Examples of Soft Engineering Erosion Protection on the Kapiti Coast

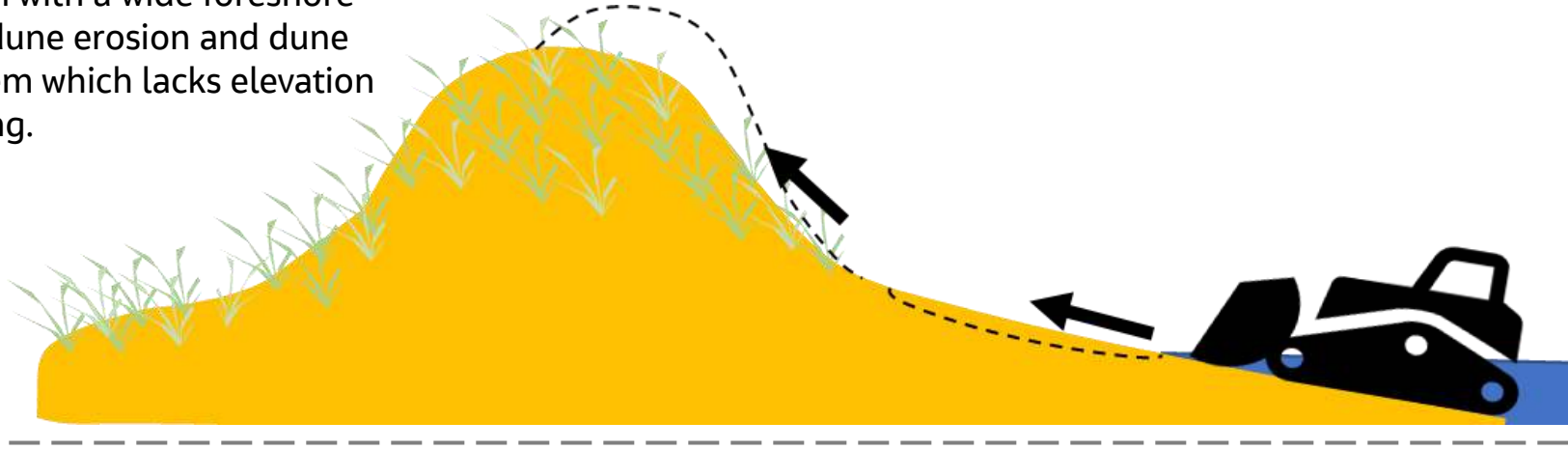
Soft engineering for erosion protection involves:

- *Moving around the sand that is already on the beach to build up the beach profile to provide a greater level of protection; or*
- *Bringing in additional sand to help build up the beach profile volume and provide a greater level of protection.*

There are various methods that you could use to achieve effective outcomes, and ways to minimise the effects that these mechanisms could have on important values of the coastal environment. These methods would require various degrees of consenting depending on what was proposed, and this process would require any adverse effects to be avoided or minimised to obtain the best outcome for the environment. Below are some examples of how soft engineering could be done on the Kapiti Coast:

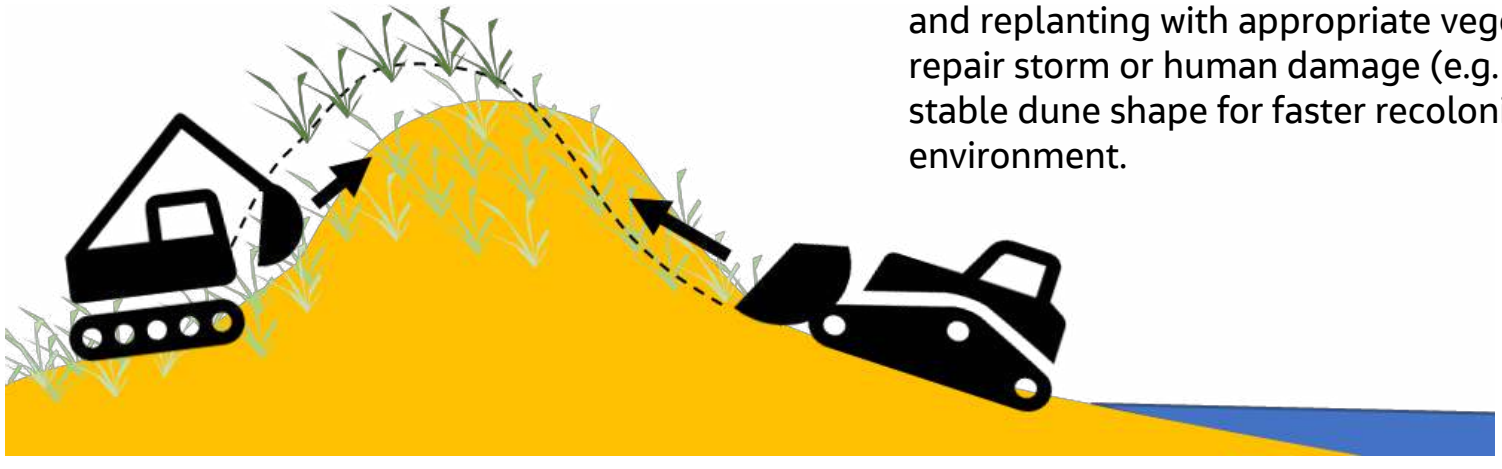
1. Beach Scraping

Sediment transported from the foreshore to the dune to build up the crest elevation. Best used on beach system with a wide foreshore that suffers periodic dune erosion and dune (or beach ridge) system which lacks elevation to prevent overtopping.



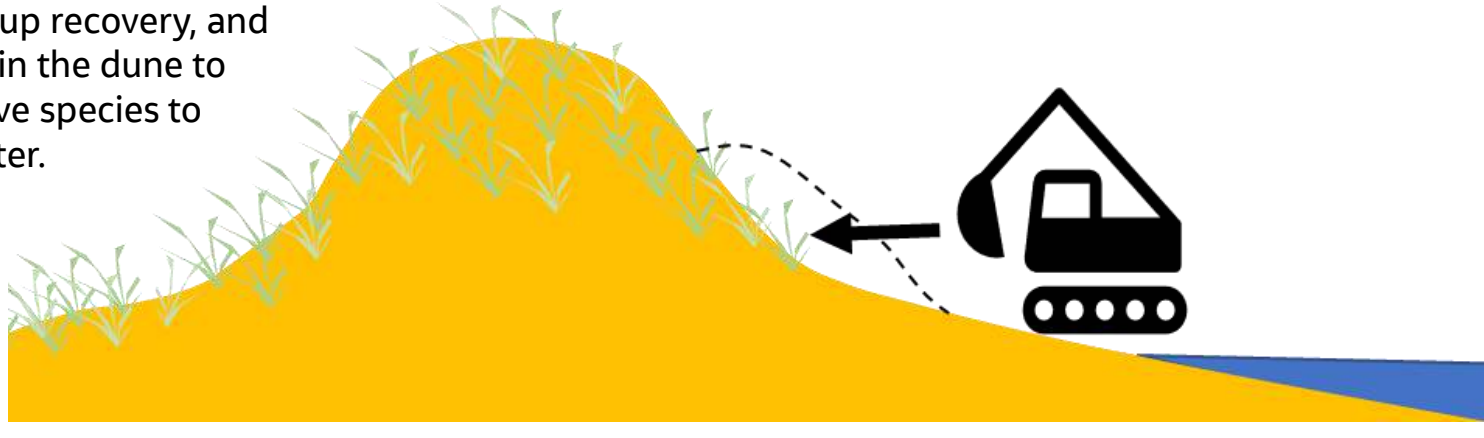
2. Dune Recontouring

Re-contouring the dune by moving around existing material on the front and the back of the dune to a desired crest elevation and replanting with appropriate vegetation. This is used to repair storm or human damage (e.g. blow outs) to re-establish stable dune shape for faster recolonization of the whole dune environment.



3. Renourishment (to the dune toe)

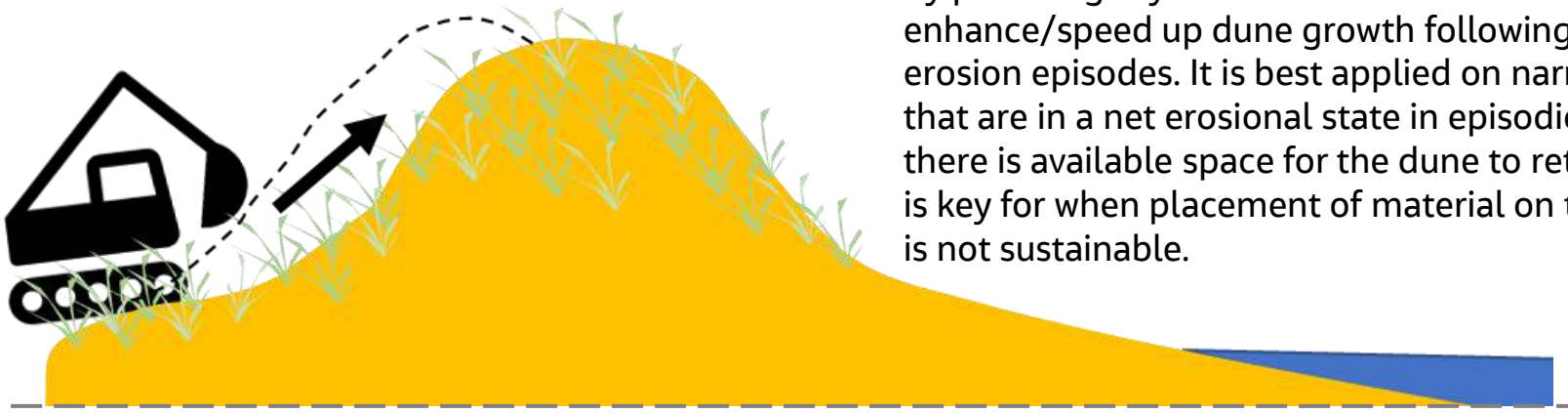
Bringing in additional sand and adding it to the dune toe to add bulk and protection to the front of the dune in storms. This could be done to repair erosion scarps, speed up recovery, and increase sand accumulation in the dune to enable spinifex or other native species to recolonize the dune face faster.



Examples of Soft Engineering Erosion Protection on the Kapiti Coast (Continued)

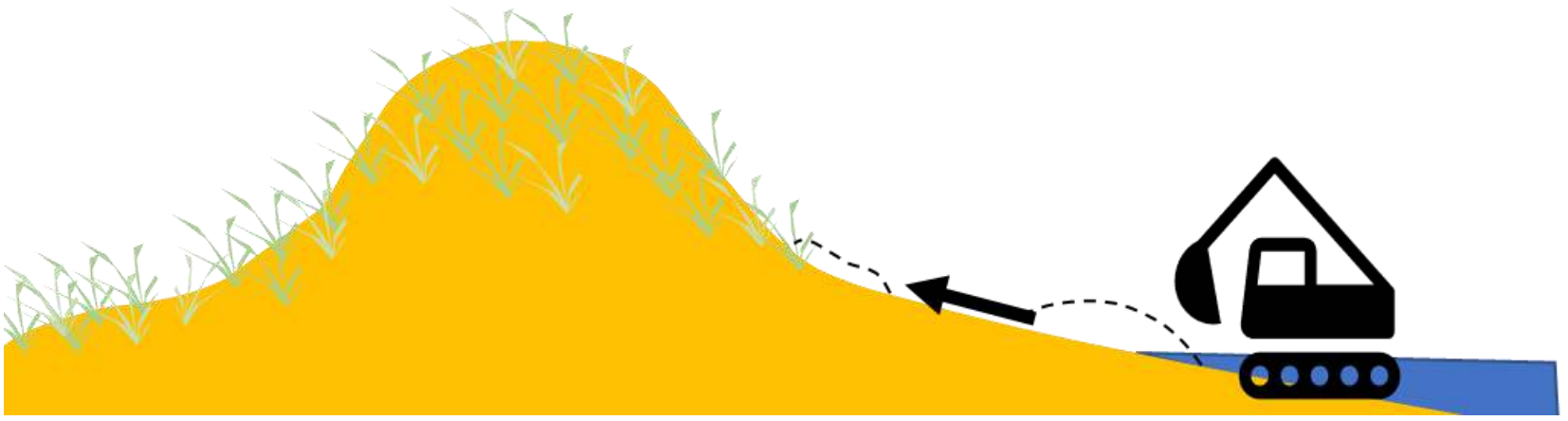
4. Renourishment (to the back of the beach)

Bringing in additional sand and adding it to the back of the beach to build bulk and height to provide protection in storms. By providing dry sand to the back of the shore, it will enhance/speed up dune growth following storm events or erosion episodes. It is best applied on narrow dune systems that are in a net erosional state in episodic storms, and where there is available space for the dune to retreat. This approach is key for when placement of material on the front of the slope is not sustainable.



5. Foreshore renourishment

Placement of material onto the foreshore/lower beach environment rather than the dune. This is used to limit disturbance of the dune planting, with the aim that a steeper, higher upper beach will reduce run-up length and prevent it reaching the dune toe (and therefore reducing erosion potential). Often used on recreational beaches to increase usable beach width, but often limited lifetime as material will quickly move alongshore and across shore due to being out of balance with plan shape and beach slope relationships.



6. Nearshore renourishment

Placement of material from a dredge into the nearshore. This is reliant on wave processes to transport the additional sand ashore to build up the beach. Could be considered as artificial nearshore bar building. This would rely on an offshore source of sand.