

THREE WATERS

AUCKLAND
AS A MARITIME
CITY

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FOREWORD



The Committee for Auckland focuses on programmes and projects that will have the greatest transformational effect on making Auckland a dynamic and fulfilling place to live, work and play.

We embarked on producing this report on Auckland's "three waters" – the Waitemata Harbour/Hauraki Gulf, the Manukau and Kaipara Harbours – because between now and 2030, Auckland is going to experience transformation change. Our population is forecast to grow by 33%, reaching two million people. Yet most of our planning currently concerns the land, not water.

Auckland's most prized assets are its three harbours. They are central to our identity. For many, Auckland remains the "City of Sails". A large number of us go sailing or fishing on the weekend, and participate in the Auckland Anniversary Day regatta. Yet, to a large extent, we take our harbours for granted.

As our population grows, it is all the more critical to ensure a healthy balance between the recreational and economic uses of our harbours and the environmental impacts of these activities.

We recognise that waterfront land is at a premium for residential and commercial development; that increased aquaculture development will limit harbour space for recreational users; that snapper stocks fluctuate for recreational anglers from year to year; that water quality issues at many of our beaches impact on swimming and other recreational pursuits; that run-off from dairy farms around the region may be a problem; that the Ports of Auckland land might be offering a sub-par investment for Aucklanders when compared against alternative uses.

There are many opportunities, issues and trade-offs. We need a clear plan, and decisive leadership from the Auckland Council and central Government on how these tensions are managed. The Committee for Auckland's intention with this paper is to acknowledge these competing interests, and to bring together some of the information available to inform a constructive debate about how we might plan, develop and manage our three waters in the future.

WHO ARE WE?

We are strongly recommending that the Auckland Council, central government agencies, and other key stakeholders develop one Marine Spatial Plan as a companion piece to the Auckland Plan. Auckland's three waters are fundamental to supporting the vision of Auckland as the ***world's most liveable city***.

The Committee acknowledges there is a process underway to develop a Hauraki Gulf Marine Spatial Plan. With the projected population increases contemplated in the Auckland Plan, the Committee considers the Terms of Reference for this current process includes all three harbours within a single integrated Marine Spatial Plan.

Unless tensions and trade-offs are well managed across all three harbours there could be significant negative impacts on Auckland's harbours.

In preparing this report we've been surprised by the paucity of available information on some aspects of our harbour usage – particularly the Manukau Harbour. A comprehensive spatial planning process will help to correct this failing.

We have looked at some existing and possible future uses to identify some of the issues and implications of these uses.

The Committee has worked hard over the last 12 month period to assemble information that may be of value to an integrated Marine Spatial Plan. We look forward to contributing to a constructive debate and a more coherent approach to supporting economic, environmental, cultural and social outcomes for Auckland's harbours as key assets for our thriving, growing, international city.

Heather Shotter
Executive Director, Committee for Auckland

The Committee for Auckland is a not-for-profit organisation with a vision to make Auckland one of the world's great places in which to live, work and play. We are an independent, evidence-based thought leadership organisation promoting innovative approaches to a range of complex issues.

We are committed to both short and longer term projects that seek to promote positive social, economic, environmental and cultural outcomes for Auckland and provide our members with opportunities to make a positive contribution to the wider Auckland and New Zealand community.

We seek to provide connections and nurture partnerships between business, government and non-government organisations, and community groups to promote cross-sector engagement around crucial issues impacting our region.

Our strength is built not by the advocacy of an individual member or particular point of view but by the collective support of our members to advance Auckland as a dynamic and exciting place to work, live and play.

PURPOSE – WHY HAVE WE COMMISSIONED THIS REPORT?

Since its inception in 2004, the Committee for Auckland has presented key issues affecting the development of a successful and thriving international city. Much of our work over recent times has focussed on the need to streamline Auckland's governance structure to optimise the region's development.

With the unitary structure now established, the Auckland Plan and other important plans adopted, the scene is set to ensure the city benefits from clarity and consistency of planned activity and the realisation of Auckland's vision.

In addition, as Treaty of Waitangi settlements near completion the nature of Iwi's association with the city and harbours is becoming clearer lending more certainty for planning purposes.

In our 2011 submission to Auckland Council responding to Auckland Unleashed – a draft Auckland Plan document – our members had recommended that "Auckland's regulators need to prioritise coordination of activity around the harbours. The harbours encapsulate Auckland's distinctiveness and are critical elements of the city's economy, culture, identity, recreation, and passenger and freight transport networks".

We expect that Three Waters: Auckland as a Maritime City provides the first step in encouraging the Auckland Council and central Government to coordinate planned activities for Auckland's major assets across our three harbours.

The report offers a glimpse of some opportunities, issues and potential trade-offs for the three harbours, and some critical recommendations to support coherent management of these. The non-exhaustive list of opportunities and issues is far from comprehensive. Although plans are afoot for a Marine Spatial Plan for the Hauraki Gulf, we believe a Marine Spatial Plan across all three harbours is needed to capture crucial information and set future priorities that will be consistent and aligned to meet agreed objectives.

We believe coordinated planning and management of our three harbours is needed to create a city for the future worthy of the next generation of Aucklanders and New Zealanders.

STRUCTURE OF THIS DOCUMENT

PART ONE: **LIVE:**

examines the opportunities and issues around living on Auckland's harbours, highlights the trade-offs inherent in decision making to resolve those issues and makes recommendations around governance, access to the water, environmental issues and education.

PART TWO: **WORK:**

looks at defining the opportunities for growing the Auckland economy and improving business and employment outcomes. The Committee believes greater and clearer marine planning is needed if Auckland is to move forward as New Zealand's only significant globally connected city.

PART THREE: **PLAY:**

addresses the recreational opportunities we enjoy on Auckland's three harbours and the necessity for incorporating Aucklanders' birthright of free and easy access to the waters when planning for future development.

PART FOUR: **THE RECOMMENDATIONS**

offers three key recommendations to assist in creating a prosperous future for the harbours, Auckland, its businesses and citizens.



DESCRIPTION OF THE HARBOURS

WAITEMATA

The sea approach to Auckland down the Rangitoto Channel culminates in a starboard turn into ~180 km² of the Waitemata Harbour. The Waitemata Harbour forms the north and east coasts of the Auckland isthmus. It is well sheltered from ocean storms by the outer islands in the Hauraki Gulf.

There are several explanations for the name. Wai te Mataa refers to obsidian rock (a natural volcanic glass) of considerable importance to early Maori who used it for weapons and implements. Another suggestion is that the name is derived from Te Wai-o-te-mate (the waters of death) because of the many struggles for control of the isthmus.

The Waitemata Harbour has a wide range of available habitats including muddy tidal arms, intertidal sandflats and beaches, deep channels, sandstone and basalt reefs.

These habitats support a diverse array of invertebrates but, as can be expected, here in the heavily urbanised Waitemata, they are both less abundant and smaller in size than in less urban-impacted areas of Auckland's marine environment. This diversity of invertebrates is supplemented by large numbers of invasive species which have become established in the harbour due to its proximity to a port and the associated movement of overseas shipping carrying new species on hulls or in ballast water.

The range of fish species is not as great as in more exposed coastal areas. However, the harbour remains an important recreational fishing area and has a number of habitats that could be significant as fish nurseries. Several sites within the Waitemata Harbour also provide vital habitat for coastal bird species.

HAURAKI GULF

The Hauraki Gulf (area ~4,000 km²) lies between the eastern side of north Auckland and the western sides of the Coromandel Peninsula and Great Barrier Island.

To the west of the gulf a string of islands guard the mouth of the Waitemata Harbour: Ponui Island, Waiheke Island, Tiritiri Matangi and Rangitoto Island, which is connected to Motutapu Island by a causeway. The islands are separated from the mainland by the Tamaki Strait and Rangitoto Channel. Other islands in the gulf include Browns Island (Motukorea), Motuihe Island, Pakihi Island, Pakatoa Island, Rakino Island and Rotoroa Island in the inner gulf; Tarahiki Island just east of Waiheke; Motukawao Islands and Whanganui Island in the lee of the Coromandel Peninsula; and Little Barrier and Channel Island in the outer gulf. At the southern end of the Hauraki Gulf is the wide, shallow Firth of Thames. Beyond this lie the Hauraki Plains, drained by the Waihou and Piako Rivers. The Hunua Ranges and hills of the Coromandel Peninsula rise on either side of the Firth.

Most of the gulf is contained in the Hauraki Gulf Marine Park (HGMP) which covers 1.2m ha of sea, including the Hauraki Gulf, Waitemata Harbour, Firth of Thames and east coast of the Coromandel Peninsula. Within its boundaries are five marine reserves and the wetland at Miranda in the Firth of Thames.

The park was established by legislation in February 2000. With the aim of improving the environmental management of the gulf, the Hauraki Gulf Marine Park Act 2000 establishes management objectives for the gulf and its islands and catchments. Two themes underpinning the Act are the importance of integrated management across land and sea, and the significance of the relationships between people, specifically local Iwi, and the natural resources of the gulf. Management principles in the Act acknowledge the interrelationships between the gulf's marine areas, catchments which drain into it, and the islands it contains, as well as the ability of these interrelated elements to sustain the life-supporting capacity of the environment.



MANUKAU HARBOUR

The Manukau Harbour is to the southwest of the Auckland isthmus, and opens out into the Tasman Sea. Maori traditions of the Great Migration tell of the canoe *Tainui* being hauled across the Tamaki isthmus to become the first of the great canoes to reach the Manukau. The anxiety of Hoturoa, Te-Manuka-O-Hoturoa, as he steered *Tainui* towards the breakers at the harbour entrance, has been suggested as the origin of the name *Manuka*, first applied to the heads, then extended to cover the harbour, and since corrupted to *Manukau*. Other suggested derivations include “bathing place for sea birds” (*manu*, “bird”, *kau*, “a swim”), “place of the wading birds”, “nothing but birds”, and a corruption of the name of the ubiquitous scrubland plant, *manuka*.

The Manukau is the second largest New Zealand harbour by area (water surface area of 394 km²) and the length of the shoreline is ~380 km. However, navigation is restricted to several clearly defined channels and sand bars at the narrow harbour entrance (1,800m wide) combined with heavy swell and breakers make navigation hazardous. A large part of the harbour consists of tidal sand bars and a curving sand bar is situated several miles offshore across the harbour entrance.

The expansive intertidal sandflats and deep channel areas of the Manukau Harbour have high biological diversity characterised by extensive intertidal seagrass meadows and ecologically important bivalves such as scallops, cockles, wedge shells and nut shells. The intertidal flats cover approximately 18,000 ha when exposed at low tide, and are very important as foraging areas for shorebird species.

Subtidal channels are also characterised by diverse shellfish communities, polychaete (worm) communities and highly diverse macrofauna (bottom-dweller) communities. Channels near the mouth contain a diversity of sponges.

The Manukau Harbour contains fish species of commercial importance and habitats that are vital as fish nursery areas. It is also a significant area for sharks.



KAIPARA HARBOUR

The Kaipara Harbour is a large enclosed harbour estuary complex on the northwestern side of the North Island. According to Maori tradition, the name Kaipara had its origins in the 15th century when the Arawa chief, Kahumatamomoe, travelled to the Kaipara to visit his nephew at Pouto. At a feast, he was so impressed with the cooked root of the para fern, he named the area Kai-para.

The Kaipara extends 60 km from north to south and several large arms extend far into the peninsula interior. It is one of the largest harbours in the world (covers 947 km² at high tide, 409 km² exposed as mudflats and sandflats at low tide) and the length of the shoreline is ~600 km. The harbour is the catchment for ~640,000 ha of land (mainly pastoral farming).

The Kaipara Harbour is nationally and internationally significant for its size, physical characteristics, and ecological functions. Several large rivers flow into the Kaipara, the outlets of which form brackish, mangrove-lined habitats that are particularly important inunga (whitebait) spawning zones. The Harbour contains extensive areas of intertidal sandflats, which are drained by deep channels.

These sandflats and sub-tidal channels support diverse communities of sand-dwelling organisms, large subtidal seagrass beds and highly valued seafood resources. The Kaipara is an extremely important fish nursery, which sustains a large proportion of the west coast snapper, grey mullet, flounder and rig fisheries.

The Kaipara Harbour's seagrass beds are the only large areas of subtidal seagrass in the Auckland region and are an important fish habitat.

The intertidal sand banks of the Kaipara are important feeding grounds and roosts for thousands of international migratory birds such as bar-tailed godwits, and endemic birds such as the banded dotterel which is classed as chronically threatened, and the wrybill which is classed as acutely threatened and nationally vulnerable under the Department of Conservation's New Zealand Threat Classification System."

The Kaipara Harbour is a significant resource for Iwi who have taken a proactive and collaborative approach to addressing the multiplicity of competing interests and stakeholders. In order to achieve the common vision and address issues a group representing key crown agencies, community and regional council representatives was established. This group, the Integrated Kaipara Harbour Management Group (IKHMG) is a collaborative group established in 2005 by Nga Kaitiaki Tai Ao o Kaipara. The IKHMG is led by the Te Uri o Hau Settlement Trust through its Kaitiaki Unit, Environs Holdings Trust and is co-chaired with Ngati Whatua Nga Rima o Kaipara. The purpose of the IKHMG is to promote integrated and coordinated interagency management and kaitiakitanga of the Kaipara Harbour and its catchment.

The Kaipara Moana He Mahere Rautaki Whakakotahi Integrated Strategic Plan of Action (Nov 2012) explains and describes 'integrated management' as a collaborative, multi-stakeholder and partnerships based approach. A clean, healthy, productive Kaipara Harbour is what we all value and this is shaped by our different world views

EXECUTIVE SUMMARY

This report aims to illustrate the opportunities and issues, the tensions and trade-offs that are inherent in managing Auckland's three harbours, the jewels in the Auckland region's crown. It does not seek to solve the many problems affecting governance, commercial development, environmental integrity and recreational utilisation. The report instead aims to highlight the fact that our harbour assets are under-analysed, under-utilised and under-appreciated resources of supreme importance to the region's vision of creating *The World's Most Liveable City*.

WE HAVE CONCLUDED:

- » Auckland's projected population of 2 million by 2031 will create pressure for greater utilisation of our harbours.
- » There is no cohesive plan for maritime activities across all three harbours.
- » Many agencies and Territorial Authorities are responsible for marine governance, creating governance duplication and incoherence in planning decisions.
- » The Manukau and Kaipara Harbours are grossly under-used and under-appreciated; it has been difficult to gather information on the opportunities and issues for these important assets. One Marine Spatial Plan for all three harbours will address this failing.
- » Tourism activities are under-developed across all three harbours and there is an opportunity for growth that warrants further investigation.
- » Moving the Navy from Devonport to a facility(ies) that meets the needs of a modern navy is a decision involving many stakeholders. A decision to free up naval land could reinvigorate Devonport's waterfront and environs commercially, socially and aesthetically. Discussions around naval land at Devonport need to be conducted now across all stakeholders, including Mana Whenua.
- » Ports of Auckland delivers a return on assets below the risk-free rate of return and the work being undertaken to improve that return is acknowledged. However, we need to examine the freight movement through Auckland, its impact and relationship to Auckland's urban form and the full opportunity costs involved in the long term.
- » Aquaculture and marine technologies that support world-leading research facilities and the hosting of global events across all three harbours should be priorities for Auckland Council.

THE COMMITTEE'S CENTRAL RECOMMENDATIONS ARE:

1. Auckland Council to institute, as a matter of urgency, one comprehensive Marine Spatial Plan of all three harbours to provide a planning framework and knowledge base that will:
 - » manage tensions, support sustainable economic development and improve social, cultural and environmental outcomes
 - » optimise use of the sea and seashore, and achieve operational and administrative efficiencies.
2. Auckland Council and central Government to review current governance arrangements across the Waitemata, Kaipara, and Manukau harbours including the Hauraki Gulf.
3. Auckland Council to commence with urgency the second stage of the UNISA Port Study. In particular, scope and undertake an examination of options for freight movement through Auckland, including consideration of the relationship between the port and Auckland's urban form and the opportunity cost of each.



PART ONE: LIVE

INTRODUCTION: THE HARBOURS' CONTRIBUTION TO AUCKLAND'S IDENTITY

Auckland's international and domestic identity is based around its three harbours: Waitemata, Manukau and Kaipara. These three waters make Auckland unique among large modern cities. Auckland Council's ambition is to create the World's Most Liveable City, a goal the Committee shares. Liveability requires proper governance to ensure its assets are managed properly.

In this section, the Committee examines the structure of marine governance and provides suggestions for improvement. Issues, opportunities and the necessary trade-offs in relation to accessing water, land and transport are addressed. Environmental degradation and potential future risks are canvassed, as are issues around education and marine research.

NO COHESIVE PLAN FOR MARITIME ACTIVITIES ACROSS ALL THREE HARBOURS

There is currently no cohesive plan for all of the harbours. Planning will provide the necessary framework required to manage resources, activities and the complexities and tensions that exist with a finite and scarce resource.

The Auckland Council has just published its draft Unitary Plan and there are intentions to conduct independent marine spatial planning of each of the three harbours. The Committee believes that one Marine Spatial Plan should be conducted across all three harbours simultaneously and that this task is a matter of urgency.

Speed is needed because spending plans, particularly around the Ports of Auckland and its connective transport infrastructure, are already in train. These decisions are being made without the benefit of a holistic overview of all the three harbours' assets. In addition, it will be important to gather quality information and address knowledge gaps around commercial and recreational activities in the Kaipara and Manukau.

A cohesive Marine Spatial Plan must connect and align with the Unitary Plan. An example would be where water-based issues (such as water access) requires land-based solutions like car parks, trailer parks and other facilities to support new and existing recreational and commercial activities on the harbours. The risk is that these matters are not captured and addressed properly while the Unitary planning process is well underway and operating at pace.

The Committee also believes that better economic, environmental, cultural and social outcomes would be achieved if overall management of the harbour assets were implemented appropriately and with authority under a single governance structure. Auckland Council, Mana Whenua, other relevant Councils and central Government should review governance arrangements in light of this conclusion.

MARINE GOVERNANCE: MANY AGENCIES ARE RESPONSIBLE

The Waitemata, Hauraki Gulf, Kaipara and Manukau are governed and managed through a myriad of agencies, trusts, government departments and local government. There is no overarching agency with responsibility to govern these world-class harbours as inter-dependent systems.

There is currently no agreement on the priorities and issues to be addressed in respect of planning for all three of Auckland's harbours.

There needs to be linkages, integrated management and inter-agency cooperation to ensure coordination of the management and development of the harbours and the coastline.

The agencies currently responsible for our three waters include¹ (and not limited to):

- | | |
|---|--|
| » Auckland Council | » Ministry of Business, Innovation and Employment |
| » Department of Conservation | » Ministry of Primary Industries |
| » Hauraki Gulf Forum | » Ministry of Transport |
| » Integrated Kaipara Harbour Management Group | » National Institute of Water and Atmospheric Research |
| » Kaipara District Council ² | » Northland Regional Council ³ |
| » Manukau Harbour Forum | » Whangarei District Council ⁴ |
| » Maritime New Zealand | » Waikato Regional Council |
| » Ministry for the Environment | » Waterfront Auckland. |
| » Ministry of Defence | |

1. This list will also include Mana Whenua who have a role as kaitiakitanga or guardianship of the waters. As Treaty Settlement Negotiations continue toward completion the role of Mana Whenua can be clarified in regard to governance models of the three waters.

2. Local government reforms in Northland, Kaipara and Whangarei Councils are underway at present and any decision on a unitary body may have implications for a Marine Spatial Plan involving the Kaipara.

3. Ibid at footnote 2

4. Ibid at footnote 2

The Government's recent discussion on changes to the Resource Management Act provides a fresh opportunity to consider which organisation(s) is best to make decisions for the harbours. In its discussion document the Government has highlighted a number of issues and recognises that there is no single driver behind these problems. These underlying problems include:

- » Inefficient duplication in developing plans, and unnecessary variation and complexity in planning documentation creating problems for engagement, understanding and compliance.
- » A lack of clear, up-to-date national guidance on matters of national importance that leaves issues to be resolved at local levels, coupled with a highly devolved decision-making system, has led to tensions between national and local objectives and the development of inconsistent approaches to these matters across the country.
- » Insufficient attention paid to meeting future needs, as opposed to mitigating impacts.
- » An over-reliance on consents and Environment Court appeals to resolve fundamental tensions over resource uses/values that would be better addressed at the plan stage.
- » High costs of securing and complying with decisions, particularly consent decisions that are not commensurate with actual impacts.
- » A lack of predictability in decision making in both plans and consents, particularly those needing decisions.
- » Inflexibility in the application and enforcement of Resource Management Act processes leading to disproportionate costs and requirements, particularly for small projects.

Together these underlying issues illustrate the complexities of the current system. This can lead to stifled development, constrained entrepreneurial behaviour, and poor decisions around investment and economic development.

Whilst these issues encompass land-based activities, these issues translate readily into the governance and management of our harbours, where there are competing activities across a shared resource with multiple stakeholders. The system is difficult to navigate, less certain and more costly than it needs to be for those involved. In essence, there can be a better way.

It is promising that central Government has opened up debate on a range of these issues, particularly by encouraging councils to plan more strategically and in a way that provides for the balancing of environmental, social, economic and cultural well-being of the community.

Both of these proposals are discussed in more depth in Part Four Recommendations.

WATER, LAND AND TRANSPORT: OPPORTUNITIES, ISSUES AND TRADE-OFFS

The management of Auckland's harbour assets requires identifying the opportunities and the issues affecting public, customary/ cultural and commercial use of the waters and managing the trade-offs that are necessary when faced with competing interests. As part of that process, the regulatory authority must ensure there is effective supervision and administration of those assets.

In this section, we identify some of the issues surrounding access to water, land and transport to better illustrate the tensions inherent in effectual management of the three harbours.

ACCESS TO WATER

The ease of access to the three harbours on Auckland's isthmus makes the city unique.

While an estimated 300,000 ⁵ Aucklanders go fishing (more than one in five), many more enjoy exploring the marine environment by swimming, kayaking, sailing, diving and through other water sports.

Maintaining access for all is a key challenge as the city grows. A study by Covec on harbour assets shows population growth will place significant demand upon Auckland's existing marine infrastructure, including not just jetties and ramps but also ferry terminals and marine berthing.

The Manukau Harbour Restoration Society has already identified the need for more access to the Manukau. In their 2011 Auckland Plan submission, the Society highlights the need for more jetties, boat ramps and reinstating ferry services to connect communities across the harbour. With Auckland's population growth expected to place pressure on existing services, it makes sense to provide for the community's aspirations.

The Covec data highlights the demand pressure (see chart on the following page) by identifying the amount of infrastructure construction required by 2031 to maintain present ratios of access to water as a proportion of the population. This issue is also explored in the Play section of the report.

5. This regional figure is estimated based upon a national figure of 20 per cent of the population are recreational anglers.

TOTAL AUCKLAND REGION						
RATIO OF ASSETS PER 100,000 PEOPLE ASSUMING NO CHANGE IN THE CURRENT NUMBER OF ASSETS						ADDITIONAL REQUIRED BY 2031 TO MAINTAIN 2011 RATIO
	2011	2016	2021	2026	2031	
Boat ramps (number)	10.2	9.5	8.8	8.2	7.7	49
Boat moorings (number)	431.6	402.9	373.5	347.8	325.7	2084
Wharves & jetties (number)	2.2	2.0	1.9	1.7	1.6	10
Ferry terminals (number)	1.0	0.9	0.9	0.8	0.8	5
Cruise ship berths (length m)	70.4	65.7	60.9	56.7	53.1	340m
Cargo ship berths (length m)	233.2	217.6	201.8	187.8	176.0	1126m
Marine parks (area km2)	269.3	251.4	233.1	217.0	203.2	1300km²
Marine reserves (area km2)	2.1	2.0	1.8	1.7	1.6	10km²
Aquaculture farms (area ha)	23.0	21.5	19.9	18.5	17.4	111ha
Coastguard units (number)	0.8	0.8	0.7	0.7	0.6	4
Yacht clubs (number)	2.6	2.4	2.2	2.1	1.9	12

ALTERNATIVE USES

Maintaining public access to Auckland's shoreline comes at an opportunity cost and is one of the trade-offs that must be managed efficiently and effectively.

Ports of Auckland has during the past decades ceded up to 50% of its property to Auckland Council, allowing it to put the city central waterfront to alternative uses and increase public access at the same time.

The issue of the Ports' land is discussed in more depth in the Work section, while navy land is discussed directly below.

Decisions regarding public access and the best use of Auckland's shoreline must, by their nature, be finely balanced ones.

NAVAL LAND: OPPORTUNITY FOR LIVING, WORKING OR BOTH?

The Devonport naval facilities do not meet all the needs of the modern Navy. The wharf infrastructure is inadequate for their largest vessels and the land side marshalling and storage areas are not adequate to support the fleet of multi-role vessels in the event they need to embark soldiers and material for an offshore excursion. Strategically, it's not sensible to have the major naval base at the centre of New Zealand's largest city. They have no security on the sea side.

The Navy's graving dock, Calliope, is historic but is now too small to handle the largest vessels in the fleet. These vessels go instead to Australia or Singapore for dry-dock services. Any strategic benefit from Calliope is now reduced.

Recent treaty settlements have transferred former navy residential houses to Ngati Whatua who will shortly bring rents up to market levels, which will be prohibitive for junior navy staff. The benefit of having staff adjacent to the ships will be lost as those staff seek cheaper accommodation elsewhere.

COMMENT

Moving the Navy from Devonport to a facility(ies) that meets the needs of a modern navy would be a multi-million dollar decision. However the opportunities created at Devonport and at the relocated Navy site would be significant. The area of land is several hectares in Devonport and similar amounts in adjacent Ngatairinga Bay which have very significant potential benefits in alternative uses. Sensible planning and land release as has happened with the activation at Wynyard Quarter, would reinvigorate Devonport's waterfront and environs commercially, socially and aesthetically.

ACTIVATING WATER TRANSPORT

Transport requirements are important to consider as the ratios of ferry terminals to population are currently 1:100,000. As the city population grows, the use of ferries becomes an even more viable alternative for commuters utilising public transport.

Auckland's public transport options include travel by bus (~75% of boardings), rail (~15%) and ferry (~10%). The majority of ferry services are commuter services on the east coast.

Ferry passenger boardings are seasonal, ranging from approximately 350,000 in July to 450,000 per month in January (2010), which is approximately 4.8 million passengers on ferries (per annum).

With the growth in population, increasing water transport capacity and capability provides further potential to activate new and different nodes across all of the harbours.

Consideration must be given to what ancillary facilities and infrastructure would be required to support growth in water transport. For example, there could be new or improved wharves at St Heliers, Takapuna, Onehunga and Waiuku, and other beaches which would facilitate new and more frequent ferry services to connect commuters and visitors as well as provide local recreational opportunities (fishing off wharves and jetties being one). There could also be cultural and recreational kayak and waka trails in and around the harbours increasing the need for camping ground facilities around harbour shores.

Resolving water transport issues has the potential to improve the movement of people around the city and harbours, connecting individuals, families, friends and communities, activating tourist hubs and stimulating activity on all the harbours not just one.

Source: Auckland Transport: Public Transport Service Capacities (seat kms) in different investment scenarios

MARINE ENVIRONMENT: OPPORTUNITIES, ISSUES AND TRADE-OFFS

The Hauraki Gulf Marine Park was created through the Hauraki Gulf Marine Park Act 2000 and managed by the Hauraki Gulf Forum, a statutory body responsible for the promotion, facilitation, and integrated management, protection and enhancement of the Hauraki Gulf. Every three years a State of the Environment Report is submitted to ministers and other key stakeholders measuring progress toward achieving the vision of the Hauraki Gulf Forum which aims for a future where environmental quality is maintained and the Hauraki Gulf is rich in diversity, with thriving fish and shellfish (kaimoana). It also seeks to ensure that resources are used wisely to grow a vibrant economy and to protect our cultural heritage.

The most recent report stated that most of the indicators examined suggest that the gulf is experiencing ongoing environmental degradation, and resources are continuing to be lost or suppressed at environmentally low levels.

Examples include:

- » Toxic metal and organic contaminants are causing localised effects in Auckland estuaries. A number of metal contaminants exceed sediment guideline values in the southern Firth of Thames as well. Guideline values are exceeded at 21 of the 50 sites that are regularly monitored by Auckland Council.
- » Fourteen or more of the 42 beaches monitored in the Auckland region between January 2006 and April 2009 exceeded the "action" level guideline for marine bathing each year. Exceeding this guideline indicates that swimming, or other forms of contact recreation, may pose a health risk.
- » A number of studies carried out over the past decade or so have confirmed that sediment is a serious environmental contaminant that degrades the coastal habitats and is toxic to most marine organisms.
- » Modern sediment accumulation rates are typically greater than those for natural sedimentation rates.
- » Sediment accumulation has contributed to the expansion of mangroves in many, if not all, estuaries in the gulf.
- » A total of 139 non-indigenous marine species have been recorded in the Hauraki Gulf. Four arrivals in the past 10 years are notable for their potential to cause significant ecological and economic effects: the Mediterranean fanworm (*Sabella spallanzanii*); the clubbed sea squirt (*Steyla clava*); the Asian Kelp (*Undaria pinnatifida*); and the Japanese mud crab (*Charybdis japonica*). Three of these are formally classified as unwanted species.
- » Large amounts of litter continue to enter the coastal environment. Plastics are particularly problematic owing to their environmental persistence and effects on wildlife and aesthetics.

The report notes that despite the integrated management objectives of the Hauraki Gulf Marine Act 2000 the environmental indicators show that management initiatives have collectively failed to halt or reverse the decline in the gulf's natural resources.

The reasons raised are:

- » **intervention is not of sufficient scale or intensity**
- » **lack of clear environmental goals**
- » **key gaps in management response**
- » **implementation gaps**
- » **fragmentation**
- » **roadblocks.**

This State of the Environment report provides some timely reminders that the gulf and other waterways are important to all Aucklanders, yet the way the gulf is currently being managed has not improved its environmental measures.

Although work on a Marine Spatial Plan for the Hauraki Gulf is currently underway, the three waters should not be planned in isolation.

These multiple failings can be re-addressed through the implementation of one Marine Spatial Plan across all three harbours. A more balanced approach can achieve social, economic and cultural outcomes, not just environmental ones.

HARBOUR SAFETY IN A POST-RENA WORLD

When the MV Rena grounded on Astrolabe Reef (Otaiti) in the Bay of Plenty on October 5, 2011, it prompted Auckland Council to engage in an assessment of risks and options should a similar disaster unfold in its harbours.

The risks are substantial: in January 2013, 19 million litres of fuel were transferred between ships and trucks in the Waitemata harbour.

A new multi-purpose vessel will join the Auckland Harbourmaster's fleet in June 2013, boosting the capacity for dealing with marine oil spills. Electronic virtual aids have been installed on hazards, such as submerged reefs, while Maritime New Zealand has supplied oil-recovery equipment. Forty personnel are presently trained to respond to any maritime oil spill. The Navy also plays an important role in cases that require mobilisation of national resources.

EDUCATION AND RESEARCH

The Auckland region has significant potential to develop a well-coordinated academic programme around marine research and boat building and enhance current seafaring crew and freight logistics capability programmes.

The National Institute of Water and Atmospheric Research (NIWA) has a mission to conduct leading environmental science to enable the sustainable management of natural resources for New Zealand and the planet. NIWA undertakes scientific research, offers training courses, manages collections (Benthic Biology Collection), provides tools and resources (Marine Environment Classification, various databases), operates vessels for environmental monitoring and research and more.

The University of Auckland's South Pacific Centre for Marine Science (SPCMS) at Leigh was involved in the establishment of the Goat Island marine reserve, which has allowed research in an undisturbed environment, in which both the natural world and scientists' work are protected from human interference, and has contributed to the understanding of how marine protected areas can aid conservation. Other activities undertaken include identification of new species, research on the biology of fish, crayfish, sponges, and plankton, and marine ecology. SPCMS also participates in undergraduate teaching and postgraduate teaching and research.

Unitec is more focussed on vocational or application of technology through marine technology programmes (marine engineering, boat building), and apprentice training.

The New Zealand Maritime School, New Zealand's Centre for Maritime and Freight Logistics Training, is offered through Manukau Institute of Technology and is a globally recognised centre of excellence producing high-quality certified seafaring crew and freight logistics professionals.

From 2013, Auckland University of Technology (AUT) and the Australian Maritime College will offer a Bachelor of Engineering in Maritime Engineering.

EDUCATION AND RESEARCH IN THE FUTURE

New Zealand has a world-class reputation for some elements of marine engineering, ocean engineering and naval architecture, which is enhanced by the efforts of NIWA, AUT University, the University of Auckland SPCMS.

Consideration should be given to partnering with leading universities like Massachusetts Institute of Technology, the University of Southampton, and the German Technical University, which all have significant maritime engineering faculties.

A School of Naval Architecture, adjacent to marine-related facilities could include a large tank testing facility with public viewing. While this would require a capital investment upwards of \$10 million, it would give valuable support to maritime programmes at AUT University, and the University of Auckland.

RESEARCH & DEVELOPMENT

The continued development of the boat building, spar and sail manufacturing and super-yacht industries by New Zealand's leading designers should be leveraged. New Zealand's expertise in the use and application and development of composites for boat building is world leading and supported by the Centre for Advanced Composite Materials, the University of Auckland.

COMMENT

Michael Parker who wrote the Pine Tree Paradox argues that New Zealand needs a world-class university if it is to really drive innovation. The notion is that firms look to the universities for new products and innovation, as happens in technology hotbeds like Silicon Valley, which is near Stanford and Berkeley Universities.

What is clear is that there is already world-class innovation and development in Auckland and the question is how to support and grow that. Auckland has the unique talent and environment to be a world leader in research.

The Monterey Bay Aquarium Research Institute is an exemplar for what New Zealand could develop. It generates US\$225 million per annum to the local economy (2004 figures) through teaching, research and the aquarium. In addition to marine biology and ecology there could be crossovers to the composites, yacht design and performance engineering sector, where New Zealand has demonstrated global expertise. An aquarium and a glass-sided testing tank on the tank farm land would be an interesting development.

A world-regarded faculty and research capability in an institution on the waterfront would be a significant attractor of students and new migrants.

CONCLUDING COMMENTARY

In this section we have highlighted that Auckland is a growing city with an additional 500,000 people due to arrive by 2030. The increase in population will place significant pressure on our current harbour assets and we need to plan for the future use of the three harbours. Planning will have substantial benefits that will address knowledge and data gaps, manage tensions between competing uses, and set priority objectives across all three harbours.

There are many agencies and groups responsible for managing the harbours. We need a system that will allow for a more efficient, coordinated and integrated approach. A review of the current governance arrangements is needed to ensure an effective and efficient regime is in place.

The opportunities include improving transport and connectivity through improved ferry usage and supporting infrastructure facilities, considering alternative uses of port land, activating Wynyard Quarter like opportunities with Devonport's naval land, improving water quality and building on world-class educational, research and innovation facilities.



PART TWO: WORK

INTRODUCTION: GROWING THE AUCKLAND ECONOMY

The Auckland region is the powerhouse of the national economy. Forecast population growth will be concentrated in Auckland, with four in every ten New Zealanders calling the city home by 2031. Not only will Auckland be a growing population it will be a younger population compared to other cities in New Zealand.

We need to look to our harbours to support and increase aspirational growth, particularly around creating new employment opportunities and new sectors. Auckland's economy in 2012 grew at a rate of 2.8%, higher than its 10-year average, a good result given regional and global conditions.

Coordinated and innovative action can boost the city's economic performance and the marine environment has the potential to make a substantial contribution.

Tourism and hospitality for instance, may provide, on average, low-value employment but it is one of the region's largest sectors and provides jobs to low-skilled employees, such as youth, and offers significant part-time employment to students.

Although low skilled, the different types of roles in these sectors can provide young people with a fresh set of soft skills and experience (such as team work, reliability, responsibility and people skills) that can add value to their employability as they develop their own career path. With unemployment rates for 15-19 year olds at 33.5% and 20-24 year olds at 13.3%, this opportunity to connect youth into meaningful work is ripe for further action. Our harbours and the tourism business that could operate on them can provide much needed stimulus.

Aquaculture, boat-building innovation, commercial fishing, and major events offer significant opportunities too.

Most of all, a clear Marine Spatial Plan and improved governance will assist to deliver increased productivity and employment and provide better targeted and coordinated development of the region. Combined, these actions will better identify opportunities and issues of conflict and help make the right decisions about which trade-offs are acceptable for the World's Most Liveable City.

PORTS OF AUCKLAND: LONG TERM PLANNING NEEDED

OVERVIEW

Ports of Auckland has, and continues to be, a dominant activity on the Auckland waterfront. A busy and thriving port is an essential part of the economic vitality and vibrancy of the waterfront.

The impact and options for a container handling port in Auckland should be an important cornerstone of any future Marine Spatial Plan.

There has been vigorous debate in recent years about the Ports' role in supporting both Auckland and New Zealand's economic aspirations and its suitability for meeting anticipated freight demand over the next 30 years.

Ports of Auckland presently occupy about 77 ha, increasing to 79 ha in 2016. It has recently unveiled two further options for port expansion:

- » increasing Bledisloe Wharf by 135m (5.5 ha expansion) and the retention of Captain Cook Wharf for cargo
- » increasing Bledisloe Wharf by 179m (6.6 ha expansion) and returning Captain Cook Wharf to the Council for public use.

These options are currently under review as part of the Ports of Auckland's response to a recent PricewaterhouseCoopers Upper North Island Strategic Alliance (UNISA) port study.

COMMENT

The expansion plans are highly controversial and the division of views across Auckland is well represented within the Committee's own membership. However, there is consensus that there should be no further *major* reclamation of the harbour for the container port. Major reclamation will lead to a significant narrowing of the harbour, the impact of which will be felt across a range of commercial and recreational sectors.

The UNISA report suggests the three upper North Island ports will have the capacity to meet projected 30-year freight demands. However, the Committee believes this report fails to capture an accurate picture of the future freight demand because it uses incorrect assumptions. Historical data suggests the ports are likely to reach capacity well before the 30-year time horizon. This means the report is not a reliable basis for future planning for significant infrastructural investment.

This report, and others, also focus on the wrong questions.

With the need for a substantial investment in the port and its connective transport infrastructure over the next ten years, the real 'game-changing' questions that should be asked are:

- » Is this the best use for a substantial area of prime waterfront real estate?
- » Are there any sensible alternatives?
- » What issues and opportunities do the alternatives raise?
- » What are the costs and benefits of releasing the port land at the container terminal for alternative use versus expansion or the status quo?

Ports of Auckland delivers a return on assets below the risk-free rate of return and the work being undertaken to improve that return is acknowledged.

To support decisions about the best use of this valuable land over the longer term, investigations need to be made into the optimal shape of the logistics chain, including the scope and scale of the container handling terminal and all the associated infrastructure and services to meet Auckland's commercial needs. These investigations should be undertaken with urgency.

The investigation will need to consider the long-term requirements for Auckland in order to inform planning at an early stage before any additional investment is made.

ALTERNATIVE USES FOR PORTS OF AUCKLAND LAND

In considering alternatives, the main benefits of transforming the container port land to alternative use relative to the status quo are:

- » an increase in the value of the port land from \$380 per square metre in its current use to an estimated \$1,250 per square metre. Reduction in negative effects associated with noise, visual amenity, light, air and water pollution, and transport congestion.

This represents a large opportunity cost, the impact of which falls on the people of Auckland while the larger associated costs are borne by all New Zealanders.

The benefits of putting port land to alternative uses would need to be balanced against costs associated with remediation and transformation of the port land, the costs of the port infrastructure built elsewhere and additional use of road and rail transport between other ports and Auckland. Consideration will also need to be given to what the environmental impacts will be of any proposed alternative locations.

COMMENT

The Committee also believes that decisions about the future shape and form of the container handling facilities that serve Auckland businesses and Aucklanders need to be considered within a national and regional context. The Auckland Council as the shareholder of Ports of Auckland holds an important seat at the table, alongside the Government, major importers and exporters, transport providers and other ports.

As to timing, the Committee believes we have to learn from the past. Long-term transport and logistics infrastructure decisions have historically been delayed at a subsequent huge cost to the local and regional economy. To let the Ports proceed, without question or proper examination of all the issues using up-to-date information, is to repeat the mistakes of the past. These investigations need to be undertaken now, and with urgency.

Stage two of the UNISA study has been proposed. The Committee would welcome a study that informs longer term strategic planning. The study should include factors such as:

- » a longer term horizon, between 30-100 years
- » assessment of future port development options
- » consideration of as yet unexplored alternative location scenarios for port infrastructure
- » high-level capital and operating costs and externalities of each of the options
- » full economic costs and benefits of various options
- » full impacts and implications across social, economic, cultural and environmental outcomes
- » any actual or potential current legal and other barriers or conflicts in the pursuit of options (and how these would be reduced or removed).

To ensure the best decisions for the container handling terminal and related infrastructure are being made beyond the 30-year time horizon, we need to ensure that a complete investigation is undertaken now, including opportunities to optimise use of the current land area and what facilities Auckland will need over the long term.

TOURISM: UNDERUTILISATION, OPPORTUNITIES AND TRADE-OFFS

OVERVIEW

Auckland receives 70% of all visitors to New Zealand, making it the most visited destination in the country. In 2010 the visitor economy was worth \$3.33 billion, based on 2.8 million international guest nights and 3.5 million domestic guest nights annually. By comparison, Auckland's largest sector – manufacturing – generates about \$6.5 billion. Auckland tourism supports up to 50,000 full-time jobs, providing valuable employment opportunities.

Tourism within the harbours contributes to and strengthens the value added for Auckland.

The industry hosts a range of incredibly diverse activities across the isthmus and the region consistently ranks highly in international surveys and awards. The city was ranked third in the world on the 2011 and 2012 Mercer scale of global lifestyle, while the influential Lonely Planet rated the Waitemata Harbour and Hauraki Gulf as New Zealand's top tourist experience and urban Auckland rated number two. The New York Times recently declared Waiheke Island as one of the world's top five destinations.

Yet two of the three marine jewels – the Manukau and Kaipara Harbours – remain woefully under-utilised, while studies show the Hauraki Gulf assets are under-performing. Tensions between competing commercial interests and the interests of recreational use of the harbours exist across the marine environment and, in the absence of a suitable governance structure; the Committee believes decisions will continue to be made in an ad hoc fashion without thought for a region-wide development strategy.

AUCKLAND WATERFRONT

The recent and ongoing development of the waterfront is one of the city's most exciting initiatives. Notwithstanding the issues surrounding future options for Ports of Auckland (see above), the redeveloped waterfront is set to deliver strong positive impacts on the Auckland economy and a range of intangible benefits across the business and recreation sectors.

The waterfront is expected to directly support around 20,500 full-time equivalents (FTEs) by 2040, with 13,600 directly employed on the waterfront itself. This includes an additional 8,630 jobs that would not otherwise be created.

Planned developments include Westhaven Marina (\$53 million), Wynyard Quarter Marine Precinct (\$54 million), Wynyard Quarter Headland Precinct (\$51 million), Wynyard Quarter Central Precinct (\$105 million), other investment (\$10 million) and the Queens Wharf cruise ship terminal (\$14.6 million). Waterfront Auckland has recently announced a plan to attract \$1 billion of private investment for further development.

CRUISE SHIP INDUSTRY

Auckland captures the lion's share of the cruise ship sector, which nationally contributed \$190.9 million to gross domestic product (GDP) in 2009-2010. Direct expenditure in Auckland is \$65.6 million and contributed a further \$63 million to regional GDP. The sector is estimated to have contributed \$346 million in 2010-2011. This boosted Auckland's share of the total sector in 2010-2011 to about \$180 million. With the development of Shed 10 providing additional facilities at Queens Wharf, this important sector is set to grow exponentially.

Princes Wharf is currently the primary cruise ship facility, while Queens Wharf provides a secondary location when more than one vessel is in port. The \$14.6 million upgrade to Queens will provide 50% more berthing space and cater to ships carrying up to 3000 passengers.

Up-to-date employment figures were unobtainable but a 2010 PricewaterhouseCoopers report estimates that 4,533 people were employed across a range of waterfront-related industries in 2009, of which the cruise industry directly accounted for more than 1000 FTEs. By 2040, more than 3,400 will be cruise ship-related employees.

Auckland plays a key role in the New Zealand cruise industry as it is the primary exchange port, where a ship starts and ends its voyage. Cruise ships spend more days in port in Auckland as a result and the benefits accrued are commensurately greater. We need to ensure there are further opportunities to expand tourism activities in Auckland.

ECO-TOURISM

There is an increasing global trend towards eco-tourism. New Zealand is a popular destination for eco-tourists, with many tours departing from Auckland.

Available Auckland eco-tours include bird-watching trips, cruises (both day and overnight), natural wildlife watching trips, observatories and planetariums, and volcanic/geothermal explorations. Auckland has the distinction of being surrounded by over sixty extinct volcanoes.

Auckland would appear to have an enormous opportunity for growing eco-tourism and tourism in general.

The islands of the Hauraki Gulf form an archipelago of unique experiences.

Most of the gulf is contained in the Hauraki Gulf Marine Park which covers 1.2m ha of sea, including the Hauraki Gulf, Waitemata Harbour, Firth of Thames and east coast of the Coromandel Peninsula. Within its boundaries are five marine reserves and the wetland at Miranda in the Firth of Thames.

Consideration of some of the better known islands gives a sense of what a properly developed tourism strategy could provide.

- » Rangitoto – landmark and symbol of Auckland, it is the largest and youngest volcano in the Auckland field.
- » Brown's Island or Motukorea is a perfectly preserved volcanic system in miniature.
- » Great Barrier – one of the Auckland region's last wildernesses and the largest island in the gulf.
- » Rotoroa – formerly a detox centre run by the Salvation Army, now a conservation park.
- » Rakino – a hilly, 150 ha island where Sir George Grey built his first island home.
- » Hauturu – Little Barrier is a botanical paradise and one of the last vestiges of primeval New Zealand.

There are limited long- and short-stay tourism options incorporating the gulf and its islands. Ferry and transport options tend to be extensions of commuter ferry services and there is limited accommodation on most islands.

Similarly, there are limited tourism options on the Manukau Harbour.

The Kaipara Harbour is nationally and internationally significant for its size, physical characteristics, and ecological functions. The Kaipara is an extremely important fish nursery, which sustains a large proportion of the west coast snapper, grey mullet, flounder and rig fisheries.

COMMENT

It is almost as if the tourism values of the harbours are hiding in plain sight. Whale watching, swimming with dolphins, bird watching or relaxing on a deserted island are all available within an hour of downtown Auckland.

Overnight charters tend to be fishing expeditions. The potential for a series of eco-lodges on the key islands seems possible, along with larger scale and scope of operations for day trips and visits. The infrastructure is there in respect of wharves and mooring areas but there is inadequate service and very limited accommodation.

CULTURAL TOURISM

Auckland is home to a large proportion of Maori and recognises 19 mana whenua (those whom exercise traditional authority over the land). This provides significant opportunity for Auckland to showcase a wide variety of its indigenous population's history and culture.

New Zealand's tourism sector has many reasons for attracting visitors to its shores. Chief among these reasons is the country's natural landscape and second, its Maori heritage. This rich history demonstrated through art, song, dance and custom, forms part of a wider cultural experience unique to Maori land New Zealand.

Maori heritage and culture is a key attractor, as it cannot be found or experienced in its entirety anywhere else in the world. The rich tapestry that threads Maori heritage offers visitors a genuine cultural experience.

Current Maori experience based activities in the Auckland area include Qualmark-accredited cultural shows, tours of Maori icons such as Maunga (mountains/volcanoes) as well as activity on two harbours – Manukau and the Waitemata – though these water-based activities with a cultural bent are very limited. Qualmark NZ has also endorsed visitor activities at local marae, where in addition to cultural experiences and hakari (food and celebration) visitors gather to interact, learn and sample the stories of local Maori. The current offering of Maori experience based activities is limited however, and this is reflected in the high numbers of visitors to other regions such as Rotorua, considered New Zealand’s Maori cultural capital.

New Zealand is also witnessing the emerging Chinese market and this presents excellent opportunities for growth. These opportunities are supported through agreements such as that between the New Zealand Government and China Southern Airlines, which focuses on more efficient processing of passenger arrivals.

COMMENT

Tourism presents an excellent opportunity for sectors to collaborate to capitalise on the growing potential within this space. Tourism is the universal language for growing business and social opportunity within New Zealand. A cultural hub supporting wider initiatives throughout the region is an opportunity worth investigation.

BUILD ON WAIHEKE’S SUCCESS

More than 195,000 tourists visited a Waiheke winery in 2008 and since viti-tourists always visit more than one winery, this accounted for more than 475,000 separate winery trips. More than a third were international visitors.

The connections between wine and tourism (a global phenomenon) highlights the importance of perception or ‘imaginaries’ in marketing generally and Auckland specifically. But few domestic papers have studied this impact, save for the Auckland University’s School of Environment.

Its findings are instructive. Wine growing’s contribution to Waiheke’s economy in pure sales was miniscule yet its wider impact in attracting visitors to the island was comparatively large.

The well-developed services, accommodation and hospitality sectors on the island play a large role in Waiheke’s success, as does its proximity to Auckland, ease of access, scenery, beaches, walking tracks and unique landmarks such as the Stony Batter gun emplacement.

The island has also cleverly leveraged annual events such as Headlands: Sculpture on the Gulf – now in its 10th year – to boost its domestic and international profile. The New York Times this year named the sculpture walk a “must-do”.

The annual jazz festival is also a popular domestic event but the wineries are a central element of the island's allure.

COMMENT

There are opportunities throughout the Hauraki Gulf for land-based tourism offerings across the archipelago of islands, wine is merely one example.

The Kaipara and Manukau offer many tourism opportunities as well and should be investigated further.

THE GOLD CARD ECONOMY

An estimated 700,000 New Zealanders now possess a travel concession gold card following its launch in 2007. Its impact on niche economies, such as Waiheke Island, has been profound. Nearly one in five travellers on Fullers and 13% of SeaLink commuters used a gold card. Local government figures from the five months to 28 February 2009 showed more than 200 pensioners a day travelled to the island.

Although their average spend was less than that for younger visitors, the urban myth of penny-pinching pensioners has been overstated, with many spending more than \$100 each.

A recent trans-Tasman agreement has resulted in mutual recognition of each country's gold card holders. This represents a golden opportunity to promote Auckland to the mature Australian market, with specially tailored packages based around discounted travel to the city's best locations.

MANUKAU HARBOUR

There could be more tourism options promoted on the Manukau Harbour, New Zealand's second largest harbour (about 350km²) with a tidal range of up to 6.4m. During 2011-2012 summer, of the 14 bathing beaches tested 76% of the passed recreational bacteria guidelines, compared to 86% in 2010-2011. Although this ranking may present concerns, the overall water quality was ranked as fair. Promoting the Manukau as a safe and useable harbour will be an important step for growing further tourism and recreational use opportunities.

COMMENT

The Committee has found it difficult to bring together information of value concerning the commercial and recreational use of the Manukau (and to a lesser extent, Kaipara). This again highlights the need for a Marine Spatial Plan and centralised governance of the three harbours. A comprehensive Marine Spatial Plan will ensure local community aspirations, agreed data, cultural knowledge are all taken into account with appropriate funding attached.

The Manukau Harbour Restoration Society⁶ has outlined a number of initiatives that will contribute to addressing water quality issues, increasing recreational use and building further tourism opportunities. These initiatives include addressing raw sewage issues, upgrading Port of Onehunga facilities to increase access to the water, develop Onehunga as a community and tourist hub with multimodal transportation hub.

6. The Manukau Harbour Restoration Society was formed in 2011 to restore the environment and improve recreational amenities in the Manukau Harbour. Its members live around the perimeter of the harbour from Whatipu to South Head. The Society, works to greatly improve the quality of infrastructure developed around and on the harbour, improve living quality for its communities and the health of the harbour.

Planning and development cannot occur without rigorous analysis of the facts on the ground and on the water. Auckland Council must move to address any further information gaps and once it has, Auckland's stakeholders can better assist in creating jobs, wealth and environmentally sustainable industries based around the Manukau waters.

KAIPARA HARBOUR

The Kaipara appears woefully under-utilised given its abundant resources, variegated habitat, geographical advantage and status as the largest natural harbour in New Zealand and the second largest in the southern hemisphere. Kaipara is an important fish nursery for snapper, mullet, flounder and rig, while the river estuaries provide an important spawning ground for the whitebait species, inanga.

Recreational and customary fishing is widely enjoyed, although boat-launching facilities are limited, with only four concrete or shingle boat ramps on the harbour. A decline in fish numbers has led to a ban on commercial fishing in 2007. It is notable that 98% of the west coast snapper population hatches in the Kaipara.

There are actual and potential tensions between competing uses of harbour resources, notably between recreational and customary fishing, aquaculture, tidal energy and marine farming, harbour transportation and conservation initiatives, particularly around wetlands.

Hard data on the tourism sector in Kaipara is scanty, although a Rodney District Council 2003 report noted tourism employed nearly 6% of all FTE positions in the region and generated around 2.78% of the district's GDP. It has been noted in a 2006 report investigating sustainable economic development in the Kaipara Harbour region that there is limited infrastructure, shortage of accommodation, inadequate signage and traveller support, variable standards, too many low-profitability operations and lack of information about what is available on the harbour and its surrounding environs.

COMMENT

Auckland's major harbours have a huge potential to drive and deliver more for our tourism sector.

In this section we have considered these harbour activities to be major opportunities in the maritime area. The rich and diverse eco-system provides many opportunities that if developed and managed effectively in the future may support the transformational shift that Auckland requires.

This set of harbour activities has been identified in order to kick-start a structured debate and to stimulate interest in managing these activities effectively to support Auckland's ambitions.

AQUACULTURE: OPPORTUNITIES, ISSUES AND TRADE-OFFS

ECONOMIC PERSPECTIVE

The aquaculture industry has been identified as one with growth potential, both within New Zealand and worldwide. Aquaculture is the fastest growing sea food sector with the Food and Agricultural Organisation predicting that global consumer demand for seafood will almost double from 45 to 85 million tonnes by 2015. The growth of global fish protein consumption by 2020 will be from developing countries- over half of which will come from the Asia-Pacific region.

The opportunity for export development, employment and innovation has been highlighted – with the sector aspiring to achieve output of \$1 billion nationally by 2025.

In 2008-2009, the Auckland region harvested 2,648 tonnes of mussels and 890 tonnes of oysters. This equates to 3% of national mussel production and 26% of oyster production. For that period, the region processed nearly seven times the amount of mussels it harvested (17,426 tonnes). Food processing facilities in Auckland are very important for the industry and contiguous regions.

Aquaculture contributed an estimated \$72 million (2004) of output to Auckland's economy in 2009. This corresponds to \$28.2million (2004) of value added to regional GDP, or 0.06 per cent of Auckland's total regional GDP.

In terms of employment, there are an estimated 507 FTEs resulting from aquaculture in the region. These are comprised of 341 in direct farming and processing jobs, 141 indirect jobs as a result of activity in other industries, and 25 induced jobs in the region.

It is estimated that exports comprise 80% of New Zealand's mussel harvest, 57% of the oyster harvest and 36% of the salmon harvest.

In terms of overall exports from commercial fishery, aquaculture made up 18% of the total export value. Given the growth of the aquaculture sector worldwide, the significant increase in consumer demand for seafood and coupled with the fact that half the fish consumed worldwide is farmed rather than caught from the wild, there is considerable potential for growth in aquaculture exports from Auckland.

The aquaculture industry has an extended value chain, ranging from suppliers of materials used in the marine farms, to industries which use aquaculture produce in their manufacturing processes (for example nutraceuticals, cafes and restaurants), distributors and exporters.

There are ancillary industries in Auckland, based on marine farming whose economic activity are also not included into this study, due to lack of consistent data. These include scientific research in aquaculture, aquaculture consultancy and specialist legal practitioners. All these activities constitute the broader aquaculture industry.

There are also potential synergies and shared resources with the land-based aquaculture industry in the region. AquA™, a regional cluster of aquaculture businesses, focusses on integrating land based and marine based sectors. Their aim is to produce high value products for domestic and export markets, develop research projects, create employment and career opportunities, and optimise the use of shared resources.

Aquaculture is a valuable source of food protein which if carefully developed may reduce pressure on wild fish and shellfish stocks. There are new products being developed by the industry and research partners like NIWA including finfish farming, wild algae and seaweed.

There are ancillary industries in Auckland, based on marine farming whose economic activity are also not encapsulated into this study, due to lack of consistent data. These include scientific research in aquaculture, aquaculture consultancy and specialist legal practitioners. Their activities constitute the broader aquaculture industry.

There are also potential synergies and shared resources with the land based aquaculture industry in the region – increasingly through emerging governance structures such as AquA™, which views a potential for a successful aquaculture (land and marine) based business cluster in the Auckland region.

Aquaculture is a valuable source of food protein which if carefully developed may reduce pressure on wild fish and shellfish stocks. There are new products being developed by the industry and research partners like NIWA - including finfish farming, and wild algae and seaweed.

SOCIAL PERSPECTIVES

There is the potential for conflict between uses and users of the harbours if aquaculture remains a marine-based activity as opposed to a land-based activity (for example shore based) utilising the marine water resource.

Securing sections of the harbours with exclusive structures like nets, and fish and shellfish farms raises wider social issues. These structures impact navigation, fishing and boating options but they also provide fish attractants and roosts for seabirds.

Marine or land-based aquaculture provides new employment and investment options. The essential exclusiveness of aquaculture can impact on public access, property values, natural character, water quality and diversity.

ENVIRONMENTAL PERSPECTIVES

There is a multiplicity of issues to be considered and almost none are mutually exclusive.

For example, water clarity or turbidity is influenced by land run-off and has varying effects on maritime ecologies. Mullet will consume dairy waste and algae will grow in nutrient-rich wastewater. Sea cucumbers are a delicacy in Asian markets for which there is high demand, and perform a useful role feeding on faecal detritus drifting down under mussel farms. This could be seen as a 'virtuous cycle'.

New species are being considered for marine farming, including kingfish, hapuka, sponges, seaweed, kina, sea cucumber (high nutrient-tolerant deposit feeders). The extent to which some of these species could be land based, not marine based, should be considered.

There needs to be a coordinated approach to aquaculture so that the unwanted effects are mitigated and the economic potential for the industry is fully realised

The considerations will need to include:

- » The impact on the water column and seabed effects on marine ecology, including plankton depletion, seabed deposits, nutrient enrichment, shading of alternative marine habitats and the abundance and diversity of species.
- » The impact on water quality, including large-scale operations close to shore, high-density stocking sited in poorly flushed areas, along with the leachate/pollution from treated wooden structures.
- » Filter feeders can accumulate hazardous levels of disease-causing micro-organisms. Oysters, in particular, are vulnerable to pollution from land run-off from the land, in turn affecting consumers of oysters.

MARINE AQUACULTURE

PROS

- » source of food protein
- » reduces pressure on wild fish and shellfish stocks
- » economic benefits
- » domestic: employment in farming and processing
- » export: NZ export value of oysters **(57% of harvest exported)** & mussels **(80%)** ~\$220m 2011;
- » all NZ aquaculture ~\$400m (60% export)
- » research (experimental aquaculture): new species e.g. kingfish, hapuka, sponges, seaweed, kina, sea cucumber (high nutrient tolerant deposit feeders)
- » other research: onshore mussel spat cultivation, mitigation of adverse effects, yield improvement
- » innovation: integrated marine aquaculture and agriculture (land based in tanks) exploits synergies between fish and plants, fish wastes provide nutrients for plants (e.g. for salads, fodder), plant roots absorb metabolites toxic to fish
- » mullet consume dairy waste and algae growing in nutrient rich waste-water
- » structures provide resting places for seabirds
- » farms provide a food source for seabirds

CONS

- » impact on navigation and hence recreational boating, fishing, cruises for locals and tourists
- » impact on natural character, views, public access (e.g. mooring restrictions for recreational boaties), property values
- » may limit access to traditional fishing sites
- » impact on water column and seabed affects marine ecology e.g. plankton depletion, seabed deposits, nutrient enrichment, shading alter marine habitats and hence abundance and diversity of species
- » impact on water quality especially if farm is large scale, close to shore, also high density stocking, site in poorly flushed area, pollution from treated wooden structures
- » filter feeders can accumulate hazardous levels of disease causing micro-organisms, in particular oysters are vulnerable to pollution from run-off from the land, and oyster health affects the health of oyster consumers
- » structures of off-shore farms may restrict marine mammals' access to food and affect social behaviour

COMMENT

Aquaculture is promoted at local and national levels as an industry with significant economic growth potential. Government aims to support the industry's own goals of \$1 billion by 2025. Auckland has the potential to be a large provider of that increase in both direct investment and the ancillary industries that service the industries. Recent aquaculture enabling legislation to support this growth is a sign of strong commitment from the government.

With an increase in the future Auckland population and an increase in demand for high quality foods, the aquaculture sector has real potential to contribute to feeding our requirements in a sustainable way. We are currently restricted by our arable agricultural land, but with our abundance in water space, the aquaculture sector offers an opportunity to grow high quality food, for both export and domestic consumption.

Growth cannot be achieved through managing wild fish stock alone and planning for the future will assist in managing tensions between competing uses of the water space.

COMMERCIAL FISHING

The 4.3m km² of New Zealand's exclusive economic zone and territorial sea is home to around 15,000 identified marine species of which 130 are commercially fished by trawling, line fishing, net fishing, seining, dredging and other methods such as using pots and traps.

There is no source of exclusive data on the commercial fishing industry in Auckland. Trawlers and long-line boats operate out of the Manukau and Waitemata Harbours and further into the gulf at Leigh.

The Quota Management System (QMS), administered by the Ministry of Primary Industries, helps to ensure sustainable use of fishery resources through the direct control of harvest levels for each species in a nominated geographical area. A fish species can consist of numerous geographically isolated and biologically distinct populations. Each fish species in the QMS is subdivided into separate fish stocks defined by Quota Management Areas.

New Zealand currently has 100 species (or species groupings) subject to the QMS. These species are divided into 636 separate stocks. Each stock is managed independently to help ensure the sustainable utilisation of that fishery. The wild fisheries catch is processed on shore or on large factory trawlers (outside harbours).

The wild fisheries products include inshore fish (groper, dory, sole, red cod, gurnard, snapper, flounder), deep-water fish (hake, hoki, ling, orange roughy, oreo - 70% of total catch is deep-water fish), shellfish and crustaceans (oyster, paua, scallop, squid, mussel, lobster) and migratory species (e.g. tuna, swordfish).

The value of the commercial wild fish quota resource is \$4 billion (2009).

The commercial fishing industry comprises approximately 1,300 fishing vessels, 220 processors and fish receivers, and directly employs 7,155 FTEs (1,773 fishing, 1,086 aquaculture, 3,678 processing, 616 fish wholesalers).

The majority of this activity is, anecdotally, outside of Auckland with the exception of aquaculture where Auckland is well represented for both farming and processing.

Major fishing fleets are housed closer to their fishing grounds in places like Nelson and Timaru where they provide significant local economic activity.

There will be an increasing conflict in the harvesting of this wild resource as the population of the city grows to two million people. Boundaries may need to be revisited to protect the interests of recreational anglers (See commentary in Recreational Fishing).

CUSTOMARY FISHING

Maori control or influence approximately 30% of New Zealand's commercial fisheries (own 50% of quota). Te Ohu Kaimoana (The Maori Fisheries Trust) works to advance Maori interests in the marine environment and provides policy and fisheries management advice and recommendations to iwi.

COMMENT

While it is an important component of the Auckland economy it's a concern the primary source data is difficult to find. Casual observation at Wynyard Quarter reveals limited fishing operations are undertaken directly across the wharves compared to other commercial centres. Anecdotal evidence is that the commercial fishery for Auckland is outside of the Waitemata and gulf. Long-line operations are based at Leigh, where there is local infrastructure and proximity to the fishing grounds.

BOAT BUILDING AND MARINE RETAILING

The boat building and marine supplies industry is one of New Zealand's largest manufacturing sectors, accounting for 10% of the country's manufactured goods. It is estimated to generate about \$1.7 billion a year, with exports accounting for about \$650 million of that figure. Auckland's share is approximately 64% or \$1.08 billion. The high New Zealand dollar, global financial crisis and subsequent worldwide deleveraging has resulted in a slight revenue decline for the sector since 2008 (Auckland: \$1.22 billion; nationally: \$1.9 billion). But the past two years have seen a recovery, reports the New Zealand Marine Industry Association, and the new marine industry precinct in Auckland's northwest is set to deliver further real benefits to the boat building sector when complete.

SUPER-YACHTS

When a super-yacht visits New Zealand it sets in train a significant series of expenditures beyond the boat building and general marine sector. In 2002-2003, an estimated 104 super-yachts visited Auckland for the America's Cup, in excess of the number attending the campaign in 2000. The provision of services to the super-yacht community stretches well beyond provision of food, drink and fuel to include many facets of the tourism, hospitality and accommodation sectors.

The super-yacht construction sector is a relatively small but high-value industry that has earned an international reputation in a globally competitive sector. Auckland dominates the super-yacht sector, enjoying a 93% market share and new developments such as Yard 37, will further cement the city's commercial supremacy.

COMMENT

The marine sector is an important employer: 200 businesses employ 600 apprentices aged 16-21 under the Government's apprenticeship programme. New Zealand is the largest supplier of qualified boat builders in the world.

The opportunity to further develop this sector, particularly in conjunction with blue ribbon international events such as the America's Cup, must be pursued as it represents the type of high-value, high-skills, export-oriented industry that will assist in transforming Auckland's economy.

One caveat: the capacity of existing marina, moorings and ramps infrastructure will come under pressure as both the recreational and commercial boating industry expands. Future development of marine infrastructure will conflict with other existing marine activities and require careful management. The environmental issues associated with the marine sector have been discussed in the Marine Environment section.

EVENTS: AMERICA'S CUP AND BEYOND

The America's Cup is once more within reach. The premier international sailing event will take place on San Francisco waters in July and August this year, with the finals held in September. New Zealand is in a strong position to reclaim the silverware it lost ten years ago.

This is a significant economic opportunity, as a report into the previous cup defence shows. The benefit to the regional economy was large: net additional spending of \$497 million from 2000-2003; \$450 million in direct and indirect added value to the Auckland economy; the addition of 8,180 additional FTE jobs over three years.

Although the major expenditure was confined to competing yachting syndicates (\$171 million) and super yachts and other vessels (\$155 million), spending was still spread widely across the broader marine, tourism, hospitality, retail and recreational sectors.

Indeed, the transformation of the wider boat building industry into an important regional export sector can be traced back to the original America's Cup conquest in 1995. It is also widely credited with providing critical impetus and international exposure to the New Zealand boat-building industry, particularly the super-yacht sector.

The other international blue ribbon event, the Volvo Ocean Race is estimated to deliver \$15.3 million in direct expenditure benefits each time a stopover is staged. The combined GDP impact of the major yachting events is more than \$50 million per year.

COMMENT

The international events, combined with national and local sailing derbies, represent a significant economic contribution to the Auckland economy. Further development of this sector could, when including direct, indirect and induced impacts, generate \$90 million per year of GDP.

This report is not counting its chickens before the America's Cup hatches but it is important to note that some of the waterfront facilities used for the 2003 defence are now put to other uses and pre-planning as to how a future defence is housed and staged would be prudent.

TIDAL ENERGY

Tidal energy converts the renewable energy of tides into useful forms of power. Tidal energy may have advantages over other sustainable sources because the timing and scale of tidal flows is predictable and underwater turbines are invisible and silent. While the economic costs remain a hurdle, the technology represents a significant opportunity in an undeveloped area of alternative energy sources.

ECONOMIC PERSPECTIVE

Kaipara

Crest Energy has been granted consents to construct a tidal power station at the mouth of the Kaipara Harbour which experiences the largest tidal flows in New Zealand (water volume = 1,990m³, average flow rate = 2.2 knots). The Kaipara Harbour's tidal prism volume, by comparison, is approximately 2-fold greater than that of the Manukau Harbour, the second largest in New Zealand.

The project proposes the installation of 200 turbines at 31m-52m depth, along 10 km of seabed, strategically placed to take advantage of depth, flow and undersea topography. The cost is approximately \$600 million over 10 years with revenue starting from year four. The peak capacity is 200MW, producing a DC current transmitted through undersea cables and coming ashore near Hoteo. The station's output will provide electricity for the equivalent of 250,000 homes or 3% of New Zealand's industrial, commercial and residential electricity needs. This harbour is close to the areas of electricity demand growth (Auckland and Northland) which could have a positive effect on the scope and timing of the Transpower grid expansion.

There are no publicly disclosed plans for tidal energy in the gulf and Waitemata or Manukau Harbours.

Environmental perspective

Tidal energy has a low carbon footprint at 1.8g of CO₂ per kW compared to wind at 3g of CO₂ per kW, hydro at 4.6g CO₂ per kW, geothermal at 6.3g of CO₂ per kW, combined cycle gas at 200-300g of CO₂ per kW, and coal at 400-1,000g CO₂ per kW).

The turbines are invisible and silent, running far below the sea surface; these are major issues for land-based turbines.

However the environmental effect of turbines in a tidal estuary is difficult to estimate. Concerns might include underwater noise and vibration and its impact on marine wildlife, notably the Maui dolphin, and the Kaipara is a significant snapper spawning ground. The speed of a turbine (which is shrouded) is six revolutions per minute and believed to be slow enough for marine life to adjust.

COMMENT

Although there may be some barriers to fully developing alternative energy, such as tidal energy, considerations are important given the growth of the population and the need to seek reliable sources of energy in the future. The opportunity to be world leaders in this field could be enabled through planning, development and coordination with our universities, such as the South Pacific Centre for Marine Sciences.

TIDAL ENERGY

PROS

- » predictability of supply
- » low carbon footprint: tidal = 1.8 g of CO₂ per KW (wind = 3, hydro = 4.6, geothermal = 6.3, combined cycle gas = 200-300, coal = 400-1,000)
- » turbines are invisible and silent (for land dwellers)
- » stepwise construction subject to environmental monitoring
- » lack of commercial shipping on the Kaipara (treacherous tides, sand bars at mouth)
- » low leisure usage at the mouth of the Kaipara
- » proximity of Kaipara to demand
- » readily available routes to sell electricity using existing transmission lines during the earlier stages of the project
- » opportunities for research: Canterbury University's Centre for Advanced Engineering - "tidal energy technology is advancing rapidly", "tidal energy has potential for NZ but the engineering problems involved are substantial - particularly due to the enormous forces tidal generators are subject to" regional and national economic benefits: cost = \$600m over 10 years, \$200 million will be spent in Northland and Auckland, \$200 million nationally and the balance overseas

CONS

- » environmental effect of turbines in a tidal estuary is difficult to estimate
- » problems with obstructions in the water, e.g. marine life, affecting the turbines
- » underwater noise and vibration - impact on marine wildlife e.g. snapper, Maui dolphin
- » size of turbines: 25m diameter (likely), Lunar Energy/Rotech Ltd
- » collision risk for marine life
- » leisure craft can pass over the turbines (~7m clearance) but for safety reasons access to the turbine area will be restricted

MINERAL EXTRACTION

ECONOMIC PERSPECTIVE

SAND EXTRACTION

Coastal sand extraction (sea sand mining) is an important use of coastal resources in the Auckland region. Sand is primarily utilised as a fine aggregate in the production of concrete and asphalt for roading, concrete structures and other cement-based products. Sand is also extracted for use in drainage systems and for beach nourishment projects such as at Mission Bay.

Concrete manufacturing specifications determine the characteristics required for sand, and hence the selection of extraction sites. The sand desired tends to be fine to medium grain, generally well sorted and free from shell or other impurities. The sand is generally extracted from the seabed using a suction pump, and pumped into a barge as sand and water slurry. Shell and larger objects are screened off and sea water drains back to the sea as the barge loads.

Five coastal permits currently (2007) provide for sand extraction from the Auckland coastal marine area:

- » two permits totalling 76,000 cubic metres per year (near-shore Pakiri) one permit for 2,000,000 cubic metres, with no annual limit but additional impact assessment requirements where quantities exceed 1,200,000 cubic metres in a 24-month period, (offshore east coast near Little Barrier Island) two permits totalling 400,000 cubic metres per year, for five years, then increasing quantities after meeting further conditions (Kaipara Harbour entrance, flood tidal delta).

Current extraction rates are approximately 151,000 cubic metres per year for the east coast sector and 219,000 cubic metres per year for the west coast Kaipara sector. Sand from the Kaipara Harbour entrance currently contributes over 50% of the concrete sand requirements for Auckland.

The availability of sea sand within the region is a significant economic benefit to the regional construction industry, as the transport of sand from other parts of the country would increase the cost of roading and other infrastructural works such as wastewater drainage systems.

SAND EXTRACTION

PROS

- » availability of sea sand within the Auckland region is a significant economic benefit to the regional construction industry as the transport of sand from other regions would increase costs of roading, infrastructure and buildings
- » beach nourishment e.g. Mission Bay
- » actual extraction low compared with sustainable levels
- » research re mitigation of adverse impacts

CONS

- » method and location of sand extraction and dredging has actual and potential adverse environmental affects including:
- » disturbance and destruction of coastal habitats of fish, shellfish and mammals e.g. tuatua
- » sedimentation: smothers seabed communities, causes feeding problems for juvenile snapper in Kaipara (main NI snapper supply)
- » coastal erosion, adverse affects on amenity value, conflict with recreational uses
- » mining of near-shore sand impacts adjacent beaches and dunes

IRON SAND

Iron sand mining is the extraction of titano-magnetite which is used in steel production. There are two primary sources: North Head of the Waikato River heads and offshore. Offshore extraction is conducted at Taharoa, near Kawhia and out of the Auckland region; however significant reserves are also off the Auckland west coast beaches. The reserve calculations are not complete but estimates exceed 1.44 billion tonnes. The iron sand derives from Taranaki volcanic actions.

WAIKATO NORTH HEAD

Approximately 5m tonnes per annum of excavated iron sand produces about 1.2m tonnes per annum of titano-magnetite which is transported to Glenbrook steel mill via 18 km long underground pipe where it is used to make steel through a unique process.

TAHAROA (EXPORT ONLY)

The dredged iron sand produces approximately 1m tonnes per annum of titano-magnetite, which is carried as water/sand slurry through a 3 km long pipeline to an offshore loading facility for export via specialised bulk ships to Asia (mainly Japan, China).

It is understood the value of the iron sand exports are approximately \$30m per annum with 40 FTEs employed.

ENVIRONMENTAL EFFECTS

The method and location of sand extraction and dredging has potential adverse environmental effects including:

- | | |
|---|-------------------------------------|
| » disturbance and destruction of coastal habitats | » coastal erosion |
| » smothering of benthic (seabed) communities by sedimentation | » adverse effects on amenity values |
| | » conflict with recreational uses. |

Current knowledge (ecological and biological) is often poor, particularly the effects on the entire biological food chain.

However, information from NZ Steel provides insight into minimising the effects on the environment. Extraction methods for titano-magnetite uses magnetic and gravitational forces. No chemicals or additives are used. The unwanted material, or tailings, is returned to the mined areas to help it revert to its original form. Tailings deposit areas are contoured to recreate the original land forms. Marram grass and radiata pine trees are planted to stabilise deposits and minimise windblown sand. The tailings consist of river water containing clays and sands. These are all natural materials derived from the area and as such do not adversely affect the dune environment. Any authorisation process permitting extraction requires the balancing of potential adverse effects with the economic benefits to the community. In all situations, scientific research on the coastal environment is required before extraction is permitted.

Ongoing research and monitoring by the extractor is often required as a condition of consent. Should adverse effects from the activity arise, the consent authority may halt the operation or modify conditions under which sand extraction is permitted.

COMMENT

Sand extraction is an important industry in the Auckland maritime area and provides a significant economic benefit to the regional construction industry and is a critical feedstock for steel making at Waiuku.

While currently managed through the coastal policy, there is new pressure as existing permits are worked out and new proposals are established. The regulatory and policy regime may need clarification for new and proposed operations.

IRONSAND EXTRACTION

PROS

- » domestic steel production (Waikato North Head, Glenbrook)
- » 650,000 t of steel are produced pa
- » value equivalent to 5% of the NZ's GDP
- » Glenbrook is the only steel manufacturer in the world to use sand as its source of iron. Other steel mills use it as an additive.
- » titanomagnetite export (Taharoa)
- » value ~ NZ\$30m pa
- » long term contract exports will double from 2014

CONS

- » environmental effects of steel production - large quantities of solid, liquid and gaseous waste
- » water
- » environmental affects of mining
- » mining in areas of cultural significance

CONCLUDING COMMENTARY

The harbours can play a significant role in delivering on Auckland's economic development plans. The activities such as tourism, boat building, and major events we have captured above offer a small glimpse into the possibilities that will contribute to Auckland reaching its vision of the World's Most Liveable City.

We are also encouraging informed debate about Auckland's future freight demands and how the status quo needs to be challenged. Auckland cannot afford to repeat the same mistakes as the past.

We need to understand the full opportunity costs of an expanded port, and what impact this may or may not have on Auckland's urban form. These issues need to be debated now and not left for future generations to grapple with.



PART THREE: PLAY

INTRODUCTION: FIRST-WORLD LEISURE AND LIFESTYLE

WAITEMATA HARBOUR

The Waitemata Harbour forms the north and east costs of the Auckland isthmus. It has a diverse habitat including muddy tidal arms, intertidal sandflats and beaches, deep channels and basalt reefs. There are a large number of invasive species which have become established in the harbour due to its proximity to the Ports of Auckland and the associated movement of overseas shipping carrying new species on hulls or in ballast water. The harbour is an important recreational fishing area and has a number of habitats that are significant fish nurseries. Several sites within the Waitemata Harbour also provide vital habitat for coastal bird species.

HAURAKI GULF

The Hauraki Gulf is a complex ecological and geographical feature that covers 1.2m ha of ocean. It includes a marine park, six marine reserves, 30 major island groups, productive fishing areas, New Zealand's biggest commercial harbour, hosts the main New Zealand naval base, and contains many smaller ports and numerous marinas. Activities that the gulf accommodates and facilitates include the Ports of Auckland, cruise industry, recreational marine industry, commercial, recreational and customary fishing, tourism and other events.

MANUKAU HARBOUR

The Manukau Harbour, located to the southwest of the Auckland isthmus and opening out into the Tasman Sea, is New Zealand's second largest harbour. A large part of the harbour consists of tidal sand bars, accommodating an array of species including scallops, cockles, wedge shells, nut shells and shorebirds. The harbour is also home to many sharks and contains fish species of commercial significance and habitats that are important as fish nurseries.

KAIPARA HARBOUR

The Kaipara Harbour is a large enclosed harbour estuary complex on the north western side of the North Island. The Kaipara is one of the largest harbours in the world, extending 60km from north to south and several large arms extend far into the peninsula interior. It is nationally and internationally significant for its size, physical characteristics, and ecological functions. The harbour is an extremely important fish nursery, which sustains a large proportion of the west coast snapper, grey mullet and flounder fisheries.

ACCESS TO WATER

Almost all Aucklanders are able to access the water within one hour's drive, no matter where they live or how much they earn. It is this ease of access to the three waters of the isthmus that makes the city unique.

The opportunity to explore the marine environment by swimming, diving or by boat is considered a birthright and crosses socio-economic boundaries that, in other areas of Auckland life, would separate its citizens into haves and have-nots. Nationally, New Zealanders use more than 450,000 recreational craft, which, if spread evenly, would equate to 10% boat ownership.

COMMENT

Auckland presently has 10.4 boat ramps per 100,000 people and, given the projected increase in the population, another 49 boat ramps should be considered and planned for in the next 20 years to maintain the present ratio (see chart).

Also, access to the Kaipara Harbour seems unduly limited given it has only four concrete or shingle ramps.

RATIO OF ASSETS PER 100,000 PEOPLE ASSUMING NO CHANGE IN THE CURRENT NUMBER OF ASSETS						Additional required by 2031 to maintain 2011 ratio
	2011	2016	2021	2026	2031	
Boat ramps (number)	10.2	9.5	8.8	8.2	7.7	49
Boat moorings (number)	431.6	402.9	373.5	347.8	325.7	2084
Wharves & jetties (number)	2.2	2.0	1.9	1.7	1.6	10
Ferry terminals (number)	1.0	0.9	0.9	0.8	0.8	5

Source: Covec study into harbour assets 2012

FISHING & BOATING

RECREATIONAL FISHING

Approximately 20% of the New Zealand population engage in fishing, whether by rod, line, net, trap or spear. In Auckland, an estimated 300,000 participate, either from the shore, by private boat, charter boat or underwater diving.

The recreational resource is managed by bag⁷ and size limits by type, mandated and suggested methods of capture, and control over seasons and locations.

There is a conflict between commercial and recreational anglers for rights to harvest this natural resource. In the overall New Zealand context, commercial operators have the ability to travel further, while recreational fishing is more constrained to the coast line and sheltered waters.

To accommodate the recreational needs of a future Auckland population of two million people a greater proportion of the overall sustainable marine harvest needs to be allocated to them. This will require a review of the appropriate boundaries and limitations on commercial operators.

RECREATIONAL BOATING

An astonishing 450,000 craft ply the in-shore waters of New Zealand and there are 116 sailing or boating clubs, more than a third of which are based in the Auckland region. More than a fifth of the region's population own a boat. Auckland truly is the City of Sails (or motors, considering 40% of the total were trailerable motorboats and another 14% were launches).

Most activity is on the Waitemata and Hauraki Gulf; however, with only four registered clubs in the Manukau and none on the Kaipara.

An increase in population to two million people will require a proportional increase in the whole infrastructure needed to support recreational boating. This includes boat ramps and parking areas, marinas, clubs, and coastguard support

WATER QUALITY

As stated in the Live section, there are concerns over water quality that could impact Aucklanders' ability to enjoy the marine environment. One third of beaches monitored in the Auckland region between January 2006 and April 2009 exceeded recommended health and safety guidelines. Toxic and organic contaminants, litter, the high number of non-indigenous marine species present in Auckland waterways and sediment accumulation are negatively impacting the region's estuaries and harbours.

COMMENT

The lack of development and support of recreational activities on the Manukau and Kaipara is an issue, even though residents can still enjoy the harbours without the provision of formal recreational activities. Auckland prides itself on the notion that messing about in boats is for all its citizens to enjoy.

Addressing environmental risks must also be prioritised to ensure future recreational use is safe.

7. In the Auckland and Kermadec Fishery Management Area the finfish bag limit is 20 per day.

EVENTS

On 29 January each year (Auckland Anniversary day), upwards of 900 yachts and launches of all sizes assemble to compete in a variety of racing events. It is the largest single-day regatta in the world and attracts thousands of spectators to the harbour.

This is an economic and cultural event without international peer and, when combined with other regional sports and recreational events, has the potential to generate up to \$40 million per year, when including direct, indirect and induced impacts.

Other events held in the heart of Auckland involving use of the harbour include the recently completed ITU World Triathlon Series. Council-controlled organisation Auckland Tourism Events and Economic Development is calling for applications to hold more major sporting events in Auckland and has budgeted \$2.1 million sponsorship for the 2013-2014 year.

Auckland was recently placed second in the Sport City Award 2012 held in London.

CONCLUDING COMMENTARY

Aucklanders have an amazing advantage. Our access to the water is so easy it is almost taken for granted. The harbours are our recreational retreat and an essential part of who we are. As our city looks to attract families, tourists, students and business, the harbours can provide additional lifestyle benefits that few other cities can offer.

OVERALL CONCLUSIONS

This report provides a glimpse of the issues, opportunities and trade-offs that exist across our three waters. The harbours provide a rich resource and an attractive advantage for all to enjoy, in particular as to how we live, work and play. Overall, we have found that:

- » Too many organisations are responsible for managing, protecting and developing the three Auckland harbours, creating governance duplication, inefficient management and uncoordinated planning and decision making.
- » Future planning decisions around the port need to be informed by constructive questions and debate. These questions include:
 - Is this the best use for a substantial area of prime waterfront real estate?
 - Are there sensible alternatives to the status quo?
 - What issues and opportunities do the alternatives raise?
 - What are the costs and benefits of releasing port land at the container terminal?
- » Management and amelioration of environmental degradation is inhibited by insufficient intervention, lack of clear goals, failure to implement policy, failure to respond and fragmentation of agency responsibilities.
- » The Manukau and Kaipara Harbours are under-developed for commercial and recreational use, while the full opportunities of the Hauraki Gulf are unrealised.
- » There are large information gaps around commercial and recreational activity on the Manukau and Kaipara Harbours.
- » The harbours offer many tourism opportunities that have yet to be fully developed.
- » Greater development of the aquaculture sector is needed to capture a bigger share of a growth industry.
- » Future development of marine infrastructure will be required to handle forecast increases in commercial and recreational uses of the harbours.

PART FOUR:

THE RECOMMENDATIONS



RECOMMENDATION ONE: URGENT NEED FOR ONE MARINE SPATIAL PLAN FOR ALL THREE HARBOURS

The Committee for Auckland notes there is an existing process underway to develop a Hauraki Gulf Marine Spatial Plan.

The Committee for Auckland encourages the Council, central government agencies and other key stakeholders involved with this process to establish a Terms of Reference to include one Marine Spatial Plan (MSP) across the Waitemata, the Kaipara and Manukau Harbours.

The Committee suggests the Marine Spatial Plan process could be advanced for each harbour sequentially provided common Terms of Reference were applied to each. It is strongly recommended these Terms of Reference consider economic, social, environmental and cultural outcomes.

A single MSP will allow for a timelier planning horizon, resolve data and knowledge gaps in the harbours, provide consistent application of scientific methodology to all three harbours and reduce potential consultation fatigue with many stakeholders. There will also be cost savings by undertaking one marine spatial plan instead of three separate plans.

Future scenarios, informed by robust data, will assist Auckland and New Zealand in planning investment requirements in the long term. Having this information will be a step closer to planning all the activities in the harbours in a consistent way that will support a vision of making Auckland a great place to work, live and play.

Key characteristics of MSPs are that they integrate policies across different sectors of activity, consist of a hierarchy of policies which span international, national, regional and local levels and look to the future to provide the foreseeable needs in a sustainable way. They should form the basis for ongoing decision making on marine development processes, resource exploitation, and investment decisions and for the long-term protection of valued environments.

Key benefits of a MSP are:

- » a mechanism for delivering sustainable development in the marine environment
- » optimisation of sea use
- » greater certainty for new developments
- » cost reduction
- » a mechanism for the establishment of clear and comprehensive economic, social, cultural and environmental objectives
- » administration benefits
- » a plan-led approach to decision making
- » opportunities for consent streamlining
- » improved availability of information and knowledge
- » better coordination and targeting of data collection
- » a focus on stakeholder participation
- » a forum for conflict resolution.

RECOMMENDATION TWO: COUNCIL AND CENTRAL GOVERNMENT TO REVIEW CURRENT GOVERNANCE ARRANGEMENTS

The Committee for Auckland recommends that the Auckland Council and central Government collaborate in reviewing the roles and responsibilities of the many agencies and organisations involved in the governance of the Waitemata, Hauraki Gulf, Kaipara and Manukau Harbours.

Implementation of a MSP must be done by a group that has the appropriate authority, powers and obligations to carry out the objectives of the plan.

A comprehensive review of the governance arrangements will ensure there is a balancing of the complexities, tensions and trade-offs between supporting innovation, sustainable economic development and social, cultural and environmental outcomes.

The Government has stated that resource management is critically important to New Zealand's economic, environmental, cultural and social well-being. With the announcement of a comprehensive reform of the Resource Management Act, the Committee believes the time is right to look at how to better manage the resources and activities in Auckland's major harbours. Within this context, now is the time to review current governance arrangements.

These are due to:

- » Intervention is not of sufficient scale or intensity: Many of the initiatives are not of a sufficient scale or intensity to successfully address the targeted environmental issues and or to make a measurable difference to the environmental quality of the Harbours as a whole.
- » Lack of clear environmental goals: Many of the initiatives lack clear goals in terms of measurable difference in the environmental quality of the Harbours marine area. A focus on mitigation of the effects of individual activities has in many cases failed to effectively address cumulative effects. This is particularly the case with the management of sediment and nutrient discharges.
- » Key gaps in management response: in some key areas there has been a lack of management response including non-point discharges from many rural activities and the broader environmental impacts of fishing activity;
- » Implementation gaps: There are often difficulties in translating policy or the outcome of the strategic planning exercises into action which affect activities on the ground such as through the introduction of stronger rules into regional and district plans
- » Fragmentation: in some key areas management is fragmented between different management agencies. For example there is currently particularly poor integration between fisheries management and management under the Resource Management Act. There is also fragmentation between planning and management efforts in the Auckland and Waikato regions
- » Roadblocks: In many cases technical, political, social or economic roadblocks prevent the implementation of solutions.

CASE STUDY:

UK MARINE MANAGEMENT ORGANISATION

The United Kingdom's Marine Management Organisation (MMO) was established to make a contribution to sustainable development in the marine area and to promote the UK government's vision for clean, healthy, safe, productive and biologically diverse oceans and seas.

The MMO are an executive non-departmental public body (NDPB) established and given powers under the Marine and Coastal Access Act 2009. This ground-breaking act brings together for the first time key marine decision-making powers and delivery mechanisms.

The MMO has incorporated the work of the Marine and Fisheries Agency (MFA) and acquired several important new roles, principally marine-related powers and specific functions previously associated with the Department of Energy and Climate Change (DECC) and the Department for Transport (DfT).

The establishment of the MMO as a cross-government delivery partner therefore marks a fundamental shift in planning, regulating and licensing activity in the marine area with the emphasis on sustainable development.

The MMO has a wide range of responsibilities, including:

- » implementing a new marine planning system designed to integrate the social requirements, economic potential and environmental imperatives of our seas;
- » implementing a new marine licensing regime that is easier for everyone to use with clearer, simpler and quicker licensing decisions;
- » managing UK fishing fleet capacity and UK fisheries quotas;
- » working with Natural England and the Joint Nature Conservation Committee (JNCC) to manage a network of marine protected areas (marine conservation zones and European marine sites) designed to preserve vulnerable habitats and species in UK marine waters;
- » responding to marine emergencies alongside other agencies; and
- » developing an internationally recognised centre of excellence for marine information that supports the MMO's decision-making process.

RECOMMENDATION THREE: AUCKLAND COUNCIL TO COMMENCE WITH URGENCY THE SECOND STAGE OF THE UNISA STUDY

The Ports of Auckland's expansion plans are highly controversial. The Committee believes there should be no further *major* reclamation of the harbour for the container port. Major reclamation will lead to a significant narrowing of the harbour, the impact of which will be felt across a range of commercial and recreational sectors.

The Ports of Auckland is basing its expansion plans on the first UNISA report, but this report focusses on the wrong questions for Auckland.

With the need for a substantial investment in the port and its connective transport infrastructure over the next ten years, the real 'game-changing' questions that should be asked are:

- » Is this the best use for a substantial area of prime waterfront real estate?
- » Are there any sensible alternatives?
- » What issues and opportunities do the alternatives raise?
- » What are the costs and benefits of releasing the port land at the container terminal for alternative use versus expansion or the status quo?

To inform this debate, Auckland Council must commission the second UNISA study to scope and undertake an examination of options for freight movement through Auckland, including consideration of the relationship between the port and Auckland's urban form and the opportunity cost of each. Part of this discussion must involve alternative or complementary port facilities.

The Committee would welcome a study that would inform longer term strategic planning. The study should include factors such as:

- » a longer term horizon, between 30-100 years.
- » assessing future port development options
- » considering as yet unexplored alternative location scenarios for port infrastructure
- » high-level capital and operating costs and externalities of each of the options
- » full economic costs and benefits of various options
- » full impacts and implications across social, economic, cultural, and environmental outcomes
- » any actual or potential current legal and other barriers or conflicts in the pursuit of options (and how these would be reduced or removed).

To ensure the best decisions for the container handling terminal and related infrastructure are being made beyond the 30-year time horizon, we need to ensure that a complete investigation is undertaken now, including opportunities to optimise use of the current land area and what facilities Auckland will need over the long term.

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