ENGINEERING THE LIFE BACK INTO MAKETŪ ESTUARY

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ABSTRACT

The Kaituna River located in the Bay of Plenty originally entered the sea via the estuary at Maketū. Since the 1900 there has been major work undertaken in the lower Kaituna River Catchment to reduce flood risk to surrounding properties. This has included the construction of stopbanks along parts of the estuary margin and the 1956 Te Tumu diversion, which directed the river out to sea before it reached the estuary. Some of this work contributed negatively to the ecological and cultural effects, such as:

- a decline in the mauri of the estuary and lower river, with associated impacts on tangata whenua relationships with the area, and
- accelerated in-filling of the estuary (largely due to increased water volume and speeds through the estuary entrance on the incoming tide) with up to 70% of the tidal prism lost since 1956.

The BOPRC awarded a $13.5M contract in 2017 for the physical works to re-divert almost a quarter of the Kaituna River's flow back into Maketū Estuary. The extra water is predicted to improve the estuary's health and will restore some of the ecology of the area by allowing salt marsh and other wetlands to return. This will also create more suitable conditions for a range of shellfish and fish species and may reduce the rate at which sand fills in the estuary. The re-diversion will increase freshwater inflow to the estuary by 163k m^3 (avg. tide cycle flowing down the river).

This paper reports on some of the project challenges and successes during the design and construction phases. The challenges included:

- optimising the new inlet position,
- value engineering to reduce costs by utilizing local sourced materials,
- Removing of causeways which impede water flows through the estuary, and
- Creation of 22 ha of wetland.

Keywords

Reestablish fresh water flow, improving environmental performance, monitoring and value engineering.