

# CRYSTAL POND WATER COMMITTEE

## 2023 Annual Meeting Hot Topics

### 2022 ANNUAL REPORT

- 2022 was our second year of expanded data collection.
- The phosphorus levels at the bottom of the Pond collected from the deep water buoy in August and October were the highest ever recorded at 66 and 75 ppb, respectively.
- Nitrogen and Phosphorus were exceedingly high in several inlet/stormwater samples. Inlets are a microcosm for all properties.
- Phytoplankton count on July 11th contained 2 genera of cyanobacteria well below the WHO "take action" level.
- The combination of residual cyanobacteria and increased phosphorus levels suggest cyanobacteria will increase in the future.

### REDUCING NUTRIENT INFLOWS

- **SLOW IT DOWN, SPREAD IT OUT, SOAK IT IN!**
- Remove direct drainage into the Pond if possible. If space allows, redirect roof, hillside and driveway runoff using rain gardens, swales, water bars and hay bales.
- Consider adding vegetation to a steep slopeside lot or reducing mowing.
- Minimize vegetation trimming around the shoreline and inlets.
- Plant a native tree or shrub. Trees and shrubs act as filters for water and runoff.
- Focus on the measures you can take on your own property. If each homeowner takes small steps the collective benefit to the Pond over time is exponential.

### WASTE WATER

- A major source of nutrients is aging and antiquated septic systems.
- Consider measures you can take to protect the Pond:
  - Rent a portable toilet on busy weekends/for parties if your system is undersized or the condition is unknown.
  - Minimize heavy septic system use during major rain events.
  - Monitor your system for signs of failure: slow drains, bad odors around your tank, water surfacing near your system.
- Pump your septic system every 3 years.
- Get an inspection of your system to understand when/if a replacement is necessary.

### GEESE

- Snow fences have been shown to reduce the number of visits/length of time a gaggle will spend grazing in a yard.
- Geese feed on lawns throughout the year. If a yard is not regularly monitored, geese droppings will contribute to nutrient inflows to the pond during the off-season. Seasonal residents with a lawn are strongly encouraged to install a snow fence as part of their fall cottage close-up process.
- Shoreline vegetation works best and has the added benefit of filtering nutrients/runoff. Even small plant groupings will make a yard less desirable to geese. If space allows, leave a no-mow zone close to the lake.

### LOOKING AHEAD

- **Filters** - the 2021 NEAR watershed report recommended eutrosorb filters for storm drains and inlets. Eutrosorb and similar products are relatively new technology that the Water Committee is actively monitoring. Residents are reminded that filter applications have an associated cost. One Eutrosorb sock retails for \$120 and inlet applications would require 4-6 socks to effectively manage nutrient inflows. The recommendations found in "Reducing Nutrient Inflows" remain the most cost effective.
- **Grant opportunities** - the Water Committee is actively monitoring all potential grant opportunities. We applied for a grant to defray the cost of the inlet sampling program in 2023 but were not selected. We remain dedicated to increasing our data collection efforts as the quality and amount of documentation is viewed favorably by grant application review committees.
- **2024 Special Meeting** - The Water Committee proposes a special virtual meeting in early Spring 2024 to present data from the NEAR annual report/2023 monitoring season, respond to members questions and concerns and approve the 2024 water monitoring budget.

# EXHIBITS:

## ANNUAL WATER MONITORING COSTS

	2017	2018	2019	2020	2021	2022	2023**	% Increase from 2022
<b>Water Monitoring</b>	3,747	6,059	5,479	6,213	4,414	9,148	9,679	6%
Annual report	960	1,600	1,600	1,600	1,600	2,000	3,180	59%
Aquatic Plant Survey	230	920	1,040	1,215	1,215	1,330	1,610	21%
NEAR monitoring trips	1,500	2,000	1,764	2,364	-	1,638	-	-100%
Watershed investigation	-	-	-	-	-	1,200	-	-100%
Buoy nutrients	822	1,104	846	764	1,349	1,684	1,701	1%
Inlet/stormwater nutrients	235	235	229	270	250	1,171	1,568	34%
Phyto/Zooplankton analysis	-	200	-	-	-	125	1,620	1196%
<b>Total</b>	<b>3,747</b>	<b>6,059</b>	<b>5,479</b>	<b>6,213</b>	<b>4,414</b>	<b>9,148</b>	<b>9,679</b>	<b>6%</b>
<b>Cost per member***</b>	<b>54</b>	<b>84</b>	<b>72</b>	<b>79</b>	<b>83</b>	<b>116</b>	<b>123</b>	

\*\* Proposed spend  
 \*\*\* Assumes 2023 membership stays consistent at 79 members

## TOTAL PHOSPHORUS AT DEEP WATER BUOY (PPB)

Date	Top	Middle	Bottom	Avg. Top	Avg. Middle	Avg. Bottom
10/16/2022	10	8	75			
8/21/2022	18	17	66			
7/11/2022	9	12	25			
6/20/2022	7	7	19			
5/11/2022	9	10	9			
5/1/2022	10	8	9	11	10	34
9/26/2021	7	4	24			
8/29/2021	14	18	47			
7/25/2021	14	18	16			
6/20/2021	12	13	14			
4/24/2021	10	7	13	11	12	23
9/8/2020	16	16	39			
7/24/2020	10	12	12			
5/26/2020	13	9	14	13	12	22
8/27/2019	12	13	35			
7/2/2019	12	19	24			
6/10/2019	10	9	23	11	14	27
10/4/2018	12	6	11			
8/20/2018	10	11	17			
7/31/2018	12	10	16			
5/14/2018	11	12	12	11	10	14
9/11/2017	9	8	19			
8/1/2017	12	15	17			
5/19/2017	8	8	12	10	11	15
9/15/2016	15	12	42			
8/1/2016	11	12	41			
5/10/2016	17	13	13	14	12	32
7/31/2015	12	21	28			
7/8/2015	11	24	18			
5/18/2015	17	12	21	13	19	22
7/18/2014	11	10	11			
5/19/2014	23	13	13	17	12	12
9/23/2013	11	11	12			
7/31/2013	7	7	17			
5/20/2013	12	13	10	10	10	13
9/13/2012	9	9	32			
7/24/2012	10	10	34			
6/16/2012	11	19	13	10	13	26
7/14/2011	10	10	22	10	10	22
8/6/2010	8	10	21	8	10	21
7/20/2009	11	12	18	11	12	18
8/1/2008	10	12	21	10	12	21
7/24/2006	7	10	16	7	10	16
8/4/2005	5	8	26	5	8	26
<b>Average</b>	<b>11</b>	<b>12</b>	<b>23</b>			

# CRYSTAL POND BUFFER PLANT LIST:

## Shrubs

- Summer sweet (*Clethera alnifolia*)- Pretty white bottle brush flowers that attract hummingbirds and butterflies. Grows naturally around the pond, 3-5ft. Available in dwarf varieties to maintain views or due to space constraints, 2-3ft. Sun-shade. Deer resistant
- Bayberry (*Myrica pensylvanica*)- Thrives in poor soil and helps repel insects. Semi-evergreen. 2-3ft on ledge, 5-12ft in outstanding conditions. Sun-part shade. Can form a nice hedge. Deer resistant.
- Sweet gale (*Myrica gale*)- Moisture loving, excellent shoreline plant for lakes and streams, 3-6ft. Repels insects, sweet-scented foliage. A nitrogen fixer; meaning you don't need to fertilize it! Full-part sun.
- Sweet fern (*Comptonia peregrina*) - Low growing shrub, 2-3 ft. grows well in sandy soils, from well-drained dry sites to the edges of marshes. A good choice for erosion control on an embankment and will colonize in favorable conditions. Repels insects, sweet scented foliage and a larval host for beneficial mths and butterflies. Deer resistant. Part-full sun.
- Native azaleas (Zone 4-10> *Rhododendron viscosum*, *R. perclymenoides*; Zone 6?> *R. prunifolium*, *R. erclymenoides*, *R. calendulaceum*, *R. canescens*, *R. atlanticum*)- 3-6 ft low-maintenance and relatively free of pest and disease problems. Thrive where exotic azaleas don't. Some have subtle coloration with intense fragrance. Others have intense color. Species determines conditions, Moisture loving with good drainage, but in general fairly adaptable. Part shade-shade.
- Button Bush (*Cephalanthus occidentalis*)- Multi-stemmed bush/small tree, 5-12ft. Deciduous, moisture loving. Unusual globous flowers attract pollinators. Dwarf cultivar 'Sugar shack', 3-4 ft. Deer resistant. Part-full sun
- Fothergilla - Multi-stemmed bush, 6-10ft. Many Dwarf cultivars, 2-3ft. Brilliant fall color. Pollinator friendly white bottle brush flowers. Deer resistant. Moisture loving. Part shade-Shade.
- High-bush and low-bush blueberryhigh bush (*Vaccinum corybosom*/*V. angustifolium*) - 5-8 ft (high), 1-2 ft (low). Adapted to acidic, low fertility habitats sandy or moist, but well drained or moist . Full sun (for fruit)- part shade.
- Cotoneaster- Champion for poor soils. Low growing and upright varieties 1-3ft. Evergreen-semi evergreen foliage. Red berries fall and winter.
- St. Johns Wort (*Hypericum sp.*)- low spreading deciduous shrub, 1-3 ft tall). Deer and rabbit resistant. Pollinator friendly- yellow flowers mid summer. Drought tolerant once established.
- Creeping Junipers (*Juniperus horizontalis*)- Low growing spreading evergreen. 8"-12". Drought tolerant and deer resistant.

## Grasses

- Sedges: Most sedges are short low growing 6-18". Species vary from moisture loving to drought tolerant and full sun-shade.
- Pennsylvania Sedge (*Carex pensylvanica*) - Tidy and reliable around and under larger perennials and shrubs. It gives year-round interest instead of mulch.
- Cherokee Sedge (*Carex cherokeensis*)- Adaptable to both sun and shade conditions, along with wet and dry regimes. It fills in full and looks great year-round. It also provides food and shelter for wildlife.
- Pink Muhly Grass (*Muhlenbergia capillaris*)- Delicate texture and late-season color. 2-3ft
- Buffalo grass (*Buchloa dactyloides*)- Low growing, 8 to 10 inches high. Individual leaf blades may reach 10 to 12 inches in length, but they fall over and give the turf a short appearance. Stoloniferous growth habit. Drought tolerance, low maintenance.

## Perennials

- Nearly all native perennial plants can provide erosion control, nutrient sequestration, shoreline armoring, and water absorption and redirection.

