Lake Crabapple

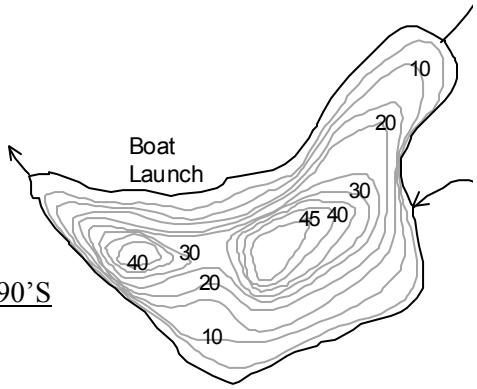
Lake Crabapple has moderate water clarity, low phosphorus, and low to moderate algae. The lake shows some signs of increasing eutrophication. Therefore, the lake may be at risk of future declines in water quality unless nutrient runoff from land development in the surrounding watershed is controlled.

State of the Lakes Report
March 2003

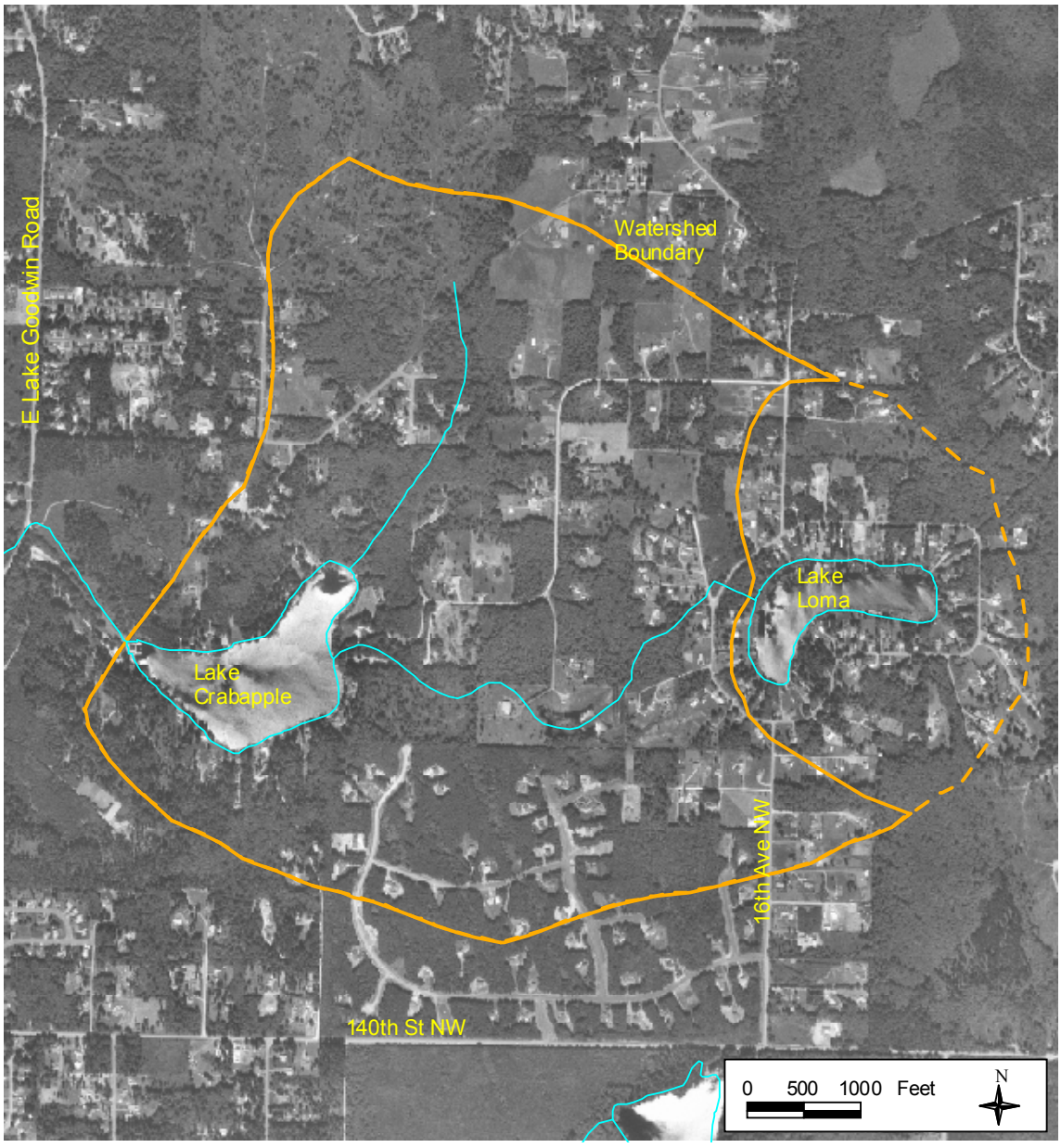
Snohomish County Public Works
Surface Water Management

LAKE AND WATERSHED DATA

Lake Area:	35 acres
Watershed Area:	690 (862 total area) acres
Watershed to Lake Area Ratio:	19.7 (24.6 total area)
Maximum Depth:	49 feet (14.9 meters)
Average Depth:	18 feet (5.5 meters)
Lake Volume:	650 acre-feet
Length of Shore:	1.1 miles



	1973	MID-90'S
# of nearshore homes	33	41
# of homes/1000' of shoreline	5.7	7.1
% of homes with bulkhead or fill		63%
% of homes with some native vegetation near shore		49%
% of watershed developed (residential or commercial)	2%	20% (est.)



LAKE ASSESSMENT

DESCRIPTION

■ *Location/Access* – Lake Crabapple is located just east of Lake Goodwin in the Seven Lakes area north of the Tulalip Reservation. A stream from Lake Loma feeds Lake Crabapple, which then drains into Lake Goodwin and Lake Shoecraft, and ultimately into Tulalip Bay. Camp Killoqua, a Campfire facility, is situated at the west end of the lake. There is a public boat launch on the north side of the lake. Gas-powered boats are not permitted.

■ *Size/Shape* – The lake is 35 acres in size with a maximum depth of 14.9 meters and an average depth of 5.5 meters. The lake volume contains 650 acre-feet of water. The lake lies in a protected bowl, which contributes to its strong stratification during the summer months.

■ *Watershed* – The immediate Lake Crabapple watershed, including the lake, covers 690 acres. Adding the watershed of Lake Loma (which drains into Crabapple) brings the total watershed to 862 acres. The immediate watershed is 19.7 times the size of the lake, while the total watershed is over 24 times the size of the lake. This means Crabapple has a large watershed for its size and a high potential for impacts from pollution coming from the surrounding lands. Only 2% of the watershed was developed with residential uses in 1973, and the rest of the watershed was undeveloped. By 1995, over 100 new homes had been added to the immediate watershed, bringing the developed total to about 20%. This growth may be having an impact on lake water quality.

■ *Shoreline* – The shoreline of Lake Crabapple is 1.1 miles in length. Along the shoreline, there were 33 homes in 1973 and 41 by the mid-90s, about average density for lakes in the county. About 63% of the nearshore homes have modified the shoreline with bulkheads or fill—near the high end for county lakes. However, 49% of the homes have retained some native vegetation along the shore, which is important for filtering pollution. Many of the homes around the shore use treated lake water as the primary source of drinking water.

LAKE CONDITIONS

■ *Water Clarity* – The long-term average summer water clarity in Lake Crabapple from 1992-2002 was 3.7 meters. This is very similar to the summer averages in 1973 and during the 1983 Entranco study. However, water clarity was substantially lower in 1997 (an average of 3.0 meters), and somewhat lower from 1996 through 2000. This period of decline might be linked to new development in the watershed which brought additional nutrients and sediment into the streams feeding the lake. However, it is also possible that these fluctuations are within the natural range of variability for Lake Crabapple.

■ *Color* – The lake is lightly colored by dissolved organic material (humic acids) from wetlands, making the water light greenish-brown most years. The water seemed to contain more color in the late 90s, which could contribute to lower water clarity values.

■ *Nutrients* – Summer average total phosphorus concentrations in the epilimnion ranged from 8 µg/l to 13 µg/l between 1996 and 2002, which is relatively low for Snohomish County lakes. Sampling in 1973 and during the 1983 study showed similar values. Total phosphorus averages in the hypolimnion were slightly higher, ranging from 9 to 24 µg/l from 1996-2002. This suggests some release of phosphorus from the bottom sediments during times of oxygen depletion. Nitrate levels were moderate to high in the lake in

1973 and 1983. Ammonia was also elevated in the hypolimnion during the 1983-84 study, indicating vigorous decomposition of organic matter in the lower waters. These data suggest that nitrogen is relatively available and that phosphorus availability is probably limiting algal growth.

■ *Alkalinity* – Data from 1983 and the early 1990s indicate that Lake Crabapple has a very low buffering capacity and is sensitive to nutrient pollution.

■ *Oxygen/Temperature* – Vertical profiles of dissolved oxygen and temperature for the summers of 1995 through 2002 show strong stratification between warm, oxygenated upper waters and cool, oxygen-depleted bottom waters. The graphs indicate that decaying organic matter in the lake bottom depletes the dissolved oxygen in the water below about 6 meters by mid to late summer. Several measurements in 1995 and 1997 showed spikes in dissolved oxygen at 4 to 5 meters depth, suggesting vigorous algal growth at this level.

■ *Algae* – Chlorophyll *a* data are available from the summers of 1973, 1983, 1994, 1995, and 2002. Values ranged from 1.1 µg/l to 8.1 µg/l, with summer averages up to 3.1 µg/l. These data suggest low to moderate amounts of algae in the lake (except for one date in 1995 which had 8.1 µg/l and corresponded with a spike of dissolved oxygen at 5 meters). Analysis of three algae samples in 1994 and 1995 also revealed low to moderate biovolumes with a mixed algal community. Blue-green algae were most abundant by count. Observations by citizen volunteers and SWM staff through the years indicate that blue-green algal blooms occur on occasion during the summer months.

■ *Aquatic Plants* – Because the lake is fairly steep-sided, there is not a large area for aquatic plants to grow around much of the lake. In this available zone, Lake Crabapple supports a moderate concentration of aquatic plants, dominated by the native plants—common elodea, yellow water-lily, and nitella. In recent years, the non-native fragrant water-lily has invaded the lake.

■ *Water Levels* – In response to winter storms, the water level in Lake Crabapple rises substantially—often several feet. This floods yards and septic systems and threatens homes. High water levels appear to result from rapid runoff, especially from newly developed areas, and from heavy vegetation along the outlet stream.

SUMMARY

■ *Trophic State* – Based on moderate water clarity, relatively low phosphorus concentrations, severe oxygen depletion, occasional blue-green algal blooms, and moderate amounts of aquatic plants, Lake Crabapple may be classified as mesotrophic.

■ *Current Conditions/Trends* – Lake Crabapple is currently in satisfactory condition. However, the lake shows some signs of increasing eutrophication, such as lower water clarity and blue-green algal blooms in some years. Therefore, it appears that the lake may be at risk of declines in water quality.

■ *Future Concerns/Targets* – The primary concern with Lake Crabapple is the potential for impacts from continuing development in the watershed. Land clearing and development can contribute more nutrients to the lake, which in turn might cause nuisance blooms of blue-green algae. Improving water clarity and maintaining low phosphorus levels are targets for the lake.

■ *Recommendations* – The lake should be monitored carefully to determine if water clarity declines, nutrient levels increase, and algal blooms become more severe. All new development in the watershed should take steps to control runoff and reduce nutrient pollution.

CITIZEN VOLUNTEERS

Thanks to Deb Kocher for many years of volunteer monitoring and to Mary Smith for recent help.

DATA SUMMARY TABLE

Source	Date	Secchi Depth (meters)	Total Phosphorus (*u*g/l)		Color (Pt-Co scale)	Chlorophyll *a* (*u*g/l)
			Surface	Bottom	Epilimnion	Epilimnion
McConnell, et al, 1976	Summer **1973**	2.3 - 5.5 (3.6) *n = 3*	10 - 18 (14) *n = 3*	14 - 15 (15) *n = 3*	0 - 20 (10) *n = 3*	1.4 - 2.0 (1.7) *n = 3*
Entranco, 1986	Summer **1983**	2.9 - 4.4 (3.7) *n = 4*	<5 - 7 (6) *n = 5*	8 - 33 (15) *n = 5*	-	1.8 - 4.6 (3.1) *n = 5*
Volunteer	Summer **1992**	4.6 - 4.9 (4.7) *n = 2*	-	-	-	-
SWM Staff or Volunteer	Summer **1994**	3.8 - 6.0 (4.7) *n = 11*	-	-	15 (15) *n = 2*	1.8 - 3.8 (2.8) *n = 2*
SWM Staff or Volunteer	Summer **1995**	3.3 - 5.0 (4.2) *n = 9*	-	-	20	8.1
Volunteer	Summer **1996**	2.7 - 4.1 (3.5) *n = 10*	9 - 13 (11) *n = 2*	8 - 9 (9) *n = 2*	-	-
SWM Staff or Volunteer	Summer **1997**	2.5 - 3.5 (3.0) *n = 7*	6 - 12 (9) *n = 2*	14 - 17 (16) *n = 2*	-	-
Volunteer	Summer **1998**	3.0 - 4.5 (3.4) *n = 10*	6 - 10 (8) *n = 4*	15 - 16 (16) *n = 4*	-	-
Volunteer	Summer **1999**	2.7 - 4.0 (3.5) *n = 10*	8 - 11 (9) *n = 4*	12 - 16 (14) *n = 4*	-	-
SWM Staff or Volunteer	Summer **2000**	2.8 - 4.1 (3.4) *n = 10*	7 - 12 (10) *n = 4*	16 - 19 (18) *n = 4*	-	-
SWM Staff or Volunteer	Summer **2001**	2.6 - 4.8 (3.6) *n = 10*	12 - 14 (13) *n = 4*	18 - 29 (24) *n = 4*		
SWM Staff or Volunteer	Summer **2002**	2.6 - 5.0 (3.8) *n = 10*	7 - 11 (9) *n = 4*	15 - 29 (20) *n = 4*	-	1.1 - 2.7 (1.7) *n = 4*

NOTES

- Table includes summer (May-Oct) data only.
- Each box shows the range on top, followed by summer average in ( ) and number of samples (n).
- Total phosphorus data are from samples taken at discrete depths only.

SUMMARY OF OTHER DATA

■ *Nitrogen* – total nitrogen values from summer 1973 samples averaged 0.86 mg/l in the epilimnion and 0.91 mg/l in the hypolimnion, with nitrate a large component of these concentrations; 1983-1984 samples by Entranco also showed relatively high nitrate levels (averages of 0.269 mg/l in the epilimnion and 0.271 mg/l in the hypolimnion, with values up to 0.995 mg/l) and elevated ammonia concentrations in the hypolimnion (average of 0.143 mg/l with values up to 0.405 mg/l); these data suggest vigorous decomposition of organic matter in the hypolimnion and overall high availability of nitrogen for algal growth; phosphorus availability is most likely limiting algal growth.

■ *Alkalinity* – data from 1983 ranged from 7 – 18 mg/l $CaCO_3$ while 1994 and 1995 data ranged from 8.7 -- 11 mg/l $CaCO_3$, which suggests that Crabapple has a very low buffering capacity and is sensitive to nutrient pollution.

■ *pH* – readings from 1994 through 2000 averaged 7.2 near the surface and 6.0 near the bottom, which is within the normal range for Snohomish County lakes. 2002 readings were similar.

■ *Conductivity* – data from 1983 ranged from 42 – 66 µmhos; 1994-2000 data averaged 45 µmhos in the epilimnion and 50 µmhos near the lake bottom, indicating low to moderate levels of dissolved materials in the water. 2002 readings were similar.

■ *Iron* – limited 1973 and 1994-95 data showed low levels in the epilimnion (avg. 48 µg/l) and the hypolimnion (avg. 123 µg/l, high of 300 µg/l), which indicates only minor release of iron and phosphorus from the bottom sediments under low oxygen conditions.

■ *Algae* – the following table shows the total biovolume and percent biovolume of the main types of algae from three samples collected in 1994-95. The data show that greens, gold-browns, and dinoflagellates were each most prevalent at times. Cell counts of the same samples revealed that blue-green algae were most abundant, ranging from 48% to 97%.

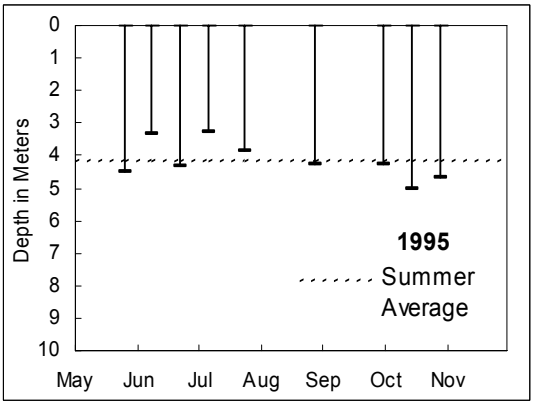
ALGAE TYPES	6/30/94	8/30/94	8/29/95
Cyanophyta (Blue-greens)	1%	17%	1%
Chlorophyta (Greens)	9%	60%	24%
Chrysophyta (Golden/diatoms)	75%	9%	14%
Cryptophyta (Cryptomonads)	6%	3%	9%
Euglenophyta (Euglenoids)	0%	0%	0%
Pyrrhophyta (Dinoflagellates)	9%	11%	52%
TOTAL BIOVOLUME (mm^3/l)	0.703	0.542	0.663

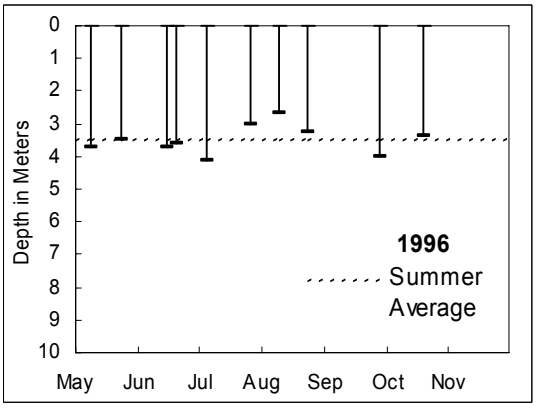
■ *Fish* – according to the Washington State Department of Fish and Wildlife (WDFW) and local residents, fish species found in Lake Crabapple include rainbow trout, largemouth bass, yellow perch, and pumpkinseed sunfish. WDFW usually stocks the lake each year with rainbow trout.

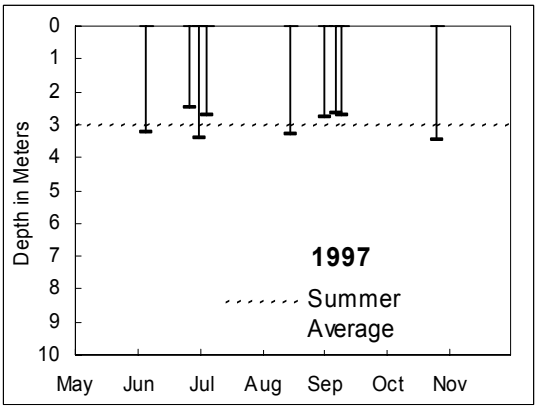
DATA SOURCES

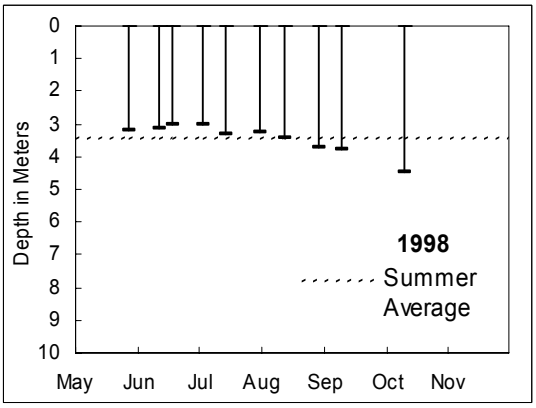
In addition to data from Snohomish County SWM staff and citizen volunteers, data for Lake Crabapple are also available from: Bortleson, et. al., 1976; Entranco Engineers, 1986; and McConnell, et. al., 1976. Please refer to the full list of references in the County-Wide Summary.

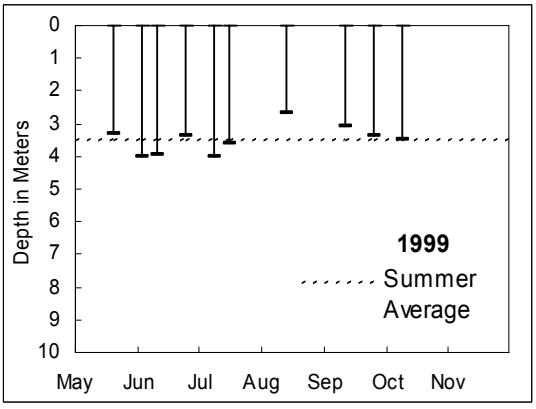
WATER CLARITY

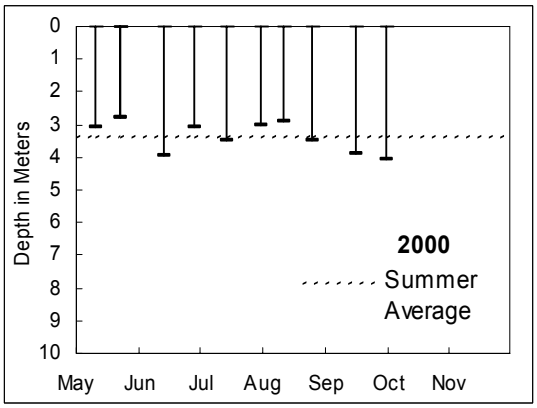




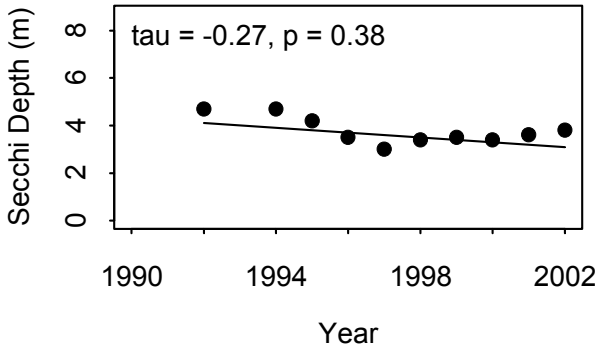




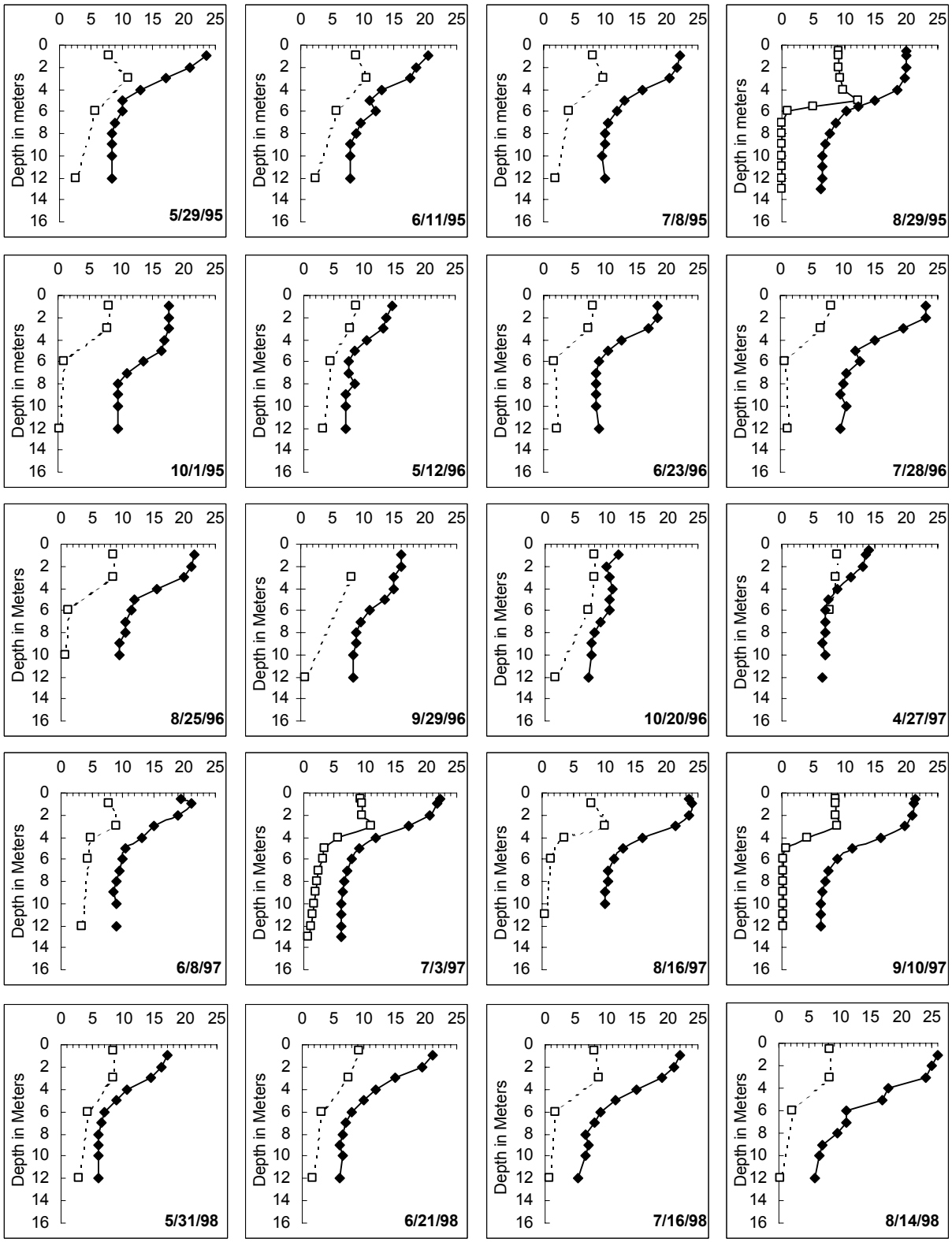




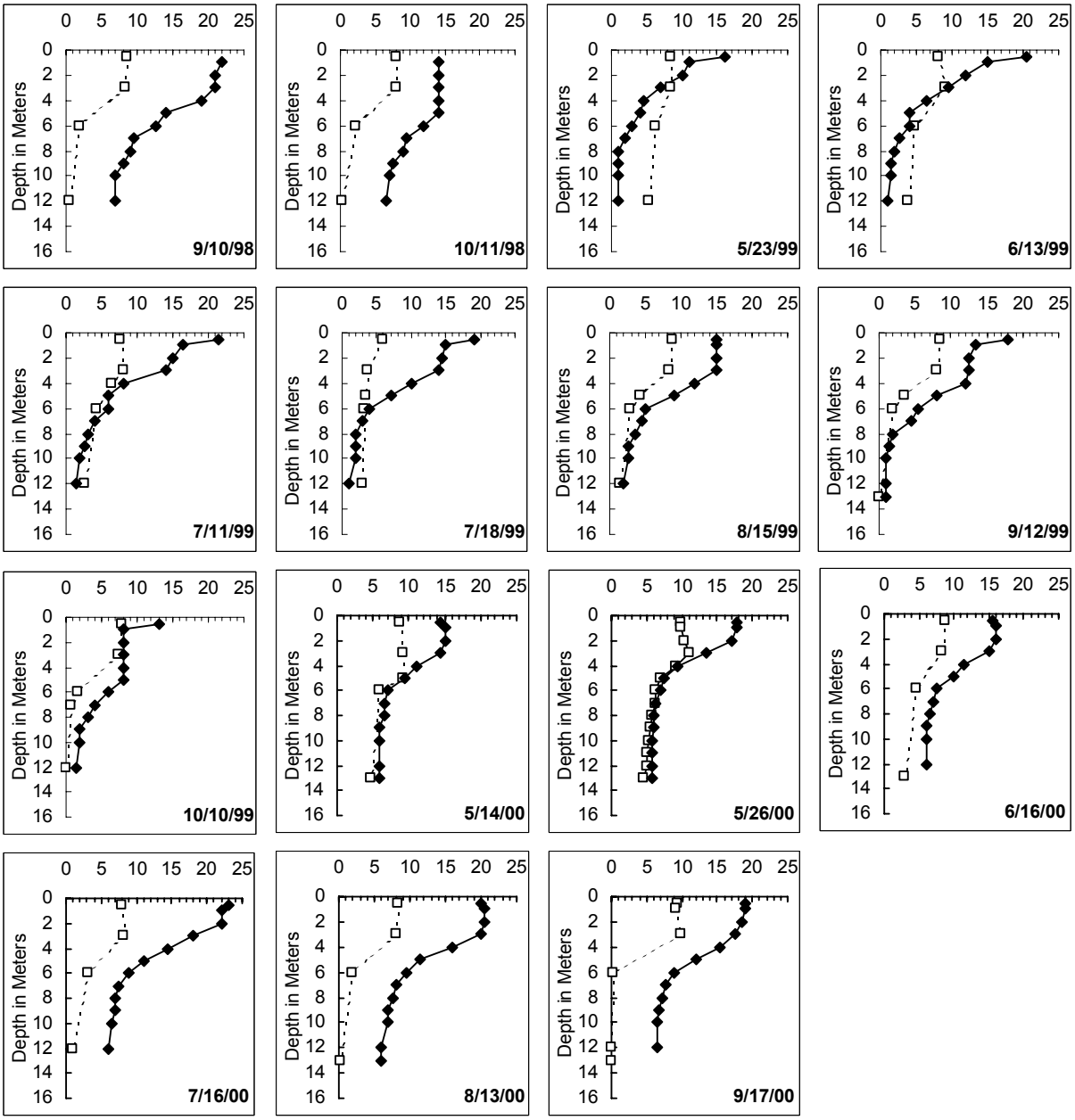
TREND ANALYSIS



DISSOLVED OXYGEN AND TEMPERATURE PROFILES (SELECTED YEARS)



—□— DO (mg/l) —◆— Temp (ºC)


0 5 10 15 20 25
0 2 4 6 8 10 12 14 16
Depth in Meters
9/10/98
10/11/98
5/23/99
6/13/99
7/11/99
7/18/99
8/15/99
9/12/99
10/10/99
5/14/00
5/26/00
6/16/00
7/16/00
8/13/00
9/17/00
DO (mg/l)
Temp (ºC)

AQUATIC PLANTS

Area	Density	Dominant Plants	Other Plants
A	Sparse	*Nitella sp.* (Brittlewort)	*Elodea canadensis* (Common elodea) *Nuphar polysepalum* (Yellow water-lily)
B	Moderate	*Elodea canadensis* (Common elodea) *Nymphaea odorata* (Fragrant water-lily)	*Nuphar polysepalum* (Yellow water-lily)
C	Patchy	*Elodea canadensis* (Common elodea) *Nymphaea odorata* (Fragrant water-lily) *Nuphar polysepalum* (Yellow water-lily)	

BASIC MONITORING DATA

1995									
DATE	**Secchi Depth (meters)**	**Air Temp (C)**	**Water Temp (C)**	**Lake Level (in)**	**Clouds (%)**	**Rain**	**Wind**	**Color**	**COMMENT**
3/19/95	4.4	11.5	9	1	100	heavy	light	lt brown	8 lots on s. side of lake have logged many evergreens in the last 2 months. The incoming stream flow is heavy, the outlet is running slow. Lake level marker showed 2.5" on 1/21/95. Waterfowl: 2 coots, 13 buffleheads, 7 mallards.
4/2/95	3.1	15	12	3.25	50	light	light	medgreen	53+ waterfowl (bufflehead, mallards, loons). Lake color a little darker (green) than usual.
4/29/95	3.9	16.5	16	10.8	75	none	light	grn brown	Slight aquatic plants.
5/29/95	4.6	21	22	16	0	none	light	lt green	Algae mod. Aquatic plants slight. 4 male/3 female/17 juvenile mallards.
6/11/95	3.4	17.5	20	18	0	heavy	light	lt green	Algae slight to mod. Aquatic plants slight. Two mallards and juveniles.
6/25/95	4.5	17.5	20.05	19.8	0	none	light	lt green	Slight algae & scum, moderate aquatic plants. Approx 29 ducks/geese.
7/8/95	3.3	19.5	21.5	22	100	trace	light	lt green	Slight algae, scum, & plants. 15 ducks/geese. For the first time since 1988/1989, we have a beaver.
7/26/95	3.9	21	24	25	0	none	light	lt green	Oily film on surface. Slight algae.
*08/29/95	4.3				50	trace	calm	lt green	Bagel-shaped algae. Strong H2S odor at 12.5m. Numerous schools of very small fish.
10/1/95	4.3	17.5	17.5	27.8	25	none	light	lt green	Slight - mod aquatic plants. Heavy H2S odor at 10 & 12 meters, slight at 8 meters. Approx 23 mallards & 13 mergansers.
10/15/95	5.0	14	14	26.3	90			lt green	200' of waterfront cleared to the shore, had been native plants. Clearing started in Sept. 150' of waterfront cleared a few months ago, have been building a rock bulkhead and pulling logs from the lake. Mod plants.
10/29/95	4.7	8	10.5	25	0	none	breezy	clear	5 male hooded mergs, 8 mallards. Slight algae in water. slight to mod plants. The property most recently cleared (200') has now poured a foundation, which appears to be below the high water line.

*Indicates data collected by Snohomish County staff.
Non-summer data indicated by shading.

1996									
DATE	**Secchi Depth (meters)**	**Air Temp (C)**	**Water Temp (C)**	**Lake Level (in)**	**Clouds (%)**	**Rain**	**Wind**	**Color**	**COMMENT**
5/12/96	3.7	16	14.5	8.5	10	moderate	light	lt brown	6 ducks/geese. Lots of sediment in the water. A house built this winter hauled/filled hundreds of yards of dirt & filled down to the lake, removing all shoreline vegetation.
5/27/96	3.5	17	17	6	100	none	calm	lt brown	Color of stream water entering the lake is med-brown. Previously, it has always been clear. Further investigation, upstream clearing, burying stream with brush & trees.
6/18/96	3.7	15.5	18.5	13.6	50	moderate	calm	lt brown	The stream is dry, no water entering the lake. No scum, odor, slight algae, slight to moderate plants. 11+ juvenile ducks/geese.
6/23/96	3.6	19.5	18.5	14.8	100	moderate	light	clear	No scum, or odor. slight to moderate algae and plants. 30 ducks/geese, 3-4 male, 3-4 female mallards several families with 3-8 juveniles.
7/7/96	4.1	22	23	16.5	0	none	breezy	lt brown	Discovered damage where stream on south side enters lake. Kids on ATVs have destroyed steep hillside. All vegetation gone, tree roots exposed, have ridden through stream bed.
7/28/96	3.0	26	25	19.8	10	none	calm	lt green	No scum, or odor, slight to moderate plants and moderate algae. 24+ ducks and geese.
8/11/96	2.7	18	22	21.8	10	none	breezy	lt brown	Have been seeing a film on surface of lake off & on; sometimes appears sudsy, sometimes hundreds of tiny specs.
8/25/96	3.3	27	21.5	24	75	none	gusty	lt green	Slight algae, no scum, odor. Saw crawdad today, blue heron and osprey daily. Fish finder indicating fish in the 13'-26' range, mostly 17'. Several schools of fish indicated in the 5'-8' range.
9/29/96	4.0	15	16.5	24.5	0	none	light	lt green	15 ducks/geese. A neighbor to the west put in a cement bulkhead. Fish mostly seen at 20'-25' range, though not many.
10/20/96	3.4	9	11	23.3	75	heavy	breezy	clear	Lots of fish in all layers of water from 5 to 38 feet deep (mostly 25 to 33 ft); two King Fishers; Stream is not flowing.
11/10/96	3.7	10.5	9	20	75	none	calm	grn brown	One belted King fisher; inlet stream not flowing yet; 70 ducks/geese.

1997									
DATE	**Secchi Depth (meters)**	**Air Temp (C)**	**Water Temp (C)**	**Lake Level (in)**	**Clouds (%)**	**Rain**	**Wind**	**Color**	**COMMENT**
4/27/97	2.9	13	14		90	heavy	gusty	medbrown	Slight aquatic plants, no odor or algae. # ducks/geese - 8+ babies? 2 homes cleared trees this winter. 2 Canada geese nesting. Off-road vehicles riding near stream.
6/8/97	3.3	15.5	19.5		25	light	gusty	other	Moderate algae, plants. No odor, scum. 31 ducks/geese. Fish finder indicates most fish in the 9'-11' range with occasional at 6',12' and 14'.
6/29/97	2.5	17.5	20.5	58.5	90	mod	calm	grn brown	Moderate algae, plants, no scum, odor. 2 large trees fell into lake over winter. 6 geese, 37 mallards.
*07/03/97	3.4				0	none	breezy	medbrown	
7/7/97	2.7	17	21	59.5	100	mod	breezy	medbrown	mod algae, plants; no odor, scum. 6 geese.
8/16/97	3.3	22	23.5	65	75	none	calm	clear	Slight algae, slight-moderate plants. 26+ ducks, geese are gone. Fish finder indicates fish 3'-13' range, mostly 6'-9'.
9/2/97	2.8	22.5	21	67	50	light	light	grnbrown	Moderate algae, slight-mod plants, no scum, odor. 22 mallards, 1 grebe. Saw what was probably a bryozoan. Beaver still hanging around.
9/7/97	2.7	20	19.5	67.5	10	none	calm	grnbrown	Moderate algae, odor, slight-mod plants, no scum. Lots of fish in 6'-14' range.
*09/10/97	2.7				75	none	light	grn brown	
10/25/97	3.5	15	12	65	10	none	calm	grnbrown	Slight algae, no scum, moderate plants, odor. 35+ ducks. Camp is replacing dock.

1998									
DATE	**Secchi Depth (meters)**	**Air Temp (C)**	**Water Temp (C)**	**Lake Level (in)**	**Clouds (%)**	**Rain**	**Wind**	**Color**	**COMMENT**
5/31/98	3.2	19.5	16.5	56.5	100	moderate	light	grnbrown	No scum, odor, moderate algae, plants. 11 hybrid/15 adult/15 juvenile mallards, 1 female/3 juvenile wood ducks. Lots of fish. Nymphaea is spreading. New development on property near inlet has been cleared--steep slope and no erosion control--neighbor
6/14/98	3.2	16	19	58.8	100	trace	breezy	grnbrown	Slight algae; no scum, or odor; moderate plants. 26 ducks/geese. Land being cleared near stream, however, no water entering lake.
6/21/98	3.0	24	21	59.3	50	none	breezy	grnbrown	No scum or odor; moderate aquatic plants; heavy algae; 24 ducks/geese.
7/5/98	3.1	18.5	19	59.8	100	moderate	calm	grnbrown	Slight algae; no scum or odor; slight to mod. plants; 31 ducks/geese.
7/16/98	3.3	28	21.5	61.3	0	moderate	breezy	grnbrown	Mod. algae; no scum; slight to mod. plants; most fish were found in the 3-8' depth w/ a few at 12'.
8/2/98	3.3	22	23.5	64.5	0	trace	breezy	grnbrown	Slight algae; slight to moderate plants; no odor; clearing & bulldozing on lot down to bare dirt approx. 200' from lake.
8/14/98	3.5	20	24.5	66.5	0	none	gusty	grnbrown	Slight algae; no scum or odor; slight-moderate plants; scum on neighbors dock supports; steady fish sitings in 9' range; sitings in 8-11' area; some @ 4-5'.
8/30/98	3.7	27	22	68.8	0	none	light	grnbrown	Moderate algae & scum; slight to moderate plants; no odor; 21 ducks/geese; first noticed scum in mid July.
9/10/98	3.8	24	20	71	0	none	breezy	grnbrown	Moderate algae; slight scum; slight-moderate plants; no odor; 26 ducks/geese; excavation for new home next to stream.
10/11/98	4.5	16	14	72.5	100	moderate	light	grnbrown	Slight algae, odor at 10-12m; moderate scum, plants. 17 mallards, 3 coots, 1 grebe.

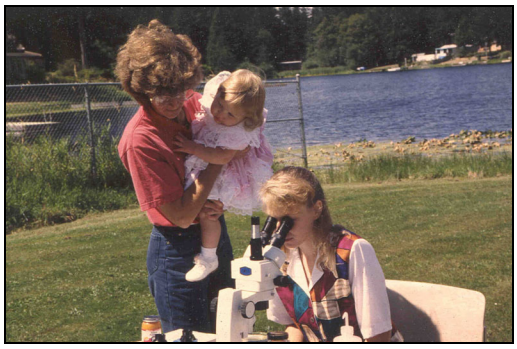
1999									
DATE	**Secchi Depth (meters)**	**Air Temp (C)**	**Water Temp (C)**	**Lake Level (in)**	**Clouds (%)**	**Rain**	**Wind**	**Color**	**COMMENT**
5/23/99	3.3	16.5	16	51.5	0	none	light	lt brown	More frogs (not bullfrogs) than in years past, 1 muskrat, lots of fish. Home construction using good erosion control.
6/6/99	4	19	16	54.5	50	heavy	light	grnbrown	
6/13/99	4	23	20.5	56.3	10	none	light	grnbrown	Lots of fish.
6/27/99	3.4	21	18	56.8	90	heavy	light	grnbrown	Nymphaea spreading into deeper water (6') and getting thicker. Elodea in 2'-3' of water @ E end of lake. 1 Great blue heron.
7/11/99	4	20	21.5	57	0	none	light	grnbrown	1 Great Blue Heron.
7/18/99	3.7	15	19	57.5	75	heavy	light	lt brown	
8/15/99	2.7	20	15	61.3	100	moderate	calm	grnbrown	1 Great Blue Heron.
9/12/99	3.1	22.5	18	64.8	0	none	breezy	grnbrown	3 m DO sample filled w/ bugs (zoops?).
9/26/99	3.4	13	16.5	66	75	moderate	light	grnbrown	1 crawdad.
10/10/99	3.5	10	13	66.8	90	moderate	light	grnbrown	6 Buffleheads.

2000									
DATE	**Secchi Depth (meters)**	**Air Temp (C)**	**Water Temp (C)**	**Lake Level (in)**	**Clouds (%)**	**Rain**	**Wind**	**Color**	**COMMENT**
5/14/00	3.1	15	14.5	45.8	100	trace	light	grnbrown	Slight algae and algae scum and moderate aquatic plants.
5/26/00	2.8	16	17	47.3	100	moderate	breezy	grnbrown	2 ducks and slight algae.
*05/26/00	2.8	15.42	17.79		100	moderate	breezy		Slight algae and aquatic plants and no algae scum.
6/16/00	4	15	15.5	49.5	50	light	breezy	grnbrown	6 ducks, slight algae, no algae scum, and moderate aquatic plants.
7/1/00	3.1	14.5	19.5	53	100	none	light	grnbrown	Water lilies are more dense. 8 ducks, slight algae, no algae scum, and moderate aquatic plants.
7/16/00	3.5	26	23	56	0	none	breezy	grnbrown	9 ducks, slight algae, no algae scum, and moderate aquatic plants.
8/2/00	3	26	24	58.5	0	none	light	grnbrown	8 ducks, slight algae and algae scum, and moderate aquatic plants.
8/13/00	2.9	18.5	20	60.8	100	none	calm	grnbrown	Construction W of stream. 5 ducks, moderate algae and aquatic plants, and no algae scum.
8/27/00	3.6	20	20	63	50	heavy	light	lt brown	8 ducks, slight algae.
9/17/00	3.9	19	19	64	90	none	light	grnbrown	Fallen tree in lake. 19 ducks, moderate algae and aquatic plants, and no algae scum.
10/1/00	4.1	13	15.5	63.6	100		light	grnbrown	15 ducks, slight algae, no algae scum, and moderate aquatic plants.

Click here to view more recent data.

HOW YOU CAN HELP LAKE CRABAPPLE

- Educate yourself about lake ecology and the lake's health.
- Use lawn and garden fertilizers sparingly; test your soil first; choose low or no phosphorus fertilizers.
- Retain or plant native vegetation adjacent to the water to protect the shoreline and filter pollution.
- Infiltrate or filter the runoff from rooftops, patios, and driveways rather than piping it to the lake.



- Cover or mulch bare soil areas.
- Use pesticides, herbicides, and household chemicals sparingly and never near the water.
- Maintain your septic system—have it inspected every two years and pumped when needed.
- Conserve water both inside and outside.
- Clean up pet wastes and keep livestock away from the lake shore.

- Learn to identify non-native invasive aquatic plants and animals; check your boat and trailer for invaders; never empty an aquarium into the lake.
- Do not feed geese or ducks.
- Join with neighbors or the local property owners' association to work together to protect the lake.

Contact Snohomish County Surface Water Management at 425-388-3464 for information about these topics or if you have questions about Lake Crabapple.

(TTY users call 425-388-3700)

Snohomish County
Public Works
Surface Water Management

Working together for people, streams & fish.