MISCELLANEOUS PAPER R-80-1

RECREATION CARRYING CAPACITY FACTS AND CONSIDERATIONS

Title	Date
Report 1: Barkley Lock and Dam, Lake Barkley Project Area	Jul 1980
Report 2: Benbrook Lake Project Area	Jul 1980
Report 3: Hartwell Lake Project Area	Jul 1980
Report 4: Lake Ouachita Project Area	Jul 1980
Report 5: Lake Shelbyville Project Area	Jul 1980
Report 6: McNary Lock and Dam, Lake Wallula Project Area	Jul 1980
Report 7: Milford Lake Project Area	Jul 1980
Report 8: New Hogan Lake Project Area	Jul 1980
Report 9: Shenango River Lake Project Area	Jul 1980
Report 10: Somerville Lake Project Area	Jul 1980
Report 11: Surry Mountain Lake Project Area	Jul 1980

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number):
This report provides selected recreation carrying capacity-related information for the New Hogan Lake Project. The information is based upon: 1) user and management surveys conducted at New Hogan Lake, and 2) Urban Research and Development Corporation's observations and perceptions of the situations at the project's activity areas. The report provides information regarding activity situations, user characteristics, carrying capacity findings, and other findings; it then focuses on selected problem situations and their possible solutions.

PREFACE

This report presents the findings and recommendations of the Urban Research and Development Corporation (URDC) relative to recreational carrying capacity at the New Hogan Lake Project Area. Results of site analyses and user surveys are presented as they relate to existing carrying capacity conditions on the project. The study was conducted under Contract with the U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi, (Contract No. DACW39-78-C-0096).

Mr. Donald R. Detwiler, President of URDC, was Principal-In-Charge of this study, assisted by Mr. Martin C. Gilchrist, Executive Vice-President and Mr. David H. Humphrey, Vice-President. Mr. B. Thomas Palmer, Project Director, had the major responsibility for technical project direction; Messrs. Phillip D. Hunsberger and Paul L. Sabrosky were involved in the site analysis, conducting surveys, and the success analysis; and Mr. Timothy A. Fluck was involved in conducting surveys, survey analysis, and development of methodologies.

Mr. R. Scott Jackson, WES was the Project Monitor. Dr. Adolph Anderson, WES, was Program Manager of the Environmental Laboratory (EL) Recreation Research Program. The study was supervised by Dr. Conrad J. Kirby, Chief, Environmental Resources Division, EL, under the general supervision of Dr. John Harrison, Chief, EL.

COL John L. Cannon, CE, and COL Nelson P. Conover, CE, were Commanders and Directors of WES during this study. Technical Director was Mr. F. R. Brown.

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CONVERSION FACTORS, U. S. CUSTOMARY TO METRIC (SI)
UNITS OF MEASUREMENT

U. S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
acres	4046.856	square metres
Fahrenheit degrees	5/9	Celsuis degrees or Kelvins
feet	0.3048	metres
horsepower (550 foot and pounds per second)	745.6999	watts
inches	2.54	centimetres
miles per hour (U. S. statute)	1.609344	kilometres per hour
miles (U. S. statute)	1.609344	kilometres
square feet	0.09290304	square metres
yards	0.9144	metres

* To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use the following formula: $C = (5/9)(F - 32)$. To obtain Kelvin (K) readings, use $K = (5/9)(F - 32) + 273.15$.

PART 1: INTRODUCTION

RECREATION CARRYING CAPACITY FACTS AND CONSIDERATIONS

NEW HOGAN LAKE PROJECT AREA

PART 1: INTRODUCTION

This Report

Purpose

This report, prepared as the eighth in a series of the U. S. Army Engineer Waterways Experiment Station's (WES) Recreational Carrying Capacity Design and Management Study reports, provides selected carrying capacity-related information for the New Hogan Lake Project Area which cannot be found in the Technical Report. The information is based upon: 1) the user and management surveys conducted at New Hogan Lake, and 2) Urban Research and Development Corporation's (URDC) observations and perceptions of the situations at the project's study activity areas. Some observations and suggestions dealing with project area planning, design, and/or management are included, even though they are not specifically carrying capacity related. The report also suggests specific solutions and treatments of specific recreation activity areas.

The report first provides information regarding activity situations, user characteristics, carrying capacity findings, and other findings; it then focuses on selected problem situations and their possible solutions. Although suggestions regarding possible solutions to problems are included, this report is not intended to be a substitute for master planning or to provide answers to all project area capacity problems. Instead, this report should be viewed as a constructive, informative document which points out directions and techniques for consideration by project managers and designers in the near or distant future.

Relationship to Technical Report and Handbook

In addition to this Project Area Report and similar reports on the other ten study project areas,* the overall capacity study effort produced a Technical Report and a Capacity Handbook:

a. The Technical Report describes the overall study process, reports detailed study findings, and suggests and demonstrates methods and techniques for capacity management.

b. The Capacity Handbook is a more graphic, "how-to-do-it" type of report, designed to serve as a useful field tool for determining carrying capacity and applying techniques for capacity design and management.

This project area report is different from the Technical Report and Handbook in several ways: it includes information not found in the Technical Report and Capacity Handbook; it reports and examines user survey information by activity area and project area, rather than from the total survey population; it addresses specific problems and examines possible solutions; and it does not include the methodologies for determining and monitoring social and resource capacity. For these reasons, this report is intended to compliment the Technical Report and the Handbook, and is not intended to substitute for them.

Qualifications

The information in this report is based on the Management/Site Survey conducted on October 29-31, 1978 and the User Survey conducted on May 11-14, 1979 by Urban Research and Development Corporation (URDC). (See Appendix B). The user survey information was collected over a one-weekend period, which may or may not have been representative of a typical or heavy use weekend at New Hogan. Interviews were limited at some activity areas because of such factors as lack of users and weather conditions. For these reasons and because carrying capacity analysis is dynamic rather than static, this report is not intended to provide the final answers. Rather, it is a foundation for future analysis and carrying capacity progress.

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* See definition of "Study Project Area" in Appendix A for a listing of these project areas.

Summary Project Area Description*

New Hogan Lake** was developed to provide flood control and irrigation. At the normal recreational pool, the surface area of the lake is 3120 acres,§ the shoreline is 44 miles long, and the land area is 3944 acres. Its average width is about one mile, ranging from 1/4 of a mile to 1-3/4 miles wide. Located in the western foothills of the Sierra Nevadas, the lake is 37 miles east of Stockton, California, 68 miles southeast of Sacramento, and 125 miles east of San Francisco. Access from these major population centers to the lake is good. In 1978, visitation was about 1/4 million recreation days.

The climate of the area is characterized by hot, dry summers and by mild, wet winters. Because of the rocky soils, vegetative cover is sparse, consisting of grasses, chapparal, oaks, and scattered conifers. Steep terrain and rock outcroppings occupy about half of the project land, limiting development to the eleven existing sites. Overcrowded and overused camping areas exist with adjacent underused picnic areas. Boating is reportedly well balanced, but approaching overcrowded conditions.

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* Appendix C contains a more detailed project area description for your future use.

** See map inside back cover.

§ A table of factors for converting U. S. customary units of measurement to metric (SI) units is found on page iv.

PART 2: SURVEY FINDINGS BY ACTIVITY

BOATING/WATERSKIING

Orientation

Boating and waterskiing are very popular at New Hogan. The lake is well balanced, but at the threshold of being overcrowded. The five mile per hour speed zones in several of the cove areas work well to reduce conflicts between power boaters and boat fishermen.

The findings presented in the remainder of this section are based on the User Survey. This survey obtained 29 responses from boaters and waterskiers at New Hogan Lake.

User characteristics

Table 1 indicates the characteristics of the boaters and waterskiers surveyed at New Hogan.

Table 1

Boater/Waterskier Characteristics

Age	Percent of Boaters/Waterskiers	Group Size	Percent of Boaters/Waterskiers
<18	21	1	3
18 - 25	31	2	28
26 - 40	41	3 - 4	31
41 - 55	7	5 - 8	28
56 - 65	0	9 - 12	3
>65	0	>12	7

Travel Time to Project Area	Percent of Boaters/Waterskiers	Visit Duration	Percent of Boaters/Waterskiers
<15 minutes	10	1 - 4 hours	26
15 - 30 minutes	14	5 - 8 hours	31
30 - 60 minutes	21	1 day	14
1 - 2 hours	48	2 days	21
2 - 3 hours	3	3 days	3
3 - 5 hours	0	4 days	0
>5 hours	0	5 - 7 days	3
		>7 days	0

No. of Other Activities	Percent of Boaters/Waterskiers	Equipment	Percent of Boaters/Waterskiers
0	34	Sailboat	4
1	31	Canoe	0
2	21	Row Boat	4**
3	3	Power Boat	
4	3	(<25 h.p.)	19
5	7	Power Boat	
6	0	(>25 h.p.)	73
>6	0	Houseboat	0

**Significantly lower than total survey sample.

User opinions

Spacing preferences - Tables 2 and 3 indicate the spacing that the boaters and waterskiers surveyed at New Hogan and elsewhere prefer.

Table 2

Preferred Distance Responses*

Sample	Sample Size	Range	Mean	Median	Mode
All Boaters Surveyed	135	30- a	531	300	300
New Hogan Lake	9	150-3960	1007	1320	1320
All Waterskiers Surveyed	95	30- a	520	300	300
New Hogan Lake	7	100-1320	742	630	1320

*In feet; see Appendix A for definitions of terms.

a - response of "alone" or "out of sight."

Table 3

Preferred Distance Responses in Planning Range and Preference Groupings*

Sample	% in Planning Range[1] (100'-1500')	% in A[2] (100'-199')	% in B[2] (200'-450')	% in C[2] (451'-1500')
All Boaters Surveyed	79%	29%	37%	34%
New Hogan Lake	64	14	14	72
Sample	% in Planning Range[1] (100'-1500')	% in A[2] (100'-199')	% in B[2] (200'-400')	% in C[2] (401'-1500')
All Waterskiers Surveyed	91%	22%	50%	28%
New Hogan Lake	100	14	14	72

*See Appendix A for definitions of terms; see Technical Report for a full development of spacing preference information.

[1]Percentage of all preferred distance responses.

[2]Percentage of all preferred distance responses in the Planning Range.

Both boaters and waterskiers at New Hogan tend to prefer greater spacing more frequently than the total sample.

Reasons for pleasant/unpleasant experience - Table 4 indicates the impact that different factors had on making the boating or waterskiing experience pleasant or unpleasant for users at New Hogan. Boaters and waterskiers at New Hogan found their experience to be very pleasant. Noise was the only factor which made the experience at New Hogan unpleasant in a significant number of cases. No respondent stated that he would not return.

Tables 5 and 6 indicate the changes in the physical condition and people's use of the area reported by boaters and waterskiers from their previous visit.

Table 4

Reasons Making Recreation Experience Pleasant or Unpleasant--Boating/Waterskiing
New Hogan Lake

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	89	11	-
Distance from other people	100	-	-
Number of people in other visitor groups	85	-	12
Number and type of other activities occurring here	86	4	11
Scenic views	100	-	-
Noise	73	19	8
Accidents or near accidents	96	4	-
Enforcement of rules/regulations	93	7	-
Car parking facilities	93	4	-
Theft	89	7	-
Vandalism	96	4	-
Land-Based Reasons			
Amount of facilities (restrooms, water, etc.)	96	-	4
Convenience to facilities (restrooms, water, etc.)	96	-	4
Maintenance of facilities	96	4	-
Condition of trees and landscape	93	-	-
Condition of grass or soil	93	-	-
Water-Based Reasons			
Water quality	96	4	-
Formal designation of places for your activity	57	-	-
Waiting time to launch boat	93	4	4
People in areas they shouldn't be	88	8	-

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 5

Positive and Negative Changes Noticed in the Physical Conditions of the Area - Items Mentioned by Boaters and Waterskiers

Area	Positive Changes	Negative Changes
Lake and Adjacent Areas	"High water" (2) "High water, more area to waterski" (4) "Bathrooms better" (1) "Facility improvements" (1) "Flush toilets & showers" (1) "Launch" (2) "Improved camping area" (1) "Docking" (1) "Parking" (1) "Very well kept" (1) "Water high--more area to fish" (1) "Water high--more area to boat" (1)	"A lot noiser" (1) "Marker near patch?" (1) "Fewer ramps (because of high water)" (1)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Table 6

Positive and Negative Changes Noticed in the People's Use of the Area - Items Mentioned by Boaters and Waterskiers

Area	Positive Changes	Negative Changes
Lake and Adjacent Areas	(None mentioned)	"A lot of litter at camp-site" (1)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Acceptability of techniques - Table 7 indicates the acceptability of different techniques for solving problems to the boaters and water-skiers surveyed at New Hogan.

The acceptability of many techniques is very clear: at least 60 percent of the respondents agreed on one of the 3 levels of acceptability for 8 of the 17 techniques. But even for those techniques which most respondents found to be acceptable, up to 46 percent found them to be unacceptable. Thus, project management should expect some opposition to any technique used.

In general, the more apparent and widespread that a problem of overcrowding or overuse is, the more likely users may accept a technique which addresses it. Thus, remedial techniques (which solve existing problems) are generally more acceptable than preventative techniques (which correct a problem before it becomes readily apparent).

The more users can understand the rationale and operation of a technique, the more likely they will accept the use of the technique. Education, therefore, would seem to be an important method of improving user acceptance of different techniques.

It also seems as though the more directly a technique impacts only the problem, and the less it operates to diminish recreational opportunities generally, the more likely users will accept the use of the technique. Thus, techniques which can be applied in the short-term or selectively to problem areas are favored (particularly if done in a crisis setting).

Techniques which call for reductions in existing opportunities to use recreational resources and facilities are strongly disfavored. User expectations of the opportunities available are critical in this determination. Consideration should be given initially to avoiding overdeveloping an area with the idea that selective cutbacks in services and facilities can be accomplished later. Users expectations will be based on the initial level, and subsequent reductions will be disfavored.

Table 7

User Acceptability of Techniques--Boating/Waterskiing
New Hogan Lake

Techniques	Levels of Acceptability Percentage* of Users Responding:		
	Very Acceptable	Mildly Acceptable	Unacceptable
General Planning Techniques			
Keep major recreation areas more separated	43	35	35
Make vehicle access to areas less convenient	18	18	64
Make area's existence less obvious	25	11	64
Site Planning Techniques			
Design for greater distance between people	18	11	25
Reduce number of parking spaces	39	14	46
Management Techniques			
Procedures:			
Require prior reservations	25	36	39
Require permits	22	15	63
Charge/increase fees	18	36	46
Rules and Regulations:			
Impose more rules	11	18	71
Provide stricter enforcement of rules	43	18	39
Close areas when natural resource destruction reaches critical point	74	19	7
Close areas when they become "too full"	64	7	25
Reduce number of activities in same area	43	35	35
Keep unnecessary vehicles out	57	18	25
Services:			
Provide more and better information	61	18	21
Increase maintenance and restoration	46	18	35
Reduce facilities and services	7	7	86

*Percentages may not total 100% because of those responding "Does Not Apply."

BOAT FISHING

Orientation

Boat fishing is very popular at New Hogan. Like most study project areas, there are some conflicts between waterskiers and boat fishermen. Because of the speed limitation in effect in the coves, these areas are very popular with boat fishermen. During the User Survey, most boat fishermen were interviewed while they were fishing at the southern end of the lake.

The findings presented in the remainder of this section are based on the User Survey. This survey obtained 19 responses from boat fishermen at New Hogan Lake.

User characteristics

Table 8 indicates the characteristics of the boat fishermen surveyed at New Hogan. The most significant difference in the characteristics of the boat fishermen surveyed at New Hogan from those of other study project areas is the relatively small number of fishing groups with more than two people.

Table 8

Boat Fisherman Characteristics

Age	Percent of Boat Fishermen
<18	5
18 - 25	11
26 - 40	47
41 - 55	32
56 - 65	0
>65	5

Group Size	Percent of Boat Fishermen
1	5
2	68
3 - 4	16**
5 - 8	11**
9 - 12	0
>12	0

Travel Time to Project Area	Percent of Boat Fishermen
<15 minutes	5
15 - 30 minutes	16
30 - 60 minutes	42
1 - 2 hours	21
2 - 3 hours	16
3 - 5 hours	0
>5 hours	0

Visit Duration	Percent of Boat Fishermen
1 - 4 hours	5
5 - 8 hours	47
1 day	11
2 days	26
3 days	0
4 days	0
5 - 7 days	11
>7 days	0

No. of Other Activities	Percent of Boat Fishermen
0	53
1	37
2	5
3	5
4	0
5	0
6	0
>6	0

Equipment	Percent of Boat Fishermen
Power Boat (<25 h.p.)	42
Power Boat (>25 h.p.)	58

**Significantly lower than total survey sample.

User opinions

Spacing preferences - Tables 9 and 10 indicate the spacing that the boat fishermen surveyed at New Hogan and elsewhere prefer.

Table 9

Preferred Distance Responses*

Sample	Sample Size	Range	Mean	Median	Mode
All Boat Fishermen Surveyed	111	30 - 5280	555	200	100
New Hogan Lake	2	450- 1260	855	855	-

*In feet; See Appendix A for definitions of terms.

Table 10

Preferred Distance Responses in Planning Range and Preference Groupings*

Sample	% in Planning Range[1] (50'-1500')	% in A[2] (50'-199')	% in B[2] (200'-599')	% in C[2] (600'-1500')
All Boat Fishermen Surveyed	91%	49%	27%	24%
New Hogan Lake	100	0	50	50

*See Appendix A for definitions of terms; See Technical Report for a full development of spacing preference information.

[1]Percentage of all preferred distance responses.
[2]Percentage of all preferred distance responses in Planning Range.

Reasons for pleasant/unpleasant experience - Table 11 indicates the impact that different factors had on making the boat fishing experience pleasant or unpleasant for users at New Hogan. "Catching fish" and "noise" were the factors which most often made the experience at New Hogan unpleasant. None of the fishermen surveyed indicated they would not return to New Hogan.

Tables 12 and 13 indicate the changes in the physical condition and people's use of the area reported by boat fishermen from their previous visit.

Table 12

Positive and Negative Changes Noticed in the Physical Conditions of the Area - Items Mentioned by Boat Fishermen

Area	Positive Changes	Negative Changes
Lake and Adjacent Areas	"Lake up high" (1) "More water--better fishing" (1)	"More litter" (1) "Water too high" (4)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Table 13

Positive and Negative Changes Noticed in People's Use of the Area - Items Mentioned by Boat Fishermen

Area	Positive Changes	Negative Changes
Lake and Adjacent Areas	"Not as many people" (1)	"Less consideration for other boaters" (1) "Too much litter" (1)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Table 11

Reasons Making Recreation Experience Pleasant or Unpleasant--Boat Fishing
New Hogan Lake

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	95	5	-
Distance from other people	95	5	-
Number of people in other visitor groups	95	5	-
Number and type of other activities occurring here	84	5	5
Scenic views	100	-	-
Noise	79	21	-
Accidents or near accidents	84	16	-
Enforcement of rules/regulations	95	5	-
Car parking facilities	89	11	-
Theft	89	11	-
Vandalism	89	11	-
Land-Based Reasons			
Visual privacy from other people	95	-	-
Amount of facilities (restrooms, water, etc.)	89	11	-
Convenience to facilities (restrooms, water, etc.)	84	16	-
Maintenance of facilities	100	-	-
Condition of trees and landscape	89	-	-
Condition of grass or soil	89	-	-
Water-Based Reasons			
Water quality	100	-	-
Catching fish	68	32	-
People in areas they shouldn't be	89	5	-

*Percentages may not total 100% because of those responding "Does Not Apply."

Acceptability of techniques - Table 14 indicates the acceptability of different techniques for solving problems to the boat fishermen surveyed at New Hogan.

The acceptability of most techniques is very clear: at least 60 percent of the respondents agreed on one of the 3 levels of acceptability for 11 of the 17 techniques. But even for those techniques which most respondents found to be acceptable, up to 26 percent found them to be unacceptable. Thus, project management should expect some opposition to any technique used.

Table 14

User Acceptability of Techniques--Boat Fishing
New Hogan Lake

Techniques	Levels of Acceptability Percentage* of Users Responding:		
	Very Acceptable	Mildly Acceptable	Unacceptable
General Planning Techniques			
Keep major recreation areas more separated	84	11	5
Make vehicle access to areas less convenient	10	32	58
Make area's existence less obvious	5	32	63
Site Planning Techniques			
Reduce number of parking spaces	31	16	53
Management Techniques			
Procedures:			
Require prior reservations	5	11	84
Require permits	-	42	58
Charge/increase fees	6	39	55
Rules and Regulations:			
Impose more rules	16	11	74
Provide stricter enforcement of rules	63	16	21
Close areas when natural resource destruction reaches critical point	74	5	21
Close areas when they become "too full"	37	37	26
Reduce number of activities in same area	79	16	5
Limit number of people in visitor groups	5	89	5
Keep unnecessary vehicles out	79	11	5
Services:			
Provide more and better information	63	37	-
Increase maintenance and restoration	53	47	-
Reduce facilities and services	5	5	89

*Percentages may not total 100% because of those responding "Does Not Apply."

BOAT LAUNCHING

Orientation

Three multiple lane ramps are located at Fiddleneck Day Use Area. Support facilities include parking areas for a total of 250 cars/trailers and courtesy docks extending from the ramps. Use of the launching ramps is well balanced. There also appears to be a good balance between the number of parking spaces and the level of use. High and low water ramps are necessary because of lake fluctuations and work well. The launching ramps in Acorn Campground works well, and the trailer parking area helps eliminate campsite congestion.

The findings made in the remainder of this section are based on the User Survey. This survey obtained 20 responses from boat launchers at New Hogan (16 at Fiddleneck and 4 at Acorn).

User characteristics

Table 15 indicates the characteristics of the boat launchers surveyed at New Hogan.

Table 15

Boat Launcher Characteristics

Age	Percent of Boat Launchers
<18	0
18 - 25	45
26 - 40	30
41 - 55	10
56 - 65	5
>65	10

Group Size	Percent of Boat Launchers
1	5
2	35
3 - 4	50
5 - 8	10
9 - 12	0
>12	0

Travel Time to Project Area	Percent of Boat Launchers
<15 minutes	0
15 - 30 minutes	5
30 - 60 minutes	55
1 - 2 hours	20
2 - 3 hours	15
3 - 5 hours	0
>5 hours	5

Visit Duration	Percent of Boat Launchers
1 - 4 hours	15
5 - 8 hours	30
1 day	5
2 days	20
3 days	10
4 days	10
5 - 7 days	10
>7 days	0

No. of Other Activities	Percent of Boat Launchers
0	50
1	15
2	20
3	5
4	5
5	5
6	0
>6	0

User opinions

Preferred launch times - Table 16 indicates the launch times that launchers at New Hogan and elsewhere prefer.

Table 16

Preferred Launch Times*

Sample	Sample Size	Range	Mean
All Boat Launchers surveyed	99	-	9 min.
New Hogan	20	0 - 30 min.	7 min.
Acorn	4	0 - 30 min.	11 min.
Fiddleneck	16	3 - 10 min.	6 min.

*In minutes; See Appendix A for definitions of terms.

Reasons for pleasant/unpleasant experience - Tables 17 and 18 indicate the impact that different factors had on making the boat launching experience pleasant or unpleasant for users at Acorn and Fiddleneck. Most boat launchers found their experience to be very pleasant. The amount of facilities was the factor which most often made the experience at Acorn unpleasant. None of the boat launchers indicated that they would not want to return to New Hogan.

Table 19 indicates the changes in the physical condition of the areas reported by boat launchers from their previous visit. No changes in people's use of these areas were reported.

Table 17

Reasons Making Recreation Experience Pleasant or Unpleasant--Boat Launching
Acorn

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	75	-	25
Distance from other people	75	-	25
Number of people in other visitor groups	75	-	25
Number and type of other activities occurring here	100	-	-
Scenic views	100	-	-
Noise	100	-	-
Accidents or near accidents	75	-	25
Enforcement of rules/regulations	100	-	-
Car parking facilities	75	25	-
Theft	100	-	-
Vandalism	100	-	-
Land-Based Reasons			
Amount of facilities (restrooms, water, etc.)	66	33	-
Convenience to facilities (restrooms, water, etc.)	100	-	-
Steepness of slopes	75	25	-
Maintenance of facilities	75	25	-
Condition of trees and landscape	100	-	-
Condition of grass or soil	100	-	-
Water-Based Reasons			
Water quality	100	-	-
Formal designation of places for your activity	100	-	-
Waiting time to launch boat	100	-	-
People in areas they shouldn't be	100	-	-

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 18

Reasons Making Recreation Experience Pleasant or Unpleasant--Boat Launching Fiddleneck

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	81	6	13
Distance from other people	87	7	7
Number of people in other visitor groups	66	-	33
Number and type of other activities occurring here	100	-	-
Scenic views	88	-	6
Noise	81	6	13
Accidents or near accidents	93	-	7
Enforcement of rules/regulations	93	5	-
Car parking facilities	100	-	-
Theft	94	6	-
Vandalism	100	-	-
Land-Based Reasons			
Amount of facilities (restrooms, water, etc.)	94	6	-
Convenience to facilities (restrooms, water, etc.)	100	-	-
Steepness of slopes	75	-	-
Maintenance of facilities	94	6	-
Condition of trees and landscape	88	-	-
Condition of grass or soil	88	-	-
Water-Based Reasons			
Water quality	100	-	-
Formal designation of places for your activity	75	-	13
Waiting time to launch boat	100	-	-
People in areas they shouldn't be	86	-	7

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 19

Positive and Negative Changes Noticed in the Physical Conditions of the Area - Items Mentioned by Boat Launchers

Area	Positive Changes	Negative Changes
Acorn	"Water level" (1)	"Not enough parking" (1)
	"Water higher" (1)	
	"Not as crowded on weekdays" (1)	
Fiddleneck	"High water" (3)	"Water dirtier" (1)
	"No debris" (1)	
	"Better condition of all facilities" (1)	
	"More and better ramps" (2)	

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Acceptability of techniques - Table 20 indicates the acceptability of different techniques for solving problems to the boat launchers surveyed at New Hogan.

The acceptability of most techniques is very clear: at least 60 percent of the respondents agreed on one of the 3 levels of acceptability for 12 of the 19 techniques. But even for those techniques which most respondents found to be acceptable, up to 45 percent found them to be unacceptable. Thus, project management should expect some opposition to any technique used.

Table 20

User Acceptability of Techniques--Boat Launching
New Hogan

Techniques	Levels of Acceptability		
	Percentage* of Users Responding:		
	Very Acceptable	Mildly Acceptable	Unacceptable
General Planning Techniques			
Keep major recreation areas more separated	90	5	5
Make vehicle access to areas less convenient	5	15	80
Make area's existence less obvious	15	5	80
Site Planning Techniques			
Redesign area to accommodate fewer users	15	20	55
Design for greater distance between people	15	20	15
Reduce number of parking spaces	35	15	45
Management Techniques			
Procedures:			
Require prior reservations	-	20	80
Require permits	10	20	65
Charge/increase fees	-	35	60
Rules and Regulations:			
Impose more rules	10	25	65
Provide stricter enforcement of rules	50	30	20
Close areas when natural resource destruction reaches critical point	44	11	6
Close areas when they become "too full"	70	15	15
Reduce number of activities in same area	80	15	-
Limit number of people in visitor groups	5	11	50
Keep unnecessary vehicles out	75	15	5
Services:			
Provide more and better information	85	15	-
Increase maintenance and restoration	55	15	5
Reduce facilities and services	5	10	80

*Percentages may not total 100% because of those responding "Does Not Apply."

CAMPING

Orientation

A single entrance gate and attendant control access in and out of Acorn and Oak Knoll Campgrounds. Oak Knoll is a non-fee campground with a limited level of development (unpaved camppads, no electric or water hookups). Acorn is more highly developed (hardened pads, shower building, and fish cleaning facilities, etc.). Some overcrowding and overuse occurs at both campgrounds, although to a greater degree at Oak Knoll.

The findings presented in the remainder of this section are based on the User Survey. This survey obtained 83 responses from campers at New Hogan (57 at Acorn and 26 at Oak Knoll).

User characteristics

Table 21 indicates the characteristics of the campers surveyed at New Hogan. The most significant differences in the characteristics of the campers at New Hogan from those of other study project areas are: the relatively high number of camping groups of one or two people, the small number of campers from nearby areas, and the relatively small number of campers using tents.

Table 21

Camper Characteristics

Age	Percent of Campers
<18	0
18 - 25	12
26 - 40	24
41 - 55	24
56 - 65	34*
>65	6*

Group Size	Percent of Campers
1	4*
2	54*
3 - 4	25
5 - 8	11
9 - 12	6
>12	0

Travel Time to Project Area	Percent of Campers
<15 minutes	0
15 - 30 minutes	0
30 - 60 minutes	18
1 - 2 hours	59*
2 - 3 hours	14*
3 - 5 hours	4*
>5 hours	5*

Visit Duration	Percent of Campers
1 - 4 hours	0
5 - 8 hours	1
1 day	9
2 days	22
3 days	22
4 days	17
5 - 7 days	12
>7 days	17

No. of Other Activities	Percent of Campers
0	8
1	32
2	10
3	20
4	13
5	7
6	6
>6	2

Equipment	Percent of Campers
Tent	7**
Truck-mounted Camper	16
Travel Trailer	43
Van	6
Motor Home	16
Other	2

*Significantly higher than total survey sample.
**Significantly lower than total survey sample.

User opinions

Spacing preferences - Tables 22 and 23 indicate the spacing (as measured on center of each site) that campers surveyed at New Hogan and elsewhere prefer.

Table 22

Preferred Distance Responses* - Camping

Sample	Sample Size	Range	Mean	Median	Mode
All Campers Surveyed (11 projects)	511	10 - a	79	60	75
New Hogan	34	10 - 300	63	50	50,60
Acorn	14	25 - 300	20	10	30
Oak Knoll	20	10 - 150	22	39	17

*in feet; See Appendix A for definitions of terms.
a - response of "alone" or "out of sight."

Table 23

Preferred Distance Responses in Planning Range and Preference Groupings*

Sample	% in Planning Range[1] (20'-120')	% in A[2] (20'-39')	% in B[2] (40'-59')	% in C[2] (60'-79')	% in D[2] (80'-120')
All Campers Surveyed	90%	20%	28%	31%	21%
New Hogan	82	21	29	29	21
Acorn	71	20	10	40	30
Oak Knoll	90	22	39	22	17

*See Appendix A for definitions of terms; See Technical Report for full development of spacing preference information.
[1]Percentage of all preferred distance responses.
[2]Percentage of all preferred distance responses within the Planning Range.

Campers at Acorn prefer greater spacing more frequently than the total sample.

Reasons for pleasant/unpleasant experience - Tables 24 and 25 indicate the impact that different factors had on making the camping experience pleasant or unpleasant for users at the two camping areas surveyed. The steepness of the slopes was the factor which most often made the experience at Acorn unpleasant. The amount of facilities and the convenience to facilities were the factors which most often made the experience at Oak Knoll unpleasant. Three users indicated that they would not return (see Table 26).

Tables 27 and 28 indicate the changes in the physical condition and people's use of the areas reported by campers from their previous visit.

Table 24

Reasons Making Recreation Experience Pleasant or Unpleasant--Camping
Acorn

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	84	7	7
Distance from other people	71	20	7
Number of people in other visitor groups	62	5	31
Number and type of other activities occurring here	86	2	13
Fees charged	11	-	5
Scenic views	98	-	-
Noise	86	11	4
Accidents or near accidents	91	2	2
Enforcement of rules/regulations	87	7	6
Car parking facilities	78	15	4
Theft	96	-	-
Vandalism	95	4	-
Land-Based Reasons			
Visual privacy from other people	73	18	9
Amount of facilities (restrooms, water, etc.)	92	4	4
Convenience to facilities (restrooms, water, etc.)	80	11	9
Nearness to the water body	91	2	7
Steepness of slopes	50	34	16
Maintenance of facilities	95	5	2
Condition of trees and landscape	98	-	-
Condition of grass or soil	89	7	4
Water-Based Reasons			
Water quality	87	2	4

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 25

Reasons Making Recreation Experience Pleasant or Unpleasant--Camping
Oak Knoll

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	77	23	-
Distance from other people	80	20	-
Number of people in other visitor groups	73	4	19
Number and type of other activities occurring here	83	-	9
Fees charged	42	-	4
Scenic views	100	-	-
Noise	75	21	4
Accidents or near accidents	84	8	8
Enforcement of rules/regulations	88	12	-
Car parking facilities	83	13	4
Theft	100	-	-
Vandalism	100	-	-
Land-Based Reasons			
Visual privacy from other people	71	13	17
Amount of facilities (restrooms, water, etc.)	52	36	8
Convenience to facilities (restrooms, water, etc.)	60	32	4
Nearness to the water body	96	-	-
Steepness of slopes	84	12	4
Maintenance of facilities	96	4	-
Condition of trees and landscape	100	-	-
Condition of grass or soil	88	4	8
Water-Based Reasons			
Water quality	88	4	4

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 26

Number and Percent of Users That Indicated They Would Not Return to the Activity Area and Their Reasons

Area	Number and percent of users surveyed who indicated they would not return #	%	Reasons for not wanting to return
Acorn	1	2%	"Rangers have been sarcastic and nasty to campers--there should be a fish-cleaning station on Acorn side."
	1	2%	"Boats too loud--No level area for good tent site"
Oak Knoll	1	4%	"Too many undesirable people"

Table 27

Positive and Negative Changes Noticed in the Physical Conditions of the Area - Items Mentioned by Campers

Area	Positive Changes	Negative Changes
Acorn	"Keeps getting better every year" (2)	"Elimination of overflow area" (1)
	"A lot cleaner" (6)	"Water too high for fishing" (2)
	"Facilities are immaculate" (1)	"Water higher" (1)
	"New toilets" (1)	"Keep weeds down" (1)
	"More facilities" (1)	"Not level enough for trailers" (1)
	"Roads better" (2)	"Grass should be cut more" (1)
	"Regulation better here now" (1)	"Fee charging unfair" (1)
	"Steady improvement" (1)	"Keep trees trimmed" (1)
	"Changed garbage" (1)	"Not as clean as before" (1)
	"Cleaned up bathrooms" (2)	"Front gate too crowded at times" (1)
	"Greener" (1)	"Slow boats down" (1)
	"More boats" (1)	"Area too small to accommodate large crowd" (1)
	"More water" (4)	"Litter on the lake and around campsites" (1)
	"Fire pits" (1)	"Always filled" (1)
	"Showers in" (1)	"More people" (1)
Oak Knoll	"A lot more water" (1)	"Took toilets out" (1)
	"More sites" (1)	"Toilets not clean" (1)
	"A lot nicer since last year" (1)	"Water too high" (2)
	"Roads paved" (1)	"Worn more than in the past" (1)
	"Overflow area pads improved 100%" (1)	"No overflow area" (2)
	"Tables" (2)	
	"Designated sites" (4)	
	"Gates" (1)	
	"More control" (2)	
	"Logs" (1)	
	"Fireplaces" (1)	

Table 27 (cont.)

	"Cleaner" (2) "Log dividers out in north section" (1) "Started charging" (1)	

Table 28

Positive and Negative Changes Noticed in the People's Use of the Area - Items Mentioned by Campers

Area	Positive Changes	Negative Changes
Acorn	"Rangers patrol more than in previous years" (1) "Seems to be better organized" (1) "Really kept clean" (1) "Used pretty well" (1) "Seems to be quieter" (2) "A lot more people coming here" (1) "Designated for camping" (1) "Have quelled noise, etc. at night" (1) "Always friendly" (1) "More respectful" (1) "More families coming" (1) "More retired people" (1) "People considerate" (1)	"Letting pickers stay too long for nothing" (1) "Too many people in free area" (1) "Not enough water" (1) "Not enough garbage cans" (1) "Rangers are nasty" (1) "People and litter" (1) "Use of tent campers at trailer sites" (1) "Kids who litter" (1) "Disposal dump closed" (1) "People less concerned with others" (1) "Too many people driving around looking for sites" (1)
Oak Knoll	"100% improved--ranger's control is better" (1) "Rangers patrol more" (1) "Better types of people" (1)	"Too many people" (1) "Rangers do not patrol enough for noise curtailment" (1) "Pickers who stay for weeks" (1) "A little more restriction on dogs and type of people" (1) "Transients who stay too long for free" (1)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Acceptability of techniques - Table 29 indicates the acceptability of different techniques for solving problems to the campers surveyed at New Hogan.

The acceptability of many techniques is very clear: at least 60 percent of the respondents agreed on one of the 3 levels of acceptability for 10 of the 22 techniques. But even for those techniques which most respondents found to be acceptable, up to 44 percent found them to be unacceptable. Thus, project management should expect some opposition to any technique used.

Table 29

User Acceptability of Techniques--Camping
New Hogan Lake

Techniques	Levels of Acceptability		
	Percentage* of Users Responding:		
	Very Acceptable	Mildly Acceptable	Unacceptable
General Planning Techniques			
Keep major recreation areas more separated	41	26	25
Make vehicle access to areas less convenient	16	16	68
Make area's existence less obvious	12	12	76
Site Planning Techniques			
Redesign area to accommodate fewer users	24	6	69
Design for greater distance between people	38	15	43
Reduce number of parking spaces	29	16	44
Change natural surface by hardening	-	-	100
Change natural surface by paving	30	16	52
Provide landscaped buffers	40	22	31
Management Techniques			
Procedures:			
Require prior reservations	26	16	58
Require permits	9	12	47
Charge/increase fees	20	24	56
Rules and Regulations:			
Impose more rules	10	10	73
Provide stricter enforcement of rules	16	19	58
Close areas when natural resource destruction reaches critical point	73	16	10
Close areas when they become "too full"	78	3	20
Reduce number of activities in same area	35	20	35
Limit number of people in visitor groups	45	15	36
Keep unnecessary vehicles out	60	22	15
Services:			
Provide more and better information	69	21	5
Increase maintenance and restoration	59	25	12
Reduce facilities and services	9	9	83

*Percentages may not total 100% because of those responding "Does Not Apply."

PICNICKING

Orientation

The picnic area at North Shore is located on steep slopes relatively far from parking lots and the lakeshore. The picnic area includes 120 tables with concrete bases and stoves are provided for cooking. Shade trees are scarce. Only a few picnic sites were being used during the User Survey and most sites appeared underused.

The findings made in the remainder of this section are based on the User Survey. This survey obtained 7 responses from picnickers at the North Shore Recreation Area.

User characteristics

Table 30 indicates the characteristics of the picnickers surveyed at New Hogan. The most significant differences in the characteristics of the picnickers surveyed at New Hogan from those of other study project areas are the relatively large number of groups of two people and the small number of picnickers from nearby areas.

Table 30

Picnicker Characteristics

Age	Percent of Picnickers
<18	14
18 - 25	14
26 - 40	57
41 - 55	14
56 - 65	0
>65	0

Group Size	Percent of Picnickers
1	0
2	29*
3 - 4	29
5 - 8	43
9 - 12	0
>12	0

Travel Time to Project Area	Percent of Picnickers
<15 minutes	0
15 - 30 minutes	14**
30 - 60 minutes	57*
1 - 2 hours	14
2 - 3 hours	14
3 - 5 hours	0
>5 hours	0

Visit Duration	Percent of Picnickers
1 - 4 hours	29
5 - 8 hours	57
1 day	0
2 days	0
3 days	14
4 days	0
5 - 7 days	0
>7 days	0

No. of Other Activities	Percent of Picnickers
0	0
1	71
2	29
3	0
4	0
5	0
6	0
>6	0

*Significantly higher than total survey sample.
**Significantly lower than total survey sample.

User opinions

Spacing preferences - Tables 31 and 32 indicate the spacing that picnickers surveyed at New Hogan and elsewhere prefer.

Table 31

Preferred Distance Responses*

Sample	Sample Size	Range	Mean	Median	Mode
All Picnickers Surveyed	190	1 - a	62	50	50
New Hogan, North Shore	7	45 -120	67	70	70

*In feet; See Appendix A for definitions of terms.
a - response of "alone" or "out of sight."

Table 32

Preferred Distance Responses in Planning Range and Preference Groupings*

Sample	% in Planning Range[1] (20'-100')	% in A[2] (20'-39')	% in B[2] (40'-59')	% in C[2] (60'-79')	% in D[2] (80'-100')
All Picnickers surveyed	93%	23%	42%	20%	15%
New Hogan, North Shore	86	0	17	67	17

*See Appendix A for definitions of terms; See Technical Report for a full development of spacing preference information.

[1]Percentage of all preferred distance responses.
[2]Percentage of all preferred distance responses in the Planning Range.

Picnickers surveyed at New Hogan have a significantly greater preference for spacing in the range of Group C (60'-79') than did the total survey.

Reasons for pleasant/unpleasant experience - Table 33 indicates the impact that different factors had on making the picnic experience pleasant or unpleasant for users at the North Shore area. "Noise," the "steepness of slopes," and the "convenience/maintenance of facilities" were the factors which most often made the experience at New Hogan unpleasant. None of the picnickers surveyed indicated that they would not return to New Hogan.

Tables 34 and 35 indicate the changes in the physical condition and people's use of the area reported by picnickers from their previous visit.

Table 34

Positive and Negative Changes Noticed in the Physical Conditions of the Area - Items Mentioned by Picnickers

Area	Positive Changes	Negative Changes
North Shore	"Put logs in overflow area" (1) "More water" (1) "Cleaner" (1)	(None mentioned)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Table 35

Positive and Negative Changes Noticed in the People's Use of the Area - Items Mentioned by Picnickers

Area	Positive Changes	Negative Changes
North Shore	(None mentioned)	"People staying longer at overflow area" (1)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Table 33

Reasons Making Recreation Experience Pleasant or Unpleasant--Picnicking
North Shore

	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons Characteristics and behavior of other people	71	14	-
Distance from other people	86	14	-
Number of people in other visitor groups	71	14	-
Number and type of other activities occurring here	86	14	-
Scenic views	100	-	-
Noise	43	57	-
Accidents or near accidents	100	-	-
Enforcement of rules/regulations	86	14	-
Car parking facilities	86	14	-
Theft	100	-	-
Vandalism	100	-	-
Land-Based Reasons Visual privacy from other people	86	14	-
Amount of facilities (restrooms, water, etc.)	86	14	-
Convenience to facilities (restrooms, water, etc.)	71	29	-
Nearness to the water body	100	-	-
Steepness of slopes	43	43	14
Maintenance of facilities	71	29	-
Condition of trees and landscape	100	-	-
Condition of grass or soil	100	-	-
Water-Based Reasons Water quality	71	-	14

*Percentages may not total 100% because of those responding "Does Not Apply."

Acceptability of techniques - Table 36 indicates the acceptability of different techniques for solving problems to the picnickers surveyed at New Hogan.

The acceptability of many techniques is very clear: at least 60 percent of the respondents agreed on one of the 3 levels of acceptability for 8 of the 21 techniques. But even for those techniques which most respondents found to be acceptable, up to 29 percent found them to be unacceptable. Thus, project management should expect some opposition to any technique used.

Table 36

User Acceptability of Techniques--Picnicking
New Hogan Lake

Techniques	Levels of Acceptability Percentage* of Users Responding:		
	Very Acceptable	Mildly Acceptable	Unacceptable
General Planning Techniques			
Keep major recreation areas more separated	86	14	-
Make vehicle access to areas less convenient	29	-	71
Make area's existence less obvious	14	29	57
Site Planning Techniques			
Redesign area to accommodate fewer users	57	29	14
Design for greater distance between people	29	43	29
Reduce number of parking spaces	14	14	57
Change natural surface by paving	29	14	57
Provide landscaped buffers	57	29	14
Management Techniques			
Procedures:			
Require prior reservations	-	14	86
Require permits	-	43	57
Charge/increase fees	29	14	57
Rules and Regulations:			
Impose more rules	-	43	57
Provide stricter enforcement of rules	14	14	71
Close areas when natural resource destruction reaches critical point	86	14	-
Close areas when they become "too full"	71	29	-
Reduce number of activities in seam area	29	57	14
Limit number of people in visitor groups	-	-	43
Keep unnecessary vehicles out	57	14	29
Services:			
Provide more and better information	43	57	-
Increase maintenance and restoration	71	14	14
Reduce facilities and services	-	14	86

*Percentages may not total 100% because of those responding "Does Not Apply."

SHORELINE FISHING

Orientation

Shoreline fishing is popular at New Hogan. During the User Survey most people were shoreline fishing at either Wrinkle Cove or along the Calavaras River below the dam.

The findings presented in the remainder of this section are based on the User Survey. This survey obtained 31 responses from shoreline fishermen at New Hogan (13 at Wrinkle Cove, 10 at Calavaras River, 6 at Fiddleneck and 2 at Acorn).

User characteristics

Table 37 indicates the characteristics of the shoreline fishermen surveyed at New Hogan. The characteristics of fishermen at New Hogan were very similar to those of the shoreline fishermen surveyed at other study project areas.

Table 37

Shoreline Fisherman Characteristics

Age	Percent of Shoreline Fishermen
<18	10
18 - 25	19
26 - 40	23
41 - 55	26
56 - 65	19
>65	3

Group Size	Percent of Shoreline Fishermen
1	39
2	32
3 - 4	19
5 - 8	6
9 - 12	3
>12	0

Travel Time to Project Area	Percent of Shoreline Fishermen
<15 minutes	26
15 - 30 minutes	22
30 - 60 minutes	26
1 - 2 hours	13
2 - 3 hours	10
3 - 5 hours	3
>5 hours	0

Visit Duration	Percent of Shoreline Fishermen
1 - 4 hours	29
5 - 8 hours	55
1 day	10
2 days	6
3 days	0
4 days	0
5 - 7 days	0
>7 days	0

No. of Other Activities	Percent of Shoreline Fishermen
0	74
1	6
2	10
3	3
4	0
5	0
6	6
>6	0

User opinions

Spacing preferences - Tables 38 and 39 indicate the spacing that shoreline fishermen at New Hogan and elsewhere prefer.

Table 38

Preferred Distance Responses*

Sample	Sample Size	Range	Mean	Median	Mode
All Shoreline Fishermen surveyed	106	6 - a	76	35	50
New Hogan	20	4 - 1500	35	25	15
Acorn	2	13 - 50	32	32	-
Calavaras River	7	4 - 1500	28	28	-
Fiddleneck	5	15 - 300	45	45	-
Wrinkle Cove	6	15 - 115	41	35	-

*In feet; See Appendix A for definitions of terms.
a - response of "alone" or "out of sight."

Table 39

Preferred Distance Responses in Planning Range and Preference Groupings*

Sample	% in Planning Range[1] (10'-100')	% in A[2] (10'-19')	% in B[2] (20'-39')	% in C[2] (40'-59')	% in D[2] (60'-100')
All Shoreline Fishermen surveyed	83%	20%	38%	24%	18%
New Hogan	55	27	36	9	27
Acorn	100	50	0	50	0
Calavaras River	29	0	100	0	0
Fiddleneck	40	50	0	0	50
Wrinkle Cove	83	20	40	0	40

*See Appendix A for definitions of terms; See Technical Report for a full development of spacing preference information.
[1]Percentage of all preferred distance responses.
[2]Percentage of all preferred distance responses in Planning Range.

Spacing in the range of Group C (40'-59' feet) is greatly disfavored at New Hogan.

Reasons for pleasant/unpleasant experience - Tables 40, 41, 42 and 43 indicate the impact that different factors had on making the shoreline fishing experience pleasant or unpleasant for users at the four areas surveyed. Fishermen at Fiddleneck found their experience to be generally the most pleasant, followed by those at Wrinkle Cove, then those at Acorn and Calavaras River. None of the fishermen surveyed indicated that they would not return to the areas.

Tables 44 and 45 indicate the changes in the physical condition and people's use of the areas as reported by shoreline fishermen from their previous visit.

Table 40

Reasons Making Recreation Experience Pleasant or Unpleasant--Shoreline Fishing
Acorn

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	100	-	-
Distance from other people	100	-	-
Number of people in other visitor groups	50	-	50
Number and type of other activities occurring here	100	-	-
Scenic views	100	-	-
Noise	100	-	-
Accidents or near accidents	50	-	50
Enforcement of rules/regulations	50	-	50
Car parking facilities	50	50	-
Theft	100	-	-
Vandalism	100	-	-
Land-Based Reasons			
Visual privacy from other people	100	-	-
Amount of facilities (restrooms, water, etc.)	50	-	50
Convenience to facilities (restrooms, water, etc.)	50	-	50
Nearness to the water body	100	-	-
Steepness of slopes	50	50	-
Maintenance of facilities	50	-	50
Condition of trees and landscape	100	-	-
Condition of grass or soil	-	50	50
Water-Based Reasons			
Water quality	100	-	-
Catching fish	-	100	-
Formal designation of places for your activity	50	-	50

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 41

Reasons Making Recreation Experience Pleasant or Unpleasant--Shoreline Fishing
Calavaras River

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	80	10	10
Distance from other people	70	20	10
Number of people in other visitor groups	80	10	10
Number and type of other activities occurring here	70	-	10
Scenic views	80	10	10
Noise	80	20	-
Accidents or near accidents	70	10	10
Enforcement of rules/regulations	70	20	10
Car parking facilities	70	20	10
Theft	100	-	-
Vandalism	100	-	-
Land-Based Reasons			
Visual privacy from other people	80	20	-
Amount of facilities (restrooms, water, etc.)	10	50	-
Convenience to facilities (restrooms, water, etc.)	20	30	10
Nearness to the water body	80	-	-
Steepness of slopes	80	20	-
Maintenance of facilities	50	20	10
Condition of trees and landscape	80	20	-
Condition of grass or soil	80	-	20
Water-Based Reasons			
Water quality	90	-	10
Catching fish	60	40	-
Formal designation of places for your activity	20	20	10

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 42

Reasons Making Recreation Experience Pleasant or Unpleasant--Shoreline Fishing
Fiddleneck

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	100	-	-
Distance from other people	100	-	-
Number of people in other visitor groups	100	-	-
Number and type of other activities occurring here	100	-	-
Scenic views	100	-	-
Noise	67	33	-
Accidents or near accidents	100	-	-
Enforcement of rules/regulations	83	17	-
Car parking facilities	100	-	-
Theft	100	-	-
Vandalism	100	-	-
Land-Based Reasons			
Visual privacy from other people	33	-	33
Amount of facilities (restrooms, water, etc.)	100	-	-
Convenience to facilities (restrooms, water, etc.)	83	-	-
Nearness to the water body	17	-	-
Steepness of slopes	83	-	-
Maintenance of facilities	100	-	-
Condition of trees and landscape	100	-	-
Condition of grass or soil	83	17	-
Water-Based Reasons			
Water quality	83	17	-
Catching fish	100	-	-
Formal designation of places for your activity	17	-	-

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 43

Reasons Making Recreation Experience Pleasant or Unpleasant--Shoreline Fishing
Wrinkle Cove

Reasons	Percentage* of Users Responding:		
	Pleasant	Unpleasant	Not Important
General Reasons			
Characteristics and behavior of other people	100	-	-
Distance from other people	92	-	8
Number of people in other visitor groups	77	-	23
Number and type of other activities occurring here	77	-	8
Scenic views	100	-	-
Noise	100	-	-
Accidents or near accidents	92	-	-
Enforcement of rules/regulations	100	-	-
Car parking facilities	46	54	-
Theft	100	-	-
Vandalism	100	-	-
Land-Based Reasons			
Visual privacy from other people	77	-	23
Amount of facilities (restrooms, water, etc.)	85	15	-
Convenience to facilities (restrooms, water, etc.)	85	15	-
Nearness to the water body	100	-	-
Steepness of slopes	92	8	-
Maintenance of facilities	92	8	-
Condition of trees and landscape	100	-	-
Condition of grass or soil	100	-	-
Water-Based Reasons			
Water quality	92	-	8
Catching fish	92	8	-
Formal designation of places for your activity	62	-	8

*Percentages may not total 100% because of those responding "Does Not Apply."

Table 44

Positive and Negative Changes Noticed in the Physical Conditions of the Area - Items Mentioned by Shoreline Fishermen

Area	Positive Changes	Negative Changes
Acorn	"Showers in" (1) "Paying means upgrading type of people next to you" (1)	"Water too high or too low" (1) "Dump is full" (1) "Don't dump fish in only one spot" (1)
Calavaras River	"Smoothed out road" (1) "New dock/marina" (1) "More parking" (2)	"Better fishing 10 years ago" (1) "Litter on lake and along river" (2) "Usually better fishing at lake" (1)
Fiddleneck	"A lot cleaner--a lot less trash on the water" (1) "More water--better fishing" (1) "Overall improvements" (1) "Ramps" (1)	"Speed boats really disturb the fishing" (1)
Wrinkle Cove	"Cleaner" (2) "Taking better care" (1) "More rangers in to check area more often" (2)	"High water" (2) "Overflow area does not allow enough people in" (1)

Table 45

Positive and Negative Changes Noticed in the People's Use of the Area - Items Mentioned by Shoreline Fishermen

Area	Positive Changes	Negative Changes
Acorn	(None mentioned)	(None mentioned)
Calavaras River	(None mentioned)	" A lot more fishermen" (1)
Fiddleneck	(None mentioned)	(None mentioned)
Wrinkle Cove	"More people using areas" (1)	"Campground litter" (1)

NOTE: The number in parenthesis (#) indicates the number of times the change was mentioned.

Acceptability of techniques - Table 46 indicates the acceptability of different techniques for solving problems to the shoreline fishermen surveyed at New Hogan.

The acceptability of many techniques is very clear: at least 60 percent of the respondents agreed on one of the 3 levels of acceptability for 10 of the 21 techniques. But even for those techniques which most respondents found to be acceptable, up to 42 percent found them to be unacceptable. Thus, project management should expect some opposition to any technique used.

Table 46

User Acceptability of Techniques--Shoreline Fishermen
New Hogan Lake

Techniques	Levels of Acceptability Percentage* of Users Responding:		
	Very Acceptable	Mildly Acceptable	Unacceptable
General Planning Techniques			
Keep major recreation areas more separated	71	13	13
Make vehicle access to areas less convenient	29	16	52
Make area's existence less obvious	26	19	55
Site Planning Techniques			
Redesign area to accommodate fewer users	24	7	59
Design for greater distance between people	16	19	55
Reduce number of parking spaces	37	10	53
Change natural surface by paving	23	17	50
Provide landscaped buffers	17	30	23
Management Techniques			
Procedures:			
Require prior reservations	16	13	71
Require permits	6	13	81
Charge/increase fees	3	19	77
Rules and Regulations:			
Impose more rules	10	16	74
Provide stricter enforcement of rules	32	26	42
Close areas when natural resource destruction reaches critical point	71	16	10
Close areas when they become "too full"	67	13	20
Reduce number of activities in seam area	55	19	13
Limit number of people in visitor groups	6	13	71
Keep unnecessary vehicles out	50	27	17
Services:			
Provide more and better information	55	29	13
Increase maintenance and restoration	61	10	23
Reduce facilities and services	17	7	73

*Percentages may not total 100% because of those responding "Does Not Apply."

PART 3: ANALYSIS OF SELECTED PROBLEMS/SITUATIONS

PART 3: ANALYSIS OF SELECTED PROBLEMS/SITUATIONS

This final section identifies and examines selected problems and situations at New Hogan Lake. The section is not intended to provide solutions to all project area problems. Nor is it a substitute for project area master planning. The solutions/techniques are intended to be only suggestions for further consideration by project area personnel, for they are most familiar with the intricacies associated with these problems.

In many cases, the project area staff is already aware of these problems or situations and is in the process of dealing with them. And in some cases, the solutions/techniques listed in Table 47 may not be practical or possible because of management, budget, or other constraints.

Table 47

Analysis of Selected Problems/Situations

Area/Subject	Problem/Situation	Possible Solutions/Techniques
Boating	Future overcrowding of boats on the lake surface.	• mark additional cove areas for limited speeds. • prohibit or limit jet boats. • consider controlling boat circulation. • consider establishing waterski lanes where skiers have to go to.
Campgrounds	Some overcrowding and overuse occurs in both campgrounds, although to a greater degree at Oak Knoll; some Oak Knoll sites inundated during the User Survey.	• consider using impact sites. • harden Oak Knoll camp pads. • remove sites that are inundated.
	Campgrounds sometimes used by non-recreators who use campsites as a place to stay while they work nearby.	• provide strict enforcement of regulations.
	Campground entrance is not wide enough, sometimes resulting in long lines waiting to get into the area.	• consider widening entrance to two lanes so people who already have their campsites can pass through more quickly.

Area/Subject	Problem/Situation	Possible Solutions/Techniques
Picnicking	Underused North Shore picnic area.	• move some of the tables to more desirable locations. • develop group facilities. • irrigate the area and provide more attractive landscaping and grass areas. • add shelters and better cooking grills.
Wrinkle Cove	The undesignated parking and uncontrolled circulation lends itself to overuse.	• provide a designated place with a hardened surface for parking.
Lake Surface	Hazardous rocks, shallow areas due to lake level fluctuation.	• continue to identify and mark these areas with buoys.

APPENDICES

APPENDIX A: KEY TERMS

1. Activity area - The specific area where an individual primary activity occurs (e.g., a campground, the lake, a hiking trail, a picnic area, etc.).

2. Capacity, recreational carrying - The capability of a recreational resource to provide opportunity for certain types of satisfactory recreation experiences over time without significant degradation of the resource. Inherent in this view of carrying capacity are resource (biophysical) and social (psycho-social) capacities.

3. Capacity, resource - The level of recreational use of a resource beyond which irreversible biological deterioration takes place or degradation of the physical environment makes the resource no longer suitable or attractive for that recreational use.

4. Capacity, social - The level of recreational use of a resource or area beyond which the user's expectation of the experience is not realized and he/she does not achieve a reasonable level of satisfaction.

5. Carrying capacity guidelines - The levels of use and the methods used to obtain and achieve them which are recommended in this report.

6. Factors - The characteristics and phenomena which influence carrying capacity.

7. Indicators - The phenomena which can be used to identify or measure the degree of overcrowding or overuse, and which can be used in conjunction with a monitoring system to help predict when problems of overuse and overcrowding will occur if preventive measures are not taken.

8. Management/site survey - The initial survey conducted at the study project areas where resource managers, rangers, and maintenance personnel were interviewed and a reconnaissance was made of "overused," "overcrowded," "underused," and "well-balanced" recreation areas. (See Appendix B)

9. Mean - The measure of central value defined as the sum of all observations divided by the number of observations.

10. Median - The measure of central value defined as the point on the scale of observations which is the middle observation (if there is an odd number of cases) or which is the mean of the two central observations (if there is an even number of cases).

11. Mode - The measure of central value defined as the observation with the largest frequency.

12. Monitoring - The periodic assessment of the impact that use levels have on the social capacity or resource capacity of an area.

13. Overcrowding - A condition where the user does not achieve a satisfactory recreational experience because of too many people, inadequate distances between sites, etc.

14. Overuse - A condition where (during the course of a season/year) degradation of the physical environment makes the resource no longer suitable or attractive for recreational use.

15. Planning range - The range of spacing distances for an activity which satisfies the spacing preferences of the majority of recreators participating in that activity, which at the same time accounts for other considerations (e.g., cost, safety, equity, etc.).

16. Preference distribution - The set of preference groupings for an activity which can be modified to develop the social carrying capacity of an area.

17. Preference groupings - The range of spacing distances for an activity which satisfies the similar spacing preferences of a group of recreators participating in that activity.

18. Primary activity - The major recreation activity which brought the visitor to the recreation area.

19. Project area - The land and water area of the total Corps of Engineers Project.

20. Project management - The project area staff, district personnel, and other people involved with project area management.

21. Recreation area - Corps-managed areas specifically identified for recreational use within the total Project Boundary; usually named.

22. Recreation day - A standard unit of use consisting of a visit by one individual to a recreation development or area for recreation purposes during any reasonable portion or all of a 24-hour period.

23. Recreation environment - An activity area together with its various recreation settings.

24. Recreation resource - The land and/or water areas, with associated facilities, which provide a base for outdoor recreation activities.

25. Recreation setting - The physical, development/control, activity/use relationship components of an activity area; taken as a whole, the various settings comprise a particular "recreation environment" for each activity area.

26. Recreation unit - A campsite, picnic table, boat, off-road vehicle, user group, or other unit which when spaced together with other units represents a use level or density.

27. Representative recreation setting - The most typical recreation setting for a particular activity.

28. Secondary activities - Incidental activities; activities which are supplemental to the primary activity.

29. Study activity area - An activity area at which the management/site survey and the user survey was conducted.

30. Study project area - One of the 11 project areas at which the management/site survey and the user survey were conducted. These project areas are: Barkley Lock and Dam, Benbrook Lake, Hartwell Lake, McNary Lock and Dam, Milford Lake, New Hogan Lake, Lake Ouachita, Lake Shelbyville, Shenango River Lake, Somerville Lake, and Surry Mountain Lake.

31. Title 36 - Part 327, Chapter III, of Title 36 of the Code of Federal Regulations which provides rules and regulations governing the public use of water resource development projects administered by the Army Corps of Engineers.

32. Underuse - A condition where use levels are significantly less than their potential service level.

33. User survey - The survey that provided user preference information used in developing social capacity guidelines; information was obtained from users at the study project areas by means of a questionnaire (see Appendix B).

34. Well-balanced use - A condition which exhibits just the right amount of use to satisfy users and protect the resource.

APPENDIX B: EXAMPLE SURVEY FORMS

This Appendix includes on the following pages examples of the survey forms that were used during the Management/Site Survey and the User Survey.

MANAGEMENT/SITE SURVEY

PICNICKING QUESTIONNAIRE

(Resource Manager, Head Ranger, Maintenance Foreman)

Project Area Name _____

Respondent Name _____ Title _____

Interviewer _____ Date _____

1. PICNICKING USE AREA INFORMATION (selected areas)

Recreation Area/Use Area Names	Support Facilities	Fee Charged	Acres Total Use Area	Acres Activity Area Only	Total Picnic Sites	List Primary Activities Adjacent to Area	When Started
OVERCROWDED							
OVERUSED							
UNDERUSED							
WELL-BALANCED							

2. VISITOR CHARACTERISTICS RELATED TO OVERCROWDING/OVERUSE

Recreation Area/Use Area Names (same as in #1)	# of picnicking groups on typical recreation season weekend day	Typical Length of Stay	Typical Ages	Typical Group Size	Origin of visitors[1] % U	% S	% R	Approximate # of miles most visitors travel to use area High	Average	Average Frequency of visits per year
OVERCROWDED										
OVERUSED										
UNDERUSED										
WELL-BALANCED										

NOTES: [1]U = Urban location (city), S = Suburban location, R = Rural

Picnicking

3. CAUSES & EFFECTS OF OVERCROWDING/OVERUSE

Use Area Names (same as in #1 & #2)	Actual Complaints (list in order of frequency)	Causes		Effects	
		Observed	Surmised	Observed	Surmised
OVERCROWDED					
OVERUSED					
UNDERUSED					
WELL-BALANCED					

4. OCCURRENCE OF OVERUSE/DEGRADATION

Picnicking

Use areas which experience overuse (from #1)	Off-season restoration potential			Approximate Dates of Recreation season (_____ to _____)	When signs of degradation first occur		When highest degradation is reached	
	Recovers naturally	Requires treatment	Beyond off-season restoration		Approx. date	Approx. visitor groups to date	Approx. date	Approx. visitor groups to date

5. INDICATORS (SIGNS) OF OVERCROWDING

Indicators	Assign relative importance using a numerical rating on a scale of 1 (least) to 10 (most)	Comments
o Increase in the # of complaints		
o Arguments/conflicts between picnickers		
o Shorter stays		
o Fewer returnees		
o Increase in crime		
o Increase in noise		
o Picnicking, in non-picnic areas		
o Crowded support facilities		
o Increase in litter		
o Increase in resource and facility destruction		
o Occurrence of displacement/succession (changes in visitor characteristics)		
o Increase in number of accidents involving vehicles		
o Increase in use levels		

(Please list others below)

o

o

o

Picnicking

6. INDICATORS OF OVERUSE/DEGRADATION

Indicators	Assign relative importance using a numerical rating on a scale of 1(least) to 10 (most)	Comments
o Ground cover wearing away		
o Damaged trees and/or undergrowth		
o Absence/change in wildlife		
o Increased erosion/sedimentation		
o Little deadfall		
o Compacted soils		
o Increased litter/trash		
o Trees cut down		
o Increased runoff		
o Need for replacement of support facilities before normal life period		
o Rodent infestation		

(Please list others below)

o

o

o

o

7. FACTORS AFFECTING RESOURCE CARRYING CAPACITY

Factors	Assign relative importance using a numerical rating on a scale of 1 (least) to 10 (most)	Comments
o Resiliency of vegetation type		
o Resiliency of soils		
o Resiliency of wildlife		
o Degree of normal maintenance applied		
o Degree of off-season restoration applied		
o Site drainage		
o Slope/topography		
o Climate/micro-climate		
o Group size		
o Slope orientation		
o Tree cover		
o Level of development (e.g. paved roads/paths vs. unpaved roads/paths)		

(Please list others below)

o

o

o

8. FACTORS AFFECTING SOCIAL CARRYING CAPACITY

Factors	Assign relative importance using a numerical rating on a scale of 1 (least) to 10 (most)	Comments
o Similarity of visitor groups		
o Slope orientation		
o Distance from highway access		
o Proximity to the water		
o Scenic views or vistas		
o Quality/variety of natural amenities		
o Number, type, and degree of man-made intrusions or disturbances (power lines, buildings, etc.)		
o Visual screening between picnickers		
o Density/type of vegetation		
o Distance between picnic sites		
o Degree of designation		
o Level of support facilities		
o Proximity to support facilities		
o Size of picnicking area		
o Charging of fees		
o Compatibility of nearby primary activities		
o Single purpose or multi-purpose recreation area		
o Distance traveled		
o Frequency of visits		
o Origin of user (urban, suburban, rural)		
o Configuration of area		
o Degree of maintenance		

(Please list other factors)

o

o

9. PRESENT/PAST CAPACITY MANAGEMENT

Picnicking

Use areas where capacity management techniques were, or are now, applied (Name)	Past (√)	Present (√)	List capacity management techniques(s) used	Describe level of effectiveness (pros/cons regarding visitor satisfaction and resource protection)	Assessment of management feasibility (pros/cons why the technique could or could not be implemented)

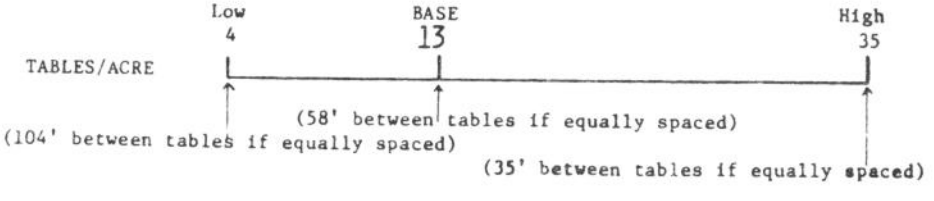
Picnicking

10. POSSIBLE CARRYING CAPACITIES

Use Area Names	Present capacity actual or estimated	Best guess as to what the capacity should be	Principal factors
THE MOST OVERCROWDED AREA:			
THE MOST OVERUSED AREA:			
THE MOST UNDERUSED AREA:			
THE MOST WELL-BALANCED AREA:			

EXAMPLES FROM BUREAU OF OUTDOOR RECREATION CAPACITY RESEARCH:

(Use as a general guide when estimating what the capacity should be)



MANAGEMENT/SITE SURVEY

CAMPING

USE AREA ANALYSIS SHEET

(for URDC staff use)

Project Area Name _____ Field Analyst(s) _____

Recreation Area and/or Use Area _____ _____

_____ Weather _____

Code # _____ Date _____

			ANSWER COLUMN	COMMENT CODE	COMMENTS:
SITE AWARENESS	Signage (camping or name)	Between main highway and use area entrance			
		At use area entrance			
	Exposure of Site	Between main highway and use area entrance			
		At use area entrance			
SITE ACCESS	Relationship to Main Highway	Distance to area from main highway			
	Road Conditions	Road to site from main highway			
		Paved(P) or Unpaved(U)			
		Condition (E, G, P)			
		Estimated Width			
		Road within use area			
		Paved(P) or Unpaved(U)			
		Condition (E, G, P)			
		Estimated Width			
		Presenqe of informal roads			
SLOPES & VEGETATION	Slopes	% of area 0 - 5%			
		% of area 6 - 9%			
		% of area 10%+			
		Existence of unique land form			
	Vegetation	Density of trees			
		% dense			
		% moderate			
		% sparse			
		% little or none			
		Density of understory			
		% dense			
		% moderate			
		% sparse			
		% little or none			
	On the Use Area	Geologic, cultural, archeologic features			
		Abundance of wildlife			
		Water feature			

NATURAL AMENITIES	From the Use Area	Visibility to water features (insert) O - outstanding G - good U - undesirable	Severely obstructed		
			Moderately obstructed		
			Mildly obstructed		
			Unobstructed		
		Visibility to other natural areas (insert) O - outstanding G - good U - undesirable	Severely obstructed		
			Moderately obstructed		
			Mildly obstructed		
			Unobstructed		
		Distance to lake			
CONDITION OF NATURAL FEATURES	Vegetation & Soils	Dead or trampled vegetation			
		Evidence of taking			
		Compacted soils			
	Drainage	Wet soils/standing water			
		Erosion			
FACILITIES & SERVICES	Facility/ Service Distribution (S - Site D-Distributed C - Centralized)	Electric hook-ups			
		Water hook-up			
		Improved pad			
		Picnic tables			
		Cooking grill			
		Firewood			
		Drinking water (cold)			
		Hot water			
		Showers			
		Flush toilets			
		Vault toilets			
		Pit toilets			
		Dumping station			
		Shelter			
		First aid station			
		Telephone			
		Lighting (R - road, P - Parking W - Walkway, C - Comfort area			
		Recreation area or equipment			
		Convenience store			
	Condition	Excellent			
		Good			
		Need attention			
PLANNING DESIGN ASPECTS	Distance between campsites	Minimum			
		Maximum			
		Average			
	Distance between campsites and the facilities	Minimum			
		Maximum			
		Average			
	Space for camper unit maneuverability	Ample			
		Acceptable			
		Restrictive			
	Access Control	Controlled (gate, attendant)			
		Uncontrolled			

Car Parking	Parking space on each camp-site		
	Road parking		
Buffer between Campsites	Man-made		
	Natural vegetation		
	Planted landscape		
	None		

RELATIONSHIP OF CAMPING USE AREA TO OTHER USE AREAS

Use Area Name	Activity	Estimated direct distance from camping use area	Pedestrian accessibility to other use area			Visibility to other use area			Reasons for accessibility and/or visibility situation
			Easy	Moderate	Difficult	Obstructed	Semi-obstructed	Unobstructed	

ANALYST'S PERCEPTION OF ACTIVITY AREA'S CARRYING CAPACITY

List the resource/physical factors you feel most affect carrying capacity on this site

_____

_____

_____

_____

_____

Should resource/physical carrying capacity of this site be: _____ higher _____ lower _____ same

List possible techniques which might be used to increase and/or to limit capacity on this site.

_____

_____

_____

CORPS OF ENGINEERS USER CAPACITY SURVEY

Notations ☐

Date _____ Day _____ OMB Clearance # 49-R0419

Time (hour) _____ Expires October 1983

Weather _____ Project Area Name _____

Interviewer _____ Recreation Area Name _____

Activity _____ Code _____ Activity Area _____ Code _____

We are conducting a survey for the Army Corps of Engineers at selected Corps recreation areas throughout the Country. Through these surveys, we will discover how visitors feel about overcrowding and overuse of these recreation areas. The Corps will use this information to help make decisions about the use and protection of its recreation areas. Would you be willing to take fifteen minutes of your time to answer some questions about your visit here?

BASIC VISITOR CHARACTERISTICS

1. In which category is your age?

17 & under	☐
18 - 25	☐
26 - 40	☐
41 - 55	☐
56 - 65	☐
66 & over	☐

2. How large is your group?

1	☐
2	☐
3- 4	☐
5- 8	☐
9-12	☐
13+	☐

3. Is this your main destination or a stopover on a trip?

Main destination	☐
Stopover on trip	☐

4. How long did it take you to travel here from your home ___(✓) or last destination ___(✓)?

Under 15 minutes	☐
15-30 minutes	☐
30 min. - 1 hour	☐
1 - 2 hours	☐
2 - 3 hours	☐
3 - 5 hours	☐
5+ hours	☐

VISITOR PARTICIPATION

5. How many times did you participate in this activity anywhere last year? (if "0", go to Question 7)

0	☐
1 - 5	☐
6 - 10	☐
11 - 20	☐
21 - 30	☐
31+	☐

6. How many times have you participated in this activity at this Lake?

a) Last year?		b) So far this year?	
0	☐	0	☐
1- 2	☐	1- 2	☐
3- 4	☐	3- 4	☐
5- 7	☐	5- 7	☐
8-10	☐	8-10	☐
11-19	☐	11-19	☐
20+	☐	20+	☐

7. How long are you staying on this visit?

1 - 4 hours	☐
5 - 8 hours	☐
1 day (overnight)	☐
2 days	☐
3 days	☐
4 days	☐
5 - 7 days	☐
8 or more days	☐

8. Have you participated in this activity at this specific location anytime before this visit?

No ☐ (go to #9) Yes ☐ Please list any changes you have noticed in the physical condition of this location or in people's use of the area.

Physical condition:	People's use of the area:
☐ Positive	☐ Positive
☐ Negative	☐ Negative

9. Would you say the number of people who are now participating in this activity are:

too many ☐ too few ☐ just the right number ☐

WES Form [illegible]
February, 1979

10. a) Would you say that the distance between you and other people is:

too far ☐ (to 10c) just right ☐ (to 10c) too close ☐

(Actual or estimated distance to be recorded by interviewer _____)

b) If other people are too close, how far away would you like them to be? ☐ Not Applicable

just a little farther ☐ twice as far ☐ three times farther ☐ more than 3 times ☐

c) What is the closest distance you would accept? _____

d) What distance would you like them to be? _____

11. a) Which of the following reasons are making your present activity at this location pleasant or unpleasant?

	Pleasant	Un-pleasant	Not Important	Does Not Apply
GENERAL REASONS				
1. Characteristics and behavior of other people	☐	☐	☐	☐
2. Distance from other people	☐	☐	☐	☐
3. Number of people in other visitor groups	☐	☐	☐	☐
4. Number and type of other activities occurring here	☐	☐	☐	☐
5. Fees charged	☐	☐	☐	☐
6. Scenic views	☐	☐	☐	☐
7. Noise	☐	☐	☐	☐
8. Accidents or near accidents	☐	☐	☐	☐
9. Enforcement of rules/regulations	☐	☐	☐	☐
10. Car parking facilities	☐	☐	☐	☐
11. Theft	☐	☐	☐	☐
12. Vandalism	☐	☐	☐	☐
Others _____	☐	☐	☐	☐
_____				
LAND-BASED REASONS				
13. Trees/natural landscape	☐	☐	☐	☐
14. Visual privacy from other people	☐	☐	☐	☐
15. Amount of facilities (restrooms, water, etc.)	☐	☐	☐	☐
16. Convenience to facilities (restrooms, water, etc.)	☐	☐	☐	☐
17. Nearness to the water body	☐	☐	☐	☐
18. Steepness of slopes	☐	☐	☐	☐
19. Maintenance of facilities	☐	☐	☐	☐
20. Condition of trees and landscape	☐	☐	☐	☐
21. Condition of grass or soil	☐	☐	☐	☐
Others _____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
WATER-BASED REASONS				
22. Water quality	☐	☐	☐	☐
23. Catching fish	☐	☐	☐	☐
24. Formal designation of places for your activity	☐	☐	☐	☐
25. Waiting time to launch boat	☐	☐	☐	☐
26. Waiting time to retrieve boat	☐	☐	☐	☐
27. People in areas they shouldn't be	☐	☐	☐	☐
Others _____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐

b) Will any of the above reasons prevent you from coming here again?

No ☐ Yes ☐

If yes, which reasons (selected from reasons checked "unpleasant" above)?

_____ _____ _____

_____ _____ _____

12. If recreation areas have too many people for each to enjoy the activity or if areas become damaged by too much use, there are some solutions for reducing that overcrowding or overuse. Please indicate which of the following possible solutions you would find very acceptable, mildly acceptable, or unacceptable for reducing crowding and/or natural resource destruction in this location. (If this location is not overcrowded or overused, assume that it is for this question.)

POSSIBLE SOLUTIONS FOR OVERCROWDING OR OVERUSE	Very Acceptable	Mildly Acceptable	Unacceptable	Does Not Apply
PUBLIC AWARENESS/EASE OF ACCESS SOLUTIONS				
1. Make vehicle access to areas less convenient.	☐	☐	☐	☐
2. Make the area's existence less obvious to the general public (fewer signs and directions)	☐	☐	☐	☐
3. Provide more and better information on how to use the area	☐	☐	☐	☐
ACTIVITY RELATIONSHIPS & USE DENSITY				
4. Keep major recreation activities more separated from one another.	☐	☐	☐	☐
5. Reduce the number of different activities occurring in the same area	☐	☐	☐	☐
6. Design for greater distance between people	☐	☐	☐	☐
7. Limit the number of people in each group	☐	☐	☐	☐
8. Change natural surfaces by hardening them to withstand more use.	☐	☐	☐	☐
9. Increase maintenance and restoration to allow more use	☐	☐	☐	☐
PLANNING & DESIGN SOLUTIONS				
10. Reduce the type and number of facilities and services provided	☐	☐	☐	☐
11. Keep unnecessary vehicles out of areas	☐	☐	☐	☐
12. Reduce number of parking spaces to limit number of users	☐	☐	☐	☐
13. Provide landscaped buffers between visitor groups to increase privacy	☐	☐	☐	☐
14. Redesign area to accommodate fewer users	☐	☐	☐	☐
RULES & REGULATIONS SOLUTIONS				
15. Have stricter enforcement of regulations	☐	☐	☐	☐
16. Impose more rules and regulations	☐	☐	☐	☐
17. Require prior reservations to use areas.	☐	☐	☐	☐
18. Require permits to use areas	☐	☐	☐	☐
19. Close down areas when natural resource destruction reaches critical point	☐	☐	☐	☐
20. Charge fees or increase fees now charged	☐	☐	☐	☐
21. Close gates when areas get "too full".	☐	☐	☐	☐
OTHERS				
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐

13. Please answer the following questions about your other recreation activities on this visit.

	a) What are your other recreation activities on this visit?	b) Are they within walking distance or driving distance from this location? (use launching location for boat activities) (1) Walking distance	(2) Driving distance	c) What is your main recreation activity on this visit?
1.	Camping	☐	☐	☐
2.	Boating	☐	☐	☐
3.	Waterskiing	☐	☐	☐
4.	Swimming	☐	☐	☐
5.	Sunbathing	☐	☐	☐
6.	Picnicking	☐	☐	☐
7.	Shoreline fishing	☐	☐	☐
8.	Boat fishing	☐	☐	☐
9.	Hiking	☐	☐	☐
10.	Horseback riding	☐	☐	☐
11.	Off-road vehicle riding	☐	☐	☐
12.	_____	☐	☐	☐
13.	_____	☐	☐	☐
14.	_____	☐	☐	☐
15.	_____	☐	☐	☐
16.	None	☐	☐	☐

RECREATION EQUIPMENT RECORD

Camping

- Tent ☐
- Tent camper ☐
- Truck-mounted camper ☐
- Travel trailer ☐
- Van ☐
- Motor home ☐
- _____ ☐
- _____ ☐

Boat Activities

- Day sailer ☐
- Sailer (cabin) ☐
- Canoe ☐
- Row boat ☐
- Power boat (less than 25 hp) ☐
- Power boat (25+ hp) ☐
- Houseboat or cruiser ☐
- _____ ☐
- _____ ☐

Off-Road Vehicle Riding

- Trail bike ☐
- Motorcycle ☐
- ATV ☐
- Dune buggy ☐
- 4-wheel drive ☐
- _____ ☐
- _____ ☐

COMMENTS:

REPLACEMENT QUESTIONS TO ASK DURING BOAT LAUNCHING INTERVIEWS

(Write answers and comments directly on the User Survey Interview Sheet)

10. a) Would you say that the time it takes you to launch your boat at this ramp is:

too long ☐ long, but tolerable ☐ just right ☐

(Approximately how long does it take to launch your boat at this ramp? Actual or estimated time to be recorded by interviewer _____)

b) How long would you prefer it to take:

just a little faster ☐ twice as fast ☐ three times faster ☐ more than three times faster ☐

c) What could be done to expedite boat launching at this ramp:

_____

_____

_____

APPENDIX C: PROJECT AREA DESCRIPTION

New Hogan

Location

New Hogan Lake (Sacramento District) is located on the Calaveras River in the western foothills of the Sierra Nevada. The lake is 37 miles east of Stockton, California, 68 miles southeast of Sacramento, and 125 miles east of San Francisco. The town of San Andreas is located about 10 miles east of the dam.

Authorization and purpose

The New Hogan Project was authorized by the Flood Control Act of 1944 for the purposes of flood control and irrigation.

Project area size and features

The watershed area above New Hogan Dam is a relatively low-lying basin of 363 square miles. At the average recreation pool elevation, the reservoir is eight miles long and has a surface area of 3120 acres. Its average width is about one mile, ranging from 1/4 of a mile to 1-3/4 miles, and its shoreline is 44 miles. The total land area is 2944 acres.

Corps personnel include a Park Manager, Assistant Manager, Senior Ranger, field rangers, Maintenance Foreman and staff, clerical staff, and gate attendants. Items such as trash collection and restroom pumping are carried out on a contract basis.

Topography

The shoreline topography generally consists of moderate, uniform slopes. However, not far from the shore are rolling hills ranging from low to high relief. Steep terrain and rock outcroppings occupy about one-half of the project land, limiting development plans to 11 specific sites where terrain is favorable.

Climate

The climate of the Calaveras River Basin is characterized by hot, dry summers and by mild, wet winters. Some snow occurs at the headwater elevations. Annual precipitation in the basin varies from less than 20 to over 50 inches, though normally the annual precipitation is about 33 inches. Temperatures in the vicinity of the lake normally range from a low of about 30 degrees F. (with extremes to 10 degrees F.) to a high of about 105 degrees F. The prevailing wind is from the west at about eight mph. In summer, about 90 percent of the days are sunny, while only about 49 percent of the winter days have sun.

Soils and vegetation

Because of the rocky soils, vegetative cover is sparse, consisting of grasses, chapparal, oaks, and a scattering of conifers. Blue oak, interior live oak, and digger pine are the dominant tree species.

Fish and wildlife

Species of game fish at the lake include trout, bass, channel catfish, and bluegill. Mammals present in the area include blacktail deer, red and gray fox, bobcat, skunk, longtailed weasel, gopher, shrew, squirrel, jackrabbit, cottontail rabbit, and big brown bat. Various species of birds, including the endangered bald eagle, have been observed on project lands.

Population areas served and accessibility

Most of the land surrounding New Hogan Lake is sparsely populated. However, within the one hour travel time zone (from which approximately two-thirds of the lake's recreation users originate) are the cities of Stockton (with a population of about 115,000 in 1975) and Modesto (with a population of about 80,000). Located just outside this zone is Sacramento with a population of about 670,000 persons.

Access from these major population centers to the general area of the lake is good. Freeways and the well-maintained, two-laned State Highways 12, 26, and 49 provide safe, fast travel from the Stockton, Sacramento, and San Francisco Bay areas.

Recreation areas

There are presently 11 Corps-managed recreation areas of varying levels of development at the lake. The highest level of development is found on the northern shore at Fiddleneck day use area and at Oak Knoll and Acorn campgrounds.

Recreators at Corps areas may participate in camping, picnicking, waterskiing, boating, fishing, hunting, swimming, hiking, and horseback riding. Also, there are observation points and an amphitheater. Corps facilities include boat ramps, water and sanitary systems, and a marina concession operation.

Visitation

In 1978, 248,312 recreation days were recorded at New Hogan Lake; the 53,550 recreation days in July made this month the most popular time of the year to enjoy the varied resources.

In accordance with letter from DAEN-RDC, DAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

Urban Research & Development Corporation.
Recreation carrying capacity facts and considerations; Report 8: New Hogan Lake Project Area / by Urban Research and Development Corporation, Bethlehem, Pa. Vicksburg, Miss. : U. S. Waterways Experiment Station ; Springfield, Va. : available from National Technical Information Service, 1980.
iv, 73, [25] p. : ill. ; 27 cm. (Miscellaneous paper - U. S. Army Engineer Waterways Experiment Station ; R-80-1, Report 8)
Prepared for Office, Chief of Engineers, U. S. Army, Washington, D. C., under Contract No. DACW39-78-C-0096.
Project map of New Hogan Lake in pocket at end of report.

1. Carrying capacity. 2. Monitoring. 3. New Hogan Lake Project. 4. Overcrowding. 5. Recreation. 6. Recreation resource planning. 7. Recreational areas. 8. Recreational facilities. 9. Utilization. I. United States. Army. Corps of Engineers. II. Series: United States. Waterways Experiment Station, Vicksburg, Miss. Miscellaneous paper ; R-80-1, Report 8.
TA7.W34m no.R-80-1 Report 8