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Committee **Environment Committee**
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Coastal and Marine Ecosystems Programme – report on the recent beaches and river estuaries survey

1. Purpose

To present to the Committee the results of a survey of sandy beaches and river estuaries on the Kapiti Coast, Plimmerton, Titahi Bay, and Makara Estuary.

2. Background

This is the second survey of sandy beaches and river estuaries in the region. The first survey undertaken covered the Wellington Harbour and South Coast, and the results were presented to the Environment Committee in June 2004.

The surveys are designed to fill a gap that has been identified in our ecological understanding of coastal and marine biodiversity. The results of the surveys are being used for both our consents management, policy development, and care group functions, as the habitat information can be used to indicate what is present, and the sensitivity of different areas to pressures. In addition, the work done provides an indication of the organisms likely to be present in different substrate types, allowing us to make some assumptions about what organisms should be present in certain areas.

3. The Survey Method

The Cawthron Institute were contracted to map the substrate and vegetation of ten sandy beaches and ten river estuaries of the Kapiti Coast (a total distance of about 40km), Karehana Bay and Plimmerton Beach (4 km), Titahi Bay (1.3 km), and Makara Estuary (7.5 ha). The purpose of the survey was to provide an overview of the state of these intertidal habitats which provide significant amenity and environmental value. These sites are also under pressure from urban areas and vehicles on beaches.

The following methods were used:

- At all sites, broad scale habitat mapping provides a robust Geographical Information System (GIS) based mapping of the distribution of intertidal and estuarine substrates, plants and animals; and
- At Otaki Beach north and south, Paraparaumu Beach, Paekakariki Beach, Karehana Bay, Plimmerton Beach, Titahi Bay, Waikanae River, Tikotu Creek, Wharemauku Stream, Whareroa Stream and Makara River, fine scale environmental monitoring measured the spatial variation and inter-relations of commonly measured physical, chemical and biological indicators.

3.1 Results of the survey

The overall results of the survey are summarised below:

- The intertidal sandy beaches and river estuaries of the western Wellington coastline are generally in a healthy condition and showed no signs of adverse nutrient enrichment or chemical contamination.
- The beaches and estuaries are predominately (greater than 90%) sand, the only exception being Makara Estuary (77% sand and 21% mud). The general absence of silt and clay fractions from the river estuaries reflects their size – most being only very small streams discharging directly to the beach and having little in the way of an enclosed estuarine embayment where finer material accumulates.
- There are no obvious signs of adverse enrichment at any of the sites. For example, no extensive growths of algae or anoxic (without oxygen) sediment were observed. Using sediment heavy metal concentrations as an indicator of potentially toxic contaminants, fine scale sample sites all had levels well below the Australia and New Zealand Environment and Conservation Council's (ANZECC), Interim Sediment Quality Guidelines (ISQG) for Fresh and Marine Water Quality (ANZECC and ARMCANZ, 2000). These guidelines are based on two sets of trigger values (concentrations); ISQG low and ISQG high. The low and high trigger values represent a statistical probability of adverse effects on aquatic ecosystems of 10% and 50% respectively. The only exception is in the Makara Estuary where lead exceeded the ISQG-Low trigger level. Concentrations are all low compared to sites elsewhere in New Zealand and overseas.
- The animals living within the estuary and beach sediments were typical of other New Zealand estuaries and beaches in good condition. Sandy beach samples generally contained relatively few animals, particularly in the upper tidal ranges, reflecting both the type of habitat present and also the limited sampling undertaken. Small stream estuary sites had very few animals present, reflecting the small area that was estuarine and the sandy substrate. Waikanae and Makara estuaries had more estuarine character with a range of sediment dwelling fauna (amphipods, polychaetes and

gastropods) present, including scavengers and deposit feeders typically present in muddy estuarine environments.

- Many of the environmental pressures identified (erosion protection, beach grooming, introduced weeds, stormwater, vehicles and residential development) were not considered to be adversely affecting the sites investigated beyond localised areas. The low impact reflects the low percentage of each area affected and, to a lesser extent, the intermittent nature of the pressure, the assimilative capacity of the environment, and/or likely recovery rates. The most significant impacts are associated with residential development along the coast and the subsequent loss of marginal habitat and increase in erosion protection works.

4. Future Direction

This report has made an important contribution to our understanding and knowledge of coastal and marine biodiversity for the western coast of the region. The report highlights that generally our beaches and estuaries are in good ecological condition with a level of biodiversity that you would expect compared with other places in New Zealand. We are also generally free of toxic chemicals in these areas which makes us stand-out compared to other countries, especially for estuarine areas.

The report does show that the highest levels of biodiversity are found in our estuaries. These areas where freshwater meets the marine environment create the conditions that are required for a proliferation of sediment dwelling species, bird life and a variety of fringing vegetation that marks the margins. These areas need to be nurtured and protected as much as possible from the pressures identified in the report of subdivision, and erosion protection works. We also need to ensure the freshwater environment remains free from contaminants (mostly stormwater) as these will cause a long term deterioration of estuaries.

Highlighting the importance of estuaries and what we can do about them will be part of the Coastal and Marine Action Plan. We are currently preparing this plan as part of the biodiversity programme (others include the wetland and lowland forests action plans). The report also highlights that the pressures on the coast and marine areas occur day by day and we continue to work on these issues through existing programmes, i.e., stormwater, and pest plants.

5. Communication

A press release and other information about the survey results will be made available. Copies of the report will be delivered to the Department of Conservation, Kapiti Coast District Council, Porirua City Council, and Wellington City Council.

6. Recommendations

It is recommended that the Committee:

1. *Receive the report; and*
2. *Note the contents.*

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