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Engineering & Sciences applied to the earth & its environment

November 1, 1996

Mr. Steven R. Wharton
Environmental Scientist
United States Environmental Protection Agency -- Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

RE: Follow-up to October 22 meeting between Alcoa and EPA

Dear Steve:

In the meeting between EPA and Alcoa's Davenport Works in Kansas City on October 22, 1996, there were several pieces of information we discussed which we are providing copies of. Please find the following items enclosed:

- a copy of *Fishing the Mississippi Pools 15, 16 & 17*
- a copy of *Fishing in Iowa -- A Survey of 1994 Iowa Anglers*
- a disk copy of the ECOTOX program with accompanying literature distributed at SETAC in 1995

We have also included a copy of the *Engineering Forum Issue* from December 1995. This issue contains information cited from Ingersoll, et al (1995)[1] which we discussed in the meeting. We have requested a copy of the original manuscript, and will forward a copy to you as soon as we receive it.

Please call me at 615/790-0003 if you have any questions or need additional information.

Sincerely,

Carl M. Crane
Manager of Water Quality and Toxicology

cc: Jim Colbert, EPA Region VII
Marshall Sonksen, Alcoa Davenport Works

[1] see Table 2 on Page 10.

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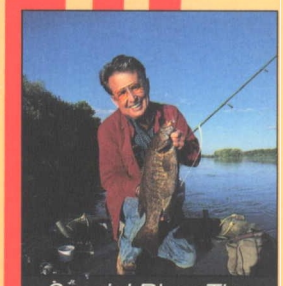
357 Riverside Drive (37064) • P.O. Box 680925 (37068-0925) • Franklin, Tennessee
(615) 790-0003 • Fax (615) 790-0023

Fishing Hot Spots®

FISHING THE MISSISSIPPI

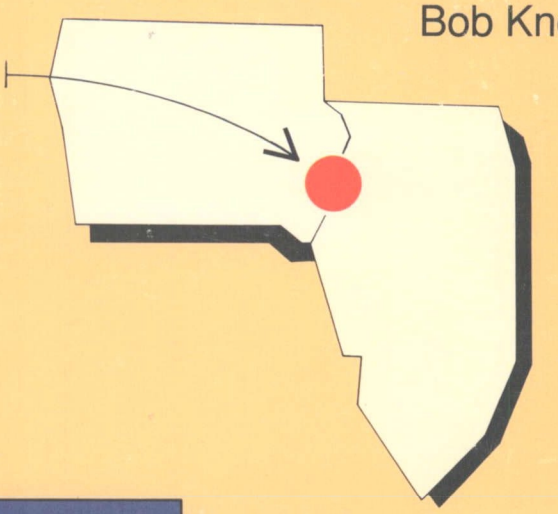
POOLS 15, 16 & 17

by Jim Ocker,
Steve Brich,
Mark Martin &
Bob Knops



Special River Tips by Dan Gapen

From E. Moline, IL, to New Boston, IL – 56 Miles.



Marked Fishing Maps and River Information

Fishing Hot Spots®

FISHING THE MISSISSIPPI POOLS 15, 16 & 17

By
Jim Ocker, Steve Brich,
Mark Martin & Bob Knops

Published by:
Fishing Hot Spots
Rhinelander, WI 54501

First Printing, 1990

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Keeping Up-to-Date With Help From Our Friends

This book was published to help anglers decide where to fish. We have stressed factual, organized data on Mississippi Pools 15, 16 and 17, information you will find most important in enjoying your time on the water.

Some of the material is continuously subject to change by the forces of nature or man. As you come across these discrepancies in the book, please take a moment and let us know of your findings.

Many of the changes and new information that appear in this edition were prompted by helpful suggestions from our readers. Do you know of a new access...an access improvement...a service facility...or a new pattern for fishing?

Please drop us a line at *Fishing Hot Spots*, 1999 River Street, Rhinelander, WI, 54501. The more detailed and specific your comments, the better. Thank you and good fishin'.

Bob Knops
President

ACKNOWLEDGEMENTS

Publication of Fishing Hot Spots' "Fishing the Mississippi - Pools 15, 16, & 17"would not have been possible without the assistance and cooperation of may individuals and organizations. Special thanks are extended to the personnel at the U.S. Army Corps of Engineers - Rock Island District, and the United States Geological Survey. Fishing Hot Spots also thanks Marion Conover, Tom Boland, John Pitlo and Bernard Schonhoff of the Iowa Department of Natural Resources for their many contributions. The assistance of Dan Sallee of the Illinois Department of Conservation is also appreciated. Thanks also go to Commonwealth Edison for their help.

Much of the fishing information contained in this book came from local fishermen, guides and bait shop owners. Fishing Hot Spots thanks the following bait shops and individuals: Dave Carter of Hutch's Bait & Tackle - Buffalo, IA; Bob Farley, Hutch's Bait & Tackle - Buffalo, IA: Tom Barnett - Rock Island, IL; John Shoulty - Muscatine, IA; Joe Chenoweth - Andalusia, IL.

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Word Processing - Tracy Jenkins-Jeranek
Electronic Layout - Jay Christianson
Drafting & Cartography - DuWayne Wiles

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Bass, Dan Gapen Sr.

PREFACE

Extensive research was required to compile the data contained in the Fishing Hot Spots "Fishing The Mississippi" book series. Factual information was gathered from publications of the Illinois Department of Conservation, the Iowa Department of Natural Resources, the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers. Information also was collected from the files of area fish managers, interviews with state and federal management personnel, interviews with area fishermen and from personal visitation to much of the Upper Mississippi River Valley. Great care was taken to ensure that you have the most up-to-date information.

"Fishing The Mississippi" describes each pool and its fishery in detail. This book provides fishing insight on Pools 15, 16 and 17, a segment of the river covering 23,393 acres and stretching 56 miles from Rock Island to New Boston, Illinois. Although these pools are near large industrial cities, excellent fishing is available for largemouth bass, catfish and panfish. In addition, walleye and sauger action is sufficient to interest many anglers.

Through the input of many guides and local fishermen, Fishing Hot Spots has pinpointed dozens of proven spots in each pool. The pools are so vast, however, there are many more sandbars, holes, sloughs and other features that could not be covered thoroughly. Due to constant current, many areas change from one year to the next. Perhaps this is the charm and challenge of the Mississippi River - there are always new fishing areas and patterns to discover.

Information on each pool is presented in the standard Fishing Hot Spots outline form, enabling anglers to easily answer questions and to compare data from pool to pool. Included in our format are descriptions of boat landings and other types of access. To avoid repetition, the definition of each access type is given in the following chart:

Type I -	Direct access to water; with parking and a public or private ramp. Fees for launching and/or parking should be anticipated. Other services may include rentals, marina facilities, fuel, dockage, etc.
Type II -	Direct access to water; without adjacent parking but usually with a public ramp. Fees normally are not charged and other services are limited.
Type III -	Unimproved or carry-in access; no direct ramped launch for a boat trailer. Can be part of a rental facility. Often no services are provided.
Type IV -	Boat rental only; no public launching of any craft. Often part of a resort/ restaurant facility.
Type V -	Navigable water access by boat from adjoining lake or river.

The type and location of access sites are very important. Fishermen must have this information. Many maps and brochures omit boat landings or erroneously record their locations. We have attempted to provide accurate and current information on every viable access site on the river. Personal visitation to every site described in this book is guaranteed.

Included in this book are complete detailed maps of Pools 15, 16 and 17. These are useful tools in learning to fish the river. There is nothing difficult about using one of these maps. Basically, it will show you various river features - wing dams, closing dams, backwater areas, etc. Shaded areas on these maps highlight the prime fishing spots and are numbered to correspond with the accompanying reports.

INTRODUCTION TO THE MISSISSIPPI RIVER

This book introduces you to one of the Midwest's most interesting and productive fisheries - the Upper Mississippi River. The sheer size of this river system has inspired men for generations. Here are some facts about the "Father of Waters."

The Mississippi is the chief river of North America and the longest river in the United States. It flows 2,348 miles from Lake Itasca in northern Minnesota to its mouth in the Gulf of Mexico. The Mississippi and its tributaries drain almost all the land between the Appalachian and Rocky Mountains. This drainage basin covers 1,247,300 square miles and includes the nation's most productive agricultural and industrial regions.

It is also the nation's premier inland shipping lane. Modern vessels can travel the river for more than 1,800 miles, from Minneapolis, Minnesota, to the Gulf of Mexico. Anyone who has seen one of the river's huge cargo barges approach while they are fishing will never forget the sight. The Upper River reaches its widest point at Cairo, Illinois. There is no other river in the United States that can compare in size and majesty to the Mississippi. As you will see, it provides a unique challenge to fishermen and boaters.

The Upper Mississippi River is the segment from the mouth of the Ohio River near Cairo, Illinois, upstream 853 miles to Lower St. Anthony Falls at St. Paul, Minnesota. The river makes a dramatic change in character and becomes extremely wide once it reaches Alton, Illinois, near the mouth of the Missouri River. The stretch from Alton downstream to Cairo is unpooled and is frequently referred to as the Middle Mississippi.

In the early twentieth century it became apparent that the Upper Mississippi River Valley could benefit from a cheap form of transportation to southern markets. The obvious solution was the Mississippi River. At that time, however, the river had only a six-foot deep channel in many places, which was too shallow for the large vessels that were needed.

In 1930, the U.S. Army Corps of Engineers concluded an extensive study of the river and determined that a nine-foot deep navigation channel could be constructed. Congress then authorized legislation to build the channel with a minimum width of 400 feet. This was to be accomplished by constructing a system of locks and dams, wing dams and closing dams, and maintaining it by dredging.

Construction of the channel occurred during the 1930 to 1940 time period. There are 29 locks and dams from Minneapolis, Minnesota, to St. Louis, Missouri. Each dam creates a pool that reaches upstream to the next dam. This pool is designated by a number that is the same as the lock and dam that created it.

What does this mean to fishermen? By the construction of the locks and dams, a somewhat stable water level has led to the development of excellent marsh and aquatic habitat for fish and wildlife. Each pool is now a combination of river and lake.

Habitat is diverse in a typical pool, varying from turbulent rock/rubble tailwaters (below the upper lock and dam) to expansive water that resembles a lake (immediately above the lower impounding lock and dam). In between are the deeper main channel, large side channels, calm sloughs and backwater bays and lakes.

Understanding the nature of the river is necessary to catch fish consistently. The Mississippi hosts a rich and diverse fishery. Nearly all midwestern species of warmwater fish are found in its waters. This amounts to well over 100 varieties. All major panfish and gamefish species are available. You can fish the wing dams for walleye, catfish and drum, and then boat a short distance into an adjoining backwater for largemouth bass, crappie or bluegill.

Fishing the Mississippi is a year-round sport. There is no closed season on the river. Tailwaters below the dams can be fished from a boat, or backwaters can be ice fished for panfish, both during the month of January. There is no end to the fishing opportunities. Huge backwater complexes, thousands of acres in size, have numerous back bays and small channels leading into quiet lakes where you can fish in solitude for bass and bluegill. There are countless shoreline spots available for bank fishing. One of the best features of the pools is that a small fishing boat can be used throughout the river.

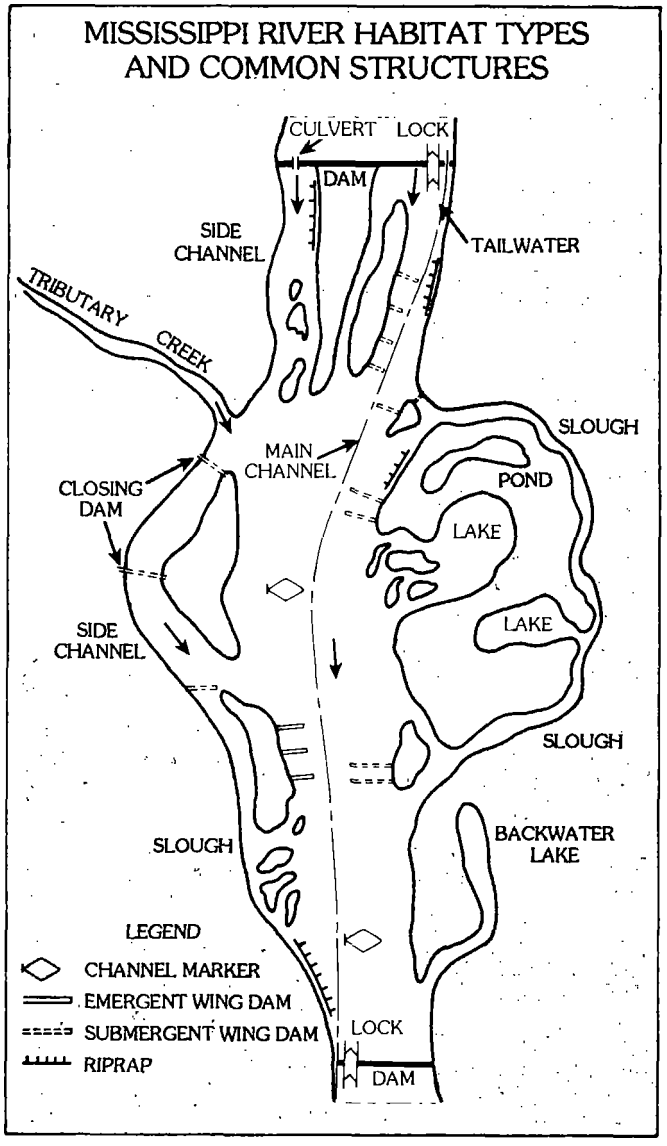
Aesthetically, the Mississippi is awesome in scope. The flat river basin and flood plain rise abruptly into sheer limestone cliffs on both sides of the river, providing a feeling for the tremendous breadth of the river bottom.

Anglers will find certain adjustments necessary to successfully fish the Mississippi. For example, the importance of the water levels cannot be overstated. All fish species are influenced by the volume of water coming down the river. As the flow increases, fish will leave the fast-moving main channels and seek shelter in the slower side channels and backwaters. As a general rule, river species (such as walleye, sauger, drum, and catfish) will be nearer current than lake species (like largemouth bass, crappie and other panfish).

During the spring run-off period, river stage rises dramatically to six to eight feet above summer levels. In some areas floods have been 20 feet over normal levels. High water allows access to areas that in summer and fall are difficult to reach or are high and dry. Of course, locating fish during high water can be difficult because of the expanded habitat. Knowledge of the river and how fish relate to different water levels is very important.

To better understand the habitat types and terminology used in this book, a discussion of the six major river habitat categories common to all pools of the Upper Mississippi follows.

MAIN CHANNEL areas include only portions of the river basin through which large commercial craft can operate. It is defined by combinations of river regulating structures, such as wing dams, riprap, river banks, islands, buoys and other markers. It has a minimum depth of nine feet and a minimum width of 400 feet.



A current always exists in the main channel, varying in velocity with river stages. Bottom type is mostly a function of current. The upper sections have a stronger current and usually a sand bottom, while lower sections have weaker currents and silt bottoms. Scattered patches of gravel or rock are present in a few areas. Most of the main channel is subject to scouring during periods of heavy water flow and during passage of barges in shallower stretches. There is no rooted aquatic vegetation.

MAIN CHANNEL BORDERS are the zones between the defined edges of the main channel and the adjacent river banks. It includes all wing dams. The main channel border is commonly thought of as part of the main channel, but because of varying depths and structures, it is really separate habitat. Buoys often mark the main channel edge of this zone. Where the main channel is very close to the shoreline, a narrow main channel border still exists. Often these banks are riprapped and provide fair to good fish habitat. Piles of spoil (dredged sediment) have been placed along some sections of this zone, sometimes covering wing dams and riprapped shorelines. The bottom is mostly sand in the upper sections of the pools and primarily silt in the lower stretches. Little or no rooted aquatic vegetation is present. This zone provides some of the better late summer and early fall action on the river.

TAILWATERS include the main channel, the main channel border, and other areas immediately below the locks and dams. Turbulence is caused by passage of water through the dam gates and out of the adjacent locks. Since the boundaries of these tailwater areas change according to river stage, an arbitrary downstream limit for this habitat is usually defined as ½ mile below a dam.

The bottom composition ranges from sand to rubble, with limited rooted aquatic vegetation.

SIDE CHANNELS include all departures from the main channel and main channel border in which there is a current during normal river stage. The variations in this category are widespread, ranging from fast-flowing water courses with high banks to sluggish streams winding through marshy areas. Unless they are former main channels, the banks are usually unprotected. Undercut or eroded shorelines are common along side channels, especially near their departure from the main channel. This erosion occurs primarily in the upper sections of the pools where the banks are high and current is swift.

Closing or diversion dams are often found across side channels where they leave the main channel or main channel borders. In the lower section of a pool, closing dams are at greater depths.

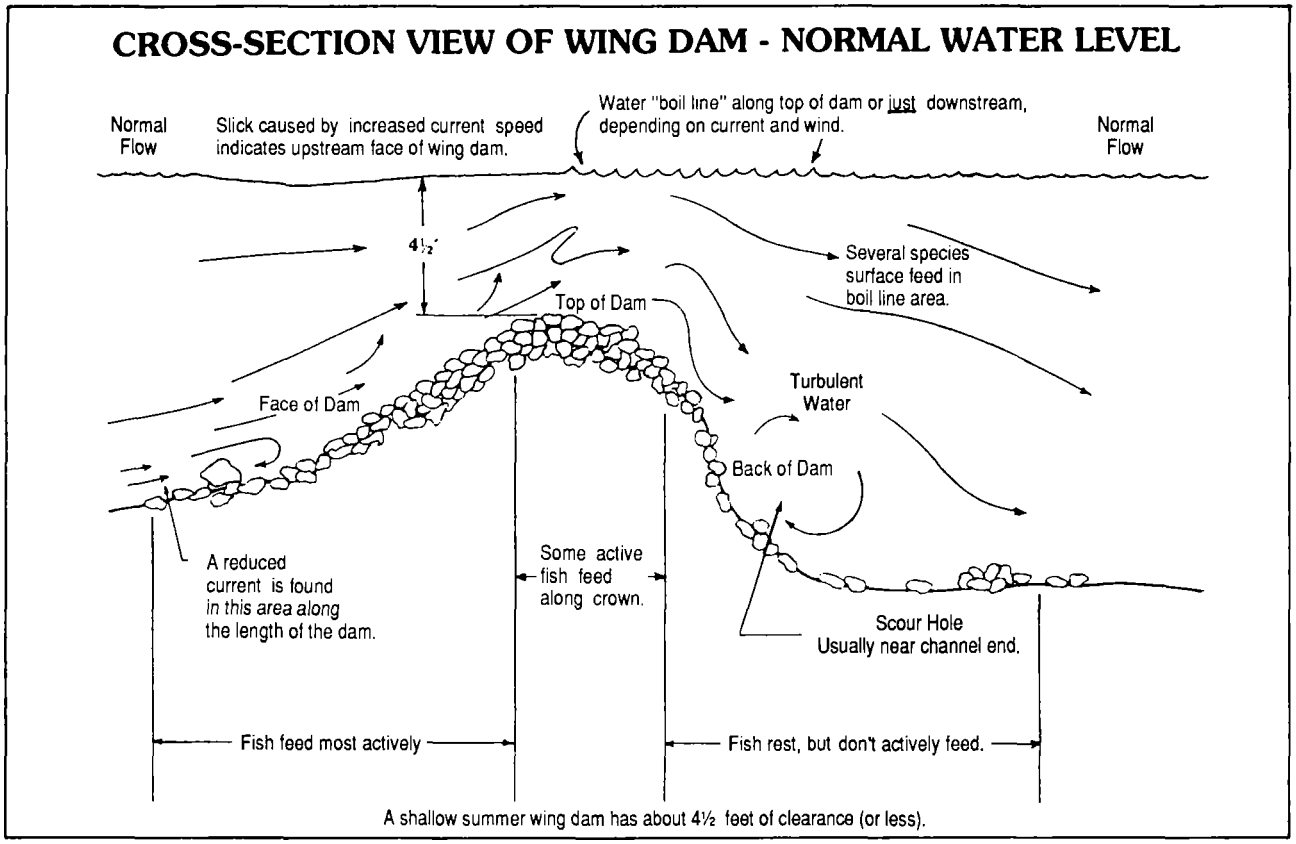
Bottom types usually vary from sand in the upper reaches to silt in the lower. Areas of swift current generally lack rooted aquatic vegetation. Weed growth is common, however, in shallows with silty bottoms and little to moderate current.

RIVER LAKES AND PONDS are depressions on the floodplain between a natural levee and embankment. They have been partially or entirely cut off from the river's current due to a build-up of silt and sand.

River lakes and ponds have bottoms of mostly muck or silt, often forming a layer of more than two feet. Both emergent and submergent types of aquatic vegetation can be abundant. Marshland shorelines are common.

SLOUGHS include all of the remaining fish habitat in the river. Sloughs are often similar to the lake or pond category in some areas, and to the side channel category in other locations. They may be former side channels that have been cut off or that receive only intermittent flow. Some are relatively narrow branches or offshoots of other bodies of water. For the most part, they are characterized by having no current at normal water levels, a muck bottom and an abundance of submergent and emergent aquatic vegetation.

Many side channels have names that include the word "slough." This might be confusing considering the above definitions for each type of habitat. Popular names do not, of course, always follow standard definitions.



Generally, the number of sloughs and river lakes (backwater areas) decreases in the southern pools.

Another general guideline is that water clarity and submergent vegetation also decrease from the northern Mississippi pools to the ones further south. In fact, some pools in Illinois are nearly devoid of submergent weeds.

Along with the major habitat categories just discussed, it would be wise to understand other types of river structures and characteristics and how they relate to your fishing success.

WING DAMS are located within the main channel border, while **CLOSING DAMS** are in side channels and sloughs. Both are extremely important fish-holding structures for many species, and they are unique to large river systems such as the Mississippi.

All the wing dams and closing dams on the Mississippi River were constructed by the U.S. Army Corps of Engineers during the 1878 to 1925 time period. As part of the construction of the nine-foot deep main channel, the Corps of Engineers had to maintain the flow of water in this channel to minimize sedimentation. To ensure proper flow, water flowing over the main channel border was forced back into the main channel with wing dams. Up to 40 percent of the original wing dams have been lost over the years.

Erosion, siltation, and spoil (dredged sediment) have accounted for most of the loss. Wing dams are generally perpendicular to the current, extending from the shoreline out toward the main channel. Some are designated at the deep water end by marker buoys. The length of these wing dams varies from 20 feet to over 100 yards. The top width ranges from six to 20 feet. Most are straight in shape, but a few can be found in "L" or "T" configurations. Basically, they are composed of rock.

In some pools, the tops of wing dams are above water at normal water levels. These structures are called emergent wing dams.

Closing dams are wing dams built completely across entrances to side channels or sloughs.

Their purpose is to prevent current from entering sloughs and side channels, diverting water back into the main channel. Of course, some of the water goes over the top and through the secondary channel, but most of the water changes course and flows back to the main channel.

Because water levels change considerably, these structures will not always lie at a constant depth below the surface. They can be submerged 10 feet or only a few inches, and at times some may even be above the water. During summer and fall when water levels are low, these wing dams can be dangerously close to the surface.

It is important to locate wing dams, for both fishing and safety reasons. The easiest way to find them is to use the maps found in this book. Pinpoint the dams by interpreting the surface of the water.

A wing dam can be located by finding its turbulence line. As the water upstream from the wing dam is displaced and momentarily slowed down, part of it is forced out into the main channel. The rest is forced up over the top of the wing dam, creating a distinct turbulence line (boil line). The line, however, usually is found just downstream of the wing dam (see diagram). The slack water just upstream from the turbulence line is the top of the wing dam. Directly downstream should be a deep scour hole that is marked by surface turbulence. A point to remember: anytime a line of surface turbulence is found, a wing dam or some other obstruction is causing it. Turbulence lines are easily seen when there is no wind or when the wind is blowing against the current. But when the wind blows with the current, turbulence lines are difficult to see.

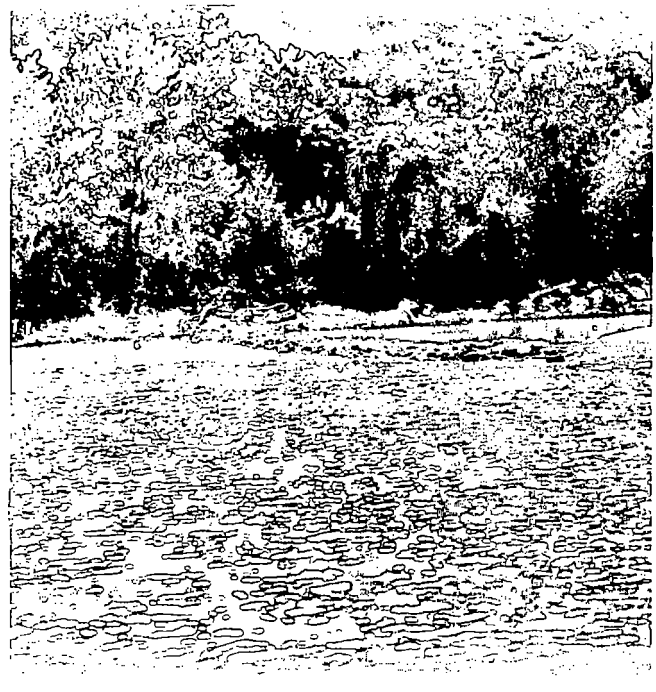
Not all wing dams are of equal value to fish. Some hold many fish while others are deserted. Factors that affect the productivity of a wing dam include its location on the main channel border, the amount of current and the depth of water going over it, and the degree to which the wing dam is silted.

The most productive wing dams usually are located on the outside bend of the river channel. Wing dams closer to the main river channel hold more fish since the increased current flow helps to keep these wing dams from being covered with sand and silt. Increased current also creates a deeper scour hole on the downstream side of the wing or closing dam.

During periods of high water, wing dams lose their importance as fish holding areas. This is generally true for certain species, such as walleye more so than others, like sauger. As water levels rise, fish will move to side channel areas or into backwater sloughs and lakes. During high water, boat and lure control become very difficult. The best all-around time to fish wing dams is during low water periods of summer and fall.

When wing dams were first built, the rock had many holes and crevices that offered cover for small baitfish and crayfish. Over the years as the action of the river silted in these wing dams, these structures became less desirable for forage species. In turn, fewer gamefish were found.

A comprehensive study of wing dams and closing dams was conducted by John Pitlo of the Iowa Department of Natural Resources during



Low water exposes the top of a wing dam. Note the rock/rubble construction. (Steve Brich Photo)

the early 1980's. Much of the information collected during Pitlo's study was based on observations of radio-tagged walleye and sauger.

In addition to the importance of wing dam location, Pitlo found that water depth over the top of the dam also was a significant factor. Shallower dams seemed to hold more walleye (and other species). Pitlo concluded wing dams with less than five feet of water over the top during normal pool levels tend to have the highest fish-holding potential.

The research also showed that while the downstream scoured side of a wing dam is the best place for fish to rest, the upstream side is the primary feeding area for active fish. The base of this upstream side has reduced current and, therefore, provides for easier feeding. From here, walleye and other species move up the face and along the top to feed in the stronger current.

During a study conducted in Pool 8, the largest bluegill, black crappie, walleye, sauger, smallmouth, and shad were collected from wing dams rather than other types of habitat.

Another study in pools to the south showed wing and closing dams attracting more fishermen, producing more fish and yielding better catch rates than any other habitat. During August, more anglers were on the wing dams and more fish were caught than any other month. July was a distant second. Anglers south of Pool 9 rarely fished wing and closing dams prior to late June. Further north, however, high water levels recede earlier so wing dams become productive sooner.

Of the 595 wing dams studied by Pitlo from July 1979 to September 1981, sport fish were more abundant near wing dams in northern pools (Pool 3 through Pool 10) while rough fish were more abundant around wing dams in pools along northern and central Illinois. Significantly more fish were found downstream of wing dam scour holes than were found above.

In pure number, black crappie, sauger and white bass are most common near wing dams. Walleye are found to a slightly lesser degree but still in good quantity. Bluegill, northern pike, white crappie and smallmouth follow in descending number. Bullhead, largemouth bass, rock bass, sunfish and perch are seldom found. White bass use wing dams for spawning.

The further north one fishes on the Upper Mississippi River (and this would include all the Minnesota and Wisconsin stretches), the more species one would expect to catch on wing dams. Artificial lures are popular on northern pools, while worms and nightcrawlers are preferred baits further south. Walleye are the top preference among Wisconsin and Minnesota anglers, while catfish are most popular with anglers to the south.

In summary, a good wing dam is characterized by the following: 1) located on an outside bend of the main channel; 2) contains holes and gaps that are not silted in; 3) has less than five feet of water over the top and deeper water nearby, both on the downstream and upstream sides.

If these conditions exist, chances are good that fish will be present.

RIPRAP is used to protect lengths of shoreline and submerged channel banks prone to erosion. To prevent erosion, large rocks and broken concrete have been placed along these vulnerable areas, in some locations for lengths

A riprapped section of shoreline on the Mississippi River. (Steve Brich photo)

of several hundred yards or more. As opposed to wing dams, almost all riprap is laid parallel to the current. Many riprapped areas extend above and below the waterline and are easily seen. This is especially true along the shoreline. Submerged areas are much more difficult to locate, since they protect channels well out from shore. Many of these are subject to siltation, making them even harder to locate.

Riprap is very similar to wing dams in attracting fish. The most productive riprap has broken rock free from silt, and crevices that allow baitfish and crayfish to hide.

EDDY CURRENTS move in an opposite direction to the primary river flow pattern. On any river, current and its corresponding hydraulics are of utmost importance to anglers. Current strength is a prime factor to consider when looking for fish. Fish of any species do not normally hold in strong current, at least for any length of time, because it requires too much energy. Most of the time, fish that are seemingly caught from current actually were holding behind some object breaking the force of moving water. This might be a wing dam, a single rock, hole or depression.

As current widens abruptly from a constriction or surges past a rock, pier or abutment, an eddy is formed. The area between the water moving in opposite directions is called an eddy break or current break. It is important to actively feeding fish, since they can be close to the strong current, while not exerting much effort to maintain their position. Eddies also can entrap small organisms that attract forage and gamefish.

EQUIPMENT - There are a few invaluable items for fishing the river. One is a good set of maps. Take this book in the boat. The maps will show running sloughs, backwaters, location of wing dams and closing dams, access points into the back bays and lakes and the deep main channel. Most important, it will show how to get back to the landing.

A good depthfinder is essential. The river is constantly changing. An area that is six feet deep in June could be only two feet deep in July. Sand bars are always being shifted by currents. A depthfinder will not only increase catches, but could also prevent a boating accident.

Finally, a push pole should be acquired. This is a long pole (15 feet or longer) used to push a boat over shallow water or through thick weeds. Usually, a "duck bill" is attached to the end so the pole will not sink into the mud. It is especially handy for a boat stuck in shallow water.

CONSUMPTION ADVISORIES - A fish consumption advisory is in effect on Pool 15 for carp and carpsucker. Consumption of these species is not advised due to PCB contamination.

ABOUT THE MAPS - The maps found in this book are a compilation of several different sources. Because no one map contains all the information and detail required for quality fishing maps, Fishing Hot Spots utilized maps from the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and the U.S. Geological Survey. We trust you will find our maps to be essential tools in your fishing success. Remember, they are intended only as fishing maps and should not be used for navigation.

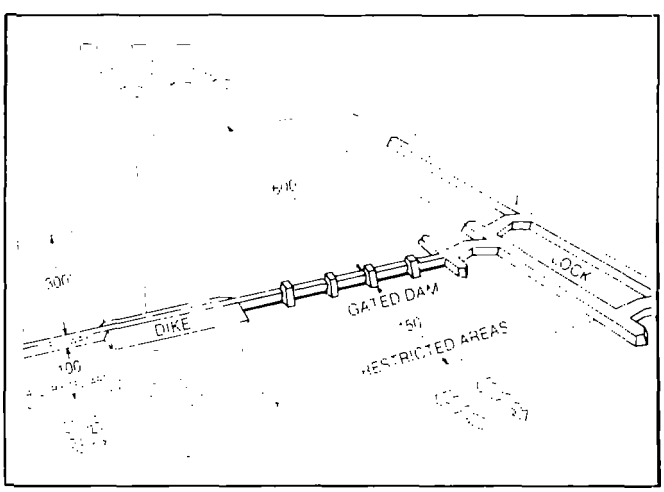
NAVIGATIONAL AIDS & RESTRICTIONS

RESTRICTED AREAS NEAR THE DAMS

Recreational boating and fishing on the Upper Mississippi River can be a safe and pleasant experience as long as a few precautions are taken. The locks and dams operated by the U.S. Army Corps of Engineers present a special situation for those who are not familiar with their potential dangers.

Areas both above and below the dams contain deceptive currents. Surface water near a lock and dam may appear calm, but beneath the surface lie strong and tricky currents, powerful undertows and reverse (eddy) flows. At times, these currents are powerful enough to drag a boat and its occupants to the bottom.

Currents downstream from the dam are particularly deceptive - actually reversing direction and flowing back toward the dam. Many boats have been pulled into the dam gates and have capsized. This is especially true during winter, when the dam gates are lowered and the water flows over the top of the gates (see diagram). Drowning does occur, largely to the unknowing or careless.



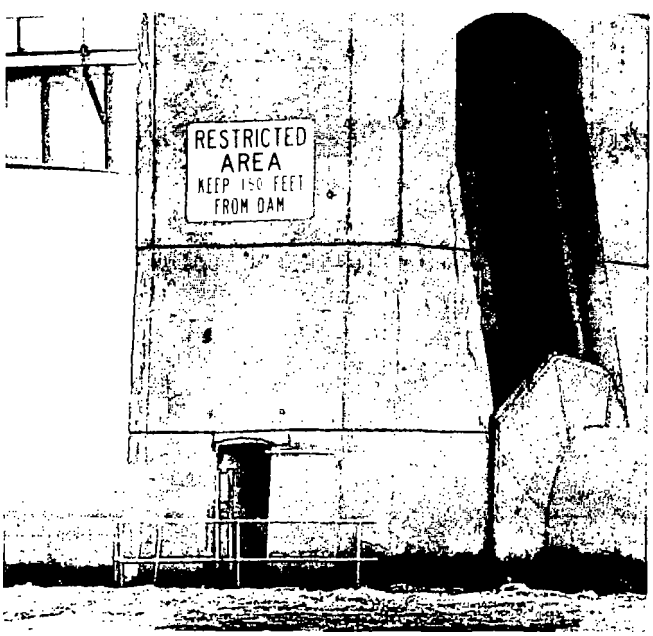
To protect fishermen and boaters, the U.S. Army Corps of Engineers has established the following restrictions for lock and dam areas.

Dam Restrictions

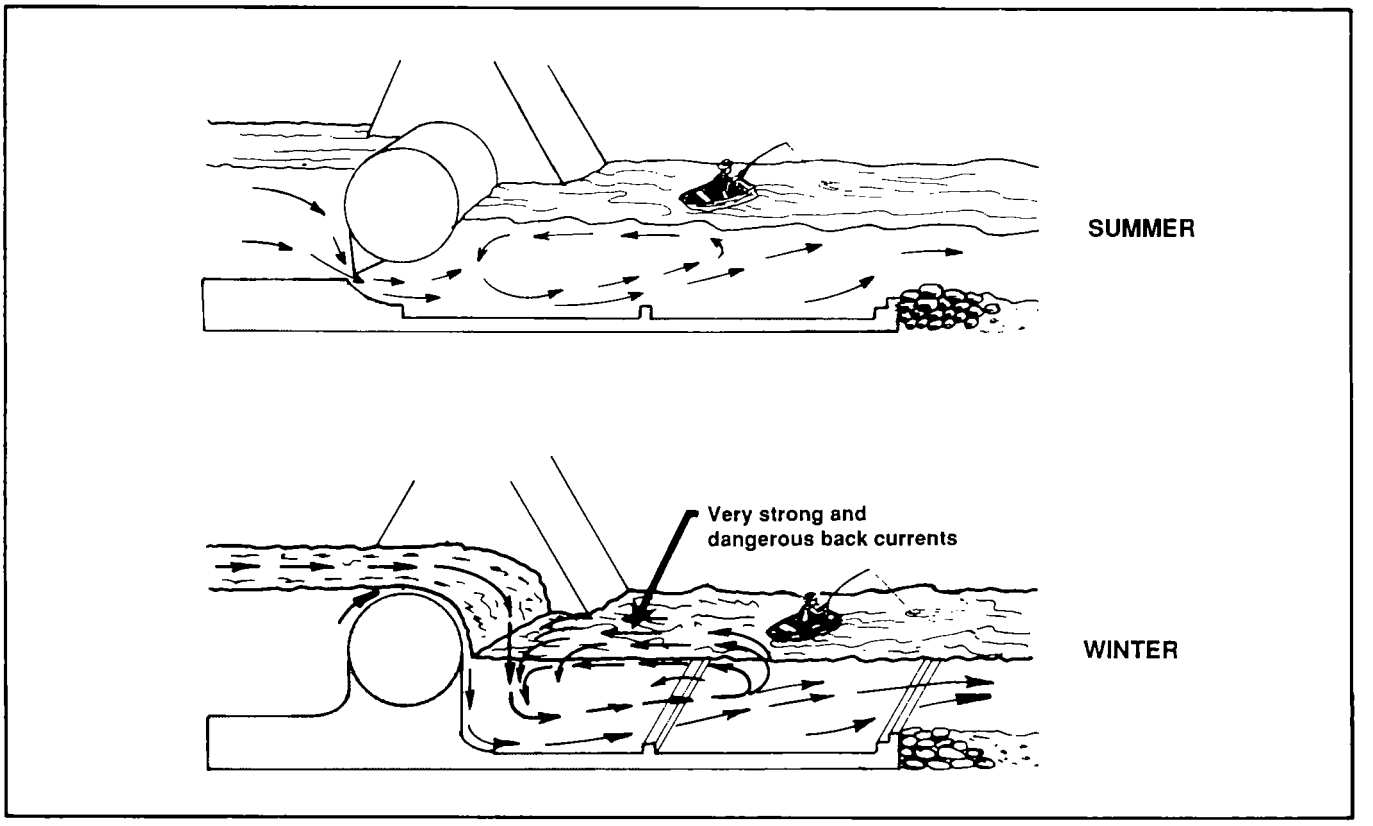
1) Boating is not allowed in the area 600 feet upstream and 150 feet downstream from the dam. Undercurrents and rock bottoms make anchoring within the downstream area extremely dangerous. Clearly marked signs give ample warning, and violators are subject to a fine.

2) Boating is prohibited in the area 300 feet upstream and 100 feet downstream from a spillway. This is more of a warning than a law, but it should be taken seriously.

Note: When fishing in a strong current, care should be taken if anchoring. Never anchor off the stern of the boat. If the anchor hangs up, the transom could be pulled down, filling the boat with water.



Restricted area below a dam. (David F. Hanson photo)



Dangerous currents exist below the dams year-round. In summer, they are formed by water flowing under the gate. In winter, the gates are lowered so water flows over the gates - creating hazardous currents.

NAVIGATIONAL AIDS

To safely navigate the river, knowing the meaning of the different buoys, lights, and daymarks is necessary. All official aids to navigation are designed to assist boaters by marking unsafe areas, directing traffic through proper channels and preventing accidents with other craft.

Two of the most common buoys seen on the river are used to indicate the nine-foot deep main channel. All green (formerly black) and all red companion buoys indicate the boundaries of the main channel. The red buoy (nun) is on the right (starboard) side of the channel when facing upstream. The green buoy (can) is on the left (port) side. Stay between the buoys to navigate the main river channel.

Another type of buoy often seen denotes restricted areas and regulations. Dam or spillway warnings, dangerous obstructions, control areas and informational needs often are marked by white buoys with orange messages or symbols.

As seen on the river maps, there are symbols used for government lights and daymarks. These

Typical government daymark with mileage board. (Steve Brich photo)

are mostly found along the shore and used as references to navigate a course within the main channel.

Navigational lights are white or red on the starboard (right) facing upstream and white or green on the port (left) side. They may be constant or flashing.

All daymarks have reflectors that can be seen at a considerable distance after dark with a spotlight. Those on the starboard side have red reflectors and those on the port side green. All references to navigational aids in this book assume facing upstream.

Lights and daymarks also carry number boards showing the mileage of their location above the mouth of the Ohio River.

When a river bend is encountered, follow the bend in the channel - don't aim in a straight line between the various navigational aids. Also remember, federal law prohibits mooring to, tampering with or obscuring any aid to navigation.

When boating between fishing spots, here are a few things to keep in mind -

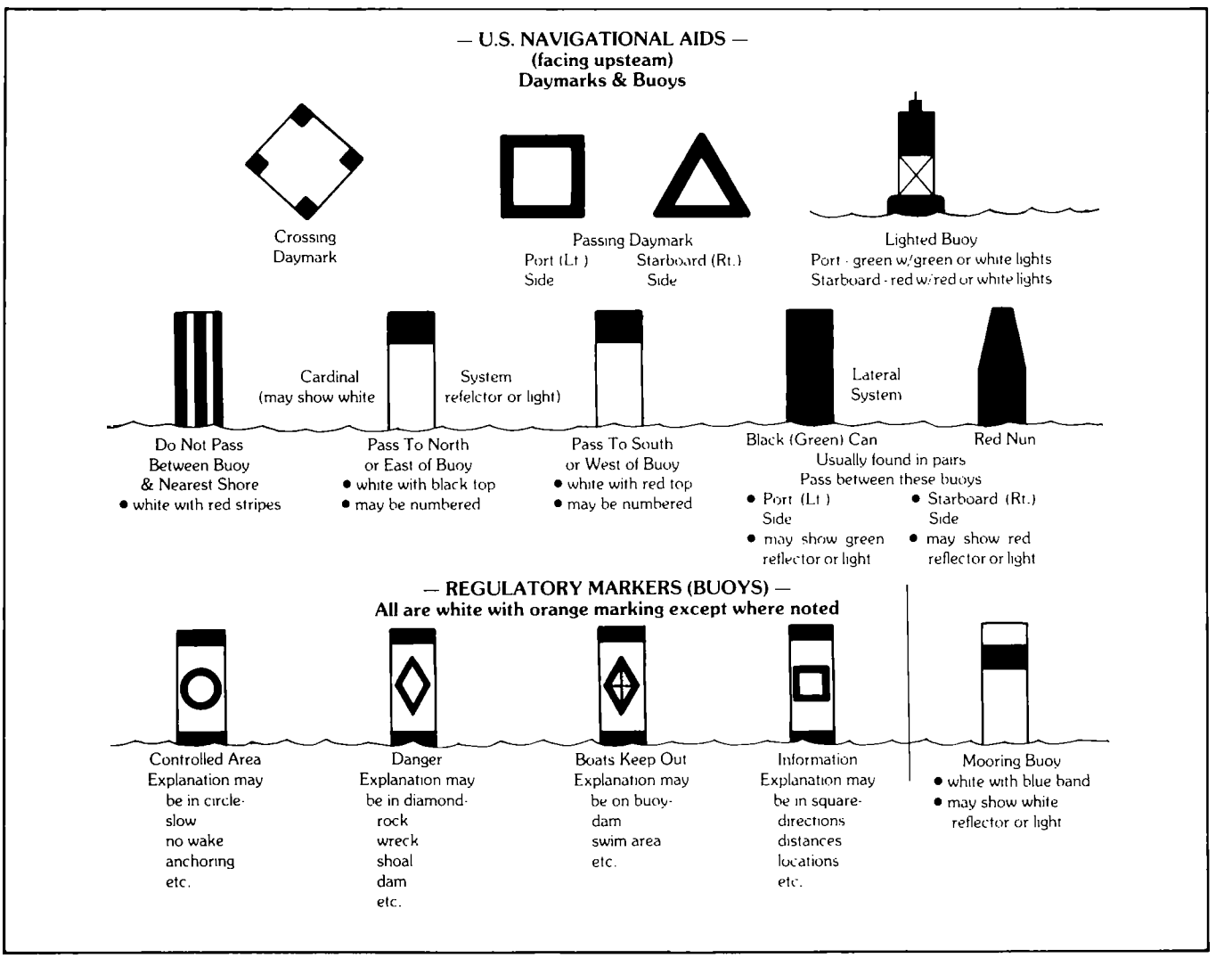
1) Know your present position and the location of the next dam. It is possible to go over a dam if you are in low light conditions or not paying attention.
2) Learn to read the river:
   a) Where the river's flow is reduced, a sand bar is likely; this includes inside turns, above and below islands, around dams, and at the mouths of tributaries.
   b) The slope of the river bank often indicates the depth of water adjacent to it.
3) Learn some ways to detect shallow water:
   a) Looking for irregularities on the surface of the water - riffles, calm surface, etc.
   b) Listening to the motor for a different sound.
   c) Feeling the boat flatten out as it rides up on a bar or shoal.

Navigation light on a riprapped shoreline along the Mississippi River. (Steve Brich photo)

d) Looking at your wake: it will move out more perpendicular to the boat.

e) Employing a lookout in the bow: do not do this at a high speed, and be sure to cut the ignition if confronted with exceptionally shallow water.

4) Stay clear of all commercial tow boats and barges: they can be up to ¼ mile in length, weigh many tons, and draw considerable depths of water. It takes them about a mile to stop, and they have a tremendously long blind spot.



LOCKING THROUGH

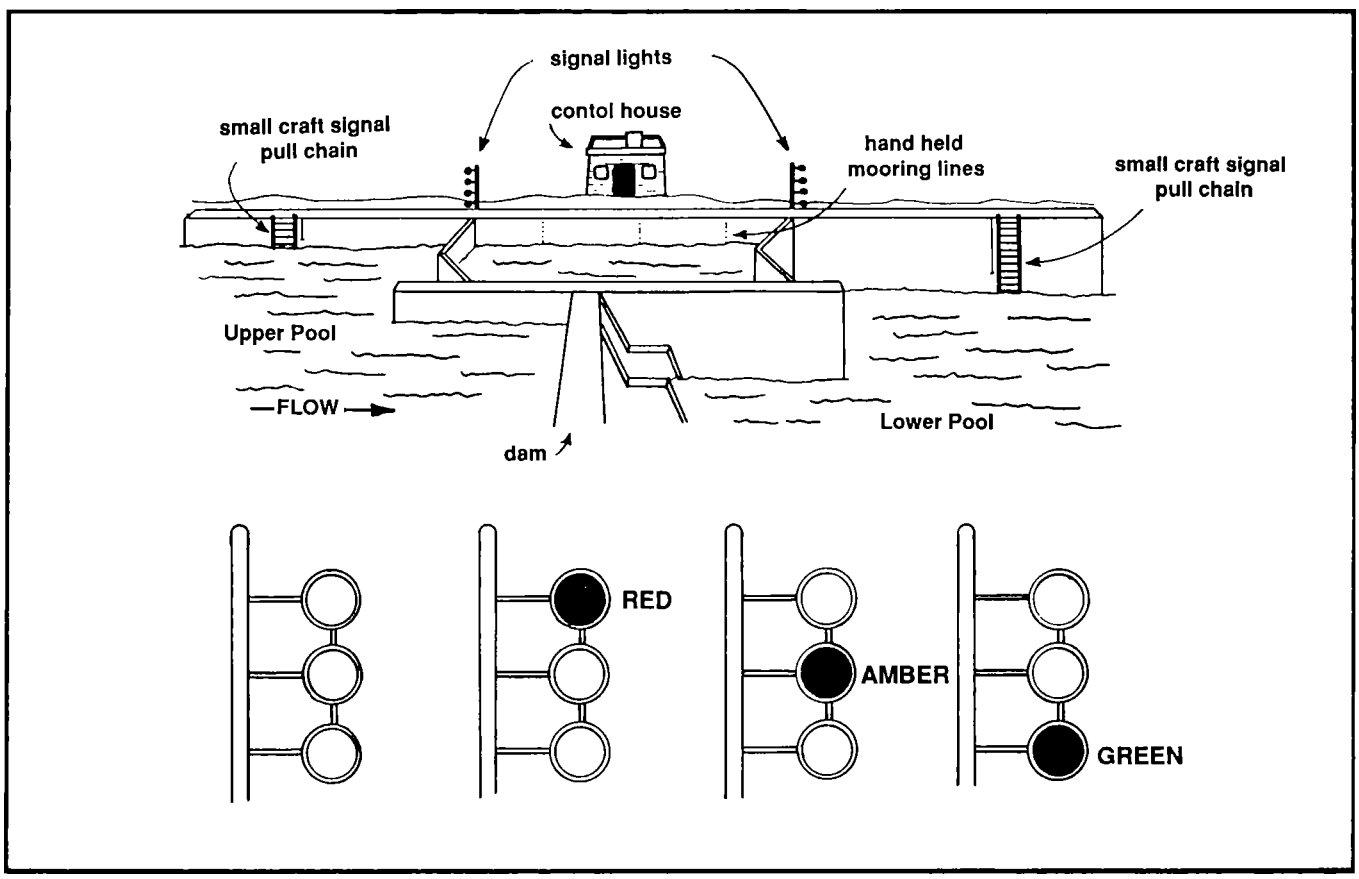
How to Use the Navigational Locks

Each navigational lock on the Mississippi River is for the use of all boaters. These structures were built to accommodate the large commercial barges, but they will service any size boat. Each of the upper river dams is accompanied by a lock. Very simply, a lock is a holding compartment with gates on each end that raise and lower water levels to the elevations of the upper or lower pools.

The procedure for using the navigational locks is very simple if you know the following rules:

1) When a lock is approached, a vertical bank of signal lights will tell you the lock's status. If there is no light, the lock is not in use; if the red light is on, stay clear - do not approach; if the amber light is on, the lock is being prepared for use; and if the green light is on, enter the lock with caution. If a large barge is locking through, the red light may be on for a long time so be patient. The lockmaster takes boats in a first come - first serve order but will attempt to send private craft through between consecutive commercial barges.

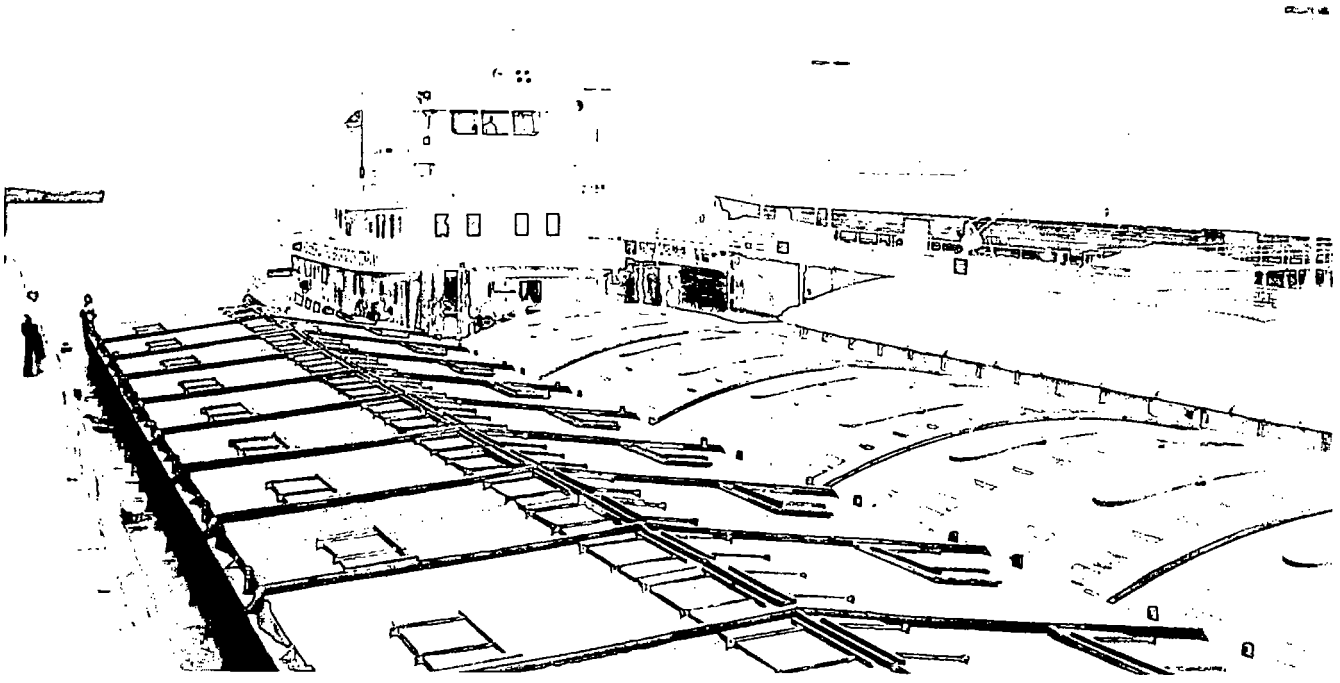
2) When there is no light and no other craft waiting, boat over to the shoreline guide wall and signal for lockage. Located on this wall at the ladder is a signal cord that must be pulled to alert the lockmaster of your approach. A horn will sound.



3) Upon getting the green light, proceed slowly into the lock, and approach the mooring lines spaced along the shoreline guide wall. A line should be held in your hand during lockage. To avoid damage, don't tie it to your boat. Likewise, don't tie your boat line to the recessed ladder. Keep your hands inside the boat, and do not leave the motor running during lockage.

4) After the lock is filled or emptied, the opposite end gate will fully open and a signal will be given by the lock operator to leave the lock. This signal will be either by hand or by a short sounding of the signal horns. At this time it is safe to exit. Remember the approaches to locks are considered "no wake" areas.

There is no charge for using the locks; you may come and go as often as you please. Locks are in service seven days a week, 24 hours a day, but during periods of heavy barge traffic, it may be advantageous to fish near the lock while keeping an eye on the lock's availability.



Barge entering lock to be lowered to the next pool downstream. (Steve Brich photo)

FISHING REGULATIONS

(Iowa/Illinois Boundary Waters)

Iowa/Illinois boundary waters are defined as the Mississippi River proper and all backwater lakes, sloughs and side channels connected to the flow of the main channel. Fishermen cannot fish, however, from the bank or attach any equipment to the bank of the state in which they are not licensed to fish. Fishing in all tributaries of the opposite state is also prohibited. This is often referred to as the "bank to bank" regulation.

Regulations regarding walleye, sauger and bass creel limits are subject to change. Be sure to check the current booklet for up-to-date fishing regulations.

(Subject to change each year)

	Boundary Waters			Illinois			Iowa		
Species	**Season**	**Daily Limit**	**Min. Size**	**Season**	**Daily Limit**	**Min. Size**	**Season**	**Daily Limit**	**Min. Size**
LM Bass SM Bass	All Year	5	#	All Year	6	12"	All Year	3 in Total	§
Catfish	All Year	None	None	All Year	None	None	All Year	8 (Lake) 15 (Stream)	None
Lake (Rock) Sturgeon	Closed	0		Closed	0		Closed	0	
Northern Pike	All Year	5	None	All Year	3	24"	All Year	3	None
Rock Bass	All Year	None	None	All Year	None	None	All Year	None	None
White Bass*				All Year	**See Below	None			
Yellow Bass Crappie Bluegill Sunfish				All Year	None	None			
Perch							All Year	25	None
Walleye Sauger	All Year	#	#	All Year	6	None	All Year	5 in Total	None
Shovelnose Sturgeon	All Year	None	None	All Year	None	None	All Year	None	None
Bullhead	All Year	None	None	All Year	None	None	All Year	None	None
Paddlefish				All Year	None [2]	None	All Year	2	None

§ See current Iowa Regulations booklet.

*Includes white bass and their hybrids ("wipers").

**No limit if smaller than 17", limit of 3 if larger than 17".

[2] Daily bag limit of 2 when snagging.

Check current regulations booklet

GENERAL RIVER INVESTIGATIONS

NOTE: This section includes the discussion of fishery studies that have been conducted on the entire upper river, but the information is applicable to the pools covered in this book. For results and discussions of studies performed specifically on Pools 15,16, and 17, see the appropriate pool report.

SEASONAL MOVEMENT OF FISH

The most important aspect of fishing the Mississippi, as well as any body of water, is knowing where the fish are located during different times of the year. A river system with the diverse habitat of the Mississippi can present difficulty for anglers not familiar with the habitat requirements and preferences of various species. Too many fishermen are successful in a certain area at a particular time only to continue to fish that spot for the rest of the year. What a tremendous mistake! April's success will surely be August's failure, especially on the Mississippi.

A study conducted during the early 1980's by John Pitlo of the Iowa Department of Natural Resources determined the importance of wing dams as fish habitat. During this study, Pitlo also revealed considerable information on the seasonal movements of walleye and sauger, two of the most popular gamefish on the Mississippi.

For this study, which took place on Pool 13, radio transmitters were implanted in 25 walleye and 16 sauger. Their movements and habitat usage were then monitored using radio telemetry.

HABITAT	% of TOTAL POOL AREA	% of WALLEYE OBSERVATIONS at VARIOUS HABITAT	% of SAUGER OBSERVATIONS at VARIOUS HABITAT
Wing Dams	4.8	32	29
Main Channel Border (minus wing dams)	5.3	20	39
Side Channels & Running Sloughs	15.3	24	15
River Lakes & Ponds	64.2	13	5
Flooded Timber (depending on water levels)	0 to 17	6	2
Tailwaters	0.3	3	4
Main Channel	10.1	2	4
Tributary Streams	---	---	2
	100	100	100

The chart below shows the basic habitat types, the percentage of each type within the study area (Pool 13), and the percentage of the total observations where walleye and sauger were using a particular type of habitat.

There are some interesting observations that can be drawn from this chart, keeping in mind that it pertains only to walleye and sauger. Check the usage of habitat by each species verses the amount of habitat available. Also notice the different usages between the two species. A total of 75 percent of the walleye were found in roughly 25 percent of the available habitat. Similarly, 83 percent of the sauger observations occurred in only 25 percent of the total available habitat. Obviously, habitat use is highly dependent on the season, which is related to water levels.

The following discussion pertains to movement observations for both species.

WALLEYE - During late winter and early spring, tailwaters become staging areas for spawning. Significant walleye movement occurs during March and early April. The high water of early spring prompts walleye to move many miles through locks and dams into other pools, presumably seeking suitable spawning grounds.

Sauger with an external radio transmitter attached below the dorsal fin. (John Pitlo Photo)

When water temperature reaches 46 to 49 degrees, spawning occurs, usually over areas of gravel or small rock. Flooded marsh vegetation has also been documented as a spawning substrate for walleye.

During periods of high water, many walleye

WALLEYE HABITAT UTILIZATION CHART

HABITAT TYPE	SEASON of HIGHEST USE	FAVORABLE CONDITIONS for HABITAT USE
Wing Dams	Summer, Fall, Winter	Normal Currents
Side Channels and Sloughs	Summer	High Currents in Wing Dam Areas Force Fish to the Side Channels and Sloughs
Main Channel Border	January, February, July	Low or Normal Seasonal Currents
River Lakes and Ponds	March, April, May	High Water Levels and Currents
Flooded Timber	March, April, May	High Water Levels and Currents
Tailwaters	Late Winter and Spring	Strong Currents
Main Channel	Insignificant Use	----------

retreat to side channels and running sloughs, with small walleye moving into river lakes, ponds and flooded timber.

As the water level drops in early summer, walleye move to the main channel border areas. When the water reaches summer (normal) pool levels, these fish will inhabit wing dam areas. If water levels have not receded by early summer, walleye remain in the side channels and running sloughs. A few will scatter back into the river lakes and ponds. At this time of year, there are virtually no walleye in tailwater areas.

With low water levels during fall, main channel border areas become very important - more important than wing dams. If water levels are high, some fish will stay in the river lakes, especially if there is deep water with a hard bottom.

By late fall and into winter, border areas are still prime habitat, but very low water will force walleye to move into the main channel. During late winter, the spawning instinct starts the cycle over again.

SAUGER - A total of 68 percent of all sauger observations were made in only 10 percent of the habitat - main channel border and wing dams (see walleye/sauger chart). According to Pitlo, "River currents appeared to have little effect on habitat preference of sauger. Main channel borders and wing dams were used regardless of discharge rates...." This suggests seasonal movements of sauger are even more predictable than walleye.

During late fall, some sauger begin moving to tailwater areas. Through winter, many more sauger migrate to tailwaters, although a portion of the population remains in the main channel border. As spring approaches, the reproductive process is completed, with spawning being restricted to hard bottom gravel areas.

Considerable sauger movement occurs in April (at least in the study area, Pool 13). Even if the water is high and the current is strong, these fish will use wing dams and main channel border areas during this period. This behavior is significantly different than walleye.

During May, wing dams are still used by sauger, but there is a sudden dispersion to side channels, running sloughs and areas protected from strong currents. This apparently is a post-spawn recuperative move.

In fall, there is again heavy use of the main channel border. By late fall, the cycle repeats as some fish move upstream to the tailwaters.

CATFISH - Ongoing government investigations in the 1980's have uncovered a wealth of information on catfish migration.

Studies of radio transmitter implanted catfish have shown interesting patterns of movement and habitat use. During winter these fish show little movement from their wintering areas, which are often used by large numbers of catfish. These areas are main channel waters with rock substrate (bottom) and moderate current. They are often in or near tailwater areas. Many sites are deep water stretches of submerged riprap, sometimes lining the original river channel. Scuba divers have inspected these areas during winter and reported over 500 catfish, both channel and flathead, holding behind various breaks in the current along a 120-foot stretch of riprap.

Other scuba divers have observed and calculated densities up to 2,732 fish per acre. One particular wintering area (about 100 yards in diameter) contained approximately 5,300 catfish. These catfish were most abundant where large areas of scattered rock and clean sand were present. Commercial fishermen also report winter success along similar areas.

It is not until after the spring flooding that catfish show significant movement. This usually occurs when water temperature reaches 50 degrees. At this temperature catfish (especially flathead) move downstream, dispersing quickly throughout the pool, often into a secondary channel or running slough.

From this time, through the month of May or until water temperatures reach 70 degrees, most catfish again show little movement and hold in areas of moderate current, reasonable depth, and some bottom structure.

During June, or when water temperatures rise to between 70 and 80 degrees, fish start to move again, many of them into small running sloughs. Researchers found none in the slack water of back lakes or ponds during this period.

By mid-July, the big flatheads return to main channel and major side channel areas. Some move to tailwater areas with ample bottom structure. Researchers recorded little movement anywhere during the end of July and all of August.

During September and October, catfish begin migrating back to their wintering areas where they remain relatively dormant through late fall, winter and early spring. Flatheads seem to be less active during winter than channel cats.

There is no doubt these fish are creatures of habit in their yearly movement.

WHITE BASS - On the Mississippi River, this species is migratory and capable of making extended journeys. In one investigation (on Pool 3) a spring migration occurred into the tailwaters of the lock and dam. After spawning, a small portion of this population continued further upstream into various tributaries, such as the St. Croix River. The average upstream migration during the survey was 21 miles. Most fish, however, moved downstream as far as 11 miles.

White bass seemed to exhibit a strong homing tendency toward specific spawning areas. Fish removed from an area while spawning invariably returned to that same spot when released.

During summer, it is common to find fish schooled fairly close to the surface, particularly during evenings and early mornings. Limited studies suggest that white bass prefer surface waters in late spring and summer but move into deeper waters for the rest of the year.

Sketchy information is available on migration of other Upper Mississippi species. A brief review indicates seasonal migration to be less of a factor for the remaining species, but research results have been speculative.

Hybrid Striped Bass (wipers) have been stocked in Pool 14 since 1984 and display extensive movement.

In the fall of 1986, a record flood dispersed young fish from the 1984 and 1985 stocking downstream as far south as the tailwaters of Pools 17 and 18. In general, biologists believe that hybrid stripers tend to display strong downstream movements. They have been found, however, as far north as Savanna in Pool 13.

Since the flood of 1986, electrofishing surveys in the tailwaters of Lock and Dam 13 have confirmed the presence of good numbers of the wipers. In general, biologists expect these hybrids to relate to tailwater and wing dam habitats.

Smallmouth Bass are essentially nonmigratory with movements normally restricted to less than a mile. There is evidence that spawning smallmouth use tributary streams and riprap areas.

Largemouth Bass display migratory tendencies within a home range. They definitely move into backwater areas during winter. See discussion on "Habitat Use and Movement of Largemouth Bass" later in this section. During spring, largemouth move into quiet, warming bays of backwater areas.

Northern Pike migrate during the very early spring to spawn. They move into shallow, often flooded marshes at night, even before the ice is out.

Crappie are known to move into backwater channels during winter. The greatest movement occurs in February when ice holds the most snow cover. Migrations are by schools, rather than individual fish.

Generally, migration is limited in most other panfish species (i.e. rock bass, pumpkinseed, bluegill, etc.) to movements into adjacent shallow water for spring spawning.

STANDING STOCKS

In another comprehensive study by John Pitlo, the standing stocks (pounds of fish per surface acre of water) in the Upper Mississippi River were assessed. Pitlo evaluated data from 23 samples collected from sloughs and backwaters. For the purpose of the study, all fish

PREDATORS
1. Longnose gar
2. Shortnose gar
3. Bowfin

FORAGE FISH
1. Gizzard shad
2. Most minnow species
3. Stonecat
4. Tadpole madtom
5. Pirate perch
6. Trout-perch
7. Mosquitofish
8. Brook silverside
9. Logperch
10. All darters

ROUGH FISH
1. Paddlefish
2. Shovelnose sturgeon
3. Mooneye
4. Carp
5. All Carpsucker species
6. All Buffalo species
7. All Sucker species
8. All Redhorse species
9. Freshwater drum

GAMEFISH
1. Grass pickerel
2. Northern pike
3. Smallmouth bass
4. Largemouth bass
5. Sauger
6. Walleye

PANFISH
1. White bass
2. Yellow bass
3. Rock bass
4. Green sunfish
5. Pumpkinseed
6. Warmouth
7. Orangespotted sunfish
8. Bluegill
9. Sunfish hybrids
10. White crappie
11. Black crappie

CATFISH & BULLHEAD
1. Black bullhead
2. Yellow bullhead
3. Brown bullhead
4. Channel catfish
5. Flathead catfish

sampled were assigned to one of the following six groups (see above chart).

The 23 samples were collected between 1946 and 1984 at 10 different sites, from Pool 18 upstream to Pool 5A. The average total standing stock of all species combined was 320 pounds per acre. The pie graph shows the standing stock for each of the six groups. The percentage of each group is shown around the perimeter.

Of the gamefish, northern pike comprised nearly 60 percent (10.8 lbs./acre) of the standing stock for that group. Largemouth bass followed, averaging 4.9 lbs./acre.

Bluegill had the highest standing stock of the panfish group, with an average of 18.9 lbs./acre.

White crappie were next, averaging 13.6 lbs./acre, followed by black crappie at 4.6 lbs./acre.

Channel catfish accounted for 85.4 percent of the standing stock of the catfish and bullhead group. They averaged 12.9 lbs./acre.

What do the results of such a large-scale study mean? A number of interpretations can be made, but here are a few observations of interest to anglers.

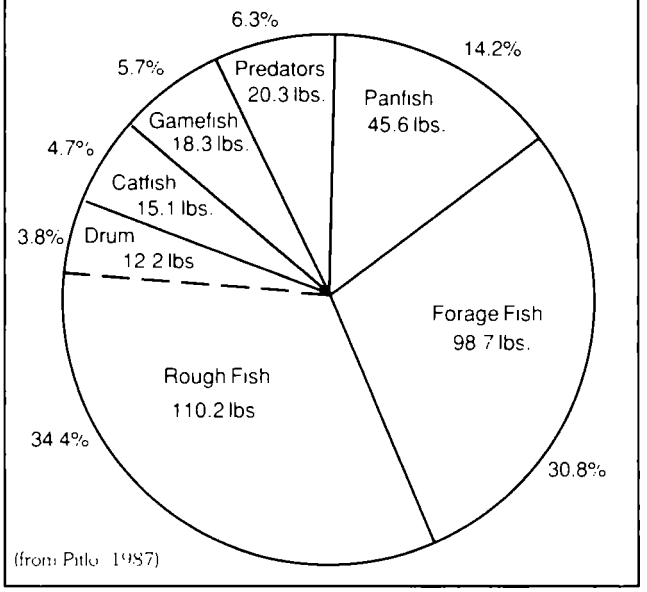
1) Despite their immense popularity with fishermen, gamefish (bass, walleye, sauger, pike) comprise only a very small portion of the total fish community (5.7 percent).

2) The species commonly sought by anglers (gamefish, panfish, catfish, drum) represent slightly over 28 percent of the total backwater fishery. To help sustain this rich and diverse sport fishery, there is an abundant forage base as shown in the pie graph.

3) With an even greater percentage than the forage fish, the rough fish group comprises the largest portion (38.2 percent) of the fish community. Remember young rough fish also are used as forage by many gamefish.

4) The backwaters of Pool 13 alone hold nearly 4 million total pounds of fish.

Average Standing Stocks (lbs/acre) for Backwater Areas of the Upper Mississippi River



(from Pitlo 1987)

HABITAT USE AND MOVEMENT OF LARGEMOUTH BASS

Sedimentation continues to be one of the major problems facing the Mississippi River. Sedimentation in backwater areas decreases water depth and promotes excessive weed growth. Both contribute to stagnation and the eventual loss of adequate dissolved oxygen levels.

In the mid-1980's, John Pitlo of the Iowa Department of Natural Resources conducted a survey to determine the impact of sedimentation on backwater areas often used by largemouth bass.

Movement and habitat use of largemouth were evaluated. Sunfish Lake in Pool 12 was one of the study sites.

To monitor bass activity, radio transmitters were surgically implanted into fish from Sunfish Lake. To achieve the desired weight relationship between fish and transmitter, all bass were 2.2 pounds or larger.

From 1985 to 1986, over 550 observations of the implanted bass were recorded. The table shows the number of observations per season at each type of habitat.

Note that the combined observations for both emergent and submergent vegetation account for nearly 50 percent of the total for all habitat types. In particular, Pitlo revealed that bass were often located in "very dense stands of emergent aquatic vegetation...primarily arrowhead." Water temperatures in the arrowhead stands were over 80 degrees in depths ranging from one to two feet.

Notice the highest use of any habitat type during any season occurred in summer, when 143 observations were made in emergent vegetation (arrowhead). Bass holding in this type of dense vegetation are often unavailable to anglers because of the extremely heavy cover. Bass fishermen work the edges of the arrowhead stands, especially early and late in the day, since this is often when bass are most active and will move from the middle of the weedbed out to the edges. A variety of weedless presentations should take fish.

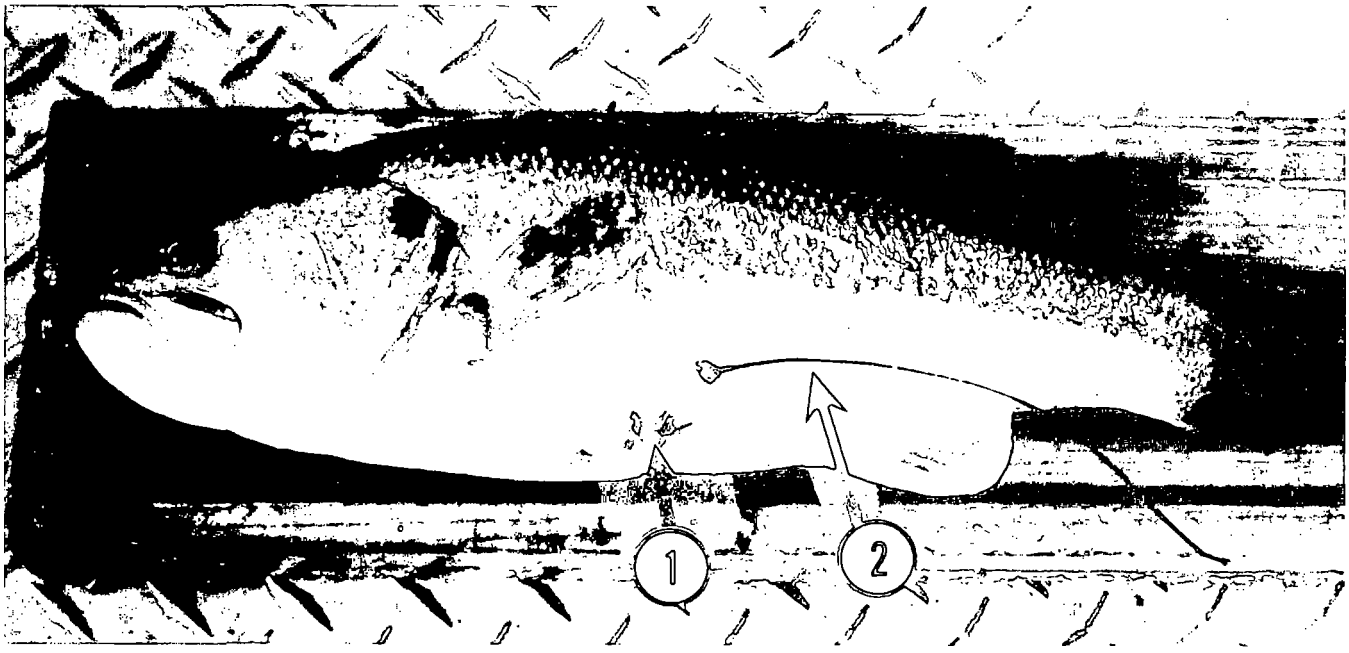
Following vegetation, wood cover was the next most used habitat. Wood cover was categorized into brush/log piles or single stumps or logs. Pitlo's study suggested that bass prefer the single log or stump almost two to one over piles of logs or brush.

In another part of the study, bass movements and migrations were monitored throughout the year using radio telemetry. The study revealed the nature of wintering habitat used by bass and the strong tendency for bass to use the same wintering area year after year.

During the study, two bass were observed wintering in Sunfish Lake in 1985. The following spring or summer they moved 4 miles downstream and then returned to the same area in Sunfish Lake to winter in December of 1986.

The map of Sunfish Lake area in Pool 12 shows a typical bass wintering area. These areas are usually the upper portion of a backwater lake

Researchers use a variety of methods to monitor fish movements. A largemouth bass is marked with a Floy Tag. (John Pitlo photo)



A largemouth bass with a radio transmitter implant. (1) Incision for surgical implant. (2) External antenna for transmitter. (John Pitlo photo)

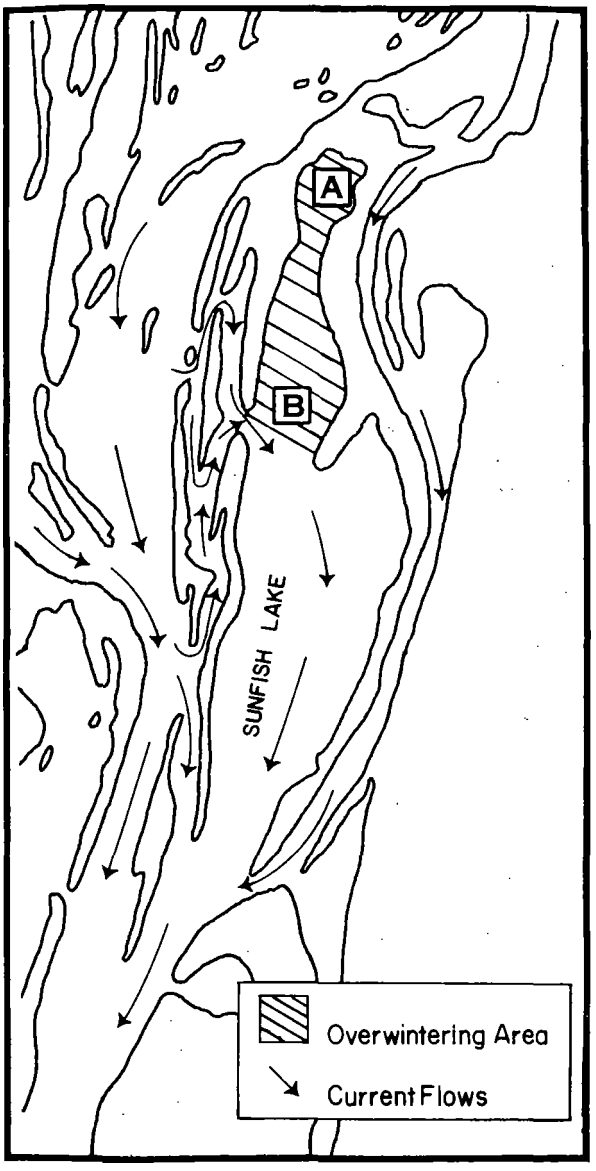
that offers protection from currents. The depth of the area in Sunfish Lake ranges from one to six feet.

During the study, bass went into their wintering habitat in December, moving to open water areas in the upper reaches of the backwater lake. As winter progressed, dissolved oxygen diminished to the point where the bass were forced to the lower portion of the lake, adjacent to, but not in the current (see map on next page).

LARGEMOUTH BASS HABITAT USE SURVEY

HABITAT TYPE	NUMBER OF OBSERVATIONS/SEASON				Total Bass per Habitat Type	% of Total Observations
	WINTER	SPRING	SUMMER	FALL		
Emergent Aquatic Vegetation	-	18	143	-	161	28.5
Submergent Aguatic Vegetation	-	39	70	3	112	20.8
Brush/Log Pile	-	10	38	1	49	8.7
Single Stump/Log	-	37	44	1	82	14.5
Open Water	79	25	3	4	111	19.6
Flooded Lowland Timber	-	45	1	-	46	8.1
Docks	-	-	2	-	2	0.5
Rip-Rap	-	1	1	-	2	0.5
TOTAL	79	175	302	9	565	100%

By moving to the lower reaches, fresh oxygenated water was again available.



Area A *is used by bass early in winter until dissolved oxygen becomes inadequate. Bass then move to* ***Area B****.*

Area B *is the lower portion of the backwater lake, adjacent to current flow. Bass will use habitat that receives fresh, well-oxygenated water, but remains out of direct current.*

COMMERCIAL FISHING

Commercial fishing on the Mississippi River accounts for the harvest of a tremendous quantity of fish and provides income to hundreds of fishermen. One report estimated the average annual harvest for the entire upper river at over 11,000,000 pounds.

During a 25-year study of commercial fishing on the Upper Mississippi River, data was collected on the pounds of fish harvested per species. The following chart shows the average annual harvest for the most commonly caught species.

COMMERCIAL HARVEST SUMMARY		
SPECIES	25 YEAR TOTAL HARVEST (lbs.)	ANNUAL AVG. (lbs.)
Carp	130,965,875	5,238,635
Buffalo	60,397,170	2,415,887
Catfish	40,423,305	1,616,932
Freshwater Drum	34,340,103	1,373,604
Paddlefish	2,726,684	109,067
Sucker	2,086,248	83,450
Bullhead	2,046,237	81,849
Sturgeon	1,206,448	48,258
Gar	698,146	27,926
Bowfin	289,531	11,581
American Eel	31,949	1,278
Other	3,110,505	130,504

Four basic groups of fishing gear are used by commercial fishermen. The groups are based on the way or method fish are captured.

- Set lines with baited hooks
- Gill nets and trammel nets (entangle fish)
- Seines (encircle fish)
- Numerous types of traps

(Adapted from UMRCC, 1979)

Of the four groups of gear, traps account for the greatest harvest while set lines provide the least. Traps are particularly important in the harvest of catfish, bullhead, and buffalo.

POOL 15

Le Claire, Iowa, to Davenport, Iowa

LOCATION

Lock and Dam No. 15 is located 482.9 miles upstream above the mouth of the Ohio River. The pool is 10.4 miles long and extends south from Le Claire, Iowa, and Hampton, Illinois, to Davenport, Iowa, and Rock Island, Illinois. Other communities along this pool are Bettendorf, Iowa; Moline and East Moline, Illinois.

ACCESS

NOTE: Accesses A and B are located on the Iowa side of the river beginning at the north end.

Type I (Public): On the Iowa side of the river, just downstream from Lock and Dam No. 14; take Highway 67 south of Le Claire for 4 miles to this state access. It includes a single concrete ramp, restrooms and parking for 25 rigs. The ramp is narrow and difficult to use with wide trailers. Shore fishing is popular from the approach wall.

Type I (Public): In Bettendorf, Iowa, south of the Highway 74 bridge; take Highway 67 to 12th Street and turn toward the river. The access has a double wide concrete ramp, loading docks and parking for about 40 rigs.

NOTE: Accesses C through G are located on the Illinois side of Pool 15 beginning at the southern end.

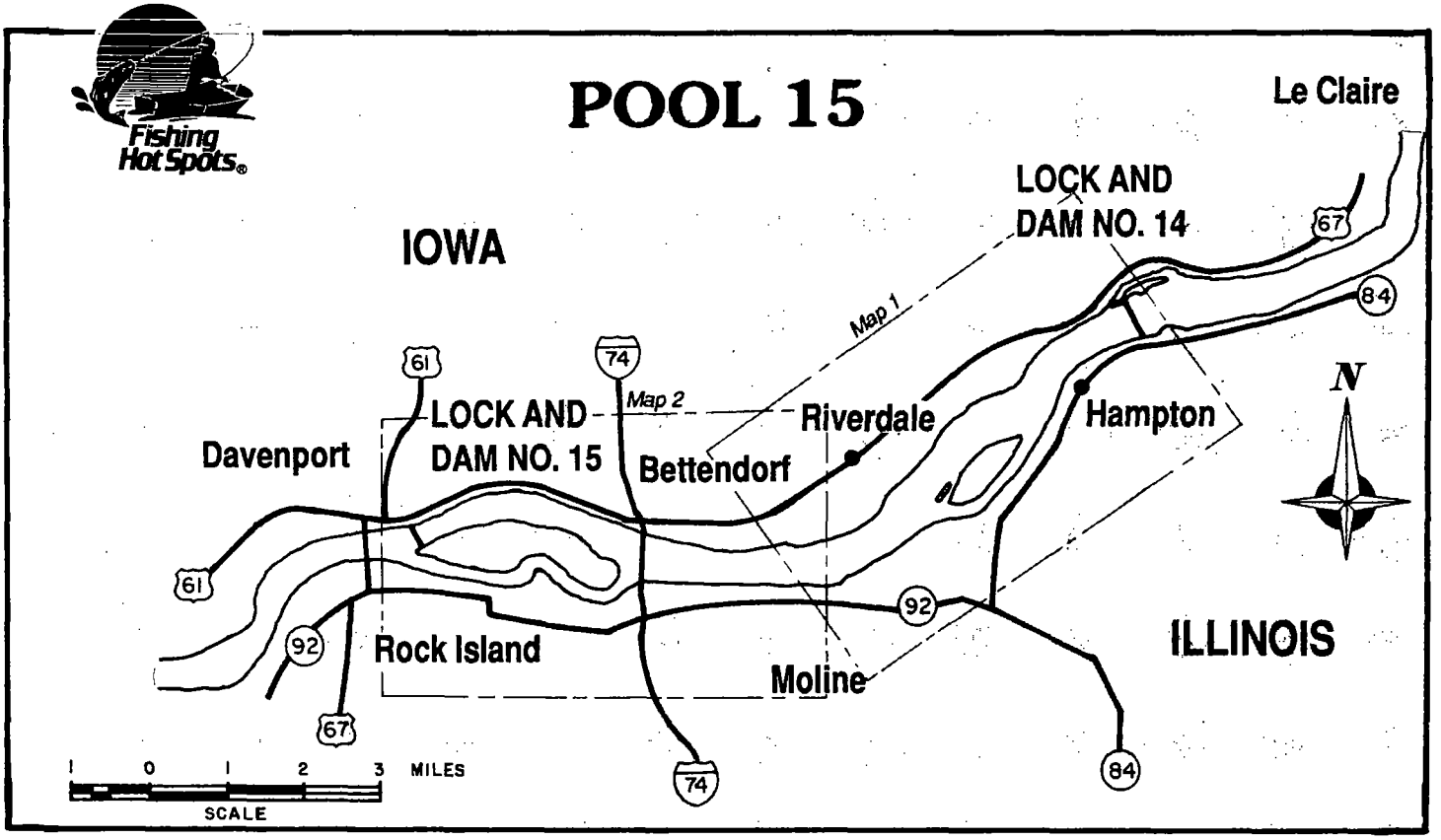
Type I (Public): To the Moline Municipal Ramp; take Highway 92 north of Highway 74 for about 3 blocks to 23rd Street. Turn left and proceed to River Drive. Stay to the right and continue for about 6 blocks to this facility. Two concrete ramps, a loading pier and parking for 25 rigs are provided. A picnic area and restrooms are located nearby.

Type I (Public): On the Illinois side of the river near East Moline; from Highway 92 take 1st Street down to the access. A double-wide concrete ramp and loading piers can handle most sizes of boats. A large parking area and restrooms also are available.

Type I (Private): On the main channel side of Campbell's Island; from Highway 84, follow Campbell's Island Road to the island. Turn left and follow the signs to the marina. This facility has a single concrete ramp and gravel parking area for about 30 rigs. A fee is charged at the marina.

Type I (Public): On the Illinois side of the river south of Hampton; the East Moline Public Ramp is located 2 blocks north of Campbell's Island Road off Highway 84. It has a double wide concrete ramp, loading pier, restrooms and parking.

Type I (Public): On the east side of the river below Lock and Dam No. 14; from Highway 84, take the road labeled Illinewek Forest Preserve. Three narrow concrete ramps and parking are found at the end of the road. Caution should be used when launching because of shallow water and narrow ramps. A public campground is located nearby.



RELATED SERVICES

Boat Rentals - None.
Bait Shops - Yes, at numerous locations within the surrounding communities.
Public Parks - Yes, at many state and municipal facilities.
Campgrounds - Yes, both public and private.
Guide Services - Yes.

SPECIAL FEATURES

Pool 15 is dramatically different from the pools upstream. Prior to construction of the lock and dam, this area was a shallow rock rapids. The shoreline and river channel have been altered to accommodate extensive industrial use. Barge, commercial and recreational traffic on the river is heavy.

The Rock Island Arsenal is located on Arsenal Island and is a depository for conventional weaponry. The entire island is a military reservation and access is restricted.

Two hydroelectric dams are located at the lower end of Sylvan Slough. Two bridges cross Pool 15; Interstate Highway 74 at rivermile 485.8 and Government Bridge, located directly over Lock and Dam 15.

Rock is continually being placed on the upstream point of Winnebago Island to provide fish habitat.

RIVER CHARACTERISTICS

Size - Pool 15 is 10.4 miles long with an area of approximately 3,626 acres.
Water Source - Water enters Pool 15 by flowing through the dam from Pool 14 at Le Claire, Iowa. Minor tributaries are Sugar Creek (RM 490.3), Pigeon Creek (RM 491.0), and Duck Creek (RM 487.9).
Shoreline - Almost entirely riprapped. Intense industrial and commercial development.
Bottom - Primarily bedrock and broken rock rubble in the main channel and main channel border. Sedimentation in the main channel border is a mixture of sand, gravel and silt. Of the total fish habitat available, 44 % is classified as main channel border (including islands and wing dams), 33 % is main channel, 18 % is side channel and 5 % is tailwater.
Water - Quite fertile with stained color and moderate turbidity. Water quality is reasonably good. Flat pool elevation is 552.5 feet. Current velocities in the main channel range from 2 mph

at normal stages to 6 mph during high water. Dissolved oxygen levels are adequate at all depths.

Vegetation - Emergent vegetation is limited and primarily composed of arrowhead and cattail. Submergent vegetation consists of eelgrass, milfoil and pondweed and is restricted mainly to creek mouths and calm shoreline areas. Weed growth is scarce below 5 feet.

FISHERY

SPECIES

Primary - Channel Catfish, Sauger, White Bass, Bluegilll, Black Crappie, Carp, Freshwater Drum, Buffalo.

Secondary - Walleye, Largemouth Bass, White Crappie, Orange-Spotted Sunfish, Bowfin, Gar, Redhorse.

Limited - Northern Pike, Flathead Catfish, Hybrid Striped Bass, Yellow Bass, Black Bullhead, Shovelnose Sturgeon, Paddlefish.

COMMENT

The Mississippi River has a rich and diverse fish population. In Pool 15, 64 species have been documented. Black crappie and bluegill exhibit the highest numerical abundance. The fish most pursued by anglers, however, are drum, channel catfish, sauger, walleye and white bass.

SEASONAL MIGRATIONS

As with other pools, Pool 15 has a spring and late fall movement of sauger and walleye. Fish concentrate in the tailwaters below Lock and Dam 14 during these periods.

Hybrid striped bass and walleye stocked in Pool 14 have displayed strong migrational tendencies. A substantial number have moved into Pool 15.

FORAGE

Gizzard shad is the primary forage species. Other important species include emerald, spottail, river and spotfin shiners, along with juvenile roughfish and crayfish. Aquatic insect larvae, such as mayflies, caddisflies and midges are also an important food source for many species.

RIVER MANAGEMENT

RIVER INVESTIGATION DATA - A recent study was conducted by the Iowa Department of Natural Resources to evaluate the fish populations in Pool 15. Electrofishing, netting, seining and trawling were methods used to sample three of the four main habitats: main channel, main channel border and side channel.

POOL 15 SPECIES COLLECTED

SPECIES	NUMBER
Black Crappie	478
Bluegill	300
Freshwater Drum	205
White Bass	192
Channel Catfish	155
Carp	132
Flathead Catfish	23
Largemouth Bass	22
Sauger	21
Walleye	4
Rock Bass	4
White Crappie	3
Northern Pike	2
Other	870

POOL 15
NUMBER OF FISH PER HABITAT TYPE

HABITAT	NUMBER	PERCENT OF TOTAL
Main channel	71	3%
Main channel border - deeper than 10 feet	134	6%
Main channel border - shallower than 10 feet	1,048	43%
Main channel border - wing dams	98	4%
Side channel	1,067	44%

The results of the survey clearly show the abundance of the crappie and bluegill populations. The lack of gamefish sampled may be attributed to their ability to avoid capture.

STOCKING

There are no stocking programs in effect for Pool 15.

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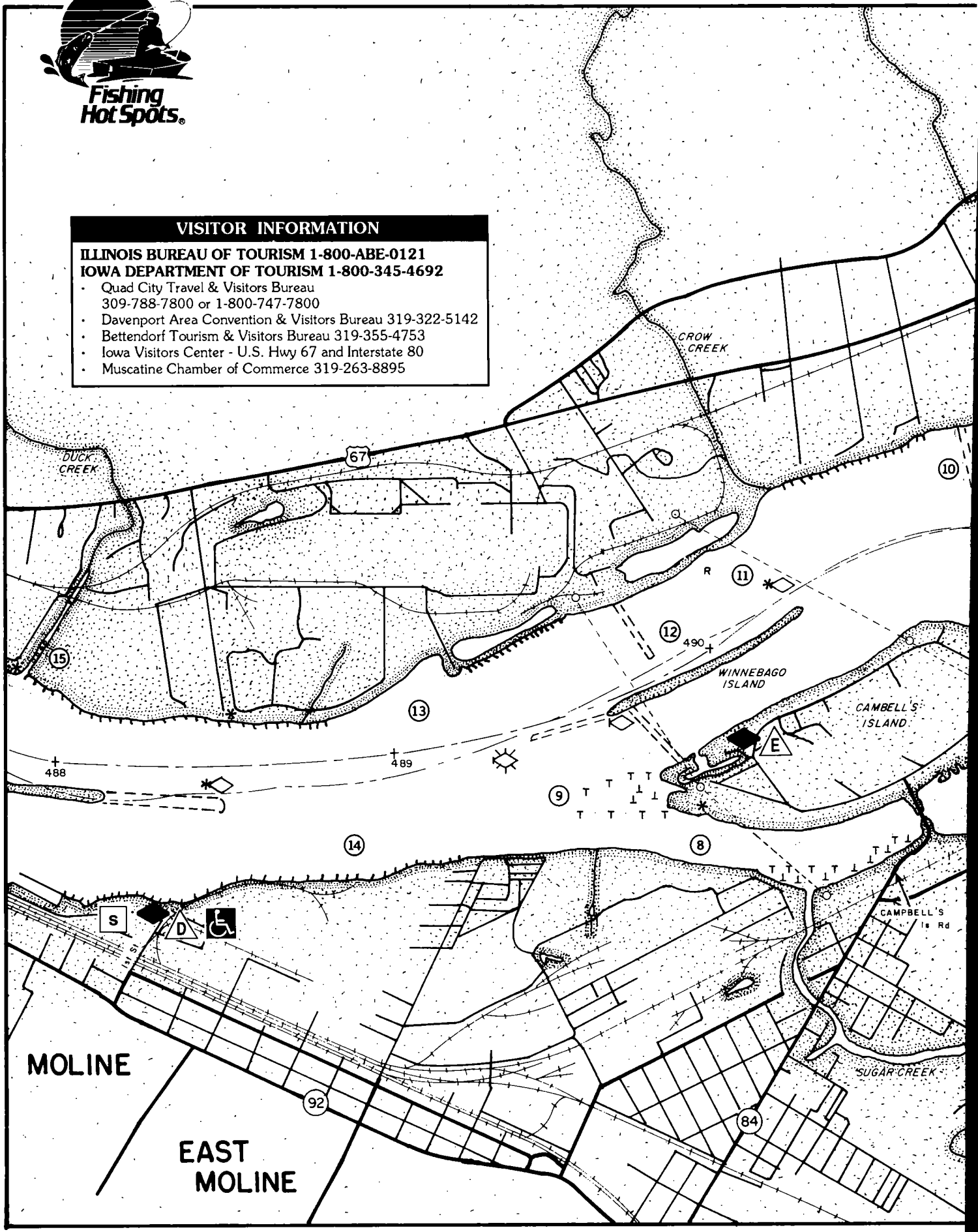
VISITOR INFORMATION

ILLINOIS BUREAU OF TOURISM 1-800-ABE-0121
IOWA DEPARTMENT OF TOURISM 1-800-345-4692

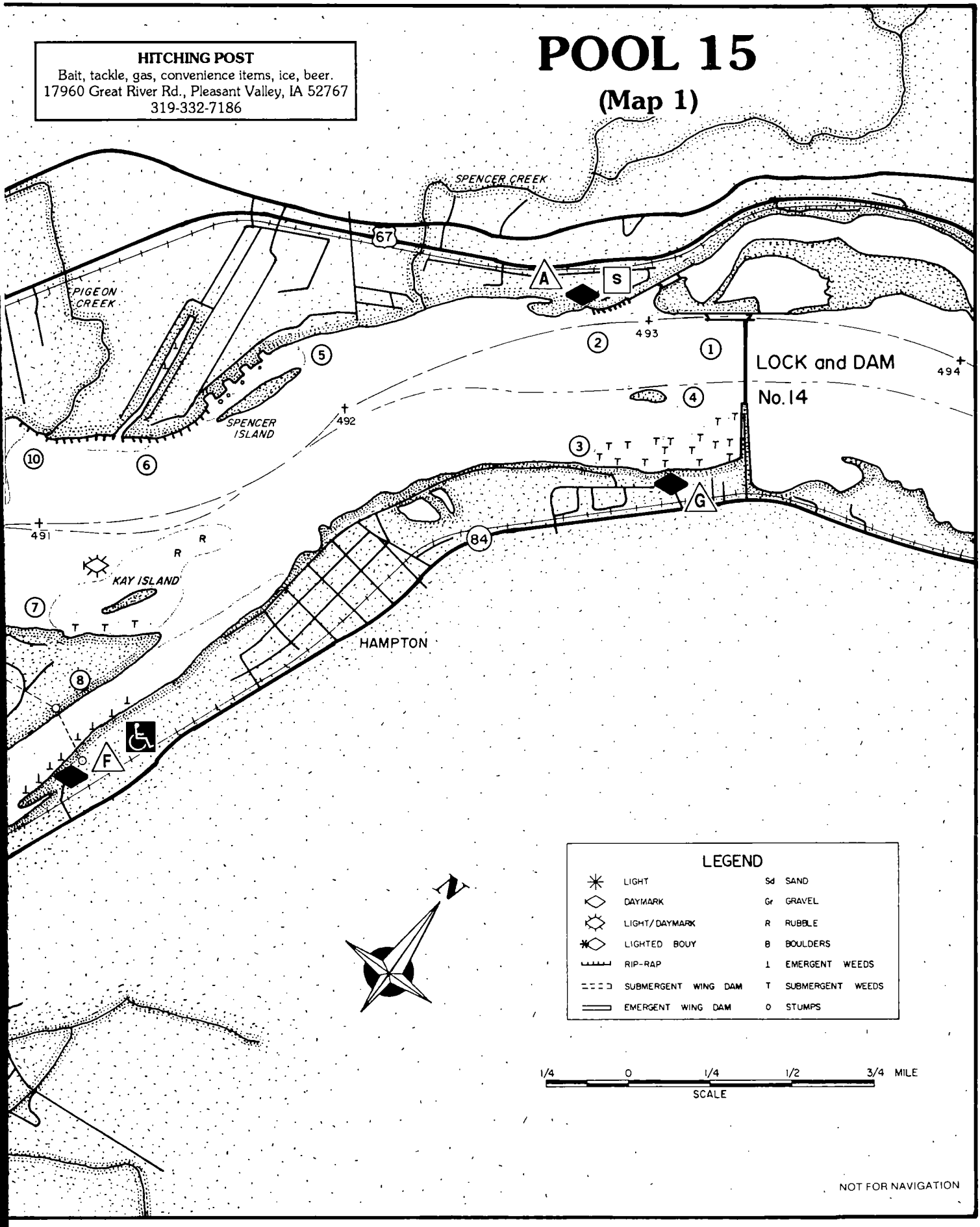
- Quad City Travel & Visitors Bureau
  309-788-7800 or 1-800-747-7800
- Davenport Area Convention & Visitors Bureau 319-322-5142
- Bettendorf Tourism & Visitors Bureau 319-355-4753
- Iowa Visitors Center - U.S. Hwy 67 and Interstate 80
- Muscatine Chamber of Commerce 319-263-8895



POOL 15

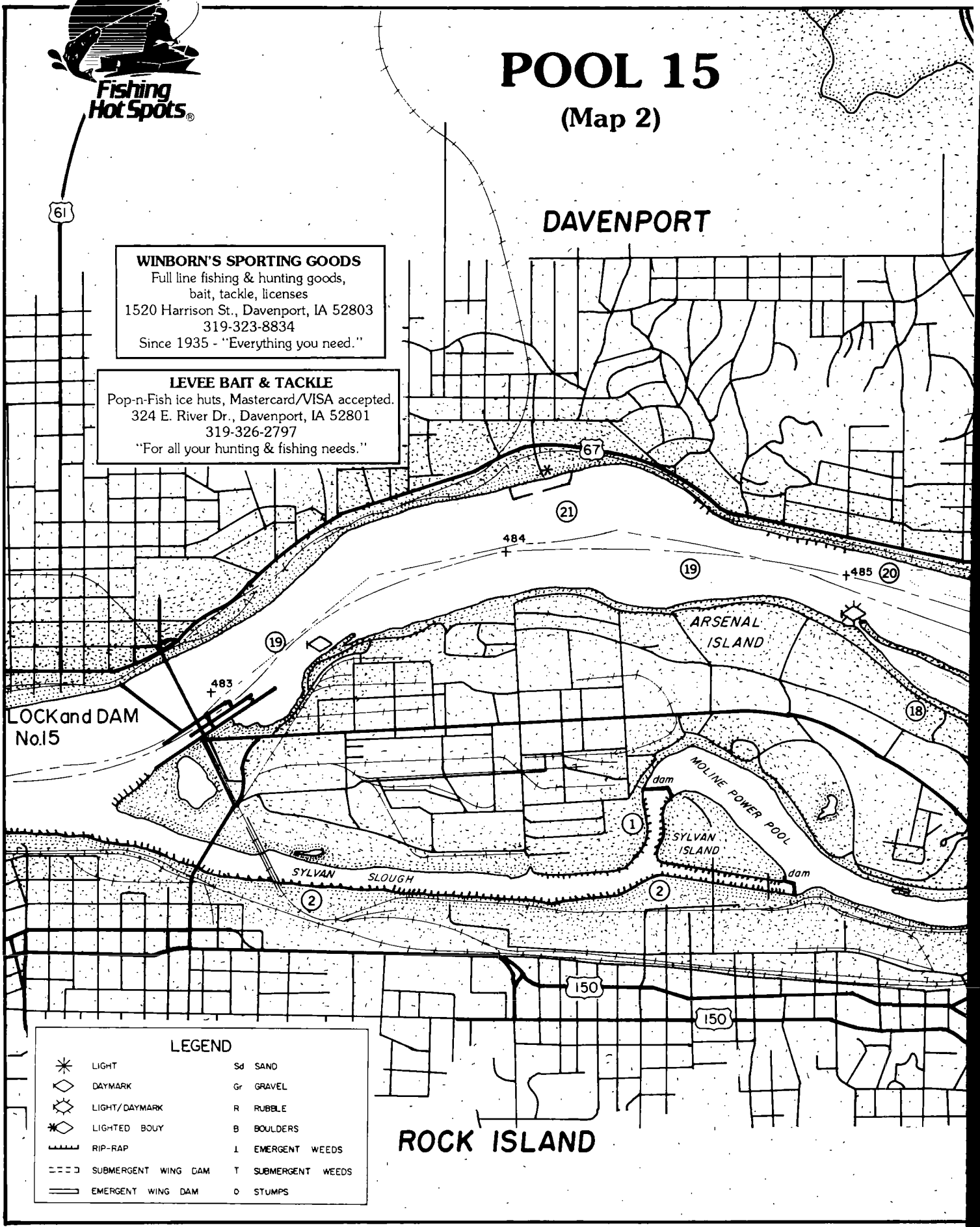
(Map 1)

HITCHING POST
Bait, tackle, gas, convenience items, ice, beer.
17960 Great River Rd., Pleasant Valley, IA 52767
319-332-7186



POOL 15

(Map 2)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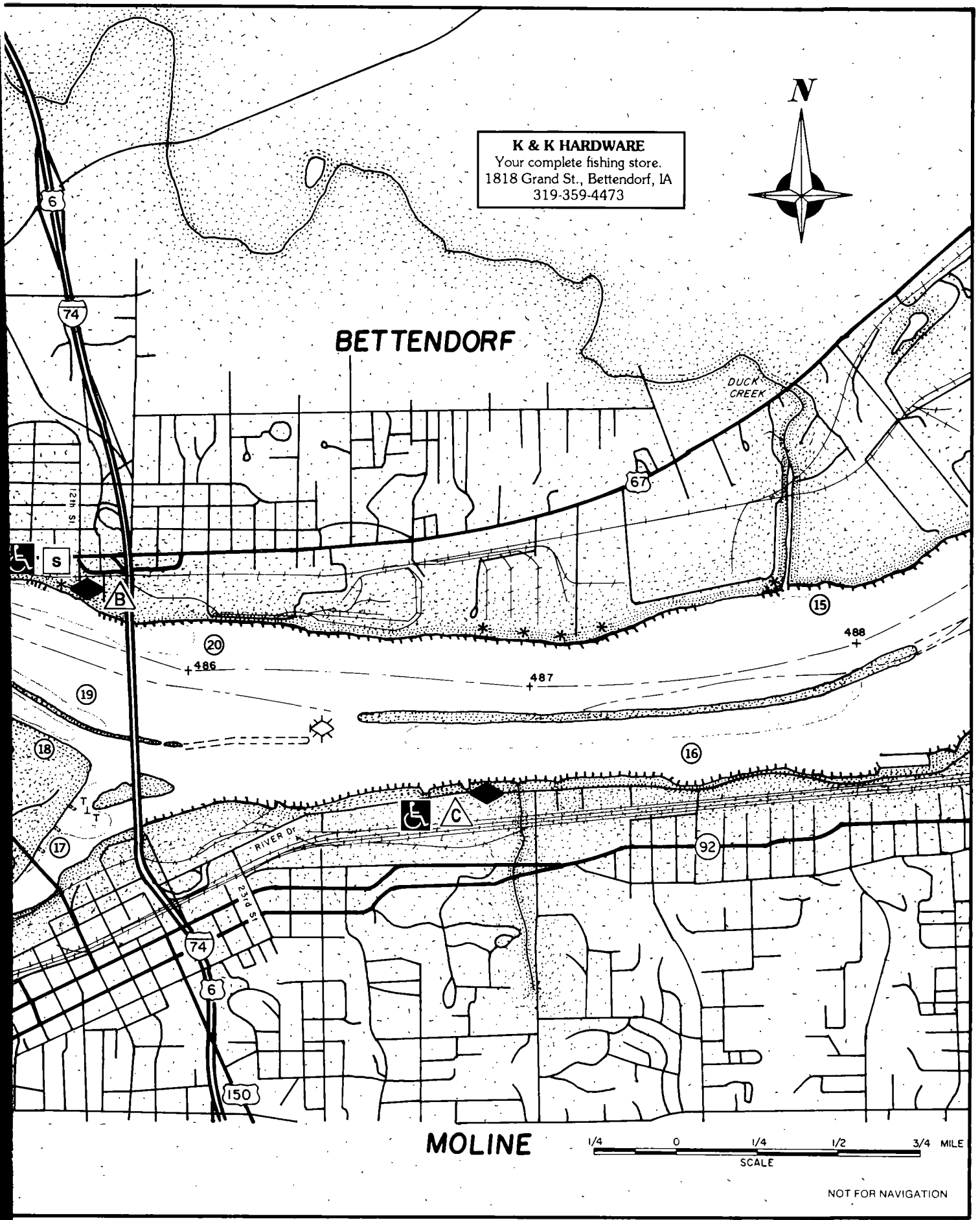
67
21
484
485
19
20
ARSENAL ISLAND
18
483
LOCK and DAM No.15
dam
MOLINE POWER POOL
1
SYLVAN ISLAND
dam
SYLVAN SLOUGH
2
2
150
150
ROCK ISLAND
LEGEND
LIGHT
DAYMARK
LIGHT/DAYMARK
LIGHTED BOUY
RIP-RAP
SUBMERGENT WING DAM
EMERGENT WING DAM
Sd SAND
Gr GRAVEL
R RUBBLE
B BOULDERS
⊥ EMERGENT WEEDS
T SUBMERGENT WEEDS
O STUMPS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SCALE
NOT FOR NAVIGATION

RIVER SURVEY MAP

Fishing Areas Shaded

Area (1) The tailwater region below Lock and Dam 14 offers excellent walleye and sauger action in fall and winter. Jig and minnow combinations are preferred during these cold water periods. During high water levels, fish next to the barge wall and in front of the lock gate with Heddon Sonars and ¼-oz. jig/minnows with stinger hooks.

Area (2) The shoreline riprap downstream from the small boat lock attracts summer channel catfish. Work the riprap and eddy currents with slip bobbers with minnows or leeches for best results.

Area (3) Largemouth bass and bluegill are attracted to this shallow weedbed. Topwater baits and spinnerbaits fished over the weeds can produce largemouth during low light periods. Walleye, sauger, catfish and bluegill are found along the deep weed edge near the channel. Shorefishing mainly results in a mixed bag of panfish.

Area (4) Troll Lindy Shadlings or Shad Raps along the sharp breaks of the island for walleye. Heavy boat traffic in this area can hinder your efforts.

Area (5) Work the docks and submerged timber along the shoreline riprap for bluegill, crappie and largemouth bass. During low water levels, largemouth can be very active in the shallow cover. Remember to use presentations that work effectively in heavy cover.

Area (6) This small boat canal on the Iowa side of the river attracts both bass and panfish. After ice-out, this water warms up quickly and provides early season action for crappie and bluegill. Work the emerging weeds and docks with live bait/bobber combinations. Largemouth bass are taken on 4-inch plastic worms and ¼-oz. spinnerbaits. Again, most action occurs near dense cover.

Area (7) The rock piles provide channel catfish and panfish fishing. Be aware of boat traffic since the main channel is adjacent to this area. Largemouth bass and panfish are found in the weedy side channel between Kay and Campbell's Island. Work tight to the available cover.

Area (8) Bluegill, crappie and bass are attracted to the weedbeds in Campbell's Slough. The large weedy flat at the entrance to Sugar Creek is especially productive in early spring for both panfish and largemouth. Pay close attention to the pockets and turns in the weedline.

Area (9) Working the outside edges of this weedy point during summer yields decent catches of crappie and bluegill. Fishing the weedy shallows at night offers anglers a chance for channel catfish and walleye.

The closing dam at the lower end of Winnebago Island produces sauger and catfish. For best results, use a Wolf River Rig and fish the upstream edge of this structure.

Area (10) Check this wing dam for walleye, white bass, drum and channel catfish. Actively feeding fish are found on the upstream side of the wing dam. Try trolling No. 7 or No. 9 Rapalas and live bait rigs to locate active fish.

Area (11) The rock pile by the pipeline attracts walleye, white bass and channel catfish throughout the summer. Jig combos or crankbaits should be productive.

Area (12) Channel catfish are taken from the wing dam in front of the Riverdale Power Company. Tight lines rigged with livers, scent baits, or clams are popular.

Area (13) This stretch of riprapped shoreline downstream of the power plant yields crappie, white bass and walleye. Crappie usually are found along the rocks, while white bass and walleye use the 15-foot depths.

Area (14) Catfish are the main attraction in this section of shoreline riprap. The most productive areas contain a current break. Work cut bait rigs or live bait throughout the summer. Walleye, sauger and white bass also are taken here.

Area (15) Bluegill, crappie, and bullhead can be taken from the shallow waters of Duck Creek. The best catches often come from submerged timber along the shoreline. Slip bobber rigs and live bait are recommended because of the mud bottom.

Area (16) Work the entire length of this structure for catfish. Key on the edges of the deep water zones. Cast 1/16 oz. or 1/8 oz. jigs tipped with Twister Tails to schools of feeding white bass when surface activity is detected. Crappie and walleye also are available.

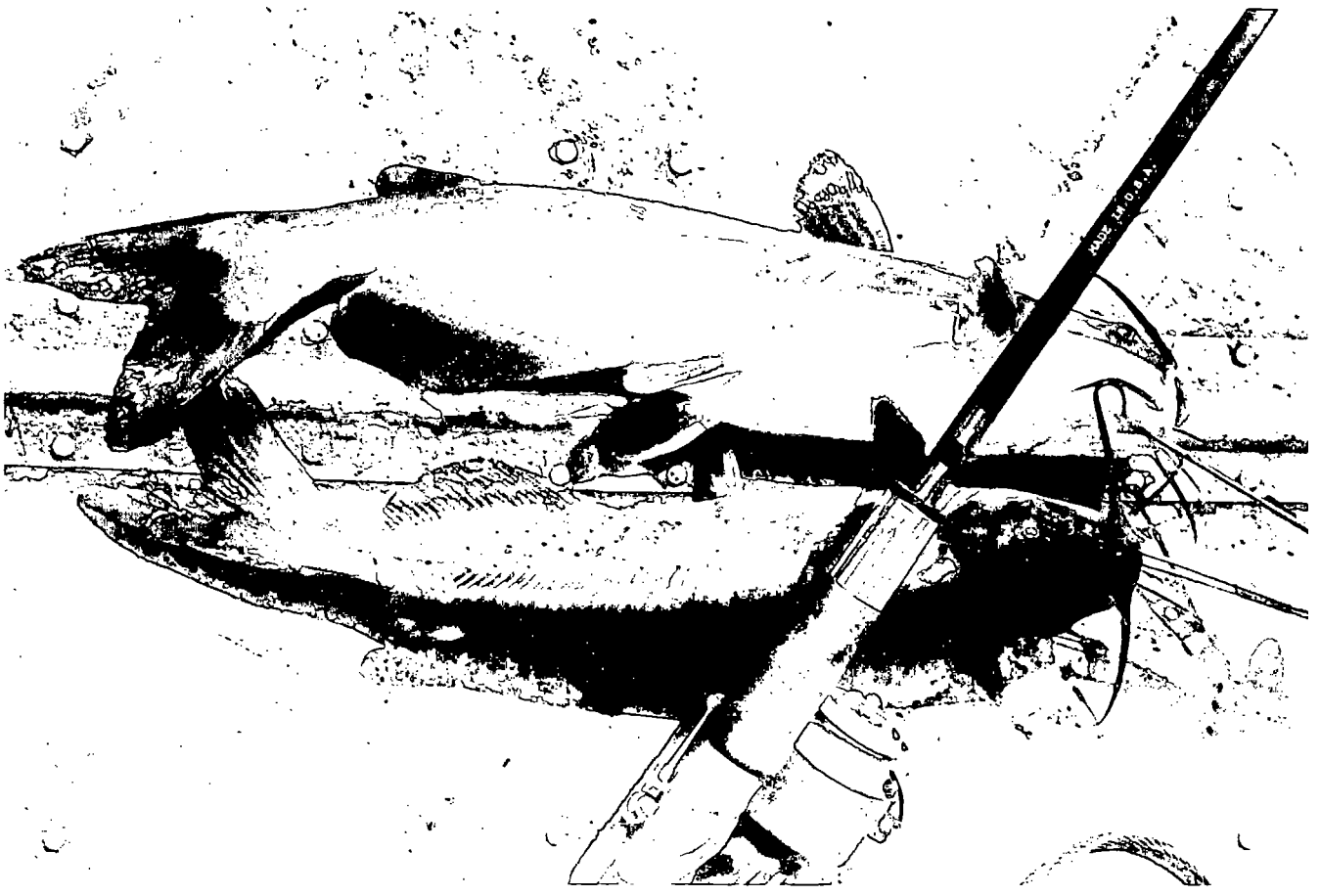
Area (17) There is a series of short, shallow wing dams at the entrance to Moline Power Pool. This is an excellent area to pitch small, light-colored crankbaits and jig/spinner combinations to take white bass and sauger.

Area (18) An old lock chamber is located at RM 485.1. The upstream approach wall is made of 10-foot-square wooden cribs filled with rock. The cribs are about 10 feet apart in 15 feet of water. Crappie are found near these structures throughout the summer. A depthfinder is helpful in determining the presence of fish. Vertical presentations should be used near the rock base. Bluegill, white bass and walleye may also be present.

Area (19) The entire shoreline of Arsenal Island can produce crappie, bluegill, largemouth bass and walleye. Heavy barge and recreational traffic generally limits the fishing potential.

Area (20) During summer, the riprapped shoreline by the Memorial Bridge is a consistent producer of channel catfish. Many locals prefer to fish with nightcrawlers or red worms on a slip bobber rig.

Area (21) Walleye and sauger are taken along the stone jetties by the Lindsay Park Boat Club. Vertically jigging tight to the deep rocks is the preferred technique. Check the downstream corner of the jetty for crappie and white bass.



A pair of "whiskered walleyes." (Dan D. Gapen photo)

POOL 16

Davenport, Iowa/Rock Island, Illinois, to Muscatine, Iowa

LOCATION

Lock and Dam 16 is located 457 river miles above the mouth of the Ohio River. The pool is 25.7 miles long and extends south from Davenport, Iowa, and Rock Island, Illinois, to Muscatine, Iowa. Other communities along this pool include Buffalo, Montpelier and Fairport on the Iowa side and Andalusia, Illinois.

ACCESS

NOTE: Accesses A through J are located on the Iowa side of the river beginning at the north end.

△A **Type I (Public):** Located in downtown Davenport, Iowa, about ½ mile downstream of Lock and Dam 15; take Highway 67 (West River Drive) to Main Street and turn toward the river. A single, upstream side ramp is usable during low water periods, but five ramps are suited for high water conditions. Metered parking for about 150 rigs is available in Le Claire Park. This facility is used heavily by winter tailwater fishermen.

△B **Type I (Public):** In the town of Davenport, Iowa, at Credit Island City Park; from Highway 67, turn toward the river at the sign marked "Credit Island City Park." Two concrete ramps, loading pier and parking for 40 rigs are provided. Phones, restrooms and a picnic area are located nearby.

△C **Type I (Public):** On Credit Island Slough, within the town of Davenport; take Highway 67 (West River Drive) to South Concord Street. Turn toward the river for ½ mile to this municipal access. It has two wide concrete ramps and parking for 20 rigs. Low water levels can make this access difficult to use.

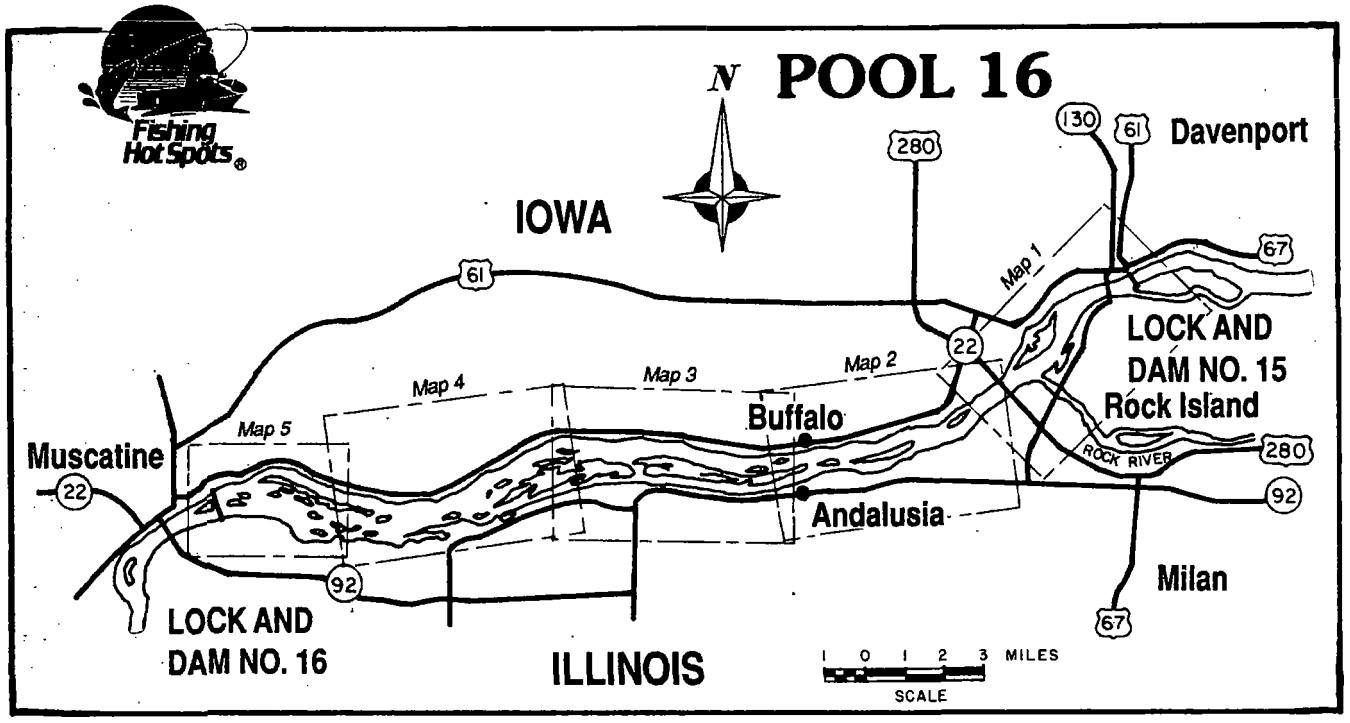
△D **Type I (Public):** In the city of Buffalo; take Highway 22 to Main Street and cross the railroad tracks to this access. This facility has a double wide concrete ramp and parking for 10 rigs. It is primarily used by commercial fisherman.

△E **Type I (Public):** In the town of Buffalo; from Highway 22, take the short access road over the railroad tracks to this county facility. It features two concrete ramps, loading piers and a large parking area. In addition, it has a phone, restrooms, picnic area, beach and camping.

△F **Type I (Public):** In the town of Montpelier; take Highway 22 to the Clark's Ferry Recreational Area. The access includes a double-wide concrete ramp, parking, restrooms, camping, picnic areas and playground.

△G **Type I (Public):** At Shady Creek Recreation Area, 2 miles upstream from Fairport; take Highway 22 and follow the access signs to this federal facility. It offers a single concrete ramp, loading pier, camping, picnic area and parking.

△H **Type I (Private):** In the town of Fairport; from Highway 22, follow the signs a short distance to Fairport Landing. A fee is charged for use of this single concrete ramp, but marina services are available.



Ⓘ **Type I (Private):** Approximately 2/3 mile west of Fairport; take Highway 22 to the access sign and turn toward the river. There is a single concrete ramp and parking for 10 rigs. This facility is owned by the Isaak Walton League and visits from members of other chapters are welcome.

Ⓙ **Type I (Public):** About 1½ miles west of Fairport at the Wyoming Slough Public Access; from Highway 22, turn toward the river on the marked access road. This state facility has three concrete ramps, loading piers and parking for about 80 rigs. Restrooms, phone, camping and picnic areas also are provided.

NOTE: Accesses K through P are located on the Illinois side, beginning at the downstream end.

Ⓚ **Type I (Public):** At the Loud Thunder Forest Preserve, downstream from Andalusia, Illinois; drive west on County Road TT for about 3/4 mile from Highway 92. Turn right on the marked access road for approximately ½ mile to this state landing, which includes two concrete ramps, loading dock and parking for 70 rigs. Restrooms, phone, picnic and camping areas are located nearby.

Ⓛ **Type I (Public):** About 4 miles west of the city of Andalusia at Andalusia Slough; from Highway 92, follow the access signs to the river. This narrow ramp has a gravel parking area for about 10 rigs.

Ⓜ **Type I (Public):** On the south side of the river at the Andalusia Slough Recreation Area; this facility is on the north side of Highway 92, about 3 miles south of Andalusia. Two concrete ramps, loading dock, restrooms, camping and picnic areas are part of this federal site.

Ⓝ **Type I (Private):** On the south side of the river about 1½ miles south of Andalusia; from Highway 92, follow the signs to Wintergreen Harbor. This private facility has a concrete ramp, loading pier and parking for 20 rigs. A fee is charged.

Ⓞ **Type I (Public):** In the city of Andalusia; take First Street north from Highway 92 to the river. The concrete ramp is on the north side of the dike within the boat harbor. Parking is located nearby on Second Street.

Type I (Public): On Lake Potter in Sunset Park; take Highway 92 to 18th Avenue and turn toward the river. Follow the access signs to the three landings. The access in the main channel border has three concrete ramps and loading piers. Two access sites are found on Lake Potter and each has two concrete ramps with a loading pier. Two large parking areas are located nearby to handle 150 rigs. Restrooms, phones, and picnic sites are also available.

RELATED SERVICES

Boat Rentals - No.
Bait Shops - Yes, at numerous locations throughout the region.
Public Parks - Yes, at many state, county, and federal facilities.
Campgrounds - Yes, public.
Marinas - Yes.
Guide Services - Yes.

SPECIAL FEATURES

Pool 16 receives heavy fishing pressure throughout the year. The close proximity to the Quad Cities contributes to increased recreational and commercial traffic. Three bridges cross this pool; Highway 67 at RM 482.1, a railroad bridge at RM 481.4 and the Highway I-280 at RM 478.3.

A portion of the Upper Mississippi River National Wildlife and Fish Refuge runs through Pool 16. Bald eagle winter feeding areas have been identified. Rookeries for the great blue heron, great egret and the black crowned night heron are found at two locations within Pool 16. Essential temporary resting habitat has been observed for river otters, which are an endangered species in Illinois.

Twenty-nine miles of the shoreline and all the islands, expect Pelican Island and Enchanted Island, are under the jurisdiction of the federal government.

The Hennepin Canal is located 4 miles up the Rock River at the "Steel Dam." This canal runs from Rock Island to Hennepin, Illinois. The canal was officially closed and on August 1, 1970, it was turned over to the State of Illinois for recreational use.

RIVER CHARACTERISTICS

Size - Pool 16 is 25.7 miles long with an area of approximately 11,630 acres.
Water Source - Water enters the upper end of Pool 16 by flowing through the dam from Pool 15. The major tributary in this pool is the Rock River (RM 479.0). Minor tributaries include Mill Creek (RM 477.8), Turkey Hollow Creek (RM 476.0), Donaldson Creek (RM 475.3), Moore Creek (RM 475.0), Dodges Creek (RM 473.8), Fancy Creek (RM 473.5), Hills Creek (RM 472.9), Coal Creek (RM 471.5), Pine Creek (RM 465.6), Shady Creek (RM 464.5), and Sweetland Creek (RM 460.0).
Shoreline - Most of the shoreline is wooded and in a natural state. There is considerable riprap protection along a 4-mile stretch below Lock and Dam 15.
Bottom - Most of the main channel and main channel border are composed of sand. In the lower half of the pool, silt covers the sand. There are scattered areas of gravel along the shoreline sections of the side channels. Riprap provides significant rock/rubble habitat. Of the total fish habitat, 33% is classified as main channel border (including islands and wing dams), 26% is main channel, 24% is side channel, 13% is sloughs, 3% is river lakes and ponds and 1% is tailwater.
Water - Extremely fertile and ranging from medium brown to muddy in color. Turbidity is influenced by flow of the Rock River. Current velocities in the main channel range from 2 mph at normal pool to 4 mph during high water. Flat pool elevation is 543.5 feet.
Vegetation - Confined to sloughs, river lakes and ponds, side channels and main channel border. Common emergent types include arrowhead and rushes. Submergent varieties include coontail, milfoil, eelgrass and lotus beds are also present.

FISHERY

SPECIES

Primary - Largemouth Bass, Walleye, Sauger, Channel Catfish, Bluegill, White Bass, Black Crappie, Freshwater Drum, Carp.

Secondary - Flathead Catfish, Perch, White Crappie, Orange-Spotted Sunfish, Buffalo, Bowfin, Shortnose Gar.

Limited - Northern Pike, Smallmouth Bass, Paddlefish, Longnose Gar, Bullhead.

COMMENT

The major targets of sport fishermen are bluegill, crappie, white bass, drum, largemouth bass and sauger. But anglers also enjoy an excellent fishery for walleye and channel catfish. Commercial fishing throughout Pool 16 centers on carp, buffalo, drum and channel catfish.

SEASONAL MIGRATION

During periods of heavy spring flooding, walleye and sauger from as far south as Keokuk, Iowa, move into the tailwaters of Lock and Dam 15. The walleye spawning migration peaks when the flood waters are at their highest point. River conditions and water levels have to be conducive for this movement to occur.

FORAGE

Gizzard shad are the primary forage species. Other important species include emerald, spottail, river and spotfin shiners along with juvenile roughfish and crayfish. Aquatic insect larvae, such as mayflies, caddisflies and midges also are an important food source for many species.

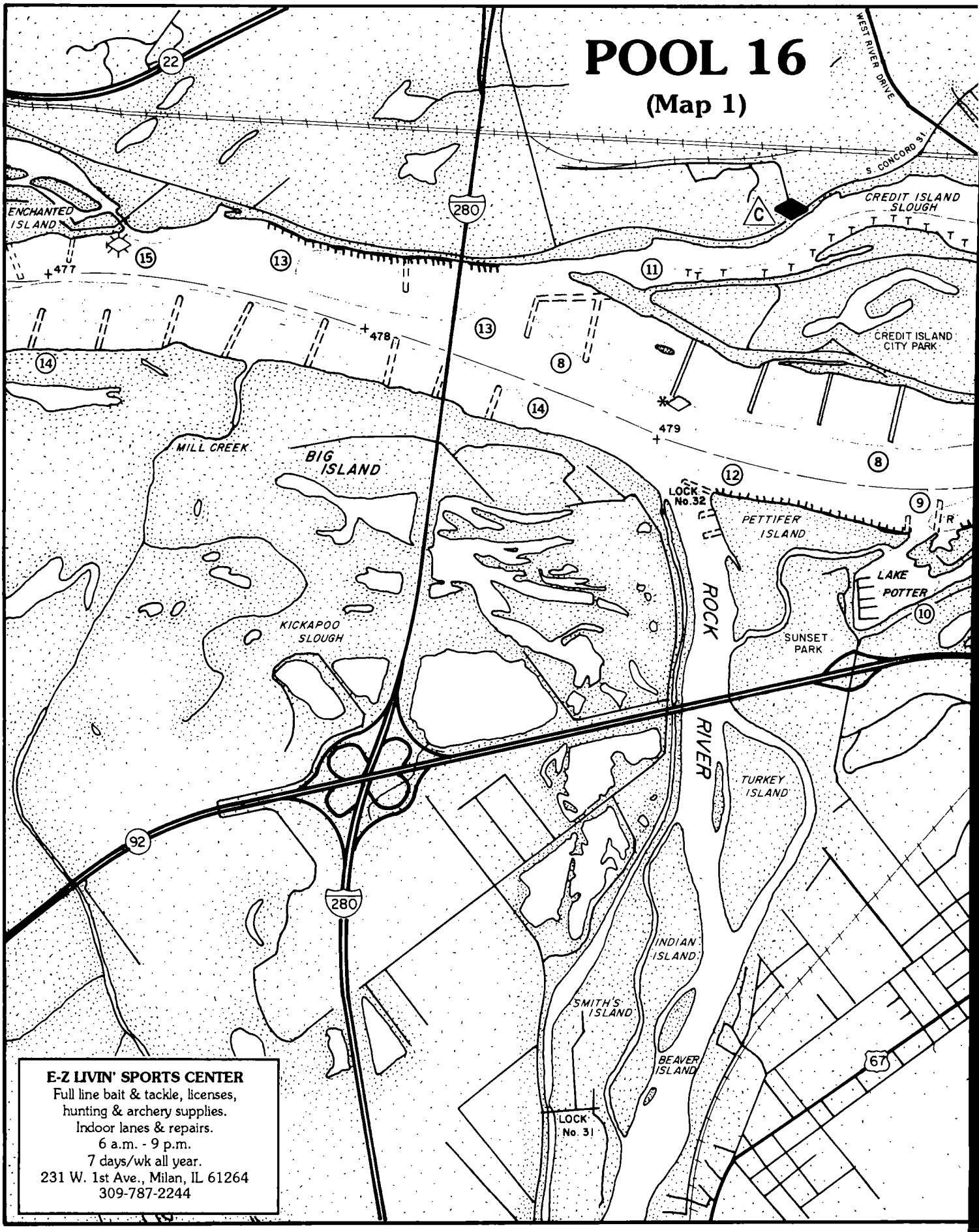
RIVER MANAGEMENT

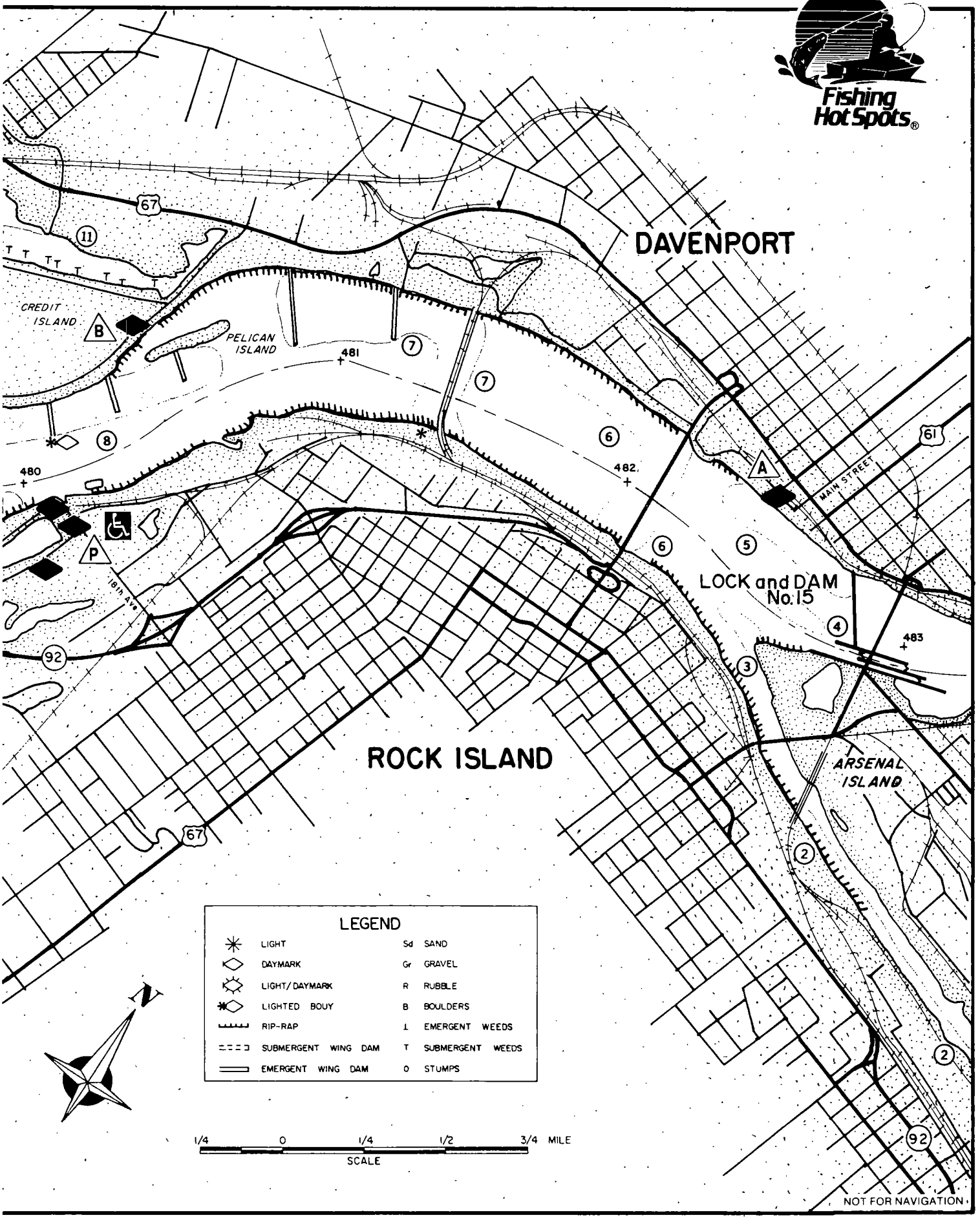
RIVER INVESTIGATION DATA - A recent electrofishing survey turned up 29 species of fish from various sites in Pool 16. The percentage of the five most popular species from the locations surveyed are included in the following table at the top of the next column.

Remember, these are percentage tables. In some instances, the overall number of a species might be high, but the numbers of other species in the area were even higher. Conversely, the percentage of a species may be high in an area, but the overall area simply may hold few fish.

POOL 16
ELECTROFISHING SURVEY RESULTS

SPECIES	PERCENT OF TOTAL CATCH
LITTLE VELIE CHUTE	
Bluegill	41%
Carp	9%
Largemouth Bass	8%
Shortnose Gar	7%
White Crappie	7%
Other	28%
BIG SUNFISH SLOUGH	
Bluegill	30%
Drum	16%
Carp	12%
Paddlefish	11%
White Crappie	9%
Other	22%
ARAB CHUTE	
Carp	26%
Bluegill	20%
Black Crappie	16%
Largemouth Bass	11%
White Crappie	10%
Other	20%
VELIE CHUTE	
Bluegill	22%
Carp	20%
Black Crappie	13%
Largemouth Bass	10%
Gizzard Shad	7%
Other	28%
ANDALUSIA SLOUGH	
Carp	21%
Bluegill	11%
Gizzard Shad	11%
Largemouth Bass	8%
White Crappie	8%
Other	41%
SYLVAN SLOUGH	
Carp	28%
Gizzard Shad	25%
Mooneye	13%
White Bass	9%
Freshwater Drum	6%
Other	19%

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SCALE
NOT FOR NAVIGATION

During a recent fyke netting survey conducted by the Iowa Department of Natural Resources, length of target fish species were recorded. The number of fish captured and their size range are shown in the following table:

POOL 16 NETTING SURVEY		
SPECIES	NUMBER	SIZE RANGE
Bluegill	2,302	4" - 10"
Black Crappie	373	5" - 12"
White Crappie	219	5" - 13"
Channel Catfish	795	5" - 21"

STOCKING

There are no stocking programs in effect for Pool 16.

RIVER SURVEY MAP

Fishing Areas Shaded

(Areas 1 and 2 are on Page 32)

Area (1) The tailwater region below the power dam by Arsenal Island is a popular fishing area for walleye, sauger, catfish and white bass. Spring, fall and winter are the most productive times to pursue walleye and sauger. A trolling motor is useful for slipping along the edge of the current breaks. Vertical jigging a 1/8-oz. jig tipped with a minnow is a favorite cold water presentation. By summer, catfish are taken along current breaks on live bait rigs.

Area (2) The shoreline along the Illinois side is riprapped and provides action for catfish, white bass and crappie. Be sure to key on the subtle differences along the riprap. Boaters should avoid the upper end of the channel because of dangerous currents.

Area (3) The lower end of Arsenal Island has a large current eddy that attracts many species of fish. Work this area during periods of reduced current with jig/live bait combos.

Area (4) Downstream from Lock and Dam 15 is a shallow sandbar used by spawning walleye and sauger. Rapalas or Wolf River Rigs with shiners often get results when trolled along the deep edge.

Area (5) Work the edges of the deep scour hole below the dam for summer walleye, sauger and drum. Fish here early in the day with live bait rigs for best results. Downstream from the hole is a shallow sandbar that attracts spawning walleye and sauger.

Area (6) The current breaks formed by the bridge pilings draw channel catfish and white bass. Live bait presentations worked near the base of the pilings generally produce the best results. Fish the riprapped shoreline on the Iowa side with bobber/minnow combinations for catfish and white bass.

Area (7) Vertical jig the base of the railroad pilings for a mixed bag of walleye, catfish and white bass. The shallow wing dams along the Iowa shoreline can offer good numbers of better-sized walleye if the water level is adequate. Use caution when boating in this area since these wing dams generally are shallow.

Area (8) There is a series of wing dams along the shore of Credit Island that provide outstanding action for walleye. Smallmouth bass are also found in limited numbers. A popular summer method is to troll crankbaits or live bait rigs along the upstream edge of these structures. See the "Introduction" for a detailed discussion of wing dams. Credit Island produces some big fish for anglers wading at night and casting crankbaits and No. 13 floating Rapalas along the wing dams.

Area (9) Work the perimeter of this rock pile with jigs and live bait to take walleye and white bass. In late summer, bluegill and largemouth bass can occasionally be found.

Area (10) Pitch a jig n' pig along the shallow shoreline cover to catch largemouth bass. A bobber and live bait combo fished near the same cover produces bluegill and crappie. Shorefishing areas for handicapped anglers are located at Lake Potter.

Area (11) During high water periods, fish the shoreline cover and vegetation in Credit Island Slough for bluegill and crappie. The upstream end of the slough is a suspected spawning site for bass, bowfin and northern pike. Shore anglers along the Credit Island City Park primarily bag panfish.

Area (12) These three wing dams at the

mouth of the Rock River offer good sauger and white bass action. In addition to jig/minnow combos, many anglers find crankbaits effective when cast along the edges of the wing dams.

Area (13) Walleye and catfish are taken from the wing dam and shoreline riprap. During summer, cast Rapalas and Rebel Minnows over the shallow wing dams and along the shoreline riprap for evening walleye. The bigger fish often move in after dark.

Area (14) Another productive series of wing dams is on the Illinois side below the I-280 bridge. Channel catfish and sauger are primarily found.

Area (15) When water levels are high, the upstream end of Enchanted Island Slough attracts crappie and white bass. The main channel border north of the slough is home to catfish and sauger throughout the year. For catfish, try stink baits when there are reduced water levels and a slower current flow.

Area (16) Work the area around the downstream end of Enchanted Island and the nearby wing dam for catfish and drum. Live bait presentations in spring and summer often yield the best results.

Area (17) Walleye, white bass and catfish are found along the main channel border and wing dams during cold water periods. A slow presentation and live bait often are needed to take these neutral fish.

Area (18) The wing dam on the upstream tip of Smith Island is emergent during low water. The downstream edge of the scour hole holds largemouth bass, drum and occasionally walleye. Be sure to check the wing dam on the Illinois side of Andalusia Slough for white bass and walleye.

Area (19) Catfish, drum and white bass are found on the wing dams on the Iowa side of Smith Island. A variety of live bait rigs can be effective. Lindy Rigs, Bait Walkers and Wolf River Rigs tipped with minnows, leeches and crawlers should be tried.

Area (20) The riprapped shoreline along the Iowa side from RM 476 to RM 474.5 is a catfish spawning site. Work slip bobber rigs in the small eddies that form along the riprap. Use minnows during spring and worms, cut and stink baits for the rest of the warm water period.

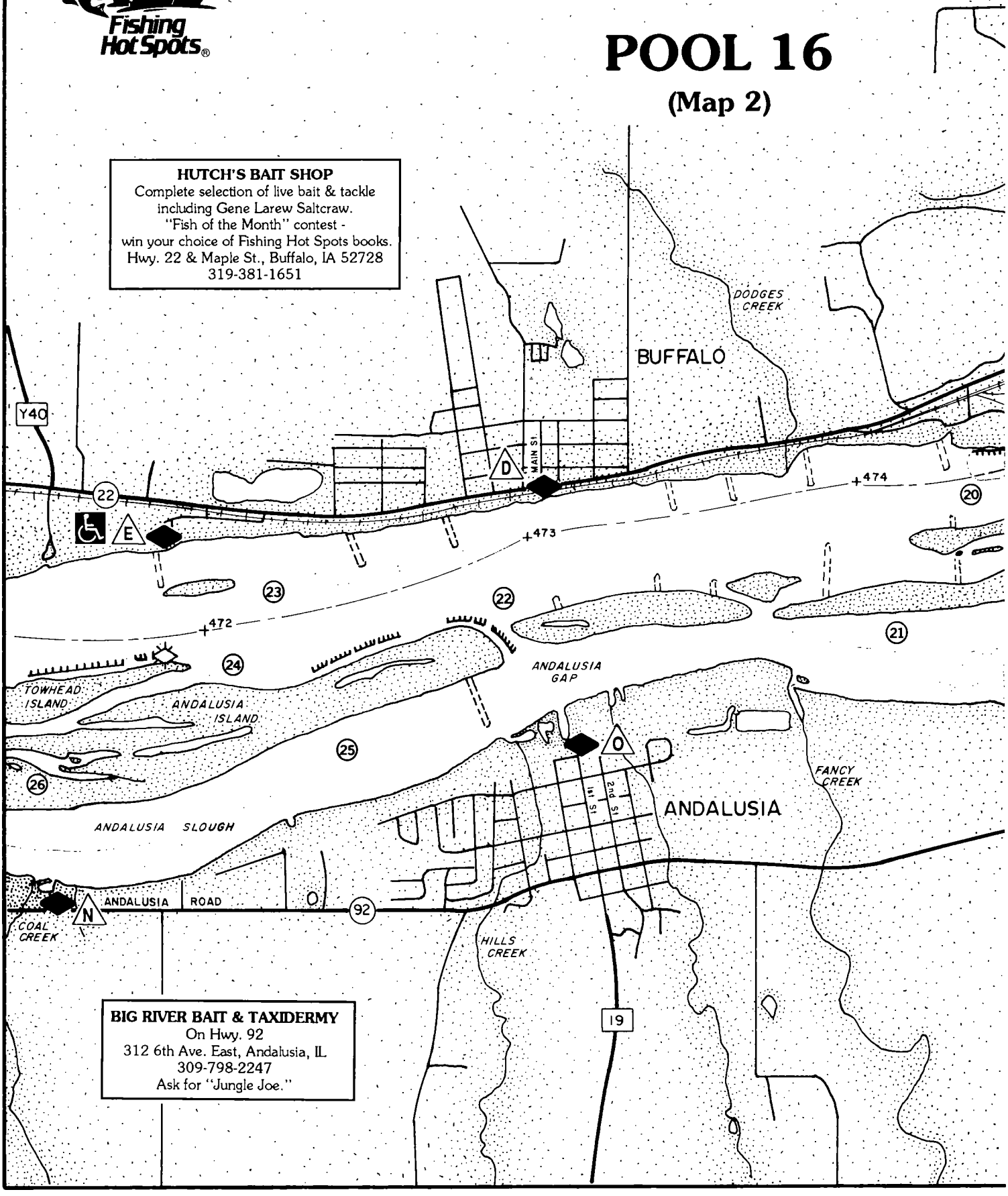
Area (21) This shallow flat in Andalusia Slough is a popular location for summer catfish. Slowly drift cut minnows or nightcrawlers along the bottom during low light periods.

Area (22) A fresh 4- to 5-inch dead minnow fished on the bottom can take catfish from the riprap in Andalusia Gap. Walleye anglers also find success working crankbaits and jig and minnows. The wing dam also produces both species.

A nice catch of backwater bucketmouth, the kind bass anglers dream about. (Vic Watia photo)

POOL 16

(Map 2)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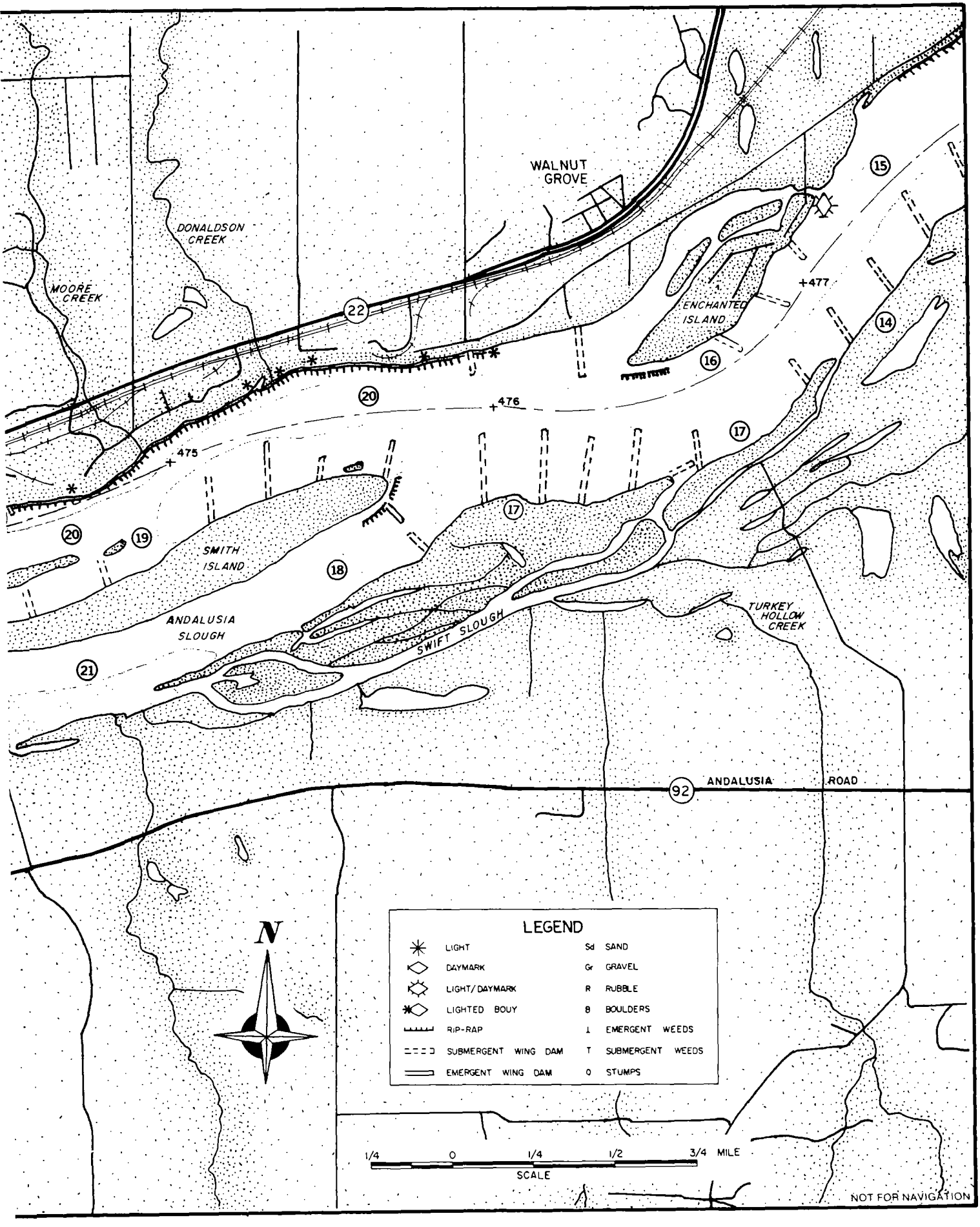
including Gene Larew Saltcraw.
"Fish of the Month" contest -
win your choice of Fishing Hot Spots books.
Hwy. 22 & Maple St., Buffalo, IA 52728
319-381-1651
DODGES CREEK
BUFFALO
Y40
MAIN ST
D
E
22
+474
+473
20
23
22
+472
21
24
ANDALUSIA GAP
TOWHEAD ISLAND
ANDALUSIA ISLAND
25
O
26
FANCY CREEK
1st St
2nd St
ANDALUSIA
ANDALUSIA SLOUGH
ANDALUSIA ROAD
N
92
COAL CREEK
HILLS CREEK
19
BIG RIVER BAIT & TAXIDERMY
On Hwy. 92
312 6th Ave. East, Andalusia, IL
309-798-2247
Ask for "Jungle Joe."


WALNUT GROVE
DONALDSON CREEK
MOORE CREEK
ENCHANTED ISLAND
+477
+476
+475
SMITH ISLAND
ANDALUSIA SLOUGH
SWIFT SLOUGH
TURKEY HOLLOW CREEK
ANDALUSIA ROAD
92
22
20
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16
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LEGEND
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DAYMARK
LIGHT/DAYMARK
LIGHTED BOUY
RIP-RAP
SUBMERGENT WING DAM
EMERGENT WING DAM
Sd SAND
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R RUBBLE
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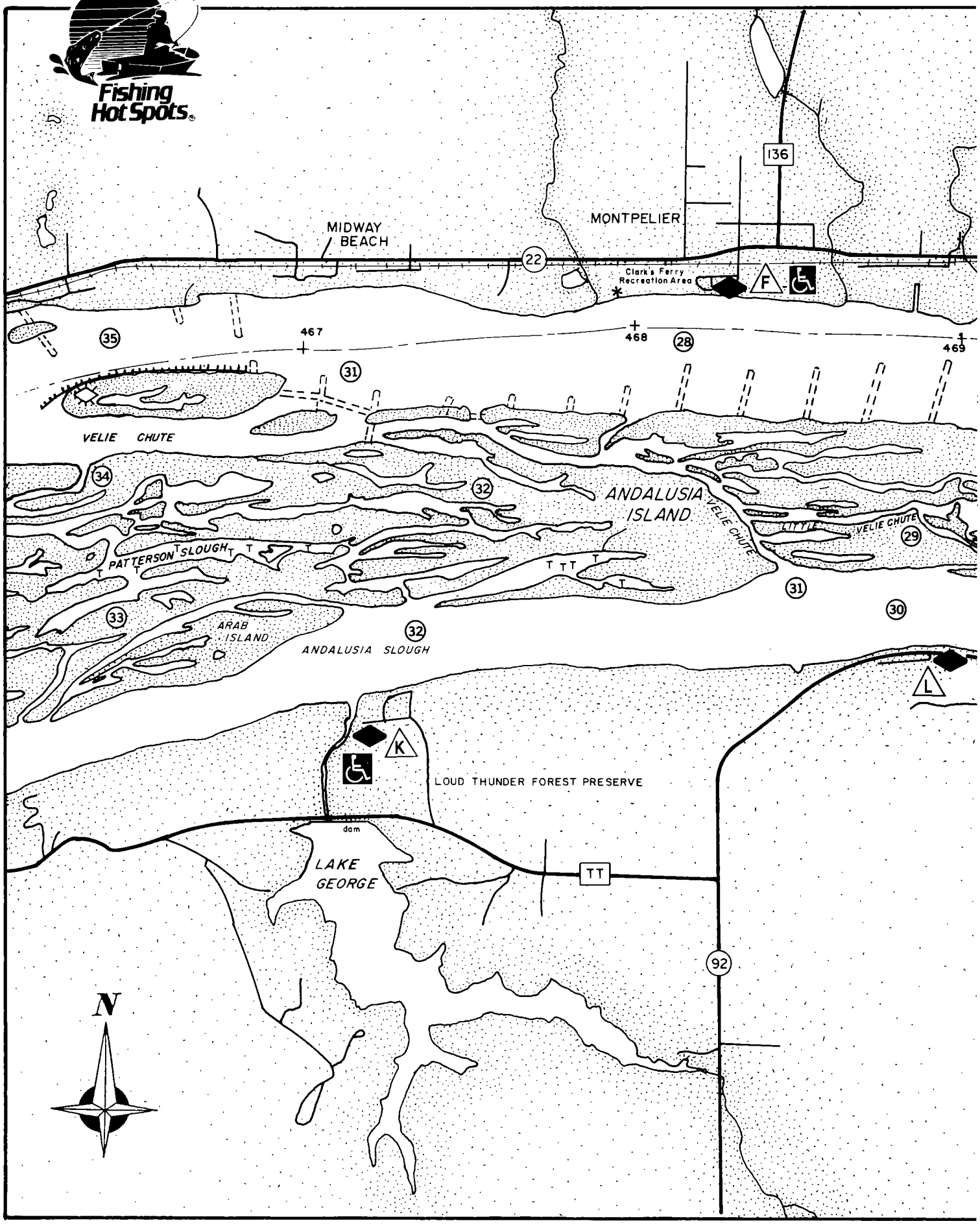
Fishing Hot Spots
136
MONTPELIER
MIDWAY BEACH
22
Clark's Ferry Recreation Area
F
35
467
468
28
469
31
VELIE CHUTE
34
32
ANDALUSIA ISLAND
VELIE CHUTE
LITTLE VELIE CHUTE
29
PATTERSON SLOUGH
31
33
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ARAB ISLAND
32
ANDALUSIA SLOUGH
L
K
LOUD THUNDER FOREST PRESERVE
dam
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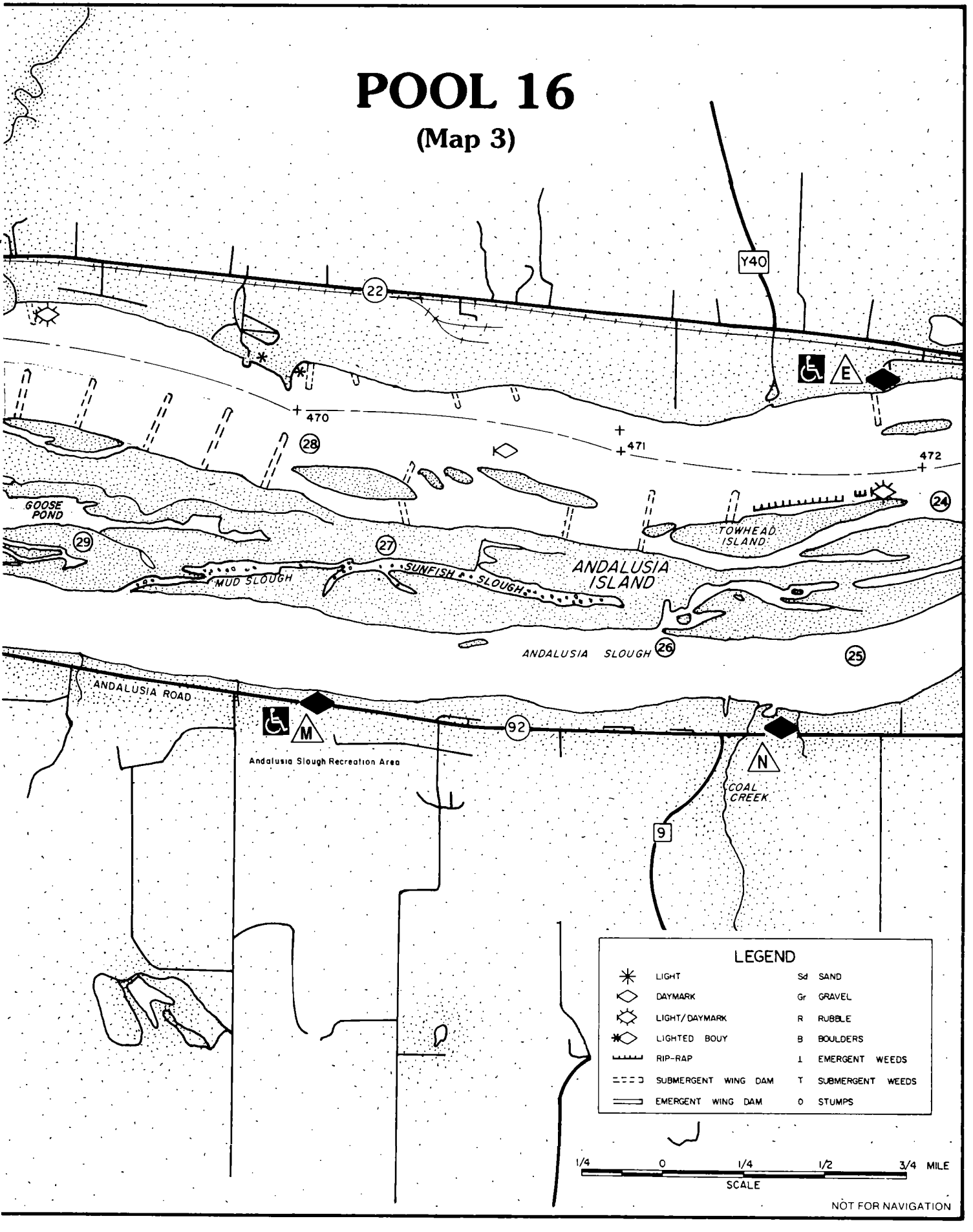
POOL 16
(Map 3)
Y40
22
E
470
471
472
28
24
GOOSE POND
29
27
TOWHEAD ISLAND
MUD SLOUGH
SUNFISH SLOUGH
ANDALUSIA ISLAND
ANDALUSIA SLOUGH
26
25
ANDALUSIA ROAD
M
92
Andalusia Slough Recreation Area
N
COAL CREEK
9
LEGEND
LIGHT
DAYMARK
LIGHT/DAYMARK
LIGHTED BOUY
RIP-RAP
SUBMERGENT WING DAM
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O STUMPS
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SCALE
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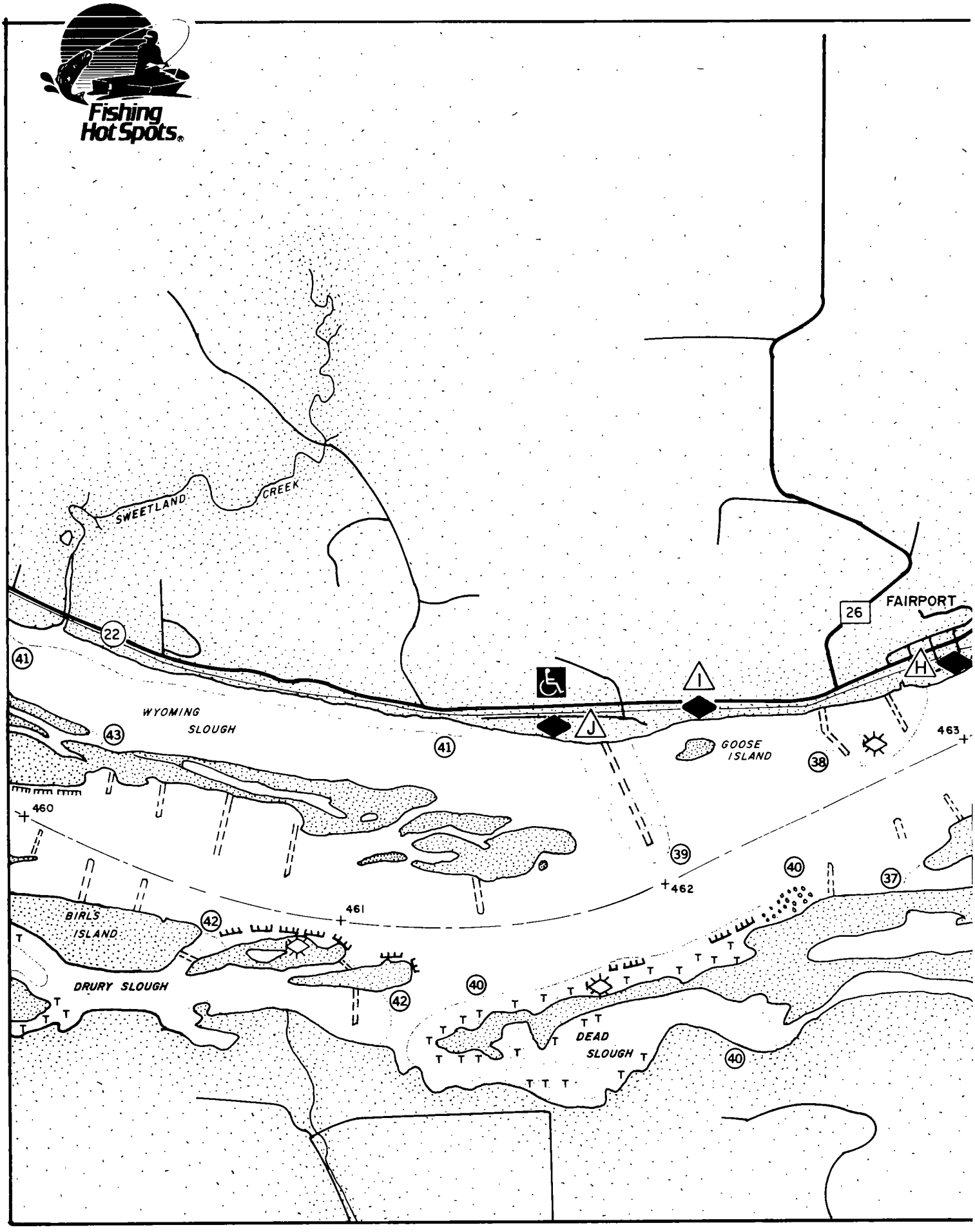
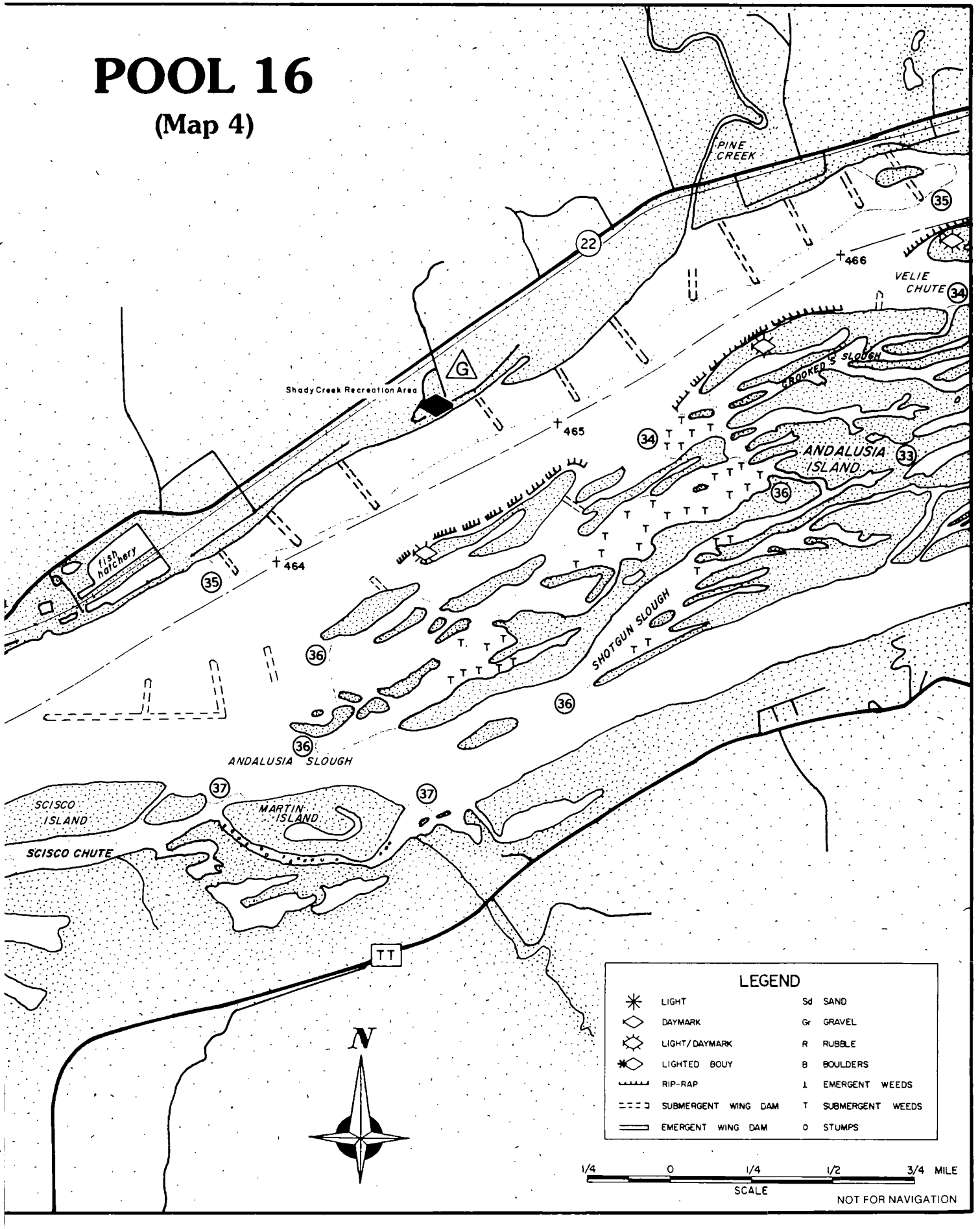

Fishing Hot Spots
SWEETLAND CREEK
22
41
26
FAIRPORT
H
I
J
WYOMING SLOUGH
43
41
GOOSE ISLAND
38
463
460
39
462
40
37
461
BIRLS ISLAND
42
DRURY SLOUGH
42
40
DEAD SLOUGH
40

POOL 16

(Map 4)


PINE CREEK
22
35
+466
VELIE CHUTE
34
CROOKED SLOUGH
Shady Creek Recreation Area
G
+465
34
ANDALUSIA ISLAND
33
36
fish hatchery
+464
35
SHOTGUN SLOUGH
36
36
ANDALUSIA SLOUGH
37
37
SCISCO ISLAND
MARTIN ISLAND
SCISCO CHUTE
TT
N
LEGEND
LIGHT
DAYMARK
LIGHT/DAYMARK
LIGHTED BOUY
RIP-RAP
SUBMERGENT WING DAM
EMERGENT WING DAM
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R RUBBLE
B BOULDERS
⊥ EMERGENT WEEDS
T SUBMERGENT WEEDS
O STUMPS
1/4 0 1/4 1/2 3/4 MILE
SCALE
NOT FOR NAVIGATION

Submerged timber and brush can hold some outstanding Mississippi largemouth. (Vic Watia Photo)

Area (23) Walleye are a top early morning attraction on these wing dams. The most active fish relate to the upstream side of the wing dam and are taken by casting or trolling crankbaits. Boating activity in this area can hinder fishing.

Area (24) The current break downstream from the daymark holds crappie and channel catfish. Largemouth bass are found in the slough between Towhead Island and Andalusia Island. Cast a spinnerbait or a 4-inch plastic worm into the available cover.

Area (25) This section of Andalusia Slough offers largemouth bass, bluegill and channel catfish. Work a jig n' pig in the downed shoreline timber for largemouth. Catfish are found in the same areas but they tend to prefer the deeper holes.

Area (26) During prime periods of high water, crappie and bluegill move into this small slough and provide action. For best results, work any available shoreline cover with bobber/live bait rigs.

Area (27) Sunfish Slough is one of the most important backwater areas for crappie, but locating the entrance can be difficult. Navigation into the slough may also be difficult due to submerged timber and a narrow channel. Try using a 12- to 14-foot crappie rod with a small jig and minnow to work the cover.

Area (28) The wing dams along the Iowa side of Andalusia Island are very productive for a variety of species. Crankbaits and live bait rigs take sauger, white bass and drum. Always work upstream from the "boil line," positioning the boat so engine noise does not disturb fish. Use caution in navigating since some wing dams are shallow.

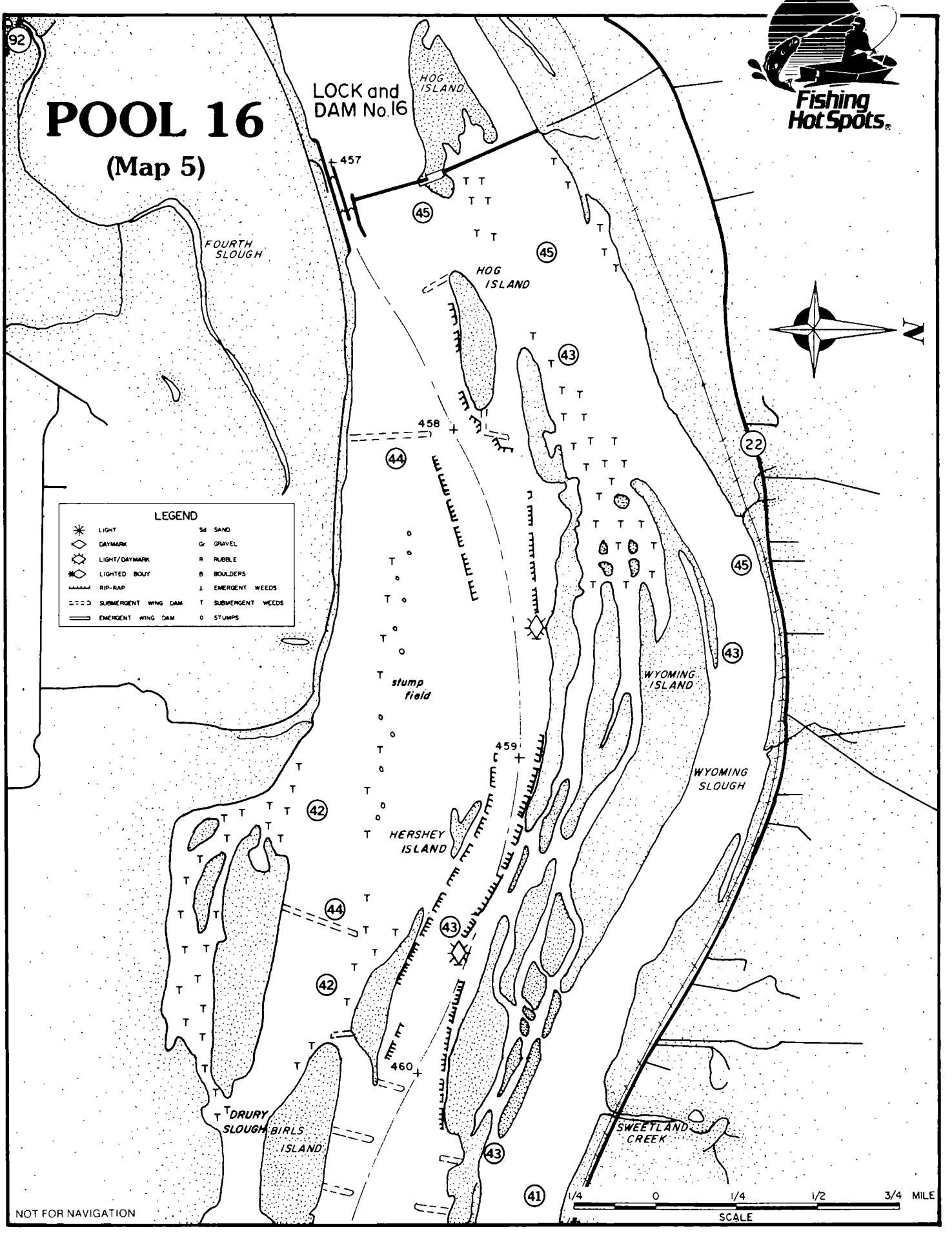
Area (29) Goose Pond offers exceptional opportunities for panfish and largemouth bass. Fish tight to the wood. The Little Velie channel leading back to the pond is shallow and full of snags. During low water periods this area may not be accessible.

Area (30) Largemouth, drum and crappie inhabit the shoreline cover along this section of Andalusia Slough. Run a 1/4 or 3/8 oz. spinnerbait along the submerged timber to take bass. Use a 2-inch piece of cut bait fished on the bottom to take summer catfish. Shoreline sections that contain rock also attract summer walleye. Night fishing with a jig and a leech can be productive.

Area (31) Velie Chute is lined with timber that holds largemouth bass, crappie and bluegill. Small minnows worked in the wood yield excellent catches of crappie. Flipping or pitching a 6 or 7-inch plastic worm into areas that contain weeds and wood is deadly for bass.

Area (32) The large backwater complex by Arab Island is prime spawning habitat for largemouth, crappie and bluegill. Be sure to fish tight to cover since these fish are often "buried" in the wood.

Area (33) Patterson Slough is another backwater area that is famous for crappie, bluegill and largemouth bass. The abundant vegetation and shoreline timber attract most fish. The area


POOL 16
(Map 5)
LOCK and DAM No.16
HOG ISLAND
FOURTH SLOUGH
HOG ISLAND
N
LEGEND
LIGHT
DAYMARK
LIGHT/DAYMARK
LIGHTED BOUY
RIP-RAP
SUBMERGENT WING DAM
EMERGENT WING DAM
Sd SAND
Gr GRAVEL
R RUBBLE
B BOULDERS
E EMERGENT WEEDS
T SUBMERGENT WEEDS
O STUMPS
stump field
WYOMING ISLAND
WYOMING SLOUGH
HERSHEY ISLAND
DRURY SLOUGH
BIRLS ISLAND
SWEETLAND CREEK
457
458
459
460
92
45
44
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42
41
22
1/4 0 1/4 1/2 3/4 MILE
SCALE
NOT FOR NAVIGATION

also produces panfish for ice fishermen. Light lines and bobbers work well in the spring.

Area (34) Crooked "S" Slough offers excellent opportunities for bass and crappie. Beginning in late summer, try areas of wood with nearby weedbeds. Use a Johnson Silver Minnow with a plastic trailer to search the abundant weed growth for active bass.

Area (35) The wing dams along this section of Iowa shoreline provide opportunities for walleye, sauger, catfish and drum. This area has a reputation for yielding trophy walleye. By summer, the three wing dams just upstream of the Pine Creek inlet produce above average bluegill.

Area (36) Bass, bluegill and crappie are attracted to weedbeds and stumps found at the lower end of Andalusia Island. The numerous cuts and shallow bays provide year-round action. Crappie relating to stumps respond best to vertical presentations. Use small baits, like 1/16-oz. marabou jigs tipped with a minnow.

Area (37) Scisco Chute and the deadfalls south of Martin Island provide consistent fishing for largemouth bass and crappie. Flipping a jig n' pig along the arrowhead and by the submerged stumps provides consistent bass action.

Area (38) Work the two wing dams downstream of Fairport Marina in early morning for walleye, sauger and channel catfish. The most efficient method for fishing a wing dam is trolling either crankbaits or live bait rigs.

Area (39) Walleye and catfish are taken from the wing dam downstream of Goose Island. Larger fish, not numbers, are the rule here.

Area (40) Dead Slough is a shallow area which provides good spring crappie and bass during high water. Bass anglers working plastic worms around the duck blinds have reported excellent catches. During low water periods, the best fishing is often around the stumps and weed edge of the main channel border. Try surface baits like the Moss Boss and Snag Proof Mouse.

Area (41) This section of the Iowa shoreline yields catches of catfish, crappie and white bass. Catfish prefer cut bait and stink baits during summer. For white bass, try casting small white or chartreuse crankbaits.

Area (42) The deeper water of Drury Slough is a favorite spot to take catfish. In summer, when the weeds are fully developed, largemouth bass anglers are successful casting Texas-rigged plastic worms along the weed edge.

Area (43) Spawning bluegill, crappie and bass use the sloughs of Wyoming Island. Abundant vegetation and stumps provide additional angling opportunities during summer but the water can get extremely shallow.

Area (44) Fish the weedline and many submerged stumps for bass and bluegill. Boating in this area can be extremely hazardous due to submerged timber and shallow water. The wing dam at RM 458 can be very difficult to detect when approaching from down river.

Area (45) The shallow water and abundant vegetation attract bluegill, crappie and bass.

POOL 17

Muscatine, Iowa, to New Boston, Illinois

LOCATION

Lock and Dam 17 is located 437 river miles above the mouth of the Ohio River. The pool is 20 miles long and runs from Muscatine, Iowa, south to New Boston, Illinois. There are no other communities located along the length of the pool.

ACCESS

NOTE: Accesses A through E are located on the Iowa side beginning at the north end.

Ⓐ **Type I (Public):** On the north end of the pool within the city of Muscatine; from Highway 61, take Iowa Avenue toward the river to this municipal access. This city facility has four wide concrete ramps and parking for about 80 vehicles with trailers.

Ⓑ **Type I (Public):** On the west side of the pool about 8 miles south of Muscatine; take Highway 61 south of Muscatine to Highway 92. Proceed across the intersection onto Industrial Connector for 1 mile to Steward Road (County Road X-61). Turn right and continue on this gravel road for 5.5 miles to the Kilpeck Landing sign. Turn left for about 1¼ miles to the access just over the levee. The facility has a single concrete ramp, launching dock and parking for 25 rigs. A picnic area is located nearby.

Ⓒ **Type I (Public):** On the west side of the pool at Big Timber Access; take Highway 252 east of Highway 61 a short distance to the town of Grandview. Turn left on gravel Highway G44X for about 5 3/4 miles to Highway X-61. Stay to the right and continue for about 3½ miles to this federal facility. It has a narrow concrete ramp and parking for about 20 rigs.

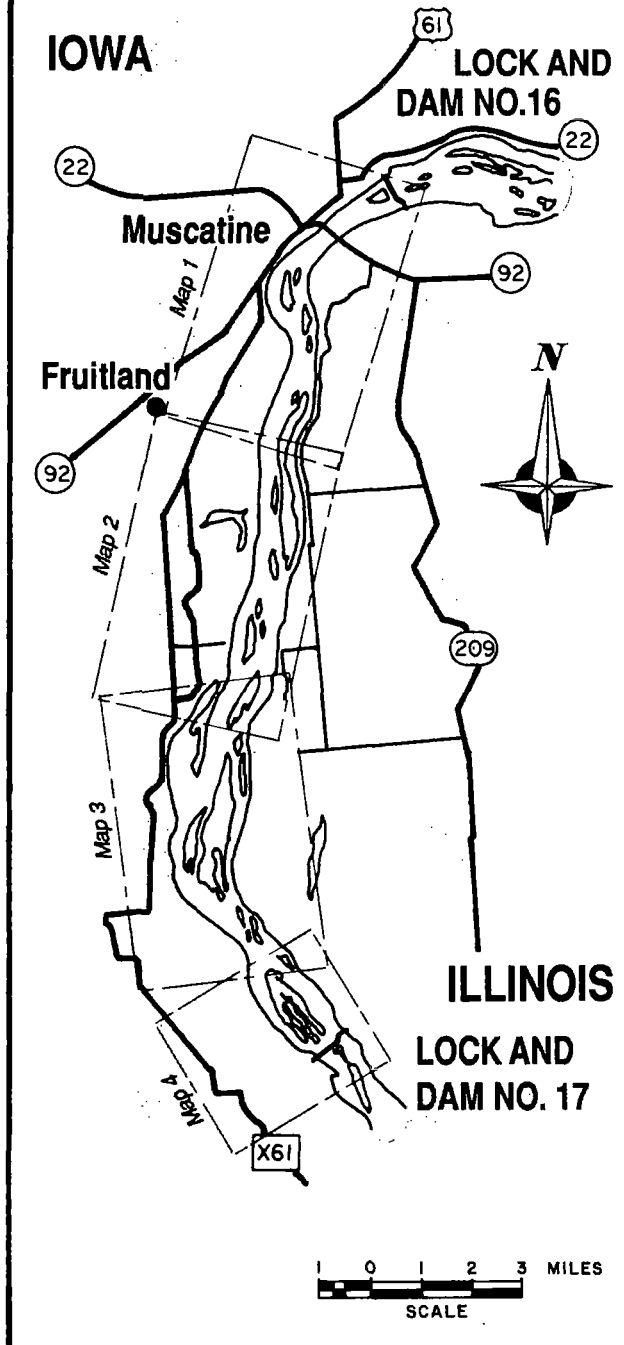
Ⓓ **Type I (Public):** On the west side of the river in the Flaming Prairie Recreation Area; take the first gravel road south of the Big Timber Access (see Access C). This county facility is located at the end of the road. A gravel ramp and gravel parking area for about 10 rigs are provided. Restrooms, picnic area and primitive camping also are located nearby.

Ⓔ **Type I (Public):** Approximately 14 miles south of Muscatine at the Port Lousia Access; turn east off Highway 61 on a gravel road marked "Mark Twain National Wildlife Refuge." Continue for about 3¼ miles to Highway X-61. Turn left for another 1¼ miles to the "Mississippi River Access" sign. Continue east for another 1½ miles to this federal facility. A double-wide concrete ramp, and parking for about 20 rigs are present.

NOTE: Accesses F and G are located on the Illinois side of Pool 17 beginning at the southern end.

Ⓕ **Type I (Public):** On the east side of the river at Crosses Corner Public Use Area; from Highway 92, turn south on Highway A for approximately 11 miles to County Road 1400N. Turn right for about 2½ miles to County Road 200E. Proceed right for another 2 miles to County Road 1600N. Turn left and follow the gravel road over the levee to the access. This state facility has a single concrete ramp and parking for 15 rigs. Primitive camping is permitted nearby.

POOL 17



G **Type I (Public):** On the east side of the river at the Blanchard Island Public Use Area; take Highway A south of Highway 92 for about 5 miles. Turn right at the access sign and continue another 2½ miles to this state facility. It has a single concrete ramp and parking for 20 rigs. A picnic area and primitive camping also are available.

RELATED SERVICES

Boat Rentals - None.
Bait Shops - Yes, at numerous locations throughout the area.
Public Parks - Yes, at many state, county and federal facilities.
Campgrounds - Yes, both public and private.
Marinas - Yes, one
Guide Services - Yes.

SPECIAL FEATURES

Pool 17 has considerable federal land, including the Mark Twain National Wildlife Refuge. Twenty-six miles of shoreline and all islands south of RM 452.2 are government property.

One bridge crosses Pool 17; U.S. Highway 92 at RM 455.9. In addition, there are two bald eagle feeding areas (RM 456-458 and RM 448.7-449.5), an eagle winter roost site (RM 446), an eagle feeding and perching area (RM 438-441) and a great blue heron rookery (RM 451).

Lake Odessa, an oxbow lake now blocked off from river access by a dike, is a popular recreational area.

Levees are located throughout Pool 17 to prevent flooding during high water periods. But the levees cause little disruption to the natural shoreline.

Recreational use of the pool is average. Barge traffic is heavy.

RIVER CHARACTERISTICS

Size - Pool 17 is 20 miles long with an area of approximately 8,130 acres.
Water Source - Water enters Pool 17 by flowing through the dam from Pool 16 at Mus-

catine, Iowa. There are no major tributaries. One minor inlet is Copperas Creek found at RM 451. A pumphouse is located at RM 442.3 to pump runoff into the river.

Shoreline - Most of the shoreline is natural wetland forest. Riprap has been placed along the Iowa shoreline from RM 449.5 to 457.

Bottom - Primarily sand with some gravel areas in the upper pool. Silt covered sand is common in the lower pool. There are many deep holes in side channels and the main channel border from dredging operations that built the levees. Of the total fish habitat available, 33% is classified as main channel border (including islands and wing dams), 30% is main channel, 17% is side channel, 12% is sloughs, 7% is river lakes and ponds and 1% is tailwater.

Water - Quite fertile, with dark color and high turbidity. Flat (normal) pool elevation is 534.5 feet. Current velocity in the main channel ranges from 2 mph at normal pool to 4 mph during high water.

Vegetation - Arrowhead and sedge are the primary emergent types. Eelgrass, coontail and milfoil are the significant submergent species. Lotus is also present. Aquatic vegetation is primarily limited to lake and pond habitat, with minor growths in sloughs and main channel border.

FISHERY

SPECIES

Primary - Largemouth Bass, Walleye, Sauger, Channel Catfish, White Bass, Bluegill, Black Crappie, Drum, Carp.

Secondary - Flathead Catfish, Perch, White Crappie, Orange-Spotted Sunfish, Bowfin, Buffalo, Shortnose Gar.

Limited - Northern Pike, Smallmouth Bass, Bullhead, Paddlefish, Longnose Gar.

COMMENT

The most popular gamefish are walleye, sauger, crappie, bluegill, largemouth bass and channel catfish. Walleye generally range in size from 1½ to 4 pounds, but 9- to 10-pound fish occasionally are caught. Most sauger are 1 to 2½ pounds, while largemouth bass typically are 1 to 2½ pounds with an occasional 5-pound fish caught. Channel catfish over 15 pounds have been taken, but average size is from 1 to 3 pounds.

SEASONAL MIGRATION

During the cold water period from late fall to early spring, walleye and sauger move upstream toward the dam (Dam 16). Males can be found in tailwaters as early as October, and some females also may migrate at this time. But most female walleye will not move from downstream portions of the pool until late March or early April. Females that spend the summer in upstream areas of the pool are most likely to migrate further upstream in fall.

FORAGE

Gizzard shad, speckled chub, silver chub, emerald shiner, river shiner, young-of-the-year carp and drum, and bullhead minnows are the primary components of a diverse forage base. Insects and insect larvae, crayfish, and some snails are additional sources of food for gamefish.

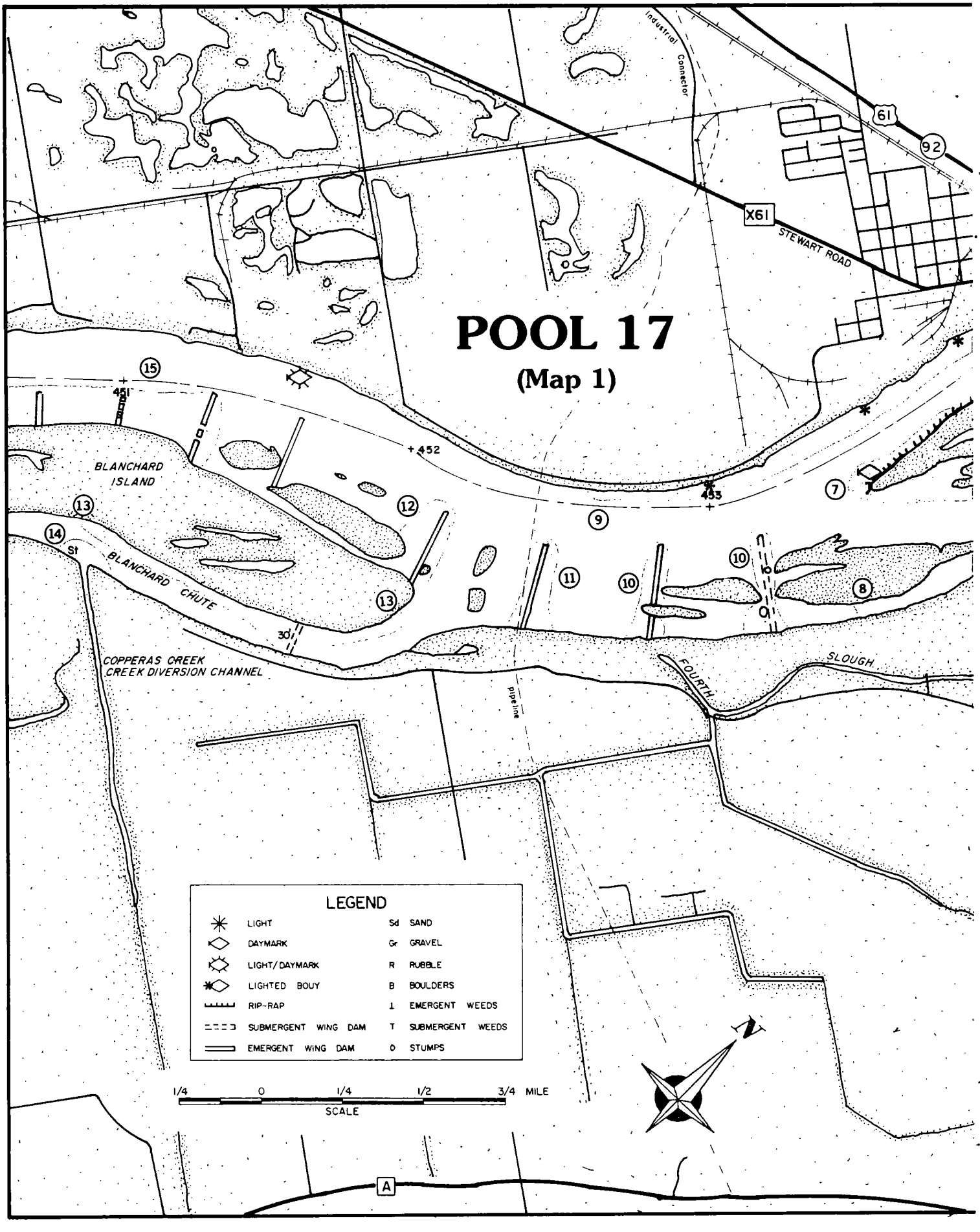
RIVER MANAGEMENT

RIVER INVESTIGATION DATA

A two-year largemouth bass population study was conducted by Iowa Department of Natural Resources in the Big Timber backwater area of Pool 17.

The first year of the study included the tagging of 355 bass, 54 of which were captured a second time. The study estimated the area contained a population of 2,757 bass 2 years old or older, and there was an average of 15 bass per acre.

The second year of the Big Timber Area study showed dramatic changes had resulted from just one year of fishing pressure. Biologists tagged 298 bass and captured 42 a second time. But


POOL 17
(Map 1)
Industrial Connector
61
92
X61
STEWART ROAD
BLANCHARD ISLAND
BLANCHARD CHUTE
COPPERAS CREEK
CREEK DIVERSION CHANNEL
pipe line
FOURTH SLOUGH
+452
451
453
30'
LEGEND
LIGHT
DAYMARK
LIGHT/DAYMARK
LIGHTED BOUY
RIP-RAP
SUBMERGENT WING DAM
EMERGENT WING DAM
Sd SAND
Gr GRAVEL
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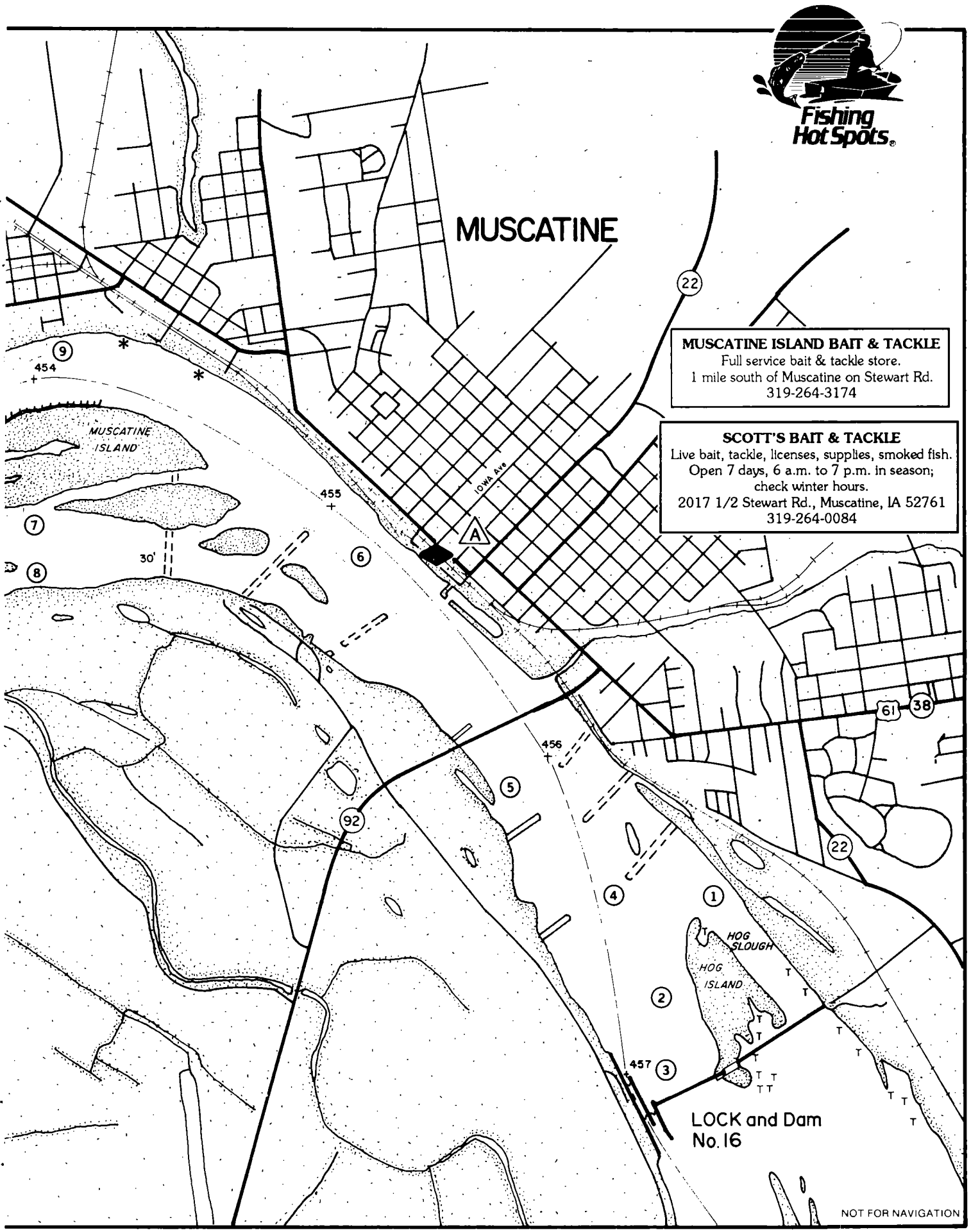
Fishing Hot Spots
MUSCATINE
MUSCATINE ISLAND BAIT & TACKLE
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SCOTT'S BAIT & TACKLE
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MUSCATINE ISLAND
IOWA Ave
HOG SLOUGH
HOG ISLAND
LOCK and Dam No. 16
454
455
456
457
30'
22
61
38
92
NOT FOR NAVIGATION

the estimated bass population dropped to 1,710 fish 2 years old or older, and there was an average of only 9.3 bass per acre.

The study also compiled age growth statistics on largemouth bass in the Big Timber Area. The average length for each age group is shown in the following chart:

POOL 17 - BIG TIMBER AREA BASS GROWTH STUDY		
AGE GROUP	NUMBER	AVERAGE LENGTH
I	—	4.0"
II	300	8.0"
III	319	10.5"
IV	166	12.4"
V	56	14.1"
VI	39	15.4"
VII	9	16.5"
VIII	1	16.2"

The study also included a creel survey that estimated fish populations in the area as shown in the following table:

POOL 17 - BIG TIMBER AREA CREEL SURVEY		
SPECIES	FISH PER ACRE	POUNDS PER ACRE
Bluegill	111	21
Crappie	67	18
Bass	9	8
Bullhead	6	—
Channel Catfish	3	—
Total Harvest	196	49

A recent electrofishing survey by the Illinois Department of Conservation turned up 22 species of fish at two sites in Pool 17. The percentages of the five most popular species from the locations surveyed are included in the table at the top of the next column.

Remember, these are percentage tables. In some instances, the overall number of a species might be high, but the numbers of other species in the area were even higher. Conversely, the percentage of a species may be high in an area, but the overall area simply may hold few fish.

POOL 17 ELECTROFISHING RESULTS	
SPECIES	PERCENT OF TOTAL CATCH
EAGLE FILL	
Bluegill	42%
White Crappie	13%
Largemouth Bass	10%
Warmouth	8%
Carp	7%
Other	21%
BLANCHARD SLOUGH	
Bluegill	27%
White Crappie	20%
Carp	17%
Black Crappie	12%
Largemouth Bass	8%
Other	13%

The Illinois Department of Conservation also collected 23 fish species using gill nets. In this study, crappie accounted for 32.5 percent of the sampling while carp totaled 21.1 percent. In addition, trap netting took 18 species and 61 percent were crappie while 23.8 percent were bluegill.

RIVER SURVEY MAP

Fishing Areas Shaded

Area (1) Walleye and sauger are drawn to the area below the spillway in early spring. Heddon Sonars or jig/minnow combos with stinger hooks are effective during cold water periods. If water is coming over the spillway, many species of fish are attracted here throughout the year. Work the docks and the shoreline weeds of Hog Slough for largemouth bass, bluegill and crappie. During May and June, bass congregate below the spillway if there is current flow.

Area (2) The deeper water near Hog Island is a favorite location for winter walleye and sauger fishermen. Cordell Gay Blades and Wolf River Rigs tipped with live bait are productive when fished near the island.

Area (3) There is a hump located just downstream from the auxiliary lock that collects

sauger and channel catfish. Sauger and walleye are found along the shoreline below the lock chamber in early spring. Many anglers prefer to fish a Lindy Rig or a Wolf River Rig along bottom.

Area (4) These three wing dams along the Iowa shoreline can yield excellent catches of walleye. The middle wing dam has a reputation for producing the best results. Crankbaits and live bait rigs can be effective when worked along the upstream side of the wing dam.

Area (5) Walleye are taken from the two wing dams just upstream from the highway bridge. During June and July, channel catfish and white bass provide additional angling opportunities.

Area (6) Three wing dams below the highway bridge are prime locations for sauger, catfish and drum. White bass and some largemouth bass are attracted to a breach in the upstream wing dam. Work the current edges with artificial lures. A number of old pilings are found near shore that attract crappie; and vertical presentations are most productive. A deep dredge hole is found just downstream of the last wing dam. Anglers use stink baits and live minnows for summer catfish.

Area (7) Catfish are found along the bank protection on the south end of Muscatine Island. Cut baits, stink baits and live bait can all produce. In fall, largemouth bass move into the area and are taken on spinnerbaits and jig n` pigs.

Area (8) The island side of this slough has abundant fallen timber that holds crappie, largemouth bass and catfish. A quiet approach and accurate casting is required to fish this cover. Many crappie fishermen prefer to use 12- to 14-foot poles and live bait to work the holes in the wood.

Area (9) Catfish relate to shoreline riprap and industrial pilings. Many shore and boat anglers favor slip bobber rigs and medium sized leeches during late spring and summer.

Area (10) Bass and crappie relate to the emergent portion of the upstream wing dam during summer. Access to this area may be difficult during low water periods. The eastern side of the lower wing dam holds walleye and catfish. Try casting crankbaits over the shallow portions of the wing dams early and late in the day.

Area (11) An emergent rock pile is found on the east end of this wing dam. Walleye, white bass and catfish can be taken here at almost any water level. The east side of the wing dam is very shallow, and boating along the main channel border is not recommended.

Area (12) During low water periods, bass and bluegill are caught on this wing dam. Slip bobber rigs and live bait can produce some exceptional bluegill action. The slough just downstream is best during high water for crappie and bass. Work the submerged timber along the shore for the most action.

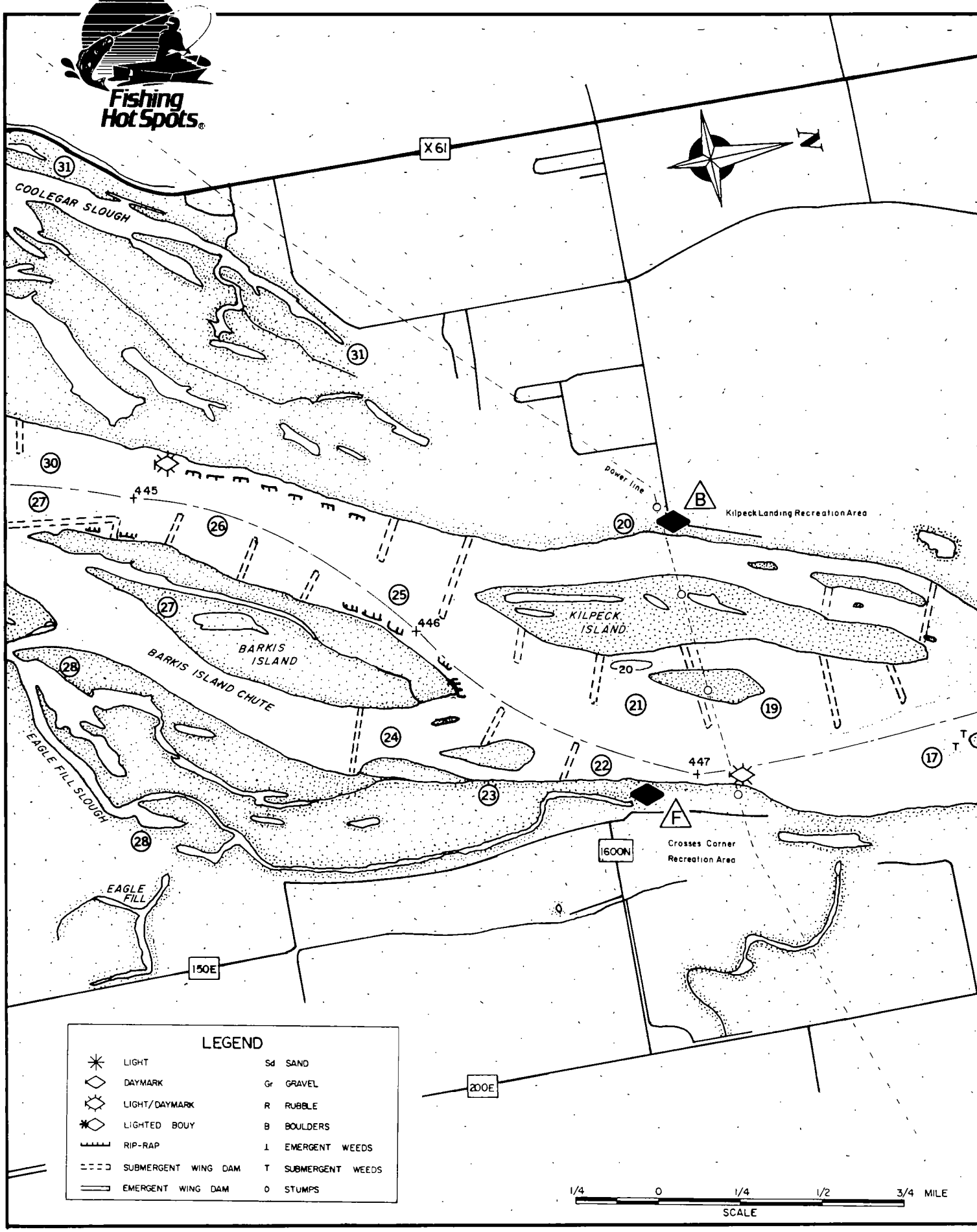
Area (13) The many deadfalls along this shoreline hold crappie, bass and catfish. Night fishing for flatheads can be very productive in the deeper holes that contain wood. Fishing large suckers or chubs on bottom is the preferred method. Sauger and channel catfish hold along the closing dam and the deep dredge hole. A number of dredge holes are found along the length of Blanchard Chute.

Area (14) Bass, bluegill and crappie are attracted to the mouth of Copperas Creek in spring. These species also use this area to spawn. Approach this area from the upstream side due to a shallow silt bar.

Area (15) This series of wing dams along the west side of Blanchard Island yields walleye and channel catfish. Remember, active fish utilize the upstream side of the wing dam for feeding.

Area (16) Work the many deadfalls along this section of Blanchard Chute for bass, bluegill and crappie. Many crappie anglers use 1/32-oz. tube jigs when working the wood. Plastic worms and jig n` pigs can be fished in the timber to take largemouth.

Area (17) The side channel between Bass Island and Blanchard Island Slough contains weed flats and submerged timber that attract largemouth bass. Deadfalls near the points on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Kilpeck Landing Recreation Area
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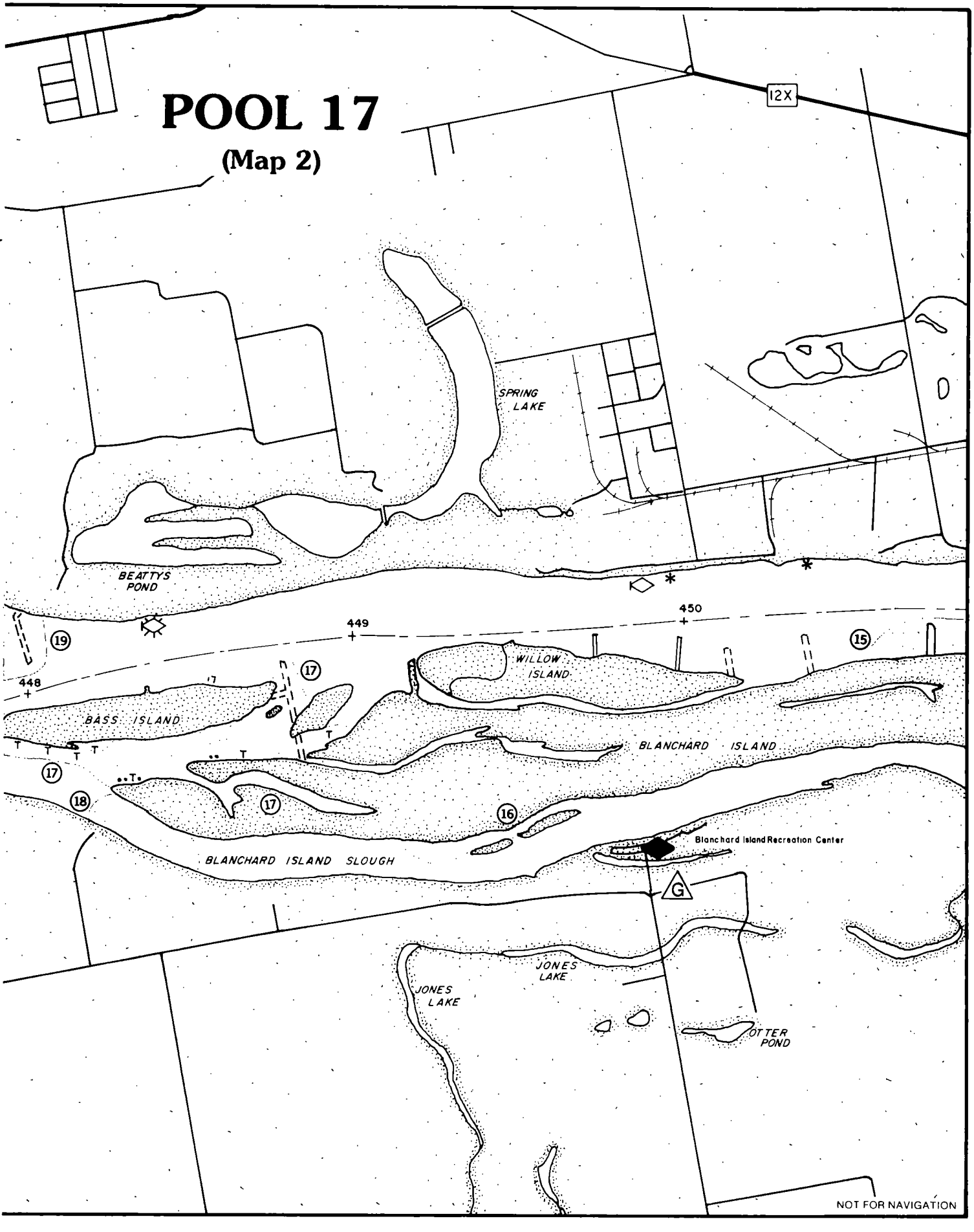
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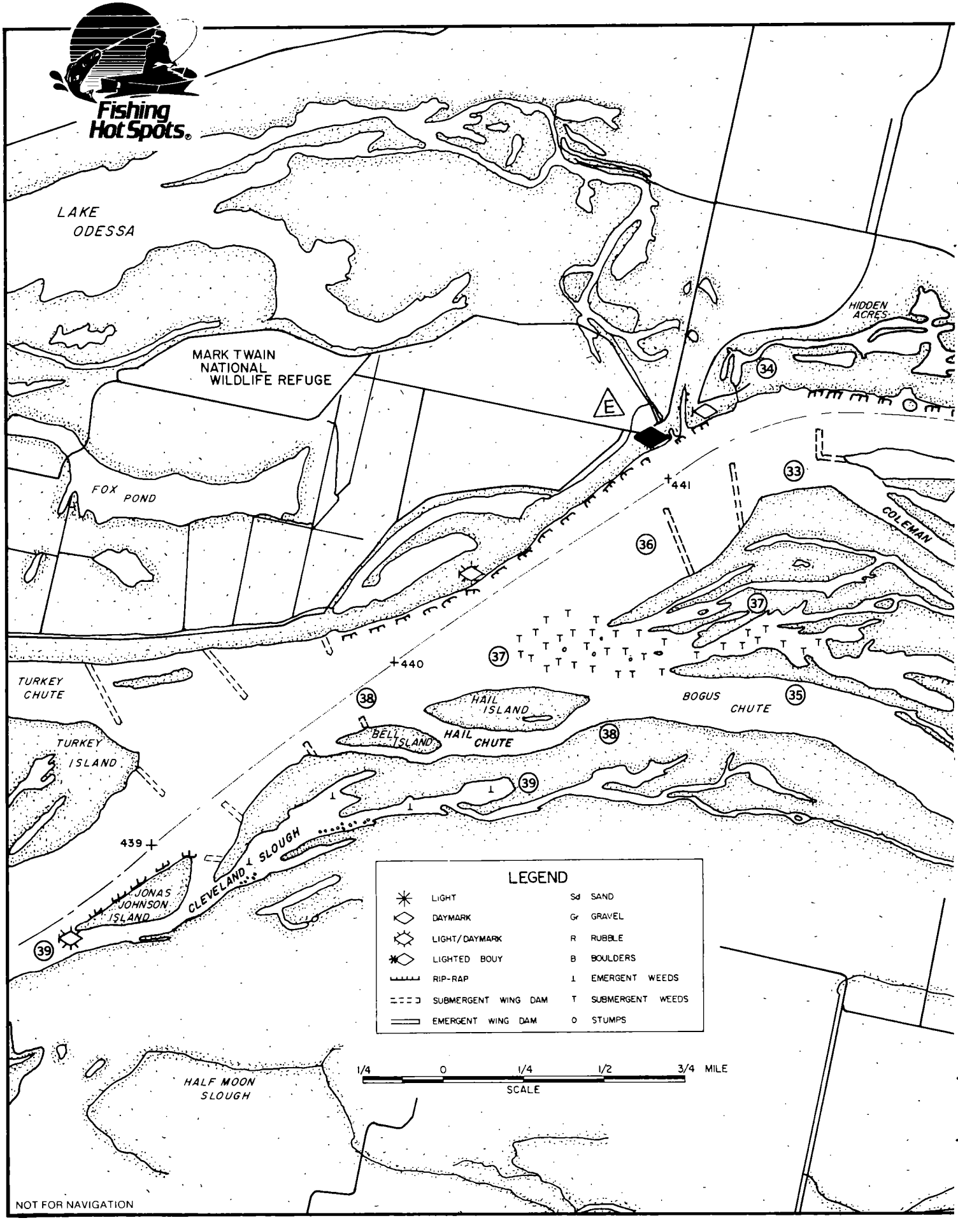
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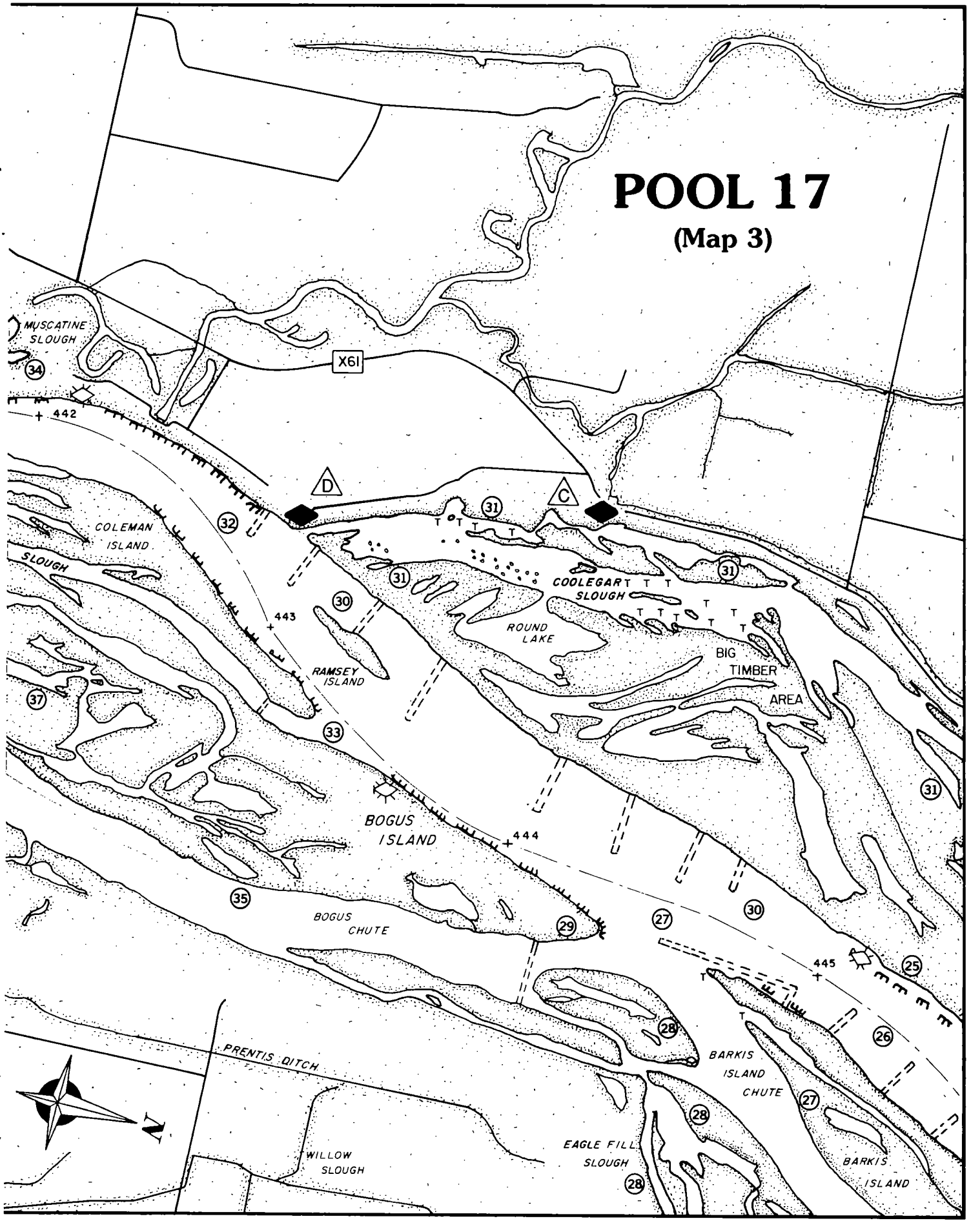
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RAMSEY ISLAND
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COOLEGART SLOUGH
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BOGUS CHUTE
PRENTIS DITCH
WILLOW SLOUGH
EAGLE FILL SLOUGH
BARKIS ISLAND CHUTE
BARKIS ISLAND
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the east side hold bass throughout the day. Spinnerbaits buzzed across the weedy flats also produce.

Area (18) Catfish and sauger inhabit the deeper dredge holes near the south end of Blanchard Island Slough. Anglers working the shoreline cover take largemouth bass and crappie.

Area (19) The north end of Kilpeck Island has a number of wing dams that attract sauger and catfish. Walleye also utilize the deeper holes as a wintering area.

Area (20) West of Kilpeck Island is a section of downed timber that attracts crappie, bass and catfish. Slip bobber rigs and cut bait are worked through the deeper timber for catfish.

Area (21) Sauger are found on a wing dam below the twin power lines and in the deep hole. The shoreline cover can yield catches of crappie and catfish.

The Big Timber Area shown in this aerial photograph is a top bass fishing spot. (U.S. Fish and Wildlife Service Photo)

Area (22) Anchor on the upstream side of these wing dams and cast cut bait along the boil line for catfish. Summer and fall are the most productive periods.

Area (23) Crappie utilize the abundant shoreline timber throughout the season. Vertical presentations with live bait rigs or small jigs and twister tails should be fished close to the wood.

Area (24) The submerged timber and wing dam at the upper end of Barkis Island Chute hold catfish. Fish stink baits on the bottom for consistent summer action.

Area (25) West of Barkis Island are two wing dams and some old bank protection that attract walleye, white bass and catfish. Summer offers the best opportunities, but high water conditions can limit your catch.

Area (26) On the west side of Barkis Island are three wing dams that are prime locations for summer catfish, sauger and walleye. Try trolling crankbaits across the face of these structures for both sauger and walleye.

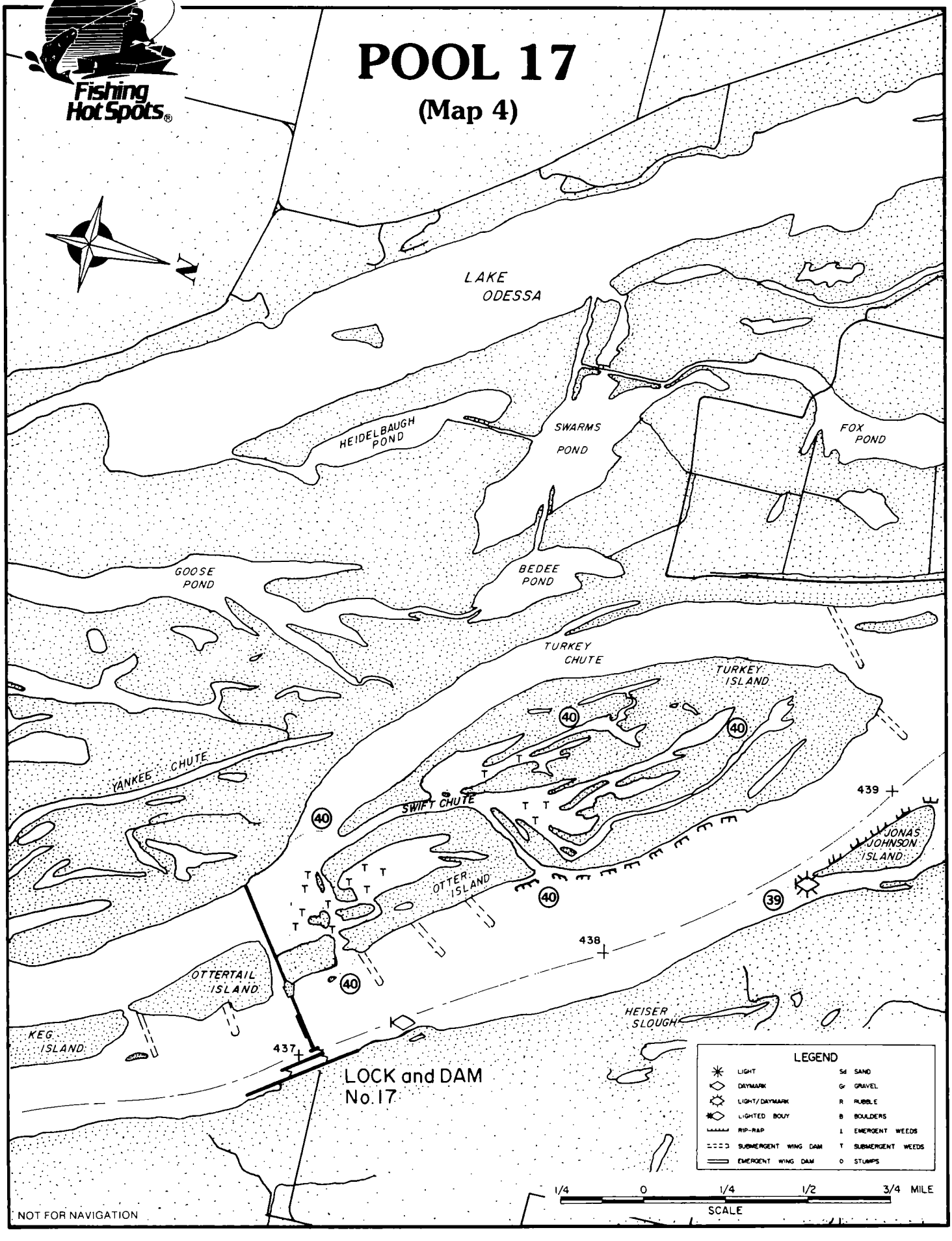
Area (27) The shoreline cover on the lower end of Barkis Island produces largemouth bass. Look for bass in the wood near areas of submerged vegetation. Plastic worms and jig n' pigs pitched into the open areas are often the best presentations.

Area (28) Panfish and bass are attracted to the abundant vegetation and shoreline cover found in the Eagle Fill backwater area. This complex has a reputation for producing best during high water periods.

Area (29) Sauger and catfish are taken on the wing dam and near the eddy at the north end of Bogus Island. Fish here for summer sauger with live bait presentations. The shoreline riprap and the numerous deadfalls hold bass, crappie and catfish.

Area (30) This main channel border area west of Bogus Island attracts a variety of species. Crappie and bluegill are abundant during summer when water levels are low. Run live bait rigs along the upstream side of the wing dams to catch catfish and sauger.

Area (31) Coolegar Slough (also known as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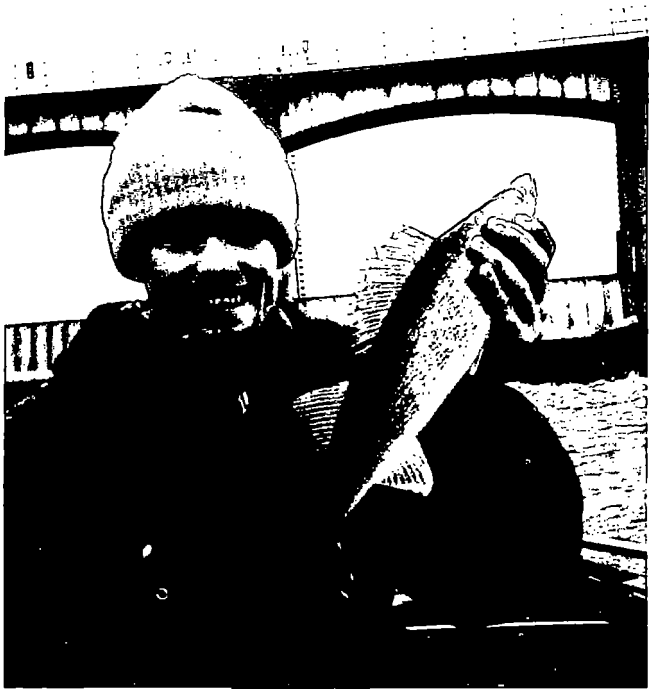
the Breaks) is one of the most important backwater areas in Pool 17. Try for crappie, bluegill and bass in the abundant cover. Stumps are found throughout the area along with large amounts of submerged vegetation. Work the shallow wood and the slop in the back bays for largemouth. Fish the entire slough for bluegill and crappie, concentrating on the deadfalls and



Tailwater walleye are a top attraction in late fall and early spring. (Hutch's Bait & Tackle photo)

dredge holes. During high water, Round Lake and the Slash Ponds are accessible.

Area (32) The two wing dams at the entrance to Coolegar Slough are good for walleye, catfish and white bass.

Area (33) Crappie and channel catfish are found along the entire length of Coleman Slough. This deep water channel has abundant shoreline wood that holds fish throughout the year.

Area (34) Access to Hidden Acres is under a narrow bridge near RM 441.2. This channel can be difficult to navigate during low water periods. If water levels are adequate, largemouth bass and bluegill fishing can be outstanding.

Area (35) Crappie, largemouth bass and catfish relate to the shoreline timber of Bogus Chute. Work the wood with slip bobber rigs and live bait to take crappie and channel catfish.

Area (36) At the south end of Bogus Island are two wing dams that are used by catfish, sauger, walleye and white bass. See the "Introduction" for detailed discussion on fishing wing dams.

Area (37) The slough at the lower end of Bogus Island is another spawning site for bass, crappie and bluegill. Cast plastic worms under the old duck blinds and along the stumps within the weedbeds. Bluegill and crappie provide most of the action in areas of sparse weed growth.

Area (38) Hail Chute has abundant cover for largemouth bass, crappie and bluegill. Center most of your fishing efforts on the shoreline timber.

Area (39) Excellent bass and crappie action is found in Cleveland Slough. This side channel has many stumps and areas of emergent weeds.

Area (40) Swift Chute and the other backwater areas of Turkey and Otter Islands provide outstanding habitat for bass and bluegill. Cast spinnerbaits and surface baits in these shallow, weedy bays for largemouth.

UNDERSTANDING RIVER SYSTEMS

There is an old axiom that goes, "A good river fisherman can fish any lake, but a lake fisherman will have trouble on the river."

Although not always true, most river anglers fare well when they work other systems. The reason is, river anglers are required to learn how to fish stream, lake and reservoir conditions all on one body of water. And this holds true for fishing on Pools 15, 16 or 17.

The three pools combine the features of streams with current, fluctuating water levels, changing clarity and shifting bottom material. They also combine lake features with areas of vegetation and water too deep to support weed growth.

Like reservoirs, these three pools also have areas of submerged trees and stumps not found in natural lakes. Rapidly changing water levels also challenge anglers. So, to successfully fish Pools 15, 16 and 17, they have to be treated as rivers, a series of lakes and a series of reservoirs - all in one system.

Current is the life blood of river fishing. It provides oxygen and forage to both river and backwater habitats. Fish relate to current, positioning themselves at the edges to feed or rest. Successful anglers know how to use current. Water levels can change daily and current changes with it. Add to this a certain amount of hydrographical change caused by river current, such as in backwater channels, certain side channels, bars and shallow banks. The changes may be ever so slight or dramatic. Where once a 4-foot deep bar held walleye, there now rests a channel cut nearly 8 feet deep. And instead of walleye, it now carries mostly channel catfish.

The same applies to backwaters. Three years earlier, a 3- to 4-foot deep backwater may have produced sparse lily pads and abundant bluegill, but now may be replaced with only a 2-foot hole clogged with silt and weeds and holding only carp and baitfish.

These current-created changes are not as frequent in Pool 15 as they are in Pools 16 and 17. In Pool 16, for example, waterways within Andalusia Island always seem to vary slightly each year, but somewhere down the line they return to the basic pattern. The same type of annual changes occur in and around Bogus Island and surrounding structures in Pool 17.

The changes, however, often are gradual and hardly noticed on a daily basis. But after a year, they become obvious. Likewise, changes caused by current may slowly reverse themselves after a period of time.

Such changes may have little effect on boating, but they can make a great deal of difference to river fishermen. It therefore becomes important for an angler to learn to how to read water currents to increase the odds of success. The trick is to learn when fish will be near wing dams, closing dams, riprap, side channels, submerged timber, sloughs and backwater lakes. In addition, it becomes important to learn how to fish this variety of structure.

Fishing Wing Dams

Wing dams are top-notch habitat for summer and fall main channel fishing, as aggressive fish concentrate on the upstream areas of these structures.

Feeding walleye, for example, will work the upstream base of the wing dam, along the top or anywhere along the face. Fish often hold in the deep water on the downstream side, but they are resting, non-active fish and difficult to catch.

There are many ways to fish a wing dam, but the easiest is to merely anchor a boat 50 to 100 feet upstream from the wing dam and cast back to the rocks.

One anchoring technique that works uses a 15- or 18-pound fluted mushroom anchor with about 12 inches of 3/8-inch chain fastened to it. The anchor rope is tied to the chain, and as the boat pulls in the current, the chain keeps the anchor lying down and biting into the bottom.

A common mistake some anglers make is to work right along the turbulence or boil line, thinking they are in position to work the wing dam. The front edge of the wing dam, however, always is found upstream of the boil line.

Depending on the current, boats can be held off of wing dams with an electric motor or outboard motor. It is important, however, to keep the boat upstream from the wing dam.

Casting allows an angler to fish the face of the wing dam or throw over the top into the boil line.

Trolling probably is the most efficient method of working a wing dam, because the entire structure can be covered quickly to locate active fish. Boat control is the most important factor, because fish cannot be caught if the boat is not in proper relationship to the wing dam.

Backtrolling is popular when there is reduced current, while forward trolling is favored in a strong current.

Trolling is an effective method for working wing dams. (Jim Ocker photo)

Start out by positioning the boat along the slick on the upstream face of the wing dam. The slick is the section of flat water just in front of the boil line. Start the trolling pass on the shore end of the wing dam and begin moving toward the main channel. Keep the motor at a constant speed, making adjustments carefully because varying motor speed sharply can spook fish.

Boat position can be altered by pointing the bow into the current to move upstream and turning across the current to edge downstream. Taking the motor momentarily out of gear also allows the current to pull the boat downstream. As the boat moves along the wing dam toward the main channel, the current increases and motor speed must be adjusted to maintain a steady trolling speed and to hold position.

When the boat approaches the end of the wing dam near the main channel, turn upstream directly into the current and increase the power just enough to move slightly ahead. Then decrease the power slightly to allow the boat to slip downstream. This permits the angler to work the end of the wing dam where fish often congregate.

These trolling techniques allow anglers to keep their lures or baits in the fish zone nearly all of the time.

Sometimes wing dams have small vertical breaks, like a notch or washout, where fish like to congregate. A wing dam may have several of these breaks, and anglers often are tempted to anchor and fish them. It is more productive, however, to continue trolling the length of the wing dam and then turn around and start over again in the opposite direction.

Wing dam fishermen use a variety of lures and techniques. The 3-way swivel Wolf River Rig is popular for fishing live bait, including minnows, leeches and nightcrawlers. But some anglers prefer floating jig heads with a walking sinker, or leadhead jigs tipped with bait.

Crankbait fishermen like to bump the rocks while casting or trolling with deep divers and often prefer colors that imitate crayfish. Red, orange, brown and green are standards, but when

walleye are feeding on baitfish, silver and shad colors become good choices. When the water is dirty or stained, hot fluorescent colors can pay off.

Floating Rapala-type minnow lures also are popular river baits, especially in early summer and fall. These lures are often fished on Wolf River Rigs or bottom bouncers.

The leadhead jig, however, probably is the most versatile lure on the river. Every angler has his favorite and carries them in a variety of sizes and colors to meet changing conditions. Some of the jig colors used on the river are white, chartreuse, green and orange.

Casting the Riprap

Fishing riprap is less complicated for most fishermen than fishing wing dams. Riprap generally is constructed parallel to the current, so it is easy to position a boat for casting. Anglers usually move in as close as possible to the rocks while still allowing for a 30- to 45-degree upstream cast. The idea is to bring the lure downstream in a natural manner past fish that often are holding tight to the riprap. Try to imagine where the rock meets the bottom and fish everything from the surface to that depth.

Anglers must also watch for subtle differences when looking for areas to fish along the riprap. It might be a section of riprap that juts out further into the water, has obvious voids, or changes in direction.

The rocks and crevices of a riprapped shoreline harbor forage that attracts many species of gamefish. (Dan D. Gapen photo)

Some fishermen like to anchor off riprap and work the structure with slip bobber and live bait combinations or crankbaits, but it is more productive to keep moving until concentrations of fish have been located.

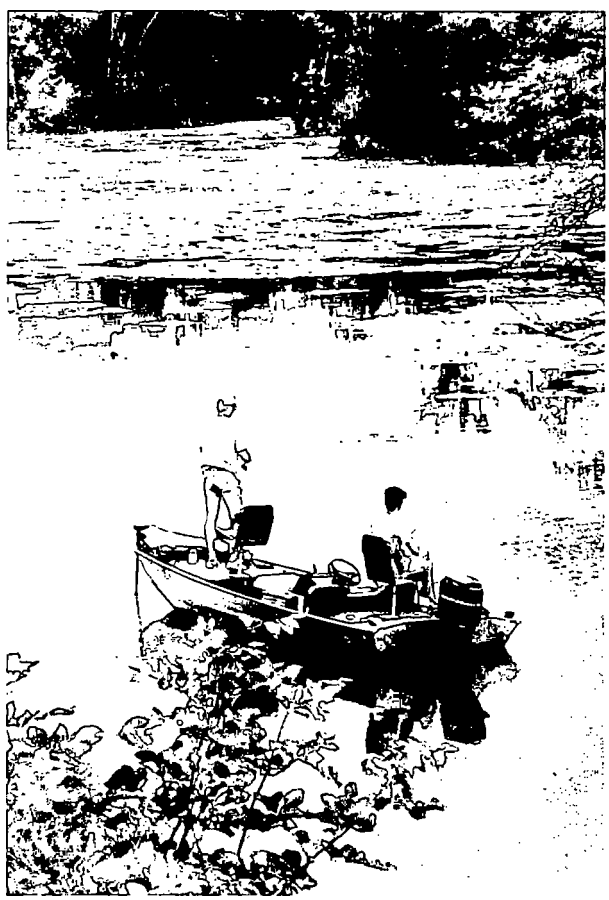
Riprap is a favorite hangout for smallmouth bass and drum. But walleye, sauger, white bass and channel catfish also relate to this rocky habitat at various times of the year.

Some favorite lures of riprap fishermen include crankbaits, Mepps-type spinners, jigs or small jig n' pigs and 4-inch plastic worms.

Working the Weeds and Wood

Weed fishing in Pools 15, 16 and 17 usually is confined to backwater areas and the main channel border.

Weed areas may vary from sparse to thick vegetation or range from defined weedlines to



Open pockets and slots within weed growth are prime targets for bass anglers. (Dan D. Gapen photo)

just scattered patches. Largemouth bass fishermen seek weed areas with diverse structure. Fallen timber or stumps combined with vegetation offer prime bass cover.

Subtle differences can lead to success. For example, an angler may be fishing a slough shoreline in the spring where arrowheads are just beginning to unfold. Rather than just tossing to any spot at random, look for indentations in the emerging weedline, small points or deadfalls mixed in with weeds.

The same approach can be applied to lotus beds. Pick spots in the weeds where pads are not quite as dense, because the openings may indicate stumps or fallen timber under the surface. Fish usually hold next to such structure.

The outside edge of a weedbed often indicates a sharp drop to deep water. Fish are often found along this break, so working it can be productive.

In the Mississippi River pools, coontail may grow in scattered clumps away from other weeds. These clumps often attract fish and indicate the presence of stumps or logs.

Productive bass lures for fishing backwater weeds and wood are plastic worms, jig n' pigs, weedless spoons, spinnerbaits, buzzbaits and shallow-running crankbaits.

When fishing stump fields, look for clusters of stumps or the largest stumps with elaborate underwater root systems. If there is current in the area, bass often rest on the downstream side of the cover.

Flipping is a favorite technique for fishing wood structure. A plastic worm or jig n' pig dropped into heavy cover should be allowed to fall into the root system and then hopped in place. Fishing willow trees and deadfalls is productive with spinnerbaits, jig n' pigs and plastic worms. Twitching a minnow plug on the surface also gets results, especially in May and June.

When the water is warm enough for bass to aggressively hit topwater baits, try buzzing a Lunker Lure in open weed pockets or around stumps and fallen timber. This technique results in some exciting action.

The weed and wood combinations in backwater areas attract numerous panfish anglers. Abundant bluegill and crappie thrive in this cover.

Worms, crickets and grubs fished beneath pencil floats are popular year-round combinations for bluegill. Tiny 1/32- and 1/64-oz. jigs or fly rod poppers can get results in summer.

Crappie anglers favor minnow and bobber-rigs in spring. Also try 1/16- and 1/32-oz. jigs with plastic bodies to vertically jig timber and brush in summer. The jigs also can be suspended under a small bobber since crappie are more depth-oriented than bluegill.

Spinnerbaits and buzzbaits are good largemouth bass producers when fish are aggressive. (Vic Watia photo)

Winter Fishing

Mississippi River pools offer anglers the unique option of both ice and open water fishing during winter.

The ice fishing season usually starts in late December and extends into March, with most angling activity centered on backwater areas.

Before making a trip to the river, it is important to call ahead and check with local bait shops to get the latest reports on ice conditions.

The popular winter targets are panfish. Most bluegill fishing is in 1 to 3 feet of water where there was good weed cover the previous summer.

Crappie anglers search for areas with 4 to 6 feet of water and some type of wood structure.

Experienced ice fishermen like to move around a lot, and power augers make it easy to drill holes. Portable ice shanties also are popular because they provide shelter from the cold.

Ice anglers sometimes save shells from eggs, crush them and drop them through their fishing holes. The crushed shells sink and provide a white bottom, increasing visibility for the fishermen peering into the hole.

The Upper Mississippi is open to year-round fishing, and anglers also enjoy open water opportunities for walleye and sauger during the winter months in the tailwaters. But open water fishing at this time of year is challenging and requires hard work, good judgement and caution.

Winter fishing, however, can be rewarding. Jigs from 1/8 to 3/8 oz. are tipped with minnows and slowly dragged or swam across the bottom.

Key on areas with decreased current flows and moderate breaklines in 8 to 15 feet of water. Within tailwater areas, the wing dams, main channel borders, midriver humps and rubble-bottomed flats can be productive.

Winter anglers must be prepared to deal with many problems warm weather anglers do not encounter. For example, just tying knots is difficult when hands and fingers turn numb with cold. In addition, rod guides often ice-up and must be cleared. The plastic handle from an artist's paint brush can be used to chip away ice without damaging the guides.

Some anglers use a heater in the boat to help keep their hands and face warm. It is important to dress warm and to carry extra gloves to replace the ones that get wet.

Safety is a major concern. Hypothermia sets in quickly after an accidental dunk in the water. Never anchor when fishing tailwaters in the winter. Drift ice can catch the anchor line and pull a small boat under. Ice floes can be submerged and difficult to detect.

Tips From "Head River Rat" Dan Gapen

Tips for Ol' Glass Eyes

A prime time for taking large walleye in Pools 15, 16 and 17 is from mid-May to the middle of June with a special trolling technique. It requires a 2-oz. Bait-Walker sinker and chartreuse crankbaits. Knowledgeable anglers work this combination over the central region of a wing dam to take fish that hold directly in front of the dam on the rocky forward section. Those big fish are feeding on migrating minnows and emerging summer crawfish.

The trick is to allow 30 inches of dropback line between the crankbait and sinker rig. Troll at a very slow rate upstream, working the wing dam during the period from one hour before sundown to one hour after sundown.

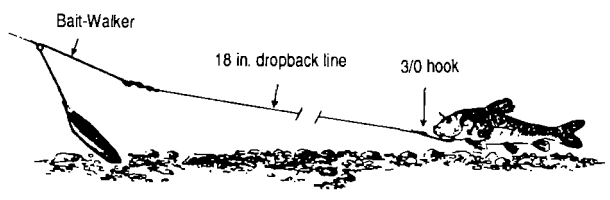
During late spring and early fall, anglers trolling along riprap structure can produce excellent results on walleye, sauger and white bass. Trolling direction during these periods always is upstream, until water temperatures reach 64 degrees. Once that temperature mark is past, downstream trolling usually works best.

The downstream presentation of bait is especially effective during summer months in big river systems like Pools 15, 16 and 17, with their slower moving waters. Casting upstream along riprap and bridge abutments gets results this time of year.

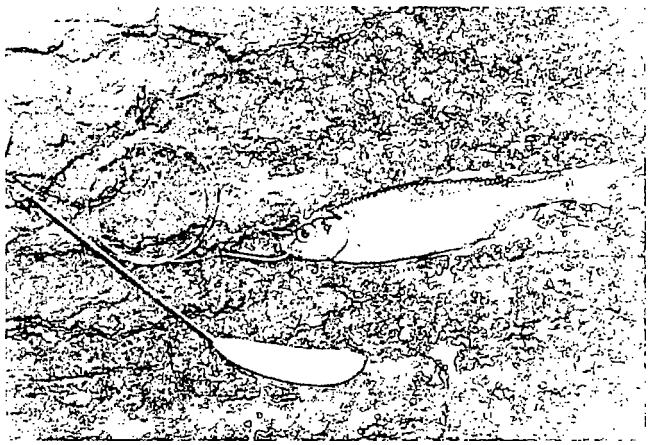
In spring, fishermen will produce more gamefish if their live bait selection is minnows and their plug selection is keyed to the following colors: white, yellow, chartreuse and silver. If jigs are used, the same light colors will work well. It is advised the jigs be tipped with minnows during the months of March, April and May. In cold weather years, June also can be added to the list.

Tips for "Whiskered Walleye"

Catfish anglers in Pools 15, 16 and 17 find fresh bait the best for catching channel cats. Some of the favorites are shad, gizzard shad guts, semi-thawed chicken liver, clams, leeches and nightcrawlers.



A sucker or live bluegill on a Bait-Walker rig is effective for big flatheads. (Dan Gapen diagram)



Bait-Walkers can be rigged with minnows, nightcrawlers or crankbaits to take a variety of Mississippi River gamefish. (Dan Gapen photo)

The most productive bait for big flathead cats in these pools is live bluegills, rigged through their back fin so they'll flounder, or 10-inch sucker minnows hooked the same way. But some old rivermen prefer struggling bullheads with their "madtoms" (fin barbs) clipped. Check local regulations because using live bluegill for bait usually is only legal if caught in the same water in which you fish.

Catfish experts get consistent results on flatheads by working the deep areas below dams, bridges and holes in the center channel.

Finding Something in Common

Let's take a look at some common fishing areas in all three pools.

A hump is located below each of the dams on Pools 15, 16 and 17. This structure on the bottom is created by the fast water discharge of the lock and gate system. The hump is where the bottom is thrust towards the surface downstream from the face of the dam.

Rock, gravel and sand are forced into a pile by the fast rush of water through the dam. On this hump, skilled anglers will find schools of walleye, sauger, catfish and various roughfish. Look at the top of the hump for walleye, the front side for catfish and downstream from the structure for flathead cats and white bass.

Backwaters are another common habitat in the three pools. Backwaters provide outstanding bass-holding cover. Largemouth hold near stumps, fallen timber, lily pads and weedbeds. Knocking the wood with crankbaits, tube jigs and other favorite bass baits will produce some outstanding catches. Weedless lures cast around the perimeter of weedbeds or through the lily pads will often entice a monster bucketmouth to strike.

Then there is the riprap, a noted summertime producer of fish. Crawfish find refuge in the rocks and attract many species of fish. Use any bait that imitates crawdads, such as jigs or crankbaits.

In the spring, the riprap will house largemouth bass, northern pike, smallmouth bass, walleye, sauger, catfish and white bass. All species are attracted here to gather food, which is drawn to riprap by warmer water that results from the sun heating the rocks.

In addition, riprap can be extremely productive for catfish in all three pools during May and June. Channel cats begin spawning along riprap when water temperatures reach the 62- to 64-degree mark. Once water temperatures reach

Hard-Fighting catfish provide fun for young and old alike. (Dan D. Gapen photo)

67 degrees, channel cats are replaced by spawning flatheads.

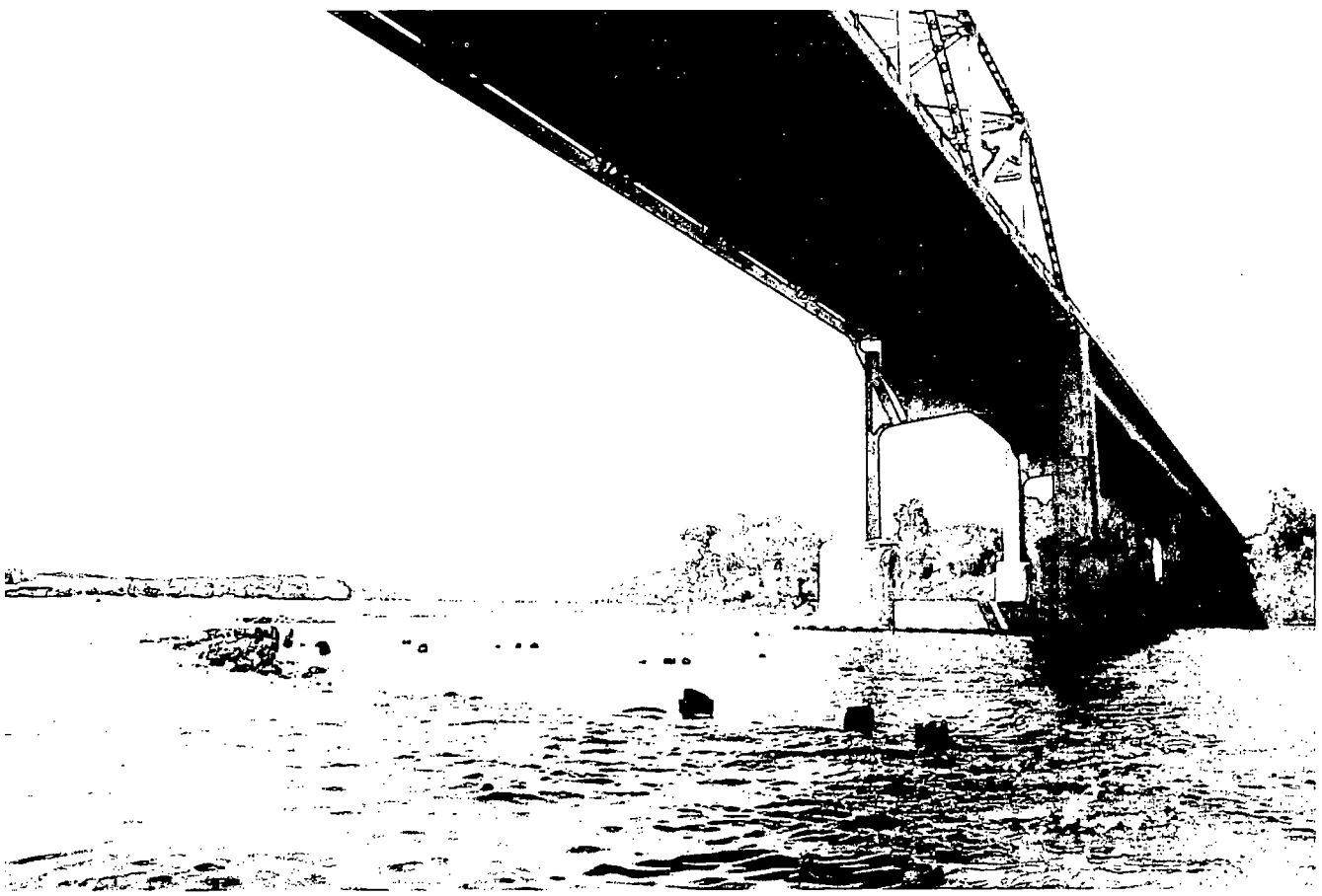
Experienced river rats work slip bobbers and bait rigs to produce limits. In Pool 15, along the riprapped river edge in the Quad City area, fishermen often are seen following their slip bobbers drifting along just a few feet off the rocks.

Some General Techniques

Whenever the surface face is disturbed by churning eddies, ripples or boils, it indicates a hardpan structure lies below and slightly upstream. Hardpan is the key to catching river gamefish. To increase stringer weight, fish the areas of the river system which flow over gravel, rock and boulder.

A tip for working hardpan structure in a river system is to remember to place the bait a considerable distance upstream from where the telltale surface disturbance occurs. For instance, in an 8-foot deep channel running at 3 miles an hour, it will take 16 feet of distance downstream for the boil created by a rock to emerge at the surface.

To slip a boat - a practice which allows anglers to cast a shoreline, wing dam, lock wall or riprap with complete control - keep the bow into the current. Motor thrust is turned to a point where downstream force is too much for the boat's forward progress. Therefore, with the bow facing into the current and motor thrust going forward, the boat actually descends slowly backward downstream. The result is the best method of boat control on running water, allowing a natural offering by casting upstream and retrieving downstream..



Bridge abutments, old pilings and other man-made structures create current breaks that are used as resting spots by fish. (Dan D. Gapen photo)

Spring Walleye/Sauger runs concentrate anglers in tailwater areas along the Mississippi. (Jim Ocker photo)

Most bridge abutments hold their best fish near the upstream sides, where boiling and a current cut are created. If the bridge abutment has a flat upstream face, the likelihood is that large predator gamefish will stay on the upstream side.

When using jigs for river walleye, use a hair, curly tail or feather style in the spring and late fall. These best represent minnows. During the summer, switch to an Ugly Bug style of jig, one loaded with legs and a snag-free bottom walking head. These jigs better represent crawfish and hellgrammites.

Channel catfish prefer moving water and hardpan bottom. Resist fishing eddies and stick to the shallower, faster sections. Catfish also prefer working into the current when searching out food. They are scent seekers and must go upstream into the current to find food.

Whenever current is forced to go around a stationary object, a current cut is created. These can be some of the most productive structures for river gamefish. Always work the slower, inside section of the cut. It is here that walleye, white bass and other gamefish prefer to stay while waiting for food to come downstream. Forage fish often seek sanctuary in the slower water inside the cut.

If I had to select just one color to fish white bass, it would have to be chartreuse. My second color choice would be white. In September and early October, look for white bass to begin corralling schools of shad in shoreline eddy pockets and open areas of Pools 15, 16 and 17.

Summer walleye staying in a river hole are most likely to migrate downstream to feed and return upstream to the hole to stay. Summer on the river is that time of the year when water temperature exceeds 64 degrees.

When selecting a line weight to use in running water, 8-pound test is advised. The reason is it can make the difference between saving and loosing 50 percent of the lures that snag on the bottom. In river fishing, you can use 8-pound test where you might normally use 4- to 6-pound test because running water defuses the visibility of the line.

COMMON SPORT FISH

of the Upper Mississippi River

WALLEYE - *Stizostedion vitreum vitreum*

GENERAL CHARACTERISTICS AND HABITS

The walleye, largest member of the perch family, is one of the most highly prized gamefish. Thousands are caught each year during their spring spawning runs. Walleye are primarily minnow feeders, but leeches, nightcrawlers, and various small plugs, cast or trolled, are favorite baits. In turbid waters, they can be caught throughout the day. The large, unusual eyes of the walleye are designed to help them easily find their prey. They grow to lengths over 30 inches and weights up to 12 pounds. The most common catches are 14-17 inches with a weight of about two pounds. The walleye is most easily distinguished from its close relative the sauger, by its golden color, and by the black triangle of membrane on the back portion of the spiny top or dorsal fin. The lower half of the tail fin has a distinguishing white tip.

SAUGER - *Stizostedion canadense*

GENERAL CHARACTERISTICS AND HABITS

The sauger closely resembles the walleye in body shape, but coloration tends more to shades of black, rust-brown, and orange. The best distinguishing mark of the sauger is the "polka dotted" dorsal or top fin, which easily separates it from its cousin the walleye.

Sauger are slower-growing than walleye.

LARGEMOUTH BASS - *Micropterus salmoides*

GENERAL CHARACTERISTICS AND HABITS

The largemouth inhabits weedy lakes usually in association with the bluegill. This bass has a larger mouth than its cousin the smallmouth, and it takes its food in gulps as it cruises among weeds or shallows. Area largemouth grow to a weight of 7 pounds and a length of about 22 inches.

Best fishing times are early morning and evening during the warm months. Bass like warm water and warm weather.

SMALLMOUTH BASS - *Micropterus dolomieiu*

GENERAL CHARACTERISTICS AND HABITS

The smallmouth resembles the largemouth bass, but the corner of its mouth does not extend past the eye. The red eye is another characteristic. An average fish weighs between one and two pounds and will measure about 12 inches. It is usually associated with a rocky environment where its favorite food, the crayfish, is abundant.

Natural baits like hellgrammites, dragonfly larvae, and crayfish are especially effective during early morning or late evening. Probably the best artifical baits are those used on the surface. Light tackle is ideal.

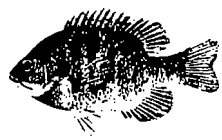
NORTHERN PIKE - *Esox lucius*

GENERAL CHARACTERISTICS AND HABITS

The northern pike is one of the largest gamefish in this stretch of river. One of the most consistent marks for identification of this species is coloration: a dark background marked by light colored horizontal bars. Northern pike attain lengths of as much as 50 inches.

Unlike other common species of gamefish, they are most active when the water is cool. They also bite best during the daylight hours.

BLUEGILL - *Lepomis macrochirus*



GENERAL CHARACTERISTICS AND HABITS

The bluegill sometimes reaches ten to twelve inches and weighs up to 2 1/4 pounds. It inhabits weedy lakes and feeds on insects among the weeds. It has a small mouth which can suck in insects from the water surface.

Garden worms are the favorite bait for bluegill, but they can be caught on a number of different lures, including poppers. Poppers are effective in spring and early summer, when nests are concentrated in shallow water. Wintertime jigging in the weedbeds with grubs or mousies on ice jigs also produces excellent results.

CRAPPIE

Black Crappie - *Pomoxis nigromaculatus*

White Crappie - *Pomoxis annularis*

GENERAL CHARACTERISTICS AND HABITS

The black and white crappie are very similar in appearance. The black crappie is speckled and has seven or eight distinct spines on its dorsal or top fin. The white crappie has more defined bands along the side of the body, is lighter, and has six spines on the dorsal fin.

Extreme care must be taken in landing these fish since their mouths are very tender. Although called a panfish, like the bluegill, they may grow to a length of 18 inches.

To be successful, crappie bait must be kept constantly moving. The best baits are small minnows, small maribou covered jigs, plastic minnows or small streamer flies cast or trolled along the outer edges of weedbeds. Crappie lie in weedbeds in deep water during the day and bite best in early morning or toward evening. Small minnows are used as bait in winter.

WHITE BASS - *Morone chrysops*

GENERAL CHARACTERISTICS AND HABITS

The white bass likes the open water habitat of large rivers where they migrate to spawn in spring. Anglers can fill their stringers when white bass are in a feeding frenzy.

This scrappy fish is fun to catch on ultra light spinning tackle. White bass seem to be attracted to the light of gas lanterns. They reach lengths of over 17 inches and are more abundant than their cousins, the yellow bass. They usually have seven thin black stripes along their side while the yellow bass has five or six wider, darker stripes and a body tinged with yellow.

YELLOW PERCH - *Perca flavescens*

GENERAL CHARACTERISTICS AND HABITS

While smaller perch are easily caught, it takes a specialist to consistently catch large ones. The perch eats almost anything, but prefers minnows, insect larvae, plankton, and worms. Larger members of the species reach a length of over 14 inches.

The perch is primarily a bottom feeder and has a slow deliberate bite. Since perch prefer cool waters, the best fishing is in deep water.

Perch move about in schools, often numbering in the hundreds. Perch numbers taper off as one progresses from the northern pools to the southern pools.

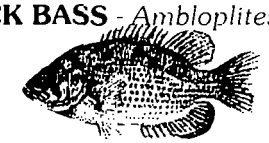
PUMPKINSEED - *Lepomis gibbosus*

GENERAL CHARACTERISTICS AND HABITS

The common sunfish, or pumpkinseed, seldom exceeds 8 inches. It is distinguished by the bright orange spot on the gill cover and sometimes bright blue stripes on the cheek.

Like the bluegill, the common sunfish may provide considerable sport for the angler with a fly rod and a variety of flies. In the early part of ice fishing season bluegill and sunfish are taken by using various larvae and grubs as bait. After about the first month of ice cover sunfish seem to hibernate and are seldom taken until open water returns.

ROCK BASS - *Ambloplites rupestris*

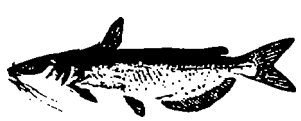


GENERAL CHARACTERISTICS AND HABITS

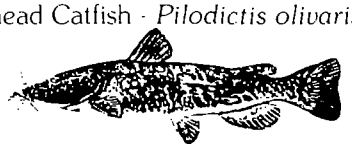
Rock bass like to eat almost anything, especially crayfish, minnows, and insects. Worms and poppers also work well. This bronzy colored panfish is most often associated with rocky habitat, but it is found in many other locations as well. They grow to lengths of 12 inches and to a weight of up to 1 3/4 pounds. A more dingy-colored cousin is called the warmouth bass. The rock bass can be distinguished by its red eye, six spines in the anal fin and general body shape.

CATFISH

Channel Catfish - *Ictalurus punctatus*



Flathead Catfish - *Pilodictis olivaris*



GENERAL CHARACTERISTICS AND HABITS

Catfish are residents of rivers and lakes associated with rivers. Channel catfish have deeply forked tails. The huge flathead catfish has a rounded tail like a bullhead.

The catfish angler's stock-in trade is bait. Cheese trimmings, rolled oats, and hot water mixed into paste is applied to large treble hooks. Additives such as anise or chicken blood are added. A strong sense of smell makes them adept at locating edibles. Flathead catfish require live bait. Look for catfish on muddy shoals at night. Always fish the bottom.

BULLHEADS

Black Bullhead - *Ictalurus melas*

Brown Bullhead - *Ictalurus nebulosus*

Yellow Bullhead - *Ictalurus natalis*

GENERAL CHARACTERISTICS AND HABITS

The three species of bullheads all have a whiskered chin, and dorsal and pectoral fins with sharp spines. They live on the bottom and average about ten inches in length.

Bullheads almost never bite during the winter months and by spring, especially near their spawning time in late April, they're hungry and ready to bite. The preferred bait is a mass of nightcrawlers placed on the bottom of a shallow bay, especially at night. Be sure to have a hook extractor or a supply of extra hooks, because the bait will invariably be shallowed.

The brown bullhead tends to be more often associated with rock and sandy bottoms than the other species. The black bullhead is more common in muddy bottomed areas. Bullheads can withstand warm water and low oxygen.

FRESHWATER DRUM - *Aplodinotus grunniens*

GENERAL CHARACTERISTICS AND HABITS

The drum, known to many midwest anglers is the only freshwater species of a predominantly saltwater group of fish. Drum are a schooling fish and are easily distinguished by their highly arched back and silver/gray coloration. The mouth of the drum is located on the bottom of its snout and is well suited for feeding along the river bottom. Insect larvae, snails, crayfish, and fish are favored food items.

Drum spawn in May and June at water temperatures of 66°-72°F. They seldom live longer than 8 years in the Mississippi. The current world record is 54 lb 8 oz.

Anglers use a variety of natural baits to catch drum, but worms, crawlers, and cut bait are preferred. Look for drum just about anywhere except in the shallow backwaters. Wing dams often provide excellent drum action.

GLOSSARY

AQUATIC VEGETATION - Plants that grow in or very near water.

a. submergent - plants commonly found growing beneath the surface (pondweeds, coontail, etc.).
b. floating - plants or portions of plants that float on the water's surface (lily, lotus, duckweed).
c. emergent - rooted vegetation commonly found in shallow water or along lake or river margins. Although rooted in water, much of the plant extends above the water's surface (arrowhead, bulrush).

BACKWATERS - River lakes, ponds, and sloughs that have little or no flow and might be seasonal in their existence. Much of the backwater area is usually shallow with a muck or silt bottom.

BOX DAM - A wing dam that is constructed in a 'L' or 'T' shape (or any other shape) instead of straight.

BUOY - A marker cylinder or cone in the water marking the edges of the channel, harbor entrances, obstructions, and restrictions.

CLOSING DAM - A wing dam that is constructed across all or most of a side channel or slough in order to divert flow back into the main channel. Some have breaches or openings in them.

DAYMARK - A government monument that is located along the sides of the channel at turns and at channel divisions. Used to direct river traffic.

DREDGE ISLANDS - Islands or shorelines of sand, deposited from the dredging of the main river channel.

EDDY CURRENT - A reverse current (to the main stream flow) caused by water flowing by an obstruction or restriction.

EDDY LINE (Eddy Break) - A vertical plane or zone separating current flowing in opposite directions; an eddy current vs. the main current.

FERTILITY - The biological productivity of the water in a lake or river. A high fertility usually results in a diverse fishery due to an abundance of plant and animal foods. However, excessive fertility can lead to overly dense vegetation and algae blooms.

FISHERY - All the species of fish that inhabit a river.

GAMEFISH - The group of fish sought by anglers, including northern pike, walleye, sauger, largemouth and smallmouth bass, and catfish.

LEVEE - An embankment built alongside a river channel to prevent high water from flooding adjacent land.

LOCK - A holding compartment of rising or falling water, allowing boats passage from the water level of one pool to the different water level of another.

MAIN CHANNEL - That portion of the river basin through which large commercial craft can operate. A minimum of 9' deep and 400' wide.

MAIN CHANNEL BORDER - The zone between the edge of the 9' main channel and the shoreline; includes the wing dams.

OXBOWS - A crescent-shaped bend in a slough or channel often cut off from normal flow by silting or a shifting sand bar.

PANFISH - The group of fish sought by anglers, including perch, bluegill, rock bass, crappie, sunfish, white bass, and bullhead.

RIP-RAP - Rock or broken concrete constructed roughly parallel to the current, often along a shoreline or channel bank. Erosion control is the main function.

SCOUR HOLE - A depression in the river bottom caused by current rising over an obstruction and cutting back down against the bottom.

SIDE CHANNELS - All departures from the main river basin in which there is a current during normal river stage. These channels meander back to the main channel at some downstream location.

SLOUGHS (Running Sloughs) - May be branches or offshoots of channels or lakes characterized by very little flow or intermittent flow. Often named sloughs are really side channels or running sloughs.

SPILLWAY - A dam or embankment that allows water to flow over the top, usually in a prescribed location.

STRUCTURE - A distinguishing break or change on the bottom of the lake or river that separates it from the surrounding bottom.

TAILWATERS - The entire width of the main channel and border below the lock and dam. An arbitrary limit of one-half mile is usually imposed.

TURBULENCE LINE (Boil Line) - A turbulent effect on the water surface that portrays a turbulent condition below; such as an obstruction (wing dam) to the current that forces water flow to increase in velocity as it passes through a constricted area.

WETLAND - A flat land area where the water table is very close to the surface. Commonly referred to as bogs, marshes, or swamps.

WING DAM - A submergent rock wall constructed perpendicular to the current from the shoreline out toward the main channel. Used to divert water into the main channel, thus helping to prevent sedimentation.

WINTERKILL - A result of a lack of oxygen in a lake or river. The snow and ice cover of winter restricts light penetration into the water, causing vegetation to decay and take oxygen from the water. This often occurs in shallow, weedy areas and can result in the death of fish.

YEAR CLASS - The hatch of any particular species of fish in a lake or river in any one year.

TIPS ON RELEASING FISH

1. After the decision is made to release a fish, do not play it to a "state of exhaustion." If you plan to release a fish, try to keep the time from hooksetting to release at a minimum.
2. If at all possible, do not remove your fish from water. Release it in the water where its body is supported.
3. Remove hooks with long-nosed pliers. If hook removal is difficult and may cause injury to the fish, cut the hook off with wire cutters or else cut the line. Do not attempt to remove deeply embedded hooks from fish.
4. Care should be taken not to remove the fish's protective body mucous.
5. A dry hand, contrary to popular opinion, reduces the amount of pressure required to restrain the fish and therefore decreases the chance of internal injury. If at all possible, avoid handling the fish. A landing net can save a large fish from injury and help restrain the fish while removing the hook.
6. When landing a fish, use a net rather than a gaff. If you decide to net your fish, be careful so it does not thrash around in the boat and injure itself. If hook removal is done inside the boat, lay your fish on a wet, soft surface, like a wet gunny sack. Don't hold the fish up when removing the hook.
7. With a squirming, hard to handle fish the natural reaction is to slide your hand forward until pressure is placed on the gill covers. Do not hold a fish by the gill covers, as undue force may result in injury to the gills. Remember, never hold a fish by the eye sockets or gills.
8. Hold your unhooked fish horizontally and righted in the water with both hands - one supporting the belly and the other holding near the tail. If the gill covers are not moving, gently move the fish back and forth in the water to facilitate breathing. Hold your fish until it can remain in an upright position and swim away by itself.
9. If the fish must be out of the water for any length of time, cover the head with a wet cloth (i.e. gunny sack) to help prevent drying of the eyes and gills.
10. Never release a large fish, such as muskie, northern or bass over deep water. An exhausted fish is incapable of adjusting to the pressure of deep water.
11. A quick and accurate method of measuring fish is marking foot increments on the side of the boat or by taking a wooden ruler and laying it next to the fish in the water.
12. Do not take a picture of your fish hanging from a scale, stringer, or being held by the gill covers if you intend to release it. This will put unnecessary strain on the delicate supportive and connective tissues between the head and body, as well as the vertebrae.

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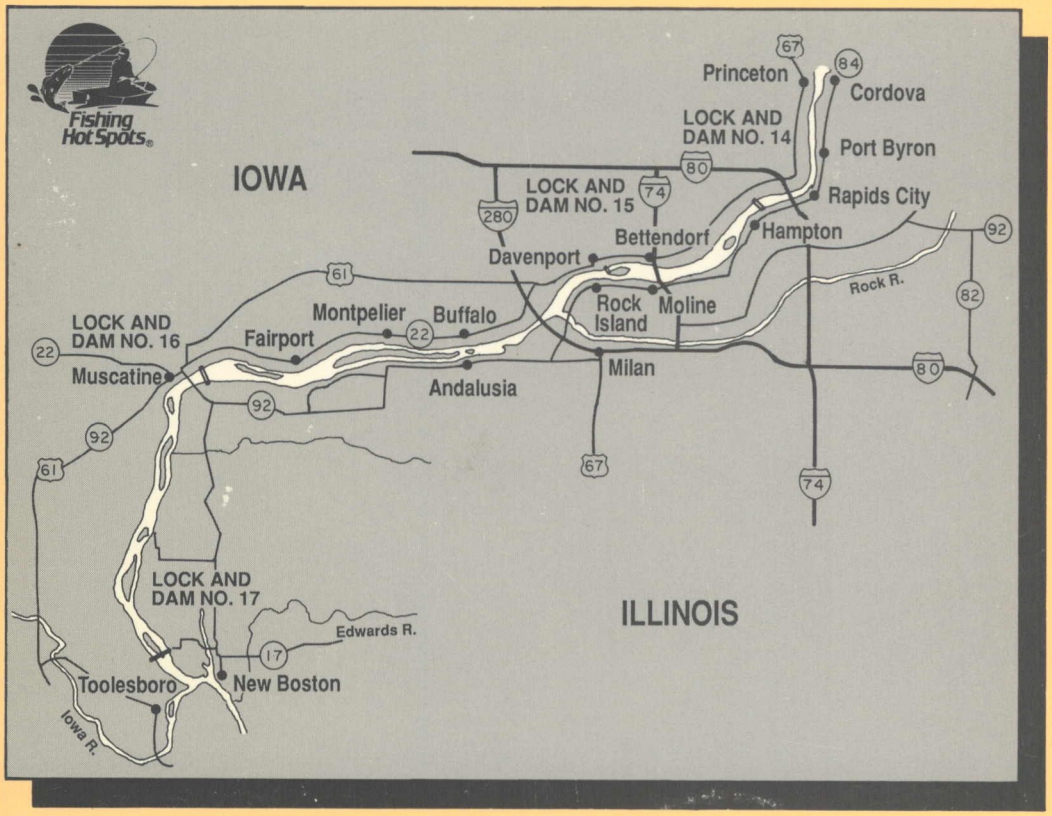

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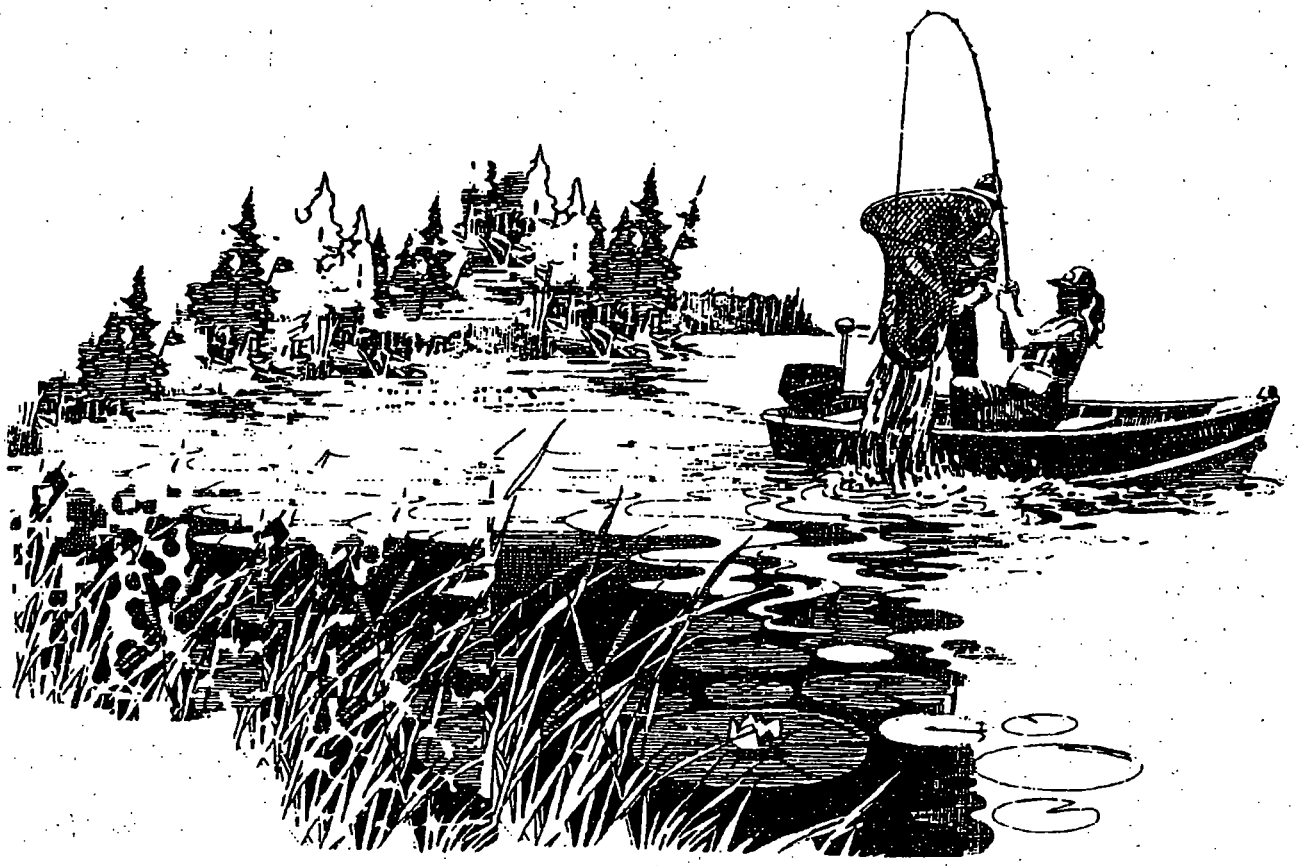

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University of Northern Iowa
Cedar Falls, Iowa

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Center for Social and Behavioral Research
University of Northern Iowa
Gene M. Lutz, Mel E. Gonnerman, Jr., Brian A. Johnson

with assistance from:
Robert E. Kramer, Thomas M. Turner, Mary Jane Crew,
Perry Goodman, Jacki Buffington, Lisa Venteicher, Xiaohui Yu

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PART 1 *INTRODUCTION*

Purpose of the Study

The Iowa Department of Natural Resources periodically conducts surveys of Iowans' recreational fishing behavior. The purpose of these surveys is to provide the department with current data regarding the fishing practices and preferences of licensed Iowa anglers which are pertinent to the management of the state's sport fisheries resources. While the *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* has sufficient scope and sample size to produce some estimates of recreational fishing in Iowa, the level of detail and topic coverage requires the Iowa-specific survey for more precise and focused data.

This study is based on telephone interviews conducted by the Center for Social and Behavioral Research (CSBR) at the University of Northern Iowa, with a random sample of Iowans who purchased fishing licenses during calendar year 1994. The research was planned during the later months of that year through consultation between the CSBR and DNR personnel in the Fisheries Bureau. Sampling strategies and questionnaire content were developed to be responsive to previous Iowa surveys as well as contemporary conditions and interests.

Fisheries Regions

The Iowa Department of Natural Resources has four primary fisheries regions for management purposes. In addition, the counties bordered by the Mississippi River on the east and those bordered by the Missouri River on the west are identified as important secondary regions for management purposes. These six regions are depicted in Figures 1 and 2. The survey results are reported for each of these six regions as well as for the state as a whole.

The report is organized into four main sections following this introduction. Part 2 provides an overview of the research methods, Part 3 presents the highlights of the major findings, Part 4 presents comparisons between the 1981, 1986, and 1994 studies and the main findings of the 1994 study, and the Appendices include the interview questionnaire, additional methodological information, and tables which contain additional information not included in the earlier sections.

Figure 1
Configuration of Regions

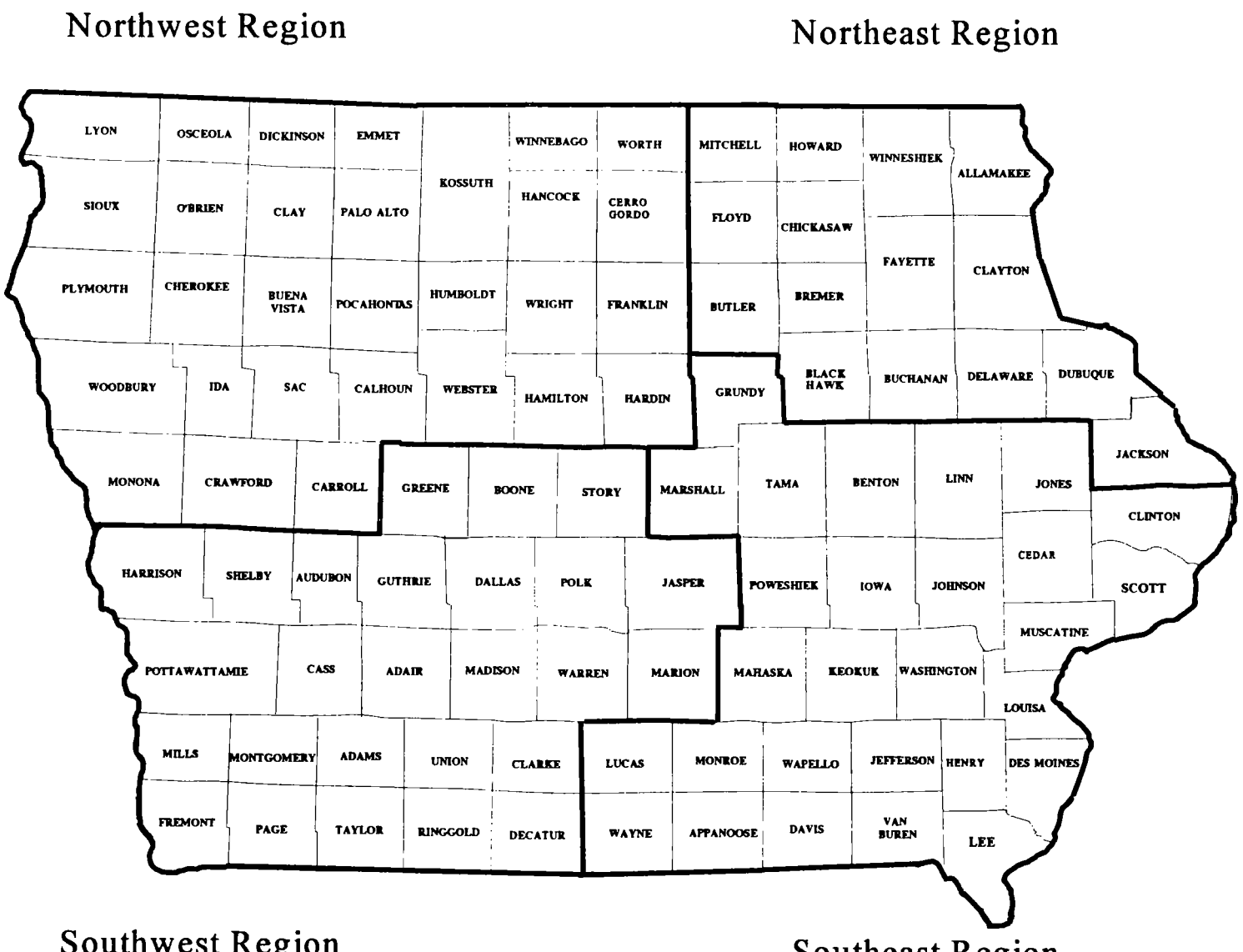
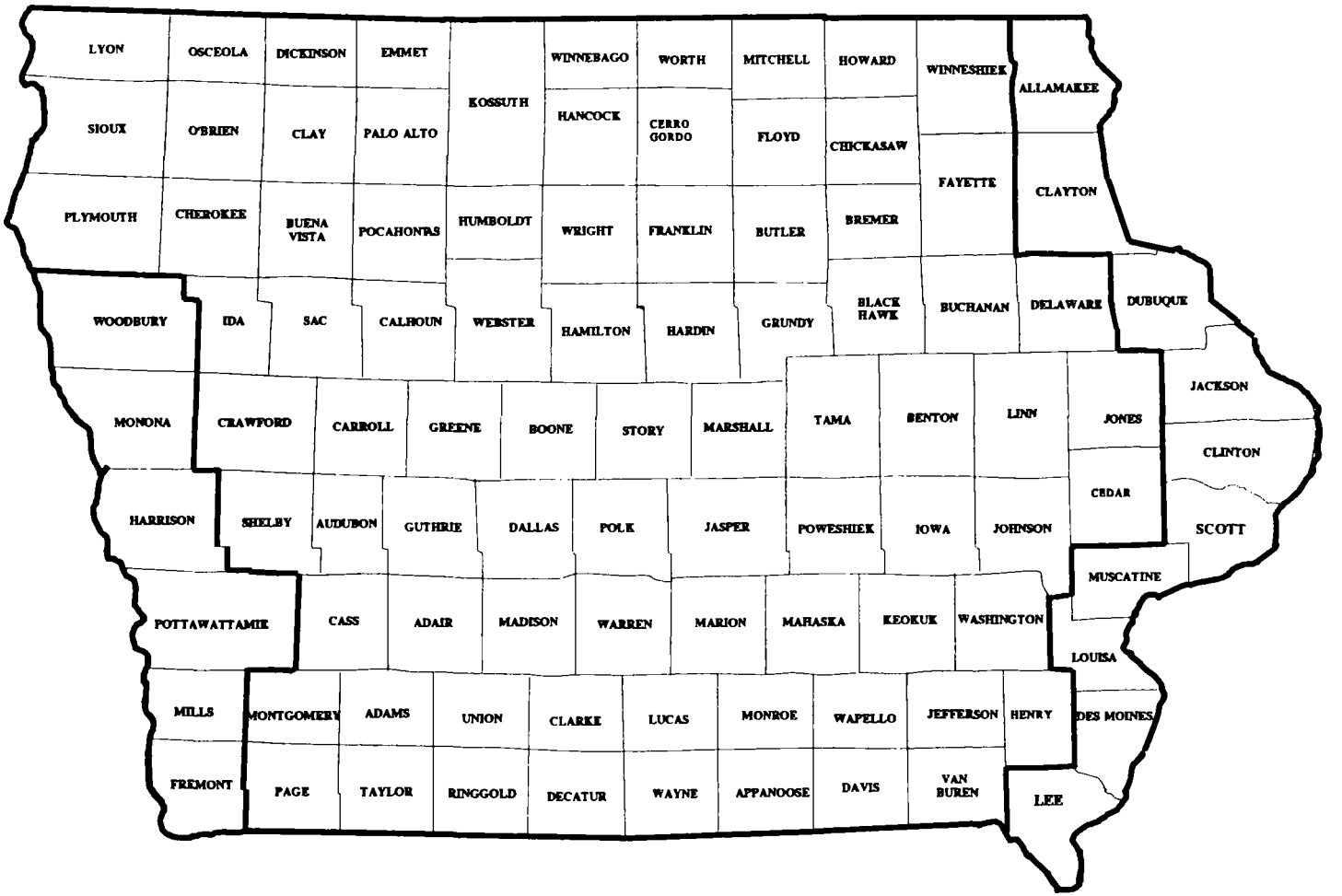


Figure 2
Configuration of River Regions



Missouri River Counties

Mississippi River Counties

Sampling and Data Collection

The population for the study was all Iowans who purchased annual fishing or annual combination hunting and fishing licenses in 1994. At the time the sample was drawn, the DNR had reports of 364,246 such license sales. The overall goal of the sampling design was to interview a representative sample of these anglers in sufficient numbers to yield population estimates by region within acceptable statistical standards. Each of Iowa's 99 counties was treated as a separate strata from which a sample was drawn. DNR personnel used a systematic sampling process to select 8,849 license holders for possible inclusion in the sample. A sampling rate of 1 in 40 was used for all counties except those that are in the Missouri River Region, where the rate was 1 in 20 to compensate for the relatively lower population level in that region.

CSBR personnel successfully identified the telephone numbers for approximately 5,600 of the selected license holders using computerized data sources and local telephone directories. (Available information for the remainder of the sample was insufficient.) Using the identified telephone numbers, households were contacted. Permanent household residents with 1994 licenses were enumerated by age and gender, and a potential respondent was randomly selected.

Interviewing occurred in February and March of 1995, using a computer assisted administration of the questionnaire (see Appendix A). The interviewing continued until regional goals of at least 500 per region were filled. The final sample contained 3,104 individuals. The raw completion rate was 70% (3,104 interviews from 4,435 households that were attempted to be contacted). Only 7.5% of households contacted refused or terminated the interview. The remaining households were determined to be ineligible or their potential respondents were incapable of completing the interview due to illness, language difficulties, or similar reasons.

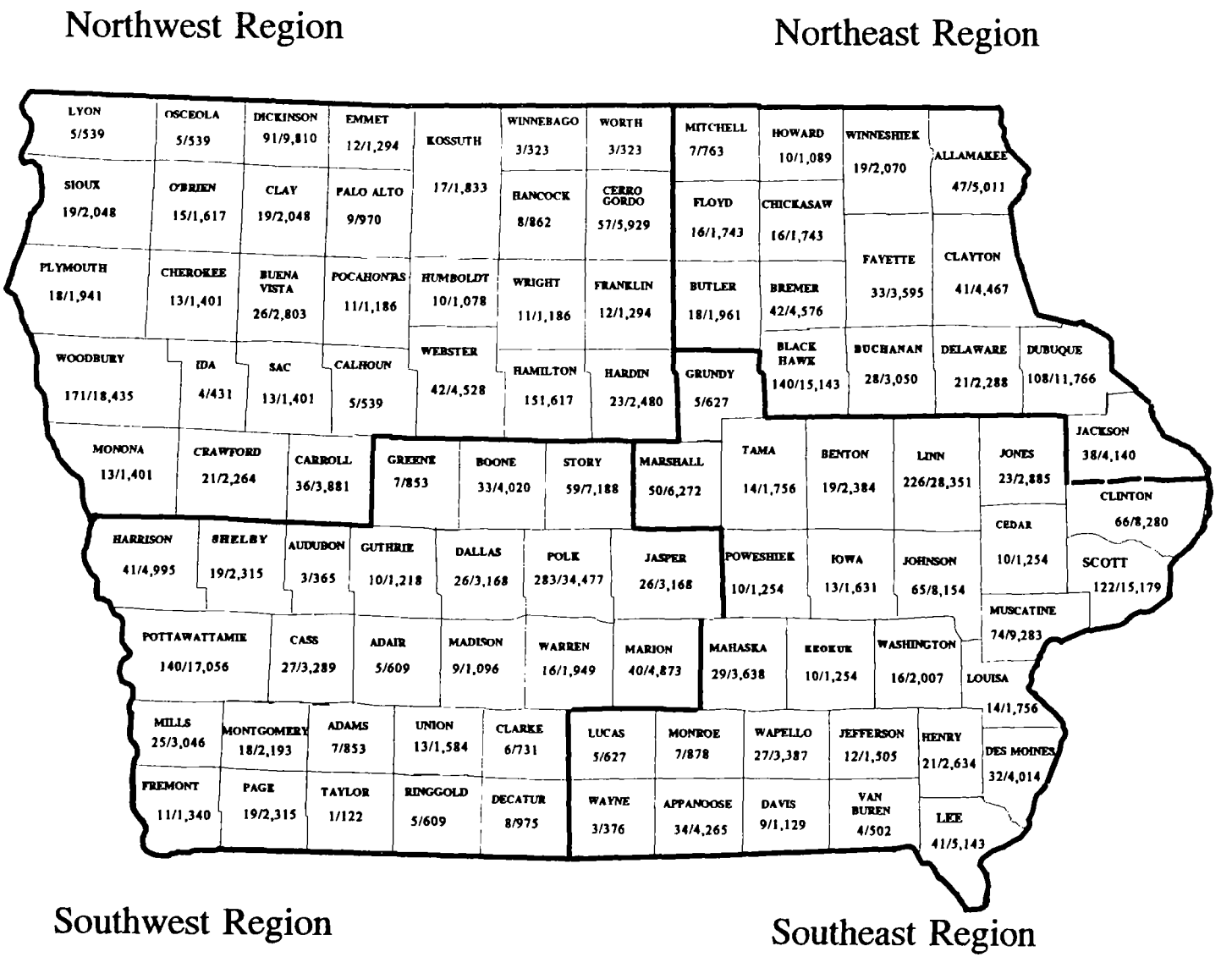
Weighting

To make estimates to the entire population of Iowa anglers from the sample, two sets of response weights were calculated. For each of the four main fisheries regions, a set of weights was calculated based on the proportion of that region's population of annual licensed, resident anglers who were interviewed. These weights were used to make estimates statewide as well as for the four main fisheries regions. On average, each respondent represented approximately 117 anglers. A second set of weights was calculated for those respondents in the two border river regions, based on the proportion of each river region's population of annual licensed, resident anglers who were interviewed. The weights for each of the six regions were as follows:

107.807	Region 1 (Northwest)
108.943	Region 2 (Northeast)
125.448	Region 3 (Southeast)
121.828	Region 4 (Southwest)
112.616	Region 5 (Mississippi River)
59.531	Region 6 (Missouri River)

The actual number of completed interviews and the population of anglers represented by that number are shown for each county in Figure 3 on the following page.

Figure 3
Completed Interviews and Estimated Number of Annual Licensed Resident Anglers



Comparability With Prior Studies

The weighting method for the 1994 study is different from the weighting used in the 1986 and 1981 studies. In the 1986 study each completed interview represented 129.8 anglers, and in 1981 each respondent represented 142.5 anglers. These weights were applied statewide and regional-specific weights were not used. The 1994 weighting methodology should provide more accurate estimates for the various regions. The difference in methodology does not affect statewide comparisons between the earlier studies and the 1994 study. However, regional differences may not entirely represent actual changes but may be due in part to the difference in weighting methodologies.

All differences among subgroups for 1994 data noted in this report are statistically significant at the .05 level unless otherwise indicated in the presentation of findings.

As with prior Iowa studies, the sample of anglers interviewed was drawn based on the county in which the angler purchased the fishing license. It is understood that these anglers are not necessarily residents of the county where they purchased their license.

PART 3 *HIGHLIGHTS*

The major findings for this study are as follows:

- More than 8.5 million angler-days were fished by the 364,246 anglers who purchased fishing licenses in 1994.
- There were fewer angler-days in 1994 than in either 1986 or 1981.
- Fewer fishing licenses were sold in 1994 than in 1986 or 1981.
- 83% of anglers in 1994 felt they were getting their money's worth with a fishing license.
- 90% of licensed anglers began fishing before the age of 16.
- The mean age when anglers started to fish was 9.3 years for the 1994 sample.

- Iowa anglers caught an estimated 39.8 million fish in 1994.
- The mean catch by 1994 anglers who fished was 109 fish, which is greater than the mean catch in 1986 but less than in 1981.
- 6.9% of Iowa anglers who fished did not catch any fish in 1994.
- The mean number of fish caught by 1994 anglers who fished was 109, and the median number was 30 fish.

- 1994 anglers most preferred to fish for catfish and largemouth bass.
- 5.7 million more fish were caught in 1994 than in 1986, but the 1994 catch was 29.1 million less than in 1981.
- Bluegill, crappie, and largemouth bass were the most frequently caught fish in 1994.
- Bullhead and carp comprise a smaller percentage of the total catch in 1994 than in 1986 or 1981.

- The mean number of days fished per angler in 1994 was 24 days.
- The mean number of days fished from a boat in 1994 was 12 days.
- About 4% of those who purchased a license did not fish at all during the 1994 season.
- Most commonly (27.5%), anglers fished between 6 and 15 days in 1994.
- Most (68.6%) anglers who fished in 1994 usually fished within 25 miles (one-way) of home.
- Anglers most prefer to fish on man-made lakes and natural lakes, and secondarily on inland streams and rivers.

- A majority (54.3%) of Iowa anglers eat some of the fish they catch.
- Catfish was the fish reported being eaten most often by Iowa anglers in 1994 (by 1 in 4 anglers).
- Crappie was the second most often eaten fish in 1994.

- More than 1 in 3 anglers in 1994 indicated that catching and releasing was a very important outcome when fishing.
- Over half of 1994 Iowa anglers believe that water quality and quality of fish habitat are the factors that most impact the state fish populations.

- Approximately 70% of 1994 anglers reported that the quality of fishing had stayed the same or improved in the last 10 years.
- Poor water quality was the most frequently attributed reason in 1994 for any decline in fishing quality.
- Slightly over 40% of 1994 Iowa anglers reported they fished less often now than a decade ago.
- In 1994 most of those fishing less often in the last decade cited a lack of time as the major reason for the decrease.

PART 4 *FINDINGS*

Section A: Comparisons with Earlier Years

Table 1
Key Comparisons at a Glance

	1994	1986	1981
Number of fishing licenses sold	364,246	389,000	482,000
Total number of days fished	8,726,770	11,878,647	12,742,921
Mean number of days fished per angler	24	31	30
Total number of fish caught	39,835,081	34,181,662	68,907,587
Mean number of fish caught per angler who fished	109	92	166
Mean number of fish caught per day	4	3	5
Most preferred fish to catch	Catfish	Catfish	Catfish
Second most preferred fish to catch	Largemouth Bass	Largemouth Bass	Largemouth Bass
Most often caught fish	Bluegill	Bluegill	Bluegill
Second most often caught fish	Crappie	Crappie	Crappie
Preferred bodies of water to fish	Man-made and Natural Lakes	Natural Lakes	Man-made Lakes

License Sales

Figure 4
Number of Licenses Sold

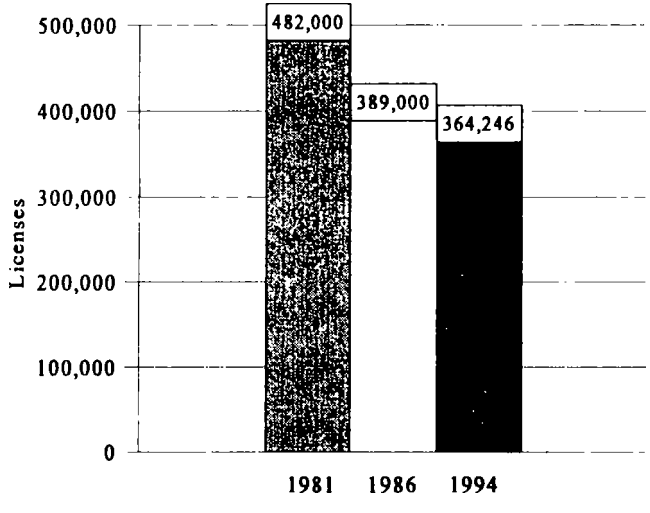


Figure 5
1994 Licenses Sold by Region

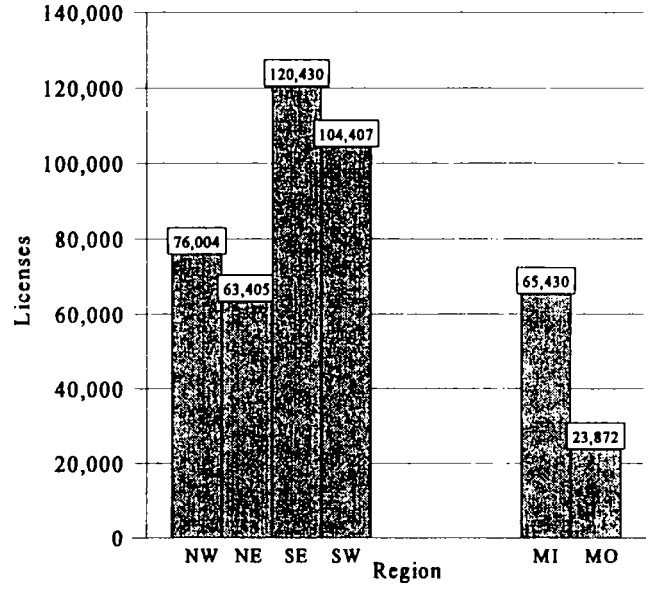
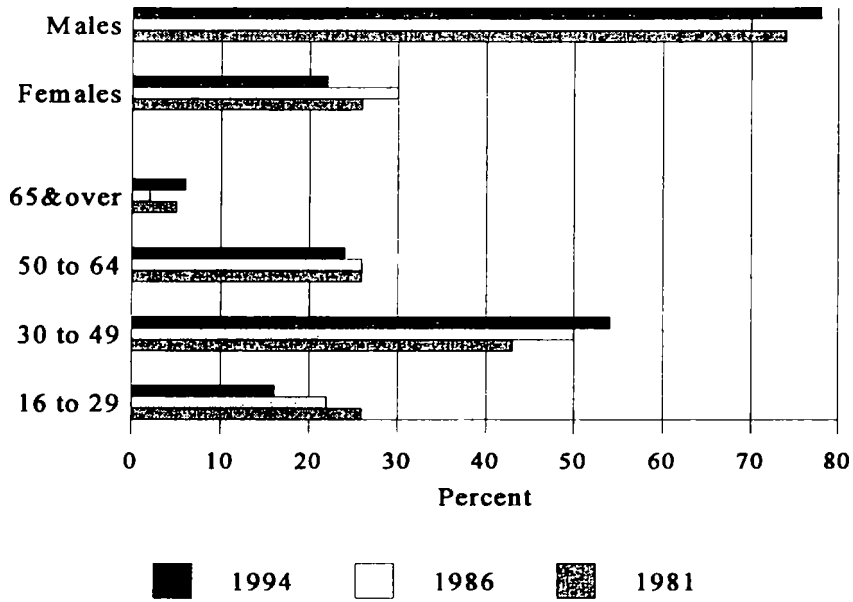


Figure 4 shows the total number of fishing licenses sold in the state of Iowa for the years 1981, 1986, and 1994. In 1994, the number of licenses sold decreased by about 120,000 from 1981 and approximately 25,000 from 1986. Figure 5 shows the distribution of licenses sold per region in 1994. Nearly 65% of the total number of fishing licenses sold in 1994 were in the two southern regions.

Figure 6
Demographic Characteristics of
Licensed Iowa Anglers—Statewide



Comparisons of the statewide figures show a decrease in the proportion of anglers who were female. In 1994, 22% of Iowa's anglers were women as compared to 30% during the 1986 season. In terms of the age of Iowa's anglers, the percentage of anglers under the age of 30 has been consistently declining since 1981. Conversely, the proportion of anglers who are in the 30 to 49 age bracket has been increasing since 1981. The pattern is similar in all four major fisheries regions. (See Appendix Table C-3 for information concerning regional differences over time.)

Angler-Days Fished

Table 2
Days Fished Statewide

Days of Fishing	Statewide		
	1981	1986	1994
Total	12,742,921	11,878,647	8,726,770
Mean	30	31	24
Percentage who fished . . .			
0	NR*	4	4
1-5	NR	21	26
6-15	NR	28	28
16-30	NR	26	22
31-60	NR	12	11
61+	NR	8	8

* NR=Data not reported.

Table 2 shows a decrease of 3 million days fished in the state of Iowa from 1986 to 1994. The mean number of days fished per angler purchasing a license decreased by approximately 7 days. There has been an increase in the percentage of anglers who reported fishing between 1 and 5 days, and decreases in those fishing 16 or more days.

Figure 7
Days Fished by Region

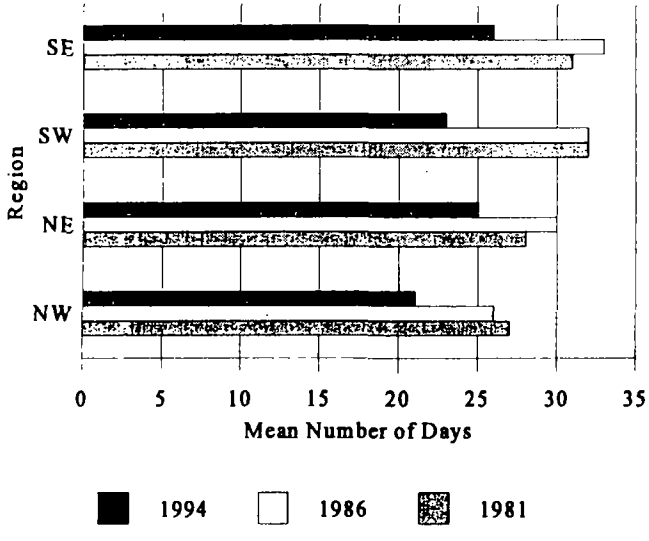


Figure 8
Days Fished by River Region

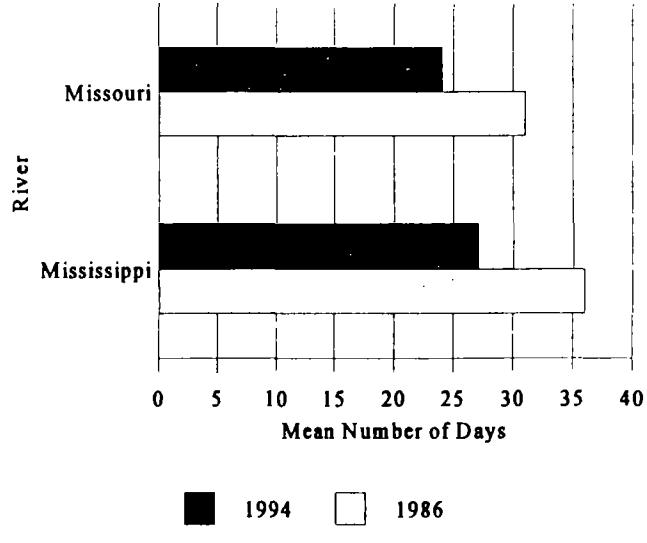


Figure 7 shows the mean number of days anglers from each region fished during the 1981, 1986, and 1994 seasons. Across all regions in 1994, there was a considerable decrease in the mean number of days fished. The region with the largest decrease in days fished was the SW Region. (Further details on these regional differences are shown in Appendix Table C-4.)

In the Missouri River Region, the mean number of days fished per angler in 1994 was 24 days. This is 7 days less than in 1986. A similar decrease in the mean number of days per angler was noted for the Mississippi River Region. For both comparison years (1986 and 1994) the mean number of days fished per angler was greater in the Mississippi River Region than in the Missouri River Region. (Further details on these regional differences are shown in Appendix Table C-5.)

Number of Fish Caught & Body of Water Preference

Table 3
Number of Fish Caught Statewide

Number of Fish Caught	Statewide		
	1981	1986	1994
Total	68,907,587	34,181,662	39,835,081
Mean (per angler)	166	92	109
Mean (per day of fishing)	5	3	4
Percentage who caught a total of . . .			
0	NR*	8	7
1-25	NR	42	43
26-50	NR	18	17
51-100	NR	14	13
100+	NR	16	21

* NR=Data not reported.

As seen in Table 3, the total number of fish caught in that state increased by 3.3 million from 1986 to 1994. However, the total number of fish caught for the year 1981 is almost twice that of the numbers caught in either 1986 or 1994. The average number of fish caught per angler increased from 92 in 1986 to 109 in 1994. Much of this increase is due to the large increase in the proportion of anglers reporting they caught over 100 fish during the 1994 season.

Figure 9
Fish Caught by Region
Mean Number per Angler

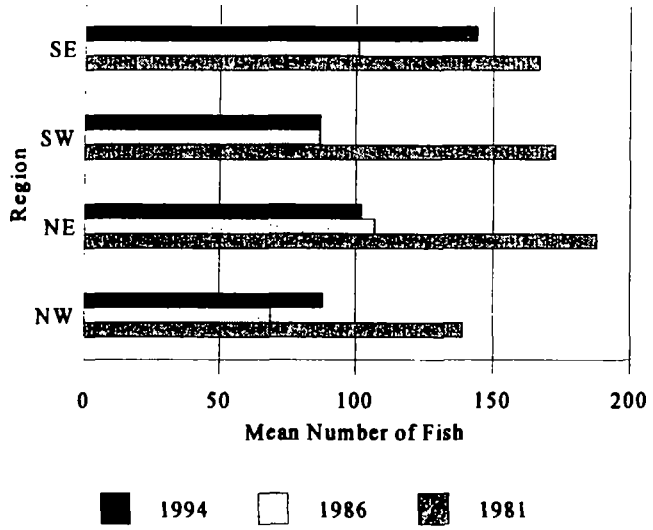
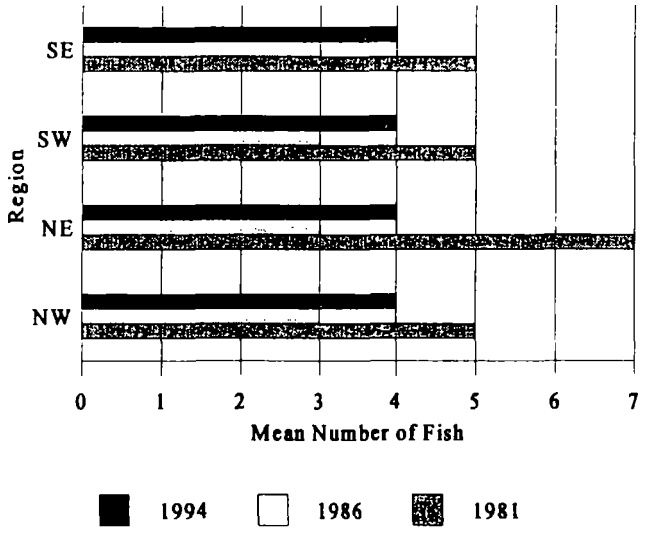


Figure 10
Fish Caught by Region
Mean Number per Day



As shown in Figure 9, the mean number of fish caught per angler either stayed the same or increased in all regions except the NE Region when compared with 1986. In the SE Region the mean number of fish per angler increased by 43 to reach 144 fish. This is only 23 fish per angler less than in the 1981 season. However, the 1994 means per angler for the NW, NE, and SW Regions were well below the 1981 means. (Further details on these regional differences are shown in Appendix Table C-6.)

Figure 10 shows that the mean fish catch per day of fishing increased from 3 in 1986 to 4 in 1994 in all four fisheries regions. However, the 1994 means remained below the mean catch per day in 1981. (Further details on these regional differences are shown in Appendix Table C-6.)

Figure 11
Fish Caught by River Region
Mean Number per Angler

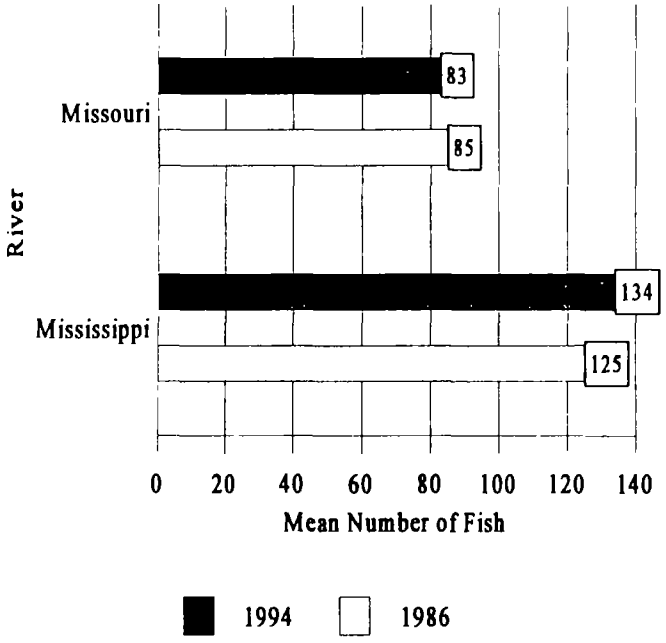
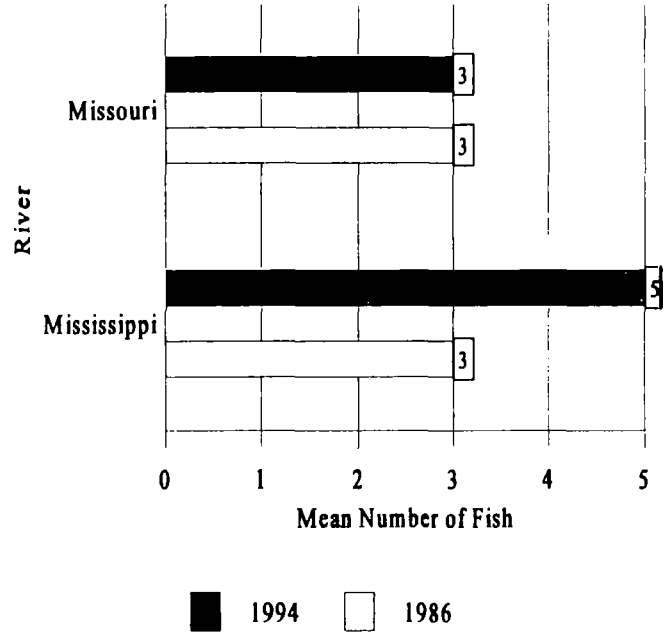


Figure 12
Fish Caught by River Region
Mean Number per Day



While the number of fish caught in the Missouri River Region decreased from 1986 to 1994, the mean catch per angler and per day of fishing did not change substantially. In the Mississippi River Region, however, the total number of fish caught increased slightly. The most notable change in this region was the increase from 3 to 5 for the mean number of fish caught per angler. (Further details on these regional differences are shown in Appendix Table C-7.)

Figure 13
Distribution of Total Catch by Species

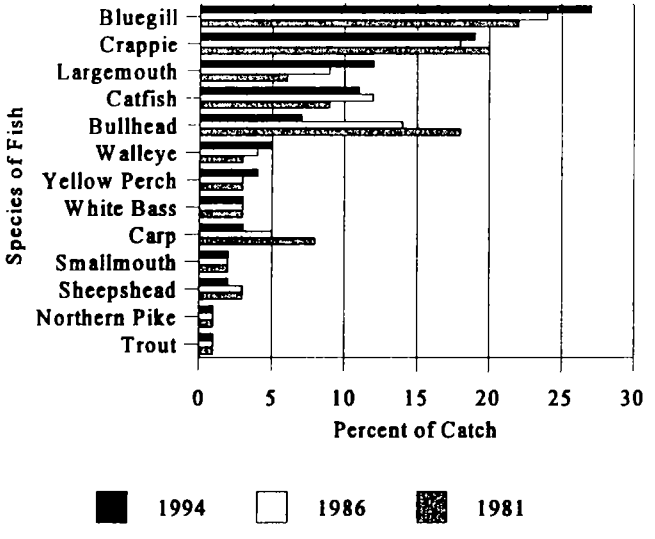
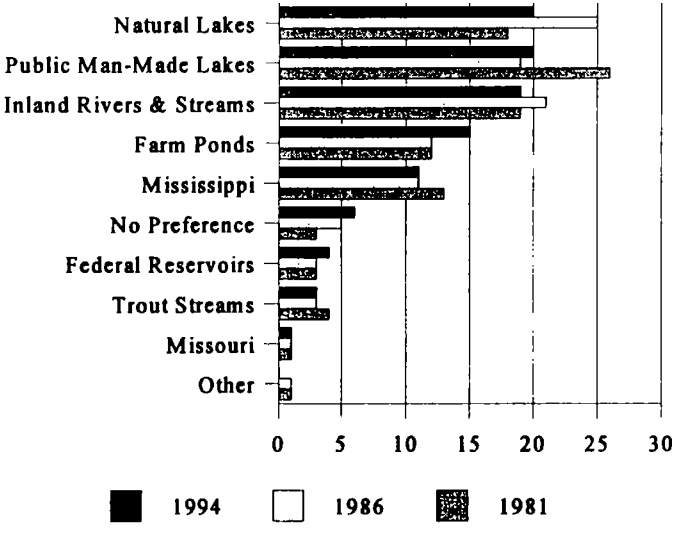


Figure 14
Body of Water Preference



As shown in Figure 13, bluegill comprised the largest percentage of the total catch for 1981, 1986, and 1994. The proportions of the total catch represented by bluegill, largemouth bass, and walleye have steadily increased since 1981. The percentages of the total catch for other fish, such as bullhead and carp, have decreased since 1981. (See Appendix Figures C-1 through C-6 for comparisons between the 1981, 1986, and 1994 data for the different regions.)

During the 1981 season, man-made lakes were the most preferred type of water to fish. In 1986, natural lakes were the favorite type of water to fish. In 1994, an equal percentage of anglers preferred man-made and natural lakes. As with the three most recent years for which data were collected, inland rivers and streams were consistently reported as the next most preferred type of water. (Further details on these regional differences are shown in Appendix Table C-8.)

Value of Fishing License

Figure 15
Value of Fishing License
by Region and Year

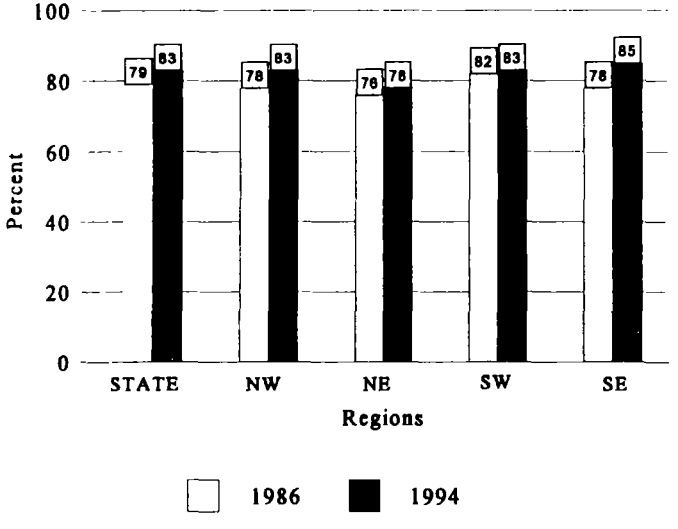
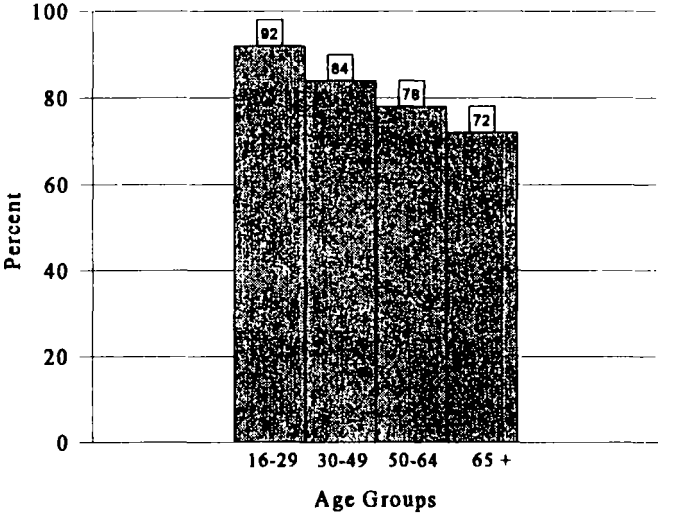


Figure 16
Value of 1994 Fishing License
by Age



Anglers were asked if they felt they were "getting their money's worth" with a fishing license. Of those who had an opinion, 83% of the 1994 anglers felt the license was worth the money. This is up slightly from the 1986 figures where 79% felt they were getting their money's worth. By a small margin, the SE Region is the region with the largest percentage of anglers who felt the license was worth the money.

Figure 16 shows the evaluations of anglers, relative to the worth of their fishing license, by age group. Comparisons between years are not possible since similar data were not reported for 1986 or 1981. The figure shows an inverse relationship between age of the angler and belief in the worth of the license. The younger the angler the more likely they are to conclude they are getting their money's worth from an Iowa license. No differences were apparent when comparing the responses by gender.

Section B: Highlights of 1994 Findings

Description of Iowa Anglers

Figure 17
Number in Household Purchasing
a Fishing License

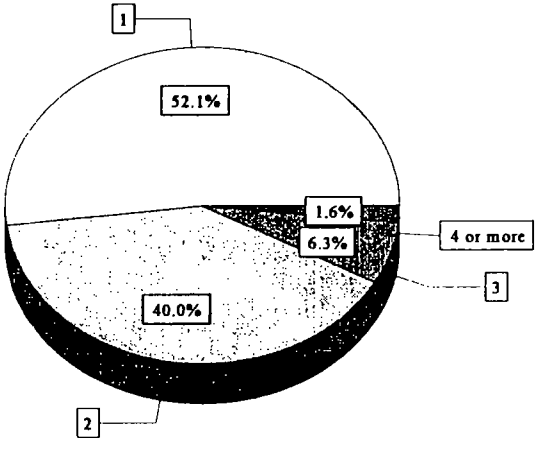
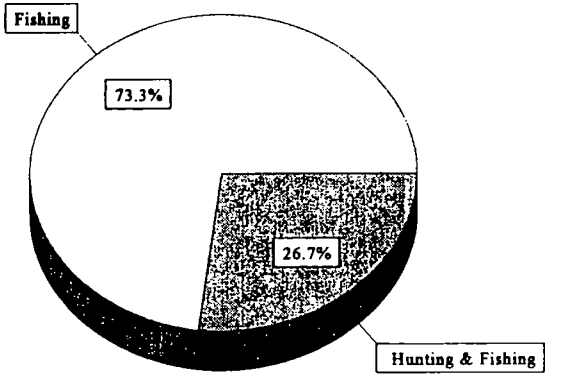


Figure 18
Type of License



As seen in Figure 17, slightly over half of the anglers surveyed lived in households where they were the only household member who purchased a fishing license during the 1994 season.

Figure 18 shows that approximately 1 in 4 anglers surveyed purchased a combination fishing and hunting license. According to the Department of Natural Resource records, approximately 14.8% of the total number of licenses sold in 1994 were combination licenses. Thus, those anglers were over-represented in the 1994 sample.

Figure 19
Gender of 1994 Anglers

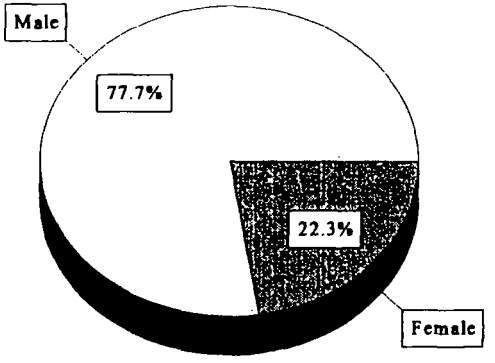


Figure 20
Age of 1994 Anglers

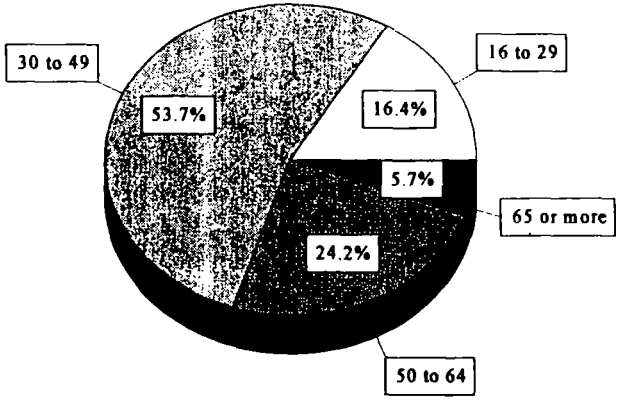


Figure 19 shows that approximately 78% of the 1994 anglers were male.

As Figure 20 shows, the majority (53.7%) of the 1994 anglers were between the ages of 30 and 49. Just under 25% were between the ages of 50 and 64. An additional 16% were ages 16 to 29, with the remaining 6% of anglers aged 65 years or older.

Table 4
Current Age of Licensed Iowa Anglers (% and N)

Age	Total	Gender		Region					
		Male	Female	NW	NE	SE	SW	MI	MO
16-29	16.4	17.3	13.4	15.7	17.3	16.5	16.4	14.8	18.0
	59,738	48,828	10,910	11,967	10,894	19,821	17,056	9,685	4,286
30-49	53.7	53.6	54.2	55.2	52.0	54.2	53.1	55.5	52.5
	195,150	151,037	44,113	41,937	32,792	65,233	55,188	36,262	12,502
50-64	24.2	23.3	27.1	24.3	24.5	24.1	24.0	24.1	24.2
	87,858	65,783	22,076	18,435	15,470	28,978	24,975	15,766	5,775
65 +	5.7	5.8	5.3	4.8	6.2	5.2	6.4	5.5	5.2
	20,560	16,273	4,288	3,665	3,922	6,272	6,701	3,604	1,250

The statewide mean age of anglers was 42.4 year. Over half of the anglers were between the ages of 30 and 49. In terms of gender differences, males tend to be more evenly distributed across the age spectrum than females. There were no extreme differences in the age distributions across the regions.

Figure 21
Age First Started to Fish

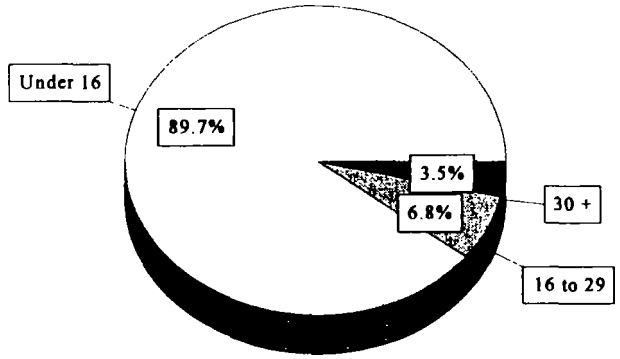
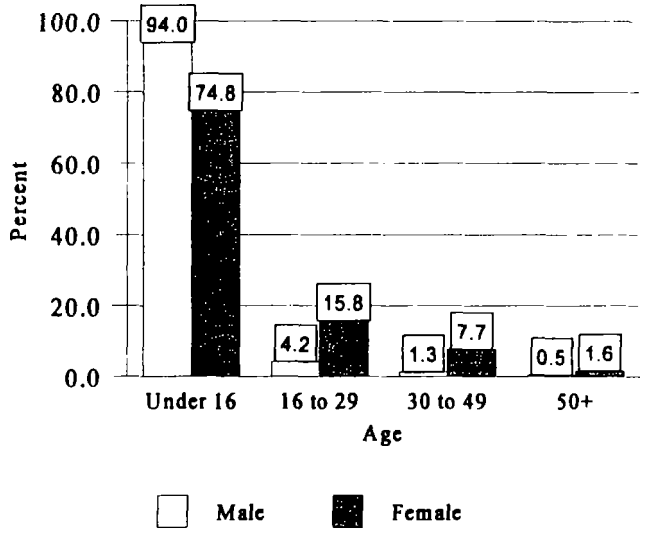


Figure 22
Age First Started to Fish by Gender



Nearly 90% of the 1994 anglers reported they first started fishing before the age of sixteen. In terms of gender, 94% of the males started fishing before age 16 as compared to 75% of the females. Only 1 in 10 anglers began fishing after the age of 16 and those who did were more likely to be female than male. (Details concerning regional differences are shown in Appendix Table C-9.)

Frequency of Fishing

Table 5
Number of Days Fished in 1994 (% and N)

Days	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	4.3	4.2	5.0	1.2	3.0	6.8	15.0	3.7	4.5	5.3	3.6	4.5	3.8
	15,810	11,720	4,090	700	5,936	5,971	3,078	2,803	2,833	6,398	3,777	2,928	893
1 to 5	26.4	24.6	32.7	19.4	27.4	28.6	28.4	31.7	25.6	24.4	25.5	22.4	21.5
	96,187	69,595	26,592	11,553	53,386	25,052	5,844	24,041	16,233	29,355	26,559	14,640	5,120
6 to 15	27.5	26.9	29.5	22.8	28.9	27.6	27.5	27.2	25.4	26.2	30.4	24.8	31.5
	99,877	75,879	23,998	13,608	56,310	24,188	5,650	20,591	16,124	31,487	31,675	16,217	7,501
16 to 30	22.3	23.3	18.8	31.4	21.0	21.0	13.7	21.3	23.5	21.6	22.9	23.4	23.3
	80,942	65,695	15,247	18,734	40,902	18,371	2,815	16,171	14,925	25,968	23,878	15,316	5,536
31 to 60	11.3	11.5	10.4	15.2	10.8	10.6	8.0	9.8	12.2	12.6	10.3	15.1	12.3
	41,074	32,598	8,475	9,047	21,103	9,270	1,653	7,439	7,735	15,179	10,721	9,910	2,917
61 +	8.2	9.5	3.5	10.0	8.9	5.3	7.4	6.3	8.8	9.9	7.3	9.8	7.8
	29,770	26,909	2,862	5,975	17,406	4,651	1,520	4,744	5,556	11,918	7,553	6,419	1,845

Slightly more than 76% of the 1994 anglers reported fishing between 1 and 30 days. The mean number of days anglers reported fishing was 24. In terms of gender differences, males were more likely than females to report fishing more than 15 days in 1994. Differences between the age groups were also apparent. Anglers in the youngest age group were more likely than anglers in other age groups to fish more than 15 days during the 1994 season. License holders in the 65 and older age group were the most likely to have not fished at all. In terms of regions, the SE Region had the most even distribution of days fished. This region had the most anglers who had fished 61 or more days and also the most who had not fished at all in 1994. The NW, SW, and Missouri River Regions had the lowest percentage of license holders who did not fish at all during 1994.

Figure 23
Total Days Fished by Region

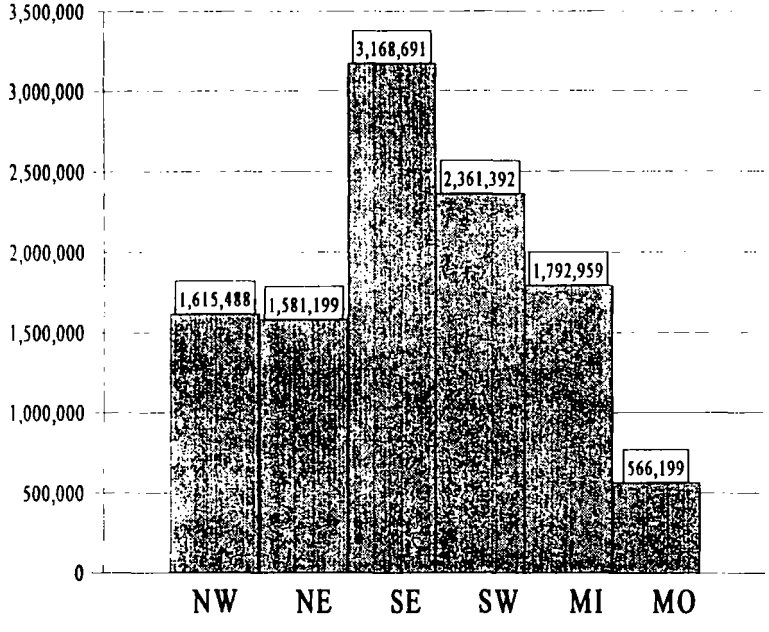
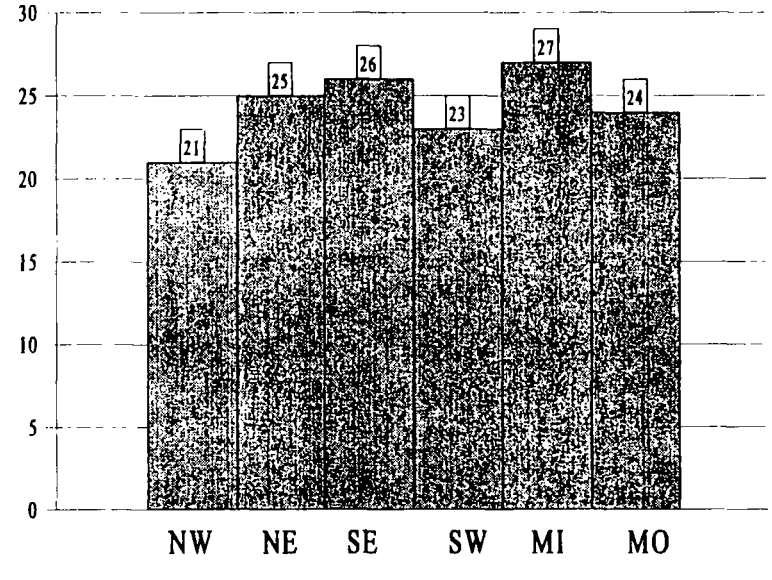


Figure 24
Mean Days Fished by Region



A total of 8,726,770 days were fished during the 1994 season. The total number of days fished per region are shown in Figure 23. Since overlap exists for the river regions the sum in Figure 23 will exceed the total number of days fished. The SE Region comprised the largest percentage of the statewide total.

Figure 24 displays the mean number of days fished per angler for each of the regions. (The statewide mean for the 1994 season was 24 days.) The SE and Mississippi River Regions had the highest averages while the NW Region had the lowest average per angler with 21 days.

Proximity and Body of Water Preference

Figure 25
Miles Traveled One Way to Fish

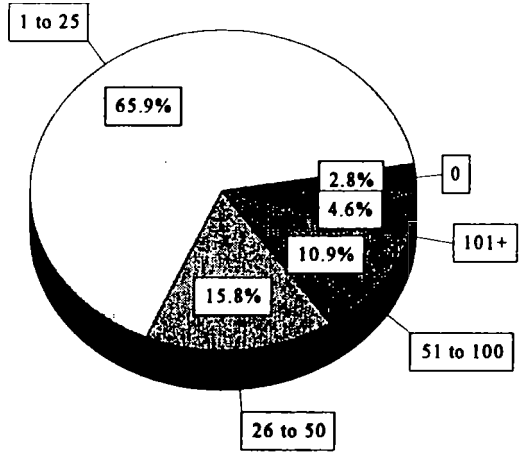
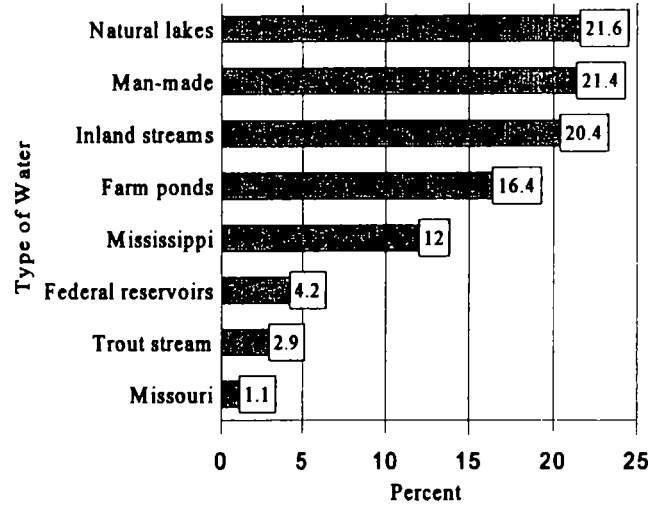


Figure 26
Body of Water Preferred to Fish



Statewide, more than 2 out of 3 anglers reported traveling 25 miles or less one way to fish. The statewide mean distance traveled one way to fish was 29 miles. The mean distance traveled one way in the river regions was 26 miles. (See Appendix Table C-10 for more information on age, gender, and regional comparisons.)

As shown in Figure 26, Iowa anglers equally preferred to fish on man-made and natural lakes in 1994. Inland streams and rivers are the third most preferred body of water. (See Appendix Table C-11 for more information on age, gender, and regional comparisons.)

Figure 27
Mean Number of Days Fished by
Licensed Anglers in 1994

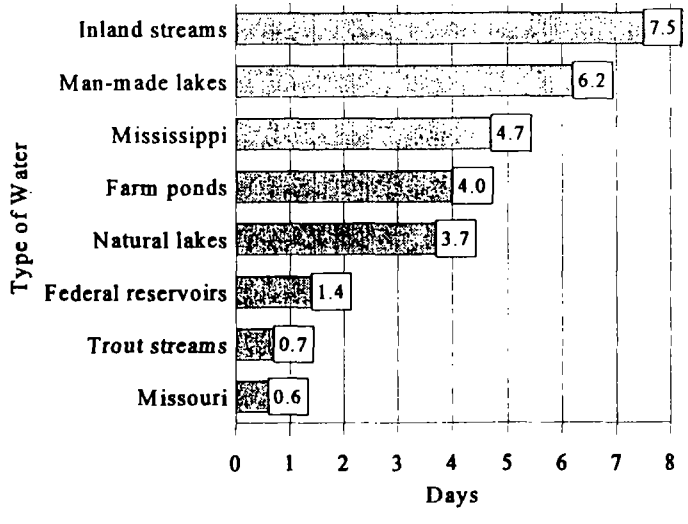
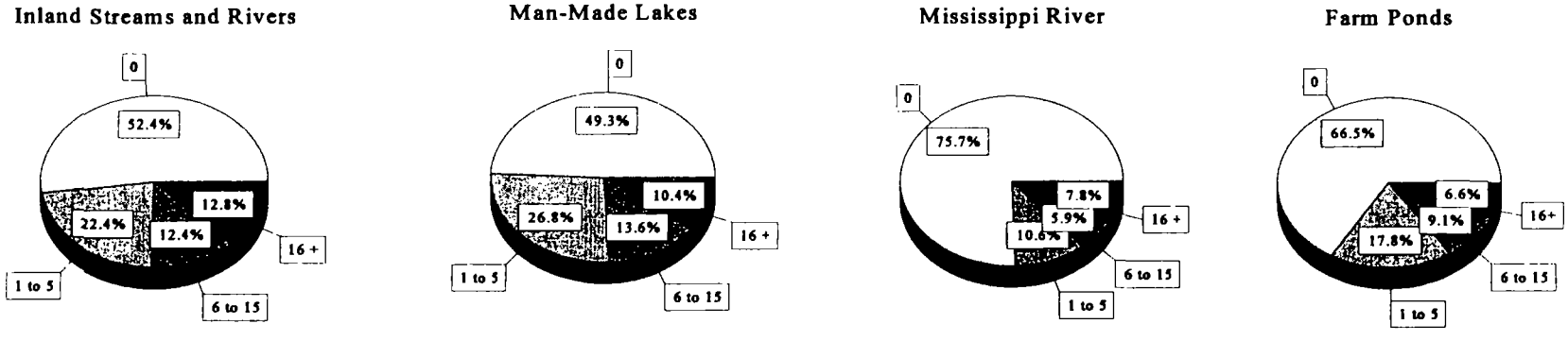


Figure 29 shows the mean number of days fished on each different type of water. Inland streams and rivers were fished on average more days than any other type of water. The Missouri River, trout streams, and federal reservoirs were the bodies of water with the lowest mean number of days fished by Iowa anglers.

Figure 28
Days Fished on Various Types of Water — I



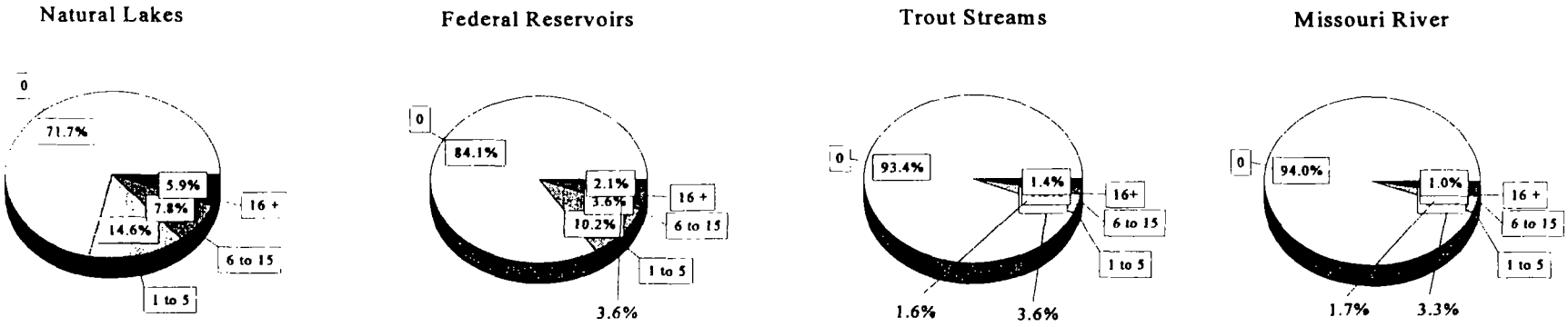
The mean number of days Iowa's anglers fished on inland streams and rivers was 7.5. Slightly under half of the anglers indicated fishing at least 1 day on an inland stream or river. (See Appendix Table C-12 for more information on age, gender, and regional comparisons.)

The mean number of days fished by Iowa anglers on man-made lakes was 6.2 days. About half of Iowa anglers reported fishing at least 1 day on a man-made lake. About 1 in 10 indicated fishing 16 or more days on man-made lakes. (See Appendix Table C-13 for more information on age, gender, and regional comparisons.)

Statewide, the mean number of days fished by Iowa anglers on the Mississippi River was 4.7 days. About 1 in 4 Iowa anglers reported fishing at least 1 day on the Mississippi River. (See Appendix Table C-14 for more information on age, gender, and regional comparisons.)

Last season, 1 in 3 Iowa anglers reported fishing on a farm pond. The mean number of days fished on farm ponds was 4.0 days. (See Appendix Table C-15 for more information on age, gender, and regional comparisons.)

Figure 29
Days Fished on Various Types of Water — II



The mean number of days Iowa anglers fished on natural lakes was 3.7 days. Slightly more than 1 in 4 anglers reported fishing at least 1 day on natural lakes. (See Appendix Table C-16 for more information on age, gender, and regional comparisons.)

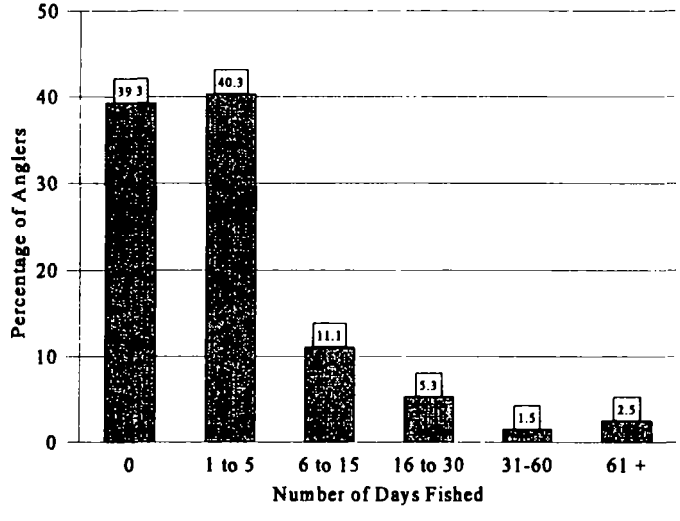
Last year, 1 in 6 anglers reported fishing on a federal reservoir. The mean number of days fished on federal reservoir waters was 1.4 days. (See Appendix Table C-17 for more information on age, gender, and regional comparisons.)

The mean number of days fished on trout streams was less than 1 day. Slightly more than 6% of Iowa anglers indicated fishing on trout streams at least once last year. (See Appendix Table C-18 for more information on age, gender, and regional comparisons.)

The mean number of days fished on the Missouri River by Iowa anglers was less than 1 day. Only about 6% of Iowa anglers reported fishing at least 1 day on the Missouri River. (See Appendix Table C-19 for more information on age, gender, and regional comparisons.)

Use of Boats

Figure 30
Days of Boat Use by Licensed Anglers in 1994



Nearly 80% of Iowa anglers reported fishing 5 or fewer days last season from a boat. About 4 out of 10 did not fish at all from a boat. The mean number of days Iowa anglers fished from a boat was 12.5 days. A much higher rate occurred for the two river regions where the combined mean was 16.7 days. (See Appendix Table C-20 for more information on age, gender, and regional comparisons.)

Table 6

Frequency of Boat Use by Licensed Anglers in 1994 (% and N)

Amount of time	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
All the time	39.5	37.5	47.3	22.9	39.9	47.5	63.8	35.8	38.5	45.8	34.7	52.5	34.3
	83,441	63,269	20,172	9,107	45,184	23,569	5,459	14,877	14,598	33,620	20,345	22,748	4,941
Half but not all the time	26.8	27.2	25.3	28.6	26.9	27.2	13.9	27.5	28.2	26.3	26.0	27.8	28.9
	56,651	45,850	10,801	11,392	30,459	13,493	1,186	11,428	10,676	19,319	15,228	12,050	4,167
Less than half the time	33.7	35.3	27.4	48.5	33.1	25.2	22.3	36.6	33.3	27.9	39.3	19.7	36.8
	71,312	59,600	11,712	19,295	37,475	12,508	1,912	15,201	12,637	20,448	23,025	8,559	5,298

Of those anglers who fished at least one day from a boat, 40% indicated they always fished from a boat. About one-fourth indicated fishing from a boat and from land equally, and about one-third used a boat less often than fishing from land. As shown in Appendix Table C-20, females fished from a boat on fewer days during 1994; however, as shown in Table 6 those females who did fish from a boat were more likely than their male counterparts to report that they fished all the time from a boat. A similar relationship can be seen in the two extreme age groups. Those in the under 30 age group were the most likely to have fished at least once from a boat, but these anglers were the least likely to do all their fishing from a boat. In contrast while only half of the anglers over 65 fished at least once from a boat, these anglers were also the most likely to report all their fishing was done by boat. Anglers in the SE and Mississippi Regions were more likely than the anglers in the other regions to indicate fishing exclusively from a boat. In addition, in the Mississippi River Region 4 out of 5 reported fishing half of the time or more from a boat. (See Appendix Table C-20 for further details.)

Species and Numbers of Fish Caught

Figure 31
Percentage of Anglers Catching at Least
One Fish of Each Species

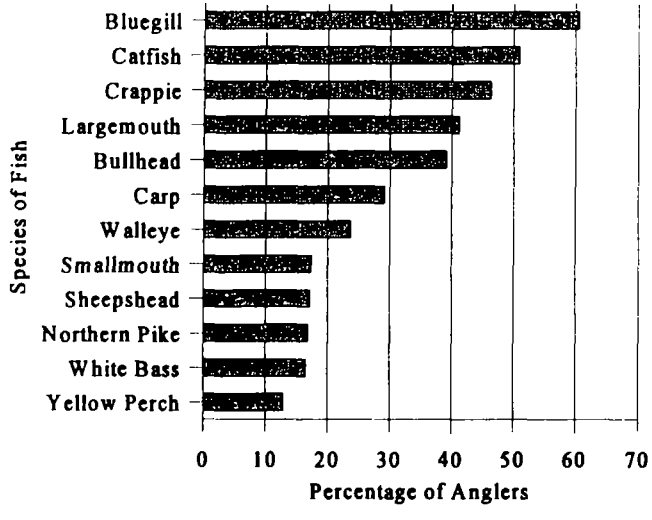


Figure 32
Number of Anglers Catching
At Least One Fish of Each Species

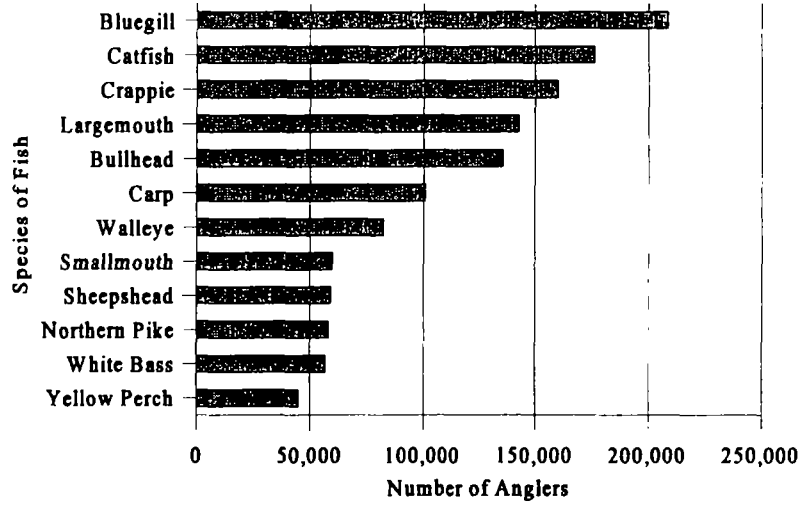


Figure 31 shows the percentage of anglers who had fished at least one day last season who reported catching at least one fish of the various species. Statewide bluegill, catfish, and crappie were caught by the highest percentage of anglers. (See Appendix Table C-21 for more information on age, gender, and regional comparisons.)

Figure 32 shows the number of anglers who reported catching at least one of each of the various species of fish. For example, over 200,000 anglers reported catching at least one bluegill. (See Appendix Table C-22 for more information on age, gender, and regional comparisons.)

Figure 33
Estimated Total Catch for Each Species in 1994

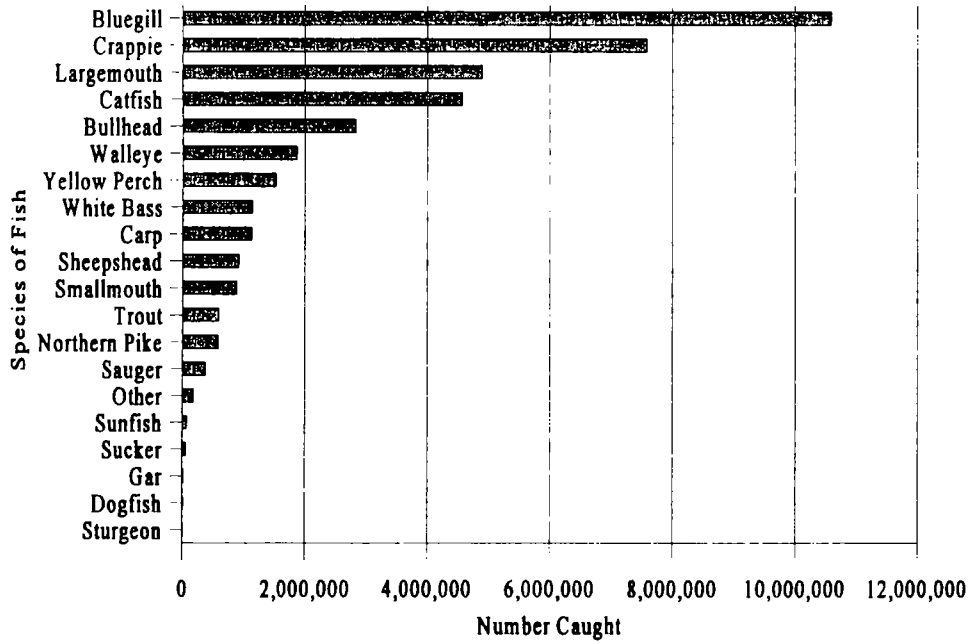


Figure 34
Percent of Total Fish Catch
by Gender and Age

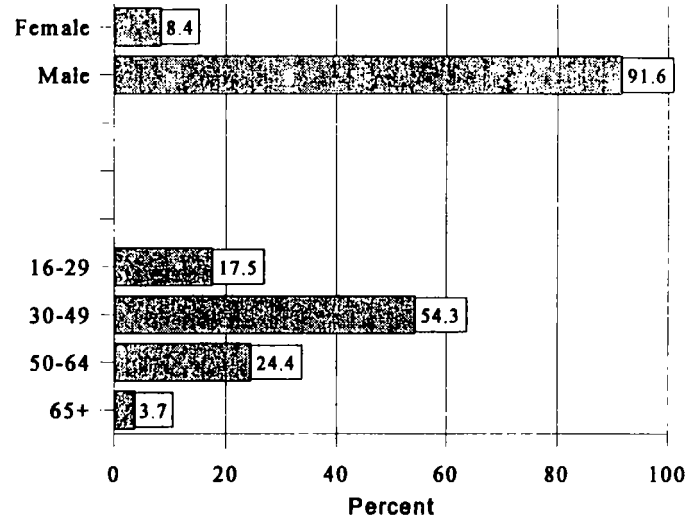


Figure 33 shows the estimated total catch for each species of fish caught by anglers in the state of Iowa in 1994. The total number of fish of all species caught was 39.8 million. Statewide, more bluegill and crappie were caught by Iowa anglers than any other fish. (See Appendix Table C-23 for more information on age, gender, and regional comparisons.)

Figure 34 shows the percentage of fish caught across demographic categories. The figure shows that male anglers account for an overwhelming majority (91.6%) of the total catch. Anglers aged 30 to 49 accounted for over half of the fish caught statewide. (Regional variations are displayed in Table C-24 in the Appendix.)

Figure 35
Percentage of Total Catch by Species

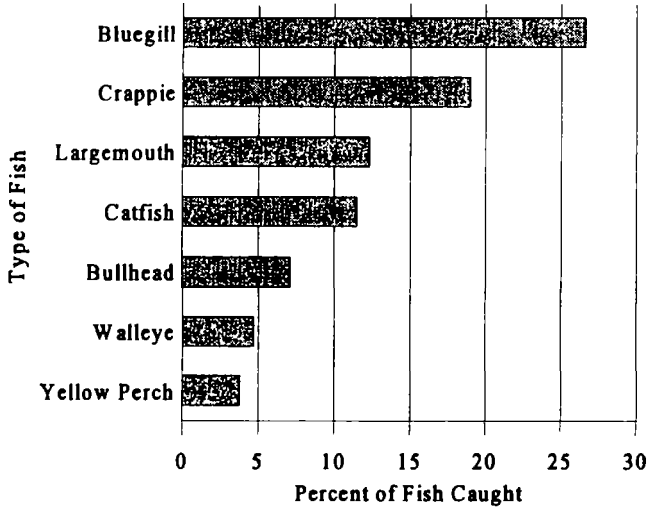
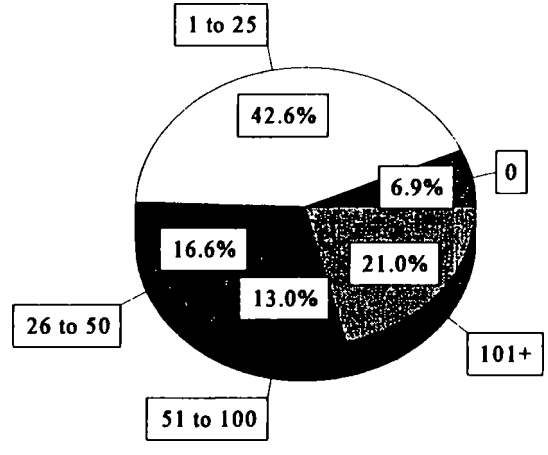


Figure 36
Distribution of Fish Caught Per Angler



The fish comprising the largest percent of the total catch were bluegill, crappie, largemouth bass, and catfish. (See Appendix Table C-25 for more information on age, gender, and regional comparisons.)

The mean number of fish caught per angler was 109 fish, and the median was 30 fish. Figure 36 shows that the largest percentage of Iowa anglers reported catching between 1 and 25 fish during the 1994 season. About 7% of Iowa anglers who fished at least one day out of the year reported that they did not catch any fish. (See Appendix Table C-26 for more information on age, gender, and regional comparisons.)

Figure 37
Size of Catch Per Angler for Most Caught Species (%)

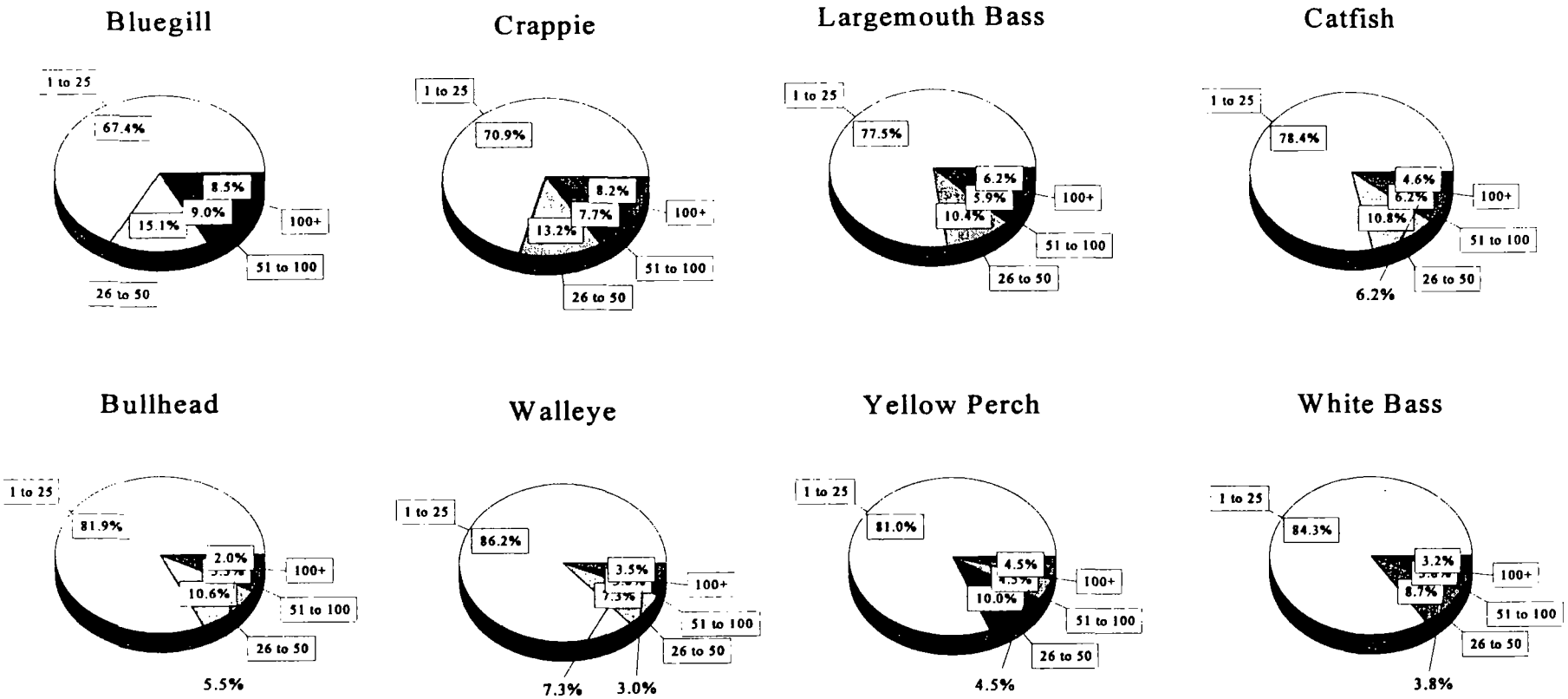


Figure 37 shows the size of the 1994 catch per angler for the most often caught species of fish. The base for each graph is the total number of anglers who caught at least one of that type of fish. For example, the figure for largemouth bass shows that 77.5% of the anglers who caught any largemouth bass reported catching between 1 and 25 largemouth bass in 1994. (See Appendix Tables C-27 through C-34 for more information on age, gender, and regional comparisons.)

Figure 38
Size of Catch Per Angler for Less Caught Species (%)

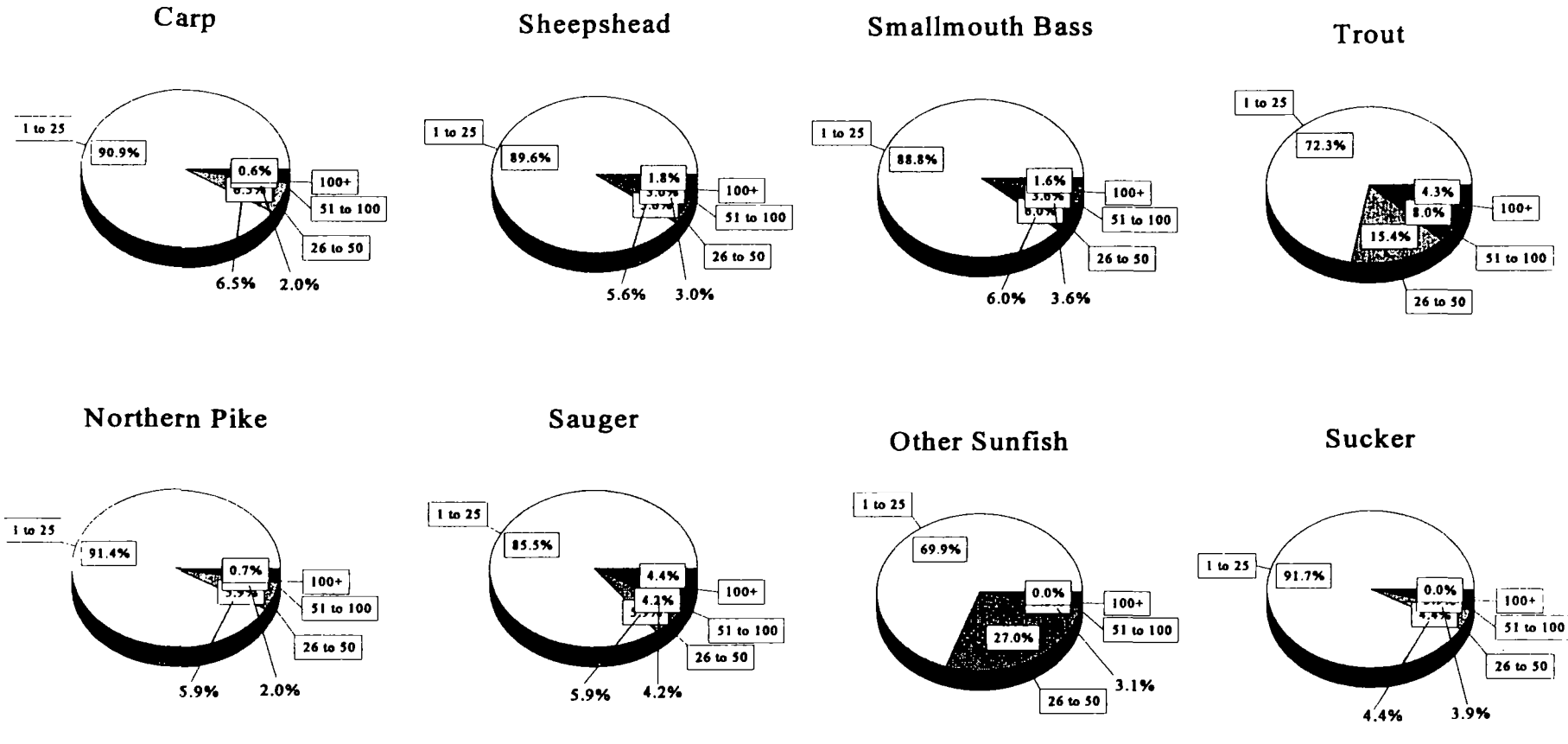
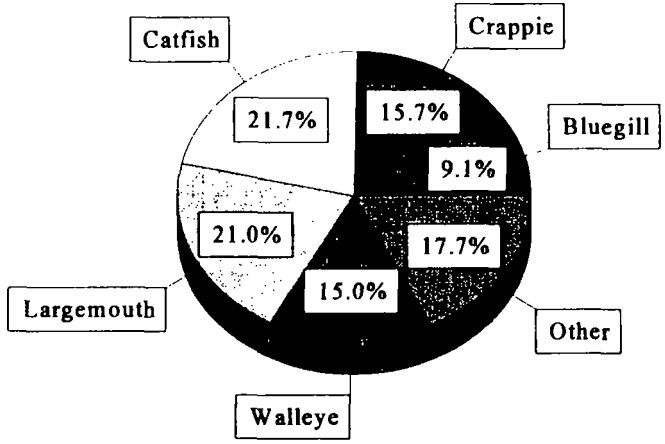


Figure 38 shows the size of the 1994 catch per angler for the less caught species of fish. As in the previous figure, the base for each graph is the total number of anglers who caught at least one of that species of fish. For example, the figure for carp shows that 90.9% of the anglers who caught any carp reported catching between 1 and 25 carp in 1994. Figures are not shown for sturgeon, gar, or dogfish because 98% or more of the anglers caught fewer than 26 of these different species of fish. (See Appendix Tables C-35 through C-39 for more information on age, gender, and regional comparisons.)

Figure 39
Most Preferred Species to Catch
by Licensed Iowa Anglers



Iowa anglers were asked to indicate which fish they most preferred to catch. Catfish was the most preferred fish to catch, closely followed by largemouth bass. Crappie was the fish with the third largest percentage (15.7%) of anglers reporting it was their favorite fish to catch. The category 'other' represents the species of fish that were named by less than four percent of Iowa anglers. Species in this category include: trout (3.8%), bullhead (3.6%), smallmouth bass (3.6%), northern pike (3.2%), yellow perch (2.0%), carp (0.6%), white bass (0.6%), sheepshead (0.2%), sauger (0.1%), and sturgeon (<0.1%). (See Appendix Table C-40 for more information on age, gender, and regional comparisons.)

Fish Consumption

Table 7
Consumption of Fish by Licensed Iowa Anglers in 1994 (% and N)

Eat Fish	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Most of the time	54.3	51.9	62.7	40.2	51.8	66.2	68.4	57.9	58.1	51.0	53.1	56.5	53.9
	197,228	146,292	50,936	23,964	100,898	58,175	14,070	43,985	36,714	61,219	55,310	36,825	12,859
Some of the time	18.5	19.8	14.1	19.5	20.4	15.2	11.1	16.5	17.8	21.1	17.4	18.0	17.2
	67,220	55,750	11,470	11,597	39,857	13,381	2,276	12,506	11,221	25,340	18,152	11,712	4,108
Only rarely	18.4	20.0	12.8	26.9	18.9	13.1	12.1	17.4	17.2	18.7	19.5	17.8	19.2
	66,955	56,527	10,428	16,023	36,825	11,501	2,484	13,260	10,894	22,455	20,345	11,599	4,584
Never	8.8	8.3	10.4	13.5	8.9	5.5	8.4	8.2	6.9	9.1	9.9	7.8	9.7
	31,880	23,453	8,427	8,028	17,320	4,801	1,731	6,253	4,358	10,914	10,355	5,068	2,322

Over half of Iowa anglers reported they ate the fish they caught most of the time. Almost 2 out of 3 females reported eating fish most of the time. Less than 1 in 10 indicated that they never ate any of the fish they caught. The data suggested a positive relationship between the age of the angler and the frequency with which they eat fish. About 40% of those in the 16-29 age group, as compared to 68% in the 65 and over age group, eat the fish they catch most of the time. Anglers in the NW and NE Regions were the most likely to indicate eating the fish they caught most of the time.

Figure 40
Fish Eaten Most Often
First Preference

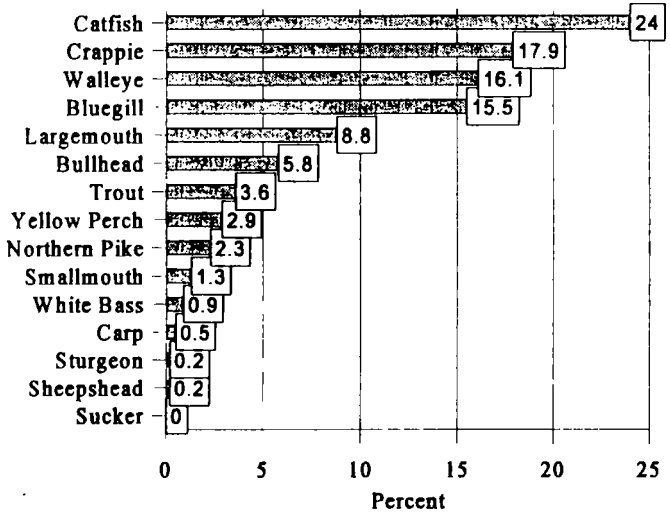


Figure 41
Fish Eaten Most Often
Top Three Preferences Combined

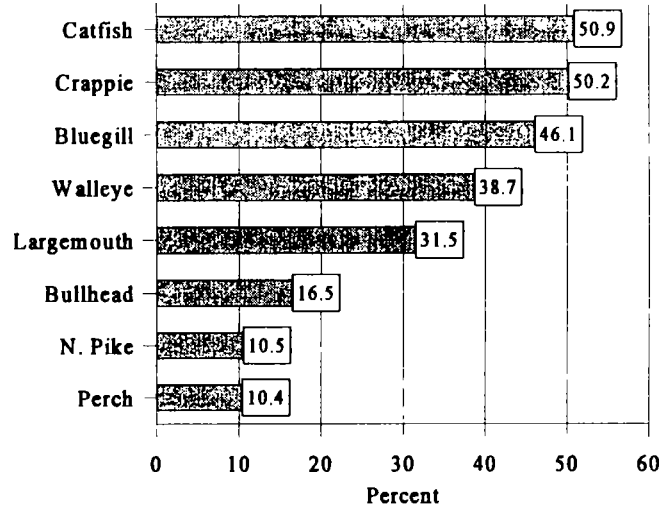


Figure 40 shows the percentage of anglers reporting the fish they most often eat. For example, of the anglers who eat fish, 24 percent reported eating catfish most often. Catfish was the most frequently eaten fish, followed by crappie and walleye. (See Appendix Table C-41 for more information on age, gender, and regional comparisons.)

Anglers were asked to name the three fish they most often ate. For example, an angler may have answered that they ate catfish most, then bluegill secondly, and walleye third most often. The previous figure (Figure 40) showed the distribution of the number one eaten fish, and Figure 41 shows the percentage of anglers who commonly eat each species of fish. The percentages will not add up to 100% as each angler could select their top three fish. Combining their first three choices, the fish which anglers eat most often are catfish, crappie, and bluegill. Some fish are not included in Figure 41, since less than ten percent of Iowa anglers reported these types were in their top three most commonly eaten fish. These fish include the following: trout (8.8%), smallmouth (5.9%), carp (3.5%), white bass (2.5%), sheepshead (1.6%), sturgeon (0.9%), suckers (<0.1%), and muskie (<0.1%).

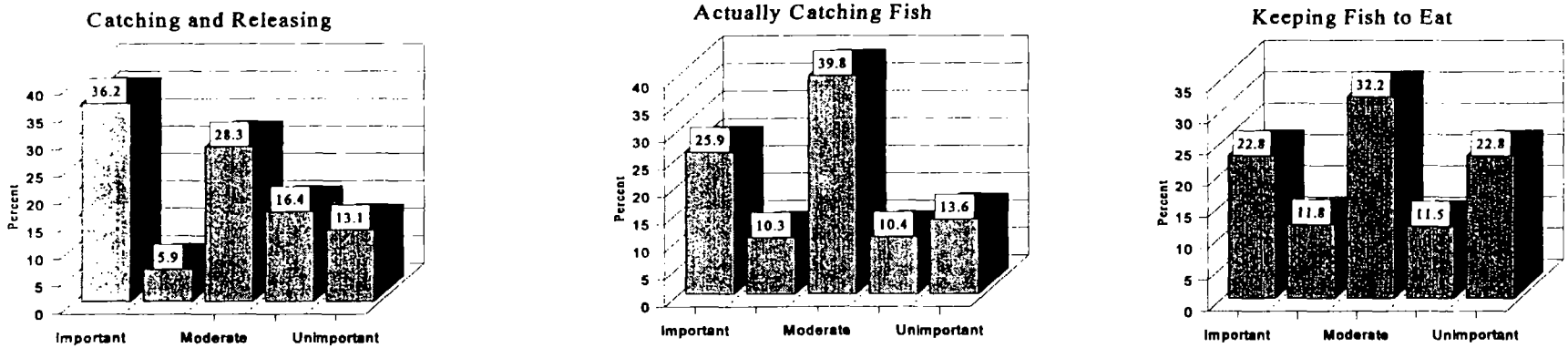
Importance of Various Fishing Outcomes

Table 8
Important Fishing Outcomes

Outcomes Important to Fishing	Mean	Std. Dev.
Catching and releasing fish	3.57	1.37
Actually catching fish when fishing	3.24	1.31
Keeping fish and eating	2.98	1.42
Catching a particular kind of fish	2.93	1.26
Catching a particular size of fish	2.82	1.33
Catching more than one kind of fish on a trip	2.22	1.23
1=Very unimportant 3=Moderately Important 5=Very important		

Table 8 shows the rank ordering of the importance of various outcomes to anglers when fishing. Of the outcomes listed, anglers viewed the catching and releasing of fish to be the most important outcomes to them when they went fishing. Catching fish was the second most important outcome. Catching multiple types of fish on the same fishing trip was the least important outcome for anglers when fishing. More details on these outcomes are displayed in the following two figures.

Figure 42
Important Fishing Outcomes — I

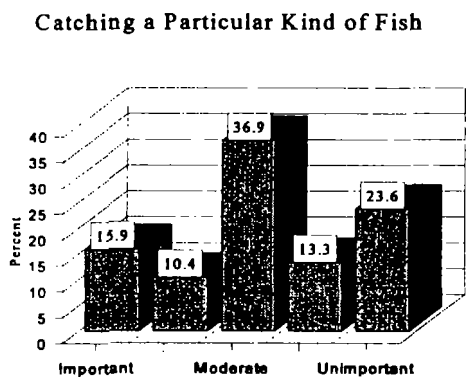


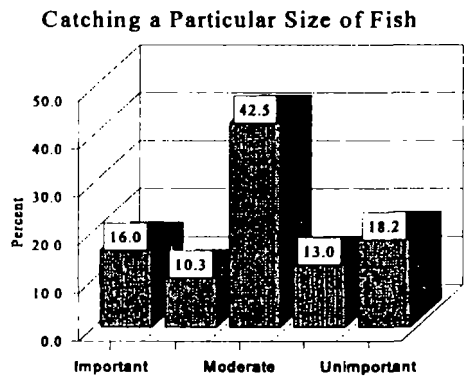
As a group, Iowa anglers view catching and releasing of fish as a highly important outcome when fishing. In fact, slightly more than 4 out of 5 anglers reported catching and releasing was at least moderately important, and more than 1 in 3 anglers believed it was very important. (See Appendix Table C-42 for more information on age, gender, and regional comparisons.)

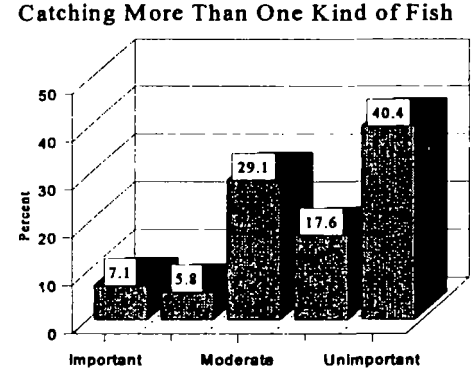
About 3 out of 4 Iowa anglers believed actually catching a fish was at least moderately important. Approximately, 1 in 4 anglers felt catching a fish was very important. (See Appendix Table C-43 for more information on age, gender, and regional comparisons.)

About two-thirds (65.7%) of Iowa anglers felt keeping fish to eat was at least moderately important. (See Appendix Table C-44 for more information on age, gender, and regional comparisons.)

Figure 43
Important Fishing Outcomes — II





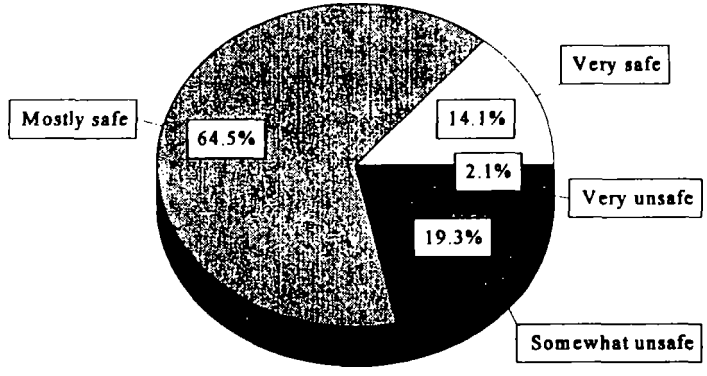


Only approximately 16% of the anglers in the state rated catching a particular kind of fish as very important, while nearly 37% rated it as moderately important. (See Appendix Table C-45 for more information on age, gender, and regional comparisons.)

Similarly 16% of the anglers statewide viewed catching a particular size of fish as very important, while 43% saw it to be moderately important. (See Appendix Table C-46 for more information on age, gender, and regional comparisons.)

In contrast, approximately 41% of Iowa anglers in the state rated catching more than one type of fish as being very unimportant. Only 7% of Iowa anglers rated catching more than one kind of fish per outing as very important. (See Appendix Table C-47 for more information on age, gender, and regional comparisons.)

Figure 44
Safety of Fish From Contamination



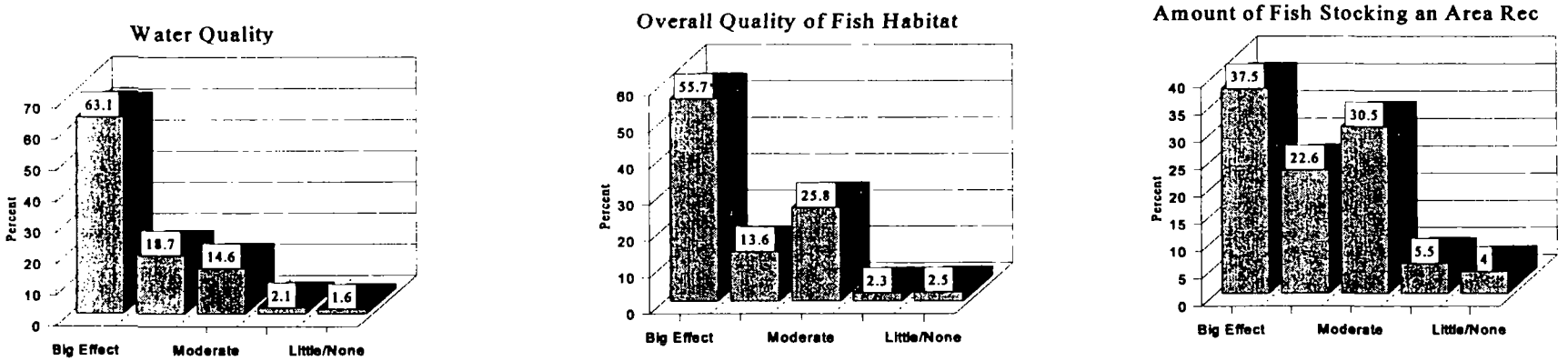
Nearly 80% of Iowa anglers believe that fish are mostly or very safe from contamination. Approximately 20% of Iowa anglers believe that Iowa's fish population is somewhat or very unsafe from contamination. (See Appendix Table C-48 for more information on age, gender, and regional comparisons.)

Table 9
Factors that Affect Quality of Fish Population in Iowa

Factors	Mean	Std. Dev.
Water quality	4.40	0.92
Overall quality of fish habitat	4.18	1.05
Amount of fish stocking an area receives	3.84	1.11
Regulations on size and number of fish that can be kept	3.59	1.18
Actual number of fish anglers keep	3.41	1.18
1=Little or no effect 3=Moderate effect 5=Very big effect		

It is apparent that many Iowa anglers see the factors in Table 9 as having significant effects on the fish population. The mean values on a 1 to 5 scale ranged from 4.40 to 3.41 which are all above the "moderate" effect rating. Water quality and overall quality of fish habitat have the highest mean ratings. More details on these factors are displayed in the following two figures.

Figure 45
Factors Affecting Fish Populations — I



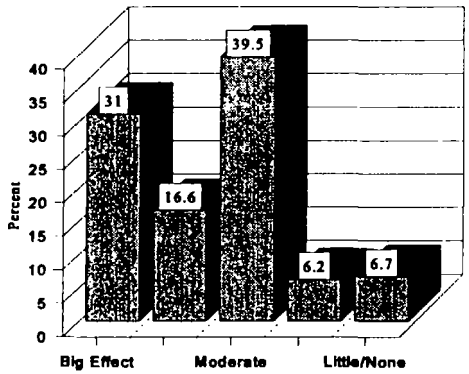
Nearly 97% of Iowa anglers stated that water quality had a moderate or greater effect on the fish population. Almost 2 in 3 anglers felt water quality had a very big effect on the fish population in Iowa. (See Appendix Table C-49 for more information on age, gender, and regional comparisons.)

Over 95% of the anglers viewed the overall quality of the fish habitat as having a moderate or greater effect on the fish population. A majority (55.7%) of anglers believe the overall quality of the fish habitat had a very big effect on the fish population. (See Appendix Table C-50 for more information on age, gender, and regional comparisons.)

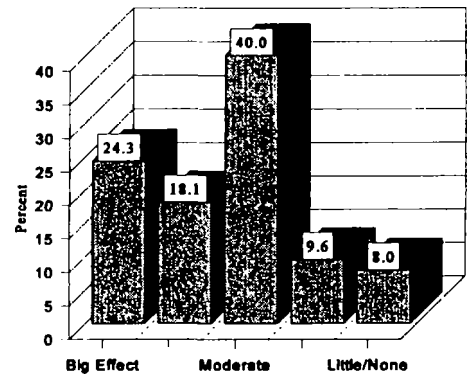
Over 90% of the anglers felt that the amount of fish stocking an area receives had a moderate to very big effect on the fish population. (See Appendix Table C-51 for more information on age, gender, and regional comparisons.)

Figure 46
Factors Affecting Fish Populations — II

Regulations on Size and Number of Fish



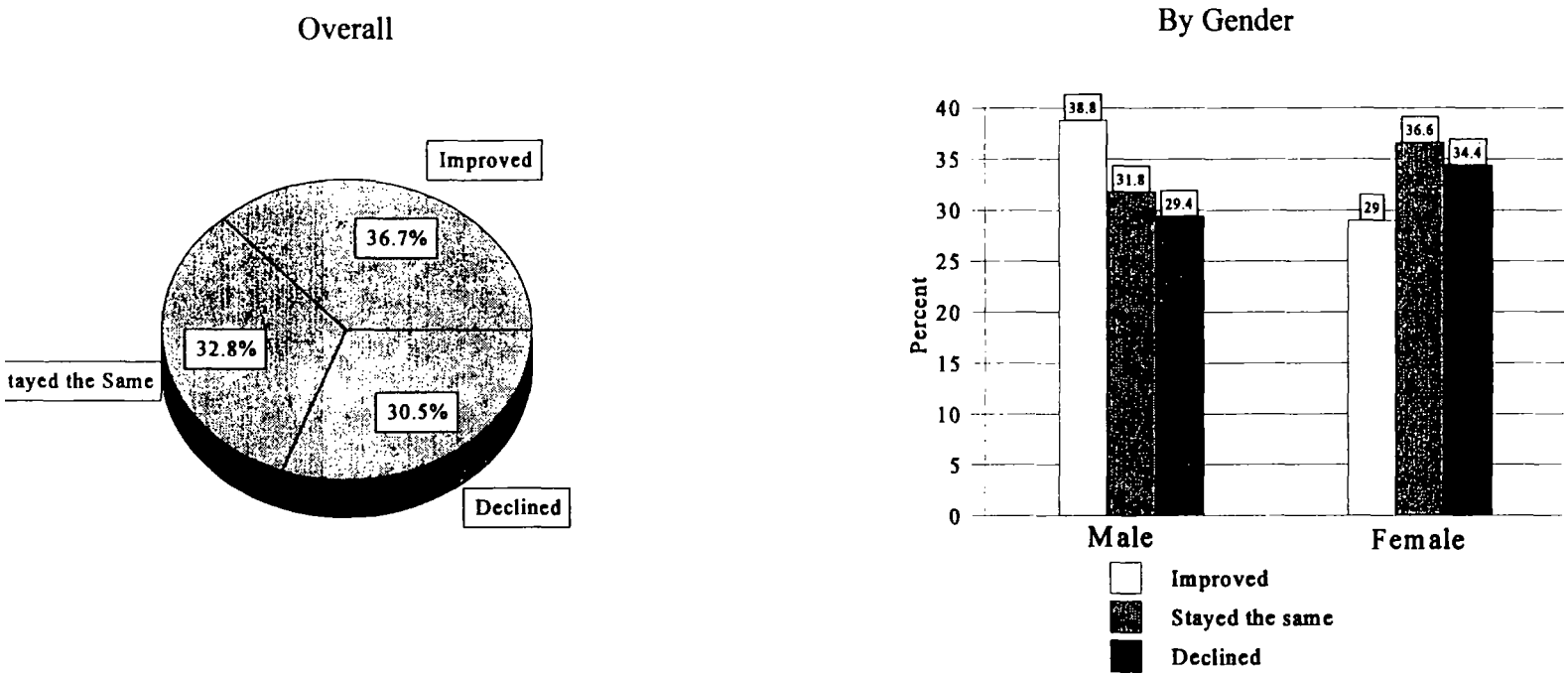
Actual Number of Fish Kept



Nearly 4 in 10 anglers believed regulations in terms of the size and number of fish caught had a moderate effect on the fish population, while nearly 1 in 3 felt it had a very big effect on the fish population. (See Appendix Table C-52 for more information on age, gender, and regional comparisons.)

Similarly, 4 in 10 anglers believed that the number of fish anglers keep had a moderate effect on the state's fish population, while nearly 1 in 4 anglers believe it had a very big effect. (See Appendix Table C-53 for more information on age, gender, and regional comparisons.)

Figure 47
Quality of Fishing In Iowa Over Past 10 Years



Anglers were asked whether they felt the fishing quality had improved, stayed the same, or declined in the last 10 years. Nearly 7 in 10 anglers reported the fishing was either the same or better than 10 years ago; however, 3 in 10 believed it had declined. Male anglers were more likely than female anglers to believe that fishing had improved in the last 10 years. (See Appendix Table C-54 for more information on age and regional comparisons.)

Table 10

Reasons for Decline in Quality of Fishing in Iowa Over Past 10 Years as Identified by Licensed Iowa Anglers (% and N)

Reason for Decline	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Poor water quality	38.4	37.0	43.0	35.7	38.3	39.8	40.1	31.3	40.5	41.5	37.7	43.4	29.3
	38,510	28,424	10,085	5,077	19,871	10,806	2,647	6,037	10,894	13,172	8,406	11,487	1,726
Fish habitat decline	18.7	19.6	15.9	20.1	19.4	16.1	21.6	17.3	23.1	18.6	14.8	27.2	20.2
	18,737	15,013	3,724	2,864	10,093	4,356	1,425	3,342	6,210	5,896	3,289	7,207	1,191
Waters fished out	12.0	10.7	16.5	19.7	10.4	10.9	11.9	14.0	7.7	11.1	16.9	5.1	16.2
	12,054	8,176	3,878	2,801	5,397	2,951	784	2,695	2,070	3,513	3,777	1,351	952
Too many anglers	11.2	12.4	7.3	10.2	13.0	9.6	5.4	16.2	10.9	8.7	10.9	6.8	16.2
	11,264	9,543	1,721	1,452	6,729	2,603	359	3,126	2,941	2,760	2,437	1,802	952

Anglers who felt that the fishing quality had declined in the last 10 years were asked what they believed was the most important reason for the decline. Table 10 shows the four major reasons held responsible for the decline in fishing quality. Overwhelmingly, the most identified reason was poor water quality, followed by a decline in the fish habitat, a decline in the number of fish, and too many anglers. Other named factors which are not shown in Table 10 were poor fish management and bureaucratic involvement (3.8%), problems with the food chain (2.4%), changes in weather and climate or flooding (1.9%), regulations and fishing techniques (1.8%), other water activities (1.5%), obstructions and dams (0.7%), irresponsible people (0.6%), decline of anglers or loss of interest in angling (0.6%), and miscellaneous responses (0.3%). Additionally, some anglers (6.1%) reported that there was not a single factor mainly responsible for the decline in the quality of fishing, but rather there were multiple factors.

Self-reported Change in Fishing Behavior Over Last 10 Years

Table 11

Change in Fishing Frequency of Licensed Iowa Anglers (% and N)

Comparison with 10 years ago	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
More often	36.6	35.1	41.8	47.1	35.2	33.2	34.4	36.6	32.0	36.3	39.7	33.4	41.8
	132,552	98,802	33,750	28,053	68,528	29,013	6,958	27,814	20,154	43,405	41,178	21,735	9,942
About same	21.3	22.1	18.3	17.8	22.0	21.7	22.2	21.0	22.3	22.2	19.7	23.5	18.5
	77,071	62,301	14,770	10,582	42,840	18,945	4,487	15,955	14,054	26,595	20,467	15,316	4,405
Less often	42.2	42.8	39.9	35.1	42.8	45.2	43.4	42.4	45.7	41.5	40.6	43.1	39.8
	152,825	120,656	32,169	20,868	83,413	39,541	8,760	32,234	28,761	49,677	42,152	28,041	9,465

Anglers were asked to compare how often they fished in 1994 as compared to 10 years ago. Nearly 58% of the anglers reported that they were fishing at least as often in 1994 as compared to ten years ago; however, 4 in 10 were fishing less often. Those fishing more often tended more to be females, those aged 16-29, and to be from the SW and Missouri River Regions. Those fishing less often tended more to be males, those aged 30 or over, and to be from the NE Region.

Table 12
Main Reason for Fishing Less Often (% and N)

Reason for fishing less often	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Not enough time	71.7	73.4	65.6	83.8	78.8	60.0	28.5	72.2	66.9	74.5	71.4	69.1	71.1
	109,559	88,442	21,117	17,485	65,690	23,642	2,498	23,286	19,174	37,007	30,092	19,370	6,727
Fishing not as good	9.4	9.1	10.3	5.6	7.8	13.0	16.9	10.0	14.4	6.3	9.0	15.3	11.3
	14,287	10,973	3,314	1,173	6,506	5,125	1,483	3,234	4,140	3,136	3,777	4,279	1,072
No partner	5.1	4.7	6.3	2.2	3.5	7.8	13.9	4.0	3.4	5.6	6.4	5.2	3.1
	7,714	5,672	2,043	459	2,958	3,080	1,217	1,294	980	2,760	2,680	1,464	298
Cost too much	2.0	1.9	2.5	1.6	1.6	2.6	4.1	3.3	3.0	1.0	1.4	2.0	2.5
	3,061	2,254	806	325	1,345	1,031	360	1,078	872	502	609	563	238

Anglers who reported fishing less often today than 10 years ago were asked the main reason for their decrease in fishing. Over 70% of these anglers attributed the decrease in fishing to a lack of time. Male anglers were more likely than female anglers to suggest that the reason they fished less now was due to a lack of time. Substantial differences were present between the age groups. The older age groups were less likely than the younger anglers to report insufficient time as their reason for fishing less. For example, over 80% of those under 30 attributed the decline to lack of time, but only 28% of those age 65 and over reported it was due to a lack of time. Thus, those in the older age groups were more likely than the younger age groups to report the decrease was due to other factors (e.g., fishing not as good, no fishing partner, cost, age, and health). Table 12 does not show the less frequent responses given by anglers: life changes (2.7%), health (2.4%), change in family structure (2.2%), age (0.9%), pollution or water quality (0.4%), poor fish management (0.3%), and miscellaneous factors (0.3%). In addition, some anglers (1.6%) reported that there was no single reason for their decrease in fishing, but rather it was due to multiple factors.

PART 5 *APPENDICES*

Appendix A: Abbreviated Version of Questionnaire

1. Can you tell me how many people in your household purchased an Iowa fishing license in 1994?
2. What type of license did you purchase in 1994, was it a fishing license only or a combination fishing/hunting license?
3. During 1994, on about how many days did you fish in the state of Iowa?
4. About how many fish did you catch, including those you threw back, while fishing in the State of Iowa?
5. Of the fish you caught in 1994 how many (insert fish) did you catch? (bluegill, crappie, bullhead, catfish, largemouth bass, smallmouth bass,white bass, northern pike, walleye, yellow perch, carp, trout, sheepshead)
6. Did you catch any other kinds of fish, such as sauger, in Iowa during 1994?
7. What other kind of fish did you catch?
8. How many (insert fish named in Q7) did you catch?
9. Of all the fish mentioned, which one type do you prefer to fish for the most?
10. During 1994, in Iowa, on how many days did you fish in (insert type of water)? (Mississippi River, Missouri River, inland streams & rivers, trout streams, public man-made lakes, natural lakes, farm ponds, federal reservoirs)
11. When you usually fish, what kind of water do you prefer to fish on?
12. How many miles did you usually have to drive in 1994 each time you went fishing -- that is, how far, one way from your home, did you go to fish?
13. Last year, how many days did you fish from a boat?
14. Of all the fishing you did last year, about how much time did you fish from a boat, would you say all of the time, at least half but not all of the time, or less than half of the time?
15. Fishing license money is used to maintain and improve fishing in Iowa. Do you feel you are currently getting your money's worth with an Iowa fishing license?
16. How old were you when you started fishing?
17. In general, do you believe the quality of fishing in Iowa over the past ten years has improved, stayed the same or declined?
18. What do you think is the one most important reason it has declined?
19. How much effect does (insert list) have on fish populations in Iowa? (overall quality of the fish habitat, water quality, regulations on size and number of fish that can be kept, actual number of fish that anglers keep, amount of fish stocking an area receives)
20. How important to you is (insert list)? (actually catching fish when you go fishing, catching a particular kind of fish when you go fishing, catching a particular size of fish, catching more than one kind of fish on a trip, catching and releasing fish, keeping fish to eat)
21. Compared to ten years ago, do you fish more, the same, or less often?
22. Which of the following is the one most important reason you fish less often now than you did ten years ago?
23. How often do you eat the fish you catch? Would you say most of the time, some of the time, only rarely?
24. What type of fish do you eat most often? Tell me your top 3 kinds in order.
25. How safe from contamination do you consider fish caught in Iowa to be for eating? Would you say very safe, mostly safe, somewhat unsafe, or very unsafe?
26. In what county do you live?
27. What was your age on your last birthday?
28. You are (male/female), correct?

Appendix B: Typology of Fish Species

Bluegill

Crappie

Bullhead

Catfish (blue, channel, flathead)

Largemouth Bass (black bass)

Smallmouth Bass

White Bass (silver bass, wiper)

Northern Pike

Walleye

Yellow Perch

Carp

Trout

Sheepshead (drum, silver perch)

Sturgeon (sand sturgeon, shovel nose sturgeon)

Dogfish

Sucker (buffalo, redhorse, white sucker)

Other sunfish (green sunfish, redear sunfish, rock bass, warmouth)

Gar

Sauger

Other fish (eel, goldfish, grass carp, mooneye, muskie, paddlefish, spoonbill, yellow bass)

Appendix C: Supplementary Tables and Figures

Table C-1

Counties Included in Iowa Fisheries Regions

Northwest		Northeast	Southeast		Southwest	
Buena Vista	Kossuth	Allamakee	Appanoose	Louisa	Adair	Montgomery
Calhoun	Lyon	Black Hawk	Benton	Mahaska	Adams	Page
Carroll	Monona	Bremer	Cedar	Marshall	Audubon	Polk
Cerro Gordo	O'Brien	Buchanan	Clinton	Monroe	Boone	Pottawattamie
Cherokee	Osceola	Butler	Davis	Muscatine	Cass	Ringgold
Clay	Palo Alto	Chickasaw	Des Moines	Poweshiek	Clarke	Shelby
Crawford	Plymouth	Clayton	Grundy	Scott	Dallas	Story
Dickinson	Pocahontas	Delaware	Henry	Tama	Decatur	Taylor
Emmett	Sac	Dubuque	Iowa	Van Buren	Fremont	Union
Franklin	Sioux	Fayette	Jefferson	Wapello	Greene	Warren
Hamilton	Webster	Floyd	Johnson	Washington	Guthrie	
Hancock	Winnebago	Howard	Jones	Wayne	Harrison	
Hardin	Woodbury	Jackson	Keokuk		Jasper	
Humboldt	Worth	Mitchell	Lee		Madison	
Ida	Wright	Winneshiek	Linn		Marion	

Table C-2

Counties Included in Iowa River Regions

Mississippi River Region	Missouri River Region
Allamakee	Fremont
Clayton	Harrison
Clinton	Mills
Des Moines	Monona
Dubuque	Pottawattamie
Jackson	Woodbury
Lee	
Louisa	
Muscatine	
Scott	

Table C-3

Demographic Comparison of Anglers Over Time (%)

Demographics	Statewide			Region											
				NW			NE			SW			SE		
	1981	1986	1994	1981	1986	1994	1981	1986	1994	1981	1986	1994	1981	1986	1994
Gender															
Males	74	70	78	75	70	77	73	71	77	76	69	76	71	70	80
Females	26	30	22	25	30	23	27	29	23	24	31	24	29	30	20
Age Group															
16-29	26	22	16	27	24	16	28	18	17	23	21	16	28	23	17
30-49	43	50	54	39	49	55	43	53	52	45	49	53	43	50	54
50-64	26	26	24	28	24	24	24	27	24	27	28	24	24	25	24
65 & over	5	2	6	6	3	5	5	2	5	5	2	6	5	2	5

Table C-4

Days Fished by Region

Days Fished	Region											
	NW			NE			SW			SE		
	1981	1986	1994	1981	1986	1994	1981	1986	1994	1981	1986	1994
Total	2,594,498	2,286,687	1,615,488	2,066,963	2,049,801	1,581,199	3,773,115	3,290,560	2,361,392	4,308,345	4,251,599	3,168,691
Mean	27	26	21	28	30	25	32	32	23	31	33	26
Percentage who fished...												
0	NR*	4	4	NR	3	4	NR	4	4	NR	3	5
1-5	NR	22	32	NR	19	26	NR	20	26	NR	19	24
6-15	NR	31	27	NR	29	25	NR	30	30	NR	28	26
16-30	NR	28	21	NR	28	24	NR	25	23	NR	24	22
31-60	NR	10	10	NR	14	12	NR	13	10	NR	15	13
61+	NR	5	6	NR	7	9	NR	7	7	NR	11	10

*NR=Data not reported.

Table C-5

Days Fished by River Regions

Days Fished	Region					
	MO			MI		
	1981	1986	1994	1981	1986	1994
Total	NR*	824,360	566,199	NR	2,453,869	1,792,959
Mean	NR	31	24	NR	36	27
Percentage who fished...						
0	NR	7	4	NR	3	4
1-5	NR	21	22	NR	18	22
6-15	NR	29	32	NR	27	25
16-30	NR	28	23	NR	25	23
31-60	NR	8	12	NR	16	15
61+	NR	6	8	NR	10	10

*NR=Data not reported.

Table C-6

Fish Caught By Region

Number of Fish Caught	Region											
	NW			NE			SW			SE		
	1981	1986	1994	1981	1986	1994	1981	1986	1994	1981	1986	1994
Total	13,123,538	5,906,549	5,595,200	13,606,328	7,064,884	6,358,786	19,834,718	8,707,503	9,267,824	22,343,003	12,502,725	17,613,274
Mean (per angler)	139	69	88	188	107	102	173	87	87	167	101	144
Mean (per day of fishing)	5	3	4	7	3	4	5	3	4	5	3	4
Percentage who caught a total of...												
0	NR*	8	9	NR	6	7	NR	10	6	NR	7	6
1-25	NR	41	42	NR	38	43	NR	43	45	NR	43	41
26-50	NR	22	18	NR	17	16	NR	17	17	NR	17	15
51-100	NR	15	13	NR	15	14	NR	14	12	NR	13	13
100+	NR	12	18	NR	20	20	NR	14	19	NR	16	25

*NR=Data not reported.

Table C-7

Fish Caught by River Regions

Number of Fish Caught	River Region					
	MO			MI		
	1981	1986	1994	1981	1986	1994
Total	NR*	2,081,603	2,007,682	NR	8,051,883	9,038,902
Mean (per angler)	NR	85	83	NR	125	134
Mean (per day fishing)	NR	3	3	NR	3	5
Percentage who caught a total of...						
0	NR	10	6	NR	6	8
1-25	NR	45	42	NR	39	37
26-50	NR	16	17	NR	17	16
51-100	NR	13	15	NR	14	15
100+	NR	13	19	NR	20	25

*NR=Data not reported.

Table C-8

Water Preference (%)

Type of Water	Statewide			Regions											
				NW			NE			SW			SE		
	1981	1986	1994	1981	1986	1994	1981	1986	1994	1981	1986	1994	1981	1986	1994
Mississippi River	13	11	11	NR*	2	1	NR	36	32	NR	1	2	NR	13	15
Missouri River	1	1	1	NR	2	2	NR	0	0	NR	1	2	NR	0	0
Inland Rivers & Streams	19	21	19	NR	18	15	NR	23	23	NR	17	15	NR	26	23
Trout Streams	4	3	3	NR	1	1	NR	7	6	NR	1	1	NR	3	3
Public Man-Made Lakes	26	19	20	NR	11	12	NR	11	12	NR	26	28	NR	21	22
Natural Lakes	18	25	20	NR	54	46	NR	13	14	NR	21	18	NR	14	10
Farm Ponds	12	12	15	NR	6	14	NR	4	6	NR	22	23	NR	13	15
Federal Reservoirs	3	3	4	NR	1	1	NR	1	1	NR	5	6	NR	4	6
Other	1	1	0	NR	1	0	NR	1	0	NR	1	0	NR	1	0
No Preference	3	5	6	NR	5	7	NR	5	5	NR	5	7	NR	5	6

*NR=Data not reported.

Table C-9

Age First Started to Fish (% and N)

Age	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Under 16	89.7	94.0	74.8	94.1	92.1	84.3	77.7	89.2	92.2	89.3	89.1	90.3	87.8
	325,511	264,994	60,517	56,202	178,889	73,811	15,795	67,379	58,285	107,258	92,589	58,786	20,955
16-29	6.8	4.2	15.8	5.7	5.7	8.7	12.3	7.4	5.2	7.5	6.4	6.6	8.5
	24,607	11,789	12,818	3,428	11,046	7,633	2,501	5,606	3,268	9,032	6,701	4,279	2,024
30-49	2.7	1.3	7.7	0.0	2.3	5.5	3.5	2.7	2.1	2.2	3.8	2.6	3.0
	9,889	3,642	6,247	0	4,383	4,792	714	2,048	1,307	2,634	3,898	1,689	714
50-64	0.7	0.4	1.5	0.0	0.0	1.5	5.3	0.6	0.3	0.8	0.7	0.5	0.7
	2,384	1,151	1,233	0	0	1,297	1,087	431	218	1,004	731	338	179
65 +	0.1	0.1	0.1	0.0	0.0	0.0	1.2	0.1	0.2	0.1	0.0	0.0	0.0
	342	234	108	0	0	0	234	108	109	125	0	0	0

Table C-10

One-Way Distance Traveled to Fish (% and N)

Miles traveled	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	2.8	2.9	2.8	2.6	2.6	3.2	4.1	3.2	2.7	3.9	1.5	5.1	1.3
	9,859	7,727	2,132	1,507	4,994	2,643	715	2,372	1,634	4,391	1,462	3,153	298
1 to 25	65.8	67.3	60.8	71.1	67.0	59.4	64.3	58.4	66.5	70.0	66.1	72.6	61.8
	228,947	182,207	46,740	41,878	126,500	48,590	11,166	42,692	40,200	79,659	66,396	45,272	14,168
26 to 50	15.8	15.5	16.8	15.1	15.9	17.1	12.2	17.4	15.1	13.1	18.1	9.7	19.0
	54,953	42,009	12,944	8,906	29,938	13,996	2,114	12,721	9,151	14,928	18,152	6,081	4,346
51 to 100	10.9	10.1	13.8	8.7	10.1	13.8	14.0	14.6	11.2	9.0	10.2	7.0	13.8
	37,948	27,327	10,621	5,126	19,133	11,263	2,426	10,673	6,754	10,287	10,234	4,392	3,155
101+	4.6	4.3	5.8	2.5	4.4	6.5	5.4	6.3	4.5	4.0	4.1	5.6	4.2
	16,018	11,518	4,500	1,496	8,295	5,286	940	4,636	2,724	4,516	4,142	3,491	952

Table C-11

Type of Water Preferred to Fish by Licensed Iowa Anglers (% and N)

Type of Water	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Natural lakes	21.6	20.2	26.4	19.9	20.3	25.1	24.7	49.4	14.3	10.3	19.1	11.4	32.9
	73,720	53,999	19,722	11,183	37,236	20,514	4,666	34,929	8,606	11,667	18,518	7,207	7,322
Man-made	21.4	20.1	25.9	16.5	22.4	21.9	22.3	13.0	13.0	23.5	30.2	12.3	19.5
	72,967	53,629	19,338	9,262	41,243	17,894	4,215	9,164	7,844	26,720	29,239	7,771	4,346
Inland streams	20.4	22.1	14.2	23.5	19.1	21.8	17.4	16.5	24.5	24.4	16.0	14.8	12.6
	69,656	59,025	10,631	13,189	35,086	17,857	3,293	11,643	14,816	27,724	15,472	9,347	2,798
Farm ponds	16.4	17.2	13.7	21.9	17.6	10.8	14.0	15.2	6.3	15.7	24.5	9.3	24.3
	56,164	45,931	10,233	12,288	32,364	8,862	2,650	10,781	3,813	17,814	23,756	5,856	5,417
Mississippi	12.0	12.0	12.0	11.0	12.1	11.9	14.6	0.6	33.6	16.3	1.9	45.6	1.3
	41,088	32,094	8,995	6,192	22,266	9,758	2,763	431	20,263	18,566	1,827	28,830	298
Federal reservoirs	4.2	4.1	4.6	3.6	4.3	4.8	2.5	1.2	1.1	6.3	5.9	1.4	2.7
	14,393	10,958	3,435	2,029	7,958	3,925	481	862	654	7,151	5,726	901	595
Trout streams	2.9	3.1	2.3	2.2	3.4	2.7	1.2	1.5	6.9	3.5	0.6	5.2	0.0
	9,841	8,148	1,693	1,257	6,169	2,181	234	1,078	4,140	4,014	609	3,266	0
Missouri	1.1	1.1	0.9	1.4	0.8	1.1	3.2	2.6	0.4	0.0	1.8	0.2	6.7
	3,756	3,052	704	783	1,487	890	596	1,833	218	0	1,706	113	1,488

Table C-14

Days Fished on Mississippi River (% and N)

Number of days fished	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	75.7	75.0	78.2	73.8	75.9	76.4	76.6	97.3	45.0	60.4	95.8	19.5	97.2
	263,733	203,280	60,453	43,579	143,461	62,592	13,396	71,260	27,236	68,871	96,366	12,163	22,324
1 to 5	10.6	10.7	10.2	11.6	10.8	10.0	8.1	1.6	23.6	16.2	3.0	26.2	1.8
	36,944	29,043	7,901	6,860	20,504	8,164	1,416	1,186	14,272	18,441	3,046	16,329	417
6 to 15	5.9	6.2	4.9	6.2	5.4	7.3	4.6	0.4	13.7	9.7	1.0	21.1	0.3
	20,617	16,854	3,763	3,649	10,162	6,010	796	323	8,280	11,039	975	13,176	60
16 to 30	3.8	3.9	3.5	4.8	3.9	3.4	1.3	0.3	9.0	6.5	0.1	16.8	0.3
	13,186	10,516	2,670	2,812	7,329	2,812	234	216	5,447	7,401	122	10,473	60
31 to 60	2.2	2.1	2.3	1.8	2.2	1.7	6.0	0.3	5.6	3.5	0.0	9.7	0.5
	7,607	5,798	1,809	1,045	4,160	1,356	1,047	216	3,377	4,014	0	6,081	119
61 +	1.8	2.0	0.9	1.9	1.8	1.2	3.4	0.0	3.1	3.7	0.1	6.7	0.0
	6,239	5,540	700	1,092	3,489	954	594	0	1,852	4,265	122	4,167	0

Table C-15

Days Fished on Farm Ponds (% and N)

Number of days fished	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	66.6	63.3	78.1	56.3	66.7	71.4	76.7	69.4	81.3	66.2	56.2	78.3	54.1
	231,958	171,587	60,371	33,229	126,151	58,353	13,411	50,777	49,133	75,520	56,528	48,875	12,442
1 to 5	17.8	19.0	13.5	20.2	18.4	15.9	12.2	16.5	12.8	17.9	21.5	12.3	23.3
	61,943	51,499	10,443	11,921	34,879	13,013	2,130	12,074	7,735	20,448	21,685	7,658	5,358
6 to 15	9.1	10.0	5.9	11.7	8.9	7.9	7.7	7.4	3.8	8.9	13.7	5.4	13.5
	31,606	27,083	4,523	6,917	16,913	6,437	1,338	5,390	2,288	10,161	13,767	3,378	3,096
16 to 30	4.3	4.9	2.2	8.1	3.9	3.3	0.7	4.7	1.6	4.5	5.3	2.7	5.4
	14,934	13,220	1,714	4,809	7,318	2,682	125	3,450	980	5,143	5,360	1,698	1,250
31 to 60	1.5	1.9	0.2	2.4	1.3	1.0	2.7	1.5	0.5	1.5	2.1	0.9	2.6
	5,232	5,110	122	1,420	2,501	834	477	1,078	327	1,756	2,071	563	595
61+	0.8	0.9	0.2	1.3	0.8	06	0.0	0.6	0.0	0.9	1.2	0.4	1.0
	2,653	2,531	122	742	1,452	459	0	431	0	1,004	1,218	225	238

Table C-16

Days Fished on Natural Lakes (% and N)

Number of Days Fished	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	71.7	71.4	72.6	65.4	71.6	75.1	77.1	39.0	83.6	85.6	72.6	89.9	52.7
	249,102	193,169	55,934	38,517	135,129	61,284	13,480	28,461	50,441	97,348	72,853	56,083	12,025
1 to 5	14.6	14.5	15.0	16.7	14.3	14.1	13.8	28.7	10.6	8.3	14.0	6.1	21.7
	50,761	39,204	11,557	9,826	27,059	11,458	2,418	20,915	6,428	9,409	14,010	3,829	4,941
6 to 15	7.8	8.0	7.4	11.8	7.9	5.4	5.2	17.0	3.8	3.4	8.6	2.5	16.2
	27,224	21,560	5,664	6,963	14,867	4,365	908	12,398	2,288	3,889	8,650	1,577	3,691
16 to 30	3.5	3.7	2.7	3.5	3.6	3.4	2.6	9.5	1.3	1.9	2.3	0.7	5.2
	12,110	10,028	2,081	2,090	6,796	2,764	459	6,900	763	2,133	2,315	450	1,191
31 to 60	1.7	1.7	1.8	2.0	1.9	1.4	06	4.1	0.5	0.8	1.7	0.5	2.1
	5,929	4,564	1,365	1,194	3,521	1,106	108	3,019	327	878	1,706	338	476
61 +	0.7	0.7	0.6	0.5	0.7	0.7	0.6	1.8	0.2	0.1	0.8	0.2	2.1
	2,381	1,920	460	323	1,378	572	108	1,294	109	125	853	113	476

Table C-17

Days Fished on Federal Reservoirs (% and N)

Number of days fished	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	84.1	83.3	86.9	81.2	84.8	83.3	90.4	95.1	93.0	78.9	76.7	90.4	92.2
	292,921	225,734	61,788	47,953	160,329	68,148	15,799	69,643	56,215	89,946	77,117	56,421	21,134
1 to 5	10.2	10.7	8.3	12.4	9.9	10.3	5.6	4.1	5.6	13.5	13.6	8.1	5.7
	35,471	29,031	6,439	7,342	18,720	8,434	975	3,019	3,377	15,430	13,645	5,068	1,310
6 to 15	3.6	3.7	3.6	3.7	3.2	4.5	3.4	0.6	1.1	5.0	5.9	1.3	1.3
	12,700	9,894	2,805	2,169	6,108	3,702	599	431	654	5,645	5,970	788	298
16 to 30	1.3	1.4	0.8	1.4	1.3	1.4	0.0	0.1	0.2	1.7	2.3	0.0	0.5
	4,413	3,797	616	844	2,451	1,118	0	108	109	1,882	2,315	0	119
31 to 60	0.6	0.7	0.2	0.6	0.6	0.5	0.6	0.0	0.2	0.9	0.8	0.2	0.0
	1,965	1,840	125	365	1,115	376	109	0	109	1,004	853	113	0
61 +	0.2	0.2	0.2	0.6	0.2	0.0	0.0	0.0	0.0	0.1	0.6	0.0	0.3
	735	613	122	365	369	0	0	0	0	125	609	0	60

Table C-18

Days Fished on Trout Streams (% and N)

Number of days fished	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	93.4	92.9	95.2	92.0	93.7	93.4	94.6	97.6	82.2	92.7	97.7	88.5	99.2
	325,331	251,761	73,570	54,303	177,223	76,447	16,544	71,476	49,787	105,753	98,315	55,294	22,800
1 to 5	3.6	3.8	2.6	4.7	3.7	2.7	2.7	1.3	9.0	4.0	1.5	5.8	0.8
	12,395	10,360	2,035	2,776	6,911	2,239	469	970	5,447	4,516	1,462	3,604	179
6 to 15	1.6	1.8	1.2	2.0	1.5	1.9	0.7	0.7	3.4	2.1	0.7	3.2	0.0
	5,723	4,806	917	1,164	2,878	1,556	125	539	2,070	2,384	731	2,027	0
16 to 30	0.8	1.0	0.3	1.2	0.6	1.1	0.7	0.0	3.2	0.8	0.0	1.8	0.0
	2,839	2,621	218	687	1,155	872	125	0	1,961	878	0	1,126	0
31 to 60	0.6	0.5	0.7	0.2	0.5	0.9	1.2	0.3	2.0	0.4	0.1	0.7	0.0
	2,038	1,482	555	109	938	773	218	216	1,198	502	122	450	0
61 +	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
	109	109	0	0	109	0	0	0	109	0	0	0	0.0

Table C-19

Days Fished on Missouri River (% and N)

Number of days fished	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	93.9	93.3	96.0	89.1	94.6	95.9	93.8	86.9	99.5	99.3	89.6	99.1	62.2
	327,284	253,095	74,189	52,613	179,029	78,551	16,399	63,606	60,245	113,280	90,153	61,939	14,287
1 to 5	3.3	3.6	2.1	7.1	2.7	2.1	2.0	6.9	0.5	0.2	5.8	0.4	20.5
	11,492	9,885	1,607	4,167	5,108	1,743	351	5,067	327	251	5,848	225	4,703
6 to 15	1.7	1.9	1.3	2.5	1.6	1.7	1.4	4.0	0.0	0.2	2.9	0.2	10.9
	6,086	5,045	1,040	1,461	3,003	1,378	244	2,911	0	251	2,924	113	2,500
16 to 30	0.7	0.8	0.5	1.3	0.8	0.0	1.4	1.3	0.0	0.2	1.3	0.4	4.7
	2,561	2,210	351	797	1,521	0	244	970	0	251	1,340	225	1,072
31 to 60	0.2	0.2	0.1	0.0	0.2	0.1	0.7	0.6	0.0	0.0	0.2	0.0	1.0
	675	567	108	0	445	108	122	431	0	0	244	0	238
61 +	0.1	0.1	0.0	0.0	0.1	0.1	0.7	0.3	0.0	0.0	0.1	0.0	0.8
	337	337	0	0	108	108	122	216	0	0	122	0	179

Table C-20

Use of Boats by Licensed Iowa Anglers (% and N)

Number of days used boat	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	39.3	37.8	44.7	32.6	40.3	39.4	50.7	43.4	37.4	35.6	41.8	30.7	37.4
	136,780	102,295	34,485	19,245	76,097	32,191	8,799	31,695	22,660	40,394	42,031	19,145	8,572
1-5	40.3	40.3	40.2	46.2	38.9	40.9	32.4	40.7	41.4	38.2	41.5	39.5	42.1
	140,004	109,006	30,997	27,273	73,433	33,429	5,625	29,755	25,057	43,405	41,787	24,663	9,644
6-15	11.1	11.6	9.4	13.0	11.2	10.7	5.9	9.7	11.3	12.8	10.0	14.3	11.7
	38,642	31,370	7,273	7,651	21,131	8,709	1,030	7,115	6,863	14,552	10,112	8,897	2,679
16-30	5.3	5.7	4.0	4.9	5.5	5.3	4.8	3.5	6.3	6.7	4.4	8.1	5.5
	18,439	15,329	3,110	2,908	10,358	4,337	834	2,587	3,813	7,652	4,386	5,068	1,250
31-60	1.5	1.8	0.6	1.2	1.7	1.0	3.4	1.5	1.3	2.0	1.2	2.3	2.3
	5,317	4,819	498	731	3,144	854	587	1,078	763	2,258	1,218	1,464	536
61+	2.5	2.9	1.0	2.1	2.5	2.6	2.8	1.2	2.3	4.6	1.1	5.1	1.0
	8,644	7,837	807	1,230	4,817	2,115	482	862	1,416	5,269	1,096	3,153	238

Table C-21

Percent of Anglers Catching at Least One Fish of Each Species in 1994 (%)

Species	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Bluegill	60.5	62.6	52.8	66.5	61.9	54.4	54.6	52.1	57.6	61.7	67.0	60.1	64.2
Catfish	50.9	54.0	39.7	58.7	48.4	51.3	49.5	34.6	52.3	63.8	47.3	64.1	48.3
Crappie	46.3	48.6	38.1	51.1	46.1	45.3	37.8	35.1	44.8	48.7	52.8	43.6	41.1
Largemouth	41.2	45.6	25.6	51.7	42.5	34.5	23.1	36.8	38.3	40.1	47.5	34.6	49.0
Bullhead	39.2	38.5	41.5	45.9	38.3	36.2	40.7	49.5	39.6	33.0	38.3	34.6	46.1
Carp	29.1	31.2	21.6	39.3	28.7	24.9	21.0	24.4	32.2	31.7	27.9	30.9	27.4
Walleye	23.7	26.6	13.4	24.9	24.0	23.5	18.5	31.3	22.2	23.2	19.7	24.8	18.2
Smallmouth*	17.4	18.6	13.0	24.8	17.4	13.4	10.8	16.4	27.2	13.9	16.0	14.3	14.4
Sheepshead	17.2	18.3	13.1	22.9	16.3	14.3	20.7	12.7	22.2	18.6	15.8	31.9	18.7
Northern Pike	16.8	19.3	8.0	20.2	16.9	14.8	13.6	23.5	25.3	12.0	12.2	11.4	13.5
White Bass	16.5	18.3	10.0	17.0	17.4	14.4	14.9	12.1	14.6	22.5	14.0	22.6	13.8
Yellow Perch*	12.9	13.7	10.3	14.0	12.2	13.1	16.5	24.3	13.0	8.6	9.5	13.2	13.1
Trout	6.0	6.6	4.1	8.0	5.6	6.2	3.3	2.1	16.1	6.2	2.7	9.6	1.6
Sauger	4.8	5.6	1.8	5.1	4.9	4.4	3.8	1.2	7.6	8.3	1.8	9.7	2.3
Gar	1.8	2.2	0.8	3.8	1.7	1.1	0.0	1.0	1.4	1.9	2.7	2.3	2.6
Sucker	1.7	1.8	1.2	1.9	1.5	1.6	3.2	0.9	5.4	1.0	0.7	2.5	0.5
Other	1.7	2.1	0.4	1.0	2.2	1.4	0.6	2.2	2.2	1.2	1.7	2.2	2.1
Sunfish*	1.2	1.3	0.6	1.4	1.4	0.6	0.7	0.6	1.1	1.5	1.2	1.3	1.6
Sturgeon	1.0	1.2	0.1	1.0	1.2	0.6	0.0	0.6	0.5	1.3	1.1	0.7	2.3
Dogfish	0.8	0.8	0.6	1.2	0.6	0.7	0.7	0.0	1.1	1.8	0.0	3.1	0.0

*No statistcally significant differences by river for smallmouth bass and yellow perch and by gender for sunfush.

Table C-22

Number of Anglers Catching at Least One Fish of Each Species in 1994 (N)

Species	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Bluegill	208,483	168,856	39,627	38,600	115,846	44,098	9,477	37,948	34,644	69,373	66,518	37,051	14,645
Catfish	176,473	146,259	30,214	34,271	91,233	41,845	8,650	25,227	31,593	72,383	47,269	39,866	11,073
Crappie	160,039	131,369	28,670	29,803	86,405	36,878	6,613	25,550	26,909	55,082	52,508	26,915	9,406
Largemouth	142,869	123,407	19,462	30,147	80,050	28,163	4,033	26,844	23,096	45,538	47,391	21,510	11,192
Bullhead	135,737	104,197	31,540	26,753	72,193	29,561	7,121	36,115	23,859	37,509	38,254	21,510	10,537
Carp	100,835	84,402	16,433	22,889	53,928	20,237	3,671	17,788	19,392	35,878	27,777	19,145	6,251
Walleye	82,213	72,015	10,199	14,510	45,211	19,157	3,227	22,855	13,400	26,344	19,614	15,428	4,167
Smallmouth*	60,183	50,333	9,849	14,443	32,713	10,929	1,880	11,967	16,450	15,806	15,959	8,897	3,274
Sheepshead	59,462	49,562	9,900	13,333	30,734	11,655	3,618	9,271	13,400	21,075	15,716	19,820	4,286
Northern Pike	58,250	52,164	6,086	11,757	31,911	12,087	2,374	17,141	15,252	13,674	12,183	7,095	3,096
White Bass	57,019	49,494	7,525	9,871	32,788	11,748	2,612	8,840	8,824	25,466	13,888	14,077	3,155
Yellow Perch*	44,812	36,997	7,815	8,168	22,920	10,720	2,883	17,680	7,844	9,785	9,503	8,221	2,977
Trout	20,911	17,809	3,102	4,683	10,583	5,067	578	1,509	9,696	7,025	2,680	5,969	357
Sauger	16,674	15,306	1,369	3,020	9,302	3,574	669	862	4,576	9,409	1,827	6,081	536
Gar	6,439	5,840	599	2,272	3,252	915	0	755	872	2,133	2,680	1,464	595
Other	6,010	5,683	327	586	4,188	1,127	109	1,617	1,307	1,380	1,706	1,351	476
Sucker	5,775	4,859	916	1,113	2,825	1,280	558	647	3,268	1,129	731	1,577	119
Sunfish*	4,059	3,579	481	833	2,624	477	125	431	654	1,756	1,218	788	357
Sturgeon	3,360	3,252	108	602	2,290	468	0	431	327	1,505	1,096	450	536
Dogfish	2,661	2,192	469	720	1,221	594	125	0	654	2,007	0	1,914	0

* No statistically significant differences by river for smallmouth bass and yellow perch and by gender for sunfish.

Table C-23

Estimated Total Number of Each Species Caught in 1994 (N)

Species	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Bluegill	10,586,864	9,655,554	931,310	2,064,361	5,365,620	2,791,494	352,218	1,603,629	1,864,015	4,469,461	2,649,759	2,309,642	587,511
Crappie	7,584,440	6,996,554	587,886	1,098,689	3,766,000	2,455,216	252,838	699,775	785,915	4,286,558	1,812,192	1,572,345	260,984
Largemouth	4,904,416	4,707,638	196,778	922,180	3,267,635	657,800	50,308	683,928	530,335	2,190,573	1,499,581	1,167,040	325,039
Catfish	4,575,469	4,156,749	418,720	831,926	2,536,431	1,021,366	172,904	495,589	796,482	2,457,526	825,872	1,574,372	199,250
Bullhead	2,824,516	2,238,312	586,203	440,506	1,377,050	778,938	225,298	986,973	387,183	709,158	741,202	314,199	263,246
Walleye	1,857,026	1,802,605	54,420	251,191	1,202,661	331,441	60,838	466,373	298,068	777,903	314,682	418,819	69,473
Yellow Perch	1,525,197	1,444,041	81,156	338,745	745,454	384,933	55,821	829,251	70,486	383,996	241,463	93,697	50,066
White Bass	1,134,650	1,044,426	90,224	111,489	689,513	285,902	47,746	123,762	140,863	588,602	281,423	348,997	47,803
Carp	1,122,298	1,004,097	118,201	254,802	629,665	179,216	58,397	163,651	234,336	415,233	309,078	171,402	63,698
Sheepshead	915,964	844,920	71,044	159,071	541,022	144,777	70,850	59,509	287,065	395,663	173,727	453,617	31,373
Smallmouth	877,671	825,918	51,753	190,124	466,813	178,072	36,670	131,093	302,862	270,842	172,874	145,838	55,364
Trout	593,950	520,624	73,326	56,743	304,252	188,718	44,237	25,011	342,408	191,810	34,721	166,784	1,965
Northern Pike	585,372	551,279	34,093	95,338	298,004	166,190	24,622	185,536	181,935	137,616	80,285	66,556	23,574
Sauger	377,968	371,409	6,559	80,514	206,696	74,053	8,534	18,651	71,467	269,211	18,640	165,433	10,299
Other	184,594	173,700	10,894	38,735	81,357	63,958	545	106,513	16,015	6,147	55,919	14,190	1,905
Sunfish	74,897	69,163	5,735	12,453	57,533	2,403	2,509	9,487	8,062	24,211	33,137	6,870	10,477
Sucker	64,781	62,575	2,206	6,696	41,251	11,232	5,602	3,234	37,585	15,556	8,406	32,884	833
Gar	22,584	20,158	2,426	6,975	13,547	2,062	0	1,294	1,961	7,025	12,305	3,942	2,738
Dogfish	11,970	9,009	2,961	3,229	4,592	1,641	2,509	0	1,307	10,663	0	10,248	0
Sturgeon	10,454	9,808	647	2,064	7,150	1,241	0	1,941	436	5,520	2,558	2,027	2,084
Total	39,835,081	36,508,539	3,326,542	6,965,831	21,602,246	9,720,653	1,472,446	5,595,200	6,358,786	17,613,274	9,267,824	9,038,902	2,007,682

Table C-26

Distribution of Fish Caught Per Angler in 1994 (% and N)

Number of Fish Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
0	6.9	5.8	10.5	5.3	6.9	7.5	8.2	9.1	6.7	6.1	6.2	7.7	6.0
	23,720	15,641	8,079	3,091	13,042	6,073	1,405	6,576	4,031	6,900	6,213	4,730	1,369
1 to 25	42.6	38.3	57.9	37.0	44.3	41.9	47.7	41.8	43.1	40.8	45.0	36.7	42.4
	147,091	102,729	44,361	21,720	83,136	33,764	8,227	30,294	25,928	45,914	44,955	22,636	9,704
26 to 50	16.6	17.3	13.8	19.6	15.4	17.2	15.7	18.3	16.3	15.3	17.0	16.1	17.4
	57,186	46,587	10,599	11,501	28,905	13,836	2,700	13,260	9,805	17,186	16,934	9,910	3,989
51 to 100	13.0	14.6	7.1	16.7	12.8	11.4	10.1	13.2	13.6	12.9	12.4	14.6	15.4
	44,744	39,300	5,444	9,770	24,067	9,164	1,742	9,595	8,171	14,552	12,426	9,009	3,512
101 +	21.0	23.9	10.6	21.4	20.6	22.0	18.3	17.7	20.3	24.9	19.4	24.9	18.7
	72,376	64,278	8,098	12,583	38,669	17,746	3,160	12,829	12,202	27,975	19,371	15,316	4,286

Table C-27

Distribution of Bluegills Caught in 1994 (% and N)

Number of Bluegill Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	67.5	64.4	80.6	64.3	68.4	66.7	73.7	68.5	63.8	65.1	71.2	62.3	71.5
	140,649	108,708	31,942	24,817	79,192	29,426	6,984	25,981	22,115	45,161	47,391	23,086	10,477
26 to 50	15.1	16.3	9.8	18.8	15.1	12.8	10.1	17.6	13.8	15.6	13.7	13.4	14.6
	31,403	27,519	3,884	7,242	17,455	5,630	955	6,684	4,793	10,789	9,137	4,955	2,143
51 to 100	9.0	9.8	5.7	9.3	8.8	9.1	8.7	6.5	11.9	9.6	8.2	12.2	6.9
	18,750	16,483	2,267	3,571	10,246	4,001	824	2,480	4,140	6,649	5,482	4,505	1,012
101 +	8.5	9.6	3.9	7.7	7.7	11.4	7.5	7.4	10.4	9.8	6.8	12.2	6.9
	17,680	16,146	1,534	2,971	8,953	5,041	715	2,803	3,595	6,774	4,508	4,505	1,012

Table C-28

Distribution of Crappie Caught in 1994 (% and N)

Number of Crappie Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	70.9	68.1	83.6	76.0	70.4	68.8	65.7	81.9	76.9	64.7	68.9	68.2	75.9
	113,424	89,462	23,962	22,662	60,798	25,388	4,346	20,915	20,699	35,627	36,183	18,356	7,144
26 to 50	13.2	14.1	9.3	11.4	13.9	12.9	14.5	8.4	12.6	15.0	13.9	15.1	10.1
	21,123	18,461	2,661	3,387	12,010	4,769	956	2,156	3,377	8,280	7,310	4,054	952
51 to 100	7.7	8.5	4.2	6.1	7.6	8.4	12.3	3.4	5.7	8.4	10.2	7.5	9.5
	12,390	11,181	1,209	1,805	6,545	3,115	817	862	1,525	4,642	5,360	2,027	893
101 +	8.2	9.3	2.9	6.5	8.2	9.8	7.5	6.3	4.9	11.8	7.0	9.2	4.4
	13,103	12,265	838	1,950	7,053	3,605	495	1,617	1,307	6,523	3,655	2,478	417

Table C-29

Distribution of Largemouth Bass Caught in 1994 (% and N)

Number of Largemouth Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	77.5	75.2	91.6	75.4	76.7	80.8	85.9	81.1	85.4	72.5	76.3	71.2	74.5
	110,671	92,852	17,820	22,723	61,366	22,753	3,464	21,777	19,719	32,993	36,183	15,316	8,334
26 to 50	10.4	11.2	4.9	12.7	9.4	10.7	8.7	9.6	7.5	10.7	11.8	9.4	13.3
	14,827	13,877	950	3,841	7,522	3,002	353	2,587	1,743	4,892	5,604	2,027	1,488
51 to 100	5.9	6.4	3.0	6.7	6.0	5.1	5.4	4.8	4.2	8.3	5.1	9.4	8.0
	8,474	7,891	583	2,019	4,798	1,440	217	1,294	980	3,763	2,437	2,027	893
101 +	6.2	7.1	0.6	5.2	8.0	3.4	0.0	4.4	2.8	8.5	6.7	9.9	4.3
	8,896	8,787	109	1,563	6,365	968	0	1,186	654	3,889	3,168	2,140	476

Table C-30

Distribution of Catfish Caught in 1994 (% and N)

Number of Catfish Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	78.4	76.3	88.7	77.5	77.9	80.0	80.2	81.6	80.7	74.0	82.0	70.6	79.6
	138,391	111,588	26,803	26,556	71,055	33,473	6,941	20,591	25,493	53,566	38,741	28,154	8,811
26 to 50	10.8	11.5	7.4	12.5	11.0	9.2	9.8	10.3	9.3	10.4	12.6	12.1	14.0
	19,025	16,795	2,230	4,274	10,037	3,867	847	2,587	2,941	7,527	5,970	4,842	1,548
51 to 100	6.2	7.2	1.6	6.0	6.1	6.8	4.2	5.6	5.9	8.0	4.1	7.6	4.8
	10,973	10,495	478	2,067	5,588	2,849	360	1,401	1,852	5,771	1,949	3,041	536
101 +	4.6	5.0	2.3	4.0	5.0	4.0	5.8	2.6	4.1	7.6	1.3	9.6	1.6
	8,083	7,380	703	1,373	4,554	1,655	502	647	1,307	5,520	609	3,829	179

Table C-31

Distribution of Bullheads Caught in 1994 (% and N)

Number of Bullheads Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	81.8	81.3	83.5	85.1	83.9	76.9	69.1	76.1	83.1	84.3	84.1	88.5	80.8
	111,094	84,762	26,332	22,765	60,566	22,736	4,918	27,491	19,828	31,613	32,163	19,032	8,513
26 to 50	10.6	10.5	10.9	8.8	9.7	13.1	16.9	11.9	9.1	10.7	10.2	7.9	11.3
	14,404	10,979	3,425	2,362	6,976	3,863	1,202	4,312	2,179	4,014	3,898	1,689	1,191
51 to 100	5.5	6.1	3.5	5.2	4.7	6.9	9.3	8.7	7.3	3.7	3.2	2.6	4.0
	7,468	6,359	1,108	1,378	3,390	2,036	663	3,126	1,743	1,380	1,218	563	417
101 +	2.0	2.0	2.1	0.9	1.7	3.1	4.7	3.3	0.5	1.3	2.5	1.0	4.0
	2,771	2,096	675	247	1,261	926	337	1,186	109	502	975	225	417

Table C-32

Distribution of Walleye Caught in 1994 (% and N)

Number of Walleye Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	86.2	84.8	96.6	92.6	84.3	86.6	85.6	84.9	88.6	83.3	90.1	82.5	82.9
	70,899	61,042	9,857	13,437	38,104	16,595	2,763	19,405	11,875	21,953	17,665	12,726	3,453
26 to 50	7.3	7.9	3.4	4.8	9.0	6.6	0.0	9.4	5.7	8.1	5.0	8.8	10.0
	6,026	5,684	342	696	4,075	1,255	0	2,156	763	2,133	975	1,351	417
51 to 100	3.0	3.4	0.0	1.7	2.0	4.4	10.5	2.8	3.3	3.3	2.5	3.6	5.7
	2,448	2,448	0	251	909	840	339	647	436	878	487	563	238
101 +	3.5	3.9	0.0	0.9	4.7	2.4	3.9	2.8	2.4	5.2	2.5	5.1	1.4
	2,841	2,841	0	125	2,124	467	125	647	327	1,380	487	788	60

Table C-33

Distribution of Yellow Perch Caught in 1994 (% and N)

Number of Yellow Perch Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	80.9	78.7	91.3	86.2	79.9	80.2	76.5	71.3	90.3	89.7	82.1	93.2	82.0
	36,273	29,134	7,139	7,042	18,309	8,594	2,207	12,613	7,081	8,781	7,797	7,658	2,441
26 to 50	10.0	11.0	5.7	10.8	9.3	9.6	16.0	13.4	8.3	5.1	10.3	4.1	10.0
	4,502	4,055	446	879	2,130	1,032	460	2,372	654	502	975	338	298
51 to 100	4.5	5.2	1.6	1.5	5.5	5.2	3.7	6.7	1.4	2.6	5.1	1.4	6.0
	2,033	1,911	122	122	1,249	554	108	1,186	109	251	487	113	179
101 +	4.5	5.1	1.4	1.5	5.4	5.0	3.7	8.5	0.0	2.6	2.6	1.4	2.0
	2,004	1,896	108	125	1,232	539	108	1,509	0	251	244	113	60

Table C-34

Distribution of White Bass Caught in 1994 (% and N)

Number of White Bass Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	84.3	83.2	92.0	91.7	82.6	81.5	91.2	86.6	84.0	83.7	84.2	84.0	84.9
	48.084	41,159	6,925	,9051	27,077	9,575	2,381	7,654	7,408	21,326	11,695	11,825	2,679
26 to 50	8.7	9.3	4.7	7.0	9.0	11.2	0.0	11.0	8.6	6.9	10.5	3.2	11.3
	4.951	4,595	356	695	2,941	1,315	0	970	763	1,756	1,462	450	357
51 to 100	3.8	4.1	1.6	0.0	5.2	3.1	4.2	1.2	4.9	5.4	1.8	7.2	1.9
	2.167	2,045	122	0	1,698	360	109	108	436	1,380	244	1,014	60
101 +	3.2	3.4	1.6	1.3	3.3	4.2	4.7	1.2	2.5	3.9	3.5	5.6	1.9
	1.817	1,695	122	125	1,071	498	122	108	218	1,004	487	788	60

Table C-35

Distribution of Carp Caught in 1994 (% and N)

Number of Carp Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	90.9	90.2	94.4	89.5	90.1	95.5	84.0	91.5	92.1	90.6	89.9	93.5	90.5
	91,611	76,091	15,520	20,494	48,601	19,324	3,083	16,279	17,867	32,491	24,975	17,906	5,655
26 to 50	6.5	7.0	4.2	8.4	7.0	2.8	9.3	7.3	5.1	6.3	7.5	4.1	7.6
	6,603	5,907	696	1,915	3,777	571	341	1,294	980	2,258	2,071	788	476
51 to 100	2.0	2.1	1.3	1.6	2.2	1.1	6.7	1.2	1.7	2.1	2.6	1.8	1.9
	2,026	1,809	217	355	1,207	217	247	216	327	753	731	338	119
101 +	0.6	0.7	0.0	0.5	0.6	0.6	0.0	0.0	1.1	1.0	0.0	0.6	0.0
	594	594	0	125	343	125	0	0	218	376	0	113	0

Table C-36

Distribution of Sheepshead Caught in 1994 (% and N)

Number of Sheepshead Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	89.6	88.7	94.4	93.8	86.4	94.9	83.7	97.7	86.2	85.1	93.8	82.4	95.8
	53,284	43,943	9,341	12,509	26,563	11,062	3,028	9,056	11,548	17,939	14,741	16,329	4,108
26 to 50	5.6	5.8	4.5	3.5	7.4	1.9	9.8	2.3	7.3	6.5	4.7	8.0	4.2
	3,307	2,857	450	464	2,270	217	356	216	980	1,380	731	1,577	179
51 to 100	3.0	3.4	1.1	1.9	4.3	1.1	3.0	0.0	4.1	6.0	0.0	6.8	0.0
	1,799	1,690	109	251	1,314	125	109	0	545	1,254	0	1,351	0
101 +	1.8	2.2	0.0	0.8	1.9	2.2	3.5	0.0	2.4	2.4	1.6	2.8	0.0
	1,072	1,072	0	109	587	251	125	0	327	502	244	563	0

Table C-37

Distribution of Smallmouth Bass Caught in 1994 (% and N)

Number of Smallmouth Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	88.8	86.8	98.9	91.1	89.2	87.6	75.1	91.9	82.1	88.9	93.1	89.9	87.3
	53,418	43,678	9,741	13,155	29,168	9,574	1,412	10,996	13,509	14,050	14,863	7,996	2,857
26 to 50	6.0	7.0	1.1	3.9	6.9	4.1	12.4	4.5	11.3	3.2	4.6	5.1	5.5
	3,624	3,515	109	556	2,273	452	233	539	1,852	502	731	450	179
51 to 100	3.6	4.4	0.0	4.2	2.1	6.1	12.5	2.7	5.3	5.6	0.8	3.8	3.6
	2,195	2,195	0	606	687	668	234	323	872	878	122	338	119
101 +	1.6	1.9	0.0	0.9	1.8	2.1	0.0	0.9	1.3	2.4	1.5	1.3	3.6
	946	946	0	125	586	234	0	108	218	376	244	113	119

Table C-38

Distribution of Trout Caught in 1994 (% and N)

Number of Trout Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	72.3	72.5	71.1	83.0	77.2	53.4	62.3	78.6	62.9	78.6	86.4	69.8	100.0
	15,121	12,916	2,205	3,889	8,166	2,706	360	1,186	6,101	5,520	2,315	4,167	357
26 to 50	15.4	14.9	18.4	17.0	11.0	24.9	0.0	14.3	16.9	16.1	9.1	17.0	0.0
	3,222	2,652	570	794	1,168	1,260	0	216	1,634	1,129	244	1,014	0
51 to 100	8.0	8.1	7.0	0.0	7.4	17.4	0.0	7.1	13.5	1.8	4.5	9.4	0.0
	1,662	1,446	217	0	779	883	0	108	1,307	125	122	563	0
101 +	4.3	4.5	3.5	0.0	4.4	4.3	37.7	0.0	6.7	3.6	0.0	3.8	0.0
	905	796	109	0	469	218	218	0	654	251	0	225	0

Table C-39

Distribution of Northern Pike Caught in 1994 (% and N)

Number of Northern Pike Caught	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
1 to 25	91.4	91.0	94.7	90.1	92.5	89.8	90.9	89.9	91.4	89.0	96.0	95.2	92.3
	53,225	47,463	5,762	10,587	29,510	10,849	2,157	15,416	13,945	12,168	11,695	6,757	2,857
26 to 50	5.9	6.2	3.5	8.9	6.5	2.7	0.0	6.9	5.7	7.3	3.0	3.2	7.7
	3,426	3,211	216	1,044	2,059	323	0	1,186	872	1,004	365	225	238
51 to 100	2.0	2.0	1.8	1.1	0.7	4.9	9.1	1.9	1.4	3.7	1.0	0.0	0.0
	1,165	1,057	108	125	233	589	217	323	218	502	122	0	0
101 +	0.7	0.8	0.0	0.0	0.3	2.7	0.0	1.3	1.4	0.0	0.0	1.6	0.0
	434	434	0	0	109	325	0	216	218	0	0	113	0

Table C-40

Fish Licensed Iowa Anglers Preferred to Catch in 1994 (%)

Species	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Catfish	21.7	21.3	23.0	25.4	20.2	21.4	25.4	13.3	17.6	31.0	19.7	33.7	23.6
Largemouth	21.0	22.8	14.1	29.3	22.6	13.4	10.7	18.9	15.3	19.1	28.0	15.1	31.2
Crappie	15.7	15.0	18.4	10.3	15.7	20.1	14.3	9.1	12.9	17.8	19.9	13.0	9.8
Walleye	15.0	16.3	10.1	7.9	15.0	19.3	18.0	26.3	13.3	9.6	13.8	10.2	16.0
Bluegill	9.1	7.8	14.0	8.4	9.2	8.5	12.8	7.3	14.8	9.1	7.1	14.5	6.8
Trout	3.8	3.9	3.2	3.9	4.1	3.5	1.4	1.7	9.0	4.7	1.0	6.1	0.5
Bullhead	3.6	2.8	6.6	2.9	3.3	4.4	5.7	6.6	1.3	2.5	4.1	1.9	4.9
Smallmouth	3.6	4.1	1.6	6.0	3.6	2.3	2.0	2.6	7.7	2.9	2.7	2.8	2.2
Northern Pike	3.2	3.1	3.5	4.0	3.0	2.8	3.4	5.4	5.6	1.5	1.9	1.3	3.3
Yellow Perch	2.0	1.7	3.1	1.0	1.9	2.6	3.4	7.4	1.3	0.0	0.8	0.6	0.3
Carp	0.6	0.4	1.5	0.2	0.6	0.7	1.4	0.8	0.7	0.1	0.9	0.0	1.4
White Bass	0.6	0.6	0.4	0.2	0.6	0.8	0.7	0.2	0.0	1.5	0.1	0.6	0.0
Sheepshead	0.2	0.0	0.6	0.4	0.1	0.0	0.8	0.3	0.4	0.1	0.0	0.2	0.0
Sauger	0.1	0.1	0.0	0.2	0.0	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.3
Sturgeon	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0

Table C-41

Fish Eaten Most Often by Licensed Iowa Anglers in 1994 (%)

Species	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Catfish	24.0	24.2	23.3	29.1	23.3	21.3	29.0	13.6	19.1	35.0	21.9	37.3	28.1
Crappie	17.9	17.8	18.0	16.3	17.9	19.2	16.4	9.7	13.8	22.0	21.7	13.9	10.7
Walleye	16.1	17.7	10.3	13.1	16.0	18.8	13.7	26.3	14.4	11.6	15.0	10.6	19.7
Bluegill	15.5	15.0	17.5	15.7	16.4	13.9	13.9	12.7	25.3	14.4	12.8	22.2	14.6
Largemouth	8.8	9.0	8.1	9.7	9.4	7.5	7.0	8.2	5.5	6.7	13.8	4.0	12.1
Bullhead	5.8	4.9	9.2	4.0	5.2	7.3	9.5	12.0	3.2	2.6	6.6	1.9	7.9
Trout	3.6	3.6	3.4	5.1	3.7	2.6	1.8	1.7	8.3	3.8	1.6	5.1	1.1
Yellow Perch	2.9	2.5	4.1	1.3	2.8	3.7	3.7	9.5	1.7	0.2	1.7	1.3	1.1
Northern Pike	2.3	2.0	3.3	2.5	1.9	2.6	3.1	4.1	3.4	1.2	1.5	1.3	1.4
Smallmouth	1.3	1.4	1.0	1.6	1.5	0.8	0.7	1.3	3.6	0.5	0.9	0.8	0.6
White Bass	0.9	0.9	0.7	1.1	0.8	0.9	0.7	0.2	0.6	1.4	1.1	0.6	0.6
Carp	0.5	0.4	1.2	0.2	0.5	0.7	0.7	0.6	0.4	0.1	1.1	0.2	2.2
Sheepshead	0.2	0.3	0.0	0.0	0.2	0.6	0.0	0.2	0.8	0.1	0.1	0.6	0.0
Sturgeon	0.2	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.3	0.1	0.2	0.0
Sucker	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Table C-42

Importance of Catching and Releasing of Fish to Licensed Iowa Anglers (% and N)

Importance	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Very unimportant	13.1	11.2	19.8	13.0	12.0	15.5	14.4	12.1	15.2	13.5	12.2	15.9	12.3
	47,603	31,647	15,957	7,740	23,272	13,522	2,948	9,164	9,587	16,183	12,670	10,361	2,917
(2)	5.9	5.5	7.3	5.5	5.9	6.2	6.5	5.4	5.0	6.2	6.6	6.1	3.8
	21,480	15,600	5,880	3,293	11,475	5,381	1,331	4,097	3,159	7,401	6,822	3,942	893
(3) Moderately important	28.3	27.8	30.0	27.7	29.1	27.5	25.4	29.4	29.4	28.1	27.2	29.6	28.1
	102,599	78,401	24,198	16,535	56,708	23,940	5,198	22,316	18,520	33,620	28,142	19,257	6,667
(4)	16.4	18.0	11.1	16.8	17.1	14.8	15.9	17.8	15.2	17.4	15.1	12.8	15.8
	59,481	50,549	8,933	9,993	33,339	12,889	3,260	13,476	9,587	20,824	15,594	8,334	3,750
(5) Very important	36.2	37.4	31.9	37.0	35.9	36.0	37.7	35.4	35.2	34.8	38.9	35.5	40.1
	131,042	105,335	25,707	22,051	69,859	31,297	7,714	26,844	22,224	41,649	40,325	23,086	9,525

Table C-43

Importance of Catching Fish to Licensed Iowa Anglers (% and N)

Importance	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Very unimportant	13.6	13.8	12.9	16.7	12.3	14.7	12.7	13.1	12.1	14.2	14.3	12.4	12.5
	49,468	39,035	10,433	9,995	23,978	12,896	2,599	9,918	7,626	17,061	14,863	8,108	2,977
(2)	10.4	11.0	8.3	10.2	10.0	12.0	7.6	7.7	9.7	12.6	10.2	11.7	9.0
	37,701	30,976	6,725	6,083	19,403	10,554	1,552	5,822	6,101	15,179	10,599	7,658	2,143
(3) Moderately important	39.8	40.6	37.0	37.3	41.6	36.8	43.1	40.9	42.7	38.8	38.5	39.6	41.1
	144,580	114,568	30,012	22,266	81,041	32,236	8,807	31,048	26,909	46,541	40,081	25,789	9,823
(4)	10.3	10.6	9.1	12.6	10.7	7.9	9.3	11.5	9.3	10.6	9.6	8.3	10.2
	37,275	29,886	7,390	7,531	20,831	6,897	1,895	8,732	5,883	12,670	9,990	5,406	2,441
(5) Very important	25.9	24.0	32.7	23.2	25.5	28.6	27.4	26.8	26.3	23.8	27.5	28.0	27.2
	94,167	67,684	26,483	13,862	49647	25,058	5,599	20,376	16,559	28,602	28,630	18,244	6,489

Table C-44

Importance of Keeping Fish to Eat to Licensed Iowa Anglers (% and N)

Importance	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Very unimportant	22.8	23.4	20.8	31.2	24.0	16.5	14.5	22.0	19.7	22.5	25.7	20.4	22.9
	82,903	66,026	16,877	18,658	46,709	14,460	2,955	16,710	12,420	26,971	26,802	13,289	5,477
(2)	11.5	12.3	9.0	11.9	12.5	9.4	10.9	11.1	11.9	11.7	11.5	10.6	12.5
	41,915	34,622	7,293	7,079	24,332	8,279	2,225	8,409	7,517	14,050	11,939	6,870	2,977
(3) Moderately important	32.2	33.5	27.5	30.5	33.6	31.2	26.9	34.2	35.4	31.3	29.7	33.7	32.7
	116,768	94,443	22,325	18,211	65,518	27,314	5,508	25,981	22,333	37,509	30,944	21,960	7,799
(4)	11.8	11.4	13.2	13.5	11.5	11.9	10.1	12.5	13.0	12.4	9.9	11.6	8.5
	42,941	32,244	10,698	8,047	22,392	10,434	2,068	9,487	8,171	14,928	10,355	7,545	2,024
(5) Very important	21.7	19.4	29.5	13.0	18.4	31.0	37.6	20.3	20.0	22.1	23.2	23.7	23.4
	78,645	54,687	23,958	7,743	35,948	27,137	7,695	15,416	12,637	26,470	24,122	15,428	5,596

Table C-45

Importance of Catching a Particular Kind of Fish to Licensed Iowa Anglers (% and N)

Importance	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Very unimportant	23.6	21.4	30.9	28.7	23.2	21.3	21.9	22.4	23.8	24.3	23.3	24.1	22.7
	85,541	60,479	25,062	17,160	45,188	18,747	4,446	17,034	15,034	29,229	24,244	15,766	5,417
(2)	13.3	13.7	11.8	13.9	13.6	12.4	11.3	13.8	11.2	12.9	14.7	10.0	14.5
	48,197	38,596	9,601	8,306	26,552	10,929	2,289	10,457	7,081	15,430	15,228	6,532	3,453
(3) Moderately important	36.9	37.1	36.2	32.2	38.6	36.0	36.8	38.6	35.9	34.8	38.7	32.6	40.1
	133,961	104,610	29,351	19,255	75,263	31,630	7,474	29,324	22,660	41,774	40,203	21,284	9,584
(4)	10.4	11.5	6.5	12.8	10.0	10.1	8.7	10.6	10.5	10.7	9.8	12.4	8.7
	37,760	32,461	5,299	7,626	19,472	8,895	1,768	8,086	6,646	12,796	10,234	8,108	2,084
(5) Very important	15.9	16.3	14.6	12.4	14.5	20.1	21.4	14.6	18.6	17.3	13.5	20.9	14.0
	57,705	45,879	11,826	7,391	28,302	17,658	4,353	11,104	11,766	20,824	14,010	13,627	3,334

Table C-46

Importance of Catching a Particular Size of Fish to Licensed Iowa Anglers (% and N)

Importance	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Very unimportant	18.2	17.4	21.2	21.3	18.5	16.6	14.7	18.7	18.3	19.7	16.1	18.5	14.5
	66,175	49,010	17,165	12,705	35,947	14,521	3,002	14,231	11,548	23,584	16,812	12,050	3,453
(2)	13.0	13.4	11.5	15.4	13.6	11.1	7.7	12.8	12.4	14.5	11.8	12.8	10.7
	47,163	37,802	9,361	9,173	26,496	9,698	1,566	9,703	7,844	17,312	12,305	8,334	2,560
(3) Moderately important	42.5	43.4	39.4	36.8	45.0	41.2	41.1	43.0	43.1	40.7	44.0	39.9	40.9
	154,382	122,398	31,985	21,991	87,596	36,169	8,396	32,666	27,236	48,674	45,807	26,014	9,763
(4)	10.3	10.8	8.7	10.0	9.9	11.2	11.4	9.9	9.8	9.6	11.6	10.9	13.7
	37,358	30,325	7,034	5,991	19,233	9,811	2,325	7,546	6,210	11,541	12,061	7,095	3,274
(5) Very important	16.0	15.0	19.2	16.5	13.0	20.0	25.2	15.6	16.4	15.5	16.5	18.0	20.2
	57,952	42,363	15,590	9,878	25,377	17,535	5,163	11,859	10,350	18,566	17,178	11,712	4,822

Table C-47

Importance of Catching More than One Kind of Fish to Licensed Iowa Anglers (% and N)

Importance	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Very unimportant	40.4	39.0	45.3	40.3	41.9	38.0	37.4	35.5	39.7	45.0	39.1	42.4	34.9
	146,767	109,939	36,828	24,062	81,707	33,345	7,653	26,952	25,057	54,068	40,691	27,704	8,334
(2)	17.6	18.7	13.9	17.0	18.7	16.4	14.3	16.7	18.1	17.2	18.4	16.7	15.0
	63,986	52,673	11,313	10,128	36,355	14,449	2,932	12,721	11,439	20,699	19,127	10,924	3,572
(3) Moderately important	29.1	28.9	29.9	29.4	28.4	30.6	29.3	31.6	28.8	27.8	29.0	27.1	33.2
	105,817	81,510	24,307	17,551	55,256	26,903	5,998	24,041	18,193	33,369	30,213	17,681	7,918
(4)	5.8	6.3	4.0	8.0	4.9	5.4	9.1	7.2	5.9	4.7	6.0	6.4	6.7
	21,061	17,815	3,246	4,751	9,474	4,744	1,861	5,498	3,704	5,645	6,213	4,167	1,607
(5) Very important	7.1	7.2	6.8	5.4	6.2	9.6	9.8	8.9	7.6	5.2	7.6	7.4	10.2
	25,777	20,210	5,566	3,245	12,107	8,417	2,007	6,792	4,793	6,272	7,919	4,842	2,441

Table C-48

Licensed Iowa Anglers' Belief in the Safety of Fish from Contamination (% and N)

Level of safety	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Very safe	14.1	14.7	12.2	12.9	12.7	18.3	12.9	20.8	11.9	10.9	14.3	11.2	14.1
	50,455	40,763	9,693	7,584	24,466	15,820	2,585	15,632	7,408	12,796	14,619	7,095	3,274
Mostly safe	64.5	63.7	67.4	68.6	67.3	56.8	57.4	64.7	63.7	64.8	64.4	63.1	69.6
	230,353	176,654	53,699	40,333	129,321	48,995	11,461	48,513	39,655	76,398	65,787	40,091	16,192
Somewhat unsafe	19.3	19.4	18.7	17.0	18.2	22.5	22.5	13.1	22.2	22.2	18.6	23.4	15.1
	68,870	53,969	14,901	10,008	34,922	19,440	4,500	9,810	13,836	26,219	19,005	14,865	3,512
Very unsafe	2.1	2.2	1.8	1.5	1.7	2.3	7.1	1.4	2.1	2.1	2.6	2.3	1.3
	7,575	6,148	1,426	853	3,306	1,991	1,425	1,078	1,307	2,509	2,680	1,464	298

Table C-49

Magnitude of Effect on Fish Population of Water Quality (% and N)

Effect	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Little or no effect	1.6	1.8	1.2	1.3	0.9	3.0	4.1	2.0	3.0	1.3	0.9	2.6	1.5
	5,841	4,907	934	778	1,703	2,558	803	1,509	1,852	1,505	975	1,689	357
(2)	2.1	2.2	1.6	2.0	1.6	2.7	3.5	2.6	1.6	1.8	2.2	1.7	2.3
	7,368	6,073	1,295	1,191	3,164	2,324	690	1,941	980	2,133	2,315	1,126	536
(3) Moderate effect	14.6	15.5	11.4	17.1	14.0	12.8	20.3	13.2	14.7	16.2	13.7	16.3	13.0
	52,395	43,402	8,993	10,168	27,084	11,039	3,996	9,918	9,151	19,194	14,132	10,586	3,096
(4)	18.7	20.1	13.6	19.9	19.6	16.5	15.2	19.4	17.6	19.1	18.2	16.9	18.0
	67,025	56,264	10,761	11,837	37,826	14,265	2,988	14,554	11,003	22,706	18,762	10,924	4,286
(5) Very big effect	63.1	60.5	72.2	59.6	63.9	65.1	56.9	62.8	63.2	61.6	64.9	62.4	65.2
	226,555	169,487	57,068	35,395	123,466	56,267	11,183	47,219	39,437	73,136	66,762	40,429	15,478

Table C-50

Magnitude of Effect on Fish Population of Overall Quality of the Fish Habitat (% and N)

Effect	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Little or no effect	2.5	2.5	2.3	2.9	1.7	2.6	8.3	3.1	3.0	2.1	2.2	2.5	2.1
	8,818	7,068	1,749	1,741	3,288	2,167	1,622	2,264	1,852	2,509	2,193	1,577	476
(2)	2.3	2.5	1.7	3.1	2.2	2.2	1.1	3.1	3.7	1.6	1.7	2.1	2.6
	8,139	6,875	1,264	1,852	4,242	1,829	216	2,264	2,288	1,882	1,706	1,351	595
(3) Moderate effect	25.8	24.6	30.2	30.2	21.9	31.5	26.4	26.9	25.2	25.9	25.4	24.7	25.2
	91,492	68,460	23,032	17,955	41,887	26,403	5,138	19,836	15,470	30,358	25,828	15,654	5,834
(4)	13.6	13.8	13.2	17.6	13.8	11.3	10.4	13.7	14.7	12.9	13.8	14.4	13.4
	48,366	38,268	10,098	10,471	26,403	9,470	2,022	10,134	9,042	15,179	14,010	9,122	3,096
(5) Very big effect	55.7	56.6	52.7	46.1	60.4	52.5	53.7	53.3	53.3	57.5	57.0	56.3	56.8
	197,514	157,268	40,245	27,349	115,409	44,066	10,446	39,350	32,683	67,491	57,990	35,699	13,156

Table C-51

Magnitude of Effect on Fish Population of Amount of Fish Stocking an Area Receives (% and N)

Effect	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Little or no effect	4.0	4.2	3.1	3.2	3.2	5.2	9.6	3.0	4.9	4.3	3.8	4.7	2.9
	13,641	11,394	2,248	1,890	6,005	4,089	1,658	2,156	2,941	4,767	3,777	2,815	655
(2)	5.5	6.2	3.0	6.7	5.0	5.9	4.8	4.2	6.4	5.3	6.2	7.2	5.2
	18,819	16,621	2,198	3,879	9,450	4,661	830	3,019	3,813	5,896	6,091	4,279	1,191
(3) Moderate effect	30.5	31.3	27.4	34.1	30.9	27.9	24.3	27.8	35.0	31.8	28.1	36.5	25.3
	104,359	84,541	19,818	19,854	57,814	22,149	4,202	20,160	20,917	35,627	27,655	21,848	5,775
(4)	22.6	22.8	21.8	24.6	23.8	18.8	20.3	24.7	20.9	23.3	21.3	21.1	23.2
	77,472	61,653	15,819	14,358	44,530	14,950	3,512	17,896	12,528	26,093	20,954	12,613	5,298
(5) Very big effect	37.5	35.5	44.7	31.4	37.1	42.2	41.0	40.4	32.8	35.3	40.6	30.5	43.5
	128,409	96,033	32,376	18,322	69,487	33,513	7,087	29,324	19,610	39,516	39,960	18,244	9,942

Table C-52

Magnitude of Effect on Fish Population of Regulations on Size and Numbers of Fish (% and N)

Effect	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Little or no effect	6.7	6.9	5.8	5.2	5.3	9.8	12.0	6.2	6.9	6.3	7.3	8.1	7.1
	23,592	19,176	4,416	3,098	10,081	8,164	2,249	4,636	4,249	7,276	7,432	5,068	1,667
(2)	6.2	6.8	4.1	7.0	6.0	6.9	2.5	5.6	5.3	7.4	5.7	7.0	5.5
	21,855	18,736	3,118	4,154	11,496	5,741	463	4,204	3,268	8,656	5,726	4,392	1,310
(3) Moderate effect	39.5	39.4	39.8	37.8	41.1	37.5	38.2	39.4	45.2	40.1	35.4	40.6	31.2
	139,697	109,176	30,521	22,412	78,691	31,346	7,139	29,324	27,889	46,667	35,817	25,564	7,382
(4)	16.6	16.6	16.8	19.7	16.9	14.4	13.8	18.4	14.8	16.9	16.1	15.9	18.1
	58,863	45,958	12,905	11,674	32,322	12,043	2,580	13,691	9,151	19,695	16,325	10,023	4,286
(5) Very big effect	31.0	30.3	33.5	30.2	30.8	31.5	33.5	30.4	27.7	29.2	35.4	28.4	38.0
	109,557	83,852	25,706	17,904	59,091	26,295	6,266	22,639	17,104	33,996	35,817	17,906	8,989

Table C-53

Magnitude of Effect on Fish Population of Actual Number of Fish Kept (% and N)

Effect	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
(1) Little or no effect	8.0	8.3	6.6	4.9	6.7	12.0	12.6	6.0	8.0	9.5	7.6	10.9	6.9
	28,041	23,012	5,028	2,916	12,800	9,994	2,330	4,420	4,902	11,165	7,553	6,870	1,607
(2)	9.6	10.3	7.1	10.6	8.9	10.5	9.9	8.3	10.0	11.1	8.6	9.7	8.7
	33,820	28,379	5,441	6,267	17,050	8,683	1,820	6,145	6,101	13,047	8,528	6,081	2,024
(3) Moderate effect	40.0	39.1	43.4	33.9	42.7	39.3	35.1	41.4	43.1	37.4	40.2	42.8	38.6
	140,956	107,752	33,203	20,033	81,571	32,645	6,475	30,725	26,364	43,907	39,960	26,915	8,989
(4)	18.1	18.3	17.6	22.9	17.9	16.1	14.3	21.6	14.9	18.5	17.1	14.7	17.9
	63,851	50,409	13,442	13,508	34,140	13,334	2,639	16,063	9,151	21,703	16,934	9,235	4,167
(5) Very big effect	24.3	24.0	25.3	27.6	23.8	22.1	28.1	22.8	24.0	23.4	26.5	22.0	27.9
	85,421	66,078	19,343	16,289	45,569	18,392	5,171	16,926	14,707	27,473	26,315	13,852	6,489

Table C-54

Quality of Fishing in Iowa in Past 10 Years (% and N)

Quality	Total	Gender		Age Group				Region					
		Male	Female	16-29	30-49	50-64	65+	NW	NE	SE	SW	MI	MO
Improved	36.7	38.8	29.0	32.7	37.0	39.7	33.6	35.5	27.4	37.3	42.9	25.7	38.4
	123,297	102,666	20,631	18,040	66,425	32,758	5,951	24,903	16,559	41,021	40,812	15,541	8,334
Stayed the same	32.8	31.8	36.6	41.4	33.5	26.4	28.4	36.4	27.2	33.5	32.8	29.5	34.2
	110,070	83,964	26,106	22,834	60,101	21,769	5,027	25,550	16,450	36,882	31,188	17,793	7,441
Declined	30.5	29.4	34.4	26.0	29.5	33.9	38.0	28.1	45.4	29.2	24.2	44.8	27.4
	102,322	77,807	24,515	14,324	52,974	27,955	6,717	19,729	27,454	32,115	23,025	27,028	5,953

Figure C-1

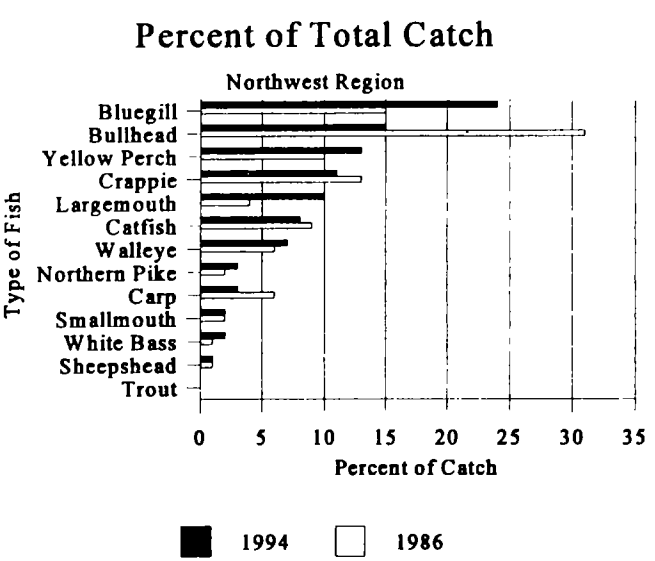


Figure C-2

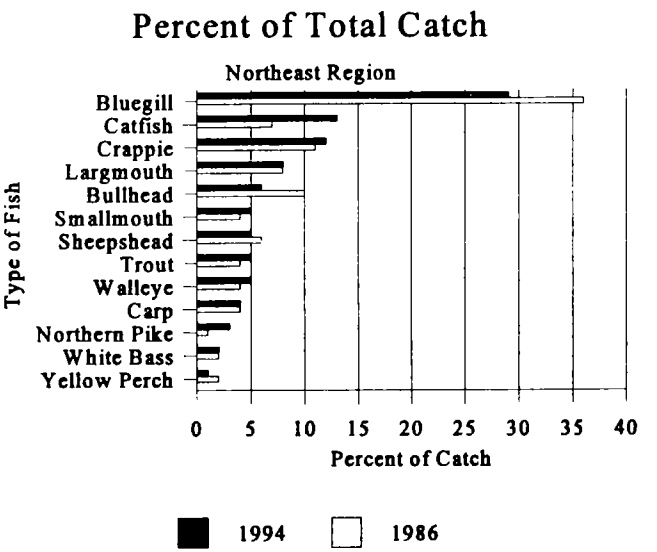


Figure C-3

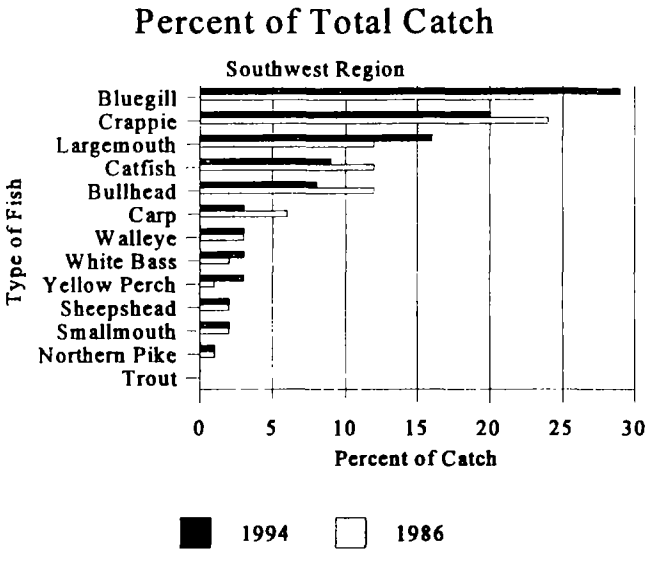


Figure C-4

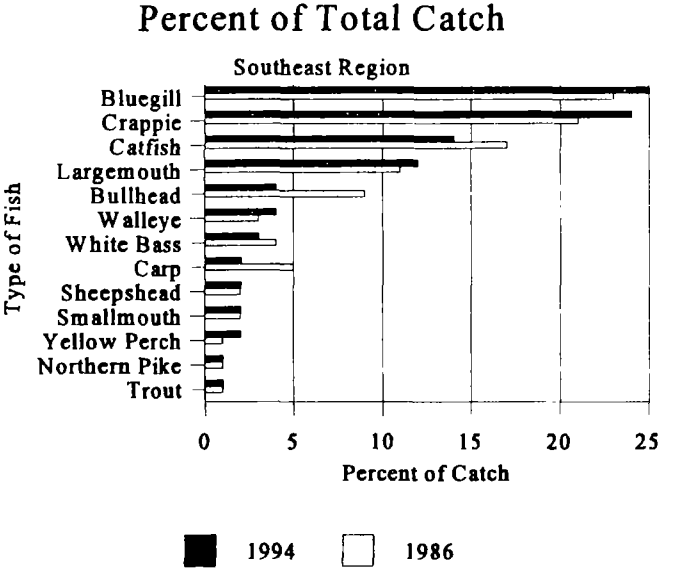


Figure C-5

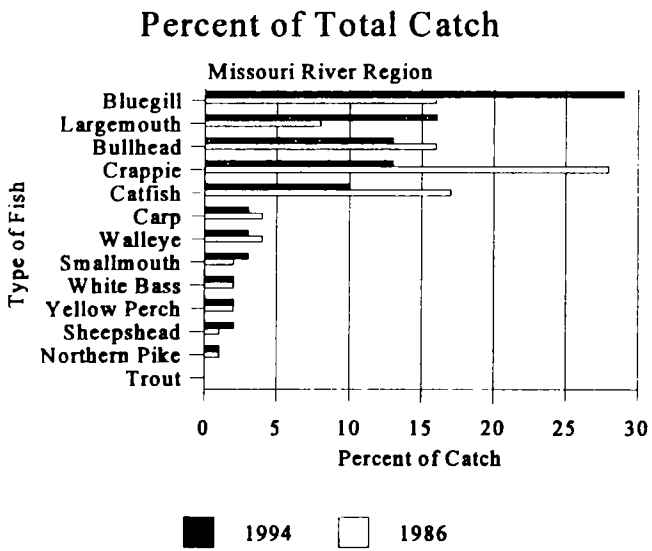


Figure C-6