

Steve Urlich MDC

Talk on 8 March 2015 in Picton

(See PowerPoint)

SLIDE 1:

I'll be sharing the podium today with Dr Sean Handley of NIWA and Dr Chris Cornelisen of the Cawthron institute, both of them are based in Nelson and have worked extensively in our region. Our collective aim (as Peter said) is to bring the coastal marine environment into the room, so to speak.

Firstly though, let me provide a sense of Council's involvement to date. Council has provided seed money to the Integrated Management Trust (Trust) to facilitate community conversation around marine issues. However, Council has yet to consider a full proposal from the Trust; and Council has advised the Trust that any future funding would be subject to the commitment of central government and the annual plan process.

In terms of the scope of the Trust's work, Council is clear that it must be separated in stakeholders' minds from Council's current (and soon to be publicly notified) review of its district planning framework. Council advised the Trust that Council's existing stakeholder and legal processes are respected and enhanced, and that the Trust's marine futures process does not create confusion in people's minds.

So where is Council up to:

- That Council will soon notify its new resource management RM Plan, which includes a regional coastal plan
- That Plan had been developed over a long time using collaborative processes
- That the Plan was an integrated plan
- That the stakeholder working group would not be writing the regional coastal plan for Council
- However, they were welcome to make submissions on the plan.

Therefore if marine futures process is to work, then the focus should perhaps be on marine protection and biodiversity. This is because Council has identified that better cooperation with central government and researchers was required to understand cumulative effects and carrying capacity in the marine space.

We will give you a sense of the breath and depth (to use an aquatic analogy) of the science that has been done in Marlborough waters. We hope that you will be stimulated and intrigued to know more. We also hope that, should you end up on the SWG, that you will be reassured that you will be supported to make sense of this complexity. So essentially our job today is to present an overview of what's going on

in our wonderful marine environment, distil it down, make it clear how far our collective understanding reaches, identify the many gaps that exist in our knowledge, share some stories about where we've come from (Sean), and outline the opportunities that exist to link in to well-funded national science initiatives (Chris)

My purpose today is share what your Council is doing in the marine space, and what we have learnt to date

SLIDE 2:

First, let me set the scene by providing you with some facts and figures. Marlborough District Council is responsible for administering coastal waters out to 12 miles from MHWS under the RMA. This stretches from Croiselles Harbour, D'Urville Island, the Sounds, part of Cook Strait, Cloudy Bay to Willawa Point.

This area comprises a whopping 725, 000 hectares and over 1800 km. It contains a diverse arrange of inter-tidal and sub-tidal habitats from the high-energy bays of the East Coast, estuaries such as the Wairau Lagoons and Havelock, sheltered embayments like Port Underwood and within the two Sounds, rocky reefs around the outer coast and Sounds, and the open water of Cook Strait, the outer Sounds and Tasman Bay

This means:

- Developing policies and plans to regulate activities
- Granting consents for the occupation and use of (public) coastal space, such as moorings, jetties, port and marina developments, and fish, mussel, paua and oyster farms
- Monitoring
- Enforcement
- Maintenance of biodiversity

We also have maritime safety and navigation responsibilities which are exercised through the Harbourmaster. We have obligations under the Biosecurity Act for marine biosecurity which we undertake in a Top of the South partnership with MPI and other councils in consultation with Iwi and interested groups.

SLIDE 3:

This slide is to give you a sense of the many different values in the coastal environment. An important point to make is that people are a part of this environment.

SLIDE 4:

The marine environment is subject to a number of selection pressures or what we scientists term “stressors”. Fish farming, mussel farming, sedimentation from land-use, outfall pipes, commercial and recreational fishing are **chronic** stressors, in that they occur relatively persistently or frequently although their impact in time and space varies.

There are also **acute** stressors, which can cause mortality to species and damage to an ecosystem such as oil spills, channel dredging and the unauthorised discharge of toxic contaminants. These are the subject of *ad hoc* investigations should these events arise.

Council’s monitoring programme is focused on the understanding the underlying dynamics and condition of different parts of the coastal environment. This enables us to build baselines from which to better understand the effects of some these chronic stressors.

SLIDE 5:

Following the EPA hearings into NZKS application for new farms, Council recognised the need to improve its understanding of the coastal marine area. Good information leads to better policies and plans, which in turn regulate consents and the effect of different activities on the environment.

With this in mind, Council approved a strategy to monitor coastal environments. Along with monitoring, the strategy aims to improve our fundamental understanding of the water column and seabed habitats.

Therefore the monitoring Council does enables the effects of pressures on the state (or values) of the ecosystem to be tracked over time. This is termed ‘State of the Environment’ monitoring. All regional councils do this to fulfil national level obligations to report on how well we are doing as a nation.

An example is the LAWA website, where coastal recreational bathing (and river) data from Marlborough is available along with other Councils.

In the next slide, I will outline Council’s monitoring and science projects and how they meet the Objectives of the Strategy.

SLIDE 6:

The list of projects all contribute towards meeting the eight objectives of the strategy. As you can see there is a broad list. This is by no means all that needs to be done in the coastal space - there are a number of gaps. These include: food web studies in key areas; mapping and characterising seabed habitats; and monitoring dune ecosystems.

However, we cannot do everything at once, so we have to prioritise as resources allow. Currently we have an annual budget of \$340,000 and only 1 coastal scientist.

There are two objectives not up there, but which run through these projects are: exploring opportunities to involve Iwi and the community more widely.

Rather than discuss each of these projects, I will cover off the first 3, which will then segue nicely into Sean's talk.

SLIDE 7:

The strategy has a strong focus on the Marlborough Sounds given that is where the most pressures are occurring in the coastal marine area

In June 2011, Council commenced monitoring in QCS and Tory Channel. A year later, Council commenced monitoring in the Pelorus Sound.

Every month, a number of samples are taken to understand how nutrients and other parameters change seasonally over the course of the year.

This information is providing very pertinent to the development of models of how the Sounds function, which I'll discuss in the next slide.

SLIDE 8:

This satellite photo shows a spring bloom of phytoplankton around the Marlborough coastal marine area. These blooms respond to increasing light and sea surface temperatures and drive the productivity of our marine ecosystem. So it important to note that not all algal blooms are toxic.

These blooms are sucked into Cook Strait through Tory Channel. This graph comes from the Queen Charlotte hydrodynamic model. The different colours correspond to this scale, which is logarithmic, so the red is the fastest current speeds. Without going into detail, this shows that Tory Channel can be likened to an artery, pumping and exchanging nutrients between Cook Strait and QCS, and driving an estuarine circulation pattern.

Hydrodynamic models therefore simulate the movement of tides, currents, wind and temperature patterns over different seasons. These models have been coupled with the movement of nutrients from fish farms, mussel farms and land-use and validated with the water quality data collected by Council.

The QCS model has been completed, and we have now just received a draft of the Pelorus model. Essentially the QCS shows that at the current inputs of nutrients from aquaculture and land-use is unlikely to drive a change in trophic status:, that is, it is unlikely to have a significant change in nutrient levels.

You can also see the sediments from the Awatere and Wairau Rivers travelling up the coast to Port Underwood. It is worth remembering that Captain Cook gave Cloudy Bay its name. As you can see not all parts of the coast are the same

SLIDE 9:

Ecosystem engineers - used to be more extensive. Some of the tubeworm mounds in Port Underwood for example were as big as coral bommies, being up to 3m high. These form three dimensional habitats for small fish, invertebrates, crayfish to hide and feed from. The hard surfaces provide a substrate for establishment of small organisms such as ascidians, anemones, hydroids, and algae. They are like oases and may not come back after being damaged by anchor ropes, dredges and trawls.

SLIDE 10:

This is footage from Perano Shoal, a significant site in the inner Queen Charlotte Sound. It was taken in early March 2015. It shows the destruction of tubeworm mounds by anchor damage.

SLIDE 11:

If you would like to find out more, here are some web-site links and my email address