



**Capital Regional District (CRD) Island View Beach
Mosquito Control Program
Community Meeting Agenda
April 12, 2023**

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| Subject | Capital Regional District (CRD) Island View Beach Mosquito Control Program Community Meeting |
| Prepared By | Two Worlds Consulting |
| Groups Involved | Capital Regional District (CRD) and CRD Board Tsawout First Nation District of Central Saanich Friends of Island View Beach (FOIVB) CRD Contractors: <ul style="list-style-type: none"> • GreatPacific Engineering and Environment • Duka Environmental Services Limited • Aqua-Tex Scientific Consulting |
| Date/Time | April 12, 2023, 6-9PM, Tsawout First Nation offices, 7728 Tetayut Rd, Saanichton, British Columbia V8M 2E4 |

Meeting Objectives

- To respond to the CRD Regional Parks Committee Board motion of February 22, 2023, directing staff to convene a meeting with participants (including Tsawout, Central Saanich, and Friends of Island View Beach [FOIVB]) to present and discuss the mosquito abatement program at Island View Beach Regional Park and report back to the Regional Parks Committee
- To bring together various groups to share information and experiences among the interested groups regarding the mosquito control question in the Island View Beach area

Meeting Agenda

- Welcome prayer and opening remarks - Tsawout
- Territorial acknowledgement and opening remarks - CRD
- Site safety and logistics - Tsawout
- Introductions - Two Worlds Consulting
- Presentations - (1) FOIVB; (2) GreatPacific; (3) Duka; (4) Aqua-Tex
- Open discussion - all
- Close-out and next steps – all
- Feedback forms – all



Key Issues Raised, Topics Discussed

Tsawout First Nation Opening Remarks - Elder Mavis Underwood

- How can we bring diverse groups of people together with no harm coming to each other through our words?
- When we come together with big ideas, we do not have to be afraid of diversity
- What is critical for all of us is clean air and water
- It is paradise here, it is important for us to keep the balance, to take care of the salmon. Mosquitos are food for the birds
- We are also not the highest power. We are not the Creator who knows better than us that there is a place for everything, and we cannot always contain it
- Mentioned a study regarding ancestral remains at Cordova Bay and the partnerships that Tsawout First Nation has been working with for this study, including nearby municipalities and University of Victoria

CRD Opening Remarks – Colin Plant, CRD Board Chair

- Thank you, Mavis Underwood, and Tsawout First Nations for hosting the meeting
- Everyone at the meeting has busy lives. Words can bring people together
- It is important to the CRD to maintain good relationships with its neighbours, and I note that the CRD's boundaries intersects with 20 First Nations
- I also acknowledge the attendance of representatives from Central Saanich, Saanich, and the CRD, along with members of the public, the FOIVB, and consultants
- I have personal connections to the area, first as a young person growing up on Island View Beach Road and now as a member of the CRD Board and as a teacher at Claremont Secondary

Presentation by FOIVB – Jason Austin

- Provided an overview and history of the ditch system, noting the ditches and gate infrastructure were created in 1936 by the federal government
- The north flapper gate needs repair as it has become blocked by debris and wood. When blocked open, saltwater pours through the north gate and into the ditch system. Seaweed can be seen in the ditch due to this failed flapper gate
- Saltwater is pooling due to the failed gate and increasing the number of summer salt marsh mosquitos in the area, which only breed in saltwater, are aggressive, and impact farming operations
- Saltwater in this area is poisoning the land, as the area is not supposed to be a saltmarsh, a saltmarsh is not good land for farming



Key Recommendations from FOIVB:

- Until the Northern gate is repaired or replaced:
 - Block the back side of the northern gate during the mosquito season of March to August so no seawater can get through
 - Put a short ditch to connect the North ditch system to the South ditch system (35m) to drain fresh water from the Tsawout lands
- Other recommendations:
 - The east/west ditch along the northern boundary of the park is cut off by the Puckle Road Farm property. There should be a new CRD ditch that runs from that orphaned CRD ditch south to the other CRD ditches below
 - A grill should be placed over the front and back of the Northern flapper gate to stop debris blocking the gate in an open position
 - Put in place a process for the mosquito control contractor to report whenever the northern ditch overflows, because this will signal that the flapper gate is blocked open
 - We urge Central Saanich to engage actively with the CRD and insist on cooperation as required by the park management plan bylaw around mosquito abatement and the drainage ditches

Discussions Related to North Gate Failure and Repair

- **Response to north gate failure discussion from Tsawout First Nation:** There are plans for this summer to fix the north flapper gate, by putting a new seal on the gate. The cost of this inherited problem will be \$70,000.00 initially and paid by Tsawout First Nation. Later, additional modifications to the road and gate will occur to prevent the infiltration of saltwater into the area on Tsawout First Nation Lands. These improvements will occur when Tsawout First Nation's water treatment facility undergoes a significant upgrade. Tsawout First Nation is paying for repairs to this inherited problem from a limited budget as it has a small tax base, noting the membership is providing funds for this infrastructure fix that they did not put there. Tsawout First Nation sees everyone as our neighbours and wants good relationships as well
- **Clarifying question to Tsawout First Nation on north gate repair:** What scope of work is being conducted for the \$70,000.00 work on the north flapper gate?
- **Response from Tsawout First Nation regarding scope:** The culvert system is being replaced, along with repairs to the retaining wall in the road and the flapper gate seal

Discussion Related to Additional Channel Recommendation by FOIVB

- **Response from GreatPacific Engineering:** Engineers have not assessed the connectivity of a new ditch. Surveys of the area would need to be conducted to determine if a new ditch connecting the two existing systems or other mitigation measures are feasible or recommended. They also noted that for any proposed infrastructure, additional considerations, such as grading and ecological impacts, would need to be identified



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- **Response from Duka Environmental Services Ltd.:** Another consideration with this proposed new channel is that you are changing the flow of water into the other ditch system that was not originally designed to handle it

Presentation by GreatPacific Engineering & Environment – Brandon Powers

- Undertook an overview of studies in the Island View Beach area, such as the assessment of the condition of the infrastructure and factors influencing its performance
- Limitations to our study of the ditch system included a short field program timeline and spatial scope limited to the park lands. These limitations provided a two-week snapshot in time of the area at that point in time and cannot be extrapolated to other areas or to other points in time
- Mosquitos do not respect boundaries and any engineering proposals also have an ecological impact
- **Summary of Key Findings:** The tidal gate was not effective at keeping saltwater out, and some reverse grades exist within the ditches. There are areas within the park that do not have surface drainage connectivity with the ditches. Areas of vegetation overgrowth and debris within the channel were visible and impacted our ability to conduct a full ditch assessment
- **Recommendations made by GreatPacific Engineering & Environment on Project Management:** The first is the remediation of gates as they are not functioning properly, which could involve increased maintenance to target damage, debris, and vegetation, and the consideration of alternative styles of gates as this gravity style of gate is not perfect. Another recommendation is the rectification of the reverse grades within the ditch system; however, the gains in this area would be small due to the low-lying nature of the lands, and lack of gain in grading change compared to the ecological impact. Another option is the consideration of additional drainage, which would require capital and be highly involved. Overall, GreatPacific supports a stepwise program, with the remediation of the gates first, followed by an assessment of this approach's effectiveness, before considering moving forward with additional measures

Discussion Related to the Creation of Dams Instead of Flapper Gates

- **Questions from FOIVB for GreatPacific:** Instead of repairing the flapper gate, could there be a dam placed instead to prevent saltwater from entering the ditch system?
- **Response from GreatPacific:** A dam would not prevent saltwater from entering the area due to water-level increases from storm surges and king tides during which saltwater goes over the berms. The dam would also prevent the draining of freshwater, and this freshwater pooling is also not ideal. The ponding caused by the dam would increase the number of mosquito development sites in the area. There needs to be a positive balance of water flowing out versus increasing ponding
- **Response from Tsawout First Nation:** A dam would prevent any water, salt or fresh, from leaving the area and lead to greater mosquito populations and the erosion of land resulting in less land, specifically less Tsawout First Nation Lands. Drainage of the area is important to keep water from pooling and our land mass from eroding



Presentation by Duka Environmental Services Ltd. – Curtis Fediuk

- Overview of varieties of mosquitos and the distribution of the mosquitos and various habitats for mosquitos, in and around the Island View Beach Area. Within the local area there are 165 mosquito development sites
- Provided a summary of annual service requests to deal with mosquitos made between 2009 and 2022, noting that in 2009 there were 64 requests. Between 2010-2012, there were fewer calls, down to 3 calls in 2012, immediately following the fixing of the gate in 2011. An increase in requests occurred in 2021 and 2022, with an increase to over 20 service requests/year
- The number of treatments in the area and amount of Vectobac used followed a similar trend, with an immediate drop after the gate was fixed in 2011, decreasing 70% from 2012 levels. Recently, there has been a 325% increase over the previous average amount of Vectobac used. Acknowledged that Tsawout First Nation has covered increased costs associated with increases in required treatments to address the increase in service requests
- Historically treatments were initiated in April/May of each year. Since 2010, treatments started in February, so the treatment season is being extended. Mosquitos' larvae can be found within the development sites at all times of year in this area

Discussion Related to Vectobac

- **Comment from Tsawout First Nation related to Vectobac:** We have been happy with the control of populations using Vectobac, as it only impacts the larvae of the mosquitos
- **Questions from Aqua-Tec Scientific Consulting:** With the increase in supply chain concerns, is there sustainable supply of Vectobac?
- **Response from Duka:** Duka has plenty of supply of Vectobac on hand. The company that supplies Vectobac also has plenty of supply as it forecasts for increasing demand. Issues with supply chains often stem from trucking supplies, not the supplier itself
- **Comment from FOIVB:** DDT (dichloro-diphenyl-trichloroethane) and other similar chemicals used to be sprayed to reduce blackfly populations in Quebec and Ontario. These chemicals were sprayed into streams, and this had negative effects on invertebrates in the stream, and on the swimming ability of fish

Presentation By Aqua-Tex Scientific Consulting – Patrick Lucey

- Aqua-Tex oversees the annual ditch maintenance program. Noted that the Island View Beach ditch system was created to drain farmland
- The level of water in the ditch system is influenced by both ground and surface water levels
- Lack of positive drainage and in-stream vegetation blocks flow, so that water is not draining
- The program goals are to provide maintenance, create positive drainage, avoid over excavation, maintain aquatic and mesic habitats, and report any invasive species to the CRD
- Mosquitos also do not have a lot of predators, so they proliferate easily



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- It is important to create vegetative cover and to shade the ditch, to prevent vegetation from growing in the ditches and impacting drainage
 - Work is conducted during windows of less risk to species such as nesting birds. Nesting birds are in the area from March through to August. Fish (three spine sticklebacks) are in the area predominantly from June through September
 - This area experiences various weather and seasonal conditions, so inspections are conducted after ground water drops and tides have been checked. Based on inspections, recommendations are made for ditch maintenance
 - Geo-tagged photographs are taken throughout the area during inspection. Sample photographs show areas of the drainage system and the amount of vegetation that has grown in those areas over a span of 1 year to highlight the amount of growth that has occurred. Provided photography examples of newly dredged areas with positive flow. The flow of water in the ditches slows when there is more vegetation in them
 - Careful removal of vegetation is required to remove emergent vegetation with a skeleton bucket
 - The maintenance process used is called checkerboard vegetation control. This is where specific short sections of ditch vegetation are initially cleared, and the next section over is cleared during the next maintenance cycle. This results in a pattern that looks like a checkerboard moving down the length of the ditch. This method maintains the habitat and limits in-channel growth of vegetation without slowing the flow of water
 - If widespread clearing was conducted, such as using a Gradall excavator, to create bare-earth channels, there would be high levels of sediment present that would cause havoc on the drainage and ecosystems
 - With positive drainage and the careful removal of vegetation, along with maintaining the ecological values, rainfall and seawater will be allowed to flow out of the area and prevent the pooling of water. We want to avoid of over excavation, the creation of standing water, and working within risk windows, while maintaining the ability to conduct our observations

Remarks from Tsawout First Nation

- In the past, there were many more mosquitos in the area, children were impacted by the bites. Twenty-five years ago, we became more concerned of diseases, such as the West Nile Virus that spread through mosquitos
- It is a tough balancing act weighing the importance of the ecosystem, and the presence of mosquitos
- Remedies for the situation all cost money
- Right now, we have healthy water sources, you can tell by the presence of frogs bellowing, singing birds, migrating birds, otters, and raccoons
- Although we try to reduce the number of mosquitos, they can lay dormant for 20 years
- We now also have more extreme weather events, such as the 1-in-100-year rainfalls, and it is amazing to see the number of larvae in a bucket that has filled overnight



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- When we make decisions on what to do, we have a Council and Membership to consider—we all must agree as well. We need to consider if this is the right decision? What can we do? What are the solutions?
 - Right now, it is a working marsh, and other places are trying to reclaim their wetlands
 - There is the integrity of the land that we also need to consider that the land remains
 - There is an ecological balance to consider, everything that eats the mosquitos and everything in relation to it

Discussion Related to the Marsh

- **Comments from FVOIB:** Noted that children and farm workers have been impacted by mosquitos as well. Questions were raised by members of FOIVB, whether this area was a natural marsh or a salt marsh that had been created from the infrastructure built in the area, and the malfunctioning of this infrastructure
- **Response from Tsawout First Nation:** Expressed gratitude to neighbours and FOIVB for sharing information about the development of the infrastructure by the federal government in 1936 and re-iterated how Tsawout First Nation is trying to find solutions for how to deal with the legacy of government-built infrastructure. Tsawout First Nation recognized that everyone was affected by mosquitos, and they want to find solutions and to have good relationships with their neighbours. Tsawout First Nation will be completing upgrades to the north flapper gate and road to reduce the amount of saltwater entering the marsh through these features

Additional Ideas from Open Discussion

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- Everyone at the meeting has a personal connection to Island View Beach
 - Tsawout First Nations have been in this area for many generations
 - The Michell family has been farming in the area since the 1800s
 - Based on climate change impacts and the erosion of the tideline, we will see an increase in saltwater infiltration in the Island View Beach Area
 - Approaches must be sustainable for Tsawout First Nation as there are many challenges for families on the foreshore
 - Discussion of on-going partnerships between the CRD, Central Saanich, and Tsawout First Nation. There is currently a working group that occurs, and the consulting firms present at the meeting continue to support the management of the Island View Beach Area
 - There has not been a holistic view of the full drainage system to date
 - Discussion of fix of flapper gate near Puckle Farm to prevent salt water from pooling occurred. Engineering firm indicated that it is freshwater pooling in that area and not saltwater
 - Discussion of quality of the soil in the area, the presence of muskeg and that building additional ditches may not have the desired effect as water infiltrates through the porous



ground. GreatPacific indicated that as the tide goes up, there is a relationship to increases in ground water levels

- Permission is required from Tsawout First Nation to conduct studies on Tsawout Lands. Tsawout land includes parcels owned by family members (holding Certificates of Possession), so individual access permissions would need to be requested
 - Trail cameras are an option for monitoring water levels and flows in the Island View Beach area
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