



# Combined Tairāwhiti Regional Freshwater Planning Advisory Group and Waipaoa Catchment Planning Advisory Group – Hui 12

Date: 20 November 2024

Title of Report: Wetlands Identification

Report No: **3**

Report Author: Summer Agnew, Intermediate Policy Planner, Gisborne District Council

---

## Purpose of this report

This report provides an update on wetland identification and explains how the refinement of regional wetland mapping will support the review of freshwater provisions in the Tairāwhiti Resource Management Plan (TRMP).

## Outcomes sought

Members of this Advisory Group:

- understand the process, timeline and purpose of mapping regional wetlands.
- consider whether there are wetlands not currently scheduled in the TRMP that should be assessed for regional significance.

## Getting ready for the hui

To aid discussion, please consider the material in this report, including the current schedule of wetlands, ahead of the hui.

---

## Contents

1.	Introduction .....	3
2.	Background to Wetland Identification - Regionally Significant Wetlands .....	4
3.	Mapping Requirement under the NPS-FM .....	5
4.	Next Steps - Wetland Mapping Refinement .....	6
5.	Benefits of a regional wetland inventory .....	7
6.	Wetlands Mapping requires Consultation .....	7
7.	Next Steps .....	8
8.	Appendices .....	9

# 1. Introduction

## Wetlands are Vital Ecosystems Under Threat

Hui #6 introduced issues relating to activities within and adjacent to wetlands and covered possible rule settings for their management and protection. It was noted that how we manage activities impacting regional wetlands is critical to ensuring no further decline in the extent or quality of these important ecosystems.

Wetlands contribute to water quality, flood control, and regulation of global carbon levels. They have significant cultural and recreational values, and they provide habitats for plants and animals uniquely adapted to living in their wet conditions.<sup>1</sup>

Since the mid-nineteenth century, 90% of Aotearoa New Zealand's original pre-human wetland coverage has been lost.<sup>2</sup> This is one of the world's most dramatic examples of wetland decline.<sup>3</sup> As a consequence of this loss, remaining wetland ecosystems now support a disproportionately high number of threatened plants and animals nationally.<sup>4</sup>

Despite wetlands being a national priority for protection since the inception of the Resource Management Act in 1991 (RMA), we are continuing to lose them. Between 1996 and 2018, national wetland coverage declined by 2.3%.<sup>5</sup> While wetland loss is a persistent national trend, Gisborne-Tairāwhiti has recently recorded outsized wetland losses<sup>6</sup> and only 1.75% of pre-human regional wetland coverage remains in the region.<sup>7</sup>

Recognising the national importance of wetlands, Policy Six of the National Policy Statement for Freshwater Management 2020 (NPS-FM) seeks to avoid further loss of natural inland wetlands, protect their values, and promote their restoration.

To enable this objective, the NPS-FM sets out wetland requirements for regional councils to include in their regional plans.<sup>8</sup> Aimed at preventing further loss or degradation of New Zealand's remaining "natural inland wetlands," NPS-FM wetland requirements can be broken down into three discrete stages:

---

<sup>1</sup> Beverley R. Clarkson et al., *Handbook for Monitoring Wetland Condition: Coordinated Monitoring of New Zealand Wetlands*, 2004, <https://doi.org/10.7931/J2Z60KZ3>.

<sup>2</sup> Rowan Taylor and Ian Smith, *The State of New Zealand's Environment, 1997*, ed. Anna Saunders, David Swain, and Bronwen Wall (Wellington: Ministry for the Environment: GP Publications, 1997).

<sup>3</sup> Ausseil, A.-G., Gerbeaux, P., Chadderton, W. L., Stephens, T., Brown, D., & Leathwick, J. (2008). *Wetland Ecosystems of National Importance for Biodiversity: Criteria, Methods and Candidate List of Nationally Important Inland Wetlands* (LC0708/158). Landcare Research.

<sup>4</sup> Clarkson et al., *Handbook for Monitoring Wetland Condition*.

<sup>5</sup> Between 1996 and 2018, national wetland coverage declined by 2.3%. Source: Dymond et al., "Revised Extent of Wetlands in New Zealand," *New Zealand Journal of Ecology* 45 (June 30, 2021): 1–8.

<sup>6</sup> Between 2001 and 2016, approx 5% of the total national wetlands were partially lost, and 1.5% were completely lost. During this time, Tairāwhiti recorded the second-highest regional percentage for complete loss. Source: Belliss S, Shepherd JD, Newsome PF, Dymond JR 2017. *An analysis of wetland loss between 2001/02 and 2015/16*. Landcare Research Contract Report LC2798. Lincoln, New Zealand.

<sup>7</sup> State of Our Environment Report - 2020, Gisborne District Council.

<sup>8</sup> [NPS-FM 2020](#) clause 3.21(1) (a-e) defines 'natural inland wetland' as a series of exclusions distinguishing them from the broader RMA wetland definition. They are wetlands that are not coastal, not deliberately constructed (unless constructed to offset impacts or for restoration), not geothermal, and not containing greater than 50% exotic pasture (unless also containing threatened species).

- **Mapping:** map 'natural inland wetlands' greater than 500m<sup>2</sup> (or smaller containing threatened species) and establish an inventory that records details of their wetland class, values and monitoring information.<sup>9</sup>
- **Monitoring:** develop a monitoring plan enabling Council to assess if its policies, rules, and methods are ensuring no loss of wetland extent or values.
- **Response:** have methods of responding to identified loss (of wetland extent or values).<sup>10</sup>

Identifying the wetlands remaining in Tairāwhiti and accurately mapping their extent is a crucial first step to inform effective management of wetlands and ultimately prevent further loss.

## 2. Background to Wetland Identification - Regionally Significant Wetlands

There are 22 regionally significant wetlands identified in the current TRMP Schedule G17: Regionally Significant Waterbodies.<sup>11</sup> These wetlands reflect the information available to Council during the development of the 2015 Regional Freshwater Plan. The process of identification and evaluation of scheduled wetlands drew on findings from reports assessing freshwater values and ecological significance of sites throughout the region:

- Wildlife and Wildlife Habitats in the East Cape region, which surveyed sites of special wildlife interest<sup>12</sup>
- The Froude Report, which assessed regional freshwater biodiversity values<sup>13</sup>
- The Department of Conservation Freshwater Ecosystems of New Zealand geodatabase 2010; a set of spatial data layers and supporting information providing a national representation of the biodiversity values and pressures on New Zealand's rivers, lakes and wetlands.

While the Freshwater Ecosystems of New Zealand database provided information on the extent of wetlands at a national scale, we still have a limited understanding of the extent and state of our wetlands in the region, especially wetlands that are on private land. Mapping refinement is planned in 2025, and the resulting inventory of wetlands, as required under the NPS-FM, will provide an opportunity to reassess those that are Regionally Significant for Tairāwhiti.

---

<sup>9</sup> [NPS-FM 2020](#) clause 3.23 (5) requires regional councils to record, at a minimum, wetland identifier and location, area and GIS polygon, classification of wetland type, and any existing monitoring information. At their discretion, councils may include any other information (such as an assessment of the values applying to the wetland and any new information obtained from monitoring). The inclusion of values will ensure decision-makers have an appreciation for wetland value.

<sup>10</sup> [NPS-FM 2020](#) clause 3.23(1) requires mapping of wetlands; clause 3.23(5) requires the creation of a wetlands inventory and classification of wetland type; clause 3.23(6) requires (a) that Council monitors wetlands and assesses its policies to ensure no loss of extent or values of those wetlands, and (b) have methods to respond if loss is detected.

<sup>11</sup> Tairāwhiti Resource Management Plan [Schedule G17: Regionally Significant Waterbodies](#).

<sup>12</sup> G. Rasch. 1989. Wildlife and Wildlife Habitats in the East Cape region. Department of Conservation, New Zealand.

<sup>13</sup> Froude, V. 2003. Freshwater Biodiversity in the Hawke's Bay East Coast Conservancy Department of Conservation Department of Conservation, New Zealand

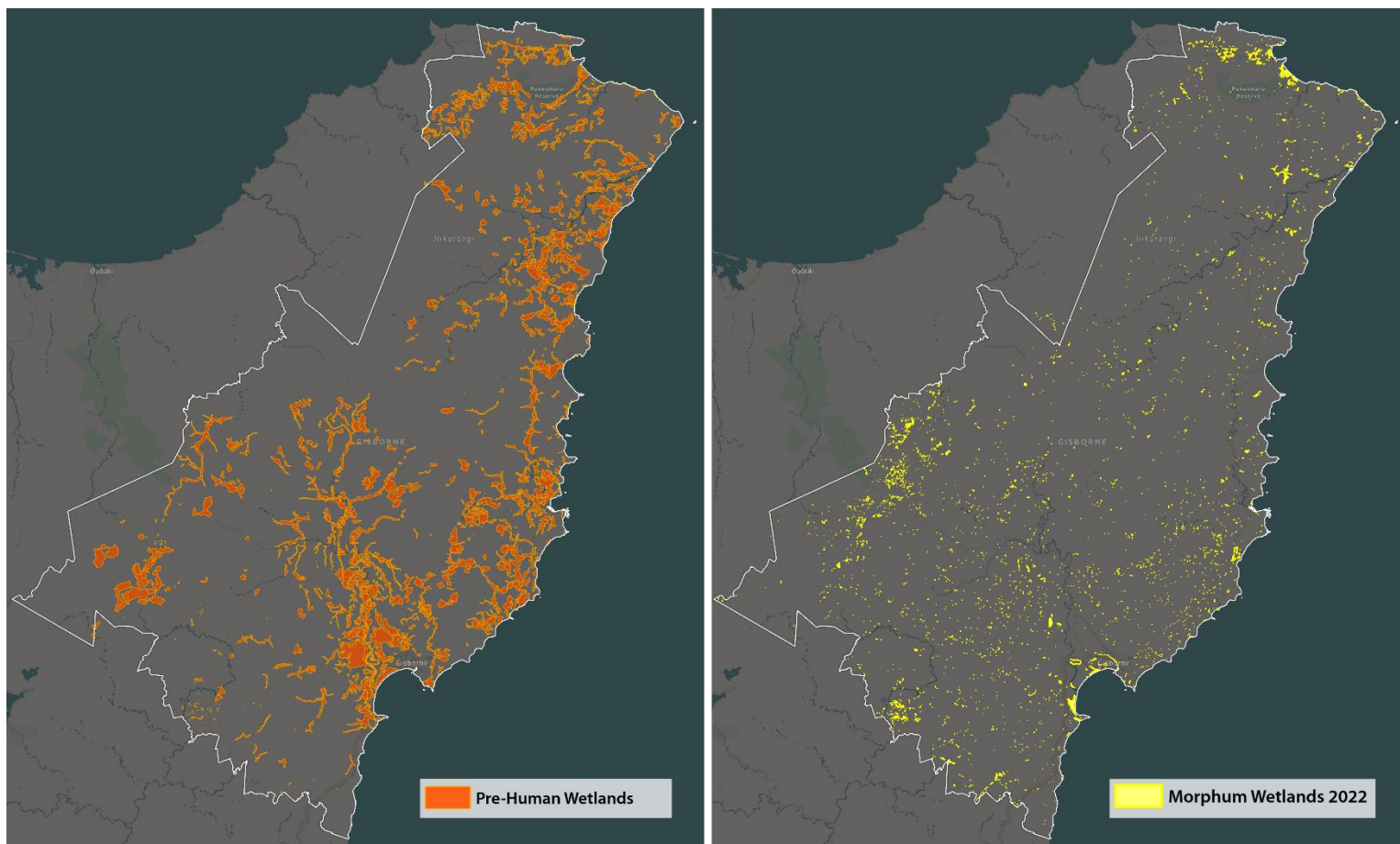
A key question for the group is whether any further wetlands should be considered as Regionally Significant Wetlands.

### 3. Mapping Requirement under the NPS-FM

To satisfy the NPS-FM mapping requirement, Council must create an inventory of mapped wetlands, classifying them by type. Council began the process of wetland mapping in 2021. Morphem Environmental (Morphum) was engaged to conduct a desktop analysis of potential wetland sites Tairāwhiti. Using LiDAR, GIS, and aerial imagery, 3,500 indicative sites were identified across the region. These sites are represented on a geospatial layer (the Morphem Layer 2022).

**Figure 1** Error! Reference source not found. Error! Reference source not found. provides a visual representation of regional wetland loss, contrasting pre-human wetland extent (left) and the Morphem Layer (right).

Figure 1 – Tairāwhiti Wetlands - Pre-Human Extent: Indicative Extent (Morphum 2022)



#### The Morphem Layer is Indicative

It is important to note the Morphem Layer shows indicative wetland sites. Remotely delineating and classifying wetlands is challenging due to the ecological variability and transitional nature of these ecosystems. Wetland boundaries change both seasonally and annually as changing

weather conditions affect the water table and vegetation present. Not all identified sites will be wetlands, nor will they all meet the definition of an NPS-FM wetland. Also, due to the desktop-based nature of mapping to date, it is likely that further unmapped wetlands may be present in the region.

Because the process of wetland mapping is iterative, the Morphum Layer is not a definitive list of regional wetlands. It comprises the latest information held by Council on the extent and class of wetlands in the region. It is a starting point for further investigation, and an important next step is to determine which of these sites are NPS-FM wetlands.

## What kind of wetlands must be captured in the inventory?

The Resource Management Act (1991) defines wetlands as permanently or intermittently wet areas shallow water, and land-water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions. The NPS-FM further defines 'natural inland wetlands' as a series of exclusions that distinguishes them from the broader RMA definition:

- non-coastal
- not deliberately constructed (unless constructed to offset impacts or for restoration)
- not geothermal, and
- not containing greater than 50% exotic pasture (unless also containing threatened species).<sup>14</sup>

All wetlands that meet this definition and are greater than 500m<sup>2</sup> or smaller and containing threatened species, must be mapped.

## 4. Next Steps - Wetland Mapping Refinement

Council intends to refine the Morphum Layer and develop a regional wetland inventory.

Until recently, it had been assumed that the validation of indicative wetland sites required systematic ground-truthing indicative sites. This is because the Ministry for the Environment (MfE) procedure for validating potential wetland sites, the Wetland Delineation Protocols, is a field-focused guide.<sup>15</sup> However, Manaaki Whenua Landcare Research (MWLR), regional council wetland representatives, and MfE have recently agreed on a nationally consistent method of mapping wetlands via desktop methods (the Guide).<sup>16</sup>

Intended to accompany the Wetland Delineation Protocols, the Guide outlines a national standard for manual desktop mapping and assignment of wetland type at the desktop level. The Guide also clarifies that field verification is only required in complex cases where wetland existence is in doubt or disputed.

The Guide's principal recommendation is that oblique aerial images be used by a wetland ecology expert to classify wetland type. This is because the primary method of classifying

---

<sup>14</sup> [NPS-FM 2020](#) clause 3.21(1) (a-e)

<sup>15</sup> The [Wetland Delineation Protocols](#) (MfE, 2022) outline a hierarchical process for validating wetlands, beginning with a desktop vegetation assessment. If desktop assessment is inconclusive, it is followed by in-field assessments of vegetation, then soils, then hydrology.

<sup>16</sup> Bartlam S, Burge OR. 2024. [Wetland delineation using desktop methods: a guide](#). Manaaki Whenua - Landcare Research Contract Report LC4427. Lincoln, New Zealand: Manaaki Whenua - Landcare Research.

wetlands at the desktop level is an assessment of wetland vegetation, a method that is improved by increased image quality, which oblique aerial images provide.

Oblique aerial images are taken at a slanting or oblique angle to the ground (as opposed to a birdseye view). This improves the ability to discern features in the landscape. They are particularly useful for assessing wetland vegetation in order to classify wetland type, which is a requirement of the inventory under the NPS-FM.

Council is currently assessing oblique imagery providers and intends to begin regional oblique imagery capture in early 2025. Note: for license reasons, examples of oblique aerial imagery cannot be shared in this report. However, Council will demonstrate oblique aerial imagery at the hui on 20 November.

## 5. Benefits of a regional wetland inventory

Refining wetland mapping into a regional inventory will improve our understanding of:

- the loss of regional wetland extent since human settlement
- the extent, and distribution of remaining regional wetlands
- representation of wetland type and the landforms on which they are found
- the best sites and methodology for a monitoring programme (NPS-FM requirement)
- land-use impacts and methods of addressing biodiversity loss.

Refining Council's current wetland data into a desktop-mapped inventory is estimated to take six months, from early to mid-2025. Once completed, Council intends to introduce this wetland inventory into the freshwater planning engagement process. Understanding the extent of regional wetlands will enable Council to engage the community on:

- wetland values, objectives, and aspirations
- priority sites for monitoring

This information will enable Council to align wetland mapping with the TRMP review, designing appropriate rule settings for the protection and enhancement of wetlands. Ultimately, the wetland inventory is intended to provide the community with certainty regarding wetland location and information on their value and condition. This will:

- provide a baseline of regional wetland extent that can be monitored
- guide consent applicants and decision-makers in assessing the appropriateness of activities' impact on wetlands
- inform restoration and reinstatement efforts by the community, landowners and Council.

## 6. Wetlands Mapping requires Consultation

Council notes that iwi in other regions have expressed hesitation about publishing wetland data due to sensitivities surrounding the sharing of information related to culturally significant sites and locations within Māori land.

Council intends to engage with tangata whenua, landowners and catchment groups prior to the public release of Council's wetland inventory.

Once Council has finalised its approach to oblique imagery capture, all iwi in the region will be notified of Council's statutory obligation to map wetlands and Council's intention to later consult with tangata whenua:

- prior to the release of wetland data, and
- regarding decisions that may impact wetlands within their area of interest.

## 7. Next Steps

The Group is asked to review Schedule G17 of the TRMP (Appendix A) and reflect on:

- **whether there are wetlands not currently mentioned in Schedule G17 that should be assessed for regional significance?**



## 8. Appendices

### Appendix A: Tairāwhiti Resource Management Plan

#### Schedule G17: Regionally Significant Waterbodies

#### Schedule G17: Regionally Significant Waterbodies

**Note: This Schedule was previously Schedule 3 of the Regional Freshwater Plan.**

While all wetlands are significant, Regionally Significant Wetlands are those which have been assessed as having particularly high values. Criteria for inclusion in the schedule are wetlands that:

1. Have critical habitat for indigenous species or associations of indigenous species (plants or animals) that are threatened or at risk, or endemic to the Gisborne District.
2. Have critical habitat for the life cycles of indigenous fauna which are dependent on wetlands
3. Contain a wide diversity of indigenous flora or fauna
4. Have a high degree of naturalness
5. Have a high diversity of wetland habitat types
6. Are highly valued for cultural uses
7. Have significant hydrological values including maintaining water quality or low flows, or reducing flood flows
8. Provide wider ecological connections and is buffered by or connected to related ecosystems
9. Have good long term ecological viability or with good potential for restoration to long term viability

Catchment	Site	PMA	Key Values
Hicks Bay	Hicks Bay Swamp		Freshwater Rush-Sedge wetland behind dunes. Banded Dotterel, New Zealand Dotterel, White Heron, Waders, Bittern, Spotless Crake and Field Birds
Wharekahika	Waenga Swamp	PR36 Waenga	Raupo Swamp Surrounded by podocarp forest. Fernbird. High water quality due to surrounding bush
	Wharekahika Pond and Bush	PR30 Oxbow	Unmodified Oxbow with open water and Raupo bordered by Kahikatea-Broadleaved Forest. Bittern. Waders, Bush and Field Birds
	Wharekahika Swamp		Downstream of Oxbow Wetland. Bittern. Waders, Bush and Field Birds

Oweka	Otopotehetehe Lake	PR9	Podocarp-Broadleaved Forest adjacent to Manuka rush wetland. A high diversity of vegetation types in and around the mud lake. Only known location for Mistletoe ( <i>Ileostylis Micranthus</i> ). Banded Dotterel, Pied Stilts (Nesting), and other Waders in good numbers. Bush and Field Birds also present. SSW194. Cold salt water mud volcano lake. Water quality reflects unique geology
Karakatuwhero	Te Whare Wetlands	PR6 Te Araroa	Freshwater and estuarine wetlands – Part of freshwater coastal complex. Supports Manuka, Flax, Raupo Reedlands, Kahikatea ( <i>Cyperus Ustulatus</i> ) Tree Sedgeland. High wildlife values supporting very large numbers of Wetland Birds including Bittern, Spotless Crake. Important habitat for Lamprey and Giant Kokopu.
Awatere	Kakanui Wetland	PR2	Springfed wetland in a small basin with a number of uncommon and rare wetland species. High water quality values
East Cape	Te Anaipiha	PR32	Basin wetland, only wetland in the East Cape Land System. High diversity of vegetation, Swamp Coprosma ( <i>Coprosma Tenuicaulis</i> ), and Manuka Scrub. Good water quality
Waiapu	Wairoa River Swamp	WR10	Two Raupo-Rush wetlands. Spotless Crake, other Waders. Good water quality
	Mahora Swamp	WR11	Diverse Raupo-Rush sedgeland with Willow. Diversity of wetland vegetation is of high significance. Spotless Crake, other Waders, Waterfowl, and Field Birds
	Poroporo Road Swamp	WR4	Raupo Wetland with some Willow. 20% open water. Bittern, Pied Stilts (Nesting), other Waders present
Whareponga	Mataahu Wetland	WR16	Two unmodified wetlands on the Mataahu Plateau dominated by <i>Baumea</i> , <i>Elocharis</i> , Raupo, and <i>Sphagnum</i> . High water quality. High significance natural wetlands
Hikuwai	Nuhiti Wetland		Unmodified wetland at high (500-700m) altitude. High water quality. Very high degree of naturalness, surrounded by native vegetation.
Pakarae	Emirau-Rototahi Wetlands	WR50	Raupo, Jarex, and Carex species, Sphagnum Moss, and a canopy of Manuka growing over surround several small ponds, plus a diverse range of wetland species. New Zealand Dabchick, and a wide range of waterfowl. High significance for wildlife and vegetation values
	Waihau Road Wetland (a)	WR48	Small elongated pond and wetland surrounded by coastal Tawa-Kohekohe Forest. Part of a complex of 4 wetlands and habitats based at Rototahi

	Waihau Road Wetland (b)	WR49	Dominated by Raupo, Manuka, and Harakeke. Part of a complex of 4 wetlands and habitats based at Rototahi
	King's Farm Wetland	WR47	Raupo is the dominant species with Manuka, Kohuhu, and Cabbage Tree. Part of a complex of 4 wetlands and habitats based at Rototahi
Motu	Motu Wetland	MT1	Highly significant Conifer/Broad-Leafed forest. Freshwater Wetland containing a high diversity of wetland species. A number threatened species including Hochsetter's Frog. SSWI wildlife habitat ranking of outstanding. High abundance and diversity of macroinvertebrate species
	Alcuin Wetland	MT2	One of the few largely intact wetland along the extensive alluvial terraces of the Upper Motu River
Waipaoa	Te Maungarongo o te Kooti		Old Waipaoa Riverbed. Formerly known as Matawhero Loop. Kahikatea forest, open water, raupo reedland, sedge and carex. Habitat for bittern, NZ dabchick, grey teal, grey duck pied stilt. Important as one of the largest wetlands remaining on the Poverty Bay Flats.
Hangaroa	Noble-Campbell Road Wetlands	TN73	Highly important as it contains a complex of two wetlands with intact indigenous vegetation around their margins; a rare feature in this district. Significant habitat for forest/scrub birds as well as wetland bird species including New Zealand Scaup, and Pied Shag
	Tawaroa Wetland	TN74	Wetland/Stream gully to ridge sequence. Rare native Mistletoe ( <i>Tupeia Antarctica</i> ). Good water quality from bush catchment