

I hereby make a submission to resource consent applications BOPPRC 67958 and WBOPDC 4944(L).

I oppose the applications because I believe that they are a mistake by the applicants because I believe that there is a much better way to reintroduce Kaituna River water into Maketu Estuary as I have described below.

I believe that the resource consent applications could have a disastrous effect on the environment because of further devaluation of a public asset by not allowing that asset to reach its full potential by Bay of Plenty Regional Council's proposed reintroduction of Kaituna River water into Maketu Estuary, because it does not allow for the return of mauri or life force, or for the rebuilding of food chains and so the return of fish and life to Maketu Estuary which is what we have all been seeking for decades. The return of the mauri of the Kaituna River to Maketu Estuary is most important and so it could best be the priority I believe. Potential Maketu Estuary and surrounding fisheries production increase could then set a precedent by providing a working model for the rest of the country to follow and the potential public fisheries asset could be re-grown and farmed towards its full potential.

Adverse effects that have been imposed upon the Maketu Estuary environment by the removal of the Kaituna River and by the previous failed attempts at reintroduction of Kaituna River water to Maketu Estuary through Ford's Twin Cuts could not be mitigated by the proposed consent applications design.

I would like the Consent Authority to fully reject both applications and to fully model the proposal that I have made please.

I would like to speak to any subsequent hearing.

I strongly believe that the applications could best be declined and that is the only condition that should be imposed because the applications do not adequately address what was set out to be achieved by the Kaituna River & Maketu Estuary Management Strategy public consultation. They do not solve anything, nor are they capable of ever doing so. They do not right the wrongs that were imposed upon Maketu Estuary and upon Maketu residents and they never could do.

There is a simple, safe, and cost effective reintroduction solution that could instead be used and I would welcome the opportunity of discussing this with you onsite at your earliest convenience please. There are copy letters posted on my website www.wetlandsnz.com under the Background tab for your information which demonstrate many years (decades) of commitment on my part to seeing the Kaituna River returned to Maketu Estuary. My letters to Pim de Monchy dated 20/5/14 and 13/7/14 and to Steven Joyce dated 27/7/14 describe how best I believe that reintroduction can be achieved without risk of flooding and without comparative cost. BOPRC have refused to model my proposal in complete disregard of the Local Government Act of Parliament. They have completely missed the point of

reintroduction and have erred unnecessarily on the side of caution because they cannot or they will not see this opportunity for growing the value of a public asset that is being presented to them. Regardless of flood size the water level at Te Tumu hardly alters except for tidal variation because a flood disappears when it reaches the ocean. The capacity of the existing exit in addition to a proposed overtopping weir, and in addition to the holding capacity of Maketu Estuaries and its own exit would safeguard Maketu from flooding.

I would welcome the opportunity of talking you through this recipe for increasing export revenue in the same way that I described reintroduction to Bill Bayfield in 2006 when he was CEO of BOPRC and which then led to the Kaituna River and Maketu Estuary Management Strategy public consultation, which then directed BOPRC that we the public want the Kaituna River reintroduced to Maketu Estuary, and which they have in turn subsequently 80% ignored with their proposal which can never achieve much good at all in comparison with what I have proposed. It would also cause further erosion of the back of Maketu Estuary spit, destabilisation of lower Maketu Estuary channels and further infilling of Maketu Estuary as had two previous failed attempts at reintroduction through Fords Twin Cuts and as I had predicted would occur in the Appeal Court. All of the time and effort and expense that has been put into studying the issues would then have been wasted because little at all good in comparison with my proposal can be gained from the BOOPRC proposal.

I am proposing leaving the Te Tumu exit exactly as it is and so floods will continue to exit there as they do now. I am proposing reopening the original Kaituna River course through Maketu Estuary and so protecting the back of the Maketu Estuary spit with a Papahikahawai Channel flow. A RLO .5m weir at Te Tumu adjacent to the existing exit and in place of the mole and to a width of 50-100m will ensure that exit remains open on every tide regardless of variable Kaituna River flow rates and the possibility of significant wave action building an occasional bar at Te Tumu on the high tide adjacent to the weir. The weir could also be slightly angled towards the current exit to encourage that exit to scour on the outgoing tide. A RLO 1m weir between Papahikahawai Island and Ford Road will ensure that more of fresh and salt water that enters Maketu Estuary on the top of the tide will stay in Maketu Estuary longer and until it exits at Maketu on a falling tide.

Whenever the Kaituna River floods on a high tide the water in Maketu Estuary will force the Kaituna River to exit at Te Tumu and so will maintain the viability of that exit. Land surrounding Maketu Estuary could not flood because the Kaituna River will flow more easily downwards onto the falling ocean at Te Tumu through the existing exit, as well as over the weir at Te Tumu, as well as over the even lower bar at Maketu. The only consequence during floods could be more Kaituna River water staying in Maketu Estuary longer on a falling tide and subsequent removal of the flood tide delta and deepening of Maketu Estuary mouth as Maketu Estuary empties.

At low tide Te Tumu exit and Maketu Estuary will continue to receive Kaituna River fresh water ecosystem food chains and that is the entire reason for reintroduction of Kaituna River water to Maketu Estuary. We want the mauri, the life force, the food chains, the fish returned to Maketu Estuary and we want the lower Maketu Estuary and bar to be more suitable for boating. The BOPRC proposal could not achieve this to any comparable degree and so can be seen to be yet another waste of time and effort and public funds as were their previous unsuccessful attempts at introducing Kaituna River flow to Maketu Estuary through the original and unnatural mistake that was Fords Twin Cuts, and that could instead ideally have been an overtopping weir at Te Tumu at RLO .5m in 1958.

The National Government has targeted doubling New Zealand's exports. I have also been working on that for 27 years. The copy letters are posted on www.wetlandsnz.com under the Background tab. I have helped swing public opinion and 20% of the Kaituna River is going to be returned to Maketu Estuary but not yet in the most beneficial way possible to recreate fisheries food chains as had originally existed.

I believe that the inshore fisheries do hold a vast untapped potential to increase production and so exports. I am attempting to set an example of this with Maketu Estuary restoration in conjunction with connected wetland re-establishment, in conjunction with Maketu Estuary maritime marsh galaxius spawning habitat re-establishment, and in connection with galaxius habit in the Rotorua Lakes and the Kaituna River catchment and its original course through Maketu Estuary. The reintroduction that has been proposed by Bay of Plenty Regional Council would undermine this.

Bay of Plenty Regional Council have not yet seen the significance of re-establishing original food chains to re-grow original fisheries production, which their proposed option of partial re-diversion done in an unnatural way could not achieve. If we instead re-divert Kaituna River flow in the way that I have described and if we then demonstrate a huge increase in both fresh water tuna (eel) as well as local inshore coastal commercial fisheries production, then we will have a recipe that can be applied to the rest of the coastline and so we can I expect more than double New Zealand's exports. Our 200 mile economic zone is our largest farm and if we farm it instead of stripping it then we must hugely increase production. We know that we can because it had been witnessed to have existed previously before wetlands were drained for pasture and before estuaries like Maketu were isolated from their catchment ecosystems. Imagine farm production without growing any grass. Galaxius (whitebait) and tuna (elvers) are at the bottom of fisheries food chains and so can be compared to grass on a farm.

There is currently no commercial fish or tuna (eel) fishery based at or near Maketu and so we have a measurable benchmark to work from. I suggest that galaxius (whitebait) could also best be protected within the Kaituna River catchment to

enhance any fisheries production increase with the food chains that they could create.

What I have proposed below is self-explanatory. BOPRC have replied with negatives again as follows despite my already having addressed those points:

“Mr Paterson, tēnā koe

Thank you for your email dated 13 July.

I am keen to see the maximum benefits from the Kaituna River re-diversion project as you are. However, Bay of Plenty Regional Council also needs to manage the risks and environmental effects associated with the project. Council has received an engineering assessment of your proposed re-diversion option and considers the risks and environmental effects associated with it to be unacceptably high.

Your suggestion below is a variation on the option you proposed originally, but it still poses unacceptably high levels of risk. These risks include among others a lack of certainty of flood relief provision at Te Tumu, the lack of ability to control river flood inflows into Maketū Estuary, and the effects on drainage of higher low tide water levels in the lower river and estuary.

The project’s resource consent application will soon be notified for public submissions. I suggest that you prepare and lodge a submission so that the commissioners appointed to decide on the application can consider your proposal alongside the option put forward by Council.

Ngā mihi nui

Councillor Black”

I do believe that I have already sufficiently clarified that:

1. The “engineering assessment” is just an unproven professional opinion by Steve Everitt that was purchased by BOPRC with public funds that I have not had access to and my recommendations have not been modelled.
2. Flood relief is a certainty as Te Tumu Cut will remain unchanged and able to scour as it does now, plus an overtopping weir at Te Tumu could increase capacity, as would Maketu Estuary exit.
3. Flood inflows into Maketu Estuary will be controlled by Maketu Estuary water levels being higher than the ocean at both Maketu Estuary entrance and at Te Tumu and both will be able to scour sand. Floods will in the main continue to exit at Te Tumu once Maketu Estuary has filled because the ocean will be lower than will be Maketu Estuary. As the tide falls both Maketu Estuary entrance and Te Tumu exit will scour as does currently occur. How could Maketu Estuary flood when the ocean

is lower than the estuary? Water would have to run up-hill against gravity for this to occur.

4. Low tide water levels in the lower Kaituna River and in Maketu Estuary could instead improve because two exits plus the holding capacity of Maketu Estuary will better drain the catchment more quickly than one exit currently does. At low tide the Kaituna River will exit at Te Tumu as it currently does so maintaining that exit and Maketu Estuary will have emptied at Maketu. At high tide when Maketu Estuary has filled with a mix of fresh and salt water from Te Tumu and from Maketu the Kaituna River will continue to exit at Te Tumu as it currently does over the salt water wedge. The RLO 1m stop banks that I have proposed will further ensure that this occurs, as will the constriction of the sides of Papahikahawai Channel after the high tide begins to fall at Te Tumu and as Kaituna River flow again scours that exit as the salt water wedge retreats below and beside the overtopping weir at Te Tumu.

5. Most importantly the Te Tumu exit salt water wedge will be stopped by the overtopping weir and by the sand bar that will form beside it during periods of low Kaituna River flow, which will then encourage galaxius to spawn in Maketu Estuary maritime marsh that is yet to be re-established and that will then re-establish Kaituna River catchment ecosystem food chains in support of a fisheries rebuild.

I am now again faced with the task of making a submission in my own time in opposition to the publicly funded resources that are available to BOPRC. This is another kangaroo court. It is a replay of when I took BOPRC to the Appeal Court to try and stop them wasting any more public funds on their unsuccessful Fords Twin Cuts re-diversion attempt. I learnt that time in the Appeal Court that the most qualified engineering advice determines the outcome and that it has nothing at all to do with who is right and who is wrong. BOPRC have now been proven to have been entirely wrong to have tried to reintroduce Kaituna River flow through Ford's Twin Cuts after they and Chris Richmond of DOC had spent years employing engineers, contractors and lawyers with wasted public funds and so any potential fisheries production increase has suffered accordingly due to their complete misjudgement and failure. There has been no consequence for those who made the mistake and there has been no consequence for the BOPRC lawyer who misled the Appeal Court Judge over the ownership of Papahikahawai Channel water rights.

Will you please now help me to gain unbiased and more qualified engineering opinion and testimony and legal representation in support of my long-studied opinion so that I can have the best chance of setting an example of public fisheries production increase.

Would you please also consider funding the purchase of lowlands described below and helping me to convert them into kaihikatea, flax and raupo planted v-drain wetlands in connection with the Kaituna River catchment and in natural connection with Maketu Estuary maritime marsh galaxius spawning habitat to be recreated as I

have also described, so that we can demonstrate a potential to rebuild fisheries production and to potentially much more than double exports.

I recommend that all Kaituna River catchment drains with a fall of less than 2 degrees could now best also be converted into v-drain wetland sediment trapping, nutrient lowering fish habitats in connection with Maketu Estuary maritime marsh galaxius spawning habitat so as to increase fisheries production

If the Ford Road stop-bank is lowered to RLO 1m, and if the 1971 Subsidised Rock Protection is removed and relocated to span between Papahikahawai Island and a point on Ford Road 100 metres to the south of the RLO .5m overtopping weir that I have proposed be built at Te Tumu in place of the mole, and also at a height of RLO 1m, then an enormous amount of Kaituna River fresh water will enter the back of Maketu Estuary on the top of every rising tide over the RLO 1m stop-banks as well as when the Kaituna River is in flood.

The majority of that reintroduced fresh water will exit at Maketu after spending a considerable amount of time in Maketu Estuary. Problems solved with little cost if working flap gates do remain working at Fords Twin Cuts, or if Fords Twin Cuts is again blocked by a RLO 1m rock causeway. Some water may exit Maketu Estuary on the top of a falling tide via Papahikahawai Channel towards Te Tumu but most Maketu Estuary water will exit through Maketu Estuary mouth as had originally occurred.

Navigability goes where low tide flows and so the Kaituna River will daily maintain navigability at Te Tumu adjacent to the overtopping weir as well as occasionally through Papahikahawai Channel and Maketu Estuary. Floods will continue to exit at Te Tumu but will in part also flow through Papahikahawai Channel. They will bend around Maketu Estuary spit and stabilise it. They will remove the flood tide delta from within Maketu Estuary and they will deepen Maketu Estuary mouth at low tide. They will reduce salt water inflow to Maketu Estuary on a rising tide as will the RLO 1m stop-banks.

I have requested a plan view of v-drain wetlands that could be constructed on lowlands adjacent to the lower Kaituna River. I would initially like these drawn at right angles to the existing Kaituna Road drain on all lowlands on both sides of Kaituna Road from Maketu Road through to the Eastern Arterial Link.

A kaihikatea forested wetland created could become a scenic reserve for its protection with Kaituna Road through the middle of it and it will in time become one of the most highly valued pieces of land in this country as have other forests close to cities overseas.

I have recently had the good fortune of meeting Melanie McKenzie of 419 Maketu Road, RD 9 Te Puke, Ph 533 2402. She and her husband Ross farm lowlands adjacent to Kaituna Road that are often flooded and I believe that they may be

prepared to sell those lowlands for wetland creation, initially between Kaituna Road and Maketu Estuary which would I believe be an ideal place to start building v-drain wetlands, as would also Te Awa Swamp to the east of Maketu Road with v-drains made to run at right angles to Maketu Road.

I would like to post the above mentioned diagrams on the website www.wetlandsnz.com that I have designed and had built to attract funding to enable me to purchase lowlands for v-drain wetland creation to enhance local fisheries in conjunction with Maketu Estuary maritime marsh galaxius spawning habitat to be recreated.

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 also enter Maketu Estuary through Te Tumu entrance under the fresh water 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 falling tide Kaituna River flow will then go through Maketu Estuary from 3 different places as the estuary lowers: Papahikahawai Channel, over the RLO 1m stop banks, and through Fords Twin Cuts if it remains in place. Te Tumu Cut could not close adjacent to a weir at RLO.5m and would always be ready to scour without cost as it presently does.

Even if Te Tumu Cut did remain 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. This could be done in stages to allay fears of flooding Maketu by installing culverts over time, but this would not be necessary for reasons given.

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 has filled.

A weir could be a reinforced concrete box-section filled with rocks or sand and water, or concrete and with a concrete floor and ceiling, or it could be a footed concrete wall

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 further destruction of existing wetland habitat that could potentially instead become an ideal future marina site. All proposed actions 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 breach 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 with the entrance migrated back to Maketu before they nested again. Skinks could be trapped and relocated to the western side of the breach 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 Kaituna River flood flows 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 and recorded on www.wetlandsnz.com under the Background tab 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 they and their engineering consultants have no right to dismiss it as they have tried to do because that is undemocratic and illegal under the Local Government Act of Parliament.

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

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 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 and on land surrounding Maketu Estuary.

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.

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. It was a mistake and a complete waste of time and money. Everything that I had predicted happened as I had predicted it would. There has been no consequence for those who proposed and made the error.

BOPRC's 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. BOPRC then asked Steve Everitt in opposition to his own financial reward to model my proposal which I believe he sabotaged by increasing Te Tumu exit 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 Pim de Monchy 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 flood 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 breach 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, except that an adjacent weir could increase capacity.

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 through the existing exit would ensure that most of flood flows would continue to go out to sea at Te Tumu Cut.

A deliberate spit breach 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 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, or stop-banking, or sandbagging 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 through Papahikahawai Channel 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
CLM; HbT SRF SNTR

Chairman, History Focus Group
Kaituna River & Maketu Estuary Management Strategy
BOP Game Fishing Charters
NZ Registered Natural Therapies Practitioner NT1634

Natural Therapies 28 Jellicoe Street Te Puke 3119
Ph 07 573 5533 fax 07 573 9363

www.naturaltherapiesnz.com
www.gamefishingcharters.co.nz
www.wetlandsnz.com