

Submission of Christopher Wood.

17<sup>th</sup> September 2024

My name is Christopher Wood. I live full-time in a dwelling at Bluecliffs Beach settlement. I have been a regular visitor of the area all my life and a resident for 35 years.

My concerns with the consent principally relate to the commonsense statement of Sir Isaac Newton's 3<sup>rd</sup> Law: "*for every action there is an equal and opposite reaction*". This is true for riverbed processes as much as anything else. Thus, if there is disturbance to the riverbed at the Mararoa Weir, there will be consequential disturbances at the Waiau River Mouth. We do not know precisely what they may be, or how severe they may be, but given the precarious state of the Bluecliffs Beach Settlement houses, there is a strong chance that the riverbed changes upstream might end up tipping our houses into the sea.

My submission neither supports nor opposes the grant of these consents. However, I suggest a number of conditions to these consents to maximise the protection of the Bluecliffs Settlement and the rivermouth environment. These are outlined later in this submission.

It should be noted that the properties at Bluecliffs Settlement were surveyed and gazetted as private property in 1961, two years before the Manapouri Te Anau Development Act (which authorised the de-watering of the Waiau River), which was passed into law in 1963. It should also be noted that the Manapouri Power Scheme is one of a very few hydro-electric power schemes which does not return the water to the original riverbed (it is diverted permanently to Deep Cove). This stopped the flow of water and disrupted the flow of sediment/gravel throughout the riverbed.

The changes to the river as a result of the Power Scheme have been so great, and there are so few examples of de-watering rivers on this scale, that it is laughable for anyone, (including "experts") to state that there would be little or no effect of this. Geological studies show that sediment from the Waiau catchment flowed into Te Wae Wae Bay for eons. This sediment has spread throughout the Bay from Grove Burn in the west to Waimeamea Stream in the east of Te Wae Wae Bay. This sediment has created a form of erosion protection to the shoreline, with an equilibrium being reached between sediment inputs and sea erosion within the Bay. The reduction in sediment washing into the Bay over the last 50 years (as a result of the Power Scheme) must certainly have disrupted this equilibrium, adversely affecting this protection; and it must continue to do so.

Prior to the Power Scheme, sediment of all sizes from large boulders to pea gravel would flow down the river in large floods. I remember standing on the riverbank fishing and watching the large boulders and gravel move along riverbed. These would end up in the sea to be ground up by the waves. Much of this gravel and boulders came from the Mararoa River. The deposited gravel for proposed removal is essentially the old Mararoa Delta. This gravel/sediment has not flowed downstream and therefore the unique processes at the rivermouth have been disrupted.

The constant flow of large (and smaller) stones etc to the sea created a barrier which is also unique. Comparisons to rivermouths elsewhere in New Zealand are meaningless, regardless of what the “experts” say. I suggest you give more credence to local knowledge because they have seen the changes first hand over a long time period; and I repeat this river is very unique and the Power Scheme is one of the very few which do not return water to the catchment. Locals are the ones who have had first-hand knowledge of the river over the last 50 years. This is more than can be said for “experts” who profess to know what’s going on at the rivermouth based on a few photos and comparisons with other rivers which bear no similarity to the Waiau.

Locals have seen over the last 50 years the gravel bar at the river mouth get thinner and thinner due to the lack of boulders, gravel and other sediment. Locals tried to advise the Southland District Council and contractors on how to re-open the rivermouth. This would probably not have been the catastrophic failure it turned out to be, if local knowledge was employed. Reliance on the “experts” caused this failure and reliance on “experts” in this forum could easily cause it again.

Some 15 years ago at a hearing on the revised flow for the 2<sup>nd</sup> tailrace, I gave evidence, based on local knowledge, that the flow changes would cause serious issues at the river mouth sometime in the next 10+ years. This is happening now. The cause is lack of gravel input into the river coupled with the flow changes over 50 years. While we cannot predict the changes caused by this consent, further changes to river mouth processes are inevitable and these could be catastrophic.

This has absolutely nothing to do with climate change or sea level changes etc, as proposed by Dr Single. It is solely caused by flow changes in the river. Meridian (the applicant) have made mention of flushing flows, which are of no consequence to the erosion issue. Flushing flows have little bearing on sediment and bedload flows in the river.

The main problem we have with erosion at Bluecliffs is when there are releases of large volumes of water into the river, the rapidity of flow changes and the duration of these changes. Meridian’s consents allow it to basically treat the Lower Waiau River as a giant spillway. There are effects of dewatering, bedload removal and rapid changes in flow, all coupled with a unique river operating in unique geological circumstances.

I have considerable concerns about Dr Martin Single's evidence in chief. Basically, nobody can predict the outcomes of any future changes in flow rates, flow changes and/or sediment load. There is no science available to make the predictions he has made that changes at the river mouth are the result of factors other than those caused by the exercise of Meridian's current consents and these additional consents. Dr Single's evidence is not robust scientifically and is speculative at best. It draws on conclusions unsupported by data of any meaningful consequence. I submit that, in the absence of any robust, meaningful scientific data, local knowledge provides the best picture of what's going on.

While my submission neither supports nor opposes the grant of these consents, I believe that Council should implement a policy that the exercise of all consents on the Lower Waiau River should include consideration of the actual and potential effects at the river mouth. This policy should have the specific goal to protect the houses at the river mouth (Bluecliffs Settlement). In addition, I recommend the following conditions on the consents applied for:

1. Restrict the rate of flow increase through the Mararoa Control Structure.
2. Gravel removed by the consents be returned to the riverbed at a suitable area of the riverbed below the Mararoa Weir (this area be determined by least environmental effect).
3. The consent period should be for a limited time to align with the consent renewals of the Power Scheme in 2031.
4. No sediment is to be discharged during the whitebait season
5. Set up a text alert system warning Bluecliffs residents of impending high flow events.

Yours faithfully

Christopher Wood