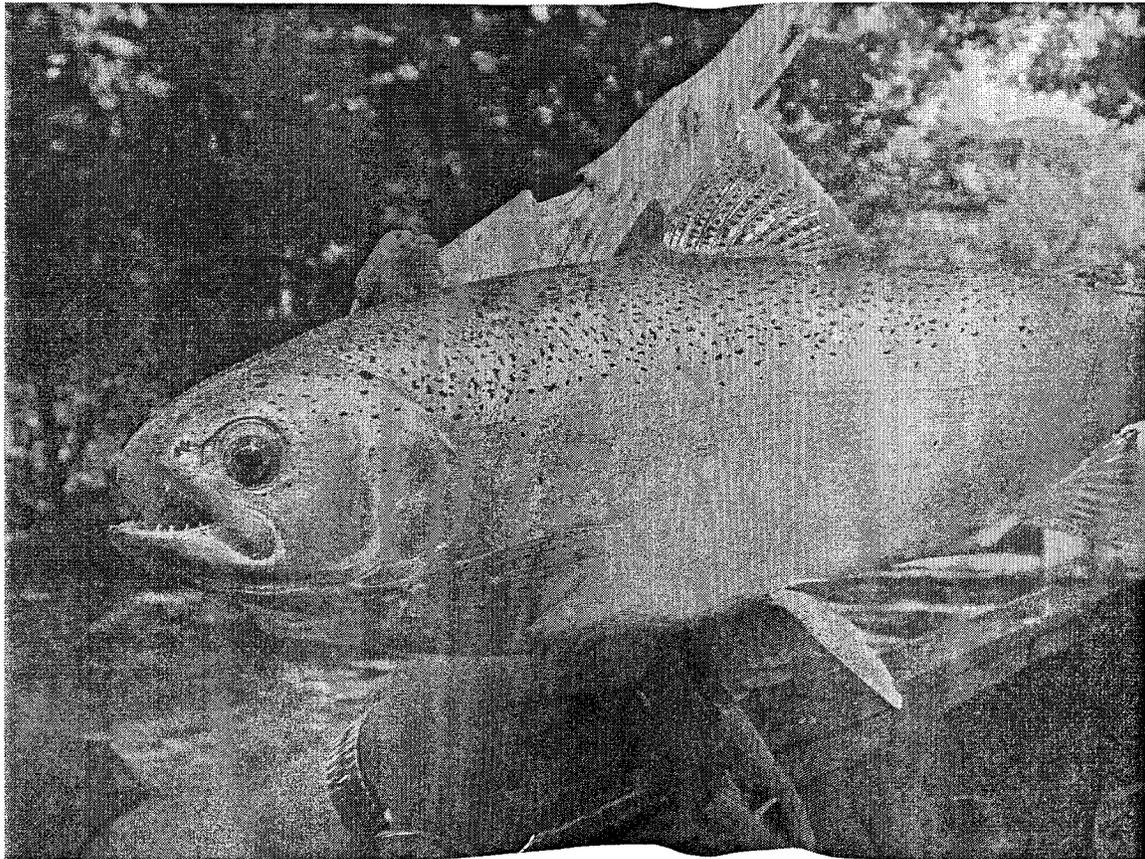


# STEARNS COUNTY PARKS

## TROUT FISHING FEASIBILITY STUDY for Quarries at Quarry Park & Nature Preserve

By the Minnesota DNR, Division of Fisheries  
Montrose, MN Office

June 21, 1996



Quarry Pits

Stearns County

Date: 6/21/96

**Narrative:**

**Past Surveys:** A Study of the Suitability of Abandoned Granite Quarries Near St. Cloud, MN, For Put and Take Fishing of Brown and Rainbow Trout. Investigational Report Number 141, 1953. Proposed Granite Quarry Park, Stearns County Parks Department, 1992. Bathymetry of Quarries on the Stearns County Park Property, Gary G. Anderson and Kris Anderson, 1993. Temperature-oxygen profiles of selected quarries, 8,9/95, Montrose Area files.

**Past Management:** These quarries were stocked with brown and rainbow trout for many years apparently beginning in 1937 and continuing perhaps until the late 1970's. The Area file records do not specify exact dates. As part of the 1953 nvestigational Report temperature and oxygen profiles were done to determine the suitability of quarries for trout; and a creel survey was done.

The quarries were stocked at a rate of 75 pounds per acre with brown and rainbow trout which averaged four per pound. The return to the creel was 33% and 50% of the brown and rainbow trout, respectively.

As part of the development of the Park Plan St. Cloud State University did temperature and oxygen profiles on each quarry and performed water quality tests for conductivity, pH, hardness and transparency. The work was done during the week of July 6-9, 1992. The conductivity was found to be low and not similar to groundwater suggesting the influence of rainwater in supplying the quarries. The secchi disc transparencies exceed Stearns County Lakes and ranged from 4.2 - 10.7 meters.

I repeated the temperature oxygen profiles on 8/28/95 and 9/1/95 since the profiles done in 1992 were too early in the season. The nine quarries listed on the front of this management plan had suitable habitat for rainbow trout. All had from 5 to 11 feet of vertical habitat where the temperature was 20 C or less and the oxygen was greater than or equal to 5 mg/l.

**Watershed:** The quarries are located in T. 124 N., R. 28W and S. 19,20. which is on the southwest side of the City of St. Cloud.

**Social Considerations:** The quarries are located in a growing metro area and the demand for utilizing such a resource will likely grow. Recently, a new chapter of Trout Unlimited has been started in St. Cloud and they are very interested in seeing new trout fishing opportunities being developed.

**Limiting Factors:** The quarries are a relatively small average size and waters are somewhat soft, ranging from 36-83 mg/l of CaCO<sub>3</sub>. The invertebrate production is an unknown as is the carrying capacity of the quarries. In a few of the quarries an angler standing in one place along shore could cast to the entire body of water. It's easy to imagine that trout would be very vulnerable to anglers.

**Survey Needs and Evaluation Plans:** It will be necessary to survey the quarries annually in order to assess the growth and survival of stocked rainbow and also to evaluate the catch and release regulations. The survey will be done by non-traditional sampling and may include scuba diving on transects, sonar evaluation, vertical gill nets and angling.

Since there will be a full time attendant at the park it is planned to conduct creel surveys with the assistance of park personnel. Estimates of fishing pressure can be made; as well as computations of angling catch rates.

Name: Quarry Pits

Stearns County

Date: 6/21/95

**Narrative (continued):**

**Land Acquisition Needs:** None. The quarries are located on property that the Stearns County Parks Department has purchased.

**Habitat Development Needs:** No special needs here except that in the development of the park it will be necessary to improve the access to the quarries to make actual stocking convenient; and also to develop shore fishing sites since some of the quarries have steep vertical walls.

**Habitat Protection Needs:** The quarry habitats will have complete protection from development since they are part of a Stearns County Park. Already, refuse and litter have been removed from several of the quarries.

**Stocking:** Stocking is necessary to establish the rainbow trout populations. The quarries are landlocked and drain to no other waterbody. A stocking plan has been developed based on roughly 75 rainbow trout per surface acre with some allowance for the amount of vertical habitat that is also present. Even though it is proposed to allow only catch and release anlgng I'm thinking it will take two years to establish the populations; and stocking may be required on an every other year basis in order to overcome natural mortality and illegal fishing harvest. The stocking will be adjusted based on surveys. The stocking should commence only when a full time attendant has been hired for the park. Tentatively, stocking would begin 1997, 1998 and every other year thereafter, subject to modification.

**Regulations:** It is proposed that catch and release only will be allowed. The reasons for this are that 1) the trout will be very vulnerable to anglers; 2) it is a way to maximize the return to the creel; 3) it is expected that trout will grow according to their potential and that quality size trout will be present after a time; 4) considering the costs of trout stocking and shrinking budgets it should be a way to create a favorable cost-benefit ratio.

*Fish available May 6 1997*

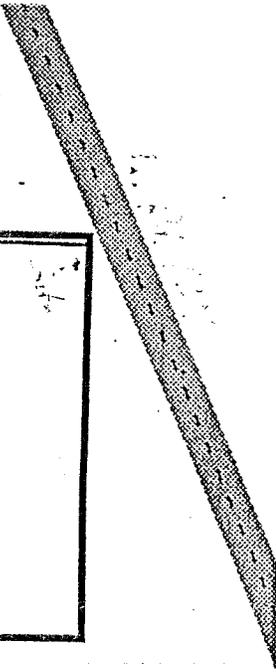
*No Trout Stamp  
 Signs: Catch & Release (any bait)*

**MANAGEMENT PLAN**

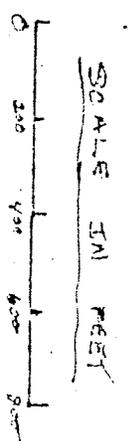
Region III	Area 340	Stearns County		Quarries	RBT
Quarry No.	Name	Acres	Maximum Depth	Stocking Quota	
1	Melrose Red	2.5	65	200	
2	Melrose Deep	2.0	116	150	
4	Oberg	0.5	57	50	
7	<i>Thielman</i>	0.5	66	50	
8	Trabetusky	1.0	99	100	
9	<i>Thielman</i>	1.2	45	125	
11		0.75	50	75	
13		0.5	39	50	
18	Benzy	0.5	58	50	
<p><b>Long Range Goal:</b> Provide a catch and release rainbow trout fishery where anglers catch .35 trout per hour.</p>					
<p><b>Operational Plan:</b> Introduce rainbow trout yearlings in the spring 1997, 1998 and every other year thereafter. Conduct detailed population assessments every Fall to determine the survival and growth of stocked fish.</p>					
<p><b>Mid-range Objective:</b></p> <ol style="list-style-type: none"> <li>Develop methods of evaluating the rainbow trout in quarries.</li> <li>Determine the workability of catch and release regulations in the quarries where angling can be closely monitored for compliance.</li> <li>Determine survival and growth of rainbow trout in order to refine stocking quotas.</li> <li>Work with the Stearns County Parks Department to provide angling opportunities as part of the overall Park management plan.</li> </ol>					
<p><b>Potential Plan:</b></p> <p>Determine suitability of the remainder of quarry pits (11).            Stock remaining pits \$1,000            Creel survey 2,000            Total \$ <u>3,000</u></p>					
Area Supervisor's Signature		Date:		Regional Manager's Signature	
<i>Paul Niedrich</i>		<i>6/21/96</i>			

*Was stocked  
 Don't stock  
 Due to  
 zoning*

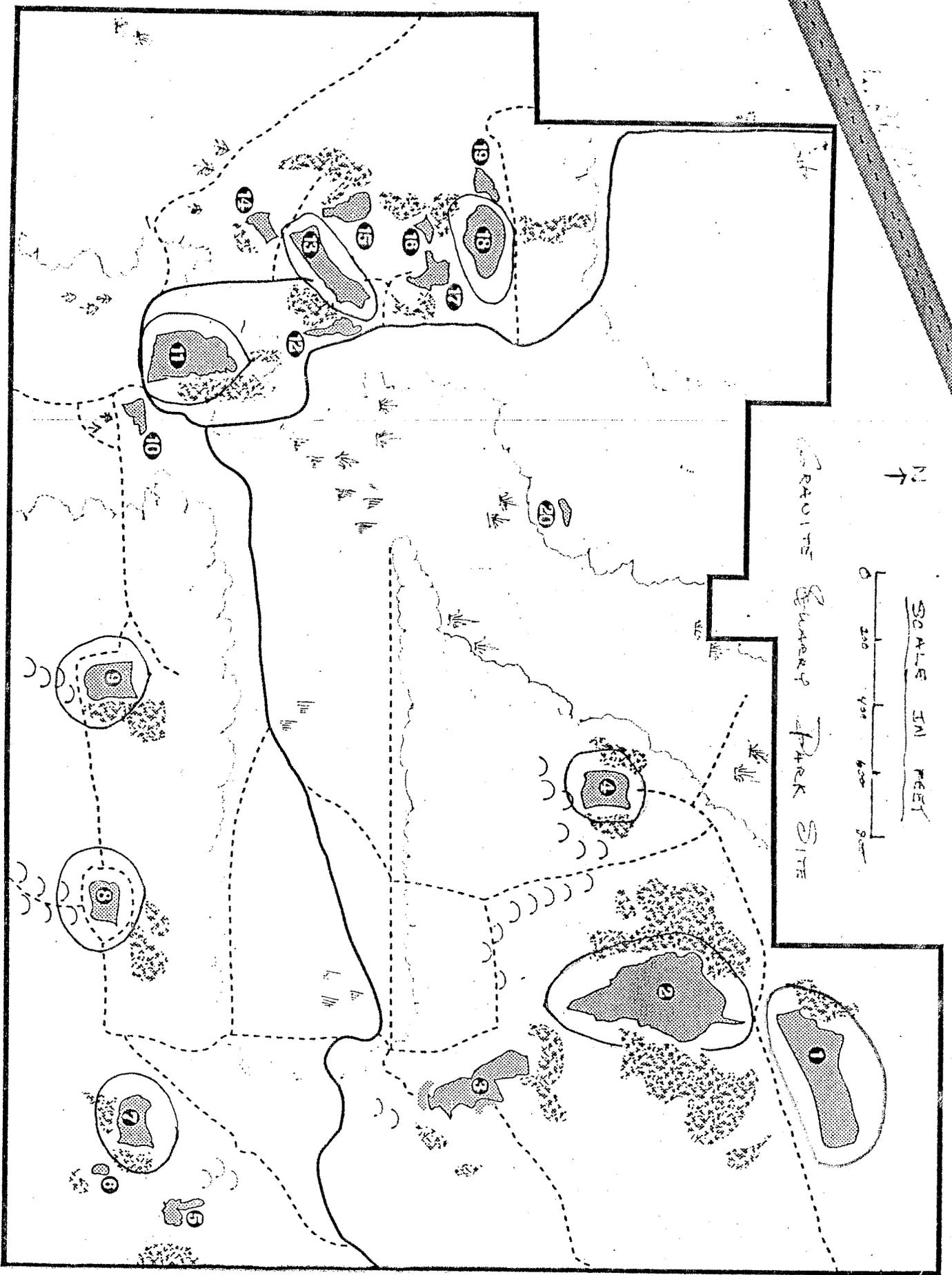
*Not stocked*



N  
↓



ROCKY SANDY PARK SITE



- Wetland
- ▨ Grassland
- ⋯ Path
- ⊛ Powerline

○ Outcrop

Numbers identify Quarries

• Electronic mapping done by Jim McElroy 10/17/03

Habitat suitability of some St. Cloud Area Quarries for rainbow trout.

Temperature and dissolved oxygen profiles were taken during the week of Aug. 28, 1995

Quarry Number	Corresponds to*	Area acres	Max. depth	Vertical habitat	Total feet	Stocking quota
1	Melrose Red	2.5	65	14-25	11	200
2	Melrose Deep	2	116	16-30	14	150
4	Oberg	0.5	57	12-18	6	50
7		0.5	66	13-24	11	50
8	Trabetusky	1	99	12-22	10	100
9	Thielman	1.2	45	10-28	18	125
11		0.75	50	17-25	8	75
13		0.5	39	19-24	5	50
14		0.25	47	No suitable habitat		
18	Benzy	0.5	58	15-30	15	50

\*the names refer to quarry names given in Investigational Report No. 141  
A Study of the Suitability of Abandoned Granite Quarries Near St. Cloud, MN,  
For Put and Take Fishing of Brown and Rainbow Trout.

FORM 9 - WATER QUALITY

DOW # \_\_\_\_\_

Survey ID \_\_\_\_\_

Page \_\_\_\_\_

Body of Water \_\_\_\_\_

(Starting Date) \_\_\_\_\_

Data Recorder \_\_\_\_\_ of \_\_\_\_\_

1) Standard Sampling (Y/N)? \_\_\_\_\_ If No, describe: \_\_\_\_\_

2) Station Number: WQ \_\_\_\_\_

3) Date (month/day/year): 8/28/95

*Quarry*  
*No. 1*

4) TEMPERATURE - DISSOLVED OXYGEN PROFILE

Depth (ft.)	Temp.-°C	D.O.- ppm	Depth (ft.)	Temp.-°C	D.O.- ppm	Depth (ft.)	Temp.-°C	D.O.- ppm
<i>No. 1</i>	<i>X</i>	<i>X</i>	<i>Quarry</i>	<i>X</i>	<i>X</i>	<i>(Quarry 2 confirmed)</i>		
<i>0</i>	<i>23°C</i>	<i>8.6</i>	<i>0</i>	<i>23.5</i>	<i>8.3</i>	<i>31</i>	<i>6.5</i>	<i>4.2</i>
<i>10</i>	<i>23</i>	<i>-</i>	<i>10</i>	<i>23.0</i>	<i>8.6</i>			
<i>12</i>	<i>22.5</i>	<i>8.6</i>						
<i>13</i>	<i>22°C</i>	<i>11.2</i>						
<i>14</i>	<i>20</i>	<i>13.3</i>						
<i>15</i>	<i>17.5</i>	<i>13.3</i>	<i>15</i>	<i>21.5</i>	<i>9.6</i>			
<i>20</i>	<i>11.5</i>	<i>13.2</i>	<i>16</i>	<i>20.5</i>	<i>10.5</i>			
<i>25</i>	<i>7.5</i>	<i>5.1</i>	<i>17</i>	<i>19.0</i>	<i>11.4</i>			
<i>26</i>	<i>7.0</i>	<i>3.4</i>	<i>18</i>	<i>18.0</i>	<i>11.9</i>			
			<i>20</i>	<i>15.0</i>	<i>12.6</i>			
			<i>25</i>	<i>10.0</i>	<i>11.9</i>			
			<i>30</i>	<i>7.0</i>	<i>5.4</i>			

4) Bottom Depth: \_\_\_\_\_ feet

5) Standard Sampling (Y/N)? \_\_\_\_\_ If No, describe: \_\_\_\_\_

6) Station Location - (LA)ke, (IN)let: \_\_\_\_\_ 7) Time (0-2400): \_\_\_\_\_ 8) Secchi<sup>a</sup> (ft.1): \_\_\_\_\_

9) Wave Intensity<sup>b</sup>: \_\_\_\_\_ 10) Wind Direction<sup>c</sup>: \_\_\_\_\_ 11) Color<sup>d</sup>: \_\_\_\_\_ describe: \_\_\_\_\_

12) Cause<sup>e</sup>: \_\_\_\_\_ describe: \_\_\_\_\_ 13) Sample Depth (feet, 0 if surface): \_\_\_\_\_ 14) pH: \_\_\_\_\_

15) Alkalinity: \_\_\_\_\_, method<sup>f</sup> \_\_\_\_\_ 16) Other Field Measurements: \_\_\_\_\_

17) Lab Samples Taken (Y/N): \_\_\_\_\_ 18) Collection Method<sup>g</sup>: \_\_\_\_\_ describe: \_\_\_\_\_

19) Comments (weather conditions, light intensity, etc.): \_\_\_\_\_

- (a) If Secchi disk is visible on the bottom, include a ">" (e.g., >13.5).
- (b) (C)alm, (M)oderate, (S)trong. Describe conditions at water quality station.
- (c) N, S, E, W, NE, NW, SE, SW, X (No Wind).
- (d) (G)reen, (BR)own, (BL)ue, (C)lear, (O)ther (describe).
- (e) (A)lgae, (S)ilt, (B)og-stain, (L)ow fertility (blue, clear option), (O)ther (describe), (X) Unknown.
- (f) Use 2-letter code: (S)ingle or (D)ouble-endpoint titration, (C)olorimetric or (P)otentiometric (e.g., DP, SC, etc.).
- (g) (G)rab sample, (I)ntegrated sample, (O)ther (describe).

\*Primary station is always WQ1.

\*\*Show WQ station locations (label as WQ1, etc.) on Sampling Station map and record location description on Form 2.







20' out

8 ppm

2.0

FORM 9 - WATER QUALITY

DOW # \_\_\_\_\_

Survey ID \_\_\_\_\_

Page \_\_\_\_\_

Body of Water \_\_\_\_\_

(Starting Date) \_\_\_\_\_

Data Recorder \_\_\_\_\_

of \_\_\_\_\_

1) Standard Sampling (Y/N)? \_\_\_\_\_ If No, describe: \_\_\_\_\_

2) Station Number: WQ \_\_\_\_\_

3) Date (month/day/year): 9/1/95

4) TEMPERATURE - DISSOLVED OXYGEN PROFILE

Depth (ft.)	Temp.-°C	D.O.- ppm	Depth (ft.)	Temp.-°C	D.O.- ppm	Depth (ft.)	Temp.-°C	D.O.- ppm
0	Quarry #18		Quarry #13			Quarry #14		
0	21.5	7.7	0	23.0	7.5	0	22.0	6.3
10	21.5	7.6	10	22.5	7.5	10	21.5	6.4
15	20.0	6.9	15	22.5	7.6	13	20.0	1.0
20	17.0	7.4	18	20.5	7.2	20	10.5	1.3
25	13.5	6.3	19	19.0	7.1	38	Bottom	
30	11.0	5.2	20	18.0	7.1			
35	8.5	3.4	25	14.0	3.8			
33	9.0	3.4	22	16.0	5.4			
42	Bottom		23	15.0	5.7			
			24	14.5	4.8			
			36	Bottom				

4) Bottom Depth: \_\_\_\_\_ feet

5) Standard Sampling (Y/N)? \_\_\_\_\_ If No, describe: \_\_\_\_\_

6) Station Location - (LA)ke, (IN)let: \_\_\_\_\_ 7) Time (0-2400): \_\_\_\_\_ 8) Secchi<sup>a</sup> (ft.1): \_\_\_\_\_

9) Wave Intensity<sup>b</sup>: \_\_\_\_\_ 10) Wind Direction<sup>c</sup>: \_\_\_\_\_ 11) Color<sup>d</sup>: \_\_\_\_\_ describe: \_\_\_\_\_

12) Cause<sup>e</sup>: \_\_\_\_\_ describe: \_\_\_\_\_ 13) Sample Depth (feet, 0 if surface): \_\_\_\_\_ 14) pH: \_\_\_\_\_

15) Alkalinity: \_\_\_\_\_, method<sup>f</sup> \_\_\_\_\_ 16) Other Field Measurements: \_\_\_\_\_

17) Lab Samples Taken (Y/N): \_\_\_\_\_ 18) Collection Method<sup>g</sup>: \_\_\_\_\_ describe: \_\_\_\_\_

19) Comments (weather conditions, light intensity, etc.): \_\_\_\_\_

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(d) (G)reen, (BR)own, (BL)ue, (C)lear, (O)ther (describe).

(e) (A)lgae, (S)ilt, (B)og-stain, (L)ow fertility (blue, clear option), (O)ther (describe), (X) Unknown.

(f) Use 2-letter code: (S)ingle or (D)ouble-endpoint titration, (C)olorimetric or (P)otentiometric (e.g., DP, SC, etc.).

(g) (G)rab sample, (I)ntegrated sample, (O)ther (describe).

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