



2. THE RESOURCES OF THE DISTRICT

2.1. THE LAND

Topographically, Clutha District is characterised by its rolling to steep downlands that form the interface between the coast and the inland hill country. Perhaps the most distinctive parts of the District are in fact the diversity of the vegetation and the dramatic coastline around the Catlins area. Other distinctive characteristics have been overlaid by human activity, for example the vegetation patterns associated with settlement, agricultural, horticultural, and forestry activity.

2.1.1. LAND USE

It is evident that the use of the District's land resource has formed the basis for primary production activities since the mid-19th Century. Indeed, the District's economy and development have been strongly dependent on agricultural production (particularly sheep farming), and this dependence has increased over recent years. The following points briefly highlight the main agricultural uses of land in Clutha District:

- Sheep Farming** Breeding and raising sheep for meat and wool production is the predominant land use in the District. Total sheep numbers exceed 3.2 million, which ranks Clutha District as a second most important sheep farming district in New Zealand. Lambing and wool growth performances are third only to Southland and Gore.
- Dairying** Dairying makes up a small but very viable farming sector. The majority of the dairy farms are situated on the Inch Clutha and Paretai areas. Most of the milk is supplied for cheese manufacturing.
- Beef Production** By New Zealand standards, beef production in the Clutha District is relatively small scale, and is generally associated with sheep farming and dairying.
- Deer Farming** Deer farming is relatively small scale compared to some other parts of New Zealand, but has steadily increased in importance in recent years as diversification for sheep farmers.
- Arable Farming** Cash crops of wheat, barley, oats and peas are grown in parts of the District with very good consistent yields, relative to other parts of New Zealand. Most of the production is now concentrated with a small number of specialist growers.
- Forestry** The total area of planted forest in Clutha District as at 1 April 1993 was estimated to be 68,990 hectares. (Source NEFD April 1993). The last few years has seen a dramatic upsurge in new plantings.
- Farm Forestry** Farm forestry is rapidly expanding in the District, with over 5,000 hectares planted by small growers in lots of less than 100 hectares in 1993.

Horticulture The Beaumont area is currently utilised for orcharding purposes, while market gardening and flower production occurs in the Inch Clutha/Paretai area. Nurseries and bulb growing enterprises have been developed in West Otago.

The District also contains a number of outstanding natural features and landscapes, and areas of significant indigenous vegetation and significant habitats of indigenous fauna. Along with the rivers, lakes and spectacular coastline of the District, these features comprise a valuable resource in terms of recreation and the growing tourism industry.

2.1.2. LAND QUALITY

Land Resource Inventory Worksheets have been prepared by the Water and Soil Division of the former Ministry of Works and Development and attempt to classify land on the basis of its capacity for sustained use. The land classes increase in limitation to use and decrease in versatility as they progress from Class I to VIII. However, there is great difficulty in applying these classifications in practise. While they do not form the basis of any policies or controls within this Plan, maps illustrating the location of these land use classifications (classes I to VIII) within the Clutha District are available upon request at the District Council Office.

While there is no Class I land within the District, there is Class II land located in several locations including Inch Clutha, Barnego, Telford, Heriot, Tapanui, Beaumont, areas along the Pomahaka River, and the plains surrounding Milton. This land is generally highly suitable for intensive cropping, dairying and horticultural uses although land in the Lower Clutha may have some wetness or drainage limitations and is therefore of limited value for cash crops and horticulture. Class II land is presently being utilised in the Beaumont area for orcharding and at Inch Clutha for market gardening.

A large area of Class III land exists in Clutha District. This land is moderately suitable for cropping and dairying but is highly suitable for pastoral use and forestry. Class III land in the District includes the alluvial plains of the Clutha and Pomahaka Rivers, the Tahakopa and Owaka Valleys, the area between Clarkesville and Balclutha, and the plains and rolling hill country in the Heriot, Tapanui, and Tuapeka areas.

Significant areas of Class IV land are located along the coast between Taieri Mouth and Clutha Mouth, in the hill country both north and east of Milton, in the areas west and south of Kaka Point, and between Adam's Flat and Waitahuna. This land is suitable for both pastoral and forestry use.

There is little Class V land in the District, the majority of it being located between Owaka and Clinton. A significant portion of the District's land is categorised as Class VI and VII.

Class V and VI is well suited for pastoral use and forestry (subject to its location and ease of access). Class VII has severe limitations for pastoral use but is suitable for forestry depending on altitude, access and location.

2.2. THE PEOPLE

While people are not included in the definition of “natural and physical resources” under the Act, demographic information can provide an insight into what the likely demand on natural and physical resources will be. Population projections derived from these statistics provide a basis for developing scenarios for future management of the District’s resources. However, it should be noted that population projections do not take into account external influences such as major government and business decisions, changing market factors, and natural disasters.

All figures quoted in the following sections are taken from the Department of Statistics Census information.

2.2.1. POPULATION

The Department of Statistics 1991 Census reveals that some 18,303 people live in Clutha District. This figure follows a trend which has occurred over the past 15 years whereby Clutha District has experienced large net migration loss. Table 1 illustrates the change in total population for Clutha District since 1981. These figures have been adjusted to represent the new Clutha District boundaries following local government reorganisation in 1989.

The extent of the District and its infrastructure are shown opposite as Figure 1.

Table 1: Clutha District Total Population

YEAR	POPULATION	% CHANGE
1981	20700	
1986	19200	-7.3
1991	18303	-4.6

* Note:

1. Total population includes residents and non-residents
2. Figures adjusted for new Clutha District boundaries.

The Department of Statistics Census data for the period between 1981 and 1991 indicates that generally within New Zealand, the areas to lose population were those dominated by rural populations, a characteristic typical of Clutha District. This is not surprising given the economic downturn experienced in the rural sector during the 1980's.

However, as Table 1 indicates, net migration loss appears to be slowing, and given the recent upsurge in the country’s economy, this trend is likely to continue. The increased activity in the dairying and forestry sectors, together with the possibility of downstream processing plants locating in the District give very strong indications that this trend will level out and may in fact reverse.

2.2.2. AGE STRUCTURE

According to the Department of Statistics 1991 Census, the District at present has a relatively evenly distributed population age structure as shown in Table 2. It is interesting to note that although

nearly half of the net migration loss over the past 15 years has occurred in the 5-14 years age group, Clutha District still has the largest number of people (3,057) in this age group.

Table 2: Clutha District Age Groups*

AGE GROUP	TOTAL NUMBER	%
Under 5	1371	7.5
5-14	3057	16.8
15-19	1452	8.0
20-29	2424	13.3
30-39	2877	15.8
40-49	2424	13.3
50-59	1776	9.8
60 +	2781	15.3
TOTALS	18165	99.8

* Note:

- (i) Resident population only - not total population
- (ii) Males and females combined
- (iii) Totals may vary due to rounding of statistics to base 3.

2.2.3. TEMPORARY AND VISITOR POPULATION

At the 1991 Census the visitor population in Clutha District accounted for 5.6 percent of the total population. Within that 5.6 percent, 4.9 percent were usually resident elsewhere in New Zealand, and 0.7 percent were visitors from overseas. The largest number of these visitors were recorded in Balclutha.

With the New Zealand Tourism Board aiming to attract three million people to New Zealand by the end of the year 2000 (which would treble the existing visitor numbers to New Zealand), visitor population is likely to increase in the Clutha District, particularly as the District contains numerous scenic and wildlife attractions. This has implications in terms of pressure on the District's conservation resource, and public services such as roading, water and reticulation services.

2.2.4. ETHNIC COMPOSITION

Of Clutha District's resident population, 6 percent of the people stated that they have Maori ancestry (either NZ Maori or Part Maori) in the 1991 Census. This is compared to the 92.7 percent which have European origins. The remaining 1.2 percent put themselves in the other (including not specified) category. A summary of this information is presented in Table 3 below:

Table 3: Clutha District Ethnic Groups*

ETHNIC GROUP	TOTAL DISTRICT	
	NUMBER	%
European	16848	92.7
NZ Maori	732	4.0
Part Maori	369	2.0
Other (including not specified)	216	1.2
TOTALS	18165	99.9

* Note:

1. *Resident population only - not total population*
2. *Males and females combined*
3. *Totals may vary due to rounding of statistics to base 3*

2.2.5. EMPLOYMENT AND THE ECONOMY

It is evident that use of the District's natural and physical resources has formed the basis for primary production activities since the mid 19th century. Indeed, the District's economy and development have been strongly dependent on agricultural production (particularly sheep farming) and this dependence has increased over recent years. This is reflected in the Department of Statistics 1991 Census Figures which indicate that the combined agricultural, hunting, forestry and fishing industries are the most important employment sector in the District, employing 37.3 percent of the District's work force aged 15 and over.

It would be fair to say that agriculture and forestry constitutes a substantial portion of this figure. With approximately 10 percent of Otago Region's population and 20 percent of its land area, Clutha District produces about 50 percent of the regions agricultural production. The District also contains approximately 50% of the planted forest resource for the Otago/Southland region.

Consequently, the significant increase in forestry and dairying activity in the District will have a significant impact on employment figures in the District.

The main employers and processing plants within the District are the export meatworks at Finegand, woollen mills at Milton, cheese factory at Stirling, and timber mills situated in Tapanui, Milton and Balclutha.

The next most obvious sectors in Clutha District are manufacturing, and community, social, and personal services. The District has 19.4 percent of its workforce employed in manufacturing and 17.1 percent in community, social, and personal services. The tourism industry is also increasing within the District with a significant number of people being employed in hotels and motels and in-home hosting.

This industry is not identified specifically within its own category under the Census employment figures.

This information is presented in a complete table, Table 4, of employment by industry in the Clutha District, in which comparison is also made with figures for Otago Region.

Council has recognised the importance of incorporating an awareness of potential changes in the economy in the preparation of this Plan. This has been achieved by acknowledging the need for flexibility, and hence diversity.

Table 4: Clutha District Employment by Industry Population Resident In New Zealand 15 Years and Over*

INDUSTRY	TOTAL DISTRICT			OTAGO REGION		
	<i>Number</i>	<i>%</i>	<i>% of Resident Population</i>	<i>Number</i>	<i>%</i>	<i>% of Resident Population</i>
Agriculture, Hunting, Forestry and Fishing	2979	37.3		5454	8.3	
Mining and Quarrying	21	0.3		444	0.7	
Manufacturing	1551	19.4		9144	14.0	
Electricity, Gas and Water	66	0.8		552	0.8	
Building and Construction	297	3.7		4059	6.2	
Wholesale, Retail and Restaurants	987	12.4		14088	21.5	
Transport, Storage and Communication	312	3.9		3765	5.8	
Business and Financial Services	273	3.4		6186	9.5	
Community, Social and Personal Services	1365	17.1		20745	31.7	
Not Adequately Defined	64	0.8		968	1.5	

TOTALS	7908	99.1	57.6	65406	100	50.2
Balance Resident Population over 15	5829		42.4	64935		49.8

* *Note:*

1. *Resident population only - not total population*
2. *Males and females combined*
3. *Otago Region figure excludes Clutha District*
4. *Totals may vary due to rounding of statistics to base 3*
5. *Balance resident population includes those over 15 not employed*
6. *Includes full-time and part-time workers.*

Source: 1. 1991 New Zealand Census of Population and Dwellings: Otago/Southland Regional Report, Department of Statistics (Table 12)

2.3. URBAN ENVIRONMENT

The well-being, safety, and health of people and communities is closely linked to urban areas. These areas meet basic human needs such as shelter and warmth, provide a system of mobility and access to services, provide infrastructure for activities, contribute to the community's quality of life, and protect its assets etc.

The different environmental character of urban and rural areas requires some distinction as to how these areas are treated. Consequently, urban and rural areas are identified separately on the planning maps. Actually defining the boundary between urban and rural areas differs in terms of the type of urban area in question.

Within Clutha District a number of different types of urban areas have been identified, namely:

- Reticulated towns and townships
- Unreticulated townships and rural settlements
- Coastal settlements
- Historic settlements

2.3.1. RETICULATED TOWNS AND TOWNSHIPS

Existing settlement patterns and further development areas for these types of urban areas are distinguished from the rural environment by the capacity and limitation of the reticulation system. Beyond that point the extension of Council services becomes unsustainable and the capacity to provide adequate services diminishes. Development therefore becomes unsustainable.

Where population figures are quoted, they relate to the 1991 Census.

BALCLUTHA

Balclutha (pop 4,059), is the main urban area within Clutha District. The town has functioned from its inception as a servicing and distribution centre for the fertile rural hinterland. Being located on the State Highway 1 and railway it also functions as the District's major commercial and industrial centre. The majority of South Otago's educational, health, cultural and recreational facilities are also located here.

TAPANUI

Tapanui (pop 789) is situated on undulating country between the western slopes of the Blue Mountains and the Pomahaka River, a major tributary of the Clutha River. Tapanui's main role is servicing the productive farming and forestry activities of the area. The major industrial activities are related to the forestry industry and include a large sawmill at Conical Hill, 13 kilometres south of Tapanui, and a smaller sawmill located on the fringe of Tapanui township.

OWAKA

Owaka's (pop 405) principal function is that of a rural servicing centre. The township is reasonably well endowed with community facilities, including an Area School, Old Peoples Home, Community Centre, swimming pool and other recreational facilities. Residents day to day shopping and living requirements are also provided for.

KAITANGATA

Kaitangata (pop 858) is situated on the east bank of the Matau Branch of the Clutha River, 6 kilometres upstream from the mouth of the river and 13 kilometres south east of Balclutha. The town serves primarily as a residential satellite to Balclutha and plays only a minor role in the servicing of surrounding rural areas and activities. The major economic activity at Kaitangata is centred on the working in the Kai Point open cast coal mine. There is also a land-based salmon farm on Inch Clutha, in the general vicinity of Kaitangata.

HERIOT

Heriot is situated 5 kilometres east of State Highway 90, approximately 11 kilometres north of Tapanui. The township's function is to serve the day-to-day needs of a large surrounding sheep farming area. Community facilities at Heriot include a primary school, cultural, social and recreational facilities, and day-to-day shopping.

MILTON

Milton (pop 2019.) is the Districts second largest town and is the main provider of commercial, social, educational, and medical facilities for the northern part of Clutha District. As with Balclutha, Milton is located on the main south highway and railway and is consequently an important commercial and industrial centre to the District. The textile mill has been operating in Milton since 1887. There are also a number of sawmills located here.

LAWRENCE

The town of Lawrence (pop 507) is situated on State Highway 8 and serves the day-to-day needs of the surrounding farming community and the travelling public. It provides the usual service industries and public amenities associated with a rural town. Lawrence has a colourful history dating back to 1861 when Gabriel Read found gold in the area and much of that history is still evident today.

CLINTON

Clinton (pop 387) is a rural servicing centre serving a large and prosperous hinterland. Both the main south highway and railway pass through Clinton. The township is also reasonably well endowed with community and recreation facilities.

WAIHOLA

Waihola serves as a holiday settlement and servicing centre for the surrounding rural area and travellers passing through on State Highway 1. It is also becoming popular as a retirement and satellite village for Dunedin. A wide range of community facilities are present in Waihola, while Lake Waihola and the adjacent recreation reserve provide recreational opportunities.

STIRLING

The township of Stirling (pop 306) is a rural servicing centre providing alternative residential accommodation for people working in Balclutha. Stirling is located on the main south railway. Economic activity in the town itself is centred on the Otago Cheese Company's factory.

WAIPORI FALLS

The Waipori Village was originally established by the Waipori Falls Company in 1902 as part of that company's electricity generation scheme which was purchased and completed by the Dunedin City

Council in 1907. The village is no longer needed in connection with the power scheme and has been developed in terms of the Unit Titles Act. The individual units are generally used for holiday homes, with some permanent residents. The body corporate is responsible for the upkeep of the tennis courts, water and sewerage reticulation schemes and the sealed streets of the village. A swimming pool is located by the power station which is available for use by the people of the village.

2.3.2. UNRETICULATED TOWNSHIPS AND RURAL SETTLEMENTS

Unreticulated townships are distinguished from rural settlements in terms of their density of development.

Rural settlements are primarily settlements with an historical subdivision pattern, where development has not occurred to the degree anticipated when the survey was originally carried out. Hence, there is often a large number of small sites available for development.

The identification of these unreticulated townships and rural settlements in the Plan is limited to the extent that residential development has already occurred, and community facilities exist. The boundary between the urban and rural environment in these areas generally coincides with the existing settlement pattern and in no case exceeds the existing historical pattern.

The unreticulated townships and rural settlements of the district area as follows:

Waipahi	Greenfield/Clydevale	Waiwera South
Benhar	Milburn	Kapiti
Tokoiti	Kakapuaka	Finegand
Beaumont	Waitahuna	
Tahakopa	Tuapeka Mouth	

These settlements generally perform a minor rural servicing role, and often contain community facilities such as halls, hotels, churches and recreation facilities. Finegand is a major industrial area of the District, with the freezing works, grain and fertiliser stores, sale yards, and skin and pelt processors all located in close proximity to one another.

2.3.3. COASTAL SETTLEMENTS

The Act has identified the coast for special consideration by virtue of section 6 Matters of National Importance. In achieving the purpose of the Act, this section requires Council as a matter of national importance to recognise and provide for the preservation of the natural character of the coastal environment and the protection of it from inappropriate subdivision, use, and development. The New Zealand Coastal Policy Statement also impacts on resource use in the coastal environment.

In light of this, sporadic development along the coast, detracting from visual amenity, and effluent disposal need careful consideration. Consequently, Council has considered it appropriate to identify areas of coastal settlement where natural character is no longer significant. This also allows for coastal development to be contained within these areas where the natural character has already been compromised. These settlements will be identified as urban or rural settlements on the planning maps.

TAIERI MOUTH

Taieri Mouth is a popular recreation area and a large number of cribs exist in this locality. The development of forestry in the vicinity is a significant employer, while the township also supports a significant fishing fleet. A full range of community facilities are provided at Taieri Mouth. Certain parts of the township are however subject to drainage problems. Taieri Mouth is identified as an Urban Resource Area.

BULL CREEK, TOKO MOUTH, CHRYSTALLS BEACH, AND MEASLEY BEACH

These communities are essentially concentrations of cribs along the District's coast north of Balclutha. There are few permanent residents in these settlements. Toko Mouth has been identified as a coastal hazard area by the Otago Regional Coastal Plan due to erosion, while Chrystalls Beach has been identified as an area of natural character by the same Plan. Development upon existing sites at Bull Creek and Toko Mouth will be provided for in Rural Settlement Resource Areas, while any further development in Chrystalls Beach and Measley Beach will need to take place in accordance with the Coastal Resource Area

JACKS BAY AND WILLISHER BAY

These two communities are situated south of Owaka and Kaka Point respectively. Situated close to significant scenic areas, they provide attractive alternatives to the large coastal holiday settlements of Kaka Point, Pounaweia, and Papatowai. Both settlements are located in areas considered to be areas of natural character by the Otago Regional Coastal Plan. Further development has been provided for by the rules of the Rural Settlement Resource Area.

KAKA POINT (RETICULATED)

Kaka Point (pop 207) is primarily a retirement and holiday home community, however, it also provides an alternative coastal residential location for workers at the Finegand Freezing Works. The population of Kaka Point fluctuates markedly during the course of the year with a notable increase during holiday periods. Kaka Point has been identified as an Urban Resource Area.

NEWHAVEN

There is a collection of holiday homes at Newhaven however development in recent years has been restricted due to the threat erosion poses to the community. The Regional Coastal Plan identifies this area as a coastal hazard area. Newhaven has been identified as a Rural Settlement Area within which development can occur on the existing subdivision pattern provided natural hazards are avoided or mitigated.

POUNAWEA

Pounaweia is a settlement located at the confluence of the Owaka and Catlins Rivers catering for both holidaymakers and permanent residents. The Pounaweia Convention Trust Board maintains camping and accommodation facilities at the township, and there is also a camping ground at the Domain. Pounaweia is identified as a Rural Settlement.

PAPATOWAI

Papatowai is located at the mouth of the Tahakopa River and is set in a particularly scenic area. It is primarily a holiday home settlement and has been identified as a Rural Settlement. This area is identified as an area of natural character by the Regional Coastal Plan.

TAUTUKU

There are a number of cribs located on the Tautuku Peninsula. This area is of significance to Iwi and is located in an area identified as an area of natural character by the Regional Coastal Plan. There are concerns over the disposal of waste at this site. No Rural Settlement Resource Area has been established at this site.

2.3.4. HISTORIC SETTLEMENTS

There are a number of historic settlements throughout the District. While, in some instances, there may be a few dwellings located in these areas, or a community facility such as a hall or sportsground, development within these areas will be determined by the rules of the various resource areas.

Historic settlements in this category include, but are not limited to the following:

Ratanui/Houipapa	Lakeview Settlement
Evans Flat	Glenomaru
Port Molyneux	Glenledi
Inch Clutha	Pomahaka
Tuapeka West/Kononi	Kelso
Blue Spur	Town of Beauly
Dunrobin	Wetherstons
Crookston	Edievale
Waitahuna Gully	Hillend
Glenore	Manuka Creek
Maclennan	Romahapa
Warepa	Waikoikoi

2.3.5. BUILT HERITAGE

Clutha District has many heritage buildings, places and areas, sites and objects which reinforce the District's identity and cultural past. In achieving the purpose of the Resource Management Act 1991, Council is required to have particular regard to the recognition and protection of the heritage values of buildings (Section 7(e), Resource Management Act 1991).

A list of the District's built heritage is contained in Table 13 'Register of Heritage Buildings, Sites and Objects.

2.4. WATER RESOURCES

Clutha District is rich in water resources with part of three major catchment systems, namely, the Clutha, Tokomairiro, and Taieri River catchments located within the District. In addition, the Catlins area also has a comprehensive and important water system.

Council has responsibility for controlling the actual or potential effects of activities on the water surface, while it also has a role to play in terms of the effects of land use on waterbodies.

The Otago Regional Council has responsibility for the maintenance and enhancement of the quality and quantity of water in waterbodies; for the control of the taking, use, damming or diversion of water; for the control of discharges to water; and for the control of the disturbance of the beds of waterbodies. For the full list of the Regional Council's functions refer to Schedule 6.8.

2.4.1. RIVER CATCHMENTS

The Lower Clutha River, which bisects the District, has the largest flow of any river in New Zealand, having a mean flow at Balclutha of 570m³ per second. Although only a small part of the Clutha River catchment lies within Clutha District Council's area of jurisdiction, Council recognises the importance of coordinated management of entire catchments. The Pomahaka River is a major tributary of the Lower Clutha River and is an extremely important fishery. Other tributaries include the Beaumont, Tuapeka, Waiwera and Waitahuna Rivers.

The Pomahaka, its tributaries, and the Clutha River extending from the Mouth of the Pomahaka to the sea are subject to a rule in the Otago Regional Council Regional Plan (the former Local Water Conservation, (Pomahaka River and Tributaries and Lower Clutha River Notice) 1989. These waters are regionally significant recreational trout fisheries and fish habitats. (*Note: see Schedule 6.10.5.2 and 6.10.5.3 for special significance to Iwi*).

The Tokomairiro River catchment has a total area of 398 square kilometres. The Tokomairiro River itself comprises two main branches which originate as high-country streams. The West Branch joins the East Branch (sometimes called the North Branch) on the Tokomairiro Plains some 16 kilometres from the coast. The river as it passes over the Plains has a distinctive meandering pattern and has a number of riffle reaches. It flows into the Pacific Ocean at Toko Mouth.

The Taieri River catchment covers a total area of approximately 5650 square kilometres. Like the Clutha River catchment, only part of the Taieri River catchment is situated within Clutha District's boundaries. In the middle reaches is Lee Stream, although only the upper reaches of this tributary are in Clutha District, while the Waipori River joins the Taieri River on the Taieri Plain. The Taieri River meets the Pacific Ocean at Taieri Mouth. The Lower Waipori River is within such close proximity to the mouth of the river that it is influenced by the tide.

The water system in the Catlins area comprises 8 main rivers, the Owaka River, Catlins River, MacLennan River, Tahakopa River, Waipati River, Fleming River, Tautuku River and the upper reaches of Mokoreta River. All of the rivers mentioned above are considered to be of value for trout fisheries with the Catlins River in particular being regionally important.

2.4.2. LAKES AND WETLANDS

Within the major water catchments, and also within the smaller water systems in Clutha District; a significant number of lakes and wetland ecosystems exist.

Four major lakes occur within the District, namely, Lakes Mahinerangi, Waipori, Waihola, and Tuakitoto. Lake Mahinerangi is an artificially raised hydroelectric power storage dam in the upper Waipori River and has a surface area of about 21 square kilometres. Waipori and Waihola are shallow lakes on the Taieri Plains with surface areas of 2.4 square kilometres and 6.5 square kilometres respectively. Like the lower Waipori River, Lakes W Waipori and Waihola are also subject to tidal influence due to their close proximity to Taieri Mouth. (*Note: see Schedule 6.10.5.5 for special significance to Iwi*). Lake Tuakitoto is a medium-sized shallow lake situated inland from Kaitangata in the lower catchment of the Clutha River. The lake is subject to a rule (the former Local Water Conservation (Lake Tuakitoto) Notice 1991) in the transitional Otago Regional Council Regional Plan, which recognises the lake as a regionally important wildlife habitat and game bird hunting feature. The provisions of the Local Water Conservation Notice (Lake Tuakitoto) will be included in the Regional Plan "Water" and the Lake Tuakitoto Management Strategy.

Wetlands are amongst the most highly productive ecosystems in the world, supporting high numbers of birds, fish, and many species of plants and invertebrates. The principal reason for this is the temporary or permanent presence of water with an associated aquatic ecology.

The wetlands of ecological and representative importance within Clutha District have been identified from the WERI (Wetlands of Ecological and Representative Importance) Database, the SSWI (Sites of Significant Wildlife Interest) and the New Zealand Wetlands Inventory, held by the Department of Conservation. These sites are listed in Table 13.5.

It is important to note that many of the wetlands of the District have been lost or degraded through damage or drainage, and to a lesser extent, recreational use, mining (peat), invasion of plant pests, and nutrient enrichment. However, despite this, significant wetlands still exist in Clutha District. A number of these habitats are of national significance, for example the Lakes Waipori and Waihola Wetland complex, and the Lake Tuakitoto wetland complex which comprise large remnants of wetlands of national importance for wildlife and freshwater fish.

Various smaller coastal wetlands (most less than 10 hectares) and tidal inlets form part of the national chain of coastal wetlands and are important for overseas migrant and New Zealand resident wading birds, gulls, terns, the juvenile stages of a number of marine fish species and migrating adults and juveniles of many native freshwater fish. Individually, these smaller wetlands are generally of local significance, but it is important to note that with less than 10 percent of New Zealand's wetlands remaining in existence, collectively they are of tremendous regional importance, particularly those that are more "natural" and contain larger water areas with good vegetation buffer zones.

Wetland ecosystems are not closed. Energy, nutrients and organisms flow into and out of the system via waterways, and for many of the bird species the wetland is only part of their total habitat. Human activities both extract from the system (for example, fishing, grazing) and discharge to it (for example, sewage, agricultural run-off). Thus, wetland ecosystems cannot be considered in isolation, but as part of a larger system.

2.4.3. WATER QUALITY

High water quality allows for a greater range of water use than does water with a lower quality.

Although information on water quality for the main stem of Clutha River is limited, it can generally be said that the waters above Balclutha are of a higher quality than below Balclutha where water quality deteriorates significantly as a result of several high volume wastewater discharges. The three main effluent discharges are Balclutha Sewage, Finegand Freezing Works, and Otago Cheese Company at Stirling. The water quality of the river in the Clutha District is also adversely affected by general non-point source pollution such as runoff from roads, agricultural runoff and siltation from the Roxburgh Dam.

The Tokomairiro River receives waste loadings from both non-point sources (urban and agricultural runoff, and stream bank erosion) and point sources (for example, Alliance Textiles Factory and Milton Sewage Treatment Works). The Tokomairiro River Catchment Water Resource Inventory prepared by the former Otago Catchment Board and Regional Water Board in August 1984 concludes that water in the Tokomairiro River below Gorge Creek is significantly affected by waste inputs from both point and non-point sources. Of major concern is the possible toxic effect of the Alliance Textiles factory effluent on downstream aquatic life.

In contrast to the Upper Taieri, water quality in parts of the Lower Taieri Catchment is generally poor. Waste from a variety of point discharges, and runoff and drainage from the intensively developed catchment contribute to this deterioration. The major input into the Lower Taieri system is the Mosgiel sewerage effluent. There are also a number of drains on the Lower Taieri Plain that empty into the river. The major drainage input is almost certainly from the Main Drain which is pumped into Lake Waipori at the southern end of the Plain. This Main Drain receives wastewater both directly and indirectly from approximately 100 dairy farms and the Momona sewage effluent plant.

As a result of adjacent agricultural development and the associated increase in the amounts of nutrients in the stream feeding Lake Mahinerangi, the lake itself has an increasing level of blue-green algae. It is possible that high levels of nutrients may also reach the Lower Taieri system from this source.

Lakes Waipori, Waihola and Tuakitoto have relatively poor water quality, which is evident by the presence of algae blooms. However, the water quality in Lake Waihola is higher than in Lake Waipori. This difference is possibly maintained because of the close proximity of Lake Waipori to potential sources of pollution (for example, Waipori River, Contour Channel, and the previously mentioned drainage water from the Main Drain).

Water quality in the Catlins area water system in general is high in comparison to other water catchments in the District. This is primarily due to the relatively undeveloped nature of the area, and the consequent abundance of native vegetation.

The general water quality of the district is adversely affected by non-point source pollution such as agricultural runoff, stormwater runoff from the roading network and so on. The community's level of awareness regarding the impact their activities can have on water quality must be raised in order to mitigate the effects of this type of pollution.

2.4.4. USE OF WATER RESOURCES

(I) RECREATION

Recreation is an important use of the water resource and one which is likely to increase.

Water-based recreation in the main stem of the Clutha River falls into three general categories, namely, angling and hunting, boating (particularly in that stretch of river between Clydevale and the Central Otago District boundary), and passive recreation (which includes the aesthetic appreciation of the landscape). Angling is regionally significant below Balclutha and on the Pomahaka, a major tributary of the Clutha, and the Waipahi River, a tributary of the Pomahaka. In other parts of the District the Catlins and Lower Taieri Rivers are considered to be regionally significant fisheries.

The main recreational uses in the Tokomairiro River catchment are waterfowl shooting and angling. Anglers attracted to this resource tend to be local rather than from elsewhere in the Otago Region. Other recreational uses of Tokomairiro River itself include bird watching, swimming, picnicking, and boating in the estuary.

Because of its close proximity to Dunedin, the Taieri River catchment is a popular destination for water-based recreation. Angling is common in Lakes Mahinerangi, Waihola and Waipori, and to a lesser extent in the Lower Taieri River itself. Waterfowl hunters also make regular annual use of the Waipori and Waihola Wetland complex. Lake Waihola is the centre of power boating activities in Otago and Southland. Powerboats frequently use the Taieri River between Waipori River Bridge and Taieri Mouth Bridge. The only waterbodies in the catchment suitable for yachting and windsurfing are Lakes Waihola and Mahinerangi. Waterskiing is generally limited to Waihola, and the Lower Taieri River between Waipori River Bridge and Taieri Mouth Bridge. Lake Waihola is a good example of river and lake sites in the Taieri catchment which are easily accessible to Dunedin and offer picnicking or boating opportunities and popular swimming locations. Lake Waihola has been used for over 100 years for competitive rowing while stretches of the Taieri River are regularly used by rowers during the summer months as a training venue. The Lower Taieri River and Lake Waihola are also used for rowing.

Specific information relating to water-based recreation is not abundant for the Catlins area. It is known that angling is popular in the waterbodies in this area, however, it is mainly utilised by locals because of the greater distance from Dunedin. The rivers, small lakes, and numerous waterfalls of the area play an important part in attracting people to the area to partake in tramping and passive activities such as sightseeing. The coastal waters and estuaries are also utilised for yachting activities.

Whitebaiting is an important recreational activity in all the catchments that are mentioned above. The Clutha River is the most important whitebait resource and the Taieri River is the second most important whitebait resource in the Otago Region. The Tokomairiro River and the rivers in the Catlins also support this same activity.

(II) HYDRO-ELECTRIC POWER

It is important to recognise that at the outset of writing this Plan, the main stem of the Lower Clutha River is the subject of an extensive Hydro-electric Power development investigation which, if implemented, would transform the Clutha River from its present state to a chain of hydro lakes.

In the Taieri River Catchment, hydro-electric power development has occurred on the Waipori River, where the Dunedin City Council has four power stations which re-use water released from the Mahinerangi Dam.

The District Plan recognises the potential for the Tuapeka project to proceed during the life of the Plan and includes provisions to ensure that any adverse environmental effects of such development are fully and properly assessed and that the necessary consents are sought.

(III) DOMESTIC AND INDUSTRIAL

There are numerous consumptive uses of water in the District. Not only are the Districts main urban centres reticulated with water services, but much of the rural area is also serviced by the Districts 12 rural water supply schemes. Industries such as the Finegand Freezing Works and the Stirling Cheese Factory also utilise the Districts abundant water resources. These and other industries also use waterbodies for the disposal of waste products, including the use for this purpose by general urban or agricultural runoff.

Irrigation is also an important industrial use of water.

(IV) INSTREAM VALUES

Fifteen native fish species occur in the Clutha District plus the Koura or freshwater crayfish. These species are listed in the table below:

Table 5: Native Fish Species Found In The Clutha District

Common Name	Scientific Name	Migratory	Non-migratory
Lamprey °	<i>Geotria australis</i>	X	
Short-finned eel	<i>Anguilla australis</i>	X	
Long-finned eel	<i>Anguilla dieffenbachii</i>	X	
Common smelt *	<i>Retropinna retropinna</i>	X	
Giant kokopu * °	<i>Galaxias argenteus</i>	X	
Banded kokopu* °	<i>Galaxias fasciatus</i>	X	
Koaro * °	<i>Galaxias brevipinnis</i>	X	
Common river galaxias (Otago galaxiid complex)	<i>Galaxias vulgaris</i>		X
Inanga *	<i>Galaxias maculatus</i>	X	
Torrent fish °	<i>Cheimarrichthus fosteri</i>	X	
Common bully	<i>Gobiomorphus cotidianus</i>	X	
Upland bully	<i>Gobiomorphus breviceps</i>		X
Giant bully	<i>Gobiomorphus gobioides</i>	X	

Red-finned bully	Gobiomorphus huttoni	X	
Black flounder	Rhombosolea retiaria	X	

Note: * *Juveniles of these species make up the whitebait catch.*

° *Threatened species (See Molloy and Davis, 1992 - 2nd Edition Tisdall 1994).*

As can be seen from the table, five of these species are threatened. The three primary concerns for threatened species are barriers to migration, habitat loss, and alien species interaction (Neilson, Department of Conservation, 1995).

A number of the species listed are harvested (e.g., whitebait, eels and smelt) and are therefore of cultural significance to Maori, and of recreational significance to the wider community.

The Clutha District contains some of the most significant fish habitats, both for native and introduced species (trout and salmon), in Otago. Native freshwater fish habitats of regional significance include Lakes Waipori/Waihola, Lake Tuakitoto, lower Clutha River (which are of national importance) and the largely undeveloped Catlins area, while the lower Clutha/Pomahaka system, Waipahi, Taieri rivers and streams of the Catlins are regionally significant for introduced species.

The Clutha District contains the two most significant whitebait fisheries in Otago - the lower Clutha, and the lower Taieri. Of these two, the Clutha is the most heavily fished with up to 200 whitebaiters being present on a good day (Kelly, 1988). Up to 150 baiters may be present on the lower Taieri under similar conditions.

The Districts waterways also support significant waterfowl populations. The Waipori/Waihola wetland system, Lake Tuakitoto wetland complex and the many coastal wetlands and estuaries are of national significance in terms of waterfowl.

Many of the Districts waterways also retain significant natural character values. These include the streams and rivers of the Catlins and Blue Mountains, Lakes Waipori, Waihola and Tuakitoto, large tracts of the Pomahaka, the lower Taieri Gorge, the Upper Waipori Gorge and the Clutha River, in particular the Rongahere Gorge and Beaumont Gorge areas.

2.4.5. ACCESS TO WATERBODIES

The District Planning Maps indicate where public access is available to and along the waterbodies of the District. This has been shown as 'Esplanade Margins' and comprises existing crown land, marginal strips, esplanade reserves, riverbank [page 33] reserves, or unformed legal road adjoining rivers, streams and lakes or the coast.

The planning maps also indicate the waterbodies over which Council is likely to exercise the Esplanade reserve requirements of the Act. There will be circumstances where Council may require an esplanade reserve or strip to and/or along rivers not shown on the Plan or to provide access to the reserves or strips which currently adjoin waterbodies. Council's policies and rules in respect of esplanade mechanisms can be found in Section 3.8 Financial and Reserve Requirements.

2.5. MINERALS

A wide variety of minerals exist within Clutha District, the majority occurring as small deposits or in widely scattered localities.

For the purpose of the Resource Management Act 1991, the term "mineral" has the same meaning as in Section 2(1) of the Crown Minerals Act 1991; that is:

A naturally occurring inorganic substance beneath or at the surface of the earth, whether or not under water; and includes all metallic minerals, non-metallic minerals, fuel minerals, precious stones, industrial rocks and building stones, and a prescribed substance within the meaning of the Atomic Energy Act 1945.

Minerals only become resources when society develops a use for them and has the financial resources to extract them. The mineral resources in Clutha District are identified under three main categories as follows:

Metallic Minerals	Non-Metallic Minerals	Energy Minerals
Hard-rock (lode) and alluvial gold deposits	Aggregates Sands	Coal and lignite reserves
Other metallic minerals	Clays Limestone Phosphate	

2.5.1. METALLIC MINERALS

HARD-ROCK (LODE) AND ALLUVIAL GOLD DEPOSITS

Both hard-rock (lode) and alluvial gold deposits are present in the Clutha District. The alluvial gold deposits were of economic significance to the early development of the Otago Region. However, any significant mining for gold has long since ceased.

The gold lodes are concentrated in the Waipori area. Most of the lodes have only limited production and are now partly flooded by Lake Mahinerangi. Other lode formations exist at Gabriels Gully and in the Tokomairiro Valley (West branch).

Alluvial gold, derived from erosion of gold-bearing lode deposits, is found in a variety of formations ranging from Cretaceous to Holocene age in the Clutha District. The most significant sources are the deposits of Blue Spur Conglomerate (Lower Eocene) which occur along the Tuapeka Fault from Blue Spur to Adams Flat, especially in the Gabriels Gully - Wetherstons area. A large (but unknown) quantity of gold has been obtained by sluicing Miocene-Pleistocene gravels at Waipori Flat. Some gold has also been recovered from late Pleistocene deposits at the Koau Mouth of the Clutha River.

Recent investigations have indicated that considerable volumes of auriferous gravels, though somewhat low in grade, still occur in the Waipori area. Therefore, the Blue Spur Conglomerate and other auriferous formations still have potential for future gold production. In general, potential still exists for alluvial gold mining and possibly small-scale lode-gold mining.

OTHER METALLIC MINERALS

Other metallic minerals exist in Clutha District and occur in lode formations. In most cases they have been worked in the past and are currently uneconomic to develop. These other metals are described below:

Scheelite, copper, stibnite, cinnabar, and iron-ore minerals occur in the District. Scheelite and stibnite commonly occur in association with gold in the quartz lodes in schist. Limited quantities of scheelite have been produced from some workings in the Waipori area. There has also been minor production of antimony at Stony Stream in the Lammerlaw Range.

Near Waitahuna, mercury mineralisation occurs in a lode-type formation within a crush-zone in the Haast Schist. Mercury mineralisation is patchy and although locally of high grade it is unlikely to prove workable.

Cinnabar was recorded in alluvial gold workings between Waitahuna and Waipori. It is probably widespread in younger sediments derived by erosion of the schists.

Copper mineralisation occurs in schist near Waitahuna. No production is recorded even though there is relatively high-grade mineralisation.

At White Head, iron-ore occurs as scattered residual surface deposits. Reserves are estimated at over 100,000 tonnes. The iron-ore also contains minor titanium.

2.5.2. NON-METALLIC MINERALS

AGGREGATES

"Aggregates" is a term used to describe a variety of rocks, gravels, and sands used primarily for roading and concrete construction purposes. Aggregates are currently the most significant commodity in Clutha District, although they are varied and are relatively widely distributed, precluding long distance cartage.

Within the District aggregate is derived from four main sources:

- Tuapeka and Waipahi groups – greywacke
- Dunedin Volcanic Complex – basalt
- Haast Schist – schist
- Alluvial gravels derived from the above.

TUAPEKA AND WAIPAHI GROUPS

Upper Paleozoic-Mesozoic greywackes of the Tuapeka and Waipahi groups are the main source of aggregate. Where fresh and unaltered, they make good roading aggregate, however, the occurrence of sheared and shattered zones commonly accompanied by zeolite minerals locally make them weak and susceptible to failure.

DUNEDIN VOLCANIC COMPLEX

Dunedin Volcanic Complex basaltic outliers are a minor source of high-quality aggregate in the Clutha District.

HAAST SCHIST

Schist is only used as a minor source of aggregate as its foliated nature renders it weak and unsuitable for crushing and grading. It is commonly used in river protection work, and to a minor extent for dimension (facing) stone.

ALLUVIAL GRAVELS

Gravels of the Cretaceous Taratu Formation are used on country roads where traffic is light. Holocene gravels from the Clutha River are an important aggregate source in the area.

SANDS

Sands of Holocene, Tertiary and Cretaceous ages are used locally for construction purposes. In particular, sand from the Cretaceous Taratu Formation is used for building material and moulding (foundry sand). However, its importance as a moulding sand has declined in recent years.

CLAYS

Clays quarried at Benhar have, until recently, provided the basis for a ceramic industry.

LIMESTONE

Limestone for agriculture has been quarried from a few localities, notably at Clarendon near Milburn. In general though, calcareous rocks are erratically distributed and their calcium carbonate content is rather low and variable. This means that limestone suitable for agriculture, cement, and industrial purposes is also of limited extent and variable quality.

The limestone resource at Limesprings Farm, Milburn, is the only significant one remaining in the Clutha District. An application to reopen the quarry has been successful and it is now fully operational.

PHOSPHATE

The District contains the only significant phosphate deposit in New Zealand. This deposit exists at Clarendon and occurs within the Clarendon Sand (lower Miocene) and underlying Milburn Limestone (Oligocene). While the resource is by no means exhausted, thick basalt overburden hinders economic working of the deposit.

2.5.3. ENERGY MINERALS

COAL AND LIGNITE RESERVES

Significant coal and lignite reserves exist in Clutha District. Coal has a long history of economic exploitation and will continue to be of importance. Coal production is currently confined to mines on the Kaitangata Coalfield (Figures 2 and 3), although additional resources do occur at Pomahaka Coalfield, along the western fringes of the District in the vicinity of the Maitland Field adjoining Southland District, and near Maclennan in the Catlins.

Recoverable resources in the Kaitangata Dome Field are estimated at 95 million tonnes of lignite and in the Benhar-Lovells Flat Field at 395 million tonnes. The latter field extends under Lake Tuakitoto. Lake Tuakitoto has been identified as a wetland of national importance. The interim mining

assessment completed for the Mines Division of the Ministry of Energy identifies four options for mining in this area. The assessment notes that although coal reserves in the Benhar sector amounts to approximately 395 million tonnes, mine planning with a view to preserving the lake would entail reducing the coal reserve by approximately 141 million tonnes.

The Pomahaka Coalfield situated at Conical Hills has never been significantly exploited but inferred lignite in ground resources are estimated at 54 million tonnes (NZ Geographical Survey 1981). The New Zealand Coal Resources Survey assesses the Pomahaka Coalfield as marginal in current economic terms because of field size and high ratio of overburden (spoil) to lignite.

The lignite seams in the vicinity of the Maitland field are not considered to be economically significant and the deposits near Maclennan are of poor quality and of no commercial value.

Future potential for the development of the District's coal resources tends to be centred around the Kaitangata Field. Within this field, three areas have been identified as having potential for open cast mining, namely, the Penman, South-Western, and Central areas. Economically recoverable underground mine prospects within the Kaitangata Field are located in the Lockington Mine and the Castle Hill - Kai Point area. The District's coal resources have been identified by Electricity Corporation of New Zealand as having potential for energy use, for example fuelling of a power station.

2.6. FAUNA AND FLORA

(*Note: see Schedule 6.10.6 for Iwi taonga species information*)

2.6.1. INDIGENOUS FLORA

The Clutha District covers a diversity of landforms and climates. Altitude ranges from sea level to over 1400m (Umbrella Mountains). Rainfall varies from about 600mm in the north and 700mm in the east to 1200mm in the south. These factors have resulted in a great variety of indigenous vegetation types, from high alpine snowbanks with a growing season of a few weeks, to lowland podocarp forest in areas which seldom experience a frost.

The vegetation types can be summarised as:

- Alpine wetland, cushionfield, grassland, herbfield
- Subalpine grasslands
- Montane grasslands and shrublands (induced)
- Montane beech forest
- Montane conifer-broadleaved forest
- Lowland podocarp-broadleaved forest
- Lowland secondary forest and shrubland (included)

Alpine and subalpine vegetation is restricted to the northern extremity of the District above about 1100m contour on the Umbrella Mountains. It includes bog pine shrubland, slim snow tussock (*Chionochloa macra*) grassland with many small shrubs and herbs, snowbank communities of prostrate small shrubs and cushion-forming herbs, and cushion bogs.

Subalpine grasslands are dominated by narrow-leaved snow tussock (*Chionochloa rigida*) and have many other indigenous and introduced grasses and herbaceous plants. They occur above 1000m on the Umbrella Mountains.

Montane grasslands and shrublands, replacing former forest destroyed by pre-European fires, are widespread below 1000m on the Umbrella Mountains, along the summits of the Blue Mountains and the Kaihiku Range, and on the upper slopes of the Lammerlaw Range. Smaller areas remain amongst developed farmland and conifer plantations on the hill country around Lake Mahinerangi, and in the upper Catlins, Tahakopa and Mokoreta River catchments in the Catlins. Narrow-leaved snow tussock is the characteristic plant in the north and east of the region, and red tussock in the south, although the latter is found locally throughout, especially in poorly-drained areas. Hard and silver tussock can be locally dominant, and there is a wide range of shrubs and herbaceous species.

Montane beech forest covers much of the mid-slopes of the Blue Mountains, and occupies the central Beresford Range in the Catlins, the Waipori Gorge, and the upper catchment of the Leithen Burn at the southern end of the Umbrella Range. Silver beech dominates in the four locations, but there are also stands of red and mountain beech in the Rongahere Gorge of the Clutha River on the east flank of the Blue Mountains, and red beech in the Leithen Burn. Small silver beech stands are also found scattered on the Maclennan and Wisp Ranges in the Catlins, and in gullies between Lawrence and the Waipori River.

Montane conifer-broadleaved forest characterised by rata, kamahi, Hall's totara and mountain cedar is largely confined to the poorly drained uplands of the Catlins ranges, although a few very small remnants have survived at uncharacteristically low elevation on the hills east of the Tokomairi plain. Rata and kamahi dominate the canopy of forest on the midslopes of the Catlins ranges, where rimu, miro and Hall's totara are the main podocarps.

In the Catlins and up the coast as far as Taieri Mouth, kamahi is the dominant canopy tree of low hill country podocarp-broadleaved forest, although rata is important close to the sea. Rimu, matai and miro are the common podocarps. On fertile soils and warm sites, usually on river flats and lower northerly slopes, such as those in the Rongahere Gorge and Pomahaka River valley, broadleaf, ribbonwood, lacebark and kowhai are prominent canopy trees, with matai, kahikatea and true totara as characteristic podocarps.

Throughout the region, land cleared of forest and subsequently allowed to revert carries shrubland and low forest, which over a period of centuries would develop into forest of similar composition to the original. Kanuka, often in association with manuka, forms extensive stands on the coastal hills north of the Clutha River and through the central area from the Waipori River to the Clutha River. Manuka alone fulfils this role in parts of the Catlins, for example in the upper Tahakopa and Catlins River catchments. Several broadleaved small tree and shrub species form dense shrubland and low forest elsewhere in the Catlins and throughout the coastal hills to the north. Cool, moist montane habitats in the Catlins and on the Blue Mountains carry shrubland including small leaved *Coprosma* species, cottonwood, flax and *Dracophyllum*, usually with some red tussock. (Dr R B Allen, Landcare Research New Zealand Ltd, Dunedin).

The indigenous forest areas of the District can be broken into three distinct groups as follows:

1. THOSE ADMINISTERED BY THE DEPARTMENT OF CONSERVATION

Catlins	36,000 hectares
Other	17,500 hectares
Total	53,500 hectares

2. INDIGENOUS FOREST IN PRIVATE OWNERSHIP

Native Shrub	3254 hectares
Podocarp/Hardwood/Shrub	2215 hectares
Beech	2455 hectares
Podocarp/Hardwood	6452 hectares
Beech/Native Shrub	82.5 hectares
Total	14458.5 hectares

3. MAORI LANDS

Tautuku	2650 hectares
Waikawa	850 hectares
Glenoamaru	144 hectares
Total	3644 hectares

Part IIIA of the Forests Act 1949, as inserted by the Forest Amendment Act 1993, neither attempts to prohibit clearance nor to protect forest areas. The purpose of these provisions is to promote the sustainable forest management of indigenous forest land.

There are four land class areas that are not subject to Part IIIA of the Forests Act namely,

- any West Coast indigenous production forest (as defined in Section 2 of the Forest Act)
- any indigenous timber from or on any land permanently reserved under the South Island Landless Natives Act 1906 and having the status of Maori Land or General Land owned by Maori under the Te Ture Whenua Maori Act 1993
- any indigenous timber from or on any land held, managed or administered by the Crown under the Conservation Act 1987 or any of the Acts specified in the First Schedule of that Act
- any indigenous timber from any planted indigenous forest.

Part IIIA of the Forest Act prohibits the milling of indigenous timber. Exceptions to this prohibition include:

- timber from a sustainable forest management plan or permit area
- for a public work
- from a mining operation
- for the construction or maintenance of an accessway, water impoundment or scientific research
- salvage timber from areas that are not indigenous forest land
- wind thrown trees, standing dead trees, trees that have died as a result of natural causes
- timber for the landowners personal use
- various provisions relating to the removal of tree ferns for milling

All of the above exceptions to the "sawmill controls" require approval by the Secretary of Forestry prior to harvesting or milling taking place.

However, regardless of the Forest Act 1949 the environmental aspects of felling indigenous timber are subject to the Resource Management Act. All land, even when subject to a sustainable forest management plan or permit, is subject to the Resource Management Act. There could well be circumstances where a sustainable forest management plan is consented to under the Forests Act but consent to log is withheld under the Resource Management Act because of other factors such as the significance of the indigenous vegetation or adverse effects on indigenous fauna habitat.

2.6.2. INDIGENOUS FAUNA

(I) COASTAL HABITATS

The District's Coastline is home to numerous marine animals and birds. Nugget Point is unique for the fact that it is the only known site in New Zealand where New Zealand fur seal, elephant seals, and hookers sea lions co-exist. Leopard seals also visit the area. Sooty shearwaters, yellow eyed penguins, Australasian gannets and royal spoon bills are also present at Nugget Point.

Numerous breeding sites for the yellow eyed penguin exist along the coast (listed in [Table 9](#)) while there are also a number of blue penguin and sooty shearwater breeding sites along the Coast. Spotted and Stewart Island shags are also present throughout the Coast.

(II) CATLINS FOREST

The Catlins forest includes beech, podocarp, beech/podocarp, scrub and sub-alpine vegetation associations which provides a wide range of habitats. This diversity of habitats, which incorporates a wide range of plant associations, provides an extensive abundance and variety of wildlife.

The following table illustrates the native bird species found within the Catlins forest and their relative abundance.

Table 6: Native Bird Species Found within the Catlins Forest

Threatened/ Declining	Rare	Common
Yellowhead Yellow-crowned parakeet	Tui	NZ Pigeon Shining cuckoo Long-tailed cuckoo Morepork Bellbird Silvereye Grey warbler Yellow breasted tit Rifleman Brown creeper Fantail

(III) BLUE MOUNTAINS

The Blue Mountains is a matrix of exotic plantation and indigenous beech forest. The following table illustrates the native bird species found within the Blue Mountain Forests and their relative abundance.

Table 7: Native Bird Species Found within the Blue Mountains

Threatened/Declining	Rare	Common
Yellow-crowned parakeet Yellowhead	NZ falcon SI Fernbird Tui	Brown creeper Rifleman Fantail Yellow-breasted tit Grey warble Bellbird Pigeon Shining cuckoo Long-tailed cuckoo Silvereye

(IV) ALPINE HABITATS

The large areas in the north-east and north of the district above 300 metres are characterised by being open and exposed lands. Much of this is in native or semi-native vegetation cover. Bird species present here include NZ Falcon and NZ pipit. These species are found in low densities and use large extensive areas of habitat to support themselves.

(v) Lakes Tuakitoto, Waipori and Waihola

These large lowland freshwater wetlands support a full complement of wetland species in a diverse mosaic of habitats. Bird life in these wetlands is illustrated in the following table:

Table 8: Wildlife of Lakes Tuakitoto, Waihola and Waipori

Water-Fowl		Other Wetland Bird Species
<i>Native</i>	<i>Introduced</i>	
Grey teal NZ Shoveler Grey duck NZ scaup Paradise shelduck	Mallard Black Swan Canada goose	Pukeko Australian bittern Banded rail Marsh crake Spotless crake South Island Fern bird Little shag Black shag White-faced heron South Island pied oystercatcher Spur-winged plover Pied stilt Black-backed gull Black-billed gull

(VI) RIVERS

The rivers of the Clutha district provide extensive areas of habitat for wildlife. Black shags are common throughout the rivers of the district. Waterfowl, particularly mallard, but also grey teal, utilise the quiet backwaters overhung by willow which provide essential roosting habitat.

Rivers in the Catlins support populations of shags and a remnant population of blue ducks. These endemic birds rely on fast running waters with closed canopy forest to support them.

(VII) ESTUARIES

These brackish water and saltwater ecosystems are scattered along the Clutha district coast. Although the estuaries found in Clutha district are generally small, they are part of a nationally important chain of coastal wetlands along the east coast of the South Island which nationally migrating waterfowl and wading birds use on their seasonal migrations.

Estuaries provide habitat for waterfowl, ducks and swans, herons and wading birds, such as pied stilts and oystercatchers.

(VIII) FISHERIES

With respect to the fish species of the district, refer to Section 2.4.4(iv) of the Plan.

2.6.3. NON-INDIGENOUS FAUNA OF VALUE TO THE COMMUNITY

Clutha District has high quality sports fisheries and game bird populations which, for the most part, are self-sustaining. They provide high quality recreational opportunities for anglers and hunters resident in the district as well as visitors to the district. The latter group provide an additional benefit in terms of economic activity associated with regional tourism.

Significant sport fisheries include the lower Clutha, Pomahaka, Waipahi, and Taieri Rivers, Lake Mahinerangi and the numerous rivers and streams in the Catlins locality. Significant game bird population exist at the Lake Waihola/Waipori wetland complex, Lake Tuakitoto, and the Tokomairiro, Taieri and Clutha Rivers.

Sports fisheries and game bird resources, and access to them, are under continuing pressure from the external effects of other resource uses. The quality of fish and game, and recreational angling and hunting, is dictated by the quality and extent of freshwater habitats. Equally important is the quality and extent of access to those habitats.

Table 9: SSWI Database

Sites of Outstanding Habitat Value	East/North Grid Reference (NZMS 1)	Description
Tunnel Rocks Reserve	3493 1938	Little Blue and Yellow-eyed Penguin colony site.
Sandy Bay	3564 2002	Yellow-eyed Penguin colony.
Penguin Beach	3485 1933	Yellow-eyed Penguin colony in bad condition.
Nugget Point	3574 2012	Large Yellow-eyed Penguin breeding colony.
North Jack's Bay	3499 1953	Yellow-eyed Penguins breeding site.
Mahaka Point	3296 1841	Breeding colonies of Yellow-eyed Penguin, Sooty Shearwater, Black backed Gull.
Long Point West Yellow-eyed Penguin Reserve	3388 1858	Yellow-eyed Penguin colony.
Long Point East Yellow-eyed Penguin Colony	3396 1859	Yellow-eyed Penguin colony and Sooty Shearwater colony.
Leithen Bush	2900 2820	Unmodified habitat with good bird and insect values. High numbers of Robins and Parakeets. Yellow Heads present.
Hina Hina Cove Yellow-eyed Penguin Colony	3453 1904	Yellow-eyed Penguin colony.
Falls Creek Yellow-eyed Penguins	3093 1747	Yellow-eyed Penguin colony.

Wisp Range Bush	3275 2070	Very good stand of native bush. Parakeets present.
Waipori Falls Scenic Reserve	3735 2655	High bird, scenic, and botanic value with a lowland to subalpine range.
Waiparau Penguin Colony	3136 1782	Yellow-eyed Penguin breeding site.
Tokomairiro River Scrub	3743 2320	High habitat value for Fernbird. Moderate value for other biota.
Taieri Mouth Bush	3870 2513	Good bird and plant diversity.
Tahakopa Peat Bog	3265 1895	Dry peat bog with some very small patches of water. Presence of Fernbird and Bittern. Average numbers of Finches. Good insect life in mud for food.
Shepherds Bush (habitat 1)	3097 2652	Island forest remnant. Winter feeding source for Kereru (New Zealand Pigeon) and Yellow-breasted Tits.
Purakaunui Bush	3375 1910	Largely unmodified forest.
Popotunoa Bush	3205 2315	Bush remnant with good regeneration.
Papatowai Scenic Reserve	3315 1875	A very restricted habitat type (podocarp forest, lowland) in the region. Supports good numbers of common wildlife.
Morgans Bush	3095 2678	Isolated forest remnant with remarkable tree and shrub diversity. Seasonal Kereru (New Zealand Pigeon) and Bellbird feeding value. Aesthetic value.
Mahinerangi Forest	3670 2730	Good numbers of scarce birds (South Island Tit, Black and Pied Fantail, Cuckoo, Brown Creeper).
Glendhu Forest Remnant	3430 2770	Very scarce numbers of this habitat type. Core habitat for many bird species.
Fletts Bush	3683 2508	Good regeneration of podocarps, Matai, Miro, Kahikatea, Totara. High habitat value.
Dusky Gorge - Pomahaka River	2997 2702 to 2987 2730	Good species diversity. Exceptional scenic quality. Water fowl numbers high during game season on river.
Craigellachie Forest Remnants	3408 2770	High scarcity of this habitat type (Silverbeech) in Clutha District.
Craig Rankin State Forest	3367 2070	Unusual vegetation type for the region (Matai). Good bird numbers.

Berwick State Forest Scenic Reserve	3745 2605	Excellent numbers of birds.
Kaitangata Bush (no imperial file card)	3625 2185	High habitat potential.
Wilson's Road Bush	3465 2115	60% cutover and 40% secondary forest.
Wilkes Creek Forest (Hina Hina State Forest)	3450 1915	Exotic conversion occurring.
Whisky Brandy Remnants	3136 2597	Gully remnants, 70% beech. Associated with the Rankleburn Forest. Diversity of vegetation and bird species. Scenic Value.
Wangaloa Bush	3667 2325	Regeneration good in many areas. Pigeons reported in area.
Waihola-Taieri Beach Road Bush	3855 2463	Plant diversity at present is good, although bush is deteriorating.
Upper East Branch Bush	3235 2596	Refugee site for wildlife when adjacent Douglas Fur is milled. Good numbers of Yellow-breasted Tits.
Unnamed Bush (former NZFS Rankleburn State Forest)	3203 2545	Small size but similar to other close patches of bush. Bird life good in numbers and diversity.
Tuapeka Bush Remnant	3428 2730	Silverbeech on steep gully site. Forest Service planting pine in hill country adjacent to bush so this site will become another core habitat for bird species.
Table Hill Scenic Reserve	3320 1940	Bush a bit cleared out. Bisected by revoked SH 92.
Shepherd Bush	3611 2488	Bush remnant in steep gorge. Gorse and kanuka.
Sallys Gully Road Bush	3702 2323	One of the few patches remaining in the area. Some Bellbirds. Could make an ideal habitat for Kiwi.
Ridley Road Bush	3820 2389	Good regeneration and good plant diversity.
Quarry Bush	3640 2212	Frequent Rata emergence, and Tuis common.
Purakaunui Bay Scenic Reserve	3405 1890	Forest in bad condition.
Pukekuri Bush	3887 2530	Some areas of good regeneration.
Pounaweia Bush	3477 1973	Very comprehensive botanically.

Owaka Bush	3280 2131	Regeneration very thick where fenced.
Otanomomo Flora and Fauna Reserve	3513 2188	Fair amount of regeneration to do to fill gaps and return to original state.
Omaru Stream Bush	3402 2098	Good numbers of most species.
McEwens Bush	3016 3027	Isolated area of beech harbouring birds not found elsewhere in the area.
Lower Big Creek Bush	3845 2370	Kamaha throughout. Good bird numbers.
Lochindorb Bush	3375 2168	Two separate sections of Bush.
Lake Tuakitoto Bush	3604 2259	Isolated example of this type of native forest.
Kaka Point Bush	3545 2070	Large coastal forest.
Hunts Bush	3340 2117	No regeneration.
Hunt Road Bush	3397 2082	Hardwood bush with good numbers of local birds.
Hukarere Bush Remnants	2939 2860	Eight small Silverbeech remnants. Good diversity of native bird species.
Glenomaru Valley Scenic Reserve	3410 2110	Reasonably open underneath bush allowing easy walking.
Glenledi Stream Bush	3780 2382	Bush is useful escape area for birds evicted from exotic felling.
Gaws Road Bush	3121 2331	The only reasonable piece of bush in this square. Kowhais.
Farquhar Bush	3260 2105	Cutover, with stock damage to understorey.
East Branch (Headquarters) Bush	3252 2582	Steep gully site. Very similar to other patches of bush close by. Good numbers of Yellow-breasted Tits.
Devils Gorge Pomahaka River	2985 2868 to 2975 2877	Remnant beech in a spectacular rocky gorge. Good bird diversity. Adjacent broadleaf remnant forest adds to value.
Crookston Reserve	3225 2722	Good numbers of Kowhai and large numbers of Bellbirds in lower area. Good plant diversity.
Coalsack Creek Bush	3793 2374	Impressive podocarps and thick undergrowth.
Carsons Stream Bush	3258 2725	Very good plant diversity. Parakeets present. Patchy second growth areas scattered throughout.

Bush South of Tawanui	3340 1960	Once scenically attractive but now scarred by clearing and burning.
Bull Creek Bush	3807 2384	Varied vegetation. Close to other native forest blocks and exotic forests.
Bowlers Creek Bush	3403 2747	Gully sites of primary Beech. Manuka/Kanuka on margins.
Blue Mountains	3224 2647	Silverbeech forest on steep parts. Presence of Yellowheads in high numbers.
Blue Mountain (East) former State Forest (former Tapanui State Forest)	3190 2670	Several Silverbeech areas connected by exotics has helped give a more continuous distribution of bird species. Declared soil and water catchment forest.
Blue Jacket Bush	3478 2685	Manuka canopy. Good bird list.
2080' Bush Patches	2893 2709	Several small disjointed forest patches which have collective value.
Waitangi Stream Bush	3370 1893	Heavy grazing has caused serious deterioration of this cutover forest.
Trig 412 Bush	3325 1905	Good numbers of common birds present but very modified and continually diminishing in size.
Trig 2 Bush Patches	2905 2746	Silverbeech forest.
Tolmie Road Bush	3420 2152	Poor quality.
Tarara Bush	3393 1918	Previous felling and burning.
Samson Bush	3147 1823	High aesthetic value. Representative sample of birds. Mainly cutover.
Potts Bush	3103 2578	Seasonal feeding source for Kereru (New Zealand Pigeon) and Bellbirds. One of the few remaining remnants of Podocarp/Hoheria/Kowhai forest left in District.
Pomahaka Scenic Reserve	3109 2516	Supports more common bush birds.
Old Sod Walls Bush #2	3697 2353	Secondary bush. No emergence but mainly Kamahi throughout both areas.
Old Sod Walls Bush	3680 2347	Secondary bush. No emergents but mainly Kamahi throughout both areas.
Nugget Stream Bush	3550 2022	Cutover forest. Excellent podocarp regeneration with good vegetation structure.

Murney Road Bush Remnant	3107 2534	Lightly modified and down-graded remnant bush. Valuable food source. Supports Bellbirds, Kereru (New Zealand Pigeon), and commoner bird species.
Mount Stuart Bush	3553 2493	Very limited plant diversity. Poor bird numbers. Degenerating secondary forest.
Misery Bush	3683 2333	Small bush remnant. Adjoins exotic forest. Poor regeneration.
Manuka Stream Gorge	3595 2462	Secondary bush with reasonably poor vegetation. Very thick undergrowth. Large numbers of many unidentified exotics.
Gunn Road Bush	3409 2194	Secondary scrub. Some Totara regeneration.
Glen Road Bush	3667 2498	Several gullies of hardwood with short scrub in between.
Flower Pot Bush	3095 2072	Virgin Podocarp/hardwood forest with a peripheral secondary forest. A small remnant of the larger Maclennan State Forest.
Falla Burn Bush	3562 2450	Only a canopy and upper understory exists.
Dusky Down Bush	2953 2774	Virgin beech forest. Few birds, but bush valuable in terms of size.
Coal Gully Bush	3745 2353	Fairly small area. Little regeneration. Some good Rimus. Good numbers of Bellbirds.
Cannibal Bay Bush	3520 2005	A young bush with dense canopy. Good size.
Bush Near Scrub Burn	3292 2567	A low grade site. Linked to Beaumont Forest by scraggly scrub.
Brooksdale Bush	3135 2652	Feeding source for Kereru (New Zealand Pigeon). Below average numbers of native birds.
Big Creek Forest	3805 2410	Secondary forest of variable quality. Good diversity of vegetation.
Switzers Road Bush #1	2935 2760	Virgin beech forest. Not an exceptional area for bird life but significant in terms of size.
Puerua Bush	3485 2155	Young secondary forest with a few original podocarps.

- South East Otago Coastal Region Vegetation Survey 1978(A M Hanger and L Esler)
- Vegetation of Lake Tuakitoto 1985 (A Fraser)
- Detailed Botanical Investigation of Lower Clutha Valley (Birch Island to Blackcleugh Burn 1985) (G Ward)

- Umbrella Ecological District - Survey Report for the NZ Protected Natural Areas Programme 1988 (K J M Dickinson)
- Wetlands of Ecological and Representative Importance WERI - The New Zealand Wetlands Inventory
- Scenic Reserves of Otago Land District 1978 (R B Allan)
- Otago II Biological Survey Reserves Series No 20 1989 (G Ward and C M Munroe)
- Vegetation of Lakes Waihola, Waipori and Associated Wetlands 1987 (R S Tangney)

2.7. GEOLOGICAL SITES AND LANDFORMS

New Zealand has a unique and extremely diverse natural landform and geological heritage, although protection of this rich and diverse resource has to date been rather random and biased, being predominantly for aesthetic or biotic values. In light of this, the New Zealand Geological Society has developed a comprehensive inventory of significant geological sites and landforms within Otago Region. [Geological Society of New Zealand Miscellaneous Publication No 77 (First Edition 1993): [Inventory of Important Geological Sites and Landforms in the Otago Region.](#)]

For each site, the inventory gives an outline of why the site is of value, a brief geological, landform, and locality description, an assessment of its vulnerability (if any) to human activity, its known reserve status, information contacts, published references, and various other information. The inventory identifies 39 geological sites and landforms in Clutha District.

According to the inventory, 5 sites in Clutha District are of international scientific importance, namely:

- Akatore Creek metachert with akatoriete: the only known exposure of the mineral akatoriete.
- Nugget Point, Roaring Bay Triassic fauna: the richest Triassic foraminiferal fauna in the Southern Hemisphere.
- Taieri Gorge: an unmodified and well-defined coastal gorge.
- Wangaloa Paleocene molluscs, Mitchells Point: the most diverse Paleocene molluscan fauna in the Southern Hemisphere.
- Watson's Beach coombsite: the only known occurrence of coombsite.

A further 17 sites are considered to be of national scientific, educational, or aesthetic importance:

- Arthurton Quarry Permian fauna: unique whole specimens
- Balclutha Quarry prehnite - pumpellyite facies: well exposed example of prehnite pumpellyite facies greywackes of the Caples terrain.
- Benhar pottery works: was one of New Zealand's largest and most important ceramic works which used local clay.
- Clarendon phosphatic sandstone: the largest phosphate deposit in New Zealand.
- Gabriels Gully gold discovery site: first major alluvial gold find in New Zealand.
- Jacks Bay Jurassic macro fossil assemblage: unique, well preserved Temaikan shallow water macrofossil assemblages.
- Kaihiku Stream and Gorge Triassic macrofauna: good macrofaunas.
- Kaka Point Triassic fossiliferous metasediments: good exposure of middle Triassic rocks. Some of New Zealand's best and most accessible exposures of zeolitised ash beds within the geolite facies. Contains Italian ammonoids important in international correlation.
- Landslip Hill landslide and mid-Tertiary plant beds within silcrete: unusual sedimentary environment of plant beds well preserved in silcrete. A good example of a landslide.
- Nugget Point, Parks Bluff Triassic fauna: extremely rich brachiopod and bivalve faunas.
- Nugget Point, Triassic volcanoclastics: volcanoclastic sediments, tuffs and shell beds. Good exposure of Oretian to Otapirian sedimentary sequence.
- Nugget Point Zeolite facies: an exposure of one of the three main mineral assemblages for zeolite facies, in southern New Zealand.

- Otago coastal schist section: New Zealand's best and most accessible exposure of this section of Haast schist.
- Pomahaka River, Oyster Creek Oligocene estuarine fossils: diverse floral assemblage and unusual diverse estuarine molluscan fauna of oligocene age. Well preserved fossils.
- Taieri River Mouth psilomelane: manganese deposit with psilomelane
- Tuapeka fault plane: well exposed fault plane, with slickensides. Possible cretaceous normal fault in Otago schist.
- Wangaloa transgressive sequence: superb exposure of shallow water, storm dominated sequences.

There are a wide variety of human activities that can threaten the natural character or continued existence of these sites, for example, earthworks and quarrying. On the other hand however, it should be noted that these same activities may also expose and create important geological features. Other threats include development work such as reclamations, dams, marinas, swamp drainage, and of course trampling or vandalism by tourists and visitors alike.

Only one site within Clutha District is considered to be highly vulnerable to human damage or destruction, that being the only known exposure of the mineral akatoriete at Akatore Creek (that is Akatore Creek metachert with akatoriete).

2.8. COAST

For the purpose of this Plan, 'the Coast' is defined as 'the area in which coastal factors are dominant'. The Districts' Coast is also subject to the provisions of the New Zealand Coastal Policy Statement, and the Regional Councils Coast Plan. The provisions of this plan must not be inconsistent with those documents

With particular reference to the New Zealand Coastal Resource Inventory [Department of Conservation (1990): Coastal Resource Inventory, First Order Survey, Otago Conservancy] the District's coastline has been categorised in terms of nine separate units:

- Taieri Mouth to Akatore
- Akatore to Tokomairiro Mouth
- Tokomairiro Mouth to Molyneux Bay
- Kaka Point to Remarkable Cave
- Remarkable Cave to Hayward Point
- Hayward Point to Long Point
- Long Point to Lathyrus Bay
- Lathyrus Bay to Wallace Head
- Wallace Head to The Brothers Point

The characteristics of these areas as contained in the New Zealand Coastal Resource Inventory are briefly described below. Issues and provisions relating to the management of the Coast can be found in section 3-5 Heritage, 4.1 Rural Resource Area and 4.2 Coastal Resource Area.

It is appropriate to note that the Clutha District Plan only applies to land on the landward side of mean high-water springs, and those boundaries across river mouths defined on the Planning Maps. The area on the seaward side of mean high-water springs is the responsibility of the 'Otago Regional Council. For further clarification on this issue refer to Coastal Resource Area Section 4.2.1 Overview of the Plan.

It should be noted that the coastal units described here do not necessarily coincide with the Coastal Resource Areas identified on the Planning Maps and dealt with in Section 4.2. These descriptions generally refer to the narrow coastal margin where the sea meets the land.

2.8.1. TAIERI MOUTH TO AKATORE

The Taieri River flows into the sea at Taieri Mouth. Stretching from this confluence to Akatore, the unit is predominantly a long sandy beach with a number of rocky outcrops and small coastal cliffs interspersed along it. Taieri Island (Moturata) is a breeding site for sooty shearwaters and blue penguins.

This coastline has been modified for pastoral farming and a road follows the foreshore in many places. It is used extensively for recreation, especially beach walking, swimming, and boating.

2.8.2. AKATORE TO TOKOMAIRO MOUTH

This unit between Akatore Creek and the north bank of the Tokomairo River is approximately 19 kilometres in length. Akatore Creek is a small estuary with an associated wetland. On the northern bank of the estuary there is a complete sequence of native vegetation from high water through salt marsh and flax to tall scrub. South of the estuary are a series of wave cut platforms which extend down to Chrystalls Beach.

Chrystalls Beach is a sandy beach with a series of dunes and associated dune slacks and has been recognised as an area of natural character by the Regional Coast Plan. It contains the only high-quality dune slack community between Kaitorete Spit and Fortrose Spit, which has been fenced off and is managed by the Department of Conservation. Rare pingao is present in the dunes and cliff plants are found in the basaltic stack (Cooks Head Rock).

Quion Point is a breeding site for New Zealand fur seals.

The unit is not extensively used except as farmland but a number of tramping clubs and walking groups use this area for recreation on a regular basis.

2.8.3. TOKOMAIRO MOUTH TO MOLYNEUX BAY

The coast between the Tokomairo River and the Matau Branch of the Clutha River consists of steeply sloped beaches of medium to coarse sand backed by heavily modified sand dunes with short spaces of low sandstone. Further south is Molyneux Bay which includes the 25-hectare Puerau Channel Wetlands in the Clutha River Delta. The Clutha River Delta covers approximately 6½ kilometres of sand dunes.

The unit is 28 kilometres long and is extensively modified by development for agricultural purposes. Recreational use occurs around the river mouths.

2.8.4. KAKA POINT TO REMARKABLE CAVE

From Kaka Point to Tirohanga the coast is predominantly sandy beaches and intermittent rock shelves. The adjoining land is pastoral farmland with a small section of coastal forest and the Kaka Point township. Commercial fishing boats are based at Tirohanga.

From Tirohanga to Remarkable Cave the coastline has two major yellow-eyed penguin breeding colonies (Sandy Bay and Nugget Point) and various seal and sea bird breeding colonies. Unusual rock formations, rare plants, and fossils also occur at Nugget Point Scientific Reserve. Nugget Point is unique for the fact that it is a breeding site for New Zealand fur seals, elephant seals, sea lions, and is visited by leopard seals. The Regional Coast Plan also identifies Nugget Point as an area of natural character.

Virtually the entire unit has been developed for pastoral farming except for a small settlement at Kaka Point and the reserve at Nugget Point. The coast is extensively used for recreation, with the beaches having high public usage. Many of the traditional kai moana gathering areas are also still used.

The Kaka Point to Tirohanga area has been identified as a coastal hazard area by the Regional Coast Plan. The public road along the coast is at risk from erosion in this area.

See Schedule 6.10.5.4 for Ngai Tahu Statutory acknowledgement area, the Nuggets (Tokata).

2.8.5. REMARKABLE CAVE TO HAYWARD POINT

This coastal unit (including the Catlins estuary) is approximately 23 kilometres long. From Remarkable Cave to the Triplets the coast comprises relatively unmodified sand dunes (in Surat Bay and Cannibal Bay) and spectacular coastal cliffs (at False Islet and Remarkable Cave). To the south, Hayward Point, a rocky headland, marks the southern entrance to the Catlins Lake. The Catlins Lake is a shallow tidal estuary covering the 757 hectares. It is the largest estuary in the District and the only one which is likely to be subject to proposals for significant development in the foreseeable future. It provides important habitats for wading birds, waterfowl and inshore fish species. Furthermore, the estuary margins have significant areas of salt marsh and turf communities which are of high ecological value. It also has a large number of archaeological and historic sites and is very important culturally as an area of traditional habitation. Cannibal Bay to Surat Bay is a haul out site for Hookers sea lions, and has been identified as an area of natural character by Regional Coast Plan. The False Islet stacks are considered a well-defined landform of scientific value. Hayward Point is a breeding area for yellow eyed penguins.

The major modification to this area of coast has been the clearance of native vegetation for pastoral farming. This unit is popular locally for recreation.

2.8.6. HAYWARD POINT TO LONG POINT

This coastal unit is approximately 20 kilometres long and comprises a series of sandy beaches and coastal cliffs with prominent headlands at White Head and Long Point. From Hayward Point to White Head there is little modification to the coast. From White Head to Long Point the coast is also reasonably unmodified and is characterised by coastal cliffs with occasional sandy beaches.

This unit has been cleared of native coastal forest for pastoral farming and is used by locals for recreation. In particular, recreational use is high around Jacks Bay and its 1 kilometre sandy beach. Jacks Blowhole is also a popular attraction.

Penguin Bay and the area to the south has been identified as an area of natural character by the Regional Coast Plan. There are a number of breeding areas for yellow-eyed penguins and haul out sites for New Zealand fur seals in this area. The Purakaunui Bay to Cosgrove Island area is important as it is a breeding area for New Zealand fur seal, yellow eyed penguins, blue penguin, sooty shearwaters and fairy prions. It is also an area where Hookers sea lions haul out.

2.8.7. LONG POINT TO LATHYRUS BAY

From Long Point to Oyster Bay, the coast is mainly rocky seashore with coastal podocarp forest behind two thirds of the area. In this section, Pillans Head itself gives way to a 3½ kilometre length of coast with rocky headlands and sandy beaches. Early occupation of Papatowai (including the estuary and Tahakopa Bay) by Maori is recorded. Papatowai estuary is an important fish and bird breeding area and also a popular recreation area for holiday-makers. Tahakopa Bay Scenic Reserve borders Papatowai estuary and Tahakopa Bay. Oyster Bay to Lathyrus Bay is typical Catlins coast with unusual landforms on the Tautuku Peninsula and important estuarine fisheries. Tautuku Beach is largely unmodified and is backed by a narrow dune system and coastal podocarp forest. The Peninsula has been almost completely cleared of forest vegetation for agricultural purposes. This coastal unit is approximately 22 kilometres in length.

In general, while parts of this unit have been cleared of coastal forest, some tracts still remain. The section of coast is used by locals for recreation and also by visitors from all over New Zealand because of the proximity to the Forest and Bird lodge at Tautuku.

The entire length of this area has been identified as an area of natural character by the Regional Coast Plan. The area is important for numerous reasons including the Rainbow Isles spouting sea cave, significant headlands, and the large areas of unmodified podocarp/hardwood forests. The entire area is considered an outstanding scenic landscape area. There are also a number of yellow-eyed penguin breeding sites and New Zealand fur seal haul out sites. Skeleton Point and Rainbow Islands are also breeding sites for titi (mutton bird).

2.8.8. LATHYRUS BAY TO WALLACE HEAD

From Lathyrus Bay to Cathedral Caves the coast is only slightly modified and includes unusual landforms (for example Cathedral Caves), rugged cliffs and a small forest-backed sandy beach. Further south, Waipati Beach and the 54 hectare Waipati estuary are both virtually unmodified. The coastline from Waipati estuary through Chaslands Mistake to Wallace Head has only minor modifications and comprises rugged cliffs with spectacular views, and in some places has indigenous vegetation down to the high-water mark.

Although much of this unit is only slightly modified, some areas have been cleared of coastal forest for farming. This area of coast is well used by recreationalists.

The entire length of this area is also identified as an area of natural character by the Regional Coast Plan.

2.8.9. WALLACE HEAD TO THE BROTHERS POINT

The coast from Wallace Head to The Sisters is primarily backed by cutover and virgin podocarp forest. Further south to The Brothers Point the coastline comprises rugged cliffs, rocky points and small sheltered Sandy Beaches. Some coastal forest remains around Shades Beach and the Falls Creek Area. Within the latter, the largest yellow-eyed penguin colony in the southern Catlins exists (that is Te Rere Reserve).

Parts of this unit have been cleared of coastal forest for farming. It is used by local land-based recreationalists. Once again, the Regional Coast Plan identifies this area as an area of natural character.

There are three yellow-eyed penguin colonies along this part of the coast. They are situated at Wallace Head, Waiporu Head and Te Rere Reserve which are also recognised as fur seal haul out areas.