Is there a future for Cooking Lake?

Should we allow South Cooking Lake to fade into the growing list of Prairie lakes that are drying up across central Canada and the US? On the current trajectory, water level will hit bottom in the next few years. And the transition from shimmering lake to mud flats will be abrupt.

The main body of water making up South Cooking Lake has a large surface area of about 16 square km remaining but is now extremely shallow. In fact, you could walk from one end to the other in rubber boots if it weren't so sticky. There are remnants of a flow channel north of the centerline where depth is almost 1m, but 95% of the lake is extremely flat with less than 0.4m water remaining.

Average rate of decline over the past 48 years has been 0.05m/yr but has been four times this rate in the past 3 years. In 1974 the lake level was 736.4m, today it is 733.9m The rate of loss in the final years as the lake transitions from water to sludge to dry is open to some debate, but perhaps not so important in the end. There will be a few swampy hold outs as the surface area shrinks to the point where annual evaporation matches precipitation hitting the basin. The short-range prognosis is already determined. No plan of action is going to prevent this inevitable stage. We should be asking ourselves if there is something to be done to recover from this. If the answer is no, then it needs to be a conscious decision and not just an indifferent default position.

Consider that this is likely only the first in a series of major water bodies that will disappear from the Beaver Hills moraine. Miquelon is down 7.6m from high water with less than 1.3m remaining. Ministik is now a collection of multiple marshes in the bird sanctuary. The remaining open body of water is less than 1m deep and is in a similar state of decline. Same goes for Oliver and Joseph Lakes. Moving downstream of the Cooking Lakes, Hastings Lake water level tends to mimic South Cooking Lake despite not having an overland connection since early 1930's. A smaller Hastings Lake will likely persist as a closed-body lake indefinitely because it is much deeper than Cooking Lake.

Perhaps we can accept the loss of a single lake but in making that decision, we must also accept that it is just the beginning of the end for all of the large water bodies in this system. The area is a UNESCO recognized biological reserve encompassing 1572 square km. The wetlands and its associated biodiversity are closely monitored by the Beaver Hills Biosphere Association and other conservation interest groups. Loss of the open water bodies and declining water input is cause for alarm.

We stand to lose all of it.

For South Cooking Lake, it means loss of 40km of riparian zone habitat for thousands of shore birds. Loss of a watering hole for moose, deer, and smaller land animals. Loss of any recreational growth potential for an expanding Sherwood Park population. Loss of economic benefit from a float-base at the airport, resorts, and campgrounds. And loss of much needed go-to places where people can experience and gain an appreciation for the value of protecting this natural environment for future generations.

For Miquelon Lake, it is a continuing slow death of a once vibrant breeding bird sanctuary. The provincial park boasted the highest visitation rate of any park in Alberta prior to 1971. Clearly, the demand exists when there is recreational quality water in the lake.

For Ministik Lake, the relationship between the lake and surrounding wetlands is broken and wetland area is shrinking. How this plays out for the future of the bird sanctuary is unknown.

South and North Cooking Lake are fifth and sixth in the lineup of eight major lakes that make up the Beaverhills Lake watershed. No action at this late date will prevent them both from drying up.

Miquelon Lakes, once a single lake, sits precariously at the top of the watershed. Historically, it flowed only intermittently north into Larry Lake and then to Oliver and Ministik. The knob and kettle landscape that makes up the watershed area is at slightly higher elevation than the surrounding prairies and is exactly what is responsible for this unique isolated piece of boreal forest.

Human development has encroached into the area over the past 120 years with devastating effect. There were a few people with foresight at the turn of the century who recognized the uniqueness of the area and successfully protected large sections of prime bird and animal habitat. However, farming, trapping, resource extraction, water diversion combined to upset the balance that allowed the system to behave as a functioning watershed.

The first significant human impact on the system was the construction of the ill-conceived Camrose canal in 1929. From that date, Miquelon no longer contributed water into the top end of the system. Connections between lakes dried up and all eight major bodies of water changed to behave independently as closed-basin lakes.

Evidence of significant flow from Ministik into South Cooking can still be seen at old foot bridges now stranded in farm fields south of highway 14. South Cooking Lake fed into North Cooking Lake through a channel deep enough for paddlewheel boats to deliver day-tripping Edmontonians from the rail stop on North Cooking Lake to the white sand beaches along South Cooking Lake.

Water from North Cooking Lake once flowed into Hastings Lake and then on into Beaverhill Lake before joining the North Saskatchewan River.

Now, roughly 100 years since settlers unknowingly or not began to impact the area, all the lakes have trended down very significantly. South Cooking would require a 1.8m rise in water to begin flowing into North Cooking Lake. It would require an additional 1.5m depth to flow into Hastings as it did historically.

The recommended path forward is to implement the engineered solution proposed in an extensive 1977 Stantec Report. Water pumped from the North Saskatchewan River at Devon could be delivered to Miquelon, Ministik and South Cooking lakes thereby undoing some of the damage done over the past century. This solution is not a unique idea in Alberta. There are numerous examples where augmentation has been successful.

The fact that South Cooking Lake will dry up completely before a project of this magnitude could be implemented might actually have an up-side. Nutrient rich lake bottom that has accumulated since it became a closed-body lake could be removed and offset the effects of over 50 years of hyper eutrophication. Shoreline cleanup could be done more cost effectively before water is reintroduced. Infrastructure could be planned and built in advance of sensitive riparian zones becoming established.

For the sake of South Cooking Lake and all of the lakes making up Beaver Hills moraine, we need a plan set out by the Provincial government. With an election expected in Spring 2023, this is an opportunity to advocate for some environmental and socio-economic action in the Capital region.

KQ, Sep 2022

Staff gauge at Plover Pt. SCL Park el. 733.8m (Record low Sept 2022)

View from Plover Pt south towards Lakeview