



STAFF REPORT

TO: Environment & Planning Committee

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REFERENCE: C460

SUBJECT: **ESTUARY RESOURCE MANAGEMENT AND RESTORATION FOR TASMAN - REPORT EP08/08/09** - Report prepared for meeting of 28 August

1. PURPOSE OF REPORT

To provide information about the state of Tasman's estuaries and recommend methods to improve the estuarine environment where it has been degraded.

2. INTRODUCTION

TDC has been involved in monitoring the State of our estuaries since 2003. Through this monitoring we know that the majority of Tasman's estuaries are in a healthy state and contain significant ecological values. Monitoring over many years by the Ornithological Society of NZ shows that many of our estuaries are nationally or internationally important for many birds, both endemic and international migratory birds. However, the picture of our estuaries is not all rosy. The overwhelming issue in this coastal environment is the loss of rushland and reedland and coastal scrub and forest around the land margin and the biodiversity loss that goes with it.

In addition, pest animals such as mustelids and dogs have been responsible for reduced numbers of threatened birds such as the Banded Rail and Marsh Crake. While monitoring of the effects of discharges such as fine sediment, nutrients from farm and rural-residential run-off and sewage has often been limited, it appears that these effects are mostly localised and not widespread. The effects of several major industrial discharges and Nelson Regional Sewage discharge to the Waimea Estuary appear to have reduced over time.

To date, most of the restoration work in Tasman has focused on bush remnants and wetlands. Much of the Council's effort have been educational, with interested landowners having their natural areas inspected, the special features identified, and provided with advice on methods of protecting and enhancing their values. A range of technical advice has been provided, including comprehensive lists of native species for planting and maps showing the boundaries of these ecosystems.

Restoration planting has been undertaken by both individuals and by community groups on private and public land. Once the early plantings have become established, the next stage has involved the planting of longer-term species that need shade and shelter. Once these are established, the focus moves to predator control to bring back native birds. This is currently being undertaken in alpine areas on the conservations estate by groups such as Friends of Flora, Friends of Rotoiti and Friends of the Cobb, on lowland sites and on coastal land.

To date, estuarine areas have received little attention, although they are one of the special features of Tasman District and one that is highly regarded by the many summer visitors and overseas tourists. Councils around the country are increasingly recognising the values of estuaries. Christchurch City Council, for example, has spent \$2.5 million in the Avon-Heathcote estuary alone over the last 10 years.

3. MONITORING OF TASMAN'S ESTUARIES

Since 2002 Council has had a programme of investigating the health of one estuary each year. Estuaries investigated to date are: Waimea (2002 and 2007), Ruataniwha (2002), Motueka Delta (2004), Port Tarakohe (2005), Moutere (2006) and Motupipi (2008). In addition, the Ornithological Society has investigated the RAMSAR estuarine area around Farewell Spit.

Key findings:

Waimea Inlet

- Sedimentation – Generally Low, no sediment anoxia or gross signs of pollution
- Eutrophication¹ – Low
- Habitat remaining – Moderate (~160 hectares of reclamation since 1946, only 8 hectares lost between 1985 and 1999)
- Contaminants – Metals – Well within acceptable guidelines (except Ni and Cr – elevated due to catchment mineral deposits)
- Disease-causing organisms – Moderate
- Invasive species – Spartina (under control)
- Unusually high prevalence of herbfields
- Macrofaunal species richness indicated relatively diverse and healthy sandflat habitats consistent with a range of other New Zealand estuaries

Ruataniwha Estuary

- Sedimentation and eutrophication – Low
- Habitat remaining – Very high
- Contaminants – High faecal contamination but very low levels of toxic chemicals

¹ Eutrophication is a measure of nutrient status.

- This estuary is the closest to pristine condition of any estuary Council has investigated

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Motueka Delta

- Sedimentation – Low-moderate
- Eutrophication – Low
- Habitat remaining – Moderate (pre-1946 200-300 hectares was reclaimed, ~50 hectares reclaimed from 1946-1986, no significant estuary loss between 1985 and 1999)
- Contaminants – Metals – Naturally Moderate
- Disease-causing organisms – Low-moderate

Tarakohe Harbour

- Sedimentation and eutrophication – Low
- Habitat remaining – Low (most marginal coastal is highly modified)
- Contaminants – Metals – Low
- Disease-causing organisms – moderate
- Invasive species – Undaria, Didemnum and Gelidium

Moutere Inlet

- Sedimentation – Generally Low
- Eutrophication – Low-moderate (high at times)
- Habitat remaining – Not analysed
- Contaminants – Metals – Low
- Disease-causing organisms – Low

Motupipi Estuary

- Sedimentation – High in Western Arm
- Eutrophication – Fair in Western Arm
- Habitat remaining – High
- Contaminants – High faecal contamination but very low levels of toxic chemicals

Trend in Estuary Condition

Aerial photography available from 1940s, 1950s, 1980s and more frequently over the last decade has identified that the major losses of estuarine habitat occurred even prior to 1940. Causeways were installed, industrial development reclaiming more land, drainage of surrounding swamp land. From visual evidence, there has been a large increase in the amount of fine sediment discharged to the estuary since the 1940s. These features are the most prominent. What the more subtle changes to plants and animals are telling us is much more difficult to determine.

The broad-scale habitats and fine-scale condition of the mudflat ecosystem of Waimea Estuary was similar in 2006 to that in 2002. All observed changes from 2001 to 2006 may be attributed to natural variation.

While our knowledge and understanding achieved to date is to be commended, there are still some major gaps in our knowledge. One of the main limitations is the geographic coverage of fine-scale ecological assessments. While these assessments are a fundamental part of the national protocols that Council follows they are only partly representative of the whole estuary. There are now some new rapid assessment methods available that, when used in addition to fine-scale assessments, will ensure much more robust conclusions about estuarine condition. This methodology uses key indicators recorded across transects over a greater area of the estuary. This rapid assessment methodology is called a 'Vulnerability Assessment'. Such assessments are proving very useful for other Councils e.g. Wellington and Southland and we have used it at Motupipi. Currently, our estuary monitoring budget would not accommodate these types of assessments. Of all Tasman's estuaries the Waimea is probably the most vulnerable and an assessment could cost \$30,000. The need for this will be included in the Waimea Estuary Management Plan scoping exercise currently underway in the 2008/2009 year. However, the Motueka Delta and some of the other estuaries that have not been investigated (e.g. Westhaven, Takaka Delta to Parapara) would benefit in the future from this assessment methodology.

4. WHY SHOULD TDC BOTHER PROTECTING OR RESTORING OUR ESTUARIES?

Our estuaries are not only important for terrestrial and aquatic biodiversity but are important for commercial and recreational fishing, such as snapper, gurnard, whitebait, flounder and cockles, to name a few. These fish rely on estuaries for their home or nursery. To the Maori estuaries are a very important food basket. Estuaries are also used for a range of recreational activities such as walking, waterskiing and boating.

Council has committed to protecting and restoring estuarine areas under Objective 8.2 of the Tasman Resource Management Plan. This objective is to achieve *The maintenance or enhancement of the natural character of the margins of lakes, rivers, wetlands and the coast*. Specific policies to achieve that objective include:

8.2.1 *Maintenance and enhancement of riparian vegetation, particularly indigenous vegetation, as and element of the natural character and functioning of lakes, rivers and the coast.*

8.2.2A *To avoid, remedy or mitigate adverse effects of land management practices on the margins of water bodies, including wetlands.*

8.2.3 *To avoid, remedy or mitigate adverse effects of buildings or land disturbance on the natural character, landscape character and amenity values of the margins of lakes, rivers, wetlands and the coast.*

8.2.7A *To ensure that the nationally and internationally significant ecological values of the Waimea Inlet are protected by avoiding, remedying or mitigating adverse effects, including cumulative effects, of subdivision, use or development in the coastal Tasman Area.*

Now we have quantified what the major ecological issues are in our estuaries and where degradation has occurred in several of our major estuaries, we need to work out a plan for enhancing, where degraded, the ecological values of our estuaries. The next step is working out priority areas and then how we go about remedying the degraded parts of our estuaries.

5. GATHERING PRACTICAL AND STRATEGIC INFORMATION ON ESTUARY RESTORATION AND MANAGEMENT

To improve our knowledge of how to go about managing and restoring estuaries we have sought advice from a number of nationally respected estuarine ecologists who have been involved in extensive estuarine restoration projects. In this regard, Dr Trevor Partridge, botanist at Christchurch City Council, who has overseen much of the restoration work in Canterbury, provided a most valuable contribution to a workshop in Richmond in late April (proceedings available). A summary of the key messages from the workshop are presented in this report.

The workshop was very successful attracting almost 90 people from Golden Bay, Tasman Bay and Nelson. The depth of interest in estuary restoration within the community shows estuaries are well valued in this region. A number of community groups and individual landowners throughout the region have already undertaken restoration of estuarine habitats with varying success. One of the aims of the workshop was to provide information to ensure the success of these projects and to avoid making the same mistakes that others have made. Estuaries are more difficult to restore because of the need to take into account the dynamic action of the tide creating zones with very different levels of salinity. Once we understand the various values, natural processes, and human-induced threats to the values, the chance of successful restoration is very high.

6. WHAT IS SUCCESSFUL ESTUARY MANAGEMENT AND RESTORATION?

Successful estuary management and restoration is about maximising estuary values and minimise conflict. If returning to the natural state is desired then various guidelines need to be followed to ensure maximum survival of the native plants and animals in the establishment area. Examples of methods to achieve this include:

- Separating certain activities, e.g. recreational or commercial. Some zones that exclude people may be necessary for maximising bird protection.

- Where appropriate, mitigate disturbance of birds by constructing tracks with metre-high vegetation bunds which ensure that birds do not see people's leg movements (a major factor that upsets them) and dogs do not see the birds and chase them.
- Rapid response to people flouting dog control rules. This has been one of the most effective methods of controlling this problem in Christchurch.
- Limit the die-off of plants by ensuring that they are put in the right place relative to tide levels and substrate type.
- Ensuring any re-contouring has gradients less than 1:20.
- Limit the cost by sticking to the essentials. For example, there is no need to plant species that will come back naturally (particularly the herbaceous species).

7. WHERE IN TASMAN SHOULD WE FOCUS OUR EFFORTS?

The criteria for prioritising restoration projects should include the following:

1. Where the ecological benefits are expected to be high relative to the cost of restoration. High benefits relate to high ecosystem values, either high species diversity or productivity or increased numbers of threatened or rare species.
2. Where the land is secure, legally and physically. The land should be publicly owned or managed or have legally effective covenants that prevent any investment being undermined. The land should also be free from erosion or have relatively low erosion rates.
3. Where there is a willing and reliable community group ready to assist with the project.
4. Where the risks of not achieving successful restoration are minimal

Situations that are likely to meet these criteria include:

- Returning the tidal flush to estuarine areas that have impoundments eg Mapua Causeway
- Regrading the coastal margins of reclaimed areas to ensure appropriate slope of the foreshore and planting rushland or reedland. This could mean bringing in fill working seaward or scraping back on the landward side.

Sites that could meet these criteria include:

- Hoddy Estuary Park
- Waimea River Regional Park
- Richmond Estuary frontage

- The estuary edge of landfill reclamations such as Rototai and Moutere.

Community partnerships usually lead to reduced labour costs, greater security of the investment (through better surveillance), and greater community education about the values and objectives of the project.

Where do we not bother?

- Where there have been excessive fine sediment discharges. Removing these incurs more damage than good.
- Where there are high value assets, including farmed areas, that would be very costly to remove.

8. BIODIVERSITY RESTORATION IN TASMAN DISTRICT

Until recently, there has been little information on the condition of the estuaries to support the need for restoration, although public concerns have been repeatedly voiced by community groups. The availability of this information now allows Council to consider estuaries as an integral part of the broader restoration process and incorporate them into a future Biodiversity Strategy, proposed for preparation in 2009.

In terms of implementation of such a strategy, the Parks and Reserves Department is best placed in terms of expertise and knowledge to deliver the outcomes. One issue to consider is the delivery of resources and technical advice to private landowners when this Department's work is concentrated on Council land.

In recent years, this Department has put an increasing effort into estuarine restoration through projects such as Coast Care in Golden Bay and Sandeman Reserve in the Waimea estuary. With some modest resources, they could make a real difference by improving estuarine biodiversity.

9. RECREATION AND EDUCATION/INTERPRETATION OPPORTUNITIES

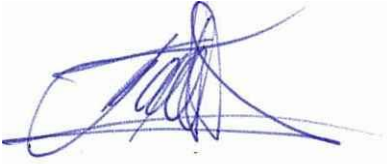
In order to achieve better protection of estuary values, people must be given the opportunity to get "up close and personal" with estuaries and interpretation signs should be available to provide accessible information about those values. However there is real conflict between people and their dogs which scare birds in estuaries. This will be one of the big issues in the Motueka Sandspit and Waimea Estuary. An Integrated Management Strategy is just getting under way for the latter estuary. In most of Tasman's estuaries there appears to be space to provide close access to selected estuarine areas and limit access to other areas.

10. RECOMMENDATIONS:

That the Committee:

1. Receive this report.
2. Note that a bid for increased support for estuary monitoring over the coming years, in particular to conduct vulnerability assessments on a range of estuaries, will be included in the LTCCP.

3. Note that a bid for increased support for resources for estuary restoration through the Parks and Reserves budget will be included in the LTCCP. The first priority would be providing project management and coordination of estuary restoration for about two days per week then support for providing rangers for such parks once developed.



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