

Social Impact Assessment of Trans-Tasman Resources Ltd Iron Sand Mining Project



Prepared by Kirsty Austin and Dianne Buchan

January 2016

This report is a re-issue of the report of October 2013. No further work has been undertaken on the Social Impact Assessment since the original report was completed in 2013. However, the authors have been provided with information relating to TTR's additional scientific work relating to plume modelling and optical effects undertaken since 2014, and can confirm that the conclusions reached in the October 2013 report remain valid. In our opinion the effects of the revised Marine Consent Application will be equal to or less than what we had initially assessed.

Level 1, 11 Tory Street PO Box 27 145, Marion Square Wellington, New Zealand Tel +64-4-384 0116 Fax +64-4-384 0117 office@corydon.co.nz

Contents

Executive	e Summary1
1. Intro	oduction
1.1	Statutory framework for the SIA
1.2	Assessment methodology 4
1.3	A framework for social effects
1.4	Defining the affected area7
2. Proj	ect description
2.1	Extraction and processing operations
2.2	Operating hours9
2.3	Workforce
2.4	Community Trust
3. Prof	ile of the existing workforce in the oil, gas and metal ore mining industry
3.1	The oil, gas and metal ore mining industry workforce in Taranaki11
3.2	FPSO workforce survey
3.3	General information on FPSO workforce operations14
4. Exis	ting social environment
4.1	Opunake16
4.2	Manaia
4.3	Ohawe
4.4	Hawera23
4.5	Patea
4.6	Waverley
4.7	Waitotara
4.8	Mowhanau / Kai lwi beach
4.9	The wider area
4.10	Summary of demographic statistics
5. Asse	essment of potential effects
5.1	Employment
5.2	Local businesses and associated employment 40
5.3	Income levels
5.4	Community facilities, social services and housing41
5.5	Visual amenity
5.6	Recreation
6. Sum	nmary of Potential Mitigation and Enhancement Measures52
6.1	TTR Regional Community Trust



6.2	Employment and qualifications	. 52
6.3	Local businesses and associated employment	. 53
6.4	Recreational fishing and diving	. 53
Reference	ces	. 54
Appendi	x 1: Objectives and policies from documents prepared under the Resource Management A	4ct . 55



Executive Summary

Trans-Tasman Resource Ltd (TTR) is seeking consents to extract iron sand resources from the seabed in the South Taranaki Bight. Corydon Consultants Ltd was commissioned to assess the social impacts on local communities from TTR's proposed operations.

The social impact assessment (SIA) focused on the existing social environment and how that might be affected, either positively or negatively, by TTR's proposal. The SIA followed the four principle elements of SIA methodology: scoping, profiling, analysis of potential effects and the identification of appropriate mechanisms to avoid or mitigate adverse effects. The "affected area" was defined at two scales in recognition that the potential effects could occur across a wide geographic area, with different communities and groups potentially affected in different ways:

- the "local area" covered the coastal communities from Opunake to Whanganui city. It is the area with the closest association to the proposed operations.
- the "wider area" covered the districts of New Plymouth, South Taranaki and Whanganui, which is the area most likely to experience employment-related effects.

The main findings on the potential social effects are summarised below.

Employment

The creation of approximately 258 new jobs and the potential expenditure of wages in the local area are positive social effects. The significance of job creation as a social effect will depend upon the location of the workforce and the extent to which the local workforce can access those positions.

The offshore positions will operate on a 21 day on / 21 day off roster. As a result of this roster that will enable a fly-in-fly-out / drive-in-drive-out (FIFO/DIDO) workforce, and the locations of the landbased operations, the workers could reside across a large geographic area. Based on current experience with Taranaki's off-shore drilling operations and the oil, gas and metal ore mining industry more generally, the majority of the new jobs are expected to be based in three regions – Taranaki, Manawatu-Whanganui and Wellington, with the remainder spread across New Zealand and possibly overseas. A FIFO/DIDO workforce is potentially a positive social effect because it will:

- help to spread the benefits of job creation throughout the "local" and "wider" area, rather than clustering jobs around the few land-based locations of the operation
- avoid most of the social costs often associated with a large non-resident workforce concentrated within an existing community, because the TTR workforce will be based in a regulated, offshore environment
- avoid capacity issues for local service providers, which can occur when a large new workforce is resident in one area.

The new jobs are unlikely to reduce unemployment levels significantly in the "local" and "wider" areas, because of the specialised skills that will be required for most positions. The percentage of local residents gaining employment in TTR's operations could be increased by funding and other forms of support for residents of South Taranaki and Whanganui to access relevant training and work experience.

Local businesses and associated employment

Positive social effects, in terms of jobs and incomes, will arise for the communities in which the businesses providing services or supplies to TTR's operations are located. This will include suppliers involved in manufacturing, maintenance, consumables and visitor accommodation. It is anticipated that the majority of these benefits will accrue to businesses in the "wider area", particularly New Plymouth, which already have experience in servicing extractive industries. Proactive measures would be required if the benefits were to be increased for South Taranaki and Whanganui businesses.



Income levels

Many of the positions that will be required for TTR's operations are expected to be well paid because of the skills required (including offshore experience). Therefore, if the number of jobs that are predicted to accrue to local residents occurs, the proposed operations could help to offset the lower than average household incomes currently experienced in the affected areas.

Community facilities, social services and housing

The proposed operations will have negligible effects (positive or negative) on community facilities, social services and housing, because of the relatively large geographic area that the workforce is estimated to reside within.

Visual amenity

The effect on visual amenity of the two large vessels that are proposed to be located offshore (FPSO and FSO), and the visibility of a sediment plume in the sea that will be generated by the proposed operations was considered.

Based on information from local residents and an assessment of visual effects commissioned by TTR (Boffa Miskell, 2013), the appearance of the vessels will have a minor, if any, effect on the amenity that residents and visitors currently experience.

Based on the findings of the sediment plume modelling (NIWA, Aug 2013b) and associated assessment of visual effects on areas of significant amenity and recreation (Boffa Miskell, 2013), the effect of the sediment plumes on visual amenity from the coastline will be minor. There is the potential for the visual amenity experienced by offshore recreational fishers and divers to be affected to a minor / moderate degree. However, most recreational fishing and diving occurs closer to the shore than the estimated location of the sediment plume, and therefore few fishers and divers are likely to experience visual changes.

Recreational fishing and diving

The effect of the proposed operations on recreational fishing and diving was the most significant concern raised by residents and users of the coastal area who were interviewed for the SIA, and has also been raised in many media reports. Interviewees for the SIA also expressed frustration at the lack of scientific information available on the proposed operations which they considered necessary to enable an accurate evaluation of the project's effects on recreational fishing and diving.

There is the potential for moderate adverse social effects on offshore recreational fishing and diving along the coastline from Patea to Whanganui. However, assessments commissioned by TTR on the effects on coastal processes and fish habitat and stocks have found that significant changes are unlikely. However, these assessments have not been undertaken for specific sites of importance or for the full range of species that are important to the fishing and diving community. Therefore the SIA cannot be certain about the significance of the effects on recreation.

Mitigation is recommended to minimise the potential for adverse effects on recreational fishing and diving. These include improvements to recreation infrastructure, a recreation fishing and diving management and monitoring plan, and the establishment of an advisory group with representatives from local fishing and diving groups to provide input to the monitoring and development of mitigation measures.

Surfing

Surfbreaks of regional and local importance are located along the South Taranaki / Whanganui coastline. The effect of the proposed operations on the quality of surfing in the South Taranaki Bight has been one of the most reported social concerns in the media. These concerns relate to potential seabed erosion and changing wave patterns that could affect surfbreaks.



Based on the findings of studies commissioned by TTR on the effects of the proposed operations on wave action and the implications for these on surfbreaks (NIWA, July 2013; eCoast, 2013), the effects on surfing are anticipated to be insignificant.

Beaches

Approximately 17 publicly-accessible beaches are located along the coast from Opunake to Whanganui. In addition to the recreation value of these beaches, five beaches have high amenity value.

Media articles and interviews undertaken for the SIA noted concern that the proposed operations will affect the use and amenity of beaches by increasing erosion, causing a loss of sand and creating a sediment plume. Based on the findings of the studies commissioned by TTR on coastal processes (NIWA, Aug 2013a; Boffa Miskell, 2013), there will be negligible effects on the recreational values and associated amenity of the beaches along the South Taranaki / Whanganui coastline.

Coastal walkways

The main, publically available coastal walkways at or near the profiled communities are identified in the SIA. TTR's operations will not affect access to or along these coastal walkways.

Some of the walkways are valued for the views they provide of specific shoreline features and historical resources. Based on the studies commissioned by TTR on changes in coastal processes, these features are unlikely to be affected. However, visual changes anticipated from the sediment plume have the potential to create a minor adverse effect on the visual amenity from the coastal walkways.

TTR Regional Community Trust

The brief for the SIA included providing advice on the scope of TTR's proposed Regional Community Trust. The purpose of the Regional Community Trust will be to ensure that TTR's operations deliver appropriate, on-going benefits to the communities that host the operations.

The SIA proposes a range of recommendations including:

- The Regional Community Trust should be focussed on the coastal communities and coastal users of South Taranaki and the northern part of Whanganui district.
- Specific activities to consider for funding are outlined, including sponsorships for residents to undertake relevant training or to gain an appropriate apprenticeship; improvements to recreation infrastructure and other coastal community facilities; and funding for coastal-based organisations.
- The Regional Community Trust should be established and in operation by the time dredging works commence offshore, to ensure that benefits begin to accrue to the local communities from the time any effects on the natural environment begin to occur.



1. Introduction

This report assesses the social impacts on local communities of the proposal by Trans-Tasman Resource Ltd (TTR) to mine iron ore sands off the coast of South Taranaki.

A social impact assessment is a process in which a project is analysed for its possible effects (both positive and negative) on individuals, groups and communities. The process is usually undertaken prior to finalising a project, to incorporate relevant community concerns within the design (where possible). A wide range of information sources including observations, statistical data, interviews and written reports is drawn on to assess potential social effects. Consultation with affected parties is an important part of the process. This helps to increase the assessor's understanding of the values and practices in the community potentially affected by a proposal, and the process allows affected parties to assist in identifying ways to reduce any negative effects and enhance benefits.

1.1 Statutory framework for the SIA

TTR's proposed operations occur between 22km and 35km offshore, which are within the Exclusive Economic Zone (EEZ). Marine consents for operations in the EEZ are required under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act (EEZ Act). Therefore, the EEZ Act provides the statutory framework for undertaking a social impact assessment.

The purpose of the EEZ Act is to promote the sustainable management of the natural resources within the exclusive economic zone and the continental shelf. It does not contain the wide community wellbeing considerations of the Resource Management Act (RMA)¹. For example, the definition of sustainable management is "managing the use, development, and protection of natural resources in a way, or at a rate, that enables people to provide for their economic well-being". The definition of "environment" is also limited to the "natural environment". Therefore, social wellbeing considerations are limited to those relating to economic wellbeing. From a SIA perspective, these would include income, employment and effects on the value of household assets.

Despite the proposed activities occurring within the EEZ, it is noted that social effects may also be experienced by people who use the territorial sea in the vicinity of the proposal. For this reason the SIA has considered social effects more widely than those that relate to economic wellbeing. In particular, the effects of the proposal on coastal recreation activities and amenity have been assessed. This assessment has been guided by the objectives and policies established under RMA documents (Appendix 1).

1.2 Assessment methodology

This SIA focuses on the existing social environment and how that might be affected (either positively or negatively) by TTR's proposal. Possible mitigation measures that could alleviate the negative effects or enhance the positive effects are noted. The four principle elements of SIA methodology are scoping, profiling, analysis of potential effects and the identification of appropriate mechanisms to avoid or mitigate adverse effects. These elements were undertaken for the SIA as described in sections 1.2.1 - 1.2.4.

Corydon Consultants was contracted to commence the SIA in April 2012. At that stage TTR was undertaking exploration activities to confirm the location and quantity of the iron ore resource, developing the technology to extract and process the resource, and commissioning a range of studies to understand the existing environmental characteristics of the area and potential effects of the proposed operations.

¹ The Resource Management Act applies to activities on land and the territorial sea. The territorial sea extends to 12 nautical miles (22.2 kilometres) offshore.



The SIA has evolved since the scoping phase commenced in April 2012. In March 2013, an Interim SIA was produced as an internal document for TTR. The purpose of the Interim SIA was to identify the potential social effects anticipated from the project at that stage and to recommend mitigation measures where significant adverse effects were identified. Since the Interim SIA was prepared, TTR has significantly revised the proposed operations and more technical details on potential effects have become available as a result of more detailed investigations. This current SIA has been updated to reflect this new information, and the findings of further research undertaken by the SIA assessors.

1.2.1 Scoping

The scoping phase of an SIA provides an initial assessment of the geographical area within which social effects are likely to be experienced and the nature of those effects. This process provides a focus for the analysis of the nature and scale of effects. The scoping exercise for this SIA was undertaken in late 2012 and early 2013.

Information for this initial assessment was gathered through a review of media coverage of the proposal (January 2012 - February 2013); a pre-feasibility study; an internal TTR workshop; interviews with key stakeholders (January 2013); and observations made during a three-day site visit to the study area in January 2013.

1.2.2 Profiling

A project profile was compiled from technical reports and from documents provided by TTR describing the stages and techniques involved in the process. The project profile evolved as details of the nature of the activity and its implementation developed in response to the technical investigations undertaken by TTR and specialist consultants.

Those aspects of the project which we consider have some relevance to an assessment of social effects are set out in Section 2.

A community profile was undertaken to construct a picture of the potentially affected communities, in order to understand how they operate and to identify particular characteristics that might influence the extent to which they are affected (positively or negatively). The community profile was compiled using information from:

- statistical data from the Census of Population and Dwellings 2001 and 2006 (predominantly at Area Unit level); Registered Unemployed, Ministry of Social Development; Household Labour Force Survey
- published material on recreation and coastal values, community and industry information
- a three-day site visit in January 2013
- a workforce survey of an existing FPSO in February / March 2013
- face-to-face interviews with key informants who were selected for their knowledge of the coastal communities in South Taranaki and Whanganui Districts, and their experience of the effects of offshore activities on local communities in New Plymouth, South Taranaki and Whanganui Districts (January 2013)
- technical data presented at the TTR workshop by TTR staff and other technical experts engaged on the project team (18th January 2013).

The community profile was updated in August to September 2013 when details of the proposed operations were confirmed and TTR gave permission for the assessors to provide details of the project to stakeholders. This involved further face-to-face interviews with stakeholders during a four-day site visit in August 2013 and telephone interviews in September, further desktop research based on new information sources identified by stakeholders, and an update of some statistical data.



1.2.3 Analysis of potential social effects

As required by the assessor's brief and EEZ legislation, the SIA pays particular attention to assessing the impacts on social wellbeing as they relate to economic wellbeing, community uses of the coastal environment (including recreation), and the amenity values associated with the coastal environment.

Potential social effects were identified through a process of overlaying the information gathered for the community profile with the pertinent aspects of the proposed project, in order to identify the main effects on each of the local communities identified as being potentially affected.

The type and severity of the potential effects were initially assessed in the Interim SIA. The analysis of social effects was completed in September 2013, based on additional information provided by TTR on the proposed operations, further stakeholder interviews undertaken in August 2013, and a review of technical reports commissioned by TTR (drafts provided in August). The technical reports of most relevance to the SIA were those that focused on environmental processes that could affect community values and effects on economic, landscape/visual and archaeological resources. No assessments on cultural effects were available at the time of writing this report.

1.2.4 Identification of measures to address effects

Once the potential social effects from TTR's proposal were identified, the SIA process involved identifying the means by which these could be alleviated (adverse effects) or enhanced (positive effects). The aim of this process is to maximise positive effects and minimise negative effects, where appropriate and practical.

Initial mitigation measures were tested with the key stakeholders interviewed in January 2013, and were reported in the Interim SIA for consideration by TTR. These measures were revised in response to additional information subsequently gathered on the proposed operations and the affected communities, and from the additional stakeholders interviewed in August and September 2013.

1.3 A framework for social effects

An SIA considers the effects of a proposed plan of action on the social wellbeing of the affected communities. Different frameworks are available to guide an assessment of these effects. For the purposes of this SIA, the Social Wellbeing Framework has been applied. The Social Wellbeing Framework has evolved specifically from assessment work in New Zealand under the RMA. It is based on the social indicators work in the OECD and Ministry of Social Development (Buchan and Baines, 2012).

Those elements of social wellbeing that are of most relevance to assessing the effects of TTR's proposal are:

- **income, employment and quality of working life**. For TTR's proposal this relates to job creation and the extent to which benefits arising from the project are realised within the communities potentially affected. Income effects may also be experienced if the value of private property is increased or reduced as a result of the project.
- **the quality of the physical environment**, which includes the quality of land, water and air to provide a clean environment with aesthetic appeal.
- **leisure and recreation**, as important contributors to people's mental and physical wellbeing. Leisure and recreation can take many forms, including passive and active, organised and informal or social. Recreation values can be affected by changes to the natural environment that give rise to that recreation activity, access to the recreation activity, and amenity values that contribute to the quality of the recreation experience.



• **participation in community and society**, which includes influences on the participation in organised groups and social activities, and influences on the viability and capacity of community facilities and services.

The effect of the proposal on amenity values cuts across some of these elements of social wellbeing. Amenity refers to the quality and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence and cultural and recreational attributes. Loss of amenity may result from real or perceived effects. A major construction in a relatively natural environment can affect amenity in many ways. For example, the introduction of an unnatural and unexpected structure can reduce the pleasure of recreation activities within view of the structure, or alter the character of the area that is valued by the community. An intrusive structure in a scenic environment can also reduce the value of people's homes and therefore their equity and hence their future opportunities.

In conducting this SIA, the proposal was assessed against each of the elements of social wellbeing to determine which elements may be affected, which parts of the community may be particularly affected, and what the significance of these effects may be.

1.4 Defining the affected area

TTR's operations will predominantly be undertaken in the exclusive economic zone of the coastal waters off South Taranaki, directly offshore from Patea. These operations will be supported by onshore services operating from Port Taranaki, New Plymouth airfield, Port of Whanganui, and offices in New Plymouth and Wellington. The communities potentially affected by the proposed project are therefore spread across a large geographic area, with different communities and groups potentially affected in different ways.

For the purposes of this SIA, the "affected area" is defined at two scales:

- The "local area" covers the coastal communities from Opunake in the north to Whanganui city in the south (in South Taranaki District and Whanganui District). This is the area that has the closest association with the coastal environment in which the proposal is based.
- The "wider area" covers the districts of New Plymouth, South Taranaki and Whanganui. This is the area that is most likely to experience the employment -related effects of the proposal.



2. Project description

TTR is seeking consents to extract iron sand resources (vanadium titano-magnetite) from the seabed in the South Taranaki Bight. Unless otherwise noted, the following project summary is taken from *Trans-Tasman Resources Ltd South Taranaki Bight Offshore Iron Sand Project: Project Description (draft)* (July 2013).

TTR's extraction area is located between 22 km to 35 km off the coast of Patea, at a water depth of 20 to 42 metres. The extraction area covers 65.76 km² and is wholly located within the Exclusive Economic Zone (EEZ).

TTR is seeking a 20 year mining permit for the EEZ project area. If the permit and consents are granted, TTR will start commercial extraction of the iron ore at the end 2015/beginning 2016. Up to 50 million tonnes of sediment per year will be extracted, with an annual production of up to 5 million tonnes of iron ore concentrate for export. The remaining sediment (45 million tonnes) will be re-deposited in a controlled manner back into the extracted areas.

The main components of the proposed operations that are relevant to an assessment of social effects are summarised below.

2.1 Extraction and processing operations

The extraction and processing operations will involve five main pieces of equipment:

- Seabed material will be excavated using a subsea sediment extraction device a crawler that operates at the base of the "ore body" and cuts to the full depth face. This will create a lane from 2 to 11 metres high and approximately 10 metres wide. The crawler will work in 300 metre x 300 metre blocks in a predetermined sequence.
- 2. The crawler will be connected to and operated remotely by a Floating Production Storage and Offloading vessel (FPSO). An FPSO is a large vessel used to host the sediment processing plant. The FPSO will be approximately 180,000 tonnes deadweight in capacity, with a length of 330 metres, beam of 55 metres and maximum draft of 12 metres. The FPSO will be anchored by four anchors, with an anchor winching system that will allow the FPSO to follow the crawler at approximately 70 metres per hour. A navigable exclusion zone will be imposed by Maritime NZ around the vessel.

The excavated material will be transferred to the FPSO via an umbilical delivery pipe (power cable, hydraulic hose and delivery hose). On the FPSO, extracted sediment will be processed into iron ore concentrate. Processing on the FPSO will involve on-board magnetic separators and grinding mechanisms to extract the iron ore. It will be a 'wet' process to slurry the concentrate. No additional heat or chemicals will be used.

The de-ored sand on board the FPSO will be discharged via a pipe approximately 4 metres above the seabed, to backfill the previously mined area (although the initial extraction will result in some deposition in unworked areas. Any remaining water will be discharged via a separate pipe above the pipe used for the de-ored solids (approximately 5 metres above the seabed). The deposition will produce a sediment plume of discoloured water.

- 3. The concentrated ore will be transhipped to a conventional 60,000 tonne Floating Storage and Offloading vessel (FSO), using freshwater made with an reverse osmosis plant on-board the FPSO. The FSO will de-water and store the concentrate.
- 4. An **anchor handling tug** will assist with anchor moving, connecting floating hoses, provisioning of supplies to the FPSO and FSO, refuelling assistance and support in case of emergencies.

The FPSO and the FSO require a large amount of power. The FPSO will require a total installed power capacity of 80MW, which will be provided via gas turbine generators on the vessel. These



and the FSO will be fuelled by heavy fuel oil. The heavy fuel oil would be provided by a tanker vessel, using ship-to-ship transfer, and assisted by the anchor handling tug.

5. The FSO will tranship concentrate to a conventional 180,000 tonne (dead weight) **cape-size export vessel** for delivery to world markets.

2.2 Operating hours

The offshore operations on the FPSO (including the crawler) and FSO will operate continuously throughout the year (24/7 weather and maintenance requirements permitting). It is proposed that the crew based on these vessels will operate on 21-day-on / 21-day-off shifts, and will live on the vessel during their shift. The crew will be transported to and from the vessels via helicopters from either Hawera, New Plymouth or Whanganui².

The anchor handling tug will be able to operate 24/7 as well. During extended periods at sea the workforce will live on the tug during their shift.

The hours of operation for other offshore activities (infill drilling, monitoring and surveying) will depend on the operational needs at specific times of the project.

2.3 Workforce

The proposed operations will require approximately 258 personnel (FTE positions) as follows³:

- 200 FTEs to operate the FPSO, FSO and anchor handling tug
- 8 FTE to undertake infill drilling, monitoring and surveying
- 50 office-based personnel in Wellington and a location within the Taranaki Region

Additional personnel will be required to service and maintain the vessels and operations.

TTR is investigating mechanisms for incentivising local participation in the project and states in the project description that *"TTR intends to incentivise the use of New Zealand citizens or New Zealand residents as crew on all operational vessels"* (section 1.16.1). No further details are provided in the application material.

The total number of full-time equivalent positions estimated by TTR for the proposed operations is set out in Table 2.1.

Facility	Location position operating from ⁴			
FPSO	140 - Offshore (via helicopter from Hawera, Whanganui or New Plymouth)			
	3 weeks on / 3 weeks off			
FSO	30 - Offshore (via helicopter from Hawera, Whanganui or New Plymouth)			
	3 weeks on / 3 weeks off			
Anchor Handling Tug	30 - New Plymouth (via Port Taranaki)			
	Variable length of shifts, with 24/7 operations at times			
Monitoring / surveying /	8 - Whanganui (via Port Whanganui)			
drilling vessels				
Other TTR staff	20 – New Plymouth / Taranaki TTR office			
	30 – Wellington TTR office			
Totals	170 – Offshore			
	50 - New Plymouth			
	8 - Whanganui			
	30 – Wellington			

⁴ Andy Sommerville, personal communication, 31 July and 15 October 2013



² Andy Sommerville, personal communication, 31 July and 15 October 2013

³ Andy Sommerville, personal communication, 12 August and 15 October 2013

2.4 Community Trust

TTR is investigating establishing a community trust to support local community projects as a way of providing an opportunity for the local communities to benefit directly from the project.⁵ No further details on the Community Trust are provided in the project description.

⁵ TTR consultation material (Powerpoint presentation, July 2013)



3. Profile of the existing workforce in the oil, gas and metal ore mining industry

The following information on the existing workforce characteristics of the oil, gas and metal ore mining industry has been prepared to assist in analysing the potential effects of the new workforce generated from TTR's proposed project.

Two main sources of information were used to produce this workforce profile:

- Census 2006 statistics on the oil, gas and metal ore mining industry⁶. These statistics provide a snap shot of the workforce, as it was in late February / early March 2006. The statistics relate to work that was undertaken in the seven days prior to Census night. As a result of the shift-work nature of the industry (three weeks on, three weeks off), the Census information will not have captured all the employees
- Statistics from a workforce survey on an existing FPSO, which was specifically undertaken for the SIA in February / March 2013. Most of the new jobs generated by TTR's proposal will be offshore positions, either on the FPSO, FSO, or the anchor handling tug. The purpose of the FPSO survey was to gain a greater understanding of the characteristics of the offshore workers, in order to assist our assessment of the onshore effects of TTR's proposal.

3.1 The oil, gas and metal ore mining industry workforce in Taranaki

3.1.1 Size of the workforce

At the time of the 2006 Census, there were 531 Taranaki residents employed in the oil, gas and metal ore mining industry. Of these employees, 82.1% worked in New Plymouth District, 12.3% worked in South Taranaki District, and 3.9% worked in Stratford District.

Of the townships that are profiled in the 'local area' (section 4), those with residents employed in the oil, gas and metal ore mining industry are Hawera, Opunake, and Ohawe Beach (Table 3.1).

Table 3.1: Number of reside metal ore mining industry (ents in the comr Area of Usual Re	nunities profile esidence)	d in the 'local ar	ea' employed	l in the oil, gas	and
			Exploration			

Area Unit/Territorial Authority	Oil and Gas Extraction	Metal Ore Mining	Exploration and Other Mining Support Services	Total Mining	% workforce in mining	Total aged 15 years and over
Opunake	9	0	0	9	1.52%	591
Manaia	0	0	0	0	0.00%	405
Hawera	12	0	12	24	0.60%	4,002
Ohawe Beach	6	0	0	6	1.92%	312
Waitotara	C	C	C	0	0.00%	30
Patea	0	0	0	0	0.00%	399
Waverley	0	0	0	0	0.00%	324
Total South Taranaki						
District	39	0	27	66	0.51%	13,026

This work is based on/includes Statistics New Zealand's data (Census 2006) which is licensed by Statistics New Zealand for re-use under the Creative Commons Attribution-Noncommercial 3.0 New Zealand license.

⁶ The industry codes used for these statistics are Oil and Gas Extraction, Metal Ore Mining, Exploration and other Mining Support (ANZSIC06 V1.0)



3.1.2 Characteristics of the workforce

The workforce consists of predominantly male workers. The 2006 Census indicated that 86.6% of the jobs in the industry in Taranaki were undertaken by males.

The workforce consists of employees across a range of ages, as indicated in Table 3.2, but is dominated by the mature age groups (presumably because they are more experienced). This is particularly notable in South Taranaki District where nearly 60% of the workforce in the industry were 45 years of age or older.

Table 3.2: Age profile of workers employed in the Taranaki Region in the oil, gas and metal ore mining
industry (Area of Usual Residence)

Location	15-29 Years		30-44 Years		45 Years and Over		Total
	#	%	#	%	#	%	#
New Plymouth District	102	23.1%	186	42.2%	156	35.4%	441
Stratford District	6	28.6%	9	42.9%	9	42.9%	21
South Taranaki District	9	13.6%	15	22.7%	39	59.1%	66
Taranaki Region	114	21.2%	210	39.1%	207	38.5%	537
New Zealand	327	19.6%	723	43.4%	621	37.3%	1665

This work is based on/includes Statistics New Zealand's data (Census 2006) which is licensed by Statistics New Zealand for re-use under the Creative Commons Attribution-Noncommercial 3.0 New Zealand license.

3.1.2 Location of the workforce

At the time of the 2006 Census, the Taranaki Region provided 408 jobs in the oil, gas and metal ore mining industry. Table 3.3 indicates that 80% of these jobs were undertaken by workers who lived in New Plymouth District, nearly 12% lived in South Taranaki District and nearly 4% lived in Stratford District. Just over 4% lived elsewhere in the North Island and commuted to the region for work.

 Table 3.3: Location of employees in Taranaki's oil, gas and metal ore mining industry operating (Workplace

 Address by Area of Usual Residence)

Residential location	# of	% of
	employees	employees
New Plymouth District	327	80.1%
Stratford District	15	3.7%
South Taranaki District	48	11.8%
Rest of North Island	18	4.4%
South Island	Confidential	Confidential
Total Area of Usual Residence	408	100%

This work is based on/includes Statistics New Zealand's data (Census 2006) which is licensed by Statistics New Zealand for re-use under the Creative Commons Attribution-Noncommercial 3.0 New Zealand license.

3.2 FPSO workforce survey

The FPSO workforce survey was completed by 23 of the 31 workers rostered for work during a threeweek shift in February / March 2013 (this represents 74% of that shift and 37% of the total FPSO workforce). Responses were obtained across all the main positions on the FPSO: management (3); production (5); maintenance (6); operations (3); administration (1); catering (3); and other (2).

The rosters for the two FPSOs that are currently operating on the Tui and Maari oilfields are likely to be similar to those implemented for the proposed TTR operations. The FPSOs operate a 21 day on and 21 day off roster. Each vessel has two crews that alternate between being on duty (crew off-shore) and off-duty (crew on-shore). When a crew is on duty it will have staff working night shifts and staff working day shifts to provide 24 hour operations, 365 days of the year (Barlow, 2012).



3.2.1 Population characteristics of the FPSO workforce

The FPSO survey indicated a predominantly male workforce. Of the 23 respondents to the survey, 22 were male (96%) and one was female (4.3%).

The respondents were predominantly in the middle to later stages of their careers. More than half (56.5%) of the respondents were 45 years or older, and approximately one third were 30 - 44 years old (34.9%). Only two respondents were 15 - 29 years of age (8.7%).

3.2.2 Residential location of the FPSO workforce

The FPSO workforce survey found that just over half of the respondents live in the districts of New Plymouth or South Taranaki (56.5%). Of those respondents who live in New Plymouth District, most live in New Plymouth city. Most respondents who live in South Taranaki District live in Hawera. One respondent lives in Stratford District.

Nearly 40% of the workforce live further afield than the Taranaki Region or Whanganui. These respondents either live elsewhere in the North Island (34.9%), or in the South Island (4.3%). None of the workforce reside overseas.

The respondents who live in the Taranaki Region were asked whether they had moved into the region to work in the oil and gas industry. Of the fourteen who live in Taranaki, three had moved into the region to work in the industry.

Location of permanent residence	Percentage of respondents		
New Plymouth District	39.1%		
South Taranaki District	17.4%		
Stratford District	4.3%		
Whanganui District	0%		
Elsewhere in North Island	34.9%		
South Island	4.3%		
Overseas	0%		
Total	100%		

Table 3.4: Permanent residential location of respondents to the FPSO survey

3.2.3 Household characteristics of the FPSO workforce

The FPSO workforce survey found that respondents predominantly own the homes that they live in while onshore (91.3%), which is significantly greater than for New Zealand as a whole (62.7%). Only two respondents rent (8.7%).

Nearly all of the respondents live with a spouse / partner (43.5%), or with a spouse / partner and children (43.5%). Three of the respondents lived alone or with people who are not family.

3.2.3 Community involvement of the FPSO workforce

Respondents were asked whether they participate in any clubs or organisations, (such as recreation, civic or cultural groups) where they live. Thirty percent of respondents are involved in clubs and organisations in their local community, most of which are sports clubs. Two respondents are not involved themselves, but noted that someone in their household is. Sixty percent of respondents said that neither they nor any other member of their household are involved in local clubs or organisations.

Respondents were also asked if they volunteer for a community group or organisation. Nearly 22% are volunteers (21.7%). The groups and organisations that they volunteer for are varied: St John Ambulance; NZ Fire Service; surf lifesaving club; Coast Guard; school (PTA and other school involvement); and residents association. One respondent said that although not a volunteer



themselves, another person in their household is. Nearly 74% of the respondents said that neither they, nor anyone else in their household volunteer for a community group or organisation.

3.2.4 Travelling onshore / offshore

Respondents were asked about their travel characteristics to and from their offshore shifts.

Respondents predominantly use a car to travel to and from the airstrip where a helicopter takes them to the FPSO (82.6%). Four respondents use a taxi or a hotel or company shuttle (17.4%). All four fly to New Plymouth from outside the Taranaki Region and spend the night before their shift in New Plymouth. No respondents use public transport to commute to and from work.

All of the respondents who live further afield (beyond the boundary of Taranaki Region and Whanganui) spend the night in New Plymouth city before their shift starts. Some of these respondents noted that they return straight to their homes on the day that their shift finishes (the survey did not specifically ask this question).

3.3 General information on FPSO workforce operations

There are currently two Floating, Production, Storage and Offloading vessels (FPSOs) operating in the Taranaki offshore oil fields of Tui and Maari. The skills of the workforce on these FPSOs are likely to be similar to those required for the proposed TTR operations.

Table 3.5 provides an overview of the positions and skills typically required on these vessels. Almost all of the positions on the vessels are for highly skilled workers, many of which require tertiary qualifications and specialist off-shore and petroleum skills.

Position	Qualifications / Skills					
Management						
Off-shore installation manager	Engineering, electrical or nautical qualifications (Class 1 Master					
	Foreign Going or Class 1 Chief Engineer unlimited)					
Production department						
Production Superintendent	Engineering degree with offshore experience in hydrocarbon					
	production					
Production operator	Engineer and/or hydrocarbon production operator					
Maintenance department						
Senior maintenance specialist	Engineer with extensive facility management					
Maintenance superintendent	Engineer with extensive facility management					
Maintenance fitter	Fitter and turner					
Electrical and instrument lead	Electrical and instrument engineer with HV endorsement					
Electrical and instrument	Electrical and instrument engineer with HV endorsement					
Utilities operator	Mechanical engineer or fitter turner					
Operations department						
Marine safety superintendent	Extensive offshore facility/ship experience. Generally nautical					
	qualification such as Class 1 Master Mariner with tanker endorsement					
Senior cargo operator	Extensive offshore facility/ship experience. Generally nautical					
	qualification such as Class 1 (Master Mariner), or Class 2 (Chief					
	Officer), with tanker endorsement					
Cargo operator	Extensive offshore facility/ship experience. Generally nautical					
	qualification such as Class 1 (Master Mariner), or Class 2 (Chief					
	Officer), with tanker endorsement					
GP Operator Lead	Trade qualification or sea going certification/experience					
GP Operator	Trade qualification or sea going certification/experience					
Crane driver	Certified crane operator with offshore endorsement					
Administration Department						
Material planner and coordinator	Trade qualified with material planning and logistics experience					

Table 3.5: Typical FPSO positions and skills



Medic and administrator	Certified offshore medic (usually registered nurse or paramedic)				
Catering Department					
Camp boss/day cook	Offshore experience with Chef's qualification				
Night cook	Offshore experience with Chef's qualification				
Steward	Offshore experience				
Kitchen hand	Offshore experience with kitchen background				

Source: Barlow, 2012



4. Existing social environment

This section provides a description of the existing social environment in which the TTR proposal will operate or potentially affect, to provide a baseline to assess the proposal against. As described in section 1.3, the areas that will be potentially affected by the proposal occur at two geographic scales. The "local area" covers the coastal communities from Opunake in the north to Whanganui river mouth in the south. The "wider area" covers the districts of New Plymouth, South Taranaki and Whanganui.

The existing social environment is described for the local and wider areas. There are eight main coastal communities in the "local area": Opunake, Manaia, Ohawe, Hawera, Patea, Waverley, Waitotara and Kai Iwi. For the purposes of collating statistics the boundaries of these communities are predominantly defined by area units. A community profile has been produced for each of these communities, describing them in terms of population characteristics, historical and cultural⁷ values of the coast, and coastal recreation activities.

The profile of the "wider area" focuses on the main population characteristics of New Plymouth, South Taranaki and Whanganui districts (population size, employment levels, household income, household size).

The demographic profiles show that the residents in the local area differ to those of New Zealand as a whole in the following respects:

- between 1996 and 2006, the resident population in all the local communities was declining while the population in New Zealand as a whole increased. Some of the local communities experienced a significant decline in population (particularly Waitotara, Patea, Manaia, Opunake and Waverley)
- the local communities are generally not as ethnically diverse as New Zealand as a whole. All communities have a significantly greater percentage of residents with Maori ethnicity
- the age profile of all of the local communities indicates that there are fewer residents in the early and mid-stages of their careers (15-44 years of age) and more residents of retirement age (65 years and older)
- there are significantly lower household incomes in Patea, Waverley, Opunake and Manaia than New Zealand as a whole
- with the exception of Hawera, there is a significantly higher percentage of residents receiving an income from some form of government benefit (such as unemployment, sickness, domestic purposes or invalids benefit)
- the manufacturing sector is the largest employer in each of the local communities, and the percentage of the workforce in this sector is significantly great than for New Zealand as a whole.

4.1 Opunake

Opunake is the northern-most of the potentially affected communities. It is situated to the south east of two existing off-shore vessels: Umuroa FPSO (Tui well) and Raroa FPSO (Maari field).

Opunake is one of the larger townships along the Surf Highway (SH 45). It caters for a permanent residential population of almost 1,400, in addition to a large number of visitors during the summer months. Visitors are principally attracted by the surf and beaches in and around Opunake, as well as the views of the coastline and Mount Taranaki.

⁷ The description of cultural values is provided as a general overview, mainly collated from desk-based information. It is our understanding that TTR and iwi have agreed on a process for iwi to produce separate Cultural Impact Assessments that will be submitted with the final application material.



Opunake's strong association with the coast is celebrated in an annual carnival that is held at the beach: Opunake Beach Carnival.

4.1.1 Population characteristics

Population size

Opunake had a population of 1,365 residents at the time of the 2006 Census, which makes it the third largest of the potentially affected communities. The township experienced a declining population between the 1996 and 2006 Census, decreasing by 15%. This decline was significantly different to the population change across New Zealand as a whole, which increased by 11%.

Age

Of all the potentially affected communities, Opunake and Waverley have the greatest percentage of residents of retirement age. Census 2006 statistics show that 19% of Opunake's residents are 65 years or older, and 31% receive income from NZ Superannuation or the Veterans Pension. In comparison, 12% of New Zealand's population is 65 years or older and 14% receive NZ Superannuation or the Veterans Pension.

Ethnicity

Opunake has just over twice the percentage of residents who class themselves as Maori (32%) as New Zealand as a whole (15%).

Income

Many households in Opunake are on low incomes. Low household income is defined as \$30,000 or less per year, and the NZ Deprivation Index sets household equivalised income for deprivation at \$23,805 or less per year. Nearly one quarter of Opunake households had an income of \$20,000 or less per year (compared to 14% of New Zealand households), and 40% had an income of \$30,000 or less per year (compared to 25% of New Zealand households). The median household income was \$31,500 in Opunake, compared to \$51,400 for New Zealand as a whole.

Personal income statistics recorded by the 2006 Census⁸ show that a greater percentage of Opunake residents receive benefits than New Zealand residents as a whole. Section 4.9 provides more recent information on unemployment benefits recorded at Work and Income's Hawera service centre.

Type of Benefit	Opunake	New Zealand
Unemployment benefit	10%	3%
Sickness benefit	6%	2%
Domestic purposes benefit	9%	3%
Invalids benefit	5%	2%

Table 4.1: Sources of Personal Income

Source: Census 2006 – Sources of Personal Income (Total Responses) for the Census Usually Resident Population Count Aged 15 Years and Over

Employment sector

The main industries that Opunake residents were employed in at the time of the 2006 Census were manufacturing (16.8%), the retail trade (14.7%), education (11.2%) and agriculture, forestry and fishing (10.7%). Opunake had the greatest percentage of residents employed in the mining sector (2.0%) of all the profiled communities. (The percentage for New Zealand as a whole was 0.2%).

⁸ While more recent statistics are available on labour force participation rates (quarterly figures by Statistics New Zealand), they are only reported at regional and national levels.



4.1.2 Historical and cultural features

The main historical and cultural features associated with the coast at Opunake are:

- Te Namu Pa the location of a famous battle where Wiremu Kingi Matakatea repelled 800 Waikato Maori and successfully withstood a month-long siege armed with a single rifle
- Opunake walkway (described below)
- Opunake Beach and Middleton's Bay area which have high cultural/historic value with pa sites and a cemetery nearby, and 10 shipwrecks on reefs in the area (the remains of Lord Worsley is visited by snorkelers and divers) (TRC, 2004)
- Mangahume Beach has moderate cultural/historical value as a result of Maori reservation land adjacent to it (TRC, 2004)
- Puketapu Road End has high cultural/historical value as a result of the historic pa of Papakaka Te Rangi and Puketapu redoubt (TRC, 2004)
- Oeo Cliffs has high cultural/historical value, as the location of four major ship wrecks, marae and cemetery, boatsheds cut into the cliff, and a traditional fishing site (TRC, 2004)

Opunake Beach, Arawhata Road Beach, Middleton's Bay and Mungahume Beach all have high amenity values that are classed as regionally important (TRC, 2004).

4.1.3 Coastal recreation activities

Opunake is a popular coastal destination for surfing, swimming, windsurfing, fishing, diving, walking and sunbathing. Some of the activities are provided from the beaches adjacent to Opunake township and others from nearby coastal areas to the north and south. The main locations described in this section are (from north to south):

- Arawhata Beach (moderate recreation value)
- Middleton's Bay (moderate recreation value)
- Opunake Beach (high recreation value)
- Mungahume Beach (moderate recreation value)
- Puketapu (moderate recreation value)
- Oeo Cliffs (moderate recreation value)

Beaches

Three sandy beaches are located in the vicinity of the Opunake township. Opunake Beach is the main beach and is within walking distance of the township. It is popular for swimming, picnicking, sunbathing, beach games and surfing. A surf lifesaving club is based here, and it has picnic areas with barbeques, a playground and paddling pool. In a regional recreational survey undertaken in 2007-08, Opunake Beach was the third most visited beach in Taranaki (TRC, 2008). Results from the survey noted that it was favoured because of the variety of activities that it accommodates (TRC, 2008).

Middleton's Bay is located at the northern entrance to the township. It has "moderate" recreational value as a result of the surfbreaks and boat launching ramp (TRC, 2004). Clubrooms for the Opunake Boat and Underwater Club are situated at this bay.

Mungahume Beach is located 1km to the south of Opunake. It does not have formal public access to it; approval from the landowner is required to reach the beach.



Surfing

The coastline around Opunake is renowned for surfing, with a number of high quality or high value surfbreaks⁹ in the vicinity of Opunake township. Surfers from all over the world are attracted to these surfbreaks, which include Cemetery Point, Middleton Bay, Opunake Reef and Beach, Desperation Point, Dumps, Sky Williams and the Mungahume Reef. One of New Zealand's first artificial surf reefs is also situated at Opunake Beach.

The coastline immediately to the north of Opunake township (from Arawhata Road Beach south to Opunake) has an almost continuous stretch of high quality or high value surfbreaks. These include Arawhata Road Beach, Arawhata Point, Arawhata Reef¹⁰, Pohutakawas, Slaughterhouse Left and Right and Stepladders Left and Right.

Further south of Opunake, high quality or high value surfbreaks include Greenmeadows, Puketapu and South Point.

Walking

Opunake Walkway is a 7km walkway along the coast, extending from Opunake Lake to Te Namu Pa. The walk passes a number of areas of historic and environmental interest, including:

- Opunake Lake which once provided hydroelectricity and the lakeside was the site of a vegetable garden for the Armed Constabulary and early settlers. There are public toilets at this stop
- Armed Constabulary Cemetery on the headland that juts into the lake. It has four historic headstones
- Orimupiko Cemetery which is located on a former Pa site
- Waiaua River Mouth which offers views of Taranaki's coastline
- The Lion's Lookout, next to the ramp by the old wharf, offers views of Taranaki Bight
- Middleton Bay boat ramp
- Te Namu Pa (referred to above)

Fishing and diving

The Opunake area provides relatively easy access to fishing beaches for catching snapper, trevally, kahawai and spotty shark. Members of the Opunake Boat and Underwater Club who were interviewed for this assessment, valued the access they have to some of the best snapper resource in the country and the variety of species available¹¹. Offshore fishing is predominately undertaken off the coast of Oeo and Manaia.

The main fishing areas from beaches are at Arawhata Beach (low to moderate value for fishing and gathering kaimoana), Mungahume Beach (moderate recreational value), Puketapu (moderate recreational value for surfcasting, fishing and diving), Oeo Cliffs (moderate recreational value for surfcasting, shellfish gathering and traditional fishing site) (TRC, 2004). Middeltons Bay is also popular for fishing, as a quieter alternative to Opunake beach (TRC, 2008).

Boat launching ramps are located at Middleton's Bay and Puketapu (cut out of the rock face), and a wharf and jetty between Middleton and Opunake beaches. Boatsheds at Puketapu and Oeo Cliffs are carved out of the rock face. Jetski areas are also provided.

¹¹ Personal communication, 19 August 2013



⁹ As identified in the Regional Policy Statement for Taranaki

¹⁰ Arawhata Road Beach and associated surfbreaks are classified as "high use" in the Inventory.

Camping

The main camping facility is Opunake Beach Holiday Park, which is a popular beachfront location with nearly 100 campsites plus cabins and self-contained units.

4.2 Manaia

Manaia is located just inland from the coast, 10 minutes from Hawera and 45 minutes from New Plymouth. Manaia has a population of nearly 1,000 residents. It was once a major township for South Taranaki. It is known as the home to Yarrows Family Bakers, which supplies bread and bread products nationally and overseas.

4.2.1 Population profile

Population size

Manaia had a population of 924 residents at the time of the 2006 Census. The township experienced a similar decline in population to Opunake between the 1996 and 2006 Census, when it decreased by 15%. However, in the case of Manaia, the decline was most significant (13%) between 1996 and 2001, followed by a much smaller decline (3%) between 2001 and 2006.

Age

Of all the potentially affected communities, Manaia has an age profile most similar to New Zealand as a whole.

Ethnicity

Manaia has more than twice the percentage of residents who class themselves as Maori as the national average (40% compared to 15% for New Zealand as a whole).

Income

Many households in Manaia are on low incomes. Just over one-third (34%) of households receive \$30,000 or less per year (compared to 25% of New Zealand households). Only 4% of households receive \$100,000 or more per year, compared to 16% in New Zealand as a whole. The median household income was \$34,700 in Manaia, significantly less than the New Zealand median of \$51,400.

Personal income statistics show that a greater percentage of Manaia residents receive welfare benefits than New Zealand as a whole, particularly unemployment, domestic purposes and invalids benefits. Significantly fewer residents in Manaia earn income from self-employment (7%) than is the case for New Zealand as a whole $(16\%)^{12}$. Section 4.9 provides more recent information on unemployment benefits recorded at Work and Income's Hawera service centre.

Table 4.2:	Sources	of F	Personal	Income	(2006)
					(/

Type of Benefit	Manaia	New Zealand
Unemployment benefit	7%	3%
Sickness benefit	2%	2%
Domestic purposes benefit	5%	3%
Invalids benefit	5%	2%

Source: Census 2006 – Sources of Personal Income (Total Responses) for the Census Usually Resident Population Count Aged 15 Years and Over

¹² While more recent statistics are available on labour force participation rates (quarterly figures by Statistics New Zealand), they are only reported at regional and national levels.



Employment sector

More than one third of Manaia residents (37.3%) were employed in the manufacturing sector at the time of the 2006 Census, compared to 11.4% of residents in New Zealand as a whole. The other main employers for Manaia residents were the retail trade (10.5%) and education (11.2%).

4.2.2 Historical and cultural features

Kaupokonui stream and beach has high cultural/historic value (TRC, 2004). The land across the river from the carpark at Kaupokonui Beach was an important early Maori village and has been the site of many significant archaeological finds. Many moa remains have been found near Kaupokonui. The area at the end of Sutherland/Normanby Road also has high cultural/historic value, with pa sites nearby (TRC, 2004).

Otakeho Beach and Kaupokonui Stream and Beach all have high amenity values that are classed as regionally important (TRC, 2004).

4.2.3 Recreation activities

The main locations and recreation value ratings¹³ described in this section are (from north to south):

- Rawa Stream Mouth (moderate value)
- Otakeho Beach (moderate value)
- Kaupokonui (high value)
- Sutherland/Normanby Road Ends (moderate value)

Beaches

Kaupokonui Beach is located 5.5km south west of Manaia. The grounds are managed by the Kaupokonui Beach Society. The sheltered river and sea at this beach makes it a popular area for swimming. A children's playground is located at the beach. The 2008 regional recreation survey noted that Kaupokonui River mouth was favoured for the variety of activities that it accommodates (TRC, 2008).

Otakeho Beach is a small sandy beach at the bottom of high cliffs (approximately 6.5km from Manaia). Its main recreational attraction is fishing.

Surfing

There are no identified "high quality or high value areas" along this stretch of the South Taranaki coastline. However, Kaupokonui Beach is a popular surfing area for local residents.

Fishing and diving

Rawa stream mouth, 12 km west of Manaia, is popular for surfcasting, shellfish gathering and is a traditional fishing site. Otakeho Beach and Kaupokonui Stream and Beach are both popular for fishing. Whitebaiting is also popular at Kaupokonui stream and beach (TRC, 2004).

Camping

Kaupokonui Beach Camp is located on Kaupokonui Heads Road. It consists of an ablution block, powered and unpowered sites, cabins, and a seasonal shop. The camping ground attracts visitors for traditional beach holidays, fishing and whitebaiting.

¹³ As classified in the Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (TRC, 2004)



4.3 Ohawe

Ohawe is a small beach settlement situated between Manaia and Hawera.

Population size

Ohawe is the second smallest community in the "local area", with a population of 210 residents at the time of the 2006 Census. The township experienced a significant decline in population between the 1996 and 2006 Census, when it decreased by 18.6%.

Age

At the time of the 2006 Census, Ohawe had a slightly greater percentage of children under 15 years of age, compared to most of the other communities in the local area and New Zealand as a whole. Ohawe also had a greater percentage of residents in the latter stages of their working life (45-64 years): 28% compared to 25% for New Zealand as a whole. Ohawe had the lowest percentage of residents aged 65 years or older of all the profiled communities (7% compared to 12% of New Zealand residents as a whole).

Ethnicity

Just over one-third of Ohawe's residents class themselves as Maori (more than double the percentage for New Zealand as a whole).

Income

Nearly one third (30%) of households in Ohawe did not state their household income levels in the 2006 Census, thus making it difficult to compare income levels with other communities.

Employment sector

At the time of the 2006 Census, the manufacturing sector was the greatest employer of residents in Ohawe (15%), followed by health (15%), property and business services (12%), construction (9%) and retail (9%).

4.3.1 Historical and cultural features

The Waingongoro River Mouth and Ohawe Beach have high cultural/historic value (TRC, 2004). At the mouth of the Waingongoro River the first Maori settlers in Taranaki lived in small undefended settlements. The remains of moa have been found in cooking ovens around the edge of the present camping ground, and the remains of other native birds have been found in the area. In the 1940s a fortified pa stood where the car park is now located (Venture Taranaki). Four Mile Reef, offshore from Ohawe, is a traditional fishing reef of importance to iwi (TRC, 2004).

There was a military cemetery near the river, and there are remnants of a tram rail that was used to haul shingle and sand from the beach to build roads and some of the earlier concrete buildings in South Taranaki (Venture Taranaki).

Inaha Beach and Ohawe Beach all have high amenity values that are classed as regionally important (TRC, 2004).

4.3.2 Recreation activities

The main locations and recreation value ratings¹⁴ described in this section are (from north to south):

- Inaha Beach (moderate recreation value)
- Waingongoro River Mouth / Ohawe Beach (high recreation value)

¹⁴ As classified in the Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (TRC, 2004)



• Four Mile Reef (high recreation value)

Beaches

Ohawe Beach / Waingongoro is popular for freshwater and sea swimming. In a regional recreational survey undertaken in 2007-08, it was the 11th most visited water-based destination in Taranaki out of 84 beaches, rivers and lakes (TRC, 2008). Ohawe Beach has public toilets, changing rooms and a playground.

Surfing

Ohawe and Inaha beaches are popular surfing spots.

Fishing and diving

Ohawe and Inaha beaches are popular fishing and boating spots. Ohawe Boating and Angling Club operates from Ohawe beach. The Club provides a boat ramp at the beach, with a membership of approximately 50 boats¹⁵. Blue cod is the main species caught by recreational fishers, with snapper found close to the coast. Ohawe Beach is also popular for whitebaiting, surfcasting, seafood gathering (including pipi beds and crayfish), jetskiing and kayaking.

Four Mile Reef is located 6.5km offshore from Ohawe Beach. It is a traditional fishing reef that is important to local iwi. Four Mile Reef is also important for scuba divers (particularly for crayfish and scallops) and recreational fishers.

Coastal Walkways

Ohawe Beach to Waihi Beach coastal walk is a 5km tidal walk. Points of interest along it include Waingongoro River and Ohawe Beach (with their cultural and historic value as described above), cliffs, rockpools and remnants of tram rails (described above).

Camping

Ohawe Beach Camp provides power and toilet facilities.

4.4 Hawera

Hawera is located approximately three kilometres inland. Hawera is the largest town and the administrative centre of South Taranaki. It has developed as a service town for the surrounding sheep, beef and dairy farming industry, and later, for the energy sector industries – mainly oil and gas. Whareroa Fonterra, two kilometres south of the township, is the largest single-site dairy factory in the southern hemisphere.

4.4.1 Population profile

Population size

Hawera is the second largest of the potentially affected communities - 8,370 residents at the time of the 2006 Census. Of all the potentially affected communities, it experienced the least decline in population between the 1996 and 2006 Census (5%), but was still significantly different to New Zealand as a whole, which experienced an 11% growth over the same period.

Age

The age profile of Hawera's residents is similar to New Zealand as a whole. The main difference is a greater percentage of residents of retirement age in Hawera. According to Census 2006 statistics, 18% of Hawera's residents are 65 years or older, and 20% receive income from NZ Superannuation

¹⁵ Personal communication, Ohawe Boat and Angling Club, August 2013



or the Veterans Pension. In comparison, 12% of New Zealand's population is 65 years or older and 14% receive NZ Superannuation or the Veterans Pension.

Ethnicity

Of all the potentially affected communities, Hawera has the largest percentage of residents of European ethnicity (74%) and the smallest percentage of residents of Maori ethnicity (19%).

Income

Hawera's household income profile is similar to New Zealand's as a whole. The main difference is that 10% of households in Hawera have an income of \$100,000 or more per year, compared to 16% of households in New Zealand as a whole. Hawera had the highest median household income of the profiled communities (\$48,900 compared to \$51,400 for New Zealand as a whole).

Personal income statistics for Hawera's residents are also similar to New Zealand as a whole. The most notable differences are that 9% of Hawera residents earn an income from self-employment compared to 16% in New Zealand, and 20% of residents receive an income from New Zealand Superannuation or Veterans Pension, compared to 14% in New Zealand.

Employment sector

In 2006, more than one quarter of Hawera residents (26.7%) were employed in the manufacturing sector, compared to 11.4% of residents in New Zealand as a whole. The other main industries that Hawera residents were employed in were the retail trade (13.4%), health and community services (7.8%) and construction (7.1%).

4.4.2 Historical and cultural features

Hawera means "the burnt place" or "breath of fire" and takes its name from the Maori village of Te Hawera, which was located approximately 3 km south east of the present town. The main historic and cultural resources associated with the coast near Hawera are:

- Waihi beach which has important archaeological sites and is classified as having high cultural/historic value.
- Rifle Range Road Lakes which has middens and is classified as having moderate cultural/historic value.
- Manawapou-Tangahoe River Mouths and Cliff Tops which has pa sites (including Manawapou Pa), Thatckers redoubt, Cameron's redoubt and Inman's redoubt, and is a traditional food gathering area for local Maori. It is classified as having high cultural/historic value.

The following coastal locations are classified as having high amenity values (TRC, 2004):

- Riffle Range Road Lakes due to its naturalness (it is a regionally significant wetland and important for native water birds)
- Manawapou-Tangahoe River Mouths and Cliff Tops due to the unusual landforms of stacks, pinnacles and peninsulas
- Lake Kaikura due to its landscape.

4.4.3 Recreation activities

The main locations and recreation value ratings¹⁶ described in this section are (from north to south):

• Waihi Beach (high value)

¹⁶ As classified in the Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (TRC, 2004)



- Rifle Range Road Lakes (moderate value)
- Manawapou Tangahoe River Mouths and Cliff Tops (moderate value)
- Manawapou Road Coastal Lagoons (moderate value)
- Lake Kaikura (moderate value)

Beaches

Waihi Beach is popular for beach walking and picnicking. It is not a suitable swimming beach due to the strong tides.

Surfing

Waihi beach is a popular surfing location.

Fishing and diving

Fishing spots are found at Waihi Beach and the Manawapou-Tangahoe River Mouths and Cliff Tops. The latter is a traditional food gathering area for local Maori.

South Taranaki Fishing Charters and Hy-jinks Charters are both based in Hawera.

4.5 Patea

Patea is a coastal town, located approximately half-way between Hawera and Waverley. Patea hosts two annual events associated with the coastline: The Fishing Competition and Patea Beach Carnival (STDC, 2007).

4.5.1 Population profile

Population size

At the time of the 2006 Census Patea had a population of 1,143 residents, a decline of 18% over the previous ten years. This was the same percentage of decline as Ohawe, and the second greatest level of decline among all the potentially affected communities (Waitorara experienced the greatest decline). Patea's population decrease occurred mainly between 2001 and 2006 (12% decline).

Age

Patea has the lowest percentage of residents in the early and middle stages of their careers (15-44 years of age) of all the affected communities (31% compared to 42% in New Zealand as a whole). Compared to the other affected communities and New Zealand as a whole, it also has a greater percentage of residents of retirement age (18%).

Ethnicity

Of all the potentially affected communities, the ethnicity profile of Patea's residents differ the most from New Zealand as a whole. Just over half of Patea's residents (51%) class themselves as having some degree of Maori ethnicity and 57% some degree of European Ethnicity (compared to 68% in New Zealand).

Income

Patea has highest proportion of households in the lowest income groups of all the potentially affected communities. At the 2006 Census, nearly one-third of households (30%) received \$20,000 or less per year (compared to 14% of New Zealand households), and 40% of households received \$30,000 or less per year (compared to 25% of New Zealand households). Patea also has the lowest percentage of households with an income of \$100,000 or more per year: 2% compared to 16% in New Zealand as a whole, and the lowest median household income of all the potentially affected communities (\$23,000).



Personal income statistics show that in 2006, Patea had a relatively high percentage of residents receiving welfare benefits.¹⁷. Section 4.9 provides more recent information on unemployment benefits recorded at Work and Income's Hawera service centre.

Type of Benefit	Patea	New Zealand
Unemployment benefit	9%	3%
Sickness benefit	4%	2%
Domestic purposes benefit	7%	3%
Invalids benefit	8%	2%

Table 4.3: Sources of Personal Income

Source: Census 2006 – Sources of Personal Income (Total Responses) for the Census Usually Resident Population Count Aged 15 Years and Over

Employment sector

More than one quarter of Patea residents (25.6%) were employed in the manufacturing sector at the time of the 2006 Census, compared to 11.4% of residents in New Zealand as a whole. The other main industries that Patea residents were employed in were the retail trade (10.5%), health and community services (9.0%) and education (7.5%). Patea experienced a decrease in the number of residents employed in education (12 residents) between the 2001 and 2006 Census as a result of the mergers of Patea primary and secondary schools (STDC, 2007).

4.5.2 Historical and cultural features

Patea has a rich Maori and European history, which is documented in the South Taranaki District Museum (Aotea Utanga nui) in Patea. The replica of the Aotea canoe at the western entrance to the town commemorates the settlement of Taranaki by Turi and his hapu, who, according to local history, travelled from Hawaiiki to Kawhia and then overland to Patea. The more recent history of Patea (post 1860s) involves the Patea wharf and port, the meat industry, Wai o Turi Marae, Haere Hau Pa and Dawson's Redoubt.

The following coastal locations are classified as having high cultural/historic values (TRC, 2004):

- Kakaramea: the site of the first hydro-electric stations in New Zealand
- Whitikau Historic Marae: located on the coastline to the north of Patea
- Patea Beach: the site of two redoubts and of spiritual significance to Nga Rauri iwi
- Waitore Swamp: an important archaeological site containing the oldest wooden artefacts known from New Zealand (AD 1380 1500)
- Whenuakura Estuary: the site of a Maori kainga (village) on sand dunes, a pa which was located on an island in the estuary and are sites of spiritual significance.

4.5.2 Recreation activities

The main locations and recreation value ratings¹⁸ described in this section are (from north to south):

- Kakaramea (moderate value)
- Patea Beach (high value)

¹⁸ As classified in the Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (TRC, 2004)



¹⁷ While more recent statistics are available on labour force participation rates (quarterly figures by Statistics New Zealand), they are only reported at regional and national levels.

- Waitore Swamp (low value
- Whenuakura Estuary (moderate value)
- North and South Traps (moderate recreational value)

Beaches

Patea/Carlyle beach is a black-sand beach. In a regional recreational survey undertaken in 2007-08, Patea Beach was the 11th most visited water-based destination in Taranaki (out of 84 beach, river and lake destinations) and ninth "most frequently visited" location. In the previous survey undertaken in 1984, Patea Beach had not featured as a destination that people "most frequently visited" (TRC, 2008).

Facilities at Patea Beach include a playground and picnic areas with barbecues and toilets.

Surfing

Patea/Carlyle beach is popular for surfing.

Fishing and diving

Fishing and boating is popular at Patea Beach and River Mouth, particularly for blue cod and whitebaiting. In a regional recreational survey undertaken in 2007-08, Patea Beach recorded the highest average number of participants fishing from a beach at all of the water-based locations surveyed in Taranaki (TRC, 2008).

Offshore fishing is particularly popular off the coast of Patea. A public boat ramp is located at Patea (Turi Street) and the Patea and Districts Boating Club operates from there, with approximately 135 members (90 boats)¹⁹. The number of boats using the boat ramp can be much greater because it is a public facility. Anecdotal information indicates that fishing tournaments off the coast of Patea can attract 150 boats²⁰. South Taranaki Fishing Charters operates from Patea (launching from Patea River).

The North and South Traps are located 6km offshore from Patea. The Traps are the base for much of the recreational diving and fishing off the coast of Patea, and are classified as having high ecological value due to the diverse and abundant marine life, including large seaweed forests (TRC, 2004). The coastal waters off Patea, including North and South Traps, Graham Bank and Patea Bank, were the most commonly identified areas of importance for fishing identified in research undertaken by the Department of Conservation (DoC, 2006).

North and South Traps were the areas most frequently mentioned as important for diving in the Department of Conservation's research (DoC, 2006). Fish species regularly seen at the Traps included terakihi, red moki, cod, snapper, rock lobster, Spanish Lobster, pack horse crayfish, kingfish, blue moki, big eye, leather jacket and other smaller reef fish (Whanganui Underwater Club, cited in DoC, 2006).

Fishing is also popular from the cliff tops at Kakaramea (TRC, 2004).

Patea has an old port, which is largely silted up. Work has commenced on Patea moles to preserve access to the fishing resource (STDC, 200X).

Coastal walkways

The Patea River Historic Walkway is a 1.5km route that follows the river from Patea Beach up to York Street. The walkway provides information on significant historic points of interest to the township.

²⁰ Personal communication, Patea resident, August 2013



¹⁹ Personal communication, Patea and Districts Boating Club, August 2013

Camping

Patea/Carlyle Beach Motor Camp is situated at the Patea River mouth in Mana Bay. The camping ground consists of four cabins and powered and unpowered campsites. Visitors mainly stay for the fishing competitions, whitebaiting and beach holidays, and predominantly come from Taranaki, Manawatu and Wellington.

4.6 Waverley

Waverley is an inland, rural community, located approximately halfway between Hawera and Wanganui along State Highway 3. Two beaches are located in close proximity to the town: Waverley Beach and Waipipi Beach.

4.6.1 Population profile

Population size

Waverley is the third smallest of the potentially affected communities. It had a population of 861 residents at the time of the 2006 Census. The population of Waverley declined by 10% between the 1996 and 2006 Census, compared to 11% for New Zealand as a whole.

Age

Waverley has a similar age profile to Patea, with a low percentage of residents in the early and middle stages of their careers: 32% of residents 15-44 years of age, compared to 42% in New Zealand as a whole. Waverley and Opunake have the greatest percentage of residents of retirement age of all the potentially affected communities: 19% are 65 years or older.

Ethnicity

Waverley has twice the percentage of residents classing themselves as of Maori ethnicity (30% compared to 15% for New Zealand), and a similar percentage of residents of European ethnicity (70% compared to 68% for New Zealand).

Income

Many households in Waverley are on low incomes - nearly one quarter (24%) receive \$20,000 or less per year, compared to 14% of New Zealand households. Forty one percent receive \$30,000 or less per year, compared to 25% of New Zealand households. Waverley also has a low percentage of households on \$100,000 or more per year: 3% compared to 16% in New Zealand as a whole. This township also has the second lowest median household income of all the potentially affected communities: \$26,700 compared to \$51,400 for New Zealand as a whole.

Personal income statistics show that in 2006, the percentage of Waverley residents receiving an income from welfare benefits was one of the highest of all the potentially affected communities, and significantly greater than New Zealand as a whole (Table 4.4).

Type of Benefit	Waverley	New Zealand
Unemployment benefit	8%	3%
Sickness benefit	6%	2%
Domestic purposes benefit	12%	3%
Invalids benefit	7%	2%

Table 4.4: Sources of Personal Income

Source: Census 2006 – Sources of Personal Income (Total Responses) for the Census Usually Resident Population Count Aged 15 Years and Over



Employment sector

The two main industries that Waverley residents were employed in at the time of the 2006 Census were manufacturing (20.4%) and agriculture, forestry and fishing (19.4%). The other main industries were the retail trade (12.0%) and education (12.0%).

4.6.2 Historical and cultural features

Archaeological material has been found at Waipipi Dunelands (classified as moderate cultural/historic value) (TRC, 2004).

The following coastal locations are classified as having high amenity values (TRC, 2004):

- Waipipi Dunelands significant natural area
- Waverley Beach outstanding natural landscape with its distinctive eroding stacks, caverns and tunnels which produce blow holes

4.6.3 Recreation activities

The main locations and recreation value ratings²¹ described in this section are (from north to south):

- Waipipi Dunelands (moderate value)
- Waverley Beach (high value)

Beaches

Waverley Beach (incorporating Cave Beach and Long Beach) is characterised by its unique landform of rock stacks and caves. The beach has a children's playground and is popular for walking. Waipipi Beach is a flat, safe swimming beach and is popular for walking.

Surfing

Pid's Point near Waipipi Dunelands is classified as a high quality / high value surfbreak (TRC, 2009).

Fishing and diving

Fishing is popular at Waipipi Dunelands and Waverley Beach, and whitebaiting at Waitotora Estuary. A boat ramp is located at Waverley Beach. Some of the most commonly identified areas of importance for fishing identified in research undertaken by the Department of Conservation are located offshore from the Waverley coastline (DoC, 2006).

Rock structures offshore from Waverley are popular for diving areas, particularly for rock lobster (DoC, 2006).

Coastal walkways

Waitotara Walkways provides routes along the beaches and clifftops between Waverley and Waitotara. Beach walking is also popular at Waipipi Dunelands.

Camping

Waverly Camp (Coleman Ave, Waverley Beach) provides one cabin, 25 powered sites and numerous unpowered sites.

²¹ As classified in the Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (TRC, 2004)



4.7 Waitotara

Waitotara is situated inland, along Waitotara River. The nearest beach is Waiinu beach which has a small residential settlement.

The statistics in the population profile below are for the Waitotara township and do not include Waiinu beach settlement.

4.7.1 Population profile

Population size

Waitotara is the smallest of all the potentially affected communities, with 66 residents at the time of the 2006 Census. Between the 1996 and 2006 Census, Waitotara experienced the most significant decline in population of all the potentially affected communities, declining by 37% (39 residents) over this period, most of which occurred between 2001 and 2006.

Ethnicity

Just over one-third (36%) of Waitotara's residents classify themselves as Maori and 73% as European ethnicity.

Age

Waitotara has an older population than the other affected communities and New Zealand as a whole. Nearly half of the residents in Waitotara are 45 to 64 years of age, compared to nearly a quarter in New Zealand as a whole. Correspondingly, Waitotara has fewer younger residents: there are no pre-schoolers and only 9% of residents are aged 15-29 (compared to 20% in New Zealand as a whole).

Income

Most households in Waitotara are on low or lower-middle incomes (Table 4.5). At the time of the 2006 Census, Waitotara had a median household income of \$32,500 compared to \$51,400 for New Zealand as a whole.

Household Income	Waitotara	New Zealand
\$20,000 or less	18%	14%
\$20,001 - \$30,000	9%	11%
\$30,001 - \$50,000	27%	16%

Table 4.5 Household income

Source: Census 2006 – Total Household Income for Households in Private Occupied Dwellings

Personal income statistics show that a smaller percentage of Waitotara residents earn an income from wages, salaries and commission (37% compared to 56% for New Zealand as a whole). However, a greater percentage of Waitotara residents earn an income from self-employment (21% compared to 16% in New Zealand). A greater percentage of Waitotara residents receive welfare benefits than New Zealand as a whole:

Table 4.6 Sources of personal income

Type of Benefit	Waitotara	New Zealand
Unemployment benefit	5%	3%
Sickness benefit	5%	2%
Domestic purposes benefit	5%	3%
Invalids benefit	11%	2%

Source: Census 2006 – Sources of Personal Income (Total Responses) for the Census Usually Resident Population Count Aged 15 Years and Over



Employment sector

Information was not available on the industry groups that Waitotara residents were employed in at the time of the 2006 Census, due to the small population. However, it is expected that as a large employer in the area, Silver Fern Freezing Works located between Waitotara and Waiinu beach employs a significant proportion of the of the local residents.

4.7.2 Historical and cultural features

Waitotara River mouth has the remains of a submerged ancient totara forest, which gives the settlement its name. Waiinu Beach is classified as having high cultural/historic value. It is the site of a Mäori fishing village (Waikaramihi) and fishing canoe (Karewaonui). The Waiinu Reef has been a major fishing ground and is still used for gathering kaimoana (TRC, 2004). The following coastal locations are also classified as having high amenity values (TRC, 2004):

- Waitotora Estuary significant natural area with high natural values
- Waitotora Estuary and Dunes Hawkens Swamp is a significant natural area with high natural values. It is the site of a ferry punt landing from early European settlement and the site of the original Waitotara Hotel (Rising Sun) which used a cave in the cliff for the cellar.

4.7.3 Recreation activities

The main locations and recreation value ratings²² described in this section are (from north to south):

- Waitotora Estuary (moderate value)
- Waiinu Beach and Reef (high value)

Beach

Waiinu beach is a large, black sand beach that is popular for walking. Fresh springs occur along the beach, which gives it its name. It has toilet facilities and a children's playground.

Surfing

There are three surfbreaks near Waiinu Beach that are classified as high quality / high value: Wainui, The Point and Fences (TRC, 2009). These surfbreaks make it a popular surfing destination for tourists (eCoast, 2013).

Fishing and diving

Waitotara Estuary is popular for whitebaiting. Waiinu Beach, including Snapper Rock, is a locally important fishing spot. Waiinu Reef extends from mean high water springs to 3 - 5 kilometres off the coast, and is popular for gathering kaimoana.

Camping

Camping is available at Waiinu Beach.

²² As classified in the Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (TRC, 2004)



4.8 Mowhanau / Kai lwi beach

Kai Iwi beach / Mowhanau is a small coastal township, that in 2006 consisted of approximately 230 residents. Statistics on population characteristics are not included because much of the information at the meshblock level was confidential.

4.8.1 Recreation activities

Kai iwi beach is used for swimming and fishing, and provides a children's playground and picnic area. The Kai Iwi surfbreak is popular for surfers of all levels. A camp ground is located at Kai Iwi beach (Mowhanau Holiday Park).

4.9 The wider area

The main population characteristics of New Plymouth, South Taranaki and Whanganui districts are summarised below.

4.9.1 Population size

New Plymouth District is the most populated of the three districts in the wider area and was the only district that increased its population between the 1996 and 2006 Census (1.2% growth). However, this growth was still significantly lower than for New Zealand as a whole. South Taranaki experienced the greatest decline in population over this period (9.1%) while Whanganui's population declined by 5.3%.

	1996	2001	2006	% change 1996-2006
New Plymouth District	68,112	66,603	68,901	1.2%
South Taranaki District	29,136	27,537	26,487	-9.1%
Whanganui District	45,042	43,269	42,636	-5.3%
New Zealand	3,618,303	3,737,277	4,027,947	11.3%

Table 4.7: Size and trends of the residential population (1996 – 2006)

Source: Census 1996, 2001, 2006 (NZ Statistics)

4.9.2 Age profile

At the time of the 2006 Census, the age profiles of residents in the three districts were similar to that of New Zealand as a whole. The main differences are as follows:

- the three districts had a lower percentage of residents in the early stages of their career (15
 - 29 years of age)
- the three districts had a greater percentage of residents aged 65 years or older (particularly Whanganui and New Plymouth)
- South Taranaki District had a slightly higher percentage of children (under 15 years of age).

Table 4.8: Age profile of the residential population (2006)

	0 - 4	5 - 14	15 - 29	30 - 44	45 – 64	65 years
	years	years	years	years	years	and over
New Plymouth District	6.1%	14.7%	17.7%	20.8%	25.2%	15.4%
South Taranaki District	7.6%	16.3%	17.9%	21.1%	23.9%	13.2%
Whanganui District	6.3%	15.4%	16.7%	19.3%	25.0%	17.3%
New Zealand Total	6.8%	14.7%	20.2%	22.1%	23.8%	12.3%

Source: Census 2006 (NZ Statistics)



4.9.3 Household income

At the time of the 2006 Census, all three districts had lower median household incomes in comparison to New Zealand as a whole (\$51,400). Whanganui District had the lowest median household income (\$36,100), followed by New Plymouth (\$44,700) and South Taranaki (\$45,400).

Table 4.9 indicates that the three districts had a greater percentage of households on lower incomes than households in New Zealand as whole. This was most significant in Whanganui District where approximately 35% of households received 30,000 or less per year (compared to 24% in New Zealand). Conversely the three districts had a lower percentage of households with higher incomes. For example, 7.3% of households in Whanganui District received \$100,000 per year compared to 16% in New Zealand as a whole.

	\$20,000 or Less	\$20,001 - \$30,000	\$30,001 - \$50,000	\$50,001 - \$70,000	\$70,001 - \$100,000	\$100,001 or more	Not Stated
New Plymouth District	15.9%	12.6%	17.5%	13.7%	12.0%	11.9%	16.4%
South Taranaki District	14.7%	11.4%	17.7%	13.8%	11.1%	11.6%	19.7%
Whanganui District	20.0%	14.8%	18.7%	12.9%	9.2%	7.3%	17.1%
New Zealand Total	13.8%	10.7%	16.4%	13.6%	13.0%	16.2%	16.2%

Table 4.9: Household income (2006)

Source: Census 2006 (NZ Statistics)

4.9.4 Benefits

The number of working-age recipients (aged 18-64 years) of welfare benefits reported by Work and Income service centres are provided in table 4.10 (all main benefits) and table 4.11 (unemployment benefit). These tables show that the number of beneficiaries in the wider area has increased between June 2008 and June 2013. The most significant increases were those receiving the unemployment benefit at the Whanganui service centre, which increased from 626 in June 2008 to 1,433 in June 2013, and at the New Plymouth service centre, which increased from 174 in June 2008 to 314 in June 2013.

Number of recipients who were registered in:	June 2008	June 2013
Hawera	1,329	1,484
New Plymouth	3,567	3,695
Whanganui	4,646	5,457

Source: Ministry of Social Development, *Taranaki, Whanganui and King Country Region Service Centre Factsheet*, June 2013

	Table 4.11: Numbers of working age	Unemployment Benefit recipients	(aged 18-64 years) by service centre
--	------------------------------------	---------------------------------	--------------------------------------

Number of recipients who were registered in:	June 2008	June 2013
Hawera	140	161
New Plymouth	174	314
Whanganui	626	1,433

Source: Ministry of Social Development, Taranaki, Whanganui and King Country Region Service Centre Factsheet, June 2013

4.9.5 Employment profile

The range of employment sectors that New Plymouth residents were employed in at the time of the 2006 Census was similar to New Zealand as a whole. The main differences were in property and



business (11.1% compared to 12.8% for New Zealand as a whole) and mining (1.4% compared to 0.2 for New Zealand as a whole).

Whanganui District was also similar to New Zealand as a whole. The main differences were a smaller percentage of residents employed in property and business services (7.9% compared to 12.8% for New Zealand as a whole) and a greater percentage of residents employed in health and community services (11.6% compared to 8.11% for New Zealand as a whole).

In contrast, employment in South Taranaki was dominated by two main employment sectors. The district had a significantly greater percentage of residents employed in agriculture, forestry and fisheries (26.5% in comparison to 6.9% for New Zealand as a whole) and manufacturing (20.1% in comparison to 11.4% for New Zealand as a whole). Farming and associated dairy and meat processing companies, and energy companies are the main employers

4.10 Summary of demographic statistics

Table 4.12 summaries the demographic data described in section 4 for each of the communities in the local and wider areas.

Community	Pop. size	Age profile of permanent residential population				Low household income	Unemploy ment benefit		
	# perma- nent residents	0-4 years	5-14 years	15-29 years	30-44 years	45-59 years	60+ years	% households earning \$0- 30,000)	% residential population 15 years and over)
Hawera	8,370	6.2%	15.1%	17.6%	19.8%	23.4%	17.8%	27.3%	3.1%
Manaia	924	8.8%	15.9%	19.2%	19.8%	22.7%	13.0%	34.2%	6.9%
Ohawe	210	8.5%	16.9%	16.9%	22.5%	28.2%	7.0%	22.2%	3.8%
Opunake	1,365	6.6%	13.6%	16.7%	19.1%	24.6%	19.3%	40.1%	10.2%
Patea	1,143	8.1%	15.7%	14.2%	17.1%	26.5%	17.6%	45.0%	8.6%
Waitotara	66	0.0%	18.2%	9.1%	22.7%	45.5%	18.2%	27.3%	5.3%
Waverly	861	7.7%	13.9%	14.6%	17.1%	26.5%	19.2%	40.7%	8.1%
New Plymouth District	68,901	6.1%	14.7%	17.7%	20.8%	25.2%	15.4%	28.5	3.1%
South Taranaki District	26,487	7.6%	16.3%	17.9%	21.1%	23.9%	13.2%	26.1	3.8%
Whanganui District	42,636	6.3%	15.4%	16.7%	19.3%	25.0%	17.3%	34.9	4.9%

Table 4.12: Summary of demographic statistics (Census 2006)



5. Assessment of potential effects

This section provides an assessment of potential social effects (positive or negative), based on information available on the proposed operations, the local communities and resources, and technical reports commissioned by TTR. At the time of finalising the SIA some of the reports on environmental processes were in draft form and the reports on tourism and cultural impacts were not available.

Taking into account the Social Wellbeing Framework outlined in section 1.3, the potential effects have been assessed as follows:

- the effect of employment directly generated by the proposed development
- the effect on local business and associated employment from servicing TTR's proposed operations
- the effect on income
- the effect on community facilities, social services and housing
- the effect on visual amenity
- the effect on recreation

5.1 Employment

TTR has estimated that when fully operational, the project will directly create 258 new jobs (FTE) across the various mining activities (Table 2.1). New jobs contribute to a communities' social wellbeing by providing a livelihood and financial support for the employee and his/her household.

The creation of approximately 258 new jobs and the potential expenditure of wages in the local area is undoubtedly a positive social effect. However, the significance of this job creation as a social effect will depend upon the location of the workforce and the extent to which the local workforce²³ is able to access those positions. These two factors are assessed below.

5.1.1 Location of the workforce

The extent to which the new jobs are undertaken by a workforce that lives locally, will largely determine the extent of the benefits that accrue locally. Workers who live in, or close to, the same community that they work in are more likely to contribute to the local economy through their purchase of local goods and services and their contribution to local and regional infrastructure through rates or rent payments. Locally-based workers are also more likely to contribute to the local community through their involvement in community groups and activities and their use and support of local education, health and community services.

TTR's proposed operations are primarily based offshore. As illustrated in Table 2.1, TTR estimates that 170 positions (66% of the new workforce) will be located offshore on the FPSO and FSO - these vessels will operate continuously offshore with a workforce that lives on them during their shifts. The remainder of the positions will either be based on vessels that will launch regularly from a port, or will be office-based positions (88 FTE / 34% of the new workforce).

For the purposes of estimating where this new workforce may live, and assessing the potential social effects likely to accrue as a consequence, we have taken into account the experiences of the current offshore oil and gas industry in Taranaki, and the social effects commonly attributed to a fly-in fly-out / drive-in drive-out workforce (FIFO/DIDO workforce).

²³ References to a "local workforce" means the workforce that is resident in the local or wider affected areas. Where necessary we note differences in employment opportunities between the local and wider affected areas.



Where is the offshore workforce likely to reside permanently?

Approximately 170 positions will be based offshore, with workers returning onshore for a period of three weeks at a time. Information from the 2006 Census on the oil, gas and metal ore mining industry as a whole, and the FPSO workforce survey undertaken in 2013, provides an indication of the locations that these offshore workers will most likely reside when they are onshore (section 3). We have also considered the location of the helicopter pad (either Hawera, New Plymouth or Whanganui) which will be utilised to get the workforce to/from the FPSO and FSO. Other factors considered are the combined effect of the need for a significant proportion of the workforce to have specialist skills, and the length of time between shifts. These factors could make it necessary as well as feasible for workers to commute to work from overseas – most likely Australia.

Based on the above information and assumptions, Table 5.1 provides an indication of the onshore residential locations for the new workforce and assumptions behind those.

Permanent residential location	2006 Census (based on <u>offshore and</u> <u>onshore</u> workers in oil, gas and metal ore mining)	FPSO Survey (based on <u>offshore</u> workers)	Indicative percentage of TTR's offshore workforce	Estimated total offshore workforce (FTE) for TTR project
New Plymouth District	80.1%	39%	30-40% ¹	51-68
South Taranaki District	11.8%	17%	12-20% ²	20-34
Stratford District	3.7%	4%	4%	7
Whanganui District	Included in 'Elsewhere in NZ'	0%	0 - 10% ³	0 - 17
Elsewhere in New Zealand	4.4%	39%	35-40%	59-68
Overseas	0%	0%	5% ⁴	9

Table 5.1: Indicative permanent residential locations for the offshore workforce

¹ upper figure assumes that the helipad is located in New Plymouth

¹ upper figure assumes that the helipad is located in Hawera

³ upper figure assumes that the helipad is located in Whanganui

⁴ while the Census and FPSO survey statistics recorded no overseas workers, there is potential for this to occur as a result of the long shifts and new/specialist skill level required on the FPSO and FSO

Where is the onshore workforce likely to reside permanently?

Approximately 88 workers will either work on land, or return to land most days. Based on the location of the main port and support offices, it is estimated that this workforce will have their permanent homes in the following locations.

- 50 FTE in New Plymouth city or environs (30 FTE anchor handling tug operators and 20 FTE providing administrative/office support)
- 8 FTE in Whanganui city or environs providing offshore services on monitoring, surveying and drilling vessels
- 30 FTE in Wellington to staff TTR's headquarters.



A FIFO/DIDO workforce

The 170 workers based offshore (i.e. on the FPSO and FSO) will be employed on shifts of 21 days on / 21 days off. This will facilitate a workforce who could live anywhere in New Zealand or even further afield, commuting by plane (fly in and fly out) or motor vehicle (drive in and drive out) for their offshore shifts.

A FIFO/DIDO workforce is often associated with adverse impacts on both the community within which they live temporarily while on shifts, and on the shift workers themselves and their families. For example, research (Petkova *et al*, 2009; Buchan, 2012) has shown that FIFO/DIDO patterns of work can create:

- a reduced a sense of community or community fragmentation because non-resident shift workers tend not to integrate with the local community or contribute to community services and activities
- pressure on local services and facilities that are used by non-resident workers who do not contribute to the costs of running those services (e.g. through rates) nor contribute their time to those services that rely on volunteers
- inflated housing and rental prices resulting from workers on relatively high wages moving to the area, and non-resident workers sharing the cost of a rental property with several other non-resident workers. Both trends can lead to a displacement of low-income households or local residents having their housing options significantly reduced
- an increase in vehicle accidents as a result of the amount of time spent commuting, and tiredness from long work hours. A knock-on effect on emergency services has been noted in research on this topic.

The FIFO/DIDO workforce resulting from TTR's proposal is unlikely to generate the adverse social effects noted above. This is principally because the workforce will be living offshore while on their shifts, not within an existing community. This will avoid the potential that the FIFO/DIDO workforce will create pressure on local housing demand and prices, or have an adverse impact on community facilities and services or community cohesion. The offshore facilities are highly regulated to maintain the health and safety of the workers, including a drug and alcohol free environment. This will address the potential for adverse social effects on social order that have been experienced by other FIFO/DIDO workforces.

5.1.2 Skills required for the new jobs

The communities in the local areas profiled in section 3 have high levels of unemployment compared to the districts of the 'wider area' and New Zealand as a whole. The percentage of the working age population who received an unemployment benefit was significantly greater in all of the profiled communities, except Hawera. Some of the new jobs that would be created by the TTR project could potentially contribute to a reduction in local unemployment.

However most of the jobs that will be created by this project will be skilled, or will at least require offshore experience. This is illustrated in Barlow and Associates' report (2012) which outlines the employment positions and qualifications traditionally required on FPSOs in New Zealand. Almost all of the positions require trade or tertiary qualifications, and all require specialist offshore experience (refer Table 3.4).²⁴ They are therefore unlikely to be suitable for many of those who are currently unemployed unless adequate training in provided to these people prior to the recruitment period.

The nearest training provider to the proposed operations is the Western Institute of Technology at Taranaki (WITT), in New Plymouth. WITT offers certificate-level courses in mechanical and electrical engineering, oil and gas process operations, industrial design drafting, and diplomas in civil and

²⁴ It should be noted that Barlow and Associates' report is based on FPSOs in the petroleum industry which will have quite different production processes (and hence specific skills required) compared to iron ore mining.



mechanical engineering. Glasgow Training Services and Alpha Training and Development Centre provide more basic entry-level courses into engineering and petrochemical industries. Both run courses in New Plymouth and Hawera. The nearest university is Massey University in Palmerston North. Massey University provides degrees and post graduate courses in engineering, science and technology.

The Modern Apprenticeship programme is delivered by Engineering Taranaki Consortium (ETC), based in New Plymouth. This programme aims to get more Taranaki people skilled and into jobs in the engineering industry. It provides employment-based education and training that leads to a Level 4 National Qualification. The ETC, iwi and high schools in the region are currently working together to strengthen the connection between high school leavers, apprenticeships and employers in the region.²⁵

Regional economic development agencies also play a role in addressing skills needs. The regional development agency for Taranaki, "Venture Taranaki", assists local industry to identify, attract and retain the skilled people the region needs to continue growing. The Swap Sides campaign aimed at encouraging skilled people to return to Taranaki for work and the lifestyle²⁶ is supported by Venture Taranaki.

Potential strategies to enhance local benefits

Benefits for local communities could be increased if there were greater opportunities for residents to gain appropriate qualifications and work experience. This matter, and the importance of addressing it, has been raised in media articles relating to TTR's proposal and was reinforced in a number of interviews undertaken for the SIA.

This opportunity could be advanced by TTR through the proposed TTR Regional Community Trust (described in section 6.1). One of the objectives of the Community Trust could be to fund activities that directly contribute to local residents gaining qualifications associated with mining / offshore operations. For example, funds from the Community Trust could be used to sponsor residents in the "local area" to access an apprenticeship or undertake a relevant course at WITT, or at a university which offers courses appropriate to the range of skills required in the offshore mining industry.

TTR could pursue this matter by working with relevant training providers, including Engineering Consortium Taranaki, to identify greater opportunities for residents wishing to acquire qualifications and experience needed to participate in the offshore mining industries. The local workforce and training providers would benefit from an early and clear indication by TTR about the types and range of skills that its workforce would require.

TTR could also provide direct opportunities for apprentices or graduates who live in the "wider area" to gain offshore work experience (or experience in other aspects of its operations).

5.1.3 Summary findings on the effects of job creation

TTR's proposal involves offshore operations in the coastal waters off South Taranaki, which are supported by onshore services operating from Port Taranaki and Port of Whanganui, a helicopter pad at either Hawera, New Plymouth or Whanganui and offices in the Taranaki Region and Wellington. The creation of approximately 258 new jobs across the various mining activities will create social benefits but the extent to which these accrue to the local area will, to a large extent, depend on the number of local residents who gain employment through the project. The majority of the 258 jobs are expected to be based in three regions - Taranaki, Manawatu-Whanganui and Wellington.

 ²⁵ Graham Wells, Chair of Engineering Taranaki Consortium, personal communication, August 2013
 ²⁶ www.taranaki.info



The proposed shift-work regime will create the potential for a FIFO/DIDO workforce that could reside over a large geographic area. Based on the findings of existing offshore operations in Taranaki, it is estimated that approximately 30-40% of the offshore workers will permanently reside in New Plymouth District, 12-20% in South Taranaki District, 4% in Stratford District, 0-10% in Whanganui District, 35-40% elsewhere in New Zealand, and 5% overseas.

A summary of the estimated number of jobs created and the likely location of those workers is provided in Table 5.2.

Facility	Location jobs operating from (number of FTE)	Indicative place of permanent residence (number of FTE)		
FPSO and FSO	170 - Offshore	New Plymouth District:	51-68	
		South Taranaki District:	20-34	
		Stratford District:	7	
		Whanganui District:	0-17	
		Elsewhere in NZ:	59-68	
		Overseas:	9	
Anchor Handling	30 - New Plymouth	30 - New Plymouth District		
Tug				
Monitoring /	8 - Whanganui	8 – Whanganui		
surveying vessels				
Other TTR staff	20 – New Plymouth / Taranaki TTR	20 – New Plymouth Distr	ict	
	office	30 – Wellington		
	30 – Wellington TTR office			
Totals	170 – Offshore	New Plymouth District:	101 - 118	
	50 - New Plymouth	South Taranaki:	20 - 34	
	8 - Whanganui	Stratford District:	7	
	30 - Wellington	Whanganui District:	8 - 24	
		Wellington:	30	
		Elsewhere in NZ:	59 - 68	
		Overseas:	9	

Table 5.2: Estimated job creation and indicative residential location of workforce

A FIFO/DIDO workforce is considered to potentially be a positive social effect of the project. The shift work will help to spread the benefits of job creation throughout the "local area" and "wider area", rather than concentrate them in the vicinity of the helicopter and port-based facilities at New Plymouth and Whanganui. This provides greater potential for South Taranaki residents to gain benefits from the new jobs which may not otherwise have been the case, since none of the land-based elements are proposed for location in South Taranaki (despite their offshore resource forming the basis for the proposal). However, the long periods proposed between shifts will also make it possible for workers to live much further away – commuting from overseas. To maximise the potential for jobs to go to workers in the local and wider areas, a policy of giving preference to the employment of local people (all other factors being equal) may be necessary.

The proposal is likely to avoid most of the social costs often associated with a FIFO/DIDO workforce, because the large non-resident workforce will be based in a regulated environment offshore, rather than within an existing community.

The geographical spread of the workforce will also avoid the adverse social effects that can occur when a large new workforce is concentrated in one area and exceeds the capacity of the local communities to provide adequate housing, health, education and other social and community services.



It is unlikely that the new jobs created will significantly reduce the relatively high levels of unemployment in the "local area" and "wider area", because of the specialised skill levels that will be required for most of the new positions. However, providing funding and other forms of support to increase opportunities for residents of South Taranaki and Whanganui to access training and work experience relevant to the range of positions associated with TTR's operations, could increase the percentage of local residents gaining employment on the project.

5.2 Local businesses and associated employment

TTR's proposal will require goods and services on an on-going basis to support the operations. These will include the goods and services required to sustain a resident workforce on the FPSO and FSO, and to a lesser extent on the anchor handling tug. Equipment and logistical support will also be required for the maintenance of the offshore vessels, and the transportation of workers and supplies to and from the offshore vessels. The purchase of these goods and services will have a positive social effect by contributing to the viability of existing businesses and the jobs they provide.

The extent to which local businesses and through them, the local communities, benefit from the project will depend to a large extent on the range and quantity of goods and services purchased from local suppliers. The extent to which local businesses and employment may benefit depends to a large extent on the location of key onshore services proposed by TTR²⁷. The experience of existing businesses supplying facilities offshore from Taranaki has helped to inform our assessment.

The locations of key onshore services are:

- Port Taranaki a base for the anchor handling tug to operate from
- Port Whanganui a base for the vessels undertaking surveying, monitoring and drilling to operate from
- Helipad at either New Plymouth or Whanganui to transport the workforce to/from offshore vessels

As a result of the existing primary industries in Taranaki (including offshore operations) and associated manufacturing, it is likely that businesses in New Plymouth will have the expertise to provide services to TTR, and the capacity to bid competitively for the work. From an engineering perspective, this was confirmed by businesses spoken to as part of the SIA. It is unlikely that businesses in South Taranaki or Whanganui would have the same capabilities or capacity, and there is little evidence of companies in these areas forming consortiums to enable them to access larger projects²⁸.

Visitor accommodation facilities located close to the helicopter pad are likely to benefit from the proposal. Information from the FPSO workforce survey noted that the offshore workers who lived outside the Taranaki Region and Whanganui District spend a night in New Plymouth prior to their helicopter flight to the FPSO. Based on the results of the FPSO survey, this could equate to a demand for 60-70 rooms every three weeks (based on the indicative offshore workforce living outside Taranaki and Whanganui - Table 5.2).

This SIA does not consider the direct and indirect economic effects of the TTR project on existing businesses. TTR has commissioned an economic assessment and an assessment of the effects on commercial fisheries to cover these aspects (NZIER, 2013 and Fathom, 2013).

²⁸ For example, only one engineering company in South Taranaki is part of the ETC, and there is no equivalent local/district consortium (Croucher and Crowder, personal communication, August 2013).



²⁷ These are not referred to in the application documents, but were outlined in a meeting with TTR on 31 July 2013.

Potential to enhance local benefits

TTR's proposal will benefit businesses that provide services or supplies for the various aspects of TTR's operations. This will have a positive spin-off in terms of jobs and income for the communities in which these businesses are located, as well as increasing the viability of these businesses. It is anticipated that the majority of these benefits will accrue to businesses in the "wider area", particularly in New Plymouth, which already have experience in servicing extractive industries including those offshore. Proactive measures would be required if the benefits were to be increased for South Taranaki and Whanganui businesses (e.g. those involved in manufacturing, maintenance, consumables, visitor accommodation).

5.3 Income levels

As noted in section 5.1.2, many of the positions that will be created as a result of the proposed operations will be skilled and will require offshore experience. Therefore, it is likely that these jobs will be well-paid. This view was confirmed by businesses who have experience in providing support to Taranaki's primary industries, such as operators of an FPSO, Port Taranaki, and engineering companies²⁹.

The community profile (section 3) found that none of the local communities nor the three districts in the study area had median household incomes near to or above the New Zealand median (the median household income for New Zealand as a whole was \$51,400 at the time of the 2006 Census). In addition, five of the eight local communities in the study area had a significantly higher percentage of households on low incomes, compared to New Zealand households as a whole (low income is defined as \$30,000 or less per year).

The direct creation of approximately 258 jobs, which we understand will be well paid, will result in higher standards of living (and hence social wellbeing) for the households concerned³⁰. If the number of jobs predicted in section 5.1 to accrue to local residents occurs, the project will help to offset the lower than average household incomes that are currently experienced in the profiled areas.

5.4 Community facilities, social services and housing

If a project increases the residential population of an area, it can result in positive or negative social effects on the community facilities and service providers of that area. It can also have a positive or negative effect (at least in the short-term) on the availability and affordability of housing. If planned and provided for, an increase in population can contribute to the viability of local services, such as schools and health services, and facilitate a buoyant housing and rental market. Conversely, an increase in population, especially where this occurs within a short timeframe, can create a shortage of services and facilities if there is insufficient existing capacity in the services.

As noted in section 4, all of the coastal communities profiled in the local area and the South Taranaki and Whanganui districts in the wider area, experienced a decline in population between1996 and 2006. TTR's proposal is estimated to create a workforce of approximately 258 people. If all these workers were new to the area / region and they bring family with them, this could lead to an

³⁰ The relationship between income and wellbeing is complex and has been the subject of much research. For the purposes of this SIA we acknowledge the general results of this research, that the relationship between income and happiness is positive and can be sizeable: people with high incomes have more opportunities to pursue, and achieve, what they desire (Frey and Stutzer, 2002).



²⁹ The engineering businesses noted that the pay rates for trades people were higher in Taranaki than elsewhere in New Zealand as a result of the pay rates generated by the oil, gas and dairying industries in Taranaki.

increase of approximately 645 new residents³¹. An increase in population in the local and wider area could improve the viability of these communities including their facilities and services. However, because the land-based aspects of the proposed operations are spread across New Plymouth, Whanganui and Wellington, and because of the nature of the shift-work rosters, it is likely that the workers and their families will be spread over a relatively large geographic area. For this reason we conclude that the proposal will have negligible effects (positive or negative) on community facilities, social services and housing.

5.5 Visual amenity

The introduction of new, visible features into the coastal environment has the potential to create adverse effects on the visual amenity of the areas it is viewed from. Visual amenity refers to the visual quality of a site or area that makes it pleasant for residents, workers or visitors.

Concerns were expressed by some of the local residents and recreation groups interviewed that TTR's proposal could affect the visual amenity of the South Taranaki coastal environment through:

- the visibility of the two large vessels that will be operating offshore (FPSO and FSO), including the new light sources on these vessels, and/or
- by creating a sediment plume in the sea.

Visual effect of the vessels

Information from interviews with local coastal residents undertaken as part of this SIA indicated that views of the vessels were unlikely to affect the existing visual amenity of the coastal environment: residents are used to seeing commercial vessels and structures off the South Taranaki coast.

Boffa Miskell (2013) assessed the visual effects of TTR's proposal, based on the worst-case scenario³². This assessment found that the visual effects will be "*minor*" or that there will be "*no visual impacts*" at any of the areas of regional and local significance (paragraphs 7.11 - 7.22). These significant areas correspond to the high amenity areas identified in the community profile (section 4). The assessment concluded that the offshore surface vessels "*will be seen as a distant and background offshore activity within an expansive seascape setting*" (paragraph 7.24).

Therefore, from a social effects perspective, we conclude that the appearance of the vessels will have only a minor, if any, effect on the visual amenity that residents and visitors currently experience along the coastline.

Visual effect of the sediment plume

The proposal will create a sediment plume in the sea, principally as a result of depositing the de-ored material back onto the seabed. The sediment plume will be visible on the surface of the sea, which will potentially affect the visual amenity of the coastal environment when viewed from the water and coastline. Some interviewees expressed concerns about the likelihood of sediment plumes. This concern was largely based on the potential effect the plume could have on marine life, rather than visual amenity, and interviewees noted frustration at the lack of information available to understand the significance of these effects.³³

Based on NIWA's modelling of the existing sediment levels and those anticipated from the proposed operations, Boffa Miskell (2013) assessed the visual effects of the plume on areas of significant

³³ At the time of the interviews (August 2013) no written or graphic information was available on the visual effects of the sediment plumes.



³¹ Based on a mean household size of 2.5, which was the mean household size for South Taranaki and New Plymouth districts at the 2006 Census.

³² The worst-case scenario was described as the largest vessel (the FPSO) being at its closest point to the coast (22.2km).

amenity and recreation areas. The assessment was undertaken in three bands along the coastline. The findings are summarised as follows:³⁴

- Inshore (within 1.5km of the coastline) On average there will be no perceptible visual change. Events occurring approximately 3.6 days per year³⁵ may result in higher sediment levels that may be noticeable from Karakamea Beach to Whenuakura Estuary and near Waverley Beach.
- Nearshore (5km offshore band) A small increase in suspended sediment at North and South Traps and from Waiinu to Castlecliff will have no perceptible visual change.
- Offshore (10km offshore band) The greatest increases in suspended sediment of the three bands assessed were noted offshore from Karakamea Beach to Castlecliff. The visual effects were found to be minor and in most cases difficult to detect (para. 9.12).

The visual assessment concluded that the low-level increases in sediment will be difficult to detect from land-based viewpoints, although from time to time there may be differences in plume patterns, as opposed to colour, particularly in nearshore areas (para. 9.14). In terms of the visual effects of sediment plumes from recreational boats, Boffa Miskell found that they *"will be evident and highly variable depending on weather conditions and the location of the vessels. Generally the visual effects will be minor"* (para. 9.15).

Based on the assessment undertaken by Boffa Miskell (Aug 2013) we conclude that from a social effects perspective, the effect of the sediment plumes on the visual amenity from the coastline will be minor. There is the potential for the visual amenity experienced by recreational fishers and divers to be affected to a minor/moderate degree. However, as noted in section 5.6, most recreational fishing and diving occurs closer than 10km to shore, and therefore few fishers and divers would experience perceptible visual changes from the sediment plume.

Potential mitigation for possible effects on visual amenity

There is the potential for minor/moderate adverse social effects on the visual amenity of the South Taranaki / north Whanganui coastal environment as a result of the sediment plume, particularly for the recreational fishing and diving activity that is undertaken at least 10km offshore. Mitigation measures are recommended in section 5.6 to offset the effects of this plume on recreation values.

5.6 Recreation

The coastline and sea from Opunake to Whanganui provides a variety of recreation activities as described in the community profile (section 4). A recreation study undertaken in 2004 found that walking for enjoyment or exercise, swimming and fishing were in the top quartile (25%) of activities listed by Taranaki residents. These findings are similar to the Active New Zealand Survey (2007/08) which found that walking (64%)³⁶, swimming (35%) and fishing (19%) were in the top 10 recreation and sports activities for adults in New Zealand (Sport and Recreation New Zealand, 2008).

The recreation activities along the South Taranaki / Whanganui coastline are of regional and local importance, and in some instances (such as the surfbreaks around Opunake) they attract international visitors. The following coastal areas are classified as having high recreational value (TRC, 2004):

- Opunake Beach
- Kaupokonui
- Waihi Beach

 ³⁵ 99th percentile results which estimate an increase of up to 10mg/L above natural sediment levels (para 9.13)
 ³⁶ Percentages represent the percentage of adults surveyed who participated in that activity.



³⁴ Tables 5 and 6 provide numerical data on predicated changes to the suspended sediment levels, and Figures 5.2 – 5.26 illustrate the visual appearance of these changes (Boffa Miskell, 2013).

- Waingongoro River Mouth / Ohawe Beach and Four Mile Reef
- Patea Beach
- Waverley Beach

TTR's proposed operations will largely occur in the marine area beyond the location of recreation activities, but the operations may have a knock-on effect on recreation features (such as surfbreaks and beaches) located closer to the shoreline, as a result of changes to coastal processes. The main recreation activities potentially affected by the project are fishing, diving, surfing, beach-based activities (such as swimming, walking, surfcasting and passive enjoyment of beaches) and coastal walks.

To determine the effects of the proposed operations on recreation values, each type of recreation activity was assessed by considering whether:

- the features of the natural environment that give rise to that recreation activity would be altered (such as fish stocks or surfbreaks)
- access to the recreation activity would be affected
- any amenity values that contribute to the quality of the recreation experience would be affected.

5.6.1 Recreational fishing and diving

Section 4 identifies the main recreational fishing and diving areas, and associated boating facilities at or near the profiled communities. Information gathered from interviews for this SIA and from published sources indicates that recreational fishing in the study area is valued for the variety³⁷ and abundance of the species available, and relatively easy access to reliable fishing and diving grounds afforded from a number of places along the coastline from Opunake to the Whanganui river mouth. Interviewees noted that fishing and diving was largely undertaken by local residents. However, the ease of access and reliability of the fishing and diving resource also attracts visitors from surrounding regions, particularly the wider Taranaki Region, Manawatu, Palmerston North and Wellington³⁸.

Recreational fishing and diving in the study area is mainly undertaken from private boats and from the shoreline (surfcasting, whitebaiting, shellfish gathering) along the length of the South Taranaki coastline³⁹. Of those shoreline-based areas, Patea Beach recorded the highest average number of people fishing at all of the water-based locations surveyed in the Taranaki Region (TRC, 2008). Offshore fishing and diving also occur through-out the study area, but particularly at the North and South Traps, the reefs offshore from Opunake, Waipipi and Waiinu beaches, and Four Mile Reef.

Peoples' concerns

The effect of the proposed iron sand mining on recreational fishing and diving is the most significant concern of residents and users of the coastal area. Media articles and interviews undertaken for the

³⁹ The main locations from the shore, as noted in section 3, are Patea (fishing), Arawhata Beach (fishing), Puketapu (surfcasting, fishing), Oeo Cliffs (surfcasting, shellfish gathering), Otakeho Beach (fishing), Rawa Stream mouth (surfcasting, shellfish gathering), Kaupokonui Beach and river mouth (fishing and whitebaiting), Ohawe beach (fishing, whitebaiting, seafood gathering), Inaha beach (fishing), Waihi Beach (fishing), Manawapou-Tangahoe River mouths and cliff tops (fishing), Kakaramea cliff tops (fishing), Waipipi dune lands (fishing), Waverley Beach (fishing), Waitotara Estuary (whitebaiting), Waiinu Beach (fishing).



³⁷ Published data and interviews confirmed that the most common species caught by fishers are blue cod, followed by snapper, gurnard and kahawai. Rock lobster, terakihi and red moki are commonly caught by divers.

³⁸ Representatives from Patea and Districts Boating Club, South Taranaki Underwater Club and Opunake Underwater Club indicated that their clubs had members from surrounding districts and regions such as Palmerston North, Whanganui and Manawatu. Camping ground staff also noted that their visitors were either residents from elsewhere in South Taranaki, or surrounding regions.

SIA indicate that people are concerned that the quality of recreational fishing and diving will decrease as a result of:

- fish stocks declining (either dying or shifting elsewhere) due to additional silt in the water, • silt smothering organisms on the seabed and reefs, and important habitats being uncovered with changing sediment patterns (e.g. pipi beds)
- fish stocks shifting elsewhere due to noise and light pollution from the vessels •
- reduced visibility for divers due to increased suspended sediment in the water
- the length of time for the seabed to re-colonise
- exclusion zones imposed around the operations.

The interviewees for the SIA also consistently noted frustration at the lack of scientific information available on the potential effects of the proposed mining. Without this information they could not evaluate the significance of any effects on marine life and associated effects on recreational fishing and diving.



Figure 5.1 Recreational fishing effort

Date: 17 March 2013





Figure 5.2 Important fishing areas identified by the local fishing community (DoC, 2006)

Recreation effects in the extraction area

The proposed extraction area, which is located 22km to 35 km offshore, is unlikely to displace recreational diving but may displace a small amount of recreational fishing. Most evidence indicates that recreational fishing occurs well away from the extraction area. For example, figure 5.1 indicates the areas most commonly visited by recreation fishing boats, much of which is undertaken within 10 kilometres of the shore⁴⁰. Research undertaken for the Ministry of Fisheries found that approximately 75% of the snapper catch occurred within 4kms of the shore (Hartill et al, 2011).⁴¹

However, Figure 5.2 indicates areas that were identified by fishers during workshops and meetings in 2005/06 (DoC, 2006). While most of these locations are closer to the shore than the extraction area, some of the less frequently fished areas cover the Rolling Grounds in the vicinity of the proposed operations. Interviews undertaken for this SIA confirmed that the majority of fishing and diving is undertaken closer to shore than the proposed extraction area, but a few fishers believed that recreational fishing did occur in the vicinity of the extraction site. Representatives from the diving clubs who were interviewed did not believe that diving occurred in the extraction site.

Concern was raised in interviews that the extraction area contains elements that are important to the lifecycle of fish species (such as breeding grounds or food sources). No research has been specially undertaken on recreational fish species in the area. However, research has been undertaken for TTR on commercial fish species, which includes species that are also important for

 ⁴⁰ This research was based on three aerial surveys during the summer of 2005/06 (Harthill *et al*, 2011)
 ⁴¹ Note: the area referred to in this research was SN08, which covers a larger geographic area than the study area for TTR's proposal.



recreational fishing in the area (blue cod, snapper, gurnard, kahawai)⁴². This research indicates that the extraction area is not significant for the fishery resource because it has low species abundance and richness (NIWA, Jan 2013). Fathom (2013) concludes that there is unlikely to be lingering or permanent effects on commercial fishing once each block has been mined and the de-ored sand deposited, although this will depend on whether the seafloor is restored to its current state and how guickly it will be re-colonised⁴³.

Based on the information available, we conclude that the effects on recreational fishing and diving in the extraction area are likely to be minor.

Recreation effects inshore of the extraction area

The proposed operations may create adverse effects on recreational fishing and diving inshore of the extraction area as a result of increases in suspended sediment carried south-east of the operations. The sediment plume modelling undertaken for TTR (NIWA, Aug 2013b) estimates that the plume will reach the coast between Patea and Whanganui. The increase in sediment concentrations and sediment deposition was found to be significant within a few kilometres of the source but insignificant at the coast. The assessment noted that the main changes to suspended sediment would occur more than 8 to 10 kms from the shore (pg 42; Fig 5.3). As previously noted, this is at the outer limit from the shore for most recreational fishing and diving areas.

The effect on commercial species inshore of the extraction area was assessed by Fathom (2013). The report identified the potential for adverse effects on rock lobster and paua, but no adverse effects on surf clams⁴⁴. The report concluded that "the degree of impact on fisheries along the Taranaki coast...will depend on the amount of sediment that is introduced into the reef environment over and above the natural range, and the persistence of the sediment in the coastal environment. The naturally high levels of wave energy in the region may prevent the accumulation of additional sediments within the reef ecosystems along this coast" (pg 33).

Recreational fishers and divers interviewed for the SIA noted that they had built up knowledge about the location of the species that they target over a long period. Changes to the marine environment could result in these species moving to other areas, which would make it an unknown fishing ground. This concerned recreational fishers and divers as it would take longer to catch fish and the window of opportunity that the weather affords for fishing in the South Taranaki Bight was small.

Based on the available information on recreational fishing and diving in the coastal waters between the extraction area and the shore, there is unlikely to be an effect on shore-based fishing and food gathering. In terms of offshore fishing and diving, the assessments do not consider impacts in detail on specific reefs, impacts on the full range of recreational species, or the limit at which increases in sediment may adversely affect divers' visibility. Therefore, we conclude that there is the *potential* for a moderate adverse effect offshore, particularly at distances greater than 8km, where sediment levels and deposition are predicted to increase.

⁴⁴ The report noted that adult rock lobsters could migrate to unaffected reefs, but stocks may be affected if juveniles are smothered, their prey are smothered, or their larvae is dispersed. Paua would be sensitive to the effects of sediment if their algal food sources are smothered because they are unlikely to move to unaffected reefs.



⁴² Research by NIWA (Jan 2013) focussed on the existing commercial fish species in South Taranaki Bight and research by Fathom (2013) assessed the effects of the proposal on commercial fishing.

⁴³ Fathom (2013) references NIWA's findings that there is no significant relationship between the iron composition of the seabed and organisms; the seabed environment is highly dynamic; and the sandy habitats have relatively low species abundance and richness.

Access to recreation resources

Access to fishing and boating resources will be affected by the proposal as a result of no-go areas imposed around the vessels. At the time of undertaking this assessment, no information was available on the size of this area. However, as the extraction area where the vessels will operate is located further offshore than most recreational fishers and divers visit, and the vessels will be mobile (and hence the exclusion zone will vary), this effect is considered to be minor.

Effects on amenity values

TTR's proposal may have a minor effect on amenity values that contribute to the enjoyment of the recreational fishing and diving experience. As discussed in section 5.5, the sediment plumes created by the mining operation may change the visual appearance of the water, particularly at a distance of 10km or more from the coastline.

Recommended mitigation for potential effects on recreational fishing and diving

There is the potential for moderate adverse social effects on offshore recreational fishing and diving along the coastline from Patea to Whanganui. The various assessments of the effects on coastal processes and associated effects on fish habitat and stocks have found that changes will not be significant. However, these assessments have not been undertaken for specific sites of importance or for the full range of species that are important to the fishing and diving community. Therefore we cannot be certain about the significance of the effects on recreation.

We recommend that TTR implements mitigation to minimise the potential for effects on recreational fishing, boating and diving. The following measures are proposed:

- Identify and initiate improvements to recreation infrastructure that will facilitate the community's access to offshore activities, such as boat ramps. This could be pursued through the TTR Regional Community Trust.
- A recreational fishing and diving management and monitoring plan should be prepared and implemented. This plan should establish how the project operations will be designed to minimise effects of sediment plumes on popular fishing and diving locations, and how this will be monitored and reported back to the fishing and diving communities. The location of the areas to be monitored should be determined in consultation with representatives of the fishing and diving communities, and may include North and South Traps, Four Mile Reef, and the reefs off Waipipi and Waiinu beaches.
- Implement an advisory group of representatives from local fishing and diving groups to provide input to the above mitigation measures.

5.6.2 Surfing

The effect of TTR's proposal on the quality of surfing in the South Taranaki Bight has been one of the most reported social concerns in the media. The reasons cited for a potential decline in the quality of surfing are seabed erosion and changing wave patterns which could affect existing surfbreaks. Only two interviewees were available to specifically discuss this matter as part of the SIA.⁴⁵

Section 4 identifies popular surfing locations along the South Taranaki / Whanganui coastline. Those surfbreaks of regional importance are Cemetery Point, Middletons Bay, Opunake Reef and Beach,

⁴⁵ Interviews were held with Surfing Taranaki and one local surfer.



Desperation Point, Dumps, Sky Williams, Mangahume Reef, Mussels, Greenmeadows, Puketapu, South Point, Pids Point (Waipipi) and three separate surfbreaks at Waiinu Beach⁴⁶.

Research has been undertaken for TTR on the effects of the proposal on wave action and associated effects on surfing. Based on a worst case, NIWA (July 2013) found that changes in wave conditions in the vicinity of surfbreaks would occur from north of Manawapou down to Waverley as follows:

- a decrease in wave height of up to 10cm in the surfbreaks southeast of Patea and a 1 degree change in wave direction (based on 3m high waves)
- an increase in wave height of up to 5cm in the surfbreaks around Manawapou and a 2 degree change in wave direction (based on 3m high waves)

The implications of these changes on surfbreaks were assessed by eCoast (2013), who concluded that the impacts "are likely to be insignificant at Patea and Waverly and have no impacts on breaks further to the south and east".

Based on this information, we consider that for social impact purposes, this matter has been adequately assessed.

5.6.3 Beaches

For the purposes of this assessment, the recreational use of beaches includes swimming, walking and passive uses (picnicking, relaxing, sunbathing).

Section 4 describes the main beaches at or near each of the communities profiled in the local area. There are approximately 17 publicly-accessible beaches along the coast from Opunake (Arawhata Beach, Middleton's Bay, Opunake Beach and Mungahume Beach) to Whanganui. A survey of Taranaki residents that investigated the water-based recreational values in the region, found that walking, swimming and relaxing were the most popular activities at the region's beaches (TRC, 2008). The study found that Opunake Beach, Ohawe Beach and Patea Beach were in the top ten most frequently visited water-based destinations for residents of South Taranaki and Stratford districts. Kaupokonui Beach was also a top ten destination for South Taranaki residents. When compared to similar research undertaken in 1984, Opunake and Patea beaches were found to have increased in regional popularity over this time, whereas Kaupokonui and Ohawe have decreased in popularity.

In addition to the recreational values of the beaches, five beaches are identified as having high amenity value for the region: Otakeho Beach, Kaupokonui Beach, Inaha Beach, Ohawe Beach, Waverley Beach (and nearby Waipi Dunelands, Waitotara Estuary and Dunes)⁴⁷. Some beaches are valued for specific shoreline features that contribute to the overall amenity or character of the beach. For example:

- Manawapou-Tangahoe river mouths and cliff tops have unusual landforms of stacks, pinnacles and peninsulas (and are classified as having high amenity value for this reason)
- Waihi Beach has important archaeological sites (which are classified as having high cultural/historic value)
- Waverley Beach has an outstanding natural landscape with distinctive rock stacks, caverns and tunnels that produce blow holes

⁴⁷ As classified in the Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region (TRC, 2004)



⁴⁶ The Regional Policy Statement for Taranaki identifies high quality or high value surfbreaks of regional importance. They were determined from the Council's Inventory of Coastal Areas of Local or Regional Significance (2004) and the New Zealand Surfing Guide (2004).

• Waiinu Beach has a partially submerged ancient totara forest⁴⁸.

The effect of the proposed mining operation on the South Taranaki / Whanganui beaches has been considered in terms of whether there may be changes to the physical and amenity values of beaches and public access to them.

Physical and amenity values of beaches

Media articles and interviews undertaken as part of this SIA indicate that there is concern amongst the community that the proposal will affect the use and amenity of beaches by increasing the rate of erosion, causing a loss of sand and creating a sediment plume.

A number of studies have been commissioned by TTR on different aspects of coastal processes. The assessment entitled "Coastal Stability in the South Taranaki Bight - Phase 2" (NIWA, Aug 2013a) found that the seabed sand in the area where iron sands will be extracted is not a significant source of sand for the beaches, and concludes that "sand extraction will not have significant effects on sand supply to the beaches and will not promote beach erosion" (pg 82). The assessment goes on to state that the small changes in wave characteristics "will have no influence on beach state and geomorphic character" (pg 82). The assessment also considered whether the fine sands and muds generated by the proposal would create muddy beaches, but found that this would not be the case (pg 84).

The pleasantness, and hence amenity, of the beaches may be reduced if the sediment plume from the proposed operations can be seen from the beaches. As discussed in section 5.5, the assessment by Boffa Miskell (2013) concluded that the level of increased sediment in the near shore (within 1.5km of land) will be low and will therefore have a minor impact.

Public access to the beaches

The proposed development will not alter any public access to the beaches.

Strategy to enhance benefits for local communities

Based on the assessments undertaken by NIWA and Boffa Miskell, we conclude that from a social impact perspective there is unlikely to be an effect on the recreational values and associated amenity values of the beaches along the South Taranaki / Whanganui coastline. Therefore no mitigation is proposed. However, as part of the Community Trust, TTR may wish to work with South Taranaki District Council and Whanganui District Council and their communities to determine improvements that could be made to the beaches between Patea and the Whanganui River mouth as a way of directly contributing to these coastal communities (refer to section 6).

5.6.4 Coastal walkways

Walking is an important leisure and recreation pursuit for Taranaki residents. This is illustrated in the Sport Taranaki's Regional Sport and Physical Activity strategy (2006) which found that walking for enjoyment or exercise was listed by almost 60% of respondents to their survey.

Section 4 of the SIA identifies the main, publicly available coastal walkways at or near the profiled communities. In addition, the South Taranaki District Council has initiated the South Taranaki Coastal Walkway. The Walkway is planned from Stony River in the north to Waiinu Beach in the south. Each stage will be community driven, with assistance from the Council. The first stage involved signage from Ohawe to Waihi, and the Council has prioritised sections north of Opunake for the next stage (STDC, 2012).

TTR's proposal will not affect access to or along these coastal walkways. In terms of the amenity of the coastal walkways, we have considered the effect of the proposal on valued shoreline features and visual amenity. Some of the walkways are valued for the views that they offer of specific

⁴⁸ The submerged totara forest gives the coastal settlement of Waitotara its name.



shoreline features and historical and cultural resources⁴⁹. However, assessments by NIWA indicate that changes in wave action and other coastal processes are unlikely to be perceptible along the shoreline, and are unlikely to alter or remove these shoreline features (as outlined in section 5.6.3 above).

Many of the walkways and coastal viewing points are from high cliffs. The pleasantness, and hence amenity, of the walkways may be reduced by views of the large vessels on the horizon, and the sediment plume generated by the operations. As discussed in section 5.5, the visual effect of the vessels from the land is likely to be minor (if any). The view of the sediment plume is likely to be more obvious, but the visual assessment by Boffa Miskell (2013) concluded that the low-level increase in sediment will be difficult to detect from land, although differences in plume patterns may be visible. From a social impact perspective, we consider that the visual changes have the potential to have a minor adverse effect on the amenity of the coastal walkways, particularly for existing users.

For example, the sea views of Taranaki Bight from Lion's Lookout and Waiaua River Mouth along the Opunake Walkway ;the cliffs, rockpools, remnants of moa, Maori settlements and early colonial tram rails visible along the Ohawe Beach to Waihi Beach coastal walk; boatsheds that are cut into the cliff at Oeo Cliffs; the site of a Maori kainga (village) on sand dunes at Whenuakura Estuary; an archaeological site with the oldest wooden artefacts in New Zealand at Waitore Swamp; blowholes at Waitotara Walkway.



6. Summary of Potential Mitigation and Enhancement Measures

This section collates the measures identified in section 5 to enhance local social benefits from TTR's operations and to alleviate any potential adverse social effects.

6.1 TTR Regional Community Trust

TTR is proposing to establish the TTR Regional Community Trust, funding from which will be applied to the area from Opunake to Whanganui river mouth. Part of the brief for the SIA was to advise on the scope of the Community Trust, to ensure that it delivers appropriate, on-going benefits to the communities that host the TTR project.

TTR's operations will be undertaken predominantly in the coastal waters of South Taranaki. To a large extent the proposal will create positive social effects, particularly in relation to employment opportunities. Most of these positive effects are estimated to be realised by the residents of New Plymouth. In contrast, any potential adverse social effects will be predominantly felt by South Taranaki residents (particularly those living in and visiting the coastal communities and activities). The establishment of the Community Trust explicitly recognises this situation.

It is recommended that the Community Trust be focussed on creating benefits for the coastal communities and coastal users of South Taranaki and the northern part of Whanganui district. Based on the findings of the SIA, it is recommended that the following activities be considered for Community Trust funding:

- sponsorship for resident(s) to undertake a relevant course at WITT, a recognised ITO or a university with courses that are appropriate to the range of skills required in the offshore mining industry
- sponsorship for resident(s) to gain an appropriate apprenticeship
- improvements to recreation infrastructure used by recreational fishers, boaters and divers, that will facilitate the community's access to offshore activities. This may include boat ramps and the Patea wharf.
- improvements to coastal community facilities at the beaches between Patea and the Whanganui River mouth, in consultation with the South Taranaki and Whanganui district councils and their communities.
- contribute to the funding for coastal-based organisations such as the Coastguard.

It is recommended that the Community Trust be established and in operation by the time dredging works commence offshore. This will ensure that the local community benefits from the operations from the time the natural environment is affected. This may go some way to alleviating the concerns expressed at many of the interviews undertaken for this SIA, that the coastal communities will carry the risk of environmental damage whether or not TTR makes economic gains from it.

6.2 Employment and qualifications

In addition to the measures recommended to be undertaken by the Community Trust, we recommend that TTR considers the following mitigation to increase the potential for residents of Taranaki and Whanganui to benefit from the new jobs created by TTR's proposal:

- Implement a policy of giving preference to the employment of residents in the local and wider areas, to counteract the potential for the proposed shift-work to attract workers that live considerable distances from the operations (for example commuting from overseas).
- Work with training providers in Taranaki and Whanganui to identify ways that the residents in South Taranaki and Whanganui could access courses that may assist them in participating in offshore mining operations. This would require TTR to provide an early and clear indication of the range of the skills that its workforce will need.



• Provide direct opportunities for graduates who live in the districts of New Plymouth, South Taranaki and Whanganui to gain offshore experience.

6.3 Local businesses and associated employment

TTR could investigate options to assist local businesses to provide goods and services needed during project operations (particularly businesses in South Taranaki and Whanganui).

6.4 Recreational fishing and diving

In addition to the measures recommended to be undertaken by the Community Trust, we recommend that TTR implements the following mitigation to minimise the potential for any adverse effects on recreational fishing and diving:

- Prepare and implement a recreational fishing and diving management and monitoring plan. This plan should establish how the project operations will be designed to minimise effects of sediment plumes on popular fishing and diving locations, and how this will be monitored and reported back to the fishing and diving communities. The location of the areas to be monitored and species of particular importance should be determined in consultation with representatives of the fishing and diving communities, and may include North and South Traps, Four Mile Reef, and the reefs off Waipipi and Waiinu beaches.
- Implement an advisory group of representatives from local fishing and diving groups to provide input to relevant enhancement and mitigation measures (such as the management and monitoring plan referred to above, and any improvements to recreation infrastructure under the Community Trust).



References

Barlow and Associates Ltd, 2012, Report on the Management and Manning of the Two FPSOs Currently Operating in the Taranaki Area

Boffa Miskell, 2013, Seascape, Natural Character and Visual Effects Assessment (draft)

Buchan D and Baines J, 2012, *Training in Social Impact Assessment* (sponsored by the Environment Institute of Australia and New Zealand)

Buchan D, August 2012, Social Impact Evidence before the Environment Court, ENV-2011-CHC-95, 97 Buller Coal Ltd's Escarpment Mine Proposal, Denniston Plateau, West Coast

Department of Conservation, July 2006, Netting Coastal Knowledge: a report into what is known about the South Taranaki-Whanganui marine area

eCoast Marine Consulting, July 2013, Impacts on Coastal Surf. Author: Dr S Mead

Fathom, July 2013, South Taranaki Bight Iron Sand Mining Proposal: assessment of potential impacts on commercial fisheries. Author: Gibbs, N

Frey B and Stutzer A, 2002, *The Economics of Happiness*, in World Economics, Volume 3, Number 1, January – March 2002

Hartill B, Vaughan M, Rush N, 2011, *Recreational Harvest estimates for SNA 8 in 2007-07* (New Zealand Fisheries Assessment Report 2011/51), Ministry of Fisheries

NIWA, Jan 2013, South Taranaki Bight Fish and Fisheries. Author: MacDiarmid; Anderson; Sturman

NIWA, April 2013, Effect of Ships Lights on Fish, Squid and Sea Birds (draft). Author: Thompson, D

NIWA, July 2013, Wave Modelling Report Phase 4 (draft). Author: Gorman, R

NIWA, Aug 2013a, Coastal Stability in the South Taranaki Bight - Phase 2: draft final. Author: Hume T

NIWA, Aug 2013b, South Taranaki Bight Iron Sand Extraction Sediment Plume Modelling - Phase 3 Studies, Author: Hadfield, M

NZIER, August 2013, Economic Impact Assessment of the Trans-Tasman Resources Ltd Iron Sand Project; modelling and main results (draft)

South Taranaki District Council, 2007, Community Profile

South Taranaki District Council, 2012, South Taranaki District Council Long Term Plan 2012 – 2022

Petkova V, Lockie S, Rolfe J, Ivanova G, *Mining Developments and Social Impacts on Communities: Bowen Basin Casestudies*, in Rural Society, 2009, 19:3 211-228

Taranaki Regional Council, 2004, Inventory of Coastal Areas of Local or Regional Significance in the Taranaki Region

Taranaki Regional Council, 2008, Recreational Use of Coast, Rivers and Lakes in Taranaki 2007 - 2008

Taranaki Regional Council, 2009, Regional Policy Statement for Taranaki

Taranaki Regional Council, Regional Coastal Plan

Tourism Resource Consultants, 2012, Waverley Wind Farm; recreation and tourism assessment

Trans-Tasman Resources Ltd, July 2013, South Taranaki Bight Offshore Iron Sand Project: Project Description (draft)

Venture Taranaki, Taranaki Like No Other: a walkers guide to Taranaki

Whanganui District Council, 2012, Economic Development Strategy



Appendix 1: Objectives and policies from documents prepared under the Resource Management Act

The Resource Management Act 1991

The Resource Management Act (RMA) requires an assessment of actual or potential effects on the environment of any plan change or application for resource consent, as well as the identification of measures by which these effects can be mitigated. The definition of "environment" in the RMA includes "people and communities". Section 5 of the RMA states that the purpose of the Act is "to promote the sustainable management of natural and physical resources in a way ...which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety" while "avoiding, remedying or mitigating any adverse effects of activities on the environment". The RMA also requires that particular regard be given to, among other things, "the maintenance and enhancement of amenity values" (section 7), which are defined as "those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes" (section 2).

The RMA establishes a hierarchy of planning documents to achieve the purpose of the Act. This hierarchy includes national policies and environmental standards that councils must give effect to through their regional policy statements and plans, and district plans, and must have regard to when making decisions on resource consent applications.

The New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement 2010 (NZCPS) is the only mandatory national policy statement prescribed by the RMA. The NZCPS establishes objectives and policies for managing the coastal environment around New Zealand. Objectives of the NZCPS that are particularly relevant to the considerations of an SIA are:

- To maintain and enhance the public open space qualities and recreation opportunities of the coastal environment by recognising that the coastal marine area is an extensive area of public space for the public to use and enjoy (Objective 4).
- To enable people and communities to provide for their social, economic and cultural wellbeing and their health and safety through subdivision, use, and development, recognising that (amongst other matters)
 - some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;
 - the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities.

The following policies in the NZCPS are also relevant to an SIA:

- recognising that the coastal environment includes elements and features that contribute to the natural character, landscape, visual qualities or amenity values, items of cultural and historic heritage (Policy 1)
- adopting a precautionary approach so that avoidable social loss and harm to communities does not occur, and the natural character, public access, amenity and other values of the coastal environment meet the needs of future generations (Policy 3)
- providing for the integrated management of natural and physical resources in the coastal environment, and activities that affect the coastal environment. This requires particular consideration where public use and enjoyment of public space in the coastal environment is affected, or is likely to be affected (Policy 4)
- in relation to the coastal marine area, recognising the potential contributions to the social, economic and cultural wellbeing of people and communities from use and development of



the coastal marine area; recognise the need to maintain and enhance the public open space and recreation qualities and values of the coastal marine area (Policy 6)

• recognising the need for public open space within and adjacent to the coastal marine area, for public use and appreciation including active and passive recreation, and providing for such public open space (Policy 18).

Regional and district council provisions

The objectives and policies in the various regional and district planning documents that apply to the potentially affected area, that are particularly relevant to social impact assessments, relate to:

- indigenous species in the coastal environment that are important for recreational or commercial purposes
- living marine resources which contribute to the social wellbeing of people and communities, including commercial users
- areas where shellfish are gathered for human consumption
- existing community use of the coastal marine area, coastal waters and aquatic ecosystems for recreation, fishing or kaimoana gathering to continue
- public access to the coastal environment
- public recreation opportunities of the coastal environment, including public walking access to and along the coastal marine area
- social wellbeing of people and communities (including iwi) from use and development of the coastal marine area.
- use and appreciation of this space by the public, including for passive and active recreation.
- existing established community uses of the coastal marine area, including utility structures, of the coastal marine area, and other lawfully established uses.
- amenity and heritage values, including recreational values of the receiving environment
- importance of the extraction of minerals to the social and cultural wellbeing of people and communities
- existing physical resources and built facilities, including infrastructure, that have modified the coastal environment.
- areas of the coastal environment where tangata whenua have traditional and continuing cultural relationships, including places where they have lived and fished for generations
- potential contributions to the cultural wellbeing of people and communities from proposed use and development of the coastal marine area.

