

# STB FACT SHEET

## 2019

On 10 August 2017 the Environmental Protection Authority (EPA) granted TTR marine consent for its proposed offshore iron sands project, subject to a set of detailed conditions which are consistent with the minimal environmental impact operation.

TTR proposes to extract five million tonnes of iron ore a year over 20 years.

The proposed operation will take place in TTR's permit area 22-36km out to sea in water depths of 20-50m. The extraction of sediment occurs in lanes, on average 5m deep, using an underwater crawler which advances at 0.4km/h pumping the sediment as a seawater slurry to the processing vessel. The iron ore concentrate represents approximately 10% of the sediment on average and is separated by passing the sediment over a series of screens and magnetic separators. The remaining 90% of the sediment is returned to the seafloor in a controlled manner, via a deposition pipe, into an adjacent, previously extracted area.

### Economic Assessment

ACTIVITY	Direct	Direct + Indirect + Induced
Employment	463	1,666
Output	\$132m	\$350m
GDP	\$59m	\$159m

In addition to the above, New Zealand will benefit from increased royalty revenues of \$30m on export revenues of \$430m based on full production at current prices. Tax revenues have not been estimated as there are many factors that can affect the level of tax, in particular capital structure.

### RELATIVE SCALE OF OPERATION

LOCATION	Approx km <sup>2</sup>	Approx % of EEZ	Approx % of STB
Exclusive Economic Zone (EEZ) (Approx 15 x NZ Land Area)	4.1 million	100%	
South Taranaki Bight (STB)	36.0 thousand	0.9%	100%
Marine and Benthic Protected Areas	1.7 million	42%	2.1%
TTR Mining Licence	65.76	0.0016%	0.18%
TTR Area of Operations at Any One Time	0.27	<0.00001%	<0.001%

### Environmental Effects

TTR carried out a number of extensive environmental studies in the STB, contributing greatly to the body of scientific knowledge of New Zealand and making the STB New Zealand's most studied offshore environment.

The studies show the overall environmental effect of TTR's proposed operation will be negligible to minor. The most affected areas are those that are directly impacted by operations but will recover to perform a similar ecological function. TTR's process ensures recovery starts immediately after sediment deposition and conservative assessments by experts indicates the areas will be fully rehabilitated within five years after deposition.

The conditions imposed by the Marine Consent are consistent with achieving this minimal impact.

### Sediment Deposition

The main environmental effects of any marine dredging operation stems from the plume, the amount of sediment remaining suspended in the water column from the extraction or returning of sediment to the seafloor. Unlike other marine dredging operations, TTR's system to extract and redeposit the sediment is designed to minimise the plume effect.

The amount of sediment being added into the STB by rivers exceeds the plume suspended sediment fraction of 1mg/l on average by over 15 times.

The median level of naturally occurring suspended sediment in STB nearshore areas, where most of the reefs are, is 10mg/l and periodically exceeds over 1,000mg/l, particularly near river mouths. Local marine life is already well adapted to such a sediment laden environment.

The EPA's Decision Making Committee (DMC) found the sediment plume generated by TTR's operation is unlikely to add to sediment deposition or suspension in the near shore environment. The DMC have imposed conditions that will limit the intensity of the plume and its effect on the environment.

### Seabed Topography

In identifying key ecological areas in the marine area, research by the National Institute of Water and Atmospheric Research (NIWA) using sonar scans, hundreds of photos and physical samples, instrument measurement and video footage shows the wider Patea Shoals area is high energy with regular seabed disturbances characterised by the rippled seabed.

Monitoring conditions are based on not exceeding background levels at these identified key ecological areas, being a number of subtidal reefs, including the South Taranaki Reef Life project reef, the Rolling Grounds and Graham Banks.

### Fishing and Fisheries

The EPA's DMC accepted that, after taking into account all evidence and verified scientific data presented, the overall

effects on fish will generally be no more than minor, and that there will be no effect on either the abundance or health of the commercial or recreational fisheries.

### Marine Mammals

#### Population

Studies of marine mammals within the entire South Taranaki Bight include data from observations from DoC and marine mammal observers on vessels, oil and gas installations, aerial observations including a 8,426km aerial survey in 2015 and Dr Torres recent 2017 study.

The main population of Blue / Pygmy Blue whales according to sightings is approximately 50-100km west of TTR's permit area, in water depths >70m. The Blue whale is an oceanic animal, preferring deep water in the middle of the ocean to coastal waters.

There have only been two recorded sightings of Maui's dolphins in the STB. This is because the vast majority of recorded sightings of critically endangered Maui's dolphins occur north of Cape Egmont with the main population living between Raglan and north to Kaipara Harbour, 230 to 370kms north of TTR's Mining Licence.

CETACEAN	Threat Classification	Recorded Sightings	Sightings <10yr	Within 10yrs & 20km of Permit
Maui's Dolphin	Critical	2	0	0
Other Dolphins	Not threatened	455	353	6
Killer Whale	Critical	170	151	0
Southern Right Whale	Endangered	111	56	0
Blue / Pygmy Blue Whale	Endangered / Migrant	163	158	2
Other whales	Migrant	199	116	1

### Noise Levels

The US National Oceanic and Atmospheric Administration (NOAA) Marine Mammal Acoustic Technical Guidance, including Interim Guidelines were accepted by the DMC as the best available measure with regards to marine mammals. NOAA guideline for Permanent Threshold Shift in respect of behavioural disturbance of marine mammals is from 198dB for mid and low frequency cetaceans compared with the noise level of a container ship of around 180dB. Noise levels from vessels recorded in STB ranges from 159dB to 192dB.

Annually there are over 3,000 commercial vessel movements in the STB, approximately half of which are large vessels.

Dr. Childerhouse, who has led the NZ delegation to the Scientific Committee of the International Whaling Commission, chaired the Southern Ocean Whales sub-committee and currently serves on the South Pacific Whale Research Consortium and New Zealand's Threat Classification System team for marine mammals, testified that none of the Blue Whales on record in the STB would be affected by behavioural disturbance as a result of noise from TTR's operation. Dr. Childerhouse also testified that the consent condition offered by TTR is the most conservative underwater noise restriction for any underwater activity in New Zealand.

### Seabirds

There are no major nearby colonies of sea-going birds. Seabirds such as albatross and petrel, along with the migratory birds resident in coastal estuaries are wide-ranging and therefore relatively unaffected by the comparatively small area of TTR's operations.

Of the more range-restricted seabirds, gulls and terns have been identified as most common able to extend offshore. The Fairy Prion is a petrel and are found in Cook Strait islands. Stephen's Island is the nearest Cook Strait Island to TTR's operation, some 80km south. The EPA DMC found there is little risk to foraging by fairy prion.

Less likely to extend offshore are Little Blue Penguins, which feed inshore because most of their dives are only 2m in depth and further out to sea they could suffer predation from marine mammals and sharks.

