SOUTH FLORIDA RESEARCH CENTER

Report T-618
Shark Slough Water Level Correlation Analysis

NATIONAL PARK SERVICE
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SHARK SLOUGH WATER LEVEL CORRELATION ANALYSIS

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LIST OF FIGURES

LIST OF TABLES

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ABSTRACT

Water level measurements were taken over a 2 year period at 54 staff gauges and 16 continuously recording gauges in the Shark Slough region of Everglades National Park in south Florida. Data sets from these gauges were compared via linear regression and correlation analysis. It was determined that continuous recording gauges can be used to estimate water level at the staff gauge locations with regression equations to an acceptable degree of accuracy. Regression equations, confidence intervals were presented for all station pairings meeting minimum criteria for water level estimation. Correlation analysis points out distinctions in water level relations in hydrologic sub-units of Shark Slough and the surrounding area. Information derived from the study could be used to determine which continuous recording gauges are essential for continued hydrologic monitoring in Shark Slough as well as to provide predictive relationships between nearby gauges to decrease the need for wide-scale monitoring.

INTRODUCTION

The Shark River Slough, a large freshwater marsh in South Florida, represents both an important natural ecosystem and serves as a conduit and distribution system for freshwater to much of Everglades National Park (EVER) and the downstream coastal waters. The slough occupies the southern end of a shallow basin running down the center of the Florida peninsula from Lake Okeechobee to the southwest coast. It is characterized by a constant, slow, unidirectional movement of water along its axis caused by a slight dipping of its bed toward the southwest. The hydrology of this system is being intensively studied so that the management objectives of preserving and maintaining the natural environment of Everglades National Park can be furthered through sound water management policies. One important aspect of the hydrologic studies in the slough is the measurement of stage or level of water to the mean sea level datum. Knowledge of the precise water levels within Shark Slough allow for the calculation of hydraulic gradients which play an important role in determining the flow characteristics in the system. When combined with data on ground surface elevations, water level data can also be used to determine water depth relations, volumetric estimates, hydroperiods, and other parameters important to an understanding of the total hydrologic system.

Determining water levels throughout Shark Slough is a difficult task owing to the large extent of the system (240,000 acres) and much of its area is accessible only by helicopter or airboat. Shark Slough undergoes seasonal variations in stage, areal extent of inundation and hydraulic gradients which necessitate year-round monitoring of water levels. For over two years, members of the South Florida National Park Service Hydrology Research team have monitored a long-term continuously recording water level network as well as a dense supplemental network of staff gauges throughout Shark Slough providing information on water stages at remote locations. Because of the expense involved in monitoring these gauges, it is desirable to be able to estimate water stages at various points in the slough based upon measurements taken at a few representative continuous gauges. This report presents the results of a correlation study of the Shark Slough water level gauge system which provides equations for estimating water levels at most of the staff gauge locations in the slough. Included are suggestions as to which continuous gauges are most valuable for defining water level relations in Shark Slough.

FIELD GAUGE NETWORK

The water level gauge network in Shark Slough consists of 54 staff gauges (E stations), 10 continuously recording water level gauges (P and NE stations) and 6 continuous stations utilizing ERTS satellite telemetry for data transmission (NP stations). These stations have been established along various longitudinal and lateral transects in Shark Slough and along the northwest and northeast boundaries of EVER (Fig. 1). At the time of installation (Table 1), a permanent marker of known elevation was installed next to each of the monitoring stations by survey teams. By relating gauge readings to these markers, it is possible to tie each gauge into the common datum of mean sea level.

The staff gauge network in Shark Slough was monitored in the field on a biweekly basis throughout fiscal years 1978 and 1979 yielding a total of 48 sets of water level data (Appendix A). However, not every data set is complete primarily because surface water does not occur at all sites throughout the year. This is especially true for those stations along the northwest boundary of the park (E-27 through P-34) and the east boundary (E-49 through NP-206) which are located outside of Shark Slough on higher ground which is only seasonally inundated.

WATER LEVEL CORRELATIONS

Shark Slough may be thought of as a shallow, wide, slow-moving river. However, unlike many rivers, the total annual range in water level at any one point is very narrow, being less than two feet at P-33 located within the center of the slough. Under most circumstances the response time of water level to changes in inputs is slow. Based on hydrograph response and preliminary modelling results it was determined that it takes approximately 20 days for changes in water discharge at Tamiami Trail to influence water levels at the southern end of the slough reflecting Shark Slough's lack of open channels and its flat gradient. This contributes to the rather smooth hydrograph which is characteristic of most points in the slough. This smooth hydrograph coupled with the fact that Shark Slough has no major tributary makes it likely that water levels within a few miles extent would be closely related under most conditions. To test this hypothesis, a linear relationship is postulated as a model for correlating water levels at nearby locations. This relationship is believed to be a reasonable assumption as long as only surface flows are considered. Since certain parts of the slough are seasonally inundated, water levels can fall below the ground surface into the highly permeable limestone strata underlying Shark Slough. Ground water recession rates would likely be different than surface water recession rates. To avoid this complication, only surface water readings were considered in this analysis.

The statistical method used to assess the linear relationship between water levels at different sites was linear regression analysis (Snedecor and Cochran, 1967). This technique was chosen over multiple linear regression since the independent variable in the analysis (i.e., the water level at the continuous recording stations) would itself be obtained from correlation and therefore add little accuracy to the estimation of water levels at the staff gauge sites. The straight line $y = B_1 x + B_o$ was fitted to a plot of water level data from paired stations by the least square method (Fig. 2). This line has the property that the sum of squared deviations of the predicted values $\bar{y}$ from the actual measured value y_i are at a minimum. This regression line is considered the best estimate of a possible linear relationship between the variables.

The Pearson product moment coefficient of correlation (r), defined by the equation was calculated for each station as follows (Snedecor and Cochran, 1967):

$$r = \frac{\sum_{i=1}^{n} (x_i - \bar{x})(y_i - \bar{y})}{\left[\sum_{i=1}^{n} (x_i - \bar{x})^2\right]\left[\sum_{i=1}^{n} (y_i - \bar{y})^2\right]} \qquad \text{EQN 1}$$

Where:

n = sample size

x_i, y_i = actual measured values

$\bar{x}$, $\bar{y}$ = predicted values

This statistic provides a measure of the degree of linearity which exists between the two variables with r varying from -1 to +1. A "0" value represents no linear relationship, a "+1" value represents an exact positive linear relationship and a "-1" value representing an exact negative linear relationship. The square of this parameter represents the total fraction of variability in the sample data which can be explained by the linear dependence of one variable on the other.

The standard deviation, s, is shown as (Snedecor and Cochran, 1967):

$$s = \sqrt{\frac{\sum_{i=1}^{n} (y_i - \bar{y})^2}{n - 1}} \qquad \text{EQN 2}$$

where:

n = number of values in sample

Equation 2 allowed for the construction of a prediction interval around the regression line. This prediction interval is defined by the equation (Mendenhall, 1975):

$$y \pm t_{0.025}\, s \sqrt{1 + \frac{1}{n} + \frac{(x_p - \bar{x})^2}{\sum_{i=1}^{n} (x_i - \bar{x})^2}} \qquad \text{EQN 3}$$

where:

y = predicted value of the dependent variable (in feet)

t = critical value of the student's t distribution for 95% confidence interval

s = standard deviation (in feet)

n = number of values in sample

x_p = value of independent variable used for prediction (in feet)

This prediction interval is, in effect, a 95% confidence interval around an expected value of y given any value x. It is narrowest at the sample mean of the dependent variable distribution and is somewhat greater towards the ends of the range. For example, the prediction interval for the expected value of the water level at station E-1 given the mean water level at G-620 is $\pm$ 0.143 feet. At the extreme values of the G-620 sample population, 7.00 and 5.55 feet, the prediction interval is $\pm$ 0.148 and $\pm$ 0.149 feet, respectively (Fig. 2).

In this study the statistical parameters discussed were calculated for numerous station pairings using data from continuous recording gauges as independent variables and data from the staff gauges as dependent variables. Only stations within a reasonable proximity of one another were paired for analysis. Continuous recording gauges were also tested with each other.

Table 2 contains a summary of the regression equations and corresponding statistical parameters for station E-1. This station was tested for correlation with 8 of the continuous recording gauges in its general vicinity. The continuous stations are presented in ranked order listing the station with the best estimator first. Column 6 contains the 95% confidence interval for the expected value of the dependent variable at the mean of the sample population which is the parameter used to define the ranking. The regression equations for the remainder of the stations in Shark Slough are presented in the same format in Appendix B.

DISCUSSION

The continuous stations in Shark Slough were found to correlate to a very high degree (r 0.950) with those stations in close proximity and to a lesser degree with those stations which are more distant. For example, the P-33 data set correlates very well with that of its nearest staff gauge, E-4 (r = 0.977), but rather poorly with the data set from E-17 (r = 0.893) representing distances from P-33 of 0.4 and 13 miles, respectively. Confidence interval ranges also vary with distance with the narrowest ranges occurring for sites near the predicting station. The confidence interval, however, is not simply a reflection of the correlation coefficient r. Paired data sets with the same correlation coefficient may have a quite different confidence interval range due to the fact that the total variability and range of water levels at one station may be greater than in the other. The confidence interval, unlike the correlation coefficient, is a unit measure and, therefore, dependent on the range of the data. It is also affected by the sample size used in the regression analysis.

Distance is not the only factor affecting the degree of correlation. Stations located in different hydrologic systems, or in portions of the slough which have different water inputs would not be expected to correlate well with one another. This is demonstrated in several locations in the Shark Slough study area. The stations along the northwest boundary of the park (E-27 through P-34) are not within the limits of Shark Slough but are situated on or beyond a gentle rise of rock which separates the slough from the hydrologic systems of Big Cypress National Preserve. These stations do not correlate well with any of the continuous gauges in Shark Slough. Furthermore, these stations do not correlate well amongst themselves indicating that the surface water hydrologic relationships in this area are not as related as those within Shark Slough proper. This area is composed of smaller hydrologic subunits whose surface water levels fluctuate in a more independent manner.

Northeast Shark Slough is located outside of Everglades National Park but is hydrologically connected with the rest of the slough near the end of Levee 67 ext. This portion of the slough is cut off from the overland flow which enters the park through the S-12 structures on the Tamiami Trail. These structures contribute an annual minimum of 260,000 ac-ft of freshwater to Shark Slough. L-67 ext. forms a barrier to overland flow between these areas for a length of approximately 10 miles. As a result of this hydraulic separation, water levels in Northeast Shark Slough displayed an independence from water levels in the remainder of the slough as indicated by relatively poor correlations between gauging stations within these two systems.

Stations near the southern terminus of Shark Slough (E-19 through P-35) did not correlate well with any of the other gauges in the slough. These stations are in an area which, unlike the rest of the slough, contains numerous small stream channels and is tidally influenced during at least some portions of the year. Of this group, one station, E-19, does not correlate well with any other station reflecting its in-stream location. Tidal streams appear to have different water level fluctuations than the adjoining sawgrass marshes.

Water levels at stations E-49 through NP-206 on the eastern boundary of Shark Slough did not correlate well with continuous gauges elsewhere. These stations are situated on the fringes of Shark Slough and, like stations E-27 and P-34, are inundated on a seasonal basis. After considering the poor relationship of water levels in this area to water level elsewhere, it seems likely that different stage relationships may occur along slough fringes than in the central portions of the slough.

Estimates of water level based upon linear regression equations have considerable accuracy in some areas of the slough while in other locations they are less accurate. A limit of $\pm$ 0.20 feet on the 95% confidence interval was chosen as the maximum allowable range to determine whether an equation provided an acceptable estimation. Of the station pairings meeting this criteria, 83% had correlation coefficients greater than 0.950. (An r value of 0.95 represents a situation where greater than 90% of the total variability within the independent variable sample population can be explained by a linear dependence on the independent variable.) The lowest correlation coefficient among those stations meeting the confidence interval criteria was 0.883. Figure 3(a)-(e) shows the groupings of these station pairings which meet the above criteria. Table 3a lists these pairings. It can be seen that water levels at the majority of the staff gauge stations in Shark Slough may be estimated from continuous recording stations within the confidence limits defined above. Some stations remain for which no acceptable linear relationship with a continuous gauge exists. These are listed in Table 3b.

Information from this correlation study was also utilized to establish criteria for ranking the importance of the currently in-place continuous stations. Comparing stations with nearby staff gauges can give an idea of how representative a station is of the water levels of its surrounding region. By comparing areas where stations overlap in predictive ability, one can tell where more gauges were installed than are needed. Table 4 presents a summary of the correlations of continuous stations amongst themselves. This table reveals that accurate estimates of the water levels at several continuous stations could be made from some other continuous station. Table 5 tabulates the staff gauge sites for which accurate estimates could not be made if a given continuous gauge was removed. That is, there are no other continuous gauges which have a regression equation which could predict water level at these sites within acceptable limits of probable error. Combining these factors with other information known about the site, we can evaluate each continuous recording station's importance in the overall hydrologic monitoring system of Shark Slough.

P-34 and NP-205. Both of these sites lie beyond the margins of Shark Slough and both do not correlate well with surrounding stations. Neither can be adequately estimated by any other continuous station. NP-205 data reflects groundwater and, during some times of year, surface water levels in a portion of the slightly higher ground to the west of Shark Slough. It may be useful in determining groundwater recession rates in the immediate vicinity. Since no other groundwater wells exist in the western boundary region, no statement can be made as to how extensive an area of the ground water table can be characterized by these measurements. P-34 lies in a minor slough system leading toward the headwaters of Lostman's River. This station may correlate well with water levels in this headwaters region (a major roosting area for wading birds) where a series of water depth gauges have been installed.

NE-1 and NE-2. These are the only continuous stations which correlate well with water level measurements taken in Northeast Shark Slough. Of the two, NE-1 correlates well with more stations and through a wider range of distance. Northeast Shark Slough is the subject of much study at this time as an alternate floodway for excess waters which are currently being diverted to Everglades National Park.

NP-201 and NP-202. These stations represent an area which receives the majority of overland flow from the S-12 structures. They are more responsive than most other stations in the park to gate changes at these structures and therefore are more widely varying in water levels. NP-202 data can be used to predict a broader range of staff gauge sites than NP-201.

NP 206. This station monitors primarily groundwater levels in the region of higher elevation between Shark and Taylor Slough. It is the only continuous recording gauge in this region operated by Everglades National Park. However, several non-recording monitoring wells are located in the East Everglades study region immediately to the east of this station. Water levels at NP-206 do not correlate well with any other station.

P-33, G-620, NP-203. These stations are all located in the central portion of Shark Slough and have considerable overlap in the areas where they provide adequate correlation. G-620 has the longest record of any station in Shark Slough and is one of the few stations within Shark Slough which can be reached by road. NP-203 provides data on a real time basis through satellite telemetry and also is the site of the only estimated multi-parameter monitoring station in Shark Slough. It provides the best estimates of any station for most sites in the central slough area and is well-correlated to more sites than P-33 or G-620.

P-36 and NP-204. These two stations are located close to one another in the south-central region of Shark Slough. Both correlate well with surrounding stations. NP-204 correlates better than P-36 with stations in the southern end of Shark Slough.

P-35. This station located in the tidally-influenced headwaters region of Rookery Branch will be used in research projects planned for the near future in this area. No other continuous station is located in this area.

<u>P-25 and P-26</u>. Unlike the other stations in Shark Slough which monitor water levels in the sawgrass marshes, these two stations monitor the water level in the lower end of a canal (L-67 ext.). Though not a marshland station, P-25 correlates well with both NP-201 and NP-202 suggesting that both the canal and northern Shark Slough are similarly influenced by the S-12 deliveries. P-26 does not correlate well with any of the other continuous stations in Shark Slough, Northeast Shark Slough or L-67 canal. Nor does it correlate well with staff gauge stations nearby in Northeast Shark Slough. Its historical record and current values are suspect based on improper maintenance of this station.

<u>P-62 and P-38</u>. These two isolated stations in southern Shark Slough are well correlated with each other but not with any other continuous gauge. NP-62 is readily accessible by road.

CONCLUSIONS

1. The available data for the generation of the repression equations was for a period of record, November 1977 to September 1979, therefore, the ability to predict stage using the correlations must be restricted to the range of water levels found for this period (Appendix C). If water level values are found to be out of this range, the ability to predict water levels becomes less accurate.

2. Water levels generated through the use of equations were found to compare favorably with many of the stage values published by the U.S. Geological Survey Water Resources Bulletin.

3. A degree of correlation was found between the data from the continuous stations and their nearby staff gauges in Shark Slough allowing these regression equations to serve as adequate estimators of water level at most staff gauge sites within the slough boundaries.

4. Good regression estimators for stations E-27 through E-41 and for stations E-49 through E-53 were not found.

LITERATURE CITED

Mendenhall, W. 1975. Introduction to Probability and Statistics. Duxbury Press, North Scltuate, Mass. 460 p.

Snedecor, G. W. and W. G. Cochran. 1967. Statistical Methods. Iowa State Univ. Press, Ames, Iowa. 593 p.

FIGURES AND TABLES

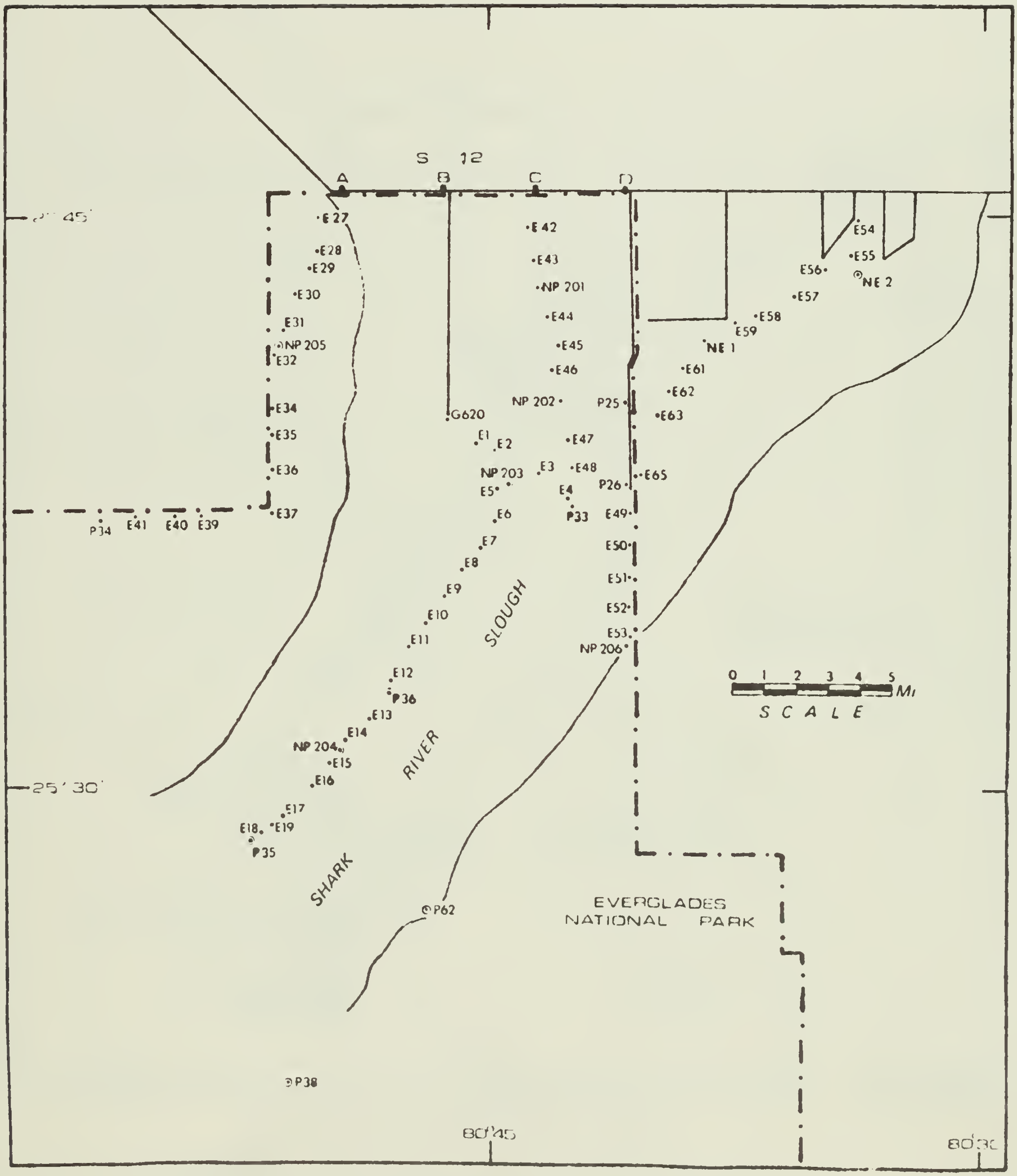

Figure 1: Shark Slough Water Level Monitoring Network

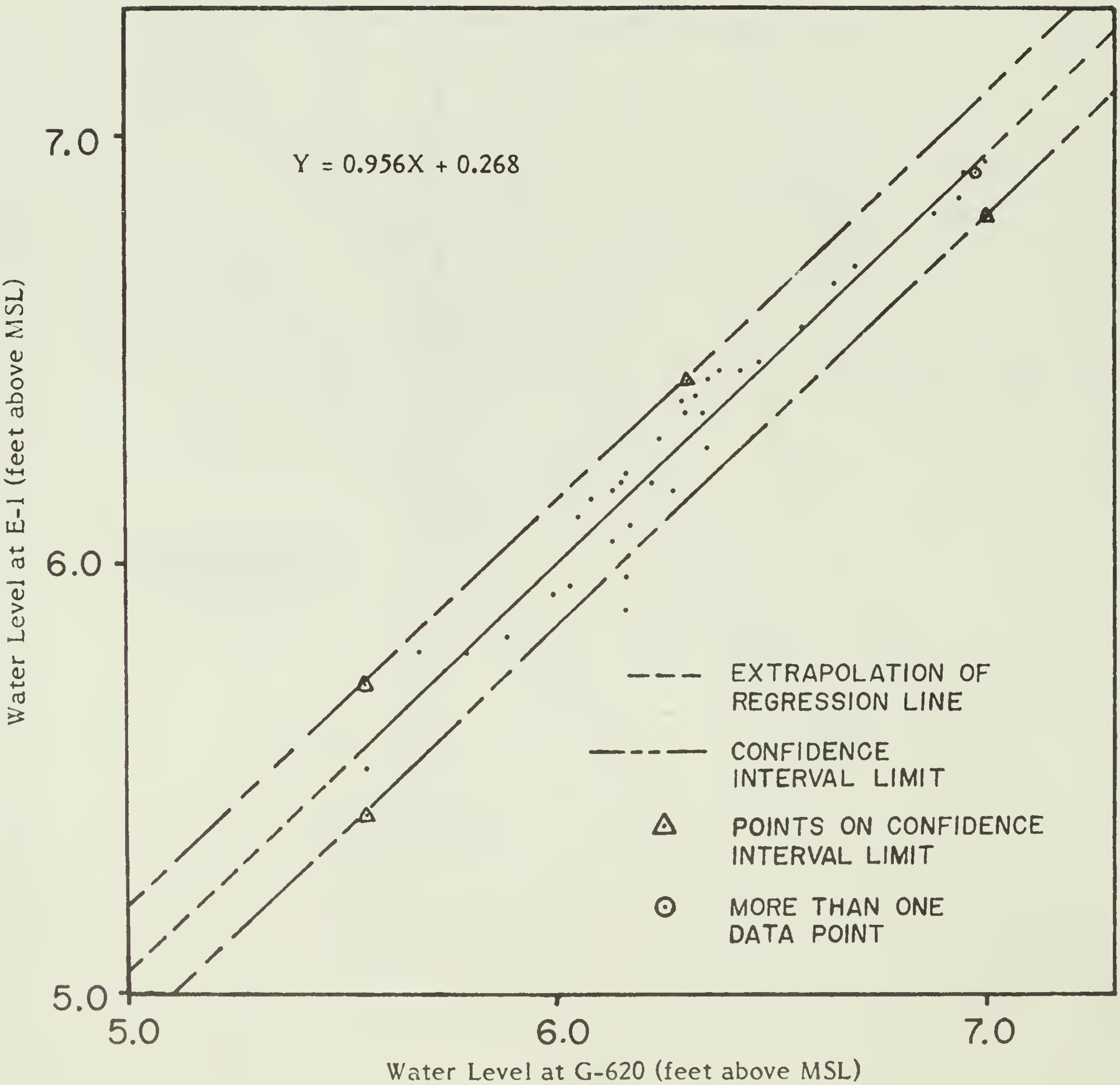

Figure 2: Regression Line and 95% Confidence Interval Limits for G-620 vs. E-1

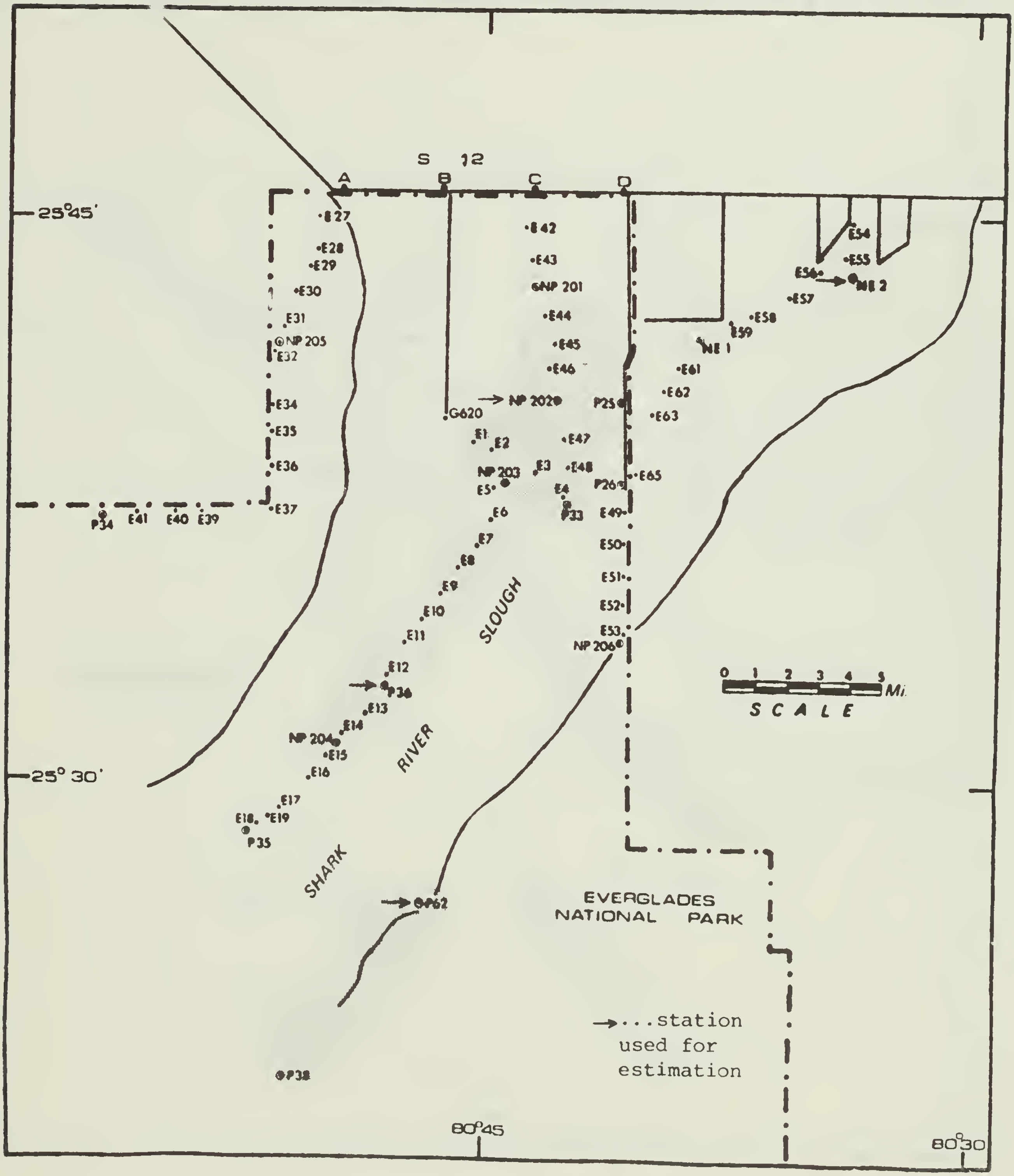

Figure 3a: Station Groupings Meeting Criteria for Water Level Estimation

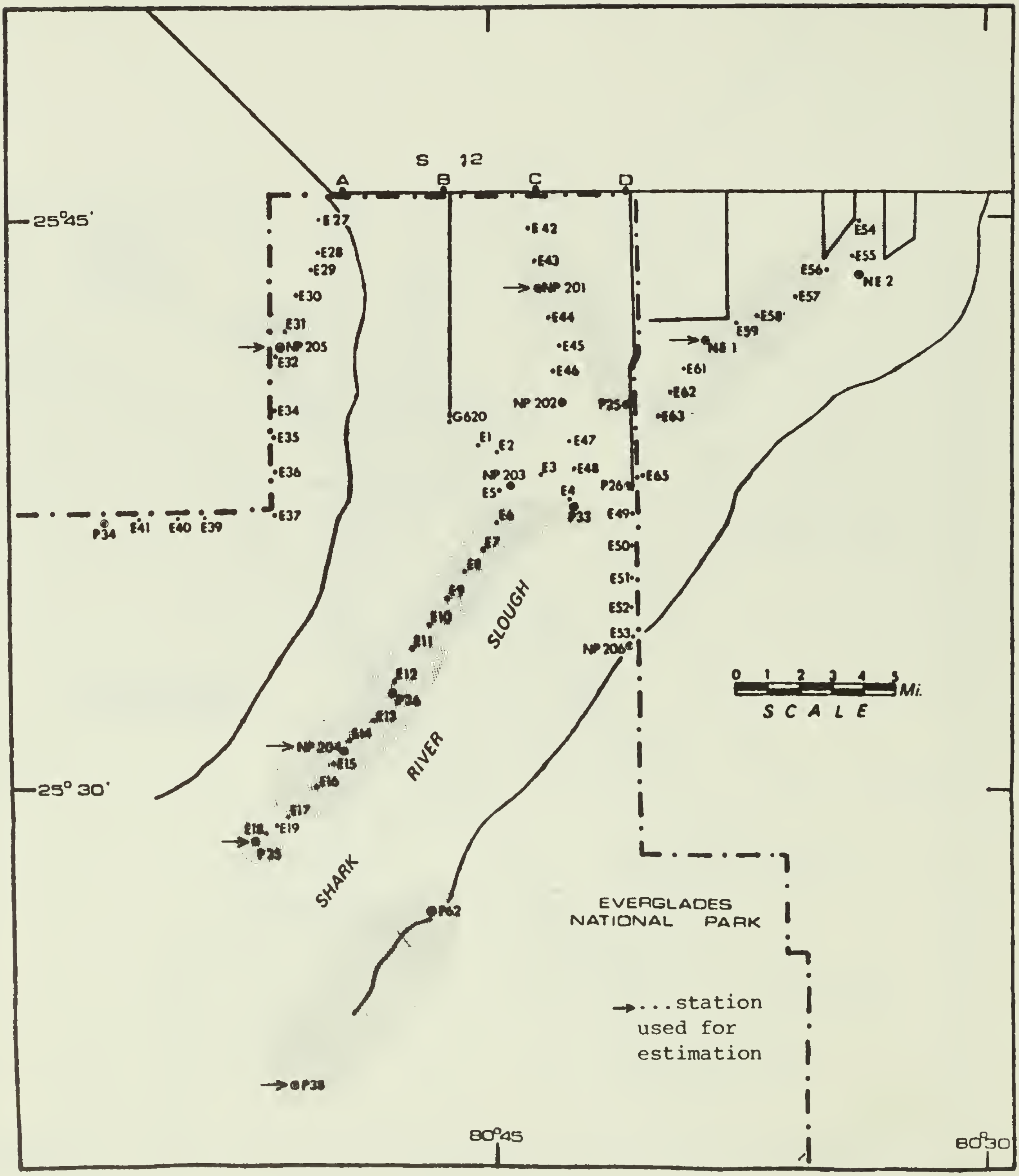

Figure 3b: Stations Groupings Meeting Criteria for Water Level Estimation

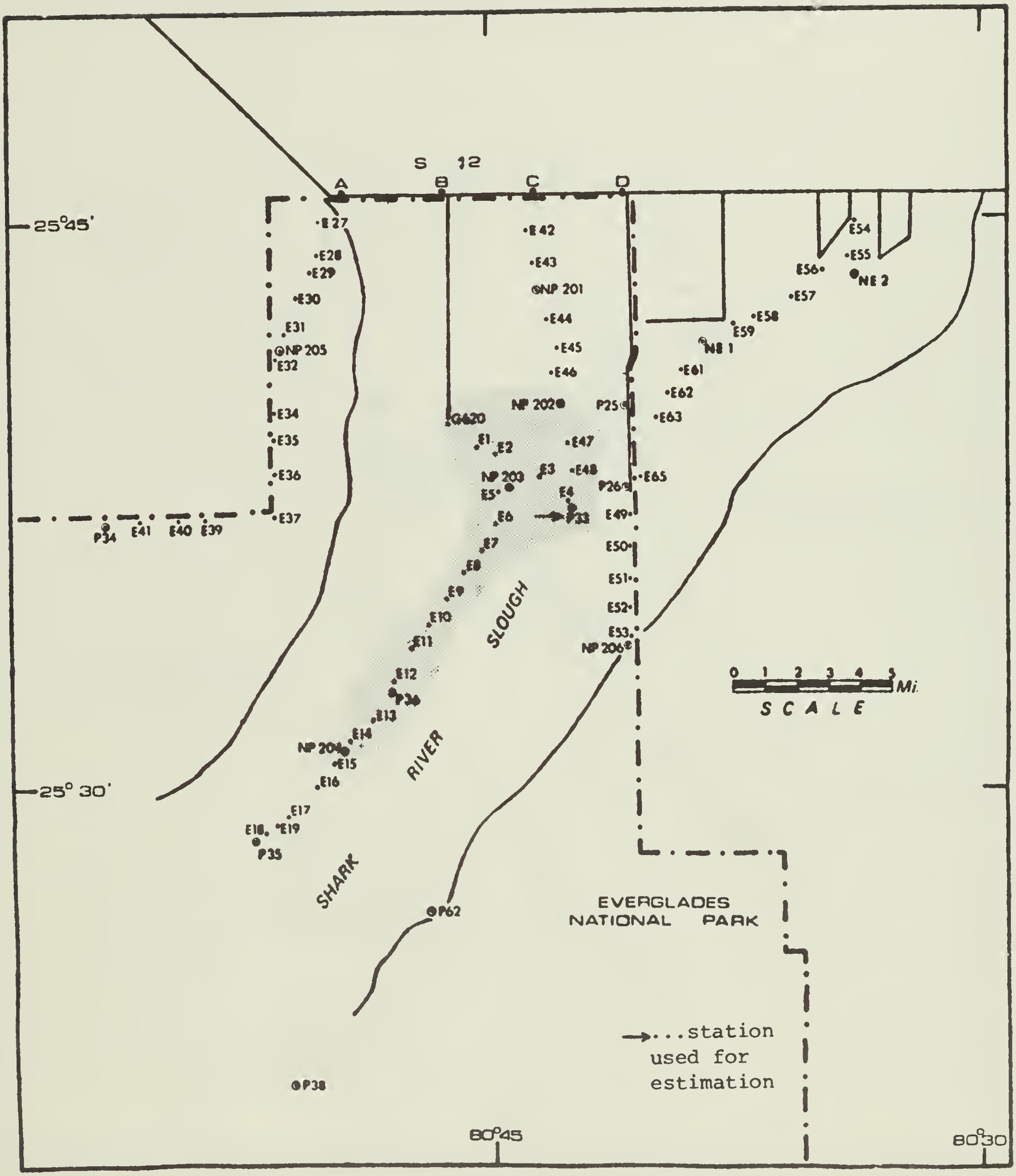

Figure 3c: Station Groupings Meeting Criteria for Water Level Estimation

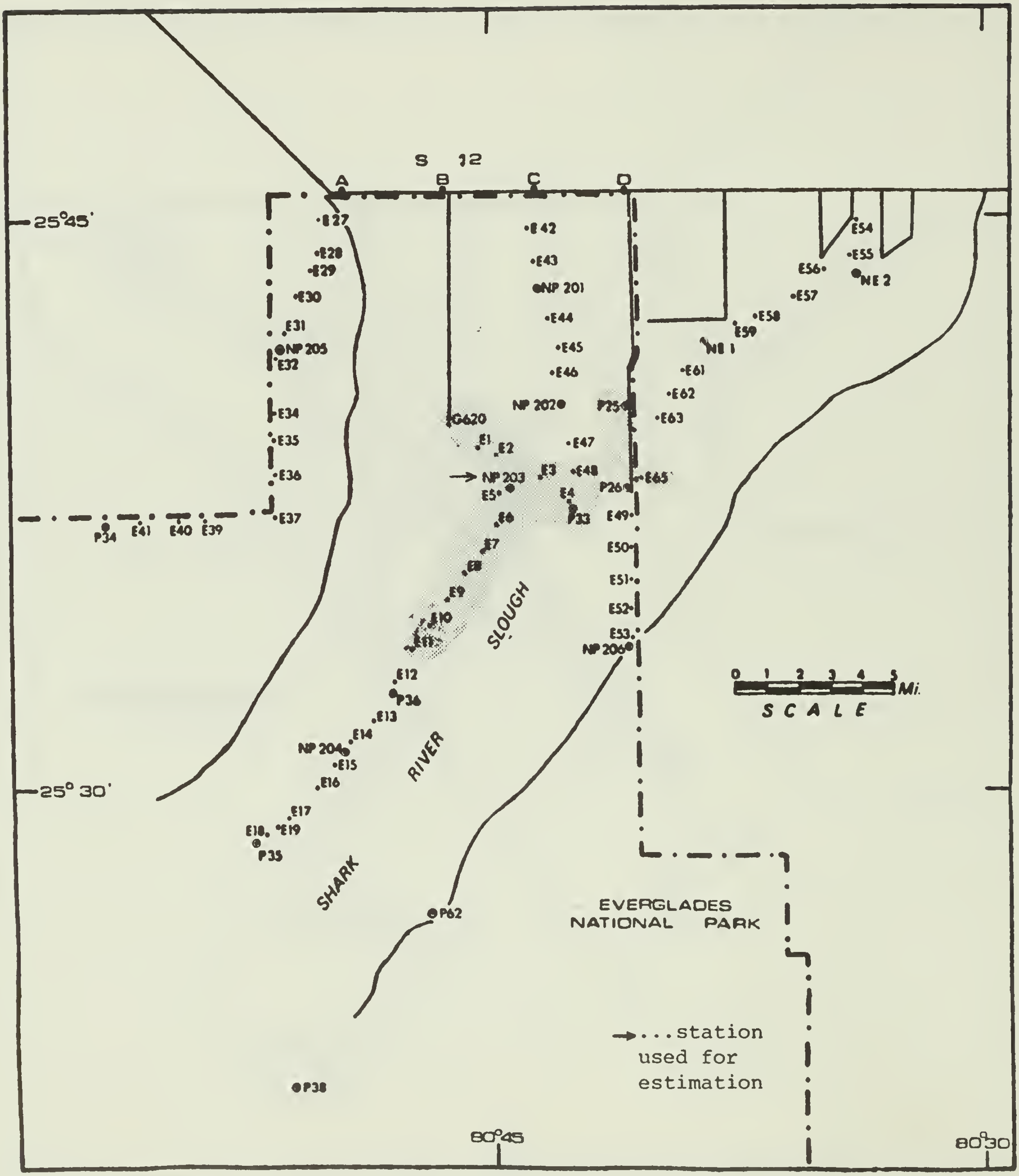

Figure 3d: Station Groupings Meeting Criteria
for Water Level Estimation

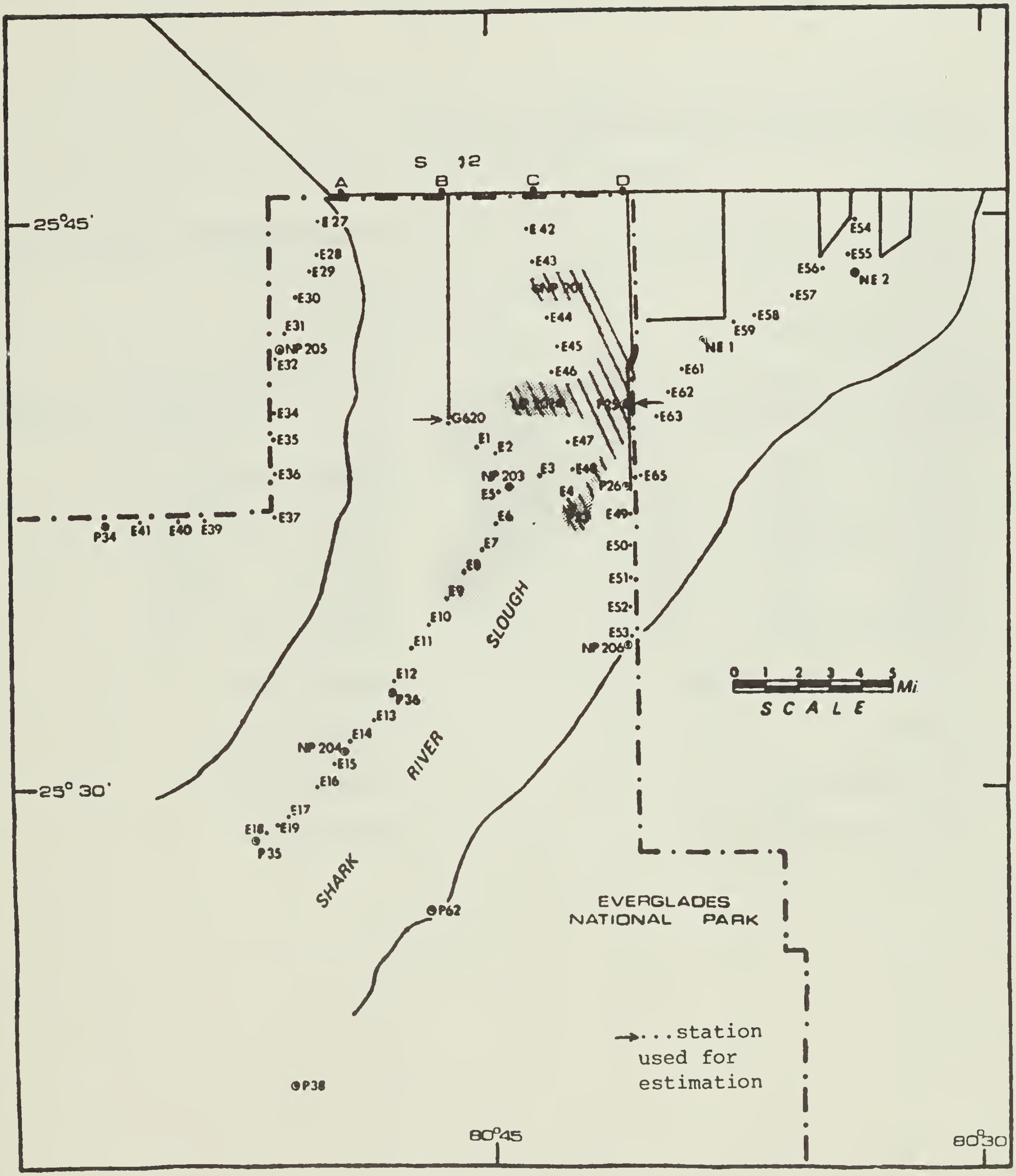

Figure 3e: Station Groupings Meeting Criteria for Water Level Estimation

Table 1. Installation dates of continuous recorders

Stations	Date of Installation
G-620	January, 1950
P-33, P-34, P-38	January, 1953
P-35	February, 1953
NP-62	1964
P-36	February, 1968
E-1 through E-18	January, 1971
P-25	June, 1971
NP-203, NP-204	October, 1973
NP-201, NP-205, NP-206	October, 1974
NP-202	January, 1975
P-26, NE-1, NE-2	October, 1976
E-27 through E-65	March, 1977

Table 2. Regression equations and statistics used for estimating water levels at Station E-1.

* - Regression equations meeting criteria for water level estimation

** - 95% Confidence Interval (T) at the mean value of the x sample population
(Interval range = y ± T in feet)

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$		Correlation Coefficient	Standard Deviation	95% Confidence Interval**
		b_1	b_0			
E-1	* NP-203	1.090	-0.303	0.995	0.038	0.076
	* G-620	0.956	0.268	0.980	0.072	0.143
	* NP-202	0.873	0.291	0.980	0.073	0.145
	* P-33	1.249	-1.386	0.975	0.081	0.161
	NP-201	0.679	1.310	0.932	0.133	0.263
	NP-204	1.227	2.616	0.901	0.159	0.312
	P-36	1.113	2.050	0.896	0.163	0.323
	NE-1	0.895	0.697	0.756	0.229	0.453

Table 3a. Stations (Y) where water level can be estimated by the continuous recording station (X) within acceptable limits of probable error.

(X)	(Y)
NP-201	E-43, E-44, P-25
NP-202	E-1 through E-4, E-44 through E-48, NP-203, P-33, P-25
NP-203	E-1 through E-11, E-48, E-65, P-33, P-25, G-620
NP-204	E-6 through E-17, P-33, P-36
NP-205	E-31, E-32
NP-206	None
P-33	E-1 through E-14, E-47, E-48, NP-202 through NP-204, G-620
P-34	None
P-35	E-18
P-36	E-7 through E-15, NP-204
P-38	NP-62
NP-62	P-38
P-25	NP-201, NP-202, P-33
P-26	None
G-620	E-1 through E-9, E-48, NP-202, NP-203, P-33
NE-1	E-54 through E-59, E-62, E-63
NE-2	E-54 through E-56, E-59

Table 3b. Stations where water level cannot be estimated from a separate continuous recording gauge within acceptable limits of probable error.

E-19	E-27 through E-30
E-34 through E-37	E-39 through E-42
E-49 through E-53	E-61
NP-205	NP-206
P-34	P-35
P-26	NE-1
NE-2	

Table 4. Correlation coefficients of pairings of continuous recording stations.

	NP-201	NP-202	NP-203	NP-204	NP-205	NP-206	P-33	P-34	P-35	P-36	P-38	P-62	P-25	P-26	G-620	NE-1	NE-2
NP-201	-																
NP-202	0.943	-															
NP-203	0.948	0.980	-														
NP-204	0.843	0.892	0.927	-													
NP-205	0.616	0.568	0.695	0.625	-												
NP-206	N/A	N/A	0.609	N/A	N/A	-											
P-33	0.900	0.971	0.985	0.941	0.601	0.542	-										
P-34	0.809	0.704	0.750	0.705	0.699	N/A	0.684	-									
P-35	0.501	0.570	0.625	0.729	0.438	N/A	0.668	0.379	-								
P-36	0.832	0.866	0.916	0.965	0.669	N/A	0.922	0.713	0.693	-							
P-38	N/A	N/A	0.665	0.806	N/A	N/A	N/A	N/A	0.830	0.755	-						
P-62	N/A	N/A	0.678	0.881	N/A	N/A	0.761	N/A	0.870	0.796	0.973	-					
P-25	0.979	0.979	0.978	N/A	N/A	0.733	0.956	N/A	N/A	N/A	N/A	N/A	-				
P-26	N/A	0.862	0.887	N/A	N/A	0.587	0.869	N/A	N/A	N/A	N/A	N/A	0.856	-			
G-620	0.937	0.972	0.985	0.908	0.679	N/A	0.973	0.748	0.657	0.888	N/A	0.679	0.968	0.968	-		
NE-1	0.728	0.730	0.824	0.832	0.795	0.828	0.782	0.574	0.715	0.825	N/A	N/A	0.834	0.693	0.812	-	
NE-2	0.710	0.623	0.752	0.713	0.863	N/A	0.673	0.655	0.563	0.744	N/A	N/A	N/A	N/A	0.734	0.851	-

Table 5. Stations (Y) which could not be predicted within acceptable limits of probable error with the deactivation of the continuous recording station (X).

(X)	(Y)
NP-201	E-43
NP-202	E-45, E-46
NP-203	E-65
NP-204	E-16, E-17, P-36
NP-205	E-31, E-32, NP-205
NP-206	NP-206
P-33	None
P-34	P-34
P-35	E-18, P-35
P-36	None
P-38	NP-62
NP-62	P-38
P-25	NP-201
P-26	P-26
G-620	None
NE-1	E-57, E-58, E-63, NE-1
NE-2	NE-2

Appendix A. Shark Slough surface water levels (feet above msl).

	17 Nov 1977	1 Dec 1977	15 Dec 1977	22 Dec 1977	12 Jan 1978	26 Jan 1978	9 Feb 1978	23 Feb 1978
G-620	6.35	6.38	6.29	6, 30	6.08	6.16	6.05	6.15
E-1	6.44	6.46	6.39	6.36	6.16	6.22	6.12	6.20
E-3	6.28	6.34	6.28	6.26	6.05	6.10	6.03	6.10
E-4	6.13	6.19	6.14	6.14	5.95	5.98	5.94	6.02
P-33	6.11	6.17	6.12	6.14	5.95	5.99	5.97	6.03
E-5	6.10	6.16	6.10	6.09	5.88	5.92	5.88	5.34
E-6	5.90	5.96	5.90	5.88	5.72	5.76	5.74	5.80
E-7	5.66	5.73	5.64	5.70	5.50	5.52	5.50	5.58
E-8	5.35	5.40	5.35	5.38	5.22	5.22	5.22	5.28
E-9	4.88	4.95	4.92	4.92	4.80	4.80	4.80	4.87
E-10	4.44	4.58	4.50	4.56	4.38	4.34	4.35	4.47
E-11	4.18	4.33	4.28	4.34	4.16	4.10	4.08	4.24
E-12	3.88	4.02	3.98	4.02	3.86	3.82	3.80	3.96
P-36	3.70	3.86	3.84	3.86	3.74	3.66	3.60	3.78
E-13	3.34	3.49	3.44	3.50	3.36	3.28	3.22	3.35
E-14	2.94	3.10	3.04	3.12	2.94	2.88	2.84	3.00
NP-204	2.85	3.02	2.98	3.00	2.88	2.82	2.78	2.96
E-15	2.38	2.60	2.58	2.62	2.44	2.36	2.30	2.54
E-16	2.08	2.30	2.32	2.36	2.20	2.10	2.00	2.27
E-17	1.68	1.83	1.86	1.92	1.76	1.70	1.60	1.88
E-19	1.08	1.42	1.56	1.64	1.32	1.21	1.10	1.58
E-18	1.10	1.17	1.30	1.35	####	####	####	1.22
P-35	1.16	1.17	1.25	1.23	####	####	####	1.07
E-27	7.55	7.52	7.53	7.57	7.55	7.61	7.55	7.67
E-28	7.42	7.40	7.42	7.40	7.39	7.46	7.37	7.54
E-29	6.99	####	7.02	7.00	7.00	7.08	6.97	7.18
E-30	5.79	####	####	####	####	####	####	7.04
NP-205	4.78	6.10	6.11	6.11	6.01	6.25	6.01	6.35
E-31	####	####	####	####	####	6.54	####	6.62
E-32	####	####	####	####	####	5.87	####	6.04
E-33	####	####	####	####	####	####	####	####
E-34	####	####	####	####	####	####	####	####
E-35	####	5.17	5.12	5.08	####	####	####	####
E-36	####	####	5.06	####	####	####	####	####
E-37	####	####	####	####	####	####	####	####
E-39	####	3.75	3.69	3.44	####	3.53	####	3.60
E-40	####	####	####	####	####	####	####	3.73
E-41	####	2.58	2.54	2.64	2.47	2.58	2.39	####
P-34	####	1.38	1.45	1.44	1.37	1.48	1.36	1.69
E-42	8.17	8.18	8.14	8.11	8.06	8.11	7.92	8.06
E-43	7.74	7.74	7.60	7.49	7.46	7.49	7.39	7.45
NP-201	7.55	7.57	7.41	7.34	7.21	7.27	7.13	7.23
E-44	7.38	7.37	7.27	####	6.96	7.06	6.84	7.00
E-45	7.25	7.28	7.17	7.02	6.85	6.96	6.73	6.88

	17 Nov 1977	1 Dec 1977	15 Dec 1977	22 Dec 1977	12 Jan 1978	26 Jan 1978	9 Feb 1978	23 Feb 1978
E-46	7.13	7.15	7.05	7.01	6.77	7.87	6.72	6.79
NP-202	7.00	7.03	6.95	####	6.68	6.77	6.60	6.71
E-47	6.80	6.87	6.75	6.31	6.51	6.61	6.45	6.57
E-48	6.47	6.53	6.45	6.47	6.25	6.29	6.20	6.32
E-49	6.12	6.08	6.05	6.14	6.08	6.06	6.00	6.12
E-50	6.02	6.12	6.26	6.06	5.96	5.94	5.87	6.06
E-51	5.80	6.00	6.17	5.91	5.70	5.59	####	5.87
E-52	####	####	####	####	####	####	####	####
E-53	####	####	####	####	####	####	####	####
E-54	6.65	6.69	####	6.65	6.64	6.66	6.58	6.72
E-55	6.11	6.16	6.36	6.17	6.11	6.14	5.99	6.19
NE-2	6.06	6.12	6.25	6.17	6.05	6.08	5.89	6.12
E-56	6.12	6.18	6.22	6.16	6.12	6.14	6.00	6.20
E-57	6.13	6.19	6.17	6.19	6.13	6.15	6.03	6.21
E-58	6.14	6.23	6.21	6.23	6.15	6.19	6.07	6.25
E-59	6.16	6.24	6.24	6.24	6.18	6.22	6.12	6.28
NE-1	6.11	6.21	6.09	6.19	6.12	6.17	6.07	6.23
E-61	6.76	6.27	6.26	6.26	6.18	6.36	6.24	6.32
E-62	6.15	6.25	6.23	6.235	6.15	6.37	6.11	6.27
E-63	5.96	6.04	6.04	6.06	5.96	6.04	5.84	6.04
E-65	6.17	6.25	6.23	6.23	6.11	6.23	6.09	6.19

	9 Mar 1978	22 Mar 1978	5 Apr 1978	20 Apr 1978	4 May 1978	18 May 1978	1 Jun 1978	15 Jun 1978	29 Jun 1978	13 Jul 1978
G-620	6.22	####	6.35	5.99	5.79	####	5.55	5.88	6.13	6.03
E-1	6.20	6.11	6.28	5.94	5.80	5.66	5.54	5.84	6.06	5.96
E-2	6.14	6.02	6.24	5.92	5.74	5.68	5.58	5.84	6.04	5.96
E-3	6.08	5.88	6.15	5.90	5.74	5.66	5.56	5.80	5.98	5.86
E-4	6.00	5.88	6.04	5.83	5.72	5.70	5.58	5.78	5.92	5.84
P-33	6.03	5.89	6.06	5.87	5.77	5.70	5.61	5.81	5.95	5.89
E-5	5.89	5.79	5.98	5.72	5.58	5.48	5.30	5.66	5.88	5.72
E-6	5.74	5.64	5.80	5.80	5.46	5.40	5.25	5.51	5.72	5.62
E-7	5.54	5.40	5.52	5.38	5.32	5.24	5.10	5.32	5.50	5.44
E-8	5.24	5.12	5.20	5.10	5.02	4.94	4.80	5.02	5.20	5.16
E-9	4.84	4.71	4.78	4.72	4.65	4.62	4.54	4.66	4.80	4.76
E-10	4.42	4.24	4.25	4.22	4.12	3.98	3.94	4.07	4.36	4.83
E-11	4.20	4.00	3.97	4.00	3.90	3.76	3.75	3.88	4.14	4.20
E-12	3.94	3.75	3.68	3.74	3.66	3.54	3.60	3.64	3.86	3.92
P-36	3.72	3.58	3.20	3.56	3.28	3.38	3.10	3.50	3.70	3.76
E-13	3.36	3.18	3.04	3.16	3.10	3.00	2.88	3.12	3.34	3.42
E-14	2.96	[illegible]2	2.70	2.78	2.74	2.66	2.64	2.78	2.95	3.08
NP-204	2.90	2.78	2.65	2.76	2.66	2.60	2.56	2.68	2.88	3.00
E-15	2.48	2.28	2.08	2.24	2.10	2.00	1.98	2.18	2.46	2.60
E-16	2.[illegible]4	2.07	1.84	2.00	1.82	1.68	1.75	2.00	2.22	2.34
E-17	1.84	1.68	1.48	1.64	1.50	1.32	1.40	1.70	1.82	1.92
E-19	1.50	1.13	####	1.30	1.16	####	1.02	1.44	1.56	1.36
E-18	1.22	####	####	0.98	0.96	####	####	1.16	1.20	1.28

	9 Mar 1978	22 Mar 1978	5 Apr 1978	20 Apr 1978	4 May 1978	18 May 1978	1 Jun 1978	15 Jun 1978	29 Jun 1978	13 Jul 1978
P-35	1.15	0.57	####	0.96	0.91	####	1.18	1.03	1.05	1.13
E-27	7.64	7.65	7.60	7.43	7.43	####	7.43	7.41	7.67	7.63
E-28	7.46	7.43	7.42	7.20	7.04	####	6.98	7.14	7.54	7.50
E-29	7.07	####	####	####	####	####	####	####	7.24	7.22
E-30	####	####	####	####	####	####	####	####	7.15	7.13
NP-205	6.25	6.15	5.77	####	4.49	3.67	3.98	5.75	6.53	6.43
E-31	6.54	####	####	####	####	####	####	####	####	6.70
E-32	5.94	####	####	####	####	####	####	####	####	6.17
E-33	####	####	####	####	####	####	####	####	####	####
E-34	####	####	####	####	####	####	####	####	####	####
E-35	####	####	####	####	####	####	####	####	5.25	5.24
E-36	####	####	####	####	####	####	####	####	####	5.14
E-37	####	####	####	####	####	####	####	####	####	####
E-39	3.59	####	####	####	####	####	####	####	3.65	3.71
E-40	####	####	####	####	####	####	####	####	####	3.26
E-41	2.64	2.56	####	####	####	####	####	2.48	2.68	2.86
P-34	1.66	1.64	1.30	1.93	####	####	####	1.62	####	2.00
E-42	####	8.26	7.73	7.60	7.44	7.34	7.50	3.54	7.68	7.30
E-43	7.33	7.81	7.37	7.11	7.07	6.95	6.87	7.46	7.21	7.19
NP-201	7.09	7.52	7.20	6.93	6.87	6.73	6.75	6.87	6.97	6.97
E-44	6.81	7.23	7.06	6.64	6.42	6.34	6.57	6.60	6.74	6.72
E-45	6.68	7.01	6.98	6.56	6.36	6.14	6.50	6.50	6.68	6.60
E-46	6.61	6.83	6.90	####	6.29	6.21	6.40	6.45	6.63	6.11
NP-202	6.56	6.65	6.80	6.46	6.32	6.20	6.32	6.36	6.56	6.46
E-47	6.43	6.47	6.66	6.35	6.19	6.09	6.14	6.29	6.47	6.31
E-48	6.19	6.17	6.41	6.11	6.03	5.93	5.89	6.09	6.23	6.13
E-49	6.11	6.04	6.11	5.92	5.80	####	####	####	6.06	6.14
6-50	6.00	6.92	5.98	5.74	5.66	####	####	5.56	6.10	6.10
E-51	5.83	5.64	5.49	####	####	####	####	####	5.99	5.99
E-52	####	####	####	####	####	####	####	####	####	5.81
E-53	####	####	####	####	####	####	####	####	####	####
E-54	6.66	6.65	6.46	####	####	####	####	####	6.82	6.76
E-55	6.11	6.11	6.10	####	####	####	####	####	6.37	6.25
NE-2	6.08	6.06	5.80	5.18	5.62	####	4.56	5.74	6.35	6.24
E-56	6.16	6.12	5.92	####	####	####	####	####	6.42	6.28
E-57	6.15	6.13	5.95	####	####	####	5.85	####	6.42	6.30
E-58	6.19	6.16	5.98	####	####	####	5.81	####	6.44	6.31
E-59	6.22	6.18	6.03	####	####	####	####	6.46	6.34	
NE-1	6.19	6.13	5.99	5.77	5.77	####	5.91	5.71	6.43	6.29
E-61	6.23	6.18	6.07	5.86	5.96	####	5.94	5.98	6.46	6.36
E-62	6.20	6.15	6.05	####	####	####	####	####	6.54	6.31
E-63	6.00	5.94	5.83	5.70	####	####	####	####	6.24	6.12
E-65	6.15	6.12	6.17	6.01	5.97	####	5.97	####	6.31	6.21

	27 Jul 1978	10 Aug 1978	24 Aug 1978	7 Sep 1978	21 Sep 1978	5 Oct 1978	19 Oct 1978	2 Nov 1978	16 Nov 1978	28 Nov 1978
G-620	6.27	6.70	7.98	7.00	6.98	7.00	6.88	6.94	6.95	####
E-1	6.18	6.70	6.92	6.96	6.92	6.94	6.82	6.86	6.92	6.76
E-2	6.10	6.64	6.90	6.90	6.85	6.86	6.74	6.78	6.86	6.72
E-3	6.00	6.54	6.80	6.80	6.76	6.76	6.68	6.72	6.78	6.64
E-4	5.90	6.36	6.78	6.66	6.66	6.66	6.56	6.58	6.66	6.55
P-33	5.93	6.33	6.73	6.65	6.66	6.65	6.53	6.65	6.65	6.55
E-5	5.86	6.36	6.60	6.64	6.60	6.65	6.48	6.52	6.60	6.47
E-6	5.70	6.10	6.34	6/40	6.39	6.40	6.26	6.30	6.38	6.23
E-7	5.48	5.84	6.02	6.12	6.14	6.15	6.00	6.00	6.10	5.98
E-8	5.18	5.50	5.68	5.78	5.79	5.80	5.66	5.64	5.76	5.63
E-9	4.78	5.04	5.25	5.40	5.44	5.50	5.30	5.28	5.42	5.26
E-10	4.36	4.66	4.88	5.08	5.10	5.16	4.96	4.90	5.04	4.90
E-11	4.12	4.38	4.62	4.80	4.80	4.85	4.70	4.62	4.76	4.64
E-12	3.80	4.04	4.36	4.50	4.50	4.55	4.42	4.34	4.46	4.35
P-36	3.66	3.88	4.24	4.34	4.34	4.38	4.26	4.12	4.28	4.16
E-13	3.28	3.40	3.96	4.00	3.98	4.00	3.86	3.76	3.90	3.76
E-14	2.88	2.98	3.56	3.60	3.62	3.65	3.52	3.38	3.52	3.39
NP-204	2.82	2.90	3.52	3.56	3.56	3.60	3.42	3.30	3.46	3.30
E-15	2.36	2.42	3.18	3.22	3.24	3.24	3.14	2.98	3.10	2.95
E-16	2.14	2.20	2.94	2.96	2.98	2.94	2.86	2.68	2.78	2.64
E-17	1.98	1.86	2.58	2.56	2.58	2.54	2.46	2.28	2.34	2.22
E-19	1.54	1.56	2.42	####	2.36	2.32	2.26	2.08	2.10	2.00
E-18	1.12	1.26	2.38	2.38	2.12	2.12	1.92	1.76	1.78	1.67
P-35	1.01	1.17	2.07	2.10	2.07	1.79	1.77	1.63	1.63	1.53
E-27	8.11	8.26	8.25	8.31	8.35	7.89	8.23	8.23	7.83	7.69
E-28	7.82	7.98	7.96	8.01	7.96	7.74	7.94	7.94	7.64	7.50
E-29	7.46	7.60	7.56	7.62	7.56	7.44	7.54	7.54	7.34	7.12
E-30	7.27	7.39	7.37	7.45	8.03	7.33	7.37	7.37	7.63	####
NP-205	6.51	6.69	6.69	6.71	6.73	6.69	6.59	6.67	6.63	6.25
E-31	6.86	7.00	6.98	7.02	7.00	6.98	6.90	6.94	6.88	####
E-32	6.25	6.41	6.49	6.45	6.46	6.47	6.25	6.35	6.27	5.93
E-33	####	####	####	####	####	####	####	####	####	####
E-34	####	5.69	####	####	5.79	5.87	####	####	5.65	####
E-35	5.23	5.21	5.53	5.58	5.58	5.71	5.47	5.55	5.63	5.47
E-36	####	4.97	5.40	5.42	5.42	5.52	5.32	5.36	5.44	5.28
E-37	####	####	5.11	5.11	5.46	5.23	5.01	5.03	5.13	4.95
E-39	3.71	3.99	4.21	4.18	4.32	4.29	4.13	4.09	4.21	4.05
E-40	####	3.47	3.72	3.64	3.56	3.78	3.60	3.52	3.66	3.54
E-41	2.64	3.07	3.26	3.15	3.20	3.32	3.14	2.98	3.14	3.02
P-34	1.83	2.24	2.28	2.27	2.20	2.30	2.30	2.04	2.18	2.08
E-42	8.02	8.32	8.36	8.50	8.48	8.52	8.60	8.62	8.56	8.54
E-43	7.57	8.08	8.15	8.24	8.23	8.15	8.15	8.27	8.23	8.17
NP-201	7.35	7.97	8.05	8.14	8.11	8.01	8.13	8.16	8.13	8.05
E-44	7.14	7.84	7.98	8.06	8.02	8.04	8.00	8.16	8.02	7.92
E-45	7.00	7.74	7.88	7.92	7.86	7.88	7.84	7.98	7.86	7.76
E-46	6.87	7.55	7.65	7.77	7.73	7.63	7.63	7.69	7.69	7.63

	27 Jul 1978	10 Aug 1978	24 Aug 1978	7 Sep 1978	21 Sep 1978	5 Oct 1978	19 Oct 1978	2 Nov 1978	16 Nov 1978	28 Nov 1978
NP-202	6.74	7.36	7.66	7.61	7.56	7.51	7.50	7.52	7.55	7.46
E-47	6.51	7.14	7.45	7.39	7.33	7.31	7.27	7.29	7.35	7.25
E-48	6.25	6.75	7.13	7.03	7.01	6.99	6.93	6.96	7.03	6.97
E-49	6.10	6.38	6.66	6.70	6.72	6.70	6.58	6.58	6.62	6.50
E-50	6.02	6.30	6.56	6.60	6.60	6.62	6.48	6.46	6.52	6.42
E-51	5.85	6.20	6.45	6.51	6.51	6.53	6.39	6.35	6.41	6.29
E-52	#####	5.97	6.25	6.31	6.23	6.29	6.17	6.13	6.19	6.07
E-53	#####	#####	#####	6.20	6.18	6.14	6.02	#####	#####	#####
E-54	6.67	6.79	7.26	7.22	7.28	7.30	7.18	7.11	7.12	7.00
E-55	6.17	6.29	6.61	6.72	6.75	6.79	6.67	6.59	6.61	6.49
NE-2	6.16	6.26	6.56	6.70	6.74	6.74	6.66	6.56	6.58	6.46
E-56	6.20	6.30	6.60	6.72	6.76	6.80	6.66	6.60	6.62	6.50
E-57	6.20	6.33	6.57	6.73	6.75	6.81	6.79	6.59	6.63	6.51
E-58	6.22	6.37	6.61	6.75	6.79	6.85	6.92	6.64	6.67	6.72
E-59	6.22	6.38	6.58	6.75	6.78	#####	6.74	6.63	6.68	6.56
NE-1	6.23	6.40	6.53	6.74	6.77	6.85	6.69	6.59	6.67	6.55
E-61	6.46	6.46	6.60	6.78	7.40	6.86	7.72	6.64	6.70	6.58
E-62	6.54	6.43	6.59	6.77	6.77	6.81	6.69	6.62	6.67	6.57
E-63	6.24	6.26	6.42	6.61	6.60	6.62	6.51	6.44	6.50	6.38
E-65	6.31	6.41	6.59	6.74	6.75	6.77	6.65	6.61	6.67	6.57

	14 Dec 1978	28 Dec 1978	11 Jan 1979	25 Jan 1979	8 Feb 1979	22 Feb 1979	8 Mar 1979	22 Mar 1979	5 Apr 1979	19 Apr 1979
G-620	6.65	6.57	6.47	6.43	6.34	6.24	6.18	5.97	5.68	5.60
E-1	6.66	6.56	6.48	6.46	6.36	6.30	6.18	5.98	5.81	5.62
E-2	6.62	6.54	6.46	6.44	6.36	6.28	6.18	5.98	5.80	5.58
E-3	6.54	6.46	6.40	6.40	6.30	6.24	6.16	5.97	5.77	5.58
E-4	6.48	6.38	6.34	6.34	6.24	6.18	6.10	5.96	5.78	5.60
P-33	6.47	6.37	6.31	6.31	6.25	6.21	6.11	5.95	5.79	5.63
E-5	6.38	6.30	6.20	6.20	6.08	6.04	5.96	5.76	5.58	5.34
E-6	6.16	6.09	6.02	6.04	5.96	5.86	5.80	5.62	5.48	5.28
E-7	5.90	5.80	5.78	5.78	5.64	5.60	5.58	5.40	5.28	5.12
E-8	5.58	5.54	5.46	5.44	5.36	5.21	5.26	5.14	5.04	4.82
E-9	5.20	5.14	5.14	5.06	4.98	4.91	4.88	4.96	4.68	4.58
E-10	4.84	4.74	4.72	4.66	4.56	4.46	4.42	4.28	4.12	3.90
E-11	4.58	4.50	4.44	4.42	4.32	4.24	4.18	4.04	3.90	3.66
E-12	4.28	4.20	4.16	4.16	4.08	3.98	3.94	3.84	3.70	3.50
P-36	4.08	4.02	3.96	3.96	3.86	3.78	3.72	3.62	3.48	3.26
E-13	3.68	3.60	3.56	3.56	3.48	3.40	3.34	3.22	3.09	2.88
E-14	3.28	3.25	3.20	3.18	3.10	3.00	2.96	2.86	2.86	2.56
NP-204	3.24	3.18	3.10	3.12	3.02	2.94	2.90	2.80	2.69	2.48
E-15	2.84	2.77	2.68	2.68	2.56	2.50	2.38	2.24	2.08	1.82
E-16	2.56	2.44	2.36	2.36	2.26	2.18	2.04	1.86	1.68	#####
E-17	2.14	2.04	1.94	1.94	1.86	1.74	1.64	1.46	#####	#####
E-19	1.86	1.72	1.58	1.60	1.42	1.08	1.14	#####	#####	#####
E-18	1.38	1.15	1.00	1.32	1.06	#####	#####	#####	#####	#####

	14 Dec 1978	28 Dec 1978	11 Jan 1979	25 Jan 1979	8 Feb 1979	22 Feb 1979	8 Mar 1979	22 Mar 1979	5 Apr 1979	19 Apr 1979
P-35	1.07	0.85	0.81	####	####	####	####	####	####	####
E-27	7.65	7.65	7.65	7.67	7.59	7.50	####	####	####	####
E-28	7.44	7.42	7.48	7.50	####	####	####	####	####	####
E-29	7.08	7.04	7.08	7.10	####	####	####	####	####	####
E-30	####	####	####	####	####	####	####	####	####	####
NP-205	6.03	5.83	6.05	6.11	5.97	5.39	4.95	4.09	3.25	####
E-31	####	####	####	####	####	####	####	####	####	####
E-32	####	####	####	####	####	####	####	####	####	####
E-33	####	####	####	####	####	####	####	####	####	####
E-34	####	####	####	####	####	####	####	####	####	####
E-35	####	5.23	5.18	####	####	####	####	####	####	####
E-36	####	5.12	5.04	####	####	####	####	####	####	####
E-37	####	####	4.61	####	####	####	####	####	####	####
E-39	3.97	3.83	3.87	3.75	####	####	####	####	####	####
E-40	3.44	3.36	3.30	####	####	####	####	####	####	####
E-41	2.90	2.78	2.76	2.74	2.60	####	####	####	####	####
P-34	1.92	1.70	1.64	1.65	1.52	1.29	1.02	0.55	0.92	-0.05
E-42	8.22	8.08	7.96	7.96	7.88	7.86	7.58	7.38	####	####
E-43	7.93	7.76	7.66	7.65	7.57	7.55	7.31	7.05	####	####
NP-201	7.77	7.65	7.55	7.52	7.41	7.39	7.11	6.83	6.53	5.62
E-44	7.70	7.56	7.46	7.42	7.30	7.28	7.02	6.75	6.44	####
E-45	7.56	7.46	7.30	7.30	7.20	7.16	6.94	6.68	6.38	6.13
E-46	7.43	7.31	7.29	7.17	7.11	6.99	6.87	6.59	6.33	6.09
NP-202	7.30	7.23	7.12	7.10	7.01	6.97	6.80	6.56	6.32	6.11
E-47	7.12	7.01	6.97	6.95	6.85	6.83	6.65	6.40	6.25	6.10
E-48	6.87	6.77	6.73	6.73	6.63	6.57	6.45	6.27	6.07	5.95
E-50	6.32	6.24	6.22	6.20	6.14	6.10	6.02	5.68	####	####
E-51	6.21	6.09	6.01	5.99	5.83	5.46	####	####	####	####
E-52	5.91	####	####	####	####	####	####	####	####	####
E-53	####	####	####	####	####	####	####	####	####	####
E-54	6.91	6.80	6.78	6.80	6.64	6.78	####	####	####	####
E-55	6.39	6.27	6.21	6.25	6.09	6.01	####	####	####	####
NE-2	6.34	6.22	6.16	6.18	5.98	5.86	5.38	4.62	####	4.06
E-56	6.36	6.28	6.24	6.34	6.09	5.90	####	####	####	####
E-57	6.40	6.29	6.24	6.25	6.11	5.97	5.79	####	####	####
E-58	6.45	6.31	6.29	6.31	####	6.0	5.89	####	####	####
E-59	6.56	6.38	6.34	6.36	6.23	6.13	6.08	####	####	####
NE-1	6.43	6.31	6.31	6.31	6.23	6.12	6.07	5.73	5.39	####
E-61	5.51	6.40	6.38	6.38	6.28	6.17	6.14	####	####	####
E-62	6.47	6.39	6.33	6.35	6.25	6.17	6.12	####	####	####
E-63	6.28	6.20	6.16	6.16	6.06	6.00	5.92	####	####	####
E-65	6.49	6.43	6.39	6.39	6.32	6.33	6.23	6.13	6.03	5.97

	3 May 1979	17 May 1979	31 May 1979	14 Jun 1979	12 Jul 1979	26 Jul 1979	9 Aug 1979	23 Aug 1979	6 Sep 1979	20 Sep 1979
G-620	6.17	6.20	6.16	6.16	####	6.12	6.13	####	####	6.32
E-1	6.10	6.20	5.90	5.98	5.98	6.12	6.18	6.02	6.16	6.40
E-2	6.09	6.18	5.90	5.96	5.98	6.10	6.12	6.02	6.14	6.37

	3 May 1979	17 May 1979	31 May 1979	14 Jun 1979	12 Jul 1979	26 Jul 1979	9 Aug 1979	23 Aug 1979	6 Sep 1979	20 Sep 1979
E-3	6.05	6.12	5.94	5.96	5.96	6.06	6.08	5.99	6.08	6.31
E-4	6.03	6.10	5.90	5.92	5.95	6.04	6.05	5.98	6.05	6.25
P-33	6.05	6.11	5.97	5.93	5.97	6.05	6.05	6.01	6.03	6.28
E-5	5.90	6.00	5.71	5.68	5.80	5.92	5.94	5.86	5.90	6.14
E-6	5.74	5.84	5.65	5.58	5.67	5.78	5.80	5.74	5.76	5.96
E-7	5.55	5.64	5.36	5.28	5.46	5.60	5.58	5.54	5.57	5.70
E-8	5.27	5.34	5.08	4.97	5.18	5.33	5.32	5.32	5.26	5.42
E-9	4.89	4.92	4.77	4.66	4.80	4.94	4.96	4.92	4.85	5.03
E-10	4.49	4.44	4.26	4.06	4.32	4.56	4.49	4.39	4.44	4.68
E-11	4.26	4.18	4.10	3.88	4.12	4.34	4.30	4.18	4.23	4.44
E-12	4.03	3.96	3.88	3.71	3.91	4.12	4.02	4.00	4.10	4.26
P-36	3.83	3.78	3.68	3.49	3.72	3.90	3.79	3.78	3.85	4.03
E-13	3.46	3.40	3.36	3.12	3.34	3.52	3.42	3.40	3.48	3.64
E-14	3.04	3.02	3.01	2.78	2.94	3.10	3.02	2.90	3.11	3.23
NP-204	2.98	2.94	2.96	2.70	2.84	3.00	2.83	2.92	3.00	3.17
E-15	2.44	2.50	2.44	2.05	2.30	2.56	2.48	2.34	2.55	2.77
E-16	2.25	2.38	2.19	1.84	2.08	2.29	2.24	2.09	2.28	2.51
E-17	1.85	1.98	1.74	1.48	1.79	1.86	1.88	1.71	1.91	2.10
E-19	1.67	1.82	1.38	1.06	1.49	1.60	1.68	1.49	1.80	1.93
E-18	1.52	1.68	1.29	####	1.40	1.46	1.56	1.38	1.74	1.78
P-35	1.45	1.61	1.17	1.02	1.37	1.37	1.51	1.32	1.69	1.69
E-27	7.51	7.59	7.39	7.17	7.57	7.47	7.41	7.49	7.53	7.59
E-28	7.36	7.47	7.15	6.40	7.39	7.33	7.20	7.33	7.34	7.44
E-29	####	7.17	6.78	5.82	7.10	7.00	6.92	6.96	6.98	7.05
E-30	6.88	7.04	6.54	5.55	7.09	6.85	6.83	6.59	6.55	6.89
NP-205	6.04	6.11	6.09	5.33	6.15	6.19	6.21	6.03	5.99	6.15
E-31	####	6.47	6.36	5.61	6.48	6.49	6.47	6.33	6.31	6.49
E-32	5.51	5.75	5.79	4.95	5.79	5.87	5.93	5.69	####	5.81
E-33	####	####	####	####	####	####	####	####	####	####
E-34	5.19	4.91	5.43	####	####	5.41	5.53	####	####	5.36
E-35	4.71	4.85	5.06	4.39	4.87	5.01	5.20	4.75	####	5.23
E-36	4.84	4.18	####	####	4.88	4.86	4.96	4.70	####	5.10
E-37	4.43	4.40	####	####	4.41	4.43	4.49	4.41	####	4.64
E-39	2.99	2.85	3.11	2.44	3.67	3.43	3.43	3.32	3.08	3.65
E-40	2.57	2.28	####	####	3.28	3.10	2.98	2.96	2.81	3.18
E-41	2.08	1.48	2.38	1.04	2.72	2.66	2.62	2.34	2.46	2.62
P-34	1.00	0.74	0.98	1.10	1.45	1.74	1.73	1.56	1.42	1.61
E-42	7.41	7.39	7.41	7.34	7.23	7.56	7.59	7.74	7.90	8.00
E-43	7.19	7.14	7.18	7.10	6.93	7.23	7.26	7.39	7.50	7.61
NP-201	6.98	6.91	7.03	6.99	6.77	7.01	7.03	7.15	7.27	7.39
E-44	6.86	6.74	6.96	6.93	6.64	6.82	6.84	6.95	7.04	7.26
E-45	6.81	6.71	6.88	6.85	6.60	6.68	6.70	6.74	6.88	7.14
E-46	6.71	6.65	6.72	6.73	6.53	6.55	6.59	6.59	6.77	7.02
NP-202	6.64	6.61	6.60	6.66	6.46	6.58	6.56	6.54	6.68	6.94
E-47	6.54	6.53	6.50	6.49	6.42	6.47	6.46	6.32	6.56	6.81

	3 May 1979	17 May 1979	31 May 1979	14 Jun 1979	12 Jul 1979	26 Jul 1979	9 Aug 1979	23 Aug 1979	6 Sep 1979	20 Sep 1979
E-48	6.33	6.37	6.27	6.30	6.47	6.32	6.33	6.26	6.37	6.63
E-49	6.79	6.34	6.12	5.92	6.10	6.24	6.14	6.03	6.17	6.42
E-50	6.17	6.27	6.04	5.94	6/04	6.18	6.06	5.91	6.08	6.32
E-51	6.11	6.19	5.88	5.66	5.91	6.2	5.93	5.61	5.89	6.24
E-52	5.99	6.04	5.65	5.37	5.68	5.91	5.73	5.39	5.75	6.00
E-53	6.09	6.07	5.64	5.32	5.60	5.94	5.78	5.34	5.80	5.95
E-54	6.71	6.97	6.99	6.66	6.84	6.80	6.78	6.70	6.76	6.96
E-55	6.65	6.53	6.47	6.19	6.35	6.33	6.29	6.19	6.29	6.51
NE-2	6.62	6.49	6.40	6.13	6.29	6.26	6.20	6.08	6.18	6.42
E-56	6.64	6.52	6.44	6.16	6.28	6.32	6.24	6.04	6.26	6.47
E-57	6.61	6.52	6.43	6.17	6.26	6.32	6.25	6.13	6.25	6.47
E-58	6.64	6.55	6.44	6.19	6.28	6.35	6.27	6.23	6.29	6.51
E-59	6.60	6.56	6.42	6.19	6.26	6.37	6.27	6.27	6.32	6.52
NE-1	6.57	6.55	6.36	6.15	6.19	6.33	6.23	6.25	6.31	6.52
E-61	6.56	6.56	6.36	6.18	6.24	6.36	6.28	6.31	6.36	6.56
E-62	6.58	6.53	6.63	6.17	6.22	6.36	6.25	6.26	6.30	6.55
E-63	6.35	6.48	6.12	5.95	6.02	6.17	6.04	6.03	6.08	6.35
E-65	6.41	4.32	6.23	6.19	6.19	6.31	6.23	6.12	6.27	6.51

- Data not available.

Appendix B. Regression Equations and Statistics

* - Regression equations meeting criteria for water level estimation

** - 95% Confidence Interval (T) at the mean value of the x sample population
(Interval range = y ± T in feet)

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$: b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
E-1	* NP-203	1.090	-0.303	0.995	0.038	0.076
	* G-620	0.956	0.268	0.980	0.072	0.143
	* NP-202	0.873	0.291	0.980	0.073	0.145
	* P-33	1.249	-1.386	0.975	0.081	0.161
	NP-201	0.679	1.310	0.932	0.133	0.263
	NP-204	1.227	2.616	0.901	0.159	0.312
	P-36	1.113	2.050	0.896	0.163	0.323
	NE-1	0.895	0.697	0.756	0.229	0.453
E-2	* NP-203	1.042	-0.042	0.996	0.032	0.065
	* NP-202	0.839	0.497	0.983	0.063	0.123
	* P-33	1.203	-1.136	0.981	0.067	0.131
	* G-620	0.914	0.496	0.979	0.071	0.141
	NP-201	0.649	1.500	0.930	0.128	0.255
	NP-204	1.185	2.711	0.910	0.145	0.288
	P-36	1.072	2.172	0.902	0.151	0.300
	NE-1	0.857	0.904	0.758	0.218	0.431
E-3	* NP-203	0.979	0.276	0.995	0.033	0.067
	* P-33	1.143	-0.822	0.989	0.048	0.096
	* NP-202	0.791	0.769	0.983	0.059	0.118
	* G-620	0.860	0.783	0.980	0.064	0.127
	NP-201	0.604	1.766	0.920	0.130	0.257
	NP-204	1.124	2.834	0.916	0.132	0.263
	P-36	1.017	2.326	0.908	0.139	0.274
	NE-1	0.810	1.140	0.758	0.206	0.408
E-4	* P-33	1.041	-0.263	0.997	0.022	0.043
	* NP-203	0.875	0.838	0.985	0.055	0.110
	* NP-202	0.708	1.273	0.974	0.068	0.135
	* G-620	0.777	1.231	0.970	0.073	0.143
	NP-204	1.038	3.026	0.936	0.105	0.206
	P-36	0.933	2.581	0.921	0.116	0.229

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
	NP-201	0.535	2.211	0.900	0.130	0.257
	NE-1	0.750	1.447	0.768	0.185	0.366
E-5	* NP-203	1.003	-0.043	0.998	0.016	0.033
	* P-33	1.153	-1.056	0.983	0.060	0.118
	* G-620	0.876	0.503	0.977	0.071	0.141
	NP-204	1.147	2.593	0.921	0.130	0.257
	P-36	1.044	2.049	0.919	0.132	0.261
E-6	* NP-203	0.851	0.711	0.996	0.026	0.050
	* P-33	0.999	-0.276	0.989	0.042	0.082
	* G-620	0.759	1.077	0.979	0.059	0.116
	* NP-204	1.003	2.857	0.935	0.102	0.120
	P-36	0.910	2.396	0.929	0.107	0.212
E-7	* NP-203	0.773	0.954	0.991	0.037	0.072
	* P-33	0.894	0.131	0.978	0.054	0.106
	* G-620	0.678	1.351	0.964	0.069	0.137
	* NP-204	0.914	2.891	0.941	0.088	0.172
	* P-36	0.831	2.462	0.937	0.091	0.180
E-8	* NP-203	0.715	1.000	0.984	0.046	0.090
	* P-33	0.825	0.249	0.968	0.061	0.120
	* G-620	0.625	1.377	0.952	0.075	0.149
	* P-36	0.782	2.342	0.947	0.078	0.155
	* NP-204	0.854	2.767	0.943	0.081	0.159
E-9	* P-33	0.795	0.059	0.967	0.059	0.116
	* NP-204	0.830	2.461	0.951	0.072	0.143
	* NP-203	0.669	0.903	0.955	0.074	0.147
	* P-36	0.749	2.094	0.939	0.080	0.159
	* G-620	0.590	1.223	0.933	0.085	0.168
E-10	* NP-203	0.886	-0.855	0.970	0.080	0.157
	* P-33	1.032	-1.838	0.965	0.080	0.157
	* NP-204	1.095	1.224	0.964	0.080	0.157
	* P-36	0.998	0.699	0.963	0.082	0.162
	G-620	0.767	-0.335	0.939	0.105	0.210
	P-35	0.561	3.806	0.662	0.232	0.461

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
E-11	* P-36	0.939	0.688	0.972	0.066	0.129
	* NP-204	1.026	1.194	0.970	0.069	0.135
	* P-33	0.953	-1.592	0.957	0.082	0.161
	* NP-203	0.816	-0.671	0.960	0.086	0.170
	G-620	0.705	-0.182	0.929	0.105	0.208
	P-35	0.520	3.625	0.675	0.207	0.412
E-12	* NP-204	0.950	1.164	0.975	0.058	0.114
	* P-36	0.865	0.713	0.973	0.060	0.120
	* P-33	0.868	-1.324	0.946	0.085	0.166
	NP-203	0.723	-0.368	0.932	0.102	0.202
	G-620	0.633	0.007	0.906	0.111	0.219
	P-35	0.523	3.361	0.737	0.175	0.347
E-13	* NP-204	1.019	0.389	0.988	0.041	0.082
	* P-36	0.925	-0.085	0.983	0.050	0.098
	* P-33	0.914	-2.177	0.941	0.093	0.184
	NP-203	0.733	-1.240	0.932	0.109	0.216
	G-620	0.683	-0.875	0.911	0.116	0.231
	P-35	0.563	2.743	0.750	0.181	0.361
E-14	* NP-204	0.977	0.140	0.993	0.029	0.057
	* P-36	0.870	-0.249	0.969	0.065	0.127
	* P-33	0.868	-2.268	0.937	0.092	0.182
	NP-203	0.728	-1.339	0.920	0.112	0.221
	G-620	0.642	-0.984	0.898	0.118	0.233
	P-35	0.546	2.389	0.748	0.176	0.351
E-15	* NP-204	1.272	-1.270	0.989	0.050	0.100
	* P-36	1.135	-1.784	0.966	0.088	0.174
	P-33	1.131	-4.415	0.934	0.124	0.245
	P-34	0.458	1.829	0.745	0.226	0.449
	P-35	0.674	1.708	0.719	0.238	0.472
E-16	* NP-204	1.230	-1.411	0.973	0.075	0.147
	P-36	1.094	-1.895	0.950	0.103	0.204
	P-33	1.078	-4.356	0.910	0.137	0.272
	P-35	0.668	1.460	0.754	0.212	0.421
	P-34	0.462	1.555	0.719	0.221	0.439
E-17	* NP-204	1.141	-1.529	0.958	0.089	0.174
	P-36	1.011	-1.964	0.932	0.112	0.223

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
	P-33	1.000	-4.263	0.893	0.140	0.276
	P-35	0.645	1.105	0.765	0.198	0.394
	P-34	0.450	1.190	0.739	0.200	0.398
E-18	* P-35	1.054	0.044	0.970	0.092	0.184
	NP-204	1.224	-2.299	0.817	0.218	0.433
	P-36	1.204	-3.237	0.798	0.227	0.453
	P-33	1.003	-4.772	0.733	0.257	0.512
	P-34	0.369	0.841	0.440	0.334	0.664
E-19	NP-204	1.341	-2.450	0.892	0.166	0.329
	P-36	1.223	-3.105	0.876	0.177	0.351
	P-33	1.120	-5.315	0.823	0.209	0.414
	P-35	0.854	0.534	0.809	0.214	0.425
	P-34	0.490	0.800	0.630	0.278	0.553
E-27	NP-201	0.512	3.887	0.784	0.173	0.343
	P-34	0.448	6.924	0.727	0.192	0.382
	NP-205	0.302	5.839	0.623	0.214	0.425
E-28	NP-201	0.508	3.701	0.738	0.203	0.404
	NP-205	0.376	5.175	0.715	0.209	0.414
	P-34	0.425	6.751	0.678	0.216	0.427
E-29	NP-205	0.608	3.354	0.761	0.207	0.412
	P-34	0.475	6.305	0.694	0.235	0.468
	NP-201	0.462	3.688	0.619	0.255	0.508
E-30	NP-205	1.068	0.300	0.921	0.202	0.425
	P-34	0.565	6.046	0.660	0.358	0.757
	NP-201	0.605	2.497	0.557	0.447	0.930
E-31	* NP-205	0.977	0.437	0.995	0.029	0.062
	P-34	0.392	5.952	0.672	0.233	0.491
E-32	* NP-205	1.119	-1.074	0.989	0.051	0.107
	P-34	0.513	5.104	0.765	0.231	0.485

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
E-34	NP-205	1.128	-1.632	0.729	0.284	0.625
	P-34	0.532	4.641	0.699	0.296	0.678
E-35	NP-205	0.810	0.116	0.846	0.168	0.350
	P-34	0.472	4.380	0.779	0.201	0.421
E-36	P-34	0.471	4.233	0.781	0.193	0.410
	NP-205	0.757	0.307	0.698	0.222	0.470
E-37	NP-205	1.162	-2.590	0.927	0.126	0.272
	P-34	0.467	3.946	0.753	0.222	0.481
	P-35	0.766	3.571	0.698	0.248	0.549
E-39	P-34	0.755	2.368	0.829	0.249	0.496
	NP-205	1.113	-3.292	0.786	0.272	0.541
	P-35	0.469	3.021	0.365	0.418	0.870
E-40	P-34	0.618	2.165	0.811	0.221	0.466
	NP-205	0.896	-2.356	0.682	0.276	0.581
	P-35	0.162	3.064	0.152	0.379	0.807
E-41	P-34	0.777	1.328	0.817	0.260	0.517
	NP-205	1.101	-4.100	0.432	0.728	1.427
	P-35	0.605	1.969	0.254	0.862	1.791
E-42	NP-201	1.100	-0.280	0.633	0.588	1.152
	NP-202	1.165	-0.201	0.615	0.604	1.198
	P-33	1.521	-1.530	0.563	0.627	1.244
E-43	* NP-201	0.896	0.944	0.984	0.068	0.135
	NP-202	0.928	1.163	0.937	0.139	0.274
	P-33	1.262	-0.218	0.890	0.179	0.354
E-44	* NP-201	1.102	-0.918	0.986	0.081	0.161
	* NP-202	1.220	-1.199	0.986	0.081	0.161
	G-620	1.311	-1.090	0.967	0.126	0.251
	P-33	1.678	-3.131	0.945	0.163	0.323
E-45	* NP-202	1.187	-1.085	0.992	0.060	0.120
	G-620	1.257	-0.858	0.970	0.118	0.235
	NP-201	0.932	0.231	0.953	0.148	0.294
	P-33	1.638	-3.002	0.953	0.149	0.294

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
E-46	* NP-202	1.100	-0.609	0.987	0.073	0.145
	G-620	1.157	-0.347	0.954	0.136	0.270
	P-33	1.514	-2.360	0.945	0.149	0.294
	NP-201	0.854	.685	0.940	0.156	0.308
E-47	* NP-202	0.905	0.491	0.995	0.035	0.069
	* P-33	1.278	-1.155	0.967	0.095	0.188
	G-620	0.959	0.658	0.960	0.104	0.206
	NP-203	1.094	0.079	0.967	0.104	0.208
	NP-201	0.684	1.681	0.911	0.156	0.308
E-48	* P-33	1.128	-0.459	0.986	0.053	0.104
	* NP-203	0.943	0.763	0.975	0.077	0.153
	* NP-202	0.773	1.163	0.971	0.078	0.155
	* G-620	0.837	1.192	0.964	0.086	0.170
	NP-201	0.574	2.259	0.883	0.153	0.304
E-49	NE-1	0.880	1.212	0.892	0.115	0.229
	P-33	0.846	1.012	0.872	0.125	0.249
	P-36	0.833	3.035	0.862	0.129	0.257
	G-620	0.652	2.096	0.850	0.138	0.274
	NP-203	0.741	1.714	0.854	0.144	0.286
	NP-202	0.537	2.528	0.810	0.151	0.300
	NE-2	0.445	3.500	0.724	0.170	0.337
	NP-206	0.153	5.489	0.622	0.212	0.419
E-50	NP-203	0.792	1.293	0.925	0.103	0.204
	G-620	0.694	1.728	0.906	0.108	0.216
	NE-1	0.820	1.001	0.797	0.165	0.327
	P-36	0.773	3.187	0.746	0.183	0.363
	P-33	0.776	1.365	0.745	0.183	0.363
	NP-202	0.528	2.510	0.742	0.186	0.368
	NE-2	0.485	3.163	0.712	0.192	0.382
	NP-206	0.162	5.367	0.575	0.228	0.453
E-51	NE-2	1.102	-0.906	0.908	0.120	0.239
	NE-1	1.195	-1.576	0.881	0.136	0.268
	P-36	1.010	2.092	0.879	0.136	0.270
	NP-203	0.816	1.004	0.850	0.153	0.304

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
	P-33	0.890	0.487	0.797	0.173	0.345
	G-620	0.698	1.545	0.766	0.184	0.366
	NP-202	0.550	2.185	0.718	0.202	0.402
	NP-206	0.285	4.531	0.673	0.227	0.451
E-52	NE-1	1.221	-1.963	0.903	0.114	0.245
	P-36	0.938	2.205	0.886	0.123	0.264
	NE-2	1.159	-1.501	0.884	0.125	0.266
	NP-203	0.687	1.659	0.876	0.138	0.301
	P-33	0.760	1.157	0.844	0.143	0.306
	G-620	0.510	2.651	0.795	0.148	0.326
	NP-202	0.464	2.678	0.797	0.161	0.345
	NP-206	0.514	3.034	0.514	0.246	0.530
E-53	NP-206	1.258	-1.372	0.934	0.113	0.261
	NE-1	1.079	-1.118	0.864	0.142	0.320
	NE-2	1.056	-0.919	0.859	0.144	0.325
	P-36	0.811	-2.664	0.780	0.176	0.399
	P-33	0.759	1.143	0.735	0.191	0.431
	G-620	0.409	3.293	0.614	0.200	0.473
	NP-202	0.435	2.863	0.657	0.213	0.479
	NP-203	0.643	1.903	0.775	0.201	0.550
E-54	* NE-1	0.906	1.080	0.908	0.088	0.174
	* NE-2	0.774	1.981	0.893	0.095	0.188
E-55	* NE-2	0.879	0.817	0.980	0.042	0.084
	* NE-1	0.946	0.324	0.934	0.077	0.153
E-56	* NE-2	0.935	0.452	0.988	0.034	0.069
	* NE-1	1.021	-0.165	0.955	0.067	0.133
E-57	* NE-1	1.061	-0.412	0.965	0.063	0.125
	NE-2	0.569	2.764	0.876	0.118	0.233
E-58	* NE-1	1.105	-0.648	0.970	0.062	0.123
	NE-2	0.593	2.662	0.877	0.123	0.243
E-59	* NE-1	0.957	0.307	0.987	0.031	0.061
	* NE-2	0.673	2.164	0.920	0.076	0.151

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1 x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
E-61	NE-1	1.035	-0.130	0.738	0.245	0.486
	NE-2	0.582	2.795	0.652	0.276	0.547
	P-33	0.791	1.501	0.597	0.292	0.578
	G-620	0.691	1.998	0.639	0.295	0.584
E-62	* NE-1	0.906	0.638	0.947	0.065	0.129
	* NE-2	0.662	2.245	0.886	0.095	0.188
	NP-203	0.548	3.007	0.780	0.131	0.261
	P-33	0.555	2.942	0.684	0.150	0.298
	G-620	0.460	3.448	0.686	0.153	0.304
	P-26	0.357	3.828	0.429	0.198	0.430
E-63	* NE-1	0.957	0.112	0.976	0.049	0.096
	NE-2	0.629	2.249	0.887	0.104	0.206
	NP-203	0.646	2.197	0.836	0.128	0.254
	P-33	0.691	1.879	0.785	0.139	0.276
	G-620	0.565	2.554	0.774	0.147	0.292
	P-26	0.505	2.564	0.555	0.202	0.437
E-65	* NP-203	0.597	2.682	0.931	0.083	0.165
	P-26	0.583	2.185	0.758	0.141	0.301
	P-33	0.723	1.813	0.569	0.294	0.582
	G-620	0.571	2.652	0.572	0.307	0.610
	NE-1	0.486	3.216	0.390	0.331	0.655
	NE-2	0.215	4.952	0.330	0.340	0.674
NP-201	* P-25	1.650	-0.100	0.979	0.086	0.183
	NP-202	1.154	-0.597	0.943	0.169	0.333
	NP-203	1.429	-1.326	0.948	0.174	0.345
	G-620	1.271	-0.706	0.937	0.178	0.353
	P-33	1.582	-2.398	0.900	0.219	0.435
	NP-204	1.575	2.609	0.843	0.270	0.535
	P-36	1.402	1.983	0.823	0.286	0.566
	P-34	0.747	6.152	0.809	0.299	0.592
	NE-1	1.084	0.566	0.728	0.302	0.598
	NE-2	0.641	3.433	0.710	0.348	0.690
	NP-205	0.335	5.374	0.616	0.351	0.696
	P-35	0.634	6.569	0.501	0.400	0.796
NP-202	* NP-203	1.204	-0.415	0.980	0.088	0.174
	* P-25	1.043	-0.471	0.979	0.086	0.184
	* G-620	1.056	0.207	0.972	0.096	0.190

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
	* P-33	1.395	-1.709	0.971	0.099	0.196
	NP-201	0.771	1.211	0.943	0.138	0.272
	NP-204	1.362	2.785	0.892	0.187	0.370
	P-36	1.206	2.267	0.866	0.208	0.408
	P-26	1.258	-1.934	0.862	0.216	0.461
	NE-1	0.974	0.777	0.730	0.272	0.539
	P-34	0.516	6.063	0.704	0.290	0.574
	NE-2	0.458	4.086	0.623	0.318	0.629
	NP-205	0.279	5.225	0.568	0.334	0.662
	P-35	0.664	6.027	0.570	0.354	0.704
NP-203	* P-33	1.155	-1.044	0.985	0.062	0.123
	* NP-202	0.798	0.564	0.980	0.072	0.143
	* G-620	0.870	0.563	0.985	0.062	0.123
	* P-25	0.854	0.044	0.978	0.074	0.160
	NP-201	0.629	1.440	0.948	0.115	0.227
	NP-204	1.148	2.614	0.927	0.136	0.270
	P-36	1.036	2.105	0.916	0.146	0.288
	P-26	1.065	-1.386	0.887	0.167	0.359
	NE-1	0.882	0.566	0.824	0.193	0.382
	P-38	0.660	5.103	0.665	0.270	0.535
	P-35	0.622	5.285	0.625	0.280	0.559
	NP-62	0.798	3.933	0.678	0.266	0.573
	NP-206	0.179	5.205	0.609	0.293	0.582
NP-204	* P-36	0.881	-0.363	0.965	0.070	0.139
	* P-33	0.886	-2.457	0.941	0.090	0.178
	NP-203	0.748	-1.536	0.927	0.110	0.218
	G-620	0.664	-1.201	0.908	0.115	0.227
	NP-202	0.585	-1.025	0.892	0.123	0.243
	P-62	0.842	0.747	0.881	0.132	0.281
	NE-1	0.729	-1.564	0.832	0.143	0.284
	NP-201	0.452	-0.322	0.843	0.145	0.286
	P-38	0.860	1.696	0.806	0.167	0.333
	P-35	0.543	2.318	0.729	0.186	0.368
	NE-2	0.347	0.881	0.713	0.186	0.368
	P-34	0.338	2.471	0.705	0.187	0.372
	NP-205	0.201	1.810	0.625	0.205	0.408

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
NP-205	NE-2	1.258	-1.735	0.863	0.327	0.647
	NE-1	2.077	-7.081	0.795	0.460	0.911
	P-34	0.898	4.575	0.699	0.466	0.925
	P-35	0.731	5.122	0.438	0.547	1.086
	G-620	1.490	-3.518	0.679	0.588	1.166
	P-36	1.895	-1.333	0.669	0.609	1.207
	NP-204	1.943	0.065	0.625	0.640	1.268
	NP-201	1.132	-2.433	0.616	0.646	1.280
	NP-203	1.777	4.940	0.695	0.647	1.284
	P-33	1.756	-4.911	0.601	0.655	1.284
	NP-202	1.157	-2.069	0.568	0.681	1.330
NP-206	NE-1	2.995	-13.910	0.828	0.611	1.211
	P-25	1.512	-5.879	0.733	0.568	1.220
	P-26	1.666	6.902	0.587	0.676	1.450
	NP-203	2.078	-7.836	0.609	1.001	1.987
	P-33	2.206	-8.844	0.542	1.031	2.040
P-33	* NP-203	0.840	1.059	0.985	0.053	0.106
	* G-620	0.743	1.456	0.973	0.065	0.129
	* NP-202	0.675	1.504	0.971	0.069	0.137
	* P-25	0.712	1.102	0.956	0.085	0.181
	* NP-204	1.000	3.150	0.941	0.096	0.188
	P-36	0.893	2.739	0.922	0.111	0.220
	NP-201	0.512	2.389	0.900	0.125	0.247
	P-26	0.886	-0.087	0.869	0.144	0.306
	NE-1	0.728	1.593	0.782	0.172	0.339
	P-34	0.342	5.619	0.684	0.201	0.398
	P-62	0.759	4.103	0.761	0.189	0.401
	NE-2	0.345	4.043	0.673	0.208	0.412
	P-35	0.542	5.459	0.668	0.220	0.437
	NP-205	0.206	4.933	0.601	0.224	0.443
	NP-206	0.133	5.509	0.542	0.253	0.502
P-34	NP-201	0.877	-4.850	0.809	0.324	0.643
	NP-205	0.545	-1.643	0.699	0.363	0.719
	NP-203	1.267	-6.074	0.750	0.383	0.760
	G-620	1.193	-5.980	0.748	0.385	0.764
	P-36	1.444	-3.948	0.713	0.386	0.766
	NP-204	1.470	-2.834	0.705	0.391	0.776
	NP-202	0.962	-5.034	0.704	0.396	0.784

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
	P-33	1.367	-6.838	0.684	0.402	0.798
	P-34	0.971	-4.465	0.574	0.406	0.806
	NE-2	0.698	-2.662	0.655	0.415	0.821
	P-35	0.488	1.093	0.379	0.446	0.886
P-35	P-62	1.184	-1.877	0.870	0.205	0.447
	P-38	1.275	-0.745	0.830	0.218	0.455
	NP-204	0.979	-1.652	0.729	0.249	0.496
	NE-1	0.958	-4.740	0.715	0.255	0.506
	P-36	0.872	-2.042	0.693	0.263	0.521
	G-620	0.615	-2.599	0.657	0.272	0.533
	P-33	0.823	-3.763	0.668	0.271	0.539
	NP-203	0.628	-2.508	0.625	0.282	0.586
	NE-2	0.492	-1.742	0.563	0.301	0.600
	NP-202	0.489	-2.056	0.570	0.304	0.604
	NP-201	0.395	-1.609	0.501	0.316	0.627
	NP-205	0.263	-0.274	0.438	0.328	0.653
	P-34	0.294	0.834	0.379	0.346	0.688
P-36	* NP-204	1.057	0.641	0.965	0.077	0.151
	P-33	0.951	-2.038	0.922	0.114	0.225
	NP-203	0.809	-1.093	0.916	0.129	0.255
	G-620	0.713	-0.700	0.888	0.138	0.274
	NP-202	0.621	-0.462	0.866	0.149	0.296
	NE-1	0.794	-1.153	0.825	0.160	0.317
	NP-201	0.482	0.265	0.823	0.168	0.333
	P-34	0.352	3.273	0.713	0.191	0.378
	NE-2	0.397	1.394	0.744	0.195	0.386
	P-38	0.885	2.473	0.755	0.204	0.404
	P-62	0.859	1.494	0.796	0.191	0.406
	P-35	0.551	3.127	0.693	0.209	0.416
	NP-205	0.236	2.417	0.669	0.215	0.425
P-38	* P-62	0.863	-0.734	0.973	0.059	0.125
	P-35	0.540	0.899	0.830	0.142	0.295
	NP-204	0.756	-0.751	0.806	0.157	0.312
	P-36	0.645	-0.943	0.755	0.174	0.345
	NP-203	0.671	-2.597	0.665	0.272	0.541
P-62	* P-38	1.097	0.939	0.973	0.066	0.141
	NP-204	0.921	-0.112	0.881	0.138	0.293
	P-35	0.639	1.839	0.870	0.150	0.329

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
	P-36	0.738	-0.164	0.796	0.177	0.376
	P-33	0.762	-2.047	0.761	0.190	0.403
	G-620	0.534	-0.759	0.679	0.220	0.471
	NP-203	0.576	-0.869	0.678	0.226	0.487
P-25	* NP-201	0.899	0.377	0.979	0.079	0.168
	* NP-202	0.918	0.717	0.979	0.081	0.173
	* NP-203	1.120	0.242	0.978	0.085	0.183
	G-620	0.994	0.745	0.968	0.098	0.209
	P-33	1.282	-0.816	0.956	0.115	0.243
	P-26	1.171	-1.166	0.856	0.202	0.428
	NE-1	1.155	-0.162	0.834	0.211	0.451
	NP-206	0.355	5.326	0.733	0.275	0.592
P-26	NP-203	0.740	2.493	0.887	0.139	0.298
	P-33	0.853	1.760	0.869	0.141	0.299
	P-25	0.626	2.574	0.856	0.148	0.314
	NP-202	0.591	2.914	0.862	0.148	0.315
	NE-1	0.710	2.555	0.693	0.204	0.436
	NP-206	0.206	5.991	0.587	0.238	0.513
G-620	* NP-203	1.115	-0.444	0.985	0.070	0.139
	* P-33	1.275	-1.532	0.973	0.085	0.169
	P-25	0.943	-0.311	0.968	0.095	0.203
	NP-202	0.895	0.153	0.972	0.088	0.237
	NP-201	0.690	1.253	0.937	0.131	0.259
	NP-204	1.241	2.592	0.908	0.157	0.308
	P-36	1.106	2.100	0.888	0.172	0.343
	NE-1	0.957	0.332	0.812	0.212	0.421
	P-34	0.469	5.594	0.748	0.241	0.478
	NE-2	0.469	3.471	0.734	0.250	0.496
	NP-205	0.310	4.495	0.679	0.268	0.531
	P-62	0.863	4.028	0.679	0.280	0.598
	P-35	0.701	5.447	0.657	0.296	0.605
NE-1	NE-2	0.496	3.235	0.851	0.141	0.278
	NP-204	0.950	3.404	0.832	0.164	0.323
	P-25	0.602	1.979	0.834	0.152	0.325
	P-36	0.858	2.981	0.825	0.167	0.331

Station Predicted (y)	Predicting Station (x)	Regression Equation (ft.) $y = b_1x + b_0$ b_1	b_0	Correlation Coefficient	Standard Deviation	95% Confidence Interval**
	NP-206	0.229	5.148	0.828	0.169	0.335
	NP-205	0.304	4.458	0.795	0.176	0.349
	G-620	0.689	1.892	0.812	0.180	0.357
	P-33	0.840	1.089	0.782	0.184	0.365
	P-35	0.533	5.615	0.715	0.190	0.378
	NP-201	0.489	2.656	0.728	0.203	0.402
	NP-202	0.548	2.488	0.730	0.204	0.404
	P-26	0.676	1.482	0.693	0.199	0.425
	P-34	0.339	5.720	0.574	0.240	0.476
	NP-203	0.770	-1.558	0.824	0.180	0.357
NE-2	NP-205	0.593	2.588	0.863	0.224	0.445
	NE-1	1.461	-3.048	0.851	0.242	0.480
	P-35	0.644	5.363	0.563	0.345	0.684
	P-36	1.395	0.763	0.744	0.365	0.723
	NP-204	1.466	1.689	0.713	0.383	0.760
	NP-201	0.786	0.310	0.710	0.385	0.762
	P-34	0.614	5.130	0.655	0.389	0.772
	G-620	1.148	-1.194	0.734	0.391	0.774
	NP-203	1.273	-1.676	0.752	0.394	0.782
	P-33	1.310	-1.979	0.673	0.405	0.802
	NP-202	0.848	0.246	0.623	0.433	0.856

Appendix C. Range of Water levels (feet above msl).

STATION	RANGE OF WATER LEVELS LOWER	UPPER
E-1	5.54	6.96
E-2	5.58	6.90
E-3	5.56	6.80
E-4	5.58	6.78
E-5	5.30	6.64
E-6	5.25	6.40
E-7	5.10	6.15
E-8	4.80	5.80
E-9	4.54	5.50
E-10	3.90	5.16
E-11	3.66	4.85
E-12	3.50	4.55
E-13	2.88	4.00
E-14	2.56	3.65
E-15	1.82	3.24
E-16	1.68	2.98
E-17	1.32	2.58
E-18	1.08	2.38
E-19	0.96	2.36
E-27	7.17	8.35
E-28	6.40	8.01
E-29	5.82	7.62
E-30	5.55	8.03
E-31	5.61	7.02
E-32	4.95	6.49
E-34	4.91	5.87
E-35	5.18	5.71
E-36	5.04	5.52
E-37	4.61	5.46
E-39	3.59	3.78
E-40	3.26	3.32
E-41	1.04	3.32
E-42	7.30	8.62
E-43	6.87	8.27
E-44	6.34	8.16
E-45	6.13	7.98
E-46	6.09	7.77
E-47	6.09	7.45
E-48	5.89	7.13
E-49	5.80	6.72
E-50	5.56	6.62
E-51	5.46	6.53
E-52	5.81	6.31
E-53	5.32	6.20
E-54	6.46	7.30
E-55	6.01	6.79
E-56	5.90	6.80

STATION	RANGE OF WATER LEVELS LOWER	UPPER
E-57	5.79	6.81
E-58	5.81	6.92
E-59	6.03	6.78
E-61	5.86	7.72
E-62	6.05	6.81
E-63	5.70	6.62
E-65	5.97	6.77
NP-201	5.62	8.16
NP-202	6.11	7.66
NP-204	2.56	3.60
NP-205	3.25	6.73
P-33	5.61	6.73
P-34	-0.05	2.28
P-35	0.57	2.10
P-36	3.10	4.38
G-620	5.55	7.98
NE-1	5.39	6.85
NE-2	4.06	6.74