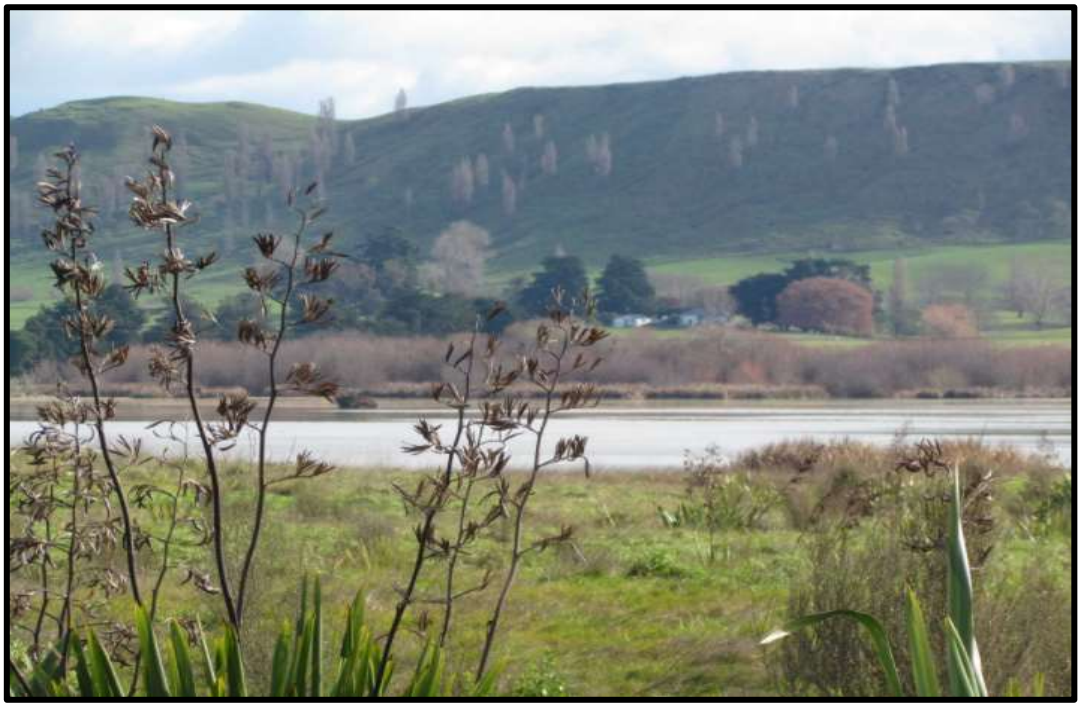
Lake Whatumā (Lake Hatuma)



Key Values
Cultural
Ecology (wildlife, fisheries, aquatic vegetation)

Table 1: List of publications reviewed

Year	Name	Author
1986	A List of Rivers and Lakes Deserving Inclusion in A Schedule of Protected Waters	Grindell & Guest
1987	Wetlands of National Importance to Fisheries	Ministry of Agriculture & Fisheries
2000	Lake Whatumā Management Plan 1999 - 2004	Hawke's Bay Regional Council
2005	Sports Fish and Game Bird Management Plan	Fish and Game New Zealand
2006	A Review and Risk Assessment of Toxic Cyanobacteria in the Hawke's Bay	Cawthron Institute
2008	Lake Whatumā Ecological Monitoring	Hawke's Bay Regional Council
2008	Wetland Monitoring Review	Hawke's Bay Regional Council
2009	Bird Species of Concern at Wind Farms in New Zealand	Department of Conservation
2011	Lake algal bloom leads to warning	Hawke's Bay Today
2013	Close Approaches and Acoustic Triangulation: techniques for mapping the distribution of booming Australasian bittern (*Botaurus poiciloptilus*) on small wetlands	Colin O'Donnell (DOC), Emma Williams (Massey), John Cheyne (Wetland works)
2013	Australasian Bittern	New Zealand Birds Online
2013	Concise Statement of Evidence of Peter McIntosh before the Board of Inquiry Tukituki Catchment Proposal	Peter McIntosh
2014	Hawke's Bay Biodiversity Inventory – Current State of Knowledge	Hawke's Bay Regional Council
2015	Forest and Bird Magazine – Spring 2015 Issue	Forest and Bird

2016	The IUCN Red List of Threatened Species	Global Species Programme, various scientists and partners worldwide
2016	Booming Bitterns	Radio New Zealand
2016	Central Hawke's Bay: Locals help to uncover secretive bittern world	Hawke's Bay Today
2017	Assessment of Lakes in the Hawke's Bay Region using Lake SPI	NIWA
2017	Whatumā Lake and Tukituki Catchment	Hawke's Bay Regional Council
2017	Conservation Status of New Zealand Birds, 2016	Department of Conservation, Forest and Bird New Zealand
2018	Cultural Values Table	Hawke's Bay Regional Council
2018	Selected Shallow Lakes – An assessment of water quality and related values (draft)	Hawke's Bay Regional Council

Discussion

Purpose of report

1. The purpose of this report is to assist the RPC members to determine whether any of the values of Lake Whatumā are outstanding for the purposes of the National Policy Statement for Freshwater Management (NPSFM).
2. This report presents the summarised findings of the values attributed to Lake Whatumā in those documents referred to in Table 1, above.

Overview

3. Lake Whatumā is an oval shaped shallow lake with a surface area of 160 hectares, with an additional adjacent wetland margin of around 76 hectares, which is in a degraded state. The lake has high wildlife values and is home to the largest population of the globally endangered Australasian bittern in Hawke's Bay.
4. The lake is privately owned by a number of individuals and surrounding land uses are predominately sheep and beef farming. The lake commonly suffers water shortages in the summer which can have a detrimental effect on the lakes ecology. The lake is jointly managed by the Department of Conservation and surrounding landowners.
5. Historically, much of the surrounding/Tukituki catchment run off was stored in Lake Whatumā during periods of prolonged heavy rain. This caused extended periods of inundation of the land surrounding the lake which was problematic for surrounding landowners. Water levels are now managed artificially by a weir.
6. A number of management plans have been developed over the last 20 years aimed at the restoration and rehabilitation of the lake through plantings and raising the lake's water level. However, due to a conflict of interests, and different visions for the lake, a management plan has not been agreed on.
7. Lake Whatumā is a large shallow lake which is also a specific type of wetland area. It is one of the last few remaining wetlands of this type in Hawke's Bay. It is listed a priority wetland in the Hawke's Bay Regional Resource Management Plan, and was identified as a Recommended Area for Protection by the Department of Conservation under the Protected Natural Areas Programme.
8. In 2017, the Lake was identified as one of the six environmental hotspots by Hawkes Bay Regional Council, and funding has been allocated towards an environmental enhancement plan of action to protect Lake Whatumā.
9. During summer, when lake levels are low, Lake Whatumā suffers from algae blooms which severely affects the lake's water quality and wildlife habitats.

Location

10. Lake Whatumā is located approximately 3 km south of Waipukarau and is part of the greater Tukituki catchment area. The total catchment area for Lake Whatumā is around 5,400 hectares.

11. The location and extent of Lake Whatumā is shown in Figures 1 and 2 below.

Figure 1: Location of Tukituki Catchment

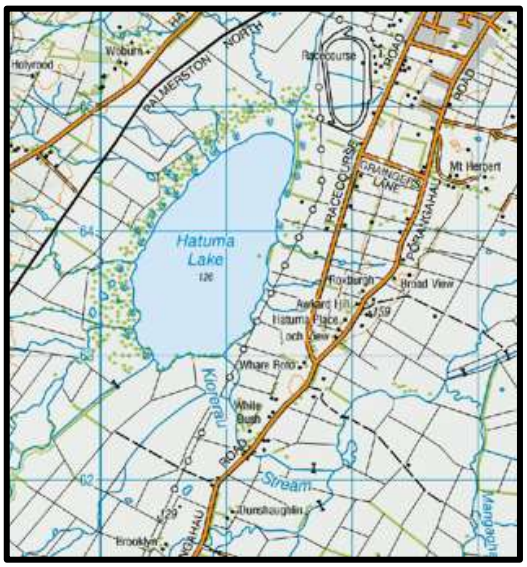


Figure 2: Extent Lake Whatumā

Cultural values

12. Lake Whatumā is a significant waterway for Heretaunga Tamatea. It lies at the heart of the spiritual and cultural wellbeing and identity. The lake derives its name from its use as a plentiful source of kai and is a taonga of great significance. Throughout history, many hapū utilised the lake's resources.

13. The Lake was a significant mahinga kai. It was particularly known for eels, but also other freshwater fish, freshwater mussels, birds (including kereru), and raupo pollen. Its surrounds provided toitoi, patete, koareare. Around the lake was forest known as a source of kererū. The name of the lake is said to be a reference to the lake's first discoverers eating until they were fully satisfied.

14. Up until the 1940s the hapū located at Tapairu, Whatarākai, Mataweka and Takapau undertook regular food-gathering excursions to Lake Whatumā, particularly for tuna, kōkopu, kākahi and native birds. Continued drainage and the impact of surrounding land use meant that by the 1950s, the lake had degraded as a food source.

15. Lake Whatumā was a traditional area of residence to a permanent population and was utilised by a number of surrounding hapū who travelled to the lake to gather resources on a seasonal basis. There are numerous archaeological remains indicating there was a high population in the area. The remains of several fortified pā are still in the area.

16. Attachment 1 contains a more detailed explanation of the cultural values associated with Lake Whatumā.

Recreation values

17. Lake Whatumā is highly valued for its gamebird hunting, with the lake supporting a significant population of the dabbling duck population in Hawke's Bay. A number of maimais are located in and around the lake.

18. Historically, the Lake was used for a range of recreational uses including rowing, sailing and speed boating. However due to the frequently low lake levels these activities ceased some time ago.

19. In the past, algae blooms have occurred at Lake Whatumā which severely impacts on the recreational values of the lake.

Ecology values

20. Lake Whatumā is 236 hectares in size[1], with a maximum depth of 0.8 m, and is one of the few remaining wetlands in Hawke's Bay. The area is recognised as having high wildlife value.

21. Lake Whatumā and its surrounding wetland margin is currently in a degraded state. The lake suffers from water shortages in the summer and is prone to flooding after prolonged heavy rain. The water level of Lake Whatumā is artificially controlled via a weir.

22. In the 1990s, the Department of Conservation identified Lake Whatumā as having high ecological values and as part of its Protected Natural Areas Programme identified the lake as a 'Recommended Area for Protection'.

23. In the 1990's, Lake Whatumā was identified by DOC as one of the top eight priority wetlands and lakes in Hawke's Bay.

24. In 2017, Hawke's Bay Regional Council rated the overall ecological quality of Lake Whatumā as 'moderate'. The rating was reduced due to poor water quality and evaluated by its bird communities.

25. The ecological values associated with Lake Whatumā are discussed in more detail below.

Fish

26. Six species of fish have been recorded in the lake, including longfin eel, shortfin eel, common bully, goldfish and rainbow trout. In 2005, Lake Whatumā was identified as being regionally significant for native fish. The lake is recognised as providing a particularly important habitat for eels.

27. In 2008, fish surveying could not take place as the monitoring sites were completely dry. The status of the native fish population in Lake Whatumā is currently unknown.

Wildlife

28. Despite its degraded state, Lake Whatumā supports a wide range of water birds, holding one of the best populations of the globally endangered Australasian bittern in Hawke's Bay. The lake also supports large populations of game birds. The area is highly ranked as a Site of Special Wildlife Interest (SSWI).

29. The native Australasian bittern is extremely rare, with the total New Zealand population estimated to be between 750 and 1000. Lake Whatumā supports around 1% of the national population, and 25% of the total population in Hawke's Bay. The lake is recognised as being one of the most accessible sites to listen or watch for the Australasian bittern.

30. A total of twenty-four species of water birds have been recorded at Lake Whatumā over the last 20 years. The list includes the New Zealand dabchick, an uncommon endemic which is near threatened globally, and the Spotless Crake and Marsh Crake, two native wetland birds which are common nationally but now very rare in Hawke's Bay.

31. The lake is one of the preferred locations for the cattle egret which migrates from eastern Australia in autumn. On arrival to New Zealand, these birds feed along the western coast of New Zealand before moving on to congregate at a few favoured sites (one being Lake Whatumā), where they invariably associate with cattle herds on damp pasture.

32. Fourteen other species of land birds have been recorded at the lake in the past. Four are common natives, whilst the remainder are common introduced species in Hawke's Bay.

33. In 2005, Fish and Game New Zealand identified the Whatumā wetland as a regionally significant game bird habitat.

Reptiles and amphibians

34. In 2001 and 2003, frogs were seen fleetingly at various points around Lake Whatumā. The frogs are thought to be the southern bell frog, native to Australia and reasonably widespread in New Zealand.

[1] 160 hectares (lake surface area) + 76 hectares (wetland margin).

35. Frogs have rapidly declined recently in New Zealand through fungal disease. As such, the presence of frogs in this wetland is viewed as positive, particularly given they do not significantly impact on the natural ecology of the area.

36. In 2005 and 2008, frogs were not detected at Lake Whatumā, possibly due to water levels and the absence of suitable habitat.

Aquatic plants

37. In 2017, NIWA assessed the condition of eleven lakes within the Hawke's Bay Region using the LakeSPI method. The LakeSPI (Lakes Submerged Plant Indicators) is based on a principle that the ecological condition of a particular lake in New Zealand can be characterised by the composition of submerged aquatic plants in them.

38. The 2017 sampling results show the lake has predominantly native plants extending across the entire lake bottom. The dominance of native aquatic plants (e.g. turf species) was a good indicator of a healthy lake structure and function.

39. Notwithstanding, the shallow nature of Lake Whatumā makes it particularly vulnerable to change over a short time frame (e.g. vulnerability to drought). This combined with the low water levels which regularly occur over summer, puts Lake Whatumā's submerged native plant community at risk.

40. This is apparent from monitoring results in 2008, where the water levels in Lake Whatumā were too shallow to access using a canoe. At this time, the only submerged plants recorded were invasive plant species and a native milfoil.

Wetland plants

41. Five major vegetation types dominate the area being willows, raupo, sedges, rushes and pasture. The lake has been significantly modified with little of the original vegetation cover left. Historically, the lake would have been surrounded by tall dense forest, dominated by kahikatea on the wet soils near its shore.

42. Swamp nettle is the only known rare plant in the Lake Whatumā wetland. This endemic species is listed as nationally threatened. In 2005, swamp nettle was flourishing and widespread and considered to be one of the best populations in Hawke's Bay. However in 2008, concerns were raised about the invasive weed Beggars tick impeding the swamp nettle.

43. Vegetation maps taken in 2007 show that the raupo on the Northern and Eastern sides of the lake has expanded when compared to the 1999 imagery. However, during this same time period lake levels are significantly lower.

Macroinvertebrates

44. Aquatic macroinvertebrates occupy a key place in aquatic ecosystem functioning and provide a useful measure of water quality and habitat condition.

45. In 2008, monitoring results indicated Lake Whatumā could support a considerable diversity of small animal life, but that the water quality is compromised by artificial nutrient input.

46. In 2008, aquatic invertebrate sampling could not occur as the monitoring sites were completely dry.

Landscape / scenic values

47. Lake Whatumā is located on the southern edges of the township of Waipukarau. It is a shallow, oval-shaped, low lying lake, which is surrounded by wetland vegetation. Historically, the lake has been subject to toxic algae blooms which can make the lake unsightly and potentially unsafe. Adjoining land uses are predominately sheep and beef farming.

48. Photographs of Lake Whatumā are contained in Attachment 2.

Naturalness/intactness of waterbody

49. Lake Whatumā has undergone significant modifications and the lake levels are artificially controlled via a weir. Very little of the original vegetation remains around the lake.

Water Quality

50. The water quality data for Lake Whatumā is limited. However, reviewed information indicates that Lake Whatumā is a eutrophic lake which can experience algal blooms. Historically, elevated levels of total phosphorous and problematic cyanobacteria has been recorded at Lake Whatumā.

51. Cyanobacteria can produce toxins known as cyanotoxins. Cyanotoxins are a threat to human and animal health when consumed or through contact.

52. In 2017, NIWA assessed the ecological condition of Lake Whatumā. Sampling results showed water clarity was poor with the through-water visibility estimated by divers as only 0.2 m at the margins.

Values Summary

Overarching Value	Sub-value	Description	Outstanding Yes/no	Comments
Cultural	TBC	TBC	TBC	TBC
Recreational	TBC	TBC	TBC	TBC
Ecological	TBC	TBC	TBC	TBC
Landscape	TBC	TBC	TBC	TBC
Natural Character	TBC	TBC	TBC	TBC

6. Resource Management Plans

The following tables list any relevant resource management plans developed by iwi/hapū, the regional council or territorial authorities. The tables include any specific provisions that apply to Lake Whatumā. They do not include all of the general policies or rules that may apply. Water quality and water quantity provisions have been included as it is recognised that these aspects can significantly impact on cultural values.

Iwi and Hapū Resource Management Plans
Kahungunu ki Uta, Kahungunu ki Tai – Marine & Freshwater Fisheries Strategic Plan
Mana Ake – An Expression of Kaitiakitanga, Taiwhenua o Heretaunga

Regional Resource Management Plan
Section 5.9 (Tukituki River Catchment) – various objectives, policies, limits and targets apply to water quantity and water quality
Schedule 6b – Catchments Sensitive to Animal Effluent Discharges (Schedule 6b)

District Plan
Appendix C – Schedule of sites of cultural significance to tangata whenua – contains archaeological sites

Attachment 2: Photographs - Lake Whatumā