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LIGHT EXTINCTION IN THE EXPERIMENTAL LAKES AREA
- 1979 DATA

by

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TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT/RESUME	iv
INTRODUCTION	1
DATA COLLECTION AND ANALYSIS	1
REFERENCES	1

LIST OF APPENDICES

<u>Appendix</u>		<u>Page</u>
1	This appendix lists the data for each light profile taken during 1979	3
2	In this appendix, the measured light values (as percentages of surface irradiance) are plotted against depth (in meters)	29

ABSTRACT

Shearer, J. A. and D. R. DeClercq. 1980. Light extinction in the Experimental Lakes Area - 1979 data. Can. Data Rep. Fish. Aquat. Sci. 189: iv + 63 p.

Depth profiles of light were measured periodically in twelve lake basins at the Experimental Lakes Area during 1979. These data are tabulated and plots of light versus depth are provided. Extinction coefficients have been calculated from the data.

Key words: light penetration; water transparency; limnological data.

RESUME

Shearer, J. A. and D. R. DeClercq. 1980. Light extinction in the Experimental Lakes Area - 1979 data. Can. Data Rep. Fish. Aquat. Sci. 189: iv + 63 p.

Durant 1979, la lumière, en fonction de la profondeur, a été mesurée périodiquement dans l'eau de douze lacs de la Région des Lacs Expérimentaux. Ce rapport présente les données en tableaux et forme graphiques. Le coefficient d'extinction est calculé pour tous les profils.

Mots-clés: pénétration de la lumière; transparence de l'eau; données limnologiques.

INTRODUCTION

This report presents light versus depth data collected during 1979 for selected basins within the Experimental Lakes Area (E.L.A.), northwestern Ontario. As in the previous five reports of this series (Shearer 1976; Shearer and DeClercq 1976, 1977, 1978, 1979), the collected extinction data are presented both in tables and in graphs. An outline of the methodology employed during the collection and analysis is also provided. This outline includes a brief discussion of the use of cosine versus spherical collectors for light extinction measurements.

DATA COLLECTION AND ANALYSIS

Light extinction was monitored in twelve E.L.A. basins during the ice-free season of 1979. These lakes are numbers 114, 223, 226NE, 226SW, 227, 239, 261, 303, 304, 382, 382 Bay and 383. (See J. Fish. Res. Board Can. 28(2)).

Experimental nutrient enrichments of Lakes 226NE, 226SW and 227 (Schindler and Fee 1974) were continued during 1979. Lakes 114 and 223 were undergoing controlled acidification. The separate portions of Lakes 226 and 382 are maintained by plastic "sea curtains."

The twelve surveyed basins range in surface area from 3.3 to 56.1 hectares and in maximum depth from 2.5 to 30 meters.

Light measurements were taken routinely at two-week intervals in each lake. Extra light profiles were taken in some lakes during sensor testing and comparison experiments.

Two sensor designs were used for the 1979 profiles. The Licor LI-192S underwater quantum sensor, a cosine (flat) collector, was used exclusively during May and most of June and again at the end of the season. A Licor LI-193S spherical quantum sensor (measuring scalar irradiance) was employed for most of the measurements taken between late June and mid-October. Both sensors were always suspended with an upward orientation while being lowered through a water column and their outputs were recorded from a Licor LI-185 meter. Where necessary, concurrent "deck cell" readings were taken with a LI-190S (cosine) sensor.

Because of wave action, it is nearly impossible to measure precisely irradiance levels in water at (or just below) the surface. We prefer to measure the irradiance in air above the surface and make the necessary immersion corrections. "In air" surface readings can be related directly to the "in air" values output by our continuous surface solar irradiance monitor (a Licor LI-190S sensor) when the data are used for estimates of integral phytoplankton production (DeClercq and Shearer 1980; Fee 1977).

For each profile done with the collector, a surface reference reading was taken in air just above the lake surface. After necessary corrections for the sensor immersion factor, all underwater depth readings were calculated as percentages of the surface (reference) reading.

The use of a spherical collector is often recommended for measuring underwater irradiances (Combs 1977; Højerslev 1978). Because the sensor responds to light incident on a point from all directions (scalar irradiance), its response should better approximate the response to light of an algal cell.

Our results from lakes in the E.L.A. show no major differences between underwater profiles taken with the two sensor types. The solar elevation is probably more critical than the collector type in determining the extinction coefficient (see L239, September 26-27). We did note a problem in obtaining a correct estimate of surface irradiance relative to underwater irradiances when profiling with the spherical collector.

The spherical collector in air is much more sensitive to incident irradiance than is the cosine collector. The spherical collector responds fully to the direct rays and skylight at all solar elevations as well as to any light reflected back from the water surface. Because the cosine collector does not respond to reflected light it probably gives a better "in air" estimate of the amount of surface irradiance that actually enters the water column.

Using data obtained from comparative profiles with the two sensor types and from cosine collector profiles taken in previous years, an empirical formula was derived to calculate a surface value (I_0) for the spherical sensor profiles:

$$I_0 = 1.1 \times \frac{(I_{0.5})^2}{I_{1.0}}$$

where I_0 = irradiance at 0 meters
 $I_{0.5}$ = irradiance at 0.5 meters
 $I_{1.0}$ = irradiance at 1.0 meters

The relative surface values for all spherical collector profiles (marked by asterisks in Appendix 1) were calculated in this way before the underwater irradiances were converted to percentages.

With this noted exception, the analyses and presentation of data for this report are unchanged from the last report (Shearer and DeClercq 1979). Appendix 1 lists the measured values of light versus depth. These values have been corrected for surface effect and converted to percentages of the surface irradiances. Appendix 2 presents plots of these data along with fitted curves calculated from the data. In both appendices the data are grouped by lake basin and listed chronologically.

REFERENCES

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APPENDIX 1

This appendix lists the data for each water column light profile taken during 1979. An asterisk before the date indicates that the profile was taken with the spherical collector. Absence of an asterisk indicates that a cosine collector was used.

All times are local, i.e. Central Daylight (CDT) before 28 October and Central Standard (CST) thereafter.

Extinction coefficients (natural logarithms) are mean values for the profiles.

The depths are in meters. Light values are actual rather than fitted and are given as percentages of the surface value (corrected for surface effect).

LAKE 114

DATE: 17 MAY		EXTINCTION COEFFICIENT: 1.11		TIME: 0955 HOURS		R**2: .9751	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	33.22	1.00	16.14	2.00	5.69
4.00	.95					3.00	2.37
DATE: 30 MAY		EXTINCTION COEFFICIENT: .97		TIME: 0810 HOURS		R**2: .9866	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	43.78	1.00	24.44	2.00	9.67
4.00	1.86					3.00	4.00
DATE: 14 JUN		EXTINCTION COEFFICIENT: 1.01		TIME: 0950 HOURS		R**2: .9812	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	39.86	1.00	19.69	2.00	8.31
4.00	1.38					3.00	3.80
DATE: 27 JUN		EXTINCTION COEFFICIENT: 1.23		TIME: 0815 HOURS		R**2: .9851	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	33.64	1.00	15.52	2.00	4.94
4.00	.59					3.00	1.76
* DATE: 11 JUL		EXTINCTION COEFFICIENT: .83		TIME: 1000 HOURS		R**2: .9945	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	61.22	1.00	41.23	2.00	18.99
4.00	3.12					3.00	9.50
* DATE: 25 JUL		EXTINCTION COEFFICIENT: .97		TIME: 0930 HOURS		R**2: .9822	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	45.04	1.00	22.31	2.00	9.09
4.00	1.84					3.00	3.95
* DATE: 9 AUG		EXTINCTION COEFFICIENT: .90		TIME: 0915 HOURS		R**2: .9964	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	54.55	1.00	32.73	2.00	13.42
4.00	2.47					3.00	6.22
* DATE: 22 AUG		EXTINCTION COEFFICIENT: .84		TIME: 0850 HOURS		R**2: .9987	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	59.22	1.00	38.58	2.00	16.75
4.00	3.27					3.00	7.78
* DATE: 5 SEP		EXTINCTION COEFFICIENT: .66		TIME: 0940 HOURS		R**2: .9908	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	59.44	1.00	38.86	2.00	21.72
4.00	6.40					3.00	12.23
* DATE: 19 SEP		EXTINCTION COEFFICIENT: .64		TIME: 0950 HOURS		R**2: .9817	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	60.00	1.00	39.60	2.00	19.20
4.00	7.20					3.00	12.00

LAKE 223

DATE: 16 MAY
EXTINCTION COEFFICIENT: .54

TIME: 0830 HOURS
R**2: .9958

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	69.52	1.00	48.28	2.00	27.03	3.00	14.00
4.00	8.01	5.00	4.63	6.00	2.80	7.00	1.55	8.00	.99
9.00	.62	10.00	.38	11.00	.25	12.00	.16		

DATE: 29 MAY
EXTINCTION COEFFICIENT: .56

TIME: 0835 HOURS
R**2: .9995

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	65.73	1.00	50.62	2.00	28.87	3.00	17.40
4.00	9.65	5.00	5.38	6.00	3.01	7.00	1.75	8.00	.99
9.00	.59	10.00	.35						

DATE: 12 JUN
EXTINCTION COEFFICIENT: .53

TIME: 0920 HOURS
R**2: .9937

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	74.84	1.00	59.35	2.00	39.35	3.00	25.48
4.00	17.10	5.00	10.26	6.00	6.00	7.00	3.35	8.00	1.87
9.00	.97	10.00	.52	11.00	.29	12.00	.15		

DATE: 26 JUN
EXTINCTION COEFFICIENT: .49

TIME: 0930 HOURS
R**2: .9828

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	76.09	1.00	59.65	2.00	41.39	3.00	28.00
4.00	21.30	5.00	14.30	6.00	8.83	7.00	5.05	8.00	2.92
9.00	1.69	10.00	.85	11.00	.41	12.00	.19		

* DATE: 10 JUL
EXTINCTION COEFFICIENT: .43

TIME: 0810 HOURS
R**2: .9702

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	74.32	1.00	60.75	2.00	44.34	3.00	33.59
4.00	26.42	5.00	19.47	6.00	12.74	7.00	7.72	8.00	4.34
9.00	2.62	10.00	1.30	11.00	.58				

* DATE: 20 JUL
EXTINCTION COEFFICIENT: .49

TIME: 0900 HOURS
R**2: .9127

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	77.13	1.00	65.45	2.00	47.92	3.00	37.40
4.00	29.22	5.00	22.91	6.00	15.89	7.00	9.70	8.00	5.80
9.00	3.06	10.00	1.52	11.00	.53	12.00	.10		

* DATE: 24 JUL
EXTINCTION COEFFICIENT: .52

TIME: 0825 HOURS
R**2: .9051

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	77.71	1.00	66.43	2.00	47.63	3.00	36.35
4.00	27.58	5.00	20.56	6.00	14.79	7.00	9.02	8.00	5.19
9.00	2.66	10.00	1.23	11.00	.37	12.00	.06		

* DATE: 6 AUG
EXTINCTION COEFFICIENT: .43

TIME: 0820 HOURS
R**2: .9256

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	68.61	1.00	51.78	2.00	37.02	3.00	28.48
4.00	22.53	5.00	17.86	6.00	14.24	7.00	9.32	8.00	5.72
9.00	3.08	10.00	1.29	11.00	.33				

* DATE: 22 AUG
EXTINCTION COEFFICIENT: .43

TIME: 1355 HOURS
R**2: .8102

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	76.82	1.00	64.91	2.00	49.58	3.00	41.19
4.00	34.51	5.00	26.42	6.00	21.78	7.00	17.34	8.00	12.09
9.00	7.84	10.00	4.08	11.00	.95	12.00	.10		

LAKE 223

* DATE: 3 SEP				TIME: 0830 HOURS					
EXTINCTION COEFFICIENT: .46				R**2: .7680					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	75.66	1.00	62.96	2.00	50.44	3.00	39.60
4.00	31.83	5.00	25.27	6.00	20.42	7.00	16.40	8.00	12.63
9.00	7.62	10.00	3.98	11.00	.71	12.00	.04		
* DATE: 18 SEP				TIME: 0900 HOURS					
EXTINCTION COEFFICIENT: .45				R**2: .8990					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	64.94	1.00	46.38	2.00	31.31	3.00	23.19
4.00	17.63	5.00	12.06	6.00	9.74	7.00	7.65	8.00	6.03
9.00	4.17	10.00	1.86	11.00	.42	12.00	.10		
DATE: 1 OCT				TIME: 0840 HOURS					
EXTINCTION COEFFICIENT: .43				R**2: .9623					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	62.21	1.00	50.25	2.00	27.52	3.00	17.71
4.00	11.96	5.00	7.90	6.00	5.98	7.00	4.31	8.00	3.06
9.00	2.27	10.00	1.72	11.00	.31				
* DATE: 1 OCT				TIME: 0845 HOURS					
EXTINCTION COEFFICIENT: .41				R**2: .9522					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	69.77	1.00	53.49	2.00	34.88	3.00	24.65
4.00	16.74	5.00	11.95	6.00	8.51	7.00	5.95	8.00	4.28
9.00	3.26	10.00	2.21	11.00	.36				
* DATE: 16 OCT				TIME: 0855 HOURS					
EXTINCTION COEFFICIENT: .38				R**2: .9952					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	64.61	1.00	45.09	2.00	28.98	3.00	21.74
4.00	15.13	5.00	10.50	6.00	7.13	7.00	5.07	8.00	3.39
9.00	2.36	10.00	1.68	11.00	1.10	12.00	.77		
DATE: 29 OCT				TIME: 0900 HOURS					
EXTINCTION COEFFICIENT: .38				R**2: .9968					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	61.04	1.00	49.88	2.00	31.71	3.00	21.89
4.00	15.04	5.00	10.42	6.00	7.07	7.00	4.81	8.00	3.41
9.00	2.32	10.00	1.62	11.00	1.13	12.00	.79	13.00	.55

LAKE 226NE

DATE: 17 MAY		EXTINCTION COEFFICIENT: 1.06		TIME: 0905 HOURS		R**2: .9997	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	61.25	1.00	35.00	2.00	12.08
4.00	1.43	5.00	.51	6.00	.18	3.00	3.85
DATE: 31 MAY		EXTINCTION COEFFICIENT: .59		TIME: 0900 HOURS		R**2: .9975	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	63.14	1.00	45.76	2.00	26.69
4.00	9.96	5.00	5.30	6.00	2.75	7.00	1.44
8.00							16.53
							.78
DATE: 11 JUN		EXTINCTION COEFFICIENT: .73		TIME: 0855 HOURS		R**2: .9996	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	72.16	1.00	45.46	2.00	21.29
4.00	5.20	5.00	2.56	6.00	1.28	7.00	.63
8.00							11.04
							.28
* DATE: 28 JUN		EXTINCTION COEFFICIENT: .73		TIME: 1010 HOURS		R**2: .9979	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	63.16	1.00	43.88	2.00	19.31
4.00	4.61	5.00	2.20	6.00	.93	7.00	.56
8.00							9.45
							.30
* DATE: 10 JUL		EXTINCTION COEFFICIENT: .80		TIME: 0945 HOURS		R**2: .9955	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	61.02	1.00	40.95	2.00	20.48
4.00	3.16	5.00	1.40	6.00	.61	7.00	.35
8.00							8.48
							.20
* DATE: 26 JUL		EXTINCTION COEFFICIENT: .89		TIME: 0920 HOURS		R**2: .9975	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	61.11	1.00	41.08	2.00	18.37
4.00	2.84	5.00	.99	6.00	.47	7.00	.23
8.00							8.56
* DATE: 6 AUG		EXTINCTION COEFFICIENT: 1.00		TIME: 1020 HOURS		R**2: .9987	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	56.13	1.00	34.66	2.00	13.86
4.00	1.90	5.00	.57	6.00	.26	3.00	5.30
* DATE: 23 AUG		EXTINCTION COEFFICIENT: 1.13		TIME: 0855 HOURS		R**2: .9972	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	48.39	1.00	25.75	2.00	10.93
4.00	1.00	5.00	.30			3.00	3.53
* DATE: 3 SEP		EXTINCTION COEFFICIENT: 1.02		TIME: 1015 HOURS		R**2: .9935	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	47.98	1.00	25.32	2.00	7.96
4.00	.96	5.00	.39	6.00	.17	7.00	.08
3.00							2.78
* DATE: 19 SEP		EXTINCTION COEFFICIENT: .79		TIME: 0830 HOURS		R**2: .9981	
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.31	1.00	36.13	2.00	16.20
4.00	3.56	5.00	1.67	6.00	.72	7.00	.39
3.00							7.48

LAKE 226NE

* DATE: 1 OCT				TIME: 1020 HOURS			
EXTINCTION COEFFICIENT: .94				R**2: .9955			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	53.84	1.00	31.98	2.00	11.44
4.00	1.85	5.00	.79	6.00	.36	3.00	4.01
* DATE: 16 OCT				TIME: 1015 HOURS			
EXTINCTION COEFFICIENT: .83				R**2: .9980			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	54.90	1.00	33.16	2.00	13.55
4.00	2.99	5.00	1.35	6.00	.57	7.00	.25
DATE: 29 OCT				TIME: 1030 HOURS			
EXTINCTION COEFFICIENT: .85				R**2: .9910			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	51.05	1.00	26.96	2.00	10.69
4.00	2.41	5.00	1.10	6.00	.51	3.00	4.87

LAKE 226SW

* DATE: 19 SEP				TIME: 0845 HOURS					
EXTINCTION COEFFICIENT: .56				R**2: .9815					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	65.83	1.00	47.67	2.00	29.51	3.00	18.95
4.00	11.92	5.00	7.66	6.00	4.65	7.00	2.53	8.00	1.16
9.00	.37								
* DATE: 1 OCT				TIME: 1040 HOURS					
EXTINCTION COEFFICIENT: .64				R**2: .9923					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	67.57	1.00	50.19	2.00	24.52	3.00	13.32
4.00	7.72	5.00	4.50	6.00	2.66	7.00	1.40	8.00	.56
9.00	.20								
* DATE: 16 OCT				TIME: 1000 HOURS					
EXTINCTION COEFFICIENT: .71				R**2: .9984					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	58.15	1.00	37.04	2.00	18.52	3.00	9.37
4.00	4.85	5.00	2.44	6.00	1.22	7.00	.59	8.00	.30
DATE: 29 OCT				TIME: 1005 HOURS					
EXTINCTION COEFFICIENT: .67				R**2: .9927					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	54.27	1.00	34.71	2.00	15.01	3.00	8.17
4.00	4.42	5.00	2.44	6.00	1.33	7.00	.72	8.00	.39

LAKE 227

DATE: 16 MAY		EXTINCTION COEFFICIENT: 1.61		TIME: 0935 HOURS		R**2: .9983			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	32.86	1.00	14.46	2.00	2.89	3.00	.60
4.00	.14	5.00	.03						
DATE: 28 MAY		EXTINCTION COEFFICIENT: 1.80		TIME: 0825 HOURS		R**2: .9952			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	32.12	1.00	11.86	2.00	1.75	3.00	.31
4.00	.07								
DATE: 14 JUN		EXTINCTION COEFFICIENT: 2.06		TIME: 0850 HOURS		R**2: .9971			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	26.88	1.00	9.34	2.00	1.50	3.00	.18
DATE: 25 JUN		EXTINCTION COEFFICIENT: 1.95		TIME: 0825 HOURS		R**2: .9955			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	26.63	1.00	9.88	2.00	1.51	3.00	.18
4.00	.04								
* DATE: 12 JUL		EXTINCTION COEFFICIENT: 2.06		TIME: 0830 HOURS		R**2: .9948			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	36.70	1.00	14.81	2.00	1.87	3.00	.14
4.00	.03								
* DATE: 23 JUL		EXTINCTION COEFFICIENT: 1.89		TIME: 0850 HOURS		R**2: .9963			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	38.96	1.00	16.70	2.00	3.28	3.00	.31
4.00	.06	0.00	138.30	.50	38.96	1.00	16.70	2.00	3.28
3.00	.31	4.00	.06						
* DATE: 8 AUG		EXTINCTION COEFFICIENT: 2.29		TIME: 1000 HOURS		R**2: .9945			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	25.54	1.00	7.18	2.00	.78	3.00	.06
4.00	.01								
* DATE: 20 AUG		EXTINCTION COEFFICIENT: 2.42		TIME: 0825 HOURS		R**2: .9938			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	23.49	1.00	6.07	2.00	.48	3.00	.07
* DATE: 5 SEP		EXTINCTION COEFFICIENT: 2.55		TIME: 0830 HOURS		R**2: .9757			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	18.18	1.00	3.64	2.00	.22	3.00	.05
* DATE: 17 SEP		EXTINCTION COEFFICIENT: 2.20		TIME: 0840 HOURS		R**2: .9932			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	24.66	1.00	6.69	2.00	.81	3.00	.13

LAKE 239

DATE: 16 MAY				TIME: 0820 HOURS			
EXTINCTION COEFFICIENT: .81				R**2: .9925			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 42.10	1.00 25.45	2.00 9.30	3.00 3.92	4.00 1.72	5.00 .81	6.00 .37
4.00 1.72	5.00 .81	6.00 .37	7.00 .19	8.00 .09	9.00 .04	10.00 .02	
9.00 .04	10.00 .02						
DATE: 21 MAY				TIME: 0840 HOURS			
EXTINCTION COEFFICIENT: .82				R**2: .9955			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 56.44	1.00 30.63	2.00 13.13	3.00 4.94	4.00 2.18	5.00 .98	6.00 .43
4.00 2.18	5.00 .98	6.00 .43	7.00 .21	8.00 .10	9.00 .05	10.00 .02	
9.00 .05	10.00 .02						
* DATE: 11 JUN				TIME: 1310 HOURS			
EXTINCTION COEFFICIENT: .75				R**2: .9988			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 59.96	1.00 39.55	2.00 17.86	3.00 8.68	4.00 4.15	5.00 1.91	6.00 .86
4.00 4.15	5.00 1.91	6.00 .86	7.00 .41	8.00 .22	9.00 .11		
9.00 .11							
DATE: 11 JUN				TIME: 1320 HOURS			
EXTINCTION COEFFICIENT: .76				R**2: .9989			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 61.35	1.00 39.94	2.00 17.09	3.00 8.24	4.00 3.95	5.00 1.77	6.00 .81
4.00 3.95	5.00 1.77	6.00 .81	7.00 .40	8.00 .20	9.00 .10		
9.00 .10							
DATE: 18 JUN				TIME: 0830 HOURS			
EXTINCTION COEFFICIENT: .81				R**2: .9947			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 51.53	1.00 32.64	2.00 11.42	3.00 5.48	4.00 2.58	5.00 1.13	6.00 .48
4.00 2.58	5.00 1.13	6.00 .48	7.00 .22	8.00 .11	9.00 .07		
9.00 .07							
DATE: 3 JUL				TIME: 0835 HOURS			
EXTINCTION COEFFICIENT: .82				R**2: .9942			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 57.08	1.00 32.31	2.00 12.17	3.00 5.79	4.00 2.66	5.00 1.22	6.00 .61
4.00 2.66	5.00 1.22	6.00 .61	7.00 .30				
* DATE: 3 JUL				TIME: 1115 HOURS			
EXTINCTION COEFFICIENT: .74				R**2: .9982			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 55.83	1.00 34.28	2.00 16.92	3.00 8.70	4.00 4.30	5.00 2.06	6.00 .94
4.00 4.30	5.00 2.06	6.00 .94	7.00 .46	8.00 .23			
DATE: 16 JUL				TIME: 0815 HOURS			
EXTINCTION COEFFICIENT: .82				R**2: .9949			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 56.88	1.00 31.50	2.00 13.13	3.00 4.94	4.00 2.54	5.00 1.00	6.00 .46
4.00 2.54	5.00 1.00	6.00 .46	7.00 .23	8.00 .12	9.00 .06		
9.00 .06							
* DATE: 31 JUL				TIME: 1030 HOURS			
EXTINCTION COEFFICIENT: .74				R**2: .9995			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 62.94	1.00 43.57	2.00 20.17	3.00 9.20	4.00 4.84	5.00 2.50	6.00 1.11
4.00 4.84	5.00 2.50	6.00 1.11	7.00 .52	8.00 .25	9.00 .13		
9.00 .13							

LAKE 239

* DATE: 14 AUG
EXTINCTION COEFFICIENT: .77
TIME: 0940 HOURS
R**2: .9972

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	55.85	1.00	34.32	2.00	14.87	3.00	7.48
4.00	3.92	5.00	1.84	6.00	.96	7.00	.37	8.00	.17

* DATE: 29 AUG
EXTINCTION COEFFICIENT: .69
TIME: 1105 HOURS
R**2: .9994

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	62.63	1.00	43.14	2.00	22.27	3.00	11.41
4.00	5.98	5.00	3.20	6.00	1.57	7.00	.73	8.00	.37
9.00	.19								

DATE: 10 SEP
EXTINCTION COEFFICIENT: .70
TIME: 0830 HOURS
R**2: .9914

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	54.34	1.00	32.42	2.00	14.18	3.00	6.78
4.00	3.61	5.00	1.97	6.00	1.11	7.00	.57	8.00	.30

DATE: 25 SEP
EXTINCTION COEFFICIENT: .76
TIME: 0840 HOURS
R**2: .9919

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	63.86	1.00	33.16	2.00	13.51	3.00	5.53
4.00	2.65	5.00	1.35	6.00	.69	7.00	.36	8.00	.18
9.00	.10								

* DATE: 26 SEP
EXTINCTION COEFFICIENT: .73
TIME: 1025 HOURS
R**2: .9956

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	55.76	1.00	34.17	2.00	16.19	3.00	7.91
4.00	4.05	5.00	2.03	6.00	1.06	7.00	.54		

DATE: 26 SEP
EXTINCTION COEFFICIENT: .71
TIME: 1035 HOURS
R**2: .9962

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	56.98	1.00	35.00	2.00	17.91	3.00	8.95
4.00	4.31	5.00	2.24	6.00	1.07	7.00	.63		

DATE: 26 SEP
EXTINCTION COEFFICIENT: .67
TIME: 1300 HOURS
R**2: .9946

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	56.79	1.00	33.02	2.00	18.49	3.00	9.58
4.00	5.08	5.00	2.58	6.00	1.45	7.00	.75		

* DATE: 26 SEP
EXTINCTION COEFFICIENT: .68
TIME: 1305 HOURS
R**2: .9974

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	61.35	1.00	41.41	2.00	19.94	3.00	10.12
4.00	5.06	5.00	2.76	6.00	1.49	7.00	.78		

* DATE: 26 SEP
EXTINCTION COEFFICIENT: .72
TIME: 1525 HOURS
R**2: .9991

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	62.63	1.00	43.20	2.00	21.60	3.00	9.72
4.00	4.86	5.00	2.42	6.00	1.24	7.00	.63		

DATE: 26 SEP
EXTINCTION COEFFICIENT: .73
TIME: 1535 HOURS
R**2: .9955

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	53.91	1.00	34.78	2.00	16.52	3.00	8.09
4.00	3.83	5.00	2.00	6.00	1.06	7.00	.55		

LAKE 239

DATE: 26 SEP				TIME: 1750 HOURS					
EXTINCTION COEFFICIENT: .77				R**2: .9940					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	51.18	1.00	31.61	2.00	14.15	3.00	6.47
4.00	3.01	5.00	1.52	6.00	.78	7.00	.40		
* DATE: 26 SEP				TIME: 1755 HOURS					
EXTINCTION COEFFICIENT: .79				R**2: .9959					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	55.40	1.00	33.81	2.00	14.39	3.00	6.40
4.00	3.02	5.00	1.50	6.00	.72	7.00	.36		
DATE: 27 SEP				TIME: 0925 HOURS					
EXTINCTION COEFFICIENT: .72				R**2: .9967					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.20	1.00	40.65	2.00	16.86	3.00	8.13
4.00	3.91	5.00	2.08	6.00	1.04	7.00	.54	8.00	.29
* DATE: 27 SEP				TIME: 0930 HOURS					
EXTINCTION COEFFICIENT: .74				R**2: .9920					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.40	1.00	36.25	2.00	12.99	3.00	6.50
4.00	3.17	5.00	1.63	6.00	.84	7.00	.46	8.00	.24
DATE: 4 OCT				TIME: 0930 HOURS					
EXTINCTION COEFFICIENT: .65				R**2: .9931					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	53.04	1.00	35.00	2.00	17.83	3.00	9.42
4.00	5.20	5.00	2.85	6.00	1.61	7.00	.87		
* DATE: 4 OCT				TIME: 0935 HOURS					
EXTINCTION COEFFICIENT: .64				R**2: .9962					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	62.75	1.00	43.41	2.00	20.51	3.00	10.87
4.00	6.16	5.00	3.32	6.00	1.88	7.00	1.05		
DATE: 8 OCT				TIME: 0905 HOURS					
EXTINCTION COEFFICIENT: .69				R**2: .9912					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.49	1.00	32.46	2.00	14.58	3.00	7.70
4.00	3.91	5.00	2.11	6.00	1.13	7.00	.65	8.00	.36
DATE: 17 OCT				TIME: 1025 HOURS					
EXTINCTION COEFFICIENT: .73				R**2: .9942					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	50.70	1.00	33.50	2.00	15.03	3.00	6.70
4.00	3.26	5.00	1.68	6.00	.87	7.00	.46	8.00	.24
* DATE: 17 OCT				TIME: 1035 HOURS					
EXTINCTION COEFFICIENT: .73				R**2: .9978					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	63.66	1.00	44.56	2.00	19.36	3.00	8.89
4.00	4.22	5.00	2.08	6.00	1.06	7.00	.55	8.00	.30
* DATE: 17 OCT				TIME: 1725 HOURS					
EXTINCTION COEFFICIENT: .82				R**2: .9927					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	56.00	1.00	34.40	2.00	12.72	3.00	5.36
4.00	2.48	5.00	1.20	6.00	.62	7.00	.32		
DATE: 17 OCT				TIME: 1735 HOURS					
EXTINCTION COEFFICIENT: .81				R**2: .9919					
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.95	1.00	34.77	2.00	13.18	3.00	5.43
4.00	2.54	5.00	1.25	6.00	.66	7.00	.35		

LAKE 239

DATE: 31 OCT
EXTINCTION COEFFICIENT: .62

TIME: 0850 HOURS
R**2: .9910

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	56.76	1.00	31.10	2.00	16.23	3.00	9.61
4.00	5.45	5.00	3.14	6.00	1.70	7.00	.95	8.00	.53

LAKE 261

DATE: 22 MAY		EXTINCTION COEFFICIENT: 1.10		TIME: 0940 HOURS		R**2: .9989			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	46.15	1.00	25.41	2.00	9.64	3.00	3.21
4.00	1.05	5.00	.35	6.00	.12				
DATE: 4 JUN		EXTINCTION COEFFICIENT: 1.16		TIME: 0910 HOURS		R**2: .9980			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	51.74	1.00	30.43	2.00	10.96	3.00	3.71
4.00	1.16	5.00	.29	6.00	.09				
DATE: 18 JUN		EXTINCTION COEFFICIENT: 1.13		TIME: 0855 HOURS		R**2: .9982			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.07	1.00	31.20	2.00	10.27	3.00	3.80
4.00	1.29	5.00	.37	6.00	.10				
* DATE: 2 JUL		EXTINCTION COEFFICIENT: 1.10		TIME: 0905 HOURS		R**2: .9957			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	52.73	1.00	30.59	2.00	12.31	3.00	4.48
4.00	1.34	5.00	.34						
* DATE: 16 JUL		EXTINCTION COEFFICIENT: 1.05		TIME: 0915 HOURS		R**2: .9945			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	56.94	1.00	35.67	2.00	14.78	3.00	5.77
4.00	2.14	5.00	.50	6.00	.17				
* DATE: 30 JUL		EXTINCTION COEFFICIENT: .93		TIME: 0915 HOURS		R**2: .9871			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	55.67	1.00	34.09	2.00	17.36	3.00	9.07
4.00	3.32	5.00	.91	6.00	.28				
* DATE: 13 AUG		EXTINCTION COEFFICIENT: .86		TIME: 0915 HOURS		R**2: .9559			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	64.32	1.00	45.51	2.00	26.69	3.00	14.63
4.00	7.16	5.00	1.85	6.00	.37				
* DATE: 27 AUG		EXTINCTION COEFFICIENT: .95		TIME: 0925 HOURS		R**2: .9772			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	55.50	1.00	33.89	2.00	15.34	3.00	7.60
4.00	3.80	5.00	1.11	6.00	.20				
* DATE: 10 SEP		EXTINCTION COEFFICIENT: .88		TIME: 0910 HOURS		R**2: .9872			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	54.55	1.00	32.73	2.00	12.61	3.00	6.30
4.00	3.15	5.00	1.53	6.00	.32				
* DATE: 24 SEP		EXTINCTION COEFFICIENT: .85		TIME: 0920 HOURS		R**2: .9605			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	55.30	1.00	33.63	2.00	17.10	3.00	9.29
4.00	4.85	5.00	2.57	6.00	.86	7.00	.11		

LAKE 261

* DATE: 8 OCT
EXTINCTION COEFFICIENT: .79

TIME: 0920 HOURS
R**2: .9941

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	52.06	1.00	29.86	2.00	12.50	3.00	5.96
4.00	3.12	5.00	1.44	6.00	.71	7.00	.32		

DATE: 30 OCT
EXTINCTION COEFFICIENT: .64

TIME: 0935 HOURS
R**2: .9935

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	52.64	1.00	32.22	2.00	16.59	3.00	9.25
4.00	5.07	5.00	2.78	6.00	1.53	7.00	.83	8.00	.45

LAKE 303

DATE: 23 MAY		EXTINCTION COEFFICIENT: .85		TIME: 0935 HOURS		R**2: .9926			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.25 81.05	.50 58.95	1.00 42.00	1.50 27.63					
DATE: 6 JUN		EXTINCTION COEFFICIENT: .96		TIME: 1130 HOURS		R**2: .9793			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 49.41	1.00 30.47	2.00 14.00						
DATE: 20 JUN		EXTINCTION COEFFICIENT: .94		TIME: 1045 HOURS		R**2: 1.0000			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 63.00	1.00 39.20	2.00 15.17						
* DATE: 5 JUL		EXTINCTION COEFFICIENT: .92		TIME: 0925 HOURS		R**2: .9881			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 55.10	1.00 33.39	2.00 15.53						
* DATE: 18 JUL		EXTINCTION COEFFICIENT: 1.06		TIME: 0930 HOURS		R**2: .9813			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 49.24	1.00 26.67	2.00 11.70						
* DATE: 2 AUG		EXTINCTION COEFFICIENT: .83		TIME: 0920 HOURS		R**2: .9986			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 62.05	1.00 42.35	2.00 18.71						
* DATE: 15 AUG		EXTINCTION COEFFICIENT: .85		TIME: 0935 HOURS		R**2: .9986			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 61.50	1.00 41.60	2.00 18.09						
* DATE: 28 AUG		EXTINCTION COEFFICIENT: .76		TIME: 0920 HOURS		R**2: .9914			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 61.50	1.00 41.60	2.00 21.52						
* DATE: 12 SEP		EXTINCTION COEFFICIENT: .92		TIME: 0920 HOURS		R**2: .9906			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 55.76	1.00 34.20	2.00 15.61						
* DATE: 26 SEP		EXTINCTION COEFFICIENT: .93		TIME: 0935 HOURS		R**2: .9952			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 56.57	1.00 35.20	2.00 15.08						
* DATE: 9 OCT		EXTINCTION COEFFICIENT: .83		TIME: 1000 HOURS		R**2: .9989			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 63.58	1.00 44.40	2.00 18.79						
DATE: 30 OCT		EXTINCTION COEFFICIENT: .79		TIME: 1025 HOURS		R**2: .9909			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.		
0.00 100.00	.50 61.23	1.00 39.57	2.00 20.23						

LAKE 304

DATE: 23 MAY				TIME: 0825 HOURS			
EXTINCTION COEFFICIENT: 1.26				R**2: .9913			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 31.89	1.00 14.78	2.00 5.95	3.00 1.77			
4.00 .55	5.00 .12						
DATE: 6 JUN				TIME: 1020 HOURS			
EXTINCTION COEFFICIENT: 1.05				R**2: .9897			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 42.65	1.00 20.51	2.00 7.81	3.00 3.58			
4.00 1.39	5.00 .35						
DATE: 20 JUN				TIME: 0955 HOURS			
EXTINCTION COEFFICIENT: 1.04				R**2: .9935			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 49.66	1.00 29.06	2.00 13.21	3.00 5.02			
4.00 1.64	5.00 .41						
* DATE: 5 JUL				TIME: 0835 HOURS			
EXTINCTION COEFFICIENT: .87				R**2: .9887			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 53.59	1.00 31.59	2.00 12.69	3.00 5.16			
4.00 2.10	5.00 .88	6.00 .64					
* DATE: 18 JUL				TIME: 0835 HOURS			
EXTINCTION COEFFICIENT: 1.22				R**2: .9924			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 48.95	1.00 26.36	2.00 9.79	3.00 3.51			
4.00 .78	4.50 .31						
* DATE: 2 AUG				TIME: 0820 HOURS			
EXTINCTION COEFFICIENT: 1.42				R**2: .9515			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 48.95	1.00 26.36	2.00 9.65	3.00 3.29			
4.00 .89	5.00 .04						
* DATE: 15 AUG				TIME: 0845 HOURS			
EXTINCTION COEFFICIENT: 1.34				R**2: .9292			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 51.28	1.00 28.93	2.00 10.57	3.00 4.42			
4.00 1.50	5.00 .05						
* DATE: 28 AUG				TIME: 0830 HOURS			
EXTINCTION COEFFICIENT: 1.07				R**2: .9517			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 49.24	1.00 26.67	2.00 12.57	3.00 6.41			
4.00 2.56	5.00 .23						
* DATE: 12 SEP				TIME: 0835 HOURS			
EXTINCTION COEFFICIENT: 1.19				R**2: .9934			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 43.77	1.00 21.07	2.00 7.35	3.00 2.65			
4.00 .93	5.00 .18						
* DATE: 26 SEP				TIME: 0855 HOURS			
EXTINCTION COEFFICIENT: 1.42				R**2: .9967			
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 39.53	1.00 17.19	2.00 3.92	3.00 1.10			
4.00 .34	5.00 .07						

LAKE 304

* DATE: 9 OCT
EXTINCTION COEFFICIENT: 1.54

TIME: 0910 HOURS
R**2: .9923

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	32.63	1.00	12.38	2.00	2.80	3.00	.71
4.00	.18								

DATE: 30 OCT
EXTINCTION COEFFICIENT: 1.15

TIME: 0920 HOURS
R**2: .9898

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	39.43	1.00	25.75	2.00	5.47	3.00	2.74
4.00	.66	5.00	.31						

LAKE 382

DATE: 21 MAY		EXTINCTION COEFFICIENT: .77		TIME: 0935 HOURS		R**2: .9970			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	67.08	1.00	39.08	2.00	15.75	3.00	7.58
4.00	3.56	5.00	1.72	6.00	.83	7.00	.42	8.00	.21
DATE: 4 JUN		EXTINCTION COEFFICIENT: .69		TIME: 1005 HOURS		R**2: .9994			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	59.27	1.00	45.16	2.00	22.58	3.00	11.74
4.00	5.93	5.00	2.88	6.00	1.37	7.00	.69	8.00	.38
9.00	.19								
DATE: 18 JUN		EXTINCTION COEFFICIENT: .66		TIME: 0955 HOURS		R**2: .9994			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	70.00	1.00	45.50	2.00	22.17	3.00	12.54
4.00	6.83	5.00	3.44	6.00	1.75	7.00	.89	8.00	.46
9.00	.24								
* DATE: 2 JUL		EXTINCTION COEFFICIENT: .62		TIME: 1020 HOURS		R**2: .9970			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.85	1.00	36.81	2.00	23.23	3.00	13.41
4.00	6.48	5.00	4.12	6.00	2.31	7.00	1.11	8.00	.58
9.00	.30								
* DATE: 16 JUL		EXTINCTION COEFFICIENT: .57		TIME: 1035 HOURS		R**2: .9986			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	64.98	1.00	46.45	2.00	26.22	3.00	15.40
4.00	10.06	5.00	5.24	6.00	2.73	7.00	1.51	8.00	.86
9.00	.53	10.00	.32						
* DATE: 30 JUL		EXTINCTION COEFFICIENT: .60		TIME: 1020 HOURS		R**2: .9951			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	59.96	1.00	39.55	2.00	22.96	3.00	14.25
4.00	9.14	5.00	4.98	6.00	2.68	7.00	1.38	8.00	.66
9.00	.33								
* DATE: 13 AUG		EXTINCTION COEFFICIENT: .61		TIME: 1030 HOURS		R**2: .9963			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	70.75	1.00	55.07	2.00	33.24	3.00	17.08
4.00	10.34	5.00	6.08	6.00	3.13	7.00	1.62	8.00	.76
9.00	.36								
* DATE: 27 AUG		EXTINCTION COEFFICIENT: .61		TIME: 1030 HOURS		R**2: .9916			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	61.28	1.00	41.31	2.00	22.70	3.00	14.07
4.00	8.62	5.00	5.22	6.00	3.00	7.00	1.50	8.00	.75
9.00	.35	10.00	.13						
* DATE: 10 SEP		EXTINCTION COEFFICIENT: .68		TIME: 1010 HOURS		R**2: .9872			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	64.94	1.00	46.38	2.00	25.23	3.00	14.10
4.00	8.35	5.00	4.75	6.00	2.56	7.00	1.17	8.00	.53
9.00	.23	10.00	.06						

LAKE 382 Bay

DATE: 21 MAY		EXTINCTION COEFFICIENT: 1.22		TIME: 0955 HOURS		R**2: .9955	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 51.43	1.00 25.71	2.00 7.14	3.00 2.69			
DATE: 4 JUN		EXTINCTION COEFFICIENT: 1.19		TIME: 1040 HOURS		R**2: .9973	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 49.12	1.00 25.54	2.00 8.11	3.00 2.75			
DATE: 16 JUN		EXTINCTION COEFFICIENT: 1.20		TIME: 1020 HOURS		R**2: .9982	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 47.01	1.00 26.64	2.00 8.36	3.00 2.61			
DATE: 2 JUL		EXTINCTION COEFFICIENT: 1.08		TIME: 1050 HOURS		R**2: .9989	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 52.99	1.00 30.88	2.00 10.70	3.00 3.61			
DATE: 16 JUL		EXTINCTION COEFFICIENT: 1.03		TIME: 1055 HOURS		R**2: .9963	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 53.56	1.00 31.56	2.00 11.58	3.00 4.34			
DATE: 30 JUL		EXTINCTION COEFFICIENT: .98		TIME: 1045 HOURS		R**2: .9958	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 52.96	1.00 30.86	2.00 12.71	3.00 5.02			
DATE: 13 AUG		EXTINCTION COEFFICIENT: .96		TIME: 1050 HOURS		R**2: .9843	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 49.64	1.00 27.11	2.00 11.10	3.00 5.29			
DATE: 27 AUG		EXTINCTION COEFFICIENT: .94		TIME: 1100 HOURS		R**2: .9951	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 54.23	1.00 32.35	2.00 13.13	3.00 5.71			
DATE: 10 SEP		EXTINCTION COEFFICIENT: .85		TIME: 1025 HOURS		R**2: .9943	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 57.42	1.00 36.26	2.00 15.41	3.00 7.55			
DATE: 24 SEP		EXTINCTION COEFFICIENT: .78		TIME: 1105 HOURS		R**2: .9916	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 57.85	1.00 36.81	2.00 18.41	3.00 9.12			
DATE: 8 OCT		EXTINCTION COEFFICIENT: .72		TIME: 1105 HOURS		R**2: .9939	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 60.91	1.00 40.91	2.00 21.55	3.00 10.91			
DATE: 30 OCT		EXTINCTION COEFFICIENT: .76		TIME: 1105 HOURS		R**2: .9677	
DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.	DEPTH % SURF.
0.00 100.00	.50 53.60	1.00 30.63	2.00 16.75	3.00 9.48			

LAKE 383

DATE: 23 MAY		EXTINCTION COEFFICIENT: 1.04		TIME: 0900 HOURS		R**2: .9989			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	58.33	1.00	30.00	2.00	11.00	3.00	3.80
4.00	1.35	5.00	.53	6.00	.20				
DATE: 5 JUN		EXTINCTION COEFFICIENT: .88		TIME: 0850 HOURS		R**2: .9960			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	43.08	1.00	32.31	2.00	14.36	3.00	6.10
4.00	2.66	5.00	1.06	6.00	.38				
DATE: 21 JUN		EXTINCTION COEFFICIENT: .82		TIME: 0845 HOURS		R**2: .9943			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	50.67	1.00	28.67	2.00	13.67	3.00	7.07
4.00	3.37	5.00	1.39	6.00	.56				
* DATE: 3 JUL		EXTINCTION COEFFICIENT: .79		TIME: 0845 HOURS		R**2: .9961			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	59.60	1.00	39.07	2.00	20.07	3.00	9.92
4.00	4.69	5.00	1.84	6.00	.70				
* DATE: 19 JUL		EXTINCTION COEFFICIENT: .87		TIME: 0945 HOURS		R**2: .9890			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	57.01	1.00	35.75	2.00	17.20	3.00	8.12
4.00	3.87	5.00	1.49	6.00	.36				
* DATE: 31 JUL		EXTINCTION COEFFICIENT: .86		TIME: 0905 HOURS		R**2: .9952			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	60.61	1.00	40.40	2.00	18.99	3.00	9.19
4.00	4.04	5.00	1.65	6.00	.56	7.00	.19		
* DATE: 16 AUG		EXTINCTION COEFFICIENT: .72		TIME: 0925 HOURS		R**2: .9883			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	56.36	1.00	34.95	2.00	18.88	3.00	11.10
4.00	6.14	5.00	3.18	6.00	1.27	7.00	.42		
* DATE: 29 AUG		EXTINCTION COEFFICIENT: .75		TIME: 0930 HOURS		R**2: .9941			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	69.84	1.00	53.65	2.00	25.28	3.00	11.31
4.00	6.25	5.00	3.29	6.00	1.32	7.00	.44		
* DATE: 13 SEP		EXTINCTION COEFFICIENT: .74		TIME: 0900 HOURS		R**2: .9935			
DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	58.71	1.00	37.92	2.00	18.96	3.00	10.40
4.00	5.75	5.00	2.75	6.00	1.17	7.00	.41		

LAKE 383

* DATE: 25 SEP
EXTINCTION COEFFICIENT: .84

TIME: 0900 HOURS
R**2: .9958

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	53.48	1.00	31.46	2.00	12.58	3.00	6.13
4.00	2.83	5.00	1.34	6.00	.52				

* DATE: 10 OCT
EXTINCTION COEFFICIENT: .73

TIME: 0910 HOURS
R**2: .9952

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	53.76	1.00	31.83	2.00	15.27	3.00	7.74
4.00	3.98	5.00	2.00	6.00	1.01	7.00	.47		

DATE: 10 OCT
EXTINCTION COEFFICIENT: .74

TIME: 0915 HOURS
R**2: .9926

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	48.24	1.00	28.71	2.00	13.40	3.00	7.12
4.00	3.56	5.00	1.82	6.00	.90	7.00	.44		

DATE: 1 NOV
EXTINCTION COEFFICIENT: .69

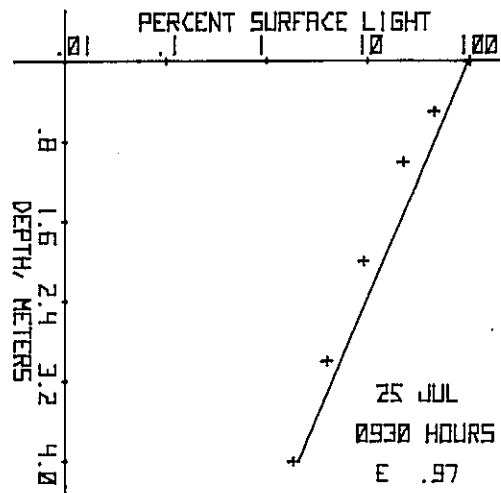
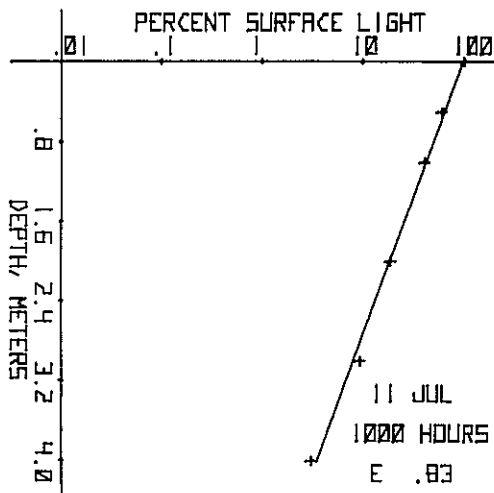
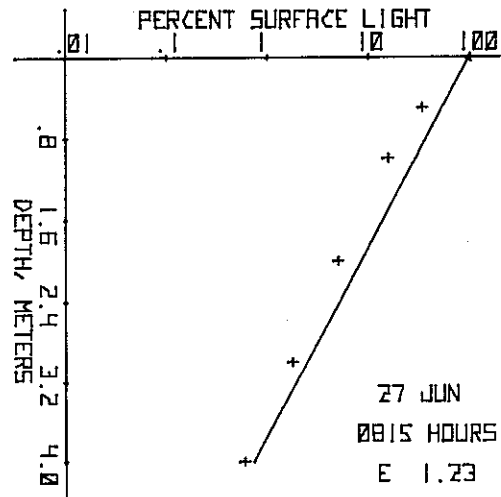
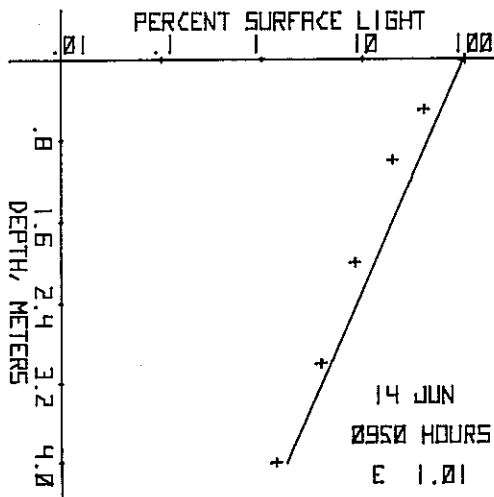
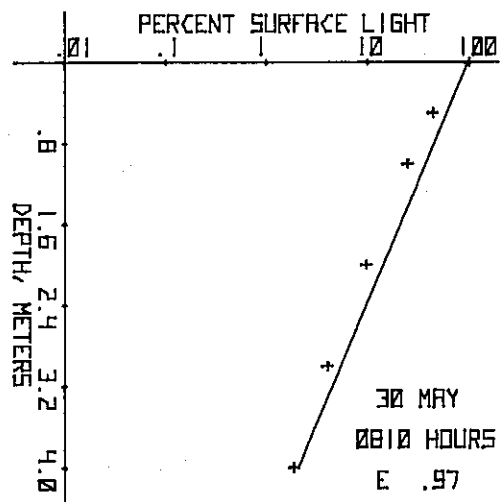
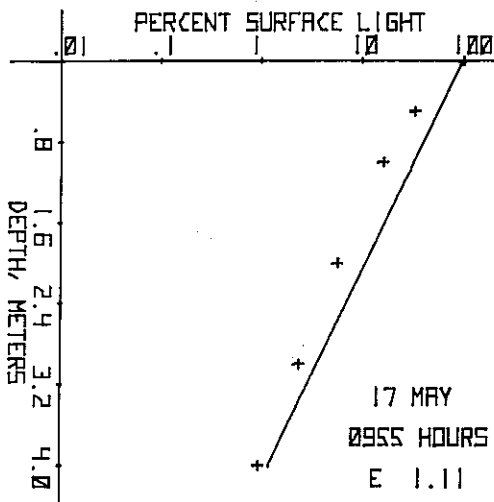
TIME: 0920 HOURS
R**2: .9924

DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.	DEPTH	% SURF.
0.00	100.00	.50	51.05	1.00	32.16	2.00	14.29	3.00	7.40
4.00	3.96	5.00	2.13	6.00	1.14	7.00	.60	8.00	.33

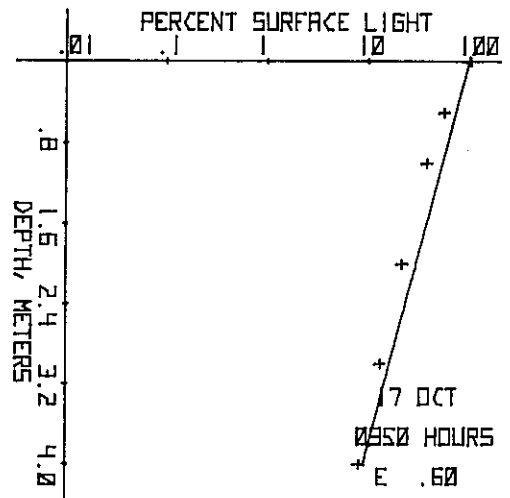
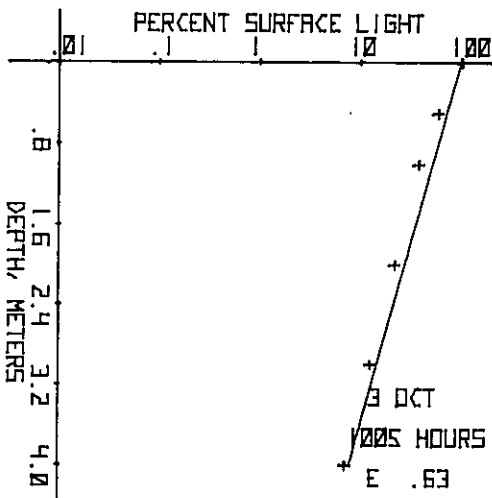
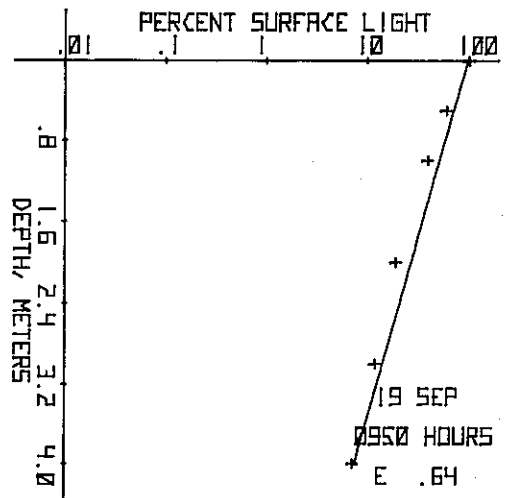
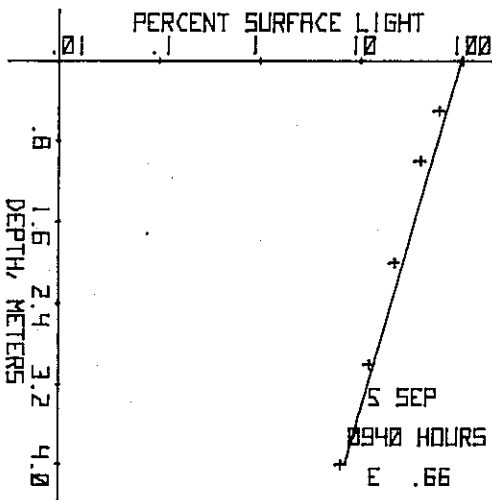
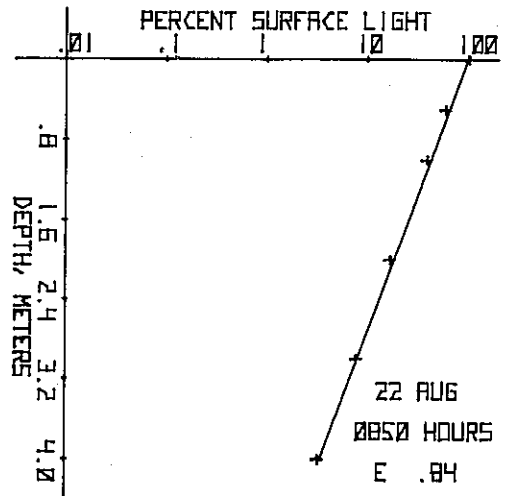
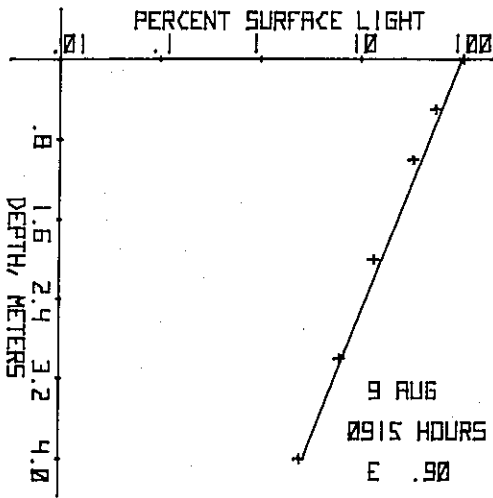
APPENDIX 2

In this appendix, the measured light values (as percentages of surface irradiance) are plotted against depth (in meters). Percent light is plotted on a logarithmic scale, depth on a linear scale.

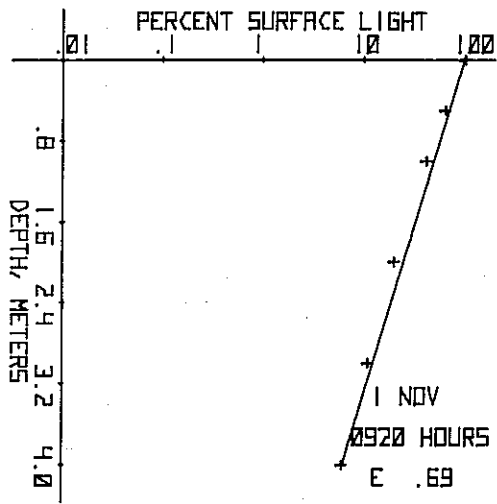
LAKE 114



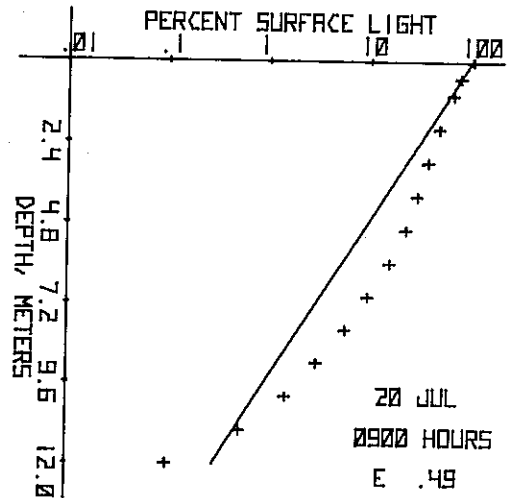
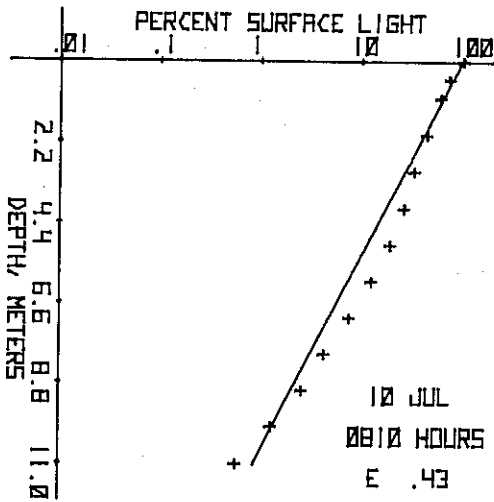
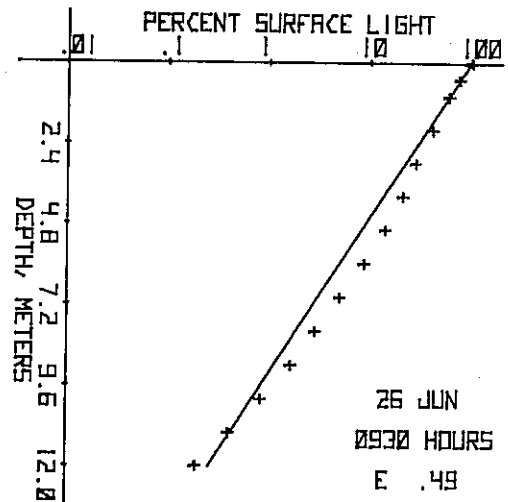
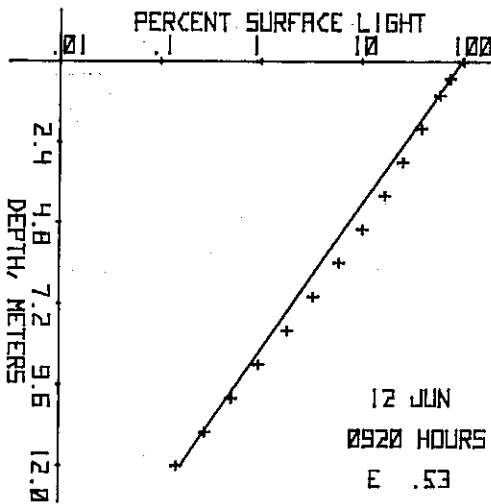
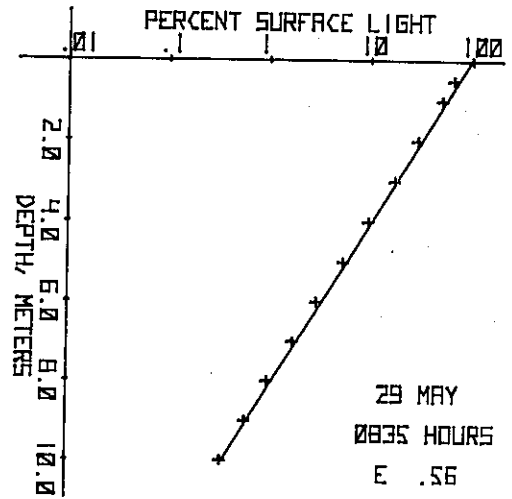
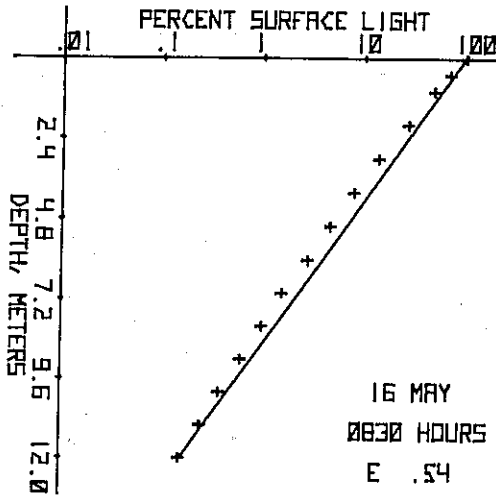
LAKE 114



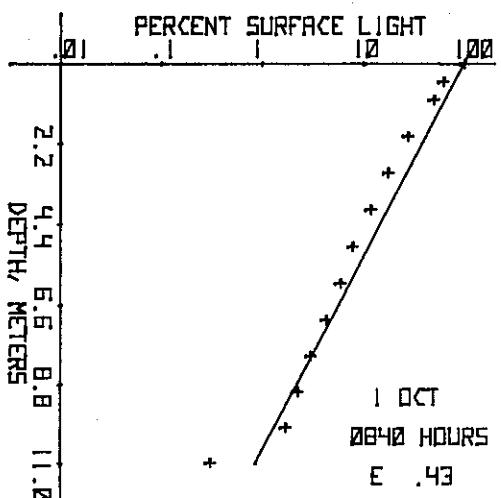
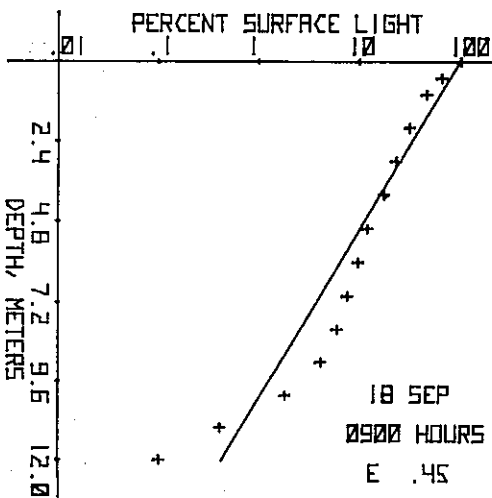
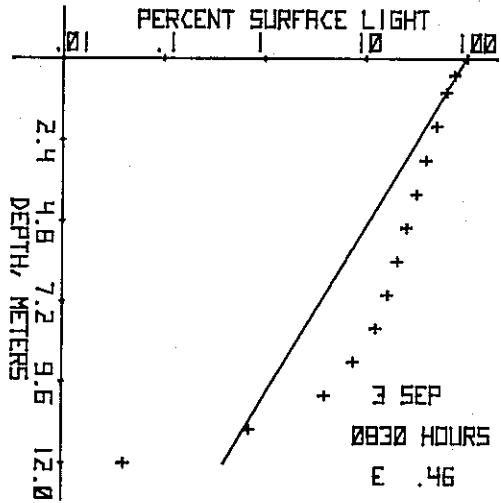
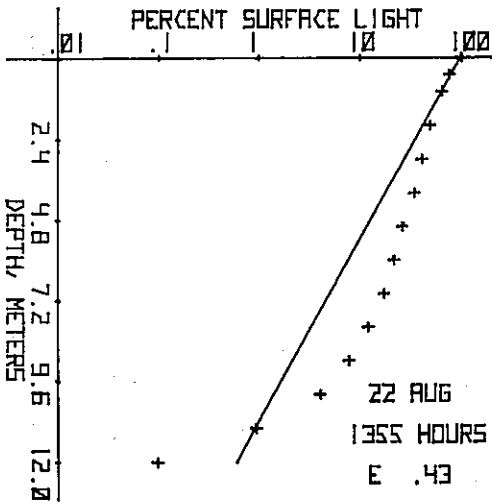
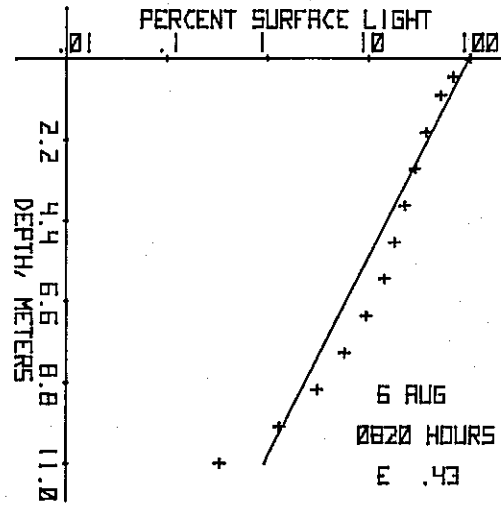
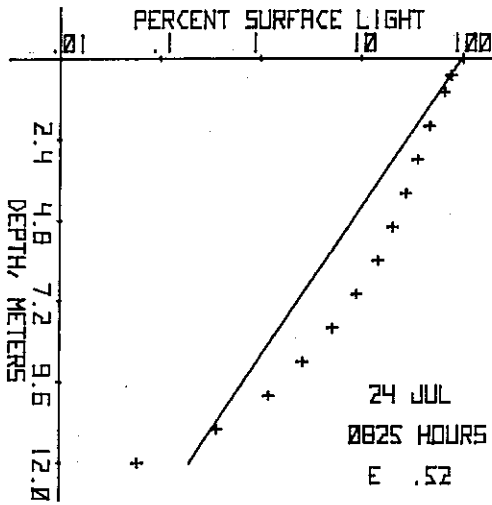
LAKE 114



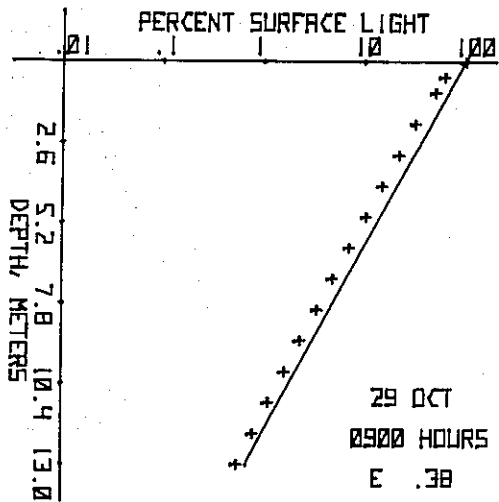
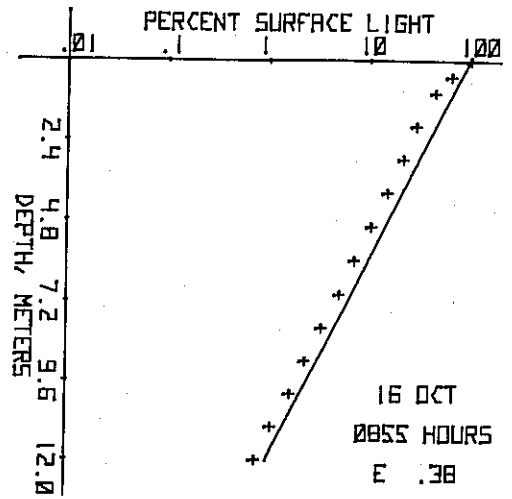
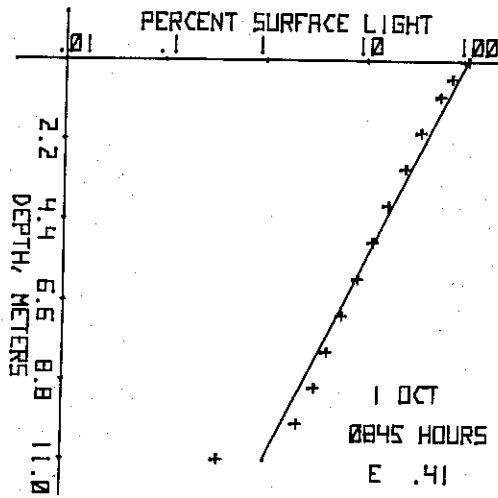
LAKE 223



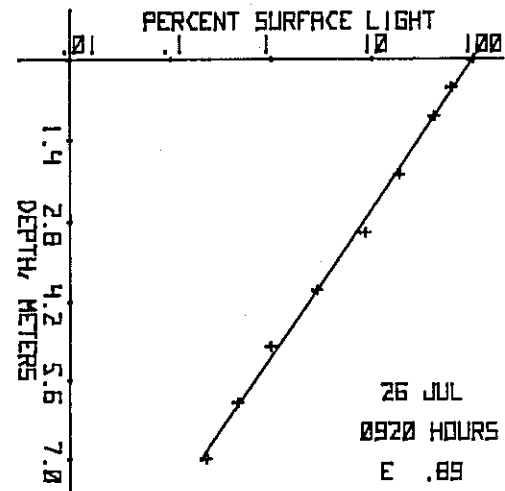
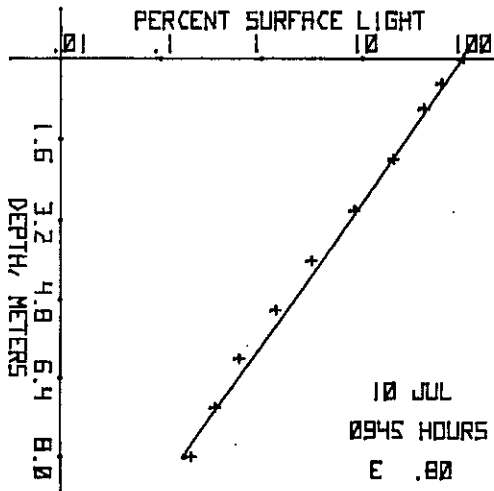
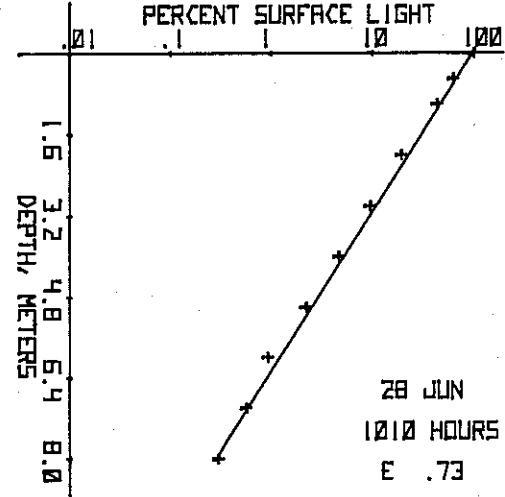
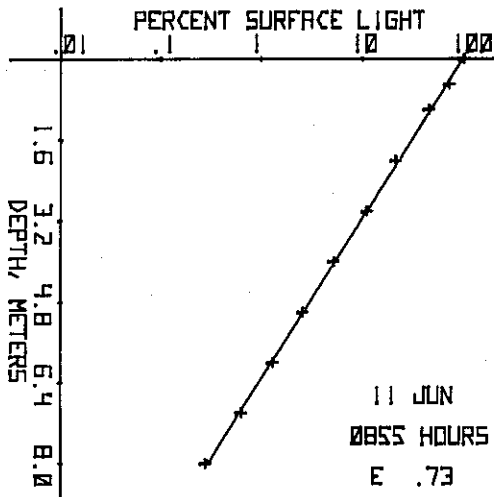
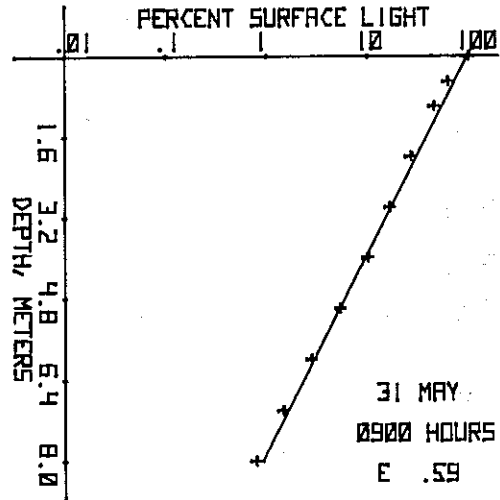
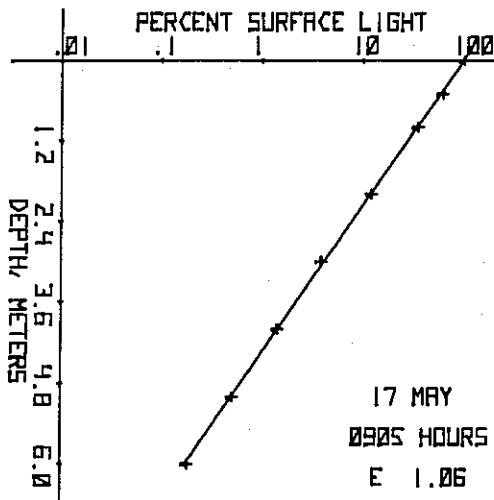
LAKE 223



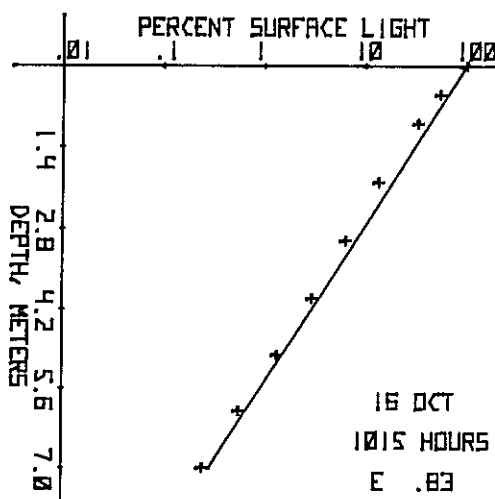
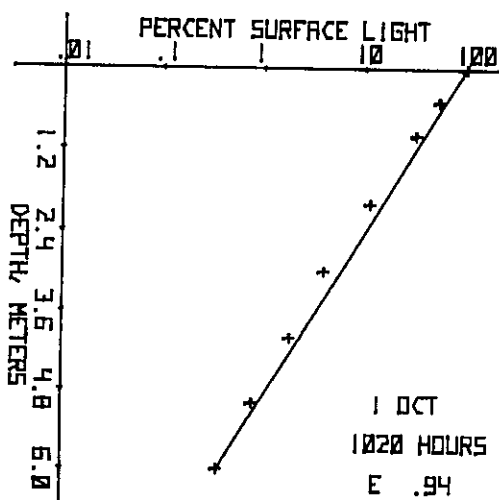
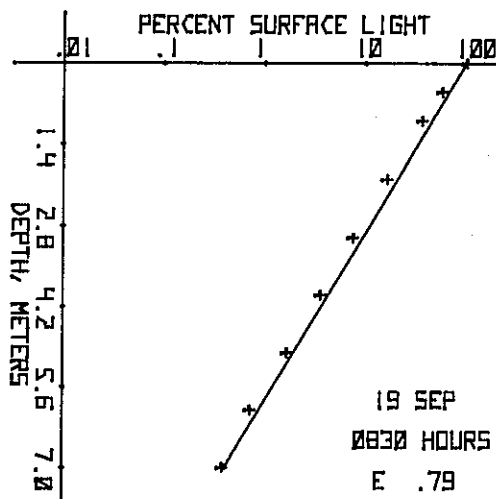
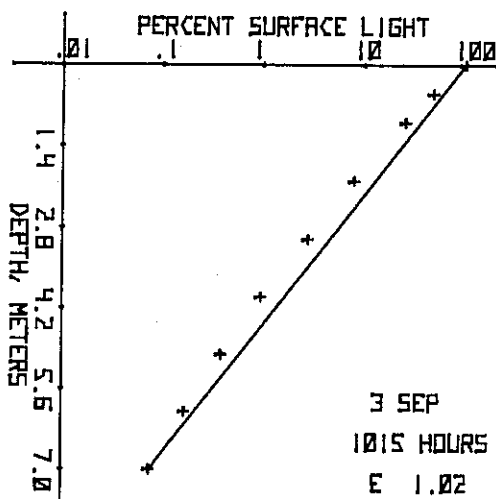
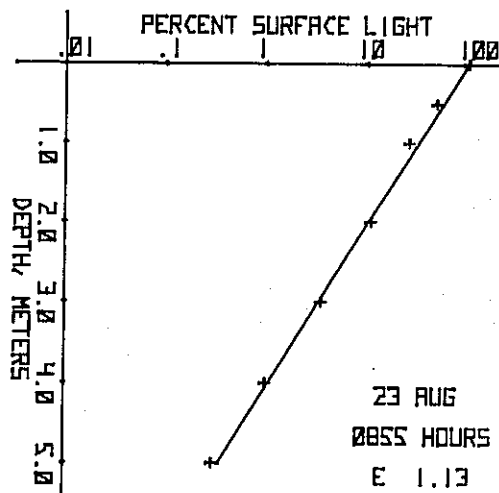
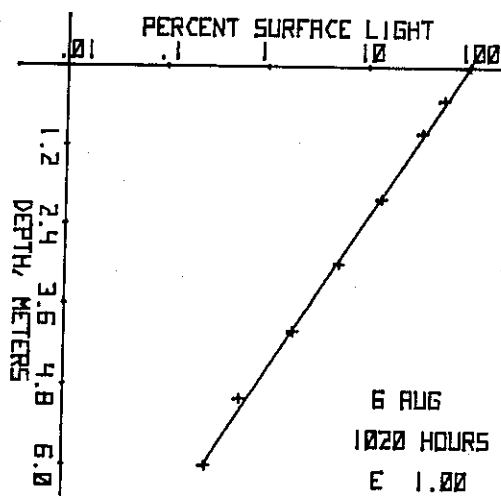
LAKE 223



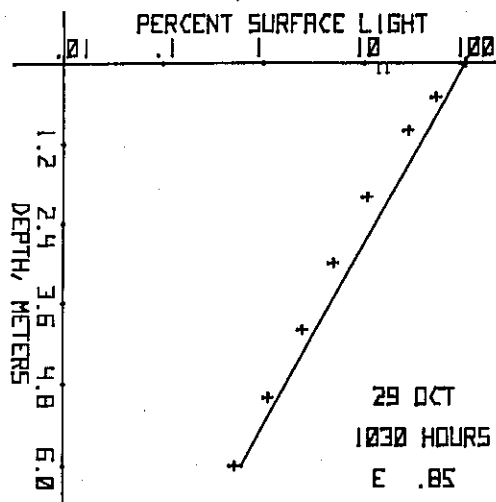
LAKE 226NE



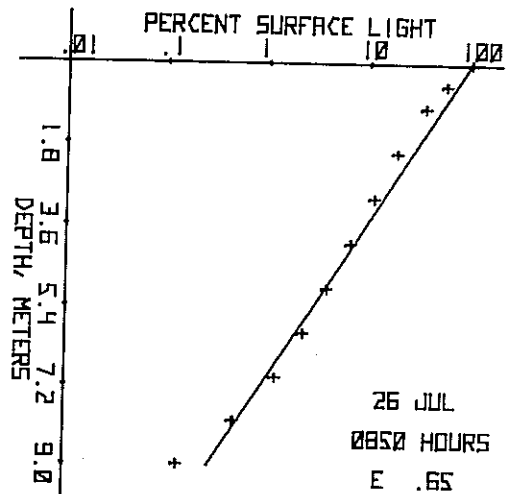
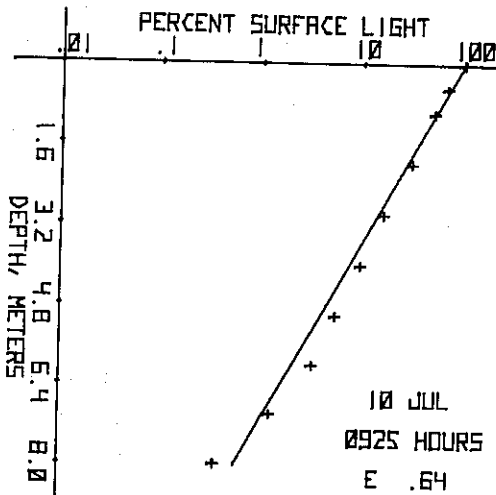
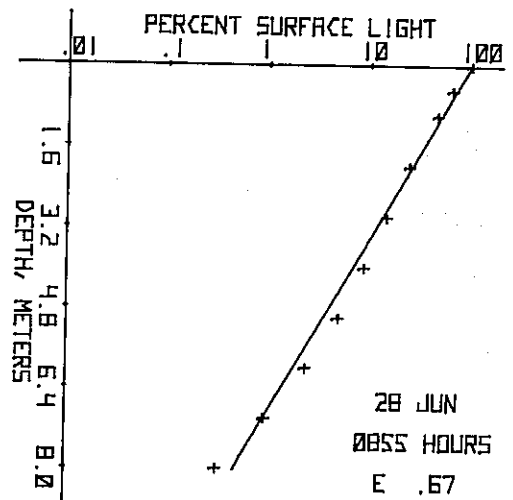
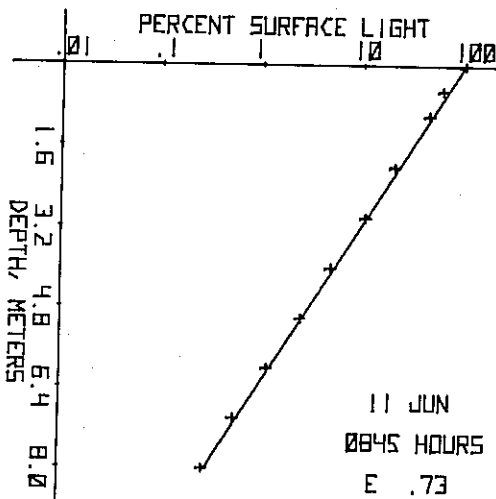
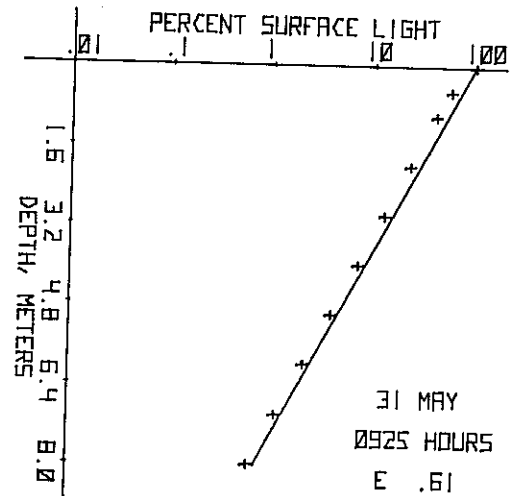
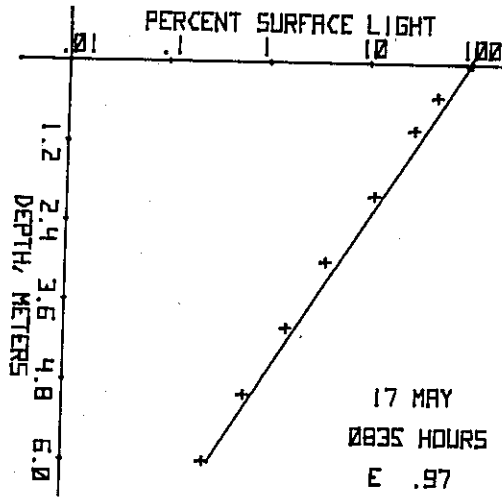
LAKE 226NE



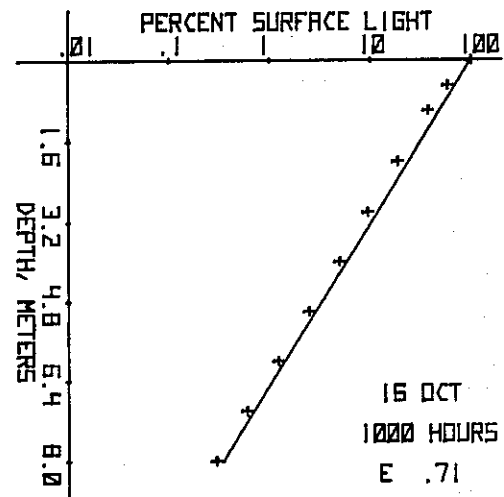
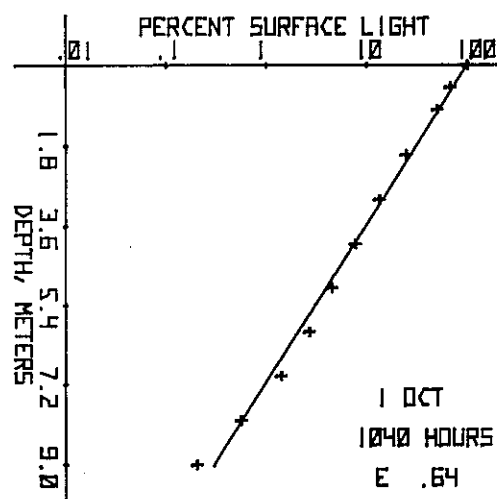
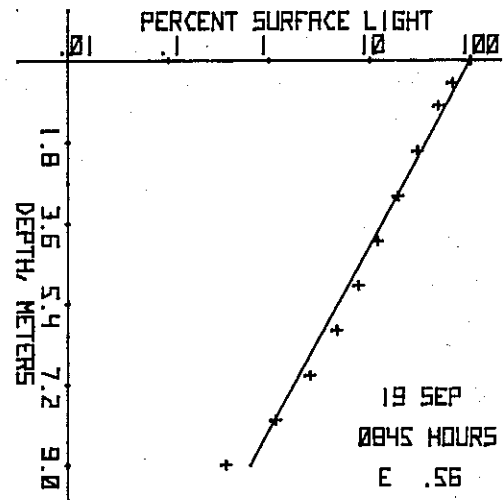
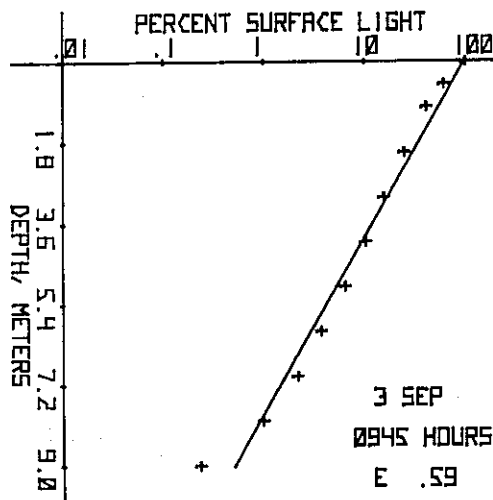
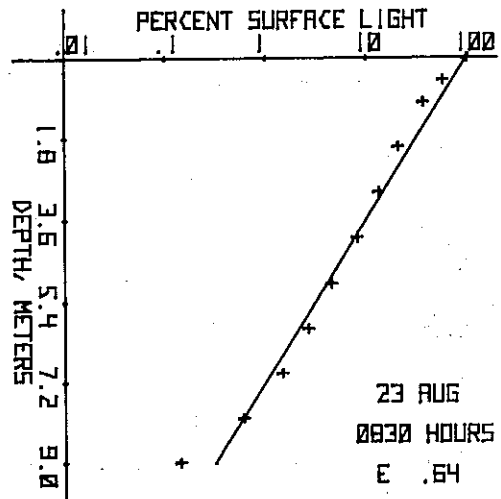
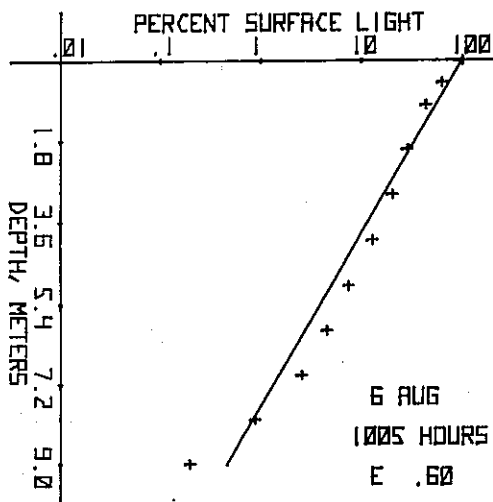
LAKE 226NE



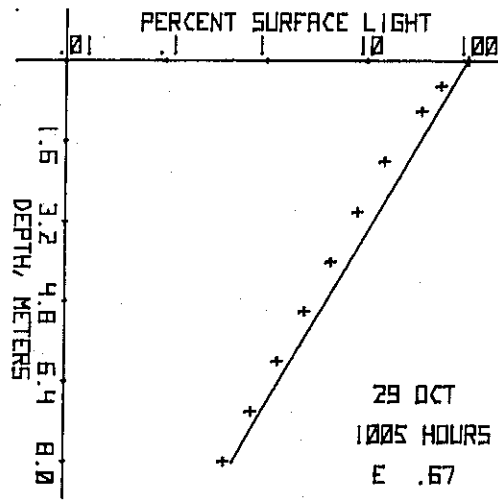
LAKE 226SW



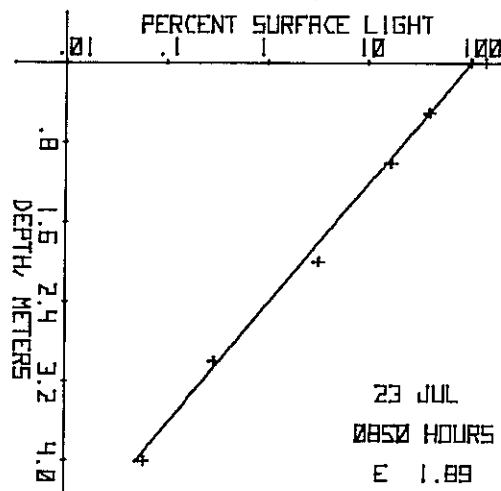
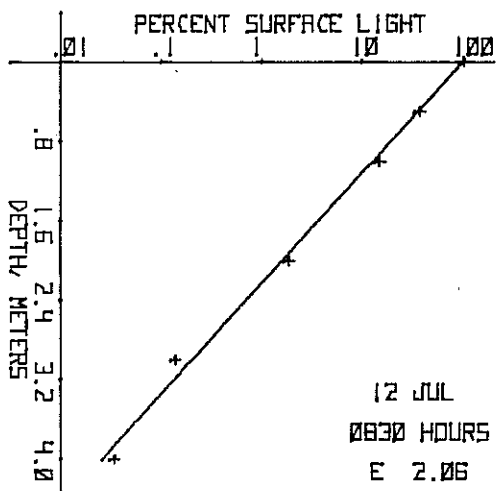
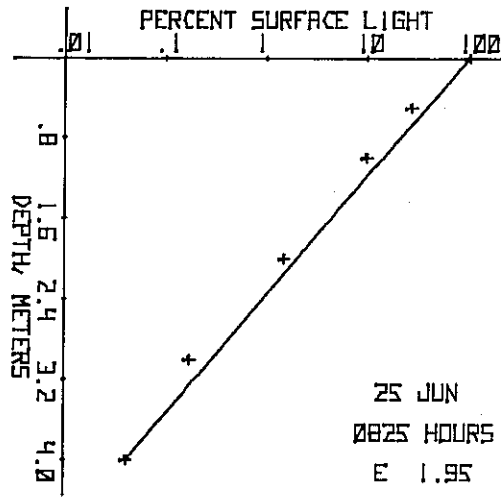
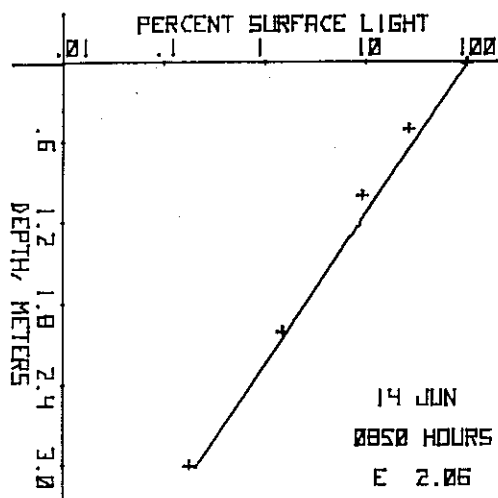
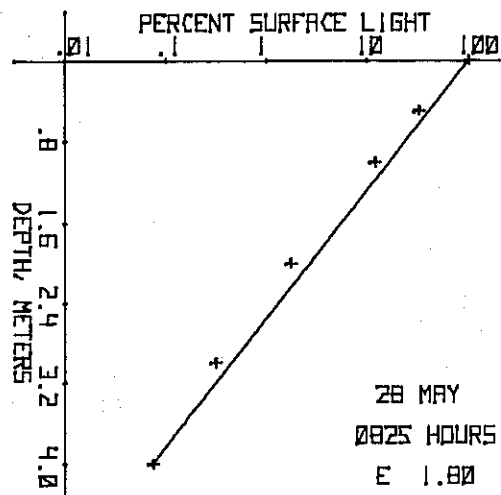
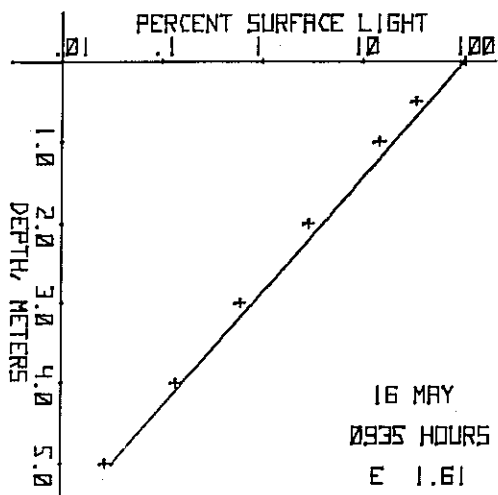
LAKE 226SW



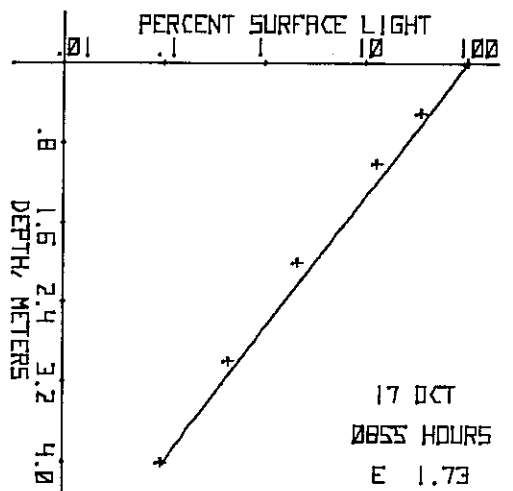
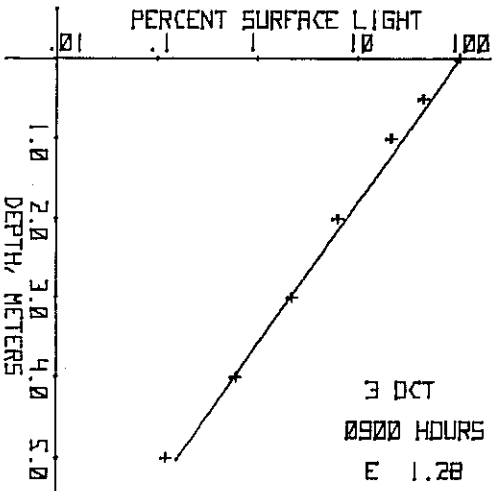
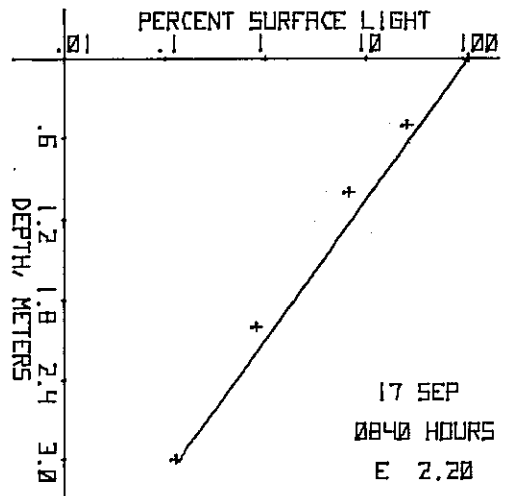
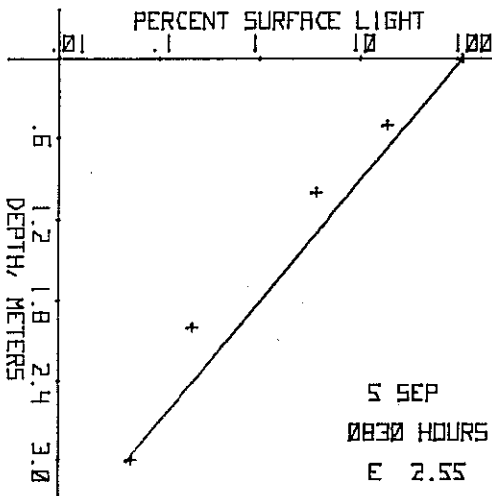
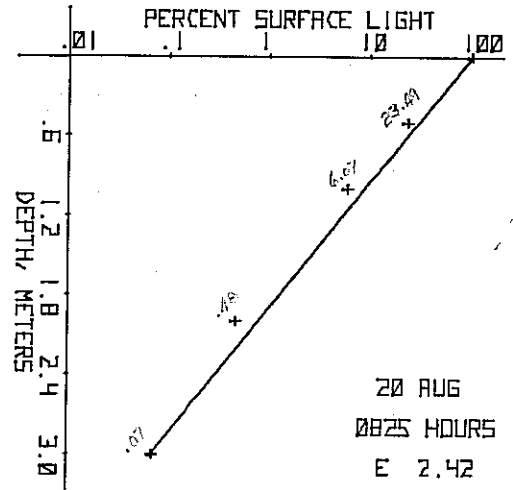
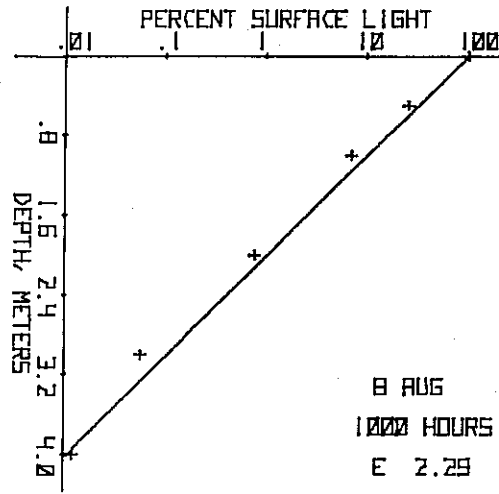
LAKE 226 SW



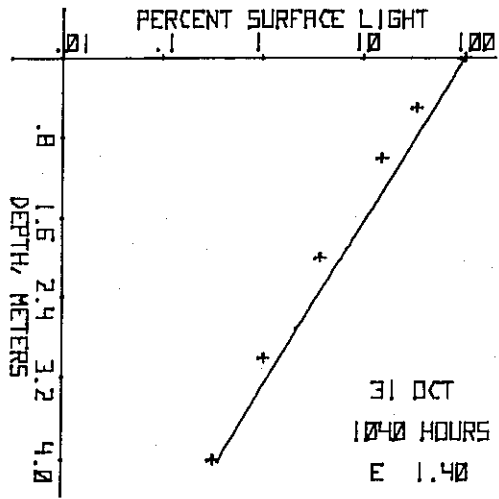
LAKE 227



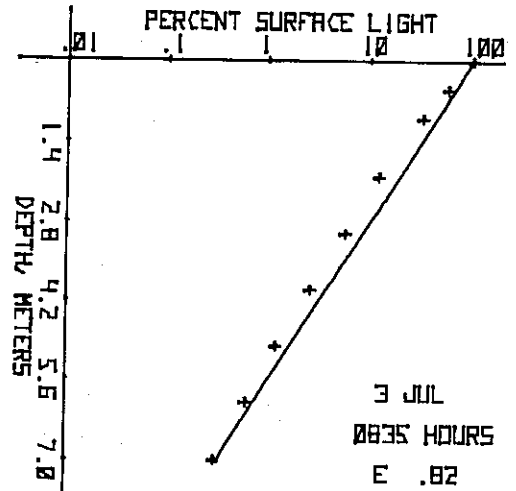
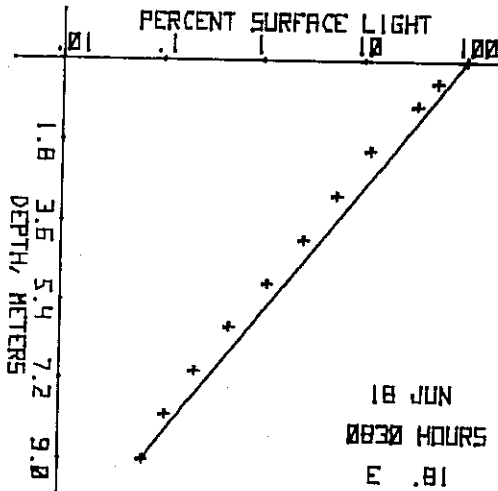
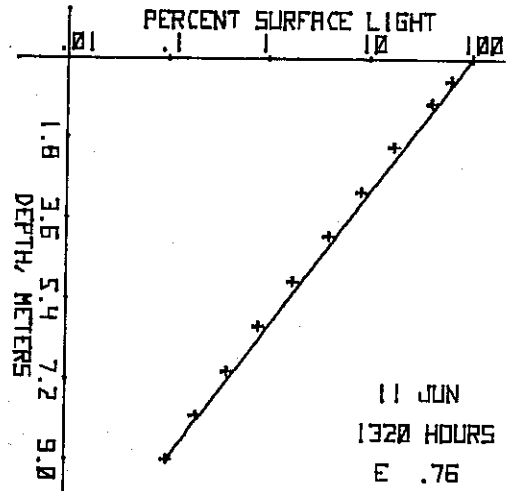
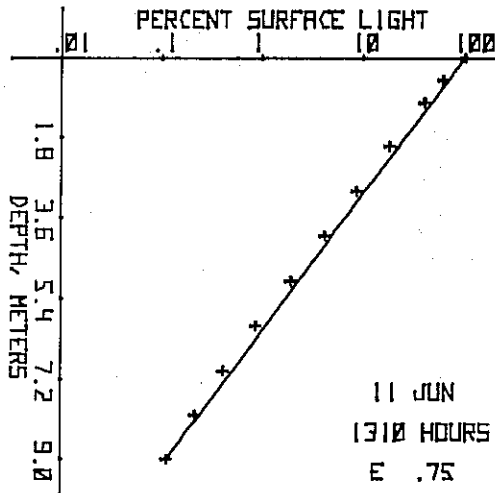
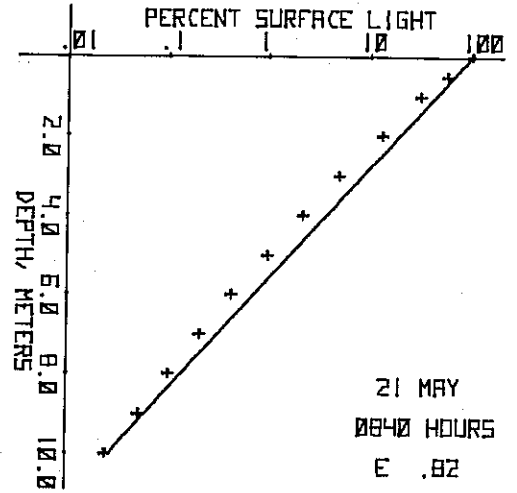
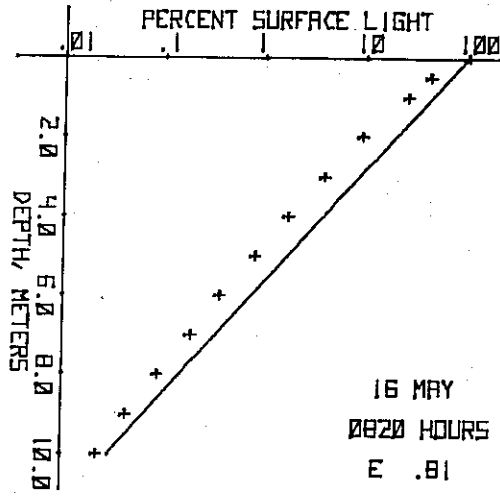
LAKE 227



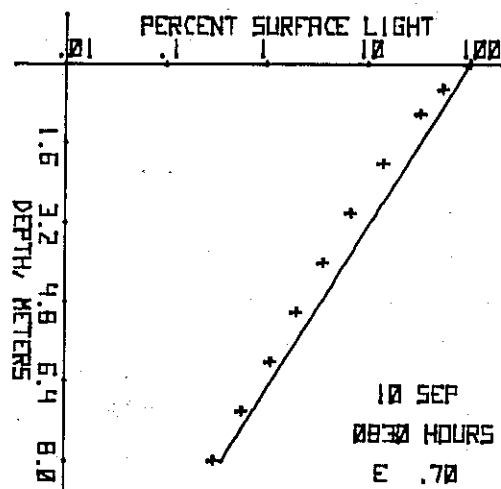
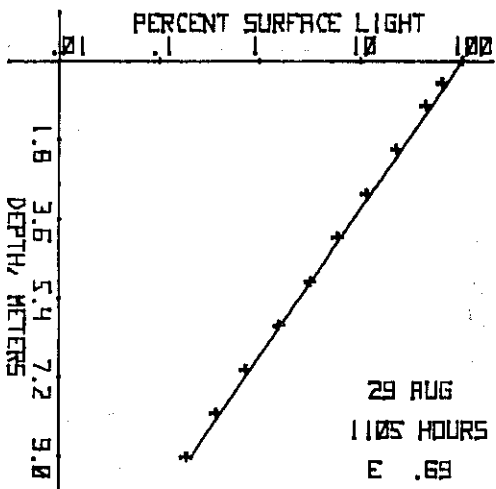
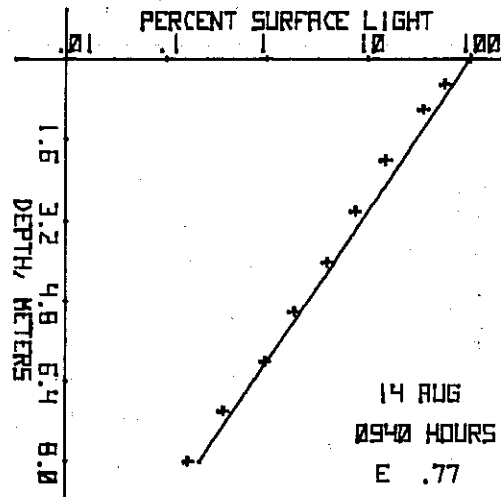
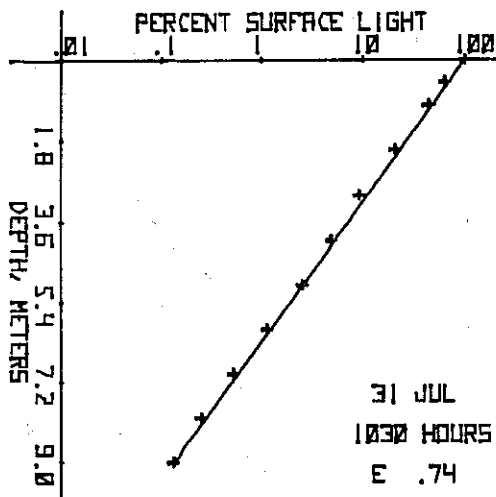
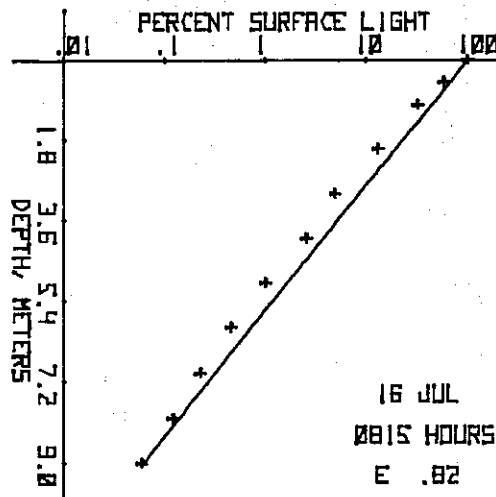
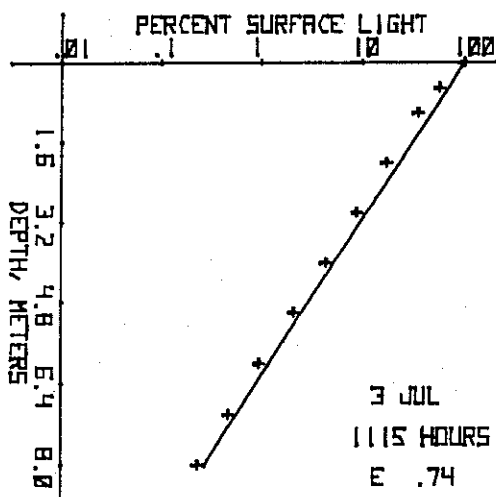
LAKE 227



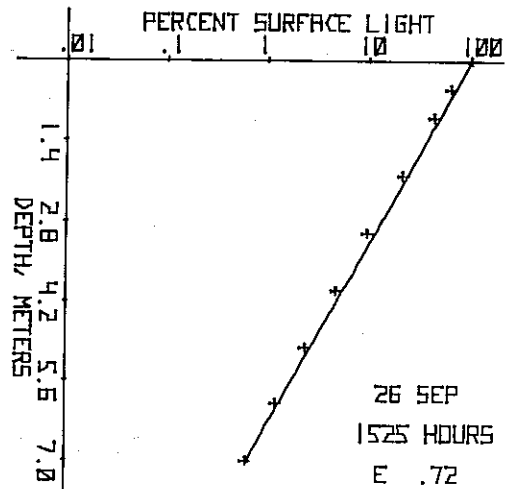
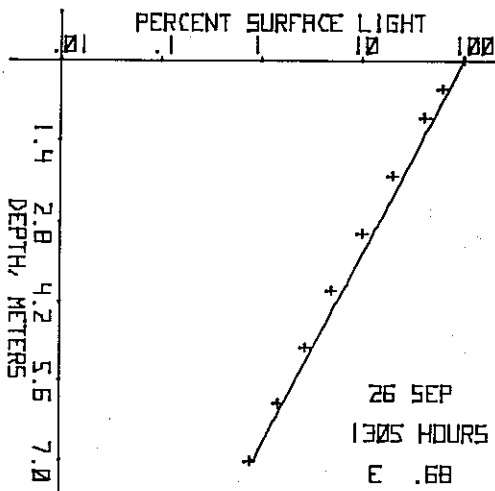
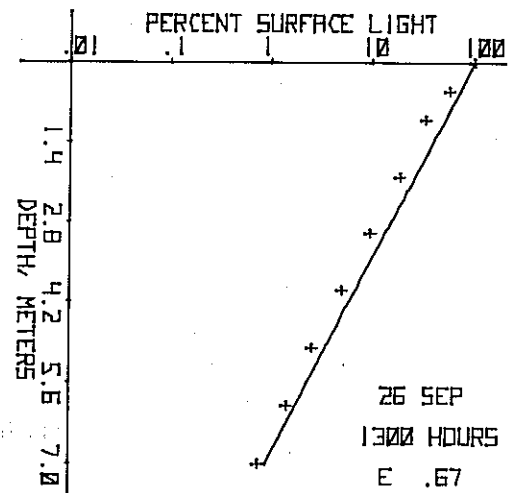
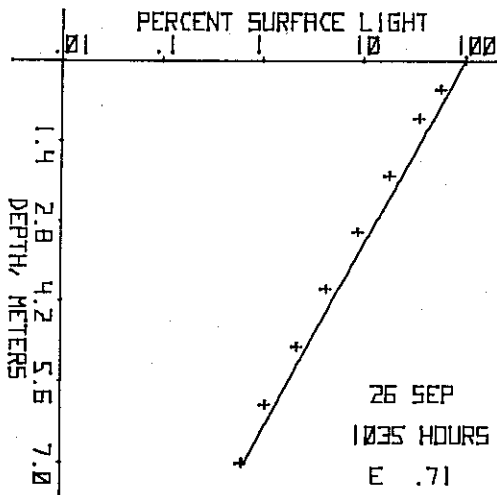
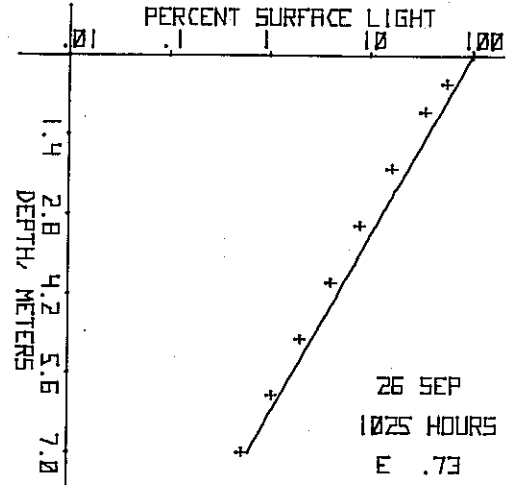
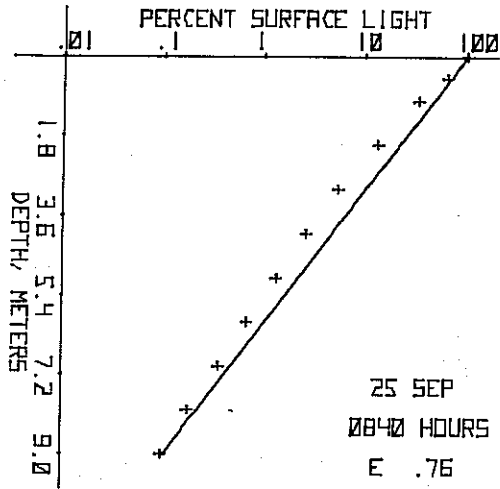
LAKE 239



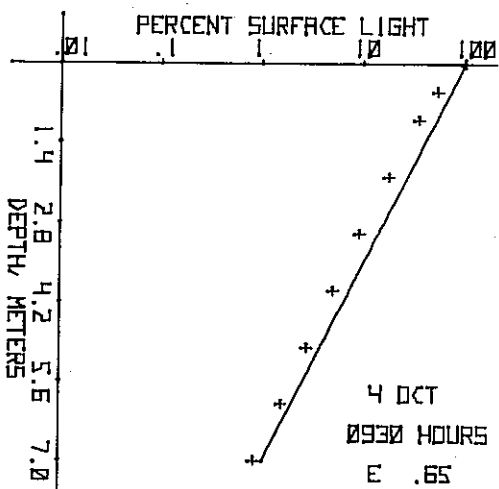
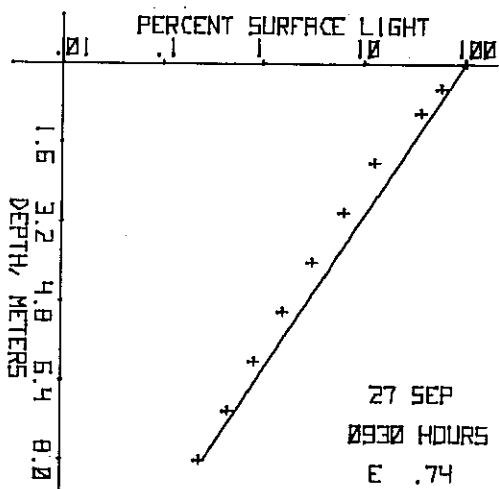
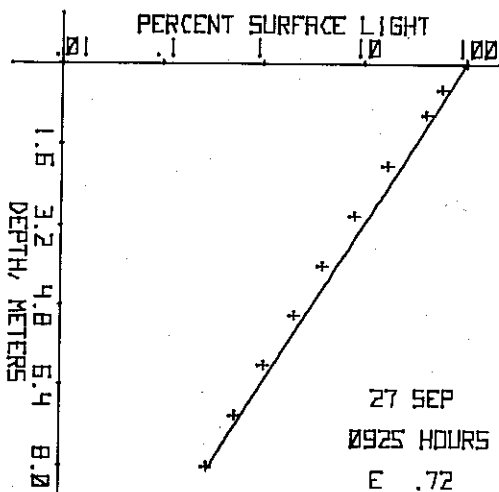
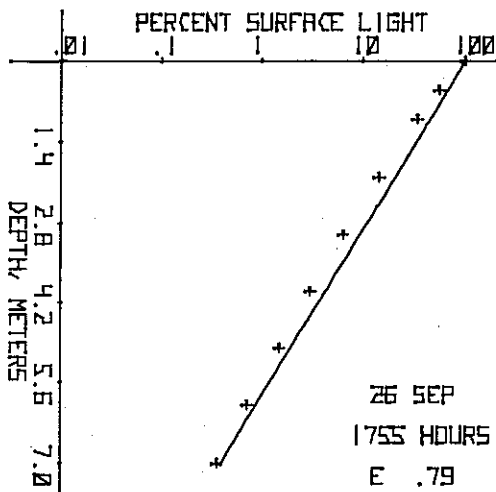
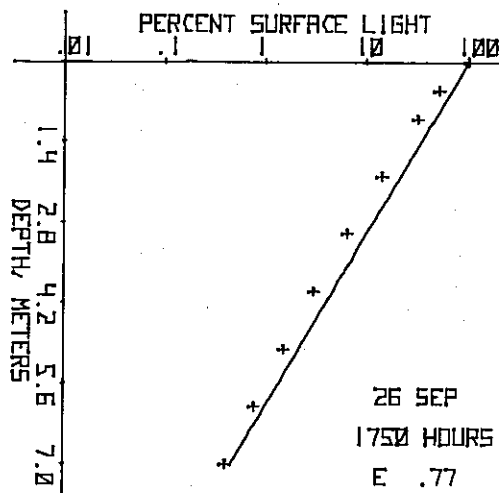
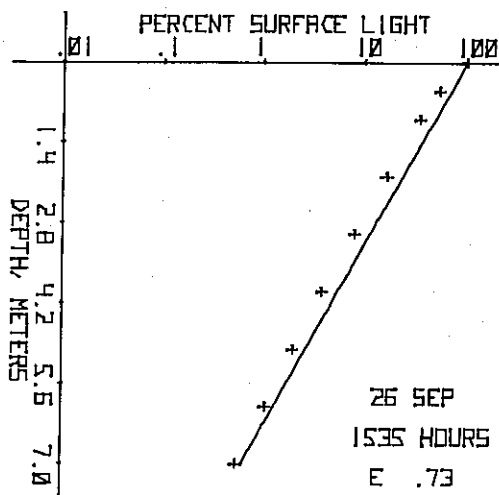
LAKE 239



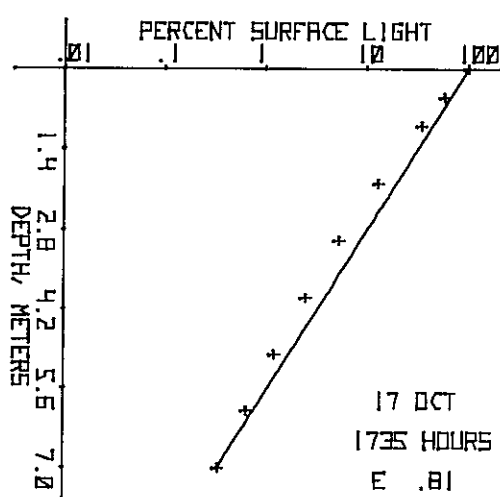
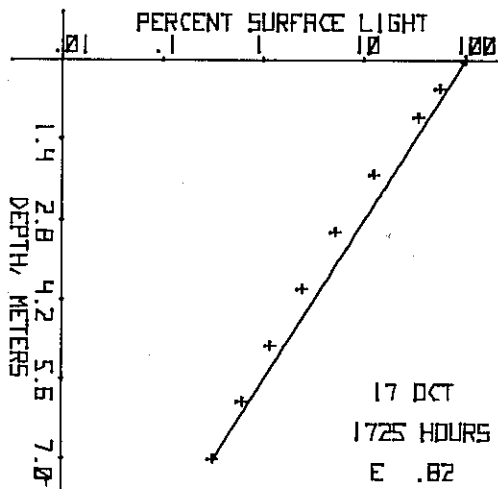
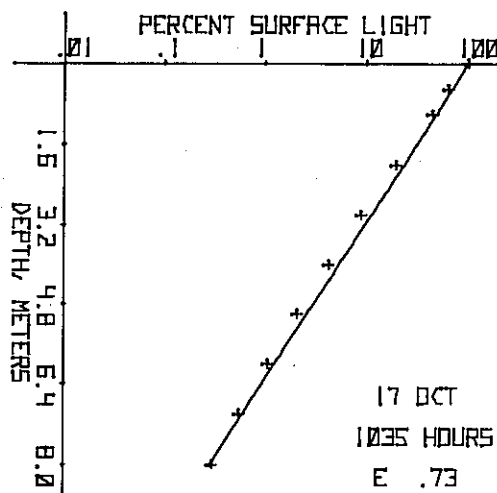
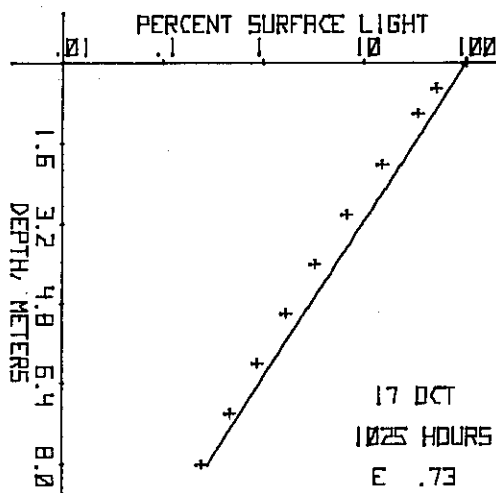
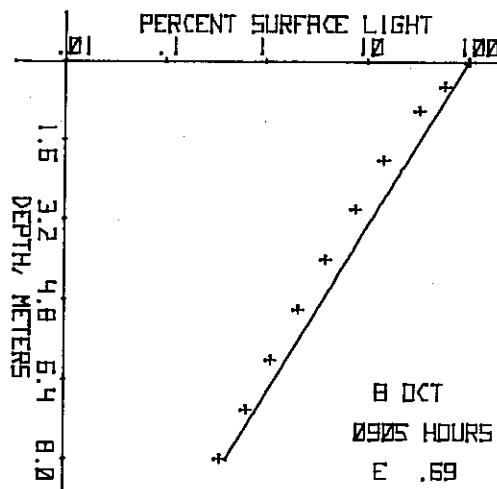
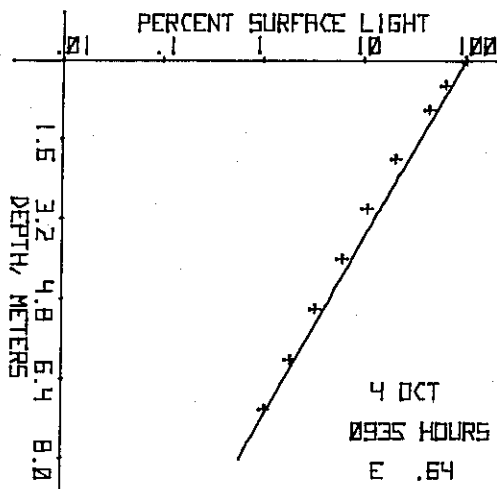
LAKE 239



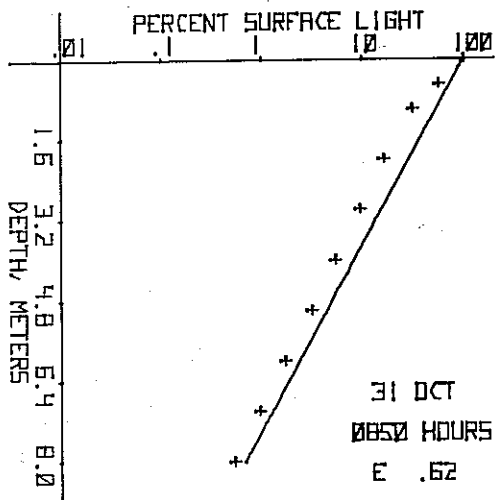
LAKE 239



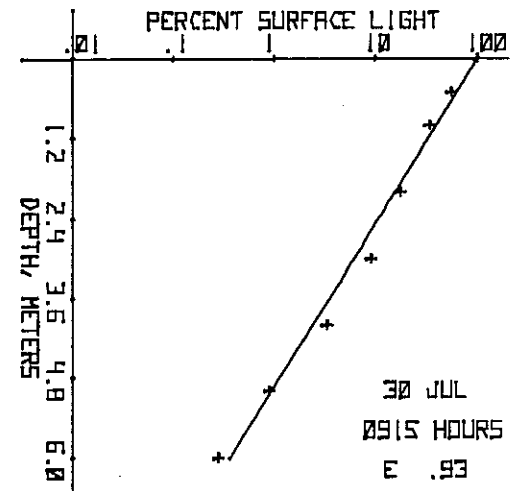
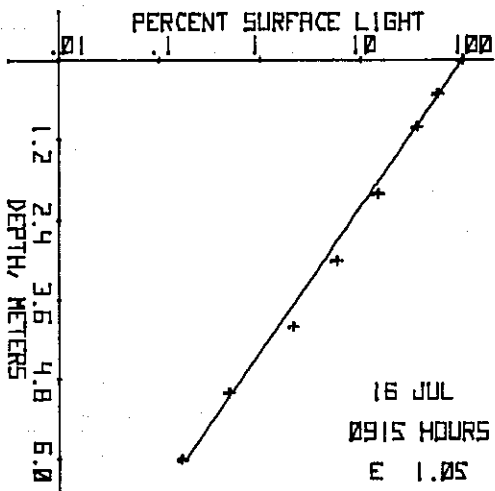
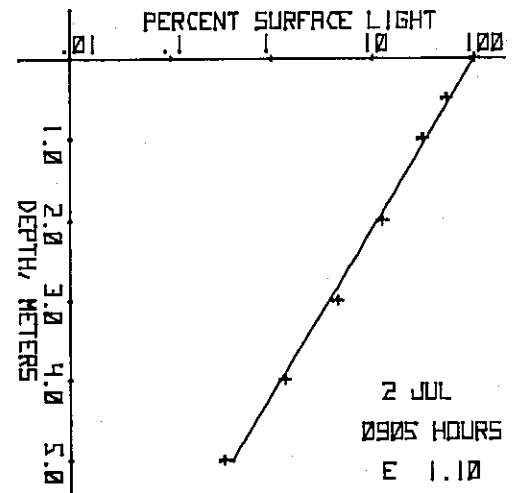
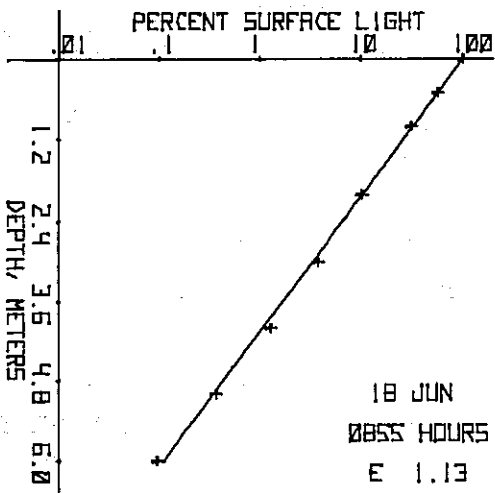
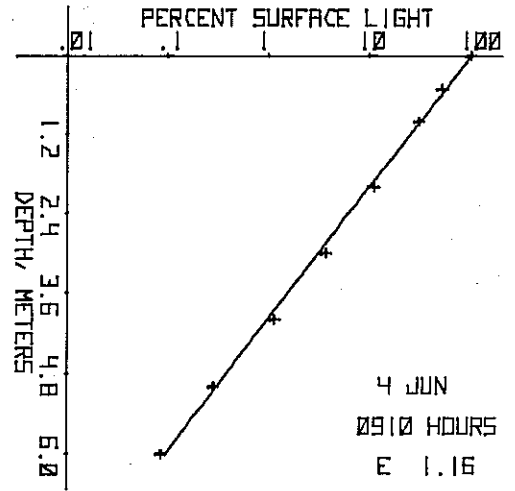
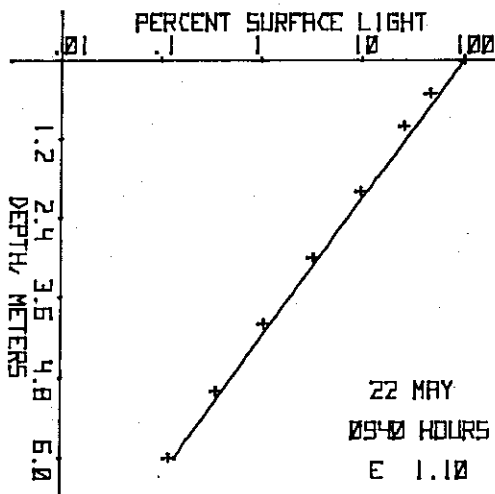
LAKE 239



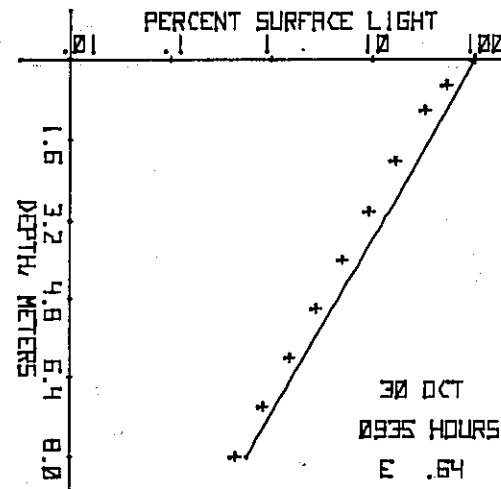
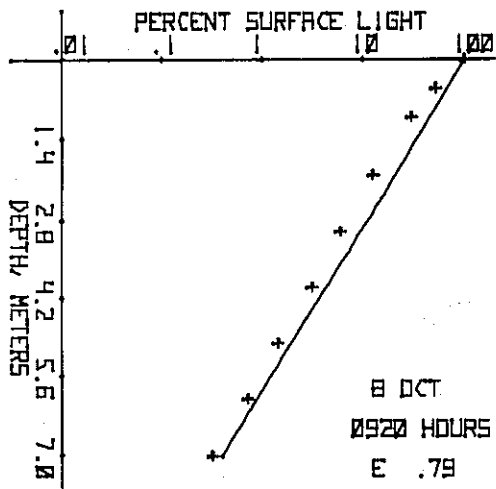
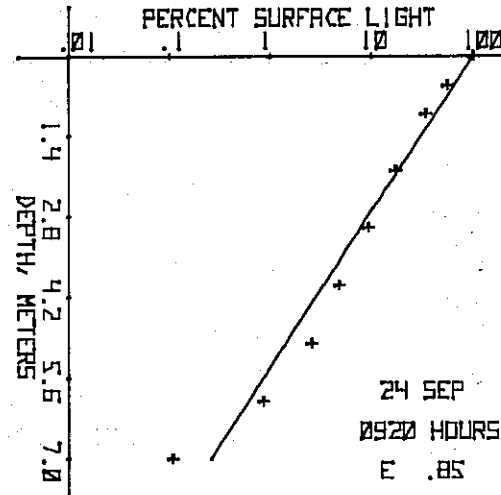
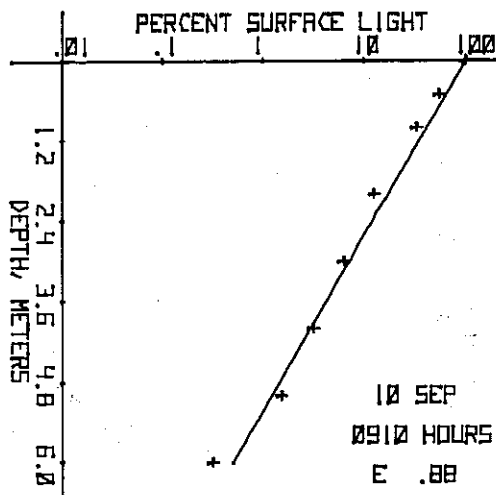
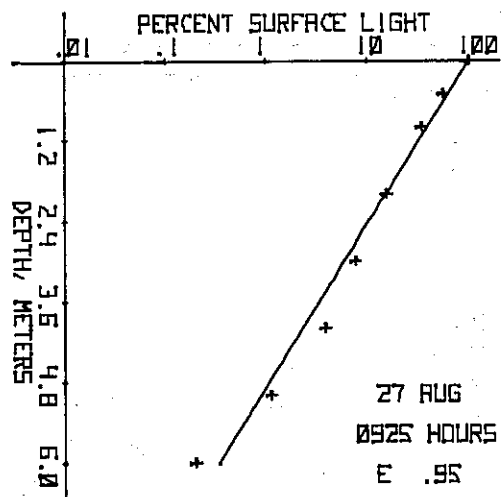
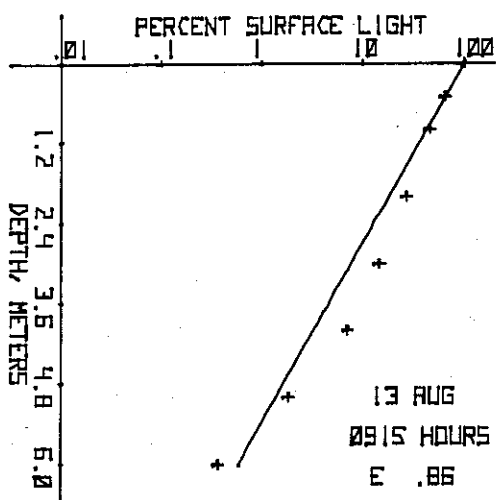
LAKE 239



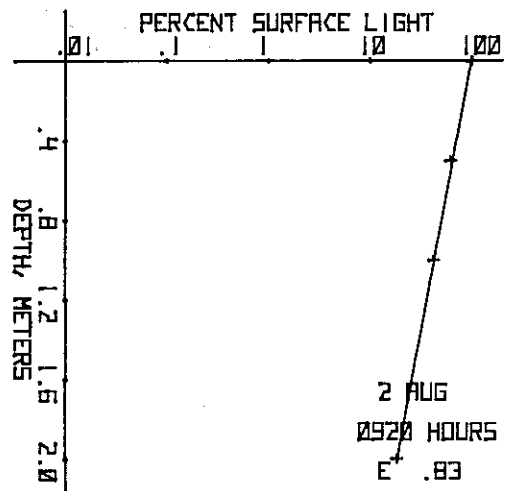
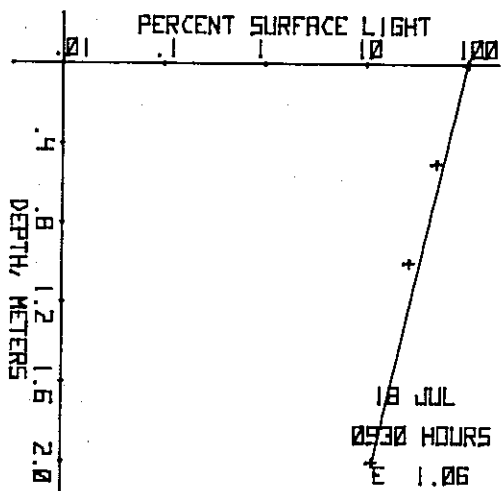
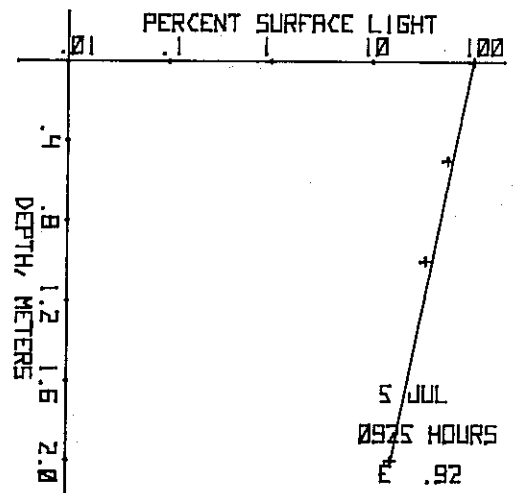
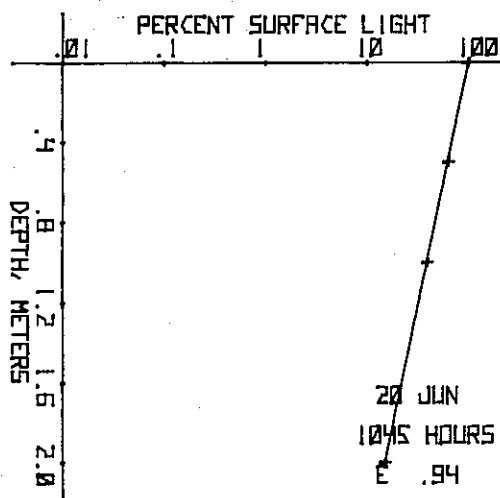
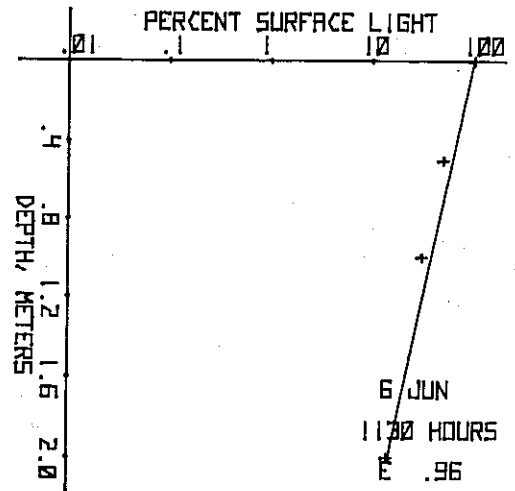
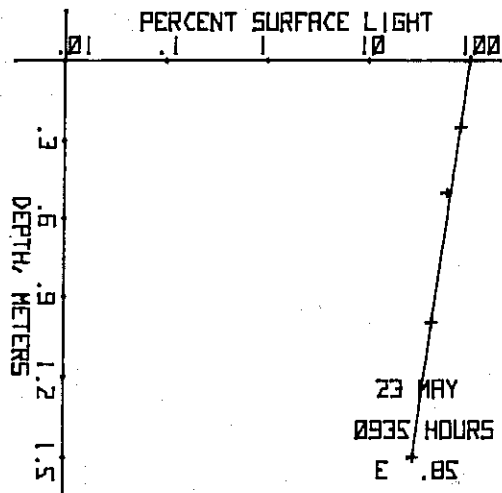
LAKE 261



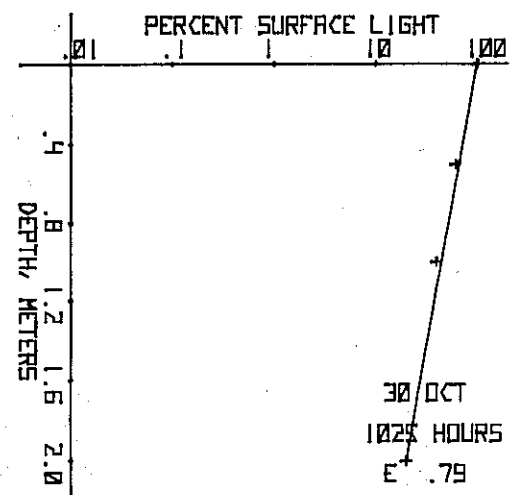
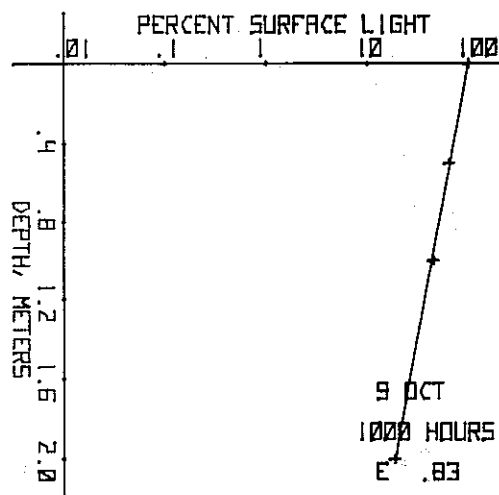
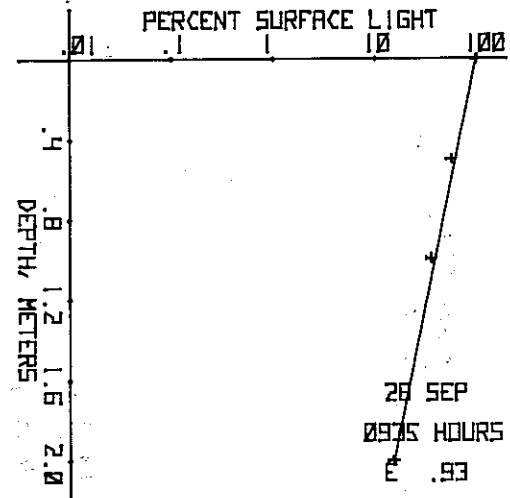
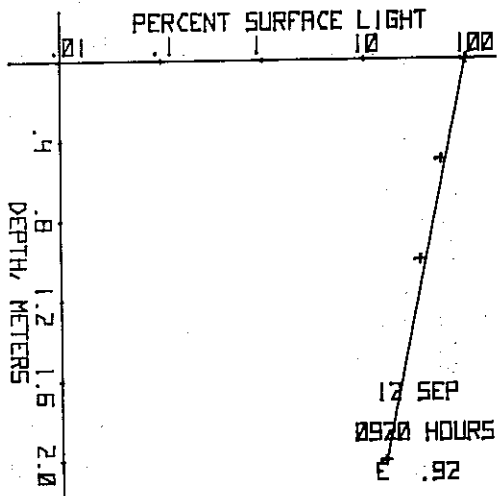
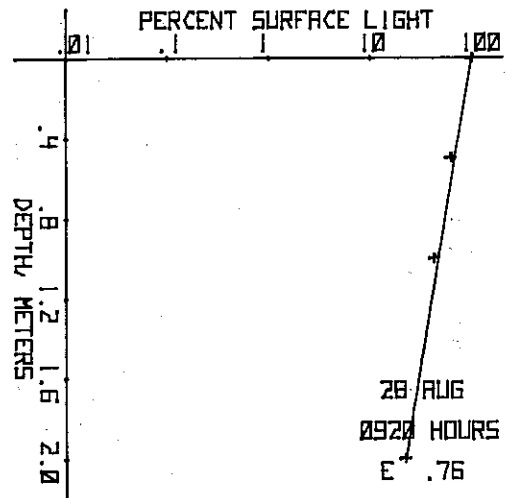
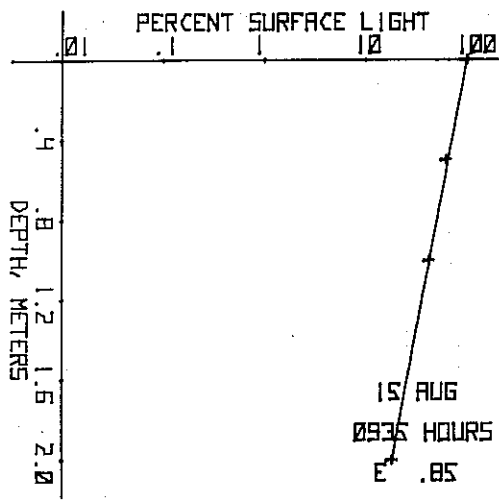
LAKE 261



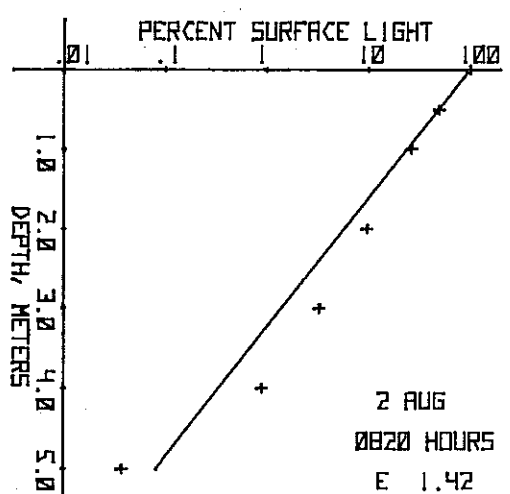
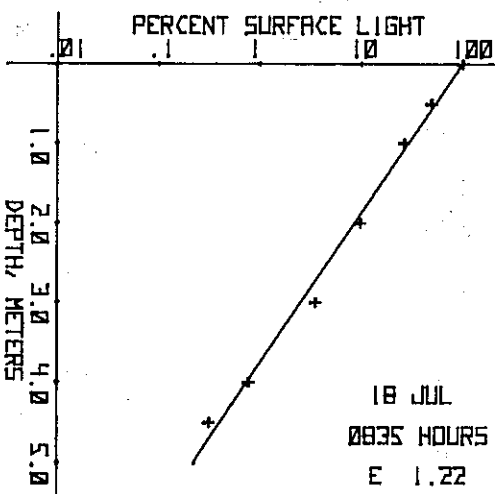
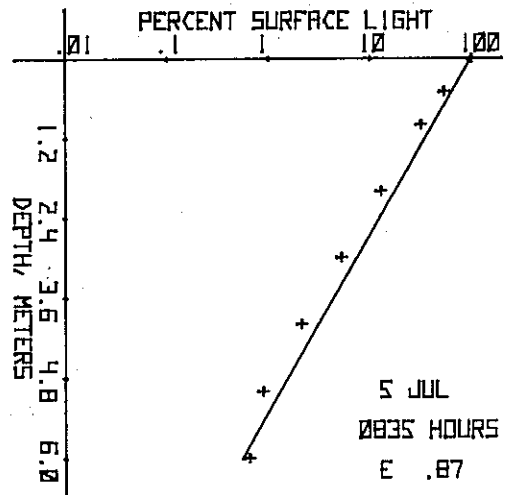
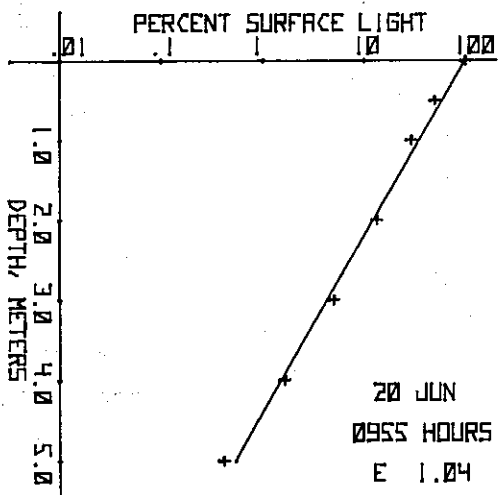
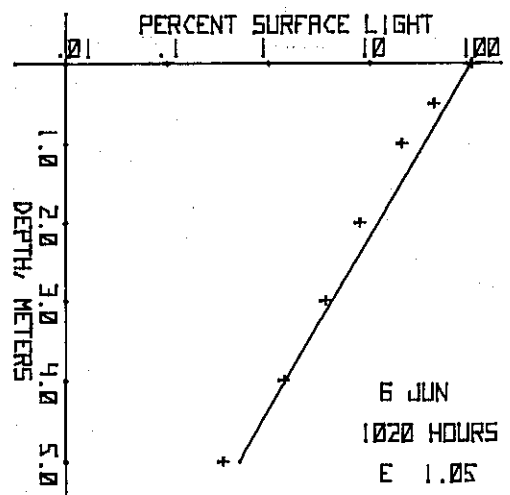
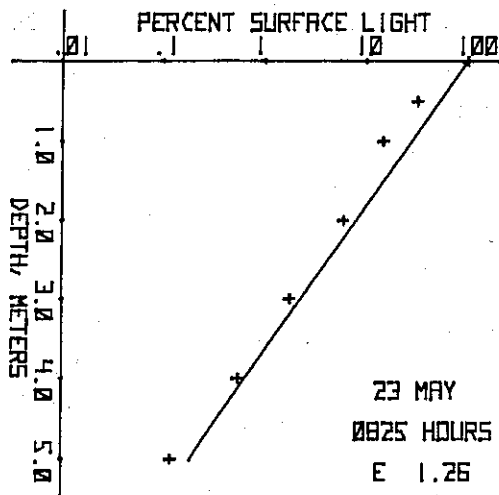
LAKE 303



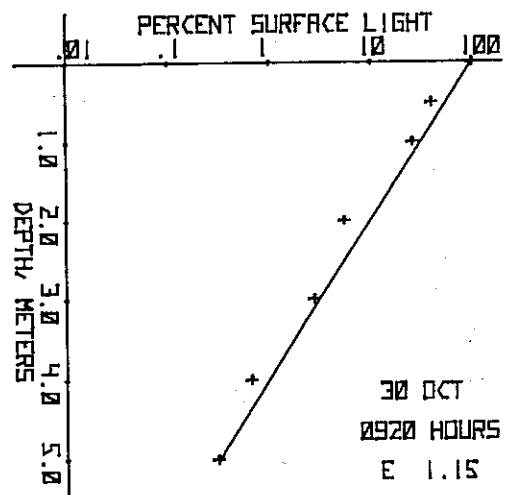
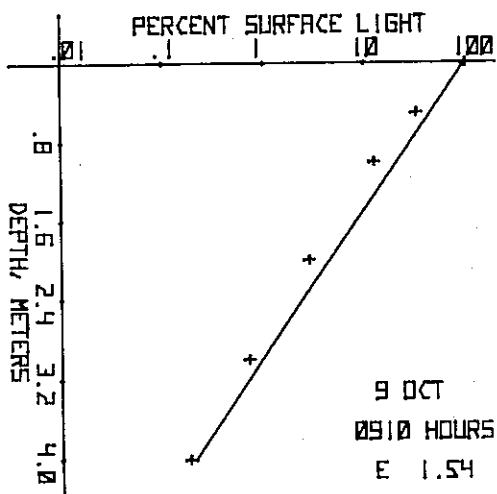
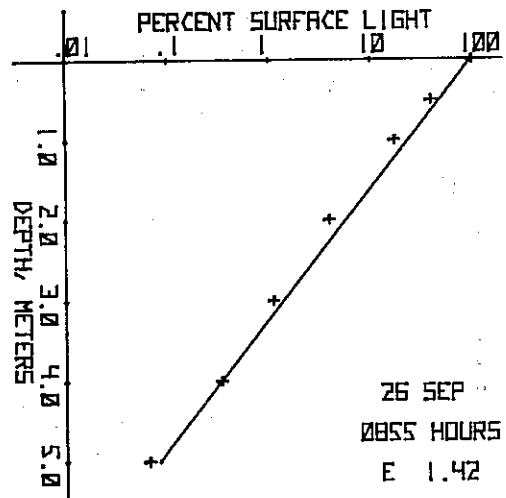
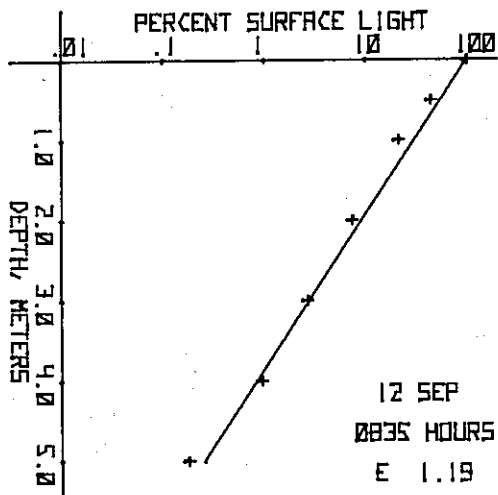
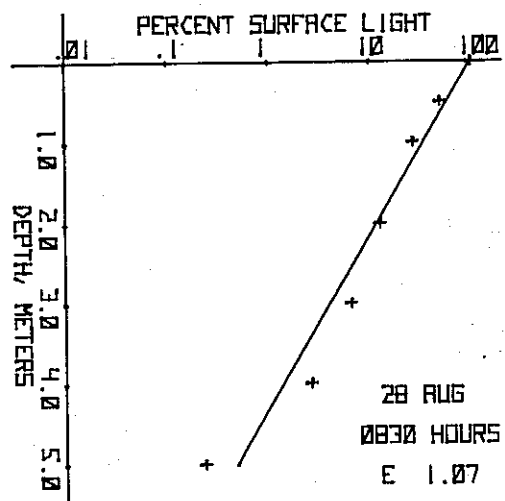
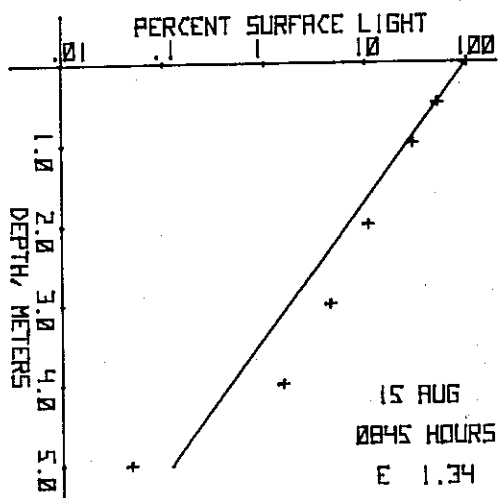
LAKE 303



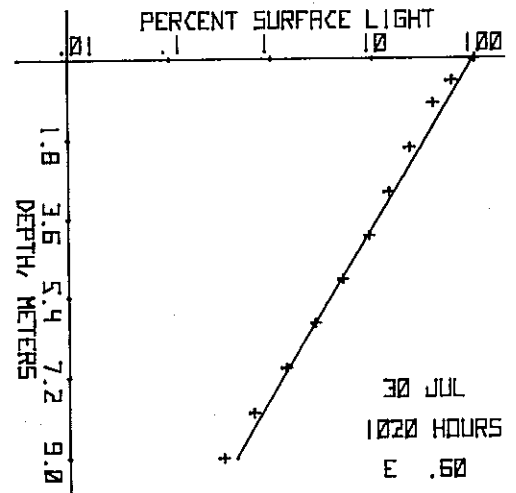
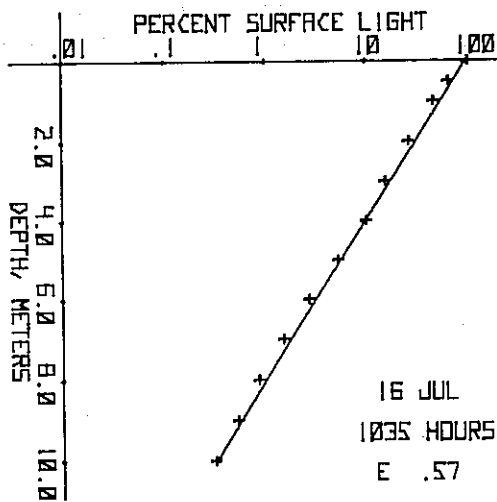
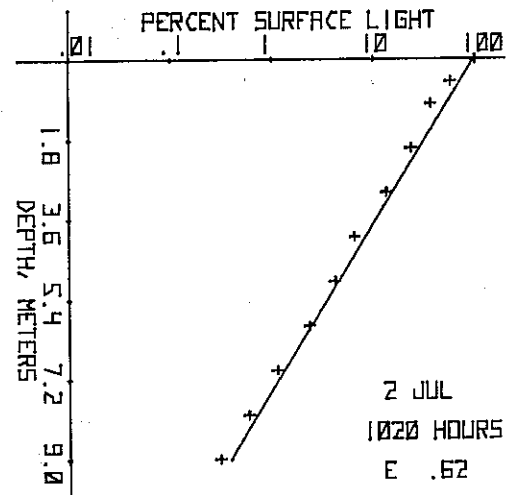
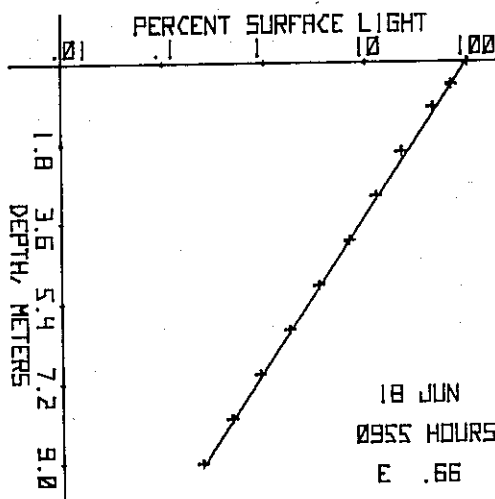
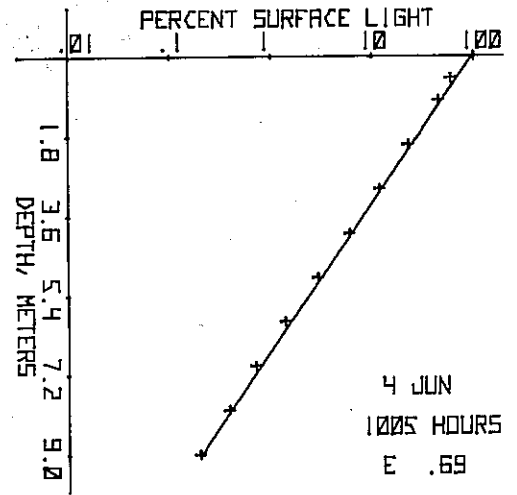
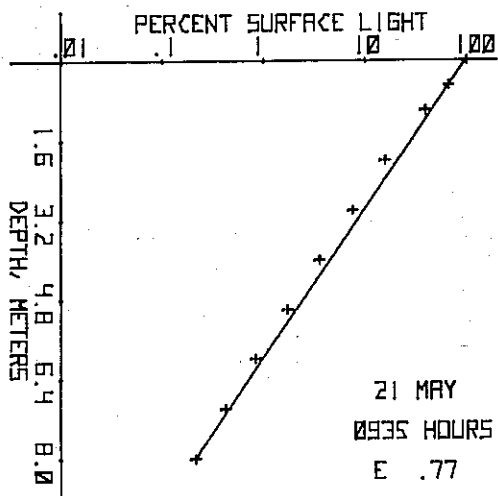
LAKE 304



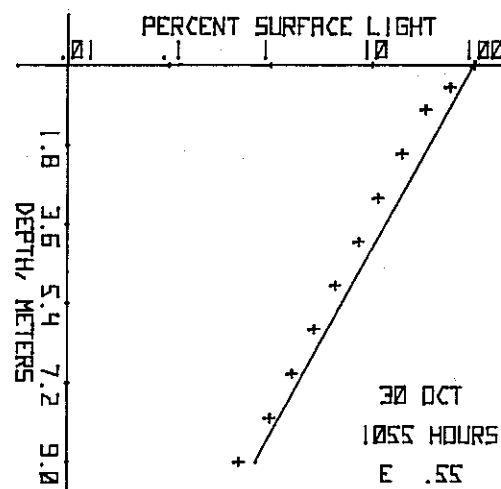
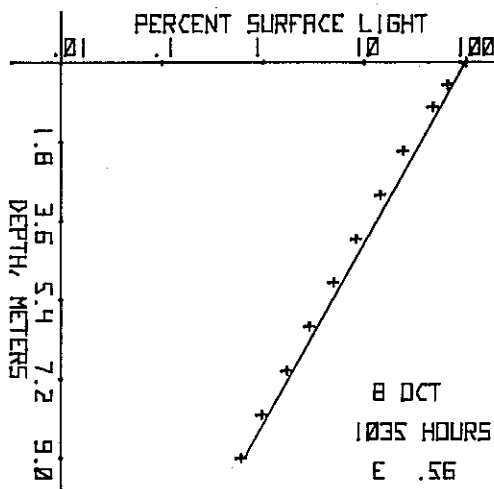
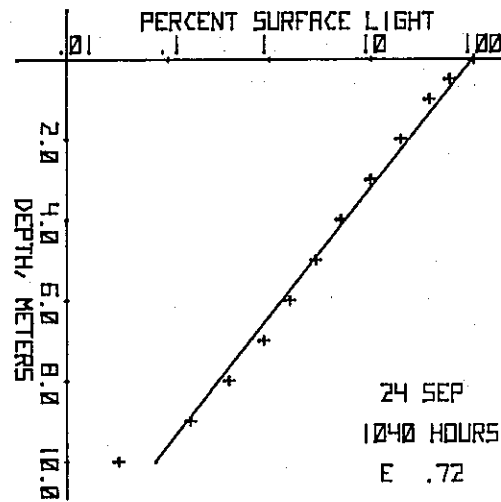
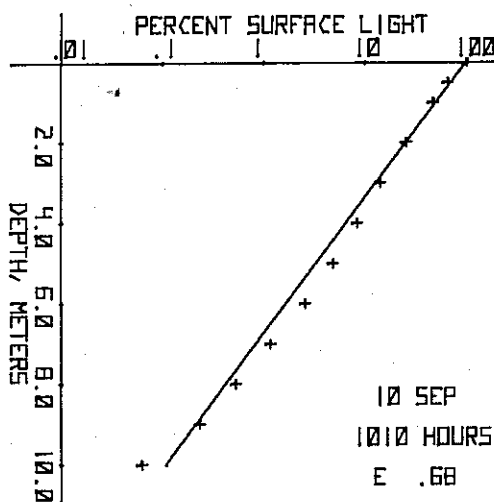
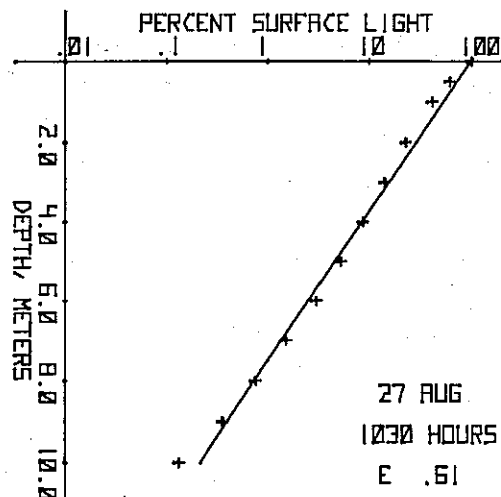
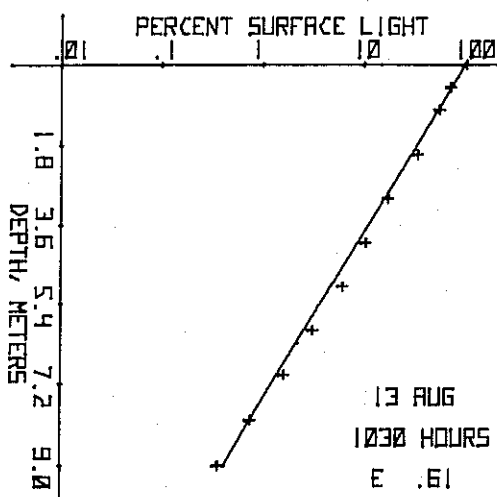
LAKE 304



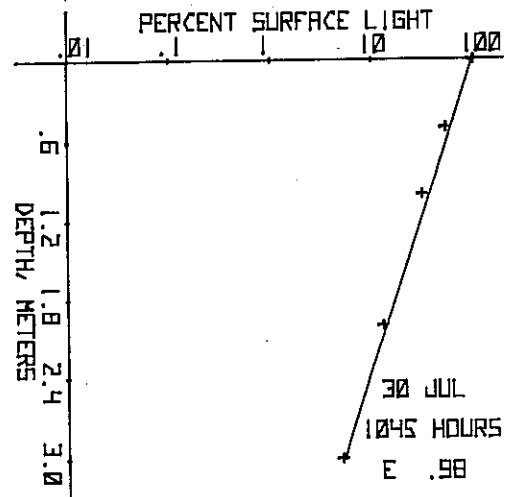
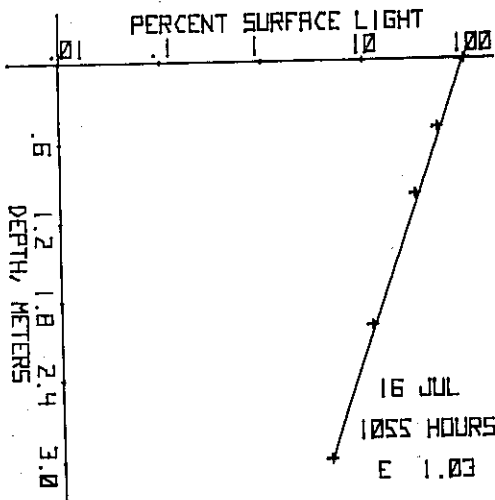
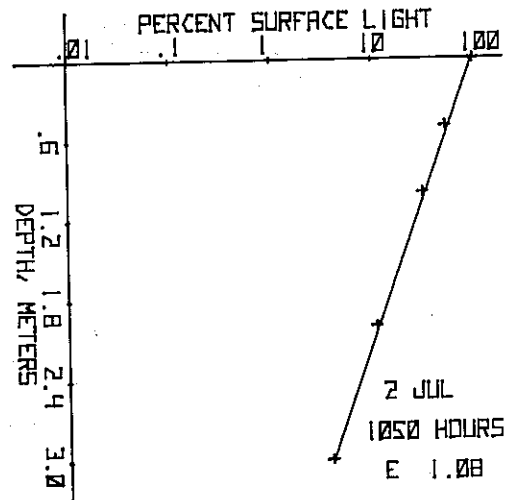
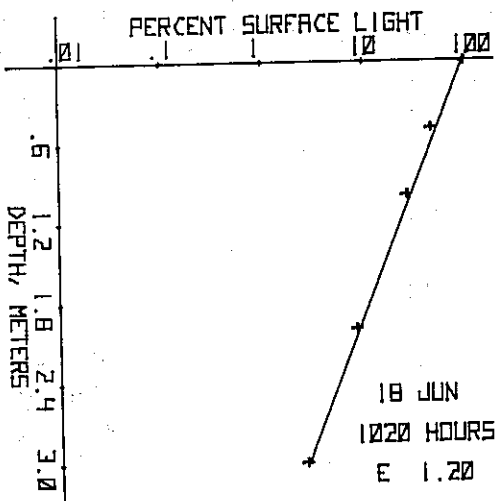
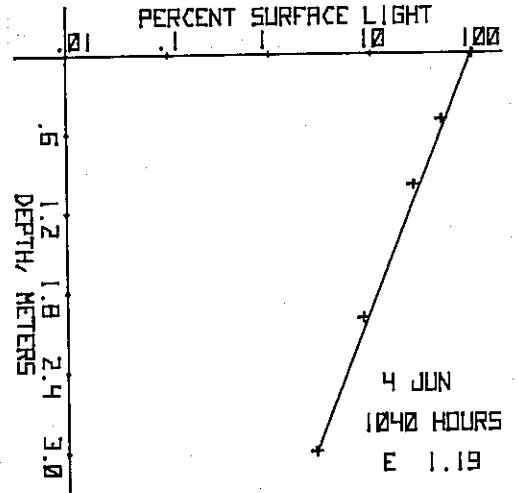
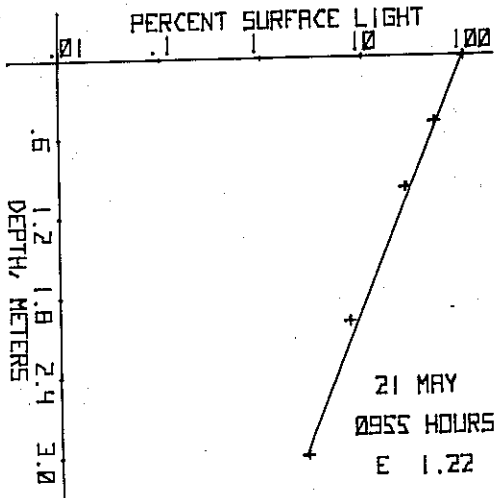
LAKE 382



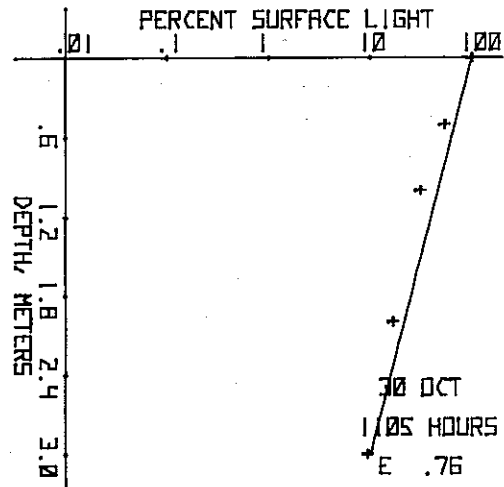
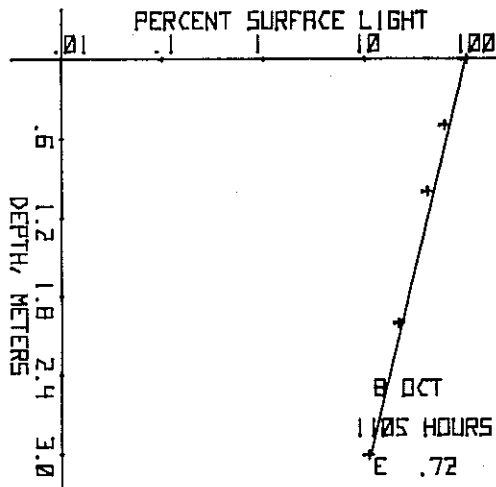
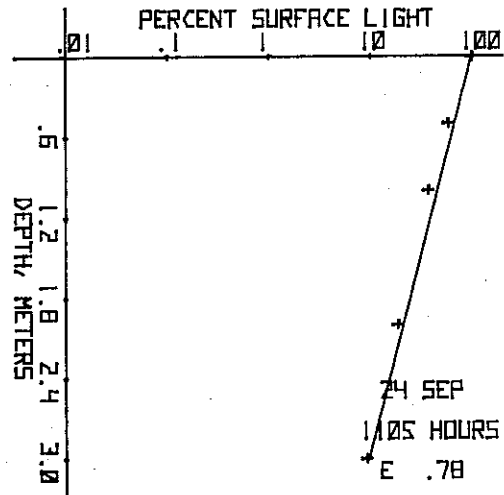
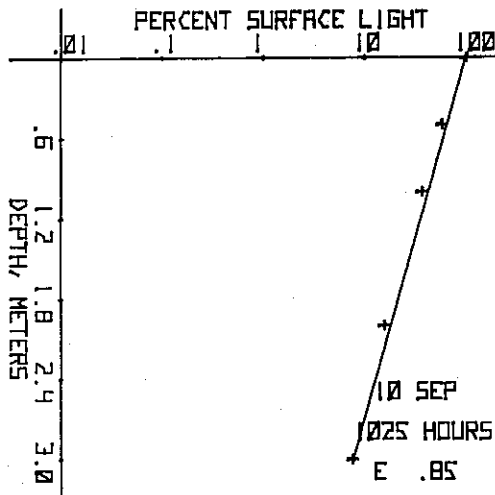
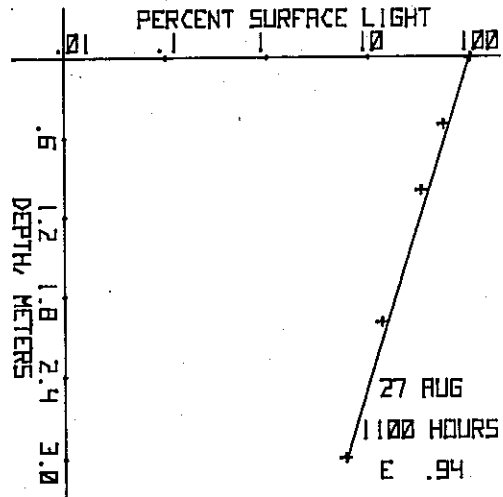
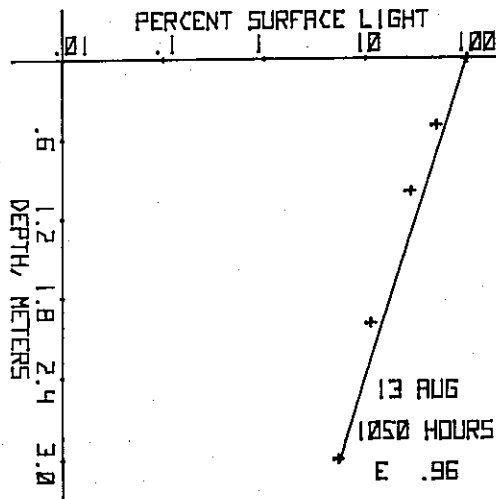
LAKE 382



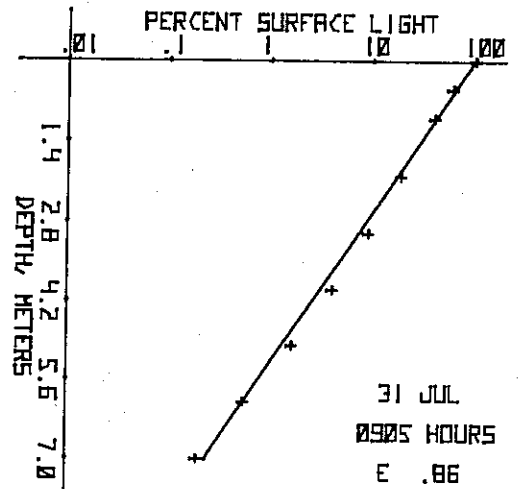
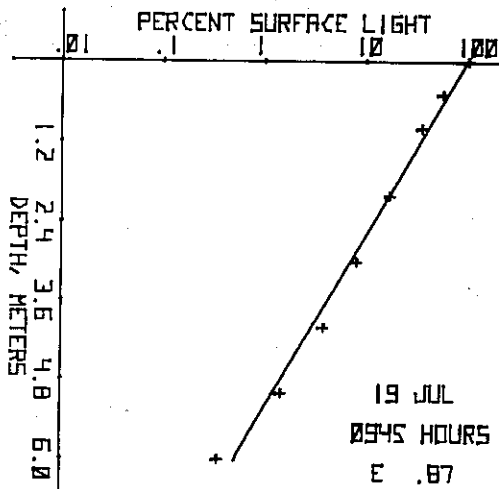
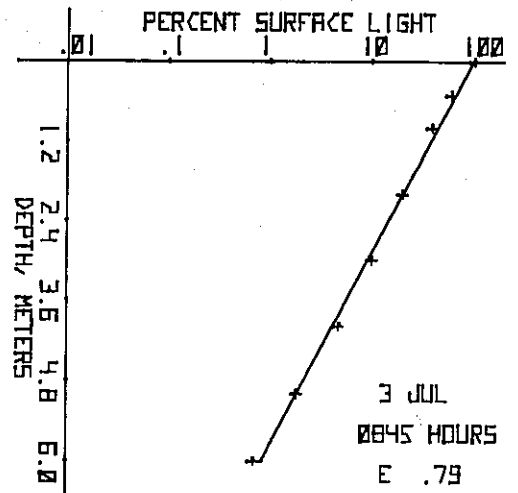
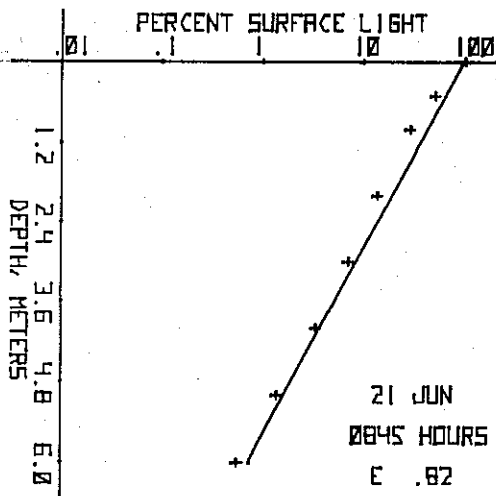
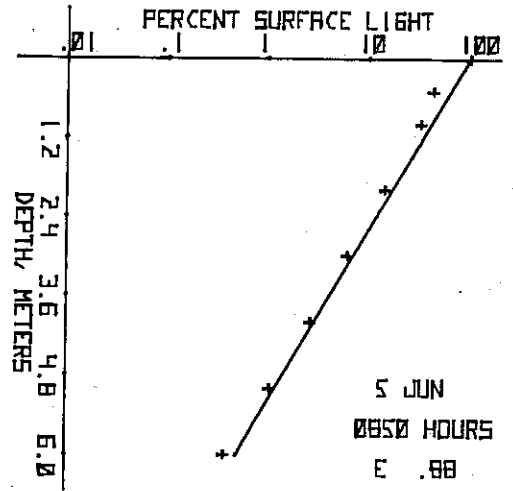
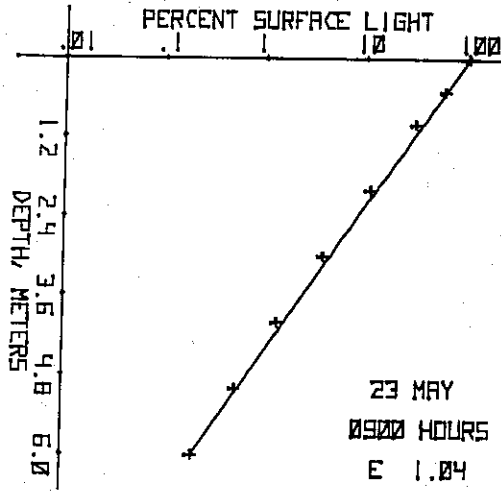
LAKE 382 Bay



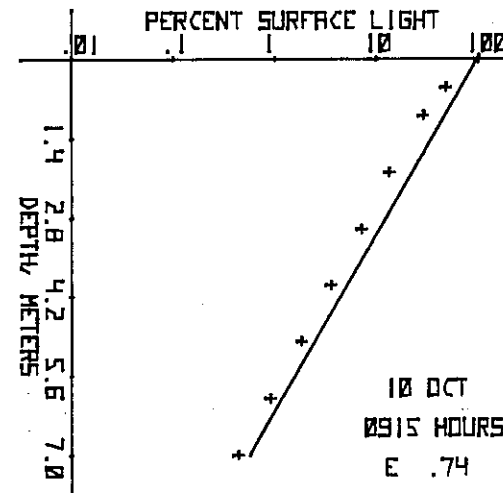
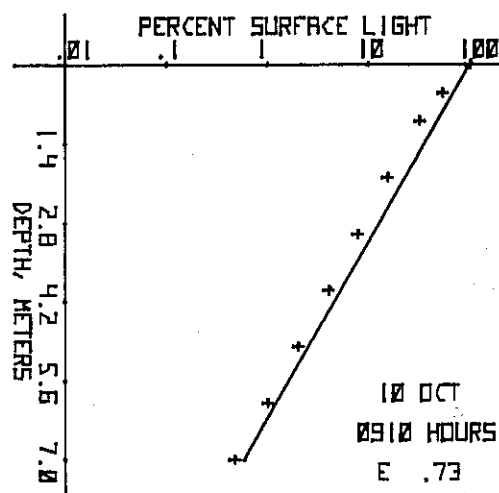
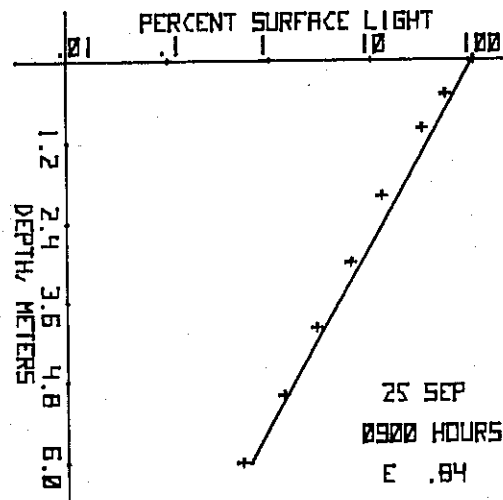
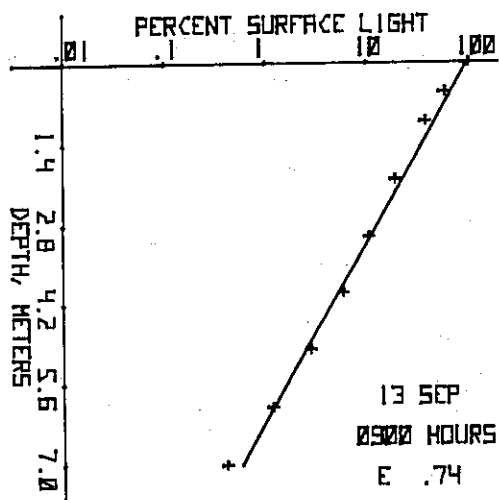
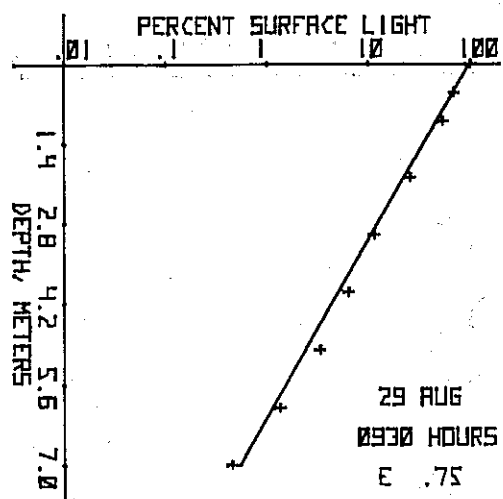
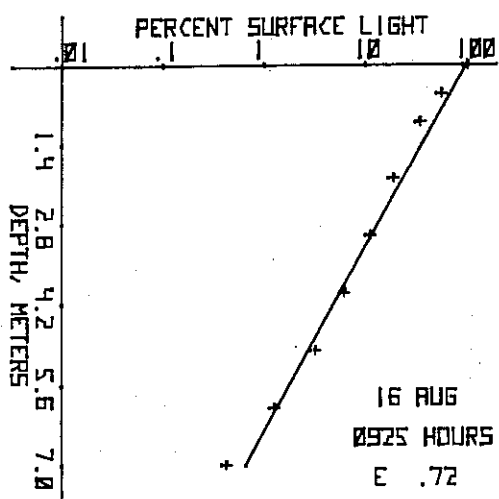
LAKE 382 Bay



LAKE 383



LAKE 383



LAKE 383

