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23 June 2014

Comments on the Kapiti Coast Hazards Review Report:

As a committee appointed by KCDC, we worked well together, representing the disciplines who have been involved in coastal processes research, dealing with natural impacts, and specifically with coastal hazard zone assessments: James Carley, a Coastal Engineer; Paul Kench, a coastal geologist; and with my being a coastal oceanographer. Robert Davies provided expertise in statistics, important in the analyses. Although we set out assignments in writing the report based on our respective specialties, the contents and conclusions were in every case agreed upon, and drafts read by all panel members.

There are significant changes in the final draft of our report compared with that submitted and reviewed in March 2014, but not in our conclusions that remained the same and initially had been agreed upon during the Workshop back in December 2013. The changes in presentations of these two drafts occurred primarily because we were rushed to complete the March draft, there having been a large number of reports to read and contents to absorb. As a foreigner and unfamiliar with the Kapiti Coast, I particularly needed more time to acquaint myself with its ocean and beach processes, and with its hazards. Writing that March draft was also rushed in the sense that with there being four of us on the panel, a great deal of time was spent in reviews and revisions of each other's drafts. The short comings of that draft were evident in the reviews provided by the stakeholders and external experts, reviews that proved to be helpful in completing what I hope is a much improved final report.

The changes in the final draft can also be attributed to our by then having had more time to review the background materials, and most important re-reading the reports by Coastal Systems Ltd (CSL) and that by John Lumsden, necessary in that they are lengthy and contain detailed analyses that required careful consideration. In writing the final draft of our report, we responded to the main issues concerning the methodologies and resulting hazard zones proposed by CSL, but also expanded our considerations to include the much different methodologies applied by Lumsden in his 2003 report to KCDC, and also to review of the availability of data sets on waves, tides, sea levels, and coastal morphologies (beach and dune), all of which serve as the foundation to undertake scientifically sound hazard assessments.

Important to understand in coastal hazard-zone assessments is that there are two dominant components, the short-term impacts of extreme storm events, and the long-term property impacts associated with the future projected rise in global sea levels, both having climate controls. The primary focus tends to be on the threat of rising sea levels, often in the news and the primary topic of research by climatologists. However, the hazards from extreme storms are in many respects more important, in that such an event can occur at present, or at any time in the future. Furthermore, while the rise in sea levels will flood low lying areas of the coast, in terms of the erosion hazards its role is primarily to shift the impacts of storm waves and surge to higher elevations along the coast, it again being the storm that causes the destruction of homes and infrastructure.

The panel concluded that the CSL methodology and resulting hazard-zone assessments are not sufficiently robust to be adopted by the KCDC. We were all in agreement in this decision. For me the main shortcoming was the CSL analysis methodology based on variations ("fluctuations") in shoreline positions to determine the short-term hazards from major storms, without having demonstrated the ocean processes that produced those variations. The NZCPS 2010 guidelines for coastal hazard assessments stressed the importance of waves, tides and storm surges, as well as rising sea levels, and data sets are available for all of these processes on the Kapiti Coast, but CSL neglected to utilize them to provide more robust analysis results. In contrast, the Lumsden 2003 hazard analyses recognized the importance of these processes, those associated with extreme storms as well as the century-long rise in sea levels, having commissioned NIWA to develop the first data sets on waves and tides, to serve as the foundation in his hazard analyses. While his analyses are thereby more robust, additional data has come available, including projections of greater rates of rising sea levels, so that updated revisions of his results are required before they can be considered for adoption by KCDC.

A number of recommendations are provided in our report, with most directed toward improved analyses of the Kapiti Coast hazard zones. It was our hope that these will serve as a guide to achieve that result.