

# Guardians of Lake Wanaka

---

Serviced by  
Department of Conservation,  
Wanaka Area Office

The Secretary  
PO Box 93  
Wanaka  
Ph 03 443 9462

## Guardians of Lake Wanaka Report to the Minister of Conservation for the period June 2018 – June 2019

### Summary

As included in the previous year's Guardians report, the following issues are still relevant:

- Accelerating urban and rural growth in catchments of Lake Wanaka (and other Otago deepwater lakes) continues to place lake water quality including ecosystem function at risk, with potential for serious economic consequences.
- Ongoing absence of a lake and catchments management plan, of research and adequate monitoring, of a formal process to integrate management plans, research and evidence-based decisions, continues to place the future well-being of Lake Wanaka (and other Otago deepwater alpine lakes) at risk of decline.
- As in 2017-18, we note deficiencies remain in the Overseas Investment Office processes for assessing potential environmental impacts of conditions of sale of land in iconic lake catchments. We again recommend that these deficiencies should be reviewed.
- To help address community concerns about growth generated risks to water quality and aquatic ecosystem function, Guardians members continue to engage with local community groups concerned with improving water quality. Groups include the Upper Clutha Lakes Trust Board, Upper Clutha Water Group, Friends of Bullock Creek, Guardians of Lake Hawea, Alpine Lakes Research and Education Centre, Shaping our Future Water Taskforce and the LINZ Lagarosiphon Management Committee.
- The Guardians continue to raise awareness of water management issues and to gain traction with Otago Regional Council (ORC) and Queenstown Lakes District Council (QLDC) towards better water management decision making. Funding for evidence based lake management is seriously lacking.
- The Guardians again note and welcome the growing community engagement of ORC and QLDC in slowly expanding their awareness of, and roles in managing the Otago deepwater lakes and their catchments, particularly for Lakes Wanaka and Hawea, as members of the Upper Clutha Lakes Trust Freshwater Improvement Fund Wanaka Water Project.

## **Guardians Membership**

Members of the Guardians of Lake Wanaka, appointed by the Minister in 2018 were: Barrie Wills, Jeff Donaldson, Don Robertson (re-appointed as Chair from September 2018), Natalie Astin, Marjorie Cook and Taare Bradshaw who represents Ngai Tahu. Helen Tait (Chair until January 2015) has continued serving as a Guardian. Guardian's members John Darby and Alan Cone stepped down from their roles in June 2018 – we thank them for their excellent contributions. The Guardians are supported in meeting attendances by Councillor (and Deputy Mayor) Calum McLeod representing the Queenstown Lakes District Council and Jeff Donaldson then representing the Upper Clutha Lakes Trust Board. Administrative support services continue to be ably provided by Kimberley Parlane (of DOC, Wanaka) with support from Mike Tubbs, DOC Operations Manager Central Otago District.

## **Meetings**

Meetings of the Guardians between June 2018 and June 2019 were held in: September 2018, November 2018, February 2019, and May 2019.

## **Strategic Directions**

The Guardians through July 2018-June 2019 have continued to monitor use of Lake Wanaka and catchment activities against their responsibilities as defined in the Lake Wanaka Preservation Act (1973):

- “Preventing the lake from being impounded, controlled or obstructed”: The Guardians kept a watching brief on land use development adjacent to the lake and in its catchments. This awareness can at times be made less efficient by the scale of the shoreline and the catchments and also by ORC and QLDC not routinely contacting the Guardians when resource consent applications are received which may have an impact on lake and catchment water quality.
- “Preventing the natural flow from being varied or controlled”: There were no events of this nature.
- “Preserving the lake level and shoreline in their natural states”: The Guardians have focused on aspects of urban and rural development activity that may impact Lake Wanaka water quality, and noted changes in land use and land tenure. Resource consent applications which might have an effect on the lake and/or its shoreline are expected to be referred (for Guardians' comment and to recommend conditions), by Otago Regional Council (ORC) and Queenstown Lakes District Council (QLDC). At times the Councils have not alerted us when consent applications with possible lake impacts have been received. Guardians have raised this issue with both Councils' CEOs.
- “Maintaining and improving water quality”: Water quality continues to be a prime focus. As in our previous report, major public concern continues to be expressed at issues caused by the growing presence in Lake Wanaka (and now 19 other South Island lakes) of lake snow – the results of the proliferation since 2004 of this microscopic planktonic algal species. This continues to form large blooms, clogging domestic and commercial water filters throughout the Wanaka township water

reticulation system, clogging fishing lines, boat engine cooling filters, and coating swimmers, etc. The Guardians concerns about this serious issue have been raised with ORC a number of times and we are pleased to see that some measurements of lake snow presence and a crude index of abundance have continued, albeit at only two localities.

- The Guardians continue to be concerned about the lack of adequate monitoring and assessment of the nature and extent of sediment, chemicals, nutrients and pathogens in urban stormwater run-off and agricultural run-off into Lake Wanaka.
- The Guardians continue to work closely with QLDC, ORC and community groups in providing informed comment on aspects relating to the management of Lake Wanaka and its catchment water bodies, in ORC regional planning workshops and documents, and QLDC district planning documents.
- The Guardians also provide input into the management decisions for LINZ control of the highly invasive African oxygen weed, *Lagarosiphon major* in Lake Wanaka.
- The Guardians met with the Centre for Space Science Technology (now known as Xerra) based in Alexandra to raise awareness of Guardians interest in remote sensing tools for lake surface attribute measurement and to discuss possible collaboration between the Upper Clutha Lakes Trust Board and Xerra.

### **Lagarosiphon Management in Lake Wanaka**

The Guardians continue to participate as members of Lake Wanaka Lagarosiphon Management Committee. This includes a review of the annual Lagarosiphon Management Plans for the Lake Wanaka Lagarosiphon control project managed by LINZ. Guardians' representatives attended meetings and provided comment and advice on management progress and control plans in August 2018, March and August 2019.

The Guardians are pleased to see the Lagarosiphon control programme continue to make significant advances in the reduction of the extent and density of the Lake Wanaka weed beds. Successful trials laying large areas of hessian matting on the lake bed to smother Lagarosiphon have continued. The variable quality of some of the hessian supplied enabled some Lagarosiphon growth to break through the matting. In some areas, low lake levels due to lack of rain caused some hessian matted lake bed areas to become shallow enough to be damaged by boat propellers. The persistence of some areas of high density of Lagarosiphon continues to be a challenge, however it is hoped that the recently announced increase in LINZ budget for Lagarosiphon control will enable progress with reducing the size of some of these high density areas.

Also of concern is the limited removal of Lagarosiphon plants around the Wanaka marina by the Wanaka Marina Company.

## **Relationship with Otago Regional Council & Queenstown Lakes District Council**

The Guardians continue to provide comment and recommend conditions of consent where appropriate to ORC and QLDC, on matters in their planning documents and on resource consent applications relating to Lake Wanaka and its catchments' water management. One of the Guardians' main ongoing concerns has been the apparent long term neglect of the importance of research on water quality issues in Lake Wanaka. (This is also an important issue in the other two Otago deepwater lakes).

We are very pleased to note that ORC has committed to continue beyond its "3 years-out-of-ten" State of the Environment Report sampling in Lakes Wanaka, Wakatipu and Hawea for MfE, and which commenced in September 2016. An important result is that ongoing monitoring has shown that at least at the two sampling sites well away from the shore and over deep water, Lake Wanaka water quality is excellent (microtrophic). Of concern is the absence of monitoring close to the inflow of many lake tributaries which are likely to be carrying sediment, nutrients, bacteria, viruses and protozoans as well as pesticides.

Guardians' communications with QLDC continue to be maintained with Deputy Mayor Calum McLeod who attends Guardian's meetings. There has for some time been, and continues to be an absence of an ORC representative at Guardians meetings. Guardians have both met and corresponded with the new ORC CEO and raised this with her.

The Guardians have reminded CEOs of both ORC and QLDC that as a part of their responsibilities under the Lake Wanaka Preservation Act they both should remind their planners to consult with the Guardians whenever they receive a resource consent application that may have an impact on Lake Wanaka water quality, shoreline or ecosystem function. Guardians also appreciate being consulted whenever Councils are preparing strategic planning documents that include aspects of water management which could impact Lake Wanaka.

## **Overseas Investment Office Decisions**

Guardians remain concerned that some OIO decisions to approve sale of land in the catchments of Lake Wanaka (and other Otago alpine lakes) may impact water quality. We have advised the OIO that the Guardians should be consulted whenever a land sale in the catchment of Lake Wanaka is being considered. So far we have not been consulted. As previously reported, the sale to Orange Lakes Ltd of Hunter Valley Station lease on the shores of both Lakes Hawea and Wanaka continues to be of concern. A condition of sale is that the new owner (Matt Lauer) must increase the stock numbers by around 50%. This will be achieved by burning off vegetation, spraying, fertilising and over-sowing then increasing stocking rates, much of this on steep country. We expect that one impact of this will be increased run-off of nutrients, sediment, herbicide and pathogens into the catchment of Lake Wanaka between the Neck and Camp Creek, and into Lake Hawea.

As mentioned in our previous report, the Guardians (of both lakes) are concerned about the potential impacts on water quality and ecosystem function, and concerned that the OIO was able to conclude in its assessment report that questions of environmental impacts of the proposed increased production were “irrelevant”. The Guardians again recommend that the OIO processes for assessing potential environmental impacts of conditions of sale of land in iconic lake catchments be reviewed. We also recommend that the impacts of the expanding farm stocking rates on water quality in both Lakes Wanaka and Hawea should be monitored and meet zero impact standards.

### **Community Initiatives involving the Guardians**

The following community initiatives have involved continuing support by the Guardians as they are all significant initiatives that are consistent with the Guardians better achieving their requirements under the Lake Wanaka Preservation Act.

#### **Upper Clutha Lakes Trust Board <https://www.uppercluthalakestrust.org/>**

In 2016, inspired by the challenges facing the Guardians of Lake Wanaka, a new charitable trust initially called the Lake Wanaka Trust (LWT) was formed to meet a need for an independent group to encourage, fund and progress scientific research to underpin management decisions on the lake water quality, and mitigate undesirable issues such as the growth since 2004 of “Lake Snow” algal blooms in Lake Wanaka (and other nearby lakes). A “whole-of-catchment approach” was intended.

At about the same time, a community group, the Upper Clutha Water Group (UCWG) was formed. The Guardians are represented along with about 15 other groups. The UCWG helps those with water interests speak with a single voice. A successful bid for funding was made (with the Te Kakano Atearoa Trust and the Sustainable Business Network’s Million Metres Project) to MfE’s Freshwater Improvement Fund (FIF) for support for development of a Lake Wanaka catchment management plan; for support for assessing urban run-off effects on water quality and for support for increased riparian planting in lake catchments. The initial total funds from MfE, ORC, QLDC and other sources (~\$820k total over 5 years) are limiting but represent a good start.

The LWT objectives were consistent with the aims of the Upper Clutha Water Group. To provide a legal governance entity for managing the new FIF project and its funds, LWT merged in early 2018 with the UCWG to form the Upper Clutha Lakes Trust Board (UCLTB). The Guardians supported this merger and are very pleased with how the merged renamed UCLTB is functioning and with how well ORC & QLDC have engaged with the project.

The objectives of the Lake Wanaka Trust were included in the 2016-17 Guardians report, and remain in the UCLTB.

As was happening with the LWT, the UCLTB in addition to governance of the FIF Wanaka Water Project, will encourage and facilitate educational projects and programmes relating to improved water management, including the

involvement of schools, community education groups, and tertiary education institutions in science and society activities, and including research and monitoring. The UCLTB is progressing these 3 water projects and is seeking additional funds via the Alpine Lakes Research and Education Centre.

Guardians were represented at an UCLT Freshwater Improvement Fund urban stormwater workshop held in Wanaka. Discussions included sensitive urban design and knowledge gaps impeding understanding of effect of run off on lake ecosystems.

### **Alpine Lakes Research and Education Centre (ALREC)**

Given the remoteness of the alpine lakes from universities and other research centres, and absence of lake and catchments management decisions informed by research, several members of the Wanaka community, including the Guardians of Lake Wanaka, and members of the UCLTB proposed the development of an Alpine Lakes Research & Educational Centre (ALREC) in Wanaka with laboratory, office and seminar facilities, and separate accommodation facilities for visiting scientists and students working at the Centre, and for learning experiences for school children.

The ALREC concept gained wider community support and a broadly based Steering Committee was established. Initially the existing Otago Fish & Game fish hatchery in Wanaka was seen as an ideal site, and a MOU was negotiated between Otago Fish & Game, the University of Otago and the LWT (now UCLTB). Negotiations were progressing well with Otago Fish & Game regarding long term access to their land and building on a former fish hatchery site in Wanaka.

Meantime in order to provide a research facility while these negotiations and fund raising take place, a paper was submitted by the ALREC steering committee to ORC seeking a low rental long term agreement to use an under-utilised ORC building in Wanaka. In June 2019 a 3 year lease was signed.

### **Other Community Initiatives**

As a part of the Guardians involvement in community outreach associated with lake water quality, the Chair of the Guardians has helped the newly formed Friends of Bullock Creek (this creek drains a large and growing urban development into Roy's Bay in Wanaka township) with their (mutual) concerns about contaminated stormwater run-off into Lake Wanaka. As reported last year, meetings with the developer and QLDC to discuss run-off mitigation measures have made little difference to the ongoing contamination of Lake Wanaka via Bullock Creek during rain events.

There continues to be growing interest and support among members of the Wanaka community, local and national media regarding the need to better manage Lake Wanaka and its catchments. Guardians' involvement has continued over the last year with such groups as the Shaping Our Future Water Task Force, and with the Guardians of Lake Hawea. Shaping our Future Water Taskforce along with the community involvement developed a substantial report including a freshwater vision encompassing pure water,

ecosystem health and community engagement. The findings will feed into UCLTB Integrated Catchment Management Plan.

## **Resource Consents**

The Guardians have been consulted on some resource consent applications for development on or near the shores of Lake Wanaka and in each case have provided advice on conditions to address aspects of the developments which could impact on lake water quality, ecosystem impacts or the spread of invasive species.

Following some expressions of concern from residents, discussions were held with QLDC over some apparently non-consented developments to the Lake Wanaka foreshore north of the Wanaka Yacht Club on QLDC land leased to the Yacht Club. ORC confirmed a consent was not required under the Regional Plan. Guardians met with the yacht club and discussed the possibility of the Yacht Club carrying out some remedial spring water habitat restoration work on the foreshore adjacent to the Yacht Club infilling site.

A number of residential subdivision developments in the catchments of Lake Wanaka and the Clutha River outlet appear to have been consented by QLDC (and/or ORC) without consulting the Guardians and without conditions required to avoid potentially harmful large scale sediment laden storm water run-off, for example into Wanaka's iconic Bullock Creek and also directly into the lake and the Clutha River outlet area.

Guardians provided suggested consent conditions to either QLDC or ORC for a number of developments close to the Lake Wanaka foreshore. Four of these involved construction of new dwellings, two of which involved submerged pumps in the lake for providing water to new dwellings. Another involved a pumping on the shoreline to serve a large new pivot irrigator, and release water into the lake. This application is still under discussion with ORC.

Guardians have also provided submissions to ORC on plan changes and consents for developments. These included earthworks, and developments which could result in sediment, nutrient and bacterial contaminated run-off, rubbish, and pesticides entering the lake.

## **Raising awareness of the need for effective Lake Wanaka and catchment management**

As reported last year Guardians continue to be very concerned at the lack of a management plan for Lake Wanaka and its catchments and also for other iconic South Island lakes. By continuing to raise this important issue in a number of contexts with UCLTB, ORC, QLDC, the media, and a number of community groups, there is now very real traction towards a management plan as a part of a sub-project in the FIF Wanaka Water Project which is developing (along with community involvement) an integrated catchment management plan for the Upper Clutha, including Lake Wanaka. We see this plan as a substantial step forward and consistent with Guardians responsibilities under the Lake Wanaka Preservation Act. Such a plan will

identify information gaps and guide research to ensure that the chemical and biological quality of Lake Wanaka are studied, monitored and sufficiently understood to provide evidence-based management measures to avoid or mitigate undesirable changes in water quality and ecosystem functioning.

Even though we are seeing slow traction towards better lake and catchment management, these recent successful initiatives are just the beginning. If we, the Upper Clutha community are to see the risks to our deepwater lakes and catchments diminish, then there needs to be a broad recognition that a long term substantial investment is essential.

Agricultural and urban development in the catchments of Lake Wanaka appear to be putting an increasing load on the lake's water quality including ecosystem function. Major community concern is developing over the growing impacts of "lake snow" or "lake snot" which is having a widespread influence, not just in Lake Wanaka, but now in Lakes Wakatipu and Hawea as well as up to 19 other South Island alpine lakes. Limited past research by Otago University and anecdote from lake users indicate that undesirable changes appear to be happening over the last 15 or so years but lack of research and inadequate monitoring prevents understanding of the lake processes and assessment of pending risks. The business case for a Wanaka town sized filtration system has been estimated by council's engineers and water modellers to be more than ten million dollars.

Local residents are also concerned about the effects of contaminated run-off from large numbers of cattle winter grazing in deep wet mud conditions with substantial run-off of the resulting effluent into catchments draining into Lake Wanaka.

Delaying strong measures to understand and manage Otago's deepwater alpine lakes will make recovery more difficult. Costs over a number of years are likely to be of the same order of that necessary for managing Lake Taupo (~\$80 million) following an algal driven colour change in the late 1990s, or Rotorua Lakes (~\$140 million) to mitigate serious pollution. The level of funding associated with the evidence-based management of the Otago deepwater lakes is likely to be in tens of millions. This does not take into consideration the loss of tourism earnings and resulting business and community stresses should water quality in these lakes decline further.

### **QLDC Application to ORC for a resource consent to discharge raw sewage into waterways.**

Along with Guardians of Lake Hawea and UCLTB, Guardians of Lake Wanaka prepared a joint submission to ORC concerning an application from QLDC to ORC for Resource Consent to discharge raw sewage into waterways for 35 years. Although we opposed aspects of the application, we also proposed a number of conditions which if applied could enable the application to be granted for 10 years. This application is still being processed by ORC.

## **Support for research initiatives**

The Guardians continue to be approached for letters of support from research providers who are bidding competitively into various national and international funding agencies for research projects which will advance our understanding and management of freshwater ecosystems in New Zealand. In every case we have agreed and provided compelling letters of support and in some cases helped with the proposals. We continue to be surprised and disappointed at the small scale of funds available for research to support informed management decisions for lakes and their catchments.

## **Longfin Eels**

Before the Clutha was dammed and before the expansion of the eel fishery, Lake Wanaka and the other Upper Clutha lakes and catchments were teeming with longfin eels, NZ's top freshwater predator. As a part of Contact Energy's consent for hydro-generation there is a requirement to maintain a programme to restock longfin elvers and lamprey above the dams at Roxburgh, Clyde and Hawea. This could have the effect of restoring longfin eels to Lake Wanaka. Guardians are concerned that they have not been included as a stakeholder in discussions with Contact Energy about their elver and lamprey release strategy, and believe that the quality of the strategy could be improved. Discussions are underway with DOC to resolve this issue.

## **Recommendations:**

The Guardians of Lake Wanaka recommend that the Minister of Conservation:

- Note that Lake Snow (algal mucous) continues to be a significant problem for Lake Wanaka town water reticulation system where frequent clogging of filters is causing widespread inconvenience. Cost estimates of council engineering mitigation measures are substantial.
- Note that the effects of Lake Snow on the Lake Wanaka ecosystem are unknown, as are the implications for lake water quality.
- Note that substantial urban and rural agricultural, recreational and tourism growth continues around and in the waters and catchments of Lake Wanaka (and other Otago deepwater lakes) and is placing lake water quality including ecosystem function at risk, with the potential for negative long term economic and social consequences.
- Note significant development of community concern and action in relation to growing risks for Lake Wanaka, resulting in the merger of the Lake Wanaka Trust and the Upper Clutha Water Group (which includes 16 key groups/stakeholders with water interests), to form the Upper Clutha Lakes Trust Board.
- Note the improving engagement of MfE, ORC, QLDC, UCLTB and community and the resulting integrated catchment management plan, plus a research project on urban stormwater run-off and a large riparian planting programme for Lake Wanaka and the Upper Clutha.

- Address the serious lack of funding for research to inform Lake Wanaka and other Otago deep water lakes' management.
- Recommend that the Minister of Science support through MBIE a realistic level of funding applicable to Otago deepwater lake research, and monitoring that reflects the need for understanding of lake processes and development of baseline data to support evidence based management.
- Request a review of the Overseas Investment Office processes for assessing potential environmental impacts of conditions of sale of land in iconic lake catchments.
- Agree that Guardians of Lake Wanaka be considered as a formal part of the consultation process between DOC and Contact Energy regarding the development and implementation of an Upper Clutha Elver and Lamprey Management Strategy.



**Dr D A Robertson 16 September 2019**

**Chair, Guardians of Lake Wanaka**