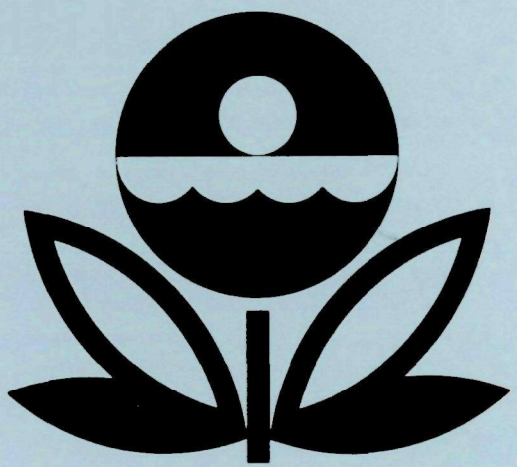
U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES



REPORT

ON

LAKE MOHAVE

MOHAVE COUNTY, ARIZONA

CLARK COUNTY, NEVADA

EPA REGION IX

WORKING PAPER No. 731

CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY - CORVALLIS, OREGON

and

ENVIRONMENTAL MONITORING & SUPPORT LABORATORY - LAS VEGAS, NEVADA

REPORT

ON

LAKE MOHAVE

MOHAVE COUNTY, ARIZONA

CLARK COUNTY, NEVADA

EPA REGION IX

WORKING PAPER No. 731

WITH THE COOPERATION OF THE

ARIZONA STATE DEPARTMENT OF HEALTH

AND THE

ARIZONA NATIONAL GUARD

AUGUST, 1977

REPORT ON LAKE MOHAVE

MOHAVE COUNTY, ARIZONA

CLARK COUNTY, NEVADA

EPA REGION IX

by

National Eutrophication Survey

Water and Land Quality Branch
Monitoring Operations Division
Environmental Monitoring & Support Laboratory
Las Vegas, Nevada

and

Special Studies Branch
Corvallis Environmental Research Laboratory
Corvallis, Oregon

Working Paper No. 731

OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY

August 1977

CONTENTS

FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by the U.S. Environmental Protection Agency and to augment plans implementation by the states.

ACKNOWLEDGMENTS

The staff of the National Eutrophication Survey (Office of Research and Development, U.S. Environmental Protection Agency) expresses sincere appreciation to the Arizona State Department of Health for professional involvement, to the Arizona National Guard for conducting the tributary sampling phase of the Survey, and to those Arizona wastewater treatment plant operators who provided effluent samples and flow data.

The staffs of the Bureau of Water Quality Control, Environmental Health Services, Arizona State Department of Health, and the Arizona Game and Fish Department, provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports and provided critiques most useful in the preparation of this Working Paper Series.

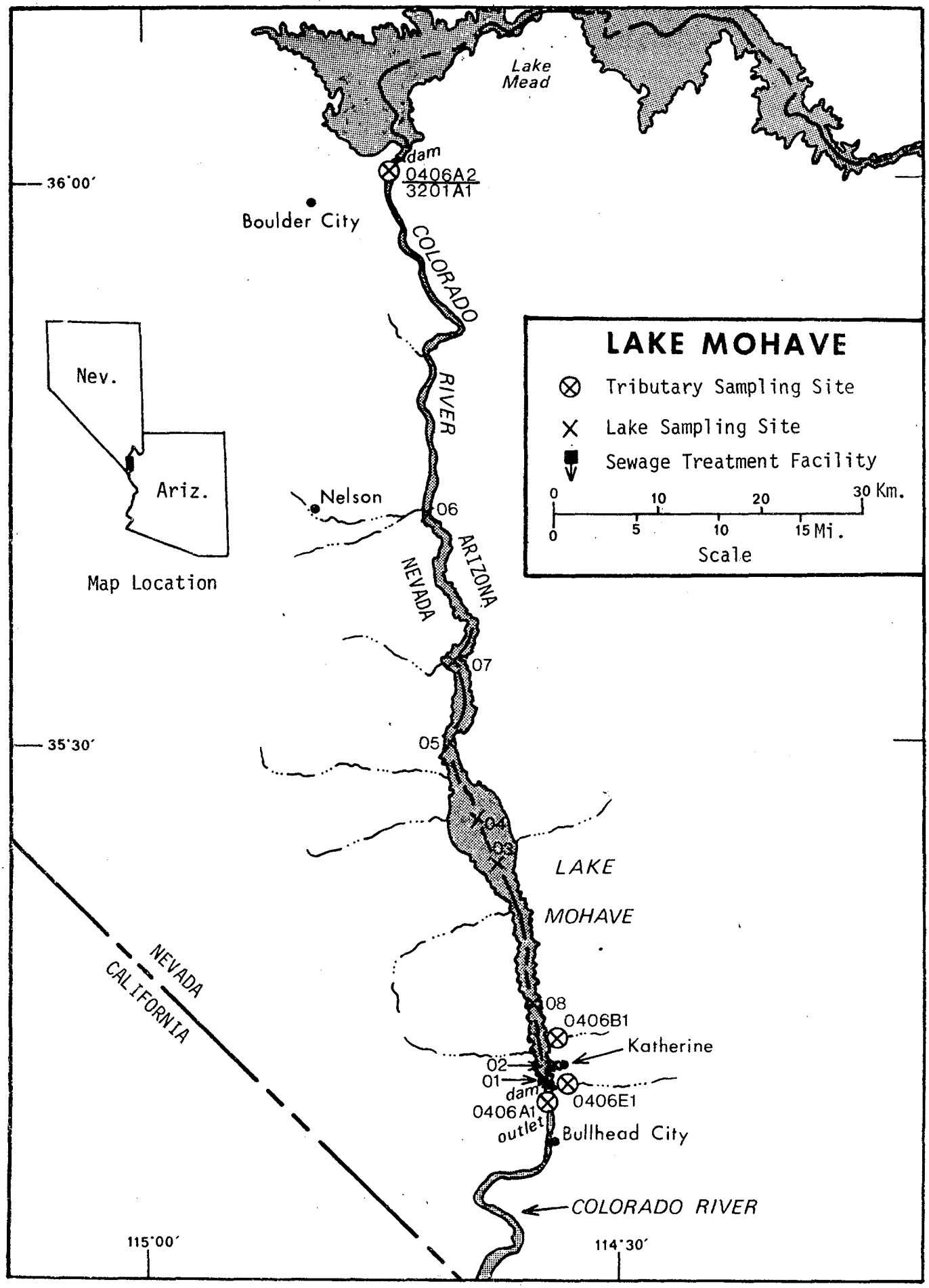
Major General John G. Smith, the Adjutant General of Arizona, and Project Officer Colonel Richard A. Colson, who directed the volunteer efforts of the Arizona National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF ARIZONA

LAKE NAME	COUNTY
Big Lake	Apache
Fools Hollow Lake	Navajo
Lake Havasu	Mohave (San Bernadino in CA)
Luna Lake	Apache
Lyman Lake	Apache
Lake Mohave	Mohave (Clark in NV)
Lake Pleasant	Yavapai, Maricopa
Lake Powell	Coconino (Kane, Garfield, San Juan in UT)
Rainbow Lake	Navajo
Theodore Roosevelt Lake	Gila
San Carlos Reservoir	Graham, Gila, Pinal


Lake Mead
dam
0406A2
3201A1
36°00′
Boulder City
COLORADO RIVER
Nev.
Ariz.
Map Location
Nelson
06
ARIZONA
NEVADA
07
35°30′
05
04
03
LAKE MOHAVE
NEVADA
CALIFORNIA
08
0406B1
Katherine
02
01
dam
0406A1
outlet
0406E1
Bullhead City
COLORADO RIVER
115°00′
114°30′
LAKE MOHAVE
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
0 10 20 30 Km.
0 5 10 15 Mi.
Scale

REPORT ON LAKE MOHAVE, ARIZONA

STORET NO. 0406

I. CONCLUSIONS

A. Trophic Condition:*

Survey data indicate that Lake Mohave is mesotrophic. Chlorophyll a values in the lake ranged from 0.9 µg/l to 11.4 µg/l with a mean of 4.4 µg/l. Potential for primary production as measured by algal assay control yields was moderately low and lake water transparency was generally good. Of the 11 Arizona lakes sampled in 1975, 8 had higher median total phosphorus values (0.017 mg/l), 1 had higher median inorganic nitrogen levels (0.240 mg/l) and 3 had higher median orthophosphorus levels (0.010 mg/l) than Lake Mchave.

Survey limnologists did not report any problem algal blooms or macrophyte growths during their visits to the lake.

B. Rate-Limiting Nutrient:

The algal assay results indicate that Lake Mohave was limited by available phosphorus during the sample collection times (02/26/75, 12/02/75). Lake data further suggest primary limitation by phosphorus.

*See Appendix E.

C. Nutrient Controllability:

1. Point sources -

During the sampling year, there were no known point sources directly impacting Lake Mohave. There is a plant at Katherine's Landing which handles all the wastes from the Katherine's Landing concession and the National Park Service. Discharges from the plant are pumped into a series of evaporative lagoons and so probably do not reach Lake Mohave; however, increased fecal coliform counts have been reported in the vicinity (Division of International Engineering Co., Inc., and Metcalf and Eddy, Inc., 1976).

The calculated annual loading of 2.39 g $P/m^2/yr$ is almost twice that proposed by Vollenweider (1975) as "eutrophic" for a lake with such volume and retention time. If the present loading continues, increasingly undesirable responses to enrichment are likely to occur.

2. Nonpoint sources -

The Colorado River contributed approximately 98% of the total phosphorus and nitrogen input to the lake during the sampling year. Surrounding land uses and point sources upriver contributing to the Colorado River "nonpoint" load should be evaluated before a nutrient budget for the lake is defined.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

Lake and drainage basin characteristics are itemized below. Lake morphometry data were provided by Munari (1975) and Jenkins and Morais (1971). Tributary flow data were provided by the Arizona District Office of the U.S. Geological Survey (USGS). Outlet drainage area includes the lake surface area. Mean hydraulic retention time was obtained by dividing the lake volume by mean flow of the outlet. Precipitation values are estimated by methods as outlined in National Eutrophication Survey (NES) Working Paper No. 175. A table of metric/English conversions is included as Appendix A.

A. Lake Morphometry:

1. Surface area: 105.63 km^2.
2. Mean depth: 18.9 meters.
3. Maximum depth: 40.2 meters.
4. Volume: 1,996.033 x 10^6 m^3.
5. Mean hydraulic retention time: 73 days.

B. Tributary and Outlet:
(See Appendix B for flow data)

1. Tributaries -

Name	Drainage area (km^2)	Mean Flow (m^3/sec)
A-2 Colorado River	434,601.8	314.74
Minor tributaries and immediate drainage -	3,779.4	0.21
Total	438,381.2	314.95
2. Outlet - A-1 Colorado River	438,486.8	317.53

C. Precipitation -

1. Year of sampling: 14.4 cm.
2. Mean annual: 30.6 cm.

III. LAKE WATER QUALITY SUMMARY

Lake Mohave was sampled three times during the open-water season of 1975 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from eight stations on the lake and from a number of depths at each station (see map, page v). During each visit, depth-integrated samples were collected from each station for chlorophyll a analysis and phytoplankton identification and enumeration. During the first and last visits, 18.9-liter depth-integrated samples were composited for algal assays. Maximum depths sampled were as follows:

Station Number	Maximum Depth (meters)
01	38.1
02	15.2
03	26.5
04	28.6
05	18.3
06	19.8
07	22.6
08	36.6

For a more detailed explanation of NES methods, see NES Working Paper No. 175.

The results obtained are presented in full in Appendix C and are summarized in III-A for waters at the surface and at the maximum depth for each site. Results of the phytoplankton counts and chlorophyll a determinations are included in III-B. Results of the limiting nutrient study are presented in III-C.

LAKE OMAHA
STORET CODE 0666

A. PHYSICAL AND CHEMICAL CHARACTERISTICS

PARAMETER	(2/26/75) S*** = 2 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	(6/12/75) S*** = 4 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	(12/ 2/75) S*** = 8 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)
TEMPERATURE (DEG CENT)												
0.-1.5 M DEPTH	16	7.0- 11.6	7.7	0.0- 1.5	16	18.7- 22.7	21.8	0.0- 1.5	16	12.9- 14.4	14.1	0.0- 1.5
MAX DEPTH**	8	6.7- 11.0	7.1	14.0- 36.6	8	12.3- 19.4	13.6	13.7- 38.1	8	12.8- 14.3	14.1	15.2- 35.1
DISSOLVED OXYGEN (MG/L)												
0.-1.5 M DEPTH	14	10.2- 11.4	11.1	0.0- 1.5	16	7.0- 9.8	9.2	0.0- 1.5	13	8.8- 10.8	9.8	0.0- 1.5
MAX DEPTH**	8	9.5- 11.0	10.3	14.0- 36.6	8	6.6- 9.2	7.5	13.7- 38.1	8	9.2- 10.6	9.8	15.2- 35.1
CONDUCTIVITY (UMHOS)												
0.-1.5 M DEPTH	15	813.-1130.	1103.	0.0- 1.5	16	980.-1071.	1049.	0.0- 1.5	15	799.- 855.	847.	0.0- 1.5
MAX DEPTH**	8	802.-1112.	1097.	14.0- 36.6	8	825.- 996.	876.	13.7- 38.1	8	778.- 852.	848.	15.2- 35.1
PH (STANDARD UNITS)												
0.-1.5 M DEPTH	16	8.2- 8.6	8.6	0.0- 1.5	16	8.3- 8.8	8.7	0.0- 1.5	16	7.3- 8.7	8.0	0.0- 1.5
MAX DEPTH**	8	8.3- 8.6	8.5	14.0- 36.6	8	8.0- 8.8	8.3	13.7- 38.1	8	7.7- 8.6	7.9	15.2- 35.1
TOTAL ALKALINITY (MG/L)												
0.-1.5 M DEPTH	16	133.- 144.	141.	0.0- 1.5	16	128.- 137.	133.	0.0- 1.5	15	121.- 141.	131.	0.0- 1.5
MAX DEPTH**	8	135.- 142.	139.	14.0- 36.6	8	136.- 145.	138.	13.7- 38.1	8	124.- 140.	131.	15.2- 35.1
TOTAL P (MG/L)												
0.-1.5 M DEPTH	16	0.022-0.062	0.034	0.0- 1.5	16	0.011-0.025	0.013	0.0- 1.5	16	0.013-0.019	0.016	0.0- 1.5
MAX DEPTH**	8	0.025-0.040	0.028	14.0- 36.6	8	0.011-0.085	0.014	13.7- 38.1	8	0.015-0.019	0.016	15.2- 35.1
DISSOLVED ORTHO P (MG/L)												
0.-1.5 M DEPTH	16	0.009-0.041	0.013	0.0- 1.5	16	0.003-0.021	0.013	0.0- 1.5	16	0.002-0.010	0.002	0.0- 1.5
MAX DEPTH**	8	0.006-0.018	0.013	14.0- 36.6	8	0.011-0.032	0.015	13.7- 38.1	8	0.002-0.008	0.002	15.2- 35.1
NO2+NO3 (MG/L)												
0.-1.5 M DEPTH	16	0.200-0.340	0.230	0.0- 1.5	16	0.020-0.210	0.045	0.0- 1.5	15	0.160-0.420	0.190	0.0- 1.5
MAX DEPTH**	8	0.210-0.350	0.230	14.0- 36.6	8	0.120-0.370	0.305	13.7- 38.1	8	0.160-0.410	0.190	15.2- 35.1
AMMONIA (MG/L)												
0.-1.5 M DEPTH	16	0.020-0.040	0.020	0.0- 1.5	16	0.020-0.090	0.040	0.0- 1.5	15	0.020-0.030	0.020	0.0- 1.5
MAX DEPTH**	8	0.020-0.030	0.020	14.0- 36.6	8	0.020-0.060	0.040	13.7- 38.1	8	0.020-0.030	0.025	15.2- 35.1
KJELDAHL N (MG/L)												
0.-1.5 M DEPTH	16	0.200-0.900	0.550	0.0- 1.5	16	0.200-0.600	0.450	0.0- 1.5	16	0.200-0.300	0.200	0.0- 1.5
MAX DEPTH**	8	0.200-0.900	0.450	14.0- 36.6	8	0.200-0.500	0.300	13.7- 38.1	8	0.200-0.300	0.200	15.2- 35.1
SECCHI DISC (METERS)												
	8	2.1- 4.0	3.4		2	0.5- 3.8	2.1		8	2.7- 5.5	3.4	

* N = NO. OF SAMPLES
** MAXIMUM DEPTH SAMPLED AT EACH SITE
*** S = NO. OF SITES SAMPLED ON THIS DATE

B. Biological Characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera		Algal Units Per ml
02/26/75	1.	Cyclotella	802
	2.	Chroomonas?	698
	3.	Oscillatoria	419
	4.	Cryptomonas	349
	5.	Synedra	314
		Other genera	[illegible]
		Total	2,582
05/12/75	1.	Chrcomonas?	401
	2.	Cyst	218
	3.	Oocystis	182
	4.	Fragilaria	146
	5.	Ceratium	36
		Other genera	37
		Total	1,020
12/03/75	1.	Chroomonas?	378
	2.	Raphidiopsis	310
	3.	Cyclotella	206
	4.	Scenedesmus	103
	5.	Synedra	69
		Other genera	69
		Total	1,135

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
02/26/75	01	6.6
	02	5.5
	03	5.4
	04	5.7
	05	11.4
	06	4.6
	07	5.5
	08	6.5
06/12/75	01	1.4
	02	2.1
	03	2.4
	04	3.2
	05	3.3
	06	0.9
	07	1.6
	08	1.5
09/02,03/75	01	3.5
	02	5.5
	03	5.7
	04	3.7
	05	9.7
	06	0.9
	07	3.2
	08	4.8

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum Yield (mg/l-dry wt.)
a. 02/26/75	Stations 01, 03-05		
Control	<0.005	0.258	0.2
0.05 P	<0.055	0.258	0.4
0.05 P + 1.0 N	<0.055	1.258	0.7
1.00 N	<0.005	1.258	0.3
	Stations 02,08		
Control	<0.005	0.217	0.2
0.05 P	<0.055	0.217	8.0
0.05 P + 1.0 N	<0.055	1.217	22.6
1.00 N	<0.005	1.217	0.2
	Stations 06,07		
Control	0.005	0.288	0.3
0.05 P	0.055	0.288	0.5
0.05 P + 1.0 N	0.055	1.288	0.7
1.00 N	0.005	1.288	0.3
b. 12/02/75	Stations 01,02		
Control	0.005	0.190	0.3
0.05 P	0.055	0.190	8.4
0.05 P + 1.0 N	0.055	1.190	19.3
1.00 N	0.005	1.190	0.3
	Stations 03-05, 08		
Control	0.005	0.265	0.5
0.05 P	0.055	0.265	8.3
0.05 P + 1.0 N	0.055	1.265	18.5
1.00 N	0.005	1.265	0.5

2. Discussion -

The control yields of the assay alga, Selenastrum capricornutum*, indicate that the potential for primary productivity in Lake Mohave was low at the times of assay sample collection (02/26/75, 12/02/75). In the December samples, and in the February Stations 02,08 sample, the signficant growth response to the addition of phosphorus as well as the lack of response to the addition of nitrogen alone indicates phosphorus limitation. In these assays the maximum increase in yield over that of the control was achieved with the simultaneous addition of both phosphorus and nitrogen. In February, the assays for Stations 01, 03-07 showed only a slight increase in yield with the addition of nutrient spikes, suggesting colimitation by the two nutrients.

The mean inorganic nitrogen to orthophosphorus ratios (N/P) in the lake data were approximately 20/1, 14/1, and 87/1 in the spring, summer and fall, respectively, further suggesting primary limitation by phosphorus in Lake Mohave (a mean N/P ratio of 14/1 or greater generally reflects phosphorus limitation).

*For further information regarding the algal assay test procedure and selection of test organisms, see U.S. EPA (1971).

IV. NUTRIENT LOADINGS
(See Appendix D for data)

For the determination of nutrient loadings, the Arizona National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page v), except for the high runoff months of April and May when two samples were collected. Sampling was begun in December 1974, and was completed in November 1975.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Arizona District Office of the USGS for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a USGS computer program for calculating stream loadings. Nutrient loads indicated for tributaries are those measured minus known point source loads, if any.

Nutrient loadings for unsampled "minor tributaries and immediate drainage" ("ZZ" of USGS) were estimated by using the mean annual nutrient loads, in $kg/km^2/year$, in the Colorado River at Station A-1 and multiplying the means by the ZZ area in km^2.

A. Waste Sources:

1. Known municipal - None

2. Known industrial - None

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (nonpoint load) -		
A-2 Colorado River	247,325	97.8
b. Minor tributaries and immediate drainage (nonpoint load) -	3,780	1.5
c. Known municipal STP's - None		
d. Septic tanks* -	5	<0.1
e. Known industrial - None		
f. Direct precipitation** -	1,850	0.7
Total	252,960	100.0%

2. Outputs - A-1 Colorado River 203,395

3. Net annual P accumulation - 49,565

*Estimate based on 10 lakeshore residences and 1 campground.
**Estimated (See NES Working Paper No. 175).

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/yr	% of total
a. Tributaries (nonpoint load) -		
A-2 Colorado River	11,996,385	98.2
b. Minor tributaries and immediate drainage (nonpoint load) -	105,825	0.9
c. Known municipal STP's - None		
d. Septic tanks* -	175	<0.1
e. Known industrial - None		
f. Direct precipitation** -	114,040	0.9
Total	12,216,425	100.0%

2. Outputs - A-1 Colorado River 8,797,855

3. Net annual N accumulation - 3,418,570

*Estimate based on 10 lakeshore residences and 1 campground.
**Estimated (See NES Working Paper No. 175).

D. Mean Annual Nonpoint Nutrient Export by Subdrainage Area:

Tributary	kg P/km^2/yr	kg N/km^2/yr
Colorado River	1	28

E. Yearly Loadings:

In the following table, the existing phoshorus loading is compared to the relationship proposed by Vollenweider (1975). Essentially, his "eutrophic" loading is that at which the receiving waters would become eutrophic or remain eutrophic; his "oligotrophic" loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A "mesotrophic" loading would be considered one between "eutrophic" and "oligotrophic".

Note that Vollenweider's model may not be applicable to water bodies with very short retention times or in which light penetration is severely restricted from high concentrations of suspended solids in the surface waters.

	Total Yearly Phosphorus Loading (g/m^2/yr)
Estimated loading for Lake Mohave	2.39
Vollenweider's "eutrophic" loading	1.84
Vollenweider's "oligotrophic" loading	0.92

V. LITERATURE REVIEWED

Earl V. Miller Engineers, Division of International Engineering Co., Inc., and Metcalf and Eddy Inc. 1976. Water Quality Management Plan, Colorado Main Stem River Basin, Arizona. Prepared for the Arizona Department of Health Services, Phoenix, Arizona.

Jenkins, R. M., and D. J. Morais. 1971. Reservoir Sport Fishing Effort and Harvest in Relation to Environmental Variables. Reservoir Fisheries and Limnology, Special Publication No. 8. American Fisheries Society. pp. 371-384.

Munari, Robert. 1975. Personal Communication (lake morphometry). Arizona Department of Health, Phoenix, Arizona.

U.S. Environmental Protection Agency. 1971. Algal Assay Procedure Bottle Test. National Eutrophication Research Program, Corvallis, Oregon.

U.S. Environmental Protection Agency. 1975. National Eutrophication Survey Methods 1973-1976. Working Paper No. 175. National Environmental Research Center, Las Vegas, Nevada, and Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon.

Vollenweider, R. A. 1975. Input-Output Models With Special Reference to the Phosphorus Loading Concept in Limnology. Schweiz. Z. Hydrol. 37:53-84.

VI. APPENDICES

APPENDIX A

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR ARIZONA 11/26/76

LAKE CODE 0406 LAKE MOHAVE

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 438486.8

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
0406A1	438486.8	186.99	277.50	382.28	419.69	379.45	413.43	441.74	399.27	325.64	232.20	178.40	172.73	317.53
0406A2	434601.8	226.53	280.34	373.78	410.59	410.59	368.12	370.95	356.79	297.33	246.36	218.04	215.21	314.74
0406Z2	3885.0	0.142	0.283	0.566	0.283	0.142	0.057	0.085	0.142	0.142	0.198	0.283	0.227	0.212

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 438486.8
SUM OF SUB-DRAINAGE AREAS = 438486.7
TOTAL FLOW IN = 3777.18
TOTAL FLOW OUT = 3808.61

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0406A1	12	74	191.167	7	150.079	7	122.895		
	1	75	205.325						
	2	75	268.104	15	291.663	15	390.772		
	3	75	368.119	15	283.168	15	322.812		
	4	75	441.176	11	137.620	11	67.394		
	4	75	441.176	26	563.505	26	696.594		
	5	75	406.347	10	577.664	10	688.099		
	5	75	406.347	24	345.465	24	270.426		
	6	75	370.951	14	390.772	14	308.654		
	7	75	424.186	5	438.911	5	455.901		
	8	75	408.612	23	368.119	23	390.772		
	9	75	346.032	13	334.139	13	376.614		
	10	75	248.169	18	257.966	18	250.604		
	11	75	185.957	15	205.863	15	243.525		
0406A2	11	74	239.787	16	147.248	16	103.640		
	12	74	195.811	13	152.345	13	147.248		
	12	74	195.811	20	151.212	20	108.170		
	1	75	237.324	18	157.442	18	158.574		
	1	75	237.324	28	273.824	28	275.240		
	2	75	314.600						
	3	75	344.899	17	353.960	17	393.604		
	3	75	344.899	28	410.594	28	552.178		
	4	75	414.559	23	438.911	23	665.446		
	4	75	414.559	29	487.050	29	648.456		
	5	75	445.990	17	359.624	17	555.010		
	6	75	383.976	17	455.901	17	594.654		
	6	75	383.976	30	399.267	30	509.703		
	7	75	382.277	18	424.753	18	424.753		
	7	75	382.277	31	424.753	31	368.119		
	8	75	370.667	20	441.743	20	339.802		
	9	75	317.715						
	10	75	252.813	28	227.951	28	192.555		

APPENDIX C

PHYSICAL AND CHEMICAL DATA

STORET RETRIEVAL DATE 76/11/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

04C601
35 12 05.0 114 34 18.0 3
LAKE MOHAVE
04015 ARIZONA

110141

11EPALES 2111202
0102 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LI HEMNING PERCENT
75/02/26	13	30 0000	0.033	6.6	
	13	30 0005	0.027		
	13	30 0021	0.028		
	13	30 0038	0.034		
	13	30 0058	0.027		
	13	30 0078	0.026		
	13	30 0098	0.026		
75/06/12	13	30 0000	0.013	1.4	
	13	30 0005	0.012		
	13	30 0020	0.018		
	13	30 0040	0.016		
	13	30 0070	0.010		
	13	30 0090	0.011		
	13	30 0125	0.012		
75/12/02	11	45 0000	0.014	3.5	
	11	45 0005	0.014		
	11	45 0015	0.015		
	11	45 0030	0.014		
	11	45 0050	0.014		
	11	45 0086	0.016		

STORET RETRIEVAL DATE 75/11/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

04C5C1
35 12 05.0 114 34 18.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0102 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	13 30	0000	7.0	11.0	144		8.55	141	0.020	0.500	0.220	0.015
	13 30	0005	7.1	10.8		1116	8.60	142	0.020K	0.600	0.210	0.013
	13 30	0021	7.0	10.8		1112	8.55	142	0.020K	0.700	0.210	0.013
	13 30	0038	7.0	11.0		1108	8.55	142	0.020K	0.600	0.210	0.012
	13 30	0058	6.9	11.0		1107	8.55	141	0.020K	0.600	0.220	0.006
	13 30	0078	6.9	10.8		1100	8.55	141	0.020K	0.600	0.220	0.012
	13 30	0098	6.8	10.6		1100	8.55	141	0.020K	0.600	0.220	0.006
75/06/12	13 30	0000	22.3	7.2		1053	8.60	137	0.090	0.600	0.090	0.012
	13 30	0005	21.9	8.0		1058	8.60	135	0.040	0.300	0.070	0.003
	13 30	0020	20.1	8.2		1014	8.50	137	0.060	0.400	0.100	0.008
	13 30	0040	19.5	8.2		1001	8.55	138	0.050	0.300	0.120	0.004
	13 30	0070	14.5	6.4		892	8.10	141	0.060	0.300	0.280	0.004
	13 30	0090	14.2	6.8		884	8.05	144	0.060	0.300	0.310	0.011
	13 30	0125	14.0	6.6		882	8.05	142	0.050	0.300	0.320	0.014
75/12/02	11 45	0000	14.2	9.4	156	855	8.50	127	0.020K	0.200	0.160	0.002K
	11 45	0005	14.3	9.6		853	8.50	127	0.020	0.200	0.160	0.002K
	11 45	0015	14.2	9.6		851	8.50	127	0.020	0.200	0.160	0.002K
	11 45	0030	14.2	9.4		850	8.50	125	0.020	0.200	0.160	0.002K
	11 45	0050	14.2	9.8		849	8.50	127	0.030	0.200K	0.160	0.002K
	11 45	0086	14.2	9.8		848	8.60	124	0.030	0.200	0.170	0.002

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 76/12/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

040602
35 12 57.0 114 34 10.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0050 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	14	20 0000	7.2	11.0	120	1078	8.60	141	0.030	0.600	0.210	0.015
	14	20 0005	7.3	11.2		1103	8.60	143	0.020K	0.600	0.200	0.009
	14	20 0017	7.3	11.0		1083	8.60	142	0.020K	0.800	0.200	0.008
	14	20 0026	7.3	11.0		1101	8.60	142	0.020K	0.800	0.200	0.011
	14	20 0036	7.3	11.0		1087	8.55	142	0.020K	0.800	0.190	0.003
	14	20 0046	7.2	11.0		1094	8.60	142	0.020K	0.800	0.210	0.006
75/06/12	13	55 0000	21.4	9.4		1060	8.60	137	0.050	0.400	0.090	0.017K
	13	55 0005	20.8	7.4		1027	8.55	135	0.040	0.300	0.090	0.014
	13	55 0020	20.2	8.8		1013	8.55	137	0.040	0.300	0.110	0.015
	13	55 0045	19.4	7.8		996	8.55	137	0.040	0.300	0.120	0.013
75/12/02	15	00 0000	14.0	9.8	120	847	8.60	126	0.020	0.200K	0.160	0.002
	15	00 0005	14.0	10.4		846	8.60			0.200		0.002K
	15	00 0015	14.0	9.8		846	8.60	125	0.020	0.000K	0.160	0.002K
	15	00 0030	14.0	10.0		846	8.60	124	0.020K	0.200K	0.160	0.002K
	15	00 0050	14.0	10.4		848	8.60	129	0.030	0.200	0.160	0.003

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/02/26	14	20 0000	0.028	5.5	
	14	20 0005	0.027		
	14	20 0017	0.033		
	14	20 0026	0.027		
	14	20 0036	0.029		
	14	20 0046	0.026		
75/06/12	13	55 0000	0.012	2.1	
	13	55 0005	0.013		
	13	55 0020	0.011		
	13	55 0045	0.011		
75/12/02	15	00 0000	0.013	5.0	
	15	00 0005	0.016		
	15	00 0030	0.015		
	15	00 0050	0.019		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 76/11/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

040603
35 23 45.0 114 37 10.0 3
LAKE MOHAVE
04015 ARIZONA

11U191

11EPALES 2111202
0088 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	10 40	0000	7.6	11.2	152	1122	8.60	139	0.020K	0.600	0.230	0.014
	10 40	0005	7.3	11.4		1100	8.60	140	0.020K	0.400	0.220	0.016
	10 40	0018	7.2	10.6		1100	8.60	139	0.020	0.300	0.230	0.009
	10 40	0031	7.2	10.6		1106	8.50	141	0.020	0.400	0.230	0.015
	10 40	0044	7.1	10.4		1090	8.50	141	0.030	0.600	0.230	0.014
	10 40	0064	7.1	10.2		1092	8.50	141	0.020	0.600	0.230	0.016
	10 40	0084	7.1	10.2		1092	8.50	142	0.020	0.500	0.230	0.012
75/06/12	11 00	0000	22.1	9.0		1071	8.65	128	0.020K	0.500	0.040	0.006
	11 00	0005	22.0	7.0		1058	8.70	130	0.040	0.200	0.030	0.004
	11 00	0015	21.4	9.4		1040	8.75	130	0.040	0.300	0.030	0.003
	11 00	0030	20.2	8.5		1014	8.60	132	0.050	0.300	0.070	0.003
	11 00	0053	14.2	7.8		881	8.20	139	0.050	0.300	0.280	0.002
	11 00	0070	13.8	7.0		874	8.15	139	0.050	0.300	0.300	0.012
	11 00	0087	13.5	7.0		876	8.10	140	0.060	0.200	0.310	0.015
75/12/03	09 30	0000	14.4		144	850	8.00	127	0.030	0.200K	0.180	0.002K
	09 30	0005	14.4	9.6		850	8.00	127	0.020	0.200K	0.180	0.002K
	09 30	0015	14.3	9.4		851	8.00	129	0.030	0.200	0.180	0.002K
	09 30	0025	14.3	9.6		849	8.00	128	0.020	0.200K	0.180	0.002K
	09 30	0050	14.3	9.6		848	8.00	126	0.020	0.200	0.180	0.002K
	09 30	0079	14.3	9.8		847	7.90	132	0.030	0.200K	0.190	0.002

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/11/26
NAT'L EUTROPHICATION SURVEY
EPA-LAS VEGAS

040603
35 23 45.0 114 37 10.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0088 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMAING PERCENT
75/12/26	10 40	0000	0.033	5.4	
	10 40	0005	0.035		
	10 40	0015	0.030		
	10 40	0031	0.028		
	10 40	0044	0.027		
	10 40	0064	0.030		
	10 40	0084	0.025		
75/12/12	11 00	0000	0.012	2.4	
	11 00	0005	0.014		
	11 00	0015	0.012		
	11 00	0030	0.012		
	11 00	0053	0.009		
	11 00	0070	0.011		
	11 00	0087	0.012		
75/12/03	09 30	0000	0.016	5.7	
	09 30	0005	0.016		
	09 30	0015	0.015		
	09 30	0025	0.014		
	09 30	0050	0.015		
	09 30	0079	0.016		

RETRIEVAL DATE 78/11/16
LAKE EUTROPHICATION SURVEY
LAS VEGAS WASH

040504
35 26 12.0 114 39 27.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0098 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	09 50	0000	7.7	10.8	156	1130	8.60	138	0.020K	0.500	0.230	0.011
	09 50	0005	7.7	11.0		1115	8.60	135	0.040	0.500	0.230	0.041
	09 50	0020	7.7	11.0		1084	8.60	137	0.020K	0.500	0.220	0.017
	09 50	0035	7.5	11.0		1105	8.60	138	0.020	0.500	0.220	0.017
	09 50	0054	7.2	10.4		1092	8.50	139	0.030	0.300	0.220	0.012
	09 50	0074	7.1	10.2		1100	8.50	139	0.030	0.400	0.230	0.017
	09 50	0094	7.0	10.2		1104	8.50	138	0.030	0.400	0.230	0.015
75/05/12	10 30	0000	22.7	9.2		1068	8.75	128	0.030	0.500	0.020K	0.014
	10 30	0005	22.0	9.4		1051	8.65	129	0.030	0.500	0.040	0.011
	10 30	0015	20.6	9.2		1021	8.70	125	0.020	0.500	0.020K	0.014
	10 30	0030	19.6	8.8		1000	8.60	130	0.030	0.500	0.080	0.017
	10 30	0053	15.2	7.2		905	8.20	135	0.040	0.500	0.280	0.021K
	10 30	0075	13.8	7.2		876	8.20	134	0.040	0.400	0.290	0.011
	10 30	0094	13.7	7.2		875	8.20	136	0.040	0.500	0.300	0.022
75/12/03	10 00	0000	14.3	10.0	108	846	8.70	132	0.020	0.200K	0.190	0.002K
	10 00	0005	14.3	9.6		847	7.30	131	0.020	0.200K	0.190	0.002K
	10 00	0015	14.3	9.6		847	8.00	130	0.020	0.200K	0.190	0.002K
	10 00	0025	14.3	9.8		848	7.90	128	0.020	0.200	0.190	0.002K
	10 00	0050	14.2	10.2		849	7.90	128	0.020	0.200K	0.190	0.002K
	10 00	0065	14.2	9.8		853	7.90	127	0.020	0.200K	0.190	0.002K
	10 00	0085	14.2	9.6		852	7.90	129	0.030	0.200	0.190	0.002K

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 79/12/26
NATL EUTROPHICATIO SURVEY
EPA-LAS VEGAS

040606
35 26 12.0 114 39 27.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0098 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00131 INCUT LT REMNING PERCENT
75/02/26	09 50	0000	0.030	5.7	
	09 50	0005	0.062		
	09 50	0020	0.065		
	09 50	0035	0.033		
	09 50	0054	0.028		
	09 50	0074	0.028		
	09 50	0094	0.029		
75/06/12	10 30	0000	0.011	3.2	
	10 30	0005	0.013		
	10 30	0015	0.013		
	10 30	0030	0.018		
	10 30	0053	0.015		
	10 30	0075	0.017		
	10 30	0094	0.085		
75/12/03	10 00	0000	0.014	3.7	
	10 00	0005	0.016		
	10 00	0015	0.017		
	10 00	0025	0.015		
	10 00	0050	0.017		
	10 00	0065	0.014		
	10 00	0085	0.015		

STORET RETR EVAL DATE 76/11/23
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

040005
35 29 35.0 114 40 50.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0063 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	08 45	0000	7.6	11.2	102	1100	8.60	144	0.020	0.700	0.260	0.013
	08 45	0005	8.1	11.4		1104	8.60	144	0.020	0.500	0.250	0.016
	08 45	0016	8.1	11.0		1093	8.55	145	0.020K	0.400	0.250	0.012
	08 45	0030	8.0	11.0		1083	8.55	145	0.020	0.400	0.250	0.017
	08 45	0045	8.0	10.4		1090	8.55	138	0.020K	0.400	0.230	0.011
	08 45	0059	7.5	10.2		1112	8.50	138	0.020	0.400	0.240	0.011
75/06/12	10 00	0000	21.2	9.0		1031	8.75	137	0.040	0.400	0.050	0.015
	10 00	0005	20.8	8.6		1023	8.70	136	0.030	0.600	0.040	0.017
	10 00	0015	20.1	9.0		1010	8.65	129	0.030	0.600	0.070	0.006
	10 00	0035	18.1	8.4		987	8.55	132	0.040	0.400	0.110	0.005
	10 00	0054	13.2	8.0		886	8.30	136	0.050	0.400	0.280	0.011
75/12/03	10 30	0000	13.3		120	814	8.00	131	0.020K	0.200	0.260	0.002K
	10 30	0005	13.2	10.8			8.00	133	0.020K	0.200	0.280	0.002K
	10 30	0015	13.0	10.6		805	8.00	135	0.020K	0.200	0.290	0.002K
	10 30	0030	12.9	10.8		782	7.90	140	0.020K	0.200	0.300	0.002K
	10 30	0060	12.8	10.6		778	7.90	139	0.020K	0.200K	0.300	0.002K

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/02/26	08 45	0000	0.038	11.4	
	08 45	0005	0.032		
	08 45	0016	0.033		
	08 45	0030	0.044		
	08 45	0045	0.030		
	08 45	0059	0.031		
75/06/12	10 00	0000	0.013	3.3	
	10 00	0005	0.017		
	10 00	0015	0.019		
	10 00	0035	0.015		
	10 00	0054	0.016		
75/12/03	10 30	0000	0.015	4.7	
	10 30	0005	0.017		
	10 30	0015	0.016		
	10 30	0030	0.016		
	10 30	0060	0.019		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/12/29
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

040606
35 41 50.0 114 41 40.0 3
LAKE MOHAVE
04015 ARIZONA

110141

11EMALES 2111202
0070 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	14	10 0000	11.6		114	829	8.20	135	0.020	0.900	0.340	0.016
	14	10 0005	11.6	10.2		829	8.25	133	0.020	0.400	0.340	0.027
	14	10 0015	11.4	10.0		825	8.20	133	0.020	0.300	0.350	0.020
	14	10 0025	11.4	9.8		824	8.20	134	0.020	0.400	0.360	0.019
	14	10 0050	11.2	10.0		819	8.25	134	0.020K	0.300	0.340	0.017
	14	10 0065	11.0	9.8		816	8.25	135	0.020K	0.400	0.350	0.016
75/06/12	08	45 0000	21.2	9.4	148	1031	8.80	133	0.040	0.500	0.080	0.014
	08	45 0005	18.7	9.6		980	8.30	137	0.030	0.400	0.210	0.021
	08	45 0015	12.7	9.4		850	8.30	139	0.030	0.300	0.360	0.029K
	08	45 0030	12.3	9.2		823	8.25	138	0.020	0.400	0.370	0.029K
	08	45 0047	12.3	9.2		825	8.25	139	0.020	0.200	0.370	0.028K
75/12/03	11	30 0000	13.5	9.2	216	810	7.80	139	0.020K	0.200K	0.420	0.008
	11	30 0005	13.5	8.8		813	7.70	137	0.020K	0.200	0.410	0.010
	11	30 0015	13.4	8.8		808	7.70	136	0.020K	0.200K	0.400	0.010
	11	30 0025	13.3	9.0		805	7.70	141	0.020K	0.200K	0.400	0.008
	11	30 0035	13.3	9.0		806	7.70	137	0.020K	0.200	0.400	0.008
	11	30 0050	13.3	9.2		809	7.70	136	0.020K	0.200	0.410	0.008

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/02/26	14	10 0000	0.050	4.6	
	14	10 0005	0.035		
	14	10 0015	0.039		
	14	10 0025	0.037		
	14	10 0050	0.036		
	14	10 0065	0.039		
75/06/12	08	45 0000	0.024	0.9	
	08	45 0005	0.025		
	08	45 0015	0.022		
	08	45 0030	0.023		
	08	45 0047	0.022		
75/12/03	11	30 0000	0.017	0.9	
	11	30 0005	0.018		
	11	30 0015	0.018		
	11	30 0025	0.017		
	11	30 0035	0.016		
	11	30 0050	0.017		

K VALUE KNOWN TO BE LESS THAN INDICATED

STORET RETRIEVAL DATE 75/12/26
LAKE EUTROPHICATION SURVEY
EPA-LAS VEGAS

040697
35 34 40.0 114 40 27.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0072 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	14	50 0000	11.3		84	820	8.40	137	0.020K	0.300	0.310	0.013
	14	50 0005	11.0	10.4		818	8.40	136	0.020K	0.200	0.310	0.013
	14	50 0015	10.9			812	8.40	136	0.020K	0.300	0.310	0.008
	14	50 0025	10.8	10.6		811	8.35	137	0.020	0.300	0.320	0.018
	14	50 0050	10.6	10.6		807	8.35	137	0.030	0.300	0.320	0.016
	14	50 0068	10.3	10.4		802	8.30	135	0.020K	0.200	0.350	0.018
75/06/12	09	30 0000	21.7	9.4	18	1043	8.85	133	0.030	0.500	0.050	0.006
	09	30 0005	21.4	9.4		1040	8.75	132	0.030	0.500	0.040	0.011
	09	30 0015	20.7	9.4		1024	8.75	132	0.030	0.500	0.050	0.021
	09	30 0030	14.4	9.0		885	8.40	139	0.040	0.400	0.280	0.015
	09	30 0050	13.4	9.0		867	8.30	131	0.040	0.400	0.320	0.029
	09	30 0074	13.4	8.8		860	8.30	136	0.030	0.400	0.320	0.032K
75/12/03	11	00 0000	12.9	10.0	180	804	7.80	141	0.020K	0.200K	0.390	0.005
	11	00 0005	12.9	10.0		799	7.90	139	0.020K	0.200K	0.380	0.007
	11	00 0015	12.9	10.0		799	7.80	139	0.020K	0.200K	0.360	0.005
	11	00 0030	12.8	10.0		798	7.90	141	0.020K	0.200	0.380	0.005
	11	00 0050	12.8	10.2		795	7.90	143	0.020K	0.200K	0.370	0.004
	11	00 0065	12.8	10.0		795	7.90	140	0.020K	0.300	0.370	0.003

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCUT LT REMNING PERCENT
75/02/26	14	50 0000	0.037	6.5	
	14	50 0005	0.036		
	14	50 0015	0.037		
	14	50 0025	0.036		
	14	50 0050	0.043		
	14	50 0068	0.040		
75/06/12	09	30 0000	0.017	1.6	
	09	30 0005	0.020		
	09	30 0015	0.023		
	09	30 0030	0.020		
	09	30 0050	0.025		
	09	30 0074	0.025		
75/12/03	11	00 0000	0.014	3.6	
	11	00 0005	0.014		
	11	00 0015	0.017		
	11	00 0030	0.015		
	11	00 0050	0.016		
	11	00 0065	0.016		

K VALUE KNOWN TO BE LESS THAN INDICATED

NTURE DEPTH/AL DATE 78/11/29
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

040606
35 35 35.0 114 35 22.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0124 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/02/26	14	55 0000	0.022	6.5	
	14	55 0005	0.037		
	14	55 0017	0.036		
	14	55 0040	0.025		
	14	55 0065	0.030		
	14	55 0090	0.029		
	14	55 0124	0.028		
75/06/12	14	20 0000	0.011	1.6	
	14	20 0005	0.013		
	14	20 0020	0.012		
	14	20 0040	0.012		
	14	20 0062	0.010		
	14	20 0090	0.011		
	14	20 0118	0.011		
75/12/03	09	00 0000	0.019	4.8	
	09	00 0005	0.016		
	09	00 0015	0.015		
	09	00 0025	0.019		
	09	00 0050	0.015		
	09	00 0075	0.015		
	09	00 0090	0.015		
	09	00 0115	0.015		

STORET RETRIEVAL DATE 76/11/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

040608
35 35 35.0 114 35 22.0 3
LAKE MOHAVE
04015 ARIZONA

110191

11EPALES 2111202
0124 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/02/26	14 55	0000	7.8	11.2	144	1105	8.60	143	0.020K	0.900	0.250	0.009
	14 55	0005	7.9	11.4		1110	8.60	142	0.020K	0.800	0.220	0.010
	14 55	0017	7.8	11.2		1110	8.55	143	0.020K	0.800	0.220	0.010
	14 55	0040	7.4	11.0		1092	8.55	138	0.030	0.700	0.250	0.007
	14 55	0065	6.8	11.0		1111	8.55	140	0.030	0.800	0.220	0.015
	14 55	0090	6.7	10.6		1092	8.55	140	0.030	0.800	0.220	0.008
	14 55	0120	6.7	10.4		1100	8.50	140	0.030	0.900	0.220	0.015
75/06/12	14 20	0000	22.5	9.2		1071	8.75	132	0.040	0.400	0.040	0.017K
	14 20	0005	22.0	9.4		1046	8.75	133	0.040	0.300	0.040	0.006
	14 20	0020	20.5	9.0		1019	8.70	134	0.040	0.300	0.070	0.012
	14 20	0040	19.5	8.6		996	8.60	139	0.040	0.300	0.100	0.014
	14 20	0062	14.6	9.0		894	8.20	142	0.060	0.400	0.270	0.006
	14 20	0090	13.8	7.2		876	8.20	143	0.050	0.300	0.310	0.014
	14 20	0118	13.8	7.2		876	8.75	145	0.040	0.300	0.300	0.015
75/12/03	09 00	0000	14.2		120	847	8.00	122	0.030	0.300	0.170	0.003
	09 00	0005	14.2	9.8		847	8.00	121	0.020	0.200	0.170	0.002K
	09 00	0015	14.2	9.6		846	7.80	120	0.020	0.200	0.160	0.002K
	09 00	0025	14.2	9.6		846	8.00	120	0.020	0.200	0.160	0.002K
	09 00	0050	14.2	9.6		846	8.00	121	0.020	0.300	0.170	0.002K
	09 00	0075	14.2	9.8		848	8.00	123	0.020	0.200K	0.160	0.002K
	09 00	0090	14.2	9.4		847	7.90	125	0.020	0.200K	0.160	0.002K
	09 00	0115	14.2	9.8		848	8.00	126	0.020K	0.200K	0.160	0.002K

K VALUE KNOWN TO BE LESS
THAN INDICATED

APPENDIX D

TRIBUTARY AND WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 76/10/30
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

0406A1
35 11 38.0 114 34 10.0 4
COLORADO RIVER
04 7.5 DAVIS DAM
O/LAKE MOHAVE 110191
BOAT RAMP IN SPTSMN PAR CO CMP BELO DAM
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/12/07	09	05	0.200	1.400	0.025	0.005	0.020
75/02/15	09	10	0.200	0.400	0.032	0.008K	0.010K
75/03/15	09	10	0.208	3.700	0.060	0.008K	0.040
75/04/11	08	50	0.200	1.280	0.070	0.005K	0.030
75/04/26	09	15	0.200	0.800	0.060	0.005K	0.010K
75/05/10	08	45	0.200	0.300	0.035	0.005K	0.010K
75/05/24	08	50	0.200	0.200	0.030	0.005	0.017
75/06/14	09	30	0.240	0.300	0.065	0.005	0.010K
75/07/05	08	30	0.110	0.700	0.040	0.010	0.030
75/08/23	09	05	0.175	0.550	0.035	0.010	0.020
75/09/13	09	00	0.240	0.500	0.020	0.010	0.020
75/10/18	09	20	0.200	1.400	0.030	0.005	0.040
75/11/15	08	45	0.170	1.200	0.025	0.005K	0.010

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 76/11/30
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

0406A2
36 00 55.0 114 44 16.0 4
COLORADO RIVER
04 MOHAVE CO HWY MP
T/LAKE MOHAVE
BELOW HOOVER DAM
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
75/01/18	10	30	0.336	3.100	0.024	0.020	0.030
75/05/17	10	00	0.540	0.500	0.015	0.005	0.030
75/06/17	12	00	0.470	1.100	0.015	0.005	0.040
75/07/18	09	00	0.520	1.500	0.012	0.015	

APPENDIX E

PARAMETRIC RANKINGS OF LAKES SAMPLED BY NES IN 1975

STATE OF ARIZONA

Mean or median values for six of the key parameters evaluated in establishing the trophic conditions of Arizona lakes sampled are presented to allow direct comparison of the ranking, by parameter, of each lake relative to the others. Median total phosphorus, median inorganic nitrogen and median dissolved orthophosphorus levels are expressed in mg/l. Chlorophyll a values are expressed in µg/l. To maintain consistent rank order with the preceding parameters, the mean Secchi disc depth, in inches, is subtracted from 500. Similarly, minimum dissolved oxygen values are subtracted from 15 to create table entries.

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	15- MIN DO	MEDIAN DISS ORTHO P
0401	BIG LAKE	0.032	0.090	386.000	2.900	9.000	0.007
0402	FOOLS HOLLOW	0.059	0.090	466.600	10.683	14.800	0.014
0403	LAKE HAVASU	0.015	0.170	420.231	3.948	10.800	0.005
0404	LUNA LAKE	0.182	0.050	396.250	3.400	12.200	0.131
0405	LYMAN LAKE	0.099	0.060	484.667	2.633	9.000	0.056
0406	LAKE MOHAVE	0.017	0.240	369.667	4.404	8.600	0.010
0407	LAKE PLEASANT	0.027	0.040	449.154	9.808	14.900	0.004
0408	LAKE POWELL	0.009	0.400	239.000	1.333	12.200	0.010
0409	RAINBOW LAKE	0.046	0.045	440.750	16.367	12.000	0.009
0410	ROOSEVELT LAKE	0.020	0.040	429.917	4.073	14.000	0.008
0411	SAN CARLOS RESERVOIR	0.056	0.060	474.500	14.750	14.600	0.009
3201	LAKE MEAD	0.020	0.505	453.600	1.150	8.000	0.007

PERCENTILE RANKINGS (WITH MEDIAN VALUES) OF LAKES WITH HIGHER VALUES

LAKE CODE	LAKE NAME	MEAN TOTAL P	MEDIAN INORG N	MEAN CHLOR	MEAN SEC	MEAN DO	MEDIAN DISS ORTHO P
0001	BIG LAKE	45 (5)	45 (6)	82 (2)	73 (6)	77 (8)	73 (8)
0002	BOOLS HOLLOW	18 (2)	45 (4)	18 (2)	18 (2)	9 (1)	18 (2)
0003	LAKE HAVASU	91 (10)	27 (3)	64 (7)	55 (6)	64 (7)	91 (10)
0004	LUNA LAKE	0 (0)	73 (8)	73 (5)	64 (7)	41 (4)	0 (0)
0005	LYMAN LAKE	9 (1)	64 (7)	0 (0)	82 (9)	77 (8)	9 (1)
0006	LAKE MOHAVE	82 (9)	18 (2)	91 (10)	36 (4)	91 (10)	32 (3)
0007	LAKE PLEASANT	55 (6)	95 (10)	36 (4)	27 (3)	0 (0)	100 (11)
0008	LAKE POWELL	100 (11)	9 (1)	100 (11)	91 (10)	41 (4)	32 (3)
0009	RAINBOW LAKE	36 (4)	82 (9)	45 (5)	0 (0)	55 (6)	45 (5)
0010	ROOSEVELT LAKE	68 (7)	95 (10)	55 (6)	45 (5)	27 (3)	64 (7)
0011	SAN CARLOS RESERVOIR	27 (3)	55 (6)	9 (1)	9 (1)	18 (2)	55 (6)
0201	LAKE MEAD	63 (7)	0 (0)	27 (3)	100 (11)	100 (11)	82 (9)