

# PROPOSED CHANNEL DEEPENING PROJECT



## CREATING A DEEPER, LONGER AND WIDER CHANNEL

**The first dredge ship came to Lyttelton Port in 1880 and every year since dredging has occurred in Lyttelton Harbour / Whakaraupō.**

Dredging has occurred to ensure ships can safely enter and exit the harbour. The harbour has a natural depth of 5–12 metres, but successive dredging has created and maintained a shipping channel with a consistent depth of 12.5 metres. Over the last 10 years the size of container ships internationally has virtually doubled. To accommodate larger vessels,

Lyttelton Port of Christchurch (LPC) is proposing a channel deepening project which will see the depth of the shipping channel increase by 5–6 metres to allow for these larger, deeper ships.

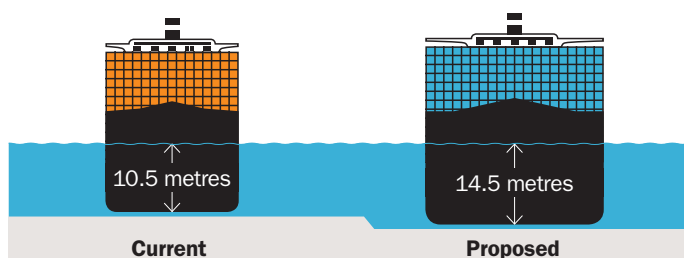
With 99 percent of New Zealand's freight carried by sea, it is important that this dredging project occurs so LPC can continue to provide efficient transport services for the region. The additional depth will support Lyttelton as the South Island's major international trade gateway.

### Approximate channel depth (at low tide)

**Current:** 12–12.5 metres

**Proposed:** 17–18 metres

### Maximum vessel draught (at all tides)



### Container ship capacity



**Current:**  
4,000–5,000 containers



**Proposed:**  
6,000–8,000 containers

### Container ship size



**Current:** 290 metres long,  
32 metres wide, 12.5 metres deep

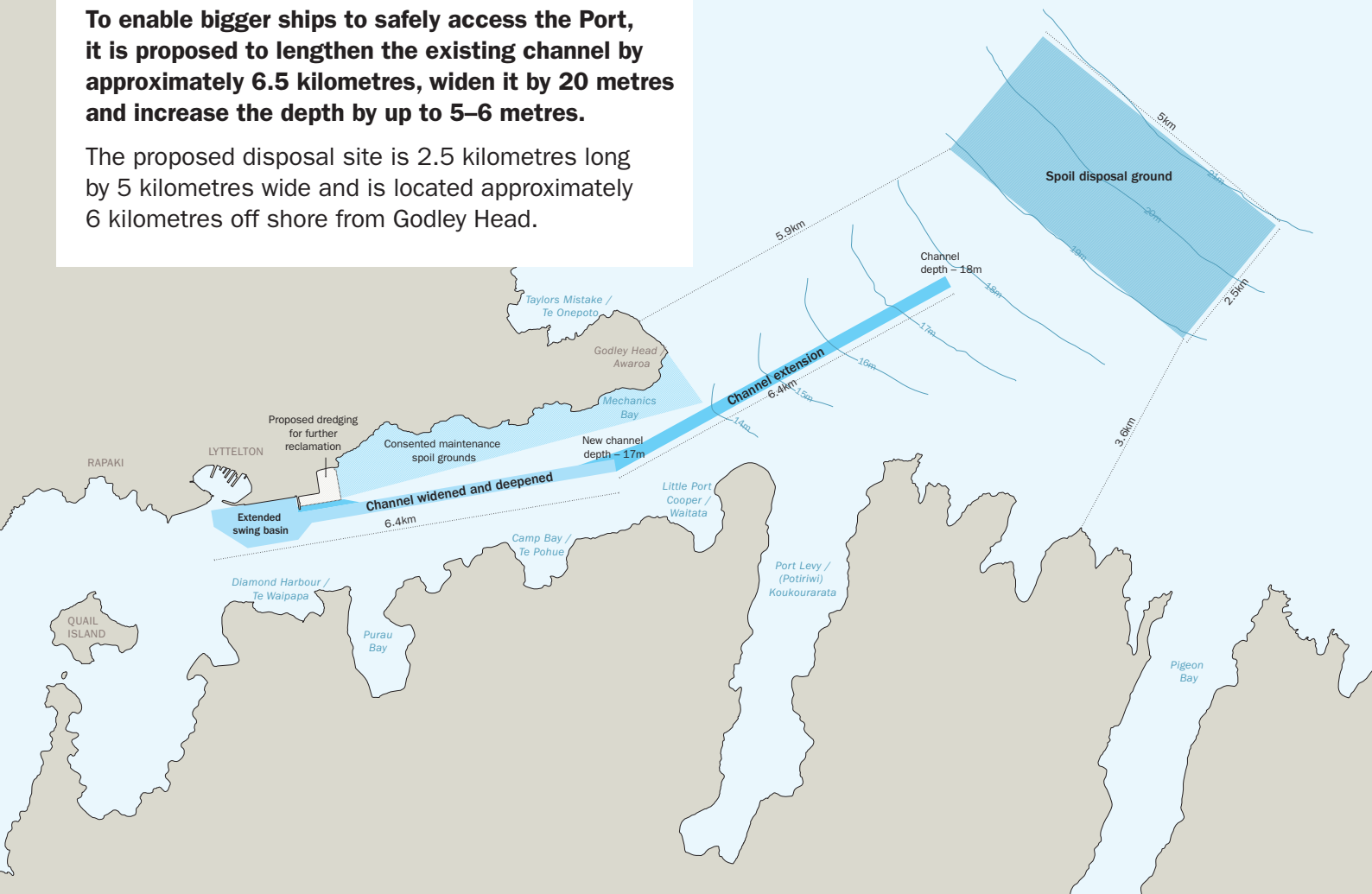


**Proposed:** 350 metres long,  
43 metres wide, 14.5 metres deep

# PROPOSED DREDGING AND DISPOSAL

To enable bigger ships to safely access the Port, it is proposed to lengthen the existing channel by approximately 6.5 kilometres, widen it by 20 metres and increase the depth by up to 5–6 metres.

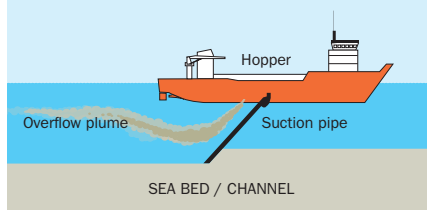
The proposed disposal site is 2.5 kilometres long by 5 kilometres wide and is located approximately 6 kilometres off shore from Godley Head.



## HOW DREDGING WORKS

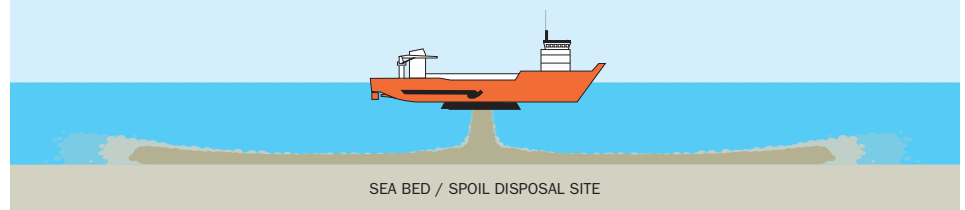
### STEP 1

The dredge follows the route of the channel, sucking up the soft sediment from the seabed.



### STEP 2

Once full, the dredge proceeds out to the proposed disposal site and the spoil (sediment collected) is distributed evenly across the site.



## 24/7

Dredging works will operate around the clock. The operation will look and sound like the current Cargo Ships travelling up the Channel.

## 1 year

Expected duration of dredging for each of the two stages.

## 18,000,000m<sup>3</sup>

Approximate amount of sediment to be moved to the disposal site for all stages – equivalent to 7,200 Olympic swimming pools.

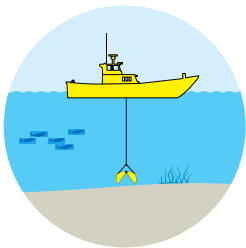
# PROTECTING THE ENVIRONMENT

**Before any work can commence on the channel deepening project LPC must gain resource consent under the Resource Management Act to carry out the dredging and disposal.**

LPC plans to lodge its application for consent late September and will request the consent is publicly notified. Being publicly notified allows any person to lodge a submission on the consent application. In preparing for the resource consent LPC has invested more than \$3 million dollars working with a range of

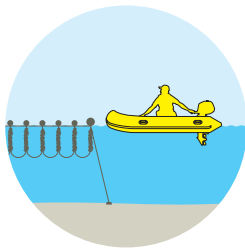
expert scientists to undertake investigations into any effects the proposed dredging could have.

The experts include specialists in marine ecology, sea bird and marine mammals, sediment, waves and tidal modelling and water quality monitoring among others. These reports will be put on our website. LPC's assessments to evaluate and mitigate potential effects of the project are ongoing and community input is now sought to ensure all issues and concerns are considered.



## **Sediment quality validation**

To determine a baseline to measure against sediment quality, sampling and analysis will occur before and during the proposed dredging to ensure dredged sediment is suitable for ocean disposal.



## **Aquaculture mussel farms**

Studies are being undertaken on effects of sediment disturbance from the proposed dredging on aquaculture sites at Northern Banks Peninsula. We will also work closely with mussel farmers.



## **Shoreline investigations**

Shorelines will be regularly monitored for any changes to sandy and rocky beach environments. LPC will also monitor the marine ecology along the coast and conduct ecological inventories.



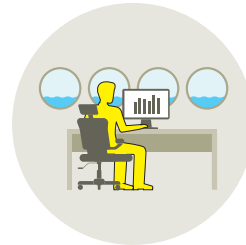
## **Consultation with stakeholders**

LPC has worked closely with representatives from the community, iwi, environmental and commercial groups to consult on the proposed project and to seek feedback on our plans. A cultural impact assessment to identify and mitigate potential effects of the project on mana whenua values and interests is underway.



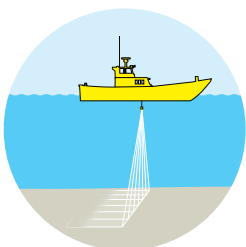
## **Mahinga Kai, ecological investigation**

Lyttelton Harbour/Whakaraupō, Port Levy/Koukourārata and the surrounding areas have huge significance to mana whenua, in particular for food gathering/mahinga kai. Marine ecological investigations have been carried out along the coastline and within the harbour to identify present mahinga kai species and habitats. This will provide a baseline and help us understand the characteristics of the existing ecological communities.



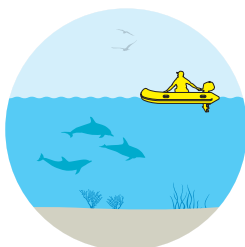
## **Sediment plume modelling of disposal and dredging**

Sediment plumes arise from dredging and can look like cloudy patches in the water. Plume dispersion modelling has been undertaken for 10 years of weather/sea conditions to determine effects on water turbidity (the level of cloudiness or haziness of water).



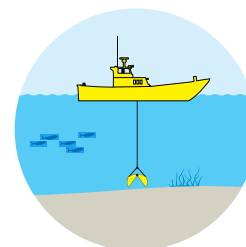
## **Bathymetric survey**

Regular sonar surveys of the channel and disposal ground will make sure dredging and spoil disposal is accurate.



## **Seabirds and marine mammals**

Detailed studies of the marine mammals and seabirds that live or visit in the project area have been undertaken to identify and manage any potential effects.



## **Effects on sea bed ecologies**

We have collected more than 35 samples of the benthic ecology (aquatic seabed) to enable us to evaluate and mitigate potential short term and long term effects of the proposed dredging programme on these communities.

# CONTINUOUS ENVIRONMENTAL MONITORING AND ADAPTIVE MANAGEMENT

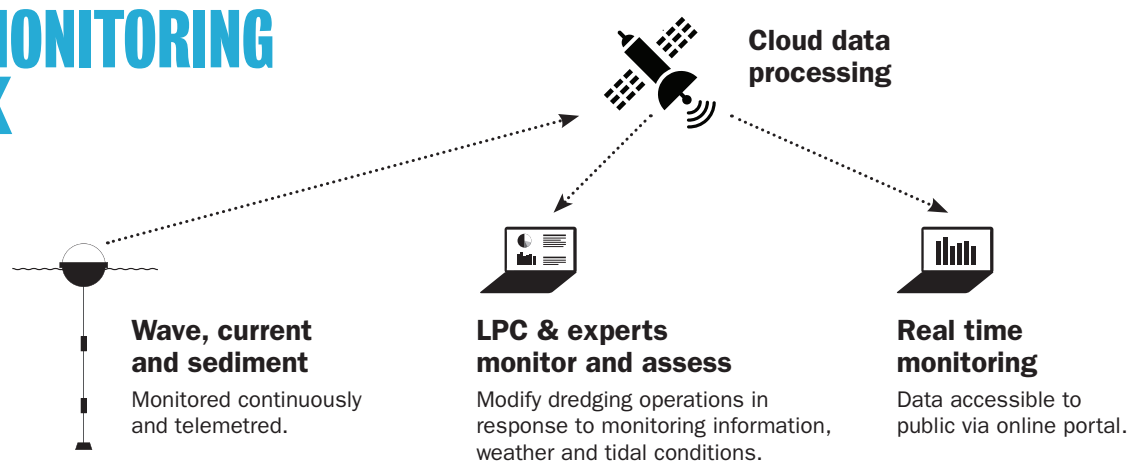
To ensure LPC has continuous information on water quality, 15 real-time monitoring stations will be installed across Lyttelton Harbour/Te Whakaraupō, Port Levy/Koukourarata and offshore marine areas.

In addition, regular manual monitoring of the condition of the shorelines, ecological health, sediment quality and seafloor changes will be undertaken. The environmental monitoring programme will be the most extensive ever undertaken for

a dredge project in New Zealand. Continuous assessment of the data, coupled with weather reports and comparison to modelled scenarios, will allow the proposed dredging operations to be constantly managed and adapted to ensure environmental effects are minimised and within anticipated levels.

Access to the real-time water quality information at all the locations will be available via a dedicated website.

## HOW THE MONITORING WILL WORK



## INDICATIVE MONITORING LOCATIONS

