

August 13, 2002

To whom it may concern:

We are aware that a number of people have expressed a concern that Silver Creek's salmonid population is less this summer and that the water quality may be suffering. They cite fewer fish sightings and catches and what seems to be excessive algae growth. The purpose of this letter is to provide you with the best information we have concerning these issues; please remember we can speak only for the Preserve itself, which is the focus of our scientific research.

Historically, several public agencies, as well as The Nature Conservancy, have collected data on water quality along with the abundance and diversity of aquatic organisms in Silver Creek. Often, it has been difficult to compare these various data since these studies were "snapshots" in time, collected in varying months, years, and locations. In an effort to correct this problem, TNC contracted Dr. Lee Brown to design and implement a water quality monitoring protocol at three transects located on the Preserve. The Preserve initiated the protocol last summer and has now established a baseline year to measure future changes in the creek. We measure streamflow, sediment load, temperature (air and stream), nitrates, pH, total Phosphorous, Biochemical Oxygen Demand, electrical conductance, turbidity, and dissolved oxygen. We chose these analytes based upon a thorough review of monitoring variables most likely to quantify healthy stream conditions for salmonids and other aquatic organisms. Also, TNC partnered in 2001 with the USGS to monitor fish and insect abundance and diversity as well as over 60 other chemical and physical analytes. This information is currently being analyzed. Due to the high cost of collecting this information it is done every 3 years.

With respect to the proposition of declining fish populations at Silver Creek, thus far we have only anecdotal, not scientific, evidence to assay this assertion. Last summer, Idaho Fish and Game gathered eletroshocking data but the process is not re-scheduled until 2004. We met with an Idaho Department of Fish and Game biologist to discuss the issue, but they were not convinced conditions warranted another survey out of the regularly scheduled rotation. At the same time, however, they suggested several intermediate steps, one of which we are initiating. We are planning to do a redd count in the fall and spring to assess the status of the salmonid population.

In terms of water quality, we are now collecting data continuously so that we can compare data at the same locations over time. In addition, we can compare some current data with observations made in the early 1990s. Lastly, limited comparisons are available with information gathered from downstream location such as Sportsman's Access. On the whole, the data suggests that water quality in Silver Creek today appears to be as good---if not better---than it was in bygone years (see attached sheet). We value the anecdotal evidence we receive from anglers regarding the status of the creek, but the data at this point suggests no water quality problems. Of course, we will continue to investigate and monitor the creek's health.

Should you have any question in this matter please do not hesitate to contact us.

Sincerely,

Mark Davidson, Preserve Manager      Lee Brown, Ph.D. Consulting Hydrologist

*Systematic water quality measurements on a bi-monthly basis were instituted at three transects on Silver Creek in the summer of 2001. Uniform measurements of stream flow, temperature, biochemical oxygen demand, total phosphorous, nitrogen as nitrate, specific conductance, pH, turbidity, and sediment load are drawn throughout the year. Table 1 presents these values at two points in time comparing comparable dates in June and July of 2001 with 2002. The choice of these indicators was made after a review of the literature indicated their value as predictors of healthy conditions for aquatic fresh water organisms. A complete discussion of this preliminary work is available from The Nature Conservancy's Silver Creek Preserve in a document entitled Ecological Profile for Silver Creek Idaho.*

**Table 1 – Comparing June 2001 with June 2002 for Transect 1 (below Loving Creek)**

DATE	FLOW (CFS)	Dissolved Oxygen	pH	Specific Conductance	Nitrate	Phosphor.	BOD mg/L	Turbidity NTUs
6-01	86	9.9	8.4	0.36	0.58	0.01	< 3.0	1.33
6-02	106	10.6	8.2	0.35	0.45	0.01	<3.0	3.0

**Table 2 – Comparing June 2001 with June 2002 for Transect 3 (above Stalker Bridge)**

DATE	FLOW (CFS)	Dissolved Oxygen	pH	Specific Conductance	Nitrate	Phosphor.	BOD mg/L	Turbidity NTUs
6-01	31	7.86	8.1	0.36	0.39	0.01	< 3.0	1.08
6-02	41	7.16	8.2	0.37	0.40	0.02	<3.0	4.0

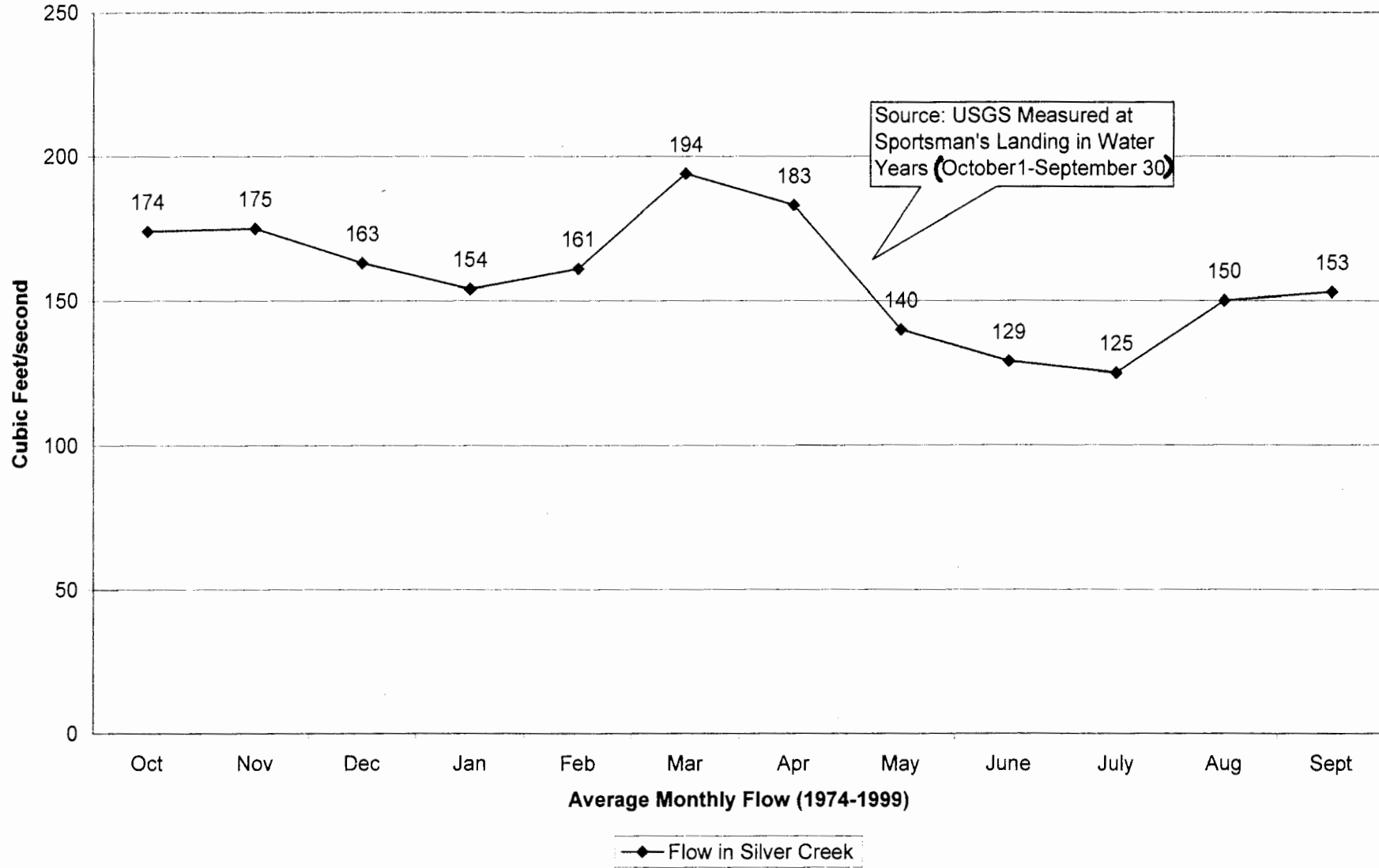
*Inasmuch as systematic data were not collected on a uniform basis prior to June 2001, only selected comparisons can be made. Table 3 represents comparisons of values measured at similar locations at similar times. It is worth noting that in every instance, the values from 2002 summer are improved over previous years.*

**Table 3 – Selected Comparisons of Years, Transects, Analytes**

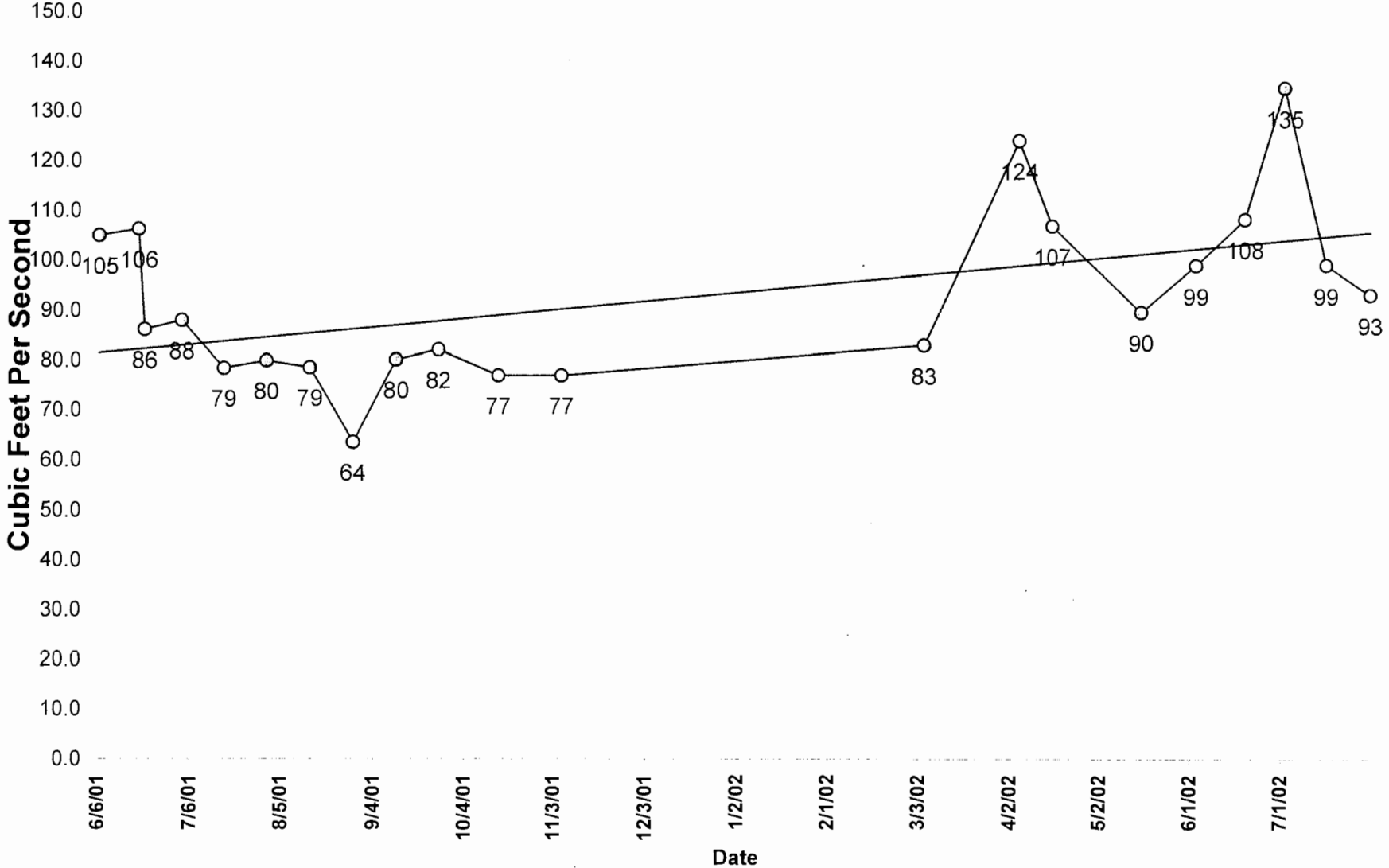
DATE	TURBIDITY	NITRATE	PHOSPHOROUS
July 1954		2.5 (Sportsmans)	
Jan. 1976		0.90 (Sportsmans)	0.17
July 1990		4.0 (Sportsmans)	
Jan. 2002		0.41 (Sportsmans)	
June 1991	2.5 (T2)		
June 1992	3.0 (T2)		
June 1993	1.9 (T2)		
June 2002	0.72 (T2)		
June 1993	4.0 (T3)		0.05
June 2002	1.5 (T3)		0.02
July 1993		0.62 (T1)	
July 1994		1.12 (T1)	
July 1995		0.60 (T1)	
July 2002		0.48 (T1)	

Sportsmans = Sportsmans Access below the Preserve; T1 = near the S Turns below Loving Creek confluence; T2 = below Visitors Center; T3 = Stalker Bridge

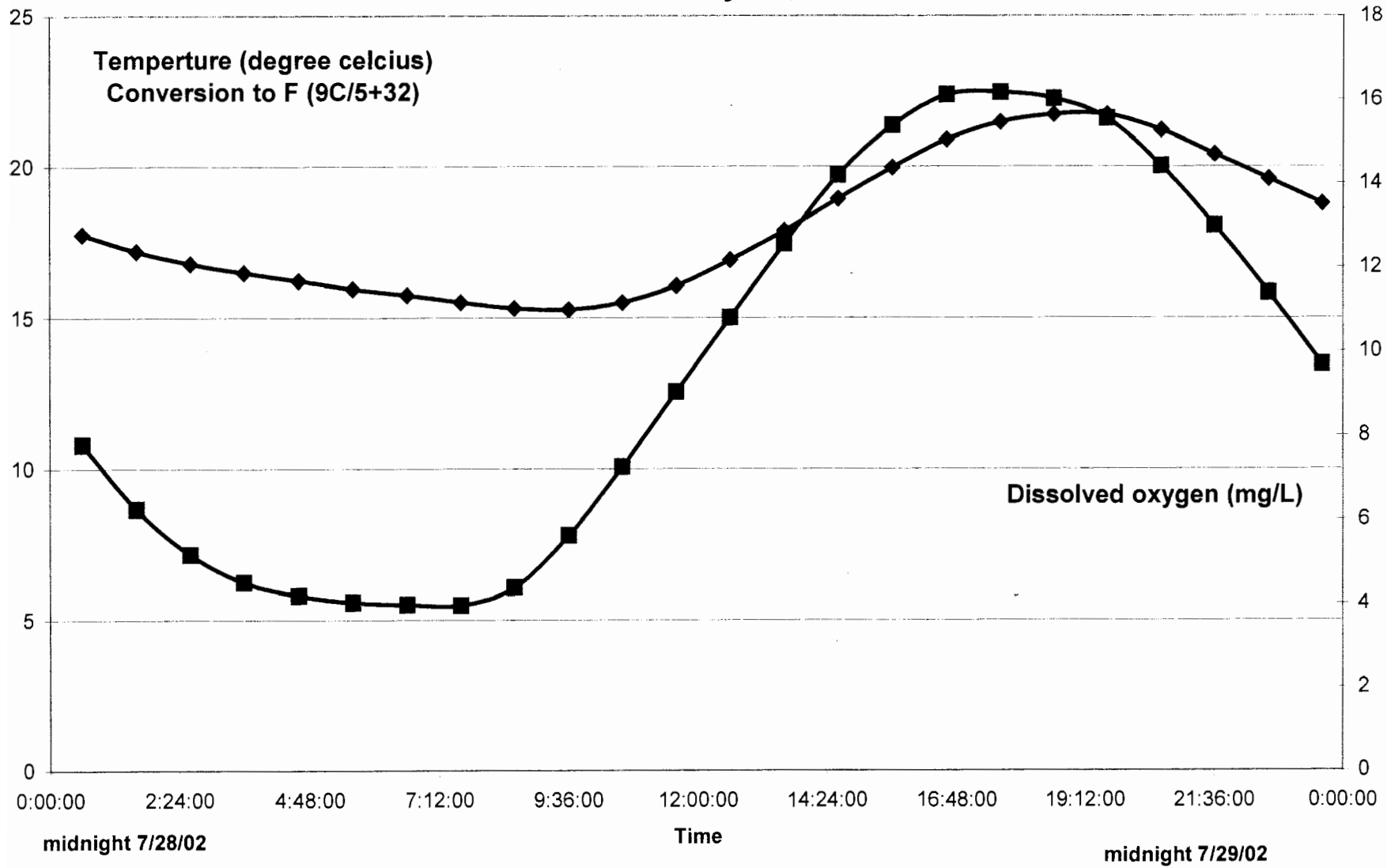
### Mean Monthly Flow in Silver Creek



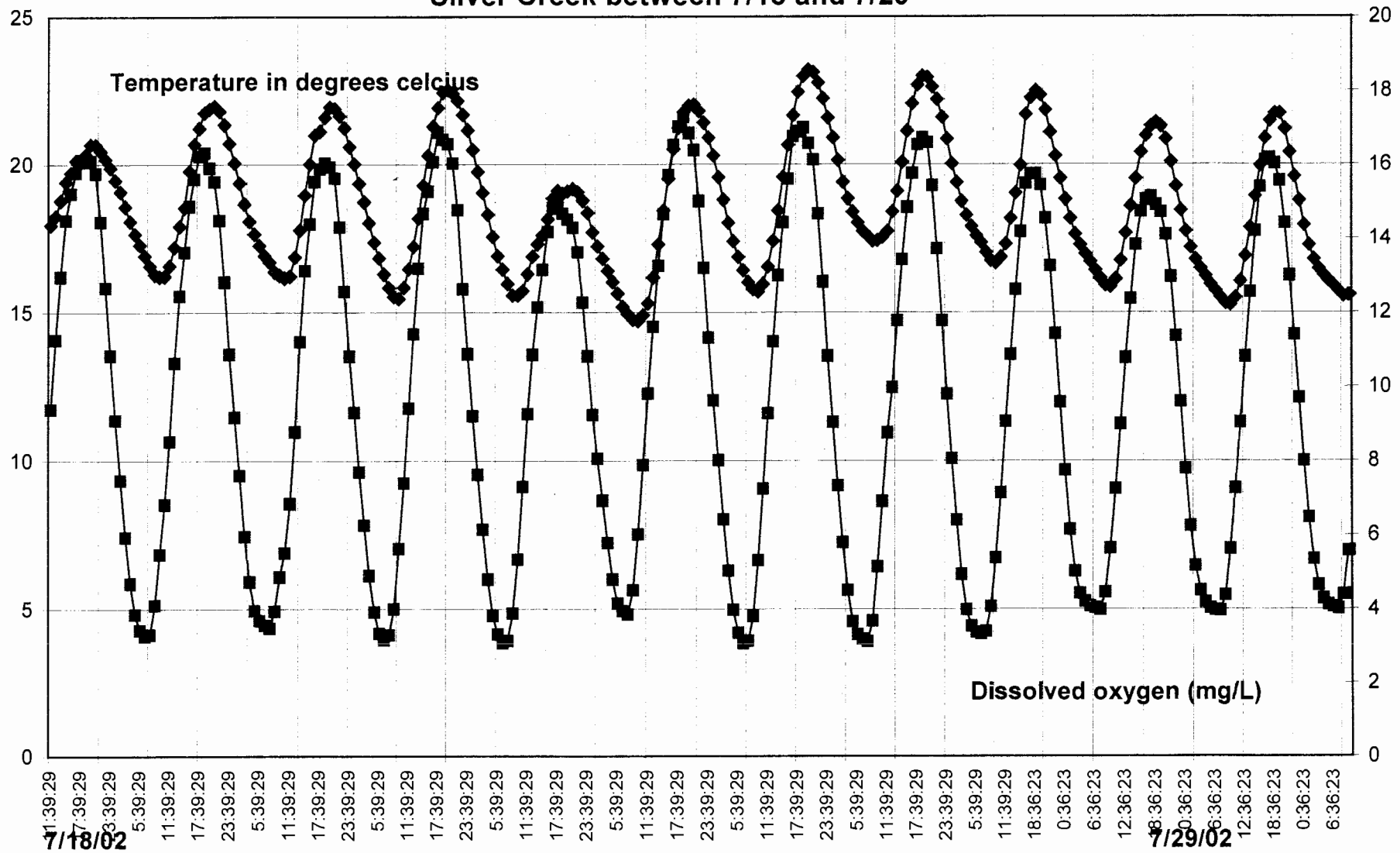
# Silver Creek Preserve Flows



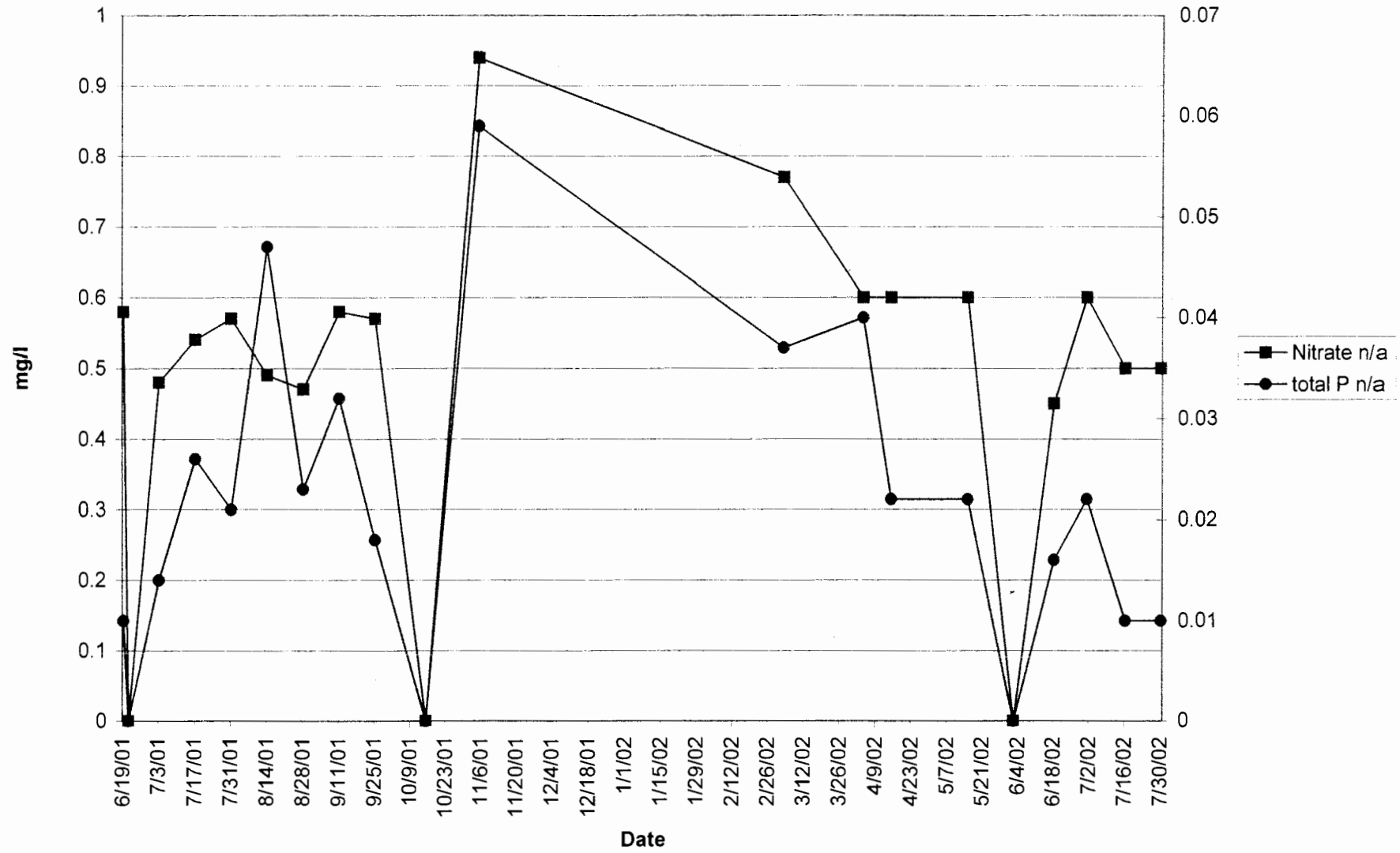
## Daily variance of dissolved oxygen (DO) and temperature in Silver Creek for July 28, 2002



### Variance in temperature and dissolved oxygen in Silver Creek between 7/18 and 7/29



### Nitrogen - Phosphorous Levels in Silver Creek at Transect 1



### Insect Data

