

# GOOD PRACTICE GUIDE TO WETLANDS

Tasman Resource Management Plan **Guide No. 2**

## Good Practice Guide to Managing Wetlands in Tasman District



*Waiwhero Wetland, Motueka*

### INTRODUCTION

A boggy patch in your back paddock may be considered a wasteland of no use at all, whereas in fact it could be a wetland. Wetlands have many benefits such as reducing flooding downstream and improving water quality for people using water for recreation or farm use. These benefits, and others that are explained in this guide, can add up to large dollar amounts. The benefits of managing and enhancing a wetland can be in terms of productive, ecological and recreational values.

Council recognises the importance of wetlands and is encouraging landowners to appreciate their values, and manage and enhance wetlands on their property.

**This guide explains why wetlands are important, contains information about wetlands, sets out where to go for specific advice about your wetland and includes detailed information about how to enhance your wetland.**

### WHAT IS A WETLAND?

Wetlands are permanently or temporarily wet areas that support plants and animals adapted to wet conditions.

A wetland could be a lagoon, estuary, salt marsh, bog, fen, swamp, shallow lake, margin of a river, and could even include some farm drains and dams.

Wetlands are often wonderful, magical places that provide a habitat for lots of different plants, birds, insects and fish. There are many rare species that rely on wetlands for their survival.

However, wetlands have suffered over the last 150 years through being thought of as wasteland, with over 90% of New Zealand's

original wetlands drained, filled in, or lost through development. Wetlands are now some of New Zealand's rarest and most at-risk ecosystems.

The look of a wetland and its mix of plants and animals will vary with local conditions (for example climate, water flow, altitude and substrate). Several different types of plant and animal communities may be present in larger wetlands, and all wetlands change over time.

What one person may call a "wetland" another person may not. If you think of wetlands as the "kidneys" of a water catchment (for filtering contaminants), and as a "sponge" (for reducing flooding and helping to retain water during dry periods), then many people will benefit as well as fish and birds.

If you wish to alter any boggy, swampy or wet area on your property then it's a good idea to read the definition of wetland that is in the Tasman Resource Management Plan (TRMP). See rules 17.6.5.1, 28.2.2.1 and 31.1.6.1. Specific policies and rules that apply to wetlands are included in chapter 31 of the Plan. You can also seek advice from one of the people listed on the back page of this guide.



Example of a "wet area" that is considered to be a wetland under the TRMP



Example of a "wet area" that is not considered to be a wetland under the TRMP

## WHY ARE WETLANDS IMPORTANT

In terms of intrinsic value and economic value, wetlands are hugely valuable. The particular values are listed below.

### Preserve Cultural Values

Wetlands have important values for Maori. They are a traditional source of food, plants for weaving, medicines and dyes. They have also been canoe landing sites, places to season timber and may be taonga sites.

### Provide Social and Recreational Values

Wetlands have important social and recreational values. They form part of our landscape and often add beauty and interest to an area. They offer many options for recreation, such as fishing, hunting, bird watching, boating, walking, or as a place to relax and enjoy nature.

### Create a Safe Habitat for Wildlife

Wetlands provide a safe habitat for a variety of wildlife as they are less suitable for introduced predators. They provide a safe haven for large numbers of fish and wildlife, including whitebait, eels and invertebrates like dragonfly and freshwater crayfish. They act as a home and feeding area for birds like kingfishers, bittern, duck, teal, fernbird, and pukeko. They can support a more diverse range of birds than an equivalent area of forest.

### Provide for Biological Diversity

Wetlands support an amazing diversity of species. Many of New Zealand's wetland plants are found nowhere else in the world. Wetlands provide the primary habitat for 22% of New Zealand's bird species (whether permanent or visiting) and are a secondary habitat for 5% of the bird species. Several rare and endangered species (like the Australasian bittern) depend totally on wetlands for their survival.

### Sustain a Unique Ecosystem

Wetlands are a unique ecosystem as they represent the transition between terrestrial and aquatic ecosystems, so have interesting mixes of plants. Some types of wetlands produce more food nutrients per square metre than any other ecological system on earth.

### Improve Water Quality

Wetlands can reduce contaminants and improve water quality in our lakes and rivers. Bacteria living in the damp soil of wetlands can absorb and break down about 90% of nitrogen from runoff from adjoining land. Wetland plants trap waterborne sediment, reducing silt build-up in streams and rivers.

### Control Erosion

Along riverbanks, the roots of wetland plants hold the soil together, reducing erosion.

### Store Water for Dry Periods

Wetlands are important water storage areas, holding water during floods and releasing it later during summer, thus maintaining a longer water supply and recharging our groundwater aquifers. The bigger the wetland, the more efficient it is at storing water.

### Reduce Flooding

Think of wetlands as a giant sponge. Wetland plants slow the flow of water off the land, and can reduce flooding risks by trapping silt, holding and storing water and releasing it more slowly over a longer period of time. This provides storm protection and erosion control.

## THREATENED PLACES:

Wetlands often occur in lowland areas where most people tend to live, so are at a high risk of being damaged or destroyed.

### Some of the threats to wetlands are:

- Draining and clearing swamps for farmland expansion and development.
- Encroachment of exotic weeds and pests.
- Stock grazing.
- Reclamation of estuaries, lakes and river margins.
- Urban development and expansion, particularly near coasts.
- Extraction of sand and gravel.

**In Tasman District about 95% of Wetlands on private land have been destroyed**



## WETLANDS IN TASMAN DISTRICT

While most wetlands have been drained for farmland, often with government subsidies, there are a number of outstanding wetlands that remain in Tasman with several being identified as being of national importance (see below).

There are also a number of sites of regional significance. In the uplands, these comprise lakes, tarns and bogs and are largely protected within public conservation land. In the lowlands (below 600m above mean sea level) these are mostly scattered remnants of swamps and estuarine margins.

There are also hundreds of small, often degraded, lowland wetlands that are of interest and have real value because they are all that remain in a given area. Such wetland areas are increasingly becoming the target of restoration projects.

**The nature of these threatened lowland wetlands is described below.**

### Waimea, Motueka and Moutere Lowlands

Historically, these areas had many wetlands with the greatest areas of swamp and swamp forest in the District found here. The lower plains once held approximately 2400ha of wetland - now there is only 7.5ha! The Moutere Hills still hold at least 40 gully swamps formed by impeded drainage. Some areas of old watercourse associated with the main rivers also remain. Some areas of estuarine wetlands still survive, particularly around parts of the Waimea Estuary.

### Nelson Lakes

Lowland wetlands occur in the upper reaches of the Buller River, around Lake Rotoroa and the Matakītiki and Tutaki valleys. This area is the main locality for bogs, particularly around the Howard, Tutaki and St Arnaud areas. Swamps are common in the lowland areas.

### Abel Tasman

Because of the topography of the area, only coastal margin wetlands exist in the lowlands, being swamp, swamp forest and estuarine wetlands.

Swamp forest once occurred at the mouth of the larger streams particularly the Awaroa and Marahau; however only 5% remains. Estuarine wetlands still occur, particularly at Marahau and Otūwhero. Smaller sites occur within the Abel Tasman National Park.

### Takaka/Aorere

Two large rivers, the Takaka and Aorere dominate the lowland landscape, creating large valleys and flats. Swamp forest was once very extensive but less than 1% now remains. The once extensive swamps now only cover 10% of their former area. There were also many wetlands associated with the old watercourses of these rivers but only 25% of them remain. Most of the pakihi of Tasman District occurs here and covers an area of 640ha. These areas were once forest bogs. Estuarine wetlands are relatively intact, particularly extensive at the Aorere river mouth, but also occurring at Puponga, Pakawau, Parapara and Takaka estuaries.

### West Coast of Tasman District

The major wetland type is swamp, with the Mangarakau swamp area being the largest within Tasman District. More swamp remains here, than in the rest of the District combined. Half the District's swamp forest occurs here with 56 hectares remaining. The West Coast is the most ecologically intact lowland area within the District, but many sites have been modified and are subject to grazing. Unique to this area within Tasman District are the low nutrient and dissolved oxygen lakes of Otuhie and Kaihoka, and dune ponds. Lake Otuhie contains the largest known Giant Kokopu population within the District. Extensive dune ponds also occur on Farewell Spit. Small wetlands associated with karst also occur.

### Buller

Around the Buller, south of Murchison and a little way up the Maruia, bog forests and pakihi are typical. Swamps, swamp forest and wetlands associated with old watercourses typify the Maruia wetlands.



*Patarau hills wetland • Photo: Grant Finch*

## WETLANDS OF NATIONAL SIGNIFICANCE

### 1. Farewell Spit

Farewell Spit is an example of a classic curved spit and dune formation. It supports many different wildlife species including a range of migratory birds. Farewell Spit was listed as a “Wetland of International Importance” in 1976.

### 2. Whanganui Inlet, Mangarakau Swamp and associated areas

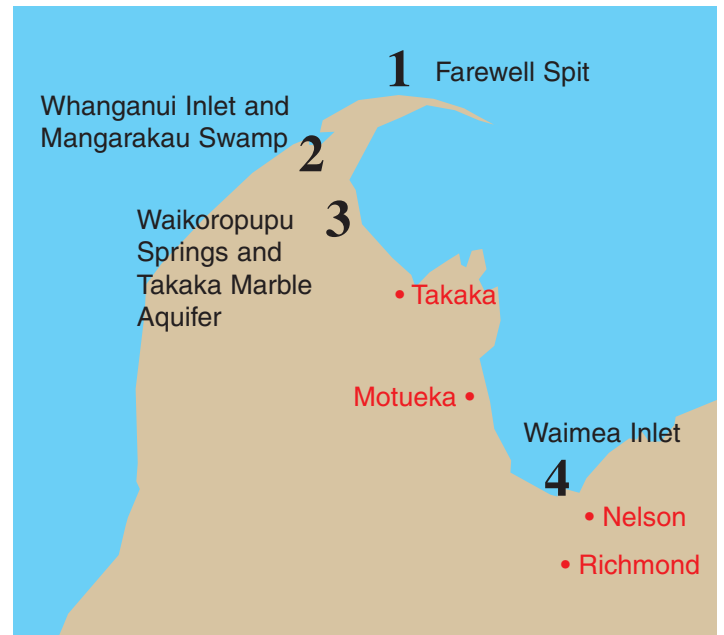
Whanganui Inlet and Mangarakau Swamp (350 ha) are the largest and shallowest enclosed estuary and associated swamp on the West Coast of the South Island. They are relatively pristine and support a very diverse range of fauna and flora.

### 3. Te Waikoropupu Springs and Takaka Marble Aquifer

Te Waikoropupu Springs are the largest in the Southern Hemisphere and are an example of a wetland type that is rare in New Zealand. The springs support a diversity of mosses and liverworts that are nationally unique.

### 4. Waimea Estuary

Waimea Inlet (3445 ha) is the largest shallow bar-built estuary in the South Island with a large tidal range and, despite modifications, still provides good habitat for wildlife, including rare or threatened bird species.



**More than 800 wetlands with values worth protecting and enhancing still remain in the Tasman District**

*Wetland Vegetation*



## COUNCIL ASSISTANCE

Council's role and aim is to promote the sustainable management of wetlands. This aim is implemented through a number of methods including policies, rules, education and financial and technical advice and assistance.

### How Council can help

Council can help you develop, look after or enhance any wet area, stream margin or wetland on your property in a number of ways:

- **Technical Advice**

A free landowner advisory service from the Council and from the Nelson Marlborough Fish and Game Council is available to anyone requiring information on wetland protection, restoration or creation. This could include a site visit with you and, if desired, a management plan tailored to your requirements. This might include information about:

- weed and pest management
- revegetation: what to plant, where and how
- drainage and hydrology issues
- earthworks
- stock control.

Assistance with preparing a resource consent application can be obtained from the Nelson Marlborough Fish and Game Council.

- **Financial Assistance**

Funding for materials is available from the Council on request. The level of assistance is assessed on a case-by-case basis. You can also apply to Council for rates relief and the waiving of consent fees for the creation or enhancement of wetlands.

- **Education**

The Council will be publishing a planting guide for the restoration of wetlands. Lists of plant species for different vegetation zones in the District are available on Council's website for most of the District. The remainder of the District will be completed soon and the guide will be available as soon as possible. Staff are available to speak to interested groups about habitat restoration.

- **Policies and Rules**

New rules now apply for the protection of wetlands in Tasman District. There is a summary of these rules in the "TRMP Guide to Wetlands (No V-20)" available from Council offices. Advice on interpreting the rules can be provided by Council staff.



Dave Mitchell

*"Our family has committed to restoring a 1 hectare example of the rich native swamp forest that was once a major feature of Mapua. With Council restoring wetlands on a small adjacent reserve and the stream flowing unimpeded to a protected estuary 0.5km downstream, our project really will enhance the natural values including bird and fish life. We were pleasantly surprised by the extent to which the community values wetlands and many have gifted a lot of time to plant out our wetland."*

**Dave Mitchell**



Black Valley, St Arnaud. Wetland restoration using weirs to raise water level



**Less than 10% of New Zealand's original wetlands remain, yet they are home to 22% of our bird species and 30% of our native fish species.**

## HOW TO ENHANCE YOUR WETLAND: to gain a productive, environmental and recreational advantage.

### Action on the ground

This section gives information on how to enhance your wetland to gain productive, environmental and recreational values.

The Council is keen to help and support individuals and groups to restore existing wetlands or create new ones in the District.

### Keeping your wetland wet

A wetland with a high water table or steady water supply will stay wet throughout most of the year. In many instances water levels may seasonally fluctuate, falling significantly during drought periods. This is a natural process and need not be of concern and can add to the ecological diversity of the site as most species have adapted to this situation.

If the area has been drained in the past, you may need to restore the original level by blocking outgoing drains. In some instances, you may need to build a low weir, bund or dam. Check with neighbours first. You may also need a resource consent from the Council. Badly designed weirs can impede native fish passage.

Excessive water level rises in an existing wetland may be detrimental to its values if the wetland vegetation is drowned and a pond or lake with a permanent water level is formed in its place. However this may be a solution where wetlands are drying up due to changes in their catchment or the build-up of organic material, particularly willows.

Direct pumping or siphoning of water into the wetland is another method that has been tried.

Changing water levels can have dramatic effects on the values of your wetland. Seek advice from an ecologist before undertaking such work. Council and Fish and Game Council staff may be able to assist.

Contact Council staff to check resource consent requirements if you are considering such work.

### Stock management and fencing

Stock with access to wetlands will increase nutrient inputs, compact the soil, cause erosion, disturb wildlife, graze on and trample wetland plants, and lower water quality due to sedimentation. Most native plants have poor tolerance to grazing. Cattle, in particular, tend to gather near water, wade into it and can get trapped in soft conditions.

Keeping stock out will allow plants to regenerate from natural seed sources. Supplying troughs will provide a cleaner water source for stock.

Fencing the edges of your wetland or stream to keep out stock will be of great benefit. When thinking about where to put fences, remember that wetlands often need a buffer area (fences and/or plants), to protect them from stock and keep the ecosystem healthy. Fencing can be as simple as a two wire electric fence, or something more permanent, depending on the situation.



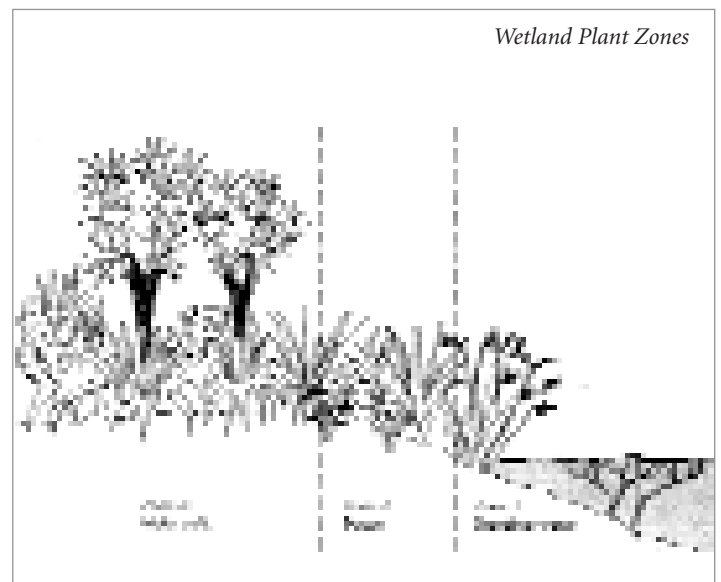
### Planting

For planting purposes, your wetland can probably be divided into three zones, as shown in the figure below. You will need to select suitable plants for each zone. It is important to get a mixture of plants and plant the right plants for each zone.

Which species to select and the planting sequence will depend upon the nature of the wetland and its location in the District.

The Council and the Department of Conservation have produced a revegetation list for most of the Tasman District to help you select the right plants.

A map of landscape zones shows which of the species lists you should use, depending on where you live. These are available on request from Council or on Council's website. Go to "Environment", "Land", "Native Plant Restorations Lists".



### Weed Control

Encroachment by weeds is a big issue. It is important to control weeds to protect existing plants and help new plantings. Non-wetland plants, such as pines, gorse and broom can also dry out a wetland from its margins. Willows, especially grey willows, are particularly damaging due to their dense shading, prolific seeding, tendency to cover large areas, massive leaf drop and they can dry out a wetland considerably.

In the first one to three years, weeds can overwhelm new plantings. Smothering by tall grass is the most common cause of planting failure. Weeds can be cleared by hand or with a grubber or herbicide. Herbicides should be used with care as some are particularly persistent or damaging to aquatic environments, particularly if sprayed on rather than as a cut stump treatment. Seek advice from Council biosecurity officers. Another option is to use mulches or weed mats that will eventually decompose.

Once native plants have grown tall enough they will begin to shade out grasses and aquatic weeds and no longer require weed control.

Ponds that receive plenty of sunlight and nutrient runoff can become choked with algae. A good inflow of water is needed to continually flush the pond, and extra depth will help keep it cool. Overhanging trees and plantings will provide shade and add to the cooling effect, plus providing a source of insect food for fish life.

## Attracting Wetland Birds

To encourage birds to your wetland you have to start thinking like they do! What vegetation cover do they like? Where do they normally nest and feed? Here are a few helpful habitat hints:

Banded rail, marsh crane and spotless crane are very secretive and require dense and preferably extensive cover at freshwater sites of sedges, rushes, raupo, toetoe and flax. For the margins of lakes and large ponds, create gentle sloping, irregular shorelines. This allows birds, particularly waders, chicks and ducklings, easy access to and from the water and will extend the belt of rushes and sedges growing around the edge.

Islands, or a floating raft with plants growing on it, make safe nesting sites in lakes and ponds. Logs or trees also provide perching sites and shelter.

Note that open water without through water flow can become over enriched by ducks, causing algal blooms and loss of water quality.

During the breeding season (September to December) birds are particularly sensitive to disturbance. Limit activities that may have an impact during this period.

If your wetland is near a block of native bush or another wetland, consider linking them by planting a “green corridor” of native plants between them.

## What bird species do you want to attract?

Scaup like deep open clear water. Mallard, grey duck, shoveler and grey teal favour shallow open water around edges of a pond. Paradise shelduck feed on pasture next to wetlands. Pied stilt nest in scattered clumps of rushes. Crane, pukeko and fernbird feed and nest around damp extensive edges of vegetation. All waterfowl need open water to moult in safety and like islands safe from predators. Forest birds may also be attracted to your wetland with appropriate vegetation planted on the margins. Flax nectar is a great lure for tui and bellbird. Kowhai and native fruiting trees will attract kereru (native pigeon). Planting tagasaste (tree lucerne) will provide huge amounts of flowers and leaves that, within three years, will attract these species. Waterfowl will also appreciate food producing trees like oaks. The birds will bring in native seeds and help the revegetation process. So, if you want to encourage lots of birds, the bigger the wetland is and the more diverse the habitat, the more diverse the birdlife will be.

## Encouraging Fish

Many of New Zealand's native freshwater fish live in wetlands for some or all of their lives, several making amazing journeys to and from the sea. Wetlands connected to streams at least 10cm deep will be accessible to most native freshwater fish. However, long stretches of fast flow or polluted water, flap gates or culverts can act as impassable barriers.

Shallow open water ponds can cause water temperatures to reach levels that are lethal to aquatic life in summer.

Whitebait species may spawn in the wetland margins of the lowest reaches of streams where they reach the sea. Native vegetation that hangs down into water such as tussock or sedge, or grows in shallow water such as raupo, greatly enhances their spawning sites.

If you have pipes or culverts present, make sure fish can migrate upstream (refer to the Council's Fish Passage brochure for more information). Some fish can climb steep surfaces surprisingly well, but need a wet surface or fish ladder. Set stream culverts

low in the streambed, placed horizontally. Rough up the smooth bottom of the culvert with cement to slow the water flow and make it easier for fish to swim through.

When clearing drains, instead of using a digger, consider using low impact techniques such as hand digging or appropriate herbicides. If using a digger, leave one side or parts of it untouched until plants have grown back to act as refuge for fish and invertebrates.

## Keeping the water clean

Plant taller trees to create shade over the water and keep water temperature down. Place an ordinary hay bale at the head of any drain going into your wetland as this will act as a simple yet effective silt trap.

To keep water clear, try using bales of barley straw to inhibit algae growth. Two bales, when placed in slow-moving water, will keep around half a hectare of shallow, open water free of algae for six months. The straw can be spread out or anchored in one position. Eventually it will sink and decompose, boosting aquatic insect life.

## Animal Pests

Ongoing pest control will enhance birdlife in your wetland and protect your plants. Possums, hedgehogs, stoats, weasels, ferrets, feral cats and rats all remove birds' eggs and most will also eat chicks and adult birds. Magpies are very territorial and aggressive to other birds. Rabbits, hares and possums eat wetland plants. Council's biosecurity officers can provide advice and information on trapping and control.

## Pest fish and water weeds

Gambusia, koi carp, tench and rudd have all been found in wetlands in Tasman District. They cause immense damage to native fish populations and the habitat. There is an active programme underway to exterminate them. It is illegal to introduce them into water bodies. Any sightings should be reported to Council biosecurity officers or DOC. The same goes for hornwort, water hyacinth, yellow flag iris and other exotic species that have become water pests.

## Creating new wetlands

Wetlands can be created in a number of ways. Swamps, ponds and lakes can be formed by damming an area of water flow, by lowering the level of the land by excavating, and by diverting water into an existing or created low-lying area. Some care and thought needs to go into such an exercise as it is easy to affect other aquatic habitat or other water users.

The Fish and Game Council specifically offer a wetland-creation advisory service to assist such an endeavour. They can help prepare a resource consent application. A waiver of costs can be applied for.

There is sometimes an enthusiasm for creating a pond in an existing wetland by damming or excavating it to enhance landscape values. However it is better to create a new wetland alongside the existing one, as this will avoid damage to the existing wetland values and functions.

Where open water is desired, it is worth noting that shallow margins are preferable to steep sided ones. This allows emergent aquatics such as raupo and sedgeland to establish, providing valuable habitat. Deep water prevents them from colonising all the open water.

## HELP AND ADVICE

The following organisations can all offer practical advice and help on various aspects of your wetland projects.

### Tasman District Council

Private Bag 4, RICHMOND  
Phone: 03 543 8400  
Web: [www.tasman.govt.nz](http://www.tasman.govt.nz)  
Email: [info@tasman.govt.nz](mailto:info@tasman.govt.nz)

Attn: Guinevere Coleman (Co-Ordinator - Biosecurity & Biodiversity)

Information on wetland management plans, planting guides, Council rules, pest control, biosecurity issues and financial assistance.

Attn: Mirka Langford (Senior Resource Scientist, Land & Soil)

Information on wetland protection work, fencing, planting and financial assistance

### Department of Conservation

Nelson/Marlborough Conservancy Office  
Private Bag, NELSON  
Phone: 03 546 9335  
Web: [www.doc.govt.nz](http://www.doc.govt.nz)  
Expertise in advising on habitat protection, biodiversity, plants and fish life.

### New Zealand Landcare Trust

Web: [www.landcare.org.nz](http://www.landcare.org.nz)  
Expertise in supporting rural and community groups with restoration projects and animal pest control projects.

### Nelson Marlborough Fish and Game Council

Champion Road, P O Box 2173, STOKE, NELSON  
Ph: 03 544 6382  
Web: [www.fishandgame.org.nz](http://www.fishandgame.org.nz)  
Expertise in creating fish and bird habitat, protecting water quality and advising on what plants will attract wildlife.

### Queen Elizabeth the Second National Trust (QEII)

Tom Stein, Nelson-Tasman-Marlborough representative  
[tstein@qeii.org.nz](mailto:tstein@qeii.org.nz) Ph. 03-5742978  
Expertise in advising on restoration, planting and placing covenants to protect land.

### Tasman Environmental Trust

C/- Private Bag 4  
RICHMOND  
Ph: 03 543 8400 or 543 8432  
Private Trust established to assist in accessing financial assistance.

**Note: Individual names are current at time of printing.**



*Australasian Bittern • Photo: Dick Veitch*

## Tasman District Council offices:

### HERE WE ARE!

#### RICHMOND

189 Queen Street  
Private Bag 4  
Richmond 7050  
Ph (03) 543 8400

#### MOTUEKA

7 Hickmott Place  
PO Box 123  
Motueka 7143  
Ph (03) 528 2022

#### GOLDEN BAY

78 Commercial St  
PO Box 74  
Tākaka 7142  
Ph (03) 525 0020

#### MURCHISON

92 Fairfax St  
Murchison 7007  
Ph (03) 523 1013

