Appendix 19

Recreation Effects Assessment

September 2022

Northport Ltd Proposed Reclamation

Recreation Effects Assessment

Final

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Northport Ltd Proposed Reclamation Recreation Effects Assessment

Prepared for Northport Ltd

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Final

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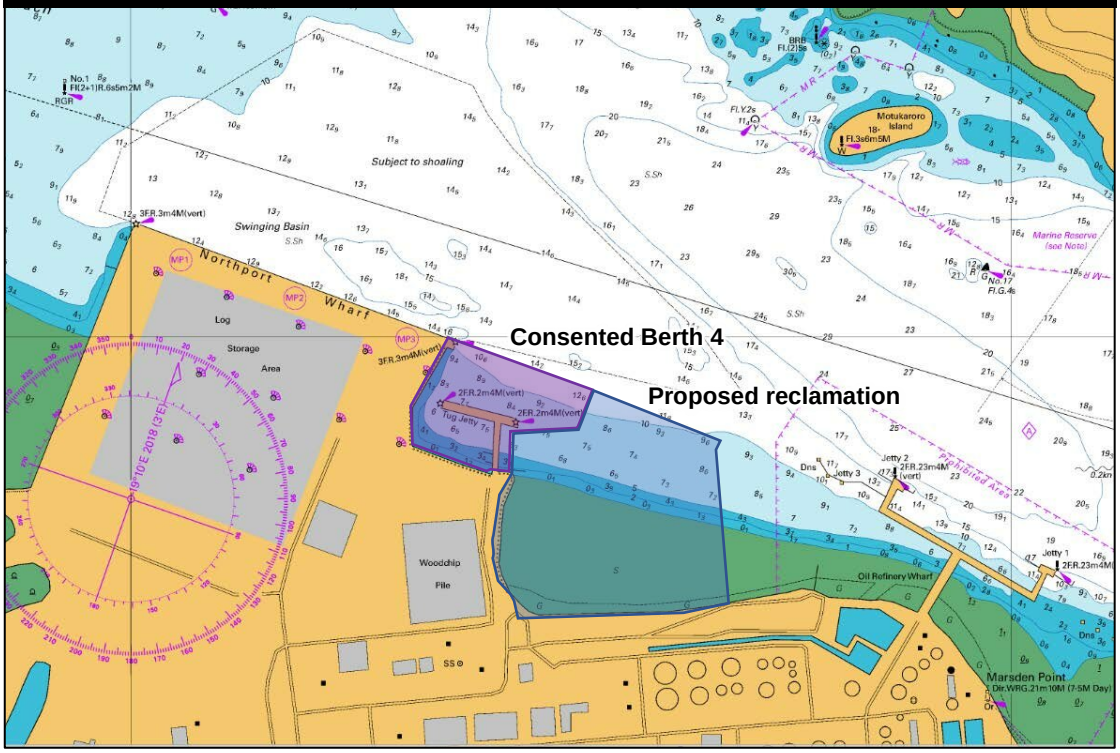
1 Summary

This report reviews the potential effects on recreation values of Northport Ltd's proposal to reclaim the seabed east of the existing Port facilities and increase the adjacent water depth. This report assesses the effects on recreation of the construction, maintenance and operation of the proposed reclamation and dredged area.

This assessment also considers the cumulative effects of the proposed reclamation with an already-consented 'Berth 4' proposal which will be contiguous with the proposed reclamation and existing wharf structure and will not itself increase occupation of the Marsden Bay Beach (Figure 1).

Figure 1: Overview of reclamation proposal. LINZ Chart NZ5217 detail.



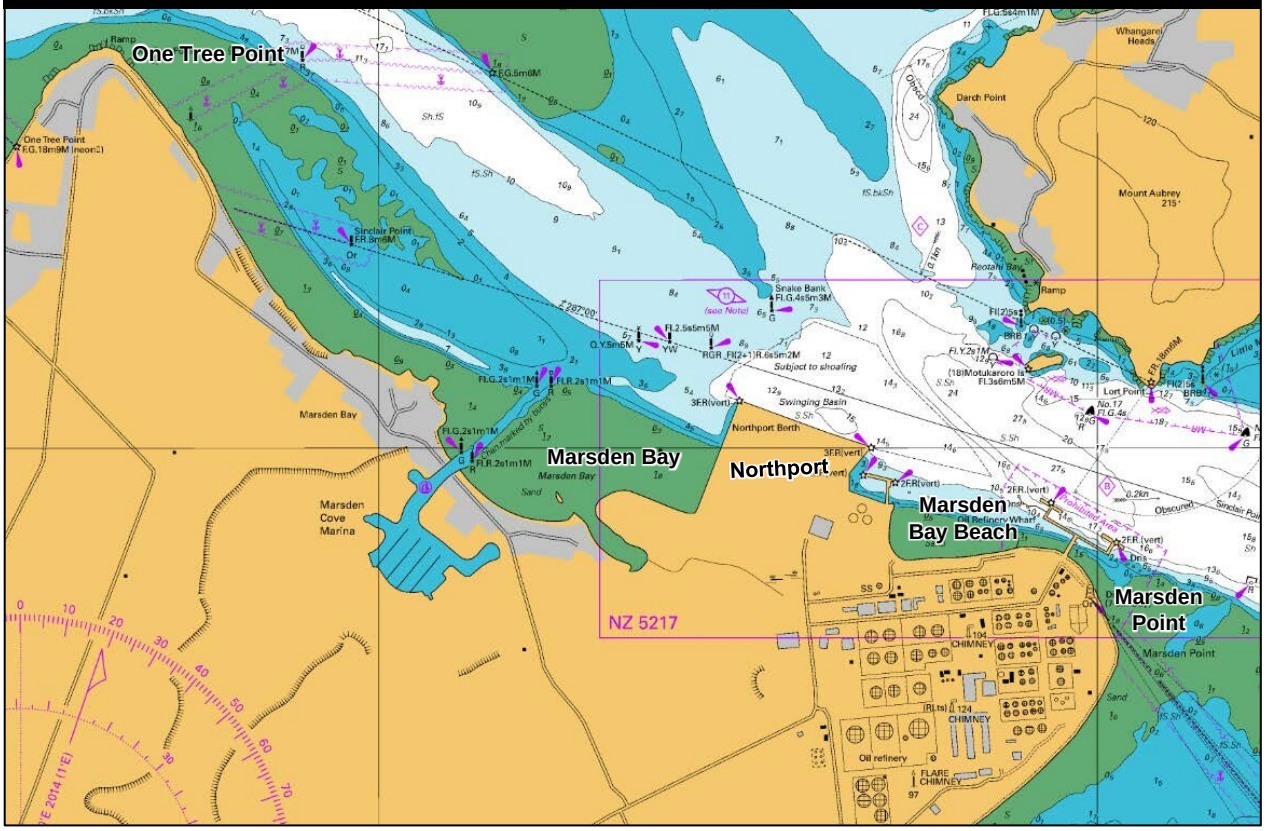
The study area is defined by the recreation settings potentially affected by the proposal, and includes, particularly, the beach area to the east of the existing Northport wharf (called 'Marsden Bay Beach' for the purposes of this report), the marine areas to be reclaimed, and the public facilities provided by Northport to the east (the ferry pontoon) (Figure 2) ('Marsden Bay' refers to the bay between Northport and One Tree Point).

Dredge activity will occur adjacent to the existing Northport wharf (largely defined by the dotted border for the area 'Subject to shoaling' in Figure 1) within an area already subject to navigation restrictions, including when ships are fumigating, discharging or loading dangerous cargo or bunkering[1].

The results of an intercept survey of 85 visitors to Marsden Bay Beach between December 2020 and June 2021 showed the ferry pontoon and the far eastern side of the Beach to be the main activity areas for fishing (which is the main recreational use of Marsden Bay Beach), but walking, sightseeing, dog walking, picnicking, swimming, having lunch or "smoko" and other casual activities occur along the length of the Beach, with a concentration near the car park. The majority of visitors were from Whangarei (64%), but a large number were from Auckland or further afield (31%). The intercept survey was interrupted by Covid-19 restrictions and was

[1] Refer to the Northland Regional Council Navigation Safety Bylaw 2017, including Schedule 2

Figure 2: Primary study area. LINZ Chart NZ5214 detail.



augmented by an observational analysis of use of the Beach from 17 November 2021 to 30 January 2022, with records of 2,395 individuals visiting the survey area over 35 part or full survey days. This confirmed the ferry pontoon to be a primary recreation setting used mostly for fishing and swimming, but also showed the western end of the beach to be popular for swimming, walking, dog walking and general beach activities, such as picnics and just enjoying the sand. The majority of fishing was recorded at the ferry pontoon and the eastern end of the Beach near the Channel Infrastructure wharf. Swimming was focused at the ferry pontoon and the western end of the Beach (the observational analysis included more of the summer period than did the intercept survey and so had stronger results for swimming). An average of nine visitors per hour was recorded during the study period.

With the exception of the Marsden Point to One Tree Point area, the southern Whangārei Harbour shores contain large areas of tidal flats and mangroves that are generally unsuited to swimming. The study area is likely to be of regional significance for recreation.

The following potential adverse effects are reviewed in this assessment are listed below with the summary findings:

Construction

- Occupation of marine settings by dredges working or in transit and the creation of hazards for, especially, boaters.
    - Dredge activity will occur for between 100 and 140 days adjacent to the existing Northport wharf within an area already subject to navigation restrictions and existing maintenance dredging activities. Recreational boats should not be surprised by heavy ship activity near the Northport wharf and effects of dredging activity on recreational boating will therefore be minor.

- Turbidity effects on recreation settings (particularly swimming and diving areas) at and near the Harbour entrance and the mobilisation of contaminants and potential effects on shellfish and other seafood, and for water-contact recreation.
    - Cussioli et al (2022) report on modelled dispersion of dredge sediment plumes for the three dredge options (trailing suction hopper dredger (TSHD), a cutter suction dredger (CSD) and a backhoe dredger (BHD)). For all three options, sediment plumes are confined to the tidal channel aligned with the dredged area and do not disperse to diving and swimming sites. The TSHD generates the largest sediment plume and the BHD the least. While all three dredge options are likely to have minimal effects on water clarity for contact recreation, the BHD will clearly have the least effect, and likely no effect.
- Effects on marine ecology and the quality, abundance and catchability of marine species, during the dredging period/s.
    - Kelly & Sim-Smith (2022) report that while dredging will affect important habitat for fish (particularly juveniles), impacts on fish are expected to be lower and temporary, because, amongst other things, fish populations are unlikely to be limited by habitat or resource availability because fishing has reduced the populations of targeted species to well below historic levels.
- Access closures to Marsden Bay Beach during construction
    - It is expected that there will be periods – of at least six to 12 months – where access to Marsden Bay Beach is limited while the revetment is constructed and public facilities are built. Alternative access to the Beach will be available via Marsden Point Beach at Mair Road south of the Channel Infrastructure terminal – a distance of 2km. There are many alternative fishing and swimming sites in the Harbour and around the Harbour entrance area, including the local fishing platform on the western side of Northport, and effects from temporary closures at the regional level will be minor, but locals who regularly visit the beach are likely to be more inconvenienced. Effects will, however, be temporary. Alternative boat access to Marsden Cove will be available for the Te Araroa Trail ferry.

Operation

- Changes to currents and wave patterns resulting from altered bathymetry.
    - Berthot & Watson (2022) assess the effect of the proposal – both reclamation and dredging – hydrodynamics near the harbour entrance. Existing peak current speeds of just over 1 m/s (approximately 2 knots) are indicated in the channel opposite the existing wharf, with the potential for minor changes in peak current speeds (up to 0.2 m/s or just under 0.4 knots) near the existing and proposed wharf structures (both increases and decreases), with a minor increase in current speed in Marsden Bay (peak incoming tide only at 0.1 m/s) and a minor decrease in current speed on the northern side of the harbour entrance opposite the wharf (up to 0.2 m/s on peak incoming tide also). The modelled speed changes in current are unlikely to be recognised by recreational boaters in such a dynamic setting, and where a reasonable level of competence is expected of skippers.

- Loss of a section of Marsden Bay Beach including impacts on access to the remaining section of beach, and loss of existing access to the eastern ferry pontoon for fishing and transferring walkers on the Te Araroa Trail.
    - A development proposal which sustains many of the key elements of existing recreation opportunities is included with the applications. This includes:
        - A relocated carpark and toilets to allow easy access to the beach,
        - A new pontoon for fishing, swimming and socialising, and to operate as a terminal for the Te Araroa Trail ferry,
        - Beach and water access points suited to socialising and swimming, developed to attract such users to the western end of the beach away from one of the preferred fishing areas near the Channel Infrastructure wharf, and to reduce disturbance of roosting birds along the beach.

      Even so, acknowledging the retention of access and those new facilities, adverse recreation effects on Marsden Bay Beach will remain due to the loss of beach area and diminution of the scale of the setting, which are likely to be significant locally and more than minor regionally.
- Effects on marine ecology, particularly fish and shellfish species taken recreationally.
    - Kelly & Sim-Smith (2022) report on the effects of the reclamation and dredging footprints on marine species (including fish and shellfish), as well as the effects of stormwater discharge from operation of the new reclamation area. The latter is projected to have 'less than minor' effects considering the water quality and scale of effect of existing discharges.
    - Kelly & Sim-Smith (2022) noted a 'very high' number of cockles within the proposed reclamation footprint, albeit mostly below harvestable size. No pipi of harvestable size were located in the reclamation footprint. Little shell-fishing was observed as a recreational activity on Marsden Bay Beach during the two user surveys. At the regional level, effects on recreational shell fishing are likely to be minor considering the scale of alternatives and low level of activity at Marsden Bay Beach.
    - Fishing was the dominant activity recorded at Marsden Bay Beach. Kelly & Sim-Smith (2022) note that effects on fish are likely to be negligible because of their mobility, and the relatively small scale of habitat permanently lost (and some gain in reef habitat).
- Changes to navigation patterns of recreational boats due to larger scale of the wharf structures.
    - The proposed reclamation will occupy an area between two existing wharf structures where boat traffic is naturally limited. Commercial and small recreational craft (such as kayaks, trawlers and a Te Araroa Trail ferry) were the only vessels recorded in the affected marine area during the two surveys. Existing recreational users of the harbour entrance are accustomed to avoiding the Channel Infrastructure and Northport facilities, and the additional reclamation will pose no additional burden.

Effects on 'amenity' from a landscape perspective are assessed by Brown NZ Ltd. That report considers effects on landscape values, from, for example, the northern bays of Whangārei

Harbour which includes the recreation settings of Urquharts Bay and Home Point (and others). This recreation assessment does not reconsider those assessments.

Considering cumulative effects, collectively, the proposal and the consented Berth 4 development would diminish recreation value at Marsden Bay Beach. The reduction in the scale of Marsden Bay Beach is the primary cause of adverse effects and would represent a significant adverse effect on local recreational beach users, despite the developments for recreation proposed, and a more than minor adverse effect at the regional level.

2 Proposal description

Northport Ltd (Northport) is proposing to expand operations at its wharf facilities at Marsden Point. The proposal comprises a reclamation and associated wharves and dredging. This assessment also considers the cumulative effects of the proposal and the already consented Berth 4.

The proposed reclamation footprint is approximately rectangular with a total area of approximately 13.0ha. Design height of the land will match the existing Northport levels, being a minimum of 5m above chart datum. The land will be built using dredge spoil (sands and silts) and imported material (sand, rock and gravel). Dredging is proposed largely within an already consented area, but with some additional work required outside this site. Three dredge methods are under consideration: a trailing suction hopper dredger (TSHD), a cutter suction dredger (CSD) and/or a backhoe dredger (BHD).

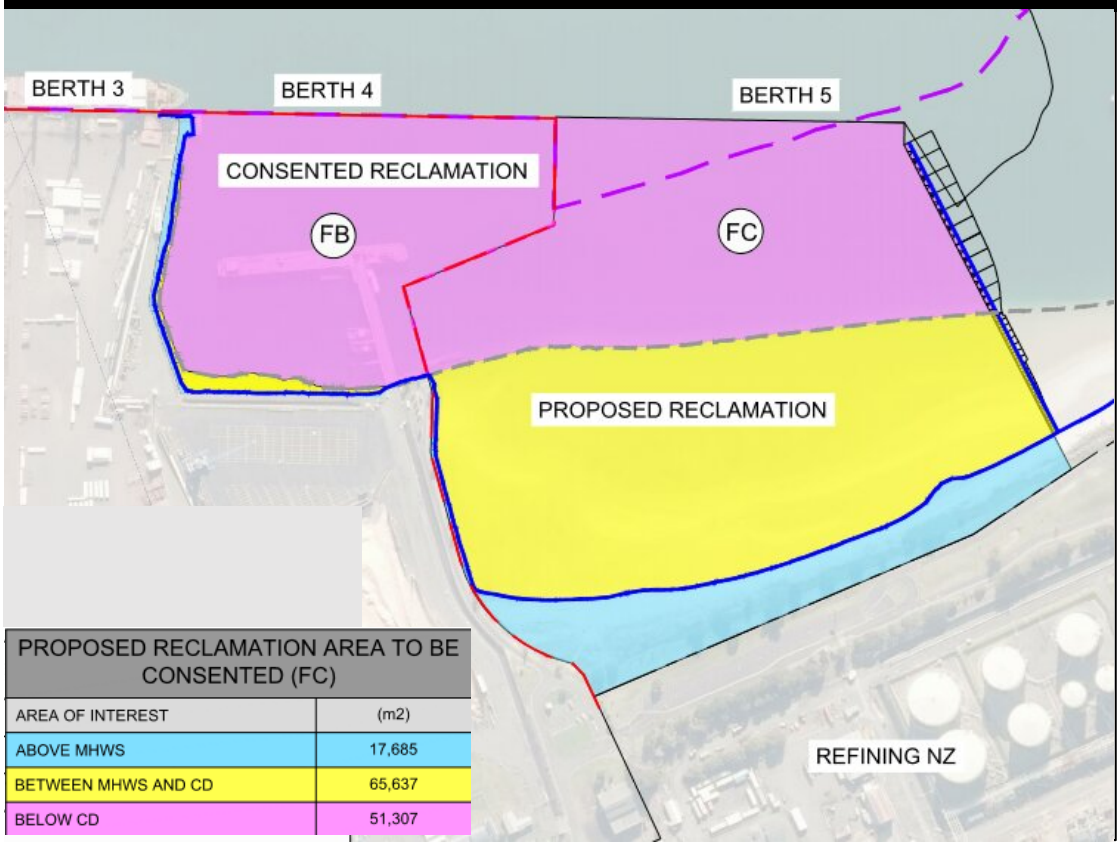
It is assumed the entire footprint will be reclaimed, with a wharf on the northern edge (an extension of the existing Northport wharf) and a rip-rap protected batter slope on the eastern edge.

The proposed landuse for the proposed reclamation is 'Port Activities', and a container terminal is the proposed primary use.

Figure 3 shows the location and scale of the proposed reclamation, which will occupy a large part of the Marsden Bay Beach. Northport has committed to maintaining public access to the remaining beach area from Ralph Trimmer Drive, and parking and toilets, and access to deep water for fishing in replacement for the existing fishing pontoon. The full proposal, including the dredging plan, is shown in Appendix 1.

Berth 4 shown in Figure 3 is a consented, but not yet constructed, reclamation for Northport's 'Berth 4'.

Figure 3: Proposed reclamation footprint, showing also consented Berth 4



2.1 Method

This report is based on a site visit, literature review, the review of other available specialist reports prepared for Northport, and the findings of intercept and observational surveys of visitors to the Marsden Bay Beach area. The review includes findings from previous research and consultation carried out by the author for the Refining NZ (now Channel Infrastructure) harbour deepening project (Greenaway 2017).

3 Policy and strategies

This section reviews references to the management of recreation values in the study area from planning literature published by, or about, the Department of Conservation (DOC) and the Whangārei District Council (WDC). Planning material more specific to consent conditions and the regulatory planning environment – particularly the Northland Regional Council *Proposed Regional Plan for Northland* – are reviewed in the AEE accompanying the proposal application.

3.1 Department of Conservation

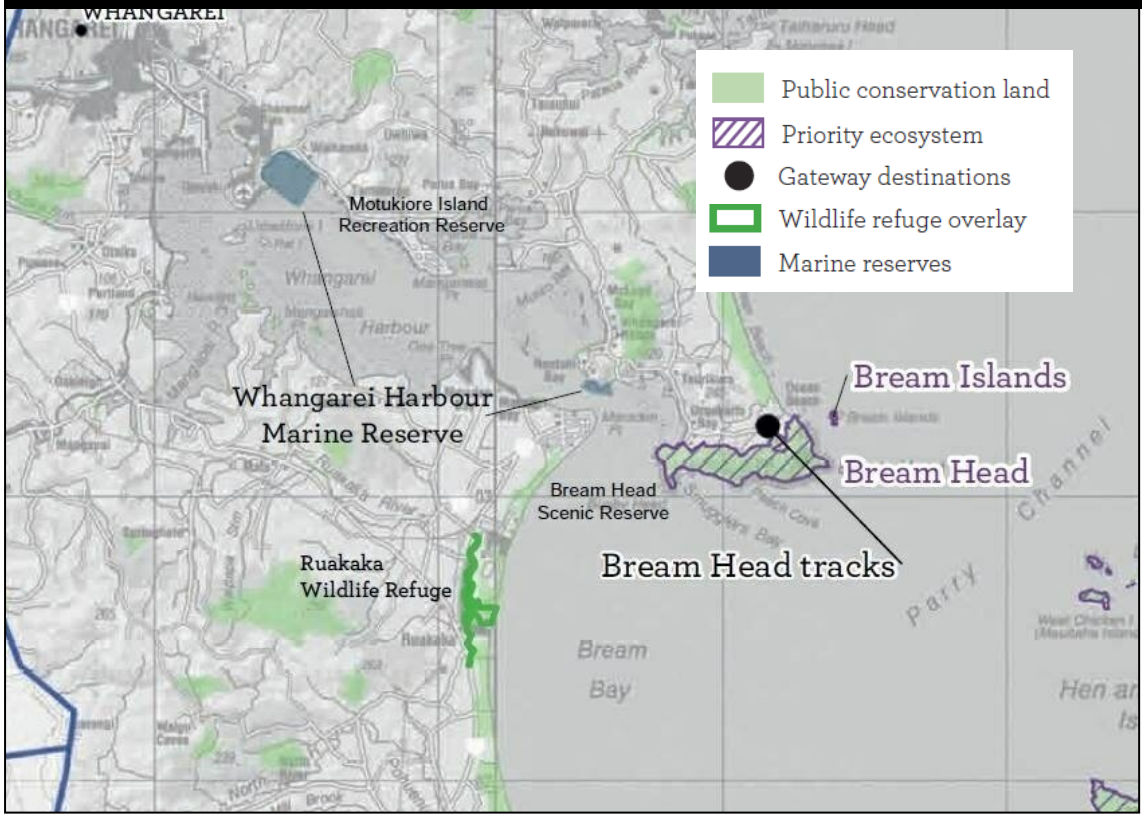
3.1.1 Conservation Management Strategy

The Department of Conservation's Conservation Management Strategy (CMS) for Northland 2014-2024 (DOC 2014a) locates the study area in the 'Whangaruru–Mangawhai Coast Place'. The public conservation areas within this place and the study area are shown in Figure 4. The Bream Head tracks are identified as a 'gateway destination' (one of eight in the Northland Conservancy).[2]

The CMS describes the recreation setting as (p89):

> *Whangārei Harbour has some significant harbour features and estuarine habitats, ranging from upper harbour mud and sand flats to deep channels, islands, extensive shellfish sand banks and deep holes near the harbour entrance. Whangārei Harbour Marine Reserve comprises two sites — Waikaraka and around Motukaroro (Passage) Island at Reotahi….*
>
> *Visitor use is moderate to high in this Place, especially in summer when camping and boating are very popular, along with the active use of the many sandy beaches for fishing, swimming and surfing. Snorkelling and scuba diving are also popular along*

Figure 4: Public Conservation areas in the study area. DOC CMS 2014



[2] 'Gateways' are places that the Department will promote as suitable for people's first adventures in the outdoors or repeat adventures of a gentle nature. (DOC 2104a, p10)

the coast, particularly at the Poor Knights Islands Marine Reserve. There are four camping grounds administered by the Department, all of which are heavily used over the height of the summer months, especially since many private camps have been converted into coastal subdivisions. Tracks and walkways through many of the reserves supplement those provided by the local authority. The Te Araroa Trail follows close to the coast for its entire length through this Place. The attractions and activities are primarily used by locals, but domestic and international tourism is increasing…..

Whangārei, the major urban area and administrative centre for the Northland region, is the location for principal sites of industrial processing. It includes the only oil refinery in New Zealand, a large forestry port, cement and fertiliser works, transport systems, and other planned or existing activities adjacent to Whangārei Harbour such as at Marsden Point and lower Port Road. All of these have the potential to cause adverse impacts on natural and historic values if not closely monitored. Three pipelines carrying gas and petroleum products from the Marsden Point Oil Refinery pass through land administered by the Department, and require ongoing inspection and maintenance. The Marsden Point Oil Refinery, deep water export port and new manufacturing plants lie immediately adjacent to recreation areas, kiwi and shorebird habitat, sites important for biodiversity, historical and archaeological sites, and marine reserves. Extensive flat land and improved transport links with Auckland are creating opportunities for economic growth that are increasing pressure on natural values and the types of visitor experience.

Whangārei Harbour is identified as a marine habitat with recreation values (fisheries, high natural character and marine and avian wildlife), as well as adverse effects from overfishing and fishing gear (Appendix 8, p198) (Figure 5).

The recreation values of the Whangārei Harbour Marine Reserve (see Figure 4) are described in a DOC pamphlet, with the following introduction and activity description (DOC 2014b):

Figure 5: Excerpt from CMS Appendix 8 - Marine habitats

Ecosystem	Habitat type	Significant values	Pressures/threats	Protected areas
Whangarei Harbour	Saltmarsh Mānawa/mangroves Karepō/seagrass Intertidal sand and mudflats Estuarine beach Estuarine sand Estuarine reef High-current shallow sand High-current shallow reef	Diverse benthic invertebrate and fish assemblages. Diverse high-current assemblages at Motukaroro. Productive customary, commercial (fin and shell fish) and recreational fisheries. Important coastal and wading bird habitat. Kera wēra/killer whale foraging habitat.	Significant historic and ongoing anthropogenic impacts resulting in environmental degradation, including loss of shellfish beds and extensive karepō/seagrass meadows (and their associated fishery and biodiversity values). Overfishing. Chronic disturbance and underwater noise pollution.	Whangarei Harbour Marine Reserve—Motukaroro, Waikaraka.

The reserve was established in October 2006 and is located on the east coast of Northland. The reserve is the result of over 16 years of hard work, supported by marine experts and initiated by Kamo High School students of Whangārei. Whangārei Harbour Marine Reserve comprises two sites: an intertidal mudflat/mangrove environment at Waikaraka, which is approximately 8km from Whangārei town; and a mix of sandy beach, rocky reef and small high-current outcrops at Motukaroro/Passage Island, approximately 30km from Whangārei. It protects a combined area of 253.7 hectares of shore and sea providing a safe haven where the region's marine life can flourish.

Visitors to the marine reserve are welcome and activities like boating, snorkelling, scuba diving, picnicking and canoeing are encouraged.

3.2 Whangārei District Council

The WDC released an *Open Space Strategy* in 2001 (WDC 2001), which is still current. This described the recreation values of the Whangārei Harbour and its shoreline as a "a popular destination for aquatic activities, including swimming and fishing, sailing and boating, water skiing and kayaking" (p34). Identified 'threats and issues' for recreation and other values included (p34):

- *Abandoned islands, such as Matakohe/Limestone Island, have been left in a degraded state.*
- *Derelict structures litter the foreshore. Of particular concern are the jetties that are unsafe for the public to use.*
- *Boat access facilities to the harbour need upgrading and assessing.*
- *Runoff, erosion and siltation threaten the water quality of the harbour.*
- *The community is promoting a vision for marine reserves in the Whangārei Harbour.*
- *There are illegal structures, including boat sheds and baches, on coastal reserve land.*

Strengths and opportunities for the Harbour and shoreline included (p35):

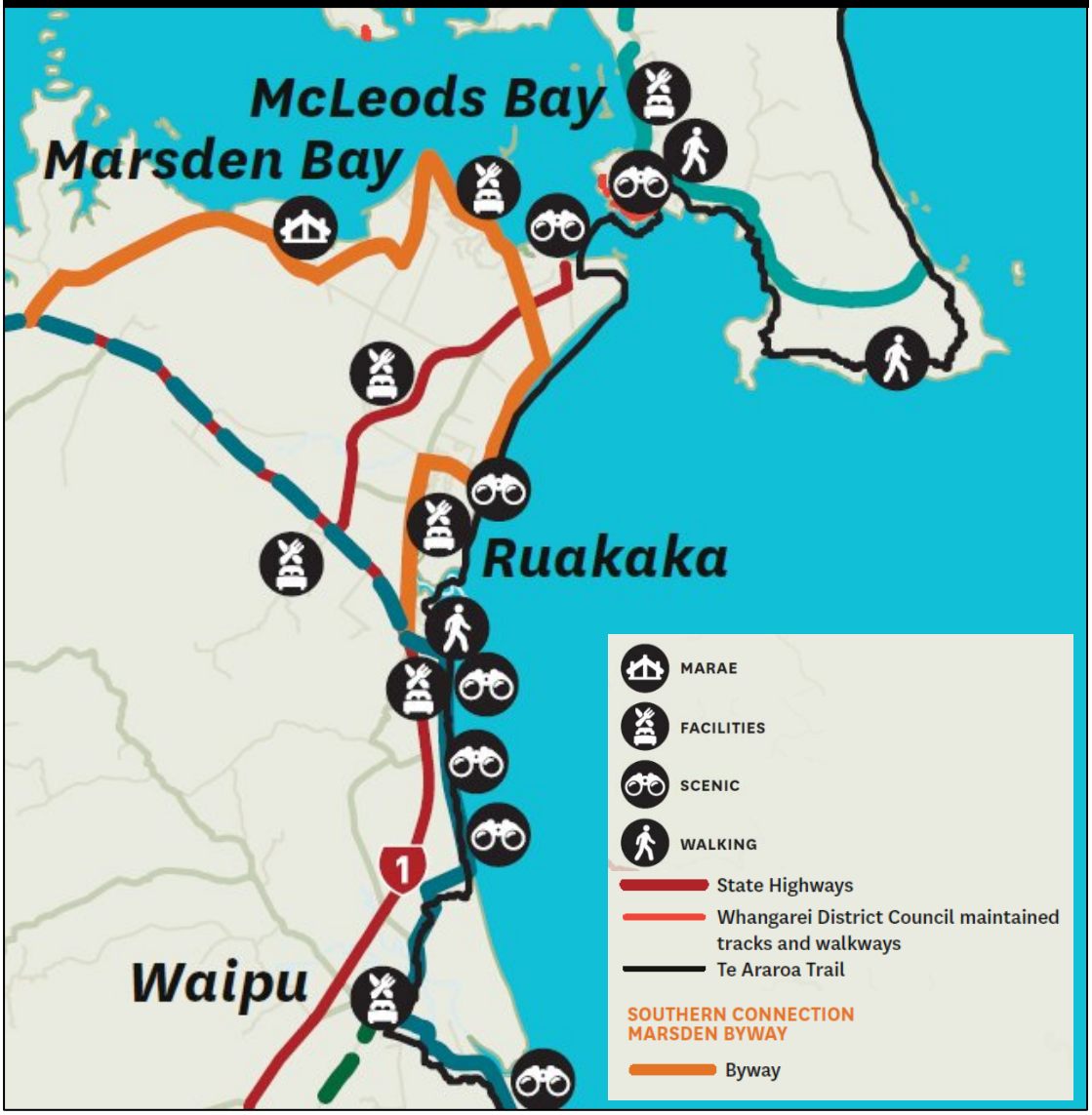
- *Support community efforts to assist in protecting cultural sites and in restoring wildlife habitat, public access and understanding on Matakohe/Limestone Island.*
- *Acquire other islands in the harbour as the opportunity arises subject to funding.*
- *Assess coastal structures in the harbour and implement a removal or maintenance programme, as appropriate.*
- *Assess the boat access facilities to ensure they meet the needs of the community.*
- *Continue to plant the riparian margins to assist with stormwater filtration, bank stability and siltation. Where possible control the land-based activities that contribute to a reduction in water quality.*
- *Support the establishment of marine reserves in the Whangārei Harbour.*

Development priorities for recreation in coastal and marine settings identified in the Open Space Strategy focused primarily on improving coastal access, including in Bream Bay and throughout Whangārei Harbour.

The *Whangarei District Walking and Cycling Strategy 2018* identifies the Northport area as a scenic destination (without further description) and illustrates the location of the Te Araroa Trail, with a harbour crossing from Reotahi Bay to the ferry pontoon at Northport (Figure 6). There are no new facility developments proposed for the Northport area in the Strategy.

Other recreation information provided by the WDC is discussed in the activity-specific sections of this report (in Section 4).

Figure 6: WDC Whangarei Tourism and Recreational Network map detail



3.3 Patuharakeke Hapu Environmental Management Plan 2014

The rohe of hapū and whanau of Patuharakeke covers the coastal area from Bream Tail to the Mangapai River, including the Marsden Bay and One Tree Point areas. A separate Cultural Values Assessment of for the Vision for Growth proposal has been carried out by the Patuharakeke Te Iwi Trust Board (Chethamn et al 2019), which details the mahinga kai and amenity values of the study area (among other things). Cultural and recreation values are often intertwined, and this recreation assessment does not consider cultural values specifically. However, there can be recreation elements to cultural practices, and the *Patuharakeke Hapu Environmental Management Plan* notes the importance of the mahinga kai values of the coastal setting in the rohe, and the need to provide for and manage access to customary fisheries, mahinga kai and customary resources (section 5.8). The Plan also notes (p49): “Patuharakeke wish to be fully involved in the preparation of any public access policies or plans by any agency from the outset of the planning process.”

3.4 Te Iwi o Ngatiwai Iwi Environmental Policy Document 2007

Te Iwi o Ngatiwai's rohe extends from Tapeka Point in the Bay of Islands to Takatu Point south of Omaha and encompasses the eastern seaboard and all off-shore islands. The *Te Iwi o Ngatiwai Iwi Environmental Policy* seeks the sustainable and integrated management of natural and cultural resources in the rohe, and the engagement of Tangata Whenua in resource management decisions. The Policy includes reference to the management of minerals, indigenous flora and fauna, water resources and air quality, amongst other things, but stresses that these should all be treated in an integrated manner. Of interest to recreation is reference to sustaining mahinga kai species and water quality.

4 Recreation activity reviews

This section identifies and discusses the recreational activities potentially affected by the proposal.

4.1 Terrestrial recreation and access

The Walking Access Commission's online Walking Access Mapping System (WAMS) describes the public access opportunities in the study area (Figure 7).[3] Access to both sides of the Port area is provided by legal road, with esplanade reserve (administered by the Whangarei District Council) extending east from Northport and bounding Marsden Point. The legal boundary of the Marsden Spit Government Purpose Wildlife Management Reserve no longer directly overlies the physical footprint of the spit to the west of Northport.

There are public carparking facilities to the east of Ralph Trimmer Drive at Marsden Bay Beach. Public facilities at the Beach – including the toilets and ferry pontoon – are maintained by the Whangarei District Council.

The ferry pontoon is used by a private water taxi for transporting walkers on the Te Araroa Trail across Whangarei Harbour from Reotahi Bay.[4]

Figure 7: Public access areas. Source: WAMS

[3] http://wams.org.nz/
[4] See https://www.teararoa.org.nz/the-trail/northland/northland-trail-notes/#breambay

4.2 Beach activities, walking, cycling and running

Strava gives a good indication of the relative levels of pedestrian and cycle activity in the study area. Strava is increasingly becoming a useful tool for identifying the relative levels of interest in various recreation activities by setting. Strava is a social media platform where users record their GPS activity via their smartphones while recreating. The data are uploaded to a central database, allowing speed and time comparisons with other cyclists, runners, kayakers and swimmers (for example), and the monitoring of individual activity or training targets. While the service is popular with professional athletes, its membership is dominated by casual recreation participants. Strava indicates that it had 50 million international users in early 2020 (80% outside the United States) with an additional million joining per month. It is now popular amongst regular cyclists and runners, and is also used by the likes of rowers, kayakers, waka ama and swimmers.

International comparisons between different forms of data gathering show a degree of reliability for Strava data with a range of 1% to 12% of users recorded on-site that are connected to the service; and this is growing. Strava is therefore a little like a tag and release programme, and is similar to AIS (Automatic Identification System, which is used for ships, discussed later). Strava essentially tags several thousand active people in an area and monitors where and how they recreate. Its greatest strength is in showing the relative value of settings for different forms of recreation.

Figure 8 shows relative levels of activity for running, which is good proxy for all pedestrian activities. Figure 9 shows relative levels of activity for cycling. The latter shows activity on sandy beaches, which may include sessions where a cyclist takes a walk after a ride and takes their recording device with them, or simply miscodes their activity type. Figure 8 shows more popularity for Bream Bay south of Mair Road, but a reasonable level of use of Marsden Point and Marsden Bay Beach east of Northport. The walkway to the fishing platform on the western side of Northport is also quite popular.

Figure 8: Strava data for running, Marsden Point area, 24 months to November 2020

Figure 9: Strava data for cycling, Marsden Point area, 24 months to November 2020

Figure 10 shows data for running for the Ocean Beach and Bream Bay area, showing most beach activity south of the Ruakaka River, but comparable levels of activity north of Ruakaka and Ocean Beach.

Figure 11 shows, on an aerial image, Strava data for 'all activities' (running, cycling and water-based) in the Marsden Point area. This shows the relative popularity of the fishing platform, pontoon and local beach areas. Data have not yet been collected to describe the type of beach activity occurring on Marsden Bay Beach, and the origin of users, as described in Section 5 of this report.

Figure 10: Strava data for running, Ocean Beach and Bream Bay, 24 months to November 2020

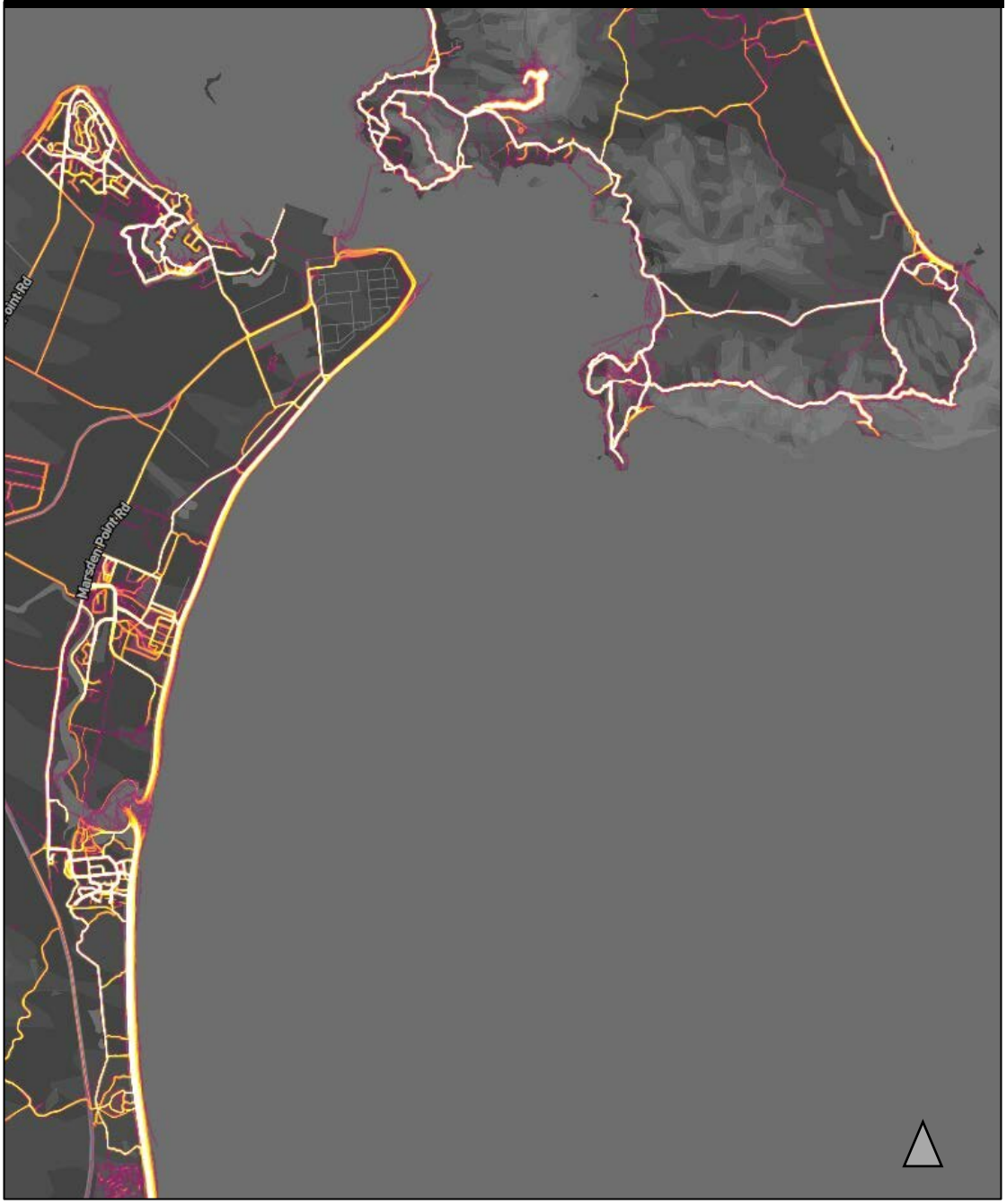
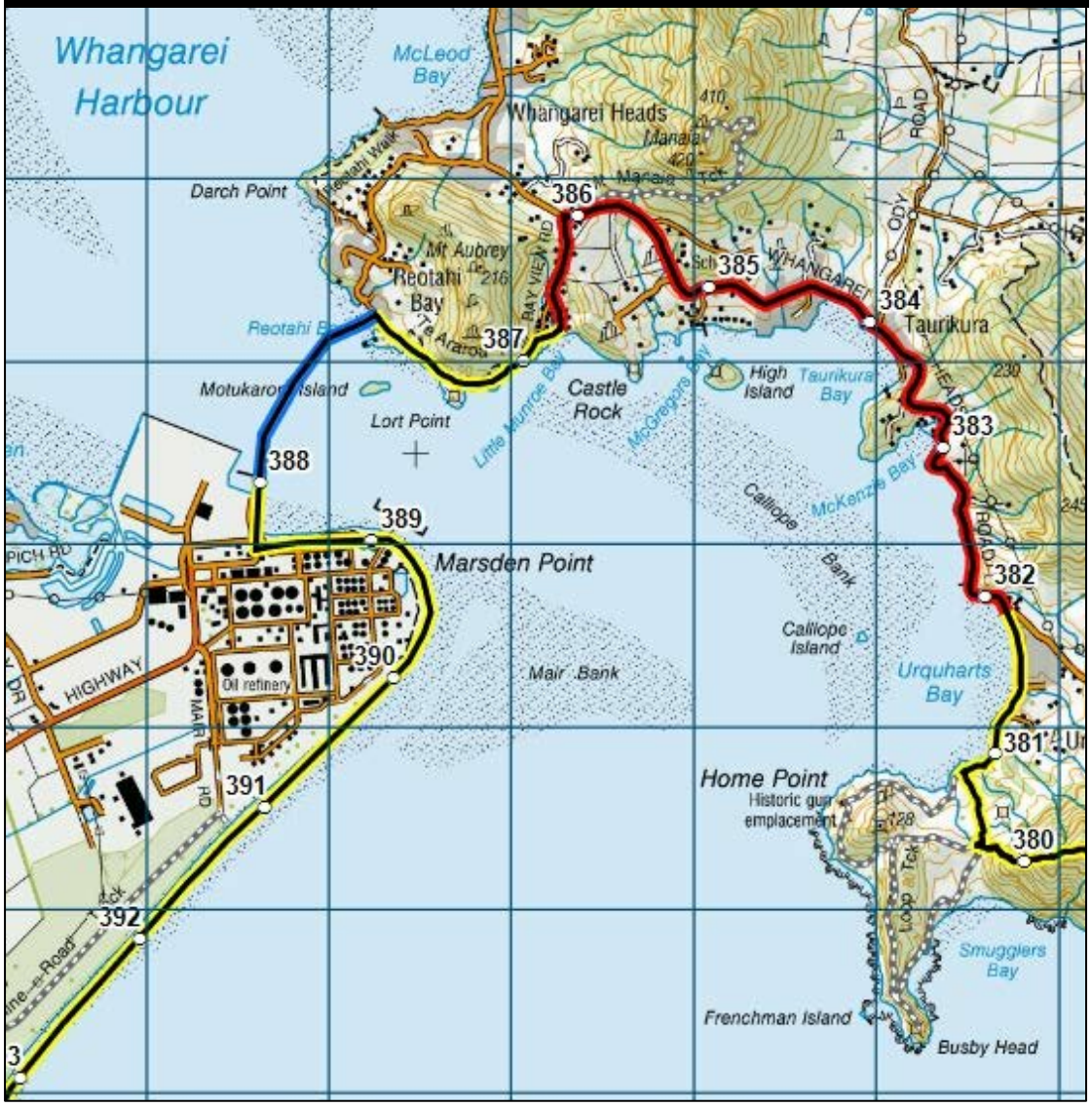


Figure 11: Strava data for 'all activities', Marsden area, 24 months to November 2020

The ferry pontoon, its access road and Marsden Bay Beach forms part of the Te Araroa Trail (Figure 12).[5] Two commercial operators provide water taxi services from Reotahi to the pontoon.[6]

Figure 12: Te Araroa track map detail, harbour crossing in blue



4.3 National and regional marine recreation participation

Sport NZ (2018) reports via the Active NZ survey that marine fishing in Northland is its 4th most popular form of outdoor recreation (after walking, swimming and running), with 29% of the adult population participating (compared with the national average of 14%). This makes fishing more popular in Northland as a participation activity than, for example, tramping (24%), golf (9%), rugby (7%), tennis (4%) and cricket (3%), and with similar participation levels to running or jogging (30%).

Swimming participation in Northland is the same as the national average (34% compared with 35%), but Sport NZ does not differentiate between pools and natural settings. Yachting and sailing participation in Northland is double the national average (6% compared with 3%). Other

[5] https://www.teararoa.org.nz/assets/Downloads/Maps/2020/ta-2020_1_21_Northland.pdf
[6] See https://www.teararoa.org.nz/the-trail/northland/northland-trail-notes/

marine recreation activities – such as scuba diving – have too few respondents in the Sport NZ data to allow comparisons.

Maritime NZ conducts annual boating participation research (MNZ 2020). At the national level, the 2019/2020 season data shows 45% of the population is involved in recreational boating. The most popular types of boats were kayaks (32%), powerboats up to 6m (19%), jet skis (9%), powerboats more than 6m (9%), dinghies with an outboard (7%), stand-up paddle boards (7%) and yachts and sailing dinghies (5%). Boat ownership patterns in Northland were similar to the national average.

4.4 Swimming and beach use

The NRC monitors water quality at several 'popular' swimming sites near the Harbour entrance (Figure 13) with long-term grade generally 'good'.[7]

Figure 13: NRC monitored marine bathing sites near Marsden Point 2022. Lawa image

The Whangārei District Council states: [8]

> *Whangārei has a reputation as the city with 100 beaches, and offers a range of picturesque and safe places to swim, from the grand scale ocean beaches to small sandy bays along both edges of the harbour. …*
>
> *Surfing beaches at Ocean Beach and Waipu are patrolled by Surf Life Saving NZ at weekends during the summer months, generally from the end of October until early April and throughout the week during the summer school holiday in December and January.*

[7] https://www.lawa.org.nz/explore-data/swimming/ retrieved July 2022
[8] http://www.wdc.govt.nz/FacilitiesandRecreation/Beaches-and-Coastal-Facilities/Pages/Default.aspx

Surf Lifesaving NZ identifies popular swimming beaches nationally on its 'Find a Beach' website, as well as beach activities popular at each site (Figure 14 for the two identified beaches near the study area).[9] Both are patrolled.

Surf clubs are located at Ruakaka, Waipu Cove (at the southern end of Bream Bay) and Ocean Beach (Whangārei Heads).[10]

Figure 14: Surf Lifesaving NZ recommended beaches

4.5 Fishing

The National Aquatic Biodiversity Information System (NABIS) provided by the Ministry for Primary Industry provides results from aerial surveys of recreational fishing effort undertaken over 2011 and 2012 (Figure 15).[11] Boats recorded include those scuba diving and so show 'fishing' effort within, for example, the marine reserve around The Poor Knight Islands. The data show the Whangārei Harbour area to be a relatively heavily fished setting, with similar vessel densities to the Bay of Islands and the inner Hauraki Gulf – although the latter has several areas with two to three times the density of vessels.

Figure 16 shows the vessel density data for the study area, with a peak of 100 to 150 vessels per km^2 immediately south of Peach Cove and a heavy concentration of activity in the main part of Whangārei Harbour and around Bream Head.

The Spot X national surfcasting (Draper 2012), boat fishing (Airey 2012) and east coast New Zealand fishing (Duncan 2005) guides identify many fishing opportunities in and around the study area. Relevant figures from Airey (2012) are shown in Appendix 2. These indicate diverse fishing opportunities within the study area for snapper, john dory, kingfish, trevally, kahawai and baitfish, including the western and eastern sides of the Port. Airey (2012) notes (p59):

> *Whangārei, Tutu kaka and the surrounding districts are noteworthy for being extraordinary fishing destinations, including excellent harbour fishing (particularly Whangārei Harbour) along with surf, rock, boat and big-game fishing.*

[9] http://www.findabeach.co.nz/

[10] http://www.nrc.govt.nz/Living-in-Northland/At-the-beach/Surf-clubs-and-safe-swimming/#surf

[11] http://www2.nabis.govt.nz/Map.aspx

Figure 15: Recreation fishing effort Matauri Bay to Whangamata. MPI NABIS data

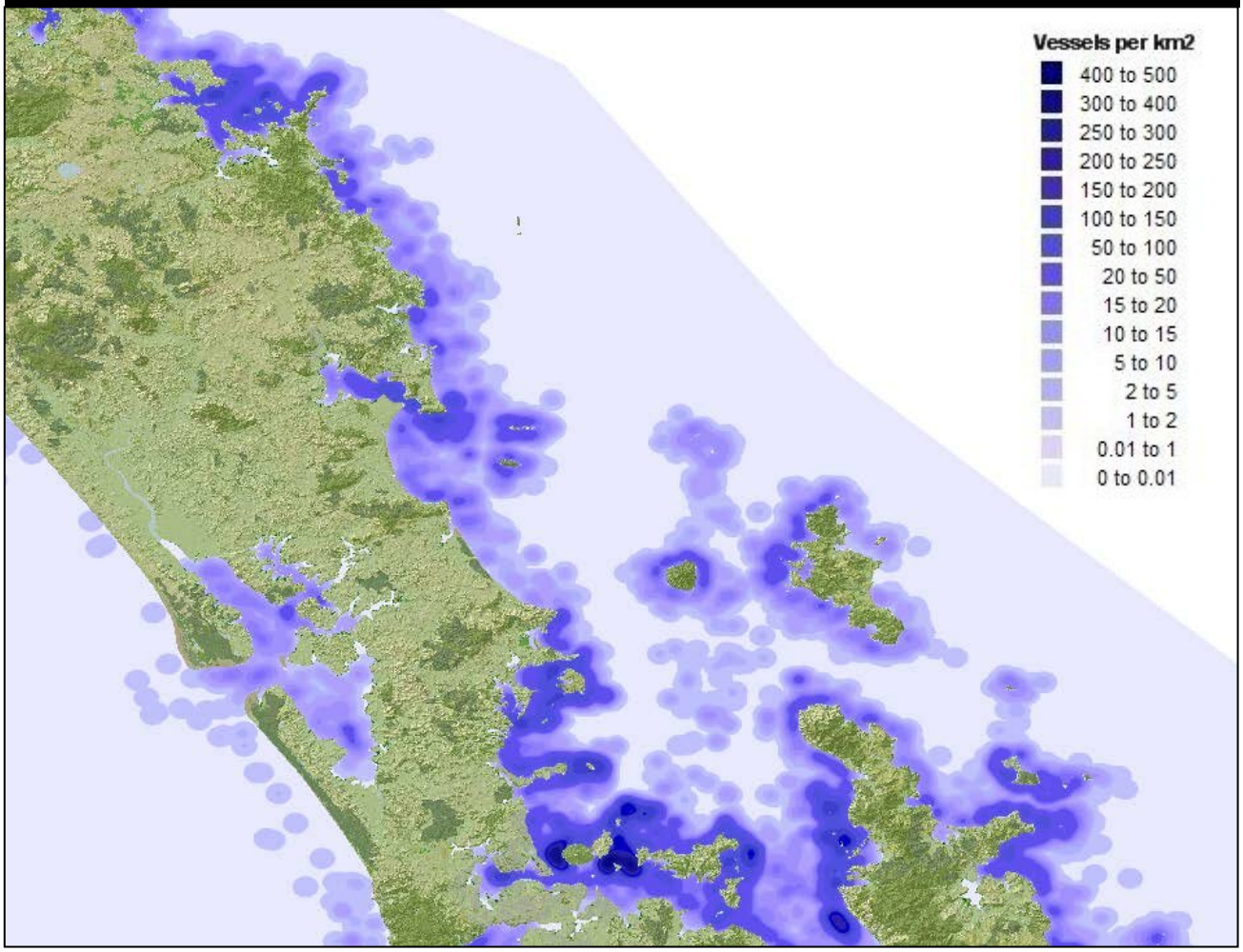


Figure 16: Recreational fishing effort in the study area. MPI NABIS data

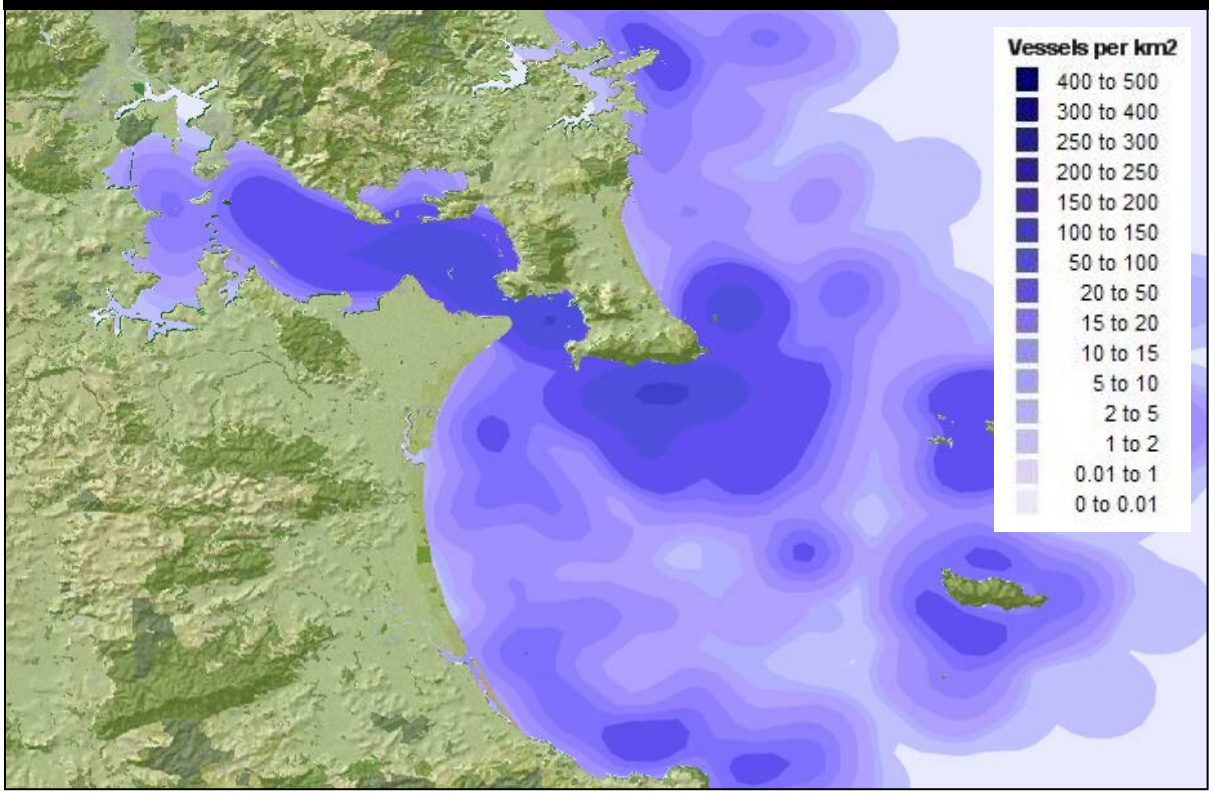
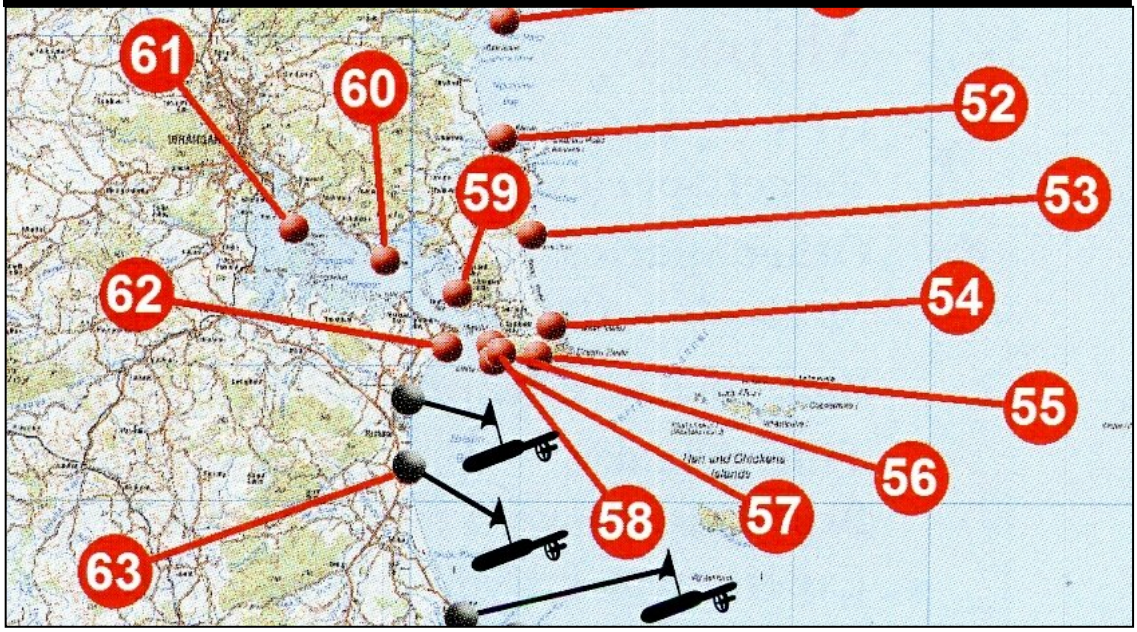


Figure 17 shows surf casting opportunities at (by marked number near the study area); 55 – Peach Cove (snapper, john dory, kahawai, kingfish and trevally, autumn and winter); 56 – Smugglers Bay (snapper, kahawai and trevally, all year); 57 – Busby Head (snapper, kahawai and trevally, all year); 58 – Home Point (kingfish, kahawai, mackerel snapper and trevally, autumn and summer); 59 – McLeod Bay Jetty (baitfish, kahawai, kingfish, snapper and trevally, all year); 62 – Marsden Point (Snapper, kahawai and trevally, autumn).

Figure 17: Surfcasting guide recommendation, Draper (2012)



The fishing recommendations shown in Appendix 2 (Airey 2012, Duncan 2005) indicate that the western fishing platform and eastern pontoon are the only two recommended shore-based fishing sites in the Marsden Point and Marsden Bay area, in addition to surf casting off Marsden Point as recommended by Draper & Airey (2012). Informal fishing-rod holders had been installed by users on the ferry pontoon.

Site observations indicate the use of Marsden Bay Beach for spinning for kahawai and kingfish, with a focus on the eastern end where deep water is close inshore, and bottom fishing is also popular (Figure 18). However, the length of the beach is also reportedly used for fishing.

Figure 18: Fishing at eastern end of Marsden Bay Beach

4.6 Shellfishing

Kelly & Sim-Smith (2022) describe the availability of kaimoana shellfish in Whangārei Harbour, including a 'very high' number of cockles within the proposed reclamation footprint, albeit mostly below 'harvestable' size. No pipi were located in the reclamation footprint.

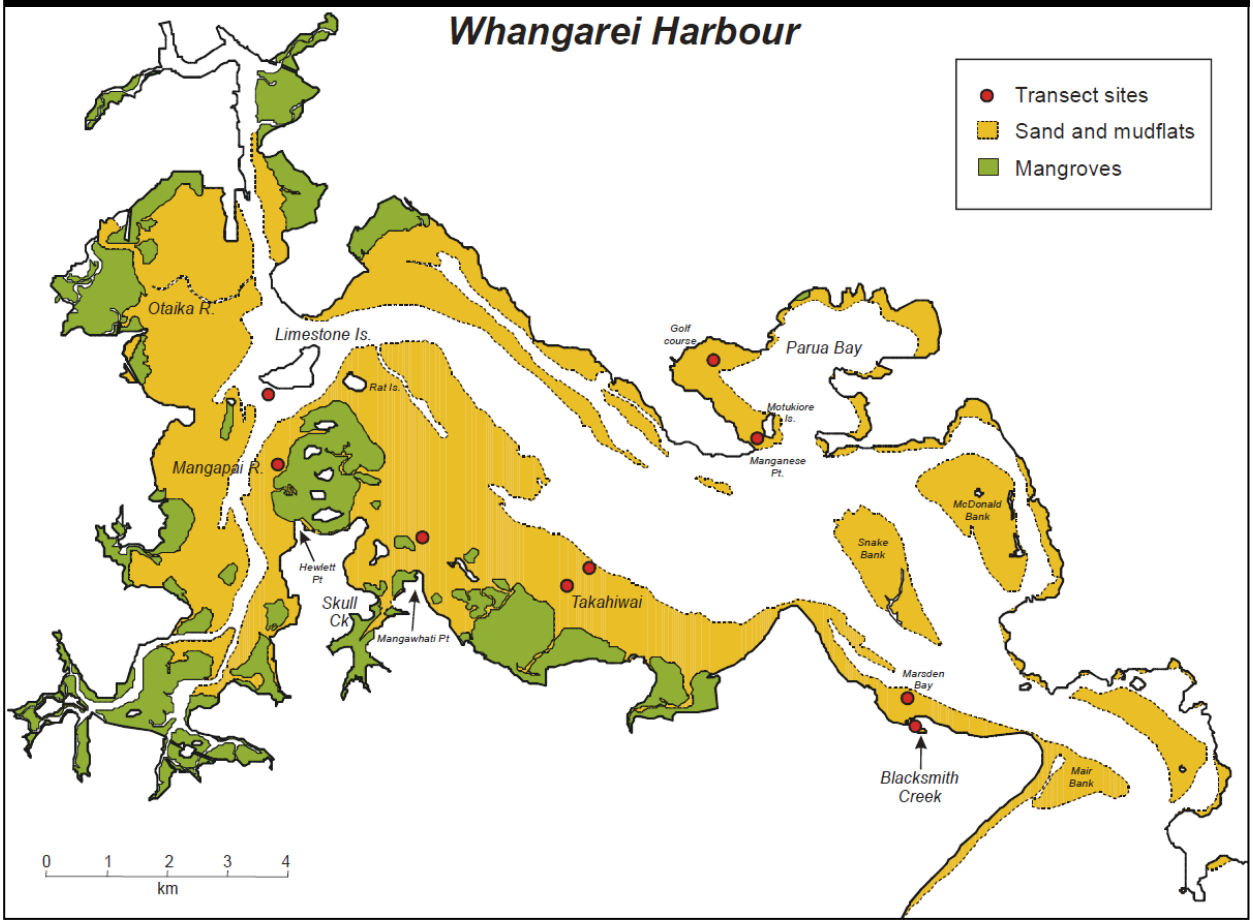
Airey (2012) shows in the charts in Appendix 2 many shellfish gathering sites in the study area. These include pipi and scallops around Snake Bank to the west of the Port, pipi at Marsden Point and at Mair Bank, and scallops to the north of Urquharts Bay. Additional diving sites for scallops are identified in Enderby & Enderby (2007) (see Section 4.7), including within Whangārei Harbour.

The NRC carries out an annual faecal coliform testing regime for recreational shellfish gathering at 15 'permanent' sites in Northland (NRC 2020). Two sites are near the study area: One Tree Point 'at intertidal beach' and Urquharts Bay. Both had 'pass' grades for faecal coliform counts in the water. The report noted, however:

> *Results indicated that 13 out of 15 of the permanent sites monitored were within the MfE and MoH guidelines for shellfish gathering in 2019-20. However, it is important to note that samples were only collected over the summer months rather than for the entire shellfish gathering season, which excluding scallops, is all year round in Northland. Therefore, these results can only be used as an indication of the suitability for shellfish gathering at a site.*

Cummings and Hatton (2003) of NIWA report on a reseeding assessment for pipi and cockles in Whangārei Harbour for the NRC. Figure 19 shows the sites considered suitable in their assessment for shellfish reseeding (the transect sites). The NIWA assessment identified two

Figure 19: Sites assessed for suitability of future shellfish reseeding in Cummings and Hatton (2003)



sites for cockles (Skull Creek and the Takahiwai mid-shore area) and a potential site for pipi (outer Skull Creek).

The authors noted (p iv):

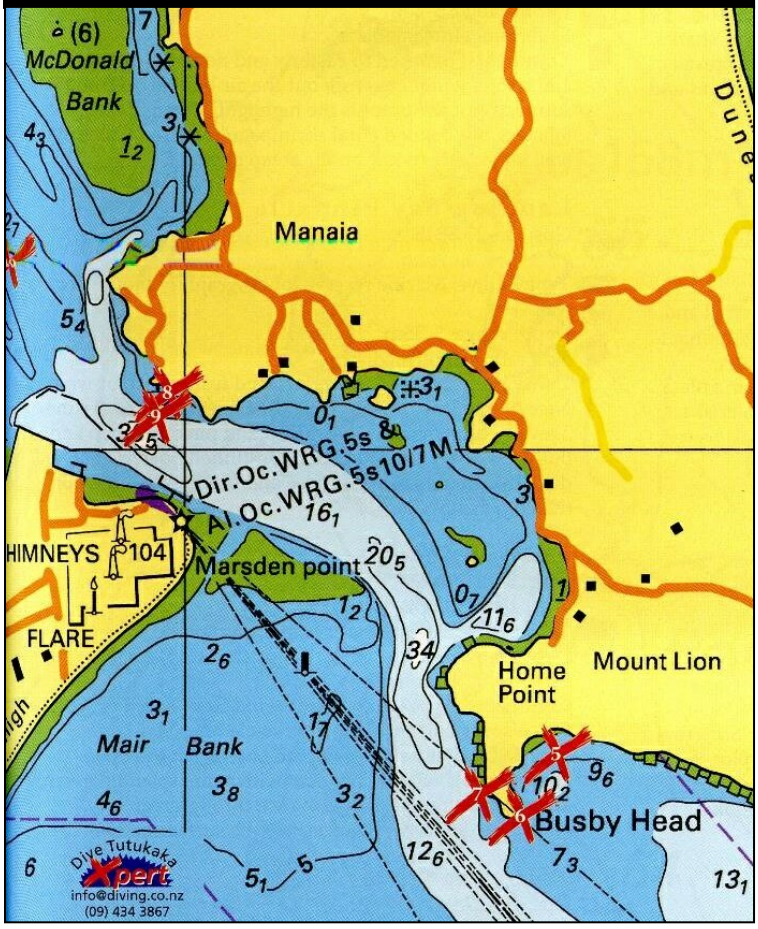
> *The areas visited are good examples of their present habitat type, with a good diversity and abundance of shellfish and other fauna present, and an abundance of bird life. However, old reports and discussions had during the course of this study indicate that some areas now have very different habitats compared to that of many years ago. Unfortunately, these habitat changes mean that cockles and pipi are unlikely to grow as large or be as abundant in these places as they were in the past.*

Kelly & Sim-Smith (2022) reported finding no harvestable pipi within the proposed reclamation footprint and very small numbers of harvestable cockles. Both are intertidal species and are not located in the proposed dredge area. While no scallops were observed within the reclamation footprint, it was assumed that small numbers may be present, as well as within the proposed dredge area.

4.7 Diving

Figure 20 shows the recommendations for diving in and around the Whangārei Heads from Enderby & Enderby (2007). The numbered sites are, from the north and then anti-clockwise: 5 – Smugglers Cove (crayfish, scallops, snorkelling); 6 – Busby Head (crayfish, spearfishing, wall); 7 – The Frenchman (crayfish, scenic, wall); 8 – Motukaroro South (marine reserve, photographic, wall, snorkelling); 9 – Motukaroro Northeast (marine reserve, photographic, snorkelling); 10 (hard left of figure, in page binding) – Whangārei Harbour (scallops). No sites are shown in the Harbour west of those shown in Figure 20. Dive depth ranges from zero to 30 metres. Water clarity issues are only identified for site 10 within Whangārei Harbour ("Strong current and poor visibility"). Boat traffic warnings are given for sites 5 to 10 (Whangārei Harbour).

Figure 20: Diving recommendations



4.8 Boating

The *Proposed Regional Plan for Northland* (March 2022) identifies three regionally significant recreational anchorages 'that are critical refuges during bad weather' (D.5.13) in Parua Bay and Munro Bays (Figure 21). 'Recognised Anchorages' are also referred to (D.5.14) but are not defined and are instead 'evidenced by their reference in cruising guides, pilot books or similar publications'. Marsden Bay Beach is not referenced as an anchorage in the literature reviewed for this assessment.

Figure 21:Regionally significant moorings

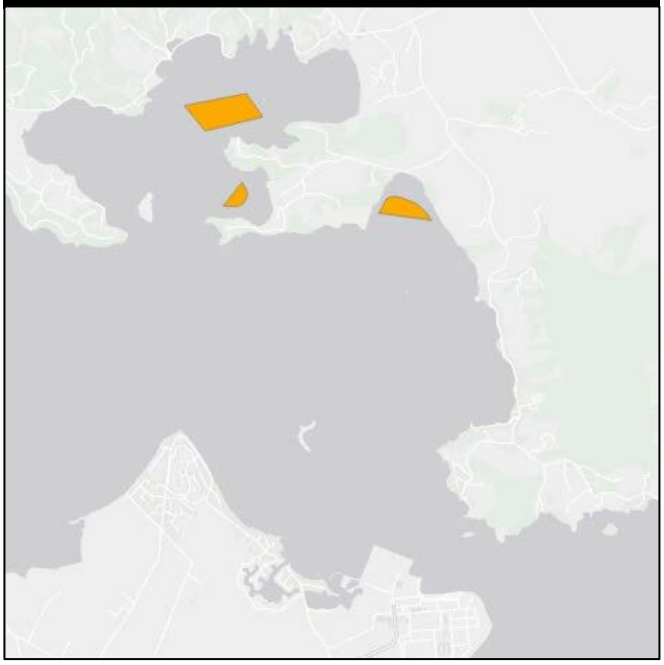
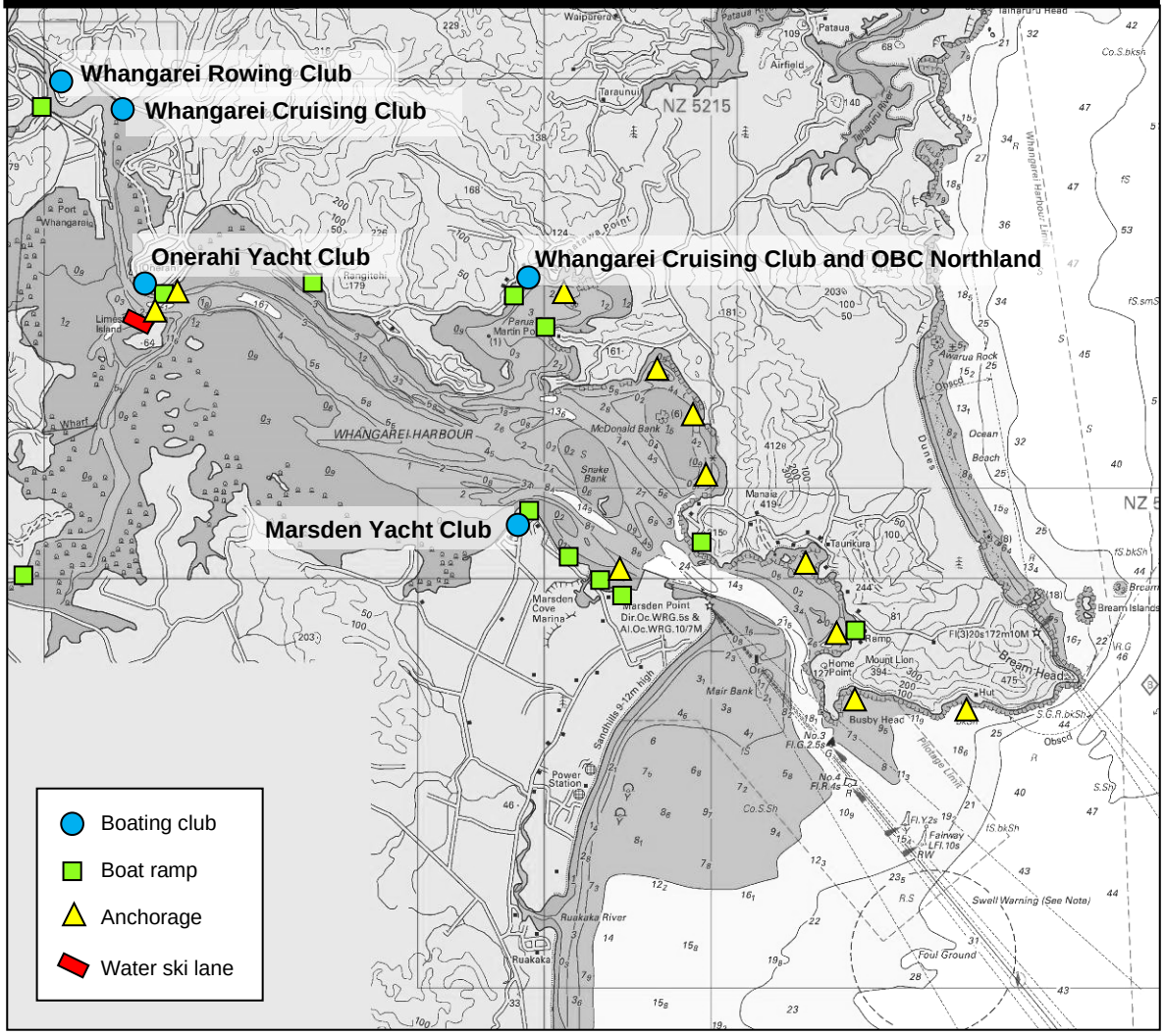


Figure 22 shows:

- Casual boat anchorages in the study area identified in *The Royal Akarana Yacht Club Coastal Cruising Handbook* (RAYC 2012). Those within Whangārei Harbour are generally identified as reliable in most conditions. The anchorage to

Figure 22: Anchorages, boat clubs and boat launching around Whangarei Harbour

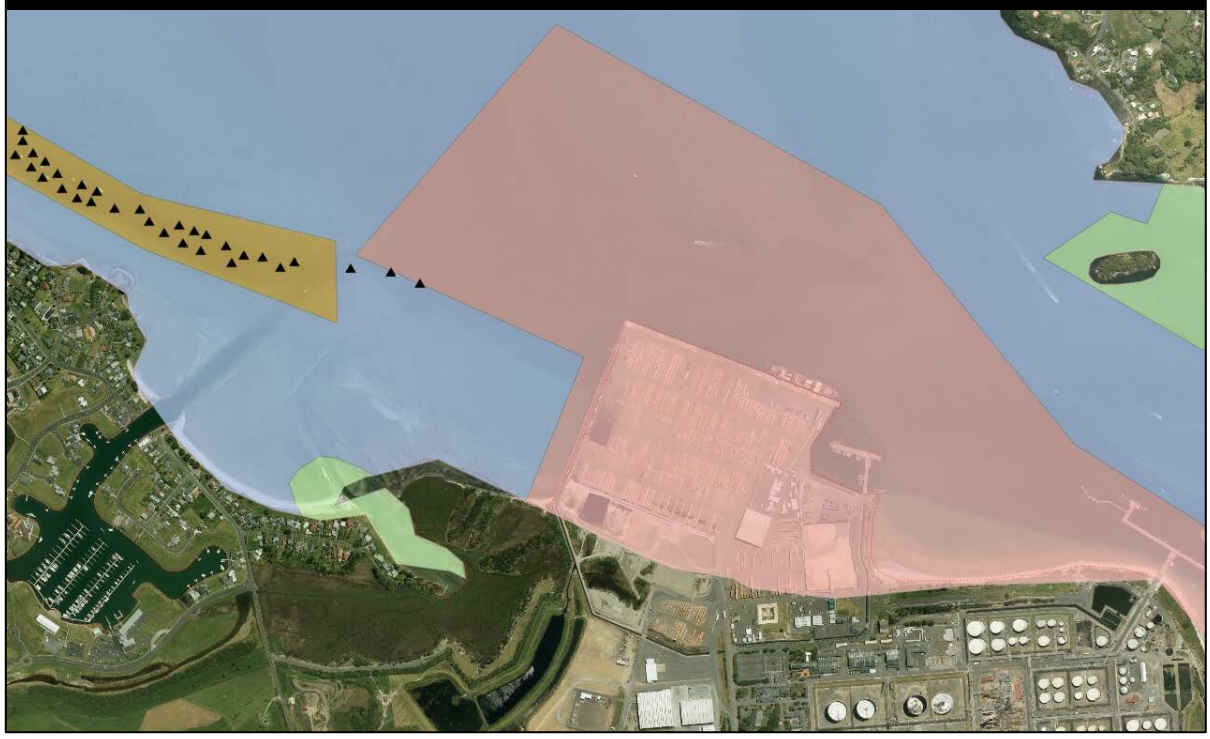


the west of the Port is described: “Quite a good anchorage can be found W of the Marsden Point wharf, out of the main tidal stream. Well protected in SW winds, but unsuitable in winds from the N or E.” Thatcher (2016), in his more detailed cruising guide to Northland, does not reference this anchorage but does identify most other sites identified in RAYC (2012) .

- Boat launching ramps identified by the WDC and NRC.[12]
- Water ski lanes (only one at Limestone Island) identified by the NRC and provided for in the NRC Navigation Safety Bylaw 2012.[13] (Northland Harbour Board (1989) described three ski lanes in the Whangārei Harbour in 1989: Limestone Island, Marsden Bay and Urquharts Bay.)
- The locations of four boat clubs.

Consents for swing moorings near Northport are shown in the NRC online GIS portal (Figure 23). These are largely within a Marine Zone 4 (Moorings) (orange in Figure 23), although three moorings extend east of the Zone towards Northport, and two on the edge of or within Marina Zone 5 (Port Facilities) (in pink).

Figure 23: Consented swing moorings near Northport (black triangles). NRC online GIS data.



Windsurfing New Zealand identifies three sailing sites in the Harbour (Figure 24) – One Tree Point (1), Onerahi (2) and Bream Bay (3).[14]

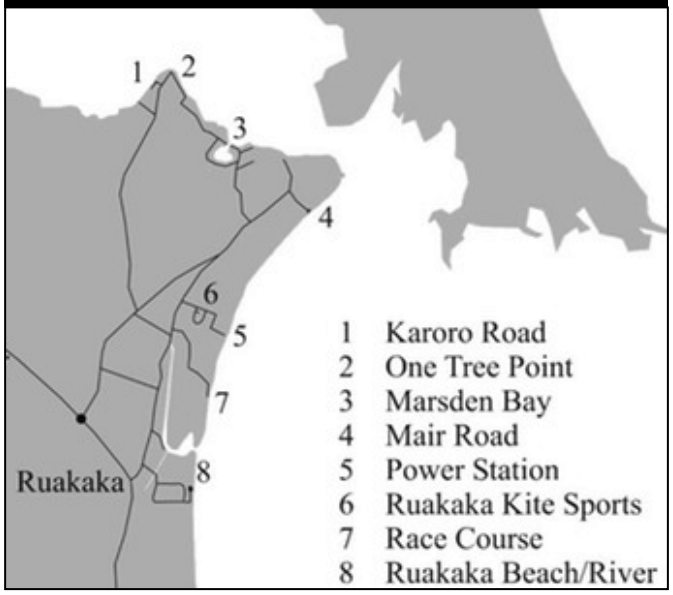
Ruakaka is described as a ‘kitesurfing paradise’, and a commercial operator (Ruakaka Kite Sports) recommends the 11 kite sites shown in Figure 25. Full details for the use of each site are provided on the company’s website.[15]

[12] http://www.nrc.govt.nz/Maritime/Boat-ramps-and-maps/#whangarei and http://www.wdc.govt.nz/FacilitiesandRecreation/Beaches-and-Coastal-Facilities/Pages/Default.aspx
[13] http://www.nrc.govt.nz/Resource-Library-Summary/Publications/Coast/Navigation-Safety-Bylaw-2012/Access-Lane-Maps/#whang
[14] http://www.winzurf.co.nz/windsurf/wgtnz/wgtnz11.htm
[15] https://sites.google.com/site/wellingtonkitesurf/locations---around-nz/ruakaka---far-north

The most common routes taken by pleasure craft are indicated by AIS data. An AIS is an Automatic Identification System mounted on a vessel which periodically transmits the vessel's 'personal' information – such as name, size and type – as well as its speed and heading, via VHF radio signal and, when capable, by satellite. It also receives the same data from other vessels via VHF and can track their courses and warn of collisions. Some navigation buoys or hazards transmit an AIS signal (or it is transmitted virtually from another location), and they appear live on digital charts where they interface with an AIS receiver, with the same ability for an AIS receiver to warn of a possible collision.

Figure 24: Windsurf sites

Figure 25: Kitesurf sites (Ruakaka Kite Sports)



Shore-based VHF receiving stations automatically transfer VHF AIS data to a global database, and GPS tracks are recorded online via global marine traffic databases, which can be accessed through commercial websites (the dominant one being Marine Traffic). There are several coastal receivers covering the study area – such as at Leigh and Tutukaka – and so any local vessel with a VHF or satellite AIS transmission system in the Whangārei area appears on the global database.

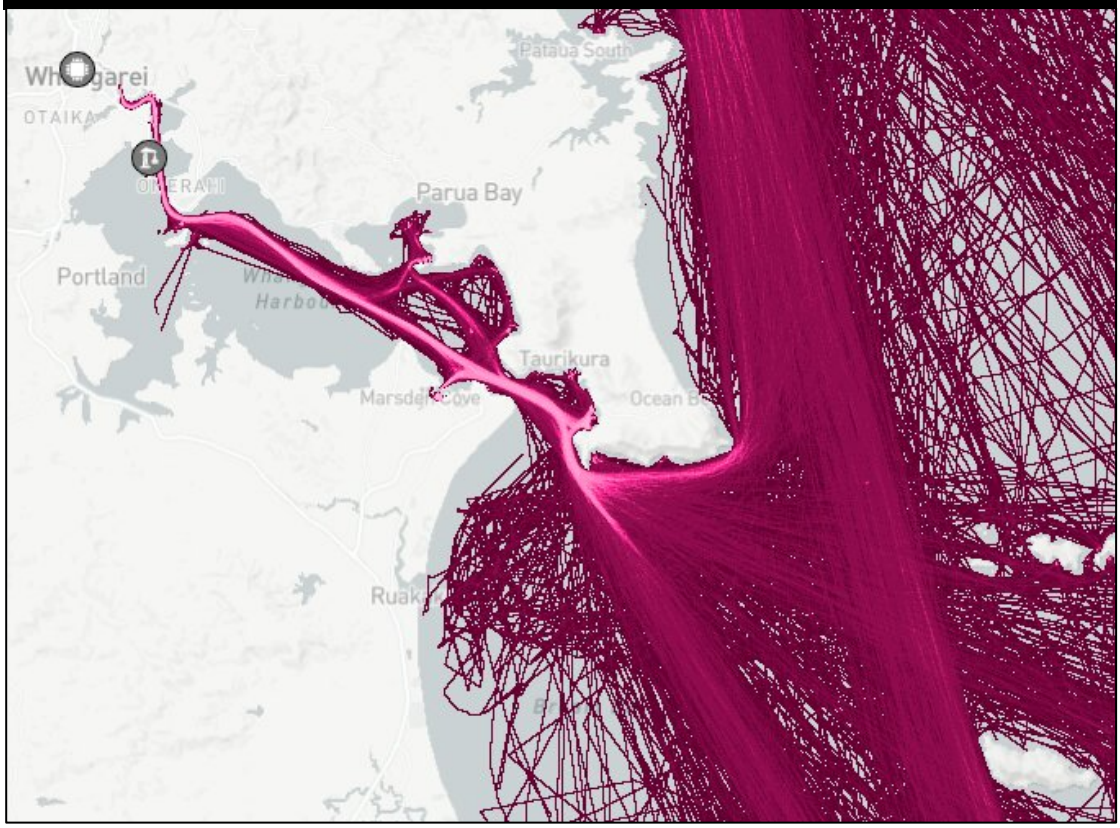
There are no data available about the uptake of AIS systems by pleasure craft in New Zealand, but in the experience of the author (who has AIS on his 12.2m yacht) there is significant uptake of the service by recreational boaters in NZ, to the point where in Auckland for example, there are so many craft using AIS that transmissions over-clutter chart-plotters. AIS data provide a sample of recreational boating activity, much in the same manner as a sample applied in a social survey. AIS is therefore a little like a tag and release programme, but unlike, for example, tagging 10 longfin eels with GPS devices and seeing where they head to breed[16], AIS essentially tags multiple boats in an area and monitors where and how they recreate. Its greatest strength is therefore in showing the relative value of settings for different forms of recreation.

Certain rules apply to the compulsory use of AIS on commercial vessels, but they are voluntary for pleasure craft. Online AIS data can be filtered by vessel type, such as commercial fishing, pleasure craft, tanker, cargo and passenger vessels, and by vessel size.

Figure 26 shows the recorded 'pleasure craft' vessel tracks for 2020 for the area near the Whangārei Heads. This shows most of the boating activity confined to the main channel but some use of the public pontoon east of Northport.

[16] As NIWA did in 2019 and earlier in the century see: https://www.rnz.co.nz/national/programmes/ourchangingworld/audio/2018695044/mystery-of-the-longfin-eel-s-breeding-ground

Figure 26: AIS route records for pleasure craft near Whangarei, 2020



Thatcher (2016) states, in reference to approaches to Marsden Point for small vessels:

> *Because Whangārei Harbour is used by a large amount of commercial shipping, there are numerous buoys and beacons marking the channels. When entering the harbour from the north it is quite safe to hold close in alongside the Bream Head side of the harbour; there is deep water here right into the shoreline with no off lying hazards. In fact, this is often preferable for smaller vessels as it keeps one well away from the commercial shipping channels.*

Strava heatmaps (described in Section 4.2) for water-sports give a good indication of preferences for swimming and small boat activity, such as sea kayaking, rowing, waka ama and stand-up paddle boards. Figure 27 shows two years of data filtered for marine recreation to November 2020, with a concentration of water-based activity on the northern side of Whangārei Harbour, with a focus on the Hātea River area to Onerahi. There is one route shown between McLeods Bay and Marsden Bay Beach, and some activity at One Tree Point (most likely wind surfing).

Appendix 3 shows the same Strava data for the coastal area from Whangārei to Auckland to show the scale of uptake of the platform, and the relativity between high and low population areas.

Figure 27: Strava data for watersports, 24 months to November 2020

5 Survey results

An intercept survey of 85 users of Marsden Bay Beach was carried out between December 2020 and June 2021. This survey – which required face-to-face interviews – was interrupted by Covid-19 restrictions. Due to continuing Covid issues through the year, the survey method was replaced with an observational analysis (recording the location and type of activities undertaken without interviewing or interacting with visitors) which was completed over 34 full- or part-days through early November 2021 to late January 2022, with 723 individual observations of 2043 visitors. The results of each survey are presented separately below.

5.1 Intercept survey

5.1.1 Objective and method

The purpose of the survey was to gain a description of who is using the Marsden Bay Beach area, their activities, and to identify their opinions about what is valuable about the setting for recreation.

The research method required one surveyor approaching users of the Marsden Bay Beach area – including the pontoon, sandy beach and dune area – and asking permission to be interviewed. Almost all visitors encountered at all sites were interviewed and so little random selection was required.

The questionnaire was designed by Rob Greenaway of RG&A, in consultation with the Northport project team, and used question formats tested multiple times in other settings. The questionnaire appears in Appendix 4.

The aim of the selection method was to gain the maximum number of respondents, rather than to collect a truly representative sample of all users – which would require a stratified sampling method over a full year. Survey days therefore focused on sunny weather when the highest number of beach uses were likely to be encountered.

5.1.2 Error and bias

An error in a survey is defined as a difference between the data gained through research (usually in average values) and the true characteristics of the study's target population. Bias is one cause of error, and can be caused by strategic responses from respondents, poor or inconsistent interviewing techniques, and leading or unclear questionnaire design. An example of bias in this survey is its focus on a relatively high-use period (there is a bias against visitors who prefer using sites when no-one else is around). There is no way of compensating for or measuring this type of bias with the results gained, as the scale of its effect is unknown.

Some other forms of error, such as sampling error, can be quantified, but only if the sampling technique relies on the random selection of respondents. While this survey targeted almost all users encountered, the sample periods were not randomly selected; and so the sample is neither the population nor is it randomly selected from the population.

With those factors in mind, surveys of this type can be considered in two ways. At one level they are merely the collection and presentation of a large number of opinions and the provision of descriptive data. At another level, they are a quantitative representation of the likely use patterns and recreation values of a resource. This survey is largely the former due to the targeted survey method – that is, survey days were not randomly selected and therefore do not show truly representative use patterns. Consequently, the level of statistical error in the results is not known (because the selection method was not truly random).

The author of this report agrees with Ziliak & McCloskey[17] in relation to the danger and irrelevance of applying tests of statistical significance to survey samples which are clearly non-random, and as result, none are used in this report.

5.1.3 Demographics

Figure 28 shows the age groups of respondents by gender compared with 2018 Census data for Northland. Those aged under 15 were not interviewed and that age group has also been excluded from the Census data.

Figure 28: Age and gender of respondents compared with 2018 Census data for Northland

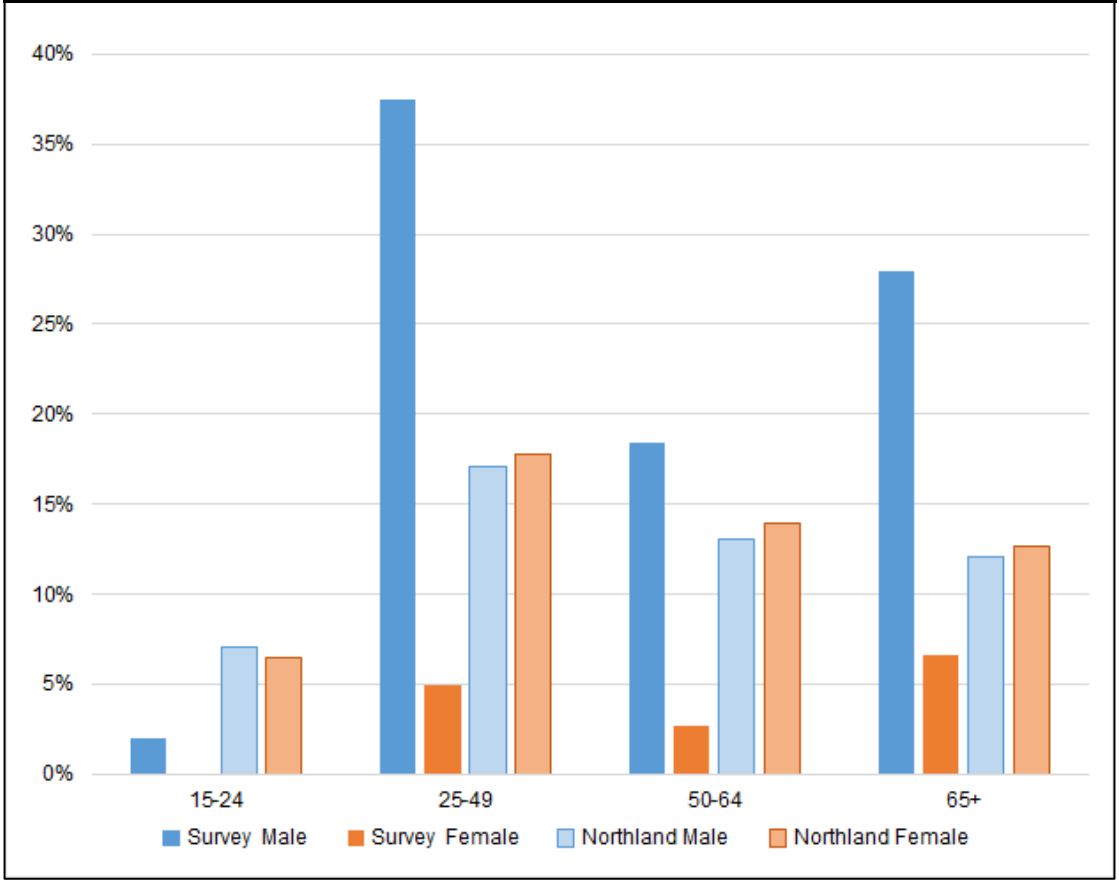


Table 1 shows the origin of respondents, with townships identified for Whangarei and Kaipara Districts. Just over 64% were local to Whangarei, with many quite local from Ruakaka and One Tree Point (almost 40% of all respondents). Almost 30% of respondents were from Auckland.

Table 1: Respondent origin - count

Whangarei	**55**
Ruakaka	19
One Tree Point	14
Whangarei	12
Waipu	2
Kamo	1
Maungakaramea	1

[17] Ziliak, S.T., McCloskey, D.N. 2008. *The Cult of Statistical Significance*. University of Michigan

Table 1: Respondent origin - count	
Marsden	1
Maungatapere	1
Ruatangata	1
Oakleigh	1
Mangapai	1
Onerahi	1
Auckland	**24**
Kaipara	**3**
Kaiwaka	2
Mangawhai	1
Waikato	**1**
Wellington	**1**
Canterbury	**1**
Total	**85**

Three respondents who normally lived outside the Whangarei District were staying in local holiday homes that they or their respective families owned (at Ruakaka, One Tree Point and Bream Bay).

One third of respondents (33%) were visiting by themselves and 30% with one other person. There were also several large groups encountered (only one member of each group was interviewed) (Table 2).

Table 2: Group size	
Group size	**Count**
1	28
2	26
3	7
4	9
5	7
6	1
7	1
8	1
10	3
12	1

Table 3 shows the type of group that respondents – who were not visiting alone – were in. Friends, family and whanau were the most common, with one respondent escorting a visitor from outside the region.

Table 3: Group type	
Group type. With:	**Count**
Whanau or family	32
Friends who live locally	16
Friends and whanau	9
Visitors from outside the region	1
Total	**58**

5.1.4 Activities, location and frequency of visit

Respondents were asked to name all the activities they have used the survey area for in the past and 'today'. Table 4 shows that fishing was by far the most frequent activity, followed by sightseeing and walking. Table 5 shows respondents' main activity when surveyed – and again fishing is dominant (65% of all activities).

Table 4: All activities – count	
Fishing	67
Sightseeing	19
Walking	19
Swimming	7
Walking dog	5
Lunch / smoko	5
Relaxing	5
Picnicking	5
Family / children outing	4
Work / employment	4
Diving / spear fishing	3
Solo time	2
Recreation	2
Feeding fish	1
Hanging out	1
Boating	1
Looking for pipis	1
Talking	1
Wading	1
Total	**153**

Table 5: Main activities – count	
Fishing	55
Sightseeing	9
Walking	7
Walking dog	3
Lunch / smoko	3
Relaxing	2
Work / employment	1
Swimming	1
Hanging out	1
Bring visitors	1
Family / children outing	1
Picnicking	1
Total	**85**

Figure 29 shows the location where the respondent was interviewed. The interviewer was asked to record the 'observed activity site' for each respondent. Table 6 shows the main activity of each respondent by the location where they were interviewed. Site 1 (the pontoon) and site 5 (eastern beach end) were the most popular fishing sites, and many other respondents were encountered near the carpark.

Figure 29: Respondent location (n=85) and site number

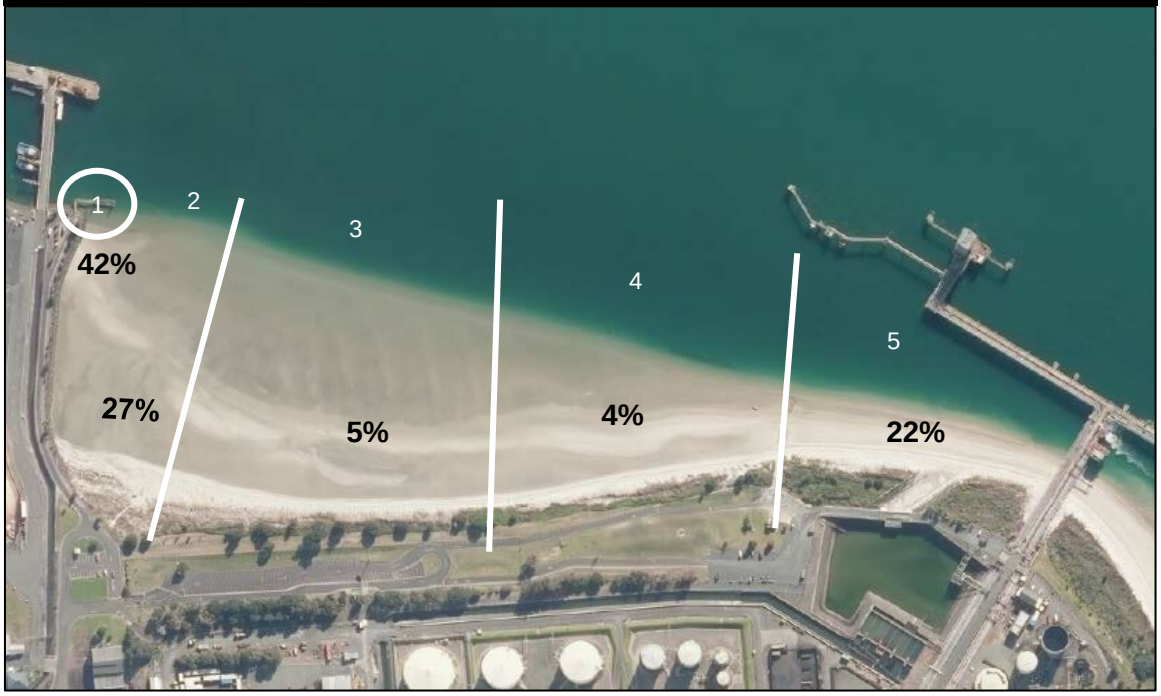


Table 6: Main activities by location – count						
Site (see Figure 29)	**1**	**2**	**3**	**4**	**5**	**Totals**
Fishing	27	7	3	2	16	**55**
Sightseeing	4	3			2	**9**
Walking		5		1	1	**7**
Walking dog		2	1			**3**
Lunch / smoko	1	2				**3**
Relaxing	1	1				**2**
Work / employment		1				**1**
Swimming		1				**1**
Hanging out	1					**1**
Bring visitors		1				**1**
Family / children outing	1					**1**
Picnicking	1					**1**
Totals	**36**	**23**	**4**	**3**	**19**	**85**

Table 7 shows the years of experience visiting Marsden Bay Beach for respondents. Twenty-one percent were on their first visit, and 48% had less than 10 years' experience, while 30% had more than 10 years'.

Table 7: Years of experience – count	
First	18
<1	6
1	6
2	5
3	6
4	5
5	6
6	1
7	2
8	1
9	3
10	9
15	1
20	4
22	1
25	2
30	6
40	2
56	1
Total	**85**

Respondents were asked how frequently they visited the Beach area during 'summer' (Labour Weekend until the end of March) and in 'winter' (the rest of the year). Four who reported never having visited in Winter noted that they might in the future. Respondents mostly visited at various times throughout the year.

Table 8: Main activities – count		
Frequency	**Summer**	**Winter**
Every day or nearly every day	12	8
Once a week on average	17	15
1-2 times a month	18	11
Once every few months	8	10
Yearly	7	6
Hardly ever	4	7
Never		9
Total	**66**	**60**

5.1.5 Best and worst aspects

Respondents were asked to describe the best and worst aspects of the Beach area. The scenery, fishing, and peace and quiet were the most frequently identified best aspects (Table 9).

Table 9: Best aspects – count	
Scenery	33
Fishing	25
Peace and quiet	13
Beach	8
Walking	7
Safe and accessible for kids	7
Clear / blue water	6
Activity of port	6
Local / convenient	4
Time away from home / work	4
Friendly / interesting people	3
Easy access	3
Fresh air	3
Accessibility for fishing	3
Social aspect	2
Sheltered	2
Good place	2
Accessible for elderly	2
Nice atmosphere	1
Nice day	1

Table 9: Best aspects – count	
Close to car park	1
Enjoying recreational activities	1
Nice and tidy	1
Swimming	1
Nice area	1
Recreation	1
Total	**141**

Respondents were more likely to report 'best' aspects (141 comments) compared with 'worst' aspects (41 comments). The latter were spread over a wide range of issues, dominated by 'rubbish' and lack of rubbish bins, and too many people. Noise issues were referred to by three respondents, and smells (from different sources) by four respondents.

Table 10: Worst aspects – count	
Rubbish	8
Busy on weekends / holidays	4
No rubbish bins	3
Too many people fishing	2
Noise	2
Bad parking by big groups	1
Birds keep eating bait	1
Can't use original wharf	1
Fish don't always bite	1
Foreigners	1
Foreigners taking undersized fish	1
Losing fish	1
No coffee cart	1
No diving	1
No seat to sit on	1
Noisy construction	1
Overfishing	1
People who smoke on beach near boats etc.	1
Port's effects on the environment	1
Smell	1
Smell of refinery	1
Smelly occasionally	1
Smelly rubbish (fish scraps)	1
Some people territorial of beach/pontoon area	1
Time travelling to get here	1
Trees erode beach	1
When water is dirty	1
Total	**41**

Ten respondents opted to offer final general comments (Table 11).

Table 11: Final comments
Good to have access to things like this
Happy to have the new pontoon as a compromise
Lovely beach
Need for fisheries signage
Nice if everyone picked up their rubbish
Overseas bilge discharges are a concern
Place is good
Please open original wharf for even one week a year
Refining NZ is a strategic asset
Would like to dive but been told we can't
Would be good to be bigger as numbers increasing

5.2 Observational analysis summary

5.2.1 Objective and method

The objective of the observational analysis was to describe and locate the recreational activities undertaken at Marsden Beach.

The observational analysis required survey staff to record the activities observed within the study area, and the time, duration and date of the activity, and the number of participants. The study area was enlarged in comparison with the intercept survey to include the grassed area between the beach and Channel Infrastructure property (by comparison, the intercept survey recorded only where the respondent was located when interviewed). The survey record form is included in Appendix 4.

A total of 269 hours of observations were completed over 35 days between 17 November 2021 and 30 January 2022, with 834 individual observations of 2395 visitors (one observation could include groups of people). Survey days were chosen to include a mix of week and weekend days and statutory holidays, and to coincide with good weather, although several observation days were shortened when bad weather arrived. The data are therefore only descriptive of the activities carried out during the survey period, but can be generalised to detail the likely use patterns of Marsden Bay Beach. No error calculations for the data are relevant, and there should be no selection bias in the results (everyone observed was recorded) beyond those influenced by the choice of the survey period (that is, a bias towards high use periods in good weather in summer).

5.2.2 Results

Table 12 shows the time input for survey days and an estimate of the number of visitors at the beach per hour of survey time. Several days after New Year's had records of quite high visitor numbers – peaking at 254 individuals observed over 8 hours on January 3. That day included one group of 26 people sharing a picnic on the beach, and the following day had three groups of 20 or more each swimming and picnicking. The mean visitor count per hour over the study period was nine.

Table 12: Survey days, observations, people count and survey hours				
Date	**Observations**	**Individuals**	**Survey hours**	**Mean visitors/hr**
17/11/2021	12	24	6	4
20/11/2021	19	53	10	5
23/11/2021	9	18	5	4
25/11/2021	4	6	5	1
27/11/2021	20	61	10	6
28/11/2021	17	37	5	7
2/12/2021	14	25	10	3
4/12/2021	10	37	10	4
5/12/2021	8	12	4.5	3
7/12/2021	10	12	4.5	3
9/12/2021	13	41	10.5	4
11/12/2021	12	46	10	5
12/12/2021	14	37	4.5	8
14/12/2021	3	5	4.5	1
16/12/2021	11	24	7.5	3
18/12/2021	24	61	10	6
21/12/2021	26	54	8	7
22/12/2021	24	51	8	6
27/12/2021	61	186	8	23
29/12/2021	17	38	4	10
31/12/2021	30	71	8	9
3/01/2022	76	254	8	32
4/01/2022	61	214	8	27
6/01/2022	25	75	8	9
8/01/2022	51	170	8	21
9/01/2022	32	75	8	9
11/01/2022	26	85	8	11
12/01/2022	24	74	8	9
15/01/2022	23	75	8	9
16/01/2022	25	86	8	11
19/01/2022	22	56	8	7
22/01/2022	46	92	8	12
23/01/2022	13	48	8	6
26/01/2022	7	19	4	5
29/01/2022	18	52	8	7
30/01/2022	27	121	8	15
Totals	**834**	**2395**	**269**	**9**

Table 13 shows the main activities observed. Fishing was by far the most popular activity followed by swimming and walking. 'Sightseeing in car' refers to visitors who did not leave their vehicle and visited either or both of the main and pontoon carparks. 'Sightseeing' refers to people who left their car but did not venture far, and only looked at the scenery – rather than going for a walk of any distance (in which case they would be described as 'walking'). The mean group size is also shown, with 'socialising', having the largest mean (six), skewed somewhat by one group of 20 – although one party of seven paddle boarders was also recorded.

Table 13: Main activities by individuals recorded and mean group size

Main activity	Individuals	Percent	Mean group size
Fishing	686	29%	3
Swimming	508	21%	4
Walking	297	12%	3
Sitting on beach, picnic	191	8%	5
Sightseeing in car	161	7%	2
Walking dog	150	6%	2
Sightseeing	142	6%	3
Kayaking	59	2%	3
Socialising	40	2%	6
Bathroom	33	1%	2
Boating	26	1%	3
Cycling	20	1%	2
Jet skiing	11	<1%	6
Photography	11	<1%	4
Ferry	7	<1%	2
Playing with dog	7	<1%	2
Paddleboarding	7	<1%	7
Playing with children	7	<1%	4
Kayak fishing	5	<1%	2
Trawler	5	<1%	5
Running	3	<1%	1
Net fishing	3	<1%	3
Patrol	3	<1%	1
Snorkelling	3	<1%	3
Quad bike	2	<1%	2
Commercial boat drivers	2	<1%	2
Collecting driftwood	2	<1%	2
Sunbathing	2	<1%	2
Metal detecting	1	<1%	1
Work	1	<1%	1
Totals	**2395**	**100%**	**3**

Figure 30 and Figure 31 show the locations for the two main participant activities – fishing and swimming respectively. The majority of all fishing activity – 78% – was recorded at sites 1 (the pontoon) and 5 (inside the Channel Infrastructure wharf). Some fishing activity was recorded to the east of the Channel Infrastructure wharf, which was outside the study area, but was

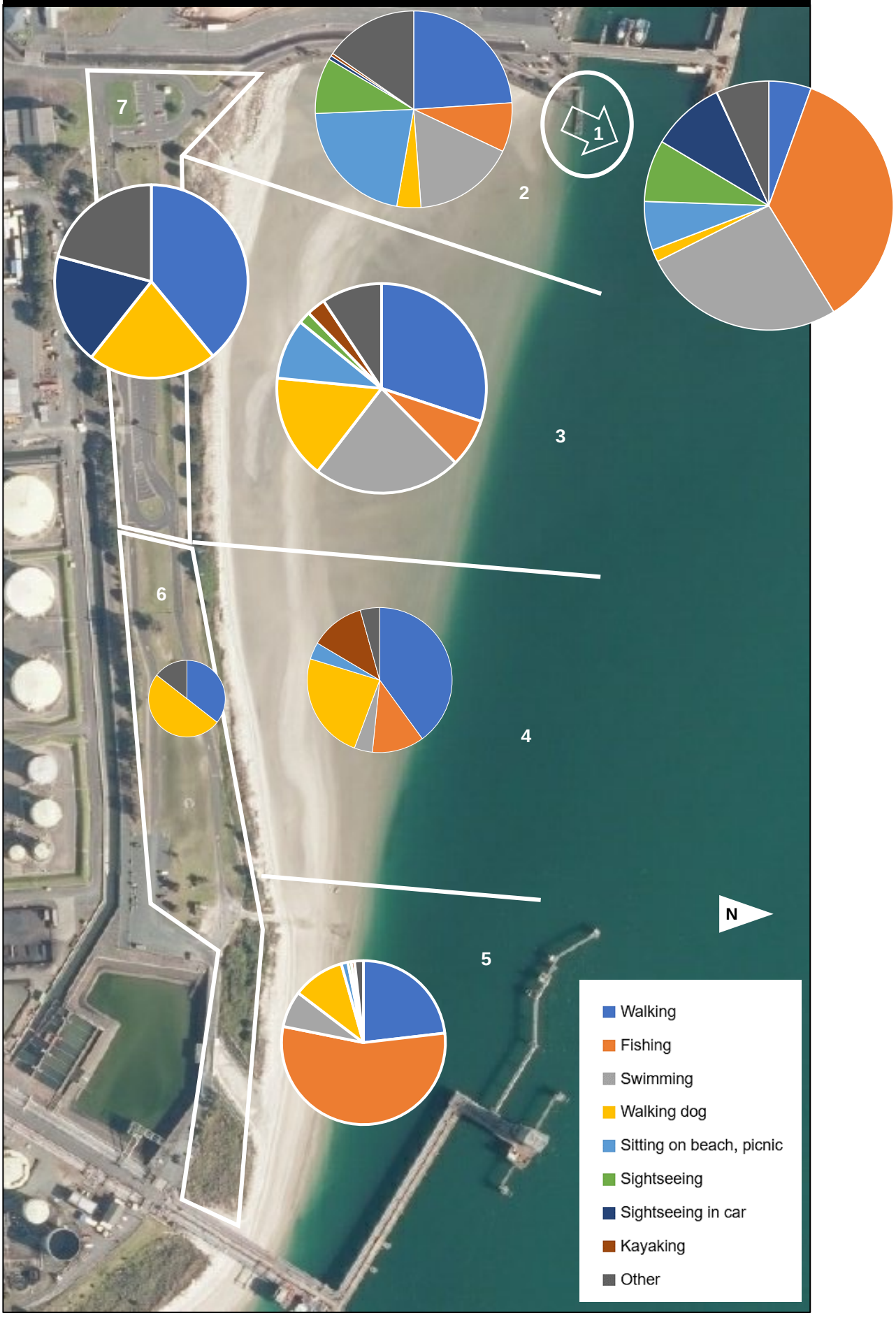
accessed from within it. Swimming was predominantly near car access areas at the pontoon and sites 2 and 3 (92%).

Figure 32 shows the locations for all activities by section of the study area. The size of the pie charts is proportional to the relative level of activity recorded in each component of the area, with areas 4 and 6 the least used. However, records of walking to, for example, fishing and swimming sites have been removed from the data set – otherwise the carparks at the pontoon and site 7 would show as the most popular locations for these activities.

Figure 30: Fishing locations – percent of observations (n=815) and site number

Figure 31: Swimming locations – percent of observations (n=612) and site number

Figure 32: Activity by location – pie chart size proportional to scale of activity



Walking and dog walking activities are over-represented in the data in Figure 32, if the level of activity in each section of the study area is totalled. Walkers generally used multiple sections of the study area and were therefore recorded in multiple areas – whereas fishers and swimmers were almost always only counted once in one section. Figure 32 therefore only shows the activities which occurred in each separate section of the study area (as if each was a study area in itself), and cannot be summed to show the total level of activity in the study area (which is shown in Table 13).

Some walking activity is also under-reported in Figure 32, which relies on main activities undertaken. For example, the ferry – associated with the Te Araroa Trail – was recorded visiting the pontoon three times during the survey period, and the seven individuals delivered were recorded as 'using the ferry'. However, two walked east along the beach, and the remainder walked south on Papich Road. As stated, anglers and swimmers obviously walked to their activity locations and this walking activity is not shown in Figure 32. Those carrying out activities at sites 4 and 5 at the eastern end of the Beach split their access options via the esplanade and the beach, often taking a different option for the return trip.

Secondary activities were also recorded – such as one member of a group walking while others fished – but these were relatively few, and it is taken that the main activity recorded the key motivation for the visit.

The base date for Figure 32 are shown in Table 14. As an example of how these data should be applied, one metal detectorist was recorded and accessed sections 2 and 3 of the study area. One trawler used the pontoon with five people aboard. Site 8 refers to the area to the east of the Channel Infrastructure wharf (outside the study area, but accessed through it).

Table 14: Activity by location and number of participants by section - count

Site	1	2	3	4	5	6	7	8
Walking	59	151	226	148	106	32	225	
Fishing	383	51	56	43	252			22
Swimming	282	106	172	15	33			
Walking dog	17	25	121	89	47	45	125	
Sitting on beach, picnic	68	136	70	14	6			
Sightseeing	86	58	14		3			
Sightseeing in car	102	4					107	
Kayaking	1	3	22	45	3			
Socialising	13	23	25				27	
Cycling	15	19	1	1			12	
Public toilets							33	
Boating	13	8	11	3		3		
Playing with dog		3	7	3	3	3	7	
Ferry	7	7	2	2	2	3	3	
Jet skiing	9	9	2	2				
Paddle boarding		7	7					
Playing with children		7	3					
Photos	6	3	4					
Net fishing		3						

Collecting driftwood		2	2					
Patrol – police, etc	2	1					3	
Quad bike			2	2	2			
Trawler	5							
Running		1	2	1	1		2	
Commercial boat				2		2		
Kayak fishing		3	3					
Snorkelling	3							
Metal detecting		1	1					
Work							1	
Totals	**1144**	**728**	**821**	**386**	**466**	**103**	**697**	**22**

Table 15 shows the mean period of participation in each main activity for each individual observed, where known and for those activities with more than 10 participants. Survey staff recorded the times a group or individual first entered and when they left the study area, but also noted if the participants were onsite before the surveyor arrived and if they remained after the surveyor had left at the end of their observation period. The latter – those whose total time on-site is unknown – were removed from this time calculation, meaning the estimates may be biased to shorter periods. For the purposes of this calculation, for example, a group of two people is treated as two individuals.

Table 15: Mean time on site by activity

Main activity	Mean time on site
Fishing	2 hr
Swimming	50 min
Walking	30 min
Sightseeing in car	13 min
Sightseeing	14 min
Walking dog	37 min
Kayaking	50 min
Toilet use in main carpark	7 min
Socialising	54 min
Sitting on beach, picnic	1 hr 20 min
Cycling	8 min

The survey staff were asked to record if the visitors they observed were potentially regulars at the beach area – if they had been seen previously within the study area. This query would clearly have some limitations for several reasons. Any regular visitor when first seen would be considered a new visitor by each surveyor, and four staff were used. It also relied on recalling distinguishing characteristics of a large number of visitors. However, it was known that there is a steady core of frequent local visitors from the intercept survey results. The results in Table 16 (for the main activities with more than 10 observations) show that a reasonable number were likely to be repeat visitors, considering that the method will inevitably under-represent these results.

Table 16: Regular visitors? Count by observation

	Never seen before	Seen once or twice before	Regular visitor	Unsure
Fishing	53	47	24	123
Swimming	59	18	10	34
Walking	51	18	7	37
Walking dog	18	15	16	39
Sightseeing in car	50	8	16	4
Sightseeing	30	6	3	13
Sitting on beach, picnic	20	7		10
Toilet use in main carpark	15	3	4	
Kayaking	4	1		12

6 Assessment of effects

This section identifies the likely adverse effects on recreation potentially caused by the proposal, and a review of proposed "mitigations" / management responses. This is based on:

- An identification of all potential adverse effects on recreation amenity,
- A review of the technical reports which assess those effects, and the identification of the scale and relevance of each effect,
- A summary of the effects which have the potential to change recreation amenity,
- A discussion of the scale of those effects and their potential for mitigation/management.

Effects on 'amenity' from a landscape perspective are assessed by Brown NZ Ltd. That report considers effects on landscape values, from, for example, the northern bays of Whangārei Harbour which includes the recreation settings of Urquharts Bay and Home Point (and others). This recreation assessment does not reconsider those assessments.

Effects on recreation values are assessed according to the matrix in Table 17. This considers the magnitude of the effect and the value of the setting for recreation.

Table 17: Scale of impact on recreation values considering magnitude of effect

		Recreation value			
		Very High	**High**	**Moderate**	**Low**
Magnitude of effect	**High or severe**	Significant	Significant	Moderate	Minor
	Moderate or medium	Significant	Moderate	Minor	Minor
	Low or minor	Moderate	Moderate	Minor	Minor
	Negligible	Negligible	Negligible	Negligible	Negligible

A 'significant' adverse effect is likely to displace[18] many or most users from a setting for prolonged periods, but not necessarily for all activities which occur there; although it is likely that amenity for all activities will be degraded. A 'moderate' adverse effect will periodically displace some activities and users, but amenity will not be degraded for all activities. A 'minor' adverse effect will displace a small number of users for short periods, but amenity will almost always be preserved for the majority of activities and users. The scale of effect may be reduced if the area affected is confined and there are ample suitable alternative opportunities for relevant activities.

6.1 Potential adverse effects

The following potential effects of the proposal are of interest to recreation. Effects are considered for: dredging and wharf construction ('construction'); and for the ongoing effects resulting from the modified marine and coastal setting ('operation') – for the proposed reclamation, and its cumulative effects in association with the consented Berth 4.

Construction

- Occupation of marine settings by dredges working or in transit and the creation of hazards for, especially, boaters.

[18] Force people to recreate in other settings, at different times, or not at all.

- Turbidity effects on recreation settings (particularly swimming and diving areas) at and near the Harbour entrance and the mobilisation of contaminants and potential effects on shellfish and other seafood, and for water-contact recreation.
- Effects on marine ecology and the quality, abundance and catchability of marine species, during the dredging period/s.
- Temporary closures during the construction period for safety and construction activities.

Operation

- Changes to currents and wave patterns resulting from altered bathymetry.
- Loss of a section of Marsden Bay Beach (approximately 420m with approximately 310m remaining between the eastern extent of the new reclamation and the Channel Infrastructure wharf). Replaced access to the beach and a replacement pontoon form part of the application.
- Effects on marine ecology – particularly fish and shellfish species taken recreationally – from occupation of the seabed by the reclamation and by discharge of stormwater from the operational wharf area.
- Changes to navigation patterns of recreational boats due to larger scale of the wharf structures.

Effects on 'amenity' from a landscape perspective are assessed by Brown NZ Ltd (*Northport Vision for Growth Assessment of Landscape, Natural Character & Amenity Effects*). That report considers effects on landscape values, from, for example, the northern bays of Whangārei Harbour which includes the recreation settings of Urquharts Bay and Home Point (and others). This recreation assessment does not reconsider those assessments.

6.2 Effects assessment

This section reviews each of the potential issues identified in section 6.1.

6.2.1 Construction

Occupation of marine settings by dredges

The dredge area is defined by the dotted line extending north from the wharf in Figure 2 on page 7. Dredge activity will occur for between 100 and 140 days adjacent to the existing Northport wharf within an area already subject to navigation restrictions, including when ships are fumigating, discharging or loading dangerous cargo or bunkering (refer to the Northland Regional Council Navigation Safety Bylaw 2017 (Schedule 2)). The area is also subject to existing maintenance dredging activities, and recreational boats should not be surprised by heavy ship activity near the Northport wharf. Effects of dredging activity on recreational boating will therefore be minor.

Turbidity and mobilisation of contaminants

Cussioli et al (2022) report on modelled dispersion of dredge sediment plumes for the three dredge options (trailing suction hopper dredger (TSHD), a cutter suction dredger (CSD) and a backhoe dredger (BHD)). For all three options, sediment plumes are confined to the tidal channel aligned with the dredged area and do not disperse to diving and swimming sites. The TSHD generates the largest sediment plume and the BHD the least. While all three dredge options are likely to have minimal effects on water clarity for contact recreation, the BHD will clearly have the least effect, and likely no effect.

Kelly & Sim-Smith (2022) report that water quality parameters, including sediment and metals such as lead, copper and zinc, are very good at the harbour entrance.

Effects on marine ecology

Kelly & Sim-Smith (2022) find that the scale, magnitude, and duration of effect of dredging on marine ecosystems will depend on the type of dredging, length of time taken, and interactions between dredge operations and plume generation, tides, and the vagaries of winds and waves; and find that effects are likely to be high at the outer harbour and entrance zones and Harbour scales if a TSHD is used; and moderate at those scales for CSD and BHD operations. However, ecological recovery is expected to occur over a period of five or more years.

Kelly & Sim-Smith (2022) report that while dredging will affect important habitat for fish (particularly juveniles), impacts on fish are expected to be lower and temporary, because, amongst other things, fish populations are unlikely to be limited by habitat or resource availability because fishing has reduced the populations of targeted species to well below historic levels.

Overall, the effect of disturbing or losing important fish habitat during construction is assessed as minor or less.

Access closures

It is expected that there will be periods – of at least six to 12 months – where access to Marsden Bay Beach is limited while the revetment is constructed and public facilities are built. Alternative access to the Beach will be available via Marsden Point Beach at Mair Road south of the Channel Infrastructure terminal – a distance of 2km. There are many alternative fishing and swimming sites in the Harbour and around the Harbour entrance area, including the local fishing platform on the western side of Northport, and effects from temporary closures at the regional level will be minor, but locals who regularly visit the beach are likely to be more inconvenienced. Effects will, however, be temporary. Alternative boat access to Marsden Cove will be available for the Te Araroa Trail ferry.

6.2.2 Operation

Changes to tides and currents

Berthot & Watson (2022) assess the effect of the proposal – both reclamation and dredging – on hydrodynamics near the harbour entrance. Existing peak current speeds of just over 1 m/s (approximately 2 knots) are indicated in the channel opposite the existing wharf. Berthot & Watson's assessment indicates the potential for minor changes in peak current speeds (up to 0.2 m/s or just under 0.4 knots) near the existing and proposed wharf structures (both increases and decreases), with a minor increase in current speed in Marsden Bay (peak incoming tide only at 0.1 m/s) and a minor decrease in current speed on the northern side of the harbour entrance opposite the wharf (up to 0.2 m/s on peak incoming tide also). Higher current speed changes are modelled for directly adjacent to the existing wharf, but no recreational craft would enter this zone. The residual water area within Marsden Bay Beach would experience reductions in peak currents of up to 0.5 m/s, which would be beneficial for a swimming setting.

The harbour entrance is a naturally high-current speed setting, with depth changes and coastal rocks directing flows and creating natural variations in flow speed and direction. The modelled speed changes in current are unlikely to be recognised by recreational boaters in such a dynamic setting, and where a reasonable level of competence is expected of skippers.

Loss of beach and pontoon

The proposed reclamation will remove slightly more than half of the Marsden Bay Beach, and there is no potential to fully mitigate the loss of recreation amenity provided by the existing scale of the setting. This includes the ability of beach users to disperse themselves along the beach

and to reduce the potential for conflict between users (such as between swimmers and fishers), and a reduced sense of scale.

However, the development proposal will sustain many of the key elements of the existing recreation opportunities at Marsden Bay Beach. Figure 33 shows the key elements of proposed public facilities on the eastern face of the proposed reclamation. More details are provided in the *Northport Eastern Reclamation Pocket Park Concept Plan* (Boffa Miskell 2022). This includes:

- A relocated carpark and toilets to allow easy access to the beach,
- A new pontoon for fishing, swimming and socialising, and to operate as a terminal for the Te Araroa Trail ferry,
- Beach and water access points suited to socialising and swimming, developed to attract such users to the western end of the beach away from one of the preferred fishing areas near the Channel Infrastructure wharf, and to reduce disturbance of roosting birds along the beach.

It is proposed that the concept plan is finalised via consultation with local hapū and other residents.

Even so, acknowledging the retention of access and those new facilities, adverse recreation effects on Marsden Bay Beach will remain due to the loss of beach area and diminution of the scale of the setting. Those effects are likely to be significant for recreational beach users and more than minor at the regional level.

Figure 33: Proposed basic components of public access facilities at the eastern side of the reclamation

Marine ecology

Kelly & Sim-Smith (2022) report on the effects of the reclamation and dredging footprints on marine species (including fish and shellfish), as well as the effects of stormwater discharge from operation of the new reclamation area. The latter is projected to have 'less than minor' effects considering the water quality and scale of effect of existing discharges.

At the harbour-wide and harbour entrance area scales, the reclamation and dredge footprint are projected to have effects generally of a minor scale, but temporary and more than minor scale effects for the loss of existing artificial reef habitat on wharf structures. That effect would endure for five to ten years as new habitat develops on new wharf structures. More than minor but temporary effects are identified for all reclamation and dredging activities. Within the reclamation footprint, adverse effects are identified where habitat for shellfish, seagrass and subtidal benthic macrofauna are lost.

Kelly & Sim-Smith (2022) noted a 'very high' number of cockles within the proposed reclamation footprint, albeit mostly below harvestable size. No pipi of harvestable size were located in the reclamation footprint. Little shell-fishing was observed as a recreational activity on Marsden Bay Beach during the two user surveys (one person looking for pipi – see section 5). At the regional level, effects on recreational shell fishing are likely to be minor considering the scale of alternatives and low level of activity at Marsden Bay Beach.

Fishing was the dominant activity recorded at Marsden Bay Beach. Kelly & Sim-Smith (2022) note that effects on fish are likely to be negligible because of their mobility, the relatively small scale of habitat permanently lost, and likely recovery of habitats of importance to fish in existing wharf areas. Overall, the effect of losing fish habitat within the proposed reclamation footprint is expected by Kelly & Sim-Smith to be low at both local and harbour-wide scales. They note that existing rock revetment at the wharf (a length of 155m) which provides marine reef habitat will be smothered and replaced with 483m of revetment, which, once recolonised, presents a net benefit to local reef habitat.

Changes to navigability

The proposed reclamation will occupy an area between two existing wharf structures where boat traffic is naturally limited. Commercial and small recreational craft (such as kayaks, trawlers and a Te Araroa Trail ferry) were the only vessels recorded in the affected marine area during the two surveys (see section 5). Existing recreational users of the harbour entrance are accustomed to avoiding the Channel Infrastructure and Northport facilities, and the additional reclamation will pose no additional burden.

6.3 Cumulative effects

The already-consented Berth 4 proposal has minimal cumulative effects on recreation due to its separation from on-shore recreation settings and, as reported by Kelly & Sim-Smith (2022), the minor or more than minor but temporary cumulative adverse effects on aspects of marine ecology considering Berth 4, the proposed reclamation and Channel Infrastructure's consented but not actioned dredging consents.

However, collectively, the proposal and the consented Berth 4 development would diminish recreation value at Marsden Bay Beach, as discussed in section 0. This would be a significant adverse effect on recreation at the local level and more than minor at the regional level. The loss of access to Marsden Bay Beach is the primary cause of adverse effects due to the range of beach activities currently possible there. The loss of beach scale at Marsden Bay Beach would remain a significant adverse effect at the local level, despite the developments for recreation proposed.

Navigation by recreation craft around the new port facilities is likely to continue as it does now, but with more caution required by skippers as they navigate a busier port setting. Considering the continued large-scale recreational boating in areas such as Auckland and Tauranga Harbours, with their substantial port services and large recreational fleets, there is no indication that recreation navigation will be disrupted.

7 Conclusion

This report has been prepared to assist in recreation planning for the proposed reclamation at Northport and to inform the AEE.

The intercept and observation surveys indicate a diversity of recreational activities occurring at all locations on Marsden Bay Beach, with a focus on fishing at the pontoon and western end, and swimming at the pontoon and along the beach. Socialising, sightseeing, dog walking and picnicking were commonly observed. Users included a significant proportion from beyond Whangarei. With the exception of the Marsden Point to One Tree Point area, the southern Whangārei Harbour shores contain large areas of tidal flats and mangroves that are generally unsuited to swimming. The study area is likely to be of regional significance for recreation.

The proposed reclamation will have adverse effects on Marsden Bay Beach as a recreation destination, but proposed developments for recreation will retain many elements of existing amenity. However, residual adverse effects on recreation, particularly the reduced sense of scale, are likely to be significant for recreational users of the beach and more than minor at the regional level.

8 References

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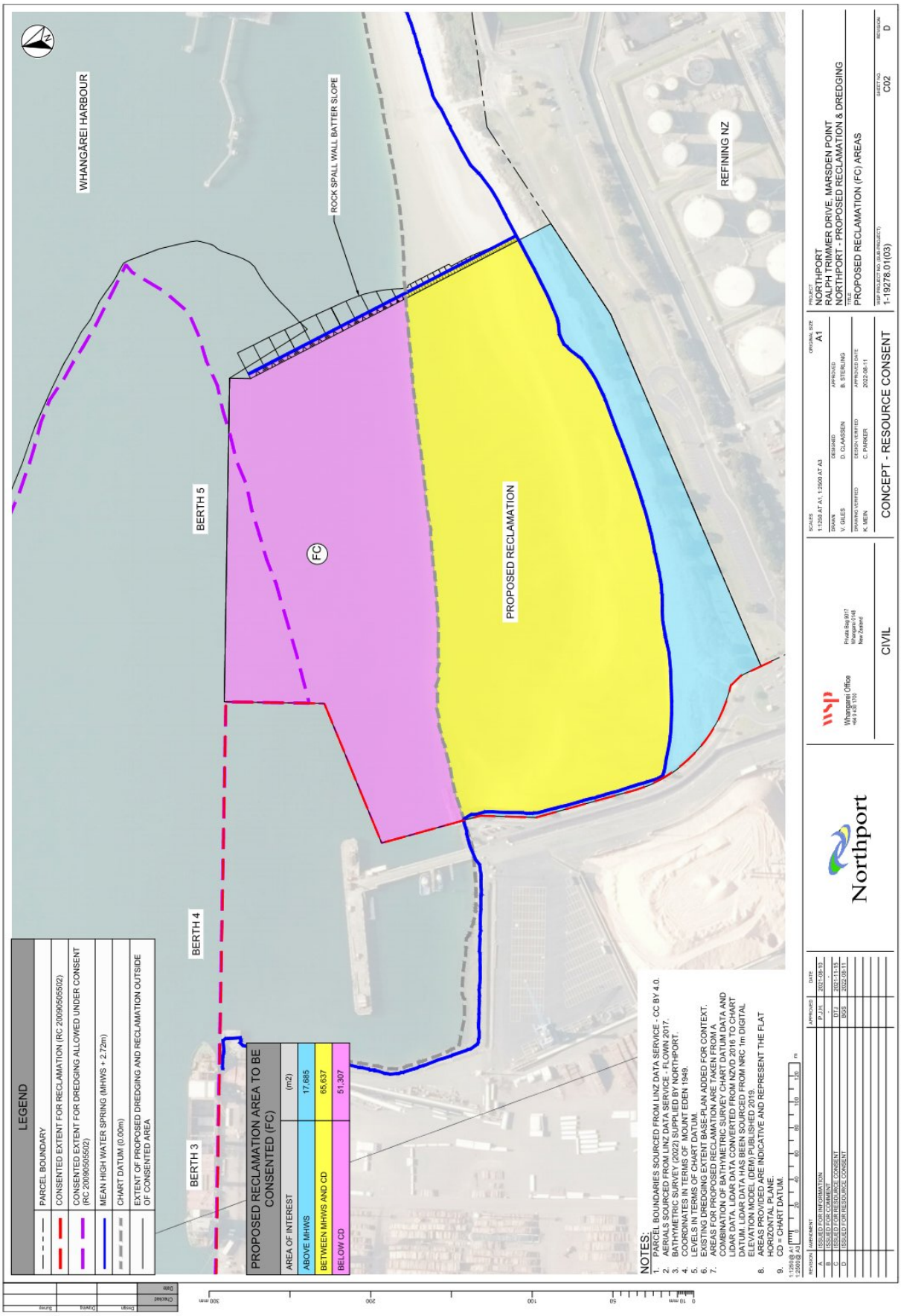
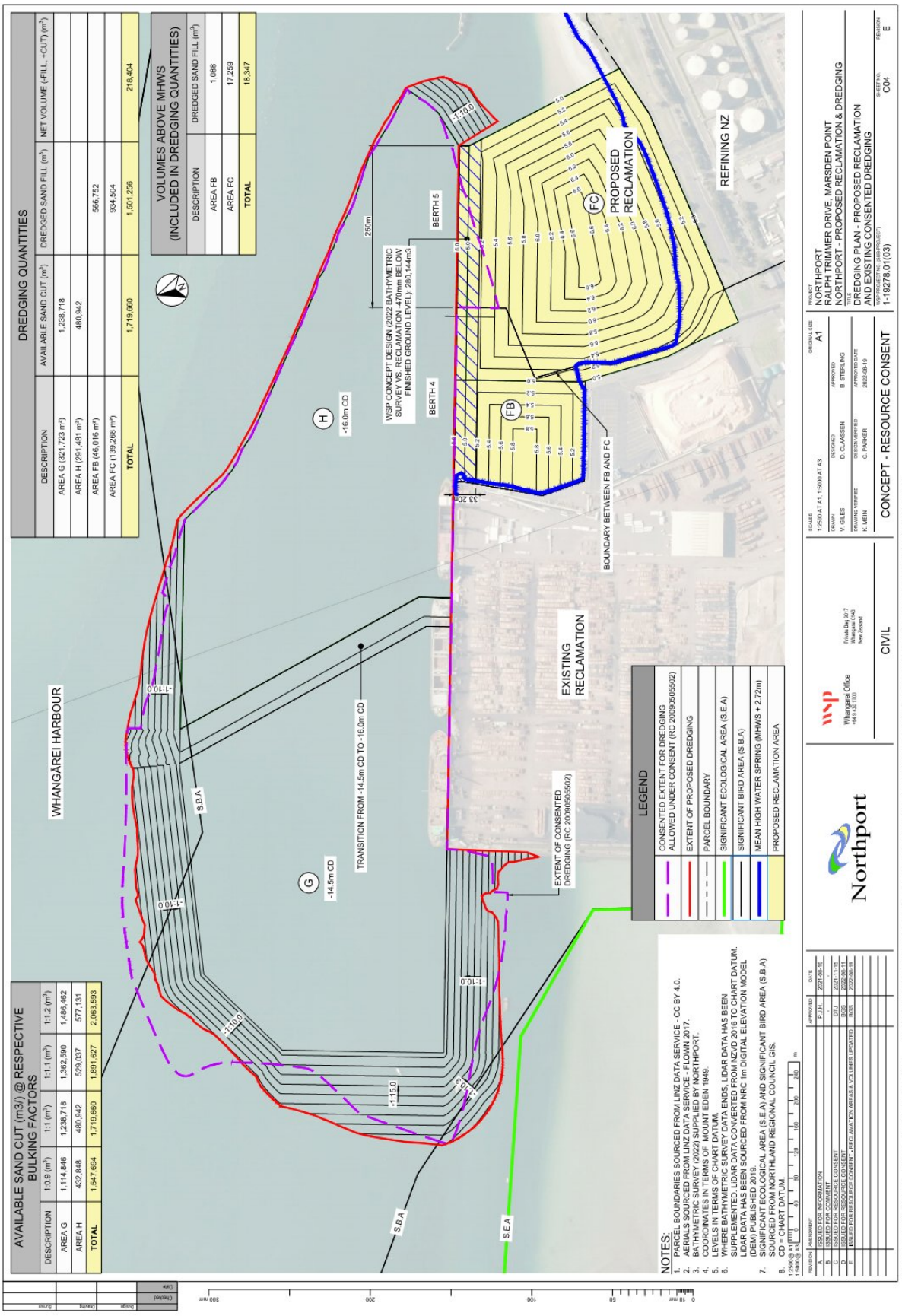
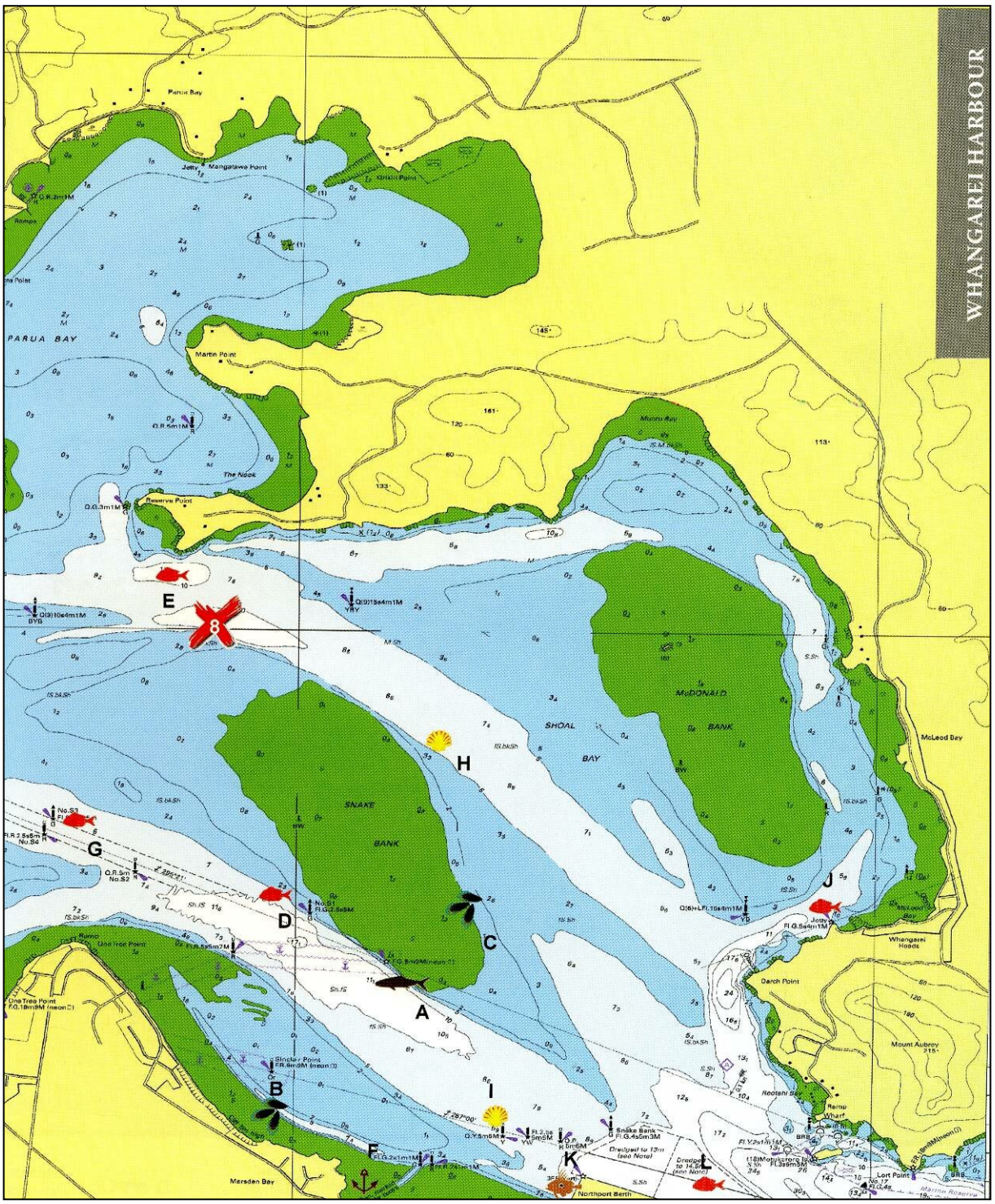
Appendix 1: Reclamation and dredge proposal

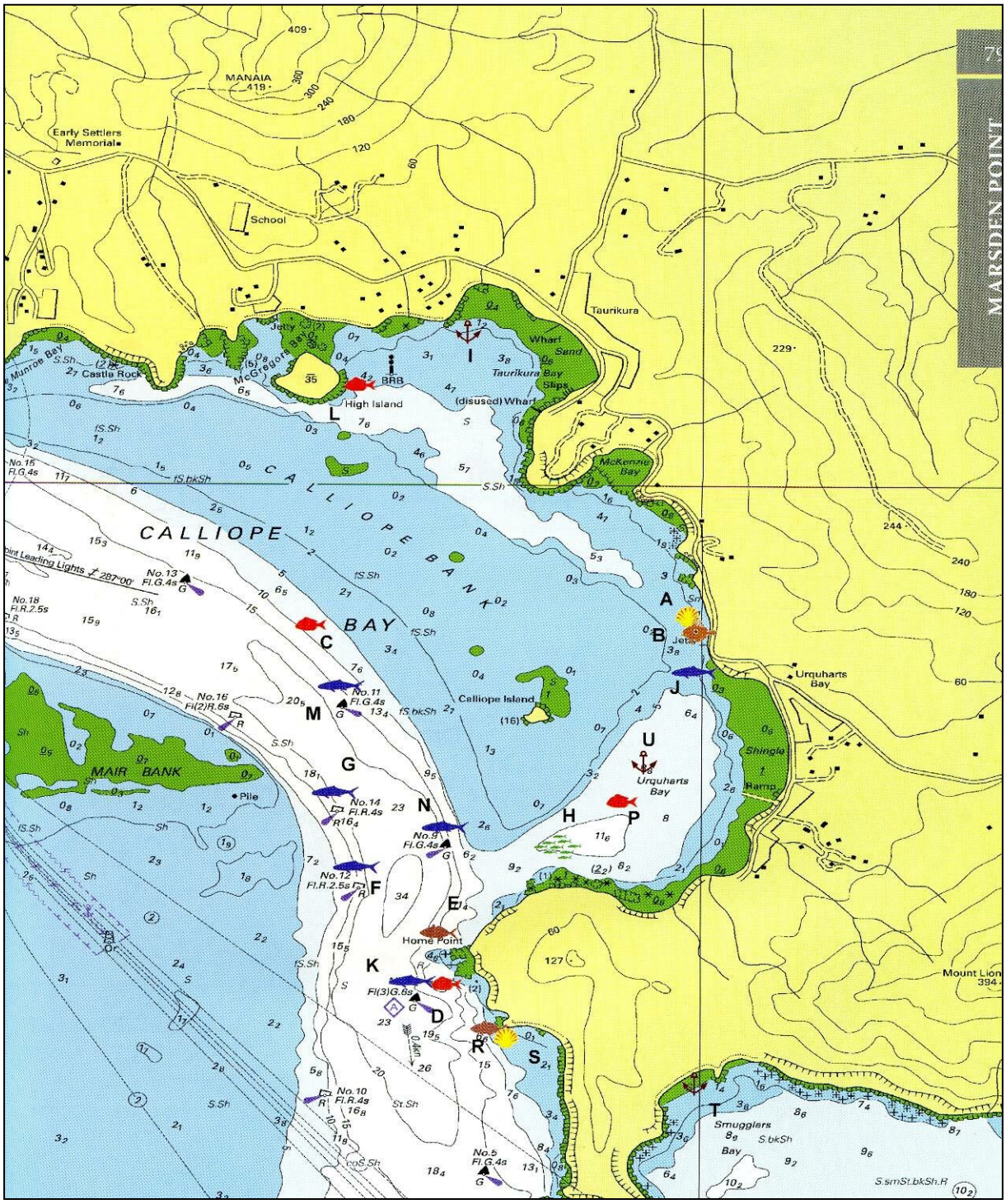


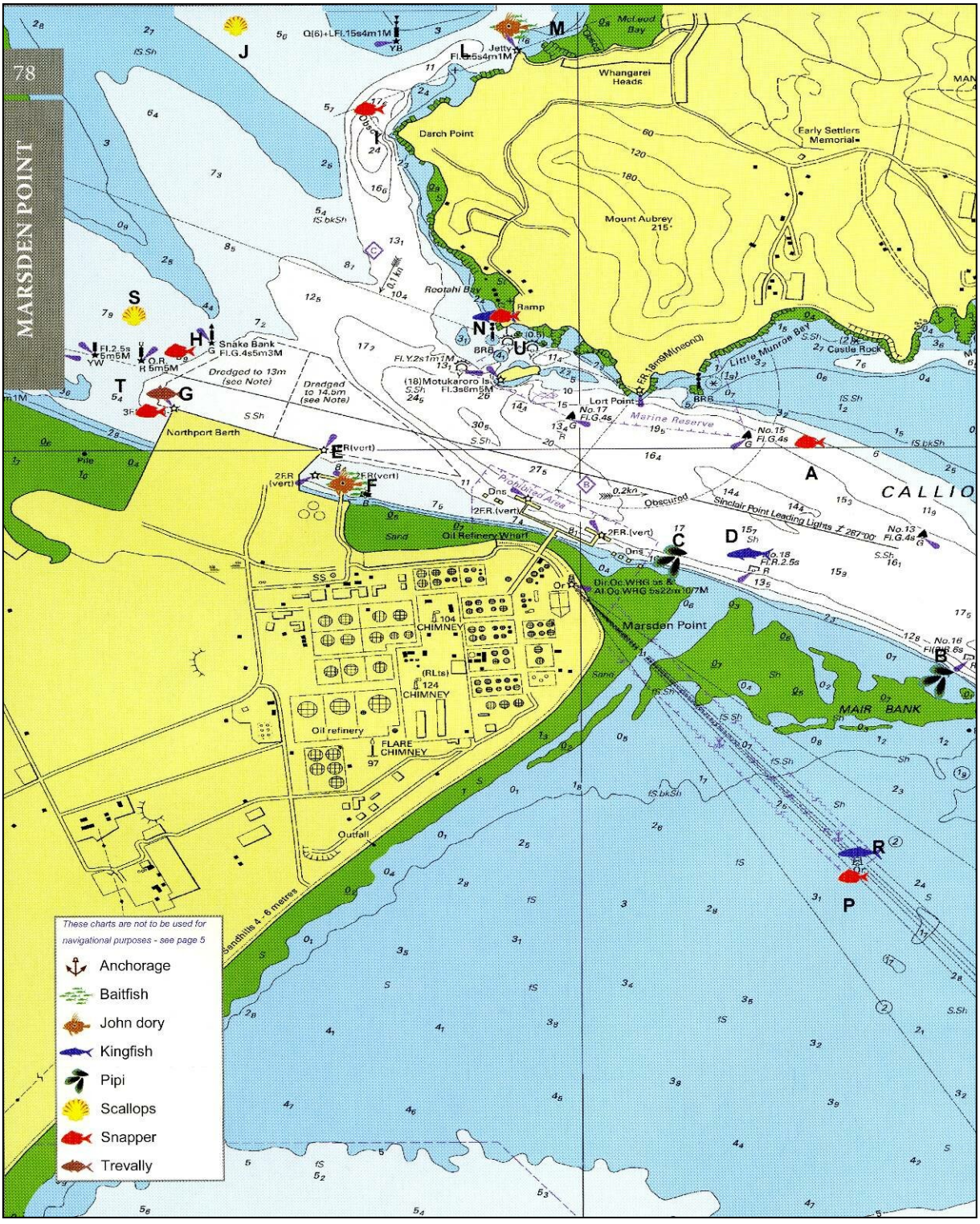

DREDGING QUANTITIES
DESCRIPTION | AVAILABLE SAND CUT (m³) | DREDGED SAND FILL (m³) | NET VOLUME (-FILL, +CUT) (m³)
AREA G (321,723 m²) | 1,238,718 | |
AREA H (291,481 m²) | 480,942 | |
AREA FB (46,016 m²) | | 566,752 |
AREA FC (139,268 m²) | | 934,504 |
TOTAL | 1,719,660 | 1,501,256 | 218,404
VOLUMES ABOVE MHWS (INCLUDED IN DREDGING QUANTITIES)
DESCRIPTION | DREDGED SAND FILL (m³)
AREA FB | 1,088
AREA FC | 17,259
TOTAL | 18,347
AVAILABLE SAND CUT (m3/) @ RESPECTIVE BULKING FACTORS
DESCRIPTION | 1:0.9 (m³) | 1:1 (m³) | 1:1.1 (m³) | 1:1.2 (m³)
AREA G | 1,114,846 | 1,238,718 | 1,362,590 | 1,486,462
AREA H | 432,848 | 480,942 | 529,037 | 577,131
TOTAL | 1,547,694 | 1,719,660 | 1,891,627 | 2,063,593
WHANGĀREI HARBOUR
WSP CONCEPT DESIGN (2022 BATHYMETRIC SURVEY VS. RECLAMATION -470mm BELOW FINISHED GROUND LEVEL): 280,144m3
250m
BERTH 4
BERTH 5
-16.0m CD
-14.5m CD
TRANSITION FROM -14.5m CD TO -16.0m CD
EXISTING RECLAMATION
PROPOSED RECLAMATION
REFINING NZ
BOUNDARY BETWEEN FB AND FC
EXTENT OF CONSENTED DREDGING (RC 2009050502)
33.20
S.B.A
S.E.A
LEGEND
CONSENTED EXTENT FOR DREDGING ALLOWED UNDER CONSENT (RC 2009050502)
EXTENT OF PROPOSED DREDGING
PARCEL BOUNDARY
SIGNIFICANT ECOLOGICAL AREA (S.E.A)
SIGNIFICANT BIRD AREA (S.B.A)
MEAN HIGH WATER SPRING (MHWS + 2.72m)
PROPOSED RECLAMATION AREA
NOTES:
1. PARCEL BOUNDARIES SOURCED FROM LINZ DATA SERVICE - CC BY 4.0.
2. AERIALS SOURCED FROM LINZ DATA SERVICE - FLOWN 2017.
3. BATHYMETRIC SURVEY (2022) SUPPLIED BY NORTHPORT.
4. COORDINATES IN TERMS OF MOUNT EDEN 1949.
5. LEVELS IN TERMS OF CHART DATUM.
6. WHERE BATHYMETRIC SURVEY DATA ENDS, LIDAR DATA HAS BEEN SUPPLEMENTED. LIDAR DATA CONVERTED FROM NZVD 2016 TO CHART DATUM. LIDAR DATA HAS BEEN SOURCED FROM NRC 1m DIGITAL ELEVATION MODEL (DEM) PUBLISHED 2019.
7. SIGNIFICANT ECOLOGICAL AREA (S.E.A) AND SIGNIFICANT BIRD AREA (S.B.A) SOURCED FROM NORTHLAND REGIONAL COUNCIL GIS.
8. CD = CHART DATUM.
Northport
wsp
Whangarei Office
+64 9 438 7130
Private Bag 9017
Whangarei 0148
New Zealand
CIVIL
SCALES
1:2500 AT A1, 1:5000 AT A3
ORIGINAL SIZE
A1
DRAWN
V. GILES
DESIGNED
D. CLAASSEN
APPROVED
B. STERLING
DRAWING VERIFIED
K. MEIN
DESIGN VERIFIED
C. PARKER
APPROVED DATE
2022-08-19
PROJECT
NORTHPORT
RALPH TRIMMER DRIVE, MARSDEN POINT
NORTHPORT - PROPOSED RECLAMATION & DREDGING
TITLE
DREDGING PLAN - PROPOSED RECLAMATION AND EXISTING CONSENTED DREDGING
WSP PROJECT NO. (0108 PROJECT)
1-19278.01(03)
SHEET NO.
C04
REVISION
E
CONCEPT - RESOURCE CONSENT
REVISION | AMENDMENT | APPROVED | DATE
A | ISSUED FOR INFORMATION | P JH | 2021-08-10
B | ISSUED FOR RESOURCE CONSENT | DT J | 2021-11-15
C | ISSUED FOR RESOURCE CONSENT | BGS | 2022-08-11
D | ISSUED FOR RESOURCE CONSENT - REG.MATRIX AREAS & VOLUMES UPDATED | BGS | 2022-08-19
E
Original sheet size A1 (841x594) Plot Date 2022-08-19 at 8:20:02 am
U:\Projects\NZ\1111-19278.00 Northport Ship Maintenance Facility\Home\200 Technical\210 Drawings\ICI\Civil+Auto\CAD\1-19278.01(03) Proposed Reclamation & Dredging-C04.dwg C04

Appendix 2: Spot X fishing guide recommendations

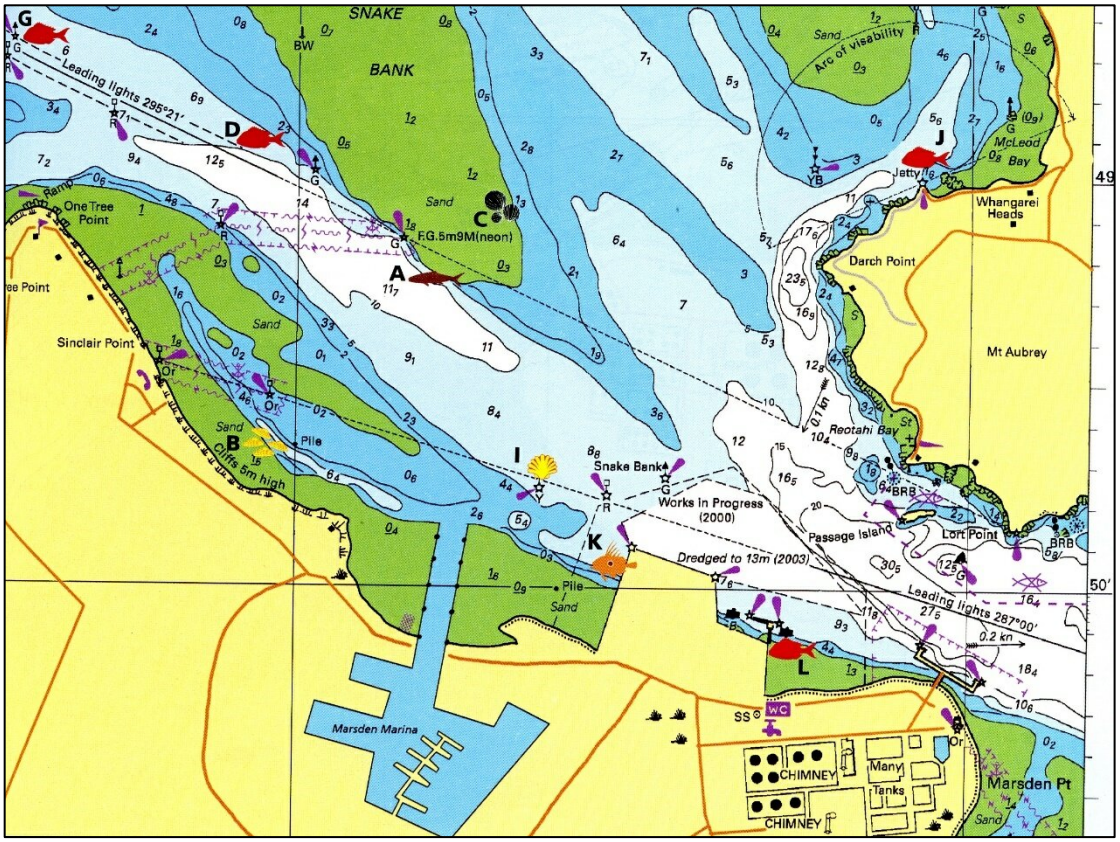
Source (three images): Allen *et al* (2009)

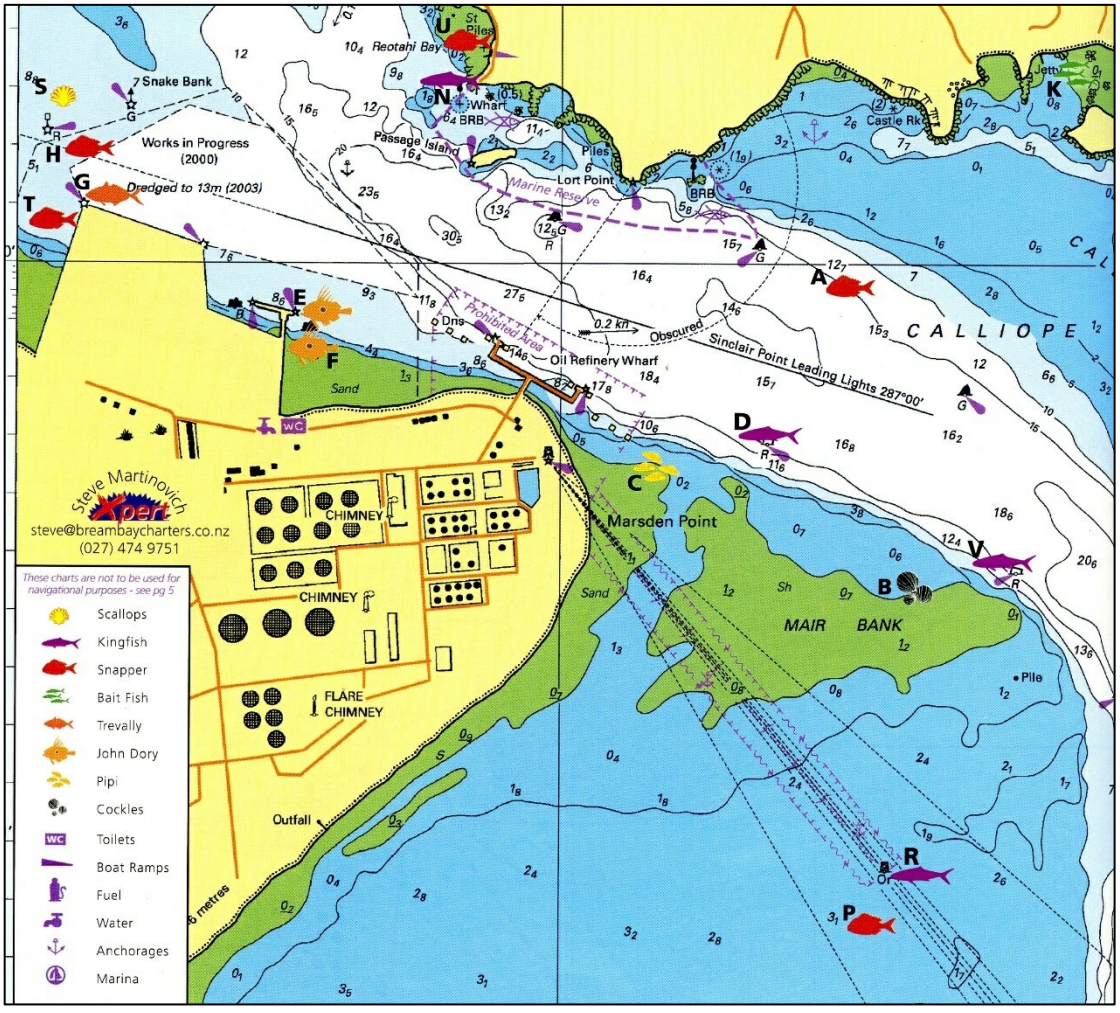



MARSDEN POINT
MANAIA
Early Settlers Memorial
School
Taurikura
Jetty
Wharf
Sand
Taurikura Bay Slips
(disused) Wharf
McGregors Bay
Munroe Bay
Castle Rock
High Island
BRB
McKennie Bay
CALLIOPE
CALLIOPE BANK
BAY
Leading Lights 287°00'
No.13 Fl.G.4s
No.18 Fl.R.2.5s
No.15 Fl.G.4s
No.16 Fl(2)R.6s
No.11 Fl.G.4s
Calliope Island
MAIR BANK
Pile
No.14 Fl.R.4s
No.9 Fl.G.4s
No.12 Fl.R.2.5s
Home Point
Fl(3)G.6s
No.10 Fl.R.4s
No.5 Fl.G.4s
Urquharts Bay
Jetty
Shingle
Ramp
Mount Lion
394
Smugglers Bay
A
B
C
D
E
F
G
H
I
J
K
L
M
N
P
R
S
T
U

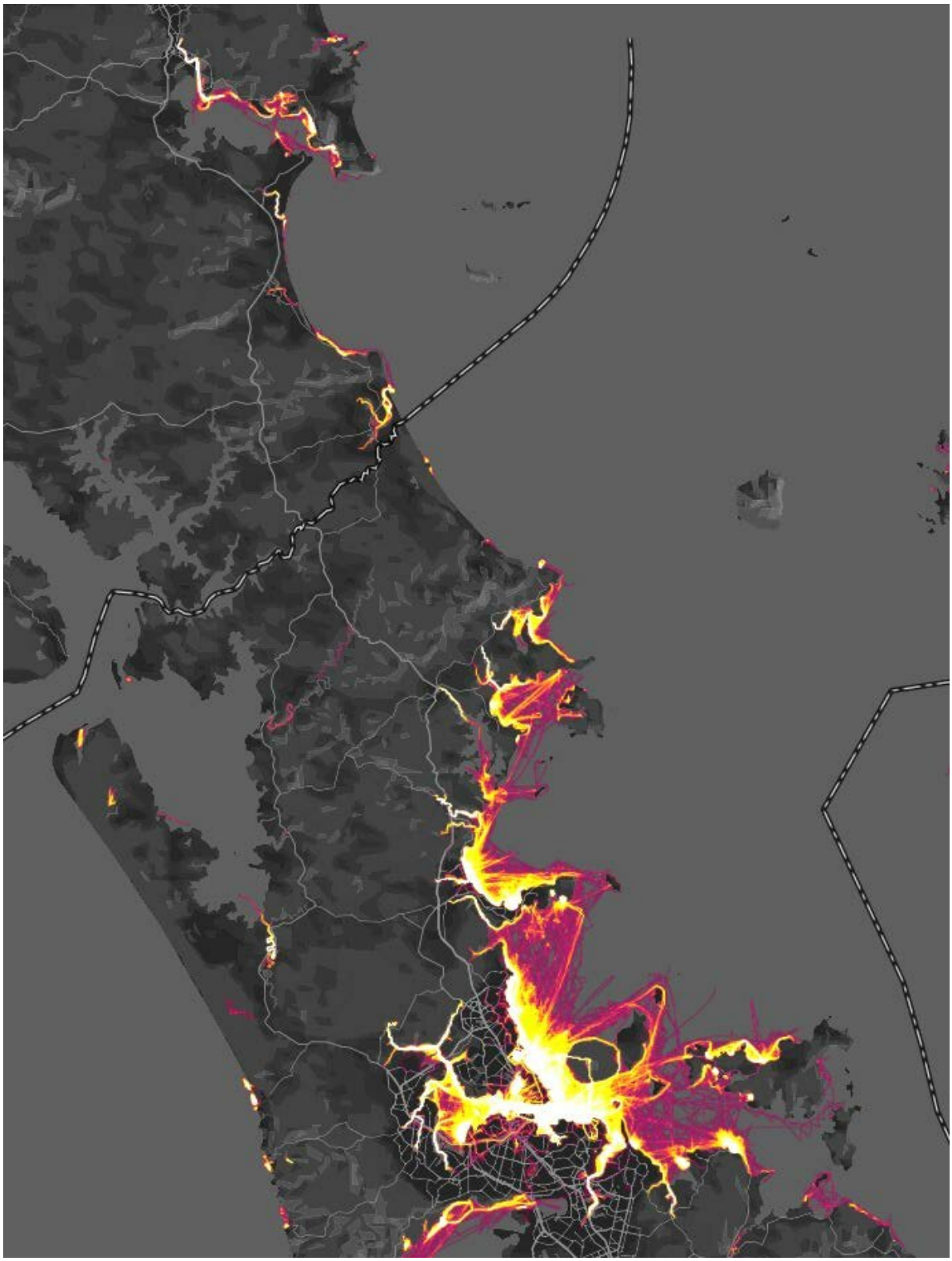

78
MARSDEN POINT
Whangarei Heads
Darch Point
Early Settlers Memorial
Mount Aubrey 215'
Rootohi Bay
Ramp
Snake Bank
Dredged to 13m (see Note)
Dredged to 14.5m (see Note)
Northport Berth
Lort Point
Marine Reserve
Little Munroe Bay
Castle Rock
Prohibited Area
Sinclair Point Leading Lights
Oil Refinery Wharf
Marsden Point
CHIMNEY
Oil refinery
FLARE CHIMNEY
Outfall
MAIR BANK
CALLIO
Sandhills 4 - 6 metres
These charts are not to be used for navigational purposes - see page 5
Anchorage
Baitfish
John dory
Kingfish
Pipi
Scallops
Snapper
Trevally

Source (two images): Duncan (2005)





Appendix 3: Strava watersports data for Whangārei to Auckland



Appendix 4: Questionnaire and observation forms

Beach/pontoon user survey

Site: Beach ☐ Pontoon ☐	Interviewer	Date	Time	
Notes:				

Hello, I am doing a survey for Northport about the use and values of the beach area and pontoon near the port. Do you have a couple of minutes to answer some simple questions?

Q1. Have you been surveyed about your use of this site in the past month?

[1] ☐ No (CONTINUE) [2] ☐ Yes ..... ➔

THANKS FOR THAT BUT WE WON'T BOTHER YOU AGAIN

Q2. What age group are you in? **(INSTRUCTION: show categories)**

[1] ☐ Under 15 (CLOSE WITH THANKS)..... ➔

[2] ☐ 15-24

[3] ☐ 25-49

[4] ☐ 50-64

[5] ☐ 65 years and over

THANKS FOR THAT BUT WE'RE JUST TALKING TO PEOPLE WHO ARE 15 YEARS OR OLDER TODAY

Q3. Are you visiting today alone or as part of a group?

[1] ☐ Alone (go to Q5) [2] ☐ Group: **how many in your group (including you)?**:.....

Q4. What sort of group are you mostly in?

[1] ☐ With whanau or family

[2] ☐ With friends who live locally

[3] ☐ Escorting visitors from outside the region

[4] ☐ School group

[5] ☐ Other:.....

Q5a. Where do you normally live? (**RECORD LOCAL SUBURB, SETTLEMENT, NZ CITY, OR COUNTRY IF INTERNATIONAL)**

Q5b: <u>IF NOT LIVING IN THE WHANGAREI DISTRICT</u>

Are you staying in the Whangarei District in a holiday home that you or your family own?

[1] ☐ Yes (Go to Q5c) [2] ☐ No (Go to Q6a)

Q5c. Where is that holiday home? (**RECORD LOCAL SUBURB OR SETTLEMENT)**

Q6a. What activities have you used the beach / pontoon for, today and in the past? **(PROMPT FOR ALL ACTIVITIES – NOT JUST TODAY'S)**

Q6b. What is your main activity here today? **(TICK ONE ACTIVITY)**

Q7. For how many years have you been visiting this area?_____ [1]☐ First time **(GO TO Q9)**

Q8. How often do you visit this area during the summer and also during the rest of the year? For summer we mean from around Labour Weekend until the end of March. **(SHOW LIST ON CARD)**

Q8a. During the summer? (1 Nov – 31 March) (tick one box)

[1]☐ Every day or nearly every day
[2]☐ Once a week on average
[3]☐ 1-2 times a month
[4]☐ Once every few months
[5]☐ Once a year
[6]☐ Hardly ever – today is unusual

Q8b. During the rest of the year? (tick one box)

[1]☐ Every day or nearly every day
[2]☐ Once a week on average
[3]☐ 1-2 times a month
[4]☐ Once every few months
[5]☐ Once a year
[6]☐ Hardly ever
[7]☐ Never

Q9. Can you describe the **BEST ASPECTS** of the **beach / wharf** and **WHY** you think that?

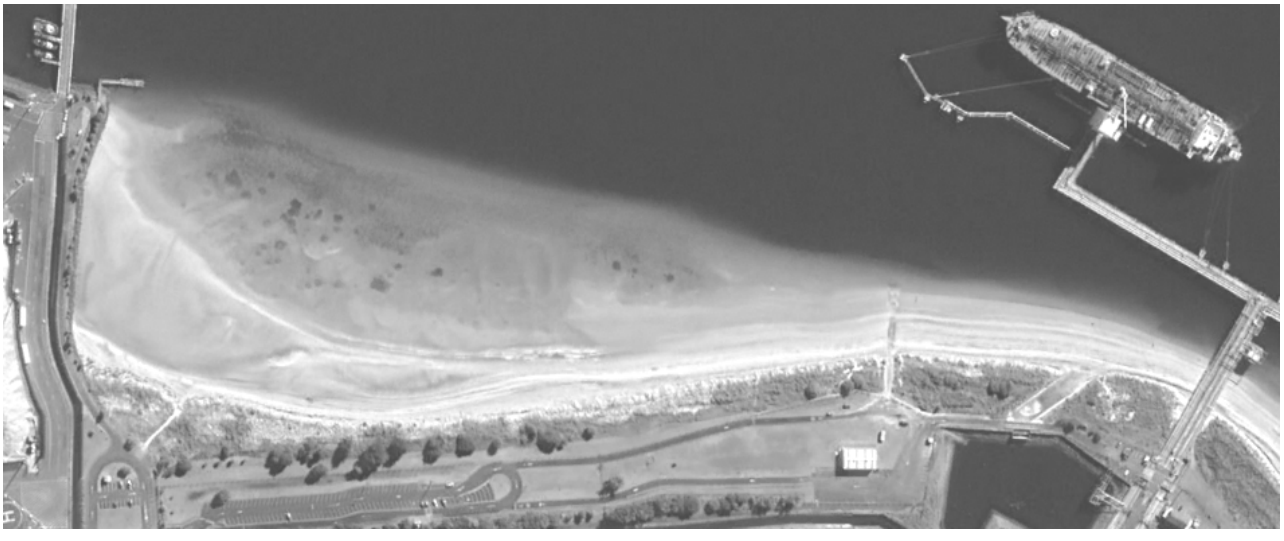
Best aspects	Reasons

Q10. Can you describe the **WORST ASPECTS** of the **beach / wharf** and **WHY** you think that?

Worst aspects	Reasons

Q11. Have you any other comments to make about the beach or pontoon?

Q12. (RECORD GENDER) [1]☐ Male [2]☐ Female **LOCATE OBSERVED ACTIVITY SITE HERE:**



Beach/pontoon observation record

Name	Date		
Notes:			

1 Distinguishing feature (colour of jacket etc):_____

2 Time of first sighting (24hr):_____

3 First sighting: [1]☐ On their arrival [2]☐ Not sure when they arrived

4 Group size:_____

5 Activities – tick main apparent one:

6 Note if a regular visitor:

[1]☐ Never seen before
[2]☐ Have seen once or twice before
[3]☐ Regular visitor
[4]☐ Unsure

7 Time of last sighting (24hr):_____

8 Last sighting: [1]☐ On their departure [2]☐ On my departure

9 LOCATE OBSERVED ACTIVITY: Indicate if possible, entry point, activity area and departure.