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20 May 2014

Hi Pim

I request that BOPRC does model my proposal please. I have tried for 30 years to get DOC and then BOPRC to see what I feel certain is the best solution. The evidence presented is that the Maketu Estuary ecology in connection with Kaituna River catchment ecosystem food chains has been destroyed and that what I had predicted in the Appeal Court would happen following reintroduction through Ford's Twin Cuts 20 years ago, and that I recorded in my subsequent letter to Alan Willoughby dated 19-8-93 that is posted on my website www.wetlandsnz.com under the Background tab with a lot of other copy letters, did then happen exactly as I had described.

The point is that if the currently planned re-diversion did take place it could prevent the most beneficial solution as I have described it from ever being used. Just look at how much trouble they are having looking past the previous works done on Fords Twin Cuts despite the obvious failings. The last re-diversion attempt through Fords Twin Cuts was an experimental activity that failed miserably and now they are proposing to do it again.

The option of re-diversion that I have proposed is the most natural, least costly and potentially most beneficial for the environment for birds, fish and man.

Water levels and flows are child's play. There is nothing at all complicated about rainwater becoming a river and flowing through an estuary and then on top of an ocean. It happens automatically every day all over the world.

Subtle unmeasured silting in the upper Maketu Estuary has already been happening for centuries and is determined by Kaituna River flow rates. It formed Maketu Estuary in conjunction with wave action and tidal flows and both remain constant. Occasional low tide Kaituna River flood flows through Maketu Estuary via Papahikahawai Channel could remedy the situation immediately and without cost.

If BOPRC don't get it right this time they will never again be presented with such an easy and comparatively low-cost opportunity to do so.

BOPRC does in fact say the proposed re-diversion will increase fresh water flow into Maketu Estuary to only 20% of Kaituna River flow so please start shouting. That is not what Maketu Estuary wants and it is not what the democratic Kaituna River and Maketu Estuary Management Strategy public consultation had asked for.

I am not proposing full diversion. Te Tumu Cut will remain open and unchanged during times of high Kaituna River flow while it is carrying high pollution levels. Some salt water will enter Maketu Estuary through Te Tumu entrance diluting that pollution on an incoming tide. On an outgoing tide Te Tumu will remain open over and adjacent to a proposed overtopping weir that will replace the mole.

During times of low Kaituna River flow with an overtopping weir at Te Tumu carrying the bulk of high tide flow, then any significant wave action will limit outflow adjacent to the overtopping weir and will infill it with sand so more low tide flow will then go through Maketu Estuary from 3 different places as the estuary lowers: Papahikahawai Channel, under the 1971 Subsidised Rock Protection, Fords Twin Cuts. Te Tumu Cut could not close with a weir at RLO.5m and would always be ready to scour without cost as it presently does.

Even if Te Tumu Cut remains open adjacent to the weir for considerable lengths of time due to high Kaituna River flow and/or due to insignificant wave action, substantial fresh water will still enter Maketu Estuary on top of salt water during every tidal cycle. Maketu Estuary fills more slowly than the tide rises at Te Tumu and in the lower Kaituna River where fresh water flows on top of salt water.

There is currently always freshwater outflow at Te Tumu Cut throughout the tidal cycle. The wider the point of reintroduction that is now made into Maketu Estuary where it is currently blocked by Ford Road, then the more fresh water that will be able to leave the lower Kaituna River and enter Maketu Estuary and so the more flood relief that will be able to be provided to the lower Kaituna River catchment, especially if the new wetland to be created on Brain land is opened to allow that high tide fresh water into Maketu Estuary.

An overtopping weir at Te Tumu could be constructed with a vertical face to deflect wave action and so reduce mixing during periods of low Kaituna River flow over the weir. As the tide rises and as Maketu Estuary fills with fresh water from the Kaituna River and with salt water from both Te Tumu and from Maketu entrances, then the Kaituna River will again overtop the weir and the beach adjacent to it at Te Tumu keeping that entrance open and ready to scour during floods. If the beach did ever close adjacent to the weir during periods of low Kaituna River flow and high wave action then it will remain ready to scour as soon as the lower Kaituna River level exceeds RLO.5m on an outgoing tide and also as soon as the overtopping weir is unable to accommodate Kaituna River flow when Maketu Estuary had filled.

A weir could be a reinforced concrete box-section filled with rocks or sand or concrete and with a concrete lid and it will be a lot less expensive to construct than would be the currently proposed works @ $4,000,000 including land confiscation for another river channel, additional flap-gated culverts at Fords Twin Cuts, infilling of a section of the original Kaituna River course and so destruction of existing wetland habitat that could potentially instead become an ideal future marina site. All represent unnecessary and wasteful spending of public funds. The option that I propose will cost very little and can provide far greater benefits for the environment.

We saw what happened last time that Maketu Estuary spit was breached by Fords Twin Cuts flow. It gradually migrated back to Maketu grossly enlarging the flood tide delta and infilling the lower Maketu Estuary with sand that has included a grossly enlarged and unnatural toe of Maketu Estuary spit that has remained there and that has continued to build as the back of the spit has further eroded. Papahikahawai Channel flow could instead make a deliberate breech migrate back to Maketu much more quickly with certainty and Kaituna River floods would remove sand from the lower Maketu Estuary with certainty as had once occurred naturally.

Maketu Estuary spit could be breached in March after the dotterel have nested and would reform before they nested again. Skinks could be trapped and relocated to the western side of the breech or they could relocate to the Maketu foreshore as that entrance closes again temporarily.

I have asked BOPRC to model my proposal to provide evidence backed by data. Their current proposal has no consideration around restoring the mauri of the Kaituna River to Maketu Estuary which occasional full low tide Kaituna River flow could do. The interconnected ecosystem food chains that can now easily be recreated naturally can potentially also be even further enhanced in connection with freshwater v-drain kahikatea forested, flax and raupo filled wetlands that have the potential to significantly increase local fisheries production for the benefit of the people and for the environment as a whole.

I have clarified the points made in Steve Everitt's report as I see them and I invite you to study what I have written please before BOPRC wastes an opportunity to save money and to create something much better for the environment than what has been proposed by staff and contractors.

If an overtopping weir had originally been constructed at Te Tumu in 1958 as I have described, then I believe that the mauri of Maketu Estuary, estuarine boating access, maritime marsh and ecosystem food chains would still be in place without risk of flooding and it could also reduce the current risk without cost because of the holding capacity of Maketu Estuary and the extra outlet to the sea over a lower bar at Maketu than at Te Tumu.

BOPRC have not modelled my proposal and so you and your engineering consultants have no right to dismiss it as you have tried to do because that is undemocratic and illegal under the Local Government Act of Parliament.

I reply to your points numbered 1-4 in your 2/5/14 letter:

1. The option that I have proposed has far less economic cost. Somewhere between $3,500,000 and $4,000,000 less cost.

2. A 300% increase of next to nothing is still next to nothing. 20% of the Kaituna River flow through Maketu Estuary will not return the mauri of the river to the estuary. The mauri of the Kaituna River would continue to escape Maketu Estuary with the food chains at Te Tumu. However returning occasional low tide Kaituna River flood flows to Maketu Estuary could return the mauri of the Kaituna River to Maketu while still maintaining flood protection in the lower catchment.

3. Under my proposal there could be no cost of managing floods and other risks as the Te Tumu exit will remain unchanged and will regulate its size automatically in conjunction with free energy from Kaituna River flow volumes and tidal wave action as it does now.

4. 20 years ago I described to an Appeal Court Judge what would happen to Maketu Estuary if Fords Twin Cuts was used to divert Kaituna River water into Maketu Estuary. Everything that I had predicted happened as I had predicted it would.

Your independent financially rewarded engineers and scientists have a conflict of interest. They have again recommended using Ford's Twin Cuts. Ford had proposed it: Murray designed and built it: His son Ken Murray wrote his university paper on it: Ken's close personal friend/then flatmate Jim Dahm has continuously supported it: Steve Everitt recommended using it again. You then asked Steve Everitt in opposition to his own financial reward to model my proposal which I believe he sabotaged by increasing overtopping weir height from RLO.5m and also creating additional costs like unnecessary excavations that I had not recommended. Kaituna River floods will do the excavations again without cost as they originally had and as I have been submitting without financial reward for 27 years.

The engineering assessment by Steve Everitt had been prepared based on the option that I had described to him in detail but with changes by Steve Everitt. A subsequent check with me that the description was accurate had ignored my comments which is why I had written to you dated 22 April 2014.

Under my proposal Kaituna River boats would continue to have access to the sea at Te Tumu Cut adjacent to the overtopping weir as well as through Papahikahawai Channel and Maketu Estuary entrance which provides a safer bar and sheltered anchorage.

There could be no increased risk of erosion or of flooding as nothing would be changed at Te Tumu Cut from how it is now.

There could be no impact on drainage scheme operation except that it could be improved by removing fresh water from the lower Kaituna River more quickly.

Floods would continue to reliably exit at Te Tumu Cut as soon as Maketu Estuary had filled with fresh water.

Upstream lowering in Kaituna River water levels could result from having 2 exits to the sea instead of 1 as well as from the holding capacity of Maketu Estuary.

No upstream stop bank rise would be necessary because Te Tumu Cut would be in place, unchanged and fully operational as it is now.

Occasional Papahikahawai Channel low tide flushing flows could be created without cost or risk and would protect the back of Maketu Estuary spit from erosive flows moving from the southern side of Maketu Estuary.

There has been erosion caused to the back of Maketu Estuary spit by flow from the southern estuary bending against the spit on every falling tide and this was verified by the testing of water flow rates during the Kaituna River and Maketu Estuary Management Strategy.

Spit breech is now steadily approaching again and can be verified by the decreasing width of the spit where it is being eroded by Fords Twin Cuts flow from the southern side of Maketu Estuary. This would be accelerated by increasing flow through Fords Twin Cuts as we have already witnessed to have occurred following the Appeal Court hearing.

Deliberate resultant sand introduction into Maketu Estuary from the back of the spit has occurred since Fords Twin Cuts was proposed and built. Occasional Papahikahawai Channel low tide flood flows could reverse this without cost.

Reliable timely flood release at Te Tumu Cut is certain to occur because nothing would be changed there from how it is now.

There is no need for an expensive gate structure at Te Tumu that would have an ongoing potential to fail.

High water levels at Maketu Township would not change because Te Tumu Cut would not change and would remain able to scour as it does now. Maketu Estuary would remain above sea level and able to drain to sea at Maketu and at Te Tumu on a falling tide.

An overtopping weir at Te Tumu at RLO.5 would ensure that entrance remained open on every tide.

Only a portion of high volume Kaituna River flow would ever go through Papahikahawai Channel because a weir at Te Tumu at RLO.5 plus erosion of the beach adjacent to the weir would ensure that most of flood flows would continue to go out to sea at Te Tumu Cut.

A deliberate spit breech opposite Whakaue Marae where the spit is currently being narrowed by Fords Twin Cuts flow, once Papahikahawai Channel flushing flows had again been made available to Maketu Estuary, would allow occasional Kaituna River flushing low tide flood flows to remove sand from the lower Maketu Estuary and to rebuild the natural toe of Maketu Estuary spit without cost and without the environmental catastrophe that dredging would represent in this natural estuarine environment.

Kaituna River flow would maintain Te Tumu Cut at high tide and while the tide was going out as it does now and with the addition of some flow from Maketu Estuary while it was emptying.

On a rising tide Kaituna River fresh water and Te Tumu Cut salt water would enter the back of Maketu Estuary.

During significant Kaituna River floods Maketu Estuary would fill with fresh water on a rising and on a falling tide and sediment would be flushed out of Maketu Estuary mouth without cost.

Te Tumu Cut would continue to function as it does now to provide flood relief.

Maketu Estuary would receive a varying input of Kaituna River fresh water depending upon Kaituna River flow volumes interacting with tidal wave action.

The mauri of the Kaituna River could be returned to Maketu Estuary without cost and without risk of flooding by my proposal and I request that it be fully modelled please.

Kindest regards

Don Paterson
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