Regional Fact Sheet

Southland/Murihiku and Otago/Ōtākou

November 2024

This fact sheet provides a snapshot of the current state of the forestry and wood processing industries in the Otago and Southland regions.

Te Uru Rākau New Zealand Forest Service

The Otago and Southland regions cover the southernmost part of New Zealand. They extend from the southern alpine areas of Mount Aspiring National Park in the west, to the dry inland Central Otago basins in the east and the glacial lakes of Wakatipu, Wānaka, and Hāwea. The Southland region includes 3 territorial authorities: Gore, Invercargill City and Southland. The Otago region includes 5 territorial authorities: Central Otago, Clutha, Dunedin City, Queenstown Lakes and Waitaki.

$25 billion
Regional GDP for year ended March 2023 (6.4% of National GDP)

$805 million
GDP in forestry, fishing and mining for year ended March 2022 (3% of the GDP for the region)

2,467
Number of new dwelling consents for all construction for the year ended August 2024

354,400
Estimated regional population for year ended June 2023 (7% of New Zealand's total)

Southland **$80,148**
Otago **$66,700**
GDP per capita for year ended March 2023

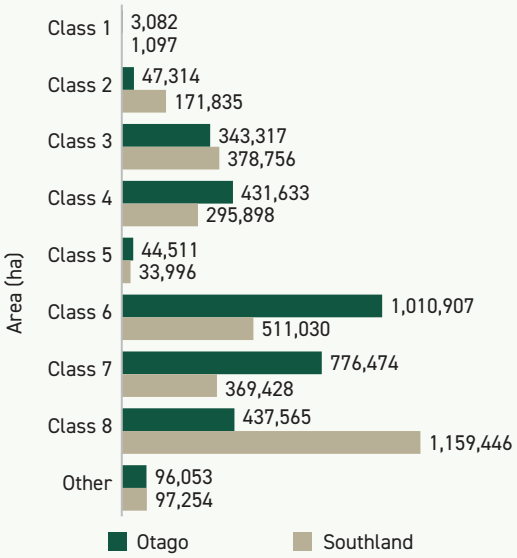
Southland **19.4%**
Otago **11.6%**
Population that identifies as Māori – 2023 Census (16.5% nationally)

Land use capability

The Land Use Capability (LUC) system classifies land into 8 categories based on its ability to support various productive uses over time, considering physical constraints and specific management requirements. Classes 1 to 4 are generally suitable for all ranges of cultivation. Classes 5 to 7 tend to be suitable for pastoral farming and forestry. Class 8 has severe limitations for primary production or forestry use.

Respectively, 12.3% and 18.3% of the land area in the Otago and Southland regions are classified as highly productive land (LUC 1 to 3). In Otago 38.1% and in Southland 50.7% of land area are classified as land with slight to severe limitations for productive land uses (LUC 7 and 8). The Fiordland National Park and the Mount Aspiring National Park in the Southern Alps cover 89% of the land in the Otago-Southland region, which are not suitable for any uses other than native trees.

Figure 1. Area in hectares by LUC class. Source: LUC database.



*Other: Estuaries, lakes, quarries, rivers, towns.

Sources: Our Environment – Manaaki Whenua Landcare Research and Target land and land use capability classes – MPI (PDF, 756 KB)

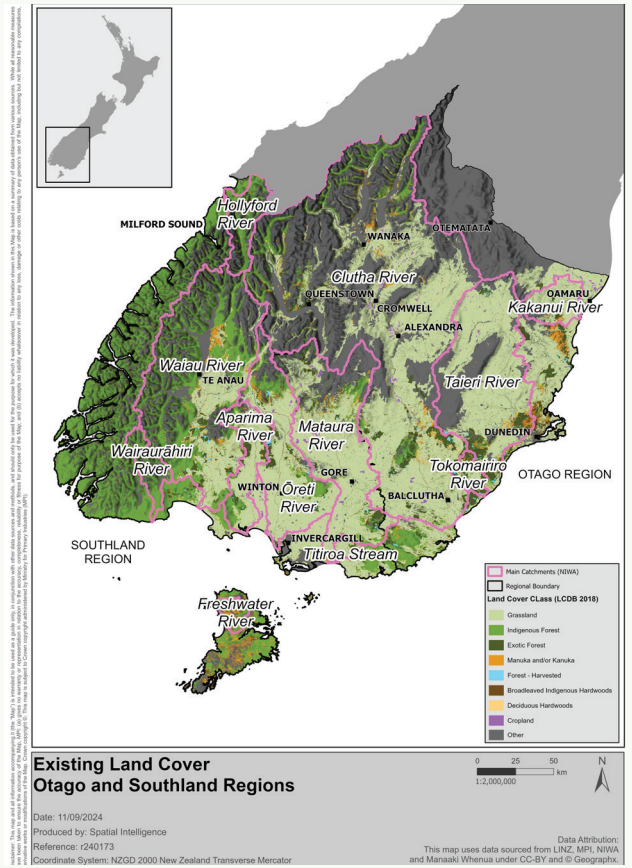
Existing Land Cover

Southland's total land area is 3,121,896 hectares (12% of the total area of New Zealand). 1,202,034 hectares (40.3%) is covered by indigenous forest, while 82,967 hectares (2.8%) is exotic forest.

Otago's total land area is 3,538,155 hectares (13% of the total area of New Zealand). 180,243 hectares (6%) is covered by indigenous forest, while 139,492 hectares (4.7%) is exotic forest.

New Zealand's regions are primarily determined by areas of water collection into rivers, known as catchments. The largest catchment in the Southland region is the Waiau River catchment (824,596 hectares). The other 5 major catchments are the Mataura River (527,689 hectares), the Oreti River (352,988 hectares), the Aprima River (156,010 hectares), the Hollyford River (110,136 hectares) and the Wairaurahiri River (71,226 hectares). All other catchments in the region are less than 40,000 hectares.

Figure 2. Map: Land cover in Otago-Southland. Source: Land Cover Database (LCDB5) – LRIS.
View a high-resolution version of the land cover in Otago-Southland map.



The largest catchment in the Otago region is the Clutha River catchment (2,095,456 hectares). The other 2 major catchments are the Taieri River (570,437 hectares) and the Kakanui River (89,648 hectares). All other catchments in the region are less than 40,000 hectares.

Sources:

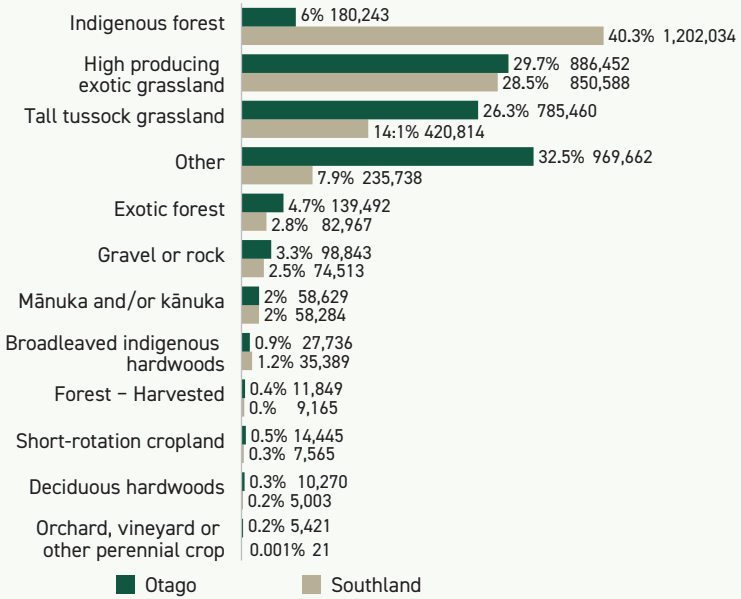
NZ large river catchments – NIWA

NZ large river catchments – ArcGIS Hub

Southland/Murihiku and Otago/Ōtākou

November 2024

Figure 3. Percentage and area (hectares) of different land covers in the Otago and Southland regions.



Source: Land Cover Database (LCDB5)

National Exotic Forest Description (NEFD 2023)[1]

The Otago-Southland region has the second largest area of exotic forest in New Zealand. The Central North Island region has the largest area.

Figure 4. Comparing the Otago and Southland regions with New Zealand on key exotic forestry facts.

Standing volume of planted forest, all exotic species (000 cubic metres)

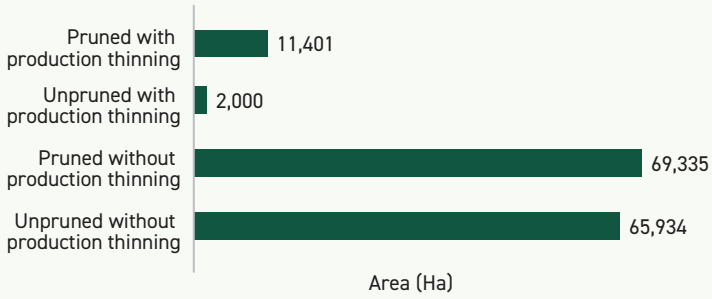
Total area in all exotic species (ha)

Source: NEFD 2023

The average age of the exotic forest in the Otago-Southland region is 22 years compared to 19 years nationally.

1 The 2023 National Exotic Forest Description (NEFD) – MPI provides a detailed description of New Zealand's planted production forest.

Figure 5. Number of hectares of pruned and unpruned regimes of radiata pine in the Otago and Southland regions.



Source: NEFD 2023

Table 1. Number of forest owners and area by national size class in Otago and Southland regions.

	< 40 ha	40-99 ha	100-999 ha	1,000-9,999 ha	10,000+ ha
Area (ha)	43,510	8,642	25,022	40,625	107,523
No. of owners	NA	136	91	15	5

Source: NEFD 2023.

Composition of the estate

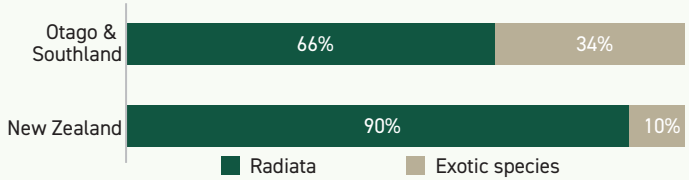
The Otago and Southland regions have the most diversified exotic forest estate in New Zealand, with a large share of the national Douglas-fir and eucalypts plantings. The regions have 59% of the national Douglas-fir forest estate and 51% of the national eucalypts estate. The main eucalyptus species is *Eucalyptus nitens*, which is purpose grown as short rotation forests (12-15 years) to produce hardwood chips. The majority of the forest estate is located in the Southland and Clutha districts.

Table 2. Area of exotic species in the Otago and Southland regions and the percentage of the total exotic forests. Source: NEFD 2023

Species	Total net stocked area (ha)	%
Cypress species	1,417	0.6%
Douglas-fir	57,091	25.3%
Eucalypts	11,324	5.0%
Other hardwoods	854	0.4%
Other softwoods	5,966	2.6%
Radiata pine	148,670	66.0%

Compared to the rest of New Zealand, the Otago-Southland region has a lower proportion of radiata pine in their exotic forest estates. 25% of the total planted area of radiata pine forest in the Otago-Southland region is of potentially harvestable age (age 26-30 years), compared to 22% of the national total planted area in the same age range.

Figure 6. Proportion of radiata pine vs other exotic forest species in New Zealand and the Otago and Southland regions. Source NEFD 2023



Hybrid pine species

Radiata pine is not well suited to Otago-Southland's hot dry climate and has less tolerance to frost and snow, therefore, a hybrid pine species has been introduced as an alternative.

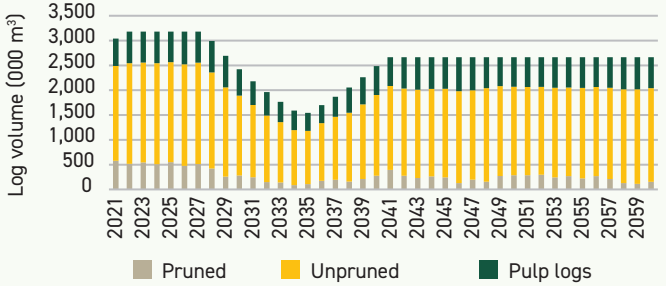
The hybrid pine is a cross between 2 radiata species, *Pinus radiata* x *Pinus attenuata*. The hybrid features the same resistance to cold, and damage from wet snow, that *Pinus attenuata* has. It also has the faster growth of *Pinus radiata*. The hybrid performs well at altitudes of around 300 – 800 metres above sea level, in drought prone areas and in poorer soils, where neither individual parent species grows well. *Pinus attenuata* has an extremely tight seed cone, meaning it does not easily release seed. The open crown form of the hybrid helps them withstand the strong winds common to southern regions.

The hybrid seed is commercially available in several Southland nurseries. Forestry companies are increasingly planting the hybrid, especially in high altitude and snow prone areas. One of the forestry companies in the region has 20% of their estate planted in hybrid mainly in higher altitudes, with the oldest operational plantings of scale at 6 to 7 years age. Nationally, hybrid made up of 1.5% of total exotic afforestation in 2023 and it is projected to increase to 1.8% in 2024.

Source: MPI Afforestation and Deforestation Survey 2023

Wood Availability Forecasts (WAF)

Figure 7. Radiata pine Wood Availability Forecast (WAF) scenario 3 for the Otago-Southland region.



Source: WAF 2021.

Figure 7 shows the availability of radiata pine logs which are forecasted to be harvested between 2021 and 2060, from the Otago and Southland

regions. The region's wood availability is forecasted to drop from 3.1 million cubic metres in 2024 to around 1.5 million cubic metres in 2034-2035. It is forecasted to gradually increase from 2041 onwards to around 2.6 million cubic metres per annum. The wood availability trends in figure 7 are the result of the decrease in planting rates that happened in the year 2000s.

Figure 8. Douglas-fir Wood Availability Forecast (WAF) for the Otago-Southland region. Source: WAF 2021.

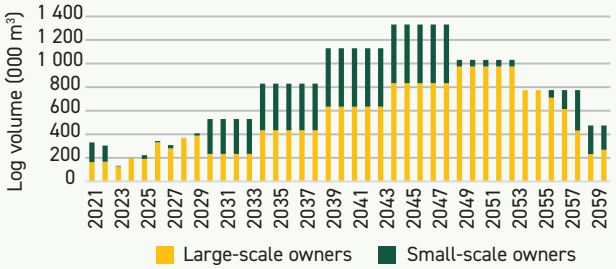


Figure 8 shows the availability of Douglas-fir that is forecasted to be harvested between 2021 and 2060, from the Otago-Southland region. In the region, Douglas-fir resource has the potential to fill the gap in radiata pine wood supply from early 2030s to late 2030s.

Source: WAF August 2021 – Canopy

Markets for Otago-Southland region

Figure 9. Percentage of exports vs domestic processing of logs for the Otago-Southland region, for the year ended in December 2023. Source: Levy trust data for year ended December 2023.

In 2023:

- 1.3 million tonnes of logs were processed in the Otago-Southland region contributing to 11% of the total log volume processed in New Zealand.
- 1.5 million tonnes of logs were exported from the Otago-Southland region contributing to 8% of the total log exports for New Zealand.

Source: Levy Trust data for year ended December 2023.

Forestry and wood processing supply chain

Nurseries

There are 3 major nurseries producing exotic and native species and several smaller ones across the region.

Wood processing – exotic

There are at least 20 sawmills in the region producing sawn timber and one medium density fibreboard manufacturing plant supplying domestic and export markets.

The region also has a stand-alone chipping facility at Awarua, near Invercargill, primarily to process short rotation eucalypts to chip. The chip is exported to Japan for manufacturing of high-quality writing and printing paper.

Wood processing – indigenous

Lindsay & Dixon Ltd is an integrated forest management and wood processing company based in Tuatapere in western Southland. It is the largest mill in New Zealand that processes indigenous wood, mainly beech, largely sourced from Longwood and Rowallan forests in western Southland. These forests are certified by the Forest Stewardship Council (FSC). The processing mill has a sawmilling operation, kiln-drying facility, and a remanufacturing plant. Lindsay & Dixon Ltd markets Southland beech under the brand names of Maple Beech and Cherry Beech, which are used for flooring, furniture, joinery, and panelling.

Source: Lindsay & Dixon Limited

Wood quality

In parts of the Otago-Southland region, radiata pine grows more slowly in the cooler conditions, but produces timber of high-quality with valued characteristics, such as:

- lighter colouring (a preferred trait for appearance grade users);
- a relatively low incidence of resin pockets;
- good basal area (diameter) growth relative to height;
- long internodes between branch whorls.

Woody biomass

The Otago-Southland region has well established woody biomass supply chains between forest owners, wood-fuel suppliers and end users. Some forestry companies in the region have established "in-forest" storage and supply chains to recover forestry harvest residues from skid sites[2] for bioenergy from in-forest chipping.

In the region, a substantial proportion of wood processing residues (sawdust and bark) are being used internally by wood processors as boiler fuel. A proportion of domestic pulp/chip logs are used for medium density fibreboard manufacturing at the Daiken plant in Mataura. Wood pellets are manufactured at Kennington in the Southland region from kiln-dried radiata pine shavings and sawdust generated from sawmilling.

The Regional Energy Transition accelerator program (RETA) is conducted by the Energy Efficiency and Conservation Authority (EECA). RETA estimates that, on average over the next 15 years, approximately 140,000 tonnes per year of Otago woody biomass (120,000 tonnes of harvest residues and 20,000 tonnes of minor species) is currently unused. It could be recovered for new boiler demands, without disrupting low grade export log markets or existing bioenergy consumers.

On average over the next 15 years, there is approximately 380,000 tonnes per year of Southland woody biomass (76,500 tonnes of unused harvest residues and 4,000 tonnes of wood processing residues, 50,000 tonnes of divertible export chip and 250,000 tonnes of divertible low-grade export logs) that could be recovered and/or diverted to bioenergy.

Regional Energy Transition accelerator program – Energy Efficiency and Conservation Authority

Sources: Otago RETA report, Southland RETA report

Dunedin Energy Centre

Dunedin Energy Centre is New Zealand's largest district heating plant.[3] It is one of the biggest users of woody biomass for bioenergy (22,000 tonnes/year) in the Otago region. Energy in the form of hot water or steam is supplied to Otago District Health Board, the University of Otago and a number of small customers.

Sustainable energy use for dairy industry process heat generation

An 11 megawatt capacity coal boiler used for process heat generation at Fonterra's cheese manufacturing site in Stirling has been converted to woody biomass in March 2024. This means a reduction of 18,500 tonnes of carbon dioxide per year.

Source: Cheese from trees: Fonterra Stirling site running on wood biomass – Fonterra

Open Country is New Zealand's largest independent dairy product manufacturer. A 13 megawatt electrode boiler[4] is planned to be commissioned in 2025 in Awarua site near Invercargill to supply steam to a milk powder drier.

Sustainable Douglas-fir essential oils production in Otago

Various biochemicals and nutraceuticals can be produced from woody biomass. In the Otago foothills (Shag River Forest) essential oils are produced from a sustainably grown, dedicated Douglas-fir plantation forest. Douglas-fir is grown as hedge rows, where branches are harvested for essential oil manufacturing. The processing plant is located within the 4000 hectare Douglas-fir forest planted in 1997-1998. This means, the feedstock used to create the oils is not transported far, minimising the carbon footprint. Essential oils are used in many applications such as aromatherapy, fragrances, cosmetics, and household products.

A 2 megawatt biomass boiler has been installed to create the process heat needed to distil the oils, reducing emissions.

Source: Douglas-fir essential oils – Port Blakely

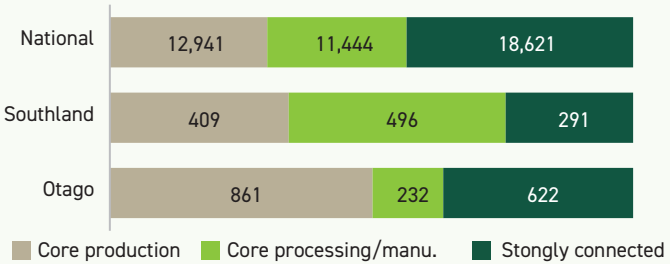
Workforce

For the year ending March 2022, an estimated 43,002 people worked in the forestry and wood processing sectors in New Zealand. In the same year, 1,715 people worked in the Otago region and 1,196 worked in the Southland region forestry and wood processing sectors.

2 Skid site is an area that is cleared in the forest where the stems are cut into logs and are extracted for processing, storage, and subsequent loading onto trucks for transportation to market.

3 District heating is a system for distributing heat generated in a centralised location through a system of insulated pipes for residential and commercial heating requirements such as space heating and water heating.
4 Electrode boilers use electricity.

Figure 10. Comparing the forestry and wood processing workforce in New Zealand, Otago and Southland. Source: https://www.workforceinsights.govt.nz/reports/annual-workforce/



Core production	Core production includes forestry, logging and forestry support services.
Core processing/ manufacturing	Core processing/manufacturing includes log sawmilling, wood chipping, timber resawing and dressing, veneer and plywood manufacturing, reconstituted wood product manufacturing and pulp, paper and paperboard manufacturing.
Strongly connected	Strongly connected activities include wooden structural fitting and component manufacturing, other wood product manufacturing, corrugated paperboard and paperboard container manufacturing, paper bag manufacturing, wooden furniture and upholstered seat manufacturing, timber wholesaling.

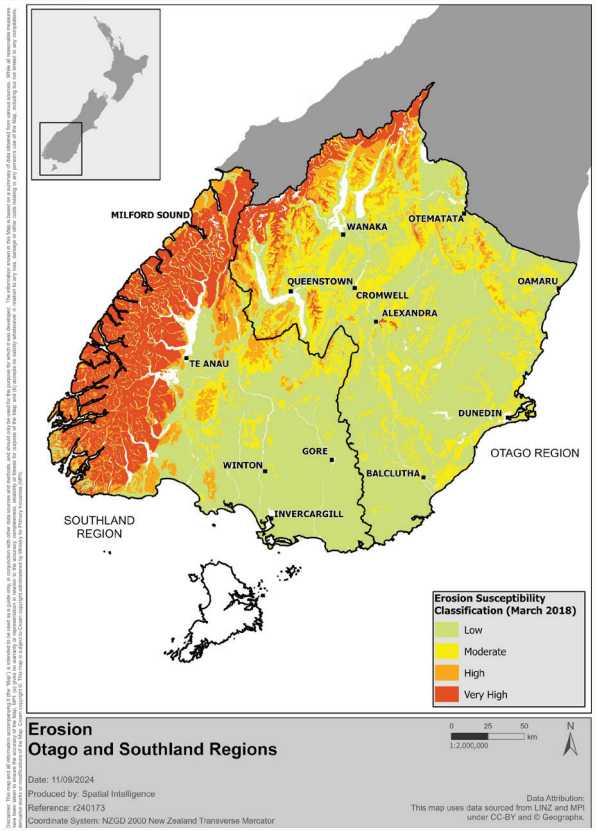
Erosion

Table 3. Number of hectares (ha) and the percentage of the total area in each of the Erosion Susceptibility Classes (ESC) in the Otago and Southland regions. Data Source: Erosion Susceptibility Classification MPI.

ESC	Otago (ha)	%	Southland (ha)	%
Low	1,847,902	58%	1,458,467	48%
Moderate	800,140	25%	194,826	6%
High	241,872	8%	319,583	11%
Very High	174,237	5%	928,025	31%
Other	125,318	4%	109,884	4%

Figure 11. Erosion Susceptibility Classification (ESC) for Otago and Southland.

View a high-resolution version of the Erosion Susceptibility Classification map.



Source: MPI.

Government funding

One Billion Trees: As of January 2024, $13 million in funding has been approved for direct landowner and partnership grants in the region. As a result of this investment, a total of 959 hectares has been planted in the region.

The One Billion Trees Fund, part of the One Billion Trees Programme, is now closed to new applications. The programme's goal is to plant a billion trees by 2028. One Billion Trees Programme – MPI.

Hill Country Erosion (HCE) Programme: The HCE Programme is a partnership between MPI, councils and landowners to support regional erosion control projects.

Since, 2015, $0.73 million in funding has been approved for projects in Otago and Southland. In 2024, the HCE Programme helped councils develop regional erosion control strategies for Otago and Southland. These strategies will underpin the councils' future work with farmers in protecting their erosion-prone land. Early pilot projects included planting native species, or strategically placed poplar and willow trees, on several farms in Southland's Orauea catchment.

Hill Country Erosion Programme for councils – MPI

Indigenous forestry

The Otago and Southland indigenous estate is mostly beech forests. Silver beech dominates the southern resource and is one of the easiest New Zealand beech species to work with. Beech is capable of regeneration, has relatively fast growth rates, and is suitable for high-quality end uses such as furniture. It offers some of the best prospects for sustainably manged indigenous timber in New Zealand.

New Zealand's largest sustainable indigenous harvesting of silver beech is in western Southland.

In total, the Southland region milled 8,290 cubic metres of indigenous timber in the 2022-2023 financial year. Silver beech and pink pine (*Halocarpus biformis*) were the most common milled species for the same year. The forests are managed under an approved sustainable forest management plan with forest operations audited by MPI's Indigenous Forestry team.

Infrastructure

Roads

The Otago-Southland region has an extensive road network. These roads are vital for the major forestry companies in the regions, who link into this network.

Table 4. The length of local roads and state highways in the Otago and Southland regions as of September 2024. Source: https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/transport-data/data-and-tools

Region	Local roads (km)	State highways (km)	% of local roads
Otago	9345.8	1299.7	88
Southland	6510.8	776.8	89

The state highways in the Otago-Southland region are managed by the New Zealand Transport Agency – Waka Kotahi (NZTA). State Highway (SH) 1 runs north-south along the eastern coast of Otago, through key population centres in Southland, ending at the bottom of the Southland region at Stirling Point. SH6, SH8 and SH90 provide links between inland Otago and Southland, and West Coast and Canterbury.

Electricity

Transpower owns the transmission lines in the region which consist of:

- Five 220 kilovolts (kV) double circuit towers
- Three 220 kV single circuit towers

- Three 110 kV double circuit towers
- Four 110 kV single circuit poles

There are 15 sub stations in the region.

Source: Transmission map – South Island - Transpower (PDF – 753KB)

Hydro

The Otago-Southland region has 2 of New Zealand's largest hydropower stations: Manapouri hydropower 850 megawatts (Meridian) and Clyde hydropower 432 megawatts (Contact Energy).

Wind

White Hill Wind Farm, in Southland, has 29 turbines which can generate up to 58 megawatts, enough to power 22,000 average New Zealand homes. White Hill is owned by Meridian Energy.

Rail

The railway line south of Christchurch, the Main South Line, mirrors the route of SH1 along the eastern coast. It links coastal towns and cities, including Timaru, Oamaru, Dunedin (with an extension to Port Chalmers), Gore, Invercargill and Bluff.

Ports

The region has 2 port facilities.

1. Port Otago Ltd. Port Otago operates two wharf systems – Port Chalmers and Dunedin – within Otago Harbour. Port Otago is 100% owned by the Otago Regional Council. The port offers bulk cargo, containerised cargo and cruise ship services.
2. South Port New Zealand Ltd. South Port New Zealand Ltd is the southernmost commercial deep-water port in New Zealand, located in Bluff harbour. The port offers a suite of marine services, bulk cargo, containerised cargo and warehousing including both cold and dry storage.

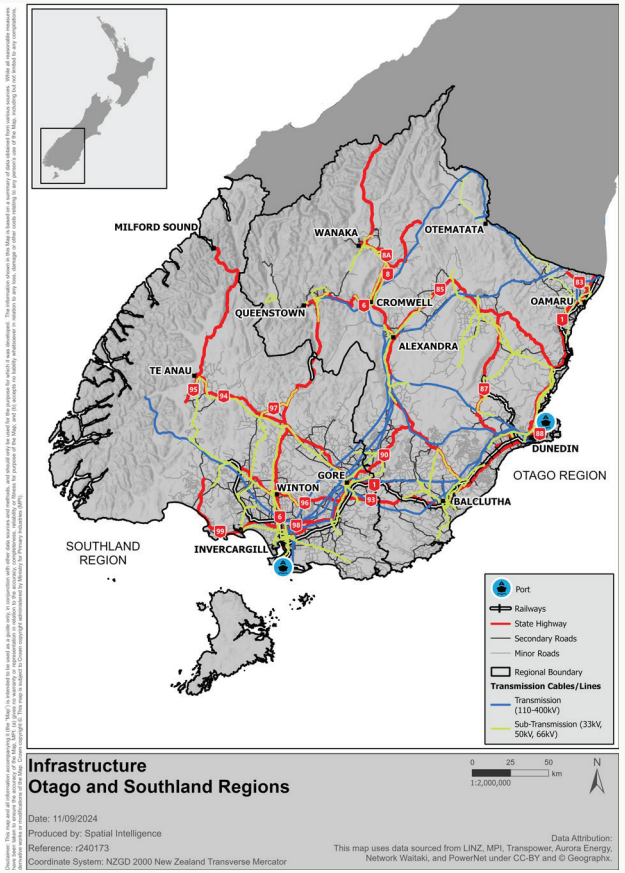
Neither of the ports have debarking operations. Logs are shipped with bark as underdeck cargo with fumigation and deck cargos are usually sent to Korea which does not require treatment.

Table 5. Dunedin and Invercargill ports export volumes and value (Free on board-FOB) for forestry and wood products for the year ending 2023. Data source: MPI Overseas Merchandise and Trade.

		Dunedin		Invercargill	
Product	Unit of Measure	Quantity	Value (NZD)	Quantity	Value (NZD)
Chips	Bone dry unit	–	–	121,264	$34,887,123
Logs	Cubic metre	1,013,420	$147,698,605	665,488	$109,303,755
Panels	Cubic metre	107,817	$69,534,688	94	$56,112
Paper & Paperboard	Tonne	699	$175,932	482	$52,025
Sawn Timber & Sleepers	Cubic metre	124,865	$47,149,184	26,255	$16,533,473
Other Forestry Products*	Mixed	–	$805,972	–	$3,615,121
Total value of exports			$265,364,381		$164,447,609

Quantity cannot be provided as other forestry products are reported in three different units of measure.

Figure 12. Map of key infrastructure across Otago-Southland. View a high-resolution version of the infrastructure map in Otago-Southland.



The power lines information on this map may be incomplete. The information displayed is what MPI had authorised access to at the time of creating this fact sheet.

Useful links

Forestry

Southern Wood Council

The sustainable management of indigenous forests – MPI (PDF, 3 MB).

Resource Management (National Environmental Standards for Commercial Forestry) Amendment Regulations 2023

New Zealand forest data – MPI

Afforestation and deforestation intentions survey 2023 – MPI (PDF, 943 KB)

Dodson and Trost 2016. Forest Growing and Processing Otago-Southland. New Zealand Journal of Forestry Vol 61 (3).

Otago-Southland Forestry Profile 2015 – Southern Wood Council (PDF, 792 KB)

Native Planting Guide – Otago Regional Council

Riparian plants for Southland – Southland Regional Council (PDF, 21.6 MB)

Wood processing

Invest in New Zealand wood processing (March 2020) – New Zealand Trade and Enterprise

Information releases – Overseas merchandise trade – Stats New Zealand

Regional statistics

Southland Regional Development Agency

Southland Economic Project – Agriculture and Forestry (PDF, 20 MB)

Regional Economic Activity Web Tool – Ministry of Business, Innovation and Employment

Otago Regional Economic Profile for Land and Water (PDF, 2.5 MB)

Otago-Southland Regional Land Transport Plan

Otago – Regional Economic Development & Investment Unit – Kānoa

Southland – Regional Economic Development & Investment Unit – Kānoa

Climate and Weather of Southland

Climate and Weather of Otago

Infrastructure

Maps and geospatial data – Kiwirail

Transmission lines – Transpower

Feedback

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