**Comments on the PCE's report on *Water Quality in New Zealand: Understanding the Science.***

In this report the Parliamentary Commissioner has provided a user-friendly summary of some of the important water quality issues for NZ. It is largely based on the Commissioner's own recent learning curve on water quality, and written in a casual, very readable style to educate those "engaged in and concerned about" NZ water quality problems.

The danger with any attempt to simplify a complex subject is always that this can lead to incomplete or inaccurate coverage, and unintentionally mislead the audience it seeks to educate. This occurs in at least three ways here;

i) From the title, this report aims to cover "Water Quality in New Zealand", but actually describes only three components of concern; pathogens, sediments and nutrients. While these are indeed important, they are by no means our only water quality problems, and they are certainly not the most important in an urban environment. In the cities and large towns in which most of our population reside and industries operate, heavy metals, hydrocarbons and other urban contaminants are a major problem. Perhaps the report could be considered the first in a series?

ii) Simplicity comes at the expense of providing the proper context of natural conditions and their variability. To cite just a few examples; to state that sediments and nutrient belong on land, not in the water, is incorrect. Sediments and nutrients do belong in our waterways. It is important to acknowledge that, without them and the floods that distribute them, freshwater, coastal and even (ultimately) ocean ecosystems and geochemical cycles would fail. Large scale changes (increase *or* decrease) to the loads naturally carried are the problem; eliminating nutrients and sediments from waterways would be catastrophic. By the same token, estuaries and shallow, warm coastal lakes can be naturally turbid, productive water bodies, hosting fisheries and mahinga kai. To imply that they could, or should, all be clear water, low nutrient systems is misleading.

iii) The water quality problems posed by point source wastes from mining, timber treatment, freezing works and various other industries, are not easy to manage. The risks posed by pollutants from these industries are ongoing, and these industries and their regulating councils go to great lengths and expense to avoid pollution of waterways. This effort, and the need for it, deserves mention and recognition. There are also industries which do continue to pollute; arsenic and mercury are still being discharged directly to the Waikato River from Wairakei Geothermal Power Station, for example, and we will continue to deal the legacy of this discharge into our longest river, long after the discharge ceases.

These points are not raised to discredit the report in any way, but to illustrate the difficulty of trying to simplify the science of water quality to this extent. Those engaged in water quality issues in NZ need to consider the full context of freshwater; its role in environmental processes, its natural chemical variability in that role *and* its use and value to New Zealanders. Those engaged in regional and national government initiatives, such as the Land and Water Forum, do (I believe) already have an appreciation for this context.