HAWKE'S BAY
REGIONAL COUNCIL
TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

Meeting of the Environment and Integrated Catchments Committee

Date: Wednesday 20 August 2025

Time: 11.30am

Venue: Council Chamber
Hawke's Bay Regional Council
159 Dalton Street
NAPIER

Agenda

Item	Title	Page
1.	Welcome/Karakia/Housekeeping/Apologies	
2.	Conflict of Interest Declaration	
3.	Confirmation of Minutes of the Environment and Integrated Catchments Committee held on 9 April 2025	
4.	Public Forum	3
Information or Performance Monitoring		
5.	Three-yearly State of the Environment report	5
6.	Continuous Suspended Sediment monitoring and reporting on Hawke's Bay waterways	11
7.	Biodiversity Programmes update	21
8.	Deputation from Heidi Stiefel – Predator Free Napier Hills	

HAWKE'S BAY REGIONAL COUNCIL

Environment and Integrated Catchments Committee

Wednesday 20 August 2025

Subject: Public Forum

Reason for report

1. This item provides the means for the Committee to give members of the public the opportunity to address the Committee on matters within its terms of reference (attached).

Background

2. The Hawke's Bay Regional Council's Standing Orders provide for public forums as follows:

14. Public Forums

Public forums are a defined period of time, usually at the start of a meeting, which, at the discretion of a meeting, is put aside for the purpose of public input. Public forums are designed to enable members of the public to bring matters to the attention of the local authority.

In the case of a committee or sub-committee, any issue, idea or matter raised in a public forum must also fall within the terms of reference of that meeting.

Requests must be made to the HBRC Governance Team (06 8359200 or governanceteam@hbrc.govt.nz) at least *48 hours* before the meeting; however, this requirement may be waived by the Chairperson.

14.1 Time limits

A period of up to 30 minutes, or such longer time as the meeting may determine, will be available for the public forum at each scheduled Regional Council, Corporate & Strategic Committee, Environment & Integrated Catchments Committee and Regional Transport Committee meeting.

Speakers can speak for up to 5 minutes. No more than two speakers can speak on behalf of an organisation during a public forum. Where the number of speakers presenting in the public forum exceeds 6 in total, the Chairperson has discretion to restrict the speaking time permitted for all presenters.

14.2 Restrictions

The Chairperson has the discretion to decline to hear a speaker or to terminate a presentation at any time where:

- a speaker is repeating views presented by an earlier speaker at the same public forum
- the speaker is criticising elected members and/or staff
- the speaker is being repetitious, disrespectful or offensive
- the speaker has previously spoken on the same issue
- the matter is subject to legal proceedings
- the matter is subject to a hearing, including the hearing of submissions where the local authority or committee sits in a quasi-judicial capacity.

14.3 Questions at public forums

At the conclusion of the presentation, with the permission of the Chairperson, elected members may ask questions of speakers. Questions are to be confined to obtaining information or clarification on matters raised by a speaker.

14.4 No resolutions

Following the public forum no debate or decisions will be made at the meeting on issues raised during the forum unless related to items already on the agenda.

Decision-making process

3. Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision-making provisions do not apply.

Recommendation

That the Environment and Integrated Catchments Committee receives and notes the *Public Forum speakers' verbal presentations*.

Authored by:

Leeanne Hooper
Team Leader Governance

Approved by:

Desiree Cull
Strategy & Governance Manager

Attachment/s

There are no attachments for this report.

HAWKE'S BAY REGIONAL COUNCIL

Environment and Integrated Catchments Committee

Wednesday 20 August 2025

Subject: Three-yearly State of the Environment report

Reason for report

1. This item provides the Committee with a summary of the three yearly State of the Environment report (SoE) for their endorsement before it is publicly released. This item will give an overview of Hawke's Bay's environmental health, which can be used to inform the HBRC's Long-Term Plan, and policy plan effectiveness reviews, as well as inform and benefit local communities, landowners, and tangata whenua.

Executive summary

2. The SoE provides a transparent and objective assessment of Hawke's Bay's environment and supplies recommended actions in support of HBRC's strategic environmental goals.
3. The SoE report summarises the science presented in a series of more detailed technical reports at a high level intended for non-experts, stakeholders and the Hawke's Bay community.
4. This year's SoE report includes a dedicated chapter on mātauranga Māori (Māori traditional knowledge) as a commitment to Te Tiriti. The report is framed around a whakataukī that highlights the interconnectedness of all elements of our environment, including people. The chapters are organised into four main elements: Sky, Land, Water, and People, with a fifth concept of Balance providing an overview of how the other four elements come together by catchment.
5. **Sky:** This section covers the effects of Cyclone Gabrielle and climate-related issues. The monitoring period includes both pre- and post-Cyclone Gabrielle data, highlighting the event's impact, record-high rain levels, river flows, and sediment mobilization through erosion. The cyclone caused significant damage to riparian margins and freshwater ecosystems, leading to declines in fish and macroinvertebrate communities. Climate change is expected to increase the frequency of such extreme weather, leading to hotter, drier summers with less frequent but heavier rainfall, compounding water availability issues, and increasing irrigation demand.
6. **Land:** Rising sea levels are exacerbating natural coastal processes, endangering residential properties, infrastructure, and habitats. Hill country erosion is increasing the sediment levels in our rivers, estuaries and nearshore environment. The cyclone negatively affected many terrestrial ecosystems, causing declines in coastal bird species and the quality of monitored wetlands.
7. **Water:** Groundwater levels varied over the monitoring period, with the wet summer of 2022-2023 leading to high well levels. Groundwater quality is generally good, but many monitored wells show signs of land use impact. Hawke's Bay's shallow lakes and lowland freshwater ecosystems exhibit low water quality metrics. These conditions lead to poor fish and macroinvertebrate populations. The marine and coastal environment is also vulnerable to water quality decline, with sediment being a key issue, especially in estuaries.
8. **People:** Air quality in Napier and Hastings has improved since 2006, however, Hastings only met National Environmental Standards once during the period. Further reductions in particulate matter are needed to meet the World Health Organization's air quality guidelines for PM2.5, one of HBRC's strategic goals. Hawke's Bay's freshwater and marine swimming spots are usually suitable for swimming, however estuary/lagoon swimming spots are not meeting HBRC's strategic goal in this area.

9. **Balance (Our Catchments):** Dashboards outline the health of each catchment's environment including climate, wetlands, groundwater, river flows, freshwater bodies, aquatic habitats, and suitability of its swimming and shellfish gathering spots.

Strategic fit

10. The SoE contributes to the Council's strategic priorities of water security, land management, climate change and flood risk.

11. The SoE also contributes to many of the outcomes outlined in the 2020-2025 Strategic Plan through measuring outcomes, providing technical support, and identification, detailed in the following paragraphs.

12. Smart and sustainable land use:

    12.1. Measuring and quantifying fenced and planted areas in riparian margins of rivers, creeks, lakes, and wetlands stock, ensuring stock is excluded from all of these bodies, and at least 30% are fenced and planted by 2025. Prior to Cyclone Gabrielle, stock was excluded from 50 percent of surveyed waterways and 30 percent of surveyed waterways were supported by riparian planting.

    12.2. Technical support in providing Land Use Suitability information to landowners. This has been completed; a refresh is planned for 2025.

    12.3. Measurement of contaminants from urban and rural environments in their surrounding waterbodies, ensuring a 50% decrease by 2050. We have a baseline for this information, but it is too soon to report on trends.

13. Water quality, safety and security:

    13.1. Providing technical support and monitoring to ensure that, by 2050, there will be an improving trend in the life-supporting capacity of all the region's degraded rivers and major streams. We have a baseline for this information, but it is too soon to report on trends.

    13.2. Inform management options of, and monitor, Hawke's Bay's swimming sites, ensuring they are suitable for swimming 80% of the time by 2030 and 90% of the time by 2040. We have a monitoring programme in place.

14. Healthy and functioning biodiversity:

    14.1. Identifying and informing where priority ecosystem restoration needs to be implemented. Priority terrestrial ecosystems have been identified and are monitored. More work is required to identify priority marine ecosystems.

    14.2. Identifying and quantifying indigenous habitats and ecosystems along with their taonga species to maintain and increase these areas. Establishing a baseline and annual monitoring is planned but not funded beyond 2025/26.

15. Sustainable services and infrastructure:

    15.1. Measuring air quality and recommending initiatives to ensure this consistently meets WHO guidelines. A monitoring framework is in place.

16. Our SOE reporting also supports policy plan effectiveness reviews, the future development strategy, and spatial planning.

Background

17. HBRC is required, by section 35 of the RMA, to monitor the State of the Environment (SoE) information. The primary reason is to enable us to promote the sustainable management of our natural and physical resources. The Act requires the data acquired from this monitoring to be published at least every five years.

18. Our last SoE summary report was released in 2022 in which HBRC merged the traditional scientific technical reports and the summary report to produce a long synthesis report of nearly

200 pages. This style of reporting has made it difficult to make comparisons between what was seen in the last reporting period and this reporting period.

19. This reporting period, the 'synthesis report' is about 40 A4 pages in length.

Discussion

20. This year, as a commitment to Te Tiriti, we have included a chapter on mātauranga Māori (Māori traditional knowledge). To underscore this, we have framed our report around a whakataukī that illustrates the interconnectedness of all elements of our environment, including people. The report's chapters are presented as elements outlined in this whakataukī:

    20.1. Sky, including the effects of Cyclone Gabrielle, and our climate.

    20.2. Land, including coastal processes, soil and erosion and terrestrial biodiversity (including wetlands).

    20.3. Water, including ground and surface water, and freshwater and coastal/marine health

    20.4. People, including mātauranga Māori, air quality (how it relates to human health), how we use our land, and our swimming and recreation spots.

21. Monitoring for this period covers both pre- and post-Cyclone Gabrielle. This extreme event brought record-breaking rain levels, river flows and sediment amounts mobilised through erosion. Riparian margins and freshwater ecosystems also suffered with loss of planting and fencing, and declines in fish and macroinvertebrate communities. There was a notable increase in deposited and suspended sediment in our freshwater and marine environments. The 2022-23 period was also impacted by two other heavy rainfall events. All three monitoring years had heavy rainfall above the long-term average. Because of climate change, extreme weather like Gabrielle is expected to become more commonplace, likewise summers are expected to be hotter and drier, with rainfall occurring less frequently but more heavily. These conditions will have compounding effects, reducing water availability and increasing demand for irrigation.

22. Rising sea levels are exacerbating natural coastal processes and causing beaches to retreat inland, endangering residential properties, infrastructure and habitats. Hill country erosion likewise is delivering 8.5 megatonnes of sediment to our streams and rivers, and 8 megatonnes of sediment to the coast every year. Many of our terrestrial ecosystems were negatively affected by the Cyclone with declines in coastal bird species on a regional, national and global scale. Likewise, many of our monitored wetlands have declined in quality.

23. Hawke's Bay had varying groundwater levels over the monitoring period, with the wet summer of 2023-2023 leading to high levels of groundwater and less demand for irrigation. Groundwater quality is generally good, however many of the wells we monitor are showing signs of impact from land use. River flows were also 175% higher than average in the 2022-23 period across the region.

24. The health of our freshwater ecosystems is negatively affected by poor land management practices. Our shallow lakes are largely observed to have poor water quality. Likewise, our lowland freshwater ecosystems are exhibiting high temperatures caused by lack of natural shading, oxygen depletion, high macrophyte cover and high amounts of sediment. This in turn leads to poor populations of fish and macroinvertebrates. Our marine and coastal environment is also vulnerable to water quality decline with deposited and suspended sediment standing out as a key issue, especially in our estuaries with erosion reducing their clarity and increasing levels of mud.

25. The air quality in Napier and Hastings has improved since 2006 which can be attributed to residents switching to cleaner forms of home heating. However, it has plateaued more recently. Hastings only met National Environmental Standards once in the period. We will need to further reduce particulate matter if we are to meet the World Heath Organisation's air quality guidelines for PM2.5 (One of HBRC's strategic goals).

26. Hawke's Bay's freshwater and marine swimming spots are meeting HBRC's strategic goal of being suitable for swimming 80% of the time or more. Estuary and Lagoon swimming spots have only been suitable for swimming 68% of the time, however.

27. Highlights and lowlights of Hawke's Bay's catchments:

    27.1. **Northen Coast** has very poor lake water quality and aquatic habitats, especially the riparian zones of its monitored waterways. Two shellfish gathering sites (Maungawhio Lagoon and Te Mahia) have never been compliant with shellfish gathering guidelines, however Mahia beach has been suitable for collection since monitoring started. Although Northern Coasts marine and Estuary/Lagoon swimming spots are meeting HBRC's strategic goal of being suitable for swimming 80% of the time, its freshwater swimming sites did not, being suitable for swimming only 58% of the time.

    27.2. **Wairoa** typically has good groundwater quality, although our monitoring well has high levels of dissolved reactive phosphorus. Its lakes' health range in quality from fair to very poor. Although ammonia and nitrates are at good levels in Wairoa's rivers, most of the other metrics are poor. Wairoa's estuaries are outside the New Zealand range for suspended sediment, enterococci and chlorophyl-a, and strongly outside the New Zealand range for dissolved inorganic nitrogen. Wairoa's two freshwater swimming spots have been unsuitable for swimming 47% of the time.

    27.3. **Mohaka** has used minimal groundwater over the last three years – this groundwater is not derived from the Ruataniwha or Heretaunga aquifers. However, 40% of the wells HBRC monitors have exceeded DWSNZ standards for *E. coli*. These are not drinking water wells but people who have private shallow drinking water wells in the area should treat their water before use. Ammonia and Nitrate are in safe levels in our river water. Dissolved inorganic nitrogen (DIN) in both its marine and estuary sites, however all other metrics in its estuary are within range.

    27.4. **Esk and Central Coast** wetlands are mostly in good or moderate condition, however one of the eight monitored wetlands is degraded. A high percentage of river monitoring sites are high in *E. coli* and dissolved reactive phosphorus, although ammonia and nitrate levels are low. Our groundwater monitoring well, likewise, shows high levels of Dissolved reactive phosphorus (DRP) and does not meet drinking water standards for Arsenic or Manganese. Nearshore water quality is mostly within range of other New Zealand sites aside from high levels of DIN.

    27.5. **Ahuriri** has the most urban cover of any of our catchments (12%). Groundwater is primarily used for drinking. Groundwater is showing impacts from land use, with DRP in medium to high levels. Ahuriri's estuary sites are strongly outside other New Zealand sites in almost all metrics, although dissolved oxygen is within the range of other New Zealand sites. Both Ahuriri's marine and estuary/lagoon swimming sites have been swimmable 81-91% of the time.

    27.6. **Tūtaekurī's** monitored wetlands are in good and excellent condition. Groundwater wells here show medium levels of DRP in all three monitoring wells. Likewise Arsenic and *E. coli* are above DWSNZ standards in one monitoring well (not used for drinking). Ammonia and Nitrate as well as DIN are in good levels in Tūtaekurī's rivers and streams, and its freshwater habitats generally have healthy fish and invertebrate habitats. Tūtaekurī's freshwater swimming site has been swimmable 85% of the time.

    27.7. **Ngaruroro** has 9 monitored wetlands, four of which are in excellent condition, with three in good condition. Ngaruroro used between 1-9gl of groundwater per year over the last five years, mostly for irrigation. Groundwater shows medium to high levels of DRP. Nearshore water quality is showing a lot of issues including very high levels of chlorophyll-a, faecal coliforms and DIN, along with moderate levels of enterococci. Estuaries are high in DIN and enterococci. Despite this, freshwater swimming spots have been swimmable 91% of the time.

27.8. **Karamū** has used between 30-46gl of water per year over the last five years; water is used for drinking, irrigation and industrial purposes. Groundwater monitoring wells do not meet DWSNZ standards for *E. coli* or Manganese (Not drinking water wells). Many also have medium-to-high amounts of DRP. River water has high levels of DRP and *E.coli*, and poor ecological health, as measured by Macroinvertebrate community indexes (MCI), although they have mostly good levels of ammonia and nitrates. Freshwater habitats generally have poor riparian margins. Karamū is not meeting HBRC's strategic goal of being suitable for swimming 80% of the time, with its freshwater swimming site only swimmable 59% of the time.

27.9. **Tukituki** has nine monitored wetlands, with four in good condition. Condition drops moving down the catchment with five wetlands in moderate condition. Tukituki has used between 7-30gl of water per year over the last five years, most of which is used for irrigation. Wells in the Tukituki are showing signs of land use impacts, with two thirds showing medium to high levels of DRP. A quarter of the wells are also not meeting DWSNZ standards for *E.coli* (These wells are not used for drinking water). Lake Whatumā has a trophic level index of 6.9 (very poor). Tukituki's three freshwater swimming sites have been suitable for swimming 89% of the time in the last five years.

27.10. **Southern Coast** rivers have good levels of visual clarity, ammonia and nitrate, although sites have high levels of *E. coli*. Southern Coast's freshwater and marine swimming spots have both been suitable for swimming over 90% of the time, however estuary/lagoon sites have only been swimmable 70% of the time. Te Awanga and Kairakau Beach have not been compliant with shellfish gathering guidelines for the last three years.

27.11. **Pōrangahau** is showing high levels of *E. coli* and poor macroinvertebrate community indexes in its river water. Ammonia, nitrate and DIN are at good levels, however. Pōrangahau's marine swimming spot has been suitable for swimming 100% of the time over the last five years, though its estuary/lagoon site has only been suitable for swimming 79% of the time.

27.12. When areas within our catchments are degraded by pollution, erosion, or poor land management, communities face increased risks of flooding, reduced water quality, and loss of biodiversity. Maintaining and restoring catchment health is therefore essential not only for ecological integrity but also for the social, economic, and cultural vitality of Hawke's Bay's communities.

Next steps

28. We have about 70 recommendations made throughout the technical and synthesis reports that we have compiled into a prioritised tracker, attached as an appendix to this report. Some of this work can be completed using current budgets, and some will require additional funding. We will come back to Council with a plan to approach that work and to seek funding through the next Long Term Plan process.

28.1. Increase riparian planting along our waterways. Riparian planting is a widely effective measure for improving river and stream health, reducing land erosion, stabilising stream and riverbanks, and providing suitable habitat for aquatic organisms.

28.2. Continue and improve stock exclusion measures by fencing waterway margins.

28.3. Reduce nitrogen and phosphorus inputs from catchments, and implement targeted mitigation strategies in high-risk sub-catchments

28.4. Implement predator and weed control measures over vulnerable environments including our wetlands and coastal habitats.

29. As a result of the Effectiveness and Efficiency review, we intend to review our SoE processes and report, including the frequency of reports. This is to ensure we are delivering value for

money that is aligned with Council priorities and legislative requirements, and that the information continues to be of use to our organization and our community.

30. Our Comms plan for the report revolves around joining up with other Council stakeholder engagement initiatives so that we are not adding to the number of stakeholder engagement events. We are focusing on iwi, catchment groups, and youth – where we are piloting an educational App. We will provide Councilors with key messages for their use, after October.

Decision-making considerations

31. Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision-making provisions do not apply.

Recommendation

That the Environment and Integrated Catchments Committee receives and notes the *Three-yearly State of the Environment report* staff report.

Authored by:

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Approved by:

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Attachment/s

There are no attachments for this report.

HAWKE'S BAY REGIONAL COUNCIL

Environment and Integrated Catchments Committee

Wednesday 20 August 2025

Subject: Continuous Suspended Sediment monitoring and reporting on Hawke's Bay waterways

Reason for report

1. The movement of soil into waterways and Hawke Bay, where it is known as sediment, is a key environmental stressor. The loss of soil from the landscape also renders the land less productive for primary production.
2. Measuring sediment loads in waterways through continuous suspended sediment monitoring over the long term enables the council to reflect on the effectiveness of hill country erosion mitigations and soil conservation measures. As the council moves toward a more holistic approach to land use through soil conservation measures, suspended sediment monitoring offers a credible tool to measure intervention success when designed effectively.
3. The following report highlights the processes involved in continuous suspended sediment monitoring at HBRC, affectionately known as the ISCO Programme, and the short achievements to date of this contemporary programme. It finishes up with the direction for the Programme.
4. The report follows on from discussions at the previous EICC meeting in April. A suite of reports covered sources, transport and sinks of sediment, the effectiveness of trees in mitigating landslides, waterway connectivity of landslides and the Erosion Control Scheme and soil conservation in Hawke's Bay.

Executive summary

5. The erosion of soil into waterways represents a reduction in land productivity and detrimentally affects instream water quality and receiving aquatic ecosystems. HBRC has a network of automatic water samplers (ISCOs) to measure suspended sediment. Historically, the ISCO Programme's *raison d'être* was to assess the effectiveness of HBRC's erosion control measures by monitoring instream suspended sediment concentrations. Unlike monthly discrete sampling, ISCOs target the capture of multiple samples over flood events when erosion is high. These samples are then correlated against the flow and catchment area to determine the catchment load and yield. The results support and guide efforts to reduce sediment loads in waterways by determining a system's health regarding suspended sediment.
6. The monitoring network was severely impacted by Cyclone Gabrielle. Before the cyclone, 18 of the 20 sites were active (one was vandalised and another destroyed by an earlier storm in Wairoa). Six were destroyed during Cyclone Gabrielle, and others were damaged. Many sites are currently awaiting resourcing to be redeployed. To date, only 5 sites of the original 20 are active, with 2 ISCOs deployed for the Pakuratahi Land Use Study to investigate the impacts of forestry harvesting.
7. Given the need for a network rebuild, it is pertinent that we address the more holistic issue of soil conservation. This will give the ISCO Programme a wider remit to not only focus on erosion control through planting trees, but also integrate new land management practices, soil science and land use suitability. There is a short-term plan in place as part of the Three Year Plan (2024-2027), but a more comprehensive plan is needed and will be part of the next LTP process.

Strategic fit

8. In the HBRC Strategic Plan 2020-2025, the Council aims to have 50% of highly erodible land treated with soil conservation plantings by 2030, and all highly erodible land under tree cover by 2050. These measures are expected to reduce in-stream suspended sediment. However, it is

important to determine long-term trends in suspended sediment concentrations and sediment load to evaluate the effectiveness of land management efforts undertaken by HBRC. The Erosion Control Scheme and the Hawke's Bay Afforestation Project were set up to facilitate and accelerate planting. The Erosion Control Scheme helps landowners keep soil out of waterways by providing financial support for the delivery and planting of trees. The Hawke's Bay Afforestation Project supports both commercial and non-commercial afforestation on erosion-prone land. Measuring a reduction in annual sediment load within catchments over the long term would indicate that the Erosion Control Scheme (i.e. enhanced planting of waterways, pole planting on erodible slopes, etc.) is reducing erosion within a catchment.

9. Progress towards achieving the HBRC Strategic Plan objectives and reducing the negative impacts of sediment in our waterways and the loss of soil from land was previously determined through a level of service measure. The purpose of planting highly erodible land is to reduce in-stream suspended sediment. Therefore, the associated level of service measure was "**the sediment load in tonnes per year in receiving waterbodies (streams, rivers and estuaries), derived from 20 ISCO automated water samplers in priority catchments with highly erodible land"**. However, this level of service measure was subsequently dropped after the network was compromised by Cyclone Gabrielle. It was also not fit for purpose long-term, given its remit of a quantum of 20 ISCOs deployed at any one time.

Background

10. Hill country erosion is a key issue in Hawke's Bay with 258,000 ha (18%) of land with erosion rates greater than 1,000 t per km^2 a^{-1}. It is estimated that this land delivers 8.5 Mt of sediment to the stream and river network and 8 Mt of sediment to the coast every year (MWLR and HBRC, 2024). Erosion is estimated to have increased 6.4 Mt, 309%, from pre-human levels when analysing the SedNetNZ spatial data. Erosion predominantly occurs during rainfall events, and the resulting sediment flux within a river system varies depending on rainfall distribution and intensity. It is critical to measure suspended sediment concentrations over a range of different flood events and long-term to accurately estimate the effect of land use management on suspended sediment. To mitigate this loss of sediment, the Erosion Control Scheme was established.

11. The Ministry for Primary Industries acknowledged the value of suspended sediment monitoring by awarding the Hill Country Erosion Project funding to purchase and install 15 ISCOs in 2020 and employ a fixed-term technician to install and manage them. Five already belonged to the Land Science team for regional reporting (see Figure 1). The new ISCOs were installed between 2018 and 2021. However, six were destroyed and many were damaged during Cyclone Gabrielle. One was destroyed during the June 2022 storm in Wairoa, and one was vandalised. Resourcing has also been constrained post-Cyclone Gabrielle. Therefore, there are only 5 sites active and 2 deployed as part of the Pakuratahi Land Use Study, investigating the impacts on waterways post-forestry harvest. Technician funding stopped in 2024, and the Programme is now managed as additional workloads of the Water Quality Technicians, Catchment Advisors and the Land Science team. This short-term solution allows the Programme to claim back some of its losses through insurance once all existing ISCOs are deployed as the team reinstates damaged/destroyed sites. The annual planning process will need to consider appropriate technician resourcing to manage the network, including collection and analysis of the samples.

12. An independent review of the ISCO project was conducted in 2023 by Dr Rob Davies-Colley at NIWA (*River sediment monitoring in the HB region: Review and recommendations January 2023*). He recommended the following improvements:

    12.1. Relate suspended sediment concentration to continuous turbidity, rather than continuous flow, because it is a better proxy for suspended sediment concentration than flow – it will provide a more robust means of estimating annual sediment loads and is more cost-effective long-term than indefinite sediment sampling.

    12.2. Conduct sediment gaugings (depth-integrated sampling) to correct 'point' suspended

sediment concentration measured on auto-samples to cross-sectional-averaged suspended sediment concentration for unbiased load calculations.

12.3. Measure sand and mud separately on samples as this will provide valuable information about the nature and likely effects of sediment on downstream waters.

12.4. Take up lab testing of Particulate Organic Carbon in 10% of samples.

12.5. Test lab samples for turbidity to calibrate the field turbidity sensor.

12.6. Provide long-term rather than fixed-term technical labour resourcing to ensure the ongoing implementation and data capture for the project.

13. At the previous EICC meeting in April, a suite of papers was discussed on erosion and sedimentation. These covered sources, transport and sinks of sediment, the effectiveness of trees in mitigating landslides, waterway connectivity of landslides and the Erosion Control Scheme and soil conservation in Hawke's Bay. These reports highlighted our vulnerability to erosion and the steps taken to mitigate it. This report takes the next step and illustrates the current use of direct measurements required to gauge progress and determine effectiveness in our drive to long-term soil conservation.

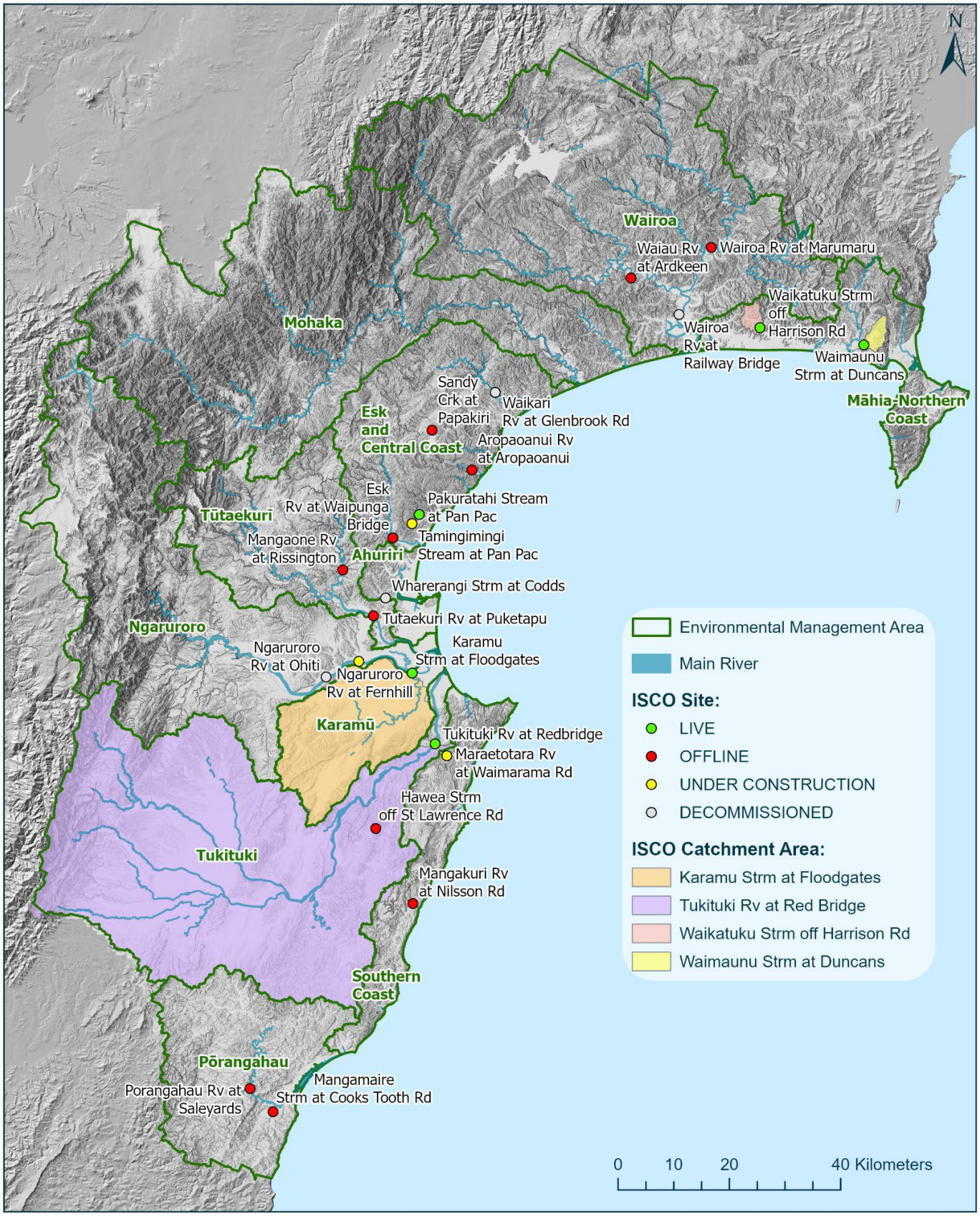

Figure 1: Map of ISCO automatic sampler sites with currently active catchments.

Discussion

14. SedNetNZ estimates that there are 258,000 hectares of Hawke's Bay hill country losing more than 1,000 tonnes of sediment per km^2 per year. Estimation of annual sediment load (t a^{-1}) and annual sediment yield by area (t ha a^{-1}) for a given catchment can be determined using either direct in-stream measurements or by using models such as SedNetNZ. Modelled estimates of sediment load and yield have been determined for the Hawke's Bay region using SedNetNZ – a spatially distributed, time-averaged (decadal to century) model that routes sediment through the river network, based on hillslope and channel processes (Palmer et al., 2016). Although SedNetNZ identifies the spatial distribution of erosion processes (e.g. surficial, landslide, gully, and earthflow erosion), determining sediment reduction in response to changing land use management is less accurate. Nonetheless, models such as SedNetNZ are useful for prioritising critical source areas (i.e. distinct zones of erosion) and can be calibrated with empirical measurements.

15. Manaaki Whenua Landcare Research (MWLR), as part of the 'Our Landscapes: Hawke's Bay LiDAR Project' (HBRC and MWLR, 2024), has updated the regional SedNetNZ model. It now predicts an annual average suspended sediment load of 8.5 Mt a^{-1} is delivered to the stream and river network, with 8.0 Mt a^{-1} delivered to the coast. This is up on the previous version of 7.5 Mt a^{-1} and 7.2 Mt a^{-1}, respectively. Figure 2 shows the net suspended sediment load for the main rivers at the bottom of their respective catchments.

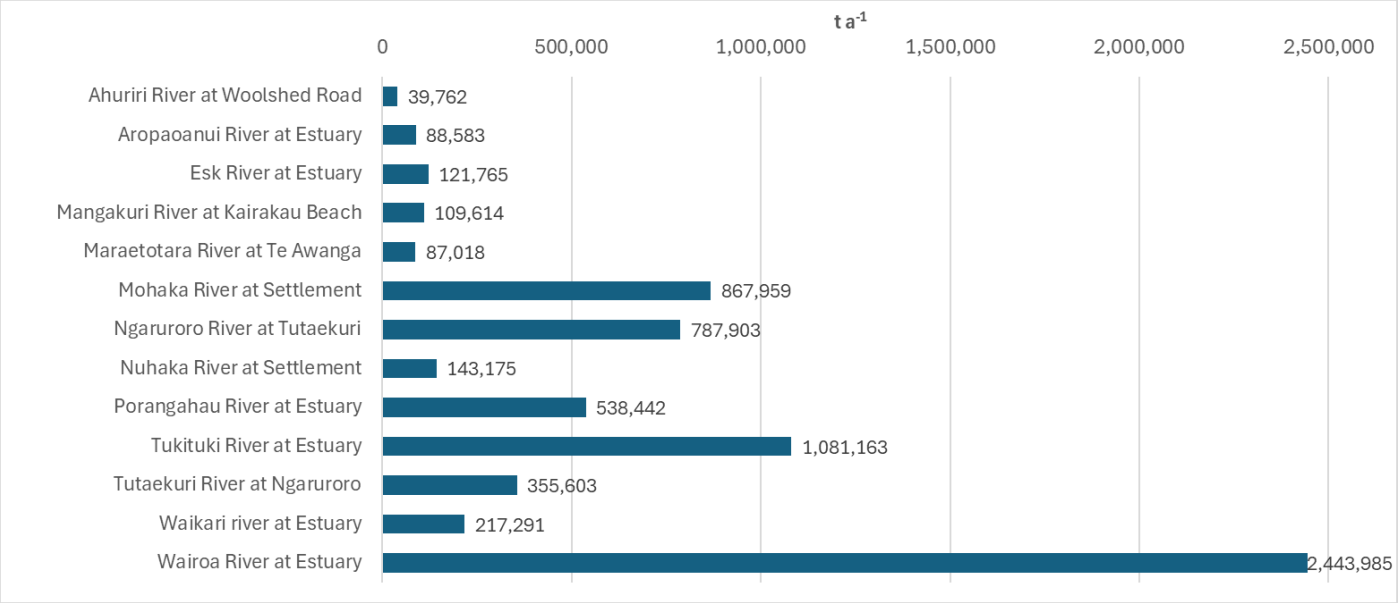

Figure 2: Modelled net suspended sediment load at the bottom of the catchment using SedNetNZ.

16. Conversely, the ISCO Programme measures direct continuous measurement of water level (with derived river/stream flow) and turbidity, coupled with in-stream water sampling (ISCO automatic water samplers). ISCOs are triggered by high water levels, at which time a sampling sequence is initiated to fill bottles with river/stream water, which is then tested in a lab for suspended sediment concentration. Long-term suspended sediment sampling then requires the development of a regression relationship (rating curve) between flow and suspended sediment concentrations so that it captures annual variability (Hicks *et al.*, 2011).

17. This approach is the most effective way to calculate sediment load to inform the effectiveness of erosion mitigation efforts and soil conservation. Currently, Auckland Council, Waikato RC and Environment Canterbury have continuous suspended sediment monitoring programmes in place. There is interest from Taranaki RC, which already has five turbidity sensors in place, and Gisborne DC (subject to funding).

18. Moving from modelled to measured, the following results for the ISCO Programme cover the period July 2021 to June 2024, as reported in the latest SOE Report (HBRC, 2024). These break down into 3 periods: pre, during and post-Cyclone Gabrielle.

18.1. The ISCO network before Cyclone Gabrielle covered 64% (1,043,949 ha) of the Hawke's Bay catchment area, with a significant proportion of the Wairoa River catchment residing in the Gisborne District. For the period 1 July 2021 to 12 February 2023, the total cumulative load for the network was 8.52 Mt a^{-1} (Table 1). This is 18% higher than reported in the 2021 SOE Report (HBRC, 2021), illustrating an increasing trend in sediment load over the period, which was generally wetter due to La Niña. When analysing the sediment yield per year per hectare to compare catchments, the Wairoa River (15 t a^{-1} ha^{-1}), Porangahau River (14 t a^{-1} ha^{-1}), Sandy Creek (13 t a^{-1} ha^{-1}) and Waikatuku Stream (11 t a^{-1} ha^{-1}) are relatively high in comparison to other catchments. Conversely, Hawea Stream (1 t a^{-1} ha^{-1}) and the Maraetotara River (2 t a^{-1} ha^{-1}) are comparatively low. Yield allows for the comparison of sites across the network to illustrate good and poor performers. Whereas load is useful for the quantum of the impact.

Table 1: Cumulative load by site for the period 1 July 2021 - 12 February 2023. Colours illustrate confidence.

Site	Cumulative Load (t a^{-1})	Area-weighted Yield (t a^{-1} ha^{-1})	Quality (SSC to flow relationship)	Mean Flow ($m^3 s^{-1}$)
Aropaoanui River at Aropaoanui	93,220	6	Poor	4.44
Esk River at Waipunga Bridge	115,774	5	Good	7.05
Hawea Stream off St Lawrence Road	1,944	1	Average	0.12
Karamu Stream at Floodgates	143,417	3	Poor	4.1
Mangakuri River at Nilsson Road	50,896	7	Poor	0.96
Mangamaire Stream at Cooks Tooth Rd	45,650	7	Good	1.3
Mangaone River at Rissington	129,999	6	Poor	6.64
Maraetotara River at Waimarama Road	12,647	2	Average	1.29
Ngaruroro River at Fernhill	1,495,003	8	Good	63.78
Porangahau River at Saleyards	942,893	14	Average	14.81
Sandy Creek at Papakiri	25,957	13	Average	0.362
Tukituki River at Red Bridge	1,672,278	7	Good	61.48
Tutaekuri River at Puketapu HBRC Site	510,915	7	Good	20.24
Waiau River at Ardkeen	434,790	3	Average	65.19
Waikatuku Stream off Harrison Rd	16,617	11	Average	0.28
Waimaunu Stream at Duncans	11,566	7	Average	0.53
Wairoa River at Marumaru	2,710,186	15	Average	86.35
Whareranga Stream at Codds	111,055	60	Poor	0.32
TOTAL	**8,524,808**	**187**		**339.24**

18.2. During the month of Cyclone Gabrielle, the region's rainfall was approximately 500% of the long-term average (HBRC, 2023). This led to an estimated total mass of landslides calculated by MWLR of 300 Mt across the East Coast using satellite observations (MWLR, 2023). Most (61%) of this damage occurred in Hawke's Bay (MWLR, 2023; Eaves, 2024). Sediment delivery from landslides to Hawke's Bay waterways ranges between 21% and 29% of volume (Spiekermann *et al.*, 2022), from which we can infer 38 – 53 Mt was delivered to waterways. Over the week of Cyclone Gabrielle, from 12 to 19 February 2023, the hypothetical cumulative loads on the network totalled 12.97 Mt (Table 2). Therefore, given the estimates above, the network measured approximately one-third of the suspended sediment in waterways using the lower-end estimation. Note that the sediment loads for the Cyclone Gabrielle event are hypothetical because our sediment rating curves do not

extend to this magnitude. Similarly, once a site was destroyed, flow information was unavailable. Overall, it is estimated that the cyclone delivered at least 53% more sediment in the week of the event than the annual average over the past 3 (La Niña) years.

Table 2: Cumulative loads for Cyclone Gabrielle with peak flow estimates in blue modelled by NIWA (Lane, 2024). Crosses indicate destroyed sites and asterisks indicate modelled flow.

Site	Event Load (t)	Quality (SSC to flow relationship)	Peak Flow ($m^3 s^{-1}$)
Aropaoanui River at Aropaoanui +	15,117	Poor	134
Esk River at Waipunga Bridge +	737,931	Good	2,006
Hawea Stream off St Lawrence Road	3,558	Average	7
Karamu Stream at Floodgates +	287,073	Poor	101
Mangakuri River at Nilsson Road	4,184	Poor	30
Mangamaire Stream at Cooks Tooth Rd	27,930	Good	218
Mangaone River at Rissington +	1,964,150	Poor	1,393
Maraetotara River at Waimarama Road	4,307	Average	137
Ngaruroro River at Fernhill	3,699,683	Good	5,398
Porangahau River at Saleyards +	184,548	Average	1,299
Sandy Creek at Papakiri +	248,619	Average	31
Tukituki River at Red Bridge	1,362,961	Good	3,462
Tutaekuri River at Puketapu HBRC Site +*	2,159,201	Good	4,823
Waiau River at Ardkeen	744,996	Average	1,654
Waikatuku Stream off Harrison Rd	11,441	Average	15
Waimaunu Stream at Duncans	5,042	Average	21
Wairoa River at Marumaru*	1,412,675	Poor	4100
Wharerangi Stream at Codds	101,173	Poor	54
TOTAL	**12,974,589**		**24,883**

18.3. The ISCO network post Cyclone Gabrielle covers 19% (296,600 ha) of Hawke's Bay. For the period 19 February 2023 to 30 June 2024, the total cumulative load for the network was 1.48 Mt a^{-1} (Table 3). Therefore, one can only compare catchments still operating and not analyse for regional or district trends. Karamu data hasn't been included pending further investigation into the turbidity sensor.

Table 3: Cumulative load by site for the period 19 February 2023 - 30 June 2024.

Site	Cumulative Load ($t\ a^{-1}$)	Area-weighted Yield ($t\ a^{-1}\ ha^{-1}$)	Quality (SSC to flow relationship)	Mean Flow ($m^3 s^{-1}$)
Karamu Stream at Floodgates	-	-	Good	4.59
Tukituki River at Red Bridge	1,398,538	6	Good	50.99
Waikatuku Stream off Harrison Rd	60,868	39	Average	0.221
Waimaunu Stream at Duncans	18,209	11	Average	0.797
TOTAL	**1,477,616**	**56**		**56.60**

19. To measure long-term sediment loads, suspended sediment data alongside flow information are required, particularly during high flow events when suspended sediment concentrations are highest. In addition to event-based monitoring, mean flow and long-term monitoring of suspended sediment concentrations will help discover the effectiveness of land management mitigation efforts within catchments of interest. However, accurately measuring long-term trends in suspended sediment concentrations proves challenging due to the high degree of

variance in measurements brought about by the complex interaction of geological, topographical, climatic, land management, land use and land cover characteristics within each catchment. These complex interactions highlight the need for measuring suspended sediment concentrations over the long term under a range of different flow conditions to give a true picture of sediment dynamics. This reduces uncertainty in measurement and provides accurate feedback on soil conservation efforts. It takes approximately 12 years for a poplar pole to become effective at holding soil, and then another decade of monitoring to understand trends. Given the ISCO Programme to monitor hill country erosion only started in 2020, there is a long way to go.

20. Effective collaboration between the ISCO Programme, soil science and soil conservation programmes can make interventions more targeted and cost-effective. Our communities can look forward to less sediment being dumped on their land during storms and better water quality for ecosystems and recreation.

Next steps

21. The Programme will continue to collect suspended sediment concentration data at current sites through ISCOs and sediment gaugings. It will:

22. Monitor, measure and report long-term changes in sediment loads in response to land use change or council programmes. It will inform SOE reporting when there is sufficient regional coverage.

23. Develop flow, suspended sediment concentrations and turbidity ratings to estimate annual sediment loads.

24. Reinstate some sites in the ISCO monitoring network that consider current yields above and soil conservation measures, as well as existing water quality and hydrometric infrastructure and land use (see Key Milestones below).

25. Integrate soil physical characteristics to help re-focus the programme on soil conservation outcomes. These would include bulk density, macroporosity and aggregate stability.

26. Develop a comprehensive, longer-term plan as part of the next LTP for new sites and resourcing (capital and operational). This will ensure long-term tracking of the effectiveness of HBRC's investment in soil conservation measures.

27. Given the current capacity and the Land Science budget, the following milestones are achievable over the current Three-Year Plan:

Key Milestones – 3 Year Plan to 2027	Completion Date
1. Maintain 5 active sites plus 2 Pakuratahi Study sites; 7 sites in total.	30/06/2026
2. Sediment and flow gaugings at the 7 active sites.	30/06/2026
3. Reinstall the Porangahau River at Saleyards and Mangamaire Stream at Cooks Tooth Rd without turbidity.	01/02/2026
4. Reinstall the Wairoa River at Marumaru with turbidity.	30/06/2026
5. Reinstall the Ngaruroro River at the Fernhill site with turbidity.	01/02/2027
6. Reinstall the Esk River at Waipunga Bridge with turbidity.	30/06/2027

Decision-making considerations

28. Staff have assessed the requirements of the Local Government Act 2002 concerning this item and have concluded that, as this report is for information only, the decision-making provisions do not apply.

Recommendation

That the Environment and Integrated Catchments Committee receives and notes the *Continuous Suspended Sediment monitoring and reporting on Hawke's Bay waterways* staff report.

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Attachment/s

There are no attachments for this report.

References

Eaves, A. (2024) 'Shaping Landscapes – Landslide Analysis from Cyclone Gabrielle in Hawke's Bay, New Zealand', *Journal of Agricultural, Earth and Environmental Sciences*, 3(4), pp. 01–14.

HBRC (2021) *Hawke's Bay State of the Environment 2018-2021*. Hawke's Bay Regional Council.

HBRC (2023) *Hawke's Bay Trends - The State of our Environment February 2023*. Available at: https://www.hbrc.govt.nz/assets/Document-Library/Reports/State-of-the-Environment-Report/2023-02-State-of-the-Environment-Report-February-2023.pdf.

HBRC (2024) *Continuous Sediment Monitoring for State of the Environment Reporting in Hawke's Bay September 2024*. 5703. Napier, NZ.

HBRC and MWLR (2024) *Our Landscapes: Hawke's Bay LiDAR Project*. Available at: https://www.hbrc.govt.nz/services/maps-and-gis/lidar.

Hicks, D.M. *et al.* (2011) 'Suspended Sediment Yields from New Zealand Rivers', *Journal of Hydrology*, 50(1), pp. 81–142.

Lane, E. (2024) *NIWA Letter Report: Cyclone Gabrielle Flood Analysis*. Christchurch, N.Z.: NIWA.

MWLR (2023) *Rapid assessment of land damage – Cyclone Gabrielle*. Contract Report: LC4292.

MWLR and HBRC (2024) *Improving understanding and management of erosion with LiDAR*. 5659. Palmerston North, New Zealand.

Spiekermann, R.I. *et al.* (2022) 'Development of a morphometric connectivity model to mitigate sediment derived from storm-driven shallow landslides', *Ecological Engineering*, 180, p. 106676. Available at: https://doi.org/10.1016/j.ecoleng.2022.106676.

HAWKE'S BAY REGIONAL COUNCIL

Environment and Integrated Catchments Committee

Wednesday 20 August 2025

Subject: Biodiversity Programmes update

Reason for report

1. This item provides an update of the Biodiversity programmes delivered by Catchment Operations during FY24/25 Priority Ecosystem Programme, Targeted Catchment Works Fund and Biodiversity Hawke's Bay Environmental Enhancement Contestable Fund.

Executive summary

2. Last financial year (2024/25), the biodiversity team, within Integrated Catchment Management Group, Catchment Operations section, successfully delivered 59 of projects across the region under their three primary work programmes: Priority Ecosystems, Targeted Catchment Works and the Environmental Enhancement Contestable Community Fund, spending the full operational expenditure budget of $1,166,688.
3. The Priority Ecosystem (PE) Programme budget of $445,072 was dedicated to deer fencing and undertaking pest control at sites of high biodiversity value.
4. A further $409,230 of funding was spent on protecting additional priority ecosystem sites through the externally-funded 'Jobs for Nature' programme focused on deer fencing covenanted sites where feral deer and goats were impacting on ecological integrity.
5. Under these two PE programmes, 14 new sites were deer fenced, protecting 126 hectares of threatened forest types, and maintenance activities (largely pest plant and animal control) were undertaken at 24 sites. This was supported through external funding.
6. The Targeted Catchment Works Fund budget was $261,536, which was used to support 21 projects that do not meet the criteria of other funding programmes but still provide significant environmental outcomes.
7. HBRC's contribution of $50,000 to the Environmental Enhancement Contestable Community Fund, which Biodiversity Hawke's Bay administers, was boosted by an additional $60,000 from the Eastern & Central Community Trust.

Strategic fit

8. Biodiversity is one of the four priority focus areas in the 2020-2025 Strategic Plan: Healthy, functioning and climate-resilient biodiversity – Kia ora, kia āhei, kia mārohirohi ā-āhuarangi hoki te rerenga rauropi. There are four strategic goals:
    8.1. By 2020, regional priority locations for ecosystem restoration – including in the coastal marine area – have been identified.
    8.2. By 2030, key species and habitat (sites) are prioritised and under active restoration. *Source: HB Biodiversity Strategy, 2015-2050 and Action Plan 2017-2020*
    8.3. By 2050, a full range of indigenous habitats and ecosystems, and abundance and distributions of taonga species are maintained and increased in every catchment in Hawke's Bay. *Source: HB Biodiversity Strategy, 2015-2050 and Action Plan 2017-2020*
    8.4. By 2050, Hawke's Bay is predator free in line with NZ 2050 target. *Source: Predator Free 2050*
9. In the HBRC Three Year Plan 2024-2027, to achieve a healthy environment, *HBRC will work with partners and stakeholders to deliver high-value environmental outcomes and implement the*

Hawke's Bay Biodiversity Strategy and Action Plan so biodiversity is enhanced, healthy and functioning.'

10. The Level of Service measure target was four new sites and 10 maintained under the Priority Ecosystem (PE) programme, as well as three new projects under the Targeted Catchment Works (TCW) programme. We exceeded these targets, with 14 new sites and 24 maintained under the PE programme, and 21 projects completed in the TCW programme. This has been made possible through additional funding from the Jobs for Nature private land fund, along with partnerships with QEII, DOC, and catchment groups. This enabled us to surpass these targets and undertake larger, higher-impact projects. Many of these funding programmes have concluded, so securing funding for these sites will be more challenging in the future.

11. Other plans that contribute to Council's biodiversity programmes are the Hawke's Bay Biodiversity Strategy, Hawke's Bay Regional Pest Management Plan and Asset Management Ecological Management and Enhancement Plan. These plans have provisions or programmes that help protect and enhance sites of biodiversity value.

12. The Te Mana o te Taiao- Aotearoa New Zealand Biodiversity Strategy 2020 was launched to outline how New Zealand will protect, restore and sustainably use biodiversity. An implementation plan was produced in 2022, and this is being updated in partnership with the regional sector, as well as a shared Outcome Monitoring Framework.

13. The National Policy Statement for Indigenous Biodiversity (NPS-IB) was gazetted in 2023, which recognises that the health and well-being of people and communities are dependent on the health and well-being of indigenous biodiversity and that, in return, people have a responsibility to care for and nurture it.

14. Government reforms are currently underway, which are likely to alter aspects of the NPS-IB, as well as the National Policy Statement for Freshwater Management, which includes provisions for the protection and restoration of natural inland wetlands. However, clear statutory requirements still exist for regional councils to protect, maintain, and restore indigenous biodiversity.

Legislative imperative

15. Under Section 30 (Part 1) of the Resource Management Act (1991), every regional council has the function of "the establishment, implementation, and review of objectives, policies, and methods for maintaining indigenous biological diversity."

16. The activity reported on here outlines the associated implementation of methods for maintaining indigenous biodiversity

Background

17. The term biodiversity encompasses all life - individual organisms, species, and ecosystems. As part of nature, humans are dependent on biodiversity, and yet the many impacts of humans on nature in Hawke's Bay undermine and threaten our wealth and our way of life.

18. Indigenous biodiversity in New Zealand is in crisis. Approximately 4,000 species are threatened or at risk of extinction, including over 75% of our native reptiles, birds, bats, and freshwater fish. Many of these species are endemic, meaning they are found nowhere else on Earth. As a regional council, it is our responsibility to protect and preserve this unique biodiversity.

19. In the Hawke's Bay region, we have only 4% of wetlands and 23% of the original indigenous forest cover remaining. This is a serious threat to biodiversity, and the ongoing loss continues as feral browsers compromise the ability for regeneration, meaning human intervention is required to ensure further indigenous cover is not lost.

20. Healthy, functioning biodiversity can offer solutions to many challenges faced in Hawke's Bay, such as water quality, erosion control, flood management, drought mitigation, and carbon storage through ecosystem services.

21. Recent research by Denyer et al. (2025) indicates that maintaining native vegetation in the Waitaha/Canterbury region has a net value of $16.6 billion annually. The return on investment in maintaining existing native vegetation is $120 in ecosystem services for every $1 spent. If these ecosystems were lost, reconstruction costs could range from $53K to $149K per hectare, but the loss in ecosystem service values could reach up to $734K per hectare. Additionally, these reconstructed ecosystems may take centuries—if ever—to reach their full structure, diversity, and functioning as currently provided.

22. Council has a range of programmes that help protect and enhance biodiversity:

    22.1. The **Priority Ecosystem programme** was initiated in the 2018-2028 LTP with a focus on securing from extinction a full representative range of the region's ecosystems. The main works undertaken are deer fencing, pest plant and animal control and planting. The team work closely with many external agencies and stakeholders, such as the QEII Trust, DOC, the rural sector and land occupiers. It is the only programme at the council that focuses solely on addressing the core causes of biodiversity decline and the flagship programme for HBRC Biodiversity investment.

    22.2. The **Targeted Catchment Work Fund** aims to deliver high-value environmental outcomes on a sub-catchment scale, such as improved water quality, riparian protection, biodiversity enhancement and wetland restoration. This fund complements the Priority Ecosystem Programme and Erosion Control Scheme by covering work that will contribute to significant environmental outcomes but does not meet the funding criteria of these other funding streams. It can also be used to leverage external funding.

    22.3. The **Biodiversity Hawke's Bay Environmental Enhancement Community Fund (EECF)** was launched in 2020 offering small grants to individuals and organisations to support projects that improve biodiversity. HBRC contributes $50,000 to the EECF, plus biodiversity staff time for evaluating funding applications and offering technical advice. HBRC deliberately collaborated with Biodiversity Hawke's Bay to establish and administer this fund for strategic reasons.

        22.3.1. As a regional, community-driven organisation, it operates across diverse stakeholders, facilitates connections among people and projects, and promotes a coordinated community approach in a manner that is cost-effective,

        22.3.2. Biodiversity Hawke's Bay are apolitical, and independent.

        22.3.3. They also empower community groups and individuals to focus on the 'doing' with administrative, financial, and project management support.

    22.4. Earlier this year, a partnership was formed between Eastern & Central Community Trust (ECCT), Hawke's Bay Regional Council, and Biodiversity Hawke's Bay, which saw EECT commit $60,000. By combining our resources, we can help more groups overcome financial barriers to achieve great things for our environment.

23. **Outcome monitoring** is crucial for understanding how our management and activities affect ecological integrity at these sites. We monitor the health of selected Priority Ecosystem sites to measure changes in the state of vegetation and native wildlife in response to our management. Currently, due to limited resourcing, we only monitor 3 sites annually.

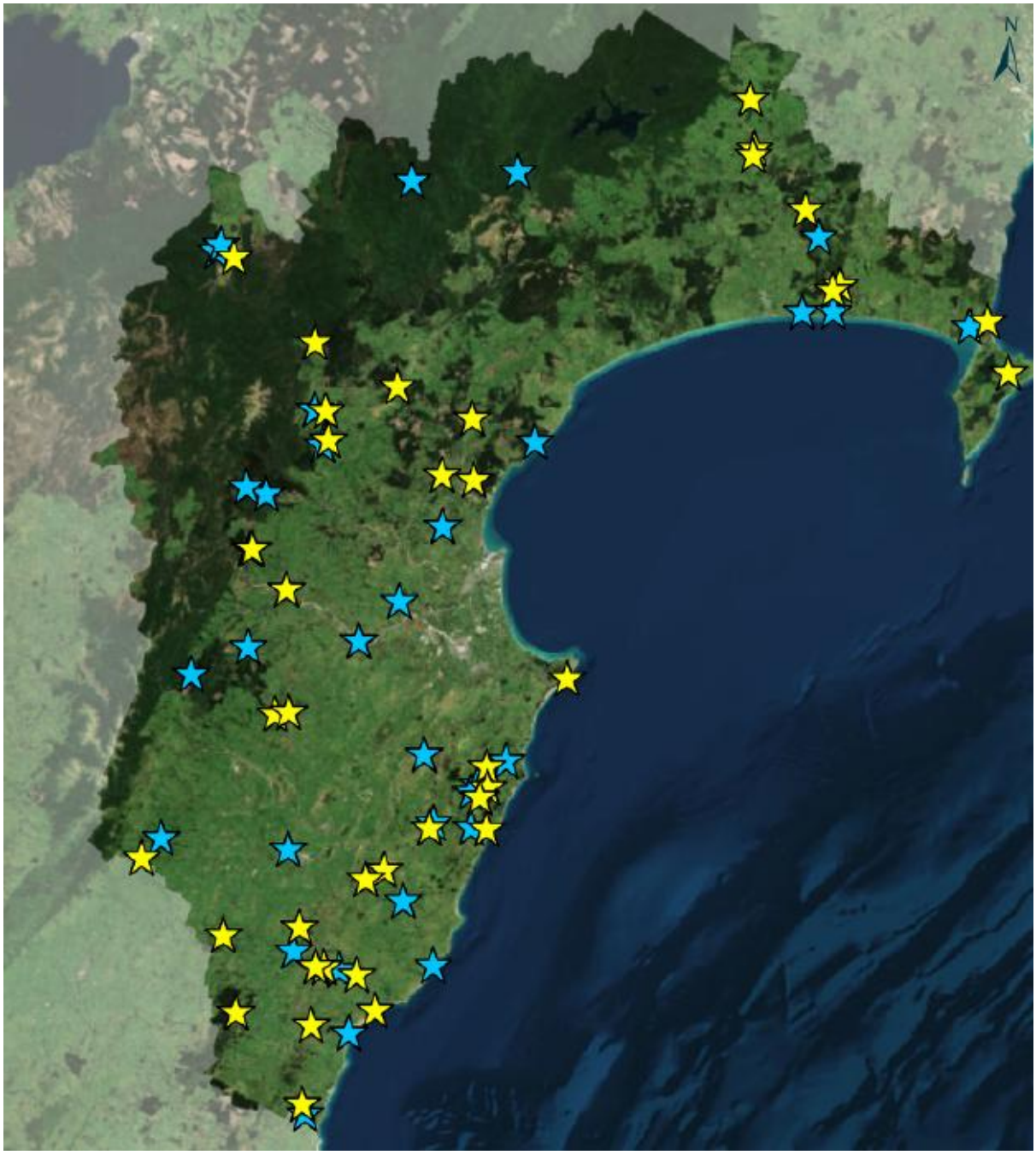
Discussion

24. Last financial year, the Priority Ecosystem protected 14 new sites through the installation of 30km of deer fencing, securing 32 hectares of acutely threatened forest types and 94 hectares of chronically threatened forest types.

25. Maintenance work was carried out at a further 24 sites already existing in the Priority Ecosystem programme, focusing on weed control (such as willows, old man's beard, cotoneaster), predator control, fence repairs, and feral ungulate control to protect deer fencing investment.

26. Council funding successfully attracted further support from the QEII National Trust, Jobs for Nature Private Land Fund, Pōrangahau Catchment Group, Waingōngoro Catchment Group, NZ Lotteries, and notable landowner contributions, vital in accelerating this work.

27. **The Priority Ecosystem programme currently has a total of 64 managed sites**, covering 2,215 hectares (see Map 1), protecting habitat for a range of threatened species, including kōtuku/white heron (Threatened, Nationally Critical), matuku-hūrepo/bittern (Threatened, Nationally Critical), whio/blue duck (Threatened, Nationally Vulnerable), kākābeak (Threatened, Nationally Critical), *Olearia gardneri* (Threatened, Nationally Endangered) and *Pittosporum obcordatum* (Threatened, Nationally Vulnerable). There are a further 43 priority ecosystem types not represented in our programme, many of which remain at high risk of decline and ultimate extinction.



Map 1 – Sites protected through the Priority Ecosystem programme since 2018. Yellow stars represent fully managed sites, while blue stars represent supported sites.

28. The new sites protected through the programme last financial year include:

    28.1. **Waituku** – Whakakī catchment. This small remnant (6 ha) is a good representation of kahikatea, pukatea alluvial forest – one of our most threatened ecosystem types with only 1.5% of its historic extent remaining in Hawke's Bay. This site has been covenanted through QEII and the threatened plant *Pittosporum obcordatum* reintroduced by the Department of Conservation. Feral browsers were inhibiting regeneration, reducing the long-term viability of this significant area, but the team has now topped up the previous conventional fenceline with deer netting to exclude browsers.

    28.2. **Otupua** – Taharua catchment. This is the largest site the biodiversity team has ever committed to, and this was only possible because of external funding through the Department of Conservation's Job for Nature Fund. By deer fencing this site, the project will preserve 460 ha of red beech, silver beech forest, currently subject to significant numbers of sika deer inhibiting regeneration and making the site vulnerable to eventual canopy collapse. The block supports kākā (At Risk, Recovering), toutouwai/North Island robin (At Risk, Declining) and North Island rifleman (At Risk, Declining), as well as scarlet mistletoe (At Risk, Declining) and yellow mistletoe (At Risk, Declining).

    28.3. **100 Acre –** Puhokio catchment. This 45 ha DOC conservation covenant at the top of the Maraetōtara Plateau contains a remnant of tawa, tītoki, podocarp forest with many large mataī and rimu. Toutouwai/North Island robin (At Risk, Declining) were released in 2016 and are now well established at this site and the nearby Mōhi Bush and Maraetōtara Reserve. Signs of deer were extensive throughout the site, and the lack of regeneration is likely to impact the site's ongoing viability. The Priority Ecosystem budget was leveraged to get additional funding from NZ Lotteries to deer fence the site and ensure regeneration can occur again.

    28.4. **Baldwin** – Mangamahaki catchment. These four small blocks of acutely threatened lowland alluvial forest contain the largest population of *Pittosporum obcordatum* (Threatened, Nationally Vulnerable) in Hawke's Bay. The area has been protected by a QEII covenant for many years, but the existing fencing was not keeping out deer and goats, which were impacting the ecological integrity of the block. These blocks have now been deer fenced through the Priority Ecosystem programme.

29. Outcome monitoring has been undertaken at three sites each year for the past four years. Monitoring includes vegetation plots, bird counts and other fauna surveys. Analysis of the vegetation composition at different height tiers shows an obvious lack of regeneration, due to decades of grazing. Seedling, sapling and small tree numbers are far lower, in comparison to large tree numbers and fenced plots throughout New Zealand, than is expected in a forest with healthy regeneration. Vegetation plot monitoring will be repeated five years after fence establishment to allow the team to quantify the impact of deer fencing on regeneration at these sites. Limited resourcing means only selected sites are monitored with this detailed methodology, however all sites are revisited to assess ongoing management requirements.

30. The **Targeted Catchment Fund** supported 21 projects in partnership with catchment and community groups. Many of these projects (particularly restoration planting) were small-scale, and our funding was leveraged with other sources to stretch this budget further. Projects delivered include:

    30.1. Three new fencing projects in partnership with the Pōrangahau Catchment Group, and restoration activities to protect dune slack wetlands currently providing habitat for matuku-hūrepo/Australasian bittern (Threatened, Nationally Critical).

    30.2. Restoration planting at 13 sites in partnership with the Ahuriri Tributaries, Pōrangahau and Between Two Rivers (B2R) Catchment Groups.

    30.3. Two projects were also undertaken to guide future work. A prioritised fish passage barrier remediation plan will allow work to provide access to upstream habitat to be done more

effectively. Modelling of suitable locations for constructed wetlands in the Tukituki catchment, in partnership with Tukituki Landcare, Fonterra and NIWA, will guide several wetland reinstatement projects.

31. The **Environmental Enhancement Contestable Community Fund** was boosted through a new partnership with Eastern & Central Community Trust, which will contribute an additional $60,000 to this fund, already supported by $50,000 from HBRC. This will allow a second round of funding to be available each year. Biodiversity Hawke's Bay administers this fund using its growing community network alongside reviewing applications, undertaking associated grant paperwork, distributing the funds and auditing to ensure the success of these projects. There were 42 applications for the May 2025 funding round, of which 17 were successful. Three of the projects supported in the 24/25 FY were:

    31.1. **Hawke's Bay Lepidoptera (butterflies and moths) Monitoring - Baseline Project** aims to better understand the poorly studied but hugely diverse moth fauna in our region, many of which are endemic. This project carried out monthly light trapping surveys of moths across three of our Priority Ecosystem sites (Pakuratahi, Wedd and Te Hiwi). Initial findings show a total of 202 different species across these sites, some of which may be new records for Hawke's Bay.

    31.2. **Save the Dotterels- Hawke's Bay** is a small group of passionate local volunteers who aim to prevent these birds from becoming extinct on Napier's beaches and raise community awareness. The Hawke's Bay region is estimated to support 16% of the global population of pohowera/banded dotterels; therefore, conservation work to protect these species is essential for the ongoing success of this species. Funding was requested for cameras and traps to help protect nesting birds.

    31.3. **Jervoistown Forest Project** aims to create biodiverse habitats of native bush within the Jervoistown urban area. Funding was secured for plants to supplement those propagated by volunteers for planting in three areas within the Jervoistown precinct.

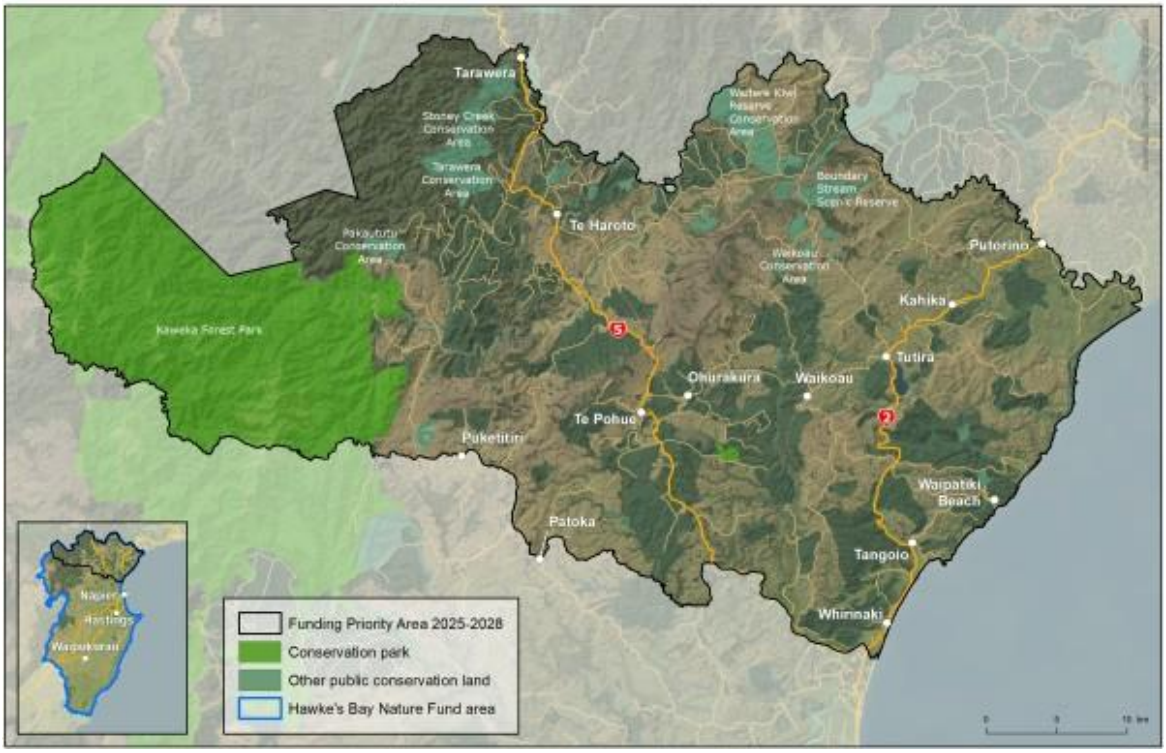
Next steps

32. With a growing number of sites, the team has developed a '30-year plan' to help map out maintenance and associated funding requirements to ensure the ongoing success of projects and secure the investment made to date. This has been essential for prioritising work for the new financial year with reduced budgets.

33. Outcome monitoring is crucial for understanding how our management and activities affect ecological integrity at these sites. So far, baseline data has been collected at a representative sample of sites across the region. We will repeat measurements at the recommended 5-yearly interval to gather quantitative data on management impacts. Additionally, we are collaborating with Manaaki Whenua, other regional councils, DOC, and MfE through an Envirolink Tools grant to develop standardised and cost-effective methods for this monitoring, which will enable comparison of results across different regions.

34. The biodiversity team continues to seek opportunities to leverage our funding to increase the impact of the work but are operating in an increasingly challenging environment. Although new opportunities do arise, there are often different priorities. For example, the boundaries for the new Hawke's Bay Nature Fund align with the DOC Hawke's Bay District boundary, with three years of annual funding rounds for separate geographic zones that will not include Wairoa. Organisations can only submit one application, and we are working strategically with DOC and other agencies to prioritise applications so there is no cross-over.

Hawke's Bay Nature Fund - Priority Area 2025-2028



35. The Jobs for Nature programme helped 'fill the gap' after ongoing budget reductions due to Cyclone Gabrielle; unfortunately, this has now come to an end. This funding not only significantly increased the number of Priority Ecosystem sites protected over four years, but also enabled the protection of large sites that would have been too costly to manage effectively otherwise. Furthermore, funding for several catchment groups that have collaborated with us to deliver vital biodiversity work has or is coming to an end.

36. The future of Biodiversity Hawke's Bay also remains uncertain. To date their operational costs are covered by donations from the Hawke's Bay Biodiversity Trust Endowment Fund, which is unsustainable. Fortunately, the Eastern and Central Community Trust Fund (ECCT) has committed to three years of funding to go towards their operational costs (Y1 $40K, Y2 $45K, Y3 $50K). This is in addition to ECCT funding the Environmental Enhancement Community Fund (Y1 $60K, Y2 $65K, Y3 $70K). However, this is on the condition that HBRC continues to support this fund over the same period in the same capacity. This financial support is helpful, but additional funding will be required to cover Biodiversity Hawke's Bay's ongoing operational expenses.

37. The importance of biodiversity conservation cannot be overstated, particularly in a region as ecologically diverse as Hawke's Bay. The depletion of indigenous vegetation, loss of wetlands, and extinction of numerous species underscore the urgent need for action. Biodiversity is not only essential for the health of our ecosystems but also for supporting key economic sectors such as agriculture and tourism. Additionally, restoring biodiversity is crucial for recovery from recent disasters like Cyclone Gabrielle and for mitigating the long-term effects of climate change.

38. Building partnerships with landowners, community groups and local communities through project delivery and providing technical advice allows landowners and others to protect ecosystems for future generations. Our funding enables landowners to achieve biodiversity goals they might not otherwise afford, particularly through deer fencing that helps ensure the survival of bush remnants on their properties. The passion and enthusiasm of many landowners and groups we work with is genuinely inspiring and exciting to be part of.

Decision-making considerations

39. Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision-making provisions do not apply.

Recommendation

That the Environment and Integrated Catchments Committee receives and notes the *Biodiversity Programmes Update* staff report.

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Attachment/s

Att1 HBRC Biosecurity Annual Report 1 July – 30 June Under Separate Cover *Available online only*

Att2 2025-2026 Combined Pest Plant and Pest Animal Operation Plan Under Separate Cover *Available online only*