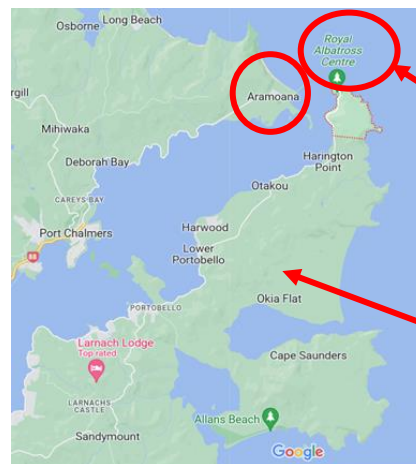
- **Taiaroa Head** / Pukekura
- Breeding colony of the *endangered Northern Royal Albatross* (*Diomedea sanfordi*)
- The only albatross colony found on human-inhabited mainland in the Southern hemisphere
- When not breeding the albatrosses undertake circumpolar flights in the southern oceans
- To help in the survival of this species, bird banding is underway



**Our Alcala motel
704 George St, North
Dunedin**



**I'm a Northern Royal Albatross
(*Diomedea sanfordi*)**



**Royal
Albatross
Centre Tairoa
Head**

Otago Peninsula



Dunedin railway station

Baldwin street



Dunedin airport



REFERENCE SOURCES for MAPS and IMAGES

South Island Geography

Alpine fault <https://all-geo.org/highlyallochthonous/2010/09/all-quiet-on-the-alpine-fault/>

Kea bird <https://unsplash.com/s/photos/new-zealand-bird> Tomas Sobek credit

Waka (canoe) <https://teara.govt.nz/en/waka-canoes>

Treaty of Waitangi signing <https://nzhistory.govt.nz/the-treaty-of-waitangi-is-signed>

Population density map <http://www.geo-ref.net/ph/nzl.htm>

Wellington

Location <https://www.google.com/maps/place/Wellington,+New+Zealand>

Landforms <https://en-nz.topographic-map.com/map-gnx57/Wellington/>

Reclamation <https://wellington.govt.nz/wellington-city/about-wellington-city/history/history-of-wellington-waterfront/waterfront-reclamation>

Picton

Location <https://www.google.com/maps/place/Picton,+New+Zealand>

Landform image <https://www.tandfonline.com/doi/full/10.1080/00288306.2010.523079>

Motuara Island cruise route <https://www.beachcombercruises.co.nz/scenic-cruises/scenic-cruises-options/bird-sanctuary-cruise/>

Kaikoura

Location <https://www.google.com/maps/dir/Picton,+New+Zealand/Kaikoura+Lookout+Rd/>

Image <https://commons.wikimedia.org/w/index.php?curid=95444480>

Kaikoura peninsula to Point Kean <https://www.google.com/maps>

Christchurch

Canterbury region <https://www.freeworldmaps.net/oceania/new-Zealand/canterbury/>

Banks Peninsula Satellite image <https://earthobservatory.nasa.gov/images/3217/christchurch-new-zealand>

Locations Antarctic Centre & Canterbury University <https://www.google.com/maps>

Christchurch to Geraldine

Route map <https://www.google.com/maps/dir/Christchurch,+New+Zealand/Geraldine>

Rakaia Gorge bridge https://upload.wikimedia.org/wikipedia/commons/0/01/RakaiaGorgeBridge_gobeirne.jpg

Rakaia River <https://www.britannica.com/place/Rakaia-River>

Rangitata River <https://www.google.com/maps/place/Rangitata+River>

Rakaia Gorge <https://www.expedia.com/pictures/new-zealand/canterbury/rakaia-gorge>

Aoraki/Mt.Cook

Map <https://www.google.com/maps/place/Aoraki+%252F+Mount+Cook>

Aoraki <https://www.doc.govt.nz/parks-and-recreation/places-to-go/canterbury/places/aoraki-mount-cook-national-park/>

Mt. John Observatory <https://www.canterbury.ac.nz/science/facilities/field-and-research-stations/mount-john-observatory>

Glentanner sheep station <https://www.glentanner.co.nz/mt-cook-experience/glentanner-station/>

Lake Tekapo hydro plant <https://tekapotourism.nz/info/hydro.html>

Waitaki-Otago-Wanaka

Regions of NZ <https://www.mountainproject.com/photo/113929230/regions-of-south-island-of-nz>

Lindis pass <https://www.newzealand.com/int/feature/lindis-pass/>

Haast's buttercup <https://www.nzpcn.org.nz/flora/species/ranunculus-haastii/>

Wanaka https://upload.wikimedia.org/wikipedia/commons/5/51/1_wanaka_panorama_2018.jpg

Wanaka to Manapouri

Wanaka to Manapouri <https://www.google.com/maps/dir/W%C4%81naka,+New+Zealand/Manapouri,+9679,+New+Zealand/>

Manapouri https://citypopulation.de/en/newzealand/southisland/southland/2256_manapouri/

Doubtful sound https://en.wikipedia.org/wiki/Doubtful_Sound#/media/File:Map_of_Doubtful_Sound_Complex.png

https://upload.wikimedia.org/wikipedia/commons/7/78/Doubtful_Sound_Clear.jpg

Bluff to Stewart Island

Bluff <https://www.google.com/maps/place/Bluff,+New+Zealand>

Stewart Island <https://www.google.com/maps/place/Stewart+Island+%252F+Rakiura/>

Stewart island https://upload.wikimedia.org/wikipedia/commons/f/fe/Stewart_Island_map-en.svg

Ulva Island rainforest https://upload.wikimedia.org/wikipedia/commons/b/b0/Ulva_Island_rainforest.jpg

Ulva Island <https://www.roamingdownunder.com/ulva-island.php>

Weka <https://www.google.com/search?client=firefox-b-d&q=weka+bird>

Stewart Island to Dunedin

Bluff to Dunedin route map <https://www.google.com/maps/dir/Bluff,+New+Zealand/Dunedin>

Caitlins park <https://www.catlins.org.nz/explore/about-the-catlins/>

Catlins region <https://www.orc.govt.nz/plans-policies-reports/land-and-water-regional-plan/find-your-area/catlins-fmu>

Yellow-eyed penguin <https://www.catlins.org.nz/explore/gallery/#gallery-34>

Dunedin

Dunedin map <https://www.google.com/maps/place/Dunedin,+New+Zealand/>

Landsat image https://upload.wikimedia.org/wikipedia/commons/9/9f/Otago_harbour_landsat.jpg

Baldwin street <https://upload.wikimedia.org/wikipedia/commons/a/af/Baldwinstreet.jpg>

Albatross <https://albatross.org.nz/>

Railway Station https://upload.wikimedia.org/wikipedia/commons/5/5c/Dunedin_Railway_Station_Full_Exterior.jpg

TOUR PARTICIPANTS

Event Tour leader: Iraphne Childs 0419 756 936 i.childs@uq.edu.au

Support coordinator Ralph Carlisle 0435 460 667 ralph.carlisle5@gmail.com

Name	Aust phone	NZ phone	email
Linda AUSTIN	0408 748 617		kaustin49@optusnet.com.au
Kath BERG	0400 270 600		kathberg1@gmail.com
Ralph CARLISLE	0435 460 667		ralph.carlisle5@gmail.com
Iraphne CHILDS	0419 756 936		i.childs@uq.edu.au
Roger GRIMLEY	0429 029 037		r.grimley@bigpond.com
Glenda GRIMLEY	0438 719 598		r.grimley@bigpond.com
John NOWILL	0421 192 989		marynowill@gmail.com
Mary NOWILL	0421 192 989		marynowill@gmail.com
Jeanette LAMONT	0408 732 722		jeanettelamont@yahoo.com.au
Len LOWRY	0428 335 572		onthewallaby@live.com.au
Laurelle LOWRY	0480 153 617		laurelleann@outlook.com.au
Susan MARGARET	0401 744 865		susem@bigpond.com
Ian PEACOCK	0416 543 280		ianpeacock@hotmail.com
Graham REES	0413 459 212		grahamrees@wombatshollow.com
Kay REES	0413 459 212		kayrees@gmail.com
Chris SPRIGGS	0400 908 378		chrisandrobinspriggs@gmail.com
Robin SPRIGGS	0438 054 404		chrisandrobinspriggs@gmail.com
Susan BEALE	0438 768 387		beale@bigpond.net.au
Jonathan PERCIVAL	0475 797 165		jonpercival10@gmail.com