

Brief for Project Oyster Shell

There is an estimated 25,600m³ (6,400 tonnes) of waste oyster shell and 270m³ (297 tonnes) of waste timber in the Waikare Inlet, in the Bay of Islands. This waste covers a total area of 30 ha. The build-up of waste has occurred over the last decade because the oyster farms were closed due to an outbreak of norovirus. Recent upgrades to the wastewater treatment plant in Kawakawa have improved the water quality in the Waikare Inlet (e.g. norovirus outbreaks have reduced from 40 to 1 in the last 18 months) and so the oyster farms are now open for business. Today, the oyster farms have so much waste timber and oyster shell that they have to clean it up before new harvesting areas can be built. (The estimated income of a fully operational oyster industry in the Waikare Inlet is >\$5M/year (Enveco, 2010)). This project will be managed by staff at Enterprise Northland.

In the first year, the project is expected to divert 297 tonnes of waste timber towards mulch

From the second year the project is expected to divert 700 tonnes of waste shell from landfill as an ingredient for calcium-based products. If secured for development, the reclamation will divert 15,000 – 22,500 tonnes of soil material from storm damaged land-slips tonnes

In the third year, provided that the reclamation and shore base are completed, 5700 tonnes of waste shell is expected to be processed.

Enterprise Northland fully supports this project as the economic development potential of it is high and fits its objectives for developing Northland's economy, particularly in the Far North. The aquaculture industry in Northland is expected to be worth \$216M per year and employ 2821 FTEs (Enveco, 2010).

Cost estimates for this project have been assessed by several parties to enable effective project planning. Measurements of the waste shells for reuse, recycle and recovery have already been undertaken by Golden Bay Cement to estimate the tonnage of waste to be re-used. These measurements used the density of shells. This gives us 6,400 tonnes of shells that can be sold to the companies for cement or lime product manufacturing. The oyster industry will continue to reuse, recycle and recover the oyster shells as part of the re-establishing of the business. This could potentially create a zero-waste industry.

At present the oyster farmers are removing small volumes of waste by hand and disposing it to landfill. In 2010, 40m³ (10 tonnes) of shell has been removed.

Strategy

The project will be achieved by using Waste Minimisation funding and other funding sources to:

- Enable Enterprise Northland to contract a local company (tentatively entitled Waikare Waste Recovery Company) which will be established to recover waste timber and shells from oyster farm sites in the Inlet and recycling it rather than disposing of it to landfill. The Waste Minimisation Fund will be directed towards the costs of Enterprise Northland's project management, the company's onsite coordinator, waste minimisation labour costs, and specialist recycling equipment and plant. Alternative funding will be applied to elements of the project which are not directly associated with waste minimisation, e.g. clean-up. Finding the line between what is Waste Recovery and what is Clean-up is difficult so the so the project is proposing a 60/40 split of the total clean-up/ recovery costs.
- Facilitate the development of a land reclamation site and its subsequent fit-out as a shore base for the final processing and storage of waste material prior to sale and transport. The Waste

Minimisation fund will be used to meet 20% of the costs of the reclamation and land-based processing of the recycled waste. Alternative funding will be used for Resource Consent and to develop the reclamation, and improve road access to the site. There is a longer term strategy to further develop this site for processing oyster meat as well as waste shell, which will firmly re-establish the industry in Northland and contribute much-needed employment.

- The reuse, recycling and recover of oyster shell waste could be undertaken across the country as the shell is a high quality grade product. The aquaculture industry could utilise the outcome of this venture to promote shell recovery in New Zealand. In Northland, there are a total of 679 ha of designated oyster farm areas of which 58% is currently built (or 395 ha). The Bay of Islands has 30ha of waste shell built up and the Kaipara Harbour has 17ha of similar shell build-up, and an estimated 11,000m³ of waste shell and timber. If this project is funded and the Waikare Inlet is cleared of oyster farm waste the expertise, methodology and equipment could be transported to the Kaipara Harbour and other areas throughout the North Island to start a similar shell reuse and recycling programme.
- For the purposes of this project, a distinction is made between the costs of waste minimisation (i.e. converting waste timber and shells to other uses) and clean-up (i.e. enabling the oyster farms to become productive). The Waste Minimisation Fund will be used to meet the costs associated with waste recovery and recycling. Alternative funding will be used to meet the costs of any activity or equipment which might occur in spite of the waste minimisation project (e.g. lifting the timber and shells from the water, and most of the reclamation development). In keeping with this distinction, some of the project costs will be invoiced to the oyster farmers who benefit from the clean-up. The farmers will also provide labour and equipment as part of their share towards the project.