15 DISCUSSION

Information surrounding the world of Kaipara was extensively reviewed and analysed, exploring three important knowledge-bases: Mātauranga Māori (traditional knowledge), biogeophysical and socio-economic. Detailed investigations outlined gaps within the three knowledge-bases that would assist with achieving the vision, guiding principles and long-term objectives of the Integrated Kaipara Harbour Management Project (IKHMP). Gaps and opportunities were identified in light of the two approaches to management of the Kaipara: one indigenous (kaitiakitanga) and the other derived from western knowledge (ecosystem-based management).

The Kaipara Harbour is located on the west coast of the North Island and is New Zealand's largest estuarine ecosystem. It is the receiving environment of a massive 640,000ha catchment that drains a predominantly agricultural landscape with fragmented pockets of native shrubland and forest. The world of Kaipara contains four broad ecosystems: forest, freshwater, shrublands, and the dunelands and estuaries. The environmental values have been and continue to be degraded due to multiple stressors operating across the land and seascape.

The Kaipara contains some of the most rare ecosystems found in New Zealand namely dunelands, seagrass, freshwater and estuarine wetlands. Evidence exists that the Kaipara harbour plays a significant role in supporting the majority of the commercially and recreationally important snapper fishery located throughout the west coast of the North Island.

The Kaipara is governed by seven government departments: Rodney District Council, Kaipara District Council, Auckland Regional Council, Northland Regional Council, Department of Conservation Northland and Auckland, and Ministry of Fisheries. This presents a complex and highly fragmented environmental legislative framework, with conflicting management scales and philosophies. There is allowance for local integrated co-management under the RMA and Conservation Act however, there is no room or provisions under the Fisheries Act to provide for locally managed fisheries. This is concerning considering the significant role the Kaipara Harbour plays as a nursery ground for commercially and recreationally important species, such as snapper, rig, flounder, grey mullet and school shark.

The iwi of Ngāti Whatua claim a long traditional relationship with the Kaipara Harbour and the many catchments of the rivers that enter the Kaipara. Ngāti Whatua has held mana over both land and water taonga through numerous generations of occupation. Statutory acknowledgements and recognition of the importance of Kaipara to Te Uri o Hau have been outlined in treaty settlement legislation providing the mandate for Te Uri o Hau to practice contemporary kaitiakitanga seeking integrated co-management arrangements for their people. This poses challenges for management authorities who either are unwilling or lack the necessary skills to be able to recognise and use Mātauranga Māori within current planning, policy and management frameworks.

There are eight key issues for the Kaipara Harbour. They are:

- Declining fish and shellfish stocks
- Declining biodiversity
- Increasing sedimentation and poor water quality
- Increasing resource use and development pressure
- Limited socio-economic opportunities
- Limited opportunities to practice kaitiakitanga
- Climate change impacts
- Lack of integrated management and co-ordination of action.

Based on these key issues six broadly based objectives have been identified by the IKHMG. They are:

- Protecting and restoring native biodiversity
- Restoring sustainable use of fish and invertebrate stocks
- Protecting and restoring Mauri of the Kaipara
- Responding to climate change impacts
- Promoting socio-economic opportunities
- Integrated and co-management of the Kaipara ecosystems, catchment and Harbour

The integrated co-management initiatives of the IKHMG are positive steps towards achieving the common vision and long-term objectives, however they are hindered by the lack of any statutory framework in which to ground them. There are substantial barriers for the parties of the IKHMG to move towards a truly integrated, co-management framework for the Kaipara harbour, catchment and ecosystems. This may hinder or benefit the sustainability of the IKHMG initiatives which are currently achieved by:

- Multiple stakeholder participation, which includes all local and regional statutory authorities, crown agencies that govern biodiversity, biosecurity, climate change, resource development and use, water quality and fisheries. There is a weakness in representation from the private sector such as agriculture and fisheries. Community group representatives are present.

- The initiative is iwi-led thus, all initiatives are grounded in Mātauranga Māori, traditional management, facilitating the creation of a new body of knowledge that weaves the two approaches to management: kaitiakitanga and ecosystem-based management.

- Agreement on issues, vision, guiding principles and long-term objectives without distinguishing statutory roles of the agencies/partners

- Effectiveness by pooling resources, expertise, advice and data.

- Leadership in testing a new model

- Add value and promote integration at a strategic planning level and indirectly at grass-roots community level.

- Founded by community action with annual report back to community.

The findings are comprehensive producing a weighty report, reflecting the integrated, holistic nature of the analysis across the three knowledge-bases. A gap is sometimes spoken of as "*the space between where we are and where we want to be*". This analysis aims to explicitly identify what needs to be done to close that gap, including targeted research and management initiatives.

Due to the large scale of the analysis to encompass ecosystems and management across the harbour and catchment, the data collected for review has a strong spatial component. Therefore, an explicitly spatial approach was taken in capturing and storing all datasets of relevance and aided in data interpretation and reporting. For example, information regarding marine and estuarine habitats was only really known for the southern Kaipara harbour, with a lack of information about biodiversity for the entrance and northern Kaipara. Strengths were found to be information regarding terrestrial and freshwater ecosystems, management, and planning compared to estuarine and coastal ecosystems. Other weaknesses included spatial and non-spatial information regarding Mātauranga Māori, illustrating its limited extent to which it is being weaved across knowledge-bases, research initiatives and management.

Finally, a set of 18 priority gaps and opportunities were identified to address each of the IKHM project objectives. These are:

Objective	Gaps & Opportunities
Biodiversity	1. Systematic spatial strategies for conservation and restoration 2. Robust freshwater ecosystem management 3. Protected Area network for biodiversity persistence focused across all ecosystems (marine, terrestrial, freshwater, wetlands, and dunelands) 4. Address sedimentation and eutrophication of aquatic and marine ecosystems
Fisheries	5. Local management arrangements 6. Pro-active spatial management and planning that will benefit local fish populations (or sub-stocks), fisheries habitats and shellfish. 7. Understanding spatial and temporal extent of land-based stressors and impacts
Climate Change	8. Vulnerability assessments for Kaipara Harbour communities and ecosystems 9. Adaptation strategies for Kaipara Harbour communities
Mauri	10. Identify sites of significance for the Ngāti Whātua ki Kaipara (hapū) 11. Develop iwi management plan for Ngāti Whātua ki Kaipara (hapū) 12. Develop and apply Ngāti Whātua ki Kaipara (hapū) based cultural health index

Management	13. Develop a Kaipara biodiversity policy statement 14. Promote integrated catchment management 15. Promote co-management initiatives
Socio-economic	16. Promote tourism opportunities 17. Refocus from short-term gain to medium and long-term 18. Develop community environmental partnerships to support local economy and labour (e.g. Centre of Excellence in Land-Sea Restoration Practices)

This analysis documents new and proposed research initiatives that assist with achieving the long-term objectives of the IKHM project such as: fish habitat utilisation and understanding significant fisheries habitat; sedimentation and eutrophication transport pathways across the land and seascape; spatial mixing of grey mullet (GMU 1) using otolith microchemistry; larval settlement of snapper; productivity of seagrass meadows; and the development of a coastal risk assessment framework for anthropogenic disturbances within the coastal zone. Together with the opportunities listed above, a healthy and productive Kaipara Harbour could be achieved.