

**REPORT TO PARKS & ENVIRONMENT COMMITTEE
MEETING OF WEDNESDAY, SEPTEMBER 4, 2019**

SUBJECT Elk/Beaver Lake Remediation Project – Progress Update

ISSUE

To present the business case for the Elk/Beaver Lake remediation initiative.

BACKGROUND

Elk/Beaver Lake Regional Park is a significant multi-use recreational area within the region. It has environmental, social and economic values that are being compromised by deteriorating water quality and aquatic habitat. The lakes suffer significant eutrophication (enriched in dissolved nutrients) due to external (~30%) and internal (~70%) nutrient loading, with documented evidence of water quality deterioration since the 1980s. Regular cyanobacteria blooms, growth of invasive aquatic plants and severe oxygen depletion in the deeper parts of the lake have negatively influenced the environmental, social and economic values of the park. The lake system is complex and will likely require a multi-pronged, long-term approach to remediation and management.

Since 2016, the Capital Regional District (CRD) has led an inter-governmental working group, facilitated by a part-time coordinator. The CRD has undertaken research, conducted additional monitoring to fill remaining data gaps and collated multiple studies. Staff have developed a draft in-lake remediation plan to address internal nutrient loadings and are developing a watershed management plan to address the external nutrient loadings (Appendix A).

Staff engaged technical experts to conduct a third party, independent review of in-lake remediation options. They recommended a specific oxygenation system for both lake basins, Elk and Beaver, which confirms the CRD's preliminary findings and is supported by the Intergovernmental Working Group.

Staff have also developed a Business Case (Appendix B) to understand the costs and benefits to actively manage the lake system. Improved water quality provides the foundation for environmental, social and economic benefits for the region.

ALTERNATIVES

That the Parks & Environment Committee recommend to the Capital Regional District Board:

Alternative 1

1. That this report be received for information;
2. That staff be directed to pursue external funding opportunities and partnerships to offset costs associated with the remediation of Elk and Beaver lakes; and
3. That staff incorporate capital and operating expenditures into the Regional Parks five-year financial plan, subject to receiving at least 50% capital grant funds for the project.

Alternative 2

That the Parks & Environment Committee refer the report back to staff for further information.

ENVIRONMENTAL IMPLICATIONS

The Elk/Beaver lake system, which is the headwaters for the Colquitz River, is subject to multiple stressors: water quality is deteriorating, aquatic weeds are proliferating and blue-green algae blooms have become more frequent and long lasting. Both lakes are subject to seasonal blooms of cyanobacteria (blue-green algae), often at different times of the year. These blooms of naturally-occurring bacteria have the potential to release cyanotoxins into the water, which are hazardous to people, pets and wildlife.

The ecosystems of the Elk/Beaver Lakes Regional Park support good local biodiversity, including unique plant species, such as the rare breadroot plant, and 17 animal species, including at-risk species, such as the endangered western-painted turtle and the species of concern, *Great Blue Heron fannini subspecies*. They also play an important role in slowing, cleaning and storing water for this watershed.

The loss of Elk and Beaver Lakes as an ecological asset would result in significant decline in biodiversity, habitat, and environmental values, both within the park and downstream through the watershed.

SOCIAL, HEALTH AND CULTURAL IMPLICATIONS

Elk/Beaver Lake and the surrounding Saanich Peninsula have been inhabited and taken care of by the WASÁNEC Peoples for thousands of years and these lands provide for many of their cultural, sustenance and economic needs. The area is still used for fishing and collecting plants for food, medicine and ceremonial purposes.

Access to park spaces is an important component of healthy communities. The regional park functions as a key recreational hub providing access to the lakes. Direct use activities in the lakes include swimming, fishing, rowing and special events. Indirect values include added tourism and funds spent in the Capital Region associated with these activities and special events. There were an estimated 1.57 million visits to the park in 2018 and an estimated 15,000 angler days, making it the highest used fishing lake in the province. Several rowing clubs regularly use the lakes for training and competitions. The park hosts many community events, day camps and nature programs that educate and benefit citizens year-round. The trails and swimming beaches in the park are extensively used by the public throughout the year, especially in the summer months.

FINANCIAL IMPLICATIONS

Elk/Beaver Lake provides significant economic value to the region and its residents. The business case for an in-lake remediation solution for Elk/Beaver Lakes is attached (Appendix B). The value of Elk Lake has been approximated as the sum of annual assets that would be lost if the lakes continue to degrade without intervention. The total potential economic value (i.e., not including the monetary value of the environmental and social values) associated with the recreational use of the park, is challenging to quantify, but based on the best available information, it is conservatively estimated at over \$10 million per year. This contrasts with the estimated \$1.4 million expenditure needed for capital costs and \$100,000 annually for operations, maintenance and project management. External grants will be sought to offset the capital costs for in-lake remediation systems.

INTERGOVERNMENTAL IMPLICATIONS

All levels of government have some responsibilities around the management of the watershed and lake system. The provincial government has responsibility for the water column and sediment beds of the lakes; the federal government is responsible for activities on the water surface; the regional government manages the park system, which lies within a watershed fully contained in the District of Saanich.

The municipal, regional and provincial staff representatives on the inter-governmental working group continue to meet and participate in determining and recommending in-lake remediation options. Discussions have been initiated regarding financial partnerships and funding opportunities to help offset the capital costs for proposed in-lake remediation solutions. Provincial partners and other stakeholders will be asked to contribute funds toward the capital costs of the in-lake remediation systems.

CONCLUSION

The Elk/Beaver Lake system is a significant natural asset providing environmental, social and economic benefits for the region. Overall water quality in Elk and Beaver Lakes is declining and with increasing frequency and duration of cyanobacterial blooms, the risk to human health, pets and wildlife will reduce recreational use of the park. Further, the economic, social, and health benefits of the park will also be compromised. Investments now would sustain the lake as the foundation for the regional park and the many benefits it provides.

RECOMMENDATION

That the Parks & Environment Committee recommend to the Capital Regional District Board:

1. That this report be received for information;
2. That staff be directed to pursue external funding opportunities and partnerships to offset costs associated with the remediation of Elk and Beaver lakes; and
3. That staff incorporate capital and operating expenditures into the Regional Parks five-year financial plan, subject to receiving at least 50% capital grant funds for the project.

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Attachments: Appendix A – Proposed Work Plan and Schedule
Appendix B – Business Case for In-Lake Remediation at Elk/Beaver Lake