5.2.4 Freshwater Ecosystems

- protecting freshwater ecosystems and fisheries and preserving indigenous fish
- providing appropriate fish passage
- controlling exotic fish, and managing the transfer or release of live aquatic life
- managing commercial access to eel harvesting in areas managed by the Conservancy
- managing the effects of water storage, diversion and extraction proposals on aquatic habitats, land, wildlife and fisheries managed by the Department

Current Situation

Background

Before European settlement, freshwater habitats in Canterbury provided an abundance of mahinga kai and resources for Māori and were of great importance to them. Freshwater habitats in Canterbury have been progressively modified and degraded since European settlement. The challenge now is to ensure that these are not degraded any further, and that critical habitats are restored or enhanced.

Braided rivers are a special feature of Canterbury and are nationally significant for their indigenous fauna and flora (best known for their distinctive birdlife), along with their high country lake and tarn systems. The larger rivers are at least regionally significant, and have recreational and scenic values, particularly in their gorge and mouth sections.

Lowland aquatic habitats around the smaller rivers and streams, once characterised by slow-moving water and usually shrouded under forest or linked by extensive wetlands, are now heavily modified or lost. Extensive lowland freshwater wetlands formerly graded into brackish or estuarine wetlands but now only remnants remain. These lowland wetlands may be only locally significant themselves but collectively contribute to an important regional or national complex for migratory birds and fisheries. They also help regulate waterway flows. The lowland aquatic habitats are only a fragment of their former extent. They are therefore a high priority for protection and restoration; for both their natural and their recreational values.

The coarse gravel layers of the Canterbury plains contain a rich variety of invertebrates adapted to life in the underground aquifers. While knowledge of invertebrate species is poor, they and their habitats are considered secure.

The rivers, lakes and streams sustain populations of sports fish. The region's quinnat salmon populations are of national recreational significance and some trout streams are increasingly recognised overseas as well as locally. Historically, freshwater allocation was pursued in an *ad hoc* and reactive manner, heavily favouring productive uses. In many rivers, such as the Ashburton/Hakatere and Ōpihi, the water abstraction is too great for the maintenance of natural values. Many lagoons and lakes are polluted, and require improved management, appropriate to their trophic state. Te Waihora/Lake Ellesmere, Wainono Lagoon, and Lake Alexandrina (Takamoana) are the most notable. While Te Waihora/Lake Ellesmere and Lake Alexandrina (Takamoana) are dramatically different in their 'pollution' levels, both are 'polluted' relevant to their trophic states (eutrophic and mesotrophic respectively).

Protection of the Canterbury high country is essential to preserve the flow of high quality waters that feed Canterbury's lakes and rivers and helps to maintain good water quality in the lowlands. Deterioration of water quality in the high country would increase the threats that affect lowland freshwater systems. Riparian protection has been proven to be an effective tool in helping to protect freshwater ecosystems from adverse impacts.

The future of some species is also of concern. The numbers and size of both long- and short-finned eels (tuna) have been significantly reduced by habitat destruction (wetland drainage), barriers to migration (damming) and fishing pressure. Of particular concern are the stocks of long- and short-finned eels in Te Waihora/Lake Ellesmere and long-finned eels in high country lakes. Fisheries scientific advice has identified the value of non-commercial fishing reserves which, along with MFish harvesting controls and attention to fish passage, should ensure migratory eel escapement, and stocks should recover. Eel management committees (EMCs) have been established between MFish, Ngāi Tahu and commercial eelers, with the Department involved on habitat issues and access to land managed by the Department.

In Canterbury, like most other areas in New Zealand, the critical issue for maintaining healthy freshwater fisheries and wildlife (native or introduced) is the maintenance of the quality and quantity of the habitat available. Habitat protection for freshwater ecosystems includes maintaining flows and water quality for a range of aquatic organisms; protecting and enhancing riparian vegetation, ideally using native plants; avoiding damage to river and lake beds from excessive disturbance or sedimentation; and the control of undesirable introduced plants or animals.

The Resource Management Act requires regional councils to manage Canterbury's freshwater ecosystems in an integrated and sustainable way. District council management of land uses and subdivision can also seek to avoid, remedy or mitigate adverse effects on freshwater ecosystems.

Te Waihora/Lake Ellesmere has long been recognised as meeting the nomination criteria for an IUCN Wetland of International Importance but nomination has been postponed pending the outcome of the Ngāi Tahu claim settlement.

Threats

Major threats to all these ecosystems include: existing and potential dams; water abstraction and reduced flows; enrichment of both surface and groundwater; riparian degradation; pollution; artificial channelling of rivers; weed growth; illegal fish liberation; sports and indigenous fish competition; commercial eel fishing pressure; blocking of migratory fish passage; inappropriate recreational activity; riverbed engineering work; and wetland drainage or lowered water levels for both agriculture and urban purposes. Often these threats act together and accentuate the impact.

Project River Recovery

Within the Waitaki Basin the Department runs Project River Recovery, funded by Electricorp New Zealand Limited as part of the 1990 ECNZ Waitaki Water Rights Working Party Agreement. This project involves extensive creation and maintenance of a braided river and wetland habitat for a range of species and extensive habitat research applicable to other braided river areas.

Water Storage

Hydro investigations have been carried out on several rivers in the Conservancy, notably the Waitaki, Ōpuha and Hurunui rivers and Forks Stream. Other proposals exist for combined hydro/irrigation dams on the Ōpihi and Ashburton/Hakatere rivers.

Protection Projects

The Ahuriri, Tasman, Godley, Cass, Upper Rangitata, Ashburton/Hakatere, Rakaia, Waimakariri, Ashley/Rakahuri, Hurunui and upper Waiau rivers have very high wildlife, fisheries and recreational values. Few wild river systems now exist in their lower catchments on the east coast of the South Island. Wild river systems are nationally and regionally important. Water Conservation Orders protect the Ahuriri and Rakaia rivers and Te Waihora/Lake Ellesmere. Any proposals that would have significant adverse effects on these water bodies would be of particular concern to the Department. Current Departmental freshwater protection projects in Canterbury include:

- provision of freshwater fish passage
- monitoring the implementation of the Ahuriri, Rakaia, and Lake Ellesmere Water Conservation Orders and potential challenges to the orders
- input into RMA Regional Plans to specify adequate flow regimes and riverbed rules to protect freshwater habitats and species and safeguard the life-supporting capacity of ecosystems (particularly the Ashburton/Hakatere, Ōpihi and Waimakariri rivers)
- Project River Recovery (PRR) habitat enhancement in the upper Waitaki catchment
- Canterbury mudfish/kōwaro surveys and protection programmes at Hororata and Dog Kennel Stream
- advising local communities and interest groups that a Hakatere Ecological District Water Conservation Order is being considered

Current Limitations

Important areas where there is currently little freshwater work include:

- protecting a representative range of Canterbury's natural freshwater ecosystems
- protecting giant kōkopu and Canterbury mudfish/kōwaro sites
- protecting inanga (whitebait) habitats generally, such as the Ashley River/Rakahuri
- ensuring regional plans provide adequate flow regimes and water quality for the maintenance of life-supporting capacity for Canterbury's birds, invertebrates, and freshwater ecosystems generally
- advocating for riparian protection generally

Statutory Framework

Section 6(ab) of the Conservation Act enables the Department to 'preserve so far as practicable all indigenous freshwater fisheries, and protect recreational freshwater fisheries and freshwater fish habitats'. Part IIIA provides for the development of management plans for particular habitats and species, including freshwater fisheries. Section 6(c) enables the Department to promote the benefits of conservation to present and future generations. Under s.26ZH of the Conservation Act, Ngāi Tahu retain their traditional freshwater fishing rights. Regulations to provide for the management of these rights are currently in development.

The Freshwater Fisheries Regulations 1983 regulate fish passage and enable the Department to require fish passes or screens where new structures impede the natural movement of fish upstream or downstream in any natural water body. The regulations also apply to existing structures when RMA consents are renewed. Part VIII of the regulations provides for the control of noxious fish (as detailed in the third schedule of the regulations).

Section 26ZM of the Conservation Act sets criteria for when the Minister's approval is required for the transfer or release of live aquatic life (plant or animal, except birds) into new locations or to land or water managed by the Department.

The Department administers the Whitebait Fishing Regulations 1994 that control the taking of whitebait in Canterbury. The taking of native fish for private human consumption is not regulated; except for eels (controlled by the Ministry of Fisheries under the Fisheries Amateur Fishing Regulations 1986).

Special provisions in the Fisheries Amateur Fishing Regulations allow for the taking of eel for hui and tangi. Lake Forsyth (Wairewa) is reserved for the harvest of eel by Ngāi Tahu only.

The Ministry of Fisheries controls all commercial eel and flounder fishing. The Department must, however, authorise any commercial harvest on rivers or lake-beds administered under the Conservation Act. Commercial eel fishing in National Parks is subject to the provisions of the Minister's approval and the relevant management plan. Section 50 of the Reserves Act regulates eel fishing in reserves.

The Conservation Act 1987 (Section 26Q) defines the functions of Fish and Game Councils. Two councils are in the Canterbury Conservancy: North Canterbury Fish and Game Council (NCFGC) north of the Rakaia River; and Central South Island Fish and Game Council (CSIFGC) south of the Rakaia. The councils are responsible to the Minister of Conservation for maintaining and enhancing sports fisheries and habitat; and managing sports fish (trout and salmon) and coarse fish (tench and perch). The Department liaises with the councils on these functions to provide mutual benefits for freshwater fisheries.

Under the Freshwater Fisheries Regulations 1983, some 20 fish species are 'noxious' due to their potential to disrupt freshwater ecosystems. Noxious fish include rudd, koi, carp, piranha and catfish. The Department is responsible for the control and management of noxious fish.

Under the Resource Management Act the Canterbury Regional Council administers the allocation of water, discharges to it, and the management of river and lake-beds. District councils have primary responsibility for controlling the effects of land use and for surface activities on lakes and rivers. The provisions of the regional policy statement and other regional plans (Canterbury Regional Council) guide the controlling of activities' effects within our freshwater ecosystems. In the preparation of these documents, the councils must have regard to the provisions of this CMS regarding lands and species managed by the Department. Under s.5 Resource Management Act, the Regional Council must safeguard the life-supporting capacity of freshwater ecosystems.

Generally, the boundary used in this document between a 'freshwater' and 'marine' ecosystem is the coastal marine area boundary as defined by the Resource Management Act 1991. This excludes estuaries and river mouths from section 5.2.4 (Freshwater Ecosystems) except where, by statute, the Department's 'freshwater' fisheries management responsibilities include estuaries, coastal lagoons, and sea areas off river mouths.

Objectives

- to protect and enhance the life-supporting capacity of Canterbury's freshwater ecosystems for their intrinsic state and for their habitat values for birds, fish and invertebrates
- to preserve and enhance indigenous freshwater fisheries and habitats
- to recognise Ngāi Tahu existing freshwater fishing rights
- to liaise with Fish and Game Councils to protect recreational freshwater fisheries and freshwater habitats
- to eradicate, contain or control noxious fish in Canterbury freshwater and prevent the undesirable introduction of new aquatic species to Canterbury freshwater
- to ensure appropriate fish passage is provided where structures impede the natural movement of fish in any natural body of water

- to improve public awareness of freshwater ecosystems and fish, and their associated management
- to avoid, remedy or mitigate the adverse effects of water storage and extraction facilities on freshwater ecosystems with significant wildlife, fishery or recreational values

Implementation

The Conservancy will:

1. Seek appropriate provisions in regional and district plans and policy statements, and in resource consents that:
   - protect freshwater ecosystems, birds, fish and invertebrates from the adverse impacts of riverbed and water surface disturbance
   - safeguard the life-supporting capacity of freshwater ecosystems throughout Canterbury
   - establish water flows and levels in natural water bodies that are sufficient to preserve the natural pattern of flow or water level change, morphology, bed type, gradient and the desired water quality. Where abstraction is considered acceptable, generally minimum flows for all water bodies should be maintained so that they do not fall below the average annual low flow, or such naturally occurring low flows as may occur.
2. Clearly identify freshwater ecosystem values and life-supporting requirements in submissions on water and land use planning processes under the Resource Management Act.
3. Share information (such as text and map information) with local authorities to assist with recognising and providing for significant freshwater ecosystems and their species, for inclusion in regional and district plans.
4. Support the investigation and application of appropriate protection mechanisms, including Water Conservation Orders, for (in order of priority):
   - Hakatere Ecological District waters (upper Ashburton/upper Rangitata/Ashburton lakes)
   - Upper Hurunui River

   The Conservancy will also support protection mechanisms for the waters identified in the limitations section.
5. Promote the maintenance of riparian protected areas and the extension of riparian protection through Resource Management Act processes and community liaison.
6. Carry out surveys and monitoring to determine the vulnerability of freshwater species and habitats in the Conservancy.
7. Develop programmes for the enhancement of inanga (whitebait), giant kōkopu and Canterbury mudfish/kōwaro.
8. Identify and seek protection of whitebait spawning sites (such as the Ashley River/Rakahuri), and increase public awareness of the Whitebait Regulations and whitebait habitats.
9. Advocate, with Eel Management Committees, through RMA processes and district council by-laws, to protect eel habitats from adverse effects, and otherwise ensure the preservation of the eel fishery.
10. Allow access for commercial eeling, subject to conditions, on lands managed by the Department at Te Waihora/Lake Ellesmere. Access is unlikely to be approved for any other areas managed by the Conservancy.
11. Liaise and work with Ngāi Tahu to share information and preserve and protect freshwater ecosystems. This could involve joint action on many section 5.2.4 (Freshwater Ecosystems) implementation statements.
12. Implement any agreed Te Rūnanga o Ngāi Tahu and Crown protocols concerning eels and whitebait.
13. Implement the Ngāi Tahu Claims Settlement Act 1998 where it relates to freshwater systems (particularly Te Waihora/Lake Ellesmere, Wairewa/Lake Forsyth and other coastal lagoon systems).
14. Maintain liaison with Fish and Game Councils to ensure matters of mutual interest in terms of habitat protection and recreational and indigenous species conservation are met. This could involve joint action on many section 5.2.4 (Freshwater Ecosystems) implementation statements.
15. Encourage Fish and Game Councils to continue evaluations on the effects of lead shot in freshwater ecosystems.
16. Consider, subject to conditions, applications for the transfer or release (under Section 26ZM of the Conservation Act) of fish or other aquatic life into locations where they did not occur previously in accordance with the following criteria:
   - the public process of Section 26ZM(4) of the Conservation Act has been followed
   - the adverse effects on indigenous fish, sports fish and aquatic invertebrates will be minimal
   - the aquatic life will not spread into waters of high natural value nor where a high indigenous component is present

- the adverse effects on the physical and chemical environment will be minimal
- an EIA or risk assessment of the proposed transfer or introduction has been prepared (see 5.5.6 Environmental Protection)

17. Co-ordinate with Fish and Game Councils to control, contain or eradicate, where practicable, noxious fish species and unauthorised aquatic life releases. The recovery of associated costs will be considered, particularly for illegal releases (see 5.5.6 Environmental Protection).
18. Develop minimum standards that may be applied in meeting the Fish Passage Regulations, in co-operation with Fish and Game Councils, Te Rūnanga o Ngāi Tahu and local and regional authorities; and promote these standards for inclusion within regional plans prepared by the Canterbury Regional Council.
19. Promote a Braided River Care Code that covers source to sea, including lagoons, in co-operation with Canterbury Regional Council.
20. Provide research findings to regional and district councils to promote braided river habitat protection.
21. Seek IUCN Wetlands of International Importance status for Te Waihora/Lake Ellesmere, subject to the agreement of Te Rūnanga o Ngāi Tahu and working to the *Guidelines for nominating wetlands of international importance in New Zealand* (1991).
22. Raise public awareness of indigenous fish protection issues through news and other media.
23. Implement the ECNZ-funded Project River Recovery in the Mackenzie Basin by maintaining an enhancement programme in Tekapo, Twizel and Ahuriri rivers and other Waitaki catchment wetlands.
24. Advocate through RMA processes that water storage and abstraction proposals avoid nationally and regionally significant wild river systems (for example, through regional policy statements, regional plans, district plans and resource consents).
25. Advocate through RMA processes that the adverse effects of water storage and abstraction proposals on managed river systems be remedied or mitigated.
26. Seek to avoid, remedy or mitigate the adverse effects on natural, historic or recreational values of water storage and abstraction proposals on land managed by the Department. This may include assessing the potential for net conservation benefit through compensation or other means.

Priorities

Priorities for the Conservancy are to:

- advocate for freshwater ecosystem protection through RMA processes and community liaison
- administer freshwater fisheries legislation for which the Department is responsible; conserve and manage freshwater fisheries and habitats, recognising Treaty of Waitangi principles
- survey and research to assist in freshwater ecosystem protection
- continue Project River Recovery within Waitaki Basin wetlands
- undertake habitat protection for nationally significant and vulnerable fish species, such as Canterbury mudfish/kōwaro, inanga, giant kōkopu
- liaise closely with Ngāi Tahu and Fish and Game Councils on habitat protection and enhancement
- ensure adequate fish passage in natural waterways
- prepare Water Conservation Order applications (WCO), for the Hakatere Ecological District and the upper Hurunui
- investigate Wetland of International Importance status for Te Waihora/Lake Ellesmere

Less Achievable Tasks

Tasks that may not be undertaken or completed include:

- investigations and submissions on all water discharge and riverbed permit applications
- complete policing of the fish passage regulations
- noxious fish eradication
- investigating alpine galaxid habitat
- investigating Water Conservation Orders or other protection mechanisms for Lake Ōhau, the Waimakariri Gorge and upstream waters

Table 20: Key Freshwater Ecosystems Priorities

Theme	Issue	Method	Results Sought	Place
RMA advocacy	Freshwater ecosystem (including habitats and species protection)	1. Seeking RMA rules 2. Signs/interpretation	Riparian protection; adequate flow regimes, water levels, water quality of bed habitat, and water surface	All places
Fish passage	Indigenous and sports fish life cycles	1. Fish passage consents 2. Developer liaison 3. Fish and Game Council liaison	Fish passage maintained	All places
Water Conservation Orders and/or other appropriate protection measures	Outstanding freshwater ecosystems protection	1. Water conservation orders 2. IUCN – WII status	Water flows, levels, and quality protected and riverbed habitats and spawning grounds appropriately managed	Hurunui (Upper Hurunui River and lakes), Waimakariri (Waimakariri rivers and lakes), Plains (Te Waihora/Lake Ellesmere and coastal estuaries), Rangitata (Haketere Ecological District WCO) Waitaki (Lake Ōhau)
Indigenous fishery management planning	Indigenous fish habitat protection	1. Canterbury mudfish plan 2. Riparian protection/ rehabilitation 3. RMA advocacy 4. Ngāi Tahu liaison	Habitat and species protected, mahinga kai protection	All places
Project River Recovery	Braided river and other wetlands restoration and enhancement	1. Willow/weed clearing 2. Signs/interpretation 3. Captive breeding and release 4. Community liaison	Wetland habitat in the Waitaki enhanced	Waitaki