

Using transplants to restore seagrass: success of a second trial in Whangarei Harbour, New Zealand.

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Seagrass meadows (*Zostera muelleri*) once occupied an area of c. 14 km² in Whangarei Harbour. By the 1970s most of these meadows had been lost, with their disappearance linked to dredge spoil dumping and industrial sediment discharges. In autumn 2008 seagrass was successfully transplanted from a small remnant meadow near One Tree Point to a largely devegetated former site at Takahiwai. Seagrass transplanted as sods and sprigs flourished and over subsequent years regained much of its former range in this area. However, other former seagrass locations within the harbour remained devegetated. In winter 2012 a second transplant trial was established in an attempt to facilitate seagrass regeneration at one such site, McDonald Bank. The trial was preceded by an assessment of growing conditions (light climate and sediment grain size). The trial design incorporated an evaluation of transplants of different sizes and configurations ranging from a cluster of 5 x 10 cm diameter sods to a semi-intact sod-plot of 0.5 m². In July 2016, four years after transplant, virtually all of the units had survived and spread substantially. All sizes and configurations tested were similarly successful. The results provide further evidence that *Zostera muelleri* can be successfully transplanted to former sites where growing conditions are suitable. The lack of natural recolonisation at McDonald Bank despite substantial regeneration across the harbour at Takahiwai suggests an issue with supply and/or establishment of viable propagules (i.e. seeds or floating vegetative fragments). Therefore, in locations where seagrass loss has occurred as a result of anthropogenic activities and those activities have ceased and suitable growing conditions have been restored, transplants may be a highly effective means to enhance the natural recolonization and regeneration process.