



**I, Kitea Tipuna, Tumu Whakarae Chief Executive, hereby give notice that  
a Māori Standing Committee Meeting will be held on:**

**Date:** Tuesday, 16 April 2024  
**Time:** 10:00 am  
**Location:** Council Chamber, Wairoa District Council,  
Coronation Square, Wairoa

# **AGENDA**

## **Māori Standing Committee Meeting**

### **16 April 2024**

**MEMBERSHIP:** His Worship the Mayor Craig Little, Mr Henare Mita, Ms Theresa Thornton, Mrs Fiona Wairau, Cr Benita Cairns, Cr Roslyn Thomas, Mrs Erana Hammond, Mrs Amanda Reynolds, Mrs Whaiora Maindonald

The agenda and associated papers are also available on our website: [www.wairoadc.govt.nz](http://www.wairoadc.govt.nz)

For further information please contact us 06 838 7309 or by email [info@wairoadc.govt.nz](mailto:info@wairoadc.govt.nz)



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- 1 KARAKIA**
- 2 APOLOGIES FOR ABSENCE**
- 3 DECLARATIONS OF CONFLICT OF INTEREST**
- 4 CHAIRPERSON'S ANNOUNCEMENTS**
- 5 LATE ITEMS OF URGENT BUSINESS**
- 6 PUBLIC PARTICIPATION**

A maximum of 30 minutes has been set aside for members of the public to speak on any item on the agenda. Up to 5 minutes per person is allowed. As per Standing Order 15.1 requests to speak must be made to the Chief Executive Officer at least one clear day before the meeting; however this requirement may be waived by the Chairperson. Requests should also outline the matters that will be addressed by the speaker(s).

**7 MINUTES OF THE PREVIOUS MEETING**

Extraordinary Meeting - 14 March 2024

**MINUTES OF WAIROA DISTRICT COUNCIL  
EXTRAORDINARY MĀORI STANDING COMMITTEE MEETING  
HELD AT THE COUNCIL CHAMBER, WAIROA DISTRICT COUNCIL, CORONATION SQUARE, WAIROA  
ON THURSDAY, 14 MARCH 2024 AT 10:00 AM**

**PRESENT:** Mr Henare Mita, Ms Theresa Thornton, Mrs Fiona Wairau, Cr Roslyn Thomas, Mrs Erena Hammond, Mrs Whaiora Maindonald

**IN ATTENDANCE:** **Gary Borg** (Pouwhakarae – Pūtea/Tautāwhi Rangapū | Group Manager Finance and Corporate Support)(via zoom), **Duane Culshaw** (Pouahurea Māori | Māori Relationships Manager), **Chase Cook** (Kaiurungi Taiao | Compliance and Licensing Manager), **Hinemoa Hubbard** (Kaitauira Mana Ārahi | Governance Cadet), **Nathan Heath** (HBRC Māori Relationship Manager Northern HB), **Melissa Robson-Williams** (via zoom)

**1 KARAKIA**

The Opening Karakia was given by the Chair, Henare Mita.

**2 APOLOGIES FOR ABSENCE**

**APOLOGIES**

**COMMITTEE RESOLUTION 2024/213**

Moved: Mr Henare Mita

Seconded: Mrs Whaiora Maindonald

That the apologies received from His Worship the Mayor Craig Little, Cr Benita Cairns and Mrs Amanda Reynolds be accepted and leave of absence granted.

**CARRIED**

**3 DECLARATIONS OF CONFLICT OF INTEREST**

The Chair noted a potential conflict of interest due to family connections related to the Public Excluded Item – Statute Barred Rate Arrears Write-off 2016-17.

**4 PUBLIC PARTICIPATION**

The Māori Relationships Manager requested through the Chair that Dr Melissa Robson-Williams present to the committee on behalf of the Whitiwhiti Ora project team.

Mr Heath recognised the collaborative partnership that influenced the project and highlighted its success, attributing it to the ongoing emphasis on preserving the mana of Mātauranga Māori alongside Western science. He emphasised the importance of integrating both approaches to gain a deeper understanding of the impact of sediment on cultural values and mahinga kai.

Dr Robson-Williams introduced herself and spoke at length to her presentation on behalf of the project team. She provided a brief overview of the case study, elaborated on the project findings,

mentioned additional economics research conducted and concluded by discussing the success factors identified during the project evaluation.

Mrs Maindonald inquired about the width of the margin measured concerning riparian planting along the river. Dr Robson-Williams noted that the width of margin was not specifically taken into account. She noted that the effectiveness of the margin's width depends on its intended purpose.

Mr Heath emphasised that all considerations and decisions regarding the future of the awa should compulsorily include assessments of mahinga kai and cultural values.

The Chair acknowledged the work of the project team and credited them for the substantial scope of their study.

## **5 GENERAL ITEMS**

### **5.1 TĀ TE POUAHUREA MĀORI PŪRONGO**

#### **COMMITTEE RESOLUTION 2024/214**

Moved: Mr Henare Mita

Seconded: Mrs Erana Hammond

The Māori Standing Committee receives this report.

#### **CARRIED**

The Māori Relationships Manager spoke briefly to this report, expressing gratitude for Gay Waikawa and her service to the Wairoa District Council and recognising Mr Heath's support and inclusivity towards the role within Whitiwhiti Ora. Additionally, attention was drawn to the landfill situation and its negative perception within the community.

Mrs Maindonald queried whether the Council has considered the possibility of acquiring a metal crusher to reduce the amount of metal scattered around the district.

Cr Thomas noted the Council's intention to improve the recycling processes at the landfill. Additionally, she referenced the WSP report, reframing her perspective to consider Wairoa as part of the broader regional context. She further noted that transporting waste to an efficient landfill in Hastings would be more beneficial for the region as a whole in terms of emissions reduction.

Committee members noted that the diverse reports offered valuable insights into the landfill situation. They appreciated the information gleaned from multiple source, including the WSP report, Sonya Drysdale's audit, and the cultural impact assessment, relating this collaborative effort to the whakatauki '*He rau ringa, e oti ai*' which translates to 'Many hands make light work'.

The Committee then discussed the council meeting roster.

**5.2 MSC CHAIRMAN AND RAKAIPAACA TAKIWA REPORT****COMMITTEE RESOLUTION 2024/215**

Moved: Mr Henare Mita

Seconded: Mrs Fiona Wairau

The Māori Standing Committee receives this report.

**CARRIED**

The Chair introduced his report, highlighting challenges with including photos. There were no questions or discussions, and the report was moved to be received.

**5.4 TE WAIROA HŌNENGENGE TAKIWĀ REPORT****COMMITTEE RESOLUTION 2024/216**

Moved: Mrs Whaiora Maindonald

Seconded: Mr Henare Mita

The Māori Standing Committee receives this report.

**CARRIED**

Mrs Maindonald spoke to her report, and queried whether any of the other marae have similar fees to Hinemihi marae.

The Chair asked if the situation was related to the fact that it was a new building. The Māori Relationships Manager emphasised that all buildings require a code of compliance and are subject to building inspections.

The Compliance and Licensing Manager noted that older marae may not necessarily have a building code of compliance. However, if they do, they are required to comply with it and undergo inspections.

Mrs Maindonald expressed concerns about the accumulation of car wrecks on both private and council properties. She proposed implementing a rule requiring a specific business owner to erect a fence, maintain tidiness in the area, or remove the car wrecks spread around his business.

The Compliance and Licensing Manager noted that there are currently no provisions in our District Plan to mandate a fence in an industrial area. However, this could be considered during the upcoming District Plan Review. He mentioned that Fire and Emergency New Zealand provides an online fire hazard submission form, which could be utilised. Additionally, he suggested exploring the health impacts of car wrecks, such as pest issues. Due to outdated legislation, addressing these

issues is challenging, as existing laws require updating to provide more effective solutions.

Mrs Maindonald inquired about the possibility of creating a bylaw. The Compliance and Licensing Manager pointed out the complexities associated with implementing a bylaw, as non-compliance could result in legal costs, making it potentially impractical from a cost-effectiveness standpoint.

The Māori Relationships Manager noted that Wairoa District Council lacks legislative authority to remove car wrecks from private property. However, he highlighted the success of the recent voluntary car removal programme initiated by the Council. This program resulted in the removal of over 200 cars from private properties, with a backlog of additional cars awaiting removal.

### **5.3 MINOR UPDATES TO REVENUE AND FINANCING POLICY AND SIGNIFICANCE AND ENGAGEMENT POLICY**

#### **COMMITTEE RESOLUTION 2024/217**

Moved: Mr Henare Mita

Seconded: Mrs Whaiora Maindonald

Abstained: Mrs Erena Hammond I

The Committee endorses the policy updates to Council and in doing so supports the position that, due to the editorial nature of the updates, no consultation is required.

**CARRIED**

The Group Manager of Finance and Corporate Support spoke to this report and noted that:

- Due to the environment of uncertainty that surrounds the LTP such as the repeal of 3 waters, recovery and various other pieces of statutory reform, an unconventional approach was taken to present the report in all committee and council meetings.
- The wording for the development contribution policy is vague within the revenue and financing policy, attributing this to the council providing only informal direction of its creation through a workshop.
- There is an inclusion of the Preamble to Te Ture Whenua Māori Act 1993 within the revenue and financing policy. Additionally noting that according to the Local Government Act, all financial policies must align with or support the preamble.
- Council has adopted these policy's subject to the endorsement of the Māori Standing Committees endorsement.

There were no questions or discussions, and the report was moved to be received.

### **5.5 HBRC MAORI RELATIONSHIP MANAGER REPORT**

#### **COMMITTEE RESOLUTION 2024/218**

Moved: Mr Henare Mita

Seconded: Mrs Fiona Wairau

The Committee receive the report.

**CARRIED**

Mr Heath spoke briefly to this report.

The Chair raised a question concerning Tama Kahu marae, specifically regarding two activities: work related to the urupa and HBRC work carried out in relation to clearing out the mangapatike stream. Mr Heath indicated that he would follow up on this matter as he was not aware of the work being done in that area.

Cr Thomas inquired whether the additional funding of \$3 million, earmarked for certain work, is solely designated for the coastal area from the bottom boundary to the top boundary. Mr Heath explained that the current focus for woody debris removal is on five main areas: Mahia, Opoutama, Whakamahia, Mohaka, and Waikare. While the funding is primarily for coastal woody debris removal, there should still be remaining funds allocated to clean up woody debris in other areas.

Cr Thomas sought clarification regarding the availability of wood chippings. Mr Heath noted that while it is more cost-effective to burn the wood, efforts are made to maximise the use of the material. Discussions are underway with local marae to determine whether they could utilise the wood, for things like a hangi. She further questioned whether the amount of woody debris removal is being measured. Mr Heath responded that the woody debris removal is being measured and reported on a monthly basis, with Jamie Cox serving as the project manager on behalf of the Hawkes Bay Silt & Waste Recovery Taskforce. Additionally, he mentioned that there has been an “open door” policy at Mahia for the past few weeks for wood collection.

Mrs Hammond asked how people are informed about where to access the wood chipping. Mr Heath clarified that the majority of wood chipping has occurred primarily in Mahia, but this arrangement is not permanent. Ms Wairau suggested the possibility of bringing the wood chipping into town for those interested.

## **6 PUBLIC EXCLUDED ITEMS**

### **RESOLUTION TO EXCLUDE THE PUBLIC**

#### **COMMITTEE RESOLUTION 2024/219**

Moved: Mr Henare Mita

Seconded: Mrs Fiona Wairau

That the public be excluded from the following parts of the proceedings of this meeting at 11:34am.

The general subject matter of each matter to be considered while the public is excluded, the

reason for passing this resolution in relation to each matter, and the specific grounds under section 48 of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48 for the passing of this resolution
<b>6.1 - Statute Barred Rate Arrears Write-off 2016-17</b>	s7(2)(b)(ii) - the withholding of the information is necessary to protect information where the making available of the information would be likely unreasonably to prejudice the commercial position of the person who supplied or who is the subject of the information	s48(1)(a)(i) - the public conduct of the relevant part of the proceedings of the meeting would be likely to result in the disclosure of information for which good reason for withholding would exist under section 6 or section 7

**CARRIED**

#### **COMMITTEE RESOLUTION 2024/220**

Moved: Mr Henare Mita

Seconded: Mrs Whaiora Maindonald

That Council moves out of Closed Council into Open Council at 12pm.

**CARRIED**

The Meeting closed at 12:01pm with a Closing Karakia given by the Chair.

The minutes of this meeting were confirmed at the Extraordinary Māori Standing Committee Meeting held on 16 April 2024.

.....  
**CHAIRPERSON**

## 8 GENERAL ITEMS

### 8.1 MSC CHAIRMAN AND RAKAIPAACA TAKIWA REPORT

**Author:** Duane Culshaw, Pouahurea Māori Māori Relationships Manager

**Authoriser:** Kitea Tipuna, Tumu Whakarae Chief Executive

**Appendices:** 1. MSC Chairman and Rakaipaaka Takiwa Report [↓](#)

#### 1. PURPOSE

- 1.1 This report provides information for the Māori Standing Committee on the MSC takiwā report for Rakaipaaka. No decisions are required by Committee at this stage.

#### RECOMMENDATION

The Pouahurea Māori Māori Relationships Manager RECOMMENDS that the Māori Standing Committee receives this report.

**WDC Komiti Māori Hui 10am  
16 Turei/Rātū Aperira/Paengawhāwhā 2024  
Rakaipaaka Pūrongo a-Takiwā  
Henare Mita (Komiti Māori Heamana)**

Kia hora te marino  
Kia whakapapa pounamu te moana  
Kia tere te kārohirohi  
Hei huarahi mā tātau i te rangi nei  
Aroha atu, aroha mai  
Tātau i a tātau katoa

Tangihia rātou kua ngaro ki te pō, rātou kua takahia kētia i te ara whānui a Tāne, hāere koutou, hāere oti atu. Moe mai rā koutou i raro i te maru o te kaihangā, māna koutou e manaaki, e tiaki. Rere atu te Pō, kia tau mai te Ao, rātou ki a rātou, ā, tātau ki a tātau. E ngā kaipīkau o te reo takiwā, e ngā ringa pupuri i te kupu kaunihera, tēnā koutou, tēnā tātau katoa.

**March 14<sup>th</sup> Meeting:**

Thank you to Councillor Benita Cairns and Wairoa Hōpūpū member Amanda Reynolds for tendering your apologies well in advance of our March 14th meeting. And a huge vote of thanks to everyone in attendance that day. I was so impressed by the contribution of our councillor, staff and takiwā members. It is nice to walk out of a meeting feeling really positive about what we did.

**Takuraukahe Urupā:**

I finally have more recent photographs of the work undertaken behind Tamakahu Marae, to make it easier for whanau to get to Takuraukahe urupā. I regret not taking photographs immediately following that work because it now looks untidy and overgrown. Metal was laid free of costs because of a generous donation of limestone by Clonkeen Quarry and a whanau member digger-operator. Whanau would also like to thank HBRC for their assistance.



The bottom left photo is taken from in front of the urupā looking toward Tamakahu Marae. The middle and far-right photographs look toward Takuraukahe Urupā itself.

**Te Poho o Te Rehu Marae:**

Over the Easter Weekend, Te Rehu Marae held their first meeting of the year. A large number of whanau were in attendance, because the long weekend would also serve as a much-anticipated working bee. They had intended to do work at the marae and urupā, but the cold weather, high winds and constant showers meant their outdoor plans had to be changed.



Photographs taken by Christina Warren

**Enhanced Resiliency in Nuhaka:**

Over the past few months, I have been praising the incredible work that has been done here in Nuhaka by HBRC, Waka Kotahi and NZ Rail. But it is also the relationship that has been developed with Te Iwi O Rakaipaaka Trust (TIORT) which has proven noteworthy. Growing closer ties with kāhui or iwi authorities can only be to the betterment of Wairoa. It generates confidence in our local authorities and reassures whanau, hapū and iwi that their voice has significance.

**HBRC/NZ Rail/TIORT:**

One of the troublesome areas in Nuhaka is Tamakahu Street which flooded during Gabrielle and later when Nuhaka, along with a number of other communities, experienced extra-ordinarily heavy torrential rains over a 12-hour period. The latter event especially worrying because not only did Nuhaka School and Kahungunu Marae flood again, but a few houses along Tamakahu Street and State Highway 2 were evacuated. One of the causes of this flooding attributed to a very sharp turn, to a drain that ran alongside the old railway lines. The ensuing resilience work completed by HBRC with permission of NZ Rail and engagement with TIORT.



Resiliency work included the removal of a large stretch of the railway tracks, improvement of the water flow from farm drains to the Waihīrere Stream. The photo to the far right shows the newly created depot. Work was also done to the drains and a couple of the culverts along Tamakahu Street.



Apart from digging out the drains along Tamakahu Street, important work was carried out on a couple of culverts. The photographs on the right are interesting because the last resident on Tamakahu Street now has culverts that run right through to the corner of Tamakahu and Toroiwhiti Street.

Nāku nei,

**Henare Mita (Rakaipaaka Takiwā)**

Māori Standing Committee

WAIROA DISTRICT COUNCIL

**8.2 MSC TAKIWA REPORT - RUAKITURI**

**Author:** Sarayde Tapine, Kaiurungi Kaupapa Here me Mana Ārahi | Policy and Governance Officer

**Authoriser:** Kitea Tipuna, Tumu Whakarae Chief Executive

**Appendices:** Nil

**1. PURPOSE**

- 1.1 This report provides information for the Māori Standing Committee (MSC) on the MSC Takiwā report for Ruakituri. No decisions are required by the Committee at this stage.

**RECOMMENDATION**

The Kaiurungi Kaupapa Here me Mana Ārahi | Policy and Governance Officer RECOMMENDS that Committee receive the report.

**2. OPENING OF TE REINGA BRIDGE**

- 2.1 With great relief we mihi to all concerned with the rebuild and opening of the temporary Te Reinga Bridge on Monday 19 February 2024, allowing our whanau from Ruakituri to once again travel through Te Reinga with ease cutting down on the stresses of the last year of travel time and cost.
- 2.2 With support from the Wairoa District Council the official opening was carried out on the bridge and a morning tea held at Te Reinga Marae with approximately 50 – 60 people in attendance. This opening was also marked by one of several matenga opening the doorway for the Marae preparation to receive the whanau pani and tupapaku.

**3. NEW WATER TANKS AT TE REINGA MARAE**

- 3.1 Ahead of the opening also Te Reinga Marae had four new water tanks with pump and filter sheds installed.

**4. UPDATING TE REINGA MARAE TRUSTEES**

- 4.1 The Trustees for Te Reinga Marae have yet to be made Responsible Trustees through the Maori Land Court hindering their ability to act in any official capacity. Until this is completed we will be unable to confirm any new contact people for the Marae Committee, the transitional chair is Darden King.

**5. EREPETI MARAE**

- 5.1 Teresa Smith continues to be the Chair and Council contact for Erepeti Marae. At this stage Erepeti Marae have their next AGM set for 26 May 2024.

**6. NEW WHAREPAKU AT TE REINGA FALLS**

- 6.1 It is to be noted that new wharepaku have been installed across the Te Reinga Bride above the Te Reinga Falls.

- 6.2 Clarification is sought from Council as to who bears the responsibility for the maintenance of these wharepaku and where is the signage to be placed?

**8.3 HBRC MAORI RELATIONSHIPS MANAGER REPORT**

**Author:** Duane Culshaw, Pouahurea Māori Māori Relationships Manager

**Authoriser:** Kitea Tipuna, Tumu Whakarae Chief Executive

**Appendices:** 1. HBRC - Maori Relationship Manager Monthly Report - March 2024 [↓](#)  
2. HBRC - Taiao Recovery Plan [↓](#)

**1. PURPOSE**

- 1.1 This report provides information for the Māori Standing Committee on the Hawke's Bay Regional Council's Māori Relationships Manager report. No decision are required by the Māori Standing Committee at this stage.

**RECOMMENDATION**

The Pouahurea Māori Māori Relationships Manager RECOMMENDS that Māori Standing Committee receive the report.

**2. BACKGROUND**

- 2.1 The Hawke's Bay Regional Council's Māori Relationships Manager, Nathan Heath, provides regular monthly reporting to the WDC Māori Standing Committee. Please find attached as Appendix 1 the regular update report for the month of March 2024, together with a Taiao Recovery Plan.



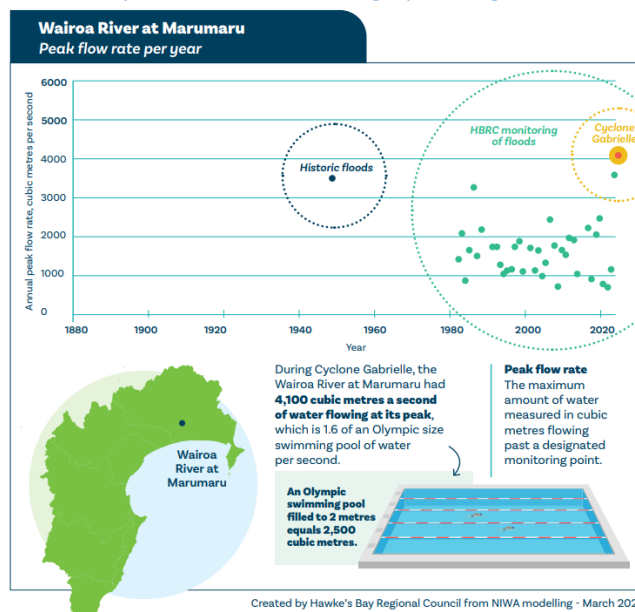
**Monthly Report for Wairoa - Mohaka – March 2024**  
**Nathan Heath – Māori Relationship Manager (Northern Hawke's Bay)**

**2 March 2024**

Wairoa HBRC activity report for March 2024.

**1) HBRC update – including issues and Council & Committee meeting items of local relevance.**

- **HBRC Te Pou Whakarae** - I am delighted to report that Te Wairama Munro has been appointed as the new Te Pou Whakarae for HBRC. Te Wairama's whakapapa includes Ngāti Rakaipaaka, Ngāti Hine, Ngāti Hinepua, Ngai Te Ipu, Ngāti Kahungunu ki Te Wairoa, and Ngāti Kirihihi. As my new boss, I have had the pleasure of working with Wai over the last few years and she brings a huge skill set and the mana to carry on the important work for the region initiated by her Uncle Pieri Munro. We wish Te Wairama all the best in her new role. A pōhiri for Te Wairama will be held at 12pm 16 April at Kahungunu Marae in Nuhaka.
- **Long Term Plan** – Community consultation for the 3 year HBRC Long Term Plan, begins next month. Drop in sessions with HBRC Councillors are being organised for Tuesday 16<sup>th</sup> April, 4:30-6:30pm at Wairoa New World and Thursday 18<sup>th</sup> of April 1:00-3pm at the Wairoa Community Centre.
- **Regional Land Transport Plan** – is also open for consultation and submissions. This work is done on behalf of all the regions Local Government agencies and signals a huge body of work for the region to build back and enhance resilience into Hawkes Bay roading infrastructure. The plan itself and where to have your say can be found via <https://www.consultations.nz/hbrc/regional-land-transport-plan-rltp-2434/>
- The **Independent Review into the Hawke's Bay Civil Defence Emergency Management Response** into Cyclone Gabrielle was released on Monday 25 March. The full report can be found via <https://www.hbemergency.govt.nz/cyclone-gabrielle-review/review-release/>
- Earlier this month NIWA released a report of the flood flows during Cyclone Gabrielle for Hawkes Bay. Modelling has estimated that the Wairoa River at Marumaru peaked at 4,100m<sup>3</sup>/sec. This is compared to previous flows in the graphic below. The report can be found via <https://www.hbrc.govt.nz/our-council/cyclone-gabrielle-response/niwa-modelling-cyclone-gabrielle-flooding/>



- The **HBRC Revenue and Finance proposal** was adopted by Council on 28 February. How this effects rating is discussed via <https://www.hbrc.govt.nz/our-council/news/article/1640/council-adopts-revenue-and-financing-policy->
- **HBRC Committee meetings and items of interest** – meetings held include **Regional Council** 27 & 13<sup>th</sup> March, **HBCDEM Joint Committee** 25 March, **Environment and Integrated Catchments Committee** 20 March, **Regional Transport Committee** 15 March, **Regional Planning Committee** 13 March, **Climate Action Joint Committee** 11 March, **Māori Committee** 6 March. Agendas, reports and livestreaming of these meetings can be found on the HBRC website via <https://www.hbrc.govt.nz/our-council/meetings/> Items of local interest include -
  - A presentation by Tom Kay, Forest and Bird Freshwater Advocate on making “Room for Rivers” and nature based approach to living alongside our rivers. This can be seen via this link <https://www.youtube.com/watch?v=ndMR2NWDdns> 16 minutes:20 into the meeting.
  - A presentation on the Whitiwhiti Ora project that looked at the impact of sediment and erosion on cultural values and mahinga kai in Wairoa. This can be accessed via the link above 1 hour and 17 minutes into the meeting.
  - “Restoring our environment – our Cyclone Gabrielle recovery journey”. This report discusses the impact Cyclone Gabrielle has had on the Taiao and the work undertaken by HBRC to support the regions recovery. <https://www.hbrc.govt.nz/assets/Document-Library/Cyclone-Gabrielle/Restoring-our-Environment-Recovery-Report-V1.0-12-March-2024.pdf>

## 2) Wairoa District Update.

- I would just like to acknowledge Benita Tahuri who has just finished her 12 month role as the Recovery Manager for Wairoa. I have worked a lot with Benita over this period and she took her role deeply to heart and never wavered from the mission of getting whānau back into their homes.
- Work will commence on the construction of a weir in the Rāhui Channel at Whakakī on 8 April. The weir is being constructed to improve the ability of the community to manage Whakakī lake levels to protect mahinga kai and prevent the flooding of whenua and whānau. This is significant milestone for the Whakakī Freshwater Improvement Fund project between the Whakakī Lake Trust, marae, whānau, landowners, HBRC, MfE, DoC, Fish & Game and others.
- Nuhaka & Whakakī update. There has been a delay in the work of developing flood protection options for Nuhaka until May. Once these are completed, they will be discussed with the community. Additional improvements are being made to the Ramarama culvert at Whakakī and HBRC engineers have met with members of Ngāti Rakaipaaka and the community to discuss flooding issues of the wetland in town.
- Mohaka Plan Change – the Mohaka me Waihua Freshwater Plan project team on behalf of the tangata whenua collective of iwi Māori entities of the Mohaka and Waihua catchments met with the HBRC Mohaka Plan change project team earlier this month. Phase 1 of the work is now completed. Project teams are successfully working together to navigate a pathway forward so that the work can maintain it’s momentum while acknowledging that there will be changes to the National Policy Statement for Freshwater Management in the next few years.
- Work is continuing at pace with the districts woody debris clean up. Work is now completed at Mahia and Opoutama and is now continuing between Blacks Beach/Te Ureti and Nuhaka, Whakamahi to Waihua and Mohaka to Waikari.

## 3) Further information and funding

- The “Biodiversity Hawke’s Bay Environmental Enhancement contestable fund” opens on Thursday 28 March to support individuals and groups with projects to advance the region’s biodiversity.

<https://www.hbrc.govt.nz/home/article/1654/funding-available-for-regions-biodiversity?t=featured&s=1>

- The “Cyclone Gabrielle Appeal Trust” funding round is now open for applications. Supporting cyclone-impacted communities to recover <https://www.cycloneappeal.org.nz/>

Please contact me directly for any clarification or additional information you may require from the report.

Ngā mihi



**Nathan Heath**

Māori Relationships Manager – Northern Hawke’s Bay

Hawkes Bay Regional Council

T: 06 838 8527 C: 027 705 4060



# WAIROA RECOVERY

TE WAIROA KA ORA TE WERO TE TAKI

STRENGTH x UNITY x RESILIENCE

## Cyclone Gabrielle Environmental Recovery Report



Prepared by:

**Nathan Heath**

**Taiao Pou Lead Wairoa Recovery & HBRC Māori Relationship Manager – Northern HB**

**20 March 2024.**

**Acknowledgements**

I would like to thank the following people who contributed to the preparation of this report.

**HBRC**

Ariana Mackay, Kathleen Kozyniak, Anna Madarasz-Smith, Matt Short, Mike Perry, Allan Beer, Hari Anantharangan, Mark Hudson, Rob Hogan, Mike Signal

**WDC**

Kitea Tipuna, Michael Hardie, Hira Campbell, Lara Deam,

**QRS**

Melissa Stanway & Jeremy Harker

**HB Silt & Waste Recovery Task Force**

Jamie Cox, Darren De Klerk

**Manaaki Whenua Landcare Research**

Warwick Allen, Melissa Robson-Williams, Laise Harris

**TTotW**

Arna Galvan

**University of Auckland**

Murry Ford

**NIWA**

Emily Lane

**HBRRRA**

Ceri Edmonds

**Wairoa Recovery Office**

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### Executive Summary

Cyclone Gabrielle hit Wairoa hard on 13-14 February 2023. The scale of the event well exceeded Cyclone Bola's impacts in many ways. Gabrielle was the largest weather event experienced in the living memory for many of the town and wider community's residents.

### EVENT SUMMARY

- Rainfall was characterised by a 12 hour intense period of rain that was concentrated in the Northern and Eastern parts of the Wairoa Catchment. Most notably the Hangaroa, Mangapoike and Waikaretaheke catchments.
- River flows measured in the Wairoa River at Marumaru were 300% that of the Waiau River at Ardkeen.
- The Wairoa River breached its banks near the A&P Showgrounds and flooded large parts of North Clyde. Further upstream parts of Frasertown and large areas of farmland were also flooded. The heavy rainfall on saturated soils lead to parts of Nuhaka and Whakakī also being flooded.
- Cyclone Gabrielle was one of a number of storm events experienced in the Wairoa District since March 2022. The impact of each of these events has differed across the district, but few places have been spared.
- Significant soil and streambank erosion as a result of these storms has occurred throughout the landscape. 45,879 slips were counted following the March 2022 event and estimates of up to 300 million tonnes of soil has been lost across the East Coast as a result of Cyclone Gabrielle. Erosion has significantly impacted on our critical infrastructure (26 bridges and up to 30 roads were impacted during Gabrielle) and access across the district.
- Cyclone Gabrielle and other events have generated significant quantities of silt and woody debris that have left a large and ongoing legacy for the community to clean up.
- We are continuing to learn about the impact of Cyclone Gabrielle on our coastlines, marine environment and waterways.

### Wairoa recovery effort since Gabrielle hit -

The Initial Wairoa Recovery Plan identified a suite of priorities can be summarised as -

1. Clean up.
  - a. Large quantities of silt and waste has been removed from throughout Wairoa. Approximately 20,000 tonnes of silt has already been removed. Significant quantities of household items, carpets, whiteware and building materials are all contributing to significant waste coming to the landfill.
  - b. An estimated 150,000m<sup>3</sup> of woody debris was deposited on district beaches. To date woody debris have been removed from 26 bridges and 50,000m<sup>3</sup> from Mahia, Opoutama, Whakamahi, Mohaka and Waikare.
2. Do no more harm.
  - a. Minimising the impacts of Cyclone Gabrielle on human health has been a key priority. In particular our air quality and dust. Dust monitors have been installed and better guidance and information has been provided.
  - b. Minimising environmental impacts of our recovery work and repair. Ensuring all silt, woody debris, waste and household items are properly disposed of with minimal environmental effect.

3. Know more.
  - a. A lot has been done to better understand the impact of Cyclone Gabrielle on Wairoa and more is being done through independent reviews, science investigations, flood protection investigations and recovery planning. Local & Regional Councils are also now embarking on their long term planning which is important to medium to longer term recovery planning.
4. Be involved.
  - a. There will be significant opportunities for community decision making going forward. It is difficult for a community dealing with the significance of Gabrielle's impact on them and their whānau to think beyond the immediate, particularly with the on-going recurrence of storm events.
  - b. There are many lessons we can take from the weather across the district and the impact of large storm events to better prepare ourselves to them in the future, make important decisions around how we use the whenua and as a community work together to build resilience.

In the sort to medium term these priorities remain important to the Taiao Recovery for Wairoa. The taiao will recovery naturally on its own given the time and space to do that. In light of other Wairoa recovery priorities like getting whānau back into homes, community wellbeing, infrastructure repairs and flood protection the community recovery effort should be focussed on those first.

In the medium to longer term the 3 top priorities for Taiao recovery are;

1. Continue with the clean up and ensure solutions are found for the long term disposal of silt and waste.
2. Reduce the risk for communities to future storm events, through the design and construction of flood protection for Wairoa and solutions for the issues at Nuhaka and Whakakī. Ensure that sufficient support is provided to landowners to address soil erosion and run-off on farm.
3. Begin a program of long term planning and preparation to address our community's vulnerability to natural hazards, make better long term decisions to our land use in the whenua and better prepare for a changing climate.

The next iteration of the Wairoa Recovery Plan for Te Taiao needs to consider. –

- Increasing our knowledge is important. Gabrielle was a huge event for the district and the more we can learn from it, the better prepared we will be in the future for other events.
- Everything is contingent on finding the funding for it in a massively stretched bank account across Central & local government.
- Council's long term planning is an important avenue for recovery planning for the district.

*We live in a beautiful place that has many special taonga and sites that are increasingly threatened through the incidence of increasing storms. These storms are part of our history and likely future. For many generations we learnt to live alongside those hazards, we were quick to accommodate and capitalise on the big changes around us.*

*As the last 2 years has shown, we are vulnerable to the risks that our natural hazards pose to our whenua and whānau. We are a primary producing economy – Papatūānuku is our livelihood. There is much to do together to restore the mauri and prosperity of our whenua and whānau, but we do need to think differently about that future than what we have done in the past, more holistically and intergenerationally and collectively with our vision and aspirations.*

**Introduction**

The following report outlines the impact of Cyclone Gabrielle and subsequent weather events on the Taiao across the Wairoa District.

The report has three main sections;

*Section 1* outlines what the main impacts of Cyclone Gabrielle and other weather events over the last two years have had on the landscape and the environmental implications that has had on our communities across the district.

*Section 2* identifies what has happened since Cyclone Gabrielle. The effort that has gone into cleaning up and supporting the recovery of the community.

*Section 3* looks forward to what is needed to help us recover from the impacts of Gabrielle and other recent storms in the district.

**Purpose and scope of this report**

This report has been prepared to provide a snapshot of what is happening in the taiao space since Cyclone Gabrielle. The report aims to help inform decision makers and the community on some of the choices they may have to take for our recovery.

I have not considered the significant work that is currently underway on the Land Categorisation and future flood protection in Wairoa, this is being covered in other reports being prepared for the recovery plan.

Data used was that available at the time of preparing this report (December 2023). We are still building a better understanding of what is happening since Gabrielle hit.

In preparing this report I have attempted to take an independent approach in the way I have presented the data. As Pou Lead for the Wairoa Recovery Team I have written recognising this context. I am also the Māori Relationship Manager for Northern HB, for the Hawkes Bay Regional Council.

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**SECTION****1****The impacts of Cyclone Gabrielle and other weather events on the Wairoa District**

This section initially looks at what happened during Cyclone Gabrielle in terms of rainfall and river flows and the impact that had on the taiao. The section then expands to consider the implications of weather events over the last 2 years across the district. What has happened in the landscape, and catchments, waterways, beaches and marine environment throughout the Wairoa District.

The legacy these weather events have left for the community to deal with and recover from are discussed in the middle section.

The section concludes discussing the implications of what this may mean for the district looking longer term with a changing climate.

**The weather during Cyclone Gabrielle**

Cyclone Gabrielle struck Wairoa late on the 13<sup>th</sup> of February 2023. Intense rainfall occurred in the Northern part of the district, concentrated particularly over a 12 hour period. This rainfall fell on soils already saturated from Cyclone Hale that hit Wairoa on the 10-11<sup>th</sup> of January 2023. This all resulted in rapid and significant run off, into our rivers and streams.

More rain fell during Gabrielle over a 24 hour period at the 3 weather stations that were in place before Cyclone Bola hit the district. However at all 3 rainfall stations more rain fell during Cyclone Bola over a 48 hour period.

The highest rainfalls in the Wairoa Catchment occurred to the North and the East of the township. Particularly those areas draining into Lake Waikaremoana and the Waikaretaheke river and those parts of the catchment draining into the Mangapoike, Hangaroa and Wairoa Rivers.

The peak flow measured in the Wairoa River at Marumaru was nearly 300% greater than that measured in the Waiau River at Ardkeen.

Rainfall in the eastern parts of the district contributing to the Mangapoike flows were in excess of 500mm over 2.5 days. In comparison the Wairoa township itself and those areas surrounding received 100mm or less.

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Figure 1. 48 hour rainfall from Cyclone Gabrielle<sup>1</sup>

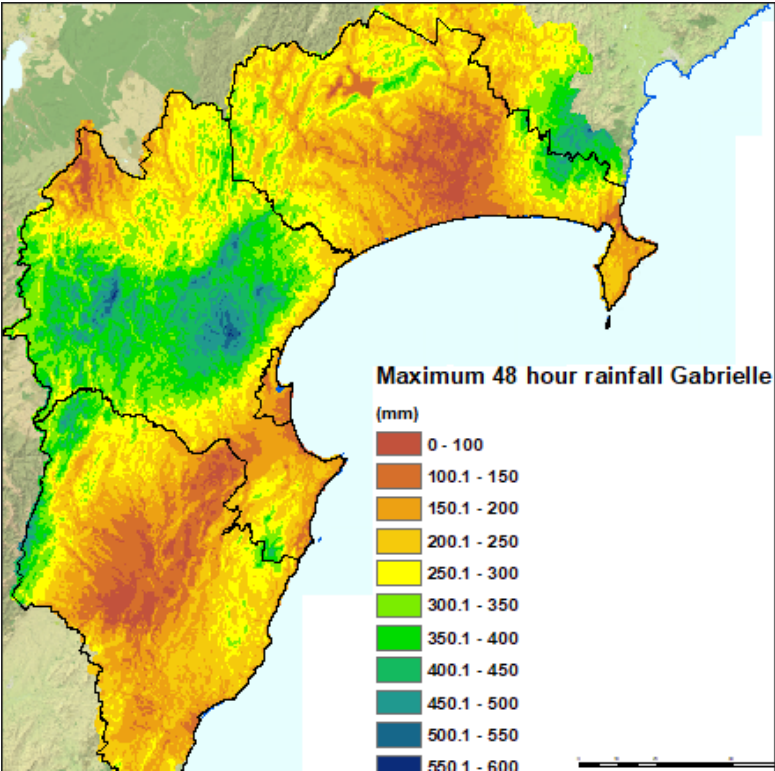
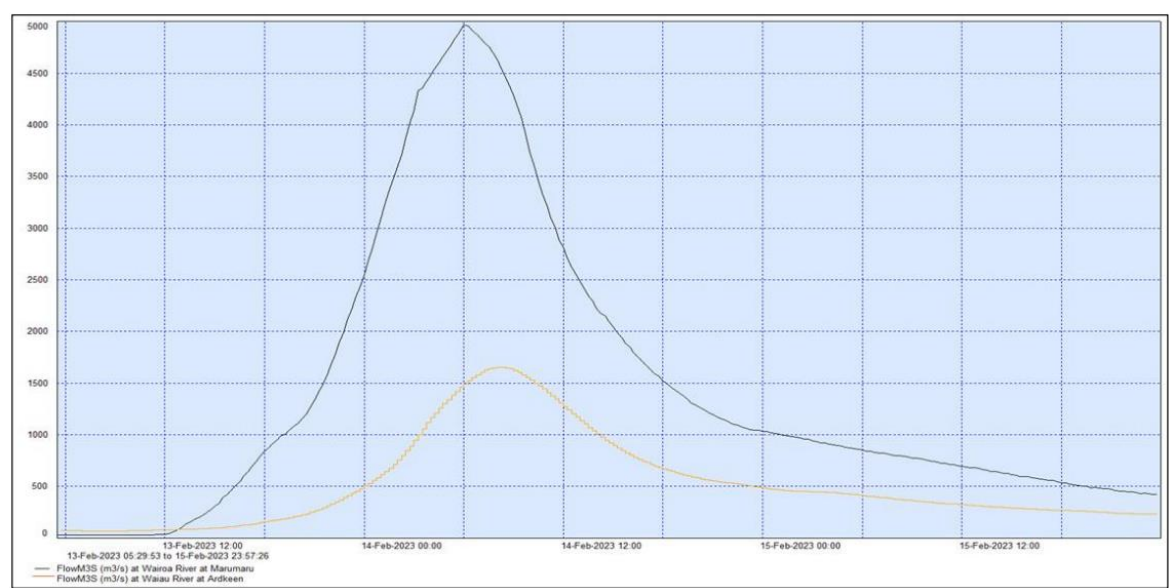


Figure 2. The difference in flows measured in the Wairoa River at Marumaru (in black) and the Waiau River at Ardkeen (Orange)<sup>2</sup>.

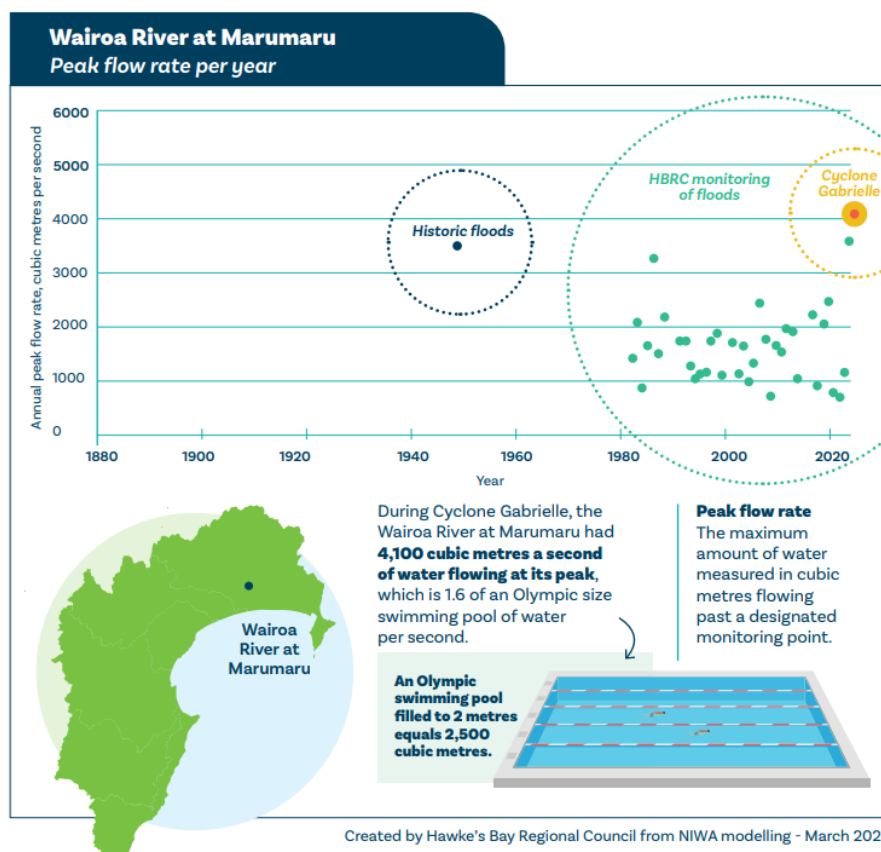


<sup>1</sup> Data supplied by HBRC

<sup>2</sup> Data supplied by HBRC

The National Institute of Water & atmospheric Research (NIWA) has recently undertaken analysis of the river flows during Cyclone Gabrielle. Key points from that report and the full report can be found via this link <https://www.hbrc.govt.nz/our-council/cyclone-gabrielle-response/niwa-modelling-cyclone-gabrielle-flooding/>. Included in that information is an infographic for the Wairoa River at Marumaru, shown below.

**Figure 3. Peak Wairoa River flows per year** <https://www.hbrc.govt.nz/assets/Document-Library/Cyclone-Gabrielle/NIWA-Report-March-2024/WairoaRiveratMarumara-PeakFlowgraph.pdf>

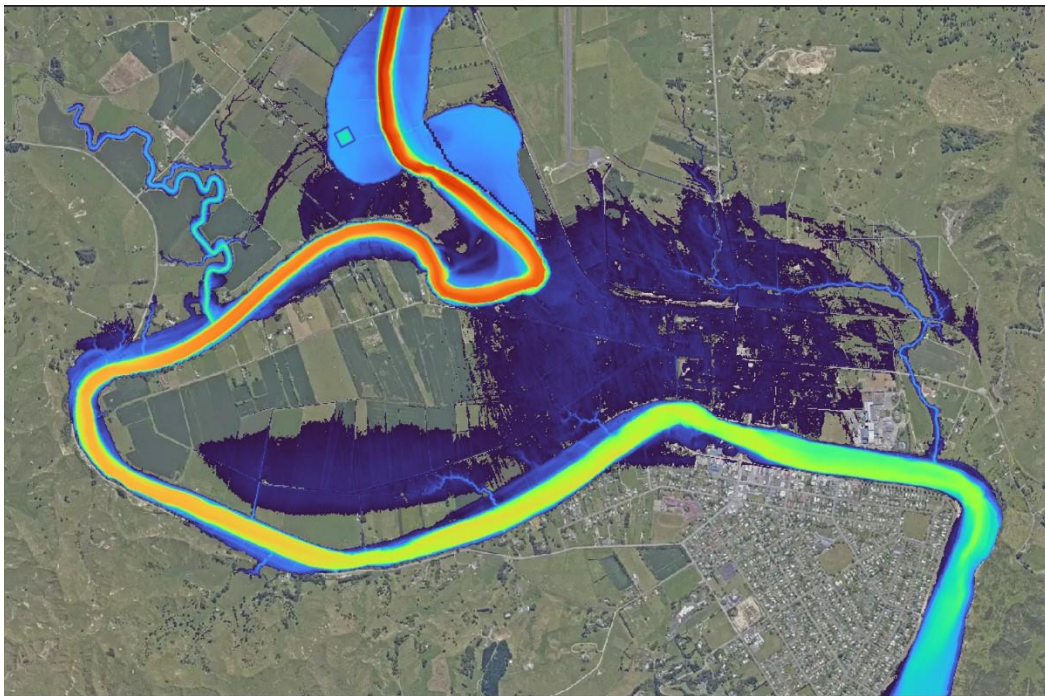


Significant work has gone into detailed modelling of the rainfall, flow rates and flooding impacts of Cyclone Gabrielle as part of the FOSAL Land Categorisation and Flood Protection Planning.

What the hydrographs in Figure 2 do show is that flows peaked rapidly and fell rapidly too, reflecting what occurred further downstream in North Clyde and around Frasertown in the morning of 14<sup>th</sup> of February.

Figure 4 below shows some preliminary data on the modelled extent of flooding around North Clyde at the flooding peak. Note this may be subject to change as the work around flood protection for Wairoa progresses.

**Figure 4. Preliminary modelling of the extent of flooding to Wairoa during Cyclone Gabrielle.**



Detailed satellite imagery (shown below in Figure 5) was captured on 3 March 2023<sup>3</sup> and still shows visibly the extent of flooding and sediment deposition.

Significant flooding also occurred upstream of North Clyde, around Frasertown and across large areas of farmland. Whakakī and Nuhaka, were also hit hard and at least 10 houses, Kahungunu Marae and Nuhaka School were all impacted by flooding.

**Figure 4. Satellite image taken of North Clyde on 3 March 2023.**



<sup>3</sup> <https://data.linz.govt.nz/layer/112726-hawkes-bay-010m-cyclone-gabrielle-aerial-photos-2023/>

**Wairoa's weather over the last 2 years**

The assessment of the impacts of Cyclone Gabrielle on the whenua in Wairoa cannot be considered in isolation from the frequent heavy rain events that hit the district prior to and following the Cyclone in particular the 8 day rain event that occurred in 21-28 March 2022 through to the intense 12 hour rain event that hit Mahia, Nuhaka and Whakakī on 7-8<sup>th</sup> in November 2023. These events had quite widely differing impacts on both the physical environment and on the communities that live in those parts of the Wairoa district. Where those events occurred repeatedly or over long periods of time the overarching impact was compounding and cumulative.

These storm events generated significant rain in catchment headwaters, on already saturated soil that has led to an increase in the incidence of many large landslips and much streambank erosion across the district. This erosion has generated sediment and mobilised woody debris into our waterways. Communities at the lower end of catchments such as Wairoa, Nuhaka and Whakakī became the receiving area for silt and woody material that then coated streets, people's homes, on our important places, across a wide breadth of prime farmland, in commercial areas and infrastructure.

Woody debris carried in flooded waterways resulted in the failure of infrastructure, often remaining lodged and susceptible to causing further infrastructural problems or washed out into our estuaries, or onto riverbanks and beaches.

Not only has the impact of increased sediment and woody debris been huge but we have also lost significant volumes of the soil that underpins our natural resource based community. One estimate for the total volume of landslides across the East Coast through Cyclone Gabrielle was 300 million tonnes<sup>4</sup>, which at a very conservative value of \$5/tonne equates to a loss of \$1.5 Billion to the East Coast Economy from soil loss alone.

**Catchment Variability across the District**

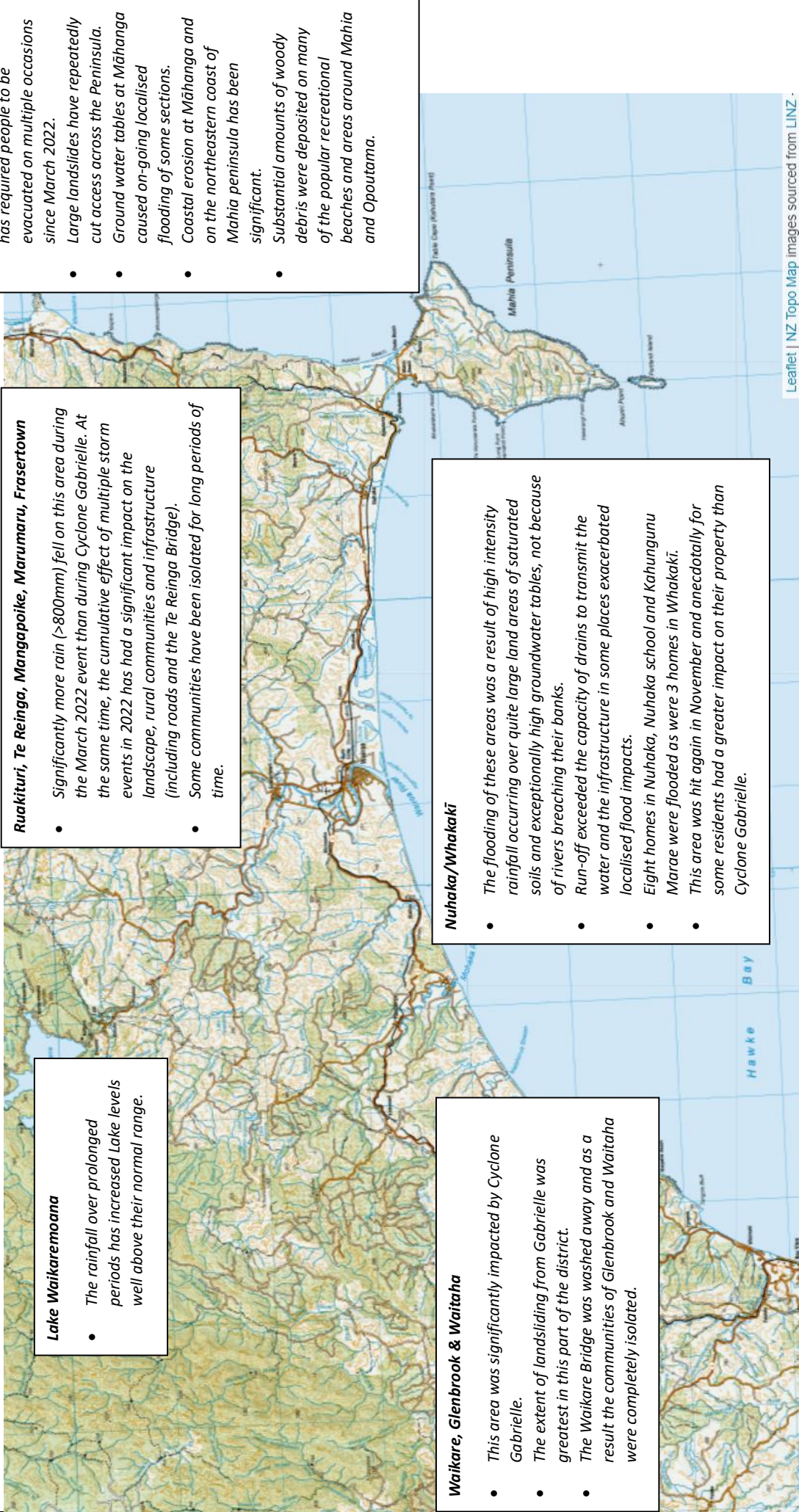
The impacts of the variable rainfall, soil erosion and flooding through each of these rain events across the district has resulted in significantly different impacts at different locations.

Nowhere was spared from the impact of Gabrielle. All communities lost access, services and communication. Some areas have fared a little better over the last 2 years, whereas others have suffered the impacts of multiple, cumulative and compounding events. Figure 5 below highlights some of that variability.

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<sup>4</sup> <https://environment.govt.nz/assets/Rapid-assessment-of-land-damage-Cyclone-Gabrielle-Manaaki-Whenua-Landcare-Research-report.pdf>

Figure 5. Variable impacts of weather events around the Wairoa District.

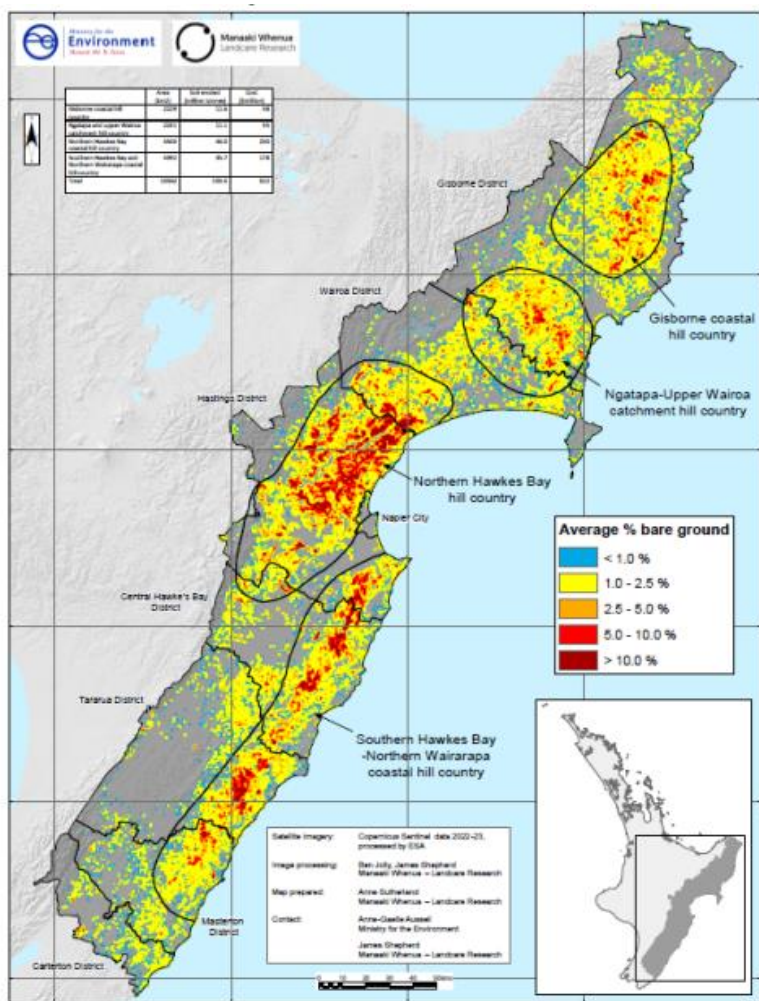


### Erosion during Cyclone Gabrielle

Following Cyclone Gabrielle, Manaaki Whenua Landcare Research carried out a “Rapid Assessment of Land Damage<sup>5</sup>” across the East Coast, see Figure 6 below.

The main intensity of landslides in the district occurred in the North Eastern Catchment areas of Hangaroa, Mangapoike and Ruakituri and in the most southerly parts of Glenbrook and Waitaha.

**Figure 6. Summary map of landsliding in Cyclone Gabrielle<sup>6</sup> (Source: Rapid Assessment of Land Damage – Cyclone Gabrielle).**



**Summary map of landsliding. Colours show the proportion of land in each square kilometre mapped as bare (either landslide scar or debris tail).**

What the work<sup>7</sup> by Manaaki Whenua identified was that the dominant land cover where soil erosion was most widespread and severe was on high producing pasture. The efficacy of exotic forest at holding soil in place in Wairoa and Gisborne was observed to be significantly less than indigenous forest.

<sup>5</sup> <https://environment.govt.nz/assets/Rapid-assessment-of-land-damage-Cyclone-Gabrielle-Manaaki-Whenua-Landcare-Research-report.pdf>

<sup>6</sup> As above

<sup>7</sup> HBRC, via [https://www.hbrc.govt.nz/widgets/drought-app/drought\\_risk.php](https://www.hbrc.govt.nz/widgets/drought-app/drought_risk.php)

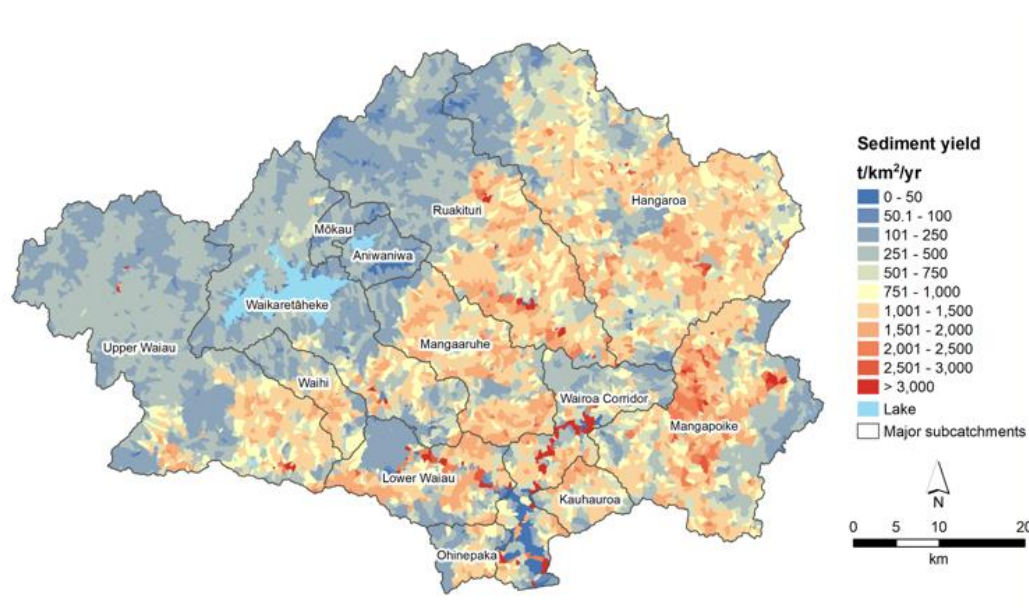
The cumulative effects of multiple landslides across the district are having a significant impact on whenua and whānau, highlighting the critical need for longer-term decision making and land use change that significantly decreases that erosion impact.

### Consideration of longer term erosional impacts

The Whitiwhiti Ora project<sup>8</sup>, a collaboration between the Our Land & Water National Science Challenge and Wairoa Tripartite of Tātau Tātau o Te Wairoa, WDC and HBRC has been looking at the impacts of sediment loss on mahinga kai and cultural values. As part of that work scientists have undertaken significant erosion modelling using SedNET to predict where in the district future sediment is most likely to come from that could impact cultural and community values<sup>9</sup>.

Figure 7 shows the baseline modelled sediment losses using SedNET for the Wairoa Catchment. This considers the influence of vegetation on erosion risk. Long term average losses are assumed, and not those generated by specific storm driven events.

**Figure 7. SedNET Modelling baseline sediment loss for the Wairoa Catchment.**



The baseline sediment loss has been compared to a number of different climate change scenarios and the future erosion risk and sediment loss modelled. Comparisons below in Figure 8 compare an IPCC best and worst case scenario for future climate change in both mid and late century 2023. The Whitiwhiti Ora Project has modelled options to minimising the risk from climate change. These included allowing scrub reversion to occur on steep highly erodible hill country, space planting trees for soil conservation control on pastoral land and riparian planting major waterways. The results of this modelling are shown in Figure 9.

<sup>8</sup> Work due for completion 1 January 2024.

<sup>9</sup> [https://ourlandandwater.nz/wp-content/uploads/2023/12/LC4274\\_WWO\\_Wairoa\\_sediment\\_scenario\\_report.pdf](https://ourlandandwater.nz/wp-content/uploads/2023/12/LC4274_WWO_Wairoa_sediment_scenario_report.pdf)

Figure 8. Future climate impacts on baseline sediment losses on the Wairoa Catchment.

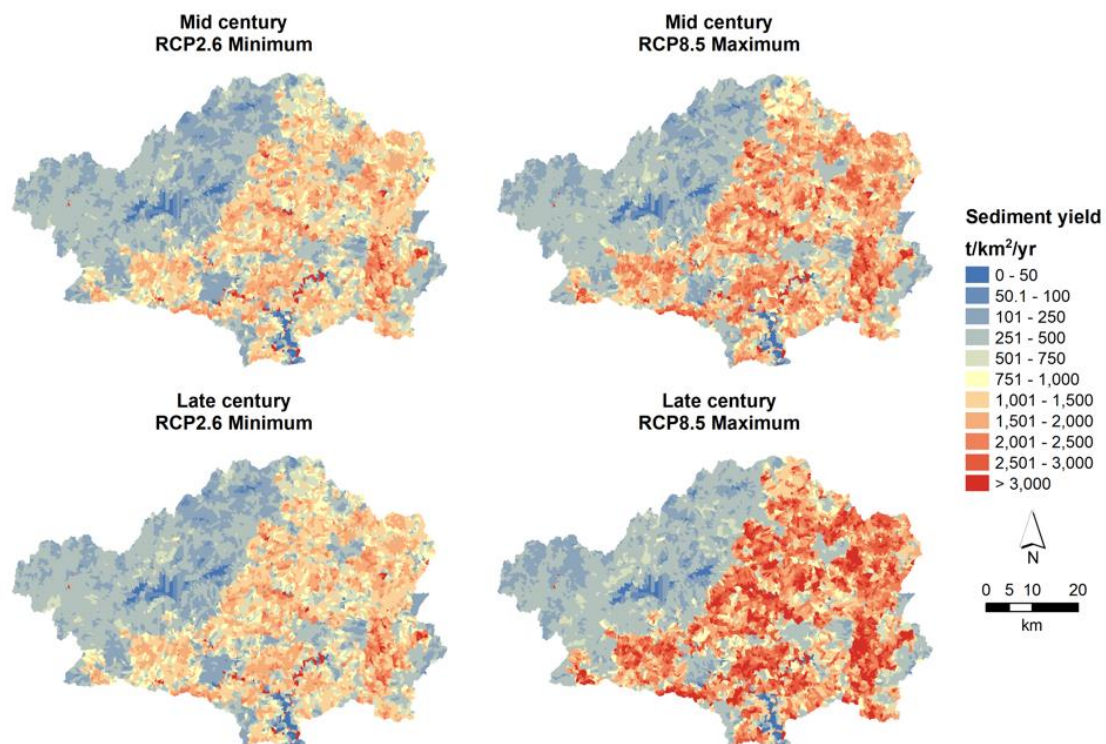
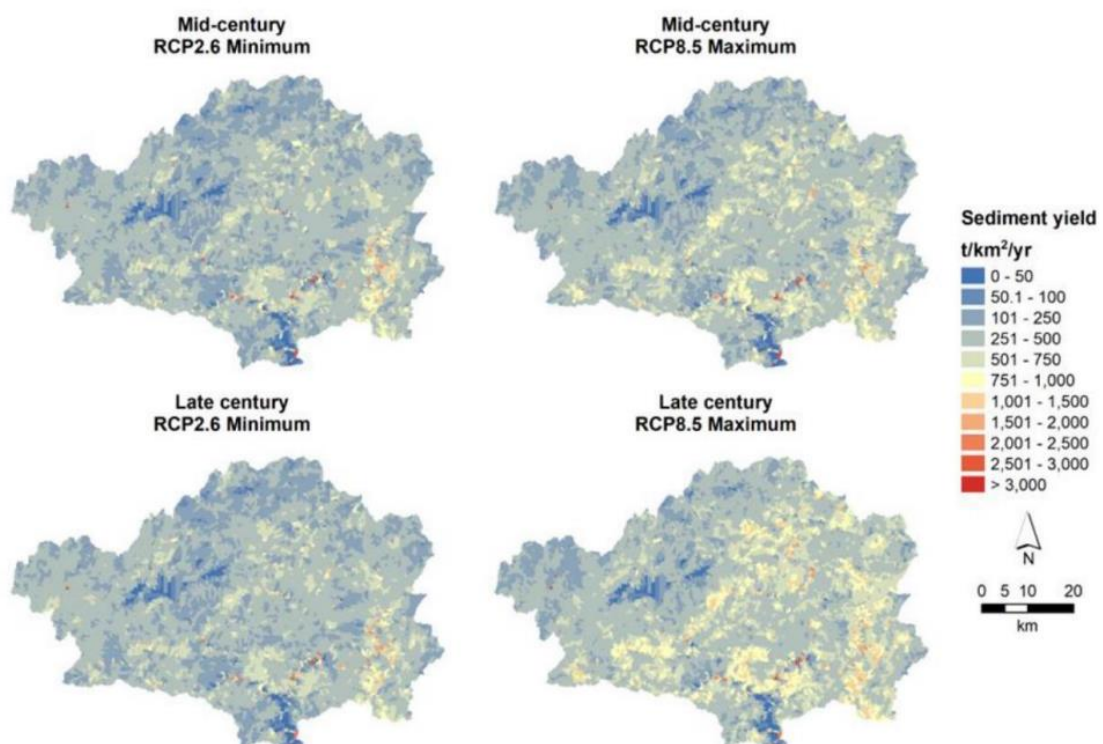


Figure 9. Future climate impacts on baseline sediment loss in the Wairoa Catchment with mitigation scenarios applied.



### River and stream bank erosion

Our riverbanks and riparian areas have suffered significant impacts. Large areas of riverbank, riparian planting and fencing have been lost in these storms. Important habitat and spawning areas for many native fish have been lost and thick layers of sediment have been deposited in riverbeds, resulting in the loss of habitat for important river fauna on which many fish and invertebrates rely. These impacts highlight the importance of better decision making for many of our water ways across the district.

Government reform<sup>10</sup> now requires landowners to exclude livestock from waterways that continue to be repeatedly flooded. Significant efforts to plant our riparian margins to reduce erosion and provide habitat are being destroyed by being washed away and haphazard riparian planting could exacerbate future riverbank erosion. Better guidelines, approaches and support to how we manage riparian areas are required. Work is already underway to better understand the extent of riverbank loss across the district.

### Coastal erosion

There are multiple anecdotal reports of significant coastal erosion, particularly around Mahia Peninsula and Māhanga. Through the Resilience to Natural Hazards, National Science Challenge funding, Auckland University is leading a project looking at the impact of Cyclone Gabrielle on coastal erosion<sup>11</sup>. Work is occurring at Māhanga and potentially around the Mahia Peninsula<sup>12</sup>. HBRC regularly carry out coastal erosion assessments with transects at multiple locations across Hawkes Bay, and these are due to be repeated. More information on the actual impacts of coastal erosion should be available in 2024.

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<sup>10</sup> <https://www.hbrc.govt.nz/environment/farmers-hub/farm-plans/stock-exclusion/#:~:text=low%20slope%20land-,Stock%20crossings,or%20culvert%20must%20be%20installed.>

<sup>11</sup> <https://resiliencechallenge.nz/project/mapping-cyclone-driven-erosion-of-north-islands-east-coast-beaches/>

<sup>12</sup> <https://www.rnz.co.nz/news/national/508569/cyclone-gabrielle-parts-of-east-coast-lost-10-metres-of-shoreline-research-shows>

### Long term weather and climate change

While not apparent during the preparation of this report, NIWA is still predicting an El Nino weather pattern to occur across the district<sup>13</sup>. The timing and severity of an El Nino weather pattern could bring both benefits and disadvantages to our communities. Groundwater tables and saturated soils would be able to lower and dry-out and clean up and repairs could become less disrupted and easier to manage. However dust may become a bigger threat and the impacts of dry soils and drought on farms that have already lost considerable pasture to erosion could significantly impact landowners and the primary sector recovery.

Perhaps the greatest lesson of the last 2 years is that climate change predictions include that Wairoa will experience more frequent, large intensity storm events. These pose one of the greatest hazard risks (alongside a Hikurangi Sub-duction Zone earthquake and tsunami) to Wairoa. It is a reminder too, that with sea level rise storms like Gabrielle pose an increased threat of flooding in our communities.

Research was undertaken by scientists from GNS and NIWA who took sediment core samples of the Lake Tutira lakebed in 2003 to measure past erosion events evident in the layers of sediment deposited. The result was a complete record for the last 7,200 years. Over that full span there were 25 phases of increased storm frequency over extended periods of time. The average storm frequency was 1 in 5 years. Fifty-three pre-historic storms of a similar magnitude to Cyclone Bola, plus 7 potentially larger were identified in the sediment layers<sup>14</sup>.

Over time, significant weather events have occurred on a reasonably regular basis across the District. Table 1 below has been extracted from the *NIWA Historical Weather Event Catalogue*<sup>15</sup>.

**Table 1. Historical flooding and storm damage in Wairoa District, taken from – NZ Historical Weather Event Catalogue (NIWA).**

Date	Impacts noted
Sep 2015	Significant flooding and woody debris deposited at Kōpuawhara after intense rainfall in upper Catchment.
Apr 2011	Easter storm, significant rainfall and landsliding around Whakakī.
Jul 2010	250-300mm Wairoa hill country, 180-210mm Waikaremoana and Kotemaori 2-3 days period.
Jan 2010	Flooding at Nuhaka, extensive landslides and road closures at Nuhaka, Wairoa, Whakakī, Mangapoike. Wairoa 225mm over 48 hours.
Jul 2008	Matahaura gorge blocked on both sides.
Oct 2005	Heavy rain, SHWY 2 blocked.
Jun 2004	Wind damage, extensive flooding
Aug 2002	Significant rain upper Kōpuawhara, extensive damage to paddocks downstream.
Apr 2000	Minor flooding in surrounding areas to Wairoa.
Jun 1997	SHWY 2 closed, State of Emergency declared, all schools closed, flash flooding around Wairoa.
Apr 1991	400mm rain fell on Nuhaka over 2 periods. Nuhaka River breached its banks and flooded homes.
Mar 1988	Cyclone Bola
Jul 1985	Flood damage, Wairoa isolated, extensive surface water flooding.
Jun 1977	Flooding at Wairoa.

<sup>13</sup> <https://niwa.co.nz/climate/seasonal-climate-outlook/seasonal-climate-outlook-october-december-2023#:~:text=Of%20the%20models%20monitored%20by,Ni%C3%B1o%20conditions%20through%20autumn%202024.>

<sup>14</sup> <https://niwa.co.nz/sites/niwa.co.nz/files/import/attachments/tutira.pdf>

<sup>15</sup> <https://hwe.niwa.co.nz/>

Feb 1977	Heavy rain in Wairoa, multiple surface floods, Part of Marine Parade flooded, streets closed near hospital.
May 1971	Goods train derailed near Kotemaori after 30m of track was washed out. Civil Defence Emergency declared in Wairoa. Wairoa River highest since 1948.
Aug 1965	Road closed North & South of Wairoa. Flooding at Kōpuawhara.
Aug 1965	Snow & heavy rain
Mar/Apr 1954	Significant landsliding and road closures Hangaroa, Tiniroto. Maru Maru to Wairoa cut off. Town stormwater overwhelmed. Silt deposition up to 90cm deep on lower riverbanks.
Jun/Jul 1950	Multiple road closures and slips
Aug 1949	Road and rail access to Wairoa cut.
Mar 1944	Wairoa completely isolated.
Sep 1943	Nuhaka & Whakakī had significant flooding and many landslides.
Apr 1938	Significant erosion throughout the district, damage to roads, bridges and infrastructure. Waikare and Mohaka bridges washed away. Severe flooding around Wairoa, evacuations of Lahore Street.
Feb 1938	Kōpuawhara Rail Camp disaster. Still NZ's greatest loss of life to flooding. Significant flood damage and impacts downstream.
Jan 1938	Flooding and Nuhaka and Whakakī, bridge losses.
May 1929	Access Napier to Wairoa shut, multiple road closures due to slips
Sep 1927	Road between Nuhaka & Wairoa for over 14km flooded to a depth of 15cm. Landsliding and road blocked to Gisborne.
Jun 1917	Mohaka River rose significantly and flooded Post Office, large slip at Mōrere, multiple roads blocked.
May 1914	Significant flooding around Mohaka and Waihua, both bridges washed away and at Huramua, Awatere Stream overflowed its banks and flooded around North Clyde. Large quantities of woody debris reported. Extensive flooding around Whakakī. Worst flooding in living memory of the oldest resident.
Mar/Apr 1910	Numerous slips on Napier to Wairoa Road. Hotel wrecked at Mōrere.
July 1906	Significant flooding around district. Waikaremoana isolated for nearly 2 weeks.
Apr 1897	Extensive flooding around district, Mohaka Bridge washed away.
Jun 1894	Significant storm damage and flooding at Nuhaka. Tahaenui Bridge washed away. Road closed North & South. Wairoa flooding worst in living memory of elderly residents.

Preparedness and resilience of whānau and whenua to more frequent future storms events is a vital consideration as we go forward.

### **Direct impacts of Gabrielle on the Wairoa Environmental Recovery**

#### ***Sediment***

Sediment and silt carried in the flood waters is the most evident legacy of Cyclone Gabrielle's impact on the community. Thousands of tonnes of silt has been deposited throughout North Clyde and surrounding areas and significantly more has been deposited on private land upstream.

As it dries the silt that remains in Wairoa, particularly around North Clyde, becomes dust that gets whipped up in the wind. Asthmatics and those with respiratory illness are particularly susceptible to this dust.

Most silt has now been removed from the public spaces and roadsides around the township although unknown amounts still exist on private sections and bare farm paddocks.

To date approximately 18,500 m<sup>3</sup> silt has been taken for temporary storage in the Wairoa landfill and in three other temporary storage sites. Another 2,000m<sup>3</sup> remains at the Railyard and an estimated 500 tonnes is still under whānau houses<sup>16</sup>.

Funding for silt removal has come from multiple sources including, WDC, QRS, Wairoa Mayoral fund, HBRC Disaster Grant, HBRC Commercial silt & waste fund, HB Silt & Waste Recovery Task Force, Te Puni Kōkiri, and privately from landowners, homeowners and through the efforts of volunteers.

An accurate picture of the funding provided and of the total volume of silt removed would require consolidating on all those funding streams. Multiple contractors have been used in the process of silt removal both locally and regionally.

### ***Woody debris***

Woody debris has had a massive impact in Wairoa. Twenty-six bridges required the removal of woody debris to prevent further damage occurring, and an estimated 150,000m<sup>3</sup><sup>17</sup> was deposited on the district's beaches, to date 50,000 m<sup>3</sup> has been removed.

Since Gabrielle approximately \$9.4 M has been spent on the removal of silt, woody debris and building materials from around the district and town.

The woody debris is currently being disposed of through burning, chipping or removal to temporary storage sites. Government recently announced an additional \$64 Million to continue with the silt and woody debris removal for Hawkes Bay. Of this \$3 Million has been ring fenced for Wairoa. Significant progress is being made at Mahia, Opoutama, Whakamahi, Mohaka and Waikare. This work will be completed shortly. Additional funding now provides the opportunity to consider woody debris removal from other coastal sites.

### ***Woody debris assessment***

HBRC undertook a rapid assessment of the types of woody debris from Cyclone Gabrielle found on bridges, at river confluences and river mouths and on beaches<sup>18</sup>.

Sites at Mahia Beach, Wairoa River mouth, Mohaka River mouth, Mangapoike River at Tiniroto Bridge, Waikare Bridge and Waikare River mouth were assessed. Detailed assessments were not possible for certain sites where visual assessments had to be made of the proportion of pine, willow, poplar, and other woody debris.

At the Wairoa River Mouth, Mangapoike River and Waikare bridge woody debris was estimated as 90% Pine, 5% Willow and Poplar and 5% other sources.

Mahia Beach was assessed with most debris being "driftwood" (48%), pine woody debris (38%) and long resident pine (7%). No evidence was found of recently harvested material.

Mohaka river mouth had significant amounts of long resident pine, but most debris were pine pieces (material with no evidence of being harvested).

At the time of the survey Waikare Beach could not be assessed.

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<sup>16</sup> WDC

<sup>17</sup> HB Silt and Waste Recovery Taskforce

<sup>18</sup> <https://www.hbrc.govt.nz/assets/Document-Library/Cyclone-Gabrielle/Post-Cyclone-Gabrielle-2023-large-woody-debris-assessment-31.03.2023-FINAL-v1.pdf>

***Outrage to optimism***

Since Cyclone Gabrielle an Independent Panel has undertaken a “Ministerial Inquiry into land uses associated with the mobilisation of woody debris (including forestry slash) and sediment in Tairāwhiti/Gisborne District and Wairoa District”. Recommendations were included in its report “Outrage to Optimism”.<sup>19</sup>

On 3 October 2023 Minister Parker announced as part of the package of recommendations adopted “New national standards give councils greater control over commercial forestry, including clear rules on harvesting practices and new requirements to remove slash from erosion-prone land”<sup>20</sup>, and a new National Environmental Standards (NES) for Commercial Forestry (2023) has been produced.<sup>21</sup>

These new standards allow councils greater ability to influence where future commercial forestry may occur, incorporate new standards and controls on carbon forestry, and require greater management of forestry slash at harvest.

***Stormwater - Council drains, drainage schemes and river management***

Both HBRC and WDC have undertaken significant work cleaning up and making critical repairs and maintenance on their assets and infrastructure. A lot of the repair work to restore levels of service has now been completed but there is still much to do in the drains and waterways on the Paeroa Blocks and along the Awatere Stream.<sup>22</sup>

The magnitude of Cyclone Gabrielle has highlighted the fact that parts of our drainage infrastructure that was quickly overwhelmed during the Cyclone was designed for much smaller events. As a community we are now face the need and massive cost challenge of upgrading this infrastructure to build greater resilience.

Continued on-going weather events and heavy rainfall have meant that much of initial repair work has had to be repeated and required on-going maintenance and clean outs.

The issues of drain ownership and the responsibilities entailed have arisen on multiple occasions. Most of the drains in the district are privately owned and landowners are responsible for the maintenance and clean-up of their own drains. Some landowners have added their own culverts or crossings to existing drainage schemes that have not been appropriate for the scheme and stormwater design and are compromising the performance of these systems.

***Pollution and contamination***

A huge amount of waste generated by Cyclone Gabrielle including household items, building materials, insulation, carpets, clothing and personal effects, vehicles and whiteware.

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<sup>19</sup> <https://environment.govt.nz/assets/Outrage-to-Optimism-CORRECTED-17.05.pdf>

<sup>20</sup> <https://www.beehive.govt.nz/release/updated-forestry-regulations-increase-council-controls-and-require-large-slash-removal>

<sup>21</sup> <https://www.legislation.govt.nz/regulation/public/2023/0277/latest/LMS912695.html>

<sup>22</sup> HBRC & WDC

To date since Gabrielle 2,884 tonnes of waste have been deposited at the Wairoa Landfill, and in addition to the deposition of silt this has had a large impact on the landfill's capacity<sup>23</sup>.

Most of the waste has been deemed relatively benign and sorting has occurred with potential contaminants separated. The testing of silt and soil taken to the landfill has been carried without any significant contamination being found.

As work continues in the repair of damaged housing, more waste is being generated. Increases in fly tipping have been noted across the district.

The fate of waste and silt in the landfill and the long term future of the landfill site are important priorities for both the Council and community as part of long term planning.

### ***Dust and air quality***

Air pollution as a result of dust, burning rubbish, and damp and poorly ventilated homes all potentially impact on people suffering from asthma or other respiratory diseases, which Wairoa already suffers from more than any other district.<sup>24</sup>

A Hawkes Bay regional interagency group including Local Councils, Recovery teams, Te Whatu Ora, FENZ, Work Safe, Taumata Arowai and NIWA has been formed to consider and act on dust and environmental health issues. There has been considerable kōrero about the risks from dust on whānau in Wairoa, with support provided through media and communications.

NIWA with MBIE funding are undertaking work throughout HB to assess the impacts of dust on air quality and on human health and working collaboratively with HBRC to establish dust monitors across the region<sup>25</sup>. Ten dust monitors have been installed in Wairoa to help assess any air quality impacts on whānau.

### ***Ecological Impacts***

The ecological impacts of Cyclone Gabrielle and the successive weather events across the land, water ways, coastlines and ocean are not yet well understood. Although much work is now underway to better understand these impact and recovery needs a major challenge for scientists is there are no baseline for comparison on the state of our environment prior to Cyclone Gabrielle for large areas of the district, nor the funding to extend the work they are undertaking on a larger scale across more land area or sites.

Deposited sediment on the beds of our rivers is regarded as a master stressor on our freshwater and coastal ecosystems. Some initial monitoring by HBRC has identified extreme amounts of sediment entering rivers, lakes, estuaries and marine areas, but with large variability across the region.

HBRC's "State of the Environment" (SoE) long term monitoring sites have shown a wide ranging impact on the freshwater biodiversity. Some sites exhibit minimal to no biodiversity remains, others are rapidly recovering.

The impact of erosion and the loss of vegetation from our river and stream banks is recognised as having an impact on inanga spawning areas. The fish species that live in our rivers and sea vary greatly

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<sup>23</sup> WDC

<sup>24</sup> <https://www.wairoadc.govt.nz/assets/Document-Library/Reports/Economic-Reports/Economic-Development-Report-2019.pdf>

<sup>25</sup> <https://resiliencechallenge.nz/project/air-quality-monitoring-in-hawkes-bay-and-tairāwhiti/>

in their tolerance to turbidity and low visibility. Habitat loss through damage or sediment deposition is the greatest impact of storms on our freshwater ecology.

Woody debris can have both an advantageous and disadvantageous impact on the taiao. It provides refuge in further storms and offers habitat and cover for many aquatic organisms but in too great a quantity destroys stream habitat and increases streambank erosion.

The impact on our terrestrial biodiversity through Gabrielle has prompted some locally based investigation. Impacts on several lagoons was investigated by HBRC. Bush reserves at Mōrere and Mahia were assessed through the MBIE funded “Integrated Ecological Impact Assessment to inform Cyclone Response and Recovery” project team<sup>26</sup>.

The impact to our indigenous bush and reserves has not been great. This was further supported by the “Rapid Assessment of Land Damage” report which showed the lowest incidence of erosion on any type of vegetation was native forest. The challenge for terrestrial biodiversity measurements across Wairoa is again the lack of good baselines for comparison.

The impact on our shorebirds is not yet known. Coastal erosion, woody debris and on-going disturbance of shorelines has as yet an undetermined impact. The breeding season for many species occurs late Spring and Summer. HBRC propose to repeat the Shoreline Bird Survey next year that was carried out during January of 2021<sup>27</sup> to better understand the impacts.

Significant work has also occurred since Cyclone Gabrielle to assess the impact of sediment on our marine environment. NIWA in collaboration with HBRC have undertaken two voyages in Hawke Bay and mapped significant areas of the seabed<sup>28</sup>. Large amounts of woody debris, low biological activity and poor visibility has been noted on the sea floor near Wairoa which leads to less photosynthesis and reduced food supplies<sup>29</sup>. This work will continue to look at the types of sediment present, its source and impact on fish species. The area mapped to date represents just 5% of the Hawkes Bay marine environment and baselines do not exist for many areas.

Sediment deposited on rocky reef systems cover habitat and smothers the food sources of many species that live there and for the Kaimoana. What impact that sediment is having on the species living there is yet to be established.

More information is being generated as investigations and monitoring continues. The amount of science investigation on the impacts of Gabrielle on Te Taiao in Wairoa is impressive. Processing and lab analysis is time consuming and most projects will not conclude until 2024.

The only ecological data available at the time of preparing this report was eDNA sampling carried out by HBRC. eDNA measures the presence or absence of animal species in our rivers. It does not provide an estimate of the amount of any species present.

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<sup>26</sup> <https://resiliencechallenge.nz/project/integrated-ecological-impact-assessment-to-inform-cyclone-response-and-recovery/>

<sup>27</sup> <https://www.hbrc.govt.nz/assets/Uploads/5560-A-baseline-survey-of-the-indigenous-bird-values-of-the-Hawkes-Bay-coastline.pdf>

<sup>28</sup> <https://niwa.co.nz/news/niwa-unravelling-impacts-on-marine-life-after-cyclone-gabrielle>

<sup>29</sup> <https://www.rnz.co.nz/news/national/504173/scientists-map-the-damage-cyclones-can-create-including-what-we-can-t-see>

Table 2 below, compares the eDNA samples from both the Waiau and Mangapoike monitoring sites before and after Cyclone Gabrielle<sup>30</sup>. As can be seen, species present before Gabrielle were not detected in the follow up testing.

**Table 2. Initial eDNA results pre and post-cyclone (as of 10<sup>th</sup> November 2023) for fish at the Waiau River at Otoi and the Mangapoike River at Suspension Bridge.**

Scientific name	Common name	Waiau at Otoi		Mangapoike	
		2022	Mar-23	2022	Mar-23
<i>Anguilla dieffenbachii</i>	Tuna; kūwharuwharu; reherehe; kirirua, Longfin eel	✓	✓	✓	✓
<i>Retropinna retropinna</i>	Ngaore; paraki; pōrohe, Common smelt	✓	✓	✓	
<i>Oncorhynchus mykiss</i>	Taraute; tarauta; hāmana; tāmana, Rainbow trout	✓	✓	✓	✓
<i>Cheimarrichthys fosteri</i>	Panoko; pānokonoko; pānonoko, Torrent Fish	✓			
<i>Salmo trutta</i>	Taraute; tarauta, Brown trout	✓		✓	
<i>Gobiomorphus hubbsi</i>	Bluegilled bully	✓			
<i>Anguilla australis</i>	Tuna; hao; aopori; hikumutu, Shortfin eel	✓		✓	✓
<i>Craspedacusta sowerbii</i>	Freshwater jellyfish	✓		✓	✓
<i>Mugil cephalus</i>	Kanae; kanae raukura, Grey mullet	✓		✓	✓
<i>Gobiomorphus huttoni</i>	Redfin bully	✓	✓	✓	
<i>Gobiomorphus cotidianus</i>	Tīpokopoko; toitoi, Common bully	✓		✓	
<i>Galaxias maculatus</i>	Īnanga,	✓		✓	
<i>Galaxias brevipinnis</i>	Kōaro; maehe,	✓			✓
<i>Gobiomorphus cotidianus/basalis/dinae</i>	Titikura, Common/Cran/Dinahs bully			✓	✓
<i>Larimichthys crocea</i>	Croceine croaker; large yellow croaker; yellow croaker				✓

The assessment of ecological impacts on the Taiao in Wairoa is primarily being led by HBRC and through joint projects between HBRC, Crown Research Entities and Universities.

Since Cyclone Gabrielle, the HBRC Science team has (see Table 3);

- Undertaken eDNA analysis across 6 sites in the district, enabling comparison with eDNA sampling results from analysis prior to Cyclone Gabrielle.

<sup>30</sup> HBRC

- Undertaken Macroinvertebrate Community Index (MCI) sampling at all Wairoa River monitoring sites.
- Maintained monthly MCI monitoring at 7 monitoring sites, which will provide information in the ecological recovery of our waterways.
- Undertaken Estuary Infauna Assessments at Wairoa and Mangawhio lagoons.

### ***Weeds & pests***

The Cyclone has seen an increase in some weed species such as Toad Rush and Horsetail and as soil dries and bare land is recolonised it is likely there will be a similar increase in other weeds in 2024.

There have been increased reports across the region of a rat problem. Rabbit numbers may have been reduced by drowned burrows, although there is the potential for conditions over the next 12 months to significantly improve in their favour.

Deer numbers across the region are currently at near historic highs and alongside goats will undoubtedly be having a considerable impact on the remaining pastures across the district. The ability to restore lost plantings or plant new erosion control and reducing the susceptibility of our indigenous vegetation to future erosion risk is hindered by the large numbers of deer and goats across the District.

Conditions since the Cyclone have made it harder for landowners and HBRC to do the work they normally do to keep pest and weed numbers down. Blocked access and a lack of funding for biosecurity control after addressing more immediate farm costs could impact on the future incidence of weeds and pests across the district<sup>31</sup>.

### ***Cultural values and mahinga kai***

As of yet we do not have robust data on the impact of Cyclone Gabrielle on cultural values and mahinga kai of our awa.

The Our Land & Water National Science Challenge – Whitiwhiti Ora project operating in Wairoa over the last two years has paid particular attention to the impact of sediment on mahinga kai and cultural values in the Wairoa River. Local mātauranga experts have been engaged and they have developed and refined a cultural values framework to assess the health of cultural values and the impacts of sediment through 90 separate kōrero. These interviews have occurred both before and after Cyclone Gabrielle.

The current project concludes in March 2024. Results will be published offering insight to the impact on mahinga kai and cultural values.

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<sup>31</sup> HBRC

Table 3. High level overview of the freshwater and marine sampling within the Wairoa and northern catchments as of November 2023.

	eDNA (2022 pre- cyclone)	eDNA analysis directly post- cyclone	Monthl y Deposit ed Sedime nt	Macroinverteb rate (MCI) Sampling directly post- cyclone	Monthly Macroinver tebrate (MCI) Sampling	High frequency eDNA	eDNA 1- year post- cyclone	Estuary Infauna post- cyclone (6- weekly)	Estuary sediment analysis post- cyclone	Monthly water quality sampling (SOE)
Waiau Rvr at Otoi	✓	✓	✓	✓	✓		✓			✓
Hangaroa Rvr at Donneraille Park	✓	✓	✓	✓	✓		✓			✓
Ruakituri Rvr at Doughboy Br	✓			✓						✓
Mangapoike Rvr at Suspension Br	✓	✓	✓	✓	✓		✓			✓
Mangaaruhe Stream US Wairoa River	✓			✓						✓
Wairoa River at Riverina Road	✓	✓	✓	✓	✓	✓	✓			✓
Opoutama Strm at Smiths Woolshed	✓	✓		✓			✓			✓
Kōpuawhara Strm at Lower Rail Br	✓	✓	✓	✓	✓		✓			✓
Nuhaka Rv at Nuhaka Valley Rd	✓		✓	✓	✓					✓
Waihua Rv at Waihua Valley RD	✓		✓	✓	✓	✓				✓
Wairoa River at Rail Br	✓			✓						✓
Wairoa Estuary								✓	✓	✓
Maungawhio Lagoon								✓		✓

### Conclusion

Cyclone Gabrielle and the weather events experienced in Wairoa over the last 18 months have had a large impact on the taiao across the Wairoa District. The legacy these events have left for the community to clean up and recover from will take many years and many millions of dollars.

These types of weather events and their frequency over the last 18 months is not new to Wairoa. We live in a District, which due to the nature of our landscape and location is prone to high intensity rain events. Wairoa is located at the base of a very large catchment area, much of which is hill country, that is particularly susceptible to soil erosion. The impacts on the landscape, farmland, infrastructure and communities will likely be repeated again in the future. Climate change will increasingly influence the frequency and intensity of storm events to Wairoa.

As a community we are recognising that recovering from Cyclone Gabrielle alone will not be enough to prepare us for a future where these events will occur again.

## SECTION 2. What has happened and is happening through recovery?

Since Cyclone Gabrielle a lot of work has been undertaken to recover from the impacts of the Cyclone. This section looks at what has happened over the last 12 months via what was identified as priorities for the taiao in the initial Wairoa Recovery Plan.

### The Initial Wairoa Recovery Plan “Te Wairoa Ka Ora, Te Wero Te Taki”<sup>32</sup>

This initial recovery plan was put together over approximately two weeks in order to meet a 28 April 2023 Regional Recovery Plan deadline. This provided no opportunity to engage with mana whenua or the community in its compilation.

A core group was invited to participate and provide guidance to the development of the Taiao Pou component of the Wairoa Recovery Plan in hui on 14<sup>th</sup> April 2023. This invitation was extended to representatives from TToTW, NPDT, Ruapani Mai Waikaremoana, NKII, MPI, MfE, HBRC, WDC, DoC and Manaaki Whenua Landcare Research. Iterations of the draft environmental report were sent out to these representatives on the 16<sup>th</sup> and 20<sup>th</sup> of April, following the hui. Not all parties contributed but those that did provided critical guidance and support to the development of the plan.

For the production of the initial Wairoa Recovery Plan, regional guidance was that only short term priorities should be considered and that medium to long term priorities would be identified in the second iteration of the HB Regional Recovery Plan. Indeed it was difficult to make medium to longer term assessments of needs for environmental recovery so soon after Cyclone Gabrielle. We were still learning about the impacts on the whānau and whenua and without any data for quantification. Moreover these types of decisions require inclusion of a strong community voice.

The priorities for Wairoa environmental recovery, and projects identified in the initial Wairoa Recovery Plan are shown in Table 6 below.

**Table 6. Wairoa Recovery Plan environmental priorities.**

Environmental Recovery Priorities	Key short term projects proposed and funding requested.	
Investigation into hazard risk mitigation developed with the community	No project listed	Be involved
Ensuring our recovery of Te Taiao is in partnership with marae, hapū, communities and landowners and their ability to kaitiakitanga their whenua	Cultural Impact Assessment of the direct impacts of Cyclone Gabrielle to Marae, Urupā, sites of significance, Wāhi tapu and Pātaka kai (\$150K)	Be involved
Resilience now and into the future to adapt to the natural hazards and changing climate impact across our district.	No project listed.	Be involved
Restoring our sites of ecological significance, threatened species and biodiversity while minimising the impacts of weeds and pests on recovery	Biodiversity and threatened species assessment (\$175K)	Know more
	Review undertaken on the impact of Cyclone Gabrielle (\$150K)	Know more

<sup>32</sup> <https://www.wairoadc.govt.nz/assets/Uploads/Te-Wairoa-Ka-Ora-Locality-Plan-28-April-2023.pdf>

Understanding what happened and why Wairoa flooded the way it did, understanding the impacts to the awa and whenua.	Assessment and remediation of the impacts of flooding on Nuhaka and Whakakī (No funding applied for).	Know more
Cleaning up the woody debris and silt in, on and under homes, infrastructure, riverbanks, beaches and recreational areas	Resourcing for clean-up of woody debris (\$520K for initial 6 months)	Clean up
Minimising the health impacts of the clean-up and recovery efforts on the health of whānau and whenua	Regulatory compliance and on-going monitoring of contaminated soil and air quality (\$150K)	Do no harm
Enable the community to lead its own recovery, support mana motuhake	Resourcing for the community and tangata whenua participation (\$200K)	Be involved
Ensuring healthy, sustainable and resilient housing for whānau is incorporated into the re-build process	No project listed – Building and welfare pou projects.	

### Taiao themes

In reviewing the priorities identified in the initial recovery plan (Table 6), four key themes emerged;

1. Clean up
2. Do no harm
3. Know more
4. Be involved

These themes were and remain the Taiao priorities for Wairoa's recovery plan. The work that occurred within each of these themes or is currently in progress is identified below.

#### 1. Clean-up

The greatest job for the community as a result of Gabrielle has been the clean-up. The silt, woody debris, the products of the rebuild and damaged household effects have all required removal and disposal. Millions of dollars has been spent locally in Wairoa already on this, from multiple funding streams.

The majority of the high priority work required to undertake this clean-up within Wairoa has been completed. But there are still a significant issues and locations where the clean-up is only just underway. Much of this work has been discussed in previous sections of this report.

#### 2. Do no harm

An essential part of doing no further harm to the whenua or whānau revolves around our ability to finish the clean-up work and then to effectively manage waste, silt and woody debris that is being temporarily stored at various sites across the district. In particular;

- Minimise the potential dust risk through further silt removal, planting of bare land and finding options for minimising dust in the short term.
- Complete the removal of woody debris from the beaches of popular summer recreational areas and mitigate any risk to recreational users.
- Ensure the next stage of waste and silt management causes no further harm to the environment, in finding final solutions to the fate of these materials.

HBRC compliance teams have checked plantation forestry sites across the district and have found no significant breaches in compliance. All consent holders are required to monthly monitor any associated risks of contamination from their activities. No significant risks have been noted post Gabrielle, and the on-going testing of silt and potentially contaminated sites is being monitored.

Community vigilance and reporting where potential harm is occurring is crucial to ensuring we do no further harm through our clean-up. The HBRC Pollution hotline<sup>33</sup> is where any complaints can be made.

### 3. Know more

A high priority for the community during the production of the initial Wairoa Recovery Plan was to know more about why the town flooded and any contributory factors. A further priority is to learn more about the impacts of Cyclone Gabrielle on our environment and taonga.

Knowing more about the impact of Cyclone Gabrielle on Te Taiao using all knowledge sources is an important foundation to better, more informed decisions to guide the appropriate actions towards future land use, hazard risk mitigation and adaptation to climate change.

#### a) Reviews and investigations

Since Cyclone Gabrielle, multiple reviews were initiated to quantify what happened, how infrastructure held up, what could be done better and the emergency management response. These reviews will enable the community to have a clearer picture of Gabrielle's impact.

Reviews include;

- Hawke's Bay Independent Flood Review – commissioned by HBRC.
- Independent Flood Investigation – launched by WDC.
- "Outrage to optimism" – Ministerial Inquiry into land uses associated with the mobilisation of wood debris (including forestry slash) and sediment in Tairāwhiti/Gisborne District and Wairoa District.
- Independent Review into the Hawke's Bay Civil Defence Emergency Management Response to Cyclone Gabrielle.
- Government Inquiry into the response to the North Island Severe Weather Events.
- Significant investigation and modelling of flooding during Gabrielle has been undertaken in developing the flood protection proposal for Wairoa.

#### b) Research

There has been a lot of research initiated since Cyclone Gabrielle to assess the impacts on the landscape and flora and fauna, and more has been proposed. This list is not inclusive of all the work occurring. Examples include;

- "Rapid Assessment of Land Damage" across the East Coast, carried out by Manaaki Whenua/Landcare Research.
- Auckland University has assessed the impact of the Cyclone on coastal erosion around Mahia and Māhanga.
- HBRC has carried out all-of-region aerial photography<sup>34</sup> and satellite imagery since Cyclone Gabrielle<sup>35</sup>. This work was also undertaken after the March 2022 event and

<sup>33</sup> <https://www.hbrc.govt.nz/services/pollution-and-waste/pollution-complaints/>

<sup>34</sup> <https://gis.hbrc.govt.nz/portal/home/item.html?id=55ac00424e71498dbb670fedc3b04bc8>

<sup>35</sup> <https://www.linz.govt.nz/news/2023-03/high-resolution-imagery-flood-hit-areas-supports-cyclone-recovery>

allows comparisons to be made. Lidar work has been undertaken primarily around the lower Wairoa River Catchment.

- Significant assessment of the ecological health of rivers and estuaries using eDNA techniques, instream micro-invertebrate assessments, and faunal counts has been undertaken by HBRC since Gabrielle to understand the recovery of our waterways to the Cyclone.

c) Cultural impact and value assessments

Multiple cultural assessments are being currently undertaken or will shortly be required for the repair, restoration and flood protection projects that are occurring across the district.

The Whitiwhiti Ora project is near completion and undertook a significant mātauranga and western science driven investigation into the impacts of sediment and erosion on cultural values and mahinga kai. This research will be extremely valuable for better understanding the impacts of storms on cultural values in Wairoa.

**4. Be involved.**

Most of the focus now for the community is on the FOSAL Land Categorisation process and shifting the land category from 2A to 2C for those living in that area. Further information on this is being produced for the final Recovery Plan. There will be many opportunities for the community to be involved in this process and it progresses.

All Councils are currently preparing their Long Term Plans. These plans will be critical to the on-going recovery work across the district and it will be important for the community to be active participants in the decision making with these plans. Community consultation will begin in April.

Not much has happened in the taiao recovery space, beyond our short term needs, nor has there been the opportunity for significant community participation in the recovery planning to date. Longer term the community has clearly signalled a desire to be involved in that recovery and have a strong voice in any future planning around taiao restoration.

The priority for the community is to now look to the medium and long term future and how to reduce the impact of events similar to those of like Gabrielle.

### Section 3. What needs to happen? – Gaps and recommendations

With the benefit of hindsight the taiao recovery projects identified in the initial Wairoa Recovery Plan remain valid. However the realities of recovery in Wairoa such as getting whānau back into homes, community flood protection, community wellbeing and repairing our damaged infrastructure our funding priorities and limited funding available mean there is unlikely to be significant resource available in the short term for wide-scale environmental restoration projects.

This does not mean that opportunities in the future should not be taken advantage of. Particularly in those areas of significance to whānau and taonga species where recovery and restoration efforts will have the greatest impact. The taiao will recover naturally, if given the time and opportunity.

#### Top 3 Taiao recovery priorities

1. Continue the clean-up and management of waste in the Wairoa District.

This has been discussed at length already. There is still considerable work to do in the removal of silt from under homes and on farmland, woody debris from beaches, household waste and rubbish and in finding final solutions for the temporary storage of the products of Gabrielle throughout the District.

2. Reduce future risk to storm events and flooding.

A huge body of work is currently underway to develop a proposal for flood protection for Wairoa. This proposal will enable a shift for properties with a 2A land categorisation to 2C. At the time of writing this proposal was being considered through a Wairoa Stakeholder Group and then will be consulted on with the Wairoa Community. The Wairoa Tripartite of WDC, TToTW and HBRC will make the final recommendation back to HBRC to decide.

Once a design is decided, there will be a long and detailed journey to construct the appropriate flood protection that will take years to complete. In the short term it's important that flood warning systems are in place and processes are functioning to protect the community from future storms.

The initial Wairoa Recovery Plan identified the "Assessment and remediation of the impacts of flooding on Nuhaka and Whakakī"<sup>36</sup> as a key project.

Since Gabrielle WDC, HBRC, Waka Kotahi and KiwiRail have undertaken a large amount of work around Nuhaka and Whakakī. The "Railway Drain" has been modified to allow for smoother flow, maintenance and repairs have been made along the entire length of the drain and significant upgrades and improvements have been made to storm water drains near the school.

Options for providing flood protection for Nuhaka are currently being considered and will be presented back to the community in May 2024.

A priority for the longer term recovery of the taiao, is the provision of support and funding to landholders to enable them to carry out the appropriate erosion control and revegetation required

<sup>36</sup> <https://www.wairoadc.govt.nz/assets/Uploads/Te-Wairoa-Ka-Ora-Locality-Plan-28-April-2023.pdf>

to repair both the damage from the storms and help build resilience to future events. The greatest incidence of erosion from Gabrielle occurred in our pastoral hill country.

3. Long term planning and governance for the taiao & our vulnerability to natural hazards now and into the future.

There were many lessons learnt over the past two years on the impact of storms on our community and taiao. Emergency response and recovery, and vulnerability to natural hazards have all come under scrutiny recently. Change will only occur if we learn from those lessons and put concerted effort into developing and then implementing plans to collectively address these across the district.

As a community, building strong relationships and having a strong community voice representing all the wisdom that exists locally into that kōrero is important. The decisions we need to make about how we respond in the future are large, interrelated and may take a long time to achieve. Strong partnerships and agreements built locally will be important to enable that.

Weather events and our exposure and vulnerability to those now and into the future is intimately linked to the decisions we make in the landscape in terms of what is appropriate for the whenua.

The rest of this section considers needs identified in developing this report. It is not intended to be a definitive list of *to do's* for the next recovery plan, rather aspects of work that could be undertaken in the future to help build our resilience and that of the taiao to future weather events.

Priorities for the taiao have been considered over the short, medium and longer term and will require community engagement and input to ensure it is representative of their needs and aspirations for the recovery of the Taiao.

A critical next step for the Wairoa recovery plan is to narrow the focus on what is most important now, who can support that or where funding might come from and who is responsible for the delivery of those priorities and projects.

#### **Identified actions and recommendations for consideration in the Wairoa Recovery Plan;**

1. Options are found for the management of silt, waste and debris in the landfill and other storage areas.
2. Assessment of silt still under houses and in areas which may pose a health risk through dust.
3. Options for mitigating the flooding risk at Nuhaka and Whakakī identified and potential projects scoped for Long Term Plan consideration.
4. Recognise that formal flood mitigation will take a considerable time to construct. Flood warning systems around the district need to be assessed and improved on where required.
5. Gain a better understanding of river and stream bank erosion and coastal erosion impacts since Cyclone Gabrielle.
6. Establish Wairoa River riparian area management guidelines in collaboration with landowners.
7. Improve our understanding of the potential woody debris sources in the district and provide guidelines as to what could be done to minimise their impact.

8. Gain a better understanding of natural hazard risks. While our understanding of hazard threats like the Hikurangi Sub-duction Zone has grown markedly in the last 10 years, our knowledge of catchment, local, smaller scale hazards risks has not. A better understanding of what those risks are is required so that future decision making can be undertaken reduce our vulnerability to those risks in the future.
9. Support further ecological monitoring and measurements across the district for water quality, ecological health, habitat restoration, species impacts, terrestrial impacts and impacts to the marine environment. Gathering as much information, knowledge and wisdom from an event like Cyclone Gabrielle is vital to better understanding the impacts of future events driven by climate change.
10. Carry out investigations into the impact on threatened species in Wairoa e.g. Inanga and coastal shorebirds.
11. Gain a heightened awareness and education around biosecurity incursions into the district.
12. Ensure better community understanding of Council drain ownership and obligations on private drain owners.
13. Support the on-going compliance monitoring of the clean-up of waste, rubbish, silt and woody debris across the district.
14. Gain a better understanding of the impacts of Cyclone Gabrielle to our marae, sacred sites, sites of significance, pātaka kai and support provided to the remediation of them.
15. Ensure a greater mātauranga driven recovery and incorporation into future decision making around the taiao in Wairoa.
16. Encourage better coordination and communication of the multiple engagement opportunities for the community, and mana whenua through reviews, investigations and long term planning.
17. Ensure that the Wairoa community can express tino rangatiratanga, kaitiaki and manaaki to whānau and whenua and lead Wairoa's recovery.
18. Look for alternative funding support for Wairoa recovery. The Wairoa District's large land area, multiple risks but small population and rating base, poses many challenges as to how we adapt to the future.
19. Support for farmers bringing sediment damaged land back into production, replace natural infrastructure that's been lost and restore what has been damaged.
20. Undertake and support long term resilience planning to natural hazards and climate change across the district with community.

### Short, medium and longer term taiao priorities for recovery

The priorities identified below assume that the short term priorities are what are most pressing and urgently required or are already underway. Medium priorities are issues and concerns where the community has the greatest opportunity to leverage future support. The long term priorities are part of a vision for the future that the community itself needs to define.

Short term	<ul style="list-style-type: none"> <li>• Clean up.</li> <li>• Do no more harm.</li> <li>• Know more.</li> <li>• Be involved.</li> <li>• Seek funding.</li> </ul>
Medium term	<ul style="list-style-type: none"> <li>• Funding for restoration projects and erosion reduction obtained.</li> <li>• Be better prepared for the next weather event.</li> <li>• Cohesive and coordinated community decision making on a long term land use and resilience plan for Wairoa occurring.</li> </ul>
Long term	<ul style="list-style-type: none"> <li>• Community driven local co-governance and decision making.</li> <li>• Community values, vision and aspiration driven restoration and protection of sites and species of significance.</li> <li>• Resilient, sustainable and appropriate land uses occurring in our landscape.</li> <li>• Communities' exposure to hazards is minimised through education, warning systems, infrastructure rebuild, plans and strategies providing guidance to those living there on adapting to the future risk.</li> </ul>

### *Risks & Barriers to implementing priorities.*

Barriers to progressing environmental priorities in Wairoa have been identified but not considered in detail, which will be important for the next iteration of the Wairoa recovery plan.

They are common across all of the Wairoa Recovery Pou themes and need to be considered as part of an overarching approach to risk management.

- 1) A speedy recurrence of another similar event.
- 2) Lack of funding to progress critical workstreams across recovery.
- 3) A drought limiting landowners' ability to recover, creating dust and increasing the fire risk.
- 4) Not working in partnership or in a collective, coordinated way to taiao restoration.
- 5) Fire and health & safety risks associated with clean up.
- 6) Not incorporating mātauranga māori, tikanga and Te Ao appropriately into medium and longer term actions.
- 7) Capacity & capability to support recovery at a local level.
- 8) Change in government direction or funding priorities.
- 9) Fragmented & siloed efforts in different agencies and entities.
- 10) Lack of long term vision and a cohesive approach to achieving that vision.
- 11) Availability of plant resources for erosion control.

## SUMMARY

Cyclone Gabrielle was the biggest storm event many in the community had ever experienced. There were significant impacts on whānau and whenua across the district. However for some parts of our rohe the biggest weather events of the last 2 years were either before or since Cyclone Gabrielle's arrival.

Regardless of which storm did what, the repeating and compounding impacts of multiple events across the district have led to significant damage to the whenua. Many of our rivers have flooded to depths seldom seen previously. There has been significant soil erosion, land slide and streambank damage across the district. We have lost thousands of tonnes of topsoil significantly altering the habitat of species that occupy our awa, repo and moana.

The clean-up and rebuild required after each of these events has put a large strain on our community's ability to respond. Millions of dollars of damage has occurred across the district to homes, land, infrastructure and roading.

The taiao will take time to recover without external support. Our highest priority in Wairoa is accessing the funding required for on-going clean up and restoration and to ensure we don't make matters worse through our necessary and urgent clean-up activities.

A large amount work has occurred and remains ongoing in the removal of sediment from homes and community areas, woody debris from riverbanks and beaches and fixing the flood damage that has occurred.

One of the most important lessons of the last 2 years is the graphic reminder of the impact of storm events on our communities. We have a long history of severe weather events impacting the district while predictions of climate change include an increase in the frequency, intensity and unpredictability of extreme weather events into the future.

Our actions in the medium term must include looking at the longer term: How we use land in the fragile parts of our landscape; How as a community we can better adapt, prepare and build resilience into our whenua and whānau from these natural hazards and climate change and to reduce the community vulnerability to those risks across our district.

Appendix 1. Flooding of Wairoa township from Cyclone Gabrielle



Flooding during Gabrielle looking towards Frasertown



The A&P Showgrounds



Flooding at North Clyde



Flooding of the playground and Community Centre

Appendix 2. Impacts of Cyclone Gabrielle across the Wairoa District



Flooded rural roads.



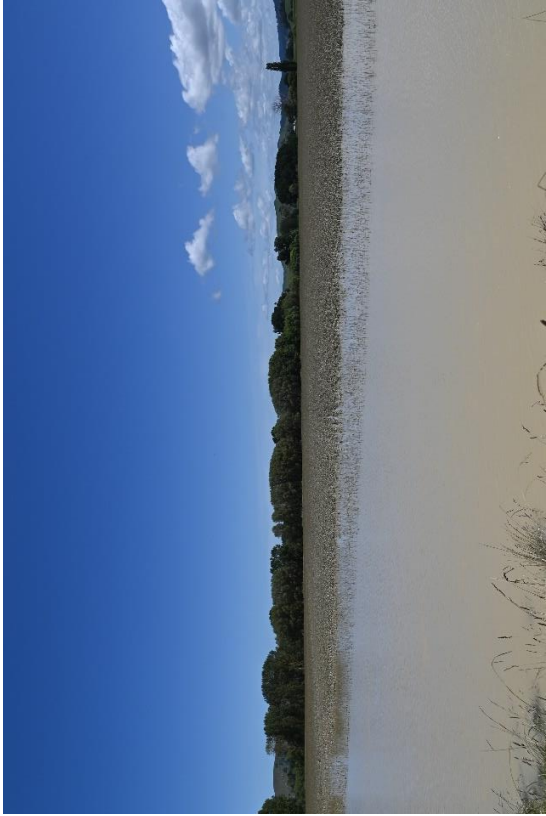
Opoiti Bridge on Tiniroro Road



Large slip on Papuni Road



Cleaning up in North Clyde



Flooded paddocks along the Wairoa River.

Appendix 3. March 2022 Weather event



Soil slip erosion at Ruakituri



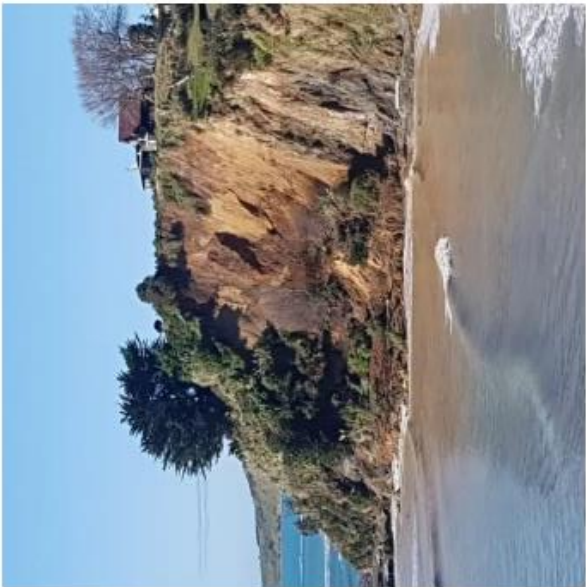
Large slump behind Tukemokihī



Appendix 4. Weather impacts at Mahia – Post Cyclone Gabrielle June-August 2023



Landslide on Kinikini Road



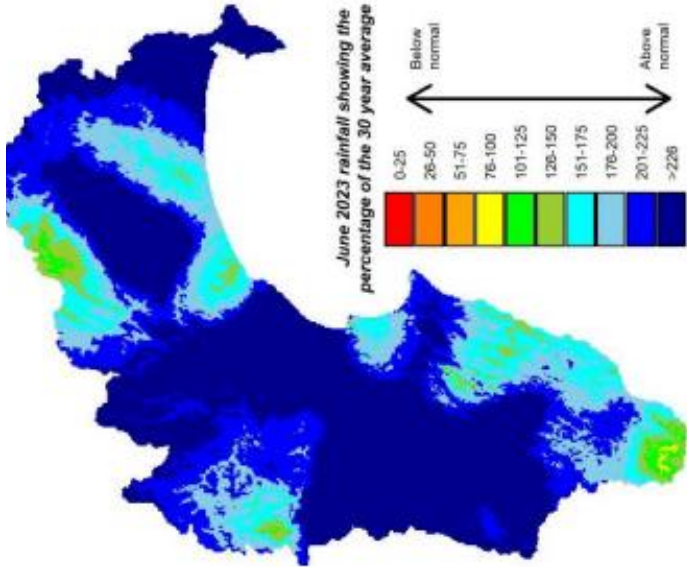
Landslide at Te Mahia



Landslide at Blacks Beach



Landslide at Maungawhio



June 2023 rainfall showing >220% mm above normal.

Appendix 5 Weather event – November 8 Nuhaka & Whakakī



Flooding at Kahungunu Marae



Nuhaka School flooding



Flooding on Riripeti Street at Nuhaka



Aerial view of the flooding at Nuhaka on 8 November



Silt and debris on State Highway 2 at the Rama Rama culvert at Whakakī

Appendix 6. Weather event – November 8 Mahia



Landslide impacting on property below Browns Rise



Landslide below Browns Rise



Dropout on Mahia East Coast Road



Soil erosion impacting on Mahia East Coast Road at Whangawehi



Road dropouts below Kaiuku Marae



Erosion debris looking up Browns Rise

