Gabriola Streamkeepers—Water levels and quality

Observations at Coats Marsh, Gabriola Island

—with notes on Coats Marsh Creek, East Path Creek, and Stump Farm Streams.

References:

RDN Coats Marsh Regional Park, 2011–2021 Management Plan, Appendix A.
RDN Coats Marsh Weir Assessment, June 1, 2020, SRM Projects.
Gabriola Riparian Areas, February 24, 2012, Madrone.
RDN Berm Report, September 12, 2013.
RDN Water Level Management, September 14, 2021, Madrone.
RDN NHC/EDI Weir Replacement Study, April 12, 2023.
RDN/NTBC Coats Marsh Weir Management Proposal, May 2, 2023.
RDN NHC/EDI Decommissioning Plan, December 18, 2023.
RDN NHC Beaver Dam Risk Assessment, January 10, 2024.
RDN Coats Marsh Weir Pool Mitigation Plan October 2024.

For an up-to-date list see here and for pertinent Gabriola Streamkeepers notes see here.

Coats Marsh hydrogeology .

Water-levels' summary.

Coats Marsh RP and 707 CP Trail Maps: Maps Y and Z.

Gabriola Stream and Wetlands Atlas .

Coats Marsh Species Checklists .

Freshwater fish on Gabriola Island, BC

Coats Marsh – human disturbance of breeding and migratory ducks and geese.

Coats Marsh – beaver dam stability.

Coats Marsh Management - paper on, weir decommissioning

Coats Marsh brief history.

Long-term precipitation (1944-2024) – statistics. Updated every month and used as the "normal" meaning average precipitation at Coats Marsh.

Field observations—2024 (Jun.—Dec.)

THIS FILE (Field Observations 2024) IS A SUPPLEMENT TO:

"Observations at Coats Marsh, Gabriola Island" File: 673.

For an up-to-date list of supplements see here .

Jun.04, 2024 (day 3244, 2922+322):ViGRG cum. 1166.4 mm (norm. 1068 mm).

Scudding clouds and spitting rain; grasses tall and green; water-laden shrubbery arched over narrow footpaths threatening those who venture through with a soaking shower, (bit like a surfer riding a breaking mega-wave).

Some stretches of old logging turn-again lanes[1] through what were once cedar groves, now stands of alder, are vernal pools hosting water-plantains, marsh horsetails, water-parsley, angelica, and other wetland flora.

Jun.07, 2024 (day 3247, 2922+325):ViGRG cum. 1166.4 mm (norm. 1073 mm).

Adela septentrionellae (fairy moths) on the first of the oxeye daisies. Associated with ocean spray in the nature guides but in the park they always appear on the daisies before the ocean spray has flowered. The females sport reddish caps; the males, ridiculously long antennae.

Also on the oxeye daisies an interesting collection of beetles, possibly Scotch-broom-seed beetles, *Bruchidius villosus*. If that's what they are, introduced from Europe into the US and on finding that they control broom, have been used there as a control agent, probably entering a more cautious BC unassisted at the turn of the century. Here, they are missing their designated target, perhaps justifying caution. The oxeye-daisy disc is about 15 mm diameter.

[1] "Driving livestock from farmsteads or villages to and from fields [in the mid-sixteenth century] required narrow ways fenced on both sides so that animals did not wander into crops.…If these ways dead-ended at the outermost field, locals knew them as "turnagaine lanes". John R. Stilgoe, "What is landscape", pp.158, 175-6, MIT, 2015.

Small red things:

Fringecup (*Tellima grandiflora*)

male pileated woodpecker (*Dryocopus pileatus*)
sheep sorrel (*Rumex acetosella*), and
bicoloured flaxflower (*Leptosiphon bicolor*), not going to make it, drying-out in moss, the wet season almost over.

Jun.13, 2024 (day 3253, 2922+331):ViGRG cum. 1169.6 mm (norm. 1082 mm).

In Upper Coats Marsh Creek, Pacific water-parsley (*Oenanthe sarmentosa*), water striders (sp.?), and cutthroat-trout fry (*Oncorhynchus clarkii* ssp.)[2] [3]. The lowest reaches still running.

[2] Subspecies probably *clarkii* (coastal, File 6103, p.9, File 678). Hoggan Lake was stocked in 1924 and 1927 with trout from Cowichan Lake, the common subspecies there being *clarkii* rather than *lewisi*.

[3] Jethro Baker has also posted pictures of the fish on the GSK Facebook page, June 13.

Jun.19, 2024 (day 3259, 2922+337):ViGRG cum. 1177.4 mm (norm. 1090 mm).

Report of beaver activity from 3 weeks ago. One sighting in the outer marsh(east end) late afternoon. Another sighting on shore at the weirpool after dark illuminated by moon and yard lighting. Seemed this animal may have been smaller than the long-time resident which is interesting if true.

Mallard family down to five ducklings, joined by an "aunt", all looking healthy, not fledged, but making progress. Loss is commensurate with usual loss due to predation.

Lack of migrant waterfowl due to avian flu virus H5N1 perhaps?

A Pacific ninebark (*Phyocarpus capitatus*) flowering.

Spiny rose galls (*Diplolepis* sp. *bicolor* or less-likely *polita*) on baldhip rose (*Rosa gymnocarpa*).

They're created by non-stinging gall wasps (Cynipidae).

Salal (*Gaultheria shallon*) blossoms copious this year. Some now shedding their bell-shaped array of connate (fused) petals in preparation for berry formation, but even so they're a bit behind compared with the Oregon grapes (*below*). They're very sticky at this stage.

Both make excellent jam, but I think the grapes are better. Salal berries are also difficult to detach without squashing them.

Jun.23, 2024 (day 3263, 2922+341):ViGRG cum. 1177.8 mm (norm. 1095 mm). Weir 189 mm WPB scale. [cal. datum: weir −0.458 m].

No outlet from the weir but the drainage pipe still running, but not enough to maintain any surface flow at the Marsh Trail culvert.

Evening. While waiting for shadows to lengthen and the beaver to pass by, entertainment provided by cedar waxwings, swallows, a goldfinch, a few hen mallards, foxgloves and galaxies of oxeye daisies.

Spotted coralroot
(*Corallorhiza maculata*)

The oxeye daisies (*Leucanthemum vulgare*) are evocative of snow when densely massed, or whitecaps on the sea when it's blustery, but I prefer stars. Yellow discs reflecting whiteness, even at night. Thousands and thousands of them,

Another flower that appears *en masse* in the greenswards this time of year is hairy cats-ear (*Hypochaeris radicata*). The visiting hoverfly (flower fly) shown here is the common but unnamed (*Syrphis ribesii*). They don't sting.

Jun.29, 2024 (day 3269, 2922+347):ViGRG cum. 1184.3 mm (norm. 1102 mm). Cistern +55 mm SCB. [cal. datum: cistern +0.422 m].

Strikingly-bright-orange-powdered small nodules on a few of the wild roses turn out to be a rather nasty pathogen, rose rust mildew (*Phragmidium mucronatum*). Encouraged by the cool and perpetually wet weather. It's popping up elsewhere on Gabriola.

Prickly sow-thistle (*Sonchus asper*), with its yellow flowers easily overlooked when not in bloom among the purplish-flowered true thistles (*Cirsium* spp.). NE Arm.

Jun.30, 2024 (day 3270, 2922+348):ViGRG cum. 1189.3 mm (norm. 1104 mm).

Precipitation this month 17% above long-term average for the month. Annual to-date rises to 10% above average.

Jul.05, 2024 (day 3275, 2922+353):ViGRG cum. 1189.3 mm (norm. 1109 mm).

Evening Grosbeak (*Coccothraustes vespertinus*)sitting watchfully high up on the tip of a tall snag, like a hawk. Greenish heavy bill, plain head (female), yellowish belly, square tail. Too far away for a good picture. Very seldom seen, but definitely visitors to the park.

Tree knees are common in the Gabriola forests. They're logging stumps that have grown bark over the chain-saw cut. The stumps remain alive by having their roots interconnected with those of a nearby tree which shares the energy harvested by its leaves with the stump.

Jul.17, 2024 (day 3287, 2922+365):ViGRG cum. 1189.3 mm (norm. 1117 mm).

Observation-year precipitation 6% above long-term average. Within normal weather variation and in itself providing no evidence of climate change.

Butterflies scarce this year, curiously except for the red-listed large wood nymphs (*Cercyonis pegala* ssp. *incana*).

Little brown birds (LBBs) busy in the bush, can be among the most difficult to identify, especially if the rule is that identification requires a clear photograph of them, voice alone isn't enough. Many of the LBBs, smaller than say spotted towhees or robins, forage actively for insects and other arthropods, and are high up in the canopy on calm days only descending when the wind is up or it's raining. They thus appear as dark silhouettes against a bright sky or swiftly-moving photographic-targets flitting through dense undergrowth. One expedition yielded only sightings of song and fox sparrows, nuthatches, juncos, possibly a pine siskin and a female finch.

The only achieved target of special note was a Pacific-slope flycatcher (*Empidonax difficillis*). These summer residents make an oft-repeated snappy *hwit* sound in early summer becoming a squeakier *h*weet sound later, neither of which helps locate them, and is more often heard than is catching a glimpse of them.

Brodiaea coronaria, a lily that loses all of its leaves before it flowers.

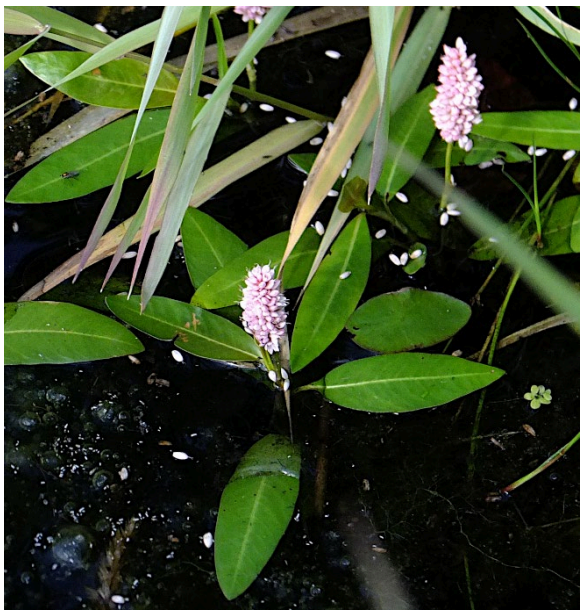
THAT CONCLUDES NINETH YEAR OF OBSERVATIONS AT THE MARSH.

Aug.03, 2024 (day 3304, 3288+16):ViGRG cum. 13.2 mm (norm. 22 mm). Cistern -104 mm SCB. [cal. datum: cistern +0.263 m]. Weir -228 mm WPB scale. [cal. datum: weir −0.875 m].

Precipitation in July 45% below long-term average for the month, which sounds a lot but July is the driest month of the year on Gabriola and has been devoid of any precipitation in years gone by. Annual to-date 7% above average.

All creeks dry[4] save the lowest reaches of upper Coats Marsh Creek which is still trickling through the South Road culvert.

Aug.25, 2024 (day 3326, 3288+38):ViGRG cum. 50.9 mm (norm. 32 mm). Cistern -142 mm SCB. [cal. datum: cistern +0.225 m]. Weir -68 mm WPB scale. [cal. datum: weir −0.715 m].



Garter snake in the cistern. They seem quite at home in the water, sometimes swimming with their head above water and sometimes completely submerged.

Water smartweed (*Polygonum amphibium*). Not nearly abundant as watershield (*Brasenia schreberi*), *shown below and next page*, but present in small patches.

A few mallards here for the summer.

Aug.31, 2024 (day 3332, 3288+44):ViGRG cum. 56.2 mm (norm. 35 mm).

Precipitation this month 58% above long-term average for the month. Fall came early. Annual to-date returns to being 10% above average. Summer rain (Jun-Aug) was 13% above long-term average for the quarter.

Berry time. Food for the fauna.

Salal berries and especially Oregon grapes abundant this year.[5]

[4] Including drainage at the weir from private property, likely sourced from flow through factures beneath the berm.

[5] Black-berrying is good on the island, the berries are high quality although ripe ones tend to dominate the clusters at the expense of the others; however, here in the “nature reserve”, the two common non-native blackberry species (*R.discolor, R laciniatus*.) are unwelcome and plants of these species have likely been extirpated.

There are orange-honeysuckle berries about, still green, and common snowberries (*S.albus*), rare in the park area despite their name.

I've no use for rose hips although my mother did something other than make jam with them while us younger ones weaponized them by using their hairs to make itching powder. Wild rose hips are smaller than those of garden varieties.

Evergreen huckleberries

Now out-of-season salmon berries and a small number of thimbleberries were here earlier in the year.

Red huckleberries are around, but infrequent and often dry and not looking happy. The plants were probably once more abundant when fallen cedar trees were left to rot and not carted away by loggers.

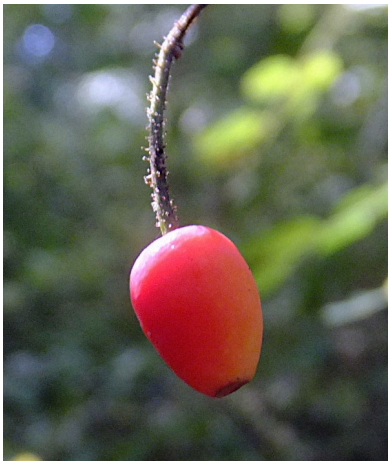
Evergreen huckleberry is common, but well-berried plants are a minority. I think they fare better in the subalpine.

Strawberries, gooseberries (*R.lobbii*), blackcaps, currants (red-flowering), haws, and others exist here but are out-of-season, or scarce or no longer extant. Clear-cutting may have taken its toll on some of these shrubs. Species list or search berries (large file) for more pictures.

Oregon grapes, mostly *Mahonia nervosa*

Red huckleberries

Salal



Bald hip or dwarf rose, *Rosa gymnocarpa*

Snowberries

Nootka rose, *Rosa nutkana* , known locally as “tall rose”, after *Mahonia aquifolium*, though I’ve seen “dwarf roses” 2 m high.

Elderberries (red), *Sambucus racemosa*

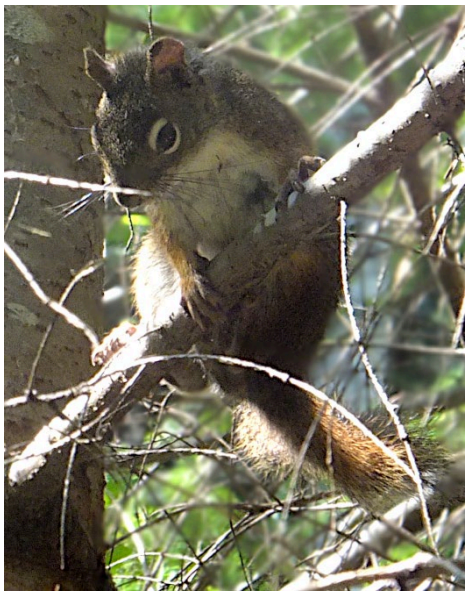
Elderberries (blue), *Sambucus caerulea*

Here's something NOT related to: berries, fungi (incl. yeasts and molds), plants (incl. non-green ones), algae (incl. seaweeds), bacteria, animals (incl. arthropods, though they can move), or to French macaroons of the late-Cenozoic era. These things evolved long before the Palaeozoic more than half a billion years ago, maybe twice that.

Slime mold on bark-free dead wood (~~outside the Coats Marsh area~~). I think it's *Lycogala epidendrum*. The only other myxomycete I'm aware of seeing ~~elsewhere on Gabriola~~ is the bright yellow *Fuligo septica*.

Sep.13, 2024 (day 3345, 3288+57):ViGRG cum. 68.3 mm (norm. 48 mm). Cistern -192 mm SCB. [cal. datum: cistern +0.175 m].

Alligator lizard. Too quick for the camera. Snakes seem common this year.



Two mallards (a mother and "aunt"?) with at least six ducklings. It's a bit late in the breeding season for them. Didn't know mallards could have two broods in a single season though wood ducks sometimes do.

Migratory grasshoppers (*Melanopus sanguinipes*).

Sep.30, 2024 (day 3362, 3288+74):ViGRG cum. 101.0 mm (norm. 80 mm). Cistern -180 mm SCB. [cal. datum: cistern +0.187 m]. Weir -51 mm WPB scale. [cal. datum: weir −0.698 m].

Precipitation this month 2% above long-term average for the month, most falling as heavy showers on just three days. Annual to-date is 9% above average. All the rain left large puddles that quickly disappeared into

Possibly *Hypholoma capnoides* possibly not.

the ground leaving no running water anywhere. The lake received nothing from its catchment beyond what fell on its surface, and lost nothing that didn't return unseen to the sky or snuck away in underground leakage.

Just a few summer-resident ducks in the reeds fringing the lake. Mushrooms, including LBMs, everywhere.

Oct.10, 2024 (day 3372, 3288+84):ViGRG cum. 109.2 mm (norm. 110 mm).

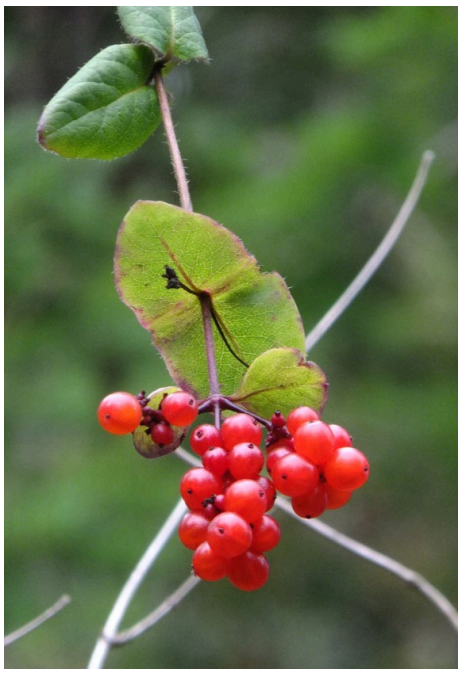
WATER QUALITY
Lake at Stanley Place

Temp.	8.7°C
pH	6.4
Turbidity	1.7 NTU
Spec. cond.	51 µS/cm
DO	8.8 mg/L 74%

Consistent with rain water with little to no groundwater component. None of the inlet watercourses are running.

pH measurement not very stable, probably due to lack of buffering.

Dissolved oxygen good despite much rotting aquatic vegetation.



Honeysuckle, *Lonicera ciliosa*

Probably a *Russula brevipes* type.

Rosy Gomphidius, *Gomphidius subroseus*, black spores, yellow base.

Strobilurus trullisatus.

Oct.15, 2024 (day 3377, 3288+89):ViGRG cum. 106.7 mm (norm. 127 mm).

Lycogala epidendrum, a slime-mold (p.ZE 627), seen in CM RP.

At least one wood duck on the lake. A newly-arrived small flock of mallard males fresh from their flight-feather molt looking very spiffy. No creeks running yet.

Another slime mold? No, A fungus, *Dacrymyces stillatus* or less likely *D. capitatus*.

Amethyst laccaria, *Laccaria amethysteo-occidentalis*. The violet colour of gemstone quartz only clearly seen on the underside of the caps.

Shaggy parasol. Used to be in the genus *Lepiota*. Don't know what it is now. A single specimen of the *parasolpilz* (*Macrolepiota procera*) we found in south Germany could fill a frying pan and tasted like steak. But that was a different century.

Above: A rare find in the CM-RP, which I hope excuses the poor quality, a lion's mane, *Hericium erinaceus*. Dead hardwood.

Right: Brown elfin saddle *Helvella elastica*

Oct.21, 2024 (day 3383, 3288+95):ViGRG cum. 186.4 mm (norm. 150 mm). Cistern -98 mm SCB. [cal. datum: cistern +0.269 m].

Atmospheric river gave us about 70 mm in three days.




The extraordinary abundance of large white *Russula brevipes* this year has brought with it examples of the species transformed by the parasitic fungus *Hypomyces lactifluorum*. The infection seems at first to be yellow [and I note here this may have resulted in my mis-identifying such a specimen as *Cantharellus cascadensis* (p. M 209)]. The yellow becomes a golden orange completely covering the host and finally red. The host is totally transformed right down to the DNA level and becomes unrecognizable in the process. They are then "lobster mushrooms" and foragers love them. I think of their colour as being that of the Pacific red rock crabs that abound in the seas around Gabriola rather than that of lobsters that don't.

Patches of *Russula brevipes* are not rare in the CM-RP, but specimens that have been parasitized are uncommon.

Oct.25, 2024 (day 3387, 3288+99):ViGRG cum. 199.6 mm (norm. 167 mm). Weir 71 mm WPB scale [cal. datum: weir −0.576 m].

No creeks running, but a small flow from the private-property drain into Coats Marsh Creek just below the concrete weir.

Oct.27, 2024 (day 3389, 3288+101):ViGRG cum. 214.5 mm (norm. 176 mm).

Rain and rainbows, boisterous wind and swaying branches, gloom beneath the young post-logging stands with closing canopies, sparkling raindrops on the tips of fir-tree branches gleaning light from the open sky, fitful droppling set lose by gusts of wind in the canopy.

The first of the arrivals in the new winter-season. Ring-necked duck male; northern shoveller, female.

Vermilion waxy cap, *Hygrocybe miniata* group.

LWMs (little white mushrooms) shining in the darkened duff. Like stars; troops of them forming galaxies. *Mycena* sp., fairy bonnets.

Ponding in upper Coat Marsh Creek.

Oct.31, 2024 (day 3393, 3288+105):ViGRG cum. 215.1 mm (norm. 195 mm).

Precipitation this month 21% above long-term average, helped by the atmospheric river event. Annual to-date is 11% above average.

Nov.2, 2024 (day 3395, 3288+107):ViGRG cum. 238.1 mm (norm. 204 mm).

Two buffleheads on the lake.

This year (2024) has been an outstanding year for fall mushrooms; one veteran forager told me she had not seen it so good in 17 years. Because I am far from being an expert mycologist, I'm posting pictures of some of the fungi and slime molds I have seen in the area last month but can only tentatively and not authoritatively identify.

Above: Translucent and toothed. A gummy bear. *Pseudohydnum gelatinosum.*

Below: Yellowfoot dapperling, a young one, *Lepiota magnispora*.

Below right: shaggy somethings.

Marasmiellus candidus.

Usually found in the dense stands at a "young forest" structural stage in the park with self-thinning snags and abundant dead wood on the forest floor.

Probably *Clavulina coralloides*

A fungus with light-brown teeth. All I can suggest is *Phellodon melaleucus*.

Slime molds. The one on the right is on dead bigleaf maple leaves. Probably *Fuligo septica*. This slime mold feeds, not on dead leaves, but on the bacteria and other unicellular microbes on the surfaces of the rotting leaves. The one on the left is on dead bark-free alder.

Unlike fungi, slime molds can move, as is suggested by the slime trails.

Above: Common but tricky to identify. Looks a bit like *Laccaria fraterna* but that's too rare, perhaps an *Xeromphalina* sp..[or *Marasmius plicatulus* ?] The caps are umbilicated (w. depressed centres) rather than umbonated (w. knob-like centres) as is more usual.

Below right: Small staghorn jelly fungus, *Calocera cornea*.

There were many more, but it needs a better mycologist than I to present them.[6]

[6] Although I have eight mushroom handbooks on my shelf, I increasingly rely on just two. The older ones are less-well illustrated and no longer up-to-date with the advent of DNA and microscopic analysis. The first of my favourites is "*Mushrooms of British Columbia*, Royal BC Museum Handbook, Andy MacKinnon and Kem Luther, 2021". A close second favourite is "*Mushrooms of the Pacific Northwest*, A Timber Press Field Guide, Steve Trudell, revised 2022". A useful accessory to these two is "*Common Mushrooms of the Northwest*, J. Duane Sept, revised 2012". The illustrations and text in this are the same excellent quality but fewer species are described. I don't pick mushrooms anymore, nor do I damage them for the purposes of seeing what is under their caps. I'd rather others had the same enjoyment I do of just seeing them living the lives that they do without my interference.

Nov.10, 2024 (day 3403, 3288+115):ViGRG cum. 287.3 mm (norm. 245 mm).

The Big Dark. An approaching winter solstice and thick grey clouds hanging low and bringing November rain nearly every day.

Several buffleheads but far fewer than usual. Some days there are literally no ducks or only one or two of any kind to be seen anywhere on the lake.

Mallards usually begin pair-formation in the fall, but it looks like these two new arrivals are ahead of the game.

Jelly fungus that is orange is common, but there are two look-alike species, *Dacrymyces chrysospermus* and *Tremella mesenterica* that are called witch's butter.

D. chrysospermus lives on the rot of rotting coniferous wood and so is the one we see most often.

Buffleheads breed east of the Coast Mountains so seem less concerned with courtship while overwintering here. This male was being accompanied by three females but their relationship with him seemed pretty casual.

T. mesenterica lives on rotting deciduous wood and is not so noticeable. It is also different in that it is a parasite of a white-rot crust-fungus (*Peniophora* sp.) causing the rot. The photo shows the broken end of a rotten bitter-cherry deadfall (*Prunus emarginata*).

Clockwise from top: *Mycena* (*M. metata*?)/ ? decurrent forked gills/ red-brown stained crowded gills and stipe w. white zone at the top, *Tricholoma pessundatum* group?/ chanterelle/ *Russula* (*R. xerampelina*?).

A Pacific crab apple along the lakeside contributing colour where it's too wet for the bigleaf maples (lesser maples don't live here) and the yellowed-leaves of the willows catch the light well but are too *petites* and uncrowded to put on a show from afar.

The most brilliant reds are the leaves of Oregon grape that are suffering from a pathogen other than a wanning sun.

Nov.18, 2024 (day 3411, 3288+123):ViGRG cum. 352.7 mm (norm. 288 mm).

If I can't find anything interesting, I take a closer look.

The lower picture is a bird's nest fungus, possibly a *Nidula* sp. The "eggs" contain the spores and the fungi are waiting for falling raindrops to splash them out of the "cups".

The upper picture is an I-know-not-what. Fungi or fruiting slime molds?

Nov.19, 2024 (day 3412, 3288+124):ViGRG cum. 382.9 mm (norm. 294 mm).

Cistern +89 mm SCB. [cal. datum: cistern +0.456 m]. Weir 520 mm WPB scale. [cal. datum: weir −0.127 m].

A few more winter

resident ducks on the lake (buffleheads, ring-neckeds, and mallards).

Creeks observed to be running were East Path Creek, NE Arm Creek, Stump Farm Numbers 1 and 2 Streams, and Coats Marsh Creek.

Secondary beaver dam just above the concrete weir looks "improved".

Bomb cyclone (what we used to call a deep depression) hit later that day. The majority of trails on the island subsequently blocked by one or more blowdowns.

Nov.27, 2024 (day 3420, 3288+132):ViGRG cum. 414.1 mm (norm. 340 mm). Weir 527 mm WPB scale. [cal. datum: weir −0.120 m].

At the RDN Board meeting November 26,2024, a consultant's report on management of the weirpool area after it has been drained, as is the current RDN plan, was received for information. Basically it proposes turning the drained weirpool area into a native-plant garden with annual maintenance to control the invasive spread of reed canary grass. Comment is in File: https://nickdoe.ca/pdfs/Webp6112.pdf.

Pictures of the reed canary grass already established in the weirpool. There's little hope its spread can be controlled without year-round open water. It has already formed monotypic habitat in the intermittent wetlands in the catchment area of the marsh.[7]

[7] NE Arm and SE Arm wetlands. The grass can propagate from there by downstream waterborne seeds.

Nov.28, 2024 (day 3421, 3288+133):ViGRG cum. 414.2 mm (norm. 346 mm).

Light frost overnight, first of the year. Day a mild +4˚C so a great surprise to see hair ice on the Ridgeway. Just one isolated occurrence. On a red-alder deadfall.

Dec.1, 2024 (day 3424, 3288+136):ViGRG cum. 415.8 mm (norm. 364 mm).

Saw a group of inside-out mushrooms (*Parasola plicatilis*, pleated inkcap) in the Kensington lands. No camera. Searching for the same in the CM area found only not-so-striking lookalikes. One, a fairy bonnet (*Mycena* sp.)in moss with translucent-striate cap. Anther *Marasmiellus candidus* on wood, striate cap not matching the gills and without inkiness in old age, and the third, an old faded brown one with shriveled cap,(*Marasmius plicatulus*?). None with a preference for grassy habitat. The hunt for the real McCoy goes on.

Precipitation this month 4% above long-term average. Annual to-date is 10% above average. Autumn rain (Sep-Nov) was 9% above long-term average for the quarter.

Beaver reported killed while attempting to cross South Road because the Coats Marsh Creek culvert obstructed. A new beaver taken his place already? The willows on the berm have been cropped recently.

Dec.10, 2024 (day 3433, 3288+145):ViGRG cum. 431.3 mm (norm. 419 mm).

Orange jelly on decaying wood and chainsaw cuts usual, but pinky-purple jelly? Not so much. Maybe *Ascocoryne sarcoides*, rare, but almost certainly not *Ascotremella faginea*, even rarer. Seen on an alder deadfall.

Dec.13, 2024 (day 3436, 3288+148):ViGRG cum. 454.1 mm (norm. 437 mm).

Cistern -410 mm SCB. [cal. datum: cistern -0.043 m]. Weir 530 mm WPB scale. [cal.datum: weir -0.117 m].

Extraordinary decline in the water level in the "lake", meaning the area of the marsh east and upstream of the large beaver dam. The hydraulic head of the beaver dam (the difference between the upstream east side level and downstream west side level, the weirpool) is now, according to the measurements, only 74 mm, which given the uncertainties of the non-professional surveying is practically zero.[8]

The lake level has dropped 500 mm since the last measurement on November 19. While there has been a lull in precipitation of late, East Path Creek is currently not running, this is quite inadequate to explain the large loss of water from the lake.

The level in the weirpool controlled by the height of the secondary beaver dam above the sill, which is now about 0.50 m, and by the pond leveller. The weirpool level has actually risen by 10 mm in the same timeframe.

This decline in the water level of the lake has not been without ecological consequences. The duck population is scattered and possibly reduced, and a red-legged frog(*Rana aurora*) was found just barely alive without visible signs of injury in the reeds along the fringe of the lake from which the water had retreated.[9]

[8] The levels are recorded graphically in the File: https://nickdoe.ca/pdfs/Webp673b.pdf.

[9] It could not be revived.

The fringe of the east end of the lake recently losing water where the frog was found.

The weirpool from the berm with the lake seen in the distance. The plant, the colour of dry dead bracken, is reed canary grass (*Phalaris arundinacea*).

One explanation for the loss of water is that an underwater hole has developed in the main beaver dam. Another is that water has been pumped or syphoned by the RDN across the main beaver dam.

There is no visible above-water damage to the dam, and the syphons are not working. The syphons might have been used, but because the hydraulic head is now so small they would have stopped working by now even had they been used.

Dec.15, 2024 (day 3438, 3288+150):ViGRG cum. 470.9 mm (norm. 449 mm).

Cistern −378 mm SCB. [cal. datum: cistern −0.011 m]. Weir 543 mm WPB scale. [cal.datum: weir −0.104 m].

All creeks running again. Another passing bomb cyclone yesterday. Sunny today. Lots of ducks on the lake and sheltering among the snags, all very shy.

The lake level has risen 32 mm since the measurement two days ago and the weirpool level has risen 13 mm. The implied rise in the hydraulic head suggests the beaver dam is now intact and maybe always was.

Dec.20, 2024 (day 3443, 3288+155):ViGRG cum. 540.3 mm (norm. 480 mm).

Cistern +179 mm SCB. [cal. datum: cistern +0.546 m].

The lake water level now close to what it was before human intervention reported a week ago.

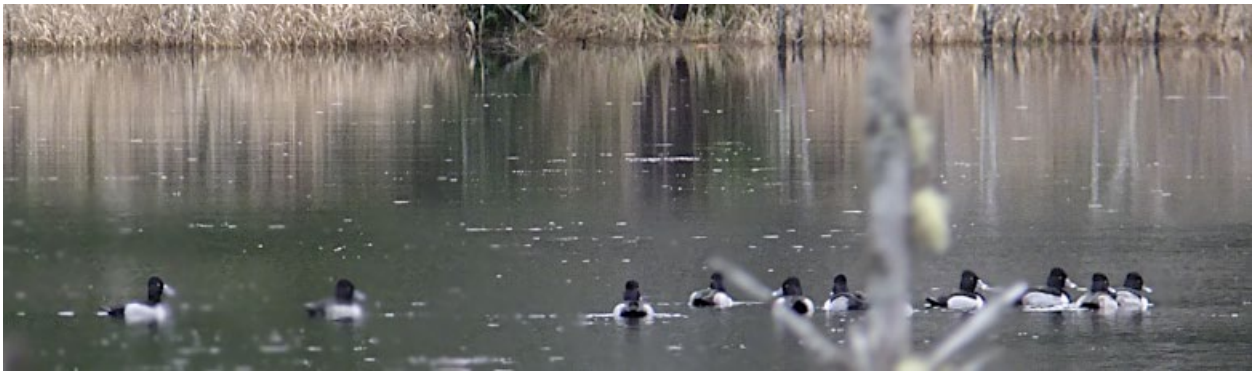
Upper Coats Marsh Creek approaching the culvert under South Road on the upstream (NE) side. No obvious external obstruction to the culvert but the water velocity through it is high.

Dec.21, 2024 (day 3444, 3288+156):ViGRG cum. 546.5 mm (norm. 486 mm).

Weir 640 mm WPB scale. [cal.datum: weir −0.007 m].

Although the level of the weirpool is close to that of the top of the concrete weir, the flow across the sill is diminished by the secondary beaver dam just upstream of the baffle.

Dec.24, 2024 (day 3447, 3288+159):ViGRG cum. 564.6 mm (norm. 505 mm).



Ring-necked ducks waiting for...

...a beaver to pass by.

Dec.29, 2024 (day 3452, 3288+164):ViGRG cum. 595.3 mm (norm. 535 mm).

Weir 640 mm WPB scale. [cal.datum: weir −0.007 m].
East Path Creek culvert submerged.

Some major trails having their margins brushed and, in the process, their hardpack churned-up by the heavy-duty flail mower. Making sure we have the ability to deal with the (inevitable one day?) forest-fire or other emergency needing assured vehicular access.

Dec.31, 2024 (day 3454, 3288+166):ViGRG cum. 607.3 mm (norm. 548 mm).

Cistern +197 mm SCB. [cal. datum: cistern +0.564 m].
East Path Creek culvert back to half capacity.

Precipitation in December 2% above long-term month's average but, on some days very showery, seemingly different in different parts of the island.

Annual rainfall this year was 8% above long-term average. Up-dated precipitation monthly and seasonal averages in File 698.

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