2025 - 2035

Upper Lakes Catchment Action Plan

Summary document

Workshopped by:
Upper Lakes Integrated Catchment Group

upper-lakes-orcnz.hub.arcgis.com

Facilitated by:
ORC Integrated Catchment Management Team

icm@orc.govt.nz

CONTENTS

Acknowledgement

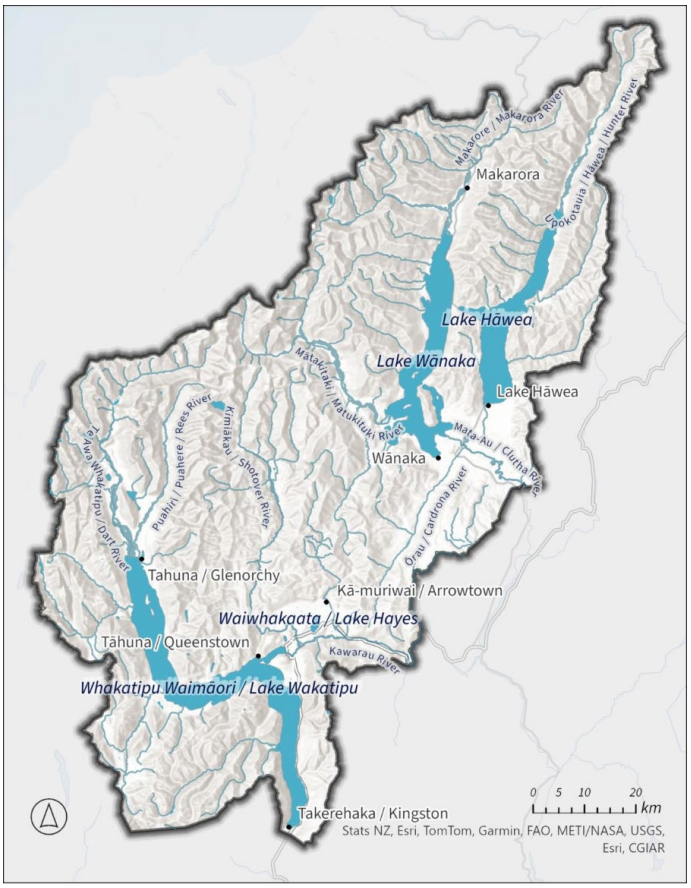
We warmly thank all members of the Upper Lakes Integrated Catchment Group (ICG). This plan reflects your dedication and willingness to work together for the benefit of the Upper Lakes CAP area and its communities. Across our hui (in person and online), six workshops, and a sunny site visit, you shared time, knowledge, and experience - from local insights and cultural perspectives to industry expertise and practical know-how.

Your mahi highlights the value of collaboration, bringing together mana whenua, community groups, landholders, agencies, and industry partners with a shared vision for te taiao. This collective impact approach gives the CAP both its grounding and its strength.

We sincerely appreciate your contributions, your commitment through some bumps in the road, and your patience throughout this process. The CAP has been shaped by your effort and will rely on your ongoing leadership and energy into the future. We look forward to continuing our work together as we bring the plan to life.

Kā mihi maioha,
ORC's Integrated Catchment Management Team (past and present)

CONTEXT AND PURPOSE



Above: Upper Lakes CAP area, the spatial scope for this plan, matching the QLDC boundary.

RATIONALE

Otago Regional Council's (ORC) Integrated Catchment Management (ICM) programme was established in 2021 to lead the development of Catchment Action Plans with iwi and the community.

PURPOSE

The Upper Lakes CAP is a long-term, non-regulatory plan to protect, enhance, and restore native biodiversity and freshwater quality. Non-regulatory means it focuses on guiding, coordinating, and supporting community actions rather than creating or enforcing rules. It builds on the work of mana whenua, communities, and local government, aiming for collective impact by aligning efforts around shared goals for environmental health and community wellbeing.

SCOPE

The plan spans a 10-year timeframe (2025–2035) with initial actions prioritised for the first 3–5 years. Spatially, the Upper Lakes CAP area aligns with QLDC boundaries. The area includes Whakatipu Waimāori (Wakatipu), Wānaka, Hāwea, Waiwhakaata (Lake Hayes), the upper Kawarau River, Ōrau (Cardrona River), the Upper Mata Au (Clutha River) and Hāwea Flat.

MANA WHENUA

The hapū who hold mana whenua status in the Upper Lakes CAP area are affiliated with seven papatipu rūnaka across Kāi Tahu ki Otago and Ngāi Tahu ki Murihiku. As Te Tiriti (treaty) o Waitangi partners, they exercise rakatirataka (authority) in relation to the management of te taiao (the natural environment). Otago Regional Council and the Upper Lakes ICG acknowledge that building trusted, enduring relationships requires consistent engagement and support for mana whenua participation.

THE UPPER LAKES INTEGRATED CATCHMENT GROUP (ICG) AND WORKSHOPS

The Upper Lakes Integrated Catchment Group (ICG) was established in 2024 to co-develop this CAP. Membership was approved by ORC councillors and includes mana whenua representation, community representatives, staff from agencies such as Queenstown Lakes District Council (QLDC), the Department of Conservation (DOC), and Toitū te Whenua Land Information New Zealand (LINZ), and an ORC councillor.

Above: ICG members at a workshop in Arrowtown, completing Open Standards for Conservation tasks to capture local environmental knowledge for the CAP.

Over the 12 months from August 2024 to August 2025, the Upper Lakes ICG met for two introductory hui (meetings), six collaborative workshops and one site visit, facilitated by ORC staff. We deeply appreciate the willingness of all members to participate in this process. Their openness in sharing knowledge, insights, and perspectives greatly enriched the development of this CAP. In total, the group contributed over 880 hours of their time, including workshops and travel - a significant commitment that reflects their passion and dedication to the wellbeing of the Upper Lakes environment and communities.

Above: Word cloud of the many community groups Upper Lakes ICG members are involved in. Their ability to "wear many hats" reflects a deep commitment and passion for their community, bringing together a truly wide and vibrant representation.

SETTING THE PATH TOGETHER

Above: Upper Lakes ICG members touring wetland plantings at Waiwhakaata (Lake Hayes). Site visits like these are vital for grounding discussions in lived experience, fostering connection, and deepening understanding of on-the-ground restoration efforts.

MISSION

The Upper Lakes ICG mission affirms a shared commitment:
"The Upper Lakes, with its soaring mountains and deep glacial lakes, is where manaaki whenua and manaaki takata is inherent in all we do. We are committed to protecting and improving the unique native biodiversity in our place, while aiming to inspire and empower future generations to further protect and enhance the area's special values."

VISION STORY

The vision story provides a shared picture of what we are working toward - not about returning to the past, but about imagining a thriving future where people and nature flourish together. It sets direction, inspires action, and helps guide decisions.

"It's 2075 in the Upper Lakes. Together, mana whenua and the community have carried out decades of mahi for our catchments, adapting along the way.

In the valleys, takahē cross paths with trampers, emerging from thick golden tussock, bird colonies can be watched as they nest undisturbed on braided river gravels, and as dusk falls pekapeka tou-roa (long-tailed bats) glide overhead, through ancient beech canopies chasing moths. Pīwauwau (rock wrens) jump from boulder to boulder within alpine basins and along ridges. Tuna kuwharuwharu (longfin eel) can be seen feeding amongst native submerged plant beds and gliding out into the crystal-clear depths of our lakes.

The waterways, lined with native riparian plants, offer abundant mahika kai (food and resources) for Kāi Tahu whānaui, and the environment offers wild foraging for the wider community. Tamariki (children) splash and swim at the lake shorelines in the clean water, then rest under the shade of native trees to tuck into a freshly cooked trout for lunch. Behind them, wetlands and bush weave through sustainable, thriving farms renowned for their food and fiber produce – a mosaic of native biodiversity and productive land.

In our towns, a connected network of streams, wetlands, and green space cools the landscape brings nature to the heart of daily life. Nature-based solutions form part of the infrastructure that is necessary to ensure the health of the water as it heads downstream.

Mana whenua connection to place and taoka is flourishing, mātauraka (knowledge) is strong and rakatirataka (authority) evident. Locals value the thriving native biodiversity around them, happily sharing fruit harvests with kākā and kākāriki. The community welcomes visitors who come to connect and contribute, helping to ensure the catchment remains vibrant for generations to come."

OUR VALUES

Environmental values provide ecosystem services - such as regulating water, supporting biodiversity, supplying food and resources, and offering recreation and inspiration - that sustain cultural and community values, reflecting the principle “Ka ora te whenua, ka ora te takata” - when the land is well, the people are well. Modified environments, including productive land and urban spaces, show how natural and altered systems interact and can be managed together to contribute to both environmental, and cultural and community values.

Above: Display of the environmental, cultural, and community values identified by the Upper Lakes ICG alongside pre-existing community plans. These shared values form the foundation of the CAP goals and actions, ensuring they are grounded in what matters most to the community represented by the ICG.

CULTURAL AND COMMUNITY VALUES

Waimāori (fresh water)
The purity of deepwater lakes, sourced from Kāi Tahu ancestral mountains, is treasured by mana whenua and the wider community for its cultural, ecological, and drinking water values.

Mahika kai (cultural resources and practices)
Waterbodies, wetlands, and forests sustain traditional food gathering and the cultural practices of mana whenua, maintaining strong connections between people and land.

Health and wellbeing of people
Clean water, green spaces, and natural landscapes support physical, mental, and spiritual wellbeing. “Ka ora te whenua, ka ora te takata” – when the land is well land, the people are well.

Rest, replenishment and learning
Deepwater lakes and surrounding landscapes are places of rest, renewal, and learning, valued both traditionally and today for recreation and reflection.

Local economy
Healthy ecosystems support tourism, fishing, farming and businesses that rely on natural resources and scenic landscapes.

Sustainable agriculture
Clean water, healthy soils, and native vegetation underpin farming systems that can balance food production whilst supporting biodiversity.

Visitors and tourism
Pristine lakes, forests, and scenery attract visitors who boost the economy and can participate in conservation.

Recreation
Diverse ecosystems provide opportunities for fishing, hunting, hiking, swimming, skiing, and relaxation - enhancing quality of life.

Taoka species
All native species are taoka (treasures) for Kāi Tahu. Protecting them maintains cultural identity, biodiversity, and environmental health.

Scenic landscapes
Mountains, lakes, rivers, and native vegetation hold deep cultural and spiritual meaning while offering iconic beauty.

Ki uta ki tai (interconnectedness)
From mountains to sea, land, water, and people are connected - what affects one part of the system affects all.

Above: A view over Lake Hāwea, where crystal-clear waters meet rugged slopes, showcasing the beauty and scenic value of the Upper Lakes landscape. This iconic scenery is central to tourism and also serves as a source of inspiration, learning, and renewal for both the community and visitors alike.

ENVIRONMENTAL VALUES

Alpine and Subalpine

Mauka (mountain peaks) with specialised plants and wildlife. Snow and ice feed rivers and lakes, sustaining ecosystems, farms, and people. These are ancestral mountains of Kāi Tahu.

Beech Forest

Ancient beech forests with layered understory, rich soils, and strong water and carbon roles. Predator control allows birds, bats, geckos, and wētā to thrive.

Tussock Grassland

Extensive tussock grasslands capture and slowly release water, supporting downstream systems and diverse wildlife like skinks, moths, pipit, and kārearea.

Shrubland and Woodland

Hardy native shrubs and trees stabilise slopes, restore vegetation, and provide mahika kai and habitat for birds, insects, and skinks.

Naturally Uncommon Ecosystems (NUEs)

Rare ecosystems like gravels, braided riverbeds, and bogs that support biodiversity and rare native species.

Braided Rivers and Braidplains

Defining rivers with shifting gravel beds, important for mahika kai and taoka birds like dotterels, terns, and wrybill, as well as native fish.

Rivers and Riparian Zones

Rivers and streams vital for travel, mahika kai, and mauri. Healthy riparian zones stabilise banks, filter runoff, and provide habitat for whio, galaxiids, and aquatic insects.

Deepwater Lakes

Iconic deep lakes with clear water, cultural importance, and habitats for native birds. Historically rich in mahika kai, now valued for recreation but facing water quality trend declines and knowledge gaps.

Above: View of the Rees River, beech-clad valley slopes, and mountain peaks, illustrating how interconnected environmental values of river, forest, and alpine landscapes shape the Upper Lakes.

Smaller Lakes, like Waiwhakaata (Lake Hayes) through to and alpine tarns support diverse ecosystems, mahika kai, and birdlife. Their health is closely tied to land use and catchment mauri.

Wetlands
Diminished but vital swamps, bogs, and marshes that regulate water, cycle nutrients, and support native vegetation, fish, birds, invertebrates, and cultural connections.

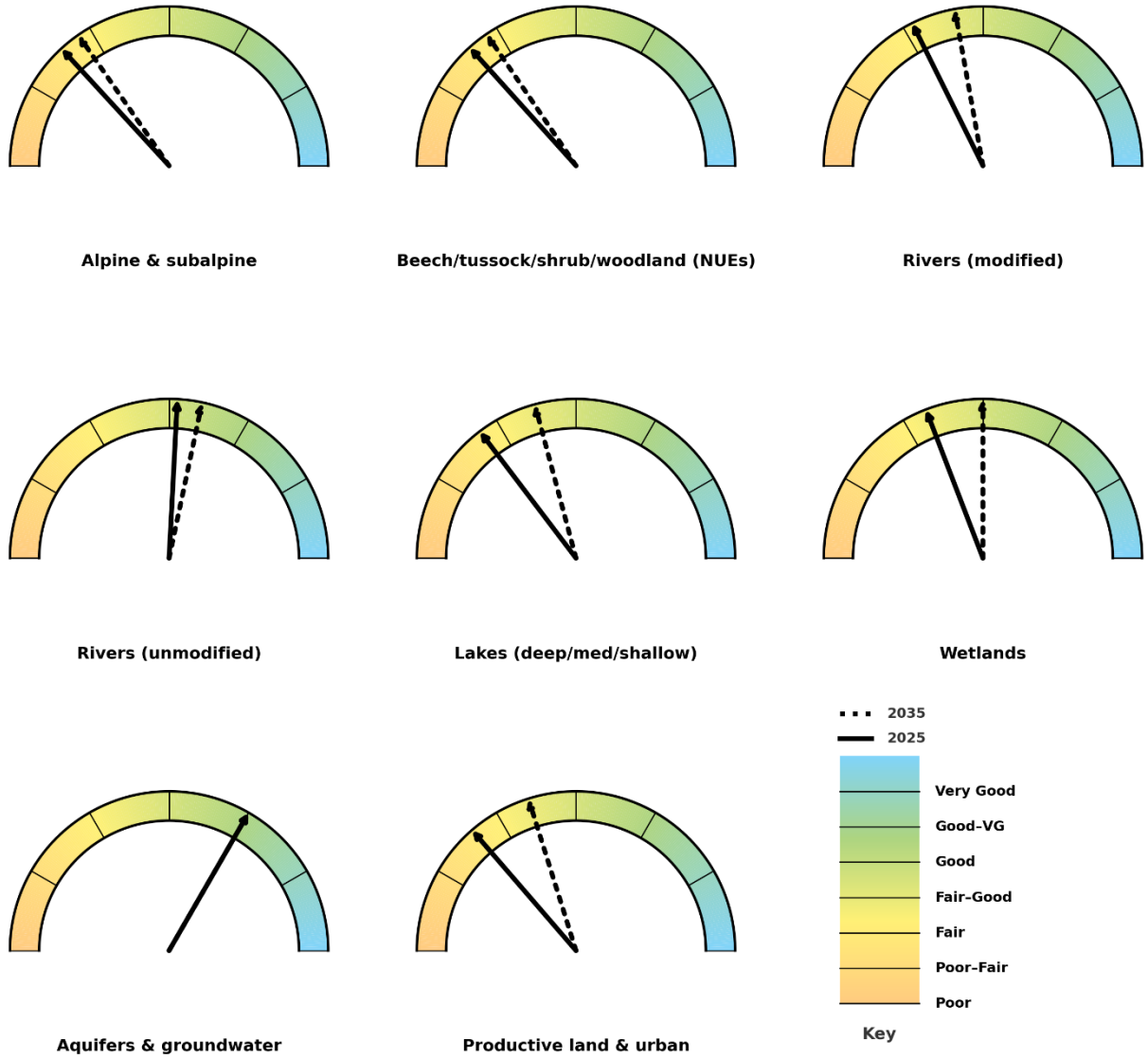
Aquifers and Groundwater
Underground water systems essential for drinking water, farming, biodiversity, and reflecting overall landscape health.

Productive Land
Farming, vineyards, and orchards central to community identity, intersecting with remnants of native ecosystems and novel habitats for birds and skinks.

Urban Spaces
Fast-growing towns that strongly influence freshwater quality and biodiversity. When well-designed, they connect people with nature and support regeneration.

Right: View across Lake Hāwea toward the small township on its edge, with blue skies and clear waters highlighting the lake's scenic setting.

ENVIRONMENTAL VALUE HEALTH SCORE



Above: Summary environmental health score card. The health of our environmental values were assessed by the Upper Lakes ICG, based on local environmental knowledge and supplied science reports. The scale from poor through to very good, is based on the viability of the environmental system. Some environmental values were grouped (such as beech/tussock/shrub/woodland and terrestrial NUEs) due to similarity, and others were split (rivers) due to significant health differences. The group assessed the current health in 2025 and where we could get to with 10 years of successful action, or, how much we could "shift the dial". The gap between current and future health helps guide realistic goal-setting.

ENVIRONMENTAL HEALTH GOALS

Environmental health goals set the direction for key attributes of our environmental values. They show the desired state we are working toward and guide the actions needed to get there.

Increase the abundance of native wildlife
By 2035, native wildlife is thriving and connected in low-predator spaces, with more populations self-sustaining compared to 2025.
Indicators: Species threat status, population stats, observations, birdsong, 5-min bird count.

Maintain or improve water quality
By 2035, river and lake water quality is maintained or improving from the 2025 baseline, supporting healthy freshwater ecosystems.
Indicators: Trophic level index, NOF band, water quality parameter trends

Improve freshwater ecosystem function
By 2035, aquatic weed impacts are reduced and in places are eliminated. Incursions are promptly delt with, and deepwater lake functional biodiversity is maintained or improved from the 2025 baseline.
Indicators: Aquatic life, ecosystem processes

Improve environmental conditions for mahika kai and enable safe use
By 2035, mahika kai species are increasing from the 2025 baseline, wāhi mahika kai (cultural food and resource gathering sites) are safe for use by mana whenua, and kaitiakitaka by mana whenua is supported.
Indicators: Species presence, abundance, diversity, safety

Increase overall native vegetation coverage and improve condition
By 2035, native vegetation cover and condition is improved compared to 2025, showing growth and succession with more taoka (treasured) plants present.
Indicators: Coverage, succession, threatened plants, canopy cover, biomass, submerged plant index

Improve overall wetland coverage and function
By 2035, wetland number, size, and function increase, with no further losses from the 2025 baseline. Wetland ecological and hydrological functioning, and resilience are apparent as part of the whole-catchment system.
Indicators: Coverage, hydrology measures

Maintain or improve naturally uncommon ecosystems (NUEs)
By 2035, the extent and function of NUEs is maintained to at least the 2025 level. NUEs are actively managed to protect and support the persistence and recovery of rare and threatened plants and wildlife.
Indicators: NUE number, coverage, threatened species presence

Strengthen ki uta ki tai (interconnectedness)
By 2035, land–water connections are stronger than in 2025, benefiting ecosystems from mountains to coast.
Indicators: Nutrient fluxes, riparian/wetland continuity, connectivity, fish passage, downstream integrity.

DRIVERS: ROOT CAUSES OF ENVIRONMENTAL PRESSURES

Historic introduction of species and insufficient control
Invasive species spread through intentional and accidental introductions, worsened by gaps in control, poor coordination, and inconsistent funding.

Increasing population and rapid development
Population is projected to grow sharply, driving vegetation clearance, stormwater, wastewater, and declining lake health – but also offering opportunities for volunteers, champions, and regenerative enterprises.

Recreational and tourism activities
Tourism and recreation growth increase habitat loss, invasive species spread, wildlife disturbance, and wastewater loads – but high visitor numbers also create platforms for awareness and conservation.

Intensification of agriculture
Irrigation has enabled more intensive farming, increasing water use, native vegetation loss, and runoff. Strong farming communities and catchment groups are working to address impacts.

Changing climate
Rising temperatures, rainfall extremes, snow and glacier loss, and more droughts and wildfires intensify pressures, favour some invasive species, and stress native ecosystems.

Knowledge gaps
Lack of knowledge on deeplake budgets, invasive interactions, and predator spread, limits evidence-based management; opportunities exist for science, mātauraka, and community monitoring.

PRESSURES ON ENVIRONMENTAL VALUES AND OBJECTIVES TO REDUCE THEM

Introduced Predator Mammals – ***Very High***
Introduced predator mammals such as stoats, ferrets, weasels, rats, hedgehogs, possums, mice and feral cats cause major impacts on native birds, lizards, and invertebrates. Surges are linked to beech masts. Stray cats remain a predator source.
Objective: Reduce introduced predator mammal populations (stoats, ferrets, weasels, rats, hedgehogs, possums, mice, feral cats)

Freshwater Invasive Organisms – ***Very High***
Lakes and rivers are affected by lagarosiphon, elodea, didymo, lindavia, and daphnia. They are costly to control, usually cannot be eradicated, and may spread faster with climate change.
Objective: Reduce the risk of new freshwater invasive organisms establishing
Objective: Contain and remove lagarosiphon

Wilding Conifers – ***Very High***
Wilding conifers spread rapidly, displacing native ecosystems, altering landscapes, reducing biodiversity and water yield, and raising wildfire risks. Large-scale coordinated community control has shown some success so far.
Objective: Reduce wilding conifer seed sources, infestations and re-infestations

Terrestrial Weeds – ***High***
Weeds like gorse, broom, lupin, willow, sycamore, and others alter terrestrial vegetation, wetlands and riparian zones. Dense infestations in braidplains change flood dynamics. New tools like drones and AI improve management.
Objective: Reduce terrestrial weeds (gorse, broom, willows, sycamores, lupins, yellow flag iris, buddleia, cotoneaster)

Environmental Conditions Unsuitable for Mahika Kai – ***High***
Mahika kai faces unsuitable conditions like dams, contamination, land conversion, and species decline, reducing abundance, cultural practice, and connection to place.
Objective: Improve environmental conditions for mahika kai and enable safe use.

Figure 8: Wilding conifers are a very high pressure, and can quickly take over native tussock and shrubs.

Clearing and Changing Native Vegetation and Wetlands – ***High***
Historic and ongoing clearance and earthworks continue to affect native vegetation and wetlands, with cumulative impacts often poorly documented.
Objective: Avoid clearing and change to native vegetation
Objective: Avoid clearing, draining or filling of wetlands

Introduced Herbivore Mammals – ***High***
Goats, pigs, deer, rabbits, hares, possums, chamois, and tahr browse and trample vegetation, uproot soils, and impact native plantings and productive land.
Objective: Reduce introduced herbivore populations (goats, pigs, rabbits, hares, possums, deer, chamois, tahr)

Stormwater and Wastewater Discharges – ***High***
Urban growth adds sediment, nutrients, pathogens, heavy metals, and plastics into waterways. Wastewater and stormwater infrastructure struggles to keep up.
Objective: Reduce contaminants – sediments, nutrients, pathogens, microplastics – in stormwater
Objective: Avoid wastewater discharge to freshwater

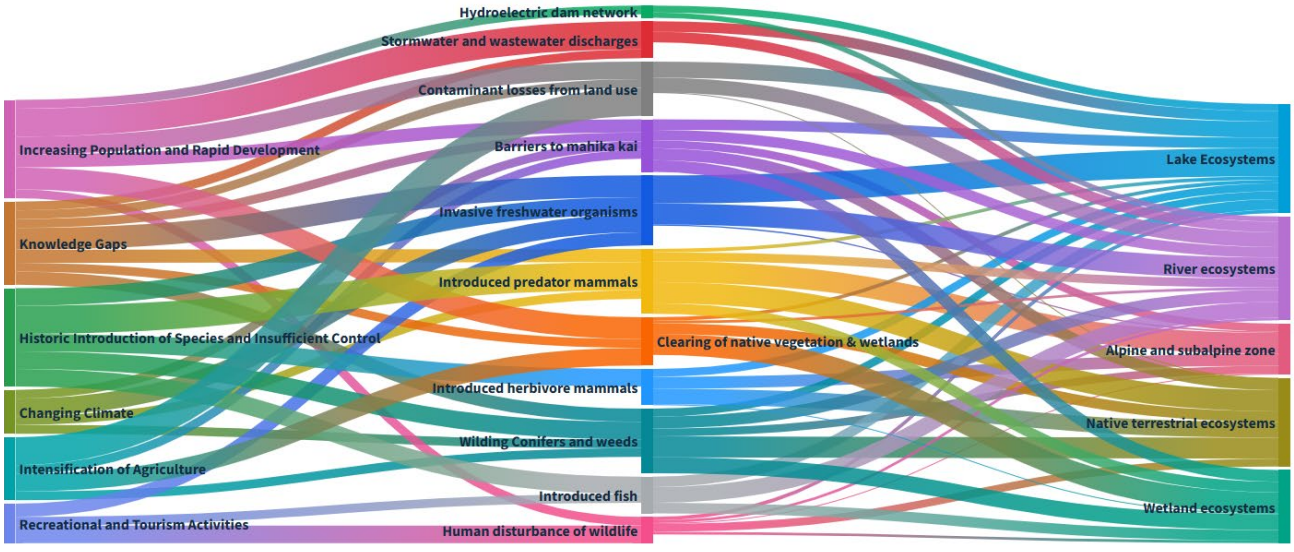
Contaminant Losses from Land Use – ***Medium***
Runoff and leaching from agriculture, rural land use and other diverse land uses, adds sediments, nutrients, pathogens, and agrichemicals to freshwater.
Objective: Reduce contaminants – sediments, nutrients, pathogens, agrichemicals – from land use entering freshwater

Microplastics – ***Medium***
Microplastics enter lakes, rivers, wetlands, soils, and food webs through stormwater, wastewater, and the breakdown of plastics.
Objective: Reduce contaminants – sediments, nutrients, pathogens, microplastics – in stormwater

Introduced Fish – ***Medium***
Trout, salmon, and perch impact smaller native fish such as galaxiids, koaro, and bullies, where they can interact. Fishing is culturally and recreationally important.
Objective: Reduce introduced fish interactions with non-migratory galaxiids

Hydroelectric Dam Network – ***Medium***
Dams on the Clutha system block tuna kuwharuwharu (longfin eel) and kanakana (lamprey) migrations, causing major declines. Small-scale manual tuna trap and transfers have shown promise.
Objective: Assist tuna kuwharuwharu (longfin eel) migration and kanakana (lamprey) migration
Objective: Improve environmental conditions for mahika kai and enable safe use

Above: Block diagram of pressure analysis results. The Upper Lakes ICG assessed the impact of each pressure on environmental values in a matrix, rating them from low to very high. The analysis helps prioritise actions, but serves only as a guide - decisions also weigh what is feasible and what will deliver the greatest benefits across values.



Above: Sankey diagram showing the relationships between drivers, pressures, and environmental value categories. Mapping these linkages illustrates how a single driver can generate multiple pressures, and how each pressure can affect several values. An interactive version of this diagram is available on the Upper Lakes hub: upper-lakes-orcnz.hub.arcgis.com.

ACTION PLAN

We acknowledge that the development of these strategies must be grounded in meaningful partnership with mana whenua. A dedicated partnership plan (strategy 3) will be prepared to ensure mana whenua are appropriately resourced and enabled to participate to the extent they wish to.

Each strategy was assessed for impact on environmental values within the place the strategy would occur, and feasibility of the strategy including capability, affordability and alignment with current work by the community and agencies.

The actions presented here represent an initial plan only. They will be adapted as required, with a clear commitment to respond to changes in pressures, and with further mana whenua direction and guidance.

FOUNDATIONAL PROGRAMME

Strategies in the foundational programme support all other actions in the plan. They are long-term and ongoing approaches that should be initiated early in CAP delivery to ensure the sustained success of on-the-ground actions.

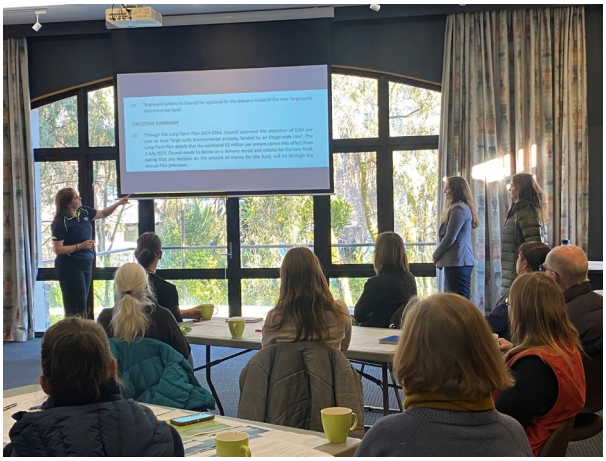
STRATEGY 1: DEVELOP A LONG-TERM AND DIVERSE FRAMEWORK THAT SUSTAINS FUNDING THAT WILL SUPPORT ACTIONS

Objective: Develop a long-term, sustainable, and diverse funding framework to deliver CAP strategies and support proactive, community-led restoration.
Key people: Upper Lakes Integrated Governance Group (to be formed), mana whenua, catchment and conservation groups supported by agencies.

Pressure(s) addressed: ★★☆☆ **Impact:** ★★☆☆ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Funding that recognises landscape-scale action is a long game:** Advocate for long-term funding that supports landscape-scale actions such as predator control and plantings.
b) **Investable restoration actions:** Measure economic value of restoration benefits and create investable projects for self-sustaining action.
c) **Cost-benefit-based early intervention:** Prioritise early interventions where cost-benefit shows effectiveness and reduced long-term costs.
d) **Help land holders fund action:** Provide funding tools like co-funding, loans, levies, and credit systems for landholder restoration.



Above: The Upper Lakes ICG held a group discussion in Wānka, that highlighted the need to work though sustainable funding options.

STRATEGY 2: INCREASE SCIENCE, RESEARCH AND KNOWLEDGE SHARING FOR THE COMMUNITY

Objective: Identify and bridge knowledge gaps, and provide accessible science to enable evidence-based management and support CAP strategies.
Key people: Deep Lakes Technical Advisory Group, mana whenua, Upper Lakes CAP Governance Group, Enviroschools, catchment and conservation groups, ORC, University of Otago, WAI Wānaka.

Pressure(s) addressed: ★★☆☆ **Impact:** ★★☆☆ **Feasibility:** ★★★☆

Initial action plan 3-5 years:

a) **Deep Lakes research programme:** Research deepwater lake trajectories, nutrient budgets, food webs and invasive species; apply the results to management of land use.
b) **Build on current community science opportunities:** Support community monitoring with coordination, robust methods, advice, and data storage.
c) **Develop an interactive CAP data system:** Create a digital mapping platform for real-time data and community observations.
d) **Establish a knowledge sharing network:** Build a collaborative network linking groups, mana whenua, scientists, and experts.

Above: ORC scientist sampling deepwater lakes for trace metals analysis.

STRATEGY 3: STRENGTHEN OUR MANA WHENUA PARTNERSHIP IN THE UPPER LAKES AREA

Objective: Continue to build partnerships between mana whenua, government, and conservation groups to uphold Kāi Tahu values and shared aspirations.
Key people: Mana whenua, Upper Lakes Integrated Governance Group (to be formed), Waiwhakaata Strategy Group, catchment groups, QLDC, ORC.

Pressure(s) addressed: ★★★☆ **Impact:** ★★☆☆ **Feasibility:** ★★★★

Initial action plan 3-5 years:

a) **Support development of meaningful mana whenua partnership engagements:** Develop a partnership plan that ensures genuine and meaningful korero (discussions) and mahi (work) that reflects partnership commitments and to ensure mana whenua are appropriately resourced and enabled to participate to the extent they wish.
b) **Reflect the Waiwhakaata Rautaki (strategy) in our work together:** Use the rautaki as a pathway to position the mauri (life force) and mana (prestige) of te taiao (the environment) and the catchments as the central priority for what we do in partnership.

STRATEGY 4: IMPROVE ENVIRONMENTAL CONDITIONS FOR MAHIKA KAI AND ENABLE SAFE USE

Objective: Strengthen understanding of mahika kai, improve conditions at sites, and increase species abundance.
Key people: Mana whenua, Upper Lakes Integrated Governance Group, Waiwhakaata Strategy Group, catchment groups, QLDC, ORC.

Pressure(s) addressed: ★★★☆ **Impact:** ★★☆☆ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Strengthen community education on mahika kai:** Strengthen community knowledge and awareness of mahika kai practices, along with increasing the broader understanding of what mahika kai is, and its importance in Kāi Tahu life and identity, as determined by mana whenua.
b) **Integrate mahika kai across actions:** Invest in mana whenua-led plans, designs and/or guidelines, to ensure mahika kai resources, habitats, and practices are appropriately built into large-scale restoration and enhancement projects

NATIVE WILDLIFE PROGRAMME

STRATEGY 5: CONTROL INTRODUCED PREDATOR MAMMALS

Objective: Reduce predator mammal populations to increase native wildlife, enhance mahika kai, and protect uncommon ecosystems.
Key people: Predator control groups, community trapping groups, catchment groups, Department of Conservation.

Pressure(s) addressed: ★★★★ **Impact:** ★★★☆ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Use advanced and innovative trapping and monitoring tools:** Expand use of smart traps, sensors, and real-time monitoring.
b) **Enhance current core-buffer-corridor control operations:** Intensify predator control in core areas, buffer zones, and wildlife corridors.
c) **Establish a predator elimination zone in 5–10 years:** Create a 10,000 ha predator elimination zone with aerial baiting and perimeter trapping.
d) **Expand community engagement and trapping in urban/semi-rural areas:** Grow backyard trapping groups and trap libraries with training and support.
e) **Support responsible companion cat ownership and policy interventions:** Promote responsible cat ownership through education and policy advocacy.
f) **Strengthen feral cat control:** Develop targeted feral cat control plans guided by monitoring data.

Above: Community trapping plays a vital role in building community engagement, and contributing to the wider operations.

STRATEGY 6: ASSIST TUNA KUWHARUWHARU (LONGFIN EEL) AND KANAKANA (LAMPREY) MIGRATION, IN PARTNERSHIP WITH MANA WHENUA

Objective: Support tuna (eel) and kanakana (lamprey) migration to enhance wildlife, mahika kai, freshwater ecosystems, and ki uta ki tai.
Key people: Mana whenua, Contact Energy, WAI Wānaka, catchment groups.

Pressure(s) addressed: ★★☆☆ **Impact:** ★★★☆ **Feasibility:** ★★★☆

Above: Tuna (longfin eel), a taoka species important for ecosystem health. They help maintain balance in freshwater systems and reflect the

Initial action plan 3-5 years:

a) **Mana whenua-led collaboration with key partners to increase tuna (eel) trap and transfer:** Strengthen partnerships to expand elver and adult tuna trap and transfer up and downstream of dams.
b) **Support mana whenua-led tuna research:** connect with and support mana whenua-led research on elver arrival, survival, and health of transferred tuna.
c) **Monitor tuna (eel) health in the deepwater lakes:** Develop a mana whenua-led monitoring plan with community involvement.
d) **Support a kanakana assisted passage programme:** Understand mātauraka of kanakana in the Upper Lakes CAP area and support mana whenua-led research that can lead to a trial of assisted passage.

STRATEGY 7: PROTECT AND ENHANCE GALAXIID HABITATS

Objective: Reduce interactions between introduced fish and galaxiids to boost native wildlife and freshwater ecosystem health.
Key people: Otago Fish and Game, catchment groups, mana whenua, DOC, ORC.

Pressure(s) addressed: ★★☆☆ **Impact:** ★★★★ **Feasibility:** ★★★★

Initial action plan 3-5 years:

a) **Determine galaxiid distribution with mātauraka (Kai Tahu knowledge) and eDNA:** Form a clearer picture of non-migratory galaxiid distribution, building on recent work using eDNA analysis, along with mātauraka.
b) **Provide on-site community and visitor education on galaxiids:** Install educational storyboard signage on galaxiids at tracks and rest stops.
c) **Undertake galaxiid habitat restoration:** Improve habitats with barriers, trout removal, culvert fixes, and planting.

Above: many of the non-migratory galaxiids are endemics found only in particular regions, including Otago.

STRATEGY 8: CONTROL WILDING CONIFERS (PINES AND FIRS) AND TERRESTRIAL WEEDS

Objective: Reduce wilding conifers and terrestrial weeds to improve vegetation, expand natives, and protect ecosystems.
Key people: Wilding conifer groups, catchment groups, national programmes, QLDC, DOC, MPI, LINZ, ORC.

Pressure(s) addressed: ★★★★ **Impact:** ★★★★ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Build community weeds knowledge:** Expand education on pest plant identification, impacts of weeds, and effective control methods. Bring our community along with us, for coordinated control work.
b) **Maintain a wilding conifer spread map:** Update and maintain data on the spread of wilding conifers and develop a dynamic digital heatmap identifying seed sources and dispersal hotspots.
c) **Replace conifer seed sources with native plants or non-spreading exotics:** Promote the phased removal of conifer shelterbelts, woodlots, and visual screening plantings that pose a risk of wilding spread. Replace with natives or non-spreading exotics.
d) **Support and enable collaborative weed control:** Share crews, resources, and expertise across groups for effective control. Coordinate control work across landholders for collective impact.

Above: Wilding conifers on slopes around Whakatipu Waimāori (Lake Wakatipu). These invasive trees spread rapidly, threatening native ecosystems and altering the iconic landscape.
Photo credit: Whakatipu Wilding Conifer Control Group.

e) **Address emerging weed pressures:** Proactively manage fast-spreading weeds recognising the cost-benefit of early intervention to stop spread.
f) **Control weeds in braided rivers:** Manage weeds that alter river dynamics and nesting habitats.
g) **"Right plant, right place" and targeted control approach:** Focus weed control efforts based on risk to native ecosystems, functioning of waterways, mahika kai and catchment landscapes. Apply control methods carefully using precision techniques.

STRATEGY 9: PROTECT, RESTORE AND ENHANCE NATIVE VEGETATION

Objective: Protect existing native vegetation, expand planting, and reduce browsing by introduced herbivores.
Key people: Planting groups, nurseries, catchment groups, mana whenua, DOC, QLDC, ORC.

Pressure(s) addressed: ★★★☆ **Impact:** ★★☆☆ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Ensure our native plantings are adequately maintained:** Fund maintenance for at least 3 years to ensure survival and growth. Ensure projects are not "plant and walk away".
b) **Support community nurseries:** Strengthen native seedling nurseries for propagation, non-restrictive eco-sourcing, and climate resilience.
c) **Improve public access to eco-sourced native plants:** Promote and improve public access to diverse, non-restrictive eco-sourced native plant seedlings for residential use
d) **Develop a spatial native vegetation restoration plan:** Model where planting, regeneration, and protection should occur for long-term ecological connectivity, climate resilience.
e) **Incentivise retirement of marginal land and protection of habitats:** Provide incentives to retire land and covenant sensitive habitats.

Above: Native planting by Lake Wānaka, where community members can support restoration by watering plants with equipment provided on site.

f) **Coordinate goat and pig control:** Facilitate coordinated control between landholders and across boundaries to reduce browsing.
g) **Increase rabbit and hare control:** Fund rabbit-proof fencing, rabbit guards for seedlings, and coordinated control efforts.

Above: Community planting on the shore of Lake Hāwea, showcasing the great work volunteers are doing to restore and care for the lakeshore environment.

STRATEGY 10: PROTECT, RESTORE AND ENHANCE WETLANDS

Objective: Protect and restore wetlands to increase extent, function, biodiversity, and downstream water quality.
Key people: Catchment groups, nurseries, planting groups, mana whenua, QLDC, ORC.

Pressure(s) addressed: ★★★☆ **Impact:** ★★★★ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Build community wetland knowledge:** Build community knowledge and awareness of wetland values - nutrient cycling, flow regulation, native biodiversity, and mahika kai.
b) **Share wetland restoration guidance:** Provide best practice guidance on wetland restoration and mana whenua-led guidance on wetland mahika kai enhancement.
c) **Provide a start-to-finish support package for wetland restoration:** Provide a package of start-to-finish support including access to experts, planting design, coordination of on-the-groundwork and on-going maintenance support.
d) **Control willows in wetlands:** Enable phased willow removal with streamlined consents and experienced operators.

Above: Butterfield Wetland. Wetlands are biodiversity hotspots, important for mahika kai, and play a vital role in filtering water and cycling nutrients.

STRATEGY 11: REDUCE CONTAMINANTS FROM STORMWATER AND WASTEWATER

Objective: Reduce stormwater and wastewater contaminants to improve water quality, freshwater ecosystems, and mahika kai.
Key people: QLDC, WAI Wānaka, Enviroschools, ORC, Guardians of Lake Wānaka, Guardians of Lake Hāwea, developers.

Pressure(s) addressed: ★★★☆ **Impact:** ★★☆☆ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Build community stormwater awareness:** increase delivery of community education programmes such as "our drains are streams", "adopt a drain", and rain garden workshops.
b) **Enable property level water-sensitive solutions:** Enable residential/commercial property-level water sensitive solutions - rain tanks, greywater systems, rain gardens, and permeable surfaces.
c) **Encourage best practice stormwater design:** Partner with residential and commercial developers to celebrate best practice stormwater design, and examples of water sensitive urban design
d) **Investigate stormwater contamination sources:** Understand sources of stormwater contamination to deepwater lakes though a scientific study
e) **Advocate for wastewater discharge to land:** Promote best practice land disposal and oppose wastewater discharges to water.

Above: Stormwater drain in Wānaka. Local community members have been "adopting drains," helping to keep them free of litter and pollutants to protect the waterbodies that stormwater is discharged to, such as Lake Wānaka.

STRATEGY 12: REDUCE CONTAMINANT LOSSES FROM LAND USE

Objective: Reduce sediments, nutrients, pathogens, and agrichemicals from land use entering freshwater.
Key people: Catchment groups, ORC catchments team.

Pressure(s) addressed: ★★☆☆ **Impact:** ★★★☆ **Feasibility:** ★★☆☆

Initial action plan 3-5 years:

a) **Provide a start-to-finish support package for contaminant management:** Enable fencing, planting out gullies, buffer strips, sediment traps, wetlands and riparian planting – Provide start-to-finish support including access to experts, design, easy consenting.
b) **Develop a co-funding programme for contaminant management:** Help landholders co-fund runoff and sediment measures across diverse land uses.
c) **Support contaminant management with advice, data and modelling tools:** Encourage on-the-ground observations during heavy rain events and provide follow-up advice for mitigation, with an "education over regulation" approach.

STRATEGY 13: REINFORCE FRESHWATER BIOSECURITY IN DEEPWATER LAKES

Objective: Reduce risk of new invasives and contain/remove lagarosiphon to protect ecosystems and mahika kai.
Key people: LINZ, MPI, Fish and Game, ORC.

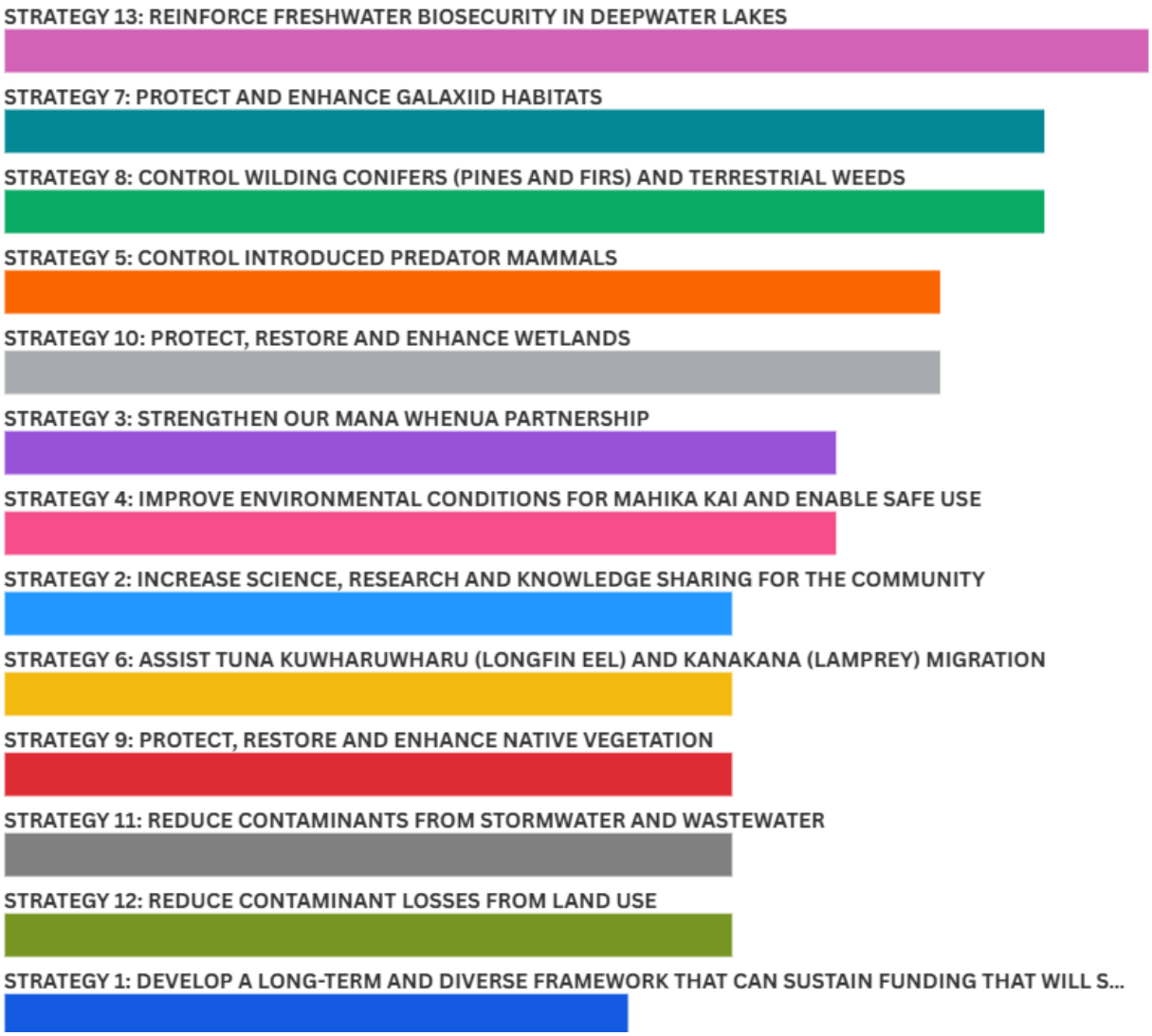
Pressure(s) addressed: ★★★★ **Impact:** ★★★☆ **Feasibility:** ★★★★

Initial action plan 3-5 years:

a) **Build community awareness of invasive freshwater organisms:** Increase signage, leaflets and community events focusing on best practice check, clean and dry practices.
b) **Build check, clean, dry capacity with the tourism and visitor industry:** Work with tourism operators and visitor-based businesses to provide visitors with access to cleaning equipment, and train key tourism staff to share 'Check, Clean, Dry' knowledge.
c) **Continue work to contain and remove lagarosiphon:** Contain and remove lagarosiphon from Whakatipu Waimāori and northern Lake Wānaka. Continue progressive containment and sustained control action in southern Lake Wanaka and upper Kawarau River
d) **Increase lagarosiphon surveillance and infestation prevention**: Ensure detection and delimitation of lagarosiphon infestation with divers and cameras, as a key management step. Provide cleaning facilities for vessels entering deepwater lakes

Above: ORC Environmental Monitoring Technician showing lagarosiphon, an invasive lake weed that forms dense growths, displacing native plants and impacting

Below: Chart showing strategy ratings, calculated from the size of the pressure reduced, the impact of the actions, and their feasibility (including affordability, capability, and whether community or agency work is already underway in the CAP area). The ratings provide guidance for prioritisation but do not determine decisions, as all strategies must work together in an integrated way.



CARRYING THE PLAN FORWARD

DELIVERY AND GOVERNANCE

An Upper Lakes CAP Governance Group will be established, made up of core members (including mana whenua) with decision-making power. A wider circle of collaborators will be invited to participate as the work progresses. Clear terms of reference will guide the governance group, and participation is expected to evolve over time.

Delivery of actions will not rest with governance alone but with conservation and catchment groups, mana whenua, agencies (including ORC), landholders, and industry partners who will lead projects on the ground. These partners bring the local knowledge, capacity, and commitment needed to turn strategies into real outcomes for the Upper Lakes.

Practical support will come from ORC work programmes and CAP delivery coordination, ensuring alignment with regional priorities and technical expertise. To resource delivery, the governance group will actively seek contestable funds, agency budgets and other funding sources, while also recognising the significant value of volunteer time, community effort, and in-kind contributions. This shared responsibility and resourcing model reflects the collective impact approach at the heart of the CAP, where success depends on many hands working together.

KICKING THINGS OFF

Grounding strategies in early, tangible projects is critical for turning vision into momentum. Visible implementation delivers environmental benefits, builds trust and confidence, and ensures the plan stays a living action plan by translating 13 strategies into practical first steps for collaboration.

CAP strategies are most effective when combined into multi-faceted projects. Community-led initiatives already underway could integrate several strategies, and the CAP Governance Group may identify three or four projects to put forward for contestable funding in 2026.

The Upper Lakes ICG has suggested Te Tapunui Queenstown Hill (wilding fir removal, native planting, goat control, stream restoration, predator control) as a project that already has a plan in place but still requires funding, and it aligns with several strategies. Other options that could build on community action include Bullock Creek and Horne Creek (riparian planting, wetland and stormwater improvements), Hāwea Foreshore (planting, wetland, predator control), the Puahere/Rees and Te Awa Whakatipu/Dart braided rivers (weed and predator control, and links to natural hazards), and Makarore/Makarora (weed and predator control from forest to alpine).

Many actions within the 13 strategies can serve as early “first steps” or long-term priorities. The Governance Group, working with mana whenua, local groups, and ORC support, may choose to kick-start actions that enable further progress. Some examples include:

- Developing an Upper Lakes CAP partnership plan.
- Update data on the spread of wilding conifers and identification of seed sources.
- Undertake a pilot project to showcase property level water-sensitive solutions (e.g. rain gardens) and collaborate with developers to celebrate at least one example of best practice stormwater design.
- Improve public access to eco-sourced plants and increase capability for planting maintenance.

- Develop a spatial native vegetation restoration plan, in collaboration with community planting groups.
- Build check, clean, dry capacity with the tourism and visitor industry.
- Advocate for policy interventions that promote responsible cat ownership.
- Connect with mana whenua-led tuna kuwharuwharu (longfin eel) and kanakana (lamprey) research.
- Support catchment groups with facilitation of collaborative weed control and mechanisms to share resources.

MONITORING PLAN

Monitoring will track delivery of actions, measure progress towards objectives, and test assumptions to ensure the CAP remains effective and adaptive. A framework of indicators will guide assessment of pressures, environmental health, and cultural values (appendix 1-4). Progress will be tracked using existing monitoring programmes (ORC monitoring, local and national agency monitoring and open sources data) and community science.

COMMUNICATIONS

The CAP will be shared widely to maintain transparency and collective ownership. Communication will use tools such as an interactive ArcGIS Hub, printed and digital summaries, community events, and local displays, supported by ongoing engagement with mana whenua, landholders, groups, and the wider community.

ADAPTIVE MANAGEMENT AND REVIEW

The CAP will be managed adaptively, with an 18-month health check and a five-year evaluation to assess progress, address pressures, and adjust actions. While the vision remains constant, strategies and priorities will evolve as new knowledge, collaborators, and resources emerge.

APPENDIX 1: DRAFT ACTION MONITORING FRAMEWORK

Strategy	Monitoring Indicators
1. Long-term funding framework	Amount of secured funding ($), number of funding sources, proportion of projects co-funded
2. Science, research, knowledge sharing	Number of research projects completed, number of community science participants, data platform use (uploads/visits)
3. Mana whenua partnership	Number of hui/workshops held, number of projects with mana whenua leadership, integration of Waiwhakaata Rautaki
4. Mahika kai conditions & safe use	Number of mahika kai sites restored, species abundance (e.g. tuna), number of community education events
5. Predator control	Remaining population of predator mammals (trapping indices, camera counts), area under active predator control (ha)
6. Tuna migration & research outcomes	Number of tuna transferred, elver transfer success rate, research outcomes on elver growth, survival, and health
7. Galaxiid habitats	Number of habitats restored (km/ha), galaxiid abundance (eDNA, monitoring counts), number of barriers installed/modified
8. Wilding conifers & terrestrial weeds	Area of conifers/weed controlled (ha), area replanted (ha), conifer seed source removal (shelterbelts replaced)
9. Native vegetation	Number of plants planted, survival rate (%), area of protected native vegetation (ha), area retired from grazing
10. Wetlands	Area of wetlands restored or created (ha), number of wetland sites under protection, willow control area (ha)
11. Stormwater & wastewater	Number of stormwater treatment devices installed, number of properties with water-sensitive solutions, water quality indicators (nutrients, pathogens, microplastics)
12. Land use contaminants	Area of land under contaminant management (ha), number of landholders supported, sediment/nutrient reductions (kg/yr)
13. Freshwater biosecurity	Number of Check, Clean, Dry stations, number of visitors reached through awareness, area of lagarosiphon controlled (ha), detections of invasive species

APPENDIX 2: DRAFT PRESSURE REDUCTION MONITORING FRAMEWORK

Pressure reduction objectives	Attribute	Indicator(s)
Reduce introduced predator mammal populations (stoats, ferrets, weasels, rats, hedgehogs, possums, mice and feral cats)	Remaining predator abundance	Catch per unit effort, tracking (camera traps, tracking tunnels, scat surveys)
Reduce the risk of new freshwater invasive organisms establishing	Organism detection	eDNA, biosecurity inspections
Contain and remove lagarosiphon	Infestation coverage	Size of eradication zone, containment zone and control zone, detections of lagarosiphon
Reduce wilding conifer seed sources, infestations and re-infestations	Extent and density of infestation	Infestation coverage and density mapping, remote sensing, time until follow-up control effort required
Reduce terrestrial weeds (gorse, broom, willows, sycamores, lupins, yellow flag iris, buddleia, cotoneaster)	Extent and density of infestation	Mapped area infested, weed density score, time until follow-up control effort required
Improve environmental conditions for mahika kai and enable safe use	Mahika kai health & accessibility	Presence, abundance, diversity, and safety
Avoid clearing and change to native vegetation	Covenants and protection	Area covenanted (ha)
Avoid clearing, draining or filling of wetlands	Size of wetlands	Wetland coverage (ha)
Reduce introduced herbivore populations (goats, pigs, rabbits, hares, possums, deer, chamois and tahr)	Remaining herbivore population size	Fecal pallet counts, night spotlight counts, camera traps, rebound rate, aerial surveys
Reduce introduced fish interactions with non-migratory galaxiids	Number of trout in stream, abundance of galaxiids	Fish surveys
Reduce contaminants - sediments, nutrients, pathogens, microplastics - in stormwater	Stormwater quality	Discharge and receiving water sample analysis
Avoid wastewater discharge to freshwater	Number of discharges and quality	Discharge and receiving water sample analysis
Reduce contaminants - sediments, nutrients, pathogens, agrichemicals – from land use entering freshwater	Number of landholder actions	Count and size (fencing, planting out gullies, buffer strips, sediment traps, wetlands and riparian planting)
Assist tuna kuwharuwharu (longfin eel) migration and kanakana (lamprey) migration	Elver transfer volume, adult tuna transfer count, kanakana detections	Kg of elvers per year, number adults transferred, eDNA

APPENDIX 3: DRAFT KEY ATTRIBUTE-BASED ENVIRONMENTAL HEALTH MONITORING FRAMEWORK

Environmental health goal	Key Attribute	Indicator
Increase the abundance of native wildlife	Native wildlife	Species threat status, population statistics, observations, birdsong level, 5-minute bird count
Maintain or improve water quality	Water quality (lakes, rivers, groundwater)	Lake trophic level index, national objective framework band, water quality parameter trends
Improve freshwater ecosystem function	Freshwater ecosystem function	Aquatic life and ecosystem processes
Improve the abundance and accessibility of mahika kai	Mahika kai health & accessibility	Presence, abundance, diversity, and safety
Increase overall native vegetation coverage and improve condition	Native vegetation coverage and condition (beech, shrub, tussock, riparian, submerged, wetland)	Coverage (ha) per type, vegetation type succession observations, threatened plant presence, canopy cover, biomass, submerged plant index
Maintain or improve overall wetland coverage and function	Wetland coverage and function	Wetland coverage (ha), wetland hydrology
Maintain or improve naturally uncommon ecosystem functions	Naturally uncommon ecosystem functions	Naturally uncommon ecosystem number and coverage (ha), threatened species presence, ecological integrity
Strengthen ki uta ki tai (interconnectedness)	Interconnectedness	Nutrient fluxes, riparian and wetland continuity, habitat connectivity, fish passage. Water quality and ecosystem integrity connecting to other CAPs downstream
	Water quantity	River flow, lake level, depth to groundwater
	Soil health	Structure, nutrients and soil life

APPENDIX 4: DRAFT COMMUNITY AND CULTURAL VALUE MONITORING FRAMEWORK

Community and cultural value	**Attribute**	**Indicator**
Waimāori (fresh water)	Drinking water	Boil water notices
	Recreational swimming water	E. coli long term grade
Mahika kai	Mahika kai health & accessibility	Presence, abundance, diversity, and safety
Health and wellbeing	Overall quality of life	Percent rate their quality of life as good or extremely good (QLDC)
	Physical and mental health	Percent rate their physical health as excellent or mostly good
		Percent rate their mental health as excellent or mostly good (QLDC)
Rest, replenishment and learning	Mental health	Percent rate their mental health as excellent or mostly good (QLDC)
Local economy	Jobs and income	Percent have some or a sufficient level of disposable income (QLDC)
Sustainable agriculture	Environmental certifications	Number of farms with environmental certifications
Visitors and tourism	Sustainable tourism experiences	Number of available sustainable tourism experiences in region
Recreation	Neighborhood participation	Percent participate in activities in neighborhood (QLDC)
	Sustainable tourism experiences	Number of available sustainable tourism experiences in region
	Recreational swimming water	E. coli long term grade
Taoka species	Ecosystem integrity	Indigenous biodiversity and habitat extent
Outstanding landscapes	Outstanding natural landscapes and features	Data being sought (QLDC)
Ki uta ki tai (interconnectedness)	Health of Mata Au / Clutha River	Water quality and ecosystem integrity connecting to other CAPs downstream

Above: View across the Cardrona Valley.