

Mangroves are assets to the many but a curse to the few – polarised perceptions in New Zealand

Gordon S. Maxwell^{1,2,*}

¹ *School of Science and Technology, the Open University of Hong Kong, 9/F, 30 Good Shepherd St., Ho Man Tin, Kowloon, Hong Kong* ² *Ecosystem Research Centre, 180 Wires Road, R.D. 4, Paeroa, New Zealand* * E-mail: gayaumax@gmail.com

Background

On March 16, 2018, a public hearing on a Mangrove Management Bill (MMB) took place before a New Zealand (NZ) Parliamentary Select Committee. This Bill proposed giving legal power to the local Government, enabling the selective eradication of mangrove forests (Maxwell, 2018). The general policy statement of the Bill is shown in Appendix I. If enacted, the Bill would enable the local Government to side-step the existing, tried and tested, and well-respected national, Resource Management Act (RMA). The RMA is a comprehensive law structured to ensure that natural ecological resources are protected using the process of EIA (Environmental Impact Assessment) when development projects are proposed. In contrast to jurisdictions such as the Hong Kong Special Administrative Region (HKSAR), where only designated projects attract an EIA, under the existing NZ law, *any* development project may attract an EIA and *any* citizen may contest the project (Maxwell, 2004 & 2015). In the NZ context since any development will have environmental *effects* (note this word is used rather than ‘*impacts*’) the RMA is holistic and embraces ecosystems, all natural and physical resources, amenity values and the social, economic, aesthetic and cultural conditions which affects all of the above matters (Maxwell, 2004 & 2015). In short, the RMA is aimed at promoting and ensuring sustainable management of natural and physical resources (Kennedy, 2017).

Citizens were invited *via* announcements in the media to make submissions (written statements) that reflect their viewpoints on the MMB. The invitations came with guidelines (not inflexible rules) and the option to speak to a submission or, simply, table it before the Select Committee. Submissions could be individual- or organization-based, the former being allowed just five minutes of speaking time should the person wish to be heard, while those representing an organization could speak for 10 minutes. The public hearing was well-organised and controlled by a Chairperson in a Community Hall located in a small town called Thames, near an important mangrove-fringed bay known as the Firth of Thames. The meeting was open to the public, as might be expected in a democracy like New Zealand.

The trigger for a Mangrove Management Bill

In NZ, mangroves are restricted in distribution to low tidal energy, sheltered bays and estuaries in the northern half of the North Island. At present, chill shock from ground frosts ensures that NZ’s sole species of mangrove, *Avicennia marina*, has a biogeographic southern limit of latitude 38 degrees south (e.g. Maxwell, 2015; NRC, 2018).

However, in recent decades, NZ’s mangrove vegetation (Figure 1) has shown a net expansion within the bays and estuaries due to anthropogenically-enhanced sedimentation. Although noticed, the net increase in mangrove area has not been quantified. Currently, some 31,738 ha of monospecific (*Avicennia marina*) mangrove ecosystems exist (Giri *et al.*, 2011).

Two local Councils (regional Government) have been most associated with the MMB. Both contain some citizens who perceive mangrove expansion as a negative factor inhibiting specific coastal water recreational activities such as boating (sailing and speed boat) and easy access to bathing beaches. Some also perceive these olive-green trees in the sea as ugly insults to an aesthetic appreciation of open coastal environments. Negative viewpoints such as these have become sociological forces which have, collectively, helped to drive the birth of this MMB (Kennedy, 2018; Maxwell, 2006, 2018).



Figure 1 Typical stand of New Zealand’s monospecific mangroves of *Avicennia marina*. Vegetation is 2–3 m tall, dense, compact and estuarine trees beside Piako River, a tidal creek at Hauraki District.

Polarised perceptions

The public hearing on the MMB revealed a polarised populace with those submitting a contribution at the public hearing before a Parliamentary Select Committee clearly divided into for and against the Bill. Table 1 clearly illustrates the polarization. However, as can be seen from an inspection of Tables 2 & 3, this polarization is far from a simple for and against opinion spread. These tables illustrate the quite diverse response categories of 172 public submissions. Organizations from environmental and tribal (*Iwi*) groups to recreational or sporting clubs to local governmental bodies, represented 76% of the submissions while those of individual citizens accounted for 24%. Table 2 shows samples of submissions opposing the MMB. Samples of submissions supporting the bill and did so with restricted mangrove removal are shown in Table 3.

Table 1 Categories of public submissions on the Mangrove Management Bill (MMB)

Public submission	Opposed bill	Supported bill	Limited support*	Inconclusive	Total
Number	112	44	14	2	172
Percentage	65	26	8	1	100

* With restricted removal allowed

The tables are designed with a stand-alone quality in mind enabling the principal arguments and viewpoints to be readily identified. There is no advantage in re-stating these here. What is important is how well they connect to and reinforce the sterling and much needed aims and purpose of the International Society for Mangrove Ecosystems (ISME); these are as relevant and important today as when ISME was established 28 years ago. My Life Membership of ISME together with a written letter of support from our President, Prof. Sanit Aksornkoae, injected a powerful and convincing message into my submission opposing this Mangrove Management Bill (Table 2; Submission # 156).

Table 2 Samples of response profiles OPPOSING the MMB

Submission, [#] & sociological class	Principal argument
<p>Ngati Whanaunga [18]</p> <p>– <i>Iwi</i> (tribal group) & scholar (expert)</p>	<ul style="list-style-type: none"> • Ignores Maori cultural values • <i>Manawa</i> means ‘heart’ • <i>Manawa</i> is Maori name for NZ mangroves • Mangrove is like the Mother of the Harbour (fish nursery)
<p>Retired Green Party Political Leader [76]</p> <p>– Retired, decorated (CNZM) Political Leader (accorded organization status because of her recent retirement as MP and longer speaking time)</p>	<ul style="list-style-type: none"> • Mangroves bring a host of ecological values and services • Mangroves are too valuable to destroy • Mangroves as excellent carbon sequesters • An eradication of this native tree would damage New Zealand’s ‘Green’ image
<p>National Institute of Water & Atmospheric Research [145]</p> <p>– A national scientific government body</p>	<ul style="list-style-type: none"> • Mangrove expansion is largely due to sedimentation from eroding catchment soils • Artificial/mechanical mangrove removal is problematic; creates more problems than it solves • Disturbance of mangrove substratum brings adverse ecotoxic impacts: unwise
<p>Resource Management Law Association of NZ [154]</p> <p>– A national, professional & multi-disciplinary society</p>	<ul style="list-style-type: none"> • MMB lacks wisdom; is poorly framed • Existing Resource Management Act (RMA) thoroughly covers ecological resource management in a holistic and balanced manner • Uni-dimensional mangrove eradication is unwise
<p>Prof. Gordon S. Maxwell FRSB, FLS [156]</p> <p>– Life Member of the International Society for Mangrove Ecosystems (ISME) and one time holder of former Hauraki Catchment Board (HCB) post-graduate scholarship to help save local mangroves from fungal dieback</p> <p>– ISME is an international, non-profit NGO, with its Secretariat in Okinawa, Japan.</p> <p>– HCB was incorporated into Environmental Waikato or Waikato Regional Council.</p>	<ul style="list-style-type: none"> • Mangroves protect human-made estuarine stop-banks from tidal and river erosion • Mangroves have huge economic value as eco-engineering tools • Mangroves played a vital positive protective role in a recent ‘perfect storm’ (cyclone + super moon + ‘King’ tide) • Eco-economic attributes far outweigh any perceived negatives • A MMB insults our ‘Green’ image and global wetland position
<p>Royal Forest and Bird Protection Society [158]</p> <p>– A long established, nation-wide, nature conservation society</p>	<ul style="list-style-type: none"> • MMB is poorly drafted • MMB is incompatible with NZ’s international wetland obligations • Mangrove ecosystems provide many ecological values & services including: erosion control, carbon sequestration and water quality improvement <i>via</i> sediment trapping

Table 3 Samples of responses profiles supporting or advocating restricted mangrove removal

Submission [#]	Sociological class	Principal arguments/ viewpoint
Individual citizen [3]	Coastal property owner	<ul style="list-style-type: none"> • Mangroves bring mud • Mangroves cover sandy beaches • Mangroves hinder bird life • Removal will help our sandy beaches to return
Thames Coromandel District Council (TCDC) [23]	Local Government (Mayor and Chief Executive)	<ul style="list-style-type: none"> • Mangrove expansion has been too rapid & extensive for 20 years • Mangroves hinder water sports • Mangroves bring a negative visual impact to coastlines • The ‘community’ should be empowered to sanction their eradication
Whangamata Golf Club [28]	Recreational or sporting group	<ul style="list-style-type: none"> • The region has too many mangroves • Excess and invasive mangrove expansion • Aesthetic blight on coastal landscape • Need to destroy mangrove propagules and seedlings
Waikato Regional Council [26]	Regional Government (Overlap with Local Government)	<ul style="list-style-type: none"> • Mangrove expansion has been impressive over the past 20 years • Restricted and targeted removal is desirable
Individual citizen [42]	A strong non- <i>Iwi</i> individual	<ul style="list-style-type: none"> • Mangrove is a weed • Remove these pests

Enhancing ISME aims: Lessons from the proposed mangrove removal law

1. Respect and respond to local cultures: in NZ case, tribal organizations (*Iwi*) groups have deep cultural values associated with the sole species of mangrove *Avicennia marina* that exists in northern NZ. The Maori name for mangroves, *Manawa* means ‘heart’ (Table 2; Submission # 18).
2. When defending or promoting mangroves (as may exist towards the biogeographic and special environmental limits of mangrove vegetation) place a firm, scientific emphasis on their many ecological values and services (Table 2; Submissions # 76, 156 and 158). Low mangrove tree biodiversity may hide high non-mangrove biodiversity (Paphavasit *et al.*, 2009; Maxwell, 2016).
3. Be mindful of the root causes of what could be perceived as rapid mangrove expansion: the availability of abundant sediment due to land and soil mismanagement can provide the ‘raw material’ for mangrove establishment. This is especially so with pioneer species such as *Avicennia marina*, *Sonneratia alba* and *Kandelia candel* (Table 2; Submission # 145).
4. Be aware of strongly presented yet simplistic statements portraying mangroves as aesthetically limited and preventing single activities like small boat use and or marina development. Such assertions may be made by wealthy developers claiming to promote tourism. (Table 3; e.g. Submission # 28).
5. Examine all potentially relevant laws, international treaties, (e.g. Ramsar) guidelines, regulations and even policy statements to identify possible legal or governmental statements which may be employed to enhance mangrove wise use. (Table 2; Submissions # 154 and 158).
6. Be firm, yet well-mannered and *non-confrontational* when countering emotionally charged statements that paint mangroves as ‘ugly weeds’, a ‘scourge’, as non-native, sea-borne invaders, mangroves hinder sea rescue and similar personal declarations not supported by science. In this “lesson” we are wise to be reminded that ecological protection and wise use (conservation) of natural or semi-natural ecosystems, is a social process. Laws alone cannot work without the hearts and minds of the people that the laws were designed to help (Kennedy, 2017).

Concluding thoughts

The exercise reported in this paper shows that even in environmentally aware and developed countries such as New Zealand citizens may need to *re*-confirm and *re*-assert the importance of their ecological resources. Clearly, while the weight of community input came down as opposition to a new law proposing to sanction mangrove eradication, the safe protection of such ecosystems cannot be taken for granted. Most people looked upon this Mangrove “management” Bill as ecologically reckless. The principal arguments in support of mangrove ecosystems as highlighted by ISME gain fresh life and underscore the unique and precious status of ISME as global force in mangrove wise use.

Dedication

I would like to dedicate this paper to the memory of R.W. Harris DSC, B.E., Late Chairman of the former Hauraki Catchment Board (HCB), who in his wisdom created a Scholarship for me to solve a dying mangrove problem at Pipiroa beside the man-made stop-banks protecting low-lying farmland from tidal invasion.

Acknowledgements

I thank am most thankful to Prof. Sanit Aksornkoae, President of ISME, for his letter of support, tabled before the NZ Parliamentary Sub-Committee with my submission. I thank Prof. Shigeyuki Baba, Executive Director of ISME, for sanctioning my use of an official connection with ISME in my submission.

References

- Giri, C.E., Ochieng, L. Tiezen, Z., Zhu, A., Sing, T., Loveland, M.J. & Duke, N., 2011. Status and distribution of mangrove forests of the world using earth observation satellite data. *Global Ecology and Biogeography* 20: 154-159.
- Kennedy, N. 2017. Reconciling Legislative Provisions and Outcomes for Maori. Ph.D. thesis, The University of Waikato, New Zealand. <http://researchcommons.waikato.ac.nz/>
- Kennedy, N. 2018. Submission of Nathan Kennedy and Ngati Whanaunga in opposition to the Thames - Coromandel District Council and Hauraki District Council Mangrove Management Bill, before the Parliamentary Sub-Committee, Thames, NZ, March 16, 2018. Website: see Maxwell (2018). [Submission # 18]
- Maxwell, G.S. 2004 & 2015. Different systems, similar aims: how a critical study of Hong Kong and New Zealand EIAs can help both systems. Paper presented at the Transboundary Conference, November, 2004, and Public Lecture, the Open University of Hong Kong, Autumn, 2015.
- Maxwell, G.S. 2006. In winds from hell escape to the mangroves. *Coastal News* 33: 13-14.
- Maxwell, G.S. 2015. Gaps in mangrove science. *ISME/GLOMIS Electronic Journal* 13(5): 18-38.
- Maxwell, G.S. 2016. Perspectives on mangroves biodiversity in an unstable climate. Proceedings International Conference on Climate Change, Biodiversity and Ecosystem Services for Sustainable Development Goals (SDGs): Policy and Practice, June 27-29, Cha-am, Phetchaburi, Thailand.
- Maxwell, G.S. 2018. The NZ mangroves as eco-economic assets and resources: towards a perspective on the Mangrove Bill. Submission before the Parliamentary Sub-Committee, Thames, New Zealand, March 16, 2018. https://www.parliament.nz/en/pb/bills-and-laws/bills-proposedlaws/document/BILL_74548/tab/submissionsandadvice [Submission # 156].
- NRC, 2018. The Northland Regional Council, New Zealand. <https://www.nrc.govt.nz/ForSchools/Information-packs>. Date accessed: July 3, 2018.
- Paphavasit, N., Aksornkoae, S. & de Silva, J. 2009. *Tsunami Impact on Mangrove Ecosystems*. Thailand Environment Institute (TEI), Bangkok, Thailand. ISBN: 974847834X. <http://www.tei.or.th>.

**Thames–Coromandel District Council and Hauraki
District Council Mangrove Management Bill**

General policy statement

- The spread of mangroves in the coastal area of the districts of the Thames–Coromandel District Council and Hauraki District Council is increasingly becoming a concern for local communities.
- Aerial photography from the 1940s shows minimal mangrove incursions into the districts’ harbours and the Firth of Thames, with white sandy beaches being the norm.
- The lower Firth of Thames is an internationally significant tidal wetland protected by the Ramsar Convention and is an important wintering ground attracting thousands of Arctic nesting shorebirds such as the Bar-tailed Godwit, Lesser Knot, and Red Knot. The seaward advance of mangroves since the 1940s has considerably reduced the feeding habitat available to the birds.
- Evident community concern about the impact of mangroves dates from the early 2000s with, notably, the concerted effort since 2005 by the Whangamata community to address the spread of mangroves and restoration of harbour amenity.
- To date, that process has lasted over a decade and cost in excess of \$1.5 million.
- Mechanisms allowing a transfer of authority under the Resource Management Act 1991 from regional to district councils do not adequately address the timing and resourcing concerns.
- The councils desire to see limited resources more effectively and efficiently utilised in the provision of core infrastructure and services, such as wastewater treatment plants and catchment sediment management schemes, to further protect estuarine environments.
- The process undertaken so far under the Resource Management Act 1991 has been costly, time-consuming, and has not delivered desirable outcomes.
- A streamlined, cost-effective, efficient, and community-based process is required to ensure that the councils are mandated to implement a plan that reduces mangrove growth to acceptable levels that will improve any access, recreation, amenity, or ecosystem values.
- The Bill empowers each council to prepare a draft mangrove management plan for the coastal area of its district to achieve and maintain acceptable levels of mangrove vegetation in order to restore, protect, and enhance any amenity values or ecosystems of the coastal area.
- The draft plan is approved through the special consultative procedure under section 83 of the Local Government Act 2002.
- The Bill provides that the councils, if they agree, may prepare a mangrove management plan collaboratively, including by adopting a single integrated plan for both districts.
- The Bill empowers each council to implement an approved mangrove management plan.

Please cite this article as Maxwell, G.S., 2018. Mangroves are assets to the many but a curse to the few – polarised perceptions in New Zealand. *ISME/GLOMIS Electronic Journal* 16(4): 19-24.