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From: Don Paterson [mailto:nat.opc@xtra.co.nz]

Sent: Wednesday, 19 June 2013 5:07 p.m.

To: 'Pim de Monchy'

Subject: Maketu Aerial photos please

Hi Pim

Salt water weighs more than the same amount of fresh water. This means that fresh water will "float" on top of salt water. This happens when water from rivers flow into the sea. I have witnessed this occurring at Te Tumu for 30 years. Please see attachments.

I am demonstrating to you that there is sufficient fresh water available at Te Tumu flowing on top of the salt water to enter the original river course to promote establishment of maritime marsh in the upper reaches of Maketu Estuary. Trial plantings of maritime marsh by DOC adjacent to Maketu Road and up to 100 metres from No 1 Pumping Station have demonstrate the high salt tolerance of these plants. Have you tested the salinity levels in this area throughout the tidal cycle please and have you compared it with what is available at Te Tumu throughout a tidal cycle?

Please find me photographs of the toe of Maketu Estuary spit before and after re-diversion through Ford's Twin Cuts in the 1990s.

I want to be able to demonstrate to you that erosion of the back of Maketu Estuary spit was caused by Fords Twin Cuts flow in isolation from a Papahikahawai Channel flow and that infilling of the lower Maketu Estuary had resulted primarily from the erosion of the back of the spit as I witnessed, rather than from infiltration through the estuary mouth as you have been led to believe.

I want to be able to demonstrate that the flood tide delta had grown from sand from the back of the spit following initial diversion, and that it had grown considerably larger following re-diversion through Fords Twin Cuts as I had witnessed than it was before re-diversion, when there would have been more water entering Maketu Estuary mouth from the sea. If water entering Maketu Estuary mouth from the sea was the cause then the flood tide delta would have been bigger before re-diversion and I believe that I had witnessed the opposite.

I believe that following re-diversion through Ford's Twin Cuts erosion to the back of the spit had been made to increase significantly and that the flood tide delta had simultaneously increased in size until overtopping of

the spit by storm surge and subsequent spit breach had then in-filled the lower estuary and consumed the flood tide delta. I had witnessed this occur and I had years later met the man in my shop who I had watched surf through the gap.

The reason that I want to be able to show this is because I want re-diversion to occur via the old river course so as to be able to recreate the ecosystems that had previously existed and without continually eroding the back of the spit and infilling the lower Maketu Estuary, as I had predicted in the Appeal Court would occur and it did.

I have ideas about creating extensive wetlands in connection with the Kaituna River and I would like galaxius from those wetlands to be able to spawn in Maketu Estuary maritime marsh which a Fords Twin Cuts diversion would prevent from happening because of its position and because of the salt water wedge.

Kindest regards

Don Paterson  
CLM; President HbT. SRF; SNTR

Chairman, History Focus Group  
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