

August 15, 2014

Chapman Lake Water Storage Management

Presentation Backgrounder for the September 4, 2014 SCR D Infrastructure Services Committee submitted by George Smith, Tetrahedron Alliance and Jason Herz, Sunshine Coast Conservation Association

Purpose of Presentation:

The Sunshine Coast Conservation Association and the Tetrahedron Alliance are concerned that potential alterations to the Chapman Lake water storage system will have serious deleterious impacts on the Tetrahedron Park ecosystem, yet will not solve the Coast's summer water supply problems. We wish to explore with the SCR D directors more effective alternative means of fixing our water supply system rather than installing either floating pumps, siphons, tunnels, dredging or other changes that would have the effect of drawing down Chapman Lake a further 10 feet, threatening the surrounding plant structures.

As noted in the Whitehead report, 60 meters of normally subsurface lake bottom can currently become exposed shores in the low slope areas during summer. This amounts to approximately 17 acres of lake bed. This is before further draw down caused by the proposed changes. The project will further diminish the environmental integrity of this basin, effectively turning the lake at the core of the Tetrahedron Provincial Park into an ecologically unstable, visually and audibly degraded reservoir.

Biodiversity Context:

The Sunshine Coast Forest District, with a land mass of approximately 2 million hectares, has among the least amount of biodiversity protection of any forest district in BC - about 3% park protection. Much of the forest base in the SCR D area of the Sunshine Coast, and especially the area in the vicinity of Chapman Creek and Tetrahedron Provincial Park, has been subject to logging practices, which the Ministry of Forests described as "maximum modification". The province has protected more than 14% of its land base in an effort to maintain naturally functioning ecological processes and recreational, touristic, spiritual and educational values for BC citizens. The minimal protection here on the Sunshine Coast is a troubling and not insignificant matter in terms of maintaining the viability of our local natural environment, on which we all depend.

Within the provincial context, Tetrahedron Provincial Park is small. It contains only 6,000 hectares at high elevation within our Forest District. Most of the habitat within the park is in the mountain hemlock biogeoclimatic zone which surrounds and protects the health of 10 lakes and many smaller mountain tarns and creeks. The headwaters of both of our Chapman and Gray Creek Community Watersheds lie within its borders. Chapman Lake and its trees are the veritable heart of the Park.

The Tetrahedron certainly does not do the requisite job of protecting the broad matrix of representative ecological diversity on the lower Sunshine Coast. Yet, the old growth forest and pristine lakes and creeks of Tetrahedron Park may arguably be described as the best that collectively we have managed to protect to date. Protecting the integrity of the fragile natural environment within the park is a responsibility that we all share at the personal, regional and provincial levels.

A Brief History of Tetrahedron Provincial Park:

Tetrahedron Park was formally established in June 1995 by the BC government to protect three core values: natural ecology of the Sunshine Coast, recreational values and the headwaters of the community water supply. In spite of the fact that the Tetrahedron held the core of the community watershed within its boundaries and the fact that BC Parks prefers to designate parks outside community watersheds, the intense amount of local support for creating a class A provincial park led to its creation. The thousand member Tetrahedron Alliance and other citizen groups worked closely with the SCRD Board and staff during over four years of a Local Resource Use Plan process. We all cooperated to ensure that the Park protects the watershed and its ecological and recreational systems. In fact, in recognizing this combination of reasons for establishing the park, then head of BC Parks, Derek Thompson, celebrated that creating the Tetrahedron was the exception that proved the rule.

BC Parks, as the statutory decision maker for the park, developed a management plan for the Tetrahedron in conjunction with the SCRD, Sechelt First Nation and community group representatives. The plan clearly underlines BC Park's cooperative working relationship with the SCRD on water issues, and with the Tetrahedron Outdoor Club on park stewardship and recreation issues related to the trails and four cabins husbanded by the Club.

The Chapman Lake Water Storage Dam and the Floating Pump Option:

In 1968 the SCRD was formally established, largely for the purpose of managing water supply for Sunshine Coast residents. The construction of the dam on Chapman Lake in 1978 preceded the creation of Tetrahedron Park. Over 300 slides along Chapman Creek caused by logging and logging roads, plus the water demands of the growing coast population and climate change have added stresses to our water supply system, especially in summer months. The water treatment plant is running at full capacity during our high demand periods and is working flat out for much of the year. The advanced water restrictions necessitated last year raised serious concerns for many coastal residents.

Then there is the ongoing problem of ensuring sufficient water flow to maintain habitat for fish populations required by the federal government. This proposal doesn't discuss the potentiality of pump failure. Once the water level goes below the gravity fed outflow

point (present outlet), water flows will become reliant on pumping. This means a redundancy must be built into the system to insure in stream flow requirements are met at all times. Our human water demands cannot be allowed to threaten, let alone destroy the fisheries values downstream.

In response to voicing our concerns about the SCRD once again considering the placement of a “temporary” floating pump station on Chapman Lake, Brian Shoji, general manager of SCRD Infrastructure Services, sent the letter copied below which somewhat addressed our immediate concerns. We share Brian’s letter with you below, given the depth of concern in the community about this proposal.

As you will read, Brian has said that, in spite of the floating pump being put forward by the SCRD as one of four options for consideration by MP John Weston for funding by the federal government, there are no IMMEDIATE plans to proceed with the floating pump plan. However, the Sunshine Coast Conservation Association and the Tetrahedron Alliance, remain concerned. We have been through this scenario before. A combination of individuals and organizations in the past, including staff from within the SCRD, have ensured that this problematic pump idea not proceed. The notion of placing an intrusive, potentially polluting and expensive-to-service pump system within the heart of the Tetrahedron Provincial Park will have serious implications for the integrity of the park. The cost for a “temporary” pump option, power plant and fuel storage building costing \$660,000, to \$1,100,000 will probably be anything but temporary, will require annual operational and maintenance costs and regular helicopter incursions into a provincial park, AND will not fix the water supply problem.

Some More effective Options for Improving Our Water Supply System:

1. Stop watering lawns and pressure washing driveways in summer from June 1 to October 31 - PERIOD.

This action make take some political courage on the part of SCRD Directors since some residents love their green lawns, however it is probably the most sensible and cost efficient step to diminishing water usage in the dry summer months. Every year lawns dry up and turn golden in the heat, but naturally return to their green state in the fall. Sales of pressure washers have sky rocketed in recent times, using 10 to 20 litres per minute to clean your driveway or rinse your deck.

It is irrational to use valuable regional water resources for a purely cosmetic applications and thus endanger supplies for household drinking and daily household necessities, for food production, operations of businesses and the health of the watershed ecosystem. Enacting a summertime ban on lawn watering would be most effective if preceded by an explanatory information campaign, a new bylaw, and enforced with realistic fines for abusers. This action should help the SCRD buy more time to implement longer term system improvements.

2. Water Metering

It is pretty clear that water metering is on its way. This will aid residents and the SCRCD in understanding where water usage occurs and provide means of tracking where system leakages occur and thus improving the reliability of our water delivery system and conserving water efficiently.

A major concern of the metering approach is the need to distinguish between watering for essential summer needs like the production of household food through watering gardens, versus superfluous activities like lawn watering, driveway cleaning and such. Whereas the SCRCD is looking at preferred rates for commercial farms, it is essential that citizens not be penalized for producing their own food, particularly if they use efficient water irrigation methods.

3. Upgrade the Water Treatment Plant

Unplanned population growth on the Sunshine Coast, coupled with the summer drying impacts of climate change are stretching the capacity of our current water treatment facility to its limits. While expensive, the need to expand the system seems unavoidable, as long as we use one water supply for both potable and non-potable applications.

4. Aggressively pursue building a new storage reservoir

We understand that the SCRCD has considered creating a new water storage reservoir lower down from Tetrahedron Park within the Chapman Creek watershed. Local winter and spring precipitation locally has the capacity to efficiently fill and annually replenish a new reservoir. Given the continual growth of our population and the apparently relentless summer warming trends thanks to climate change, this seems a much more effective path to follow rather than diminishing the ecological integrity of Tetrahedron Provincial Park and the catchment basin at the heart of our current Chapman water supply. Once again this is an expensive option, yet its long term efficacy seems clear. Spending \$700,000 for a supposedly temporary fix at the Chapman outflow seems inappropriate in relation to the longer term options outlined here.

5. Work with the BC Building Code and Building Trades to utilize grey water.

A small fraction of our water use creates water unfit for secondary uses, yet we discard all our water. Typically 35% of our water is used for showers and baths, which involves no harsh chemicals, so readily reusable. Strategies need to be implemented that encourage the designing of systems that can safely reuse this water at least one additional time if not several.

6. Implement SCRCD support for the rainwater collection technology

Rain water harvesting is practiced widely in North America and also extensively in BC's driest regions, for example in the Gulf Islands. This traditional technology offers a way to

reduce regional water use while allowing residents to have a water supply to use as they wish without any restrictions from regional government. Storage is the key issue; a thousand 50 gallon rain barrels is not enough storage to have a significant impact. However a thousand 2000 gallon tanks in the rural areas is enough storage to substantially reduce water use during the driest times of the year.

We recommend that the SCRD seriously pursue implementation of the rainwater collection technology previously proposed by the Sunshine Coast Conservation Association. It is our hope that the SCRD will seriously address long-term water sustainability issues like rain water harvesting, rather than short term options such as the increased draw down of Chapman Lake which will impact the sustainability of the environment at the heart of our community water supply and cherished rare wilderness area.

Thank you for considering our delegation.

George Smith and Jason Herz

Email Message From Brian Shoji, June 2, 2014:

From: Bryan Shoji <Bryan.Shoji@scrd.ca>
Subject: Chapman Lake Storage Access
Date: June 2, 2014 at 4:36:15 PM PDT
To: "georgesmith@telus.net" <georgesmith@telus.net>
Cc: John France <John.France@scrd.ca>, Dave Crosby <Dave.Crosby@scrd.ca>

Hi George

Thank you for today's telephone discussion concerning the SCRD's Chapman Lake Storage Access plans and the history and principles that led to the establishment of the Tetrahedron Provincial Park.

As discussed, the SCRD does not have any immediate plans to proceed with a floating pump station to access the lower reaches of Chapman Lake. As communicated through the Comprehensive Regional Water Plan public engagement process, the SCRD has not committed to the construction of the floating pump station and, in fact, the SCRD Board has directed that we research alternative methods to the floating pump station. The consulting firm of Opus DaytonKnight has been retained by the SCRD to review several alternative designs including, but not limited to, a siphon, lowering the channel and outlet structure, and microtunneling a new outlet structure. We are targeting a fall completion of this report and presentation to the Board.

The water development options and priorities are clearly outlined in the Comprehensive Regional Water Plan, which is the guiding document that we are working from. The

highest priority item is the implementation of a universal metering program which, once implemented, should lead to the conservation of enough water that it will allow us to delay the implementation of other source water development options for several years.

It is unfortunate that the meeting agenda that was prepared for the Board's meeting with MP Weston raised concerns that we were proceeding with the floating pump station project. All the major projects identified in the Comprehensive Regional Water Plan were included on the agenda for discussion purposes, however, as noted earlier, the Board has not made any decision to proceed with the floating pump station and it will not be considered until the Alternative Options report is completed.

I trust that this addresses your immediate concerns. Please do not hesitate to contact me if you have any further questions.

Best regards,

Bryan Shoji, P.Eng.
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Sunshine Coast Regional District
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