



Pukepuke Lagoon Concession WA-219

Annual report



**Prepared for the Department of
Conservation**

3 November 2025

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|--------------------------|---|
| Reporting period: | 30 October 2024 – 1 November 2025 |
| Submitted: | 3 November 2025 |
| Prepared by: | Anastasia Boniface – Environmental Officer |
| Reviewed by: | Wendy Thompson – Infrastructure Planning and Compliance Manager |

Executive summary

Manawatū District Council hold easement concession WA-219 which grants access to Pukepuke Lagoon to monitor and maintain the perimeter drains, weir, fish passage and spillway. Following suspension in January 2022 for continued non-compliance with monitoring requirements, the suspension was lifted on 10th of April 2025 after it was agreed that Council would work towards complying with all its concession requirements along with creating a concession management plan. The lifting of the suspension also saw DOC approve mechanical clearance of the drains to occur outside the standard January to March window outlined within the concession due to excessive vegetation growth restricting flows. Post clearance inspections and landowner feedback indicate that lagoon levels have improved and flooding of adjacent pastures reduced in the winter of 2025.

During the 2024-2025 period Council: (i) completed a baseline ecological assessment (7 April 2025), (ii) repaired the fish passage rock placement, (iii) undertook regular site visits and water level monitoring and (iv) obtained updated black swan numbers from Fish & Game (65 counted in Jan 2025, noting low-water conditions which may have affected detectability). Spraying was not used during the reporting period with DOC discouraging blanket chemical control. It is hoped that eel monitoring will be agreed with kaitiaki in 2025-2026.

Overall, requirements have largely been met or are on track, specific gaps and corrective actions are noted in the compliance table.

Scope and reporting period

This report covers activities and monitoring between 30 October 2024 and 1 November 2025.

Please note: As this is the first annual report completed as part of the Pukepuke Lagoon WA-219 concession initial set up tasks have meant that not all of the bimonthly site visits covered the requirements such as reading of both the staff gauges. However, from November 2025 these site visits have been calendarised with a task log created to ensure that all site visit monitoring is covered.

Concession requirements

This section provides a summary of compliance against the WA-219 conditions; the 'notes' state corrective actions for 2025-26.

| Requirement | 2024-25 status | Notes & corrective actions |
|--|-------------------------|--|
| Notify DOC ≥28 days prior to any spraying or mechanical clearance | Partially compliant | DOC approved mechanical clearance under discretion with notification being <28 days. |
| Mechanical clearance allowed Jan – Mar once every 5 years (unless DOC provides variance) | Compliant with variance | Mechanical clearance occurred in April 2025 as per DOC discretion due to restricted flows |
| Both water level gauges read minimum of 5 times/year | Compliant – at risk | There were more than five site visits in the 2025 period however not all of these visits included recording of the gauge levels. |
| Fish passage condition checked during site visits & maintenance of passage | Compliant | Fish passage repositioned in April 25 following clearance works, passage functioning as of Oct 25. |
| Annual photographs of lagoon margins and small lake | Possible non-compliance | Unsure if exact locations for the photo points was agreed upon with DOC. However photos are taken during each site visit. |
| Obtain annual black swan numbers from Fish & Game | Compliant | Aerial count Jan 25 = 65 (Appendix A) |
| Monitoring of eel numbers and whether this is impacted by channel clearance | Non-compliant | No monitoring agreement set up with iwi as of yet |
| Monitor aggressive weed colonisation in zone receiving less inundation | Compliant | 2025 ecological assessment assessed aggressive weeds |
| Monitor if nesting numbers of dabchick within reserve are adversely affected by spillway | N/A | Concession states that no monitoring of dabchicks is required. |

Ecological assessment

An ecological assessment was undertaken by Aaron Madden, Biodiversity Project Manager of Green by Nature on 7 April 2025. This assessment was completed prior to proposed mechanical clearance of the drains in order to determine:

- Invasive weed presence
- Any pest aquatic fish
- A general description of the vegetation within the easement area
- Recommendations around the use of spray to control invasive plants if required.

Observations from the assessment produced the following conclusions:

- The vegetation within the perimeter drain was dominated by water celery and common duckweed
- Five native species were identified including *Carex geminata*, *Bolboschoenus fluviatilis*, *Carex secta*, *Coprosma propinqua* and *Cyperus ustulatus*
- No pest aquatic fish were identified.

The following recommendations were made:

- Mechanical clearance of the vegetation within the drains would allow for these to remain clear until the next permitted mechanical clearance period as none of the weed species present would require chemical treatment to achieve clearance.
- However, from an ecological standpoint it was advisable to consider chemical control of the field horsetail identified at the western end of the inlet drain to ensure this does not reach the margin of the lagoon. However, in order for this chemical control to be successful multiple treatments would be required over a period of a couple of years.
- Effort should be made during any future mechanical clearance to protect the identified native species.
- The fish passage was identified as needing repairs. This work was completed following the mechanical clearance of the drains whereby rocks were placed back in a manner that would allow for fish to pass over the weir.

Drone footage

Council originally proposed to apply to DOC for a drone permit to fly over the lagoon prior to and following any vegetation clearance in order to see the full extent of the easement areas and the impact or need for removal. However, this was not completed due to a lack of available budget in the 2024-2025 financial year for the Oroua Downs Drainage scheme. The need for drone footage following the mechanical clearance has subsided however this may still be an option for the future if similar issues arise again.

Mechanical clearance

The concession allows for Council to mechanically clear vegetation from the easement area every five years during the period from 1 January to 31 March. It is believed that the drains were last mechanically cleared in 2018. On 22 April 2025, Council undertook clearance outside the defined window under a one-off extension granted by DOC who exercised their discretion under the concession, taking into account the extent of vegetation growth, sediment build-up, channel restriction and the effectiveness of chemical control.

Prior to this mechanical clearance, Council prepared a vegetation removal plan which recommended that DOC lift the concession suspension to enable mechanical clearance to be undertaken of the drains. As no mechanical clearing had occurred since 2018, vegetation had proliferated and reduced the hydraulic capacity of the inlet, outlet and perimeter drains. As a result, neighbouring properties frequently experienced flooded pastures during wet periods of the year, while lagoon levels fell due to restricted inflows from vegetation which caused the inflow to bypass the lagoon via an emergency bypass channel located to the north east of the lagoon. The repeated flooding of adjacent pastures over several consecutive years resulted in an adjacent landowner losing productive land (see images below).



Figure 1: Flooding of adjacent paddocks (2024 above & 2023 below)

As previously mentioned Council also initiated work to get a baseline ecological assessment completed for the site prior to the clearance to help identify what vegetation was present within the concession areas including any native plant species, invasive weeds, aquatic pests or nesting birds to ensure that the clearance would not have a negative impact on wildlife while removing unwanted plant species.

It is evident from the difference in the site visit pictures taken between July 2024 and October 2024 that the mechanical clearance of the perimeter drain of Pukepuke Lagoon has had a positive impact on the lagoon's level as well as the surrounding farmland with no flooding issues being highlighted by the landowners during the winter of 2025.

Images from a site visit following the mechanical clearance are below.



Figure 2: Drains following mechanical clearance

Members of the Oroua Downs Drainage District were sent letters on the 28th of October 2025 asking if the drains on their property required clearing or spraying. Responses to this are required by 8 December 2025. Council will update DOC if any of the land owners within or adjacent to the concession area request to have the drains cleared.

Spraying

The concession states that Council may undertake spraying of the easement area annually between 1 January and 31 March for raupō with chemicals approved by both DOC and Horizons. However, DOC discouraged the use of chemicals as a blanket control method and therefore this is not currently used as a vegetation control method. Due to this, it is possible that the frequency of mechanical vegetation clearance may need to be increased in the future if the overgrowth of vegetation becomes a problem prior to the next permitted clearance period. The annual reports going forward will continue to report on vegetation growth and assess the requirement for early mechanical clearance.

Eel monitoring

Council are yet to come to an agreement with the kaitiaki of the lagoon in regard to the requirement to identify the trends in eel numbers. An email was sent to Ngāti Apa and

Rangitāne o Manawatū in July of 2024 requesting a quote for annual eel monitoring however despite receiving a response from Rangitāne stating that the request would be passed on internally, this is yet to be confirmed. Council will continue to work with iwi to develop a plan going forward for the monitoring of eel numbers within the lagoon.

Bird Monitoring

Council originally engaged Fish & Game in July 2024 to obtain baseline data for black swans at the lagoon. This information was provided for the years from 2018 – 2021 with the 2022 – 2024 data being unavailable (Table 1). It could not be confirmed by Fish & Game if the reason for this lack of data was due to no swans being present or that the site hadn't been counted. Black swan population data for the lower western North Island was also provided to allow for the Pukepuke lagoon data to be compared against however there does not appear to be a relationship between the two results (see Table 2).

Table 1: Black swan numbers for Pukepuke Lagoon 2018 – 2025 from Fish & Game

| 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------|------|------|------|------|------|------|------|
| 130 | 60 | 40 | 27 | - | - | - | 65 |

Table 2: Black swan numbers for lower western North Island 2018 – 2024

| 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|------|------|------|------|------|------|------|
| 1171 | 1246 | 897 | 1262 | 670 | 2357 | 2258 |

Updated information was requested in October 2025 with the results including 65 black swan observed during an aerial count in January 2025. The Fish & Game officer highlighted the fact that there were some issues at the lagoon early in 2025 with the lake being largely dry leading up to May 2025 which may have had an impact on the swan populations at the time of counting, Council also became aware of this lack of water in April 2025 (see figures 1 & 2 below).



Figure 3: Pukepuke lagoon in dry state Jan 2025 – from Fish & Game



Figure 4: Pukepuke lagoon in dry state April 2025 – from Manawātū District Council

Data from the eBird website shows that black swan were present at the lake during 2023 with a January 2023 count by an observer counting approximately 85 black swans, noting that this was a conservative count. There was no information for 2022 or 2024.

Council will engage with Fish & Game next year to obtain black swan numbers for the Lagoon for the 2025 – 2026 annual report.

The concession also requires that Council monitor whether the spillway is having adverse effects on nesting numbers of dabchick within the reserve area however it goes on to state that no specific monitoring of dabchicks will be undertaken. Therefore, no data has been collected for this bird species within the annual report.

Water level monitoring

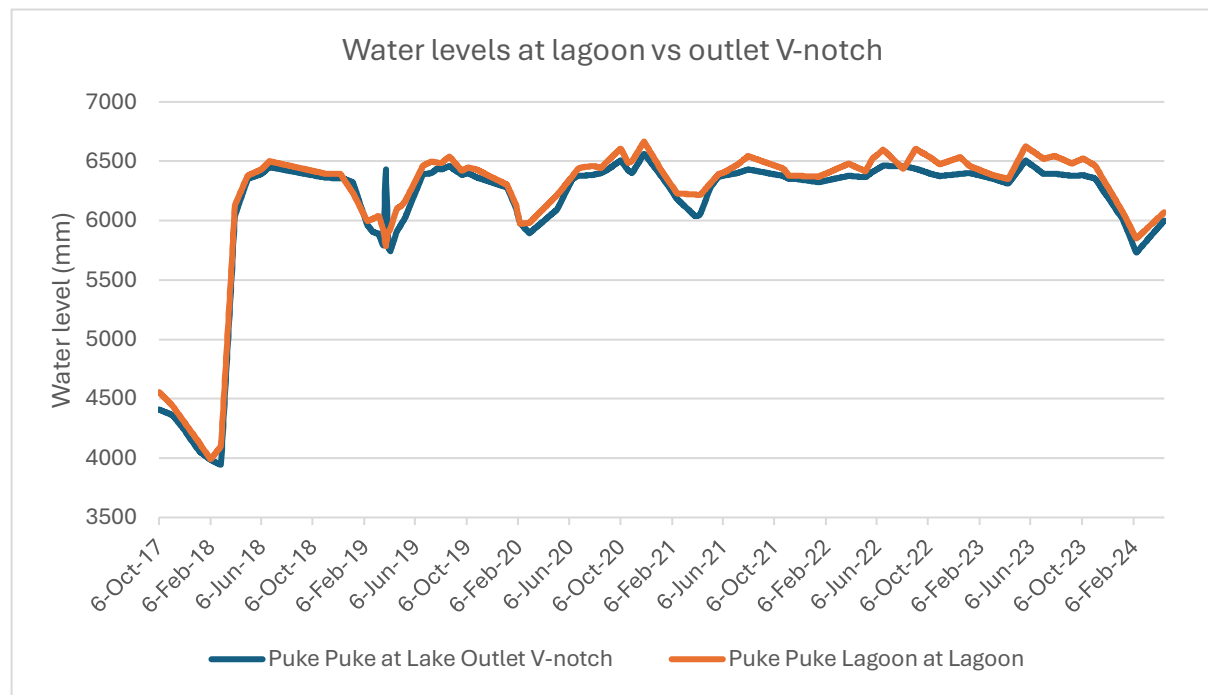
The concession requires Council to undertake water level monitoring to establish the levels of water in the lagoon and at the weir along with keeping record of when flooding or ponding occurs on the adjacent property owned by Landcorp. This water monitoring includes the reading and recording of two staff gauges in the easement area a minimum of five times annually, with the results to be forwarded to DOC annually. This requirement will be fulfilled through this annual report.

In addition to this monitoring, in July 2024 Council requested environmental data from Horizons on the following:

- Pukepuke Lagoon water quality
- Pukepuke Lagoon inlet & outlet water quality
- Groundwater quality and quantity from nearby shallow bores
- Any ecological assessments
- Any reports relating to the predominant water source

Water quantity

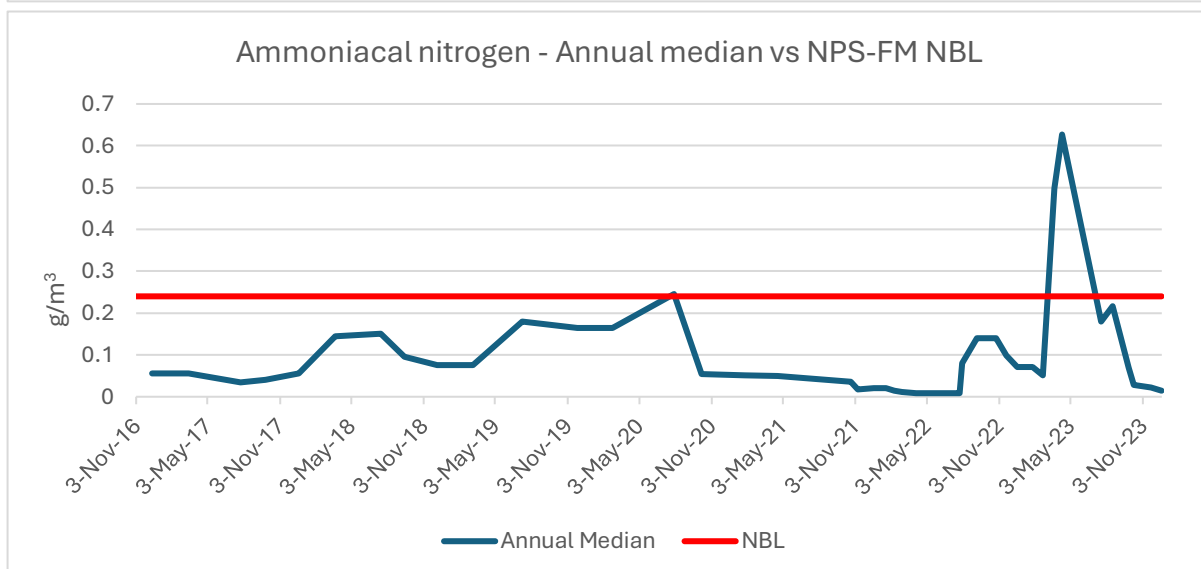
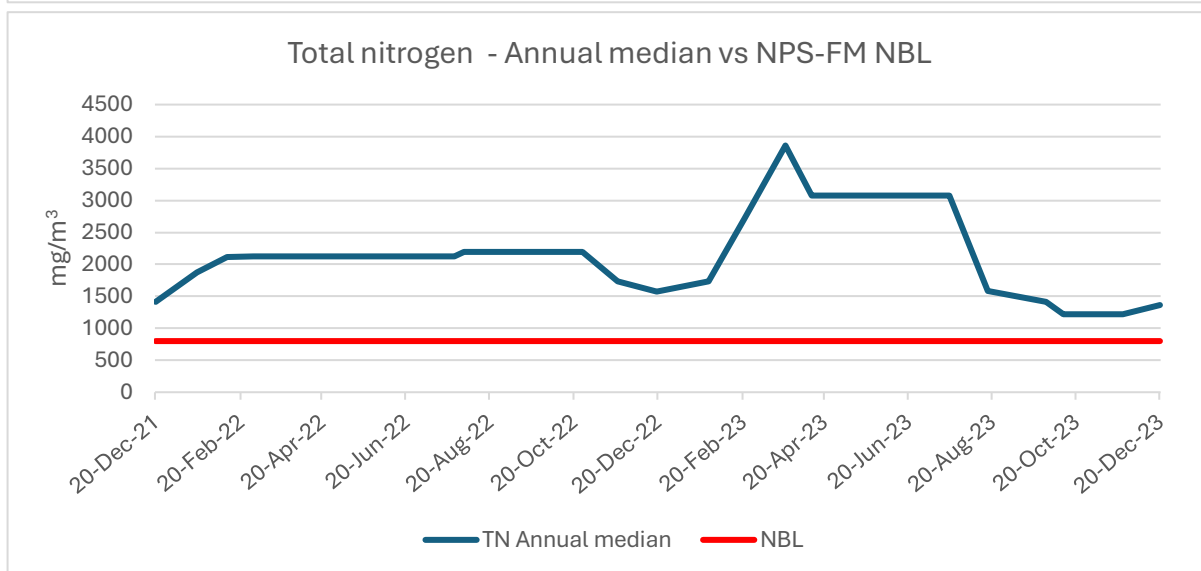
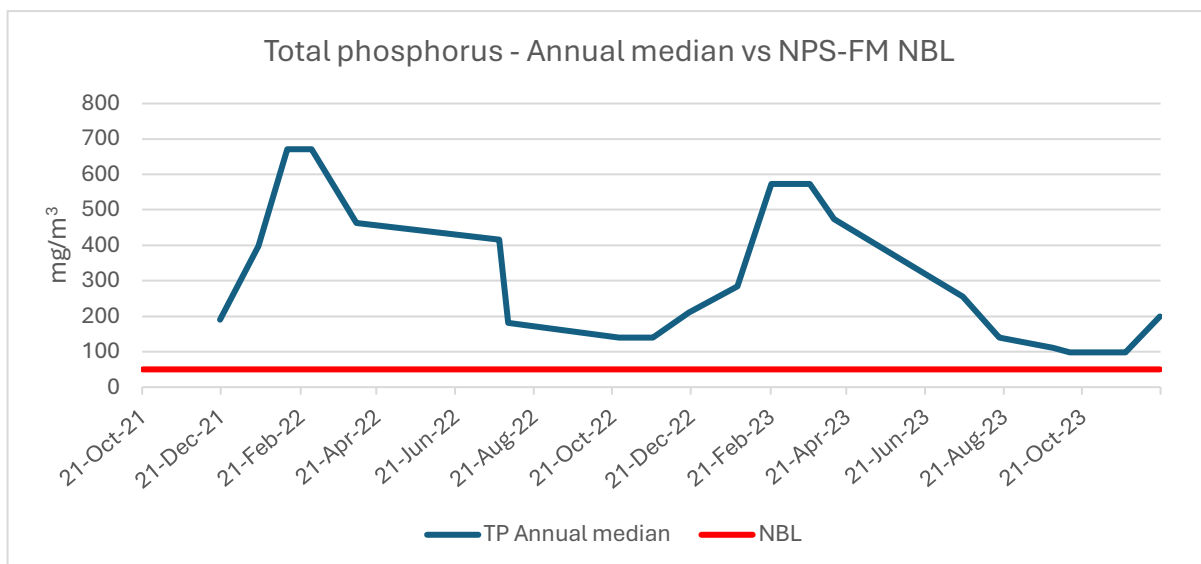
The graph below shows the change in the lagoon water quantity over the time period of 2017 to 2024. Council will request updated water quantity data from Horizons in order to see any changes which may have occurred since Feb 2024.

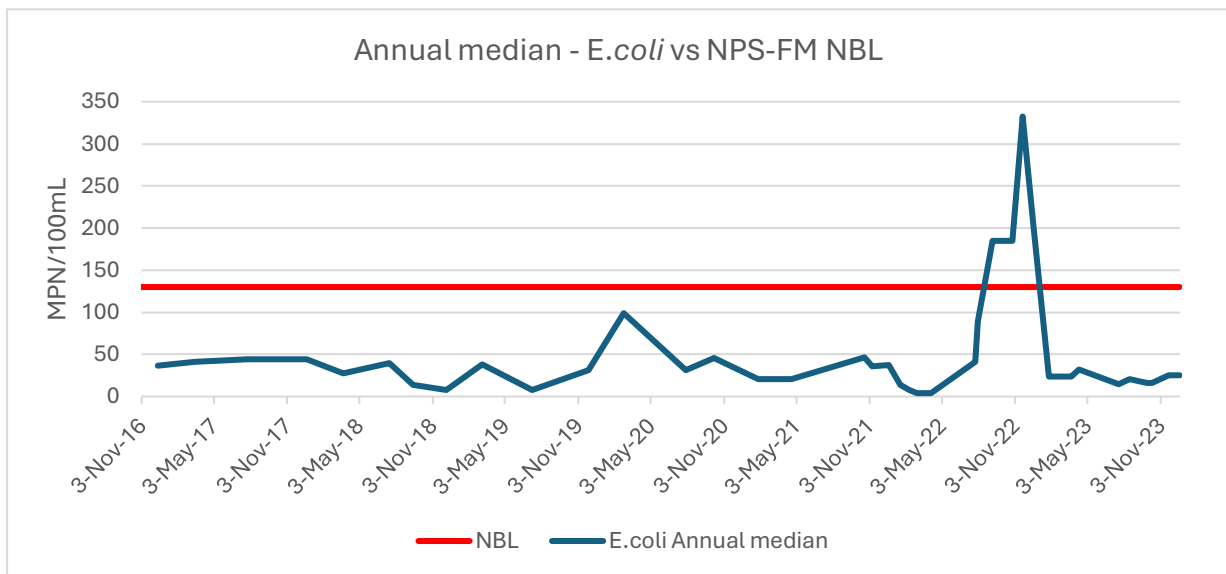
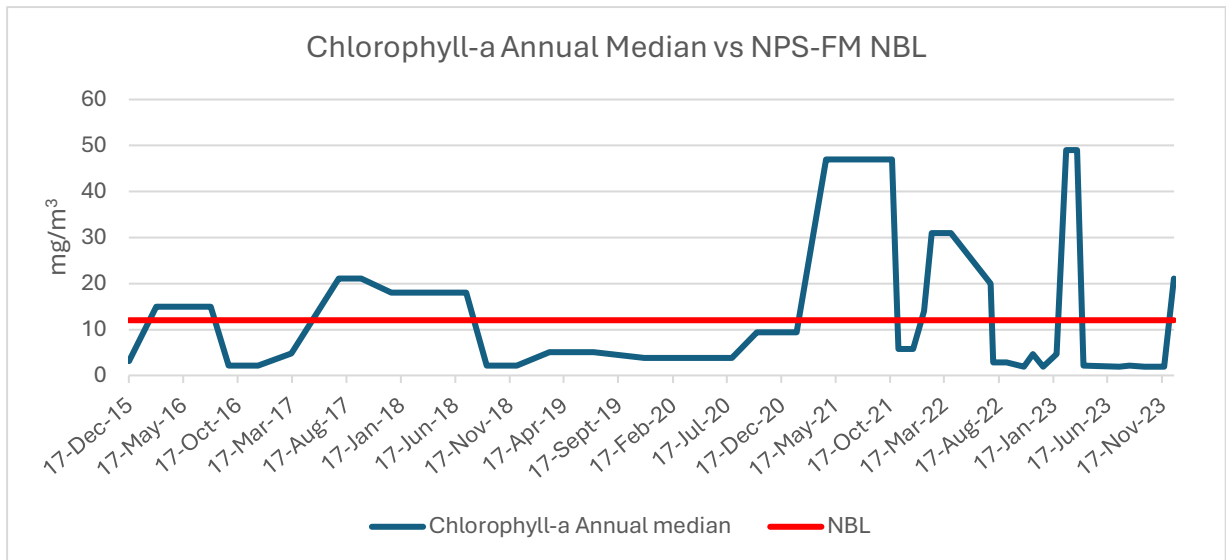


As mentioned in Council's Concession Management Plan the lake levels raised significantly between February and July in 2018, the cause of this is not certain.

Water quality

The graphs below show the water quality within Pukepuke Lagoon for parameters including total phosphorus, E.coli, total nitrogen, chlorophyll-a & ammoniacal nitrogen. The annual median has been calculated and compared against the national bottom lines outlined in the National Policy Statement for Freshwater Management (NPS-FM). Although concession WA-219 does not authorise activities that directly affect water quality, reporting these results provides environmental context, establishes a baseline and helps detect catchment driven trends that may inform future management of the area.





2024 – 2025 Site visit log

| Visit month | Date | Staff | Gauge 1 (m.a.s.l.) | Gauge 2 (m.a.s.l.) | Fish passage Ok? | Actions raised | Notes |
|---------------|----------|--|--------------------|--------------------|--|--|---|
| November 2024 | 19/11/24 | Andrew van Bussel Robert Rose Anastasia Boniface | 1.4 | 1.25 | Yes | Research and plan required on Council's requirements under the concession | |
| February 2025 | 10/02/25 | Wiremu Greening Robert Rose Adam Jamieson | 1.5 | 1.5 | Completely dry at fish passage | Begin discussion with DOC on vegetation clearance | Drain levels low |
| March 2025 | 25/03/25 | Robert Rose DOC Iwi representatives | 0.8 | 0.9 | Fish passage still dry – acting as fish barrier however not likely to be much aquatic movement due to dry nature of the drains overall | Recommended to move/replace the rocks that had fallen down from the top to reinstate the fish passage. | |
| April 2025 | 07/04/25 | Robert Rose Aaron Madden | Not recorded | Not recorded | Not recorded | None | Site visit with Green by Nature prior to ecological assessment and mechanical clearance. |
| April 2025 | 29/04/25 | Robert Rose Tracey Evans Anastasia Boniface | 0.75 | 0.6 | Still no water around fish passage – however the rocks had been repositioned following mechanical vegetation clearance. | None | Inspection undertaken following the mechanical clearance of the drains on 22 nd April. No water flowing in or out of the lagoon and perimeter drain level still well below the top of the fish passage. |
| August 2025 | 27/08/25 | Adam Jamieson Gavin Cobcroft | Not recorded | Not recorded | Yes | None | Lagoon had more water since previous site visit, drains working as intended following clearance. |
| October 2025 | 22/10/25 | Robert Rose Anastasia Boniface | 1.4 | 1.38 | Yes, water flowing however covered by vegetation (see site visit images) | Complete annual report | |

*Gauge 1 = U/S of weir

Gauge 2 = at weir

Site visit images

July 2024



Figure 5: fish passage (top left), drainage channel (top right), upstream gauge (bottom left), weir gauge (bottom right)

November 2024



Figure 6: fish passage (top left), weir looking east (top right), upstream gauge (bottom left), weir gauge (bottom right)

10 February 2025



Figure 7: fish passage (top left), upstream gauge (top right), spillway looking west (bottom left), weir gauge (bottom right), lake level (bottom)

7 April 2025 – pre mechanical clearance

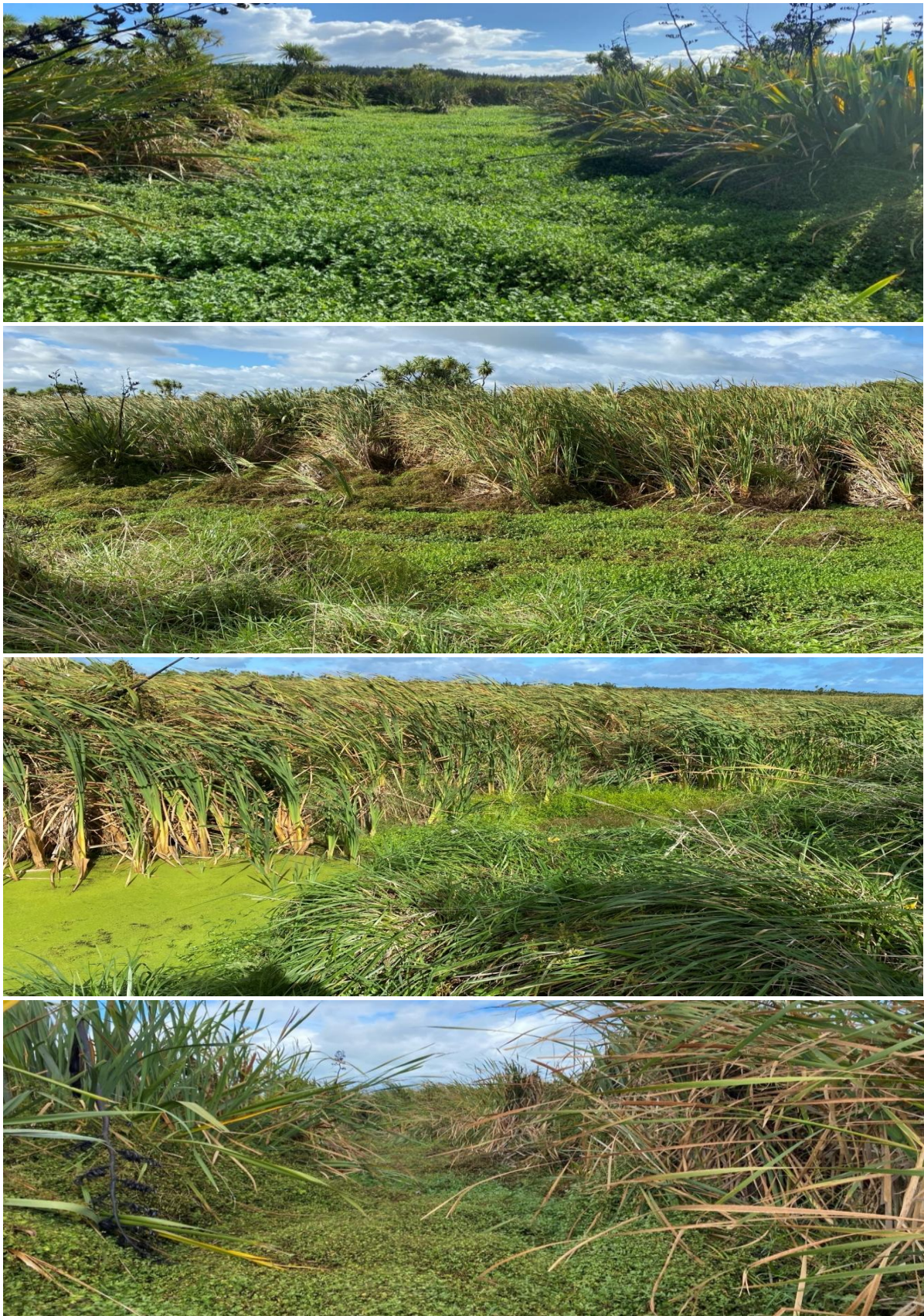


Figure 8: images of over vegetated drains

29 April 2025 – post mechanical clearance



Figure 9: fish passage (top left), weir looking east (top right), upstream gauge (bottom left), cleared drain (bottom right)

August 2025



Figure 10: weir looking east (top), lagoon level (middle), fish passage (bottom)

October 2025



Figure 11: fish passage (top left), weir looking east (top right), upstream gauge (bottom left), weir gauge (bottom right)

Recommendations & work programme for next year

As mechanical clearance was undertaken in 2025 this is not scheduled to occur again until January – March of 2030 however if it is believed that the vegetation and weed growth are impacting the drains' ability to convey water flows in and out of the lagoon a discussion will be initiated with DOC to potentially undertake earlier mechanical clearance or explore the possibility of utilising spraying within the concession drains.

The last site visit undertaken on 22 October 2025 confirms that no further vegetation is required to be removed at this stage. Monitoring of the drains, weir, fish passage, spillway and bird numbers will continue in 2026 via bi-monthly site visits with the water levels and any issues being recorded within the log sheet to avoid these being missed.

Previous correspondence suggested that Council alongside DOC, the relevant iwi and the Oroua Downs Drainage Board have an annual hui to discuss the drainage scheme, its impacts on the lagoon and any proposed work to manage impacts.

Appendix A – Email from Fish & Game re swan 2025 numbers

RE: Pukepuke lagoon - Updated bird numbers [Summarize](#)



Matt Kavermann <mkavermann@fishandgame.org.nz>

To: Anastasia Boniface

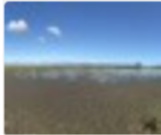
Cc: Robert Rose

Reply Reply all Forward

Tue 2025-10-07 08:48

You replied on Tue 2025-10-07 09:00

[View conversation](#)



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Kia ora Anastasia

You may or may not be aware that there were some issues with water levels in Pukepuke lagoon this year, and it was largely dry leading up to May – see attached image.

Observers completing aerial black swan counts for this site (completed in January 2025) recorded 65 black swan.

Dabchick numbers were not recorded during aerial counts but it might pay to check out ebird (see initial email below) to see if anyone else has been out recently and added their data to the database.

Mā te wā,

Matt

Dr Matt Kavermann | Senior Fish & Game Officer

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From: Anastasia Boniface <Anastasia.Boniface@mdc.govt.nz>

Sent: Tuesday, October 7, 2025 7:12 AM

To: Matt Kavermann <mkavermann@fishandgame.org.nz>

Cc: Robert Rose <Robert.Rose@mdc.govt.nz>

Subject: Re: Pukepuke lagoon - Updated bird numbers

Good morning Matt,

As per the emails from last year below I am just wanting to know if Fish & Game have any updated data for black swan or dabchick numbers at Pukepuke Lagoon?

I understand there had been no data since 2022 for this location however I am just double checking as we are in progress of writing an annual report as per our concession requirements.

Let me know if you have any questions.

Thank you,

Anastasia Boniface

Environmental Officer

Āpiha Taiao



P: 06 323 0000

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