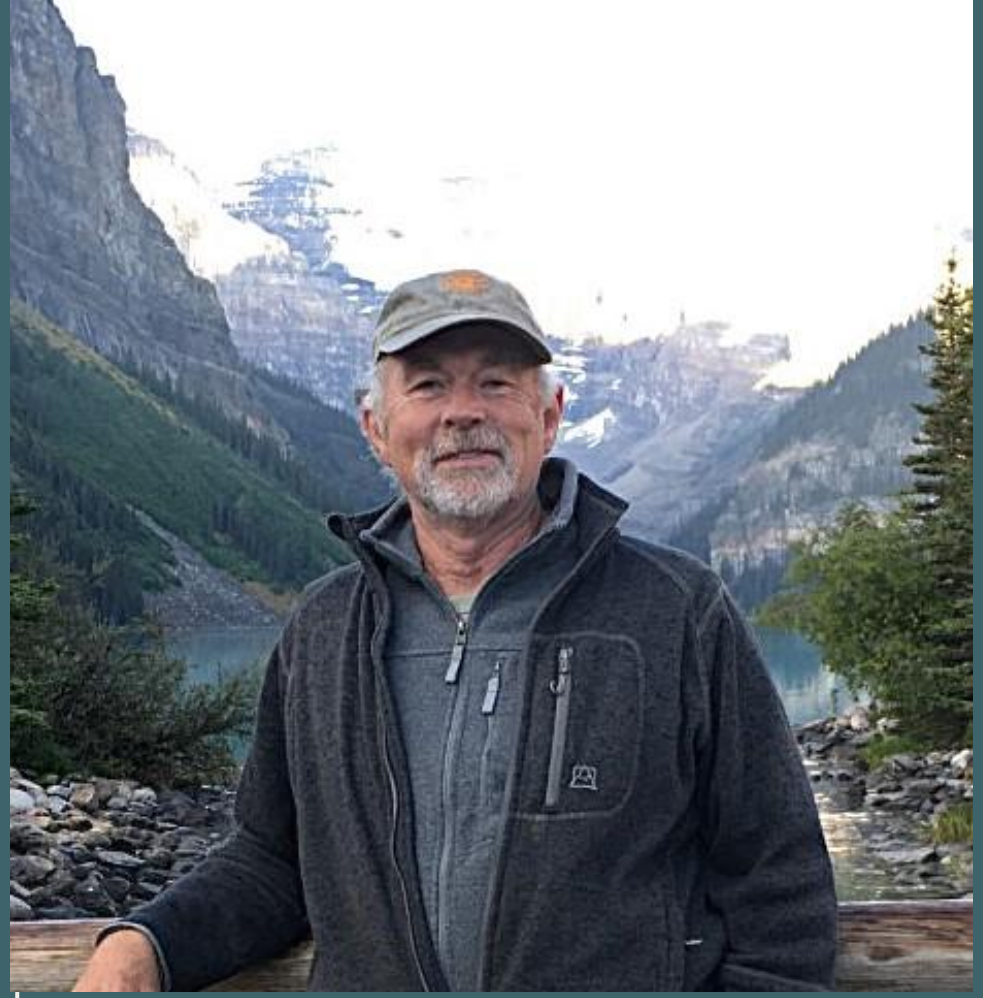


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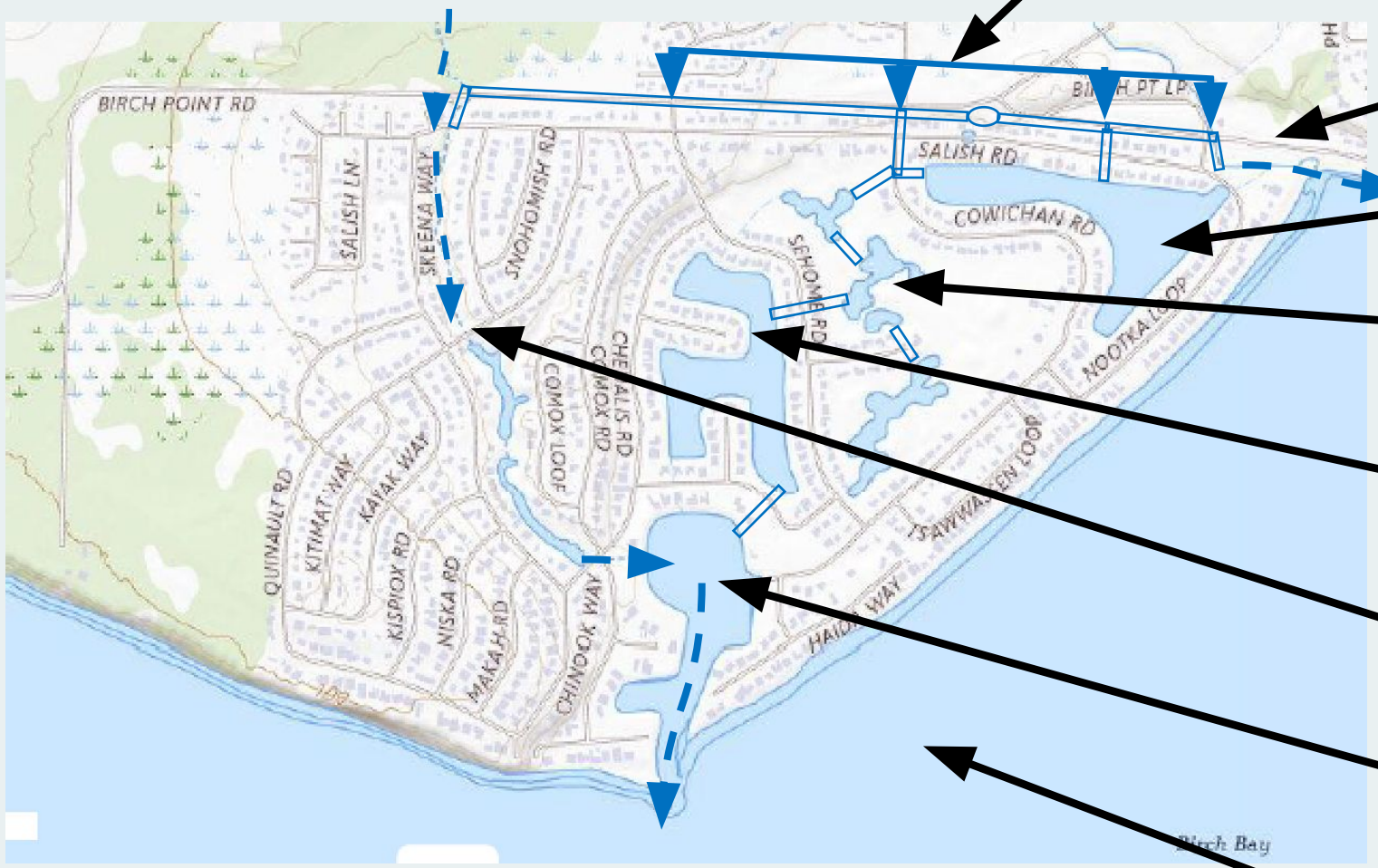
Birch Bay Village Community Club is a private H.O.A.-administered region with 1,129 residential lots plus numerous common areas



Regional watershed characterization

- Birch Bay WMU (Watershed Management Unit)
- Part of coastal watershed encompassing 31 sq. miles
- Unincorporated Whatcom County, NW of Bellingham
- Between Drayton Harbor and Lummi Bay

Hydrological components



County drainage system culvert connections (inflow)

Tidal slough (outflow)

Kwann Lake (15.14 acres)

Golf course ponds

Thunderbird Lake (14.4 acres)

Natural creek, beaver pond (inflow)

Marina (outflow)

Saltwater bay

Two largest water bodies have about 15.1 acres and 14.4 acres of surface area



- Created as scenic recreation areas and stormwater retention ponds
- Differ in average depth
- Variances in oxygenation, temperature, salinity and pH

THUNDERBIRD LAKE, 2022

Impact of no seasonal treatment applications + higher-than-desirable phosphorus levels





July 2022: significant algae bloom lake-wide

October 2022: 100's of resident volunteer hours

Treatment Program Results



Thunderbird Lake – July 2022



Thunderbird Lake – July 2023

Previous season's bloom of Filamentous algae completely diminished

Current approaches being taken

- Water testing: Aquatechnex contracted for baseline measurements of phosphorus (TP and FRP) including sediment samples (levels too high)
- Kwann Lake & Thunderbird Lake now included in the Washington State Department of Ecology's surface and recreational water analysis program
- Legacy Asian grass carp population is being reviewed & addressed
- Aquatic plants & algae types are being identified inhouse
- Account with Exact Science Services, Inc. (Ferndale, WA) using water test samples from locations originally set up by Institute for Watershed Studies
- Opacity and turbidity measurements made inhouse using Secchi disc/tube
- Phosphate-locking compound & UV-blocking dye being applied inhouse

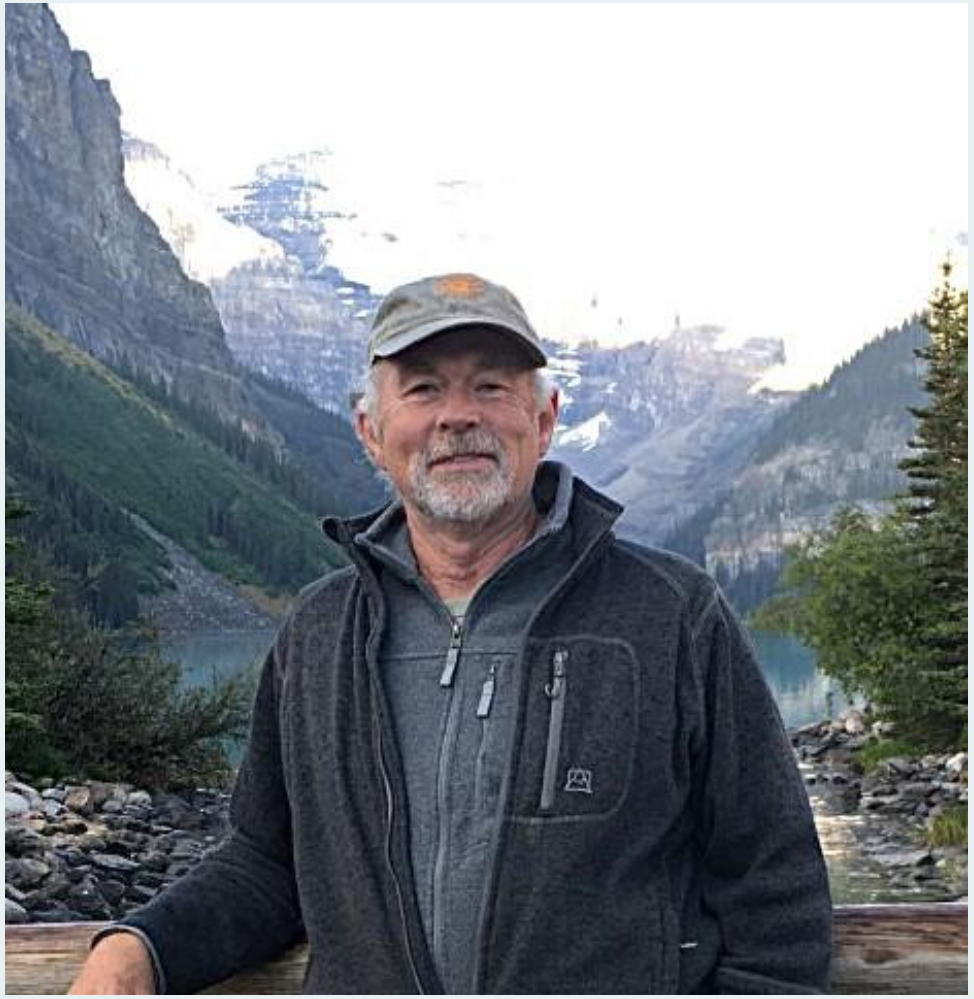
Treatment Applications Equipment



- BBV Maintenance now has appropriate equipment & training for inhouse applications
- National Pollutant Discharge Elimination System (NPDES) includes permits for covering discharge to surface waters (administered by Dept. of Ecology)

Key Takeaways

- Our managed lakes and ponds rely on rainfall, stormwater runoff and surface-water channels management for influx of water
- Regional watershed's impact on the community's drainage system requires constant attention and oversight
- Professional expertise & input from WALPA membership has led to better-informed and more effective processes
- Volunteer resident committee and BBV Maintenance are coordinating to follow a credible lakes management plan



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