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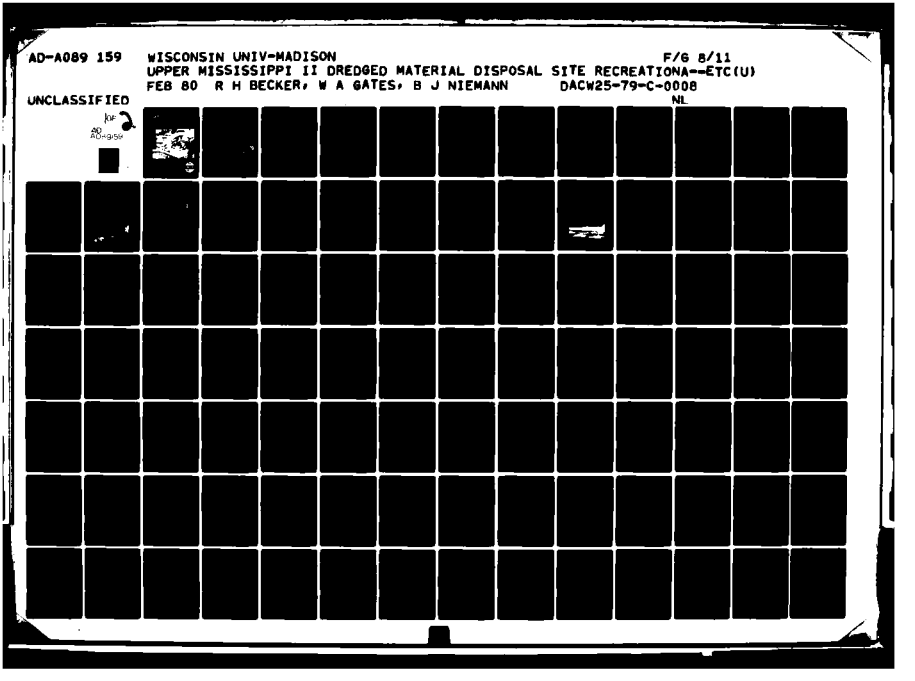

GREAT II LEVEL

UPPER MISSISSIPPI II DREDGED MATERIAL DISPOSAL SITE RECREATIONAL USER ASSESSMENT

Prepared by
Wisconsin Water Resources Center
and
School of Natural Resources
College of Agricultural and Life Sciences
University of Wisconsin - Madison

Under Contract
No. DCW25-79-C-0008

February 1980
Madison, Wisconsin

The GREAT River

Final Draft

of a report to the

Great River Environmental Action Team (GREAT II)

and the

Rock Island District, U.S. Army Corps of Engineers

entitled:

UPPER MISSISSIPPI II DREDGED MATERIAL DISPOSAL SITE RECREATIONAL USER ASSESSMENT

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PROJECT PARTICIPANTS -

Principal Investigators

R. H. Becker
W. A. Gates
B. J. Niemann

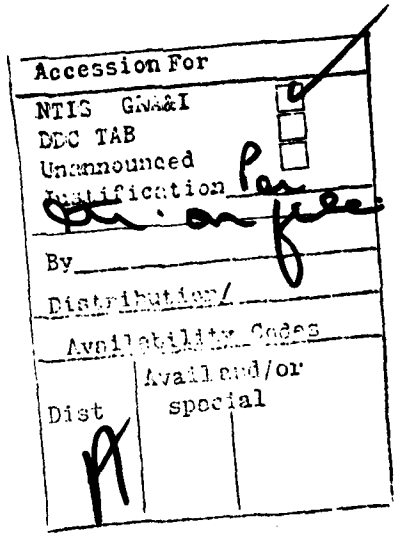
Gordon Chesters, Director Wisconsin Water Resources Center
Stephen Smith, Associate Dean, College of Agricultural and Life Sciences - School of Natural Resources

RESEARCH ASSISTANTS

Susan Cedarleaf
Ken Foyle
Terry Iliff
Ken Kailing
Andy Morton

UNDERGRADUATE STUDENT ASSISTANTS

Jim Tokuhisa
Jan Miller
Tom Shaffer
Jan Cyr
Del Siebert



FINAL DRAFT of a Report to the GREAT RIVER ENVIRONMENTAL ACTION

TEAM (GREAT)

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INTRODUCTION

As part of its long-term statutory mission the U.S. Corps of Engineers maintains a nine-foot navigation channel in the Mississippi River by a system of locks and dams supplemented by maintenance dredging. Largely sand, the dredged material has been placed in the flowages each year to create dredge spoil sites, which appear as islands or sand bars.

This report on recreational use of these artificial islands or sites is one phase of an overall study of the Mississippi River underway by the Great River Environmental Action Team (GREAT). Major agencies participating in this interdisciplinary study group are the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, USDA Soil Conservation Service, U.S. Geological Survey, as well as state conservation commisssions, state historical societies, state departments of natural resources, and state departments of transportation.

A major concern of the GREAT study is to develop a plan to resolve any problems (environmental or otherwise) of the dredge materials disposal. GREAT work groups are exploring uses and places where the dredged materials can be an asset, means to minimize sedimentation, and acceptance of disposal sites for recreational use.

STUDY METHODOLOGY

One goal of recreation resource managers in general has been to provide a diversity of experiences. As this study will indicate, in

part, the rich multiple-use setting of the Upper Mississippi (from Guttenberg, Iowa, to Saverton, Missouri; see map p. 6) provides such a diversity of use by accident and by design.

The basic mission of this study has been to develop, as a tool for managers, a profile of boaters who use dredge spoil sites in the Upper Mississippi, and, as a corollary, to compare this profile with data obtained from a 1977 study of pools 1-10 of the Upper Mississippi River from St. Paul, Minnesota to Guttenberg, Iowa. To fulfill this objective, watercraft users of dredge spoil sites within pools 11 through 22 of the Upper Mississippi (from Guttengerg, Iowa, to Saverton, Missouri) were surveyed from 5/15/78 to 8/30/78 by an Iowa Conservation Commission study team assisted by GREAT participants. The survey instrument was prepared by the School of Natural Resources, University of Wisconsin-Madison, based on prior research efforts by R. H. Becker and B. J. Niemann of the Forestry and Landscape Architecture departments, respectively. Pool sample patterns (relative density) were originally calculated by using density estimations from an aerial flight made on July 4, 1977, and subsequently modified to increase the reliability of the density classifications. Units measured on the flight were boats extractable at a 1:24,000 scale (i.e., what the camera could register).

During the summer of 1978, responses to approximately 2,500 questionnaires were obtained by the Iowa Conservation Commission. The completed questionnaires were then collected by the ICC and subsequently delivered for analysis to the University of Wisconsin-Madison.

Of approximately 2,500 questionnaires delivered, 2,380 were prepared and encoded for analysis. The balance were invalid because they either lacked observation sheets, answers to entire sections, or answers to more than 50% of the questions. The more sensitive the question, the larger its non-response group. This caused the number of respondents to vary from one question to another.

FACTORS AFFECTING RECREATION USE OF THE RIVER[1]

A. Time of Year

The bulk of the boating recreation takes place during the months of June, July, and August. In 1978 a cool, wet spring kept most boaters home until Memorial Day or after. Many of the boaters surveyed on Memorial Day weekend were on their first boat outing of the season, and they knew of other boaters who had not yet taken their boats out of storage.

The start of school in the fall signals a decrease in boating activity for the year, although many people continue to use the river until it begins to freeze. As in the spring, the weather in the fall largely determines when the boaters stop using the river.

B. Water Level

High water resulting from rain or melting snow may flood the beach areas, precluding their use by boaters. High water also gives rise to floating debris and a strong current, making boat maneuvering more difficult and dangerous. In 1978, due to a heavy snow melt and a wet spring,

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[1]Revised from "Recreation Boating Survey of Dredge Material Beach Sites on the Mississippi River for GREAT II Recreation Work Group" by Ed Brown, Darwin Koenig, Mark Proescholdt. ND.

the water level remained high into June. During the latter part of June, extremely heavy rains raised the water level again, and it remained high, flooding approximately 90% of the beaches in the survey area until the end of July. During this period, boating activity was greatly curtailed.

C. Time of Week

Sundays had the greatest number of boaters. The second greatest number of boaters was found on Saturdays. There were also more boaters on Mondays and Fridays than during the three mid-week days, probably due to people taking long weekends.

D. Time of Day

Afternoons were the most popular time for boaters. The least amount of boating activity occurred in the mornings, limited mainly to those who had camped out overnight. During the weekdays, evenings were as popular as afternoons, as many boaters would picnic on the river after work. This was especially true where a popular beach was near a large metropolitan area, such as Hogback Island near Quincy, IL, in Pool 21.

E. Climatic Factors

Cool temperatures reduced the number of boaters on any given day. With the exception of late May, when the surveying started, the temperature probably did not influence boating activities.

Wind alone, unless it was extremely strong, probably had little influence on the boaters. However, the wind often caused rough water (especially when it was blowing against the current and in long, open stretches of water) which curtailed boating activities. Waterskiing

especially, seemed curtailed when the water was rough. Humidity did not seem to influence boaters in any discernible manner.

F. Types of Recreational Activities

Boating and waterskiing were the major recreational activities. Other than the river itself, sand beaches were the most important recreational feature. These beach areas were used for camping, picnicking, sunbathing, swimming, drinking and partying, along with assorted games such as horseshoes and volleyball. Other uses of the river area include fishing, hunting, sailing and canoeing.

G. Local Factors Affecting Recreation

There did not seem to be any relationship between pool use and population density in the pool area. Pool 11 probably had the least number of people living in the pool vicinity, yet it ranked highest in the amount of boater use. Conversely, Pools 17, 20, and 22 had large metropolitan areas near them, but were not particularly heavily used. The number and quality of sand beach areas were more important than population for determining how much use a pool received.

H. Size of Crafts

The most common crafts observed were runabouts in the 16' - 20' range. These were the most popular type of craft among younger people or families who like to ski. Families with younger children generally owned larger inboards. Runabouts were also used for family outings and for hauling equipment on camping trips.

Jetboats were quite popular with young people who enjoyed working on engines and racing. Most of the jetboat use was found in Pools 18 and 20. This may be due to the low use in these pools, allowing jet boaters to race with less risk to other boaters.

Flatbottoms or johnboats were primarily used by people interested in fishing. More flatbottoms were observed in the lower pools. This may be explained by the fact that there is less backwater in these pools.

Sailboats were not seen in most areas; however, the largest numbers of them are used in Pool 12 at Dubuque and in Pool 15 at the Quad Cities area.

Canoes were mainly confined to backwater areas and were seldom seen in the main channel. One marina in Savanna rented canoes to campers staying in Palisades State Park and these campers would paddle to the beach site at RM 539.4.

COMPARISON OF BROWN, KOENIG, PROESCHOLDT'S OBSERVATIONS WITH SURVEY RESULTS

Consistent Results

Brown, Koenig, Proescholdt's Observations	Survey Results
Boating use - day of the week	Boating use - day of the week
Sundays - most use	Both weekdays and weekends (71.6%)
Saturdays - second	
Mondays and Fridays more than Tuesdays, Wednesdays, and Thursdays	Weekends only (24%)
	Weekdays only (21%)

Consistent Results (continued)

Boating use - time of day	Overall use - time of day
Afternoons most	12 p.m. to 5 p.m. (75%)
Mornings least	10 a.m. to 12 p.m. (less than 10%)
Main recreational activities	Main recreational activities
Boating and waterskiing	Boating - most popular (25%)
	Waterskiing - second most popular (17%)
Beach activities	Secondary recreational activities
Camping, picnicking, sunbathing, swimming drinking, partying	Sunbathing (16%), partying (10%), swimming (9%), picnicking (7%), camping (5%)
Most common watercraft	Most common watercraft
Runabouts 16' to 20' long	Runabouts (63%), Runabouts - 16' to 20' long (68%)
Other River uses	Other River activities
Fishing, sailing, canoeing	Fishing (4%), sightseeing (2%), canoeing (1%), nature study (1%), sailing, clam digging, plant collecting, bird watching, photography (all less than 1%)

Inconsistent Results

Brown, Koenig, Proescholdt's Observations	Survey Results
Other River uses	Other River activities
Hunting	No one in this survey indicated hunting as a recreational activity
Boater use - Pool specific	Boater use - Pool specific
Pool 11 - highest	Pool 16 highest (33.1%)
	Pool 11 lowest (17.4%)
Pools 17, 20, 22 not heavily used	Among the 12 pools, pools 17, 20, and 22 ranked 3rd, 6th, and 5th respectively in boater use
Fishing boat use	Fishing boat use
Most fishing boat use occurred in lower pools	The highest fishing boat use occurred in pools 13, 11 and 19.
Sailboat use	Sailboat use
Highest in pools 11 and 15	The only sailboat use was recorded in pool 14

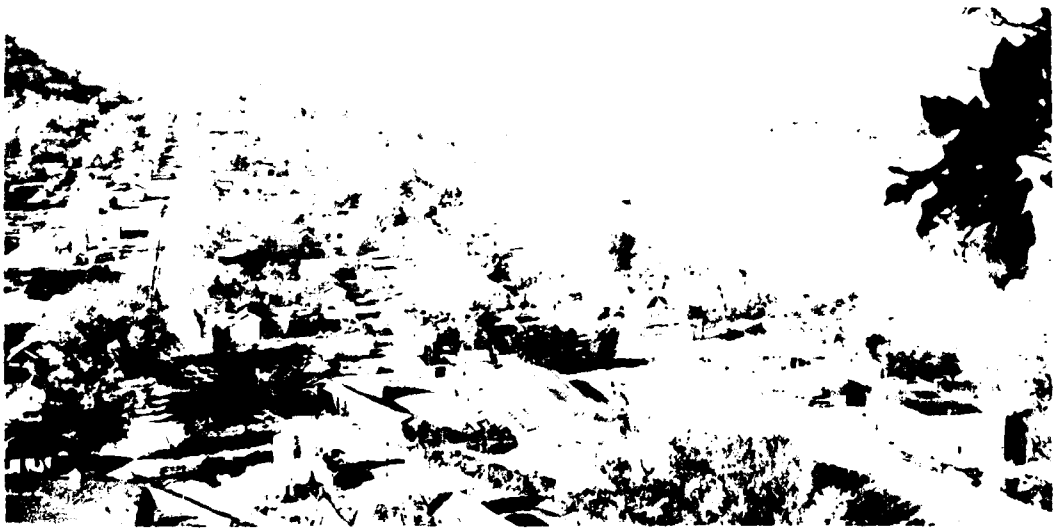
GENERAL DESCRIPTION OF THE AREA

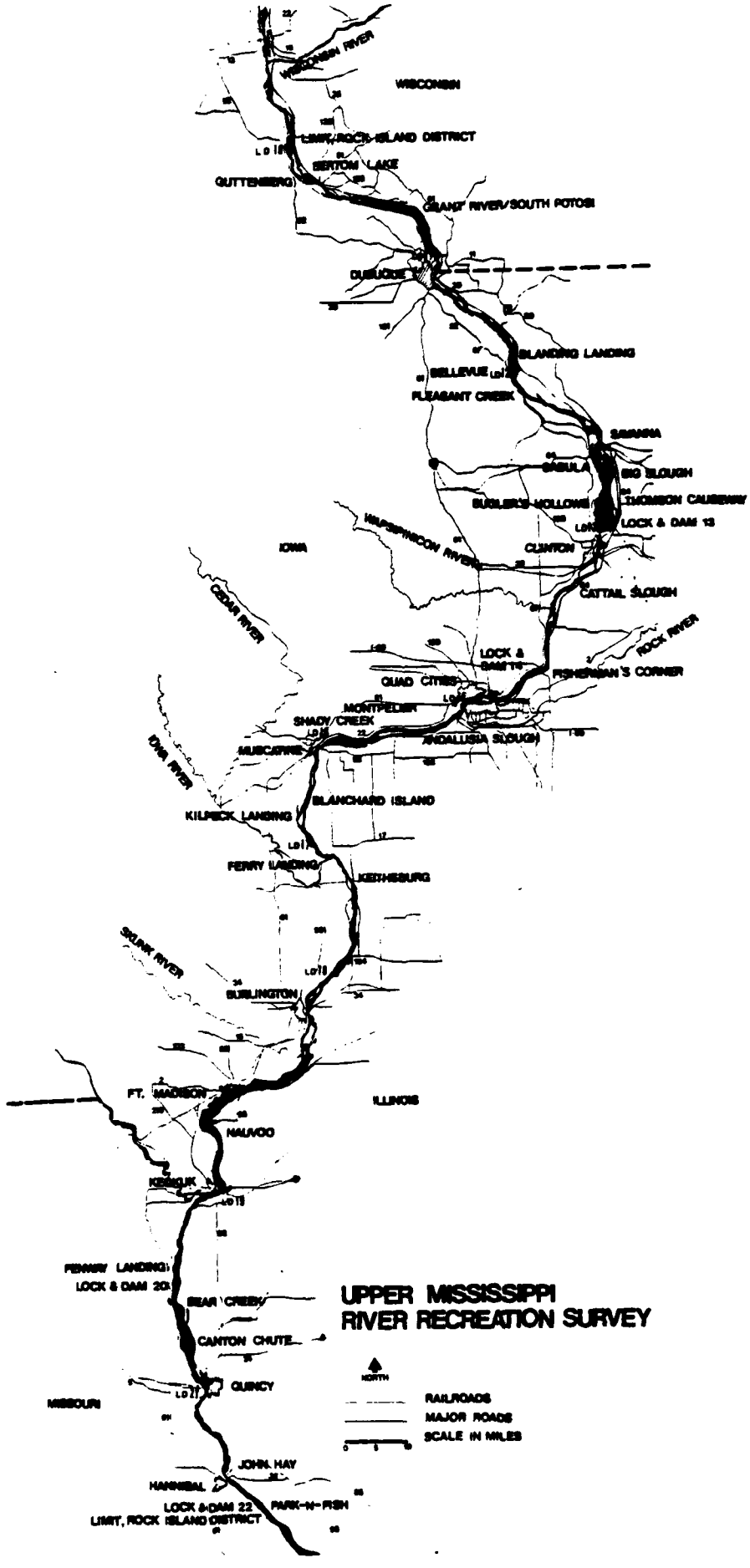
The 314-mile stretch of the Mississippi River between Guttenberg, Iowa and Saverton, Missouri comprises the Great River Environmental Action Team II (Great II) study area. The twelve pools created by the lock and dam system within this study area were studied in the research project.

Several cities are located immediately adjacent to the river, the largest of these, the Quad Cities Metropolitan area, includes Davenport and Bettendorf, Iowa and Moline and Rock Island, Illinois. Guttenberg, Dubuque, Clinton, Savannah, Muscatine, Quincy and Hannibal constitute other major urban centers found along the river within the study area.

The U.S. Army Corps of Engineers maintains twenty-five public recreation areas in this stretch of the Mississippi River. These areas are open throughout the entire year, and offer free camping and picnicking. Boat access ramps are also provided. State, county, and municipal facilities are available too.

The GREAT II portion of the river encompasses terrain that ranges from sharp bluffs and gently rolling hills to flat agricultural lands. The river embankments are shrouded by trees. Its pools are dotted with islands. Several wildlife refuges managed by the U.S. Fish and Wildlife Service can be found, as well as lands withdrawn from public use for military purposes. The following map will provide a geographical orientation of several landmarks.




WISCONSIN
WISCONSIN RIVER
LIMIT, ROCK ISLAND DISTRICT
BERTOM LAKE
GUTTENBERG
GRANT RIVER/SOUTH POTOSI
DUBUQUE
BLANDING LANDING
BELLEVUE
PLEASANT CREEK
SABULA
BIG SLOUGH
THOMSON CAUSEWAY
LOCK & DAM 13
CLINTON
IOWA
WAPSIPINICON RIVER
CEDAR RIVER
CATTAIL SLOUGH
ROCK RIVER
LOCK & DAM 14
FISHERMAN'S CORNER
QUAD CITIES
MONTPELIER
SHADY CREEK
ANDALUSIA SLOUGH
MUSCATINE
IOWA RIVER
BLANCHARD ISLAND
KILPECK LANDING
FERRY LANDING
KEITHSBURG
SKUNK RIVER
BURLINGTON
FT. MADISON
ILLINOIS
NAUVOO
KEOKUK
FERRY LANDING
LOCK & DAM 20
BEAR CREEK
CANTON CHUTE
QUINCY
MISSOURI
JOHN HAY
HANNIBAL
LOCK & DAM 22
PARK-N-FISH
LIMIT, ROCK ISLAND DISTRICT
UPPER MISSISSIPPI
RIVER RECREATION SURVEY
NORTH
RAILROADS
MAJOR ROADS
SCALE IN MILES

FINDINGS

Major results from the Upper Mississippi and regional surveys include the following observations:

USER STATISTICS

Seventy-six percent of the users surveyed were between the ages of 16 and 37. Respondent groups had slightly more males (55.1%) than females (44.9%).

Those with watercraft using the dredge spoil sites were from the immediate area. Ninety-nine percent hail from the four bordering states of Iowa (4%), Illinois (43%), Missouri (6%), and Wisconsin (3%). The largest number of users (9%) from one city came from Cordova, IL (Q 29)[1].

The highest percentage of users (11%) started out from Dubuque, Iowa. Ten percent of the users who reported they were headed for a specific place said they were going to Hogback Island (Q 25).

The average party size was seven people (the mode size was four) (Q 25).

Most parties had only one watercraft for the entire group (53.4%). The most common number of watercraft among those groups with more than one craft was two (23.3%).

The most dominant recreation craft used by the respondents was the runabout (63%), followed by cabin cruisers (8%), fishing boats (7%), and houseboats (5%).

Although it might be expected that, with a study focused on a

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[1] Letters and numbers in parentheses (i.e., (Q29)) at the end of a finding indicate the number of the question in the survey. A copy of this survey is included in appendix 2 of this report.

boating-related activity, boating as an activity in itself would be important, only 18% of the users surveyed identified it as the most important activity of their visit that day. Sunbathing, swimming, and waterskiing were cited as the most important activity by 20%, 16%, and 13% of the respondents respectively (Q 26).

Over 66% of the river users surveyed reported that they owned the boat they were operating. Only 2.5% indicated that they were renting their crafts. Over 31% of the river users were guests on the boat in which they were traveling.

When asked, "Do you take your refuse with you when leaving island beaches?" over 90% said they always do, and only 9.3% said that they sometimes or never do (Q 27).

COSTS, LENGTH, AND TIMING OF TRIPS

Total trip costs were reported to be $30.00 or less by 64% of the users. Only 4% indicated costs of more than $100.00 (Q 21).

Ninety-three percent of the river users spent from $1.00 to $10.00 traveling from home to the river, 80% spent less than $20.00 traveling on or along the river, and 68% of the users reported spending $10.00 or less for purchases made at home before leaving for the river (Q 21).

Over thirty percent of the respondents reported that their vist was an overnight stay. Over 46% used the river for 6 hours or less, and 23% stayed from 6 to 18 hours (Q 3).

Lengths of overnight stays varied from one night (280 parties) to 30 nights (1 party). The most frequent length of overnight stays was two days (353 parties) (Q 3). Of those staying overnight, 46.5% stayed

on islands, 27.9% stayed on board a boat, and 13.1% stayed in public campgrounds (Q 3).

A majority of users (73.3%) stated that they visited the river both on weekends and weekdays. Over twenty-four percent visited the river just on weekends, and 2.1% just on weekdays (Q 4). When asked which days they enjoyed visiting the river most, 39% of those surveyed said weekdays, 26.7% said weekends, and 34.3% reported that it made no difference (Q 4).

Most users (55.5%) visited the river once a week during the season, May 30, 1978 to September 2, 1978, with 16.2% visiting the river daily.

Only 6.1% of those surveyed said it was their first time on the river (Q 2).

DESIRED ACCESS AND FACILITIES

Proximity to residence (37.1%), ease of access (35.4%), and proximity to a favorite island or sand bar (29.9%) were the three most important factors influencing the choice of a launching location. The least important reasons were "to go through locks" (.9%), "price" (9.3%), and "to avoid locks" (12.7%) (Q 8).

Over 69% of the visitors considered gasoline/boat servicing to be the most important service to have in the immediate vicinity of the river access area. Also cited frequently as important services were a grocery store (36%), developed campgrounds (35%), a restaurant (24.9%), and a bait shop (15.5%) (Q 7).

Dominant lauching sites, which accounted for over 29% of the access for river users surveyed, were Muscatine, Iowa (7%), Sunset Marina,

Iowa (4%), Savanna, Illinois (3%), Mudlake, Iowa (3%), LeClaire, Iowa (2%), Quincy, Illinois (2%), Savanna Marina, Illinois (2%), Sid Simpson State Park, Illinois (2%), Oquawka, Illinois (2%), Lazy River Marina (2%), Keokuk, Iowa (2%), and Hannibal, Missouri (2%) (Q 9).

Use is generally pool-specific, in that most visitors (84.3%) do not use locks during most of their river trips. Of those who do use locks, over 81% use fewer than three locks (Q 14).

Over forty-six percent of the users in the survey trailered their boat to the access point. Some owners had private docks (9.0%), while 24.9% kept their boats at a marina (Q 6).

ISLAND AND EXPERIENCE PREFERENCES

When asked to select an island description that best reflected the type of island at which they would prefer to stop, over 48% of the users indicated "islands which are mostly sand with some trees". Thirty-three percent selected "islands with equal amounts of vegetation and open areas". Islands that were "moderately vegetated with some open sand areas" were preferred by 13.2% of the users surveyed. Only 4.9% of the users preferred "islands which are all sand" or "islands heavily vegetated but with no open space" (.8%) (Q 19).

Over 63% of the island users reported they had not stopped on other islands or shore beaches during their outing. Of those who had stopped at other islands or shore beaches, 66.9% had stopped at only 1 or 2 others (Q 10).

When asked if the beach they were on was natural or dredged material,

44.3% said it was natural, 32.4% said it was dredged material, and 22.5% didn't know (Q 11).

The outdoor recreation experience preferred by most users (45.5%) was that of natural river areas where few outdoor skills are required, so that they could relax. They would prefer no supervision or control of any activities. Over 31% said they enjoyed areas that allowed them to be close to nature. A feeling of adventure with minimum outdoor skills required in a controlled area was also important. While they liked the feeling of being alone, they also enjoyed meeting other individuals with similar interests (Q 20).

The type of camping area most preferred was very primitive islands with no facilities (36.9%). Approximately one fourth (26.1%) of the users preferred developed island campsites, not in view of each other, but with water, toilet, and trash facilities (Q 24).

ENCOUNTERING OTHERS: DENSITY PERCEPTION AND SATISFACTION

Another question designed to determine the type of experience sought concerned the degree of interaction preferred on a river visit. A majority of the respondents preferred to be with their immediate group (43.2%). Twenty percent indicated a preference to meet other individuals. Some users chose to meet and spend time with other individuals (17.2%) or to meet and spend time with many individuals and groups (16.1%). Only 3.5% preferred to be alone (Q 22).

Desirable or very desirable watercraft for other users to encounter were runabouts (41.2%), sailboats (38.6%), and fishing boats (36.9%).

The only craft rated by the majority of respondents as undesirable or very undesirable were barge tows (35.0%) (Q 16).

When asked, "Did you feel the river was crowded during this trip?" over 50% said it was not at all crowded, 24.3% said it was slightly crowded, 18.5% reported moderate crowding, and 6.4% felt it was extremely crowded (Q 18).

Many users reported seeing fewer than seven barge tows (73.2%), eight to twenty powerboats (36.6%), and fewer than seven fishermen (59.1%) (Q 17).

Overall satisfaction with the river visit among those surveyed was high: Twenty-eight percent rated their visit as "excellent"; 24.1% said it was "good, but I wish a number of things could have been different"; 20% rated it as "very good, but could have been better"; 16.7% rated it as "perfect". Only 11.2% rated their visit as "fair" or "poor" (Q 1).

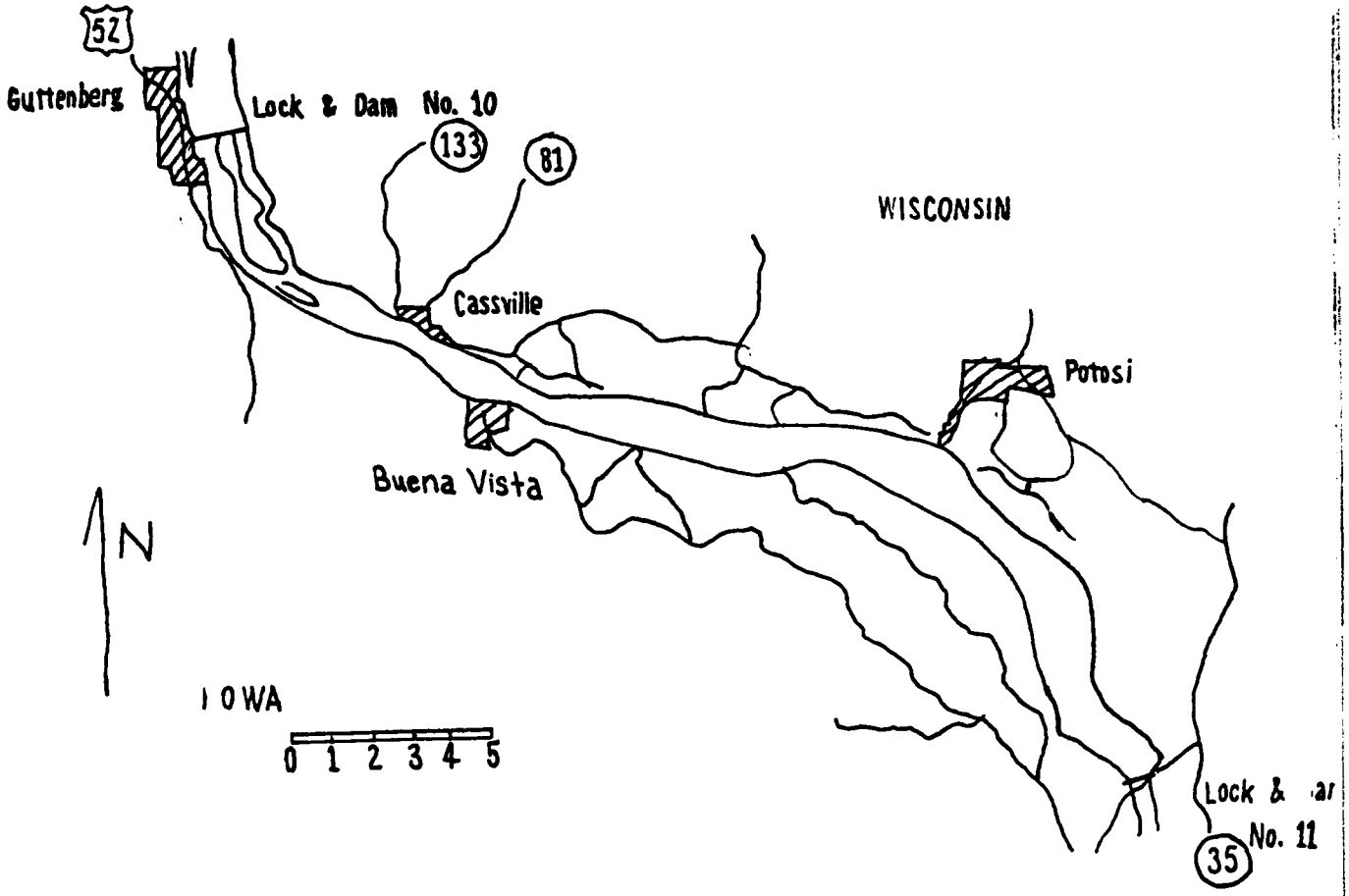
MANAGEMENT CONSIDERATIONS

Over 65% of the users surveyed felt that the beach that they were on should be left essentially as it was. Almost 55% thought there should be more developed facilities on the beach for recreational use. The most requested facilities were litter disposal (46.7%); toilets (33.9%); and tables (22.0%) (Q 13).

Of the ten management options suggested in the survey, users generally agreed with five of them and generally disagreed with three. Most users didn't care about the other two options. The statement, "There should be more developed boat access ramps to each pool" was agreed with or strongly

agreed with by 66.2% of the users. Other statements with which users agreed or strongly agreed were, "Sanitation facilities should be provided on islands" (62.5%), "Commercial and industrial development reduces my enjoyment of the river" (62.2%), "I would use nature interpretive areas if developed on the river" (59.2%), and "Residential developments on the shoreline reduces my enjoyment of the river" (46.5%). Those options with which respondents generally disagreed or strongly disagreed were "Commercial traffic along the Mississippi River is more important to me than recreational river use" (4.6%), "Boat docks on shorelines reduce my enjoyment of the river" (60%), and "Dredged material (sand) from channel maintenance work should not be placed along the river or on islands" (53.8%). Those options to which most people responded "don't care" were, "I enjoy going through locks when I boat on the Mississippi River" (32.2%), and "Barge tow traffic reduces my enjoyment of the river" (36%) (Q 23).

POOL II


52
Guttenberg
Lock & Dam No. 10
133
81
WISCONSIN
Cassville
Potosi
Buena Vista
N
IOWA
0 1 2 3 4 5
Lock & Dam
No. 11
35

POOL VARIATIONS

POOL 11

Description:

The most northern pool in the GREAT II area, Pool 11 is 32.1 miles long. It stretches from Guttenberg, Iowa, on the north, to Dubuque, Iowa, on the south. There are a total of 15,000 acres of water in the pool, 275 miles of shoreline, including islands, and 7.163 acres of land in public ownership (see map p. 18).

POOL 11 VARIATIONS

1978 Pool Usage:

*This pool ranked fourth among the 12 pools in number of people using the area (10.7%).

*The majority of all users said they used the river on both weekends and weekdays (73.3%). This pool had the highest percent of people who use the river on weekdays only (5.8%).

*The most frequently recorded party size was five. The average party size was six.

*Most of the people using this pool were from Iowa (64.6%), Wisconsin (19.4%), and Illinois (11.8%).

*The most popular watercraft were runabouts (54.4%) and fishing boats (12.6%). This pool had the second highest percentage reported for fishing boat use. It also had the highest percentage of people using canoes (5.1%).

*More people rented boats for use in this pool than in any of the other pools (7.5%).

*The primary recreational activities were sunbathing (19.4%), boating (17.4%), and waterskiing (15.4%).

*The most frequently recorded number of beached boats at the recreation site was one.

*This pool had the highest percentage of people reporting it was their first visit to the river (9.8%). Most of those who used Pool 11 visited the river once a week during the season (44.3%), with 19.1% visiting the river 4 to 8 times during the season.

*Visitors to this pool tended to stay three to six hours (41.2%). Over 29% of the users stayed overnight, with the most common length of stay being one night (11.9%). Most of the overnight visitors (41.5%) stayed on wooded islands.

*The greatest percentage of users trailered their boats to the river (33.6%), while 29.5% docked their boats at a marina.

*As in the other pools, the litter level was generally reported as low (73.4%). However, this pool had the most reports of a heavy litter level (13.9%).

*The total amount of money spent for the entire river visit by most users of this pool was twenty dollars or less (62.4%).

*Over half (60.7%) of the users reported that the pool was not crowded.

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (61.8%), and a grocery store (37.8%). Although a drug store was not rated as important by many users, this pool had the highest percentage of those rating it as important (10.9%).

*The most important factor in determining a launching site at this pool was proximity to the user's residence (30.2%).

*As with the other pools, the type of islands preferred by most (46.1%) users of this pool were "islands which are mostly sand with some trees". This pool also had the highest percentage (2.4%) of users who prefer "islands heavily vegetated but no open sand areas".

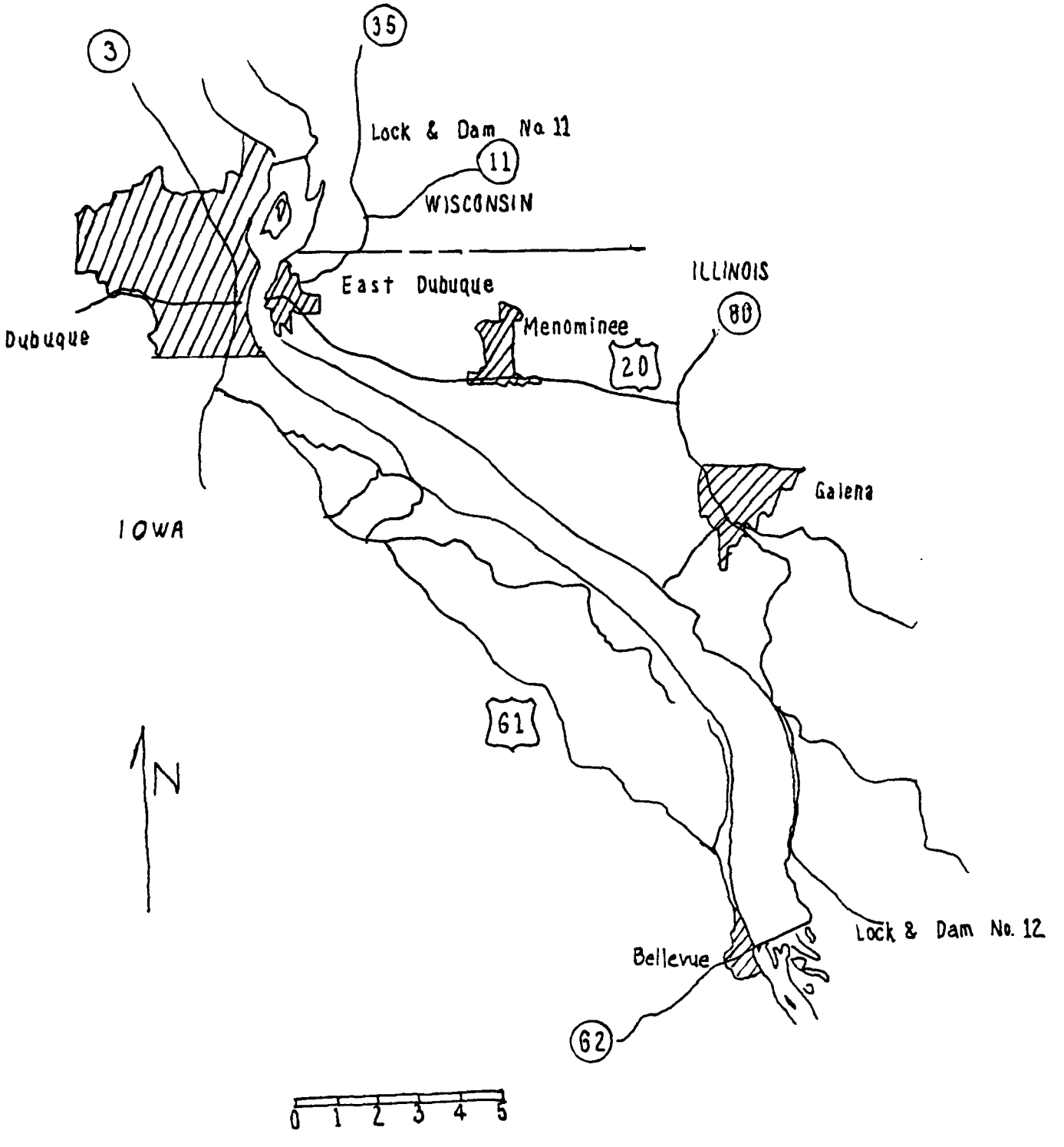
*The type of camping areas preferred were "very primitive islands with no facilities" (47.1%) and "developed island campsites, not in view of each other, but with water, toilet and trash facilities" (20.8%).

*Most users of this pool (52.3%) thought the beach they were on should not be developed.

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "Commercial and industrial development reduces my enjoyment of the river" (67.2%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (62.4%).

Overall, the quality of the river visit was rated as excellent or perfect by over 65% of the respondents, with this pool reporting the highest percentage of those rating their visit as perfect (30.8%).

POOL 12



POOL 12

Description:

Pool 12 is 26.3 miles long and extends from Dubuque, Iowa, on the north, to Bellevue, Iowa, on the south. There are 19,000 acres of water in this pool, flanked by 280 miles of shoreline (including islands), and 5,865 acres of public land (see map p. 22).

POOL 12 VARIATIONS

1978 Pool Usage:

*This pool ranked sixth among the 12 pools in the number of people using the area (7.5%).

*The most frequently recorded party size was five. The average party size was nine. This was the highest party size among the twelve pools.

*Most of the people using this pool were from Iowa (61.4%) and Illinois (34.3%).

*The most popular watercraft was runabouts (64.9%).

*Considering all users of the river, most groups had one boat in their party (53.4%). This was also the case with this pool. However, this pool had the highest percentage of two-boat parties (34.9%) as compared to 35.4% one boat parties.

*This pool had the highest percentage of people who docked their boats at a marina (47.6%).

*The primary recreational activities observed were boating (23.1%), sunbathing (20.7%), and waterskiing (16.0%).

*The most frequently recorded number of beached boats at the recreation site was two.

*Just over one half of the people using this pool (50.9%) visited the river once a week during the summer, with almost one fourth (23.1%) visiting daily.

*Most visitors (45.8%) stayed three to six hours, and 31.5% stayed six to ten hours.

*The most common length of overnight stay was one night (10.2%). This pool had the highest percentage of people staying overnight for ten days or longer (5.4%).

*Over one half of the overnight users stayed on their boats. Of the twelve pools, this one had the highest percentage of people who stayed in motels or hotels (4.9%).

*The litter level at this pool was generally reported as low (85.7%), and a medium litter level was reported in 14.3% of the cases. There were no reports of heavy litter levels.

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (72.5%).

*Over one half of the users (51.8%) reported that the pool was not crowded.

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (68.0%) and developed campgrounds (39.1%).

*The most important factor in determining a launching site was ease of access (36.5%).

*The type of islands preferred by 61.2% of the users of this pool were "islands which are mostly sand with some trees". This represented the highest percentage of users preferring that type of island. This pool also had the highest percentage of users preferring "islands which are all sand" (8.2%).

*The type of camping areas preferred were primitive islands with no facilities" (31.1%) and "developed island campsites, not in view of each other, but with water, toilet, and trash facilities (21.3%).

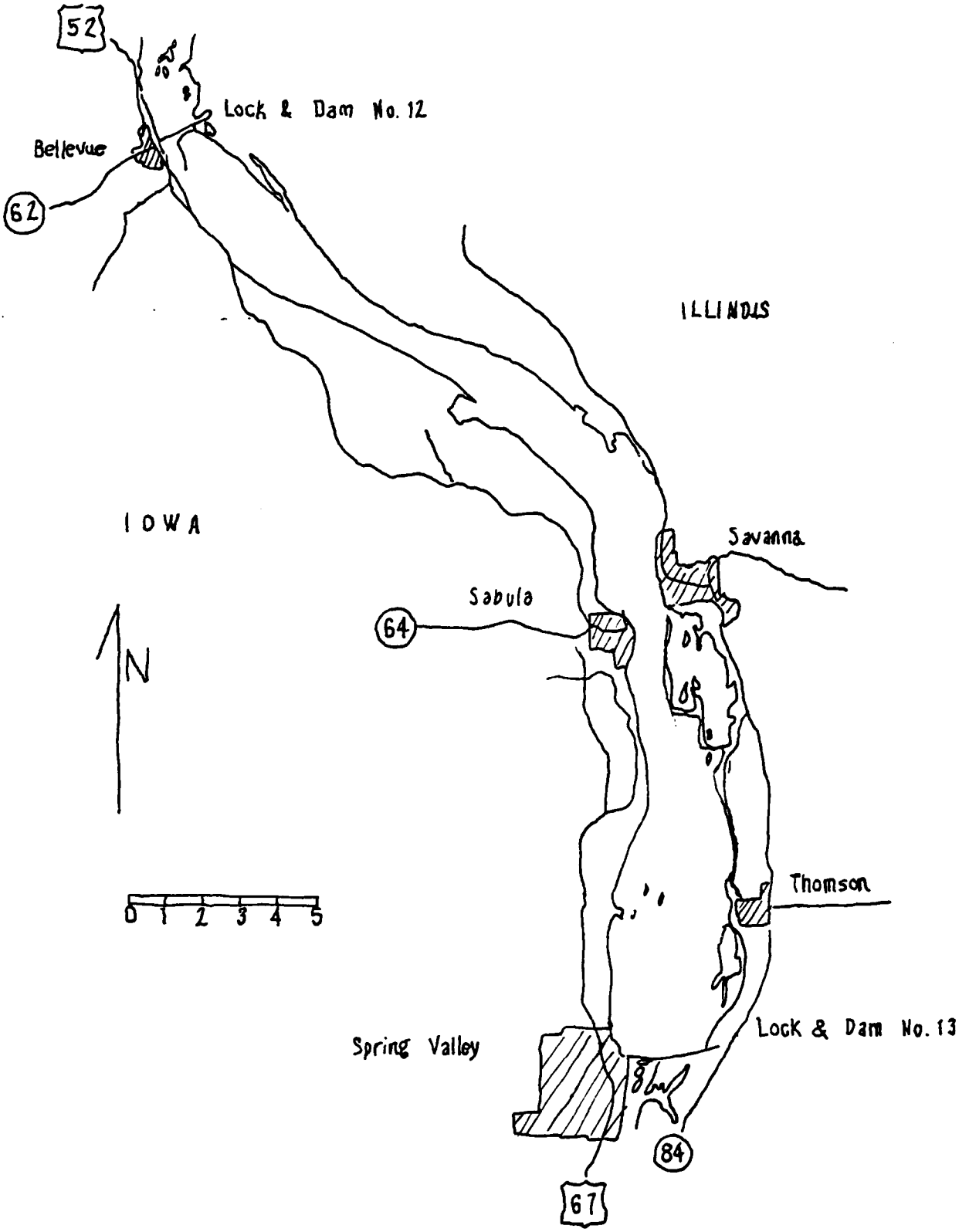
*Most users (66.2%) thought the beach they were on should be developed. If the beach were to be developed, the most frequently requested facility was litter disposal (56.4%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access ramps at each pool" (73.1%). They disagreed most with the statement "Commercial and industrial development reduces my enjoyment of the river" (65.1%).

*As in other pools, most users here preferred to spend time only with others in their group (36.4%). However, this pool had the highest percentage of those who prefer to meet and spend time with other individuals (20.8%).

Overall, the quality of the river visit was rated as good or very good by over one half (55.0%) of the respondents.

POOL 13


52
Lock & Dam No. 12
Bellevue
62
ILLINOIS
IOWA
Savanna
Sabula
64
N
0 1 2 3 4 5
Thomson
Lock & Dam No. 13
Spring Valley
84
67

POOL 13

Description:

Pool 13 stretches for 34.2 miles from Bellevue, Iowa, on the north, to Clinton, Iowa, on the south. There are 29,103 acres of water and 503 miles of shoreline (including islands). There are 25,160 acres of public land in the pool area (see map, p. 26).

POOL 13 VARIATIONS

1978 Pool Usage:

*This pool ranked third among the 12 pools in the number of people using the area (12.2%).

*The most frequently recorded party size was five. The average party size was seven.

*Most of the people using this pool were from Illinois (85.9%), and Iowa(10.8%).

*The most popular watercraft were runabouts (56.8%). This pool had the highest fishing boat use (12.9%).

*The majority of users owned their boats (70.2%). This was the highest percentage among the twelve pools.

*Almost one half of the users trailered their boats to the site (48.7%).

*The primary recreational activities were boating (23.1%), waterskiing (16.1%), and sunbathing (14.7%).

*The most frequently recorded number of beached boats at the recreation site was four.

*Over one half of the people using this pool visited once a week during the summer (53.0%). Another 18.4% visited the river four to eight times during the summer.

*This pool had the highest percentage of overnight use (45.8%). The next highest percentage of users stayed three to six hours (26.7%).

*The most frequent length of overnight stay was two nights (23.6%).

*Over one half of the overnight users stayed on wooded islands (54.3%).

*The total amount of money spent for the river visit by most users of this pool was fifty dollars or less (75.0%). This pool had the highest percentage of people spending more than $100.00 (10.3%).

*Over one half of the users (54.1%) reported that the pool was not crowded.

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (71.6%), and a grocery store (47.2%). This represented the highest percentage of people rating a grocery store as important.

*The most important factor in determining a launching site at this pool was ease of access (44.9%).

*As with the other pools, the type of islands preferred by most users of this pool (41.8%) were "islands which are mostly sand with some trees." This pool also had the highest percentage of users who prefer "islands with equal amounts of sand and trees" (39.3%).

*The type of camping areas preferred were "very primitive islands with no facilities" (47.2%) and "developed island campsites, not in view of each other, but with water, toilet, and trash facilities (23.2%).

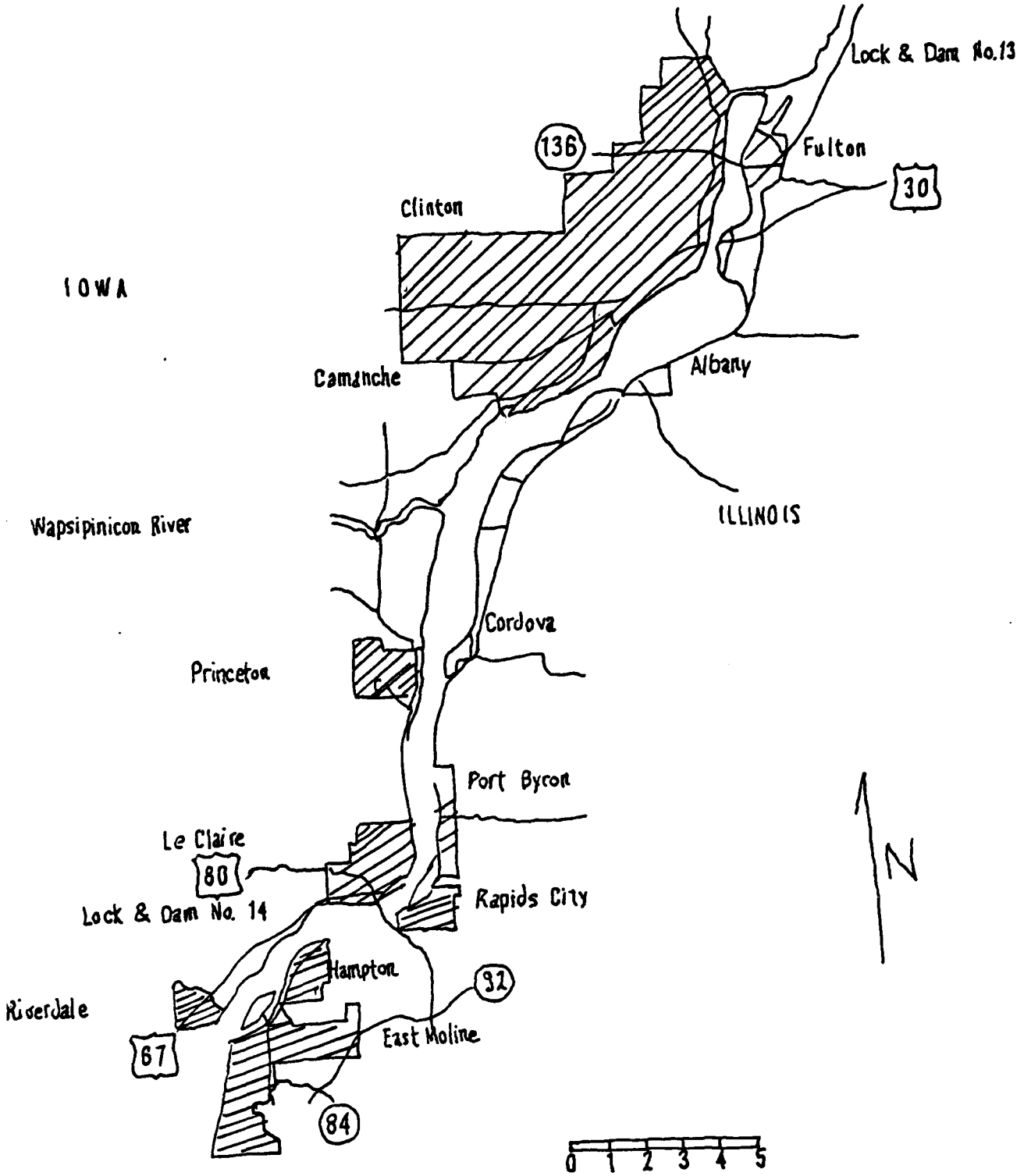
*Most users (59.8%) thought that the beach they were on should not be developed.

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "Commercial and industrial development reduces my enjoyment of the river (73.2%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (65.8%).

*As in the other pools, most users of this pool preferred to spend time only with others in their group (48.9%). However, this pool had the highest percentage of those who preferred to be alone (6.2%).

Overall, the quality of the river visit was rated as excellent by 34.9% of the respondents, and perfect by 21.8%.

POOL 14



POOL 14

Description:

Pool 14 extends from Clinton, Iowa, on the north, to LeClaire, Iowa, on the south. This encompasses 29.2 miles of river, 10,450 acres of water, and 277 miles of shoreline (including islands). There are 4,983 acres of public land in the pool area (see map p. 30).

POOL 14 VARIATIONS

1978 POOL USAGE:

*This pool ranked second among the 12 pools in the number of people using the area (12.9%).

*The most frequently recorded party size was four. The average party size was seven.

*Most of the people using this pool were from Iowa (68.7%) and Illinois (31.0%).

*The most popular watercraft were runabouts (51.6%). This pool had the highest sailboat usage (.8%), and the highest cabin cruiser usage (20.6%).

*Most users trailered their boats to the point of river access (44.9%). This pool had the second highest percentage of those who docked their boats at a private dock (12.5%).

*The primary recreational activities were boating (23.1%), sunbathing (14.7%), and partying (13.7%).

*The most frequently recorded number of beached boats at the recreation site was twelve.

*This pool had the highest percentage of people who visited the river on a daily basis (26.4%), but most users visited on a weekly basis (47.2%).

*This pool had a fairly high percentage of overnight users (37.6%). Another 34.5% stayed only three to six hours.

*The most common length of overnight stay was two nights (22.3%), with most of the visitors staying on wooded islands (42.9%). This pool had the highest percentage of users who stayed on their boats on an island.

*Over one half of the respondents (54.7%) thought the river was crowded to some degree.

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (61.0%).

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (66.3%) and a grocery store (43.0%). This pool had the highest percentage of users who rated boat pumpout as important (19.2%).

*The most important factor in determining a launching site at this pool was proximity to residence (39.8%).

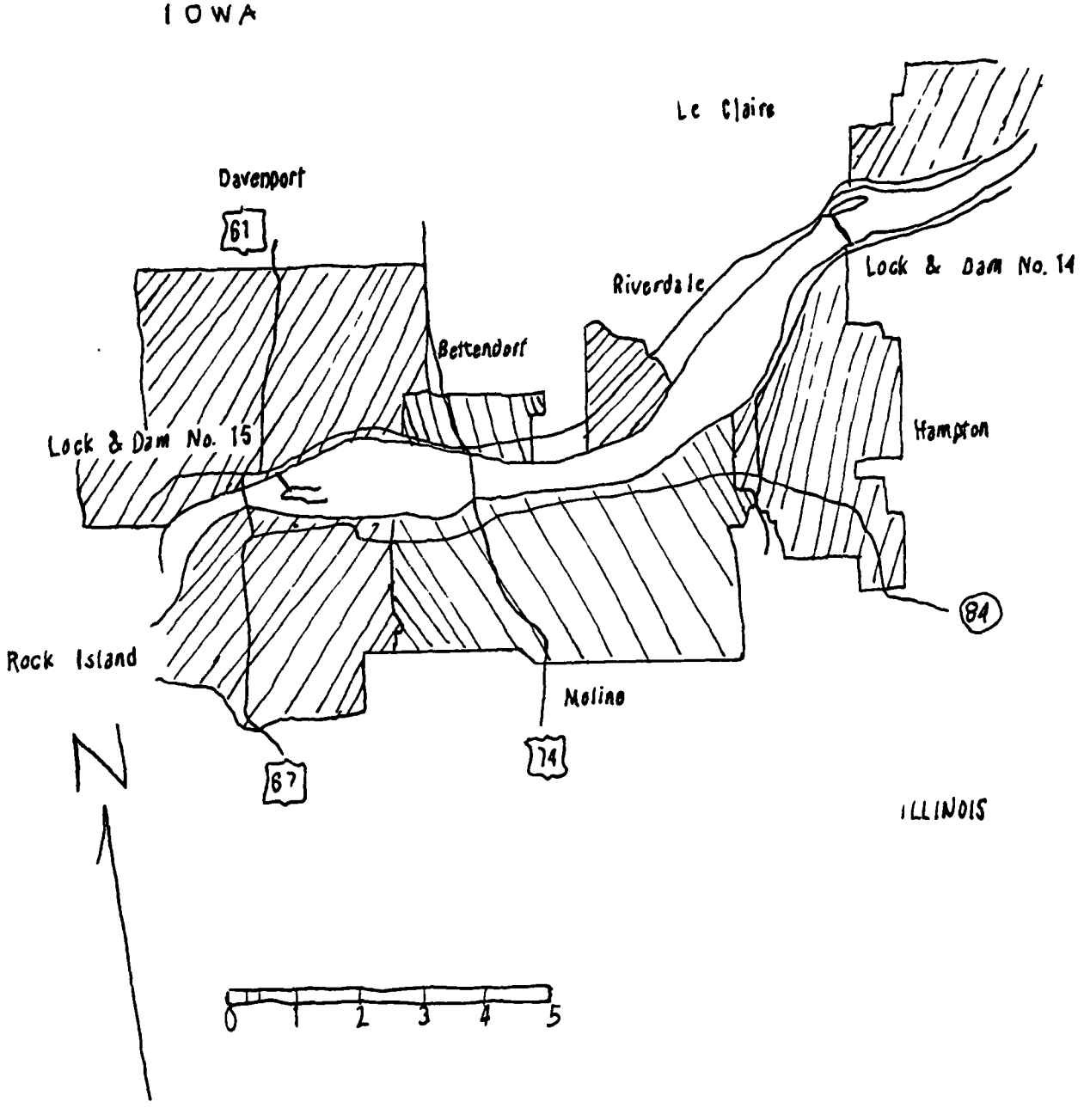
*The type of camping areas preferred were "very primitive islands with no facilities" (35.6%) and "developed island campsites, not in view of each other, but with water, toilet, and trash facilities (26.0%).

*Most users (51.2%) thought the beach they were on should be developed. If the beach were to be developed the most requested facility was litter disposal (46.3%).

*Of the management options proposed in the survey, the users of his pool agreed most with the statement "Commercial and industrial development reduces my enjoyment of the river" (69.2%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (65.7%).

Overall, the quality of the river visit was rated as excellent by 29.5% of the respondents and as perfect by 14.4%.

POOL 15


IOWA
Le Claire
Davenport
61
Riverdale
Lock & Dam No. 14
Bettendorf
Lock & Dam No. 15
Hampton
84
Rock Island
Moline
74
67
ILLINOIS
N
0
1
2
3
4
5

POOL 15

Description:

Pool 15 is the shortest of the 12 pools in the GREAT II area at 10.5 miles. It extends from LeClaire, Iowa, on the north, to the Quad Cities on the south. There are 3,740 acres of water, 38 miles of shoreline (including islands) and 1,011.5 acres of public land in the pool. The shoreline has extensive commercial and industrial development.

POOL 15 VARIATIONS

1978 Pool Usage:

*This pool ranked twelfth among the 12 pools in the number of people using the area (3.8%).

*The most frequently recorded party size was four. The average party size was six.

*Most of the people using this pool were from Iowa (52.3%) and Illinois (46.5%).

*The most popular watercraft were runabouts (51.7%). This pool had the highest houseboat use (12.4%).

*Almost one half of the use (43.0%) were guests on the boat in which they were traveling. This was the highest percentage of guests among the twelve pools.

*No one surveyed in this pool rented their watercraft.

*More people trailered their boats to this pool than to any other pool (59.8%).

*The primary recreational activities were boating (21.8%), water-skiing (20.7%), and sunbathing (14.9%).

*The most frequently recorded number of beached boats at the recreation site was twelve.

*As with most of the other pools, the majority of users visited the river once a week (50.6%). This pool had the highest percentage of people who visited the river just one to three times during the summer (11.2%).

*Very few visitors stayed at this pool overnight, with 63.6% of the users staying three to ten hours.

*The most common overnight stay was one night with the majority of the overnight campers (54.3%) staying on their boats.

*The litter level was reported as low in 59.8% of the cases, and as medium in 40.2% of the cases. There were no reports of heavy litter levels.

*Over one half of the users (60.7%) thought that the river was crowded to some degree.

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (59.6%).

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (67.8%) and developed campgrounds (56.3%). This represented the highest percentage of users among the twelve pools rating developed campgrounds as important.

*The most important factor in determining a launching site at this pool was proximity to residence (49.4%). This was the highest rating for this factor among the twelve pools.

*The type of camping areas preferred were "developed island campsites, not in view of each other, but with water, toilet, and trash facilities" (40.0%) and "developed island campsites, in view of each other, with boat tie-ups plus water, toilet, trash, and shower facilities."

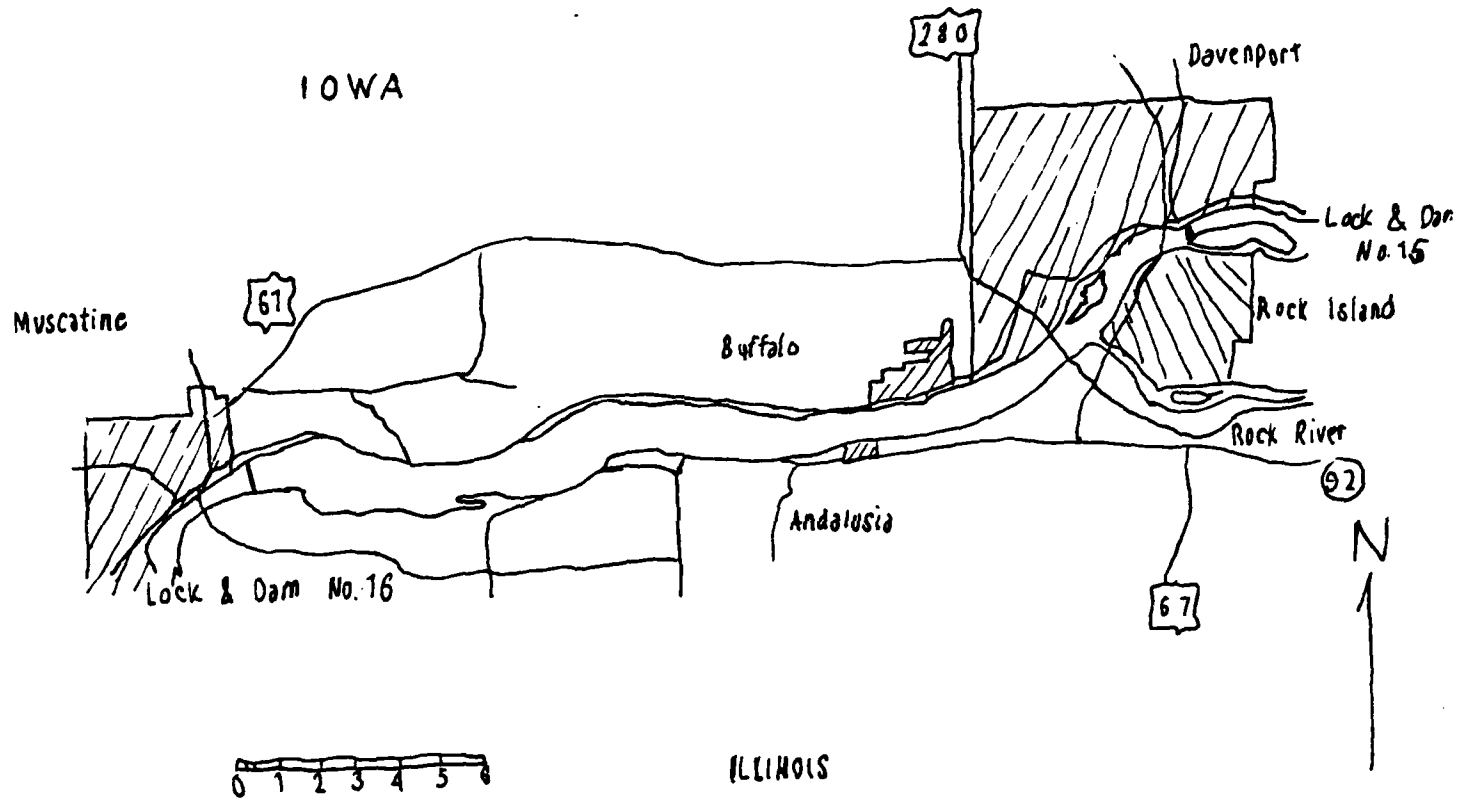
*The majority of users thought the beach they were on should not be developed (86.1%).

*As with the other pools, most people here preferred to spend time only with others in their own group (43.8%). However, this pool had the highest percentage of people who preferred to meet other individuals (32.6%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access camps at each pool" (77.0%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (64.4%).

Overall, the quality of the river visit was rated as good, very good, excellent, or perfect by 85.2% of the respondents.

POOL 16



POOL 16

Description:

Pool 16 runs for 25.6 miles from the Quad Cities on the north, to Muscatine, Iowa, on the south. There are 12,047 acres of water in this pool, with 231 miles of shoreline (including islands). 4,843 acres of publicly-owned land are located in the pool area.

POOL 16 VARIATIONS

1978 Pool Usage:

*This pool ranked first among the 12 pools in the number of people using the area (13.6%).

*The most frequently recorded party size was four. The average party size was eight.

*Most of the people using this pool were from Illinois (55.8%), and Iowa (39.9%).

*The most popular watercraft were runabouts (56.0%). This pool had the second highest cabin cruiser usage (16.8%).

*Parties using one boat were the most common (42.8%). This pool had the highest percentage of parties using five boats or more (16%).

*Over one half of the users (52.8%) trailered their boats to the point of river access.

*Over 70% of the respondents in each pool stated that they were not using a lock during their stay on the river; however, this pool had the highest percentage of people who did go through at least one lock (24.7%).

*The primary recreational activities were boating (33.1%), sunbathing (15.9%), and waterskiing (14.6%).

*The most frequently recorded number of beached boats at the recreation site was twelve.

*Over one half of the users visited this pool once a week during the summer (55.9%), with a relatively high percentage visiting on a daily basis (19.2%).

*Many of the users (42.8%) stayed overnight at this pool. Another 30.4% visited the river for three to six hours.

*The most common overnight stay was two nights (26.1%), with most of the overnight users camping on wooded islands (49.2%).

*Over one half of the users thought that the river was crowded to some degree (67.9%).

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (52.9%).

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (71.1%) and developed campgrounds (34.8%).

*The most important factor in determining a launching site was ease of access (38.8%).

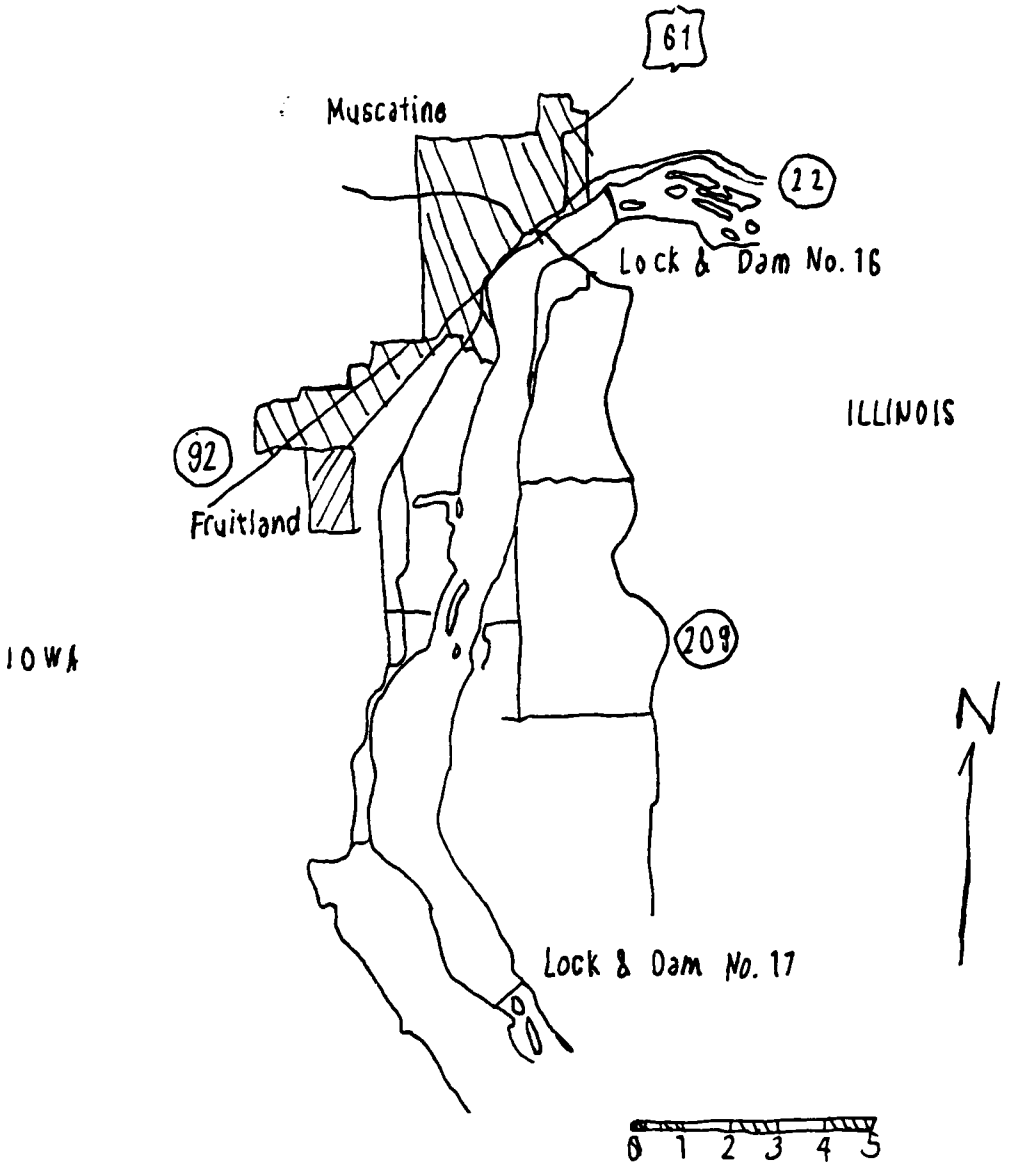
*The type of camping areas preferred were "primitive islands with no facilities" (38.6%) and "developed island campsites, not in view of each other, but with water, toilet, and trash facilities (27.8%).

*Most users (51.7%) thought the beach they were on should be developed. If the beach were to be developed, the most requested facility was litter disposal (53.0%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access ramps at each pool" (69.4%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (66.5%).

Overall, the quality of the river visit was rated excellent by 27.1% of the respondents and very good by 21.9%.

POOL 17


61
Muscatine
22
Lock & Dam No. 16
ILLINOIS
92
Fruitland
IOWA
209
N
Lock & Dam No. 17
0 1 2 3 4 5

POOL 17

Description:

Pool 17 extends for 20.1 miles, from Muscatine, Iowa, on the north, to several miles north of New Boston, Illinois. The pool area contains 8,312 acres of water, 202.5 miles of shoreline (including islands), and 7,179 acres of public land (see map p.42).

POOL 17 VARIATIONS

1978 Pool Usage:

*This pool ranked fifth among the 12 pools in the number of people using the area (7.8%).

*The most frequently recorded party size was seven. The average party size was six.

*Most of the people using this pool were from Iowa (94.8%) and Illinois (4.0%).

*The most popular watercraft were runabouts (62.6%). This pool had the second highest houseboat usage (10.6%).

*No one surveyed at this pool had rented the watercraft used.

*Most users trailered their boats to the point of river access (43.4%). This pool had the lowest percentage of visitors using a private dock (5.2%).

*The primary recreational activities were boating (30.3%), waterskiing (16.0%), sunbathing (11.4%), and picnicking (11.4%).

*The most frequently recorded number of beached boats at the recreation site was one.

*The highest percentage of respondents who visited the river once a week occurred in this pool (68.5%).

*Over one half of the users (50.6%) stayed three to six hours. Another 26.1% stayed overnight.

*The most common length of overnight stay was two nights (13.0%), with most campers (42.9%) spending the night on wooded islands.

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (58.2%).

*Over one half of the users (67.8%) reported that the pool was not crowded.

*This pool had the lowest reported litter level. It was rated as low in 94.9%of the cases and as medium in 5.1% of the cases. There were no reports of heavy litter levels.

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (72.1%) and a grocery store (38.2%). This pool had the highest percentage of visitors who rated a bait shop as important (20.8%).

*The most important factor in determining a launching site was proximity to a favorite island or sandbar (38.6%).

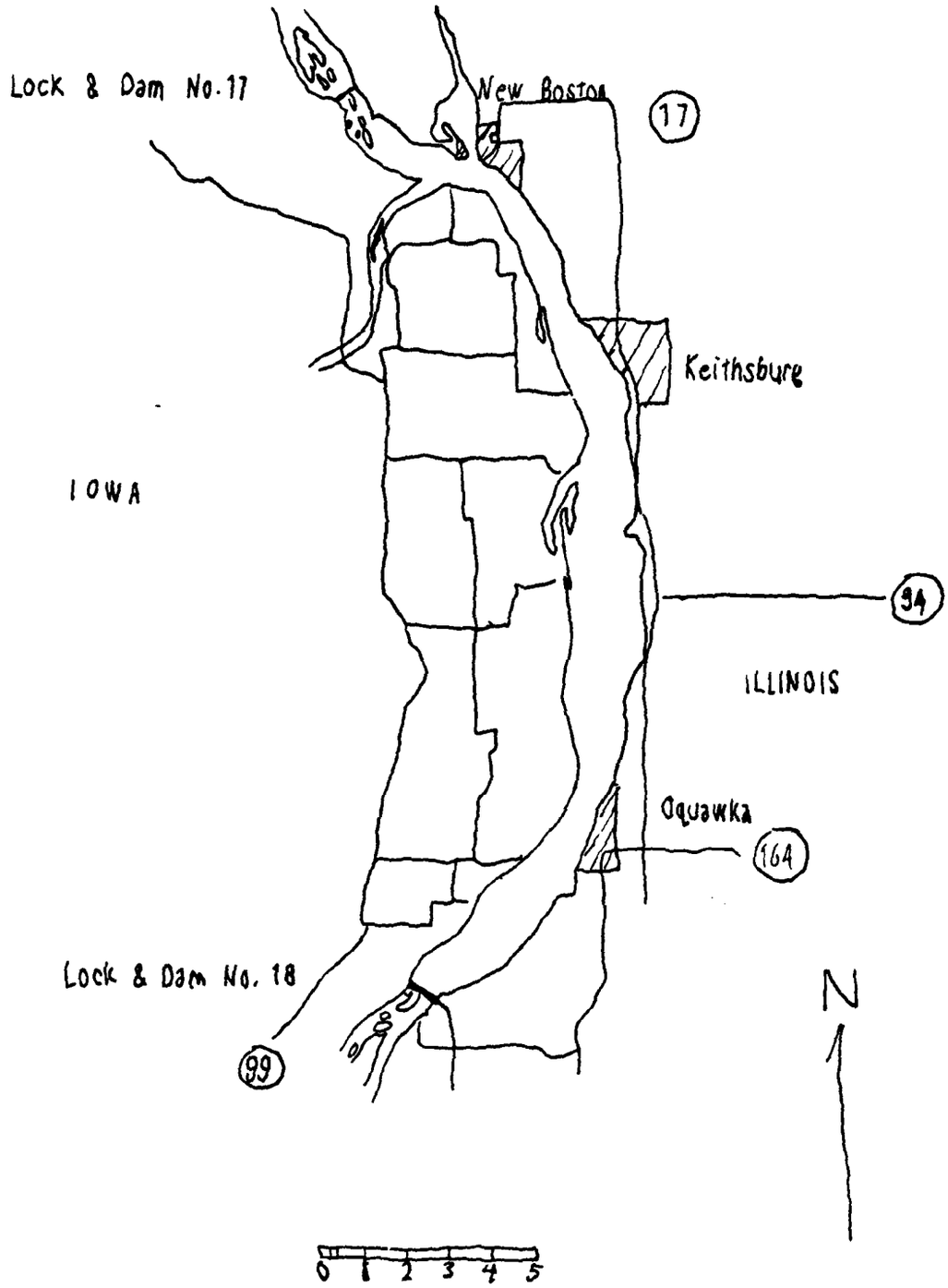
*The type of camping areas preferred were "primitive islands with no facilities" (40.9%) and "developed island campsites not in view of each other, but with water, toilet, and trash facilities" (26.3%).

*Most users (50.6%) thought the beach they were on should not be developed.

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access ramps at each pool" (66.1%). They disagreed most with the statement "Boat docks on shorelines reduce my enjoyment of the river" (59.8%).

Overall, the quality of the river visit was rated as excellent by 32.2% of the respondents and perfect by 16.9%.

POOL 18



POOL 18

Description:

Pool 18 stretches from north of New Boston, Illinois, to north of Burlington, Iowa, for a distance of 26.6 miles. The pool contains 13,600 acres of water, with 279 miles of shoreline (including island) and 9,953 acres of public land in the area (see map p.46)

POOL 18 VARIATIONS

1978 Pool Usage:

*This pool ranked tenth among the 12 pools in the number of people using the area (6.1%).

*The most frequently recorded party size was four. The average party size was seven.

*Most of the people using this pool were from Illinois (85.3%) and Iowa (14.7%).

*The most popular watercraft were runabouts (72.1%).

*The majority of visitors trailered their boats to the point of river access (54.0%).

*This pool had the highest percentage of people making island stops, with 12.4% making one stop and 28.9% making two or more island stops.

*The primary recreational activities were boating (32.3%), sunbathing 15.8%), and waterskiing (12.8%).

*The most frequently recorded number of beached boats at the recreation site was one.

*Over one half of the users (55.1%) visited the river once a week.

*The majority of users (60.6%) stayed from three to ten hours. Among the twelve pools, this pool had the highest percentage of people who stayed less than one hour (2.3%).

*The most common length of overnight stay was two nights (14.7%), with 33.3% of the overnight users staying in public campgrounds, 25.0% staying on wooded islands, and 6.9% staying in private campgrounds. This was the highest reported overall campground use.

*The majority of users in all pools stated that they visited the river on both weekends and weekdays (73.3%); however, this pool had the highest percentage of users who visited the river on weekends only (37.2%).

*The litter level was reported as low in 59.7% of the cases, medium in 40.4% of the cases, and heavy in .7% of the cases.

*Over one half of the users (55.1%) thought the river was not crowded.

*The total amount of money spent for the river visit by most users of this pool was fifty dollars or less (87.9%).

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (72.1%) and developed campgrounds (43.4%).

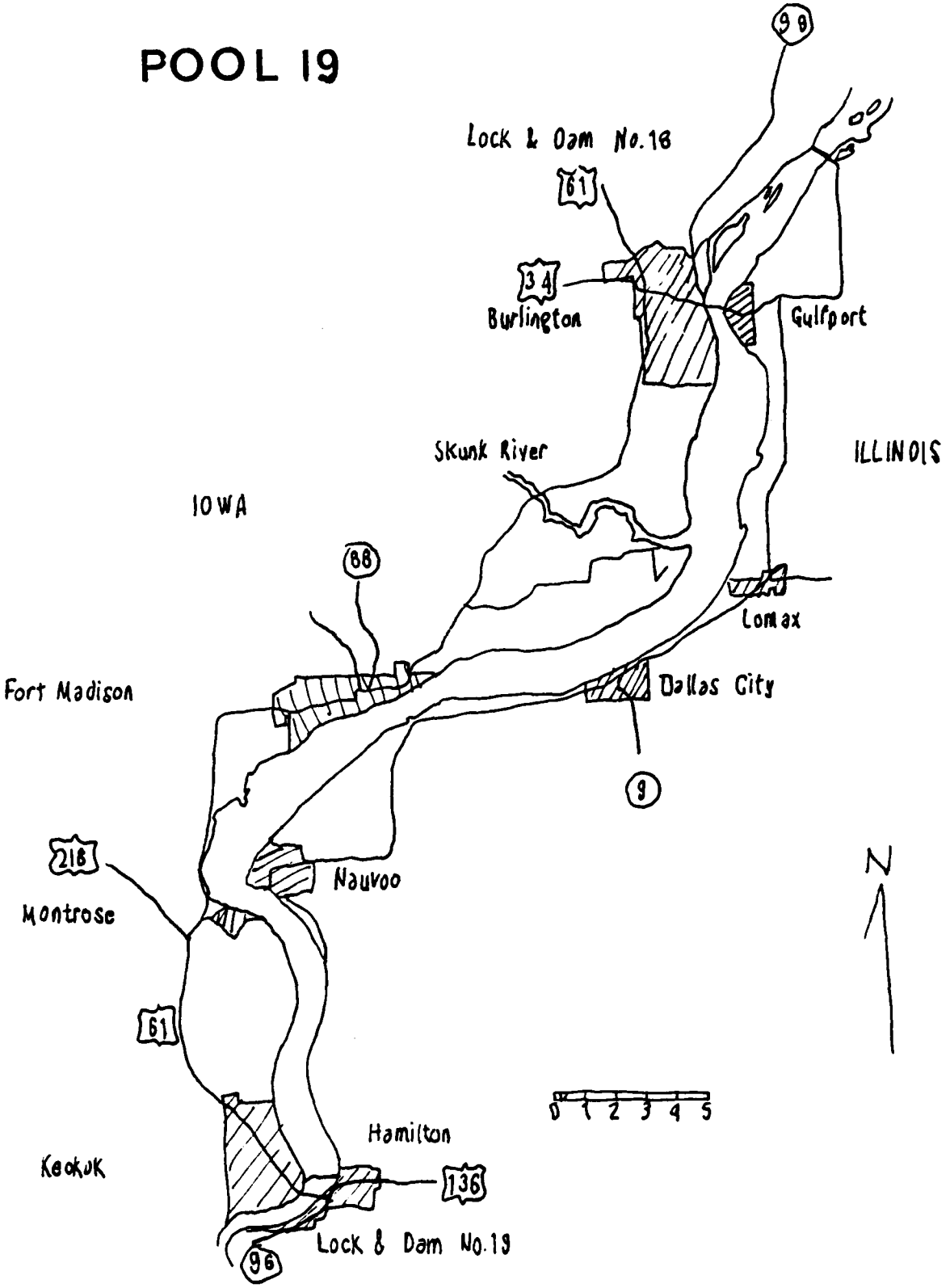
*The most important factor in determining a launching site for users of this pool was ease of access (37.2%). This pool also had the highest percentage of people who stated that going through locks was the most important factor in determining a launching site (2.3%).

*The type of camping areas preferred were "developed island campsites, not in view of each other, but with water, toilet, and trash facilities (32.2%) and "primitive islands with no facilities" (22.5%).

*The majority of users thought the beaach they were on should be developed (66.1%). If it were to be developed, the most requested facility was litter disposal (52.6%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access ramps at each pool" (77.1%). They disagreed most with the statement "Boat docks on shoreline reduce my enjoyment of the river" (66.4%).

Overall, the quality of the river visit was rated as excellent by 29.2% of the respondents and perfect by 27.7%.


POOL 19
Lock & Dam No.18
61
34
Burlington
Gulfport
98
Skunk River
ILLINOIS
IOWA
88
Lomax
Fort Madison
Dallas City
9
218
Montrose
Nauvoo
N
61
0 1 2 3 4 5
Hamilton
Keokuk
136
Lock & Dam No.19
96

POOL 19

Description:

Pool 19 extends from north of Burlington, Iowa, to Keokuk, Iowa, on the south. At 46.0 miles, this is the longest pool in the GREAT II stretch. It also contains the largest water acreage, at 30,854 acres and has 246.3 miles of shoreline (including islands). Notwithstanding its length and acreage, there are only 2.88 acres of public land in the pool area due to prior acquisition of land by Union Electric for its hydro-electric plant at Keokuk.

POOL 19 VARIATIONS

1978 Pool Usage:

*This pool tied with pool 21 for the eight place ranking in the number of people using the area (6.6%).

*The most frequently recorded party size was five. The average party size was seven.

*Most of the people using this pool were from Iowa (84.8%), and Illinois (13.1%).

*The most popular watercraft were runabouts (68.9%).

*People at this pool trailered their boats to the point of river access (42.0%). This pool had the second highest percentage of users who docked their boats at a marina (30.8%).

*The primary recreational activities were waterskiing (21.6%), boating (19.6%), and camping (10.1%).

*The most frequently recorded number of beached boats at the recreation site was two.

*Over one half of the users visited this pool once a week during the summer (64.7%).

*Most visits lasted between three and ten hours (41.7%).

*The most common length of overnight stay was one night (14.2%), with most campers staying on wooded islands (60.3%).

*Over one half of the visitors throught the river was not crowded (52.7%).

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (61.6%).

*The litter level was reported as low in the majority of cases (59.7%). However, this pool had a high percentage of reports of heavy litter levels (10.4%).

Users Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (70.0%) and a grocery store (38.0%).

*The most important factor in determining a launching site was proximity to residence (39.6%). This pool had the highest percentage of people who thought that a low degree of crowding was an important factor (31.3%).

*The type of islands preferred were "islands which are mostly sand with some trees" (45.4%). This pool had the highest percentage of users who preferred "islands moderately vegetated with some open areas" (18.4%).

*The type of camping areas preferred were "primitive islands with no facilities" (45.0%) and "developed island campsites, not in view of each other, but with water, toilet, and trash facilities" (22.8%).

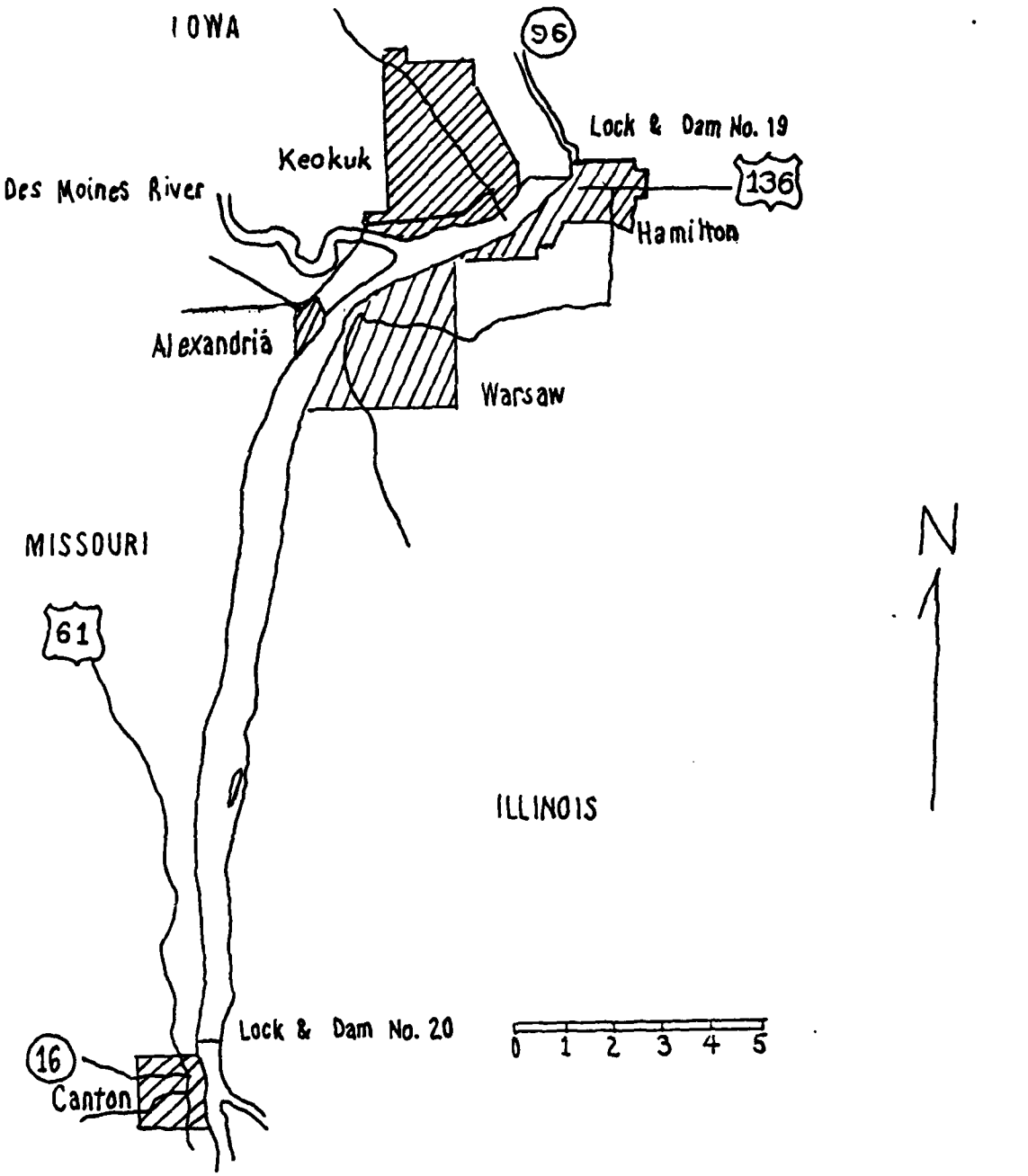
*Most users (53.7%) thought the beach they ere on should be developed. If the beach were to be developed, the most requested facility was litter disposal (52.6%).

*This pool had the highest percentage of people who preferred to spend time only with their own group (55.0%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access camps at each pool" (66.7%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (73.5%).

Overall, the quality of the river visit was rated excellent by 30.8% of the respondents and perfect by 18.5%.

POOL 20



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POOL 20

Description:

Pool 20 stretches for 21.2 miles, from Keokuk, Iowa, on the north, to Canton, Missouri, on the south. The pool contains 7,542 acres of water, with 93 miles of shoreline (including islands), and there are 178 acres of publicly owned land in the area.

POOL 20 VARIATIONS

1978 Pool Usage:

*This pool ranked seventh among the 12 pools in the number of people using the area (7.5%).

*The most frequently recorded party size was six. The average size was also six.

*Most of the people using this pool were from Iowa (48.0%), Illinois (34.5%), and Missouri (15.8%).

*The most popular watercraft were runabouts (77.6%). This pool had the highest usage of pontoon boats (10.3%).

*None of those surveyed in this pool had rented their watercraft.

*Over one half of the users (54.5%) trailered their boats to the point of river access. This pool had the lowest percentage of users who docked their boats at a marina (5.5%).

*The primary recreational activities were waterskiing (31.8%), boating (24.7%), and partying (10.6%).

*The most frequently recorded number of beached boats at the recreation site was one.

*The majority of users visited the river once a week during the summer (61.5%), with 17.8% visiting daily.

*The most common length of stay was three to six hours (45.0%).

*The most frequent length of overnight stay was one night (14.6%), with most of the campers staying on wooded islands (63.2%).

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (58.0%).

*Over one half of the users (56.7%) felt that this pool was not crowded.

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (74.3%) and developed campgrounds (34.1%).

*The most important factor in determining a launching site for users of this pool was proximity to residence (50.3%). The highest percentage of those rating proximity to a favorite island (sandbar)(42.9%) and avoiding locks (18.4%) as important occurred at this pool.

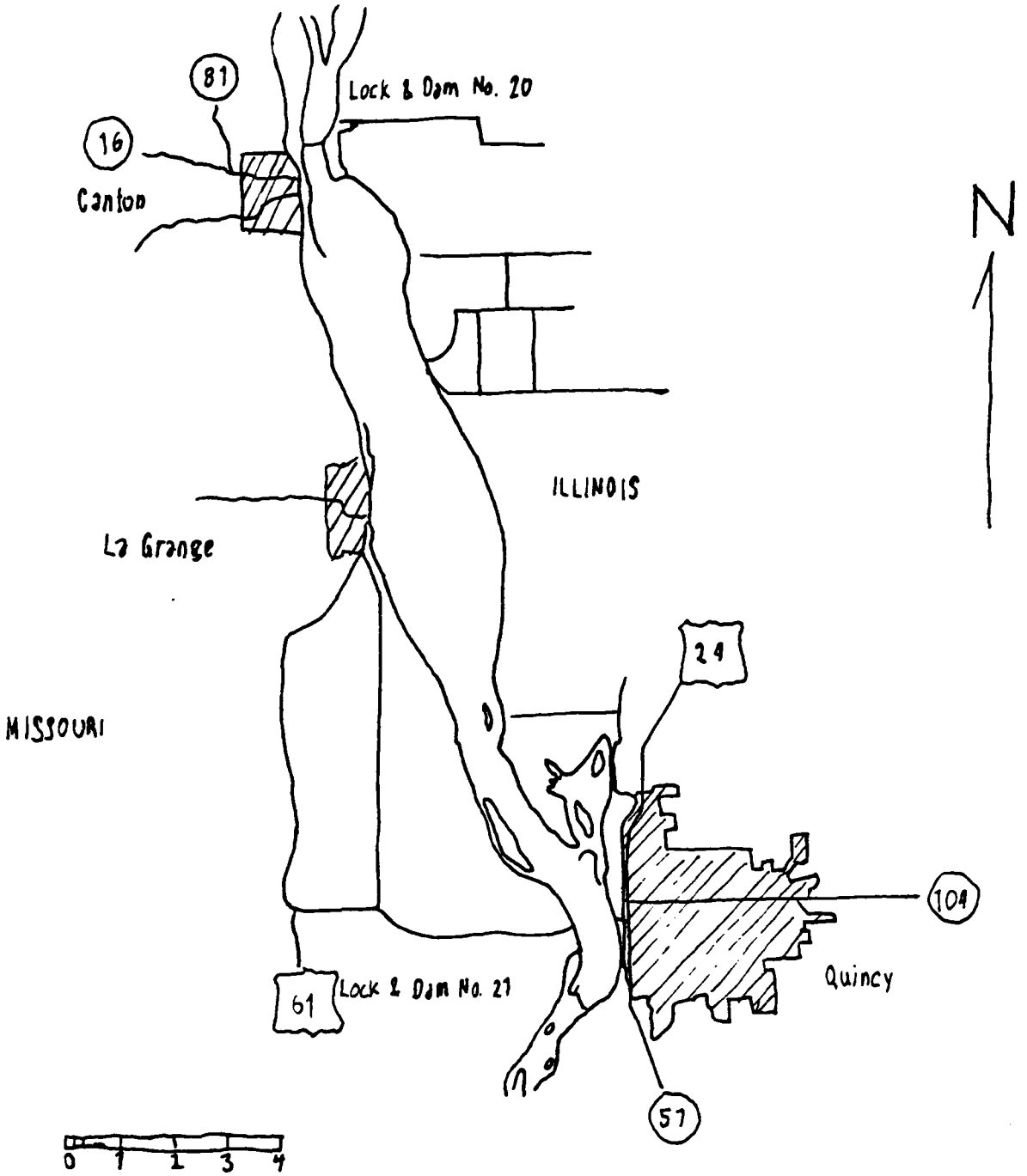
*The type of camping areas preferred were "primitive islands with no facilities" (31.8%) and developed island campsites, not in view of each other, but with water, toilet, and trash facilities" (28.8%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "Sanitation facilities should be provided on islands" (73.2%). They disagreed most with the statement "Boat docks on shoreline reduce my enjoyment of the river" (69.0%).

*The majority of the users (59.9%) thought that the beach they were on should be developed. If it were to be developed, the most requested facility was litter disposal (51.5%).

Overall, the quality of the river visit was rated as excellent by 32.7% of the respondents and perfect by 12.9%.

POOL 21


81
Lock & Dam No. 20
16
Canton
N
ILLINOIS
La Grange
24
MISSOURI
104
Quincy
61
Lock & Dam No. 21
57
0 1 2 3 4

POOL 21

Description:

Pool 21 extends from Canton, Missouri, on the north, to Quincy, Illinois, on the south. The pool is 18.4 miles long, with 6,350 acres of water and 146.6 miles of shoreline (including islands). There are 8,536 acres of publicly owned land in the pool area (see map p.58).

POOL 21 VARIATIONS

1978 Pool Usage:

*This pool tied with pool 19 for the eighth place ranking in the number of people using the area (6.6%).

*The most frequently recorded party size was four. The average party size was five.

*Most of the people using this pool were from Illinois (93.2%) and Missouri (6.1%).

*The most popular watercraft were runabouts (84.9%). This represented the highest runabout usage among the twelve pools. The second most common watercraft were fishing boats (5.8%).

*The most common number of boats per party was one (86.6%). This was the highest percentage of one-boat parties among the twelve pools. Only 8.7% of the visitors used two boats.

*None of those surveyed at this pool had rented their watercraft.

*Most users trailered their boats to the point of river access (57.1%). This pool had the second lowest percentage of people who used a private dock (5.4%).

*The primary recreational activities were boating (27.0%), waterskiing (19.7%), and sunbathing (17.8%).

*The most frequently recorded number of beached boats at the recreation site were one and twelve.

*Over one half of the users visit the river weekly (61.7%), with 18.2% visiting daily.

*Most users of this pool stayed on the river for three to six hours (59.6%).

*The most common length of overnight stay was two nights (10.3%), with the majority of overnight users staying on wooded islands (68.6%).

*Over one half of the users (52.9%) thought the river was crowded to some degree.

*This was the only pool in which there were more reports of medium or heavy litter levels (63.6%) than low litter levels (36.4%).

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (78.0%).

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (75.0%) and a restaurant (32.4%). Both of these percentages were the highest among the twelve pools.

*The most important factor in determining a launching site was ease of access (37.5%).

*The type of camping areas preferred were "primitive islands with no facilities" (28.0%) and "developed island campsites, not in view of each other, but with water, toilet, and trash facilities" (25.3%).

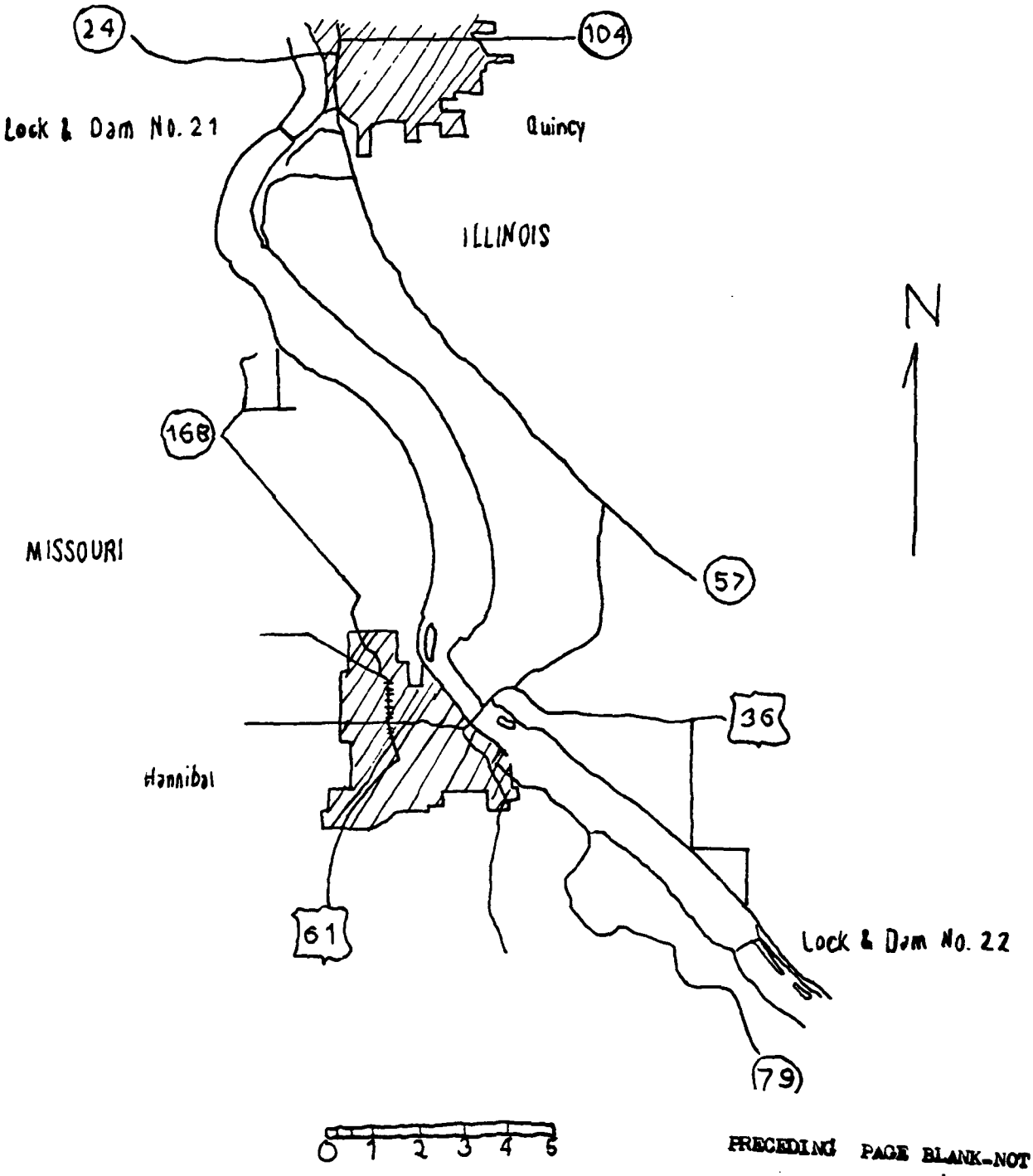
*The majority of users thought the beach they were on should be developed (65.9%). If it were to be developed, the most frequently requested facility was litter disposal (55.0%).

*As in the other pools, people here preferred to spend time only with others in their group (35.6%). However, this pool had the highest percentage of people who preferred to meet and spend time with many individuals and groups (26.8%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access ramps at each pool" (80.4%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (62.4%).

Overall, the quality of the river visit was rated as very good by 28,0% of the respondents and good by 26.0%.

POOL 22



POOL 22

Description:

Pool 22 extends for 23.6 miles from Quincy, Illinois, on the north to Saverton, Missouri, on the south. The pool contain 8,540 acres of water with 126.0 miles of shoreline (including islands) and 6,592 acres of public land in the area (see map p.62).

POOL 22 VARIATIONS

1978 Pool Usage:

*This pool ranked eleventh among the twelve pools in number of people using the area (4.6%).

*The most frequently recorded party size was seven. The average party size was eight.

*Most of the people using this pool were from Missouri (81.0%) and Illinois (15.2%).

*The most popular watercraft were runabouts (80.0%). The second most common were houseboats and pontoon boats (6.3% each).

*None of those surveyed in this pool had rented their watercraft.

*Most users trailered their boat to the point of river access (42.1%). This pool had the highest percentage of visitors using a private dock (16.8%).

*The primary recreational activities were boating (25.5%), waterskiing (21.7%), and sunbathing (17.9%).

*The most frequently recorded number of beached boats at the recreation site was four.

*Over one half of the users (65%) visited the river weekly during the summer and 16.5% visited daily.

*This pool had the lowest percentage of users reporting that it was their first visit to the river (1.0%).

*Most users stayed at the river three to six hours (44.3%).

*The most common length of overnight stay was two nights (13.5%), with most campers staying on wooded islands (46.7%). This pool had the highest percentage of overnight visitors who preferred to spend the night in cottages (20.0%).

*Over one half of the users (65.0%) thought the river was not crowded.

*The total amount of money spent for the river visit by most users of this pool was twenty dollars or less (73.0%).

User Preferences and Recommendations

*The services rated as most important at the point of river access were gasoline/boat servicing (63.6%) and developed campground (43.4%). This pool had the highest percentage of users who rated lodging as important (17.2%).

*The most important factor in determining a launching site was proximity to residence (46.3%).

*The type of camping areas preferred were "primitive islands with no facilities" (30.8%) and "developed island campsites not in view of each other, but with water, toilet, and trash facilities" (30.8%).

*Over one half of the users (55.1%) thought that the beach they were on should be devleoped. If it were to be developed, the facility most frequently requested was litter disposal (42.3%).

*Of the management options proposed in the survey, the users of this pool agreed most with the statement "There should be more developed boat access ramps at each pool" (77.6%). They disagreed most with the statement "Commercial traffic along the Mississippi River is more important to me than recreational river use" (68.3%).

Overall, the quality of the river visit was rated good by 30.5% of the respondents and very good by 16.2%. This pool had the highest percentage of users who rated the quality of the river visit as fair or poor (30.5%).

Dredge Spoil Island User Profile

The composite user of dredge spoil islands surveyed in this study has come from Iowa (47%), Illinois (43%), Missouri (6%), or Wisconsin (3%). There are seven people in his party. He prefers to spend time only with his group (36.4%). He owns his boat (66.2%), a runabout (63%), 16 feet to 20 feetlong (68%), and trailers it to the recreation site (46.6%).

Recreational activities in which he pariticpates are boating (25%), waterskiing (17%), and sunbathing (16%). He will visit the river once a week during the season (55.5%). Those visits will generally last between three and six hours (38.8%). By his own estimation he will spend $50 or less for his entire river visit (84.3%).

If he camps overnight on the river (43%), he will stay one or two nights on a wooded island. He prefers to visit the river on weekdays (39%), but usually visits the river on both weekdays and weekends (73.3%). He does not feel the river is crowded (50.8%).

He chooses his launch site either because it is easily accessible or is close to his home or to a favorite island or sandbar. The services he would most like to have at the point of river access are gasoline/ boat servicing (69.3%) and a grocery store (36%). The type of islands he prefers are those which are mostly sand with some trees (48.1%). The type of camping areas he prefers are primitive islands with no facilities (36.9%).

As a general recreation experience, he prefers to relax in natural areas where few outdoor skills are required and there is no supervision or control of any activities.

He thinks that the beach he is on should be developed (54.8%). The facility he would most like to see at this beach is litter disposal facilities (46.7%). He thinks there should be more developed boat access ramps at each pool (66.2%). He would use nature interpretive areas if developed (59.2%). Residential development along the shoreline reduces his enjoyment of the river (46.5%). He does not enjoy going through locks when he is boating on the river (47%). He thinks sanitation facilities should be provided on islands (62.5%). He thinks dredged material should be placed along the river or on islands (53.8%). Boat docks on shorelines do not reduce his enjoyment of the river (60%). Barge tow traffic reduces his enjoyment of the river (34.5%). Commercial traffic along the Mississippi is not more important to him than recreational river use (64.6%).

Overall, he is very satisfied with his visit to the river and rates it as excellent (28%).

SELECTED BIBLIOGRAPHY

Becker, Robert H. 1976. Assessing visitor spatial demand through forest user density preferences: Toward a social carrying capacity model. In: 1st Conf. Sci. Res. in National Parks. New Orleans, Louisiana.

Becker, Robert H.; Smith, Sheryl S.; Kailing, Kenneth; Felcher, Margaret. 1978. Upper Mississippi dredge material disposal site recreational user assessment. Madison, Wisconsin.

Bishop, Doyle W. 1970. Stability of the factor structure of leisure behavior: Analysis of four communities. J. Leisure Res. 2(3).

Blackwood, Thomas C. 1970. Selected characteristics, perceptions, and management preferences of day-use rafters on the Upper Wolf River. Madison, Wisconsin: Univ. Of Wisconsin, Master's Thesis.

Brazelton, Don E. and Ackelson, Mark.C. 1979. Draft recreation appendix to final report of Great River Environmental Action Team II by Recreation work group II. Iowa Conservation Commission, Des Moines, Iowa.

Brown, Ed; Koenig, Darwin; Proescholdt, Mark. 1978. Recreation boating survey on the Mississippi River for GREAT II Recreation Work Group.

Burton, Thomas L. 1970. Experiments in recreation research. Totwa, New Jersey: Rowan and Littlefield.

Calvin, J.S.: J. Dearinger, and M.E. Curtin. 1972. An attempt at assessing preferences for natural landscapes. Environment and Behavior 4(4).

Christensen, J.E. and D.R. Yoesting. 1976. Variance in the 'substitutability' of outdoor recreation activities by 'activity types' and characteristics of recreationists. Ames, Iowa: Iowa State University Manuscript.

Cicchetti, Charles J. 1973. A primer for environmental preservation: The economics of wild rivers and other natural wonders. MSS Modular Publication.

Cicchetti, Charles J. and V. Keey Smith. 1973. Congestion, quality deterioration, and optimal use: Wilderness recreation in the Spanish Peaks Primitive Area. Soc. Sci, Res. Vol. 2.

Federal Work Group E. 1975. Carrying capacity of outdoor recreation resources. Proposed report to the National Outdoor Recreation Plan.

Field, Donald R. and J.T. O'Leary. 1973. Social groups as a basis for assessing participation in selected water activities. J. Leisure Res. Vol. 5.

Hardyck, Curtis D. and Lewis Pelrinovich. 1976. Statistics for the behavioral sciences. Philadelphia, Pennsylvania: W.B. Saunders Co.

Heberlein, Thomas A. 1976. Density, crowding, and satisfaction: sociological studies for determining carrying capacities. Madison, Wisconsin: Univ. of Wisconsin, Dep. Rural Soc. Pap.

Heberlein, Thomas A. and Jerry J. Vaske. 1977. Crowding and visitor conflict on the Bois Brule River. Paper presented at the Annual Meeting of the Rural Sociological Society, Madison, Wisconsin.

Held, R. Burnell, Stanley Brickler, and Arthur Wilcox. 1969. A study to develop practical techniques for determining the carrying capacity of natural areas in the National Park system. USDI, National Park Service, Estes, Park, Colorado.

Hendee, John C. amd Rabel J. Brudge. 1974. The substitutability of concept: Implication for recreation research and management. J. Leisure Res. Vol. 6.

Knetch, Jack. 1974. Outdoor recreation and water resources planning. Washington, D.C.: American Geophysical Union.

Lime, David. 1977. Research for river recreation planning and management. In: Proc. Symp. River Rec. Management and Res. USDA, Forest Service. N.C. For. Exp. Station.

Lime, David and George H. Stankey. 1971. Carrying capacity: Maintaining outdoor recreation quality. IN: Proc. Rec. Symp. USDA, Forest Service. Syracuse, New York.

McCay, Roger E. and George H. Moeller. 1976. Compatibility of Ohio trail users. USDA, Forest Service N.E. for Experimental Station.

McMahon, Greg and James Eckbald. 1975. The impact of dredge spoil placement on the Upper Mississippi River Final Report, National Science Foundation Project. EPP-7508419. Decorah, Iowa.

Meilike, Al. 1977. Narrative summary of 1977 field study. Iowa Conservation Commission. In-house document.

Niemann, Bernard, Robert H. Becker, et. al. 1977. The Lower St. Croix carrying capacity study: The collection and analysis of user and related resource data. Minnesota/Wisconsin Boundary Area Commission.

Parks, Canada. 1974. Report on a search for structure in the patterns in outdoor recreation using cluster analysis methods: The Windsor work. Rec. Review Vol. 3.

Replinger, Jean. 1978. Independent study paper for Robert H. Becker. Madison, Wisconsin: Univ. of Wisconsin, Dep. of Forestry. Manuscript.

Replinger, Jean. 1974. Minnesotans and their Mississippi River. Prepared for Esthetic Environment Task Force of the State of Minnesota.

Shelby, Bo and Joyce Neilsen. 1975. Use levels and user satisfaction in the Grand Canyon. Paper presented at the Annual Meeting of the Rural Sociological Society. San Francisco, California.

Snedecor, George W. and William G. Cocran. 1973. Statistical Methods. Ames, Iowa: Iowa State University Press.

Stankey, George H. 1973. Visitor perception of wilderness recreation carrying capacity. USDA, Forest Service Res. Pap. INT-142.

Stankey, George H. 1971. Wilderness carrying capacity and quality. Naturalist 22 (3).

U.S. Army Corps of Engineers. 1974. Final environmental impact statement--Operation and Maintenance, 9-foot channel, Upper Mississippi River, head of navigaion to Guttenberg, Iowa.

U.S. Forest Service. 1977. Forest Service Manual. Interim Directive No. 8, 2303 2--7. Washington, D.C.

Vicksburg Waterway Experiment Station. 1975. Dredged material research program. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.

Witt, Peter A. 1971. Factor structure of leisure behavior for high school age youth in three communities. J. Leisure Res. Vol. 3

APPENDIX 1: PROCEDURES AND METHODS

Prior research efforts performed by R. H. Becker and B. J. Niemann provided a basis upon which study design efforts were built. This work, developed in the Savage River State Forest, Maryland from 1972 through 1976, and on the Lower St. Croix in 1977, includes previously tested social and behavioral procedures that provide a base for management decisions and assessing the nature of the recreational experience.

SAMPLING PROCEDURE

The sample originally was calculated using density estimations derived from a 9" x 9" black and white aerial flight photo taken July 4, 1977. The units measured were power boats. From this flight, dredge spoil sites were divided into density stratas dependent on the total boat count they supported that day. While this information appeared to be the best available to date, the lack of repeated measures, the use of boat units rather than individuals, and the atypical nature of any holiday usage reduced the reliability of this technique. While initial sites were delimited from the July 4th flight, the study teams approached individuals visiting any dredge site within each pool. The sampling distribution which resulted is broken down by pool in the text.

APPENDIX 2: FORMS

OBSERVATION WORKSHEET--DISCUSSION

The observation worksheet, which was completed by the study team member, was designed to reference every user with a particular location in time and space. It also recorded dynamic resource characteristics (water surface quality, sky conditions, weather, etc.) which were possible factors related to user satisfaction. By allowing the study team member to record group, craft, and respondent characteristics, more space for other items could be allocated on the questionnaire. Study team observation of actual user activity can be compared to user perception of behavior through comparison of the observation sheet to the questionnaire results. An example of the observation sheets used follows.

ON-SITE QUESTIONNAIRE

The on-site questionnaire used for this study also follows.

OBSERVATION SHEET

Team Member_____
Questionnaire #_____

Date_____
Location: Pool_____ Mile_____ Side_____ Temperature_____
Time of day_____ a.m. Island_____ Shore_____

Party Description

M	F	Age
____	___	under 12
____	___	12-16
____	___	17-21
____	___	22-30
____	___	31-50
____	___	51-65
____	___	over 65

Craft Description

____outboard
____inboard
____inboard/ outboard
____sail
____canoe
____cabin cruiser
____runabout (skiboat)
____houseboat
____pontoon
____fishing boat

Number of boats in party _____
Number of boats beached on recreation site_____
River Stage: _____

Weather:

____clear
____cloudy
____fog
____rain
____hazy
____humid

Water:

____calm
____choppy
____rough
____very rough
____storm

Wind:

____none
____light (0-6 mph)
____moderate (7-14 mph)
____strong (15-25 mph)
____storm (over 25 mph)

Site Litter:

____low
____medium
____heavy

Boating Recreation:

____canoeing
____fishing
____sailing
____waterskiing
____cruising or pleasure boating
____other, specify_____
_____

Non-boating Recreation:

____camping
____hiking
____picnicking
____relaxing/family outing
____sightseeing
____sunbathing
____swimming
____drinking and partying
____fishing
____other_____

Additional Observer's Comments:

_____

_____

_____

MISSISSIPPI RIVER RECREATION SURVEY

You can help!... Here's how!

Input from people like yourself who enjoy and use the Mississippi River and the islands will help us provide for future recreation needs. In order to aid in determining river policy, we are asking individuals using the area to give a few minutes of their time in filling out this questionnaire. All answers will be kept in strictest confidence. Thank you!

1. *Overall, how would you rate your visit to the river area today:*

___ poor
___ fair
___ good, but I wish a number of things could have been different
___ very good, but could have been better
___ excellent, only minor problems
___ perfect
___ COMMENTS _____

2. How often do you visit the Mississippi for recreation in the summer:

___ a. this is my first visit
___ b. 1 to 3 *times a season*
___ c. 4 to 8 *times a season*
___ d. about once a week during the season
___ e. almost daily during the season

3. a. How long is this visit to the river?

___ less than one hour
___ between 1 to 3 hours
___ between 3 to 6 hours
___ between 6 to 10 hours
___ between 10 to 18 hours
___ *overnight*

b. If overnight, how many nights? _____

c. If overnight, where are you staying?

___ motel, hotel
___ cottage
___ on board a boat
___ on wooded islands
___ campground, public
___ campground, private

Survey conducted by the Iowa Conservation Commission for the Great River Environmental Action Team (GREAT). Original survey design directed by the Recreation Resources Management Program, School of Natural Resources, University of Wisconsin at Madison

4. I use the Mississippi on:

___ weekends only
___ weekdays only
___ both weekends and weekdays

If both weekends and weekdays, which do you enjoy most:

___ *weekends*
___ weekdays
___ no difference

5. I ____ own, ____ rent, or am ____ a guest of the boat I am using this trip. Approximate length of the boat is: _____.

6. Where do you dock your boat?

___ marina
___ trailered and launched
___ private dock
___ I don't own a boat
___ other, specify _____.

7. Which of the following services do you consider important *in the immediate* vicinity of the river access? (Please check as many as apply)

___ lodging
___ restaurant
___ grocery store
___ boat pumpout
___ gasoline/boat servicing
___ *developed campgrounds*
___ drug store
___ bait shops
___ *other*, specify _____.

8. Did any of the following influence your choice of launching "put in" place?

___ close by residence
___ *less crowded*
___ adequate water depth
___ near section of the river I *plan to visit*
___ availability of facilities and services
___ near favorite island (sandbar)
___ other, specify _____.
___ *easy access*
___ price
___ to avoid locks
___ to go through locks

9. Launching site location (please be specific) _____.

10. *Have you stopped on* other island or shore beaches during this outing?

_____ yes _____ no If yes, how many? _____

11. This beach is:

_____ natural _____ dredged material _____ don't know

12. a. How long are you staying on this beach during this visit?

___ less than 1 hour
___ between 1 to 3 hours
___ between 3 to 6 hours
___ between 6 to 10 hours
___ between 10 to 18 hours
___ overnight

b. If overnight, how many nights? _____

13. a. This beach should be left essentially as it is in its present state.

_____ yes _____ no

b. This beach should have more developed facilities for recreational use.

_____ yes _____ no If yes, check those which apply:

___ campsites ___ fireplaces ___ litter disposal
___ toilets ___ tables ___ firewood supplied

14. Do you usually go through a lockage during visits to the river?

_____ yes _____ no If yes, approximately how many? _____

15. What type of travel on the Mississippi do you prefer:

___ canoe ___ cabin cruiser
___ fishing boat ___ yacht
___ sailboat ___ tourboat
___ runabout (ski boat) ___ houseboat
___ pontoon boat ___ other, specify _____.

16. When you are traveling along the Mississippi River, please tell us how you would feel about meeting each:

	very desirable	desirable	don't care	undesirable	very undesirable
fishing boat	1	2	3	4	5
sailboat	1	2	3	4	5
cabin cruiser, yacht	1	2	3	4	5
canoe	1	2	3	4	5
excursion boat	1	2	3	4	5
barge tow	1	2	3	4	5
runabout	1	2	3	4	5
houseboat	1	2	3	4	5

17. a. About how many barge tows did you see today:

___ none
___ less than 7
___ 8 to 20
___ 20 to 40

b. About how many powerboats did you see today:

___ none
___ less than 7
___ 8 to 20
___ 20 to 40
___ more than 40

c. About how many fishermen did you see today:

___ none
___ less than 7
___ 8 to 20
___ 20 to 40
___ more than 40

18. Did you feel the river was crowded during this trip (circle one number)

not at all		slightly crowded		moderately crowded		extremely crowded	
1	2	3	4	5	6	7	8

19. Which of the following islands would you most prefer to visit: (check one)

___ islands heavily vegetated but no open sand areas
___ islands moderately vegetated with some open sand areas
___ islands with equal amounts of vegetation and open sand areas
___ islands which are mostly sand with some trees
___ islands which are all sand

20. From the descriptions a through e below, which one best describes the outdoor recreation experience you most prefer (check only one):

___ a. I enjoy visiting river areas that offer a full range of facilities and planned activities with others. It is important that the areas be controlled and free from any hazards.

___ b. I enjoy rivers where few outdoor skills are required and where activities are planned and supervised. I like to meet other people and enjoy activities with others. A feeling of being alone is not important to me.

___ c. I enjoy areas that allow me to be close to nature. A feeling of adventure with minimum outdoor skills in a controlled area is important. While I like the feeling of being alone, I also enjoy meeting other individuals with interests similar to mine.

___ d. I enjoy visiting natural river areas where few outdoor skills are required and I can relax. I prefer no supervision or control of any activities.

___ e. I enjoy exploring areas that are difficult to reach and require physical effort and skill. A feeling of being a part of nature is important to me. I like to experience the feelings that few persons have been on the river.

21. Considering all your expenses (i.e. travel, food, fees, local purchases, new equipment, etc.), about how much is this entire trip costing your family or group?

Total estimated cost $_____.

What portion of your total cost was spent:

on or along the river $_____
travel from home town to the river $_____
purchased at home before leaving for the river $_____

22. When I visit the river for recreation, I usually prefer (check only one)

___ to be alone
___ to spend time only with others in my group
___ to meet other individuals
___ to meet and spend time with other individuals
___ to meet and spend time with many individuals and groups

23. The following statements reflect possible recreational practices, management options, or preferences. Please read each statement carefully and check each answer according to your interest or preference.

I would use nature interpretive areas if developed on the river.

strongly disagree	disagree	don't care	agree	strongly agree

Residential developments on the shoreline reduces my enjoyment of the river.

strongly disagree	disagree	don't care	agree	strongly agree

There should be more developed boat access ramps to each pool.

strongly disagree	disagree	don't care	agree	strongly agree

I enjoy going through locks when I boat on the Mississippi River.

strongly disagree	disagree	don't care	agree	strongly agree

Barge tow traffic reduces my enjoyment of the river.

strongly disagree	disagree	don't care	agree	strongly agree

Commercial traffic along the Mississippi River is more important to me than recreational river use.

strongly disagree	disagree	don't care	agree	strongly agree

Sanitation facilities should be provided on islands.

strongly disagree	disagree	don't care	agree	strongly agree

Commercial and industrial development reduces my enjoyment of the river.

strongly disagree	disagree	don't care	agree	strongly agree

Dredged material (sand) from channel maintenance work should not be placed along the river or on islands.

strongly disagree	disagree	don't care	agree	strongly agree

Boat docks on shorelines reduce my enjoyment of the river.

strongly disagree	disagree	don't care	agree	strongly agree

24. What type of camping area do you most prefer (check *only one*):

___ a. very primitive islands with no facilities
___ b. developed island campsites not in view of each other, but with water, toilet, and trash facilities
___ c. developed island campsites in view of each other with boat tie-ups plus water, toilet, trash, and shower facilities
___ d. shore sites equipped with complete facilities *and electricity* for tents and trailers
___ e. shore sites with limited facilities
___ f. cabins and cottages

25. Please give us the following information about this outing:

We started out from (nearest city on river) _____
We're going to (place on the river) _____
How many others are with you on this trip _____

26. Please check your main activities during your visit to the river today and mark the most important with a #1

___ sailing	___ canoeing	___ clam digging
___ camping	___ picnicking	___ plant collecting
___ boating	___ sightseeing	___ bird watching
___ fishing	___ shopping	___ photography
___ waterskiing	___ swimming	___ nature study
___ *sunbathing*	___ *partying*	

___ other, specify _____.

27. Do you take your refuse with you when leaving island beaches?

_____ always _____ sometimes _____ never

28. What is your age? _____ Your sex _____

29. Where is your permanent residence: City _____ State _____.

The future of your river depends on interested users like yourself. Again, thank you for your support of this research. If you wish to obtain abstract results of this study, please include your name and home address.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

APPENDIX 3: TABLES

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List of Tables (continued) Page No.

VARIABLE NAME: Sample distribution (n) by pool **TABLE# 1**

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

CODE#	Pool Number	% users @ ea. pool	Number of users at each pool											
			POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 2 1	POOL 22
11	Pool 11	10.7	250											
12	Pool 12	7.5		175										
13	Pool 13	12.2			284									
14	Pool 14	12.9				301								
15	Pool 15	3.8					89							
16	Pool 16	13.6						317						
17	Pool 17	7.8							182					
18	Pool 18	6.1								141				
19	Pool 19	6.6									154			
20	Pool 20	7.5										174		
21	Pool 21	6.6											154	
22	Pool 22	4.6												106
# Non-responses		53	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE NAME: Distribution (n) over the week TABLE# 2

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Weekend	80.8	60.6	76.3	80.2	100.0	100.0	97.2	81.3	83.7	42.9	95.4	73.2	76.4
2	Midweek	19.2	39.4	23.7	19.8	0		2.8	18.8	16.3	57.1	4.6	26.8	23.6
# Non-responses		18	1	0	6	0	0	0	6	0	0	0	1	0

VARIABLE NAME: Land Description at sample point TABLE# 3

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Island	87.6	81.5	97.8	97.5	65.9	100.0	86.0	90.6	100.0	92.2	92.8	93.5	74.5
2	Shore	12.4	18.5	2.2	2.5	34.1		14.0	9.4		7.8	7.2	6.5	25.5
# Non-responses		42	1	0	6	5	1	16	2	0	1	7	0	0

VARIABLE NAME: Total (n) number of females in group

TABLE# 4

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	0 females in group	8.3	10.4	7.5	5.3	5.6	3.4	6.3	8.8	20.6	10.4	12.1	14.3	1.9
1	1 female in group	12.4	15.2	6.5	16.2	13.6	12.4	6.0	15.9	9.2	12.3	9.8	14.9	11.3
2	2 females in group	21.3	21.2	25.8	19.0	21.9	23.6	26.3	15.9	18.4	15.6	22.4	22.7	17.0
3	3 females in group	20.0	18.0	7.5	23.6	16.9	20.2	13.6	19.2	19.1	26.0	31.6	27.9	25.5
4	4 females in group	11.6	11.6	2.2	7.4	13.6	12.4	7.3	21.4	14.9	18.2	2.9	16.9	17.9
5	5 females in group	9.0	11.6	8.6	7.4	8.3	14.6	13.0	7.7	6.4	5.2	13.8		6.6
6	6 females in group	6.6	2.8	9.7	15.8	5.3		13.9	7.7				3.2	8.5
7	7 females in group	3.2	2.4	5.4	.4	9.0	13.5	2.2	3.3			4.6		
8	8 females in group	1.3	2.4		1.4							2.9		11.3
9	9 females in group	.8						4.1		4.3				
10	10 females in group	2.5		26.9	3.5	.3		0.3		4.3				
11	11 females in group	1.4	4.4			2.3		1.6			6.5			
12	12 females in group	1.5				3.0		5.4			5.8			
13	13 females in group													
14	14 females in group	.2								2.8				
# Non-responses		1	0	0	0	0	0	1	0	0	0	0	0	0

VARIABLE NAME: Total (n) number of males in the group TABLE# 5

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	0 males in group	5.4	2.0	2.3	3.9	10.0	4.5	1.9	3.3	14.2	1.3	2.3	14.9	7.5
1	1 male in group	11.6	15.3	10.9	13.0	13.3	12.4	9.6	9.9	5.7	16.2	4.6	13.6	10.4
2	2 males in group	21.8	30.1	13.1	21.8	17.9	41.6	19.3	27.6	27.7	13.6	21.3	25.3	7.5
3	3 males in group	19.2	20.1	25.1	13.0	15.0	19.1	17.7	17.1	19.1	24.7	23.0	26.6	18.9
4	4 males in group	11.9	14.1	7.4	16.5	18.9		10.9	12.2	9.2	5.2	11.5	3.9	20.8
5	5 males in group	12.7	8.0	14.3	6.3	10.3	6.7	17.4	13.8	12.8	17.5	27.0	6.5	15.1
6	6 males in group	5.5	2.4	9.1	9.9	6.6	2.2	5.8	2.2	4.3	7.1	2.9	9.1	
7	7 males in group	4.0		5.7	8.5	4.7	10.1	1.0	3.9		10.4	4.6		
8	8 males in group	2.6	2.0	3.4	2.8		3.4	4.2	3.3		3.9	2.9		8.5
9	9 males in group	1.5	4.4	.6	.7				6.6	4.3				
10	10 males in group	.6		8.0				.3						
11	11 males in group	1.0			3.5	3.0		1.3						
12	12 males in group	2.1	1.6					10.6						11.3
15	15 males in group	.2								2.8				
30	30 males in group	.0				.3								
50	50 males in group													
85	85 males in group													
	# Non-responses	8	1	0	0	0	0	6	1	0	0	0	0	0

VARIABLE NAME: Description of watercraft

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

TABLE# 6

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Sailboat	0				.8								
2	Canoe	1	5.1	.6	3.2		3.4			1.5				
3	Cabin cruiser	8	10.7	4.0	5.4	20.6	10.1	16.8	6.1			4.2	3.6	
3	Runabout	63	54.4	64.9	56.8	51.6	51.7	56.0	62.6	72.1	68.9	77.6	84.9	80.0
5	Houseboat	5	4.7	7.1	5.7	6.3	12.4	4.5	10.6	.7	7.4		.7	6.3
6	Pontoon	2								3.7	.7	10.3	5.0	6.3
7	Fishing boat	7	12.6	1.2	12.9	8.3	1.1	2.6	6.7	8.1	8.8	3.0	5.8	3.2
8	Runabout & Fishbt.	2			3.2			2.9	3.4	9.6	2.7			
9	Cabincruiser-Housebt.-Fishbt.	0				2.4								
10	Cabincruiser-Runabout	5	3.3	5.4	5.0	2.8	11.2	13.9	2.2	.7	5.4			
11	Runabout-Houseboat	4	5.1	14.9	2.9	3.2		3.2	4.4	2.9	.7	1.8		
12	Cabincruiser-Runabout-Housebt.	1				2.4	10.1		1.1		2.7			
13	Runabout-Pontoon	1	2.3		2.9	1.6				.7				
14	Cabincruiser-Houseboat	0							2.8			3.0		4.2
15	Cabincruiser-Pontoon	0		1.8										
16	Cabincruiser-Runabout-Pontoon	0			2.1						1.4			
17	Cabincruiser-Fishboat	0	1.9								1.4			
	# Non-responses	157	35	7	4	49	0	8	3	5	6	9	15	11

VARIABLE NAME: Number of boats in party

TABLE# 7

QUESTION AS APPEARED: Information recorded on observation sheet by survey participant

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	0 boats in party	3.1	13.0			9.9	3.7	2.0			1.3			
1	1 boat in party	53.4	53.0	35.4	52.5	45.9	62.2	42.8	53.8	51.8	53.6	63.2	86.6	62.5
2	2 boats in party	23.3	26.3	34.9	31.2	26.9	23.2	19.6	26.3	17.7	20.9	17.0	8.7	17.3
3	3 boats in party	8.9	3.2	6.9	11.7	4.6	7.3	10.1	11.7	16.3	9.8	17.0	4.7	
4	4 boats in party	6.1	4.5	14.3	1.1	8.5	3.7	9.5	3.5	11.3	6.5	2.9		8.7
5	5 boats in party	2.6		8.6	3.5			7.5	1.2		6.5			
6	6 boats in party	1.8				2.1		4.9	3.5		1.3			11.5
7	7 boats in party	.7				2.1		3.3						
8	8 boats in party	0												
9	9 boats in party	0												
10	10 boats in party	.2						.3		2.8				
# non-responses		67	3	0	2	18	7	11	11	0	1	3	5	2

VARIABLE NAME: Number of beached boats at site

TABLE# 8A

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	0 beached boats	3	4.8		1.8	4.7	1.1	3.8	5.5		4.5		5.2	1.9
1	1 beached boat	13	23.2	3.4	11.6	8.3	4.5	6.9	16.6	19.9	16.2	18.4	8.4	18.9
2	2 beached boats	10	14.0	25.7	6.3	7.0	9.0	2.2	11.0	9.9	18.2	11.5	2.6	16.0
3	3 beached boats	7	10.8	6.9	10.9	8.3		3.2	6.1	14.9	.6	10.3	1.3	15.1
4	4 beached boats	8	8.0	6.3	15.1	7.3	13.5	.9	11.6	2.8	15.6	6.3	2.6	20.8
5	5 beached boats	4	4.0	6.9	4.2	3.3	7.9	1.6	5.0	2.8	6.5	6.9		
6	6 beached boats	4		18.3		6.0			1.1	.7	4.5	1.7	3.9	7.5
7	7 beached boats	3	2.0		5.3	5.3		.6	1.7	2.8	5.8	4.0		
8	8 beached boats	2		2.9		8.0		3.8			3.9			
9	9 beached boats	2						4.7	3.3	8.5	7.8			
10	10 beached boats	6	8.0	13.7	5.3	5.6	11.2	8.2	3.9	3.5	6.5	1.7		
11	11 beached boats	0								4.3				
12	12 beached boats	7	2.8	1.7	9.5	8.6	33.7	9.1	8.8	5.7		7.5	8.4	
13	13 beached boats	0								1.4				
14	14 beached boats	1				1.0	5.6	1.3						
15	15 beached boats	4	1.6	14.3	9.2	4.3		2.2	5.5	2.8		4.6	1.9	

VARIABLE NAME: Number of beached boats at site

TABLE# 8B

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
16		1			7.7								6.5	
17		0					1.1			4.3				
18		1				1.7	12.4	3.8						
20		7	8.0		9.2	6.0		1.3	15.5	4.3		17.2	21.4	
22		1			3.9				2.8			3.4		
25		3	2.8			1.3		12.3		4.3		6.3	1.9	11.3
26		1				6.6		1.3						
27		0												6.6
28		0	0											1.9
30		3	10.0			.3		3.2		1.4	5.2		9.1	
33		0				1.3								
34		0				1.3								
35		0						.9					5.2	
40		2				3.7				5.7			1.9	
46		1						10.7						
48		1						3.8						
50		2						6.9	1.7		4.5		7.8	

VARIABLE NAME: Number of beached boats at site
QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

TABLE# 8C

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
52		1											4.7	
80		0						.3						
# of non-responses		1	0	0	0	0	0	0	1	0	0	0	0	0

VARIABLE NAME: Extent of litter evident

TABLE# 9

QUESTION AS APPEARED: Information recorded on observation sheet by survey participant

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	low	77.9	73.4	85.7	91.0	85.9	59.8	89.5	94.9	58.9	59.7	81.6	36.4	7.14
2	medium	18.7	12.7	14.3	6.8	13.1	40.2	6.6	5.1	40.4	29.9	18.4	62.3	28.6
3	heavy	3.4	13.9		2.2	1.0		3.9		.7	10.4		1.3	
# non-responses		38	6	0	5	4	2	12	4	0	0	0	3	1

VARIABLE NAME: Quality of river visit

TABLE# 10

QUESTION AS APPEARED: Overall, how would you rate your visit to the river area today:

_____ poor _____ very good, but could have been better _____ perfect

_____ fair _____ excellent, only minor problems

_____ good, but I wish a number of things could have been different

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	poor	1.9		7.6		.7	2.3	1.6	.6	1.5	.7	3.5	.7	10.5
2	fair	9.3	4.0	13.5	5.8	7.7	12.5	10.3	9.0	11.7	9.6	5.3	15.3	20.0
3	good, but . . .	24.1	14.6	30.4	13.8	28.2	44.3	26.1	25.4	11.7	26.7	25.7	26.0	30.5
4	very good, but . .	20.0	16.2	24.6	23.6	19.5	20.5	21.9	15.8	18.2	13.7	19.9	28.0	16.2
5	excellent	28.0	34.4	15.2	34.9	29.5	13.6	27.1	32.2	29.2	30.8	32.7	20.0	14.3
6	perfect	16.7	30.8	8.8	21.8	14.4	6.8	12.9	16.9	27.7	18.5	12.9	10.0	8.6
# non-responses		53	3	4	0	3	1	7	5	4	8	3	4	1

VARIABLE NAME: Frequency of visits to river **TABLE#** 11

QUESTION AS APPEARED: How often do you visit the Mississippi for recreation in the summer?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	first visit	6.1	9.8	8.7	8.5	5.0	5.6	6.7	6.6	4.4	2.0	2.9	3.9	1.0
2	1-3 times	8.7	13.0	7.5	11.0	7.7	11.2	8.9	8.3	11.0	3.9	6.3	7.1	6.8
3	4-8 times	13.5	19.1	9.8	18.4	13.7	18.0	9.3	7.2	22.1	15.0	11.5	9.1	10.7
4	Once a week	55.5	44.3	50.9	53.0	47.2	50.6	55.9	68.5	55.1	64.7	61.5	61.7	65.0
5	daily	16.2	13.8	23.1	9.2	26.4	14.6	19.2	9.4	7.4	14.4	17.8	18.2	16.5
# non-responses		23	4	2	1	2	0	4	1	5	1	0	0	3

[illegible] hours of stay on river

[illegible]: How long is this visit to the river?

TABLE# 12

[illegible] LABEL	ADJUSTED FREQUENCIES												
	TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
[illegible] 1 hour	.7	.8	.6		.3		1.3		2.3		1.2	1.3	
[illegible]urs	7.2	5.8	3.6	5.9	6.2	9.1	6.5	7.4	7.6	11.9	8.3	7.9	10.4
[illegible]ours	38.8	41.2	45.8	26.7	34.5	31.8	30.4	50.6	33.3	41.7	45.0	59.6	44.3
[illegible] hours	20.4	19.8	31.5	19.4	20.0	31.8	18.0	14.2	27.3	17.2	21.9	12.6	18.9
[illegible] 18 hours	2.6	2.9	3.6	2.2	1.4	6.8	1.0	1.7	4.5	4.6		4.0	3.8
overnight	30.4	29.6	14.9	45.8	37.6	20.5	42.8	26.1	25.0	24.5	23.7	14.6	22.6
[illegible]responses	76	7	7	11	11	1	11	6	9	3	5	3	0

VARIABLE NAME: Number of nights spent on river

QUESTION AS APPEARED: How long is this visit to the river? If overnight, how many nights?

TABLE# 13A

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	0 nights	57	59.6	71.9	42.1	39.8	70.6	44.6	61.6	60.3	61.5	56.7	75.3	64.4
1	1 night	12	11.9	10.2	15.5	9.8	12.9	14.5	10.7	11.8	14.2	14.6	7.5	11.5
2	2 nights	15	8.5	6.6	23.6	22.3	7.1	26.1	13.0	14.7	10.1	10.5	10.3	13.5
3	3 nights	6	6.0	.6	5.2	11.1	3.5	10.6	5.1	3.7	3.4	9.4	4.1	6.7
4	4 nights	3	1.7	1.2	4.8	1.0	2.4	2.3	3.4	.7	2.7	5.8		2.9
5	5 nights	1	1.3	.6	2.2	2.1		1.0	.6	.7	2.0	.6	.7	
6	6 nights	1	1.7	2.4	1.8	.3	1.2		.6	1.5		1.8	.7	
7	7 nights	1	2.6		2.2				2.3	1.5				
8	8 nights	1	3.4	1.2	.7	.3			1.1	1.5	1.4			
9	9 nights	0	.9		.4				.6	2.9	1.4			
10	10 nights	1	.9	2.4	.4	.7				.7	2.0	.6	1.4	1.0
12	12 nights	0				.7	1.2		.6					
13	13 nights	0			.4									
14	14 nights	0	.9	1.2	.4	.7			.6					
15	15 nights	0	.4			.3		.3			.7			
17	17 nights	0			.4									

VARIABLE NAME: Number of nights spent on river
QUESTION AS APPEARED: How long is this visit to the river? If overnight, how many nights?

TABLE# 13B

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
20	20 nights	0		.6		.7		.3			.7			
30	30 nights	0		1.2			1.2	.3						
# non-responses		102	15	8	13	14	4	14	5	5	6	3	8	2

VARIABLE NAME: Location of overnight sky **TABLE#** 14

QUESTION AS APPEARED: How long is this visit to the river? If overnight, where are you staying?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Cottage	4.0	6.8	1.6	3.5	2.5		.5	1.1	15.3	4.4	2.3		20.0
2	On boat	27.9	29.7	50.8	20.8	35.6	54.3	28.9	41.8	15.3	17.6	12.6	17.6	20.0
3	On wooded island	46.5	41.5	26.2	54.3	42.9	22.9	49.2	42.9	25.0	60.3	63.2	68.6	46.7
4	Public campground	13.1	14.4	6.6	13.3	8.6	11.4	13.7	7.7	33.3	11.8	17.2	2.0	6.7
5	Private campground	3.3	4.2	3.3	2.9	.6	5.7	4.6	3.3	6.9	4.4		3.9	4.4
6	Motel-hotel	1.3	1.7	4.9	1.2	.6	2.9	.5	2.2	1.4		1.1	3.9	
7	Boat on island	3.9	1.7	6.6	4.0	9.2	2.9	2.5	1.1	2.8	1.5	3.4	3.9	2.2
# Non-responses		1,187	132	114	111	138	54	120	91	69	86	87	103	61

TABLE# 15

VARIABLE NAME: Days when I visit the river
QUESTION AS APPEARED: I use the Mississippi on:

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Weekends	24.6	13.3	17.0	31.9	24.1	35.6	24.7	23.2	37.2	20.4	25.3	25.7	27.6
2	Weekdays	2.1	5.8	2.3	2.6	2.0	1.1	1.6	1.7	.7	2.6	1.8	.7	
3	Both	73.3	80.9	80.7	65.6	73.9	63.2	73.7	75.1	62.0	77.0	72.9	73.7	72.4
# Non-responses		55	9	4	11	2	2	5	5	4	2	4	2	1

TABLE# 16

VARIABLE NAME: Preferred days to visit the river
QUESTION AS APPEARED: If both weekends and weekdays, which do you enjoy most?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Weekends	26.7	17.1	22.1	18.4	27.2	29.3	29.0	33.3	30.3	24.6	38.2	34.7	28.0
2	Weekdays	39.0	50.5	49.7	54.7	30.5	43.1	35.3	31.3	34.9	43.1	22.1	31.5	32.9
3	No difference	34.3	32.4	28.3	26.9	42.4	27.6	35.7	35.4	34.9	32.3	39.7	33.9	39.0
# Non-responses		499	40	30	83	58	31	62	35	32	24	38	30	24

VARIABLE NAME: Watercraft ownership **TABLE#** 17
QUESTION AS APPEARED: I___own____rent____am a guest of the boat I am using this trip.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Own	66.2	55.6	68.3	70.2	67.2	57.0	74.7	67.0	64.9	66.4	67.5	60.7	66.3
2	Rent	2.5	7.5	5.4	6.5	1.5		1.3		2.2	1.3			
3	Guest	31.2	36.9	26.3	23.3	31.3	43.0	23.9	33.0	32.8	32.2	32.5	39.3	33.7
# Non-responses		146	36	8	9	33	3	20	6	7	5	8	4	5

VARIABLE NAME: Docking location of craft **TABLE#** 18
QUESTION AS APPEARED: Where do you dock your boat?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Marina	24.9	29.5	47.6	26.4	24.5	15.9	27.2	26.0	7.9	30.8	5.5	19.0	24.2
2	Thailand	46.6	33.6	33.3	48.7	44.9	59.8	52.8	43.4	54.0	42.0	54.5	57.1	42.1
3	Private dock	9.0	9.5	7.1	9.8	12.5	6.1	7.2	5.2	9.5	9.1	11.5	5.4	16.8
4	Not owner	14.6	17.7	10.7	12.8	14.7	17.1	10.3	17.9	17.5	15.4	13.9	15.6	15.8
5	Other	4.9	9.5	1.2	2.3	3.4	1.2	2.4	7.5	11.1	2.8	14.5	2.7	1.1
# Non-responses		192	30	7	19	36	7	27	9	15	11	9	7	11

VARIABLE NAME: Service at access

TABLE# 19

QUESTION AS APPEARED: Which of the following services do you consider important in the immediate vicinity of the river access?

Service rated as important	ADJUSTED FREQUENCIES of those rating these services as important												
	TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
Bait shop	15.5	19.3	18.9	18.5	13.5	9.2	12.8	20.8	19.1	14.7	8.4	11.5	17.2
Lodging	10.0	12.2	15.4	12.2	7.6	10.3	8.1	5.8	9.6	6.7	7.8	12.2	17.2
Drug store	5.9	10.9	5.3	9.2	8.0	4.6	3.7	3.5	5.9	2.7	3.0	2.0	6.1
Restaurant	24.9	22.7	23.7	21.8	31.3	27.6	27.2	19.1	30.9	16.0	20.4	32.4	23.2
Developed campground	35.0	31.5	39.1	30.6	30.6	56.3	34.8	29.5	43.4	37.3	34.1	29.1	43.4
Grocery store	36.0	37.8	33.1	47.2	43.0	27.6	34.7	38.2	33.8	38.0	23.4	21.6	31.3
Boat pumpout	14.0	15.1	16.6	12.9	19.2	17.2	16.4	14.5	7.4	10.7	10.2	7.4	14.1
Gasoline/Boat service	69.3	61.8	68.0	71.6	66.3	67.8	71.1	72.3	72.1	70.0	74.3	75.0	63.6

VARIABLE NAME: Influence choice of launching place TABLE# 20

QUESTION AS APPEARED: Did any of the following influence your choice of launching "put in" place?

Factors rated as influencing choice	ADJUSTED FREQUENCIES of those rating these factors as important in influencing choice												
	TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
Close by residence	35.4	30.2	35.1	26.2	39.8	49.4	29.3	36.7	31.8	39.6	50.3	31.6	46.3
Less crowded	21.3	24.5	27.0	21.0	23.9	15.4	17.5	17.5	14.0	31.3	15.3	25.0	24.2
Adequate water depth	25.2	18.4	19.6	32.8	26.1	31.2	29.7	24.7	20.2	22.9	24.5	25.7	21.1
Near section of the river I plan to visit	23.3	25.9	29.1	33.5	12.9	14.1	22.0	22.3	20.9	18.8	27.6	26.5	22.1
Availability of facilities and services	14.1	8.0	14.9	26.2	13.6	11.5	13.4	13.9	10.9	13.9	8.6	13.2	12.6
Near favorite island (sand bar)	29.9	23.6	31.1	28.5	30.3	38.5	24.9	38.6	28.7	26.4	42.9	33.1	16.8
Easy access	37.1	28.8	36.5	44.9	35.7	35.9	38.8	37.3	37.2	34.0	35.0	37.5	40.0
Price	7.3	5.7	10.8	12.9	9.8	6.4	7.5	5.4	3.1	6.9	6.1	4.4	1.1
To avoid locks	12.7	17.0	13.5	8.0	15.2	17.9	17.8	9.6	7.0	7.6	18.4	7.4	9.5
To go through locks	.9			1.1	.8		2.2		2.3	1.4	.6	.7	1.1

VARIABLE NAME: Number of island stops made

QUESTION AS APPEARED: Have you stopped on other islands or beaches during this outing?

If yes, how many?

TABLE# 21

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	0 island stops made	71.6	74.4	69.2	69.1	68.8	78.3	70.1	74.1	58.7	74.8	82.8	77.8	68.5
1	1 island stop made	8.8	6.7	9.0	7.6	9.8	8.4	9.6	10.6	12.4	7.3	5.3	8.9	10.9
2	2 island stops made	10.2	7.7	6.4	9.6	10.2	7.2	12.5	11.8	14.0	11.4	7.3	9.6	15.2
3	3 island stops made	5.4	6.3	5.8	5.6	8.2	2.4	5.5	2.4	10.7	4.9	2.6	3.0	3.3
4	4 island stops made	2.0	3.4	2.6	4.4	1.6	3.6	.7	1.2	.8	1.6	1.3		1.1
5	5 island stops made	.7		1.3	2.0	.4		.4		2.5			.7	1.1
6	6 island stops made	.3	1.4	2.6										
7	7 island stops made	.1		.6				.4						
8	8 island stops made	.2	.5	.6						.8				
9	9 island stops made													
10	10 island stops made	.4		1.3	1.6	.8						.7		
11	11 island stops made	.0						.4						
12	12 island stops made													
13	13 island stops made													
14	14 island stops made	.0				.4								
20	20 island stops made	.1		.6				.4						
# Non-responses		318	42	19	35	45	6	46	12	20	31	23	19	14

VARIABLE NAME: Natural appearance of beach

QUESTION AS APPEARED: This beach is___natural___dredged___don't know.

TABLE# 22

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Natural	44.3	49.8	53.5	42.7	43.5	62.5	42.5	46.4	33.3	45.7	36.3	34.2	51.0
2	Dredged	32.4	24.3	22.9	35.4	30.1	11.4	31.9	33.0	39.1	35.8	47.6	39.7	34.6
3	No opinion	22.5	25.5	23.5	20.4	25.7	21.6	25.2	20.7	26.1	18.5	16.1	23.3	13.5
4	Natural dredged	.8	.4		1.5	.7	4.5	.3		1.4			2.7	1.0
# Non-responses		76	7	5	10	9	1	16	3	3	3	6	8	2

VARIABLE NAME: Number of hours spent on beach

QUESTION AS APPEARED: How long are you staying on this beach during this visit?

TABLE# 23

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Less than 1 hour	2.6	2.1	4.1	2.2	2.4	2.3	1.3	2.8	2.9	3.3	.6	4.8	5.7
2	1 - 3 hours	21.2	16.2	19.3	14.9	12.0	26.1	22.1	28.7	36.4	25.8	19.4	21.1	34.0
3	3 - 6 hours	34.8	36.4	40.9	29.1	37.5	22.7	28.2	38.8	38.6	30.5	39.4	48.3	29.2
4	6 - 10 hours	15.1	20.2	24.6	13.8	12.0	23.9	9.3	6.2	14.3	18.5	21.8	12.9	14.2
5	10 - 18 hours	2.3	1.2	2.3	2.6	2.1	5.7	2.6	3.4	2.9	.7	1.2	2.0	2.8
6	Overnight	24.0	24.0	8.8	37.3	34.0	19.3	36.5	20.2	5.0	21.2	17.6	10.9	14.2
# Non-responses		66	8	4	16	10	1	5	4	1	3	4	7	0

VARIABLE NAME: I prefer beach to be left natural

QUESTION AS APPEARED: This beach should be left essentially as it is in its present state____yes____no.

TABLE# 24

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	No	34.2	18.4	42.3	19.4	39.2	72.4	46.4	26.6	26.9	39.3	29.1	39.3	37.9
1	Yes	65.8	81.6	57.7	80.6	60.8	27.6	53.6	73.4	73.1	60.7	70.9	60.7	62.1
# Non-responses		156	6	7	6	38	13	37	9	7	9	9	9	3

VARIABLE NAME: I prefer beach to be developed

QUESTION AS APPEARED: This beach should have more developed facilities for recreational use yes no.

TABLE# 25

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	No	45.2	52.3	33.8	59.8	48.8	86.1	48.3	50.6	33.9	46.3	40.1	34.1	44.9
1	Yes	54.8	47.7	66.2	40.2	51.2	13.9	51.7	49.4	66.1	53.7	59.9	65.9	55.1
# Non-responses		357	34	24	40	49	17	52	22	23	18	32	25	17

VARIABLE NAME: If developed, which facilities

TABLE# 26

QUESTION AS APPEARED: This beach should have more developed facilities for recreational use.

If yes, check those that apply:

CODE#	CATEGORY LABEL Requested facilities	ADJUSTED FREQUENCIES TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
	Campsites	8.9	5.7	11.6	4.6	11.7	17.0	8.5	6.1	5.0	7.2	7.1	10.7	17.3
	Fireplaces	10.2	8.9	9.3	4.3	11.4	23.4	11.4	5.5	7.9	13.2	9.5	11.4	14.4
	Litter disposal	46.7	35.4	56.4	30.6	46.3	67.0	53.0	39.7	49.6	52.6	51.5	55.0	42.3
	Toilets	33.9	26.9	28.5	26.7	38.6	47.7	34.7	29.8	44.6	23.7	42.0	47.0	26.0
	Tables	22.0	13.4	30.8	12.1	23.8	55.7	22.7	23.9	23.7	21.1	21.9	17.4	21.2
	Firewood supplied	13.5	9.4	12.8	7.5	18.1	25.0	14.2	10.0	11.5	13.2	8.9	20.8	15.4

VARIABLE NAME: Use of locks

TABLE# 27

QUESTION AS APPEARED: Do you usually go through a lockage during visits to the river?

____yes____no

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	No	84.3	81.1	87.3	81.2	79.6	79.0	75.3	89.7	83.3	90.5	90.9	96.6	94.1
1	Yes	15.7	18.9	12.7	18.8	20.4	21.0	24.7	10.3	16.7	9.5	9.1	3.4	5.9
# Non-responses		143	23	10	13	17	8	22	8	9	7	10	5	5

VARIABLE NAME: Extent of crowding perceived

TABLE# 28

QUESTION AS APPEARED: Did you feel the river was crowded during this trip (circle one number)

Not at all		Slightly crowded		Moderately crowded		Extremely crowded	
1	2	3	4	5	6	7	8

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Not crowded	50.8	60.7	51.8	54.1	45.3	39.3	32.1	67.8	55.1	52.7	56.7	47.1	65.0
2	Slightly crowded	24.3	26.4	25.9	23.8	28.2	32.6	26.0	24.4	21.3	14.7	21.6	25.5	14.6
3	Moderately crowded	18.5	10.3	15.3	17.8	19.5	22.5	31.4	6.1	19.9	20.7	19.3	19.6	5.8
4	Extremely crowded	6.4	2.5	7.1	4.3	7.0	5.6	10.6	1.7	3.7	12.0	2.3	7.8	14.6
# Non-responses		43	8	5	3	3	0	5	2	5	4	3	1	3

AD-A089 159 WISCONSIN UNIV-MADISON F/G 8/11
UPPER MISSISSIPPI II DREDGED MATERIAL DISPOSAL SITE RECREATIONA--ETC(U)
FEB 80 R H BECKER, W A GATES, B J NIEMANN DACW25-79-C-0008

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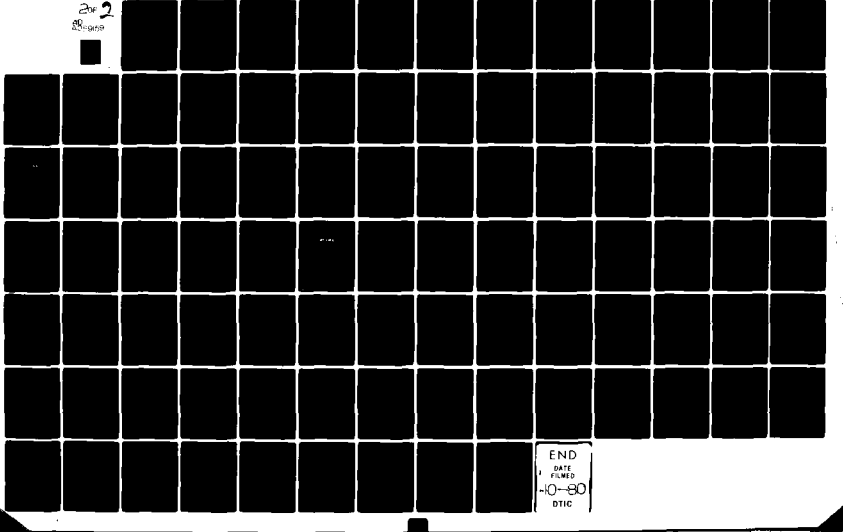
2 OF 2
AD-A089



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VARIABLE NAME: Island type preferred

TABLE# 29

QUESTION AS APPEARED: Which of the following islands would you prefer to visit:

____Islands heavily vegetated but with no open areas

____Islands moderately vegetated with some open areas

____Islands which are all sand

____Islands which are mostly sand with some trees

____Islands with equal amounts of sand and trees

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Heavily vegetated	.8	2.4	.6	.7	1.0		1.3	.6		.7	.6		
2	Moderately vegetated	13.2	13.1	7.6	14.3	12.1	12.4	15.7	17.5	10.8	18.4	10.1	11.3	11.5
3	Equal vegetation/sand	33.0	32.2	22.4	39.3	32.9	38.2	38.1	35.0	36.0	28.9	26.0	28.0	25.0
4	Mostly sand	48.1	46.1	61.2	41.8	50.5	48.3	40.1	41.2	50.4	45.4	60.4	54.7	57.7
5	All sand	4.9	6.1	8.2	3.9	3.5	1.1	4.8	5.6	2.9	6.6	3.0	6.0	5.8
# Non-responses		51	5	5	4	12	0	5	5	2	2	5	4	2

VARIABLE NAME: Preferred outdoor recreation experience **TABLE#** 30

QUESTION AS APPEARED: From the descriptions "a" through "e" below, which one best describes the outdoor recreation experience you most prefer? (Check only one.)

a. I enjoy visiting river areas that offer a full range of facilities and planned activities with others. It is important that the areas be controlled and free from any hazards.

b. I enjoy rivers where few outdoor skills are required and where activities are planned and supervised. I like to meet other people and enjoy activities with others. A feeling of being alone is not important to me.

c. I enjoy areas that allow me to be close to nature. A feeling of adventure with minimum outdoor skills in a controlled area is important. While I like the feeling of being alone, I also enjoy meeting other individuals with interest similar to mine.

d. I enjoy visitng natural river areas where few outdoor skills are required and I can relax. I prefer no supervision or control of any activities.

e. I enjoy exploring areas that are difficult to reach and require physical effort and skill. A feeling of being a part of nature is important to me. I like to experience the feeling that few person have been on the river.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Planned--control	8.4	9.2	8.9	4.0	9.5	9.4	8.4	7.4	12.9	4.1	7.6	8.0	14.0
2	Supervise--people	7.0	5.0	10.1	5.1	7.5	7.1	7.8	6.8	9.4	2.0	7.6	10.0	7.0
3	Control--natural	32.4	39.3	29.0	30.5	34.9	36.5	36.4	28.4	35.3	29.7	25.7	30.7	25.0
4	No control	45.5	38.1	49.1	52.0	41.0	38.8	40.3	49.4	34.5	57.4	56.1	46.0	51.0
5	Natural--skill	6.7	8.4	3.0	8.4	7.1	8.2	7.1	8.0	7.9	6.8	2.9	5.3	3.0
# Non-responses		73	11	6	9	6	4	9	6	2	6	3	4	6

VARIABLE NAME: Total cost index **TABLE#** 31

QUESTION AS APPEARED: Considering all your expenses (i.e. travel, food, fees, purchases, needed equipment, etc.) about how much is this entire trip costing your family or group?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	No money spent	12.9	14.8	13.1	9.9	15.0	20.2	12.6	12.6	9.2	13.0	11.5	13.6	10.4
1	$1 to $10	22.4	27.2	29.7	18.0	27.2	16.9	12.9	18.1	22.7	28.6	24.1	26.0	22.6
2	$11 to $20	24.4	20.4	29.7	18.7	19.3	22.5	27.4	27.5	17.0	19.5	22.4	39.0	40.6
3	$21 to $50	24.6	15.2	17.1	29.2	24.6	30.3	30.3	26.4	39.0	20.1	25.3	16.9	21.7
4	$51 to $100	9.5	13.2	4.0	14.1	10.3	7.9	9.5	11.0	3.5	14.9	12.1	3.9	2.8
5	$101 to $200	3.4	4.8	1.7	6.0	2.0	2.2	4.7	1.6	5.7	2.6	1.1	.6	1.9
6	$201 to $400	1.6	3.2	.6	1.8	1.3		2.2		2.1	1.3	3.4		
7	$401 to $800	.8	1.2	3.4	1.8			.3	.5	.7				
8	More than $800.	.3		.6	.7	.3			2.2					
# Non-responses		0	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE NAME: River cost index **TABLE#** 32

QUESTION AS APPEARED: What portion of your total cost was spent on or along the river?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	No money spent	50.4	52.8	45.7	42.3	49.8	60.7	49.2	55.5	36.9	46.1	52.3	65.6	58.5
1	$1 to $10	25.8	25.2	33.1	26.4	29.6	29.2	21.1	21.4	24.0	27.9	25.9	24.7	24.5
2	$11 to $20	10.3	5.6	8.6	10.9	9.6	4.5	14.5	10.4	20.6	12.3	9.2	5.2	11.3
3	$21 to $50	8.2	5.6	5.7	11.6	7.6	2.2	11.0	11.0	12.8	6.5	9.8	3.9	3.8
4	$51 to $100	2.7	3.6	2.3	5.3	1.7	3.4	1.6	.5	3.5	7.1	1.7	.6	.9
5	$101 to $200	1.6	5.6		.7	.3		2.2	1.1	1.4		.6		.9
6	$201 to $400	.5	.8	.6	1.4	.7		.3				.6		
7	$401 to $800	.5	.8	2.9	1.4	.3								
8	More than $800	.1		1.1		.3								
# Non-responses		0	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE NAME: Home to river cost index **TABLE#** 33
QUESTION AS APPEARED: What portion of your total cost was spent: Travel from hometown to river?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	No money spent	59.7	56.8	58.9	50.0	58.5	66.3	60.3	63.2	55.3	65.6	61.5	69.5	64.2
1	$1 to $10	31.1	34.0	33.1	30.3	35.9	28.1	30.0	26.9	36.9	31.2	28.7	26.6	30.2
2	$11 to $20	5.5	4.8	5.1	11.6	4.0	2.2	4.4	7.1	6.4	1.3	7.5	2.6	4.7
3	$21 to $50	2.8	2.8	1.7	7.4	1.3	1.1	4.4	2.7	1.4	1.3	1.7	1.3	.9
4	$51 to $100	.8	1.6	1.1	.7	.3	2.2	.9			.6	.6		
# Non-responses		0	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE NAME: Home preparation cost index

TABLE# 34

QUESTION AS APPEARED: What portion of your total cost was spent: Purchases at home prior to leaving for the river?

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
0	No money spent	38.1	40.0	43.4	33.8	40.9	38.2	57.5	37.9	43.3	38.3	33.3	36.4	31.1
1	$1 to $10	29.5	32.8	37.1	26.8	26.6	24.7	23.0	28.6	31.2	29.2	31.6	36.4	35.8
2	$11 to $20	14.4	11.6	12.0	15.5	13.3	14.6	17.4	14.3	10.6	14.9	14.9	16.9	18.9
3	$21 to $50	12.1	10.0	5.7	15.5	12.6	18.0	16.4	14.3	8.5	6.5	12.6	7.8	11.3
4	$51 to $100	4.8	4.8	1.7	7.4	5.6	4.5	3.5	3.8	5.0	9.7	4.6	1.9	1.9
5	$101 to $200	1.0	.8		1.1	.7		2.2		1.4	1.3	1.7	.6	.9
6	$201 to $400	.1				.3						1.1		
7	$401 to $800													
8	More than $800	.1							1.1					
# Non-responses		0	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE NAME: Preferred degree of socializing **TABLE#** 35

QUESTION AS APPEARED: When I visit the river for recreation, I usually prefer (check only one):

____ to be alone

____ to spend time only with others in my group

____ to meet other individuals

____ to meet and spend time with other individuals

____ to meet and spend time with many individuals and groups

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Alone	3.5	5.4	2.4	6.2	3.0	3.4	2.9	3.4	4.3	4.6	1.2	2.0	2.9
2	In group	43.2	41.3	36.4	48.9	41.6	43.8	42.1	46.4	38.8	55.0	40.9	35.6	44.2
3	New people	20.0	23.6	16.1	18.6	19.6	32.6	22.0	20.7	18.7	17.2	21.1	16.1	16.3
4	Join people	17.2	15.7	20.8	14.6	18.9	9.0	16.5	20.7	17.3	14.6	20.5	19.5	15.4
5	Join many	16.1	14.0	24.4	11.7	16.9	11.2	16.5	8.9	20.9	7.9	16.4	26.8	21.2
# Non-responses		56	8	7	10	5	0	8	3	2	3	3	5	2

Tables 36 through 45 reflect the users' opinion to certain management options. The question posed was as follows:

The following statements reflect possible recreational practices, management options, or preferences. Please read each statement carefully and check each answer according to your interest or preference.

I would use nature interpretive areas if developed on the river.

Strongly disagree	Disagree	Don't Care	Agree	Strongly Agree

Residential developments on the shoreline reduces my enjoyment of the river.

Strongly disagree	Disagree	Don't Care	Agree	Strongly Agree

I enjoy going through lock when I boat on the Mississippi River.

Strongly disagree	Disagree	Don't Care	Agree	Strongly Agree

Barge tow traffic reduces my enjoyment of the river.

Strongly disagree	Disagree	Don't Care	Agree	Strongly Agree

Commercial traffic along the Mississippi River is more important to me than recreational river use.

Strongly disagree	Disagree	Don't Care	Agree	Strongly Agree

Sanitation facilities should be provided on islands.

Strongly Disagree	Disagree	Don't Care	Agree	Strongly Agree

Commercial and industrial development reduces my enjoyment of the river.

Strongly Disagree	Disagree	Don't Care	Agree	Strongly Agree

Dredged material (sand) from channel maintenance work should not be placed along the river or on islands.

Strongly Disagree	Disagree	Don't Care	Agree	Strongly Agree

Boat docks on shoreline reduce my enjoyment of the river.

Strongly Disagree	Disagree	Don't Care	Agree	Strongly Agree

There should be more developed boat access ramps at each pool.

Strongly Disagree	Disagree	Don't Care	Agree	Strongly Agree

VARIABLE NAME: Management option, nature areas

TABLE# 36

QUESTION AS APPEARED: I would use nature interpretive areas if developed along the river.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	5.8	3.8	5.6	5.6	5.5	1.1	8.0	7.3	7.5	6.3	6.1	4.8	7.0
2	Disagree	6.9	8.1	4.4	11.3	6.2	3.4	5.	7.9	6.0	7.7	5.5	4.8	7.0
3	No opinion	28.1	23.7	25.6	32.7	29.8	19.5	29.2	32.6	31.6	27.3	23.6	30.6	25.0
4	Agree	45.8	51.3	47.5	39.5	45.2	62.1	43.2	39.9	45.1	49.0	49.7	43.5	46.0
5	Strongly agree	13.4	13.1	16.9	10.9	13.4	13.8	14.0	12.4	9.8	9.8	15.2	16.3	15.0
# Non-responses		121	14	15	18	9	2	16	4	8	11	9	7	6

VARIABLE NAME: Management option, reduce residential development

TABLE# 37

QUESTION AS APPEARED: Residential development along the shoreline reduces my enjoyment of the river.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	6.4	2.5	9.6	4.0	4.1	3.4	4.5	6.6	11.6	6.2	9.6	12.0	12.7
2	Disagree	19.4	14.9	14.5	15.0	15.9	28.7	21.2	22.1	18.1	29.5	18.1	22.7	23.5
3	No opinion	27.8	25.6	27.7	24.1	33.6	28.7	30.4	29.8	33.3	20.5	26.5	23.3	24.5
4	Agree	30.1	36.4	36.7	34.3	30.5	25.3	27.9	27.1	26.1	26.0	29.5	30.3	24.5
5	Strongly agree	16.4	20.7	11.4	22.6	15.9	13.8	16.0	14.4	10.9	17.8	16.3	12.0	14.7
# Non-responses		68	8	9	10	6	2	5	1	3	8	8	4	4

VARIABLE NAME: Management option, pool access ramps

TABLE# 38

QUESTION AS APPEARED: There should be more developed boat access ramps at each pool.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	3.0	6.8	3.6	2.9	2.7		2.0	2.2	2.2	3.5	3.5	2.0	3.9
2	Disagree	10.8	17.0	7.2	17.5	12.1	3.4	8.8	11.1	8.1	11.1	8.2	4.7	7.8
3	No opinion	19.9	28.9	16.2	21.2	23.9	19.5	19.9	20.6	12.6	18.8	19.9	12.8	10.7
4	Agree	43.4	32.8	52.1	45.6	41.1	48.3	44.6	42.2	45.2	38.2	40.9	52.0	45.6
5	Strongly agree	22.8	14.5	21.0	12.8	20.2	28.7	24.8	23.9	31.9	28.5	27.5	28.4	32.0
# Non-responses		80	15	8	10	4	2	10	2	6	10	3	6	3

VARIABLE NAME: Management option, enjoy locks

TABLE# 39

QUESTION AS APPEARED: I enjoy going through locks when I boat on the Mississippi River.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	12.4	13.7	16.2	8.6	9.7	2.3	11.2	13.1	10.5	10.4	15.6	16.3	25.8
2	Disagree	24.6	22.8	26.3	18.8	29.9	27.9	22.4	21.0	18.0	24.3	26.9	32.7	33.0
3	No opinion	36.2	41.9	32.3	35.7	35.4	43.0	37.6	33.0	39.8	38.9	36.5	32.7	23.7
4	Agree	21.9	17.0	22.2	30.8	20.1	17.4	23.4	27.8	26.3	22.9	16.8	14.3	15.5
5	Strongly agree	4.9	4.6	3.0	6.0	4.9	9.3	5.3	5.1	5.3	3.5	4.2	4.1	2.1
# Non-responses		112	9	8	18	13	3	14	6	8	10	7	7	9

TABLE# 40

VARIABLE NAME: Management option, limit barges

QUESTION AS APPEARED: Barge tow traffic reduces my enjoyment of the river

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	7.1	7.4	8.3	5.9	5.4	4.6	7.5	10.7	7.2	7.5	6.4	7.4	5.9
2	Disagree	22.3	21.9	15.5	30.4	23.6	24.1	24.4	21.9	15.9	34.0	18.1	18.1	10.8
3	No opinion	36.0	38.8	36.3	37.0	36.0	43.7	37.3	30.3	38.4	29.3	36.3	36.9	27.5
4	Agree	23.3	20.2	22.6	18.3	24.9	20.7	20.8	27.0	24.6	21.8	29.2	24.8	33.3
5	Strongly agree	11.2	11.6	17.3	8.4	10.1	6.9	10.1	10.1	13.0	7.5	9.9	12.8	22.5
# Non-responses		67	8	7	11	4	2	9	4	3	7	3	5	4

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VARIABLE NAME: Management option, limit commercial traffic

TABLE# 41

QUESTION AS APPEARED: Commercial traffic along the Mississippi is more important to me than recreational river use.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	20.5	17.6	22.9	20.7	18.8	20.7	21.2	17.6	23.5	27.9	18.9	15.1	21.2
2	Disagree	44.1	44.8	42.2	45.1	46.9	43.7	45.3	39.8	36.0	45.6	41.4	47.3	47.1
3	No opinion	25.2	24.8	22.9	26.2	26.0	29.9	23.8	29.0	27.2	19.7	23.1	28.1	21.2
4	Agree	8.5	7.6	9.6	6.9	7.2	4.6	8.4	11.9	11.0	6.8	14.2	8.2	5.8
5	Strongly agree	1.6	2.4	2.4	1.1	1.0	1.1	1.3	1.7	2.2		2.4	1.4	4.8
# Non-responses		75	7	9	9	9	2	6	6	5	7	5	8	2

TABLE# 42

VARIABLE NAME: Management option, sanitation facilities
QUESTION AS APPEARED: Sanitation facilities should be provided on islands.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	5.2	7.8	2.4	6.2	4.4	2.3	4.5	7.8	3.7	6.8	2.4	6.0	5.8
2	Disagree	13.8	20.5	10.3	21.1	12.2	6.8	11.7	17.3	6.6	12.9	10.1	9.3	19.2
3	No opinion	18.5	17.6	24.2	18.5	16.2	17.0	18.8	20.7	16.2	21.1	14.3	16.7	24.0
4	Agree	39.1	33.2	46.7	34.9	42.2	33.0	42.1	34.6	45.6	44.2	41.7	38.7	31.7
5	Strongly agree	23.4	20.9	16.4	19.3	25.0	40.9	23.0	19.6	27.9	15.0	31.5	29.3	19.2
# Non-responses		66	6	10	9	5	1	8	3	5	7	6	4	2

VARIABLE NAME: Management option, reduce commmercial development
QUESTION AS APPEARED: Commercial and industrial development reduces my enjoyment of the river.

TABLE# 43

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	2.8	1.2	2.4	1.1	2.4	1.1	3.5	5.6	2.2	4.1	1.2	4.7	5.9
2	Disagree	13.9	8.4	11.5	12.1	11.5	17.0	14.8	18.0	16.9	17.0	13.0	18.0	15.8
3	No opinion	21.1	20.8	24.8	13.6	16.9	23.9	22.9	24.7	28.7	17.7	24.3	23.3	16.8
4	Agree	40.6	40.0	40.0	50.5	46.1	39.8	38.1	34.3	30.9	42.9	39.1	34.0	42.6
5	Strongly agree	21.6	27.2	21.2	22.7	23.1	18.2	20.6	17.4	21.3	18.4	22.5	20.0	18.8
# Non-responses		72	6	10	11	6	1	7	4	5	7	5	4	5

TABLE# 44

VARIABLE NAME: Management option, use of dredge material
QUESTION AS APPEARED: Dredged material (sand) from channel maintenance work should not be placed along the river or on the islands.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	25.1	21.8	25.7	24.8	23.6	21.8	27.0	26.0	21.2	27.7	27.5	21.3	34.0
2	Disagree	28.7	25.5	26.9	33.9	31.4	28.7	26.7	23.7	29.9	29.1	26.9	28.0	28.2
3	No opinion	19.0	21.8	16.8	16.1	18.2	12.6	16.1	26.6	22.6	22.3	21.1	23.3	13.6
4	Agree	17.4	18.9	18.0	16.4	19.3	26.4	18.3	15.3	17.5	14.2	14.6	16.0	16.5
5	Strongly agree	9.7	11.9	12.6	8.8	7.4	10.3	11.9	8.5	8.8	6.8	9.9	11.3	7.8
# Non-responses		64	7	8	10	5	2	6	5	4	6	3	4	3

VARIABLE NAME: Management option, reduce the number of boat docks
QUESTION AS APPEARED: Boat docks on the shoreline reduce my enjoyment of the river.

TABLE# 45

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Strongly disagree	16.2	9.8	10.2	10.1	17.2	20.2	21.2	16.2	13.9	16.2	21.6	19.2	24.8
2	Disagree	43.8	34.0	41.9	42.8	43.4	43.8	41.8	43.6	55.5	54.7	47.4	39.1	41.9
3	No opinion	29.9	38.9	32.9	30.1	32.3	28.1	28.6	33.5	25.5	22.3	21.1	35.8	26.7
4	Agree	7.9	11.9	12.6	13.4	4.7	7.9	6.8	6.7	3.6	4.1	8.2	4.6	5.7
5	Strongly agree	2.2	5.3	2.4	3.6	2.4		1.6		1.5	2.7	1.8	1.3	1.0
# Non-responses		53	6	8	8	4	0	6	3	4	6	3	3	1

VARIABLE NAME: Preferred overnight accommodation

QUESTION AS APPEARED: What type of camping areas do you most prefer?

TABLE# 46

a. Very primitive islands with no facilities.

b. Developed island campsites not in view of each other, but with water, toilet, and trash facilities.

c. Developed island campsites in view of each other with boat tie-ups plus water, toilet, trash, and shower facilities.

d. Shore sites equipped with complete facilities and electricity for tents and trailers.

e. Shore sites with limited facilities.

f. Cabins and cottages.

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Primitive islands	36.9	47.1	31.1	47.2	35.6	16.5	38.6	40.9	22.5	45.0	31.8	28.0	30.8
2	Developed islands --far	26.1	20.8	21.3	23.2	26.0	40.0	27.8	26.3	32.6	22.8	28.8	25.3	30.8
3	Developed islands --near	13.3	13.3	15.9	10.7	8.3	23.5	13.9	12.9	15.5	8.7	16.5	18.7	9.6
4	Shore -- all facilities	4.4	4.6	9.1	4.8	4.8		2.4	4.1	12.4	1.3	2.9	5.3	
5	Shore -- less facilities	15.3	7.1	15.2	12.2	21.1	18.8	15.6	15.2	12.4	18.8	17.6	16.0	17.3
6	Cabins -- Cottages	4.0	7.1	7.3	1.8	4.2	1.2	1.7	.6	4.7	3.4	2.4	6.7	11.5
# Non-responses		112	10	11	13	12	4	22	11	12	5	4	4	2

VARIABLE NAME: Total number of people in the party

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

TABLE# 47

PAGE # A

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	1 person in party	1	.8		1.4	.3		1.0			1.3	1.2	.7	
2	2 people in party	7	4.8	2.3	7.1	12.7	5.8	6.1	8.5	7.4	4.6	6.4	8.5	7.6
3	3 people in party	7	11.2	7.0	8.9	6.4	10.5	8.7	2.8	5.0	3.9	3.5	9.9	9.5
4	4 people in party	17	17.6	9.4	13.1	15.4	18.6	15.1	18.8	21.5	15.8	16.9	31.0	8.6
5	5 people in party	13	18.0	18.7	14.2	6.4	16.3	9.3	10.2	11.6	21.1	10.5	16.2	4.8
6	6 people in party	13	14.8	11.1	8.2	14.0	10.5	10.6	4.5	15.7	11.8	23.8	12.7	13.3
7	7 people in party	8	6.4	2.3	8.9	11.4	4.7	3.2	22.2	1.7	8.6	7.0	4.2	23.8
8	8 people in party	6	8.4	1.8	5.7	7.7		5.1	11.4	18.2	6.6	8.1	3.5	
9	9 people in party	4	6.4	2.3	3.2	4.3	2.3	4.5			4.6	4.7	3.5	5.7
10	10 people in party	5	2.8	1.8	7.1	4.7	17.4	5.1	5.4	5.8		8.7	6.3	6.7
11	11 people in party	5	2.0	9.4	9.9	6.0		11.6	6.8		1.3	1.7	3.5	
12	12 people in party	3	.8	4.1	1.8	2.3	14.0	5.5	2.3		7.9			
13	13 people in party	2		7.6	5.7	3.0			3.4					
14	14 people in party	1		7.0	1.4							4.7		8.6
15	15 people in party	0		5.8										
16	16 people in party	1							3.4	3.0		2.9		
17	17 people in party	2						9.3			5.9			

VARIABLE NAME: Total number of people in party

QUESTION AS APPEARED: Information recorded on observation sheet by survey participants

TABLE# 47

PAGE # B

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
18	18 people in party	1	1.6	.6		2.3				5.0	6.6			
20	20 people in party	2	4.4	8.8										11.4
21	21 people in party	0			3.5			.3						
22	22 people in party	0						.6						
23	23 people in party	0				3.0								
24	24 people in party	1						3.9						
29	29 people in party	0								3.3				
Average number of people in party		7.000	6.392	9.152	7.202	6.943	6.570	8.305	6.830	7.471	7.441	6.610	5.197	8.152
#	Non-responses	60	0	4	2	2	3	6	6	20	2	2	12	1

TABLE# 48

VARIABLE NAME: Main recreation activity

QUESTION AS APPEARED: Please check your main activities during your visit to the river today and mark the most important with a number "1".

PAGE # A

Those activities rated as most important	ADJUSTED FREQUENCIES												
	TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
Sailing	0	1.2	.6		1.0	1.1		.6			.6		
Camping	5	5.7	1.8	8.8	6.8	3.4	5.6	5.1	3.0	10.1	4.7	2.0	1.9
Boating	25	17.4	23.1	23.1	23.5	21.8	33.1	30.3	32.3	19.6	24.7	27.0	25.5
Fishing	4	6.5	3.6	7.0	2.7	1.1	3.6	6.3	4.5	6.1	2.9	3.3	3.8
Waterskiing	17	15.4	16.0	16.1	7.5	20.7	14.6	16.0	12.8	21.6	31.8	19.7	21.7
Sunbathing	16	19.4	20.7	14.7	22.5	14.9	15.9	11.4	15.8	8.8	9.4	17.8	17.9
Canoeing	1	2.8	.6	1.8	.3	1.1							
Picnicking	7	6.5	7.7	5.1	5.8	8.0	5.3	11.4	3.8	9.5	7.1	6.6	3.8
Sightseeing	2	3.2	1.2	2.9	2.4	1.1	.3	2.9	2.3	.7	1.8		.9
Shopping	0			.4	.3								

VARIABLE NAME: Main recreation activity

QUESTION AS APPEARED: Please check your main activities during your visit to the river today and mark the most important with a number "1".

TABLE# 48

PAGE # B

Those activities rated as most important	ADJUSTED FREQUENCIES												
	TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
Swimming	9	11.7	14.2	10.6	9.6	6.9	9.3	5.1	8.3	8.1	2.9	9.2	9.4
Partying	10	8.1	7.7	5.9	13.7	13.8	10.9	8.6	10.5	9.2	10.6	11.2	13.2
Clam digging	0			.4			.3	.6			.6		.9
Plant collecting	0											.7	
Bird watching	0			.4	.7			.6			.6	.7	
Photography	0			.7	.3	1.1			.8	1.4	.6		.9
Nature study	1	.8		.4	.7	1.1	.3		2.3	.7			
Other	2	1.2	3.0	1.8	2.0	3.4	.7	1.1	3.8	4.1	1.8	2.0	
# Non-responses	76	3	6	11	8	2	15	7	8	6	4	2	0

VARIABLE NAME: Age of respondent
QUESTION AS APPEARED: What is your age?

TABLE# 49

PAGE # A

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 2 1	POOL 22
10	10 years old	0						.3					.7	
11	11 years old	0		.6								.6		
12	12 years old	0		.6										
13	13 years old	1	3.7	3.6	1.5	.3	1.2	1.7			.7	.6		
14	14 years old	1	5.4	1.8	.8	1.0		.7	.6		1.4	1.2	1.3	1.0
15	15 years old	1	3.3	1.8	1.1	2.4	1.2	1.7	.6	.8	.7	1.2		1.0
16	16 years old	3	5.0	1.8	4.9	3.5	1.2	1.0	2.3		2.8	1.2	4.0	1.0
17	17 years old	3	3.3	4.8	3.8	5.2	2.4	3.0	.6	1.6	5.0	1.8	2.6	1.9
18	18 years old	3	3.3	3.6	2.6	3.8	2.4	1.7	3.5	1.6	4.3	2.4	1.3	1.0
19	19 years old	4	2.5	5.5	4.2	5.9	3.5	1.3	3.5	2.4	3.5	4.2	6.6	1.9
20	20 years old	4	5.0		2.3	4.8		2.7	4.6	4.0	9.9	3.0	4.6	2.9
21	21 years old	4	3.7	4.2	1.9	5.5	2.4	2.7	2.9	1.6	4.3	4.2	7.3	2.9
22	22 years old	4	4.6	5.5	3.8	3.8	8.2	3.3	5.2	4.0	2.8	2.4	6.6	1.0
23	23 years old	4	3.7	3.6	1.5	3.1	5.9	4.3	3.5	5.6	4.3	6.6	2.0	3.9
24	24 years old	3	3.7	1.2	.8	1.7	8.2	2.7	3.5	4.8	4.3	6.0	4.6	3.9
25	25 years old	4	3.3	2.4	4.2	3.8	4.7	5.0	2.3	4.0	5.0	6.0	4.0	3.9
26	26 years old	3	2.1	3.0	1.5	2.1	3.5	2.3	1.2	5.6	2.8	3.6	2.0	6.8

VARIABLE NAME: Age of respondent
QUESTION AS APPEARED: What is your age?

TABLE# 49

PAGE # B

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
27	27 years old	3	2.9	1.2	2.3	2.1	2.4	3.7	2.9	4.0	1.4	1.2	3.3	3.9
28	28 years old	4	1.7	4.2	2.3	5.2	3.5	5.0	3.5	7.1	5.7	4.2	3.3	2.9
29	29 years old	4	3.3	1.8	2.3	5.5	1.2	3.0	4.0	5.6	2.1	6.6	2.6	4.9
30	30 years old	4	1.7	6.1	3.0	3.5	4.7	6.0	2.9	1.6	6.4	6.0	3.3	3.9
31	31 years old	4	2.5	4.8	3.4	4.2	3.5	4.7	3.5	5.6	1.4	3.6	4.6	5.8
32	32 years old	3	.8	2.4	2.6	2.8	2.4	4.0	2.3	3.2		4.2	4.6	5.8
33	33 years old	3	2.5	2.4	3.0	2.4	1.2	2.7	1.7	7.1	1.4	.6	.7	6.8
34	34 years old	3	2.5	2.4	3.4	2.8	2.4	4.3	4.0	1.6	.7	1.8	2.0	4.9
35	35 years old	3	1.7	2.4	3.0	1.7	2.4	3.7	5.2	2.4	6.4	3.0	2.0	1.9
36	36 years old	3	3.7		4.2	4.2	1.2	2.0	2.3	1.6	4.3	3.0	4.0	1.0
37	37 years old	3	1.7	4.2	3.0	1.7	3.5	3.3	2.3	3.2	1.4	3.6	1.3	3.9
38	38 years old	2	.4	3.0	4.2	1.7	1.2	3.0	2.3	2.4	.7	4.2	2.0	2.9
39	39 years old	2	1.2	3.6	1.9	2.1	3.5	2.0	2.9	2.4	2.8	1.8	2.0	1.9
40	40 years old	2	3.7	1.8	3.8	2.4	1.2	1.7	1.2	.8	2.1	3.6	1.3	1.0
41	41 years old	1	.4	2.4	2.3	.3	3.5	1.3	1.2	.8	.7	.6	.7	
42	42 years old	1	1.7	1.2	1.1	.7	1.2	2.7	2.3	.8	1.4		1.3	
43	43 years old	1	1.7		1.9	1.0	2.4	1.0	1.7	1.6	1.4	.6	.7	

VARIABLE NAME: Age of respondent
QUESTION AS APPEARED: What is your age?

TABLE# 49

PAGE # C

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
44	44 years old	2	2.5	1.2	2.3	1.0	3.5	1.0	1.7	3.2	.7	.6	.7	1.0
45	45 years old	2	2.1	2.4	.8	1.0	1.2	1.3	2.3	2.4	1.4	1.2	2.6	1.0
46	46 years old	1	1.7	1.8	1.9	.7		1.7	1.7	1.6		.6	2.0	1.9
47	47 years old	1	.8		1.1	.7			.6		.7	.6	1.3	1.0
48	48 years old	1		.6	1.5	1.4	1.2	1.0	1.7	.8			.7	2.9
49	49 years old	1		1.2	1.1	.7	1.2		1.2		1.4		1.3	1.9
50	50 years old	1	.8	.6	1.1	.3	2.4	1.0	1.2	.8	.7			1.0
51	51 years old	1	.4	.6	1.1			.3	.6				1.3	1.0
52	52 years old	1	.8	1.2	1.5		2.4	2.0	1.2	.8				
53	53 years old	1	.4		1.1	.7		.3	.6		2.1	.6	2.6	1.9
54	54 years old	0		.6	1.1	.3		.7	1.7	.8				
55	55 years old	1	.8		.8		2.4	.7	1.7	1.6				
56	56 years old	0		.6	.4	.3		.3	.6					1.0
57	57 years old	0	1.2					.7	.6			.6		
58	58 years old	0	.4		.4									
59	59 years old	0				.3		.3						1.0
60	60 years old	0						.3			.7	.6		

VARIABLE NAME: Age of respondent
QUESTION AS APPEARED: What is your age?

TABLE# 49

PAGE # D

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
61	61 years old	0		.6	.4				.6					
62	62 years old	0			.4				.6	.8				
63	63 years old	0			.4	.7						1.2		
64	64 years old	0	.4											
65	65 years old	0							.6					
66	66 years old	0												
67	67 years old	0							.6					
68	68 years old	0	.4											
69	69 years old	0				.3		.3						
70	70 years old	0			.4									
# Non-responses		126	10	10	19	12	4	16	9	15	13	8	3	3

VARIABLE NAME: Sex of respondent

QUESTION AS APPEARED: Your sex _____?

TABLE# 50

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Male	55.1	55.6	53.0	53.7	50.9	48.8	60.6	54.4	60.0	56.3	56.9	57.6	52.5
2	Female	44.9	44.4	47.0	46.3	49.1	51.2	39.4	45.6	40.0	43.7	43.1	42.4	47.5
#	Non-responses	123	11	11	16	10	3	15	11	16	12	7	3	5

VARIABLE NAME: State of permanent residence

QUESTION AS APPEARED: Where is your permanent residence:

City _____ State _____.

TABLE# 51

PAGE # A

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
1	Wisconsin	3	19.4	3.0	1.1			3.0	.6					
2	Minnesota		.8		1.1						.7			
3	Illinois	43	11.8	34.3	85.9	31.0	46.5	55.8	4.0	85.3	13.1	34.5	93.2	15.2
4	Iowa	47	64.6	61.4	10.8	68.7	52.3	39.9	94.8	14.7	84.8	48.0	.7	1.0
5	Missouri	6							.6		.7	15.8	6.1	81.0
6	Indiana		1.7					.3				.6		1.0
7	Ohio		.4											
8	California		.4											
9	Texas		.4	1.2							.7	1.2		
10	Alaska													
11	New York													
12	Pennsylvania		.4											
13	Nebraska							.7						
14	Florida							.3						
15	Wyoming						1.2							
16	Washington				.4									
17	Colorado				.4									

VARIABLE NAME: State of permanent residence
QUESTION AS APPEARED: Where is your permanent residence:

City _____ State _____ .

TABLE# 51

PAGE # B

CODE#	CATEGORY LABEL	ADJUSTED FREQUENCIES												
		TOTAL RIVER	POOL 11	POOL 12	POOL 13	POOL 14	POOL 15	POOL 16	POOL 17	POOL 18	POOL 19	POOL 20	POOL 21	POOL 22
18	Kentucky				.4									
19	Arizona													1.0
20	Louisiana													1.0
21	Other					.4								
# Non-responses		115	13	9	15	17	3	14	8	12	9	6	6	1

SUPPLEMENT

MARINAS ON THE UPPER MISSISSIPPI

A Report to the

Great River Environmental Action Team (GREAT II)

and the

Rock Island District, U.S. Army Corps of Engineers

Entitled:

MARINAS ON THE UPPER MISSISSIPPI RIVER: A SUPPLEMENT TO THE GREAT II DREDGED MATERIAL DISPOSAL SITE RECREATIONAL USER ASSESSMENT

by

Wisconsin Water Resources Center
and
School of Natural Resources
College of Agricultural and Life Sciences
University of Wisconsin-Madison

Under Contract Number: DCW25-79-C-0008, Mod. 1

March 1980
Madison, Wisconsin

PROJECT PARTICIPANTS -

Principal Investigators

R. H. Becker
W. A. Gates
B. J. Niemann

Gordon Chesters, Director Wisconsin Water Resources Center
Stephen Smith, Associate Dean, College of Agricultural and Life Sciences - School of Natural Resources

RESEARCH ASSISTANTS

Susan Cedarleaf
Ken Foyle
Terry Iliff
Ken Kailing
Andy Morton

UNDERGRADUATE STUDENT ASSISTANTS

Jim Tokuhisa
Jan Miller
Tom Shaffer
Jan Cyr
Del Siebert

Introduction

The Upper Mississippi River System includes approximately 1300 miles of waterways improved for 9-foot depth navigation. Rivers in the system include the Mississippi River from the mouth of the Ohio River to above Minneapolis (858 miles), Illinois Waterway from Gafton to Chicago (349 miles), Black River (lower 1.4 miles), Lower St. Croix River (lower 24 miles), Minnesota River (lower 15 miles), and Kaskaskia River (lower 50 miles).

Slightly over 650 miles of the Mississippi River have been developed by a system of 29 locks and dams spaced at irregular intervals to maintain a channel depth at 9 feet. The series of dams creates semi-slack water pools. The locks pass river traffic from pool to pool.

The Upper Mississippi River system provides the Upper Midwest region with a vital transportation link to major metropolitan centers and the port of New Orleans. In addition to its economic importance, the river system is a public resource of incalculable importance to millions of people in mid-America. It provides opportunities for all kinds of recreation such as boating, hunting, fishing, water-skiing, canoeing, bird watching, sunning and picnicing.

Over the past ten years a great deal of interest has been focused on the social, biological, and commercial resources of the Upper Mississippi River.[1,2,4,7] As a result of these inquiries, the importance of the Upper Mississippi as a mid-west recreational setting has been documented. Harker described the intensity of boating use at a specific location, Hog-back Island, adjacent to Rock Island. IL.[5] Year round recreational use patterns and use levels of pool 21 have

been examined by Fleener[4]. Recreational boating traffic utilizing the locks along the river has also been the focus of intensive study[6]. A comprehensive study of island recreation users from St. Paul, MN, to Hannibal, MO, (approximately 600 miles) gave additional insights into the use patterns on the Mississippi and its stature as a regional recreational resource[2,3].

While these studies have provided valuable information regarding recreational use of the river and the attitudes and expactation of its users, information regarding recreational support resources is not as readily available. To gain knowledge of these support systems a survey of riverway marinas was undertaken as part of a larger study of the middle reach of the Upper Mississippi River.

Mississippi River Marinas

Conducted during the fall of 1979, the Mississippi River marina study was implemented to give a better understanding of marina operations serving the boating public. In addition to examining marina services available; business outlooks for the future; identification of riverway problems; and marina operators' perceptions of river recreation were evaluated. Marinas studied were located in the Rock Island district of the U.S. Army Corps of Engineers (Guttenburg, Iowa to Hannibal, Missouri). The study was conducted under the auspices of the Great River Environmental Action Team (GREAT II) as part of their legislatively mandated river recreation studies[3].

Timing of the study was particularly notable. Rapidly escalating gasoline costs as well as the availability of fuel had produced considerable discussion regarding fuel consumption and its effect on recreational boating. This relationship was examined from the vantage of the marina operator.

Additional questions polled marina operators as to their approximate gross income; slip numbers and availability; rental rates; distribution of craft types in area marinas; contribution of marinas to river recreational boat loading, and their future growth plans.

The survey was conducted during late summer and early fall of 1979. Forty-three marinas were surveyed by the Wisconsin Survey Research Laboratory under direction of the Wisconsin Water Resources Center. The 43 marinas surveyed, operated during summer 1979 and had either an identifiable owner or manager. The list was compiled by the Iowa Conservation Commission with assistance of the recreation work of GREAT II (RWG II). Gasoline and siltation were specific questions riverway managers wanted marina operators to address. Other problem identification were also desired. In order to probe problems without introducing suggestions of problem areas, marina operators were asked to respond to open ended questions. The questions directed operators to: (1) identify the most important river-related problem facing their business; and (2) what, in their view, was the most important problem affecting their slip renters use of the river. If their responses <u>did not</u> include siltation or gasoline issues, operators were then asked (on separate questions) if siltation and gasoline were problems. Other questions addressed by marina operators included: business development information; and their perception of client concerns.

<u>Characteristics of the marinas on the middle reach of the Mississippi River</u>

Size of the marinas surveyed varied from one marina with 10 slips to one marina with 320 slips. Average marina size was 97 slips with a median slip number of 94 slips. Marinas surveyed had a total of 4,056 slips of which 3,977 slips were rented in 1979 (occupancy rate of over

98%) and of which 3,816 were already rented for summer of 1980. This is an occupancy rate of 94%. About 68% of marinas maintain a waiting list for slip vacancies. The modal waiting time is 1-2 years, but generally turnover is very light. Composition of boats renting slips in the marinas during summer of '79 were: 42% (1689) runabouts; 24% (961) cabin cruisers; 21% (837) houseboats; 11% (453) small fishing boats; and 1% (37) sailboats.

On a peak-use day during the boating season marina operators reported 50 percent (mode) of boats from their slips on the river. The median reported percentage of slip renter out on peak-use days was between 50-55% with an average of 53% of slip renters being out on the river. Three marina operators reported all their boats out on peak use days. In addition to recreational boating, marina operators reported an average of 19% of boats in use but not on the river. Use in this category includes parties on boats in the slips; repairing boats, and spending night(s) on their bost in slip. Operators noted this type of use increasing.

Marina operators reported an average of 23% of renters from out-of-state. Principle states of residence for renters were: Illinois 43%; Iowa 20%, Wisconsin 8%, and Missouri 6%. Renters lived in close proximity to their marina with 86% of operators reporting the majority of their renters living within 25 miles of the marina (Table 1). Over 78% of marinas reported their renters come to the marina two or more days a week, attesting to their proximity.

As should be expected, marinas operate at maximum capacity during summer followed by fall, spring and finally winter (Table 2). Similarly, during the peak boating season the weekend capacity rate is substantially higher than weekday operational capacity. Average weekend use is over

250% larger than week day use rates (Table 3). The major recreational activities slip renters engage in are listed in Table 4. Boating is the largest activity in all seasons but winter. Fishing and working on boats are other major activity categories.

Business Profile

As previously mentioned, size of marinas varied. Similarly, gross income of marinas varied. There was a significant positive association between the number of slips and the marinas gross income (Table 5). Largest income category was over $100,000 dollars. Operators were asked to identify and rank their three main sources of income (Table 6). Slip rentals, boat sales, and dockage were the main sources of incomes. Reapirs, and gass and oil sales were major secondary sources of income.

Potential planned expansion by marina operators was examined for relstionship to marina size, gross income, whether the marina slip capacity was full, and the business forecast preceived by operators.

Expansion of marina business capacity was not associated with any of the examined indices. While more operators planned to expand (20) than not expand (18), reasons for decision was not ascertainable from this data. Areas of expansion included: (rank ordered)

1) Docking & harbor area - 7 operators
2) Boat slips - 6 operators
3) Cottages - 3 operators
4) Slip rentals - 2 operators
5) Storage facilities - 1 operator
6) Restaurant - 1 operator

Marina Problems

As mentioned, marina operators were asked to identify riverway and operation problems affecting their business. This question was open

end. No categories were given to the respondents. Respondents were able to identify more than one problem. Problems mentioned were:

(1) Silt accumulation 13

(2) Flooding and high water 9

(3) Gasoline availability 7

(4) River level fluxuation due to dam operation 3

(5) Water pollution 3

(6) Litter 2

(7) Other problems identified by one operator was - seawall too close, harbor too small, tow wakes, shallow water, beaches overgrown, fallen trees, wing-dam markings.

When asked to identify problems that affected their clients, operators mentioned:

(1) Silt accumulation 6

(2) Water level fluxuation due to dam operation 5

(3) Lack of dredge beaches 4

(4) Floating debris 4

(5) Flooding 3

(6) Gas availability 3

(7) Slow lockages 2

(8) Wing dam marking 2

(9) Other problems identified by one operator was - few pump-out facilities, boat maintenance costs, boat rental costs, shallow water, lack of marina space, fast current, few access ramps, heavy tow traffic, and speeding jet-boats.

When asked, specifically, if siltation adversely affected their business, an additional 8 operators identified siltation as a major problem and 9 operators identified siltation as a small problem. Only

13 of the 43 operators did not feel siltation was a problem. When operators not mentioning gasoline price or availability as a problem were asked if gasoline was a problem an additional 22 operators stated it was. Only 18 of the 43 operators did not feel gasoline price or availability was a problem (Table 7). Critical comments are frequently heard regarding various state and Army Corps permitting procedures. Marina operators predominately had no such problems.

Marinas in Future Mississippi Recreation

The Mississippi River is principally a power-boating recreational resource[2,3]. The uncertainty of expansion by marina operators may be linked to the uncertainly of future river recreation. Reaction and comments by visitors to the Mississippi, however, should provide some insights to future demand for marina space and services.

As reported by Mississippi River users, approximately half felt that fuel availability would affect future vacation plans[3]. Fuel availability problems, however, may result in an increase to Mississippi River recreational use. Visitors reported plans for reduction in distance they will travel by car for vacations and recreation. Use of their boats, however, was not identified as an accomodation to fuel availability problems. Users did state that they probably would not travel as far on the river by boat. This action appears to be taking place, since reduced boat travel during summer '79 was identified by marina operators (boat use and marina visits were not reduced).

About one-third of Mississippi River boaters keep their boats in marinas. Whether this ratio is a result of users not wanting to pay for marina space or reflects a lack of available rental slips is not known. It is not likely, however, that cost is an overriding concern, as modal boater income was in excess of $30,000 per year[2]. A

probable explanation of the ratio is, that most users live within 25 miles of the river, are as close to an access ramp as to a marina, and the most common boat used for river recreation is the trailerable runnabout (runnabouts were also the most common boat in marinas). Users' ability to move their boats and the lack of slip capacity are the probable historic reason for the marina/tow-in access ratio. Fuel pressures, however, should require a decision of whether to use gas getting a boat to the river or keep the boat on the river and save gas for recreational boating. With existing marinas at capacity it is likely that demand for new slip capacity will increase and existing scarce marina spaces will become more valuable.

Upper mid-west residents will continue to boat for recreation. As fuel availability problems increase, boaters may be less willing to tow their boats to lakes or reservoirs and opt to use the Mississippi more frequently and in larger numbers. The Mississippi River should become a more vital recreation resource and an excellent market setting to service the needs of current and future boaters. It is unlikely that existing marina capacity can accomodate these users. As many traditional vacation and recreation patterns alter to accomodate fuel costs and scarcity, resources which are in proximity to population center and were once taken for granted, will gain a new prominence. This is the future of the Upper Mississippi River and its recreational services and amenitities.

Table 1. Approximate Distance Slip Renters Live From Their Marina - as Reported by Marina Operators

Percent of Renters Within Each Distance	Distance Renters Live From Marina		
	Within 25	26-50 miles	50 Miles +
10-less	3	28	33
11-20	2	6	3
21-30	1	4	2
31-40	-	2	-
41-50	6	1	2
51-60	-	-	1
61-70	3	1	1
71-80	9	1	-
81-90	7	-	1
91-100	12	-	-

Table 2. Marina Operators Reporting Percent of Business (Operating) Capacity by Season

Percent of Marina Operation Capacity	Operating Season			
	Spring	Summer	Fall	Winter
10 or less	6	0	3	23
11-25	7	0	7	2
26-50	11	5	9	8
51-75	5	2	7	5
76-100	14	36	17	5

Table 3. Marina Operators Reporting Percent of Operating Capacity of Weekend/Weekday During Peak Season

Percent of Marina Operation Capacity	Weekday	Weekend
10 - less	12	1
11-20	6	0
21-30	10	2
31-40	8	3
41-50	2	10
51-60	1	1
61-70	1	4
71-80	0	8
81-90	1	7
91-100	1	7
Average Business Capacity	27.44%	69.77%

Table 4. Main Recreational Activities of Slip Renters, as Reported by Operators, by Season.

Main Recreational Activity	Spring	Summer	Fall	Winter
Boating/Cruising	13	23	24	1
Fishing	13	8	11	4
Working on Boat	10	0	0	10
Pleasure/Relaxing	1	3	1	0
Socializing/Rec./Parties	1	2	1	1
Water Skiing	1	6	1	0
Swimming	0	1	0	0
Duck Hunting	0	0	2	0
Nothing	0	0	2	26
Boat Club Meetings	0	0	0	1

Table 5. Chi Square Test for Association

Between Marina Size and Gross Income of the Marina

Marina Gross Income in (1,000)	Number of Slips in the Marina			
	1-44	45-100	101-320	
0-25	7	2	1	10
25-100	2	6	5	13
100 +	1	5	8	14
	10	13	14	37

$\chi^2 = 14.06$

Pearson's Coefficient $C_c = .352$

$\chi^2.01(4) = 13.28$

Table 6. Ranked Importance of Income Producing Marina Services

Income Producing Service	IMPORTANCE 1	2	3
Slip Rentals	18.6%(8)*	14.0(6)	2.3(1)
Boat Sales	18.6(8)	--	2.3(1)
Dockage	11.6(5)	11.6(5)	7.0(3)
Repairs	9.3(4)	4.7(2)	11.6(5)
Gas & Oil	7.0(3)	18.6(8)	7.0(3)
Restaurant/Lounge	7.0(3)	7.0(3)	4.7(2)
Rentals	7.0(3)	9.3(4)	4.7(2)
Beer/Pop	2.3(1)	--	7.0(3)
Sales (n/specified)	2.3(1)	4.7(2)	
Winter Storage	2.3(1)	2.3(1)	4.7(2)
Building Lease	2.3(1)	--	
Other Storage	2.3(1)	--	
Motor Sales	--	4.7(2)	
Parts & Acc.	--	4.7(2)	7.0(3)
Bait & Tackle	--	2.3(1)	9.3(4)
Camping Fees	--	2.3(1)	
No Response	7.0(3)	14.0(6)	32.6(14)

*Reported in column percent with number of response in (N).

Table 7. Problems Identified by Marina Operators

Problems	Yes	No
State Permits	2	41
Corps Permits	3	40
Siltation (offered)	13	30
Siltation (solicited)	30	13
Gasoline (offered)	3	40
Gasoline (solicited)	25	18

Literature Cited

1. Ackelson, Mark, et al. Recreation Appendix to Final Report of the Great River Environmental Action Team. U.S. Army Corps of Engineers, St. Paul, MN. 1979.

2. Becker, R. H. Upper Mississippi Dredged Material Disposal Site Recreational User Assessment. University of Wisconsin-Madison, School of Natural Resources, Department of Forestry. (Report to RWGI, U.S. Army Corps of Engineers, St. Paul, MN). 1978.

3. Becker, R. H., et al. Upper Mississippi II Dredged Material Disposal Site Recreational User Assessment. University of Wisconsin-Madison, Water Resources Center. (Report to RWG II, U.S. Army Corps of Engineers, Rock Island, IL). 1980.

4. Fleener, George G. Recreational Use of Pool 21, Mississippi River. Missouri Department of Conservation, Columbia, MO. (A Report to the Upper Mississippi River Conservation Committee). 1975.

5. Harker, G. R. "Recreational Use of Pool 21 and Hogback Island on Selected Days Utilizing Aerial and Water Based Observation." Unpublished Paper Dept. of Recreation and Parks Administration. Western Illinois University, Macomb, IL. 1978.

6. Midwest Research Institute (MRI). Methodology and Forecasts of Recreation Use and Small Craft Lockages on the Upper Mississippi River. (A Report to the U.S. Army Corps of Engineers, St. Paul, MN). 1978.

7. Rao, S. "Optimizing Navigation Investment to Relieve Lock Congestion on Waterways." The Pennsylvania Transportation Institute Report PT 7706. Based upon Rao's Ph.D. dissertation at the Pennsylvania State University, 1977.

SUPPLEMENT

COMPARISON OF RECREATION SURVEY RESULTS

A Report to the

Great River Environmental Action Team (Great II)

and the

Rock Island District, U.S. Army Corps of Engineers

entitled:

COMPARISON OF 1979 MAILED FOLLOW-UP RECREATION SURVEY RESULTS TO 1978 ON-SITE RECREATION SURVEY RESULTS: A SUPPLEMENT TO THE GREAT II DREDGED MATERIAL DISPOSAL SITE RECREATIONAL USER ASSESSMENT

by

Wisconsin Water Resources Center

and

School of Natural Resources

College of Agricultural and Life Sciences

University of Wisconsin - Madison

Under Contract Number: DCW25-79-C-008

March 1980

PROJECT PARTICIPANTS -

Principal Investigators

R. H. Becker
W. A. Gates
B. J. Niemann

Gordon Chesters, Director Wisconsin Water Resources Center
Stephen Smith, Associate Dean, College of Agricultural and Life Sciences - School of Natural Resources

RESEARCH ASSISTANTS

Susan Cedarleaf
Ken Foyle
Terry Iliff
Ken Kailing
Andy Morton

UNDERGRADUATE STUDENT ASSISTANTS

Jim Tokuhisa
Jan Miller
Tom Shaffer
Jan Cyr
Del Siebert

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INTRODUCTION

Information about recreational use of the Upper Mississippi River often generates additional use questions. This was the case following the 1978 on-site Upper Mississippi recreational use questionnaire. To address some of these additional issues, a follow-up mailed questionnaire was sent to a sub-set of summer 1978 river recreational users. Six hundred users were randomly selected from those 1978 users who voluntarily gave their names and addresses. Of these 600 addresses 72 or 12% were returned undelivered. Of the delivered 528, two hundred sixty were returned and 242 were encoded. Those not encoded were either mutilated, less than half completed or had their identification numbers removed. Encoded questionnaires comprised 46% of those delivered.

MAILED FOLLOW UP SUMMARY

Of those who indicated a particularly favorite location on the Mississippi River (89.5%), areas within pool 13 were most often mentioned (14.3%). The favorite location of 12.6% of the people surveyed was in pool 14. Another 9.9% indicated favorite areas within pool 21.

Very few respondents said they had never been on a river-based recreation visit before (3.3%). Of those who had been on a river visit before, most had visited pools 11 through 22 of the Mississippi River (51.3%). Twenty-two percent had visited other waterbodies, while 9.6% had visited unidentified sections of the Mississippi. Among the specific rivers people indicated they had previously visited are the Wisconsin River (1.7%), the Rock River (1.7%) and the Iowa River (1.7%).

When asked to list their favorite water bodies, most respondents answered, the Mississippi River (74.7%). Another 19.7% indicated "other" water bodies as being their favorite. Three percent stated areas within the GREAT II area, pools 11 through 22, as their favorite. Specific water bodies mentioned were the Rock River (.5%), the Upper Mississippi River (.5%), the Illinois River (.5%), the Des Moines River (.5%) and the Cedar River (.5%).

Of all the water bodies respondents visited in the last two years they considered the Mississippi River the least crowded (46.8%), the best fishing (57.9%), the best motorboating (77.0%), the most beautiful (58.0%), having the most wildlife (62.6%), best overall recreational experience (64.7%), the least noisy (44.3%), and the least developed (57.1%). Other non-specific water bodies were considered as having the best canoeing (50.4%) and to have the best environmental quality (54.5%).

Just over 40% of the respondents indicated there were some water bodies they used to visit but no longer visit. When asked which bodies these were, "other" nonspecific water bodies got the most response (30.9%). Pools 13, 16 and unlocatable areas of the Mississippi each received 8.6%. Other specific pools no longer visited were pools 14 (7.4%), 15 (3.7%), 20 (2.5%), and 9 (2.5%). Specific rivers no longer visited included the Illinois River (2.5%) and the St. Croix River (2.5%). The GREAT I stretch of the Mississippi was no longer visited by 2.5% while the GREAT II stretch would no longer be visited by 4.9% of the respondents.

The primary reason for not visiting these areas any longer was perceived overcrowding (8.6%). Other reasons were "too far to go" (13.2%), "unsafe boat operation" (2.4%) and "litter problems" (11.6%).

Boating has been an important activity to the average respondents for 11 years. Similarly, the average number of years the respondent had been boating on the Mississippi River was eleven.

Of those respondents who have been recreating on the Mississippi for less than four years the most common reason given for this recent adoptive usage was "recently bought necessary recreating equipment". Another 6.2% said they only recently learned about recreating on the Mississippi.

Most respondents who use the Mississippi River are not disturbed by the number of people nor their behavior (63.4%), although more people were disturbed by the behavior of people (17.9%) than the numbers of people (9.8%).

Of those who thought the Mississippi River was too crowded during 1978 most indicated it was too crowded only on holidays (26.0%). Only 4.3% said the river was too crowded all the time. Another 5.0% said the river was not crowded at any time.

When questioned about meeting other people most people agreed or partically.

agreed that the quality of the river experience was not changed by meeting other people (56.7%). Encountering a group of quiet people is even more agreeable (98.7%). Respondents would rather encounter a group of people as they travel on the river than when stopped on shore.

When asked how specific factors affected their recreation experience, good weather had the highest positive effect, with sunny weather conditions having a positive effect for 92.4% of the respondents. Cloudy weather had no effect to the majority of users (70.2%), but rainy weather had a negative effect for most (83.1%).

Rough water had a negative effect to most users (63.7%), while smooth water had a positive effect (89.6%). High water had a positive effect for some (3.7%), a negative effect for some (48.0%) and no effect for others (38.3%).

Over one half of the respondents reported that seeing cities, towns, industrial development, residential development or cottage development had no effect on their recreational experience. Seeing industrial development had the highest negative effect (35.7%) while seeing cities or towns had the highest positive effect (36.1%).

Most of the respondents reported using a lock during their 1978 visits to the Mississippi River (71.8%). When asked if they had to wait too long to use the lock most said no (61.5%). Most respondents who said yes reported waiting 30 minutes or less (50.3%). Lock number 14 was reported by most as the lock they had to wait too long to use (17.3%). While waiting to pass through locks most users would prefer to tie up in a holding area (37.9%).

Over 68% of the respondents think there is adequate boat access to the Mississippi River. Of those who thought there was not adequate boat access, pools 18 and 19 were identified as having the most inadequate access.

Summer was the season most people reportedly used the river during 1978 (29.9%).

Over one half of the respondents do not feel the number of people using the Mississippi River should be limited now, with another 44.9% who feel there there should be no limits now or in the future.

When asked if controls are needed to prevent the environment from being damaged by recreational use of the river most respondents said "No, controls are not needed now, but should be imposed if and when environmental damage occurs" (48.7%). Quite a few people said "Yes, controls are needed now to stop present environmental damage" (29.2%).

In regards to sixteen management actions proposed if and when environmental damage occurs due to recreational use, respondents generally supported eight of then and generally opposed eight of them.

Those generally supported were:

Require people to carry out their own trash (95.8%).

Prohibit firearms (63.0%).

Place pavement at heavily used locations (boat landings, etc.) (83.3%)

Provide firewood at campsite and picnic areas on beaches and islands (46.6%)

Provide toilet facilities on beaches and islands (63.7%).

Provide sanitary pumping stations (60.5%).

Provide litter barrels and trash collection service on beaches and islands (73.4%).

Be more aggressive in enforcement of existing rules and regulations (76.7%)

Those generally opposed were:

Prohibit the use of cans, bottles and other nonburnable disposable containers (64.0%).

Require all watercraft to carry portable toilets (53.2%).

Prohibit the gathering of firewood (88.5%).

Prohibit open fires (89.4%).

Allow fires only at designated locations (60.9%).

Prohibit axes and saws (60.4%).

Allow camping only at designated locations (77.2%).

Provide tent platforms in camping areas on beaches and islands (43.8%)

Over one half of the respondents think controls are needed to protect the safety of people who use the river for recreation.

When asked how they feel about eight specific controls aimed at personal safety, five were generally supported, two were generally opposed and one had differing opinions.

Those generally supported were:

Require every group to have approved first-aid equipment (78.0%)

Prohibit travel on the river at unsafe times (during storms, high water, etc.) (43.9%)

Prohibit travel on the river by unsafe watercraft (89.5%)

Post signs warning and advising of hazards (87.0%)

Be more aggressive in enforcement of existing rules and regulations (75.0%)

Those generally opposed were:

Require everyone to wear a life jacket while on the river (60.3%)

Keep separation between various types of watercraft (e.g., runabouts and cabin cruisers (43.2%)

Concerning the requirement that each group have an education contact prior to the trip so the managing agency can explain the rules and regulations, respondents differed considerably in their answers. The highest percentage of people (35.1%) neither opposed nor supported the idea. Thirty two percent supported the idea and 32.6 opposed the idea.

All eight of the facilities and improvements suggested in the survey were favored in some degrec. There is some disagreement, however, concerning who should provide these facilities and improvements and who should pay for them.

The following table indicates those groups receiving the highest percentage of responses.

Service or Improvement	% Who Favor	Who should provide	Who should pay
Search & Rescue Services	86.5	State govt. (42.3%)	General tax funds (49.1%)
Designated Swimming Areas	51.9	Local govt. (34.3%)	Only those who use (35.1%)
Emergency telephone along the river	70.1	State govt. (41.9%)	General tax funds (38.7%)
Drinking water	52.5	State govt. (34.0%)	General tax funds (33.8%)
Showers	40.9	State govt. (29.5%)	Only those who use (49.8%)
Electrical Hook-up	34.9	State govt. (29.0%)	Only those who use (53.4%)
Picnic tables	55.5	State govt. (33.2%)	General tax funds (37.3%)
Piers or docks	49.1	State govt. (34.2%)	General tax funds (36.9%)

When asked to rank thirteen specific management activities only one was rated as having very high priority. That was to provide better information services regarding navigation hazards (56.4%). Providing better information services regarding availability of services and location of access points were rated as having a high priority (39.2% and 37.3% respectively). There were two actions that were rated as having very low priority. They were "provide more camping areas along the river" (24.7%) and "develop hiking trails along the river (36.3%). The other eight management activities (listed below) were rated as having medium priority.

Improve existing access roads (32.5%)

Provide more points of public access to the river (28.8%)

Control the flow of water in the river for recreational use (24.9%)

Provide better information services regarding:

The flow of water in the river (33.3%)

Level of congestion on the river (38.1%)

Locations of camping areas (32.0%)

Natural and scenic features (35.7%)

Historic sites (41.5%)

The majority of the respondents did not belong to any group concerned with issues involving the Mississippi River (88.5%). Of those affiliated with these groups the most common group mentioned was the Coast Guard Auxillary in which the respondent had been a member for an average of 5.8 years.

Almost all respondents planned to visit the river during 1979 (96%). Most of them planned to visit a specific part of the river (79.7%). Plans to visit the river once a week were the most common (58.5%). Almost everyone had plans to boat along the Mississippi River during 1979 (97.9%). The majority of the respondents also planned to camp (78.1%) and fish (66.8%) along the river. Only 16.4% of the respondents had plans to hunt along to the river. The type of game most sought were ducks (45.9%).

The most important recreation activity identified by respondents were boating (85.1%), camping (7.0%) and swimming (2.3%).

The type of boats the respondents planned to use in 1979 were runabouts (13.1%), cabin cruisers (16.9%) and fishing boats (16.5%).

Very few people indicated that they would be renting a boat (3.3%). The most common type of rented boats were houseboats (1.7%), fishing boats (1.7%), and cabin cruisers (.8%).

Most of the respondents said they would not be renting a slip or marina space in 1979 (68.1%).

When asked if they thought the availability of fuel in the summer of 1979 would affect their vacation plans, 50% said yes and 50% said no. Most people would deal with the fuel availability problem by not traveling as far in their boat (63.6%) and not traveling as far in their car (55.8%). If there was less fuel for use in boats most people would still visit the Mississippi as planned. However, thirty percent said they would visit the river less often and 16.1% said they would visit the river for shorter times.

COMPARISON OF THE 1979 MAILED FOLLOW-UP SURVEY RESULTS TO THE 1978 ON-SITE SURVEY RESULTS

Most people surveyed (89.5%) have a favorite location on the Upper Mississippi (MQI)*. Over one quarter of the visitors choose a launching site because it is near a favorite island (29.9%((OQ8f).

The fact that a particular area was less crowded influenced the launching site of 23.1% of the respondents (OQ8b). For respondents who said they have stopped using bodies of water they once visited, the reason "too crowded" was given by 18.6% (MQ6c). This could indicate users have already been displaced from other areas due to perceptions of crowding.

When asked directly if the Mississippi River was crowded, over one half said it was not at all crowded (OQ18). This also indicates that nearly one half of of the respondents do think the river is crowded to some degree. When this question was expanded on the mailer survey only 5.0% said the river was not crowded anytime (MQ11). See Figure 1 for comparison of questions.

While visitors were filling out the on-site surveys during the summer of 1978, survey workers were filling out "observation sheets". One item recorded by the survey participant was the litter level of the area they were at. Most areas were reported as having low litter levels (77.9%), some had medium levels (18.7%), but very few had heavy levels (3.4%) (O survey participant report). This tends to back up the results in the mailer survey which show that 11.6% of the Mississippi visitors use the river because other water bodies had litter problems (MQ6d).

* The letters M and O in parenthesis at the end of a sentence indicate whether the information came from the mailer survey (M) or the on site survey (O). The Q followed by a number indicates the question number on the survey.

Most respondents have used a lock on the Mississippi River (71.8%) (MQ17). However there are very few people who go through a lock on a regular basis (15.7%) (OQ14).

For those who have used a Mississippi lock most said they did not have to wait too long to go through the lock (61.5%), with the average waiting period being 30 minutes or less (MQ18a,b). When asked if they enjoy going through a lock, the highest percentage of people indicated they did not enjoy it (37.0%) (OQ23d).

Most respondents think sanitation facilities should be provided on islands, with 62.5% agreeing to some extent (OQ23g). This concurs with responses given to a similar expanded question in the mailer survey. In this case 63.7% of the users would support providing toilet facilities on beaches and islands if and when recreational use of the river causes environmental damage. Resondents also support providing sanitary pumping stations (60.5%) and litter barrels and trash collection services (73.4%) (MQ25).

Picnic tables were requested by only 22.0% of the on site survey respondents (OQ13b4), yet 55.2% of the mailer respondents favor providing picnic tables (MQ28g). This may be explained by question format. There were five possible responses to the question in the mailer survey, favor, favor with reservations, don't care, oppose with reservations, and oppose, whereas there were only two possible responses to the question in the on site survey, facility requested and facility not requested. The latter question format, with only two choices, request or not request forces the respondent to make a clear cut decision whereas the other format leaves room for people who may be undecided about their opinion.

Most respondents use the Mississippi River once a week during the season (58.5%) (MQ36) (55.5%) (OQ2) with quite a few people visiting the river daily (19.6%) (MQ36) (16.2%) (OQ2).

The most important recreation activity for both groups of respondents surveyed was boating, 85.1% for the mailer survey and 25% in the on-site survey. Other important activities identified in the mailer survey were camping (7%), fishing (2.3%) and swimming (2.3%). Other important activities identified in the on-site survey were sunbathing (20%) and swimming (15%). The differences in percentages for a particular activity in each survey can be attributed to the question format. The question in the mailer survey gave the respondents only six activities from which to choose their favorite. The quesiton in the on-site survey gave the respondents seventeen activities from which to choose the most important, plus an "other" category with space to write in an activity not listed. What these two types of questions do for managers is perhaps unclear. Using the question format as the on-site survey did (many responses), the manager is able to compile a comprehensive list of all activities the survey group participated in with emphasis on the respondents favorites. Using the question format as the mailer survey did (limited responses), the manager can compile a ranked list, according to importance, of specific activities he may be interested in. In this case he may not want to know all of the activities people are engaged in but perhaps only if one particular activity is more important than another.

The most popular watercraft is the runabout, in use by 63% of the on-site survey group, (0 survey participant report) and planned to be used by 73.1% of the mailer survey respondents (MQ42).

Both surveys indicate a very low percentage of users who rent boats (3.3%: MQ43) (2.5%:OQ5).

The surveys also agree on the percentage of people who dock their boats at a marina (31.9%:MQ44) (24.1%:OQ6).

The on-site survey respondents expressed a need for more developed boat access ramps with 66.2% agreeing with the suggestion (OQ23c). When asked if there was adequate boat access to the Mississippi River 68.4% of the mailer survey respondents said yes.

FIGURE 1. VARIABLES IN THE 1979 MAILED FOLLOW-UP SURVEY WHICH RELATE TO THE 1978 ON-SITE SURVEY.

1979		1978 ON-SITE SURVEY	
Question #	Question as appeared in survey	Question #	Question as appeared in survey
1.	Do you have a particularly favorite location(s) on the Mississippi River? Yes 89.5% No 10.5%	8f.	Did any of the following influence your choice of a launching "put in" place? Near favorite island? Yes 29.9%
6c.	If you once used other bodies of water, but have since stopped going, please check all appropriate reasons why and list the location they relate to. Too crowded 18.6% During 1978, the Mississippi River was too crowded: all the time 4.3% on holidays only 26.0% on weekends only 18.2% on weekdays only 1.8% Slightly crowded: all the time 3.8% on holidays only 15.0% on weekends only 19.2% on weekdays only 6.4% Not crowded anytime: 5.0%	18.	Did you feel the river was crowded during this trip? Extremely crowded 6.4% Moderately crowded 18.5% Slightly crowded 24.3% Not at all crowded 50.8%
		8b.	Did any of the following influence your choice of a launching "put in" place? Less crowded? Yes 23.1%
6d.	If you once used other bodies of water but have since stopped going, please check all appropriate reasons why. Litter problems 11.6%	Survey participant report	Heavy Litter Level 3.4% Medium Litter Level 18.7% Low Litter Level 77.9%
17.	Did you ever use a lock during 1978? Yes 71.8% No 28.2%	14.	Do you usually go through a lockage during visits to the river? Yes 15.7% No 84.3% If yes, how many? One 6.9% Two or more 5.2%
18a.	On the average, did you wait too long to use the lock? Yes 38.5% No 61.5%	23d.	I enjoy going through locks when I boat on the Mississippi River. Strongly agree or agree 26.8% Strongly disagree or disacree 37.0% No Opinion 36.2%
18b.	What do you think is the average time you waited: 30 minutes or less 50.3%		

25. If and when recreational use of the river does cause environmental damage, how would you feel about the following management actions?

Provide toilet facilities on beaches and islands

Strongly oppose	12.2%
Oppose	11.4%
Neither Oppose nor Support	12.7%
Support	34.6%
Strongly support	29.1%

Provide Sanitary Pumping Stations

Strongly oppose	6.4%
Oppose	7.2%
Neither oppose nor support	26.0%
Support	32.8%
Strongly support	27.7%

Provide litter barrels and trash collection services on beach and islands

Strongly oppose	12.2%
Oppose	9.3%
Neither Oppose nor support	5.1%
Support	23.2%
Strongly support	50.2%

23g. Sanitation facilities should be provided on islands.

Strongly Agree	23.4%
Agree	39.1%
No opinion	18.5%
Disagree	13.8%
Strongly Disagree	5.2%

28g. How would you feel about providing the following facilities and improvements? Picnic tables?

Favor	38.1%
Favor with reservations	17.1%
Don't care	18.2%
Oppose with reservations	5.1%
Oppose	21.2%

13b4. This beach should have more developed facilities for recreation use. If yes, check those that apply.

Tables

requested	22.0%
not requested	78.0%

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36. How often do you plan to visit the Mississippi this year?

1 - 3 times	6.3%
4 - 8 times	6.7%
Once a week	58.5%
Daily	19.6%
Undecided	8.0%

2. How often do you visit the Mississippi for recreation this summer:

This is my first visit	6.1%
1 - 3 times per season	8.7%
4 - 8 times per season	13.5%
Once a week during season	55.5%
Daily during season	16.2%

---

41. Which of the following activities are most important to you to do on the Mississippi River: Choose three (3) and rank them as 1, 2, 3 with 1 being the most important.

(con't. on next page)

26. Please check you main activities during your visit to the river today and mark the most important with a #1.

Boating 25%
Sunbathing 20%
Swimming 15%

Ranked as most important:

Boating 85.1%
Camping 7.0%
Fishing 2.3%
Swimming 2.3%

Ranked as second most important:

Swimming 32.3%
Camping 28.0%
Picnicking 16.1%

---

42. What type of boat(s) will you be using this year?

Fishing boat 16.5%
Sailboat 2.1%
Cabin cruiser 16.1%
Canoe 5.8%
Tourboat 2.1%
Runabout 73.1%
Yacht 1.2%
Houseboat 14.2%

Survey Participant Report

Description of Watercraft

Sailboat 0%
Canoe 1%
Cabin cruiser 8%
Runabout 63%
Houseboat 5%
Pontoon 2%
Fishing boat 7%

---

43. Will you be renting a boat this year?

Yes 3.3%

5. I rent the boat I am using on this trip.

Yes 2.5%

---

44. Will you be renting a slip or marina space this year?

Yes 31.9%
No 68.1%

6. Where do you dock your boat?

Marina 24.1%

---

21. Is there adequate boat access to the Mississippi River?

Yes 68.4%
No 31.6%

23c. There should be more developed boat access ramps to each pool.

Strongly agree or agree 66.2%
Strongly disagree or disagree 13.8%
No opinion 10.8%

APPENDIX A
MAILED FOLLOW-UP

Table 1 Does user have a favorite location?

Do you have a particularly favorite location(s) on the Mississippi River?

Yes 89.5%

No 10.5%

Table 2 Has user been on a previous river visit?

Before your summer 1978 water based visit, had you ever been on a river visit? (A "river visit" refers to being on a river or stream in an innertube, canoe, kayak, raft, motorboat, etc.).

Yes 96.7%

No 33.0%

Table 3 Are there water bodies user no longer visits?

Are there any water bodies (including specific locations on the Mississippi River) you used to visit that you no longer visit?

Yes 40.2%
No 59.8%

Table 4 Reasons user no longer visits some water bodies

If you once used other bodies of water, but have since stopped going, please check all appropriate reasons why.

13.2% too far to go
6.2% it costs too much to go there
18.6% too crowded
11.6% litter problems
5.8% too much noise
12.4% unsafe boat operation
6.6% silty water
6.6% water pollution
8.3% unsafe swimming
6.2% unsafe boating conditions, e.g., floating debris, submerged structures
4.1% too much development
1.2% too much destroyed vegetation
4.1% change in fishing conditions
5.8% water level too low
7.4% other

Table 5 Reasons user has only recently been using river

If you've been recreating on the Mississippi for less than four years, please indicate reasons why (check all that apply). Leave blank if you have used the river for more than 4 years.

3.7% recently moved to this area
6.2% only recently learned about recreating on the Mississippi
1.0% no longer enjoy old favorite sport
12.9% recently bought necessary recreating equipment
4.1% social reasons
5.0% other

Table 6 Disturbing aspects of meeting other river users

Which statement below most closely describes your point of view concerning the people you saw on the Mississippi River during 1978 (check only one):

63.4% on this river, neither the number of people nor their behavior was dusturbing to me.
17.9% the behavior of people was more disturbing to me than the number of people.
9.8% the numbers of people were more disturbing to me than their behavior.
8.9% both the numbers and behavior of people were disturbing to me.

Table 7 Perceived overcrowding

During 1978, the Mississippi River was: (Check only one)

a) too crowded: 4.3% all the time
26.0% on holidays only
18.2% on weekends only
1.8% on week days only
b) slightly crowded: 3.8% all the time
15.0% on holidays only
19.2% on weekends only
6.4% on week days only

Table 8 Was user's visit affected by meeting others?

The quality of the river experience is not changed by meeting people.

Strongly disagree 19.3%
Partially disagree 23.9%
Partially agree 35.3%
Strongly agree 21.4%

Table 9 Was user's visit affected by meeting quiet people?

Encountering a group of quiet people on the river doesn't bother me.

Strongly disagree .4%
Partially disagree .8%
Partially agree 11.4%
Strongly agree 87.3%

Table 10 Is user bothered by encountering groups when traveling?

Encountering groups of people as I travel on the river doesn't bother me as much as encountering groups of people when I stop on shore.

Strongly disagree	14.3%
Partially disagree	18.3%
Partially agree	47.0%
Strongly agree	20.4%

Table 11 Is user bothered by encountering groups when stopped?

Encountering groups of people when I stop on shore or islands doesn't bother me as much as encountering groups of people as I travel on the riverway.

Strongly disagree	22.6%
Partially disagree	30.4%
Partially agree	37.4%
Strongly agree	9.6%

Table 12 Factors affecting users experience

Generally, how did the following factors affect your recreation experience? Please circle one comment per factor.

	Positive	Had No Effect	Negative
sunny weather	92.4%	7.2%	0.4%
cloudy weather	7.8%	70.2%	22.0%
rainy weather	5.5%	11.4%	83.1%
rough water	9.3%	27.0%	63.7%
smooth water	89.6%	9.5%	0.9%
high water	13.7%	38.3%	48.0%
litter at an island or sand bar	14.2%	6.4%	79.4%
barge tows	11.0%	66.5%	22.5%
other boaters	11.8%	77.8%	10.4%
cities or towns seen	36.1%	60.0%	3.9%
industrial development seen	11.2%	53.1%	35.7%
residential development seen	19.3%	70.6%	10.1%
cottage development seen	22.6%	73.3%	4.1%

Table 13 Lock usage

Did you ever use a lock during 1978?

Yes	71.8%
No	28.2%

Table 14 Preferred activity during lockage

While waiting to pass through locks, would you prefer to (check one):

16.3% cruise
18.4% anchor
13.7% return to an island
37.9% tie up in a holding area
11.6% combination

Table 15 Is there adequate boat access?

Is there adequate boat access to the Mississippi?

Yes 68.4%
No 31.6%

Table 16 Are user limits needed?

Do you feel the number of people using the Mississippi Rover should be limited? (Check only one)

1.3% YES, limits are needed because there is an existing problem
3.0% YES, limits are needed now to prevent over use from occurring in the future
50.4% NO, limits are not needed now.
44.9% NO, there should be no limits now or in the future.

Table 17 Are controls needed to protect the environment?

Do you feel that controls are needed to prevent the environment from being damaged by recreational use of the river? (Check only one)

29.2% YES, controls are needed now to stop present environmental damage.
13.3% YES, controls are needed now to prevent the possibility of future damage.
48.7% NO, controls are not needed now, but should be imposed if an when environmental damage occurs.
8.4% NO, there should be no controls now or in the future.

Table 18 Management options

If and when recreational use of the river does cause environmental damage, how would you feel about the following management actions? Please circle one comment for each action.

	Strongly Oppose	Oppose	Neither Oppose Nor Support	Support	Strongly Support
Prohibit the use of cans, bottles, and other nonburnable disposable containers	33.9%	30.1%	13.1%	13.1%	9.7%
Require people to carry out their own trash	0.8%	1.7%	1.7%	10.9%	84.9%
Require all watercraft to carry portable toilets	24.7%	28.5%	24.3%	10.2%	12.3%
Prohibit the gathering of firewood	48.7%	39.8%	7.2%	3.0%	1.3%
Prohibit open fires	55.5%	33.9%	6.4%	3.4%	0.8%
Allow fires only at designated locations	34.9%	26.0%	13.6%	17.9%	7.7%
Prohibit axes and chain saws	31.9%	28.5%	14.0%	14.0%	11.5%
Allow camping only at designated locations	44.7%	32.5%	7.2%	10.1%	5.5%
Prohibit firearms	13.2%	9.8%	14.0%	14.9%	48.1%
Place pavement at heavily used locations (boat landings, etc.)	3.8%	3.8%	9.2%	31.4%	51.9%
Provide firewood at campsites and picnic areas on beaches and islands	13.6%	10.6%	29.2%	24.6%	22.0%
Provide tent platforms in camping areas on beaches and islands	23.4%	20.4%	28.9%	16.6%	10.6%

	Strongly Oppose	Oppose	Neither Oppose Nor Support	Support	Strongly Support
Provide toilet facilities on beaches and islands	12.2%	11.4%	12.7%	34.6%	29.1%
Provide sanitary pumping stations	6.4%	7.2%	26.0%	32.8%	27.7%
Provide litter barrels and trash collection service on beaches and islands	12.2%	9.3%	5.1%	23.2%	50.2%
Be more aggressive in enforcement of existing rules and regulations	1.7%	3.4%	18.2%	31.8%	44.9%

Table 19 Are safety controls needed?

Do you feel that controls are needed to protect the safety of people who use the river for recreation?

53.0% YES, controls are needed to protect the safety of people who use the river for recreation.

12.4% NO, there is not enough danger to justify controls.

34.2% NO, although there is danger involved in river recreation, people should be allowed to face the danger and take the consequences.

Table 20 Safety control options

How would you feel about the following controls aimed at personal safety? Please circle one response for each control.

	Strongly Oppose	Oppose	Neither Oppose Nor Support	Support	Strongly Support
Require everyone to wear a life jacket while on the river	26.8%	33.5%	17.2%	10.9%	11.7%
Require every group to have approved first-aid equipment	4.1%	5.0%	12.9%	41.5%	36.5%
Prohibit travel on the river at unsafe times (during storms, high water, etc.)	7.5%	21.3%	27.2%	23.0%	20.9%
Prohibit travel on the river by unsafe watercraft	0.8%	2.5%	7.1%	39.7%	49.8%
Keep separation between various types of watercraft (e.g., runabouts and cabin cruisers)	16.5%	26.7%	36.0%	11.0%	9.7%
Require each group to have an education contact prior to the trip so the managing agency can explain the rules and hazards	9.2%	23.4%	35.1%	19.2%	13.0%
Post signs warning and advising of hazards	0.4%	5.9%	6.7%	47.5%	39.5%
Be more aggressive in enforcement of existing rules and regulations	1.7%	3.8%	19.5%	41.9%	33.1%

Table 21 Preferred facilities

How would you feel about providing the following facilities and improvements? (circle one)

	Favor	Favor with Reservations	Don't Care	Oppose with Reservations	Oppose
seach and rescue services	61.6%	24.9%	9.3%	1.7%	2.5%
designated swimming areas	31.3%	20.6%	13.7%	16.3%	18.0%
emergency telephones along the river	49.6%	20.5%	12.8%	6.8%	10.3%
drinking water	37.0%	15.5%	21.8%	5.0%	20.6%
showers	26.4%	14.5%	25.1%	7.7%	26.4%
electrical hook-ups	22.6%	12.3%	27.2%	8.1%	29.8%
picnic tables	38.1%	17.4%	18.2%	5.1%	21.2%
piers or docks	49.1%	21.1%	13.4%	4.3%	12.1%

Table 22 Who should provide facilities

Who should provide facilities and improvements? (More than one may be circled). (Percentage of those who circled each item)

	Private Business	Local Government	County Government	State Government	Federal Government
search and rescue services	6.2%	23.6%	24.0%	42.3%	36.1%
designated swimming areas	5.4%	34.3%	19.8%	32.8%	19.1%
emergency telephones along the river	12.8%	16.5%	12.4%	41.9%	29.5%
drinking water	11.2%	26.0%	14.9%	34.0%	16.6%
showers	15.7%	23.6%	12.4%	29.5%	12.9%
electrical hook-ups	18.2%	21.1%	12.0%	29.0%	12.4%
picnic tables	11.2%	32.2%	18.2%	33.2%	12.9%
piers or docks	14.5%	31.0%	16.1%	34.2%	21.2%

Table 23 Who should pay for services?

Who should pay for services? (Circle one.)

	All Recreation Users	Only Those Who Use	General Tax Funds	Does Not Apply
search and rescue services	27.7%	17.4%	49.1%	5.4%
designated swimming areas	18.8%	35.1%	30.8%	14.9%
emergency telephone along the river	24.1%	27.4%	38.7%	9.4%
drinking water	25.0%	27.0%	33.8%	13.7%
showers	16.1%	49.8%	19.5%	14.1%
electrical hook-ups	14.2%	53.4%	17.6%	14.7%
picnic tables	28.8%	21.7%	37.3%	11.8%
piers or docks	24.3%	29.9%	36.9%	8.4%

Table 24 Priority listing of management options

Given the existing conditions at the river as you experience them what priority would you give to each of the following management actions?

	Very low Priority	Low Priority	Medium Priority	High Priority	Very High Priority
Provide more camping areas along the river	24.7%	16.2%	24.3%	15.3%	18.7%
Develop hiking trails along the river	36.3%	29.9%	26.5%	4.3%	2.1%
Improve existing access roads	18.8%	15.8%	32.5%	20.5%	11.5%
Provide more points of public access to river	15.7%	11.9%	28.8%	22.9%	19.9%
Control flow of water in river for recreational use	16.3%	15.0%	24.9%	22.7%	20.2%
Provide better information services (brochures, maps, signs, displays, etc.) regarding:					
1. Flow of water in river	12.4%	17.9%	33.3%	20.9%	14.5%
2. Level of congestion on the river	15.6%	14.7%	38.1%	19.5%	11.3%
3. Locations of camping areas	12.6%	11.3%	32.0%	29.4%	13.9%
4. Locations of access points	9.0%	8.6%	27.9%	37.3%	16.3%
5. Navigation hazards	3.4%	2.5%	7.2%	29.7%	56.4%
6. Natural & scenic features	6.5%	8.3%	35.7%	32.6%	16.1%
7. Historic sites	16.3%	15.4%	41.5%	20.1%	12.0%
8. Availability of services (gas, food, lodging, etc.)	4.6%	4.6%	15.6%	39.2%	35.9%

Table 25 User's group affiliation

Do you belong to any group(s) concerned with issues involving the Mississippi River?

Yes 11.5%
No 88.5%

Table 26 Does user plan to visit specific area?

Do you plan to visit any specific part of the Mississippi River this year (1979)?

Yes 79.7%
No 19.4%

Table 27 Visit frequency

How often do you plan to visit the Mississippi this year (1979)?

6.3%	1 - 3 times	58.5%	about once a week	8.0%	undecided
6.7%	4 - 8 times	19.6%	almost daily		

Tables 28 Planned activities

Do you plant to hunt along the Mississippi River during 1979?

Yes 16.4% IF YES, what type of game? Ducks 45.9%

Do you plan to fish along the Mississippi River during 1979?

Yes 66.8%

Do you plan to camp along the Mississippi River during 1979?

Yes 78.1%

Do you plan to boat along the Mississippi River during 1979?

Yes 97.9%

Table 29 Most important activities

Which of the following activities are most important to you to do on the Mississippi River? Choose three (3) and rank them as 1, 2, 3 with 1 being the most important

	ranked most important	ranked 2nd most important		ranked most important	ranked 2nd most important
hunting	1.9%	1.9%	camping	7.0%	28.0%
fishing	2.3%	14.2%	picnicking	1.4%	16.1%
boating	85.1%	7.6%	swimming	2.3%	32.2%

Table 30 Boat type

What type boat(s) will you be using this year?

16.5%	fishing boat	5.8%	canoe	73.1%	runabout
2.1%	sailboat	2.1%	tourboat	14.9%	houseboat
16.9%	cabin cruiser	1.2%	yacht		

Table 31 Boat rental

Will you be renting a boat this year?

3.3% Yes

IF YES, what type(s)?

1.7%	fishing boat	0%	canoe	0%	yacht
0%	sail boat	0%	runabout		
0.8%	cabin cruiser	1.7%	houseboat		

Table 32 Marina rental

Will you be renting a slip or marina space this year?

Yes	31.9%
No	68.1%

Table 33 Fuel availability - will it affect plans?

Do you think the availability of fuel this summer (1979) will affect your vacation plans?

Yes	50.0%
No	50.0%

Table 34 Fuel availability - alternatives

If there is less fuel available for motorized vehicles (including boats), do you think you would: (More than one may be checked).

48.3%	drive your car less
55.8%	not travel as far distances in your car
21.1%	use your boat less often
63.6%	not travel as far in your boat
9.5%	not change either use

Table 35 Fuel availability - effects on river use

If there is less fuel for use in boats, do you think you would visit the Mississippi River: (More than one may be checked).

30.2%	less often
16.1%	for shorter times
52.1%	the same as planned
1.7%	more often
9.5%	for longer times

APPENDIX B

1979

UPPER MISSISSIPPI RIVER RECREATION

MAILED FOLLOW-UP INSTRUMENT

MISSISSIPPI RIVER RECREATION SURVEY

THIS SECTION IS CONCERNED WITH WHAT TYPE OF RECREATION YOU DO, WHAT YOU VISIT AND WHICH RIVERS YOU PREFER.

As you answer the following questions, please try to be consistent in the use of name places. Common names such as those found on highway maps are preferred to local names. The data will be statistically compiled so names are important.

1. Do you have a particularly favorite location(s) on the Mississippi River?
   _____ Yes _____ No

   IF YES, WHERE: _____

2. a) Before your summer 1978 water based visit, had you ever been on a river visit? (A "river visit" refers to being on a river or stream in an innertube, canoe, kayak, raft, motorboat, etc.).

   _____ YES (Please continue with "b" below).

   _____ NO (Please go to Question No. 4).

   b) On what water bodies, e.g., have you taken river visit(s)? Please list their names below, the number of visits on each river, and name the states or foreign countries where they are located. (If more space is needed, use the back of this page):

Water Body (Common Name)	Specific Location	Number of Visits	State or Foreign Country

3. Of the water bodies you have listed above, please rank the three that are most important for the type of recreational experience you prefer; with "1" being the most favored.

   1) _____ river, lake, reservoir, etc.

   2) _____ river, lake, reservoir, etc.

   3) _____ river, lake, reservoir, etc.

4. Of all the water bodies you visited in the last two years, which do you consider: (Please name one waterbody and state or foreign country on each line)

the least crowded: _____
the best canoeing: _____
The best fishing: _____
the best motorboating: _____
the most beautiful: _____
having the most wildlife: _____
the best environmental quality: _____
best overall recreational experience: _____
the least noisy: _____
the least developed: _____

5. Are there any water bodies (including specific locations on the Mississippi River) you use to visit that you no longer visit? _____ Yes _____ No

IF YES, which bodies: _____
IF NO, please go to Question No. 7.

6. If you once used other bodies of water, but have since stopped going, please check all appropriate reasons why and list the location they relate to (one name and state per line)

_____ too far to go: _____
_____ it costs too much to go there: _____
_____ too crowded: _____
_____ litter problems: _____
_____ too much noise: _____
_____ unsafe boat operation: _____
_____ silty water: _____
_____ water pollution: _____
_____ unsafe swimming: _____
_____ unsafe boating conditions, e.g., floating debris, submerged structures: _____
_____ too much development: _____
_____ too much destroyed vegetation: _____
_____ change in fishing conditions: _____
_____ water level too low: _____
_____ other, specify: _____

7. For how many years has boating been an important activity for you? _____ years
Please enter a zero (0) if the question does not apply to you.

8. For how many years have you been boating on the Mississippi River? _____ years
Please enter a zero (0) if the question does not apply to you.

9. If you've been recreating on the Mississippi for less than four years, please indicate reasons why (check all that apply). Leave blank if you have used the river for more than four years.

_____ recently moved to this area.
_____ only recently learned about recreating on the Mississippi.
_____ no longer enjoy old favorite spot.
_____ recently bought necessary recreating equipment.
_____ social reasons.
_____ other, specify: _____

10. Which statement below most closely describes your point of view concerning the people you saw on the Mississippi River during 1978 (check only one):

_____ on this river, neither the number of people nor their behavior was disturbing to me.
_____ the behavior of people was more disturbing to me than the numbers of people.
_____ the numbers of people were more disturbing to me than their behavior.
_____ both the numbers and behavior of people were disturbing to me.

11. During 1978, the Mississippi River was: (Check only one)

a) too crowded: _____ all the time _____ on holidays only _____ on weekends only _____ on week days only
b) slightly crowded: _____ all the time _____ on holidays only _____ on weekends only _____ on week days only
c) _____ not crowded at any time

Please circle one of the following in each of the next four questions:

SD = strongly disagree PA = partially agree
PD = partially disagree SA = strongly agree

12. The quality of the river experience is not changed by meeting people.

SD PD PA SA

13. Encountering a group of quiet people on the river doesn't bother me.

SD PD PA SA

14. Encountering groups of people as I travel on the river doesn't bother me as much as encountering groups of people when I stop on shore.

SD PD PA SA

15. Encountering groups of people when I stop on shore or islands doesn't bother me as much as encountering groups of people as I travel on the riverway.

SD PD PA SA

THIS SECTION INVOLVES COMMENTS SPECIFICALLY RELATED TO YOUR MISSISSIPPI RIVER VISITS DURING 1978

16. Generally, how did the following factors affect your recreation experience? Please circle one comment per factor.

	Positive	Had No Effect	Negative
sunny weather	+	0	-
cloudy weather	+	0	-
rainy weather	+	0	-
rough water	+	0	-
smooth water	+	0	-
high water	+	0	-
litter at an island or sand bar	+	0	-
barge tows	+	0	-
other boaters	+	0	-
cities or towns seen	+	0	-
industrial development seen	+	0	-
residential development seen	+	0	-
cottage development seen	+	0	-

17. Did you ever use a lock during 1978? _____ Yes _____ No

18. On the average, did you have to wait too long to use the lock? _____ Yes _____ No
IF YES which lock? _____
What do you think is the average time you waited? _____

19. While waiting to pass through locks, would you prefer to (check one):
_____ cruise _____ anchor _____ return to an island _____ tie up in a holding area _____ other (specify): _____

20. If you don't use locks, why? _____

_____

21. Is there adequate boat access to the Mississippi? _____ Yes _____ No

IF NO, what areas? _____

IF NO, any specific time period(s)?

_____ 7:00 A.M. - 10:00 A.M.
_____ 10:00 A.M. - Noon
_____ between noon and 4:00 P.M.
_____ between 4:00 P.M. and 7:00 P.M.
_____ after 7:00 P.M.
_____ weekends
_____ weekdays
_____ holidays

22. Did you use the Mississippi for recreation during:

_____ summer (Memorial Day to Labor Day)
_____ fall (Labor Day to early freezes)
_____ winter (during freeze periods)
_____ spring (before Memorial Day)

IN THIS SECTION WE ARE INTERESTED IN WHAT YOU THINK ABOUT MANAGING RECREATION ON THE MISSISSIPPI RIVER.

23. Do you feel the number of people using the Mississippi River should be limited? (Check only one)

_____ YES, limits are needed because there is an existing problem.
_____ YES, limits are needed now to prevent over use from occurring in the future.
_____ NO, limits are not needed now.
_____ NO, there should be no limits now or in the future.

IF YES, what kind of limits would you recommend and where?

_____

_____

24. Do you feel that controls are needed to prevent the environment from being damaged by recreational use of the river? (Check only one)

_____ YES, controls are needed now to stop present environmental damage. What damage do you feel is being caused by recreation?

_____

_____ YES, controls are needed now to prevent the possibility of future damage.
_____ NO, controls are not needed now, but should be imposed if and when environmental damage occurs.
_____ NO, there should be no controls now or in the future.

IF YES, what kind of controls would you recommend and where?

_____

_____

25. If and when recreational use of the river does cause environmental damage, how would you feel about the following management actions? Please circle one comment for each action.

	Strongly Oppose	Oppose	Neither Oppose Nor Support	Support	Strongly Support
Prohibit the use of cans, bottles and other nonburnable disposable containers	SO	O	M	S	SS
Require people to carry out their own trash	SO	O	M	S	SS
Require all watercraft to carry portable toilets	SO	O	M	S	SS
Prohibit the gathering of firewood	SO	O	M	S	SS
Prohibit open fires	SO	O	M	S	SS
Allow fires only at designated locations	SO	O	M	S	SS
Prohibit axes and chain saws	SO	O	M	S	SS
Allow camping only at designated locations	SO	O	M	S	SS
Prohibit firearms	SO	O	M	S	SS
Place pavement at heavily used locations (boat landings, etc.)	SO	O	M	S	SS
Provide firewood at campsites and picnic areas on beaches and islands	SO	O	M	S	SS
Provide tent platforms in camping areas on beaches and islands	SO	O	M	S	SS
Provide toilet facilities on beaches and islands	SO	O	M	S	SS
Provide sanitary pumping stations	SO	O	M	S	SS
Provide litter barrels and trash collection service on beaches and islands	SO	O	M	S	SS
Be more aggressive in enforcement of existing rules and regulations	SO	O	M	S	SS

	Strongly Oppose	Oppose	Neither Oppose Nor Support	Support	Strongly Support
Other ways to protect the environment:					
_____	SO	O	M	S	SS
_____	SO	O	M	S	SS

26. Do you feel that controls are needed to protect the safety of people who use the river for recreation?

_____ YES, controls are needed to protect the safety of people who use the river for recreation.

_____ NO, there is not enough danger to justify controls.

_____ NO, although there is danger involved in river recreation, people should be allowed to face the danger and take the consequences.

27. How would you feel about the following controls aimed at personal safety? Please circle one response for each control.

	Strongly Oppose	Oppose	Neither Oppose Nor Support	Support	Strongly Support
Require everyone to wear a life jacket while on the river	SO	O	M	S	SS
Require every group to have approved first-aid equipment	SO	O	M	S	SS
Prohibit travel on the river at unsafe times (during storms, high water, etc.)	SO	O	M	S	SS
Prohibit travel on the river by unsafe watercraft	SO	O	M	S	SS
Keep separation between various types of watercraft (e.g., runabouts and cabin cruisers)	SO	O	M	S	SS
Require each group to have an education contact prior to the trip so the managing agency can explain the rules and hazards	SO	O	M	S	SS

27. (cont.)	Strongly Oppose	Oppose	Neither Oppose Nor Support	Support	Strongly Support
Post signs warning and advising of hazards	SO	O	M	S	SS
Be more aggressive in enforcement of existing rules and regulations	SO	O	M	S	SS
Other ways to promote safety:					
_____	SO	O	M	S	SS
_____	SO	O	M	S	SS

The next three questions pertain to your opinions about providing facilities and improvements on the Mississippi River. Please circle one set of letters for each facility.

28. How would you feel about providing the following facilities and improvements? (circle one)

	Favor	Favor with Reservations	Don't Care	Oppose with Reservations	Oppose
search and rescue services	F	FR	DC	OR	O
designated swimming areas	F	FR	DC	OR	O
emergency telephones along the river	F	FR	DC	OR	O
drinking water	F	FR	DC	OR	O
showers	F	FR	DC	OR	O
electrical hook-ups	F	FR	DC	OR	O
picnic tables	F	FR	DC	OR	O
piers or docks	F	FR	DC	OR	O
other: _____	F	FR	DC	OR	O
_____	F	FR	DC	OR	O

29. Who should provide the facilities and improvements? (More than one may be circled).

	Private Business	Local Government	County Government	State Government	Federal Government
search and rescue services	PB	LG	CG	SG	FG
designated swimming areas	PB	LG	CG	SG	FG
emergency telephones along the river	PB	LG	CG	ST	FG

29. (Cont.)	Private Business	Local Government	County Government	State Government	Federal Government
drinking water	PB	LG	CG	SG	FG
showers	PB	LG	CG	SG	FG
electrical hook-ups	PB	LG	CG	SG	FG
picnic tables	PB	LG	CG	SG	FG
piers or docks	PB	LG	CG	SG	FG
other:					
_____	PB	LG	CG	SG	FG
_____	PB	LG	CG	SG	FG

30. Who should pay for the services? (Circle one).

	All Recreation Users	Only Those Who Use	General Tax Funds	Does Not Apply
search and rescue services	AU	OU	GF	NA
designated swimming areas	AU	OU	GF	NA
emergency telephone along the river	AU	OU	GF	NA
drinking water	AU	OU	GF	NA
showers	AU	OU	GF	NA
electrical hook-ups	AU	OU	GF	NA
picnic tables	AU	OU	GF	NA
piers or docks	AU	OU	GF	NA
other:				
_____	AU	OU	GF	NA
_____	AU	OU	GF	NA

31. Given the existing conditions at the river as you experience them, what priority would you give to each of the following management actions?

	Very low Priority	Low Priority	Medium Priority	High Priority	Very High Priority
Provide more camping areas along the river	VLP	LP	MP	HP	VHP
Develop hiking trails along the river	VLP	LP	MP	HP	VHP
Improve existing access roads	VLP	LP	MP	HP	VHP
Provide more points of public access to the river	VLP	LP	MP	HP	VHP
Control the flow of water in the river for recreational use	VLP	LP	MP	HP	VHP

31. (Cont.)	Very low Priority	Low Priority	Medium Priority	High Priority	Very High Priority
Provide better information services (brochures, maps, signs, displays, etc.) regarding:					
1. The flow of water in the river	VLP	LP	MP	HP	VHP
2. Level of congestion on the river	VLP	LP	MP	HP	VHP
3. Locations of camping areas	VLP	LP	MP	HP	VHP
4. Locations of access points	VLP	LP	MP	HP	VHP
5. Navigation hazards	VLP	LP	MP	HP	VHP
6. Natural and scenic features	VLP	LP	MP	HP	VHP
7. Historic sites	VLP	LP	MP	HP	VHP
8. Availability of services (gas, food, lodging, etc.)	VLP	LP	MP	HP	VHP
Other improvements that you think should be listed:					
_____	VLP	LP	MP	HP	VHP
_____	VLP	LP	MP	HP	VHP

32. What do you feel is the most important issue currently facing the Upper Mississippi River? How would you suggest dealing with it?

_____

_____

33. Do you belong to any group(s) concerned with issues involving the Mississippi River? _____ Yes _____ No

IF YES: a) which group(s) _____

b) how long have you been a member? _____ year(s)

THIS SECTION INVOLVES COMMENTS ON YOUR RECREATION PLANS FOR THIS COMING YEAR (1979)

34. Do you plan to visit the Mississippi during 1979? _____ Yes _____ No

IF NO, why? _____

_____

_____ (If NO please go to Q.47)

IF YES, please continue.

35. Do you plan to visit any specific part of the Mississippi River this year?

_____ Yes _____ No

IF YES, which part? _____

36. How often do you plan to visit the Mississippi this year?

_____ 1-3 times _____ about once a week _____ undecided

_____ 4-8 times _____ almost daily

37. Do you plan to hunt along the Mississippi River during 1979? _____ Yes _____ No

IF YES, what type of game _____

38. Do you plan to fish along the Mississippi River during 1979? _____ Yes _____ No

39. Do you plan to camp along the Mississippi River during 1979 ? _____ Yes _____ No

40. Do you plan to boat along the Mississippi River during 1979? _____ Yes _____ No

41. Which of the following activities are most important to you to do on the Mississippi River? Choose three (3) and rank them as 1, 2, 3 with 1 being the most important.

_____ hunting _____ camping
_____ fishing _____ picnicking
_____ boating _____ swimming

42. What type of boat(s) will you be using this year?

_____ fishing boat _____ canoe _____ runabout
_____ sailboat _____ tourboat _____ houseboat
_____ cabin cruiser _____ yacht

43. Will you be renting a boat this year? _____ Yes _____ No

IF YES:

a) What type(s)?

_____ fishing boat
_____ sail boat
_____ cabin cruiser
_____ canoe
_____ runabout
_____ houseboat
_____ yacht

b) From whom? _____

44. Will you be renting a slip or marina space this year? _____ Yes _____ No

IF YES, where _____

The following questions ask what effect you think the availability of fuel will have on your 1979 summer vacation plans.

45. Do you think the availability of fuel this summer will affect your vacation plans? _____ Yes _____ No

46. If there is less fuel available for motorized vehicles (including boats), do you think you would: (More than one may be checked).

_____ drive your car less
_____ not travel as far distances in your car
_____ use your boat less often
_____ not travel as far in your boat
_____ not change either use

47. If there is less fuel for use in boats, do you think you would visit the Mississippi River: (More than one may be checked).

_____ less often
_____ for shorter times
_____ the same as planed (Question #36)
_____ more often
_____ for longer times

48. Was this questionnaire filled out by the person the envelope was addressed to?

_____ Yes _____ No

IF NO, what is the: Age _____ years
Sex _____

of the respondent and what is the relationship to the addressee _____.

THANK YOU VERY MUCH FOR YOUR HELP AND COOPERATION

PLEASE DON'T FORGET TO MAIL THIS BACK IN THE ENCLOSED ENVELOPE