15/12/20

MANGAKOTUKUTUKU STREAM CARE GROUP SUBMISSION ON THE MANGAKOOTUKUTUKU ICMP

Context:

The Mangakotukutuku Stream Care Group Incorporated (MSCG) was established in 2006 and currently has over 80 members. Much of MSCG's efforts in the catchment have been focussed on planting riparian zones along stream edges to create shade, improve stream bank stability and provide cover for fish, including throughout the drains of the Rukuhia area. MSCG has also been involved in works to install a fish passes, enhance in-stream fish habitat and create a wetland as mudfish habitat, and has submitted extensively on plans and provided evidence at hearings in relation to the Mangakotukutuku catchment. MSCG has an interest in any proposed activity, policy, plan or rule development that potentially impacts on water quality, hydrology/floodplains/wetlands and/or associated ecology of the Mangakotukutuku Stream and its catchment, in particular issues that relate to; 1. Riparian management and ecological restoration of the stream; 2. Stormwater attenuation/treatment and discharges; 3. Potential sediment/contaminant discharges to the stream; 4. In-stream structures and obstructions to fish passage; 5. Encroachment of development within riparian/floodplain areas.

This submission has been prepared on behalf of Stream Care Group by Associate Professor Kevin Collier, who has worked for over 35 years as a freshwater ecologists at various times for the Department of Conservation, NIWA, Waikato Regional Council and The University of Waikato. He has published over 120 peer-reviewed scientific papers and has edited or contributed to 20 books/chapters in the field of stream ecology.

The streamcare group provided input to stormwater planning during an initial consultation phase of the ICMP. We appreciate that many of issues and concerns discussed during this initial meeting with MSCG are now touched on in the ICMP, and we acknowledge the comprehensive approach of the ICMP to addressing whole-of-catchment stormwater issues for both brownfield and greenfield areas within the Mangakotukutuku catchment. Notwithstanding this, we have several submission points to raise as detailed below.

Key points:

1. <u>The status of ecological values</u> –
    a. We support the Strategic Objectives in Section 5.1 but request that ecological values are given priority in the Issues and Outcomes table (p.15-18) as stated in Section 6.2.2. Accordingly, the key value of Table 1 would be Ecological values (not Community values) which are affected not only by contaminant load but also habitat, hydrology and connectivity. We note alignment on this point with the Department of Conservation submission.
    b. In relation to these ecological values, it is important to recognise the particular combination of aquatic biodiversity values of the Tiireke subcatchment that make this tributary of the Mangakotukutuku the most high value stream ecologically within Hamilton City. Not currently recognised in the ICMP are: (i) the presence of At Risk-Declining torrentfish/panoko (*Cheimarrichthys fosteri*) in this tributary, in addition to

the other fish species stated, (ii) a benthic macroinvertebrate community in this tributary indicative of "clean" to "mildly polluted" conditions, and (iii) the extensive network of valley-floor springs and seepages that serve as refugia for invertebrate species typical of native forest environments and are very susceptible to loss.

2. 2020 NPS-Freshwater Management –
    a. The ICMP must apply the 2020 NPS-Freshwater Management, particularly in terms of how it will take account of new Compulsory values related to Ecosystem Health, Human Contact, Threatened Species and Mahinga Kai, and associated limits/action plan requirements. We note alignment on this point with the Department of Conservation submission.
    b. For further details on the NPS see: https://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/national-policy-statement-for-freshwater-management-2020.pdf

3. Precautionary approach –
    a. The ICMP must acknowledge and account for the cumulative and interactive effects of multiple stormwater pressures aside from those modelled in the report, and where these cumulative and interactive effects are not understood the ICMP should adopt a precautionary approach.
    b. We note that, in the ICMP, (i) criteria used to infer effects of Zn and Cu do not reflect the level of protection required for this catchment (see detailed comments); (ii) the modelling of Zn and Cu does not appear to be based on any measured data, even to check if predicted baseline concentrations broadly reflect measured values; and (iii) water temperature and suspended sediment, two key urban stressors, were not modelled. This lack of knowledge and associated uncertainties with modelling, underscore the need for a precautionary approach to stormwater management design in this high value catchment.
    c. The decision to not recommend secondary stormwater treatment in the Tiireke subcatchment is inconsistent with a precautionary approach.

4. Mitigation –
    a. In terms of riparian planting as a mitigation tool, currently potential developers/subdividers are sitting on land and are unwilling to undertake gully restoration plantings (even when that planting may be co-funded and implemented by the stream care group) in the fear that they will be giving up the potential future mitigation value to be offered at a subsequent date through a subdivision consent process (this relates to section 6.4.2). We request council implement incentives for landowners to plant up gullies as early as possible to accepted guideline standards to bring forward the mitigation benefits of restoration plantings prior to subdivision, and without that planting negatively affecting their subdivision consent process/outcome. In practicality, the subdivider should be able to access additional 'mitigation credits' based on the age of planting prior to subdivision consent, eg 1.5x the mitigation value of the actual hectares planted for a 5 year old planting, 2x for 10 year old planting etc. Currently the developer would be penalised by the subdivision consent process for planting ahead of that consent process as there is no legal or other process to recognise or account for the time value of such planting.

b. Secondly, in terms of mitigation offsets and the goal of a net increase in biodiversity (Table 44 #19), it is important that aquatic species are accounted for in any assessments so that simply planting native trees and shrubs cannot be used of offset aquatic biodiversity loss. We request more detail and consultation on (i) how 'biodiversity value' will be measured and compared among habitat types, and (ii) how mitigation offsets will be calculated and applied. We note similar concerns regarding mitigation off-setting in the Department of Conservation submission.

5. Implementation, enforcement and monitoring –
    a. The key to success in terms of ecological outcomes will be in the implementation, enforcement and effectiveness monitoring of any rules and requirements designed to achieve these outcomes. It was pleasing to see implementation, compliance and education addressed at a high level in Section 7 (see detailed comments below for further feedback). In addition, HCC could consider environmental certification of builders allowed to work in sensitive catchments like the Tiireke.
    b. Monitoring and enforcement need the appropriate legal instruments in place (noted on p.248) and resourcing of staff to administer them. Based on previous experiences, existing compliance monitoring (section 11) is unlikely to achieve the desired outcomes in the Tiireke subcatchment (see detailed submission comments) and resources need to be allocated to upscale and intensify this.

6. Transparency, data sharing and reporting –
    a. It is important that all stakeholders are transparent and open with respect to data collected through this process, including by HCC, WRC, research agencies, the university and 'citizen scientists'. As part of its initial support for the MURB initiative, the Mangakotukutuku Stream Care Group requested an open data sharing approach by the lead research agency.
    b. We advocate that an open access, interactive geospatial platform be developed that presents quality assured data summaries with access to raw data on request so that all stakeholders have the same information available. At the very least, annual data summaries of agreed indicators (hydrology, water quality, ecology) should be provided to all stakeholders with an associated mechanism for feedback.

Detailed submission comments

p.15-19 Issues and Outcomes table –

There is no mention of Biodiversity values and threatened species' intrinsic right to flourish - including protection of habitat (e.g., instream wood management) and passage. Ecological values need to be separated from and elevated above "Community values". On p. 18, it is stated "Apply best practice environmental protection and mitigation measures during catchment development and physical works to minimise adverse environmental effects throughout the transitional stages of development, and to safeguard existing biodiversity values" which is great but this needs to be up front – see p. 109 Table 8 where "Protect freshwater system" is the key strategic objective.

There is a need to recognise the effects of construction phase separately from stormwater design/ management – construction effects include sediment generation, soil compaction, disposal of waste (e.g., washing of cement down drains). Best practice construction methods for sensitive catchments need to be developed, including controls on unpainted zincalum (it was pleasing to see this addressed in Table 44). We believe the distinction between the construction phase and stormwater management needs to be clear early on in the ICMP, along with an emphasis on compliance and enforcement for this sensitive area.

"The controls proposed will, to the degree practical, protect people and the environment from the effects of development on stormwater contaminants, and set a course to manage water quality into the future while allowing for development".

- Who will determine what is 'practical' – the wording needs to be tightened up to avoid ambiguity.
- In terms of contaminants, sediment quality (e.g. metals) is also important
- Need to acknowledge and be consistent with the water quality objectives of the 2020 NPS-Freshwater Management

Receiving environment – "Macroinvertebrate communities are generally indicative of poor habitat and water quality. "

- This is not correct for Peacockes tributary (Tiireke subcatchment) where the community is indicative of "mildly polluted" to "clean" conditions. See plots in: https://www.streamcare.org.nz/MANGAKOTUKUTUKU%20STREAM%20RESTORATION_8_7_17.pdf

Hydrogeology – there is no mention of (i) compaction effects during development and remediation required, (ii) the use of catch pit filters and need to maintain these, and (iii) long-term maintenance of rain gardens required to maintain efficacy and prevent them from becoming contaminated sites.

Use of terms like "reasonably expected", "reasonably practicable", "reasonable extent" and "to the degree practicable" are vague and open to interpretation. The wording needs to be tightened up here so it doesn't become a field day for lawyers.

p.18-19 Stormwater and Receiving Environment

The concepts presented here are good – effectiveness will depend on the detail, location and enforcement

p. 22 – "In addition, monitoring information should be evaluated against adaptive monitoring measures under the SREMP. All necessary follow-up actions should be identified and undertaken."

- What is meant by "adaptive monitoring" and necessary "follow-up actions" – SREMP needs to identify indicators and triggers that increase monitoring frequency and set into play a series of pre-identified actions (i.e., where is the plan?)
- Note Tammy Valler's MSc thesis which included sediment contaminant data and may provide a pre-development baseline for future monitoring of sediment quality (Valler, T. L. (2013). Sources and effects of catchment-derived bioavailable contaminants in Hamilton urban streams (Thesis, Master of Science (MSc)). University of Waikato, Hamilton, New Zealand.).

This thesis also contains information on contaminant levels in tuna, a mahinga kai species. See also p.63

p. 23 – "The ICMP will be reviewed periodically to ensure that it remains relevant to current policy settings and considers the results of any ongoing monitoring and changes within the catchment which will occur through development."

- Define "periodically" and reviewed by whom (independent evaluation or by a panel of stakeholders?)

p.34 – "In brief, the ICMP needs to set a course towards the restoration and protection of the health and wellbeing of the Stream and its receiving water, the Waikato River. To achieve this the ICMP needs to identify a solution that is sufficiently investigated and assessed to demonstrate that restoration and protection will occur if it is implemented. This includes restoring and protecting water quality, biodiversity, and the relationship of Waikato-Tainui and Hamilton residents with the Stream…"

- The Stream Care Group agrees with this key statement.

p.43 – "This has been allowed for in the ICMP by increasing the impervious area for these areas in setting stormwater device footprints generally to 80 % for developing areas."

- What does this mean? Please use clearer wording.
- Adverse effects on macroinvertebrate communities are widely documented to occur at >5-10% IA. Note in Figure 27 gully impervious areas seem all >15%.

p.54 – "Hahawaru Sub-catchment. South of Houchens, Ohaupo and Saxbys Roads, two main tributaries are … sparsely vegetated.

- Stream banks/riparian areas draining into Saxby Road and Ohaupo Road (Collins Rd marae) have been planted the MSCG with native trees and shrubs

p.57 – Figure 37 – how is "perennial" determined/defined?

p.66 – "The Mangakootukutuku catchment provides habitat for a number of indigenous fish species, including species identified as Nationally at Risk"

- Note that At Risk - Declining torrentfish has also been collected from the Tiireke tributary in Sandford Park and needs to be included here. Ten species of native fish have been caught from this stream making it highly diverse by NZ urban stream standards.

p.67 – "Dominant species include the mudsnail (Potamopyrgus antipodium), midges (Chironomidae), worms (Oligochaeta), and true flies (Tanypodinae)."

- Technical point, but Tanypodinae is a type of Chironomidae midge which is a type of true fly.

p.67 – Need to note important value of shaded seepages for macroinvertebrate habitat – these are cool water, organic-rich refugia disconnected from any stormwater influence which can harbour species typically found in native forest streams. See https://waikatoregion.govt.nz/services/publications/tr200720/.

Also note that there are freshwater SNAs that need to be considered alongside terrestrial ones – some of the freshwater SNAs may or may not occur within the area of interest but need to be checked with WRC.

p.76 – Figure 46 – How will wastewater overflows >2 times per year be addressed? It would be helpful to cross-reference the relevant later section

p.85 Table 5 – the most recent NPS version is 2020 (also Section 4.3.2). What changes need to be made to the ICMP to take account of new Compulsory values related to Ecosystem Health, Human Contact, Threatened Species and Mahinga Kai, and associated limits/action plan requirements?

p.113 "The ICMP has concluded that best practice stormwater management is appropriate as a baseline but has proposed additional measures (including an at-source contaminant reduction study and investigating volume reducing wastewater technologies, and water quality offsets) to enhance best practice, in support of the aims of Te Ture Whaimana."

- Studies and investigations won't prevent enduring adverse effects unless they are done prior to stormwater network construction or future-proofing design is incorporated to ensure additional measures can feasibly be put in place at a later date, although this would also require remedial action of any ecological damage already incurred if this is even possible. A precautionary approach is the safest option.

p.116, Table 9 –

"Stormwater wetlands are required to be designed to provide terrestrial ecological habitat and be located outside of, but adjacent to, gullies to provide additional habitat;"

- Wetlands also provide aquatic ecological habitat which can be optimised through design

"A terrestrial biodiversity offsetting framework is under development by Council for the Peacocke Growth Cell. If a developer cannot avoid, remedy or mitigate the loss of biodiversity as a result of their development they can provide biodiversity off-setting."

- We are concerned that the approach described will open up opportunities for developers to compromise long-tailed bat habitat here and there simply by putting up a few bat boxes in the hope they may or may not used by displaced bats. Given their National Critical threat status with well-known agents of decline, bats warrant separate recognition in this table and should be afforded a higher level of protection rather than simple mitigation.
- It is unclear whether terrestrial offsets will be used to account for aquatic biodiversity loss. If so this seems counter to the like-for-like principle of off-setting. The Stream Care Group request more detail and consultation on (i) how 'biodiversity value' will be measured, and (ii) how mitigation off-sets will be calculated and applied.

"Recommendation that the Council Gully Restoration Guide be updated to give effect to maatauranga Maaori values (including, but not limited to, mahinga kai and rongoa), in locations for flax, which may need to be set back from stream banks for stability reasons; "

- We request that any update to the Gully Restoration Guide also include appropriate guidance on (i) riparian species suitable for planting alongside streams, building on the point about flax, (ii) actions to be avoided that compromise aquatic biodiversity values such as creating barriers to fish movement, unnecessarily removing wood from stream channels and draining seepages.

p.119 – We question why MUSIC defaults were not at least ground-truthed with available data from WRC monitoring to provide confidence they are in the same range? This would enable a more informed interpretation of the model outputs. It also needs to be acknowledged here that (i) sediment toxicity is also a potential issue that has not been addressed, although some data are available in Valler

(2013), (ii) other contaminants such as heat and suspended sediment are not accounted for in this exercise, and (iii) the cumulative and interactive effects of all these pressures are not known and therefore a precautionary approach is required. In terms of impacts on aquatic biota, it is the upper concentrations that could have toxic effects, and in this regard the 95%-ile values are of more relevance (not medians as shown in Figs 60 and 61 – it is unclear why and inconsistent that 90%ile metal predictions are shown in Table 12 cf 95%ile nutrient predictions in Table 13). Although the concentrations presented are below the ANZECC trigger values for aquatic ecosystem protection, we have no way of knowing how these pertain to actual likely concentrations in the catchment of interest without reference to measured data.

p.127 - In relation to this, in Table 15, assuming TC = total copper and TZ = total zinc, the trigger values apparently used (4.3 µg/L and 42 µg/L, respectively) are not consistent with the ANZECC level of protection appropriate for the Tiireke tributary where at least a 95% level of protection would be appropriate, equivalent to 1.4 and 8 µg/L, respectively, of dissolved copper and zinc.

p.128 – "Given the marginal benefit of a second stormwater device in series for water quality purposes, water quality offsets are considered a more effective means of achieving further environmental benefits."

- Note comments above – given limitations of modelling a precautionary approach is required to sustain existing high instream ecological values in the Tiireke catchment
- It appears later that "water quality offsets" might involve riparian planting. While this may help moderate suspended sediment input and water temperature, it will do nothing to address toxic metal inputs.

p.116, Table 16, #3 – we support the Future-proofing concept to prevent future impacts from stormwater quality and hydrology caused by future urban development.

Table 16, #6 – we would like to see this expanded to include channel maintenance activities that the Council as well as developers must adhere to prevent the ecological damage through extensive riprap and wood removal from streams

Table 16, #8 – it is hard to comment on this aspect without knowing what off-setting is being proposed and how this could mitigate adverse instream effects that impact on resident aquatic biota.

p.137, Figure 65 – we support the proposed gully esplanade rules but question why two sections of the stream shown in this map are not included. This should be transparently stated and justified (Southern Links?)

p.143 – Is providing for watercourse "resilience" a euphemism to justify widescale riprapping to prevent bank erosion induced by stormwater hydrology? A more transparent explanation of what is meant here is required and some assurances that it is compatible with ecological restoration goals.

p.159, Table 22 – We request that all stormwater pipe upgrades consider fish passage requirements.

p.169 – "On this basis it is suggested that infiltration rates and volumes across the undeveloped eastern catchment need to be maintained so that the strong base flow can be supported through development."

- Agree, but how – soil remediation post development?

p.170 - "There may be benefits to the restoration of baseflow to springs and seepages if local groundwater infiltration can be restored through retrofit works or as part of redevelopment."

- Great to see the ecological significance of these spring and seepage habitats recognised. Channel downcutting may also cause them to be lost.

Section 6.12 and 6.13 – We appreciate the thorough treatment of options here.

Section 6.14 - Existing issues regarding stormwater overflows into streams need to be addressed in brownfield areas – it is good to see Deanwell and Glenview overflow issues recognised on p.203 (assume both these areas are given high priority in Table 37).

Section 7.3 –
New housing, including infill housing, in brownfields subcatchments should be subject to the same rules and requirements for stormwater design as in the new Tiireke subcatchment Peacockces development to ensure existing stormwater issues re not exacerbated. Infill housing is common in Glenview, for example, where it effectively doubles the impervious area per lot. This seems to be implied later but it should be explicitly stated here to avoid any confusion.

Table 43 – Water quality conditions in receiving watercourses (i) need to acknowledge and reflect the 2020 NPS-Freshwater Management, (ii) should apply during the construction phase of the development, and (iii) could be more stringent (especially NTU) in the Tiireke subcatchment or reflect exceedences over existing conditions in recognition of the high biodiversity value in the subcatchment and the clearer water currently emanating from it compared to brownfield Mangakotukutuku subcatchments

Table 44 –

- It is pleasing to see several of our key concerns addressed in this table, although enforcement remains a potential issue. Has the council considered a maintenance/mitigation bank approach that developers can pay into to ensure there is long-term funding/commitment for future maintenance of wetlands and raingardens? Is there potential for these stormwater structures to become contaminated sites over the long term if certain metals accumulate, in which case funding will be needed for remediation and rejuvenation.
- In terms of Biodiversity, it does not seem to be acknowledged that ponds and wetlands should also be designed to maximise aquatic biodiversity, for example through the provision of habitat structure for fish where these are connected with the main stream, and possibly mudfish where they are not.
- Regarding residual effects, in addition to water quality effects there may also be habitat effects that need to be mitigated, for example the deposition of fine sediment. It would be good to see fish passage effects also covered here in case issues arise, and where appropriate in relation to Stabilised outlet to the Stream/River.
- Resource consent applications for development activities need also to address washing and disposal of wastewater down catchpits (e.g., concrete), and have higher enforcement standards around bunds to avoid examples shown in the photos below on Dixon Road:

- In terms of ecological requirements, we are pleased to see the following: “Any development shall result in a net increase to biodiversity value. Any new offsetting in Peacocke should comply with the biodiversity offsetting framework for Peacocke.” The detail of this needs to be clear to ensure “biodiversity value” does not simply reflect native plant species planted, but appropriately weights any loss (or gains) in aquatic species.

Section 7.6 Education. We propose additions to Table 46 as follows:

- Mechanism for residents to report concerns/infringements and transparently track these geospatially
- An open data policy from research (e.g., MURB) and monitoring carried out to assess effects and compliance
- Training programmes for HCC maintenance staff to implement a risk-based approach for waterway clearance and fish pass maintenance
- Inclusion in the Gully Guide of “do’s and don’ts” to avoid adverse effects on streams and associated seepage habitats.
- Consider the incorporation of citizen scientist monitoring as part of an ongoing data collection programme
- Annual reporting of trends in key hydrological, water quality and ecological indicators

Figure 95 – The two WRC ecological monitoring sites should be clearly labelled, in addition to the WRC water quality monitoring site.

Section 11.4 – we advocate open sharing of data with all stakeholders, in particular with the Mangakotukutuku Stream Care Group. Ideally this would be achieved via an open access, interactive geospatial platform.