

Notice of Determination

This notice of determination is being issued by Parks Canada under the Impact Assessment Act and applies to the proposed Zebra Mussel treatment options for Clear Lake assessed throughout the Detailed Impact Assessment.

Proposed Project

Zebra Mussels have been confirmed for the first time in Clear Lake in RMNP through positive eDNA samples and a cluster of adults, discovered suspended in the water amongst woody debris in Clear Lake's Boat Cove in November 2023. As the Zebra Mussels were not anchored to a fixed substrate in the lake, the discovery does not constitute a confirmed viable population.

Zebra Mussels can cause significant, irreversible impacts on freshwater ecosystems. Zebra Mussels can also have significant socio-economic impacts, affecting recreational use/enjoyment of lakes, beaches, and shorelines, increasing the risk of toxic blue-green algal blooms and bacterial outbreaks, and causing costly damage to infrastructure and property. Conditions in Clear Lake are suitable for Zebra Mussels to thrive. Should a viable population be confirmed, Zebra Mussels could rapidly spread throughout Clear Lake and downstream.

To ensure that Parks Canada is prepared to initiate a rapid response in the event that a viable population of Zebra Mussels is confirmed in Clear Lake, an analysis of IPM options was prepared and three treatment options were identified that are currently feasible for Clear Lake:

1. Potash Molluscicide, applied in small areas of the lake isolated with silt curtains;
2. Physical Control (e.g., manual removal, and the use of benthic mats); and
3. Combined use of Potash Molluscicide and physical control.

The appropriate approach to treatment for Zebra Mussels in Clear Lake, including locations and which of the treatment options are implemented, will be determined based on the results of RMNP's ongoing Zebra Mussel monitoring. RMNP will communicate with local Indigenous communities, including KOFN and the CFN, stakeholders, and the public about the ongoing status of Zebra Mussel monitoring and treatment in Clear Lake. Communications will include whether a viable population of Zebra Mussels is confirmed and, if a viable population is confirmed, the locations and approach for treatment. If a Zebra Mussel population is confirmed over the winter of 2024, treatment may need to occur as early as ice-off (early May) in 2024.

Summary of Analysis

This DIA examined the risks and benefits of the proposed Zebra Mussel treatment options to natural or cultural elements in Clear Lake, the Study Area, and downstream. A summary of the DIA analysis results is provided below.

“No Action”

In addition to evaluating the proposed treatment options, the DIA also evaluated the impacts of a “No Action” scenario. This scenario would result if RMNP did not take active steps to manage or control Zebra Mussels. This scenario could also occur if Zebra Mussel monitoring indicates that eradication is not feasible.

In the “No Action” scenario, there are significant adverse impacts on all VCs, with the exception of terrestrial VCs. By substantially altering the aquatic ecosystem, the establishment of Zebra Mussels could result in significant, long term, irreversible, and potentially unpredictable impacts on Indigenous subsistence and cultural harvest, fish and fish habitat, native freshwater mussels, other non-target aquatic invertebrates, water quality, and aquatic birds. Aquatic vegetation is also anticipated to be affected. Phytoplankton is anticipated to decline due to Zebra Mussel filter feeding. Some aquatic macrophytes may benefit from increased water clarity and sunlight penetration, however, ecosystem-level changes are difficult to predict and negative effects could occur.

The establishment of Zebra Mussels could result in irreversible, continuous, local impacts on the Clear Lake Pier and undiscovered cultural resources or artifacts in Clear Lake. Surveys in areas of high potential for archaeological sites could reduce impacts, however, it is unlikely that all undiscovered cultural resources could be protected. The Clear Lake Pier could be repaired and/or replaced, however this would be an additional and ongoing maintenance cost for Parks Canada.

The establishment of Zebra Mussels is also expected to have significant impacts on visitor experience. The sharp shells of Zebra Mussels could cover and foul beaches and shorelines, recreational fishing opportunities could be affected, lake closures due to toxic blue-green algal blooms and pathogenic bacterial outbreaks could be more likely, infrastructure and property could be damaged, and water-based experience offers could be disrupted. Visitor experience in other RMNP lakes could also be affected as the AIS prevention program or closures may be necessary to prevent the spread of Zebra Mussels.

Overall, the “No Action” scenario, resulting in the establishment of Zebra Mussels, could have significant negative and permanent impacts on the physical, chemical, and

biotic aquatic components, as well as on visitor experience within the Study Area. The establishment of Zebra Mussels is likely to also result in the broader watershed and downstream watercourses (Clear (Wasamin) Creek, the Little Saskatchewan River, and the Assiniboine River) being similarly colonized and negatively and permanently impacted by Zebra Mussels over time.

1. Potash Molluscicide

According to Health Canada's PMRA, there is reasonable certainty that there will be no harm to human health or the environment from Potash Molluscicide under approved conditions of use. This is corroborated in the DIA analysis; Potash Molluscicide is not anticipated to have significant impacts on VCs. Potash Molluscicide will kill all native freshwater mussels within treatment areas; however, it is expected that these impacts will be predictable and manageable and that native freshwater mussels will recover over time. Impacts from Potash Molluscicide on native freshwater mussels will also be addressed in consultation with the DFO. Overall, the balance of effects for native freshwater mussels favours the relatively minor impacts from Potash Molluscicide compared to the significant negative impacts of Zebra Mussel establishment.

Most impacts resulting from the silt curtains required to contain Potash Molluscicide treatment areas will be minimized by the implementation of standard mitigation measures. After mitigations, silt curtains may still result in predictable and manageable impacts on some VCs by preventing access to treatment areas. Potentially impacted VCs include Indigenous subsistence and cultural harvest, fish and fish habitat, and visitor experience. Impacts on fish and fish habitat will be addressed in consultation with the DFO.

The temporary terrestrial access routes and workspaces that may be required for Potash Molluscicide treatments have the potential to impact terrestrial birds and terrestrial vegetation. Standard mitigations will minimize most impacts on terrestrial birds and ensure that the legal obligations of the MBCA will be met. Impacts on Golden-winged Warbler critical habitat will be mitigated by implementing the advice of species at risk experts and, if necessary, applying for a SARA permit. It is anticipated that there may be residual impacts on vegetation communities, especially where trees and shrubs are cleared. These impacts are anticipated to be predictable and manageable as the small-scale cleared areas will be converted to early successional vegetation communities that will re-establish over the next 10 to 20 years.

2. Physical Control

Physical control methods for Zebra Mussels are not anticipated to have significant impacts on any of the assessed VCs. Manual removal specifically targets Zebra Mussels and is not anticipated to impact any of the assessed VCs. Benthic mats could cause predictable and manageable impacts on fish by excluding them from suitable spawning habitats and disrupting normal behaviour. Benthic mats will also kill all native freshwater mussels, although these impacts will also be predictable and manageable. As noted above, the balance of effects for native freshwater mussels favours the minor impacts from treatment compared to the establishment of Zebra Mussels. Impacts on both fish and native freshwater mussels will be addressed in consultation with DFO. With the implementation of standard mitigation measures, impacts on other non-target aquatic invertebrates, water quality, aquatic birds, and aquatic vegetation are anticipated to be negligible.

3. Combined Use of Potash Molluscicide and Physical Control

The impacts from combining treatment methods will largely be the same as the impacts from these methods when used separately. In some cases, combining methods could reduce impacts on VCs. For example, where a benthic mat is used in combination with Potash Molluscicide, the time required to eradicate Zebra Mussels is reduced, thereby reducing the duration of impacts on Indigenous subsistence and cultural harvest, fish and fish habitat, and visitor experience.

Indigenous Consultation and Engagement

RMNP has engaged with the Riding Mountain Forum (RMF) regarding AIS for several years and continues to engage with KOFN and the CFN on the Zebra Mussel treatment options for Clear Lake. In early discussions about the Zebra Mussel issue, KOFN has asserted that, since responsibility has been given to them by the Creator to protect Riding Mountain and Clear Lake and they have been doing so since time immemorial, the health and ecological integrity of Clear Lake is their highest priority. RMNP shared the draft DIA directly with a senior official with the Riding Mountain Forum (RMF) and Senior Officials Forum for further distribution to KOFN and CFN in early March 2024. Notices of consultation were also distributed in late March, early April 2024. The draft DIA was updated to reflect preliminary input provided by a senior official with the RMF and Senior Officials Forum. As the Indigenous Consultation and Engagement process is ongoing, RMNP remains open to feedback and input from KOFN and the CFN and is committed to providing accommodation measures for any impacts on Indigenous rights and values identified through the consultation process.

Public Engagement

RMNP engaged with the public, including the general public, key stakeholders, government jurisdictions, non-government organizations, and partners, regarding the detection of Zebra Mussels within Clear Lake, ongoing monitoring efforts, and the proposed project. Feedback on the draft DIA was received from several local stakeholders and members of the general public during the Public Engagement Period. This feedback was largely related to the project and operational considerations for RMNP rather than the impact assessment process or DIA, however, small clarifications related to how, when, and where the proposed project will be implemented were added to the final DIA. Feedback that was outside the scope of the DIA was reviewed and considered by RMNP.

Monitoring

Several monitoring initiatives/plans have been or will be developed to evaluate, monitor, and manage changes to VCs that may result from Zebra Mussel treatments. Monitoring initiatives/plans will include the ongoing creel/angler surveys for fish, and monitoring for invasive species, native freshwater mussels, other non-target aquatic invertebrates, water quality, and aquatic birds. Additional monitoring may be identified/implemented if authorizations are required by other regulatory authorities.

Conclusion

The overall benefits of the proposed Zebra Mussel treatment options to the Clear Lake ecosystem, and downstream ecosystems, far outweigh the negligible to manageable and predictable impacts to VCs identified in the DIA analysis. This is especially true when these impacts are considered in comparison to the significant negative outcomes that are possible if Zebra Mussels establish in Clear Lake. Taking into account the results of the DIA analysis, mitigation measures, and the initiatives/plans that have been or will be developed to monitor and adaptively manage VCs throughout treatments, Parks Canada has determined that the proposed Zebra Mussel treatment options are not likely to cause significant adverse environmental effects.

To request a copy of the final Detailed Impact Assessment report, contact:

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