Coastal restoration provides plethora of environmental returns

By GRAHAM McKERRACHER

When we hear about climate change in the news, we mostly hear about the causes of climate change, or how to reduce our effect on the climate by restricting and reducing our greenhouse gas emissions. However, adapting to the physical impacts of climate change is just as important.

What exactly is "adaptation"? Well, in the language of climate change, it is the phrase used to describe the ability of people to cope with the physical impacts of climate change.

Adaptation is about coping with the challenges and taking advantage of opportunities presented by climate change that is already happening.

As part of its portfolio of climate change work, the Ministry for the Environment has a programme to help local government and other stakeholders to undertake climate change adaptation when carrying out their day-to-day operations.

In particular, the Ministry has developed guidance materials for local authorities to assist them in assessing and managing the risks of climate change in their strategic planning processes.

It has also developed a series of case studies about how people are preparing for climate change. For example, Coast Care BOP is a community partnership programme coordinated by Environment Bay of Plenty with its four coastal city/district councils and the Department of Conservation. Coast Care groups include residents and beach users who care about their coastal environment and want to actively participate in protecting it.

In the Bay of Plenty many more people are building along the coast, often in areas vulnerable to coastal hazards. Over the coming decades, climate change impacts have the potential to increase the risks from coastal hazards affecting coastal communities. With rising sea levels it is predicted there will be more frequent and more serious flooding of low-lying coastal areas by extreme tides, storm surges and waves.

Coastal dunes offer a buffer against the many storms that visit our shores. However, coastal dunes are one of the most degraded natural ecosystems in New Zealand. Dune restoration is an increasingly critical task to reduce our vulnerability to sea-level rise.

Dune restoration is required when natural dune systems have been significantly modified or damaged by human activities.

The two main objectives of the Coast Care dune restoration programme are to implement appropriate dune restoration and management works and to promote a dune care ethic within the community.

Dune management helps reduce the effects of climate change through restoring and maintaining a protective natural dune buffer between coastal development and the sea. Restoration allows a good cover of native sand-binding vegetation to grow on the seaward face of the dune. The vegetation is critically important for ensuring the dunes are naturally built and repaired. Good vegetation cover also prevents wind erosion.

There are now 30 Coast Care groups in the Bay of Plenty working to replant native vegetation. The groups also build fences to protect dune plants, put up signage, provide marked access ways and undertake earth works to re-shape the dunes. They manage vehicle and pedestrian access, remove weeds, control pests, and improve monitoring of the dunes.

However, the most important aspect of dune restoration in the long term is making information and educational material available to the community. Most dune damage is caused by human activities. Consequently, a change in the attitude and behaviour of beach users is required for effective dune restoration.

Financially, dune restoration makes good sense when compared to other coastal management options. Even considering the costs associated with education and promotion, dune management is far less costly than engineering options (seawalls and revetments require expensive maintenance or a full rebuild every 20–40 years).

Also, these engineering options can't stop the beach eroding, which means reduced or destroyed public access.

In 2007, the Ministry commissioned NIWA to produce a second edition of two guidance manuals for local government. The second editions were commissioned because the latest Intergovernmental Panel on Climate Change updated its findings on climate change.

Environment Ministry climate change adaptation leader Dr Stephen Swabey says preparing for the physical impacts of climate change makes good sense.

"Adaptation is about risk management and being more resilient to current climate extremes like floods and droughts," he said.

The updated climate change effects and impacts assessment was published in May. The manual provides the latest projections of the expected impacts of climate change, both at a national and regional level in New Zealand.

The second updated manual, Coastal Hazards and Climate Change, was released in September. It provides information on the effects of climate change on coastal hazards, a decision-making framework to assess the associated risks and provides guidance on appropriate response options.

Dr Swabey says taking on board the information in these documents will help government, councils, businesses and communities plan ahead to reduce the costs associated with the physical impacts of climate change and to take advantage of any opportunities they bring.

Graham McKerracher – Ministry for the Environment

The guidance and other publications written for local government decision makers can be found at www.climatechange.govt.nz/physical-impacts-and-adaptation and on the www.mfe.govt.nz website.