

Chris Cornelisen Cawthron

Talk on 8 March 2015 in Picton

(See PowerPoint)

Chris provided background on the work of the Cawthron Institute and its history.

Cawthron has a long history of doing research in the Marlborough Sounds. Cawthron scientists have been involved in the development of estuary monitoring protocols and their application in Marlborough. He said their work in the region primarily focuses on interactions between aquaculture and the environment. The aquaculture industry leads to environmental effects but also depends on high water quality. Shellfish and finfish farms have different effects on the environment. One involves culture of filter feeders that deplete phytoplankton, while the other involves addition of feed and associated nutrients. Cawthron was involved in the earlier Fisheries Resource Impact Assessments (FRIAs) and have recently have been working in Admiralty Bay studying mussels farms and dolphin distribution. Cawthron also leads New Zealand's Safe Seafood programme that focuses on shellfish quality, and risks to such as harmful algal blooms (HABs) and associated toxins. Research in Opuia Bay in Queen Charlotte Sound is providing significant insight into the dynamic nature of toxic dinoflagellate blooms; such knowledge is required to better understand and forecast the impacts of HABs on aquaculture resources.

Chris then 'zoomed out' to provide context within the bigger picture of ocean health. He said the coastal marine area of the Marlborough region is exposed to the same pressures common to other regions of the world. Key potential threats include pollution, resource exploitation, loss of coastal habitats and longer-term processes associated with climate change and ocean acidification. Many different activities on land and in the sea affect the Marlborough marine environment and their effects needed to be considered in the context of ocean processes, longer time frames and how these express as synergistic and cumulative effects. He illustrated this point with a series of satellite images of the Top of the South. He said the two Sounds were different to each other in terms of river inputs and hydrology is thus very important. He talked of the effects of rivers and floods.

He then summarized what was happening in the science funding space and with the sustainable seas science challenge in particular. This has \$31M of new funding over 5 years plus further investment from CRI core funding. There is a big challenge for NZ, which oversees the 5th largest Exclusive Economic Zone in the world with limited government funding. The work will therefore be output focused and linked to growing the marine economy while ensuring this does not happen at a cost to the environment. The proposal has 5 research programmes: dynamic seas, valuable seas, managed seas, Maori in the sea and an overarching "Our seas" programme, which is largely about social engagement and what was happening in the room.