



DECISIONS AND ACTIONS

Steering Committee
Tuesday, April 23, 2019
Colwood Municipal Hall

Present: Terry Phipps, Vicki Metcalfe, Jason Nault, Judy Nault, Judith Cullington, Gayle Johnston, Beth Mitchell, Thelma Wright, Rodney Huszar, Brent Molnar, Ken Morgan (by phone), Roberto Melfi, Natalie Bandringa, Kitty Lloyd

Guests: Jordan Royer (Pacific Landing), Patrick Lucey, Jordana Herron (Aqua-Tex), Jonathan and Alison Moran (RRU), Barri Rudolph (CRD)

DECISIONS			
Next Meeting: July 23, 2019			
ACTIONS		ACTION BY	DUE
1	Patrick will coordinate with Beth/other fish monitors to survey Selleck Creek	Patrick	Spring/ Summer
2	Send Gayle info about the green crab monitoring	Kitty	(done)
3	Make sure City knows about green crab monitoring happening next week	Kitty/DFO	(done)
4	Consult with Ken to see what protocol he recommends for harbour bird surveys	Natalie/Kitty	Spring/ Summer

INFORMATION

Judith: We acknowledge with thanks that we are meeting on the traditional territory of the Coast Salish and Lkwungen speaking people. Thank you and Hay'sxw'qa!

Review of Action Items from January 22, 2019 meeting:

Brookes School: Judy connected with Cornelia once or twice regarding the Brookes School student volunteers, but nothing has come of it so far

Brent: Colwood has put the developer on notice that the city will be undertaking the required riparian works at the developer's expense if no action is taken.

Animal Control Bylaw Amendment: Jason went to Committee of the Whole meeting last week, the Committee approved the animal control amendment proposal unanimously

No motorized boating in lagoon: Vicki looked into this, it's a long reach to change laws governing this

Presentation: Pacific Landing tree removal: Patrick Lucey, Aqua-Tex Scientific Consulting

- Bee Creek is a realigned creek with man-made channel; lots of groundwater; developer made a commitment early on that there would be no pumps used on site to move groundwater as a consequence of construction (they always fail eventually)
- Currently replanting the riparian area of the spawning channel, spawning gravel there is starting to get colonized by algae and bacteria
- Removed several alder trees, they were shading the riparian; 20-25 year old trees, chipped the limbs, left the stems on-site to rot
- Going to bring a lot more spawning gravel to the channel in next few weeks, then will monitor colonization over time

Proposal to remove 5-7 cedar trees on the corner of Phase 2 building, within the riparian:

- Nothing lives under cedars due to toxins given off by these trees
- Recommends removing these 7 cedars and replanting with riparian shrubs
- Trees have all been topped, 50-60 years old;
- Flows in Bee Creek never changes, same all year long, so no need for anything but shrubs to tie the creek bank together (no floods in spring)
- Q: Agree that trees need to come out, what are you replacing with?
 - A: Native riparian shrubs
- Comment: Research locally indicates that hummingbirds nest mostly in cedars
- Timing: make sure to do removals after the breeding season
- Q: What species are going to replace the cedars?
 - A: Will replace with trees back of the property
- Q: Silt in the creek – concerned that removing the trees will cause increase in siltation
 - A: much of the groundwater has been intercepted before it gets to the trees
- Q for Brent: Bee Creek map through Pacific Landing will be brought up at council tonight. What is the issue?
 - A: Mapping of the creek that is on file with this development plan is out of sync with zoning boundaries. This amendment of the map with riparian setbacks will address and correct that

Selleck Creek:

- Instream structures that were supposed to be installed earlier, were put in place over the winter
- Brent: upstream of daylighted waters are several buildings, they are starting to monitor the water quality and plants, city is concerned about phasing, work start-up will contribute to stormwater flows, building time frame is 1-3 years
- Q: Isn't there an agreement in place to monitor and maintain the flow just before creek leaves the site?
 - A: There are no flow meters there, so developer can't meet that criterion
 - Patrick: When property was originally proposed for development, developers were going to rebuild a new stream channel through Pit House Park, designed to increase fisheries values and to meet conditional water license (DFO permits). Flow monitoring needed to be done to ensure that lower reaches received a minimum flow (4-13 feet/sec); diversion structure would divide the flow between 2 branches; don't know what the flow is in either branch; Aqua-Tex did fish trapping in both reaches and found no fish (there were lots of fish there pre-development)

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- Q: Pond area between Two Waters and Seafield Cottages – full of bulrushes and frogs, is that going to be maintained as a wetland?
 - A: Brent: That area has no wetland value, will be replanted as treed area
- Q: What is Phase 2 of riparian works?
 - A: Sections of the creek will be done in different order; this is all dependent on development, if no development, then the time lines don't come into effect
- Any point trapping for fish there? They haven't found any fish for past 3 years here
 - Yes, as long as property owners are willing; Patrick willing to electro-shock at his own expense

ACTION – Patrick will coordinate with Beth/other fish monitors to survey Selleck Creek

Colwood Updates: Brent Molnar, Colwood Director of Development Services

Pit House Park – Officially a park now; should show up as a park when using CRD IntraMap
Brookes School riparian – staff are frustrated as well; Colwood has been asking school for several months for them to do their required schedule of works; now at the stage where they will do the work at the Brookes school's expense; may have missed the fisheries window for this year
Animal Control Bylaw Amendment received approval from council Committee of the Whole this week; clarity is one thing they heard was wanting in where exactly the boundary is for enforcing the on-leash bylaw on the outer shore of Coburg Peninsula

Q: Will there be additional signage?

A: Yes, that's part of council consideration. Problem placing signs anywhere on the peninsula, need to have an archaeological permit to do any digging; need to amend the permit

Presentation: CRD 2018 Stormwater Monitoring at Esquimalt Lagoon, Barri Rudolph, CRD Stormwater Monitoring Supervisor (see slides in Appendix 1)

- Bee, Selleck, Colwood creeks – sampled at the mouth for a variety of parameters every 2 years, more intensively every 5 years
- Stormwater discharges: 18/20 show low bacterial counts; 1 is elevated, (Colwood Cr); 1 is high rated for public health risk (Lagoona Brook at the toe)
- CRD has been doing this for 25 years, the ones that show no concern may not be sampled for a while, then do it again to check; summer and winter sampling
- Lagoona Brook – very high bacteria, creek splits onto 2 properties, one is fine, one is really high, not sure what is causing that
- Q: Are all these areas sewered?
 - A: CRD records indicate that all around the lagoon is sewered; could be that there are properties that don't use the sewer even though it's there to use
- Creek monitoring: Are creeks clean?
 - Watershed map that shows areas with similar land uses and associated permeability: dates from 2011; it would be interesting to update the land use mapping in the same watershed and compare with 2011 maps; may be able to use the 2019 orthophoto data
- Patrick – low oxygen could be from high organic content in Colwood Creek. Organic matter uses lots of oxygen as it breaks down
- Table of benthic invertebrates found in Colwood Creek (2017):

- EPT: (Ephemeroptera, Plecoptera, Tricoptera) is a Richness Index that estimates water quality by the relative abundance of 3 major orders of stream insects with low tolerance to water pollution. High percentage indicates high water quality
- Hilsenhoff Biotic Index is a scale that indicates the quality of an environment based on species diversity and abundance. Some organisms are known to be more tolerant to pollution than others. Scale of 1-10 where lower means cleaner
- Marine monitoring:
 - 2012: low Dissolved Oxygen (DO), high temperature
 - 2018: still had DO issues at the toe; temperature very high at the mouth of Colwood Creek

CRD Harbour Program Updates: Natalie Bandringa

Ecosystem survey:

- Harbours Atlas is not really working with newer CRD Regional Map upgrades
- We will re-do the harbours inventory which is now 20 years old; it will include survey of backshore, intertidal and upper subtidal down to 5m or so
- Planning to use spectral analysis of satellite and/or orthophoto imagery
- We want to do something that will be easily repeatable every 5 years or so
- One area of focus will be on eelgrass and Canada geese
- Will be sending out a Request for Proposals this spring/summer; will consult with municipalities to see what information they want from this inventory
- Multi-phase inventory, to include bird and fish surveys as well as habitat surveys
- May do a pilot this year and see if this satisfies needs of municipalities, then continue with full inventory next year
- Results will be posted on CRD Regional Map along with the 2000 data for comparison

Questions/Comments:

- Ken is interested to see what the changes are in species and species composition compared to earlier data
- Q: What about using Coastal Waterbird Survey data?
 - Yes, we will use that as well as e-bird data
- Comment: Should undertake this with a clear idea of what exactly we want, suggest a workshop with interested groups and municipalities

ACTION: Consult with Ken to see what protocol he recommends for bird surveys

Coordinator Updates:

- **Green Crab monitoring:** during the training session, we trapped one female green crab, so DFO is undertaking an eradication starting next week. DFO staff and ELSI volunteers will set traps all around the lagoon
- Q: Has anyone done plankton surveys at the lagoon to check for crab larvae?
 - No, this is the first year DFO has done surveys here

- **Outreach events:** Mothers' Day Paint-In at RRU, Canada Day at Fort Rodd Hill, Eats & Beats Festival at the lagoon; National Indigenous Peoples Day at RRU – hope that the official unveiling of our signs and mural will happen then (June 21)

Partner updates:

Fish monitoring: – nothing this year yet; Ian McVitty is taking over the fish monitoring, going to be working with Jonathan and Alison Moran from RRU

RRU: Invasive species pull last week; Scouts did a beach clean-up at lagoon in March; also around campus; installed bird stickers on building windows

Construction – improving services, parking, roads

Events – Paint in; National Indigenous Day Festival – mural unveiling

ACTION: Send Gayle info about the green crab monitoring - make sure City knows

Bee Creek Restoration: monitoring spawning channel

VNHS: Finished meetings for the year, full list of activities, funding requests, nothing specific for ELSI, last birding talk tomorrow on vultures

Two Waters: Sales centre is open in Pit House Park, they have a decent model there of the new buildings being proposed

Adjournment: 4:00pm



Stormwater Monitoring Program

CRD Integrated Watershed Management Program

Integrated Watershed Management Program

Works with local governments, First Nations,
various jurisdictions & communities
to maintain healthy watersheds &
protect the near shore receiving environment.



Integrated Watershed Management Program

through monitoring, reporting, source investigation,
prioritizing issues, education, collaboration and source
control



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- DRAFT**
- LEVEL OF CONCERN**
- Chemical Contaminant Status:
- High: Adverse impacts expected
 - Moderate: Some impacts expected
 - Low: No adverse impacts expected
 - Very Low: No adverse impacts expected
- Public Use Shading:
- High: Adverse impacts expected
 - Moderate: Some impacts expected
 - Low: No adverse impacts expected
 - Very Low: No adverse impacts expected
- Public Use of Shoreline:
- High: Adverse impacts expected
 - Moderate: Some impacts expected
 - Low: No adverse impacts expected
 - Very Low: No adverse impacts expected
- ESQUIMALT LAGOON**
- STORMWATER QUALITY MONITORING**

Stormwater Discharges

20 discharges:

- 18 have low bacteria counts
- 1 has elevated counts (>200 CFU/100 mL)
- 1 has high counts ($>5,000$ CFU/100mL)
assigned a high-public health rating (931-Lagoona Brook)



Discharges of Concern

916 (Colwood Creek):

- Slightly elevated in summer on average
- Low in fall

931 (Discharge near toe, spring fed):

- very high count in fall (170,000 E.coli/100 mL), lower when repeated but still high (2,000 E.coli /100 mL)
- Staff investigating



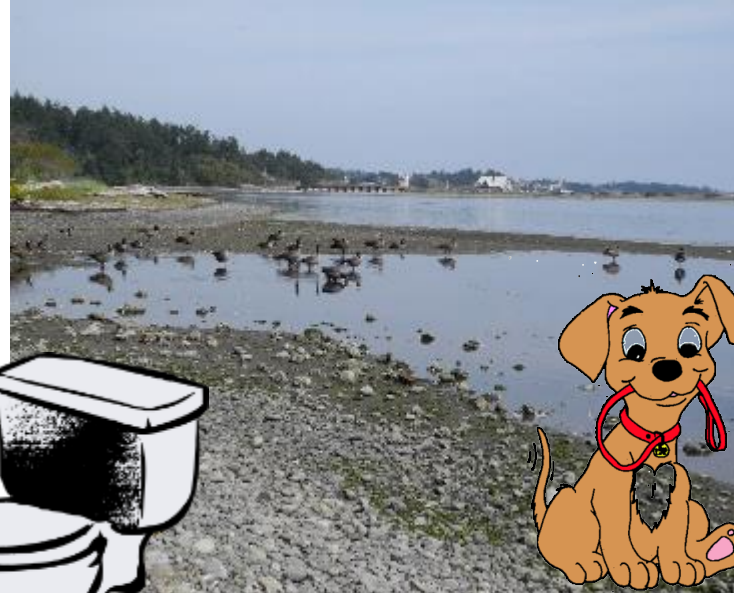
Discharges of Concern - Sources

916 (Colwood Creek):

- unknown,
- upstream counts suggest occasional human source

931 (Discharge near toe, spring fed):

- unknown
- Counts lower; will continue to monitor

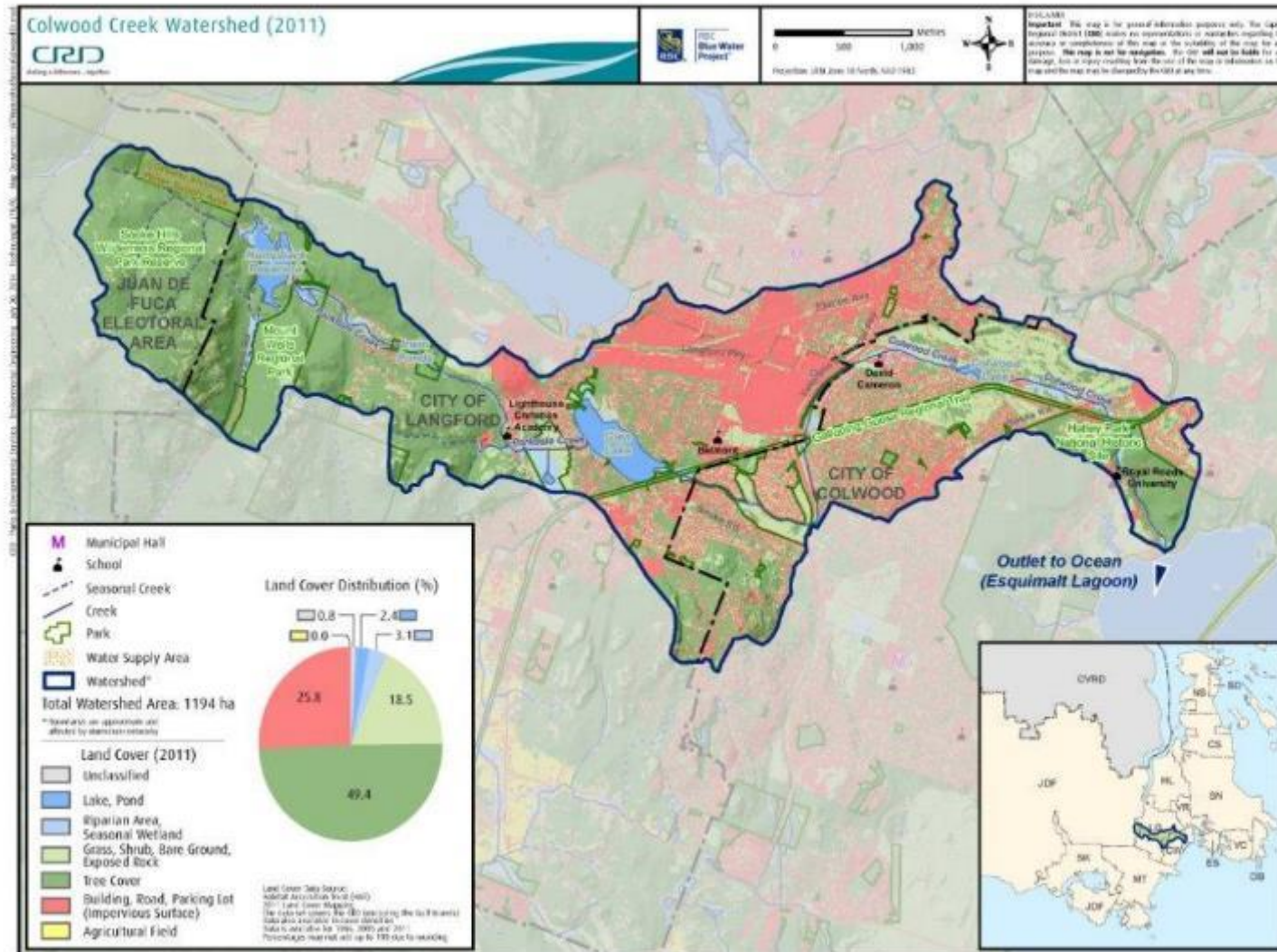


Creek Monitoring Program – Data collection

- Is the water and sediment clean?
- Is the flow natural?
- Are invertebrate communities healthy?



Colwood Creek Watershed



2017 Colwood Creek Monitoring

Parameters of concern:

- Mouth:
 - Phosphorus and E.coli
- Upstream (at Hagan Rd, just d/s of Glen Lake):
 - Phosphorus
 - E.coli
 - DO, pH
 - Turbidity / Suspended Solids
 - Metals (copper, chromium, iron, zinc)



2017 Colwood Creek Monitoring

- Benthic invertebrate communities

	Charters	Colwood	Colwood	Colquitz	Tod
	05-Sep-17	06-Sep-17	30-Aug-12	06-Sep-17	11-Sep-17
Abundance	8620	4940	2213	10920	4060
Richness	47	41	33	43	32
EPT Richness	16	16	12	7	9
% EPT	46.4%	28.9%	44.64%	9.2%	36.5%
Hilsenhoff Biotic Index	4.58	4.80	4.32	5.98	4.99
1st Dominant Taxon	Ephemerellidae	Simulium (black fly)	Zapada cinctipes (stonefly)	Simulium	Pisidiidae
2nd Dominant Taxon	Micropsectra	Zapada cinctipes (stonefly)	Simulium (black fly)	Amphipoda	Planorbidae
3rd Dominant Taxon	Baetis	Micropsectra (midge)	Amphipoda	Isopoda	Leptophlebiidae



Hilsenhoff Biotic Index

HBI Value	Water Quality	Degree of Organic Pollution
0.00-3.50	Excellent	No apparent organic pollution
3.51-4.50	Very Good	Slight organic pollution
4.51-5.50	Good	Some organic pollution
5.51-6.50	Fair	Fairly significant organic pollution
6.51-7.50	Fairly Poor	Significant organic pollution
7.51-8.50	Poor	Very significant organic pollution
8.51-10.00	Very Poor	Severe organic pollution

Marine Monitoring

Parameters of concern in 2011/12:

- DO
- Temp
- Nitrate
- Bacteria (entero, FC)
- Metals (Cd,Cu,Zn)



Marine Monitoring

2018 parameters of concern:

- DO (toe)
- Temp (28° mouth of Colwood Ck)
- Bacteria (entero in toe; FC > shellfish)
- Cadmium (less; -1A -2A, Ref)

Previous parameters of concern

- Nitrate: highest at -7,-1A in 2011
- Copper: no exceedances; lower dl
- Zinc: no exceedances; lower dl



Future Monitoring

Area	Year
Bee and Selleck	2019
Marine	2023
Colwood Creek	2022
Stormwater Discharges	Ongoing – 933 investigations

