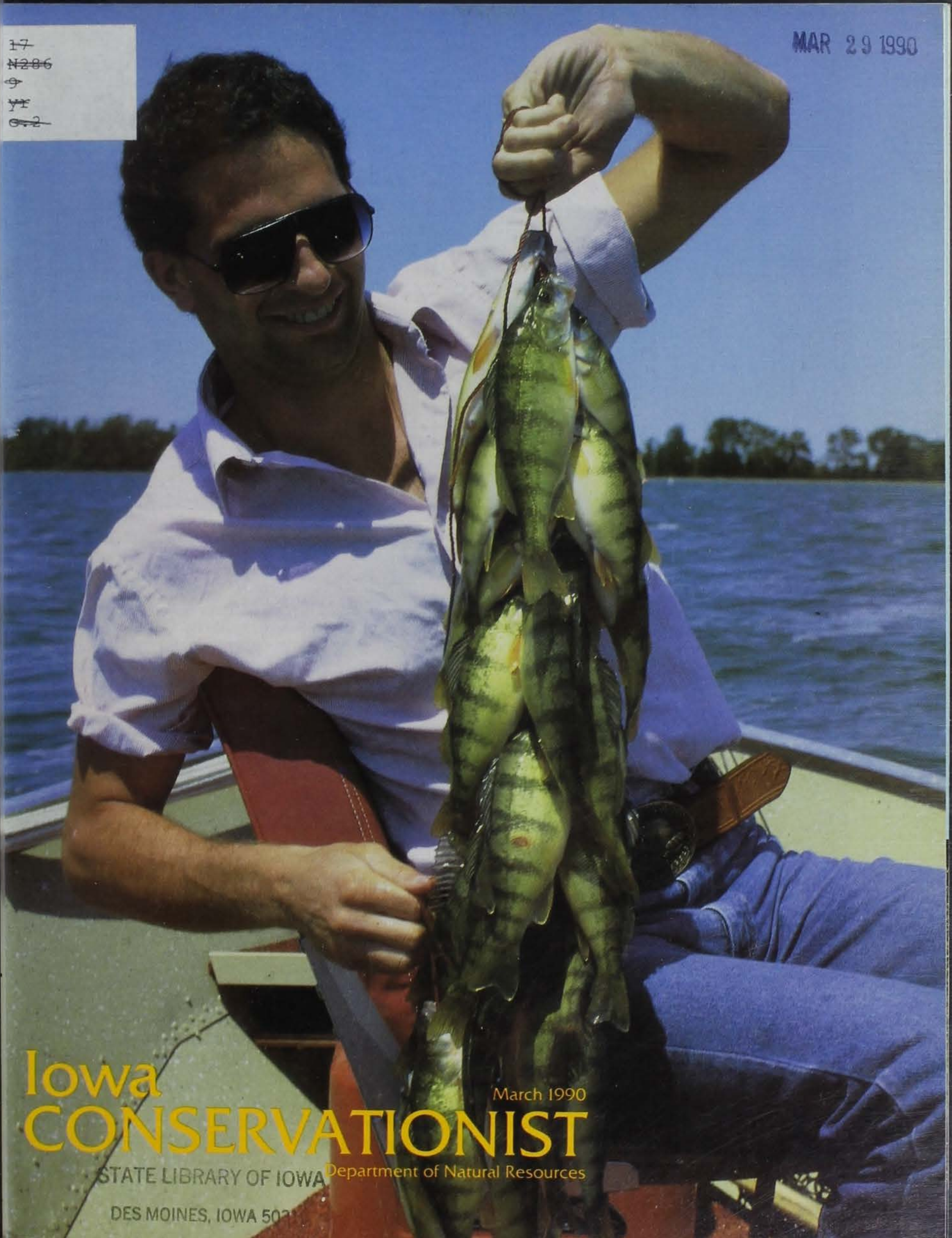


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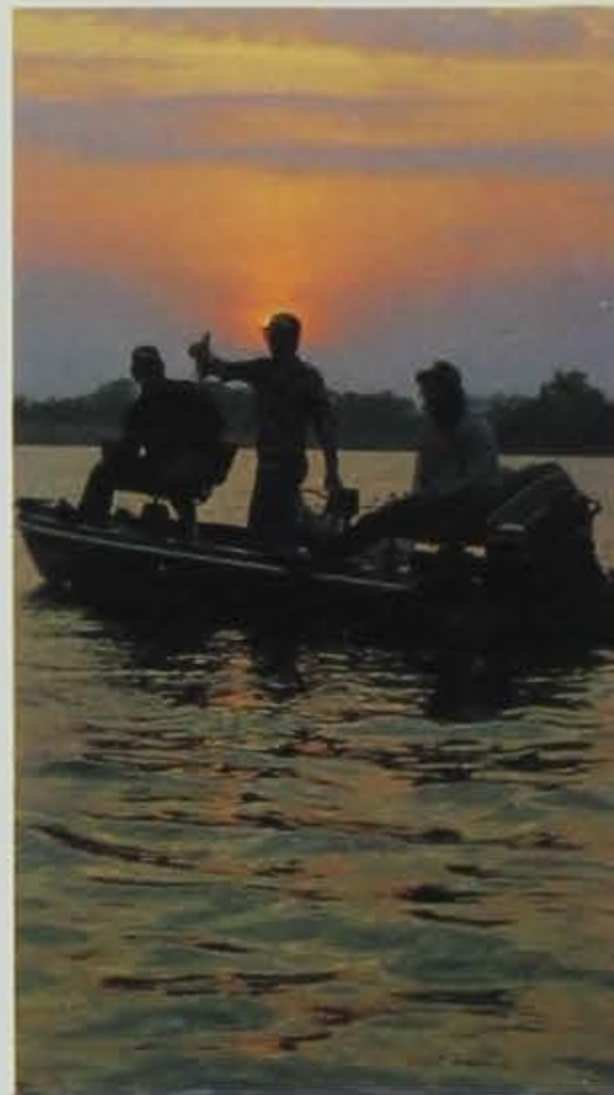
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COVER: Front -- Perch fishing on Iowa Great Lakes. Photo by Ron Johnson. Back -- Bluegills. Photo by Ron Johnson.



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1990

Fishing Forecast

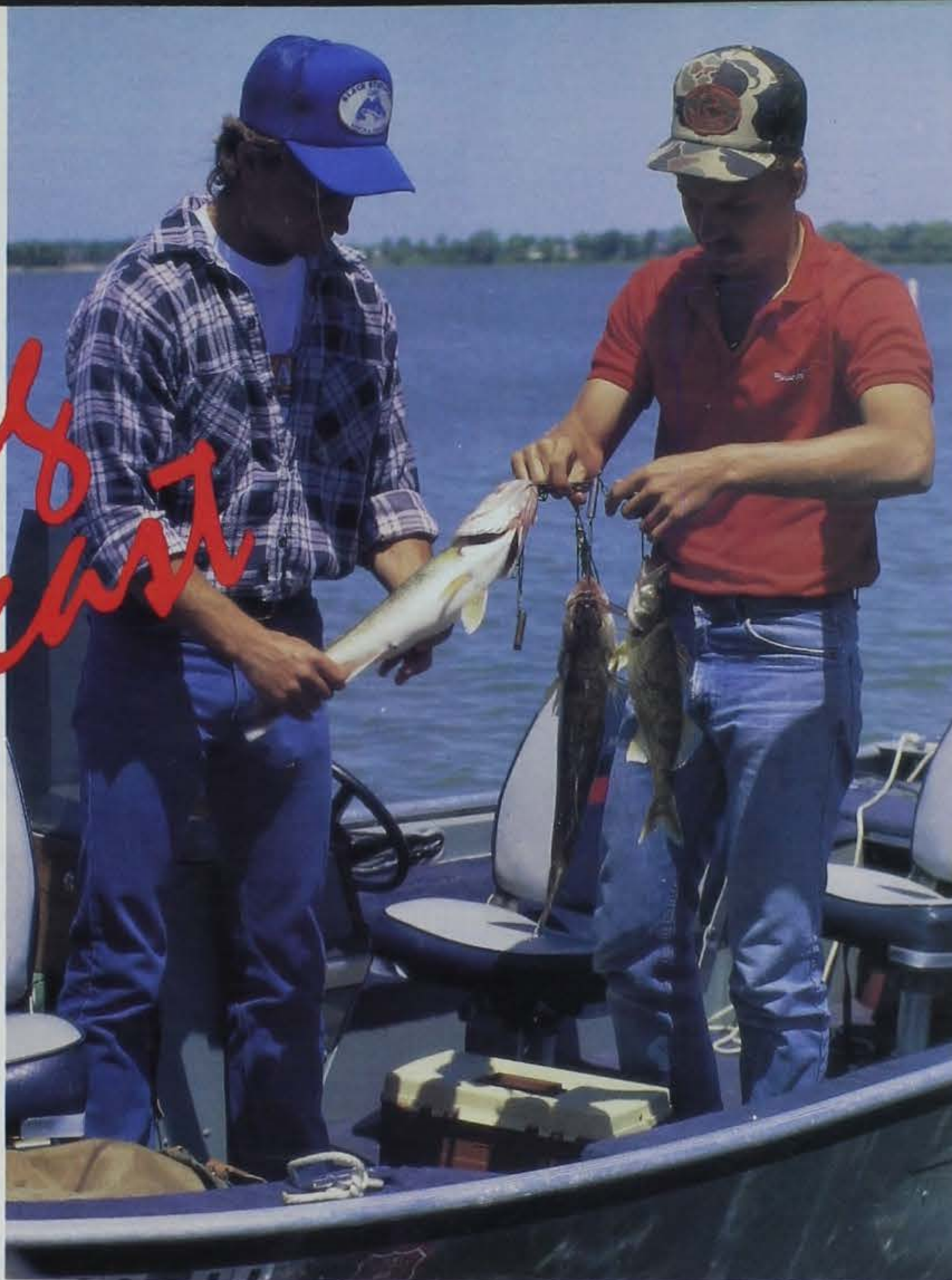


Northwest

by Thomas W. Gengerke

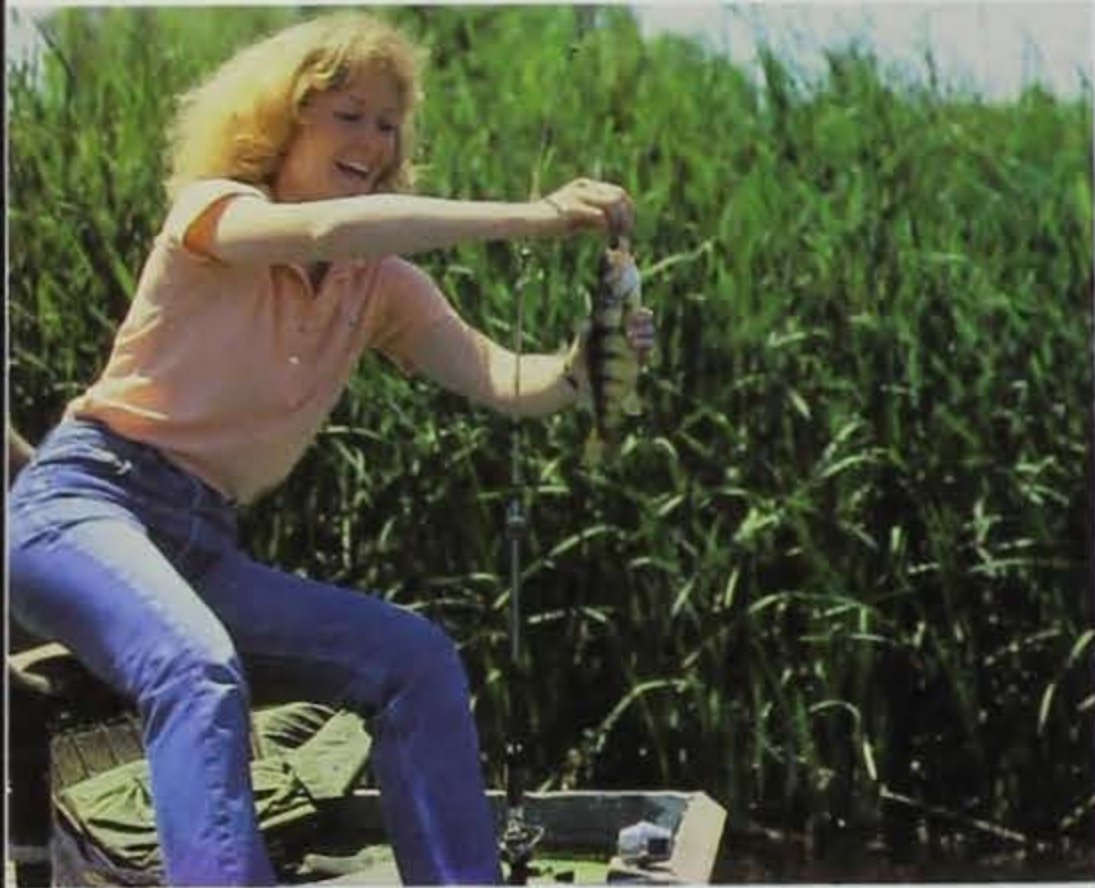
In a break with tradition, I am not going to dwell on the traditional favorites (walleye, yellow perch, bullhead, channel catfish, bluegill, crappie, northern pike, smallmouth bass, largemouth bass and muskellunge) of northwest Iowa. You can select your own "hot spot" for those species from the table. Nor am I going to suggest a specific presentation for these particular fish. After all, Americans spend \$72 million per year for fishing magazines loaded with this type of information. What I am going to do is bring your attention to some unique opportunities.

Excellent yellow bass fishing is available at Arrowhead Lake (Sac County). These scrappy fighters are very abundant in this lake and readily take nightcrawlers or small yellow or white leadheads fished near the bottom, over gravel bars or around stakebeds. Fish run from six to nine inches and are excellent table fare. These fish may also be found in North Twin (Calhoun County) and at Clear Lake (Cerro Gordo County).



LOWELL WASHBURN

Species	Location, County	Comments
Walleye		
	Clear Lake, Cerro Gordo	Average size in 1989 was 2.75 pounds!
	East Okoboji, Dickinson	Low water levels may change preferred locations.
	Five Island, Palo Alto	Good winter fishing in southern portion of lake.
	Lost Island, Palo Alto	Early spring and fall fishing will be best.
	Silver Lake, Dickinson	Aeration plus good survival of young fish equals good fishing.
	Spirit Lake, Dickinson	Large number of smaller fish. Plenty of action. Length limit.
	Storm Lake, Buena Vista	Excellent fishing during past two years -- 11+- pounder in 1989!
	West Fork -- Des Moines River, Humboldt	Spring (below obstructions). Fall (deep pools).
	West Okoboji, Dickinson	Weed lines offer excellent opportunity.



LOWELL WASHBURN



LOWELL WASHBURN

Species

Location, County

Comments

Yellow Perch

East Okoboji, Dickinson

Weed beds are holding more fish. 1989 harvest doubled 1988 catch.

Spirit Lake, Dickinson

Good number of 6- to 8-inch fish available.

West Okoboji, Dickinson

Improving. Fish may be in deeper water during warm months.

Bullhead

Black Hawk, Sac

8- to 9-inch fish. Start at the inlet.

Center Lake, Dickinson

Large number. Good shoreline access.

Cornelia, Wright

Best bet in north-central Iowa. 7 to 10 inches.

Crawford Creek, Ida

Lots of fish in the 9- to 11-inch range.

Ingham Lake, Emmet

May and June are best months. Numbers down slightly.

Silver Lake, Dickinson

Consistently good.

Spirit Lake, Dickinson

Phenomenal in 1989. Don't forget night fishing.

Channel Catfish

Black Hawk, Sac

Shad entrails are excellent bait.

Clear Lake, Cerro Gordo

Fish range from 3/4 pound to 1-1/2 pounds.

Cornelia, Wright

Increasing in popularity. One to 1-1/2 pounds.

East Okoboji, Dickinson

Best bet for large fish. 2- to 6-pound fish common.

Storm Lake, Buena Vista

Large fish. Islands and submerged reef are good locations.

Big Sioux River, Lyon & Sioux

Fish generally average 1/2 pound to 2 pounds. Large numbers are common.

Boone River, Hamilton

Summer months offer the best fishing.

Des Moines River, Kossuth & Humbolt

Water conditions - winter severity - drought effects will tell the story for 1990. Contact fishery biologist for current conditions.

Iowa River, Hardin

Little Sioux River, Clay & Cherokee

Muskellunge

Clear Lake, Cerro Gordo

Fish range from 30 to 40 inches. Rock reefs and points.

East Okoboji, Dickinson

Good population of sublegal fish (less than 30 inches).

West Okoboji, Dickinson

Most consistent producer. Late summer and fall.

Bluegill

Briggs Wood, Hamilton

Action. Fish range from 6 to 8 inches.

Species	Location, County	Comments
White Bass	Crystal Lake, Hancock	Recent renovation has provided excellent fishing.
	Gustafson, Buena Vista	Improving fishery.
	Minnewashta, Dickinson	Excellent fishing in 1989. Weed beds holding fish.
	Pahoja, Lyon	High density. Good size structure.
	Swan Lake, Carroll	Large number of 7- to 8-inch fish.
	Upper Gar, Dickinson	Good fishing. Again -- weed beds holding fish.
	Upper Pine, Hardin	6- to 7-inch fish. Beautiful lake.
	West Okoboji, Dickinson	Consistently excellent fishery.
	Yellow Smoke, Crawford	Excellent size. Lots of action.
	Crappie	Crystal Lake, Hancock
Storm Lake, Buena Vista		Real "slabs." 10 to 14 inches.
Swan Lake, Carroll		Population estimate -- 35,000. All size classes.
Yellow Smoke, Crawford		Fish range from 8 to 10 inches -- up to 14 inches.
Northern Pike		Spirit Lake, Dickinson
	West Okoboji, Dickinson	Consistent. Fish developing weed beds.
	Winnebago River, Cerro Gordo	April and May. Especially near tile outlets and feeder streams.
	Smallmouth Bass	Boone River, Hamilton
Iowa River, Hardin		Low runoff creating excellent water clarity.
Spirit Lake, Dickinson		Shallow water rock structures. Practice catch and release.
West Okoboji, Dickinson		Quality and quantity. Catch and release fishing very popular.
Winnebago River, Cerro Gordo		Use crayfish imitating lures.
Largemouth Bass	Briggs Wood, Hamilton	High density. Variety of size. Submerged timber.
	Dog Creek, O'Brien	1989 surveys revealed good number of 15-inch fish.
	Indian Lake, Hancock	Most fish between 15 and 18 inches.
	Pahoja, Lyon	Good numbers. Catch and release encouraged.
	West Okoboji, Dickinson	Excellent year class strength. Spring is best.

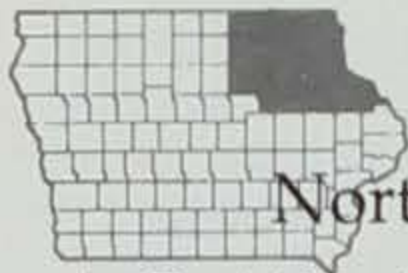
White bass enthusiasts should look to Storm Lake (Buena Vista County) and the Okobojis (Dickinson County). Fish will range from 10 to 16 inches and will be most active during spring and fall periods. A jig and minnow, or a spinner, fished over a firm, preferably sand, bottom will provide plenty of action.

The freshwater drum is available in large numbers in West and East Okoboji. In fact, it is difficult to fish a jig in these waters and not hook a "sheepshead" at some time. A piece of crawdad tail on the jig virtually ensures success. These fish are the fourth most commonly caught fish on the Mississippi River.

If flathead catfish is what you are looking for, try the Missouri River in Woodbury and Monona counties, or if the drought doesn't hurt us too bad, try the Raccoon River in Sac, Carroll and Greene counties. Fish in the 30-pound class have been caught during the past few years. Flathead fishing is a game of patience. Most successful anglers use some type of live bait such as chubs, goldfish or small carp. Fish large, deep, quiet pools which hold structure such as log jams or rocks.

Traditional favorites and unique opportunities -- the decision is yours! It may be paper-mouthed crappies or snaggle-toothed pike. It may be "why-don't-they-bite" walleyes or "where-are-they-now" yellow perch. It may even be streakers (yellow bass) or stripers (white bass). With more than 75 lakes and hundreds of miles of streams to choose from in northwest and north-central Iowa, the decision is simplicity itself -- just do it!

Thomas W. Gengerke is the northwest district fisheries supervisor located at Spirit Lake.



Northeast

by David Moeller

What is in store for northeast Iowa anglers in 1990? Has the drought caused serious damage to our fish population? Will our fishing be better, poorer, or about the same? Let us take a look at what the answers to these questions might be. The droughts of 1988 and 1989 have had an impact on fisheries resources and angling recreation -- in some ways good and in some ways harmful.

The relatively few lake resources in northeast Iowa have fared fairly well. With a few exceptions, our lakes have remained full of water or with only minor losses in water levels. Also, due to the lack of runoff water, our lakes have remained fairly clear and the rate of siltation has been almost nil. And this clarity has also resulted in good fishing conditions and, consequently good fishing success.

The situation with our streams and rivers is much more variable. The worst hit are the small warm-water tributary streams of the larger rivers. Many of these have dried up completely. The loss of these streams, although not desirable, has not had a major impact on the Iowa angler because these streams support primarily non-game species. These small "minnow creeks" will quickly repopulate as soon as stream flows return.

The cold-water trout streams have lost much of their normal flow, but they are still hanging in there. If our trout populations were dependent on natural reproduction, some of them would be in serious jeopardy. However, stocking is conducted on nearly all of Iowa's trout streams to maintain trout populations. Again, trout fishing success has been quite good the past two years due to minimal erosion resulting in clear water conditions.

Northeast Iowa's larger streams and rivers have fared better than their smaller cousins.



RON JOHNSON

Species

Location, County

Comments

Bluegill

Greenbelt Lake, *Black Hawk*

Fish up to 8 inches common in 8- to 10-foot of water.

Hartwick Lake (Lake Delhi), *Delaware*

Best fishing in embayment areas of lake.

Lake Hendricks, *Howard*

Fishing was good in 1989; many "gills" between 6 and 7 inches.

Mississippi River Pools 9 through 14

Size and numbers very good, best at spawning time.

Sweet Marsh Segment B, *Bremer*

Large numbers of bluegills in the 6-inch length range.

Sweet Marsh Segment A, *Bremer*

Bluegills up to 10 inches were taken in 1989.

Volga Lake, *Fayette*

Most fish around 6 inches, but a lot of action.

Channel Catfish

Cedar River, *Black Hawk, Bremer, Chickasaw & Floyd*

Best population of catfish, in the 3- to 8-pound class.

Lake Hendricks, *Howard*

Strong population resultant from cage rearing.

Lake Meyer, *Winneshiek*

Good population of cage-reared catfish.

Species

Location, County

Comments

Maquoketa River, Delaware,
Jones & Jackson

Many "cats" in the 1- to 3-pound range with some up to 8 pounds.

Meyers Lake, Black Hawk

Fish up to 8 pounds were caught in 1989.

Mississippi River
Pools 9 through 15

A very strong population that has been increasing in recent years.

Turkey River, Clayton

Most fish between 1-1/2 and 2 pounds; best below Elkader.

Upper Iowa River, Allamakee

A strong population downstream of Lower Dam; fish up to 6 pounds.

Volga Lake, Fayette

Popular catfishing lake, fish up to 6 pounds.

Wapsipinicon River, Buchanan

Fish below Independence; a very strong catfish population.

Largemouth Bass

Casey Lake, Tama

Several fish just below the 18-inch size limit.

George Wyth Lake, Black Hawk

A few bass in 7- to 8-pound range caught every year.

Greenbelt Lake, Black Hawk

Good population of bass with best success during late May and early June.

Lake Hendricks, Howard

Good numbers between 2 and 3-1/2 pounds, success has been good.

Lake Meyer, Winneshiek

Good numbers of bass just under the 15-inch length limit.

Mississippi River
Pools 9 through 14

Largest population in the state; few fish more than 4 pounds.

Sweets Marsh Segment B,
Bremer

Large number of bass exceeding the 15-inch size limit.

Volga Lake, Fayette

Lots of bass just under the 15-inch length limit.

Northern Pike

Cedar River, Black Hawk &
Bremer

Moderate population size, good average size with a few large lunkers.

Wapsipinicon River and
Tributaries, Buchanan,
Black Hawk & Bremer

Large population of small northern pikes, most under 5 pounds.

Mississippi River
Pools 9, 10 and 11

Very strong populations with many fish 5 to 8 pounds.

Smallmouth Bass

Cedar River, Mitchell & Floyd

Probably the best stream smallmouth fishery in the state; excellent sized fish.

Maquoketa River, Delaware

Catch-and-release fishery below Delhi Dam, excellent bass habitat.

Turkey River, Fayette

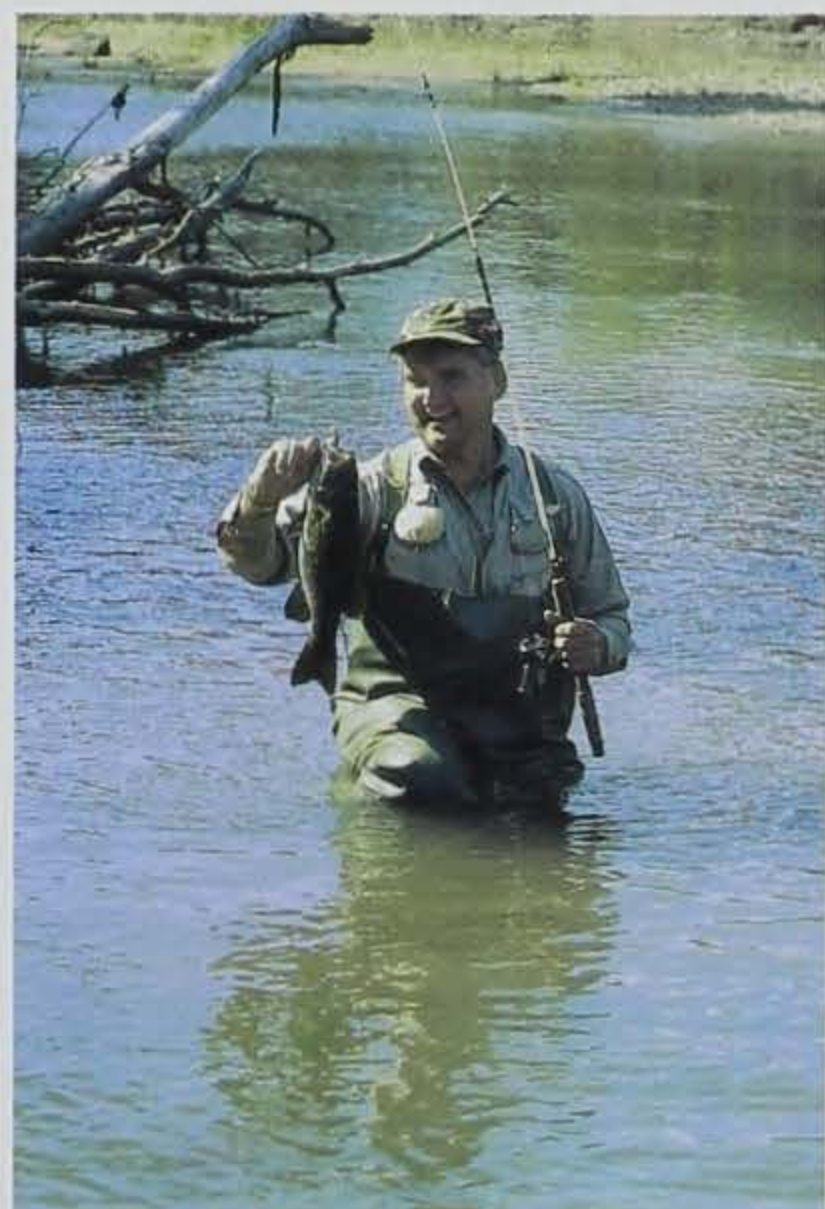
Bass fishing was very good in 1989, particularly above Elgin.

Upper Iowa River, Howard,
Winneshiek & Allamakee

Success has been very good the past two years, particularly below Decorah.



KEN FORMANEK



DON MUHM

Species

Location, County

Comments

Volga River, Fayette

Pretty stream with good population of bass; tough to float in low water.

Wapsipinicon River, Buchanan

Best bass fishing below Independence, numerous northern pike and walleye also.

Yellow River, Allamakee

Canoeable only below Volney but has good bass population.

Trout

French Creek, Allamakee

Stocked with catchable rainbows and browns from April through November.

Little Turkey River, Delaware

Stocked only with catchable browns; walk-in area.

North and South Bear, Winneshiek

Stocked with catchable rainbows and browns from April through November.

Sny Magill, Clayton

Stocked with catchable rainbows and browns from April through November.

Spring Branch, Delaware

Fourteen-inch minimum on browns, artificial lure only, excellent insect hatches.

Trout Run, Winneshiek

Stocked with catchables April through October, visit the reconstructed hatchery.

Upper Swiss Valley, Dubuque

Catch-and-release fishing for brown trout; artificial lures only.

Walleye

Cedar River, Black Hawk, Bremer, Chickasaw & Floyd

Best angling below dams in the spring; fish up to 10 pounds not uncommon.

Mississippi River Tailwaters Pools 9 through 15

Good from November through April, best for lunkers just after ice-out.

Mississippi River Wing Dams Pools 9 through 15

Best from May through October at low flows.

Shell Rock River, Butler, Bremer & Floyd

Number of fish from 1 to 2 pounds has increased from fingerling stockings the last three years.

Wapsipinicon River, Buchanan

Expanding population from walleye fingerling stockings, many fish 1 to 2 pounds.

West Fork Cedar River, Butler

Fish are caught in large pools near confluence with Shell Rock River in summer and fall.

Wipers

Mississippi River Pools 13 through 15

A new hybrid stocked in recent years, fish up to 8 pounds.

Crappie

Mississippi River Pools 9 through 15

Large numbers in 9- to 11-inch range, May and October best.

Hartwich Lake (Lake Delhi), Delaware

Large population of 8- to 10-inch crappies.

Sauger

Mississippi River Pools 9 through 15


Best in dam tailwaters from October through April, excellent eating.

Granted, all of these streams have had greatly reduced flows; however, impacts on their fish populations have not been major. There have been some decreases in these interior river sport fish populations due to the decrease in underwater habitat and a reduction in food production, but these decreases have been relatively minor. Again, these populations will regain any losses quickly as soon as normal water flows resume.

The Mighty Mississippi, because of its much larger size and more stable water levels, has fared the best during the drought. The impacts on its fish populations due to the drought are probably nil. And again, not surprisingly, angling success on the interior rivers and the Mississippi the past two years has been well above average due primarily to the improved water clarity.

Overall, the drought to this point has not had a serious impact on our sport fish populations, and has, from the anglers' standpoint, actually resulted in above average fishing success. So what is in store for 1990? No one can predict whether the drought is over or will continue. We all hope it ends soon for the overall benefit of all aquatic resources. However, if it does not, anglers should not become overly alarmed. Unless the drought gets significantly worse, northeast Iowa anglers can expect to have continued good fishing success in the coming year. Good luck to each of you.

David Moeller is the northeast district fisheries supervisor located at Manchester.



Southeast
by Stephen J. Waters

Between the locks and dams that assist the movement of commercial barge traffic on the Mississippi River, lies an exciting and exceptional angling resource. Largemouth bass, panfish, catfish, white bass, walleye, and sauger are the more popular sport fish sought by this river's anglers.

The Mississippi River's 12-inch minimum size limit on largemouth bass has meant a greater number and larger size of bass to interest the angler. Fall electrofishing surveys at the Big Timber Area showed excellent numbers of 12- to 14-inch fish. Other top producing areas in Pool 17 included Cleveland Slough, Hidden Acres and Bogus Island. Huron Island and lower Burnt Pocket backwaters in Pool 18, Burlington Island, riprap shorelines, and stream mouths in Pool 19 are also favorite hot-spots of bass anglers. Radio tagging studies have shown backwater bass love structure. Therefore, fish on top of brush, logs and stumps for great bass action.

Crappie and bluegill angling on the Mississippi River for quality-size fish will be good in the same "bass" backwaters. Fish tight to stumps, logs and brush. In areas where deep holes exist (Big Timber), crappie can be caught suspended in open water during the

Species

Location, County

Comments

Bluegill

Red Haw, Lucas	Legendary fishery for quality bluegill.
Mississippi River	See narrative.
Odessa, Louisa	Average harvest size 7 to 8 inches.
Farm Ponds throughout Southeast Iowa	Exceptional angling -- best chance for a trophy.
Pleasant Creek, Linn	Average harvest size 6 to 8 inches.
Geode, Henry	Average harvest size 7 inches.
Miami, Monroe	Average harvest size 6 to 7 inches.
Hannen, Brenton	Average harvest size 6 to 7 inches.

Channel Catfish

Mississippi River	See narrative.
Inland Rivers	See narrative.
Rathbun, Appanoose	Exceptional fishery -- All sizes available.
Coralville, Johnson	Exceptional fishery -- A variety of sizes.
Otter Creek, Tama	A lots of 2- to 7-pound fish.
Iowa, Iowa	Average harvest size 11 to 13 inches.
Kent, Johnson	Average harvest size 11 to 13 inches.
Miami, Monroe	Good variety of sizes.
Macbride, Johnson	Average harvest size 15 inches.
Darling, Washington	Good variety of sizes.



RON JOHNSON



RON JOHNSON

Species

Location, County

Comments

Crappie

Rathbun, Appanoose	Average harvest size 8 to 9 inches; trophy fish available.
Mississippi River	See narrative.
Coralville, Johnson	Average harvest size 8 to 9 inches.
Odessa, Louisa	Average harvest size 8 to 10 inches.
Geode, Henry	Average harvest size 8 to 9 inches.
Iowa, Iowa	Average harvest size 8 to 9 inches.
Darling, Washington	Average harvest size 8 inches; trophy fish available.
Miami, Monroe	Average harvest size 8 inches.
Hawthorn, Mahaska	Average harvest size 8 inches.

Largemouth Bass

Mississippi River	See narrative.
Farm Ponds throughout SE Iowa	Best chance for a trophy.
Odessa, Louisa	Variety of sizes.
Mami, Monroe	High population numbers.
Pleasant Creek, Linn	Known for its bigger fish.
Iowa, Iowa	Slot size limit of 12 to 16 inches.
Hawthorn, Mahaska	Slot size limit of 12 to 16 inches; bigger fish available.
Darling, Washington	Variety of sizes.

Walleye

Mississippi River	See narrative.
Rathbun, Appanoose	Boat angling late spring- summer.
Macbride, Johnson	Average harvest size of 14 to 18 inches.
Des Moines, Wapello	Hot action below Ottumwa hydropower dam.

White Bass

Mississippi River	See narrative.
Rathbun, Appanoose	A lot of 12- to 13-inch fish.
Coralville, Johnson	A lot of 11- to 12-inch fish.
Macbride, Johnson	Average harvest size 14 to 15 inches.
Des Moines, Wapello	Hot action below Ottumwa hydropower dam.

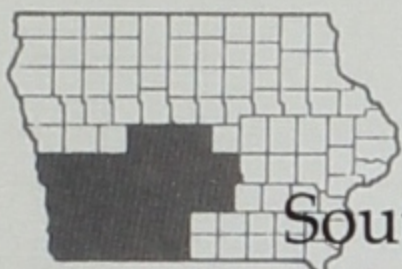
summer months and ice-anglers report fine catches during the winter months.

Perhaps the Mississippi River is the best *catfish* hole of all. This is reflected in the generous catch limits -- all you can carry. Mr. Whiskers can be caught in nearly all parts of the river, but best bets are above and below wing dams and rip-rapped heads of islands where there is a current; stump-fields and riprapped shorelines are hot spots during the spawning period.

Fantastic *walleye* and *sauger* angling also exist on the Big River. The navigation lock and dam habitat produces great catches in late winter, early spring and late fall. Wing dam fishing during summer and early fall will also produce stimulating action. Try backtrolling crankbaits or three-way nightcrawler rigs on the upstream side of wing dams or slow trolling on the bottom in the tailwaters with bright-colored jigs tipped with minnows or three-way minnow rigs. Jiggings sonars below the navigation dams is an effective technique late fall through early spring. *White bass* anglers should look to the same walleye-sauger habitats to catch this numerous and spirited fish.

Rivers in southeast Iowa are great places to catch *catfish*. The Wapsi, Skunk, Cedar, Des Moines and Iowa rivers all produce excellent numbers and a variety of sizes of *catfish*. Float fishing from one access to another, checking brush piles, lower end of sand bars, and rocky riffles will produce lots of fish and lots of fun. Although low water levels in recent years have made access to the favorite hot spot more difficult, the prudent angler will realize these water conditions have concentrated fish and can improve angling success.

Stephen J. Waters is the southeast district fisheries supervisor located at Brighton.

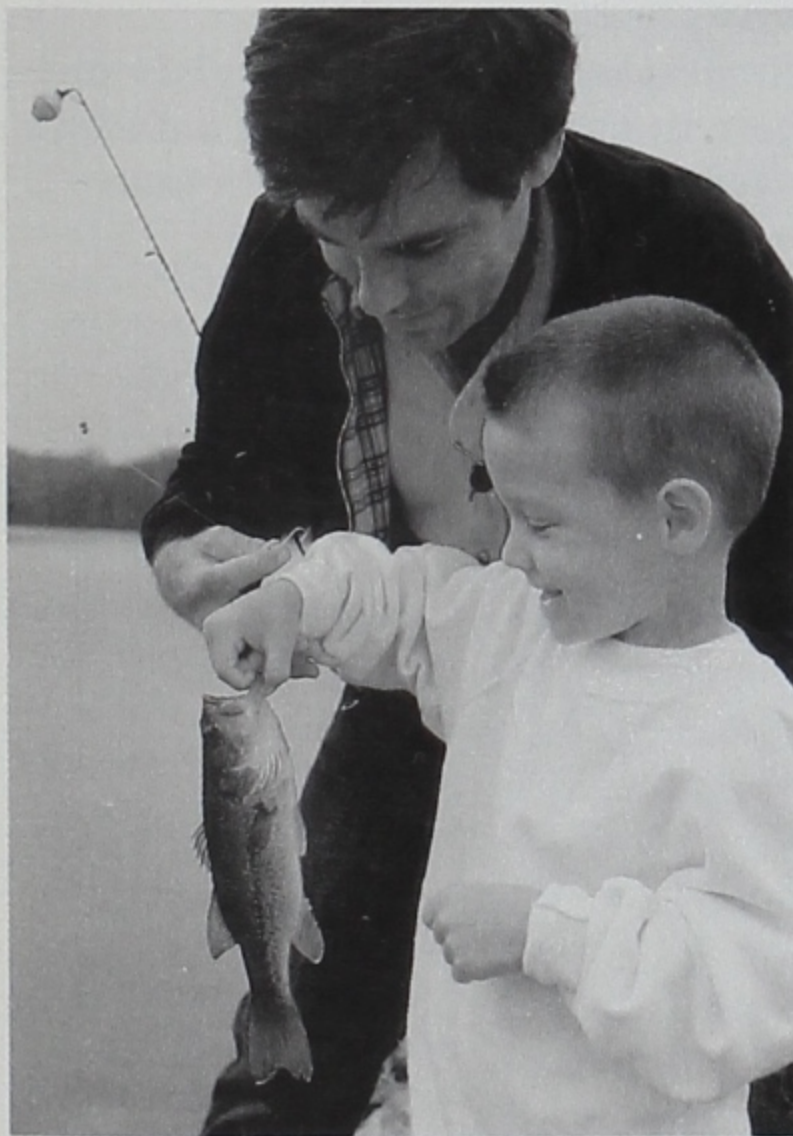


Southwest

by Joe Schwartz



RON JOHNSON



RON JOHNSON

Species

Location, County

Comments

Bluegill

Anita, Cass

Jumbo's!

Big Creek, Polk

Try the edges of weed beds.

Greenfield, Adair

Medium-sized fish are abundant.

Hickory Grove, Story

Not fast, but big.

Icaria, Adams

This lake has refilled and fish may be difficult to find.

Little River, Decatur

9- to 10-inch fish are common.

Nine Eagles, Decatur

Try marked fish reefs. Good redear are present.

Twelve Mile, Union

9- to 10-inch fish are common. Try around flooded trees.

Viking, Montgomery

8-inch common. Try mid-summer drift fishing.

Crappie

Anita, Cass

First crappie lake to start in the spring.

Badger Creek, Madison

Nice fish, 8 to 9-1/2 inches.

Big Creek, Polk

Fish will be smaller than last year.

Don Williams, Boone

Small fish, but very abundant.

Greenfield, Adair

Try the face of the dam in spring.

Icaria, Adams

Fish are up to 1 pound, try fishing newly riprapped areas.

Little River, Decatur

Try around flooded trees.

Prairie Rose, Shelby

Best in years, fish are 8 to 10 inches.

Red Rock, Marion

Big fish. Fish when water is clear, try feeder streams.

Saylorville, Polk

Slabs!

Twelve Mile, Union

Best in spring, slow during summer.

Largemouth Bass

Anita, Cass

Perennial favorite.

Easter Lake, Polk

Up to 5 pounds.

Farm Ponds

Many private ponds in southwest Iowa have good bass.

Green Valley, Union

The 18-inch length limit has produced an abundance of big bass.

Hickory Grove, Story

A lot of small ones, extra clear water.

Icaria, Adams

Try the newly installed brush piles.

Species

Location, County

Comments

Nine Eagles, Decatur
Rock Creek, Jasper

Good numbers of small fish, an occasional large fish.
Good number of 2- to 4-pounders.

Twelve Mile, Union

Tough fishing, excellent for 10- to 15-inch fish.

Walleye/Saugeye

Big Creek, Polk

Four-pounders common.

Des Moines River, Polk & Boone

Fish below flood control dams, low-head dams and gravel riffles.

Icaria, Adams

Fish are up to 10 pounds.

Little River, Decatur

Average fish are 13 inches.

Saylorville, Polk

Fish sandy points.

Twelve Mile, Union

Fish artificial reefs.

Bullheads

Little River, Decatur

Nice fish, big catches.

Prairie Rose, Shelby

Fish are small.

Rock Creek, Jasper

Fish have finally reached deeper-size.

Three Fires, Taylor

6- to 9-inch fish, will have to sort.

Twelve Mile, Union

Nice fish, big catches.

Channel Catfish

Big Creek, Polk

Fish north end of west arm in summer.

Easter Lake, Polk

Very good.

Icaria, Adams

All sizes up to 5 pounds, occasional 15 pounds.

Little River, Decatur

Fish small bays in mid-summer.

Littlefield, Audubon

Fish north shore on strong south wind.

Mormon Trail, Adair

Good numbers.

Southwest Rivers

Catfish are abundant in all of rivers.

Twelve Mile, Union

Cats up to 10 pounds, good early.

Des Moines, Polk & Boone

Most often caught below Saylorville in April and May. September can be good in the reservoir.

Northern Pike

Desoto Bend, Harrison

Survey showed northern pike up to 10 pounds are abundant.



RON JOHNSON

Remember fisheries biologists are here to assist you. If you have any questions call the office in your area.

Northwest District Office --
Spirit Lake Fish Hatchery
Spirit Lake, Iowa 51360
712/336-1840

Northeast District Office --
Manchester Fish Hatchery
Manchester, Iowa 52057
319/927-3276

Southeast District Office --
Lake Darling Station
Route 1
Brighton, Iowa 52540
319/694-2430

Southwest District Office --
Cold Springs State Park
Lewis, Iowa 51544
712/769-2587

Joe Schwartz is the southwest district fisheries supervisor located at Lewis.

Offerings for Iowa Teachers

by Ross Harrison

Hopefully the 20th anniversary of Earth Day, on April 22, will have an even greater impact on the future of our planet than did Earth Day 1 in 1970. It seems that environmental awareness was the focus 20 years ago, while today, it is environmental action, because of that awareness, that should give us hope.

There is no better place to witness such action than in Iowa classrooms where successful environmental education programs take students through the learning cycle and into implementation of environmental lessons in their own personal lives. Student development of their own, positive "environmental ethic," or "sustainable life-style" may be the single most important prospect for a bright environmental future. That is why, for this 20th anniversary of Earth Day, educators throughout the state are being offered an abundance of special programs for their classrooms. All of these programs are free of charge.

Trees for Kids

The Department of Natural Resources, in cooperation with the Iowa Nurseryman's Association, is offering an Iowa forestry education module to 6th-grade teachers. Included in the kit are two wall posters, one on global forestry issues and one featuring the changes in Iowa's forests since settlement; a short video of Iowa forests; and a booklet for teacher backgrounding and classroom activities. One of the activities is a tree planting effort for the entire class. Local retail nurserymen are offered discounted prices for *Trees for Kids*, and the DNR is working on additional local sponsors to help teachers acquire trees at no cost to the school. For

more information, write *Trees for Kids*, DNR, Wallace Building., Des Moines, IA 50319-0034.

Satellite Downlink

"Earthday 1990 - Just Say YEA!" (Youth for Environmental Action): This novel approach to environmental education is sponsored by Iowa State University Extension, with financial assistance from the DNR and Iowa Conservation Education Council. On April 6 from 9 - 10 a.m., a satellite-delivered program will be originated from ISU for teams of students and teachers in grades 7 through 12,

downlinked to receiving dishes all over the state. The program will include a student skit, and discussions of environmental issues (recycling, groundwater, habitats) with questions and answers. To sign up, write Jim Pease, 103 Science Hall II, ISU, Ames, IA 50011.

Earth Day Every Day

The Iowa chapter of the

National Wildlife Federation is circulating the "wildlife week" teacher kits in April instead of the traditional March period, just for the Earth Day education programs. In cooperation with the DNR and some other groups, a special peregrine falcon teaching kit will also be available through Area Education Agencies. Educators should contact their AEA for more information.

Ross Harrison is the chief of the information and education bureau of the DNR in Des Moines.



KEN FORMANEK

Tests confirm D.M. fish tainted by chlordane

Tests conducted by the U.S. Environmental Protection Agency confirmed...

Study shows tainted carp in Mississippi

By WILLIAM RYBICKI
Of The Register's Daventry RIVERDALE
on the Iowa side of the Mississippi River near this town could not be eliminated.

DES MOINES BRIEFS

The Tracey Simmons Trust Fund...

Some D.M. River catfish show high chlordane

Just as I was about to dig into the mouth-watering grilled salmon, freshly caught only yesterday from Lake Michigan, my friend stopped me.

"Scrape off that fat," he said. "What fat?" I asked, "Fish don't have fat."

"Oh yes they do," he responded, "That gray matter around the edge."

"But why?" I questioned.

"That's where they store all the contaminants."

"Contaminants?"

Needless to say it was not a very appetizing way to get your first taste of a grilled Chinook salmon steak.

This precaution may or may not have been necessary, but it is a routine some follow when eating fish taken from certain waters in this country.

Fish, as well as other animals, store in their fatty tissue many organic chemicals they ingest. Fortunately, but unfortunately for the fish, this gives scientists a way of measuring the health of a lake or stream. Fish are useful indicators of contaminants that exist in the environment at levels too low to detect through routine water quality monitoring.

The Iowa Department of Natural Resources is responsible for preventing the contamination of waters and aquatic life in the state and is responsible for notifying the

general public of potential health threats related to such contaminations. Therefore, fish tissue testing, or monitoring, exists. Fish tissue monitoring is conducted in Iowa to supplement other environmental monitoring programs and protect the health of people consuming fish from Iowa waters.

Each year, since 1980, the DNR, in cooperation with the U.S. Environmental Protection Agency and the University of Iowa Hygienic Laboratory, conducts monitoring at approximately 15 locations on Iowa rivers and lakes. The channel catfish is the primary species sampled for contaminants, although carp is sometimes sampled as well. Both are bottom feeders or scavengers and are relatively "fatty" fish. Organic chemicals such as PCBs (polychlorinated biphenyls), dioxin and chlordane, tend to build up in their fat deposits, making them good indicators of "troubles" in Iowa waters.

Currently, Iowa's fish tissue testing studies look at 85 contaminants including pesticides, toxic organic compounds and metals. Results of annual tests are compared to "action" levels set by the U.S. Food and Drug Administration (FDA). These levels are the same used by the FDA for commercially sold fish. If initial tests point to potential problems, more intense sampling is conducted to verify high levels of contamination. If these follow-up tests indicate the fish exceed FDA's standards, an advisory is issued by the DNR in cooperation with the Department of Public Health. The DNR does not issue fish consumption advisories without follow-up monitoring. This prevents advisories based on insufficient data. Eating contaminated fish does not pose an immediate or acute health risk. Action levels are established based on exposure to the contaminant over a lifetime.

The primary problem contaminants in Iowa seem to be chlordane and PCBs. Use of chlordane was banned in Iowa in 1989 and for more than 10 years prior had been restricted to use in termite control. The chemical, however, is long-

Risk cited in catfish

FISH

Continued from Page 1M

suspected human carcinogen

Forty channel catfish, ranging from 12 to 20 inches long, were taken from the Des Moines River near the town of Rivesdale, near the treatment plant in Des Moines.

Conover said the fish were tested, but carp are bottom-feeders and are bottom-feeding content. Many chemicals are stored in fat.

Most game fish, such as northern pike and bluegills, have less chemical contamination.

Health authorities disagree on the threat. Federal agencies are based on long exposures.

Conover said "I would eat fish from the Des Moines River without any qualms," he said. "But we have to let pi-

It's Only Skin Deep

by Julie Sparks

lived and can remain in the environment for many years. PCBs, because of their insulating and non-flammable properties, have been widely used as coolants and lubricants in transformers, capacitors and other electrical equipment. Manufacturing of PCBs was halted in the U.S. in 1977 because of evidence they accumulated in the environment and because of their suspected carcinogenic properties. Although manufacturing stopped, many old transformers and capacitors exist containing fluid that contains PCBs. The useful lifetime of this electrical equipment can be 30 years or more.

Other contaminants detected in recent studies include heptachlor epoxide, dieldrin, DDT and DDE, mercury, lead and gamma-BHC. Levels of these contaminants detected in Iowa's fish were well below the FDA "action" levels, however, lead and gamma-BHC do not have FDA standards.

Although Iowa certainly does not have the problems with fish contamination more populated, industrialized states have, fish tissue testing has indicated some trends in Iowa. As in previous years, last year's testing indicated fish taken from southern Iowa tend to have higher levels and more types of organochlorine pesticides than fish from northern Iowa. Understanding the nature of organochlorine pesticides may help explain this trend. These pesticides tend to attach to soil particles and because of the higher rates of soil erosion in southern Iowa, are easily carried into rivers and streams in the area. Although organochlorine pesticides have not been used in Iowa agriculture for at least 10 years, they are resistant to breakdown in the environment and sediments in streams serve as a source for these contaminants.

Winters in northern Iowa are too severe to allow termites to survive year to year. Because Iowa's use of chlordane has been primarily to treat termites, chlordane contamination problems tend to be restricted to the southern portion of the state.

Samples of fish from publicly owned lakes tend to have lower

levels of contaminants than samples from rivers and streams. The fact that lakes have smaller watersheds relative to rivers and streams may account for this trend. With a smaller watershed, smaller amounts of contaminants can be delivered. Also, discharge of wastewater from industry and municipalities into Iowa lakes is prohibited.

Lakes with shoreline areas developed for residential and industrial uses may have fish with slightly elevated levels of contaminants compared to other state-owned lakes in Iowa.

The Iowa DNR presently has consumption advisories at only three locations in the state — Cedar Lake in Cedar Rapids, Pool 15 of the Mississippi River near Davenport and the Des Moines River between the Saylorville dam and the Red Rock dam. The Des Moines River has exceeded federal levels for chlordane, the Missis-

sippi has exceeded the levels for PCBs, and Cedar Lake has exceeded the levels for both.

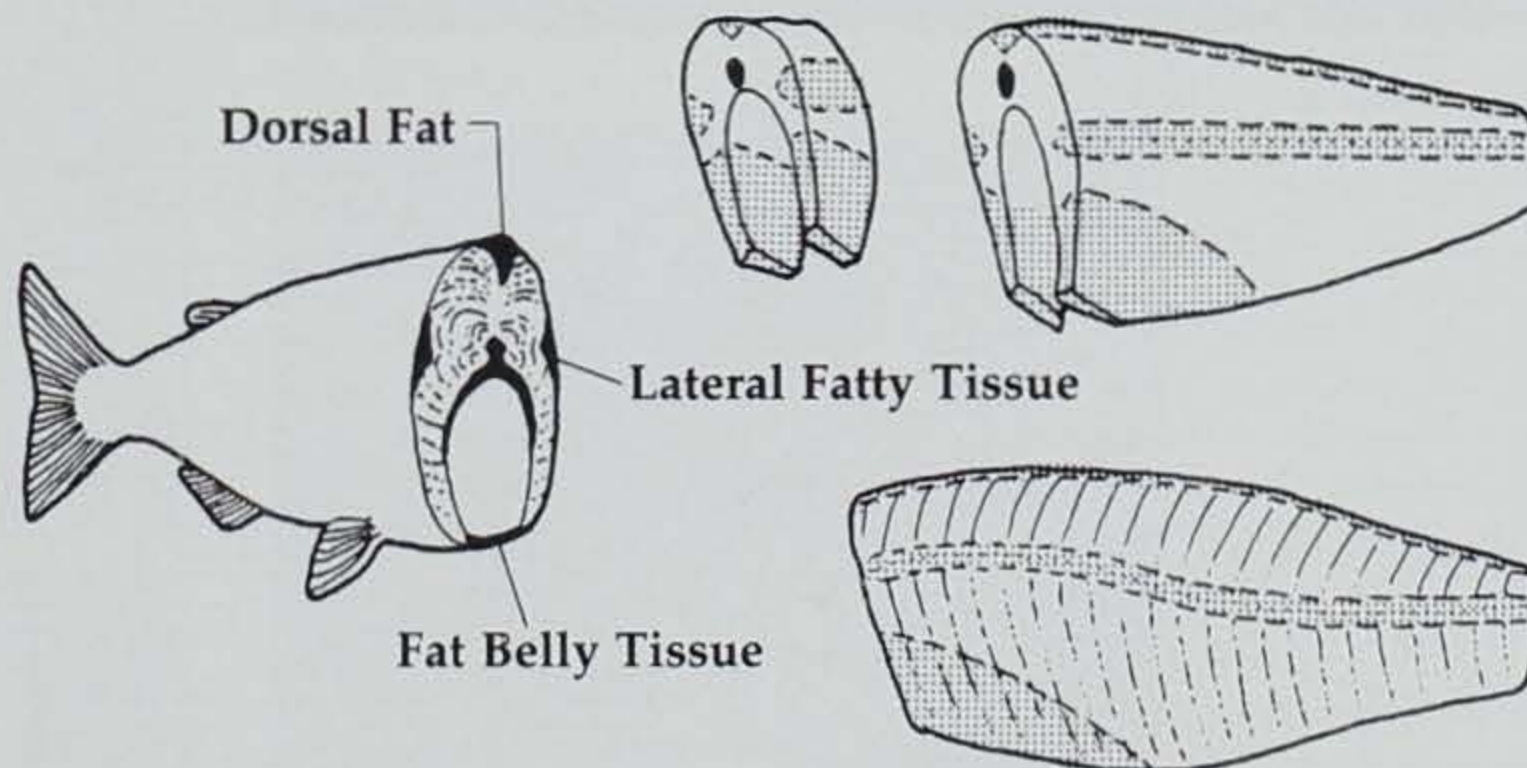
Other than in these three areas, DNR officials feel anglers should not be concerned with eating fish taken from Iowa waters. Fish is an excellent protein source, low in fat and cholesterol, and an important part of a healthy diet. Most game fish do not carry contaminants the way the more fatty catfish and carp do. Older fish will have accumulated more fat and therefore more chemical residues, but proper preparation can eliminate chances of ingesting contaminants from most any fish (see preparation tips).

The Iowa DNR monitors the health of Iowa's aquatic environment each year through the fish tissue testing program. Guided by results of these tests and other environmental monitoring, the DNR can take corrective measures necessary to improve the quality of our water resources.

Preparation Tips

Intake of contaminants can be reduced by properly preparing fish.

Trim off fatty areas (shown in black in the diagram). These include the belly fat, lateral line fatty areas and the flesh along the top of the back.



Remove and discard the skin, entrails and liver. These organs are often high in contaminants.

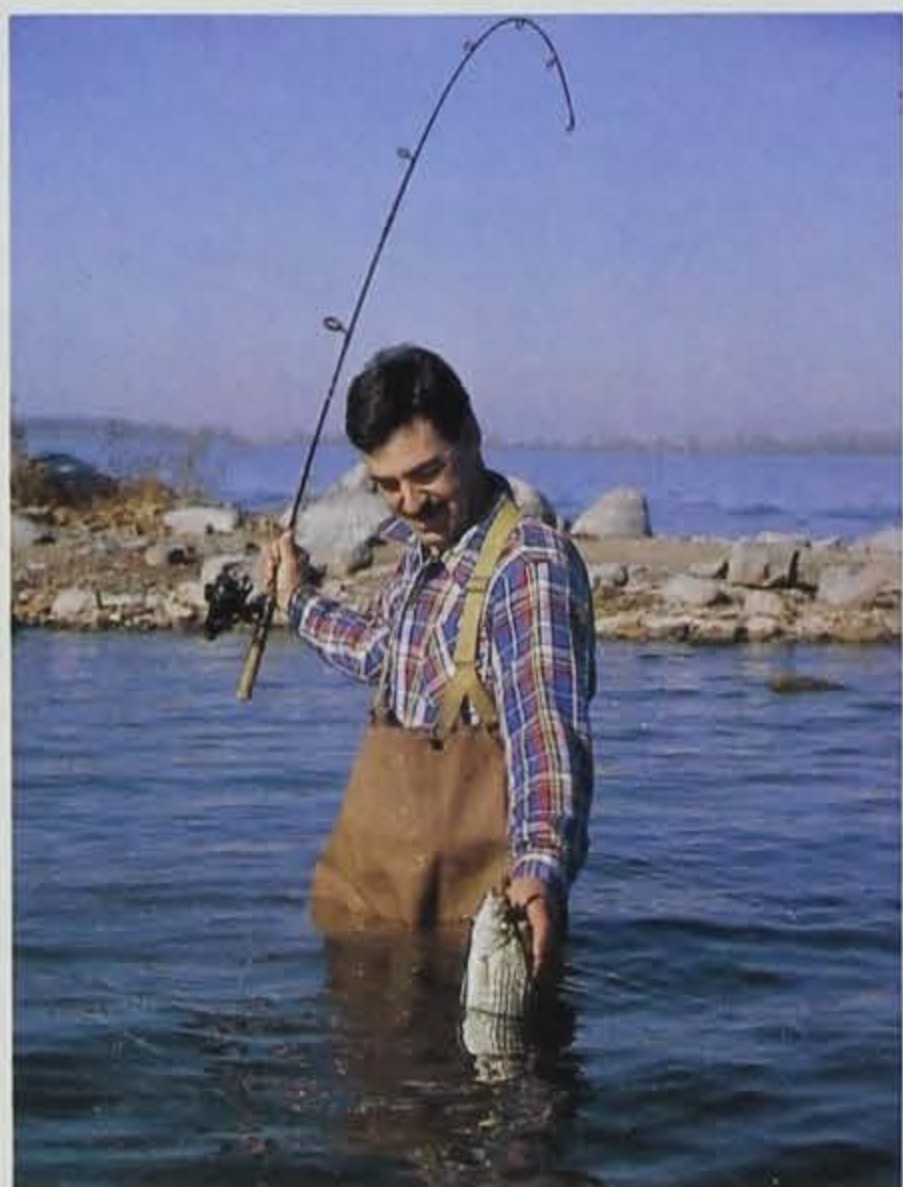
Cook the fish so the fat drains away. Broiling or grilling on a rack are the best methods. Discard the drippings and do not use them as ingredients in other foods. Poaching is acceptable if the liquid is discarded. Although pan frying will not reduce contaminant levels, deep frying may be helpful — if the oil is discarded after cooking.

The Dollars and "Sense" of Fishing

by Don Bonneau

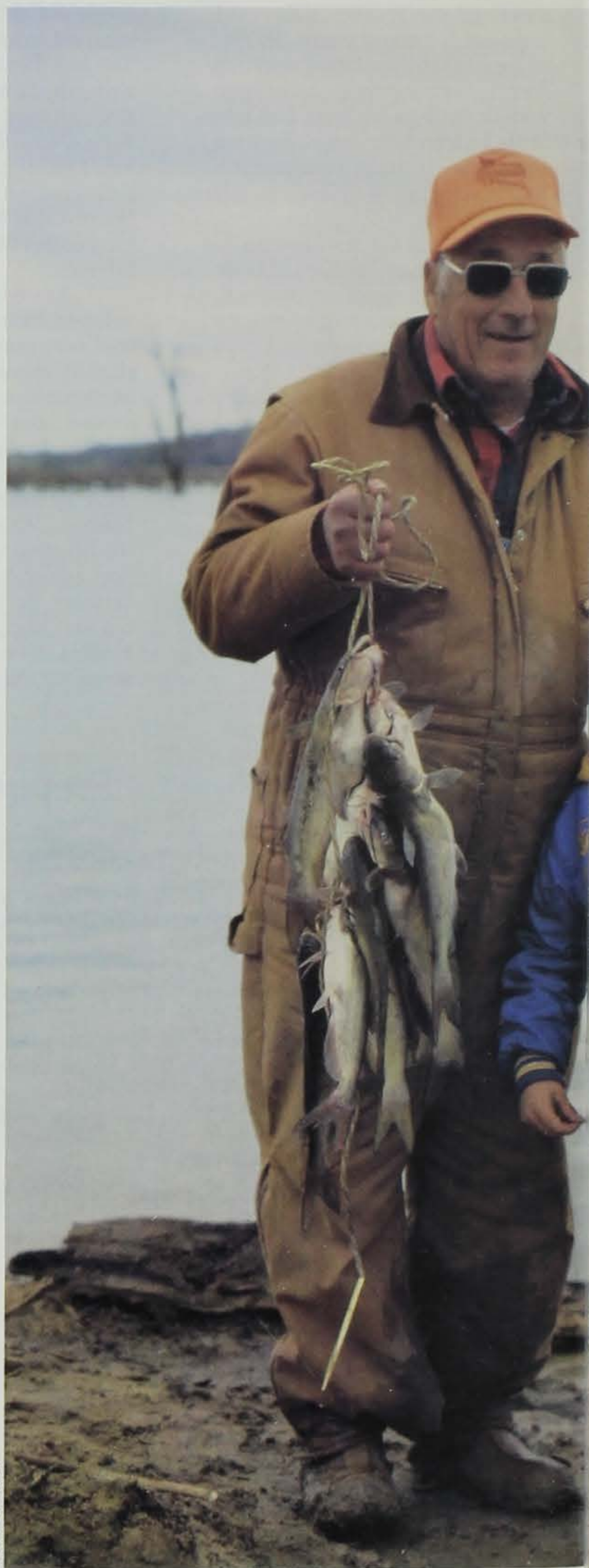


JERRY LEONARD



LOWELL WASHBURN

DON BONNEAU



1989 Fish Awards

New state records are highlighted.

WEIGHT	WHERE CAUGHT/COUNTY	DATE	NAME/ADDRESS
BASS, LARGEMOUTH (Minimum — 7 lbs. or 22")			
9 lbs. 3 ozs.	Farm Pond, Marion	05/20/89	Tyson Bauer, Milo
8 lbs. 12 ozs.		1/31/89	Jeff Prox, Ottumwa
8 lbs. 11-1/2 ozs.	Farm Pond, Madison		Dean D. Frazier, Des Moines
8 lbs. 6-1/2 ozs.	Black Hawk Lake, Sac	4/20/89	Rusty Wheeler, Lake City
8 lbs. 2 ozs.	Farm Pond, Jefferson	9/10/89	Ron Carter, Fairfield
8 lbs.	Pleasant Creek Lake, Benton	7/23/89	Thomas D. Fleming, Cedar Rapids
8 lbs.	Camp Neyati Lake, Pottawattamie	11/12/89	Ed Murray, Council Bluffs
8 lbs.	Farm Pond, Montgomery	5/1/89	Kevin Kennon, Stanton
7 lbs. 14 ozs.	Scharnberg Park, Clay	4/30/89	Ronald Creswell, Spencer
7 lbs. 6 ozs.	Round Prairie Park, Jefferson	8/9/89	Jeff Long, Fairfield
Released	Farm Pond, Dubuque		Glen R. Sears, Waterloo
Released	Farm Pond, Cherokee	8/2/89	Dave Sitzmann, Eldridge
Released	Big Creek, Polk	6/30/89	Chris Maland, Des Moines
Released	Farm Pond, Montgomery	7/30/89	Steve Philby, Red Oak
Released	Farm Pond, Montgomery	7/30/89	Steve Philby, Red Oak
Released	Farm Pond, Montgomery	6/11/89	Steve Philby, Red Oak
Released	Farm Pond, Van Buren	4/11/89	Paul "Buck" Farni, Jr., Durango
BASS, OCEAN-STRIPED (Minimum -- 5 lbs.)			
No Entries			
BASS, ROCK (Minimum — 1 lb.)			
No Entries			
BASS, SMALLMOUTH (Minimum — 4 lbs. or 20")			
5 lbs. 8 ozs.	Spirit Lake, Dickinson	10/30/89	Ken Hample, Spirit Lake
5 lbs. 2 ozs.	West Okoboji, Dickinson	9/23/89	Dick Sporleder, Norfolk, NE
5 lbs.	West Okoboji, Dickinson	9/15/89	Mike Craney, Bellevue, NE
4 lbs. 14 ozs.	Mississippi River Dam #10, Clayton	4/29/89	Mike Hertges, Waterloo
4 lbs. 14 ozs.	West Lake Okoboji, Dickinson	10/21/89	Richard Gray, Dickens
4 lbs. 10 ozs.	West Okoboji, Dickinson	4/22/89	Dwane Krogman, Lismore, MN
4 lbs. 10 ozs.	Cedar River, Floyd	6/2/89	Mike Schermer, Charles City
4 lbs. 10 ozs.	Spirit Lake, Dickinson	9/29/89	Ken Hample, Spirit Lake
4 lbs. 9 ozs.	Big Spirit, Dickinson	7/4/89	Mike Rounds, Peterson
4 lbs. 8 ozs.	West Lake Okoboji, Dickinson	10/22/89	Heath Gray, Dickens
4 lbs. 8 ozs.	West Okoboji, Dickinson	9/16/89	Randy Blake, Omaha, NE
4 lbs. 8 ozs.	West Okoboji, Dickinson	9/16/89	Randy Blake, Omaha, NE
Released	West Okoboji, Dickinson	6/26/89	Ed Thelen, Spirit Lake
Released	West Okoboji, Dickinson	5/15/89	Ed Thelen, Spirit Lake
Released	West Okoboji, Dickinson	8/13/89	Ed Thelen, Spirit Lake
BASS, WHITE (Minimum — 2 1/2 lbs.)			
3 lbs. 7 ozs.	Big Spirit, Dickinson	5/3/89	Henry Williams, Spirit Lake
2 lbs. 13 ozs.	Red Rock Lake, Marion	8/17/89	Arlie Vander Hoek, Pella
2 lbs. 12 ozs.	West Okoboji, Dickinson	9/21/89	Robert Fitzgerald, Milford
2 lbs. 9 ozs.	Mississippi River, Dubuque	4/17/89	G. E. Matz, Dubuque
2 lbs. 8 ozs.	West Okoboji, Dickinson	4/24/89	Barry Anderson, Arnolds Park
BASS, WIPER (Minimum -- 4 lbs.)			
12 lbs. 11 ozs.	Des Moines River, Boone	4/28/89	Aaron E. Crook, Boone
11 lbs. 4 ozs.	Saylorville Lake, Polk	10/24/89	Bill Obermeier, Polk City
7 lbs. 4 ozs.	Saylorville Lake, Polk	6/4/89	Kerrey Joe Johnson, Ankeny
5 lbs. 5 ozs.	Des Moines River, Polk	8/14/89	Don Smothers, Jr., Des Moines
4 lbs.	Des Moines River, Marion	4/18/89	Rick Whitaker, Jr., Pella
BASS, YELLOW (Minimum — 3/4 lb.)			
No Entries			
BLUEGILL (Minimum -- 1 lb.)			
1 lb. 13 ozs.	Viking Lake, Montgomery	5/6/89	Barbara J. McDannel, Villisca
1 lb. 12 ozs.	Farm Pond, Appanoose	6/3/89	John Baty, Moravia
1 lb. 12 ozs.	Farm Pond, Lucas	5/13/89	Larry Weber, Dunkerton
1 lb. 10 ozs.	Farm Pond, Montgomery	8/14/89	Carol Spicer, Emerson
1 lb. 8 ozs.	Farm Pond, Audubon	6/5/89	Wes Mackrill, Adair
1 lb. 8 ozs.	Farm Pond, Cherokee	1/25/89	Dave Sitzmann, Eldridge

1 lb. 8 ozs.	Fickters, Fremont	6/11/89	Scott Carnes, Thurman
1 lb. 7-1/2 ozs.	Farm Pond, Jefferson	7/20/89	Ron Carter, Fairfield
1 lb. 5-1/2 ozs.	Farm Pond, Monona	8/27/89	Raymond Sherlock, Merrill
1 lb. 5 ozs.	Farm Pond, Davis	6/7/89	Larry Scott, Drakesville
BOWFIN (Dogfish)(Minimum—5 lbs.)			
8 lbs. 4 ozs.	Mississippi River, Clayton	6/10/89	June Primmer, Central City
6 lbs. 8 ozs.	Mississippi River, Clayton	1/28/89	Kevin Vogeler, Central City
6 lbs.	Mississippi River, Dubuque	7/23/89	Tom Fabricius, Dubuque
5 lbs. 10 ozs.	Mississippi River, Clayton	9/10/89	Joshua Peterka, Swisher
BUFFALO (Minimum—20 lbs.)			
45 lbs.	Lost Island Lake, Palo Alto	5/16/89	Noel Chiafos, Perry
23 lbs. 2 ozs.	Clear Lake, Cerro Gordo	5/12/89	Kevin Keeling, Mason City
21 lbs. 10 ozs.	Cedar River, Muscatine	5/20/89	Tom Murphy, Davenport
BULLHEAD (Minimum—2 1/2 lbs.)			
2 lbs. 8 ozs.	Lake Anita, Cass	4/29/89	Rodger Christensen, Anita
CARP (Minimum—25 lbs.)			
25 lbs. 5 ozs.	Lake Manawa, Pottawattamie	8/23/89	Steve Howerton, Council Bluffs
CATFISH, BLUE (Minimum—20 lbs.)			
40 lbs.	Missouri River, Harrison	6/21/89	John DeLong, Jr., Missouri Valley
38 lbs. 4 ozs.	Missouri River, Mills	6/17/89	Roger A. Jungferman, Council Bluffs
CATFISH, CHANNEL (Minimum 15 lbs.)			
32 lbs.	Iowa River, Marshall	10/14/89	Kurt E. Carson, Marshalltown
23 lbs. 9 ozs.	Quarry, Webster	6/21/89	Bret Knutson, Duncombe
20 lbs.	Pleasant Creek, Linn	7/22/89	Matt Wildman, Ankeny
20 lbs.	Pleasant Creek, Linn-Bention	7/23/89	Shannon Wayne Yeisley, Springville
19 lbs. 4 ozs.	Private Pond, Humboldt	8/24/89	Don L. McGrath, Eagle Grove
19 lbs. 4 ozs.	West Okobojo, Dickinson	5/18/89	Robert B. Gee, Estherville
18 lbs. 12 ozs.	Farm Pond, Jasper	7/2/89	Robert Kreager, Newton
17 lbs. 4 ozs.	West Okobojo, Dickinson	1/10/89	Jim Meyerdirk, Milford
17 lbs. 3 ozs.	Gravel Pit, Webster	9/3/89	John McGrath, Eagle Grove
15 lbs. 6 ozs.	Rutland Gravel Pit, Humboldt	7/24/89	David G. Gross, Eagle Grove
Released	Des Moines River, Emmet	7/22/89	Clay Gee, Ames
CATFISH, FLATHEAD (Minimum—20 lbs.)			
51 lbs. 8 ozs.	Saylorville, Polk	4/2/89	Steven C. Hopkins, Grimes
45 lbs.	Des Moines River, Marion		Joel Bennett, Harvey
45 lbs.	Missouri River, Woodbury	8/25/89	Tom McPherson, Sioux City
44 lbs.	Des Moines River, Dallas	5/1/89	Craig DeHoet, Woodward
42 lbs.	Des Moines River, Boone	6/24/89	John Fields, Paton
35 lbs.	Missouri River, Mills	8/19/89	Gerald Cramer, Omaha, NE
33 lbs. 8 ozs.	Mississippi River, Scott		Sherri Faley, Davenport
33 lbs. 8 ozs.	Farm Pond, Polk	8/2/89	Matt Wildman, Ankeny
32 lbs. 2 ozs.	Des Moines River, Wapello	6/23/89	Eddie Ashmore, Moravia
30 lbs. 8 ozs.	Mississippi River, Muscatine	1/15/89	Jeff Weikert, Muscatine
CRAPPIE (Minimum—2 lbs.)			
4 lbs.	Farm Pond, Clay	6/7/89	Everett Steffen, Spencer
3 lbs. 8 ozs.	Rushing Pond, Fayette	6/11/89	Scott E. Dempsey, Fairbank
3 lbs.	Farm Pond, Fremont	5/13/89	Don Travis, Sidney
2 lbs. 11 ozs.	Sand Pit, Muscatine	5/16/89	Kim Tompkins, Fruitland
2 lbs. 9 ozs.	Farm Pond, Madison	8/19/89	Dean Frazier, Des Moines
2 lbs. 5 ozs.	Farm Pond, Benton	5/29/89	Leo Bushnell, Mt. Auburn
2 lbs. 5 ozs.	Farm Pond, Lucas	5/16/89	Paul F. McKinley, Chariton
2 lbs. 4 ozs.	Saylorville Lake, Polk	5/10/89	Martha Holzworth, Des Moines
2 lbs. 4 ozs.	Gravel Pit, Plymouth	10/26/89	Jerrold Henrich, Akron
2 lbs. 3 ozs.	Farm Pond, Madison	9/17/89	Michael P. Holzworth, Des Moines
2 lbs. 3 ozs.	Whitebreast Creek, Marion	5/13/89	Roger DeMoss, Knoxville
2 lbs. 3 ozs.	Des Moines River, Boone	5/89	Clay Gee, Estherville
DRUM, FRESHWATER (Minimum—15 lbs.)			
15 lbs. 12 ozs.	Mississippi River, Allamakee	6/18/89	Bob Hansen, Cedar Falls
GAR (Minimum—10 lbs.)			
No Entries			
MUSKELLUNGE (Minimum—15 lbs. or 40")			
31 lbs. 1 oz.	Big Creek, Polk	5/1/89	James L. Karaidos, Des Moines
30 lbs.	West Okobojo, Dickinson	4/30/89	Larry Kreckow, Redwood Falls, MN
28 lbs. 14 ozs.	West Okobojo, Dickinson	5/29/89	Mike Nielson, Storm Lake

28 lbs. 8 ozs.	West Okoboji, Dickinson	9/30/89	F. Edward Stivers, Lincoln
26 lbs. 10 ozs.	Big Creek, Polk	4/25/89	Larry Moore, Des Moines
25 lbs. 6 ozs.	West Okoboji, Dickinson	9/24/89	Jeff Ver Steeg, Estherville
24 lbs. 3 ozs.	East Okoboji, Dickinson	8/17/89	Kevin Seely, Des Moines
24 lbs. 1 oz.	East Okoboji, Dickinson	8/17/89	Kevin Seely, Des Moines
21 lbs. 12 ozs.	West Okoboji, Dickinson	5/7/89	Robert I. Rogers, Merville
18 lbs. 12 ozs.	Storm Lake, Bueva Vista	5/16/89	Sheridan Shannon, Alta
Released	West Okoboji, Dickinson	10/29/89	Jeff L. Ver Steeg, Estherville

MUSKELLUNGE, TIGER (Minimum — 15 lbs. or 40")

27 lbs. 2 ozs.	West Okoboji, Dickinson	8/19/89	Shannon Green, Spencer
24 lbs. 10 ozs.	Big Creek, Polk	1989	Bill Obermeier, Polk City
17 lbs. 8 ozs.	Lake Anita, Cass	7/22/89	Rick Stanley, Anita
15 lbs. 2 ozs.	Lake Icaria, Adams	4/15/89	David Hauge, Omaha, NE

NORTHERN PIKE (Minimum — 10 lbs. or 34")

15 lbs. 6 ozs.	Mississippi River, Dubuque	4/26/89	Amy L. Matz, Dubuque
14 lbs. 11 ozs.	Mississippi River, Clayton	12/4/89	Richard B. Hyde, Elkader
14 lbs. 10 ozs.	West Okoboji, Dickinson	2/12/89	Jim Meyerdirk, Royal
14 lbs. 10 ozs.	West Okoboji, Dickinson	1/15/89	Jim Guthrie, Milford
13 lbs. 6 ozs.	West Okoboji, Dickinson	1/14/89	Mark Aeilts, Sioux City
13 lbs. 6 ozs.	West Okoboji, Dickinson	8/26/89	Tom Crawford, Sioux City
12 lbs. 8 ozs.	Farm Pond, Emmett	4/30/89	David Pelzer, Estherville
12 lbs. 3 ozs.	Blue Lake, Monona	4/16/89	Scott Grosse, Norfolk, NE
12 lbs. 2 ozs.	West Okoboji, Dickinson	9/10/89	Allan Osborn, Sioux City
12 lbs.	Mississippi River, Jackson	7/15/89	Rodney Schnoor, Maquoketa
Released	West Okoboji, Dickinson	1/15/89	Sidney A. Logan, Rock Rapids
Released	DeSoto Bend, Harrison	5/6/89	John L. McDonald, Council Bluffs

PADDLEFISH (Minimum—25 lbs.)

76 lbs. 2 ozs.	Mississippi River Pool 13, Jackson	3/14/89	Clark Moen, Ames
49 lbs.	Mississippi River, Jackson	3/23/89	Gary Schlapio, Maquoketa
46 lbs.	Mississippi River, Jackson	1/4/89	Al Bieber, Center Point
46 lbs.	Mississippi River, Jackson	1/4/89	David R. Kircher, Center Point
38 lbs.	Mississippi River, Jackson	1/4/89	David R. Kircher, Center Point
38 lbs.	Mississippi River, Jackson	1/9/89	Alibon Bieber, Center Point
30 lbs.	Mississippi River, Jackson	1/9/89	Al Bieber, Center Point

PERCH (Minimum—1 lb.)

1 lb. 9 ozs.	Farm Pond, Buena Vista	3/11/89	Todd Malaise, Spencer
1 lb. 8 ozs.	Gravel Pit, Cass	11/6/89	Norman E. Hoeck, Atlantic
1 lb. 6 ozs.	Mississippi River, Clinton	1/2/89	Jim Weispenning, Clinton
1 lb. 4 ozs.	Spirit Lake, Dickinson	1/29/89	David Marra, Sanborn
1 lb. 3 ozs.	West Okoboji, Dickinson	1/24/89	Irv Schnell, Milford
1 lb. 2 ozs.	Mississippi River, Allamakee	2/27/89	Kevin Vogeler, Central City
1 lb. 2 ozs.	Spirit Lake, Dickinson	7/12/89	Irene Manogue, Spirit Lake
1 lb. 2 ozs.	Spirit Lake, Dickinson	4/15/89	Pat Strait, Hartley
1 lb. 1 oz.	Big Spirit, Dickinson	4/24/89	Mike Salzman, Granville
1 lb. 1 oz.	Big Spirit Lake, Dickinson	6/15/89	Darrell Kruger, Spirit Lake
1 lb. 1 oz.	Spirit Lake, Dickinson	4/15/89	Bruce Raveling, Melvin
1 lb. 1 oz.	Big Spirit, Dickinson	6/27/89	Randall Hartsock, Rockford, IL

SAUGER (Minimum -- 2-1/2 lbs. or 18")

5 lbs. 4 ozs.	Mississippi River, Clayton	1/19/89	Irvin Muench, Guttenberg
5 lbs. 2 ozs.	Mississippi River, Scott	1/30/89	Ron Fenchel, LeClaire
4 lbs. 12 ozs.	Mississippi River, Dubuque	3/31/89	Richard A. Kotz, Dubuque
4 lbs. 8 ozs.	Mississippi River, Clayton	10/28/89	Joe Carpenter, Cedar Rapids
4 lbs. 3 ozs.	Mississippi River, Clayton	10/28/89	Merwin Cook, Manchester
4 lbs. 1 oz.	Mississippi River, Jackson	4/5/89	Les Roemig, Amana
4 lbs.	Mississippi River, Jackson	11/8/89	Richard A. O'Leary, Clinton
3 lbs. 15 ozs.	Mississippi River, Clayton	4/16/89	Randall N. Greenwell, Cedar Rapids
3 lbs. 14 ozs.	Mississippi River, Allamakee	7/21/89	Terry Lee Krouse, Cedar Rapids
3 lbs. 10 ozs.	Mississippi River, Clayton	11/19/89	Greg Buckendahl, Manchester
Released	Mississippi River, Clayton	8/26/89	Bob Dupont, Dubuque
Released	Missouri River, Woodbury	10/22/89	Jeffery A. Kunkel, Bronson
Released	Des Moines River, Wapello	12/17/89	Kirk Daily, Ottumwa

SUCKER (Minimum—4 lbs.)

8 lbs. 5 ozs.	Missouri River, Woodbury	5/27/89	Larry Carter, Sioux City
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SUNFISH, REDEAR (Minimum—1 lb.)

1 lbs. 5 ozs.	Udderbacks Pond, Monona	7/28/89	Lee L. Kirkpatrick, Jr., Onawa
1 lbs. 4 ozs.	Farm Pond, Dallas	5/30/89	Lester Smith, Des Moines

TROUT, BROOK (Minimum — 1 lb. or 13")

1 lbs. 12 ozs.	Pine Creek, Winneshiek	5/29/89	John R. Grinna, Decorah
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TROUT, BROWN (Minimum — 3 lbs. or 18")

8 lbs. 15 ozs.	Little Paint Yellow River, Allamakee	3/25/89	Nick Mauer, Waterloo
8 lbs. 2 ozs.	Turkey River, Clayton	7/29/89	Mary Brunner, Cedar Falls
8 lbs.	Bankston, Dubuque	1/24/89	Carl F. Lux, Dubuque
7 lbs. 7 ozs.	Trout Run, Winneshiek	6/30/89	Curtis Vick, Decorah
7 lbs. 5 ozs.	Swiss Valley, Dubuque	5/10/89	Wayne T. Becker, Dubuque
7 lbs. 5 ozs.	Swiss Valley, Dubuque	6/1/89	Gary L. Philipp, Dubuque
7 lbs. 4 ozs.	Little Mill, Jackson	4/8/89	Geoff Soltau, Davenport
6 lbs. 4 ozs.	Swiss Valley, Dubuque	5/9/89	George Meyer, Dubuque
4 lbs. 12 ozs.	Sny Magill, Clayton	5/22/89	J. E. Arthur, Waterloo
4 lbs.	Grannis Creek, Fayette	4/21/89	Jene Kirchhoff, Tripoli
Released	Waterloo Creek, Allamakee	5/22/89	Tim J. Bohl, Lake Mills

TROUT, RAINBOW (Minimum — 3 lbs. or 18")

13 lbs. 9 ozs.	Trout River, Winneshiek	4/7/89	Francis Hentges, New Hampton
12 lbs. 14 ozs.	Turkey River, Clayton	4/16/89	Jeff Schneckloth, Davenport
11 lbs. 12 ozs.	Otter Creek, Fayette	5/24/89	Kenneth D. Powers, Oelwein
11 lbs.	Trout River, Winneshiek	5/13/89	Tim Clark, Charles City
10 lbs. 13-1/2 ozs.	Joy Spring, Clayton	6/2/89	Johnny Levendusky, Waterloo
10 lbs. 13 ozs.	Trout Run, Winneshiek	5/19/89	Larry Dungy, Marshalltown
10 lbs. 9 ozs.	Turkey River, Clayton	5/14/89	Jennifer Campbell, Cedar Rapids
10 lbs. 2-1/2 ozs.	South Bear, Winneshiek	4/7/89	J. Paul Buren, Mason City
10 lbs. 2 ozs.	Little Mill, Jackson	5/26/89	Betty J. Schneider, LeClaire
10 lbs.	Swiss Valley, Dubuque	5/20/89	Richard Heinisch, Dubuque

WALLEYE (Minimum — 8 lbs. or 28")

11 lbs. 11-1/2 ozs.	Mississippi River, Allamakee	1/29/89	Tom Rima, Decorah
11 lbs. 10 ozs.	Rathbun Lake, Appanoose	6/24/89	Rich Fogle, Ottumwa
11 lbs. 3 ozs.	Spirit Lake, Dickinson	5/3/89	Ken Hample, Spirit Lake
11 lbs. 2 ozs.	Storm Lake, Buena Vista	10/20/89	Tim Dean, Storm Lake
10 lbs. 12 ozs.	Storm Lake, Buena Vista	10/7/89	Mike Dryden, Spencer
10 lbs. 8-1/2 ozs.	Spirit Lake, Dickinson	6/13/89	Ken Hample, Spirit Lake
10 lbs. 3 ozs.	Storm Lake, Buena Vista	10/11/89	Mike Dryden, Spencer
10 lbs.	Storm Lake, Buena Vista	5/16/89	Tim Dean, Storm Lake
9 lbs. 12 ozs.	Mississippi River, Allamakee	6/16/89	Bob Hansen, Cedar Falls
9 lbs. 8 ozs.	Storm Lake, Buena Vista	11/16/89	Tim Dean, Storm Lake
Released	Mississippi River, Allamakee	7/13/89	Jim Evans, Waukon
Released	Lake Icaria, Adams	4/29/89	Gary Heinbuch, Fontanelle
Released	Lost Island Lake, Palo Alto	4/15/89	Darcy Johnson, Ruthven
Released	Spirit Lake, Dickinson	12/17/89	Maury Muhm, Spirit Lake
Released	Big Spirit Lake, Dickinson	10/15/89	Bob Gee, Estherville
Released	Five Island, Palo Alto	10/7/89	Garold E. Hough, Algona
Released	Cedar River, Floyd	9/25/89	Lurlin Schermer, Charles City

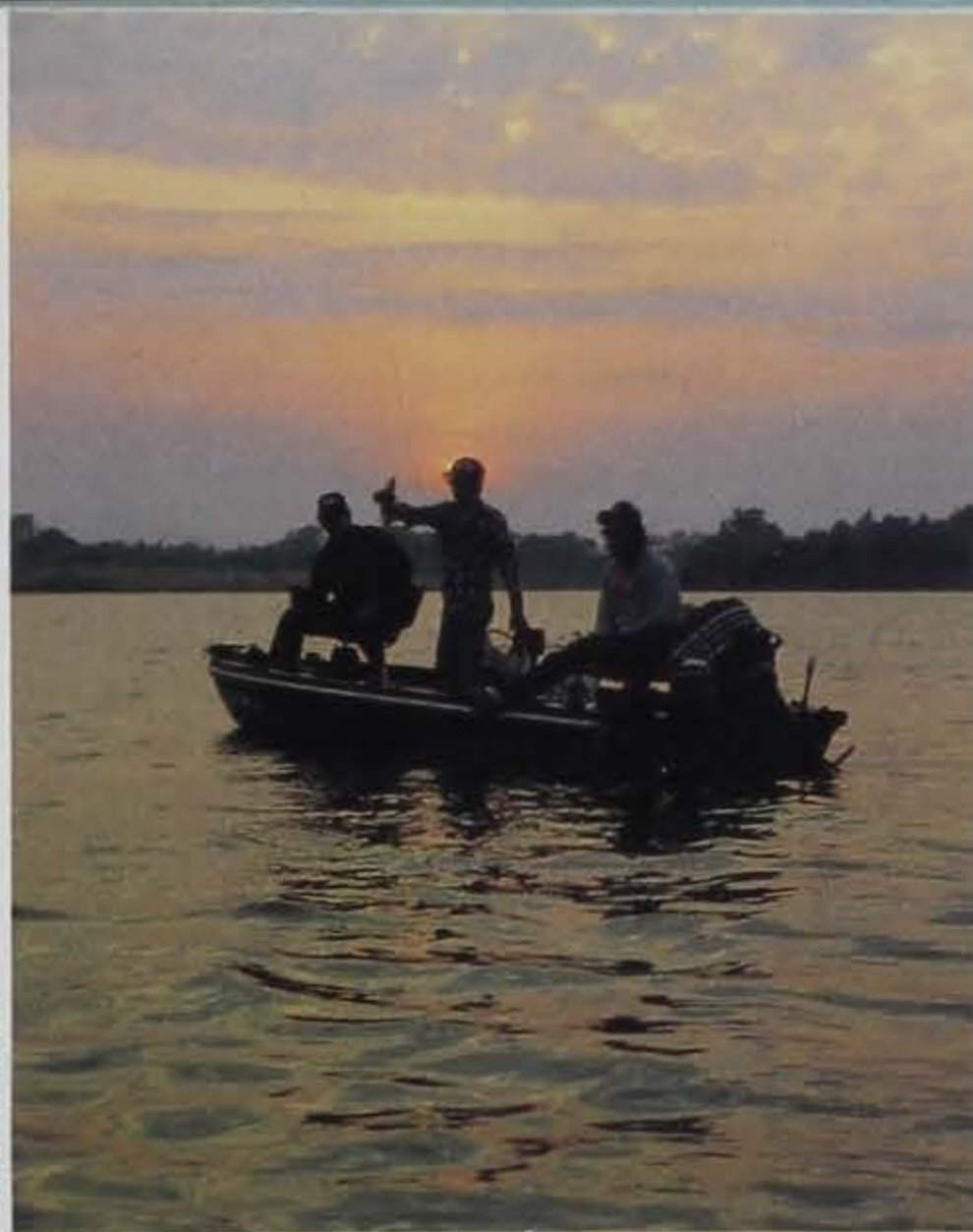
WHITE AMUR (Minimum — 25 lbs.)

37 lbs.	Nodaway Lake, Adair	5/10/89	Shawn Eslinger, Greenfield
33 lbs. 2 ozs.	Railroad Lake, Scott	5/21/89	Colin Keith Breber, Davenport
27 lbs. 6 ozs.	Private Pond, Linn	10/10/89	Matthew Ray, Mt. Vernon
25 lbs. 8 ozs.	Private Pond, Linn	10/10/89	Nathan Day, Mt. Vernon

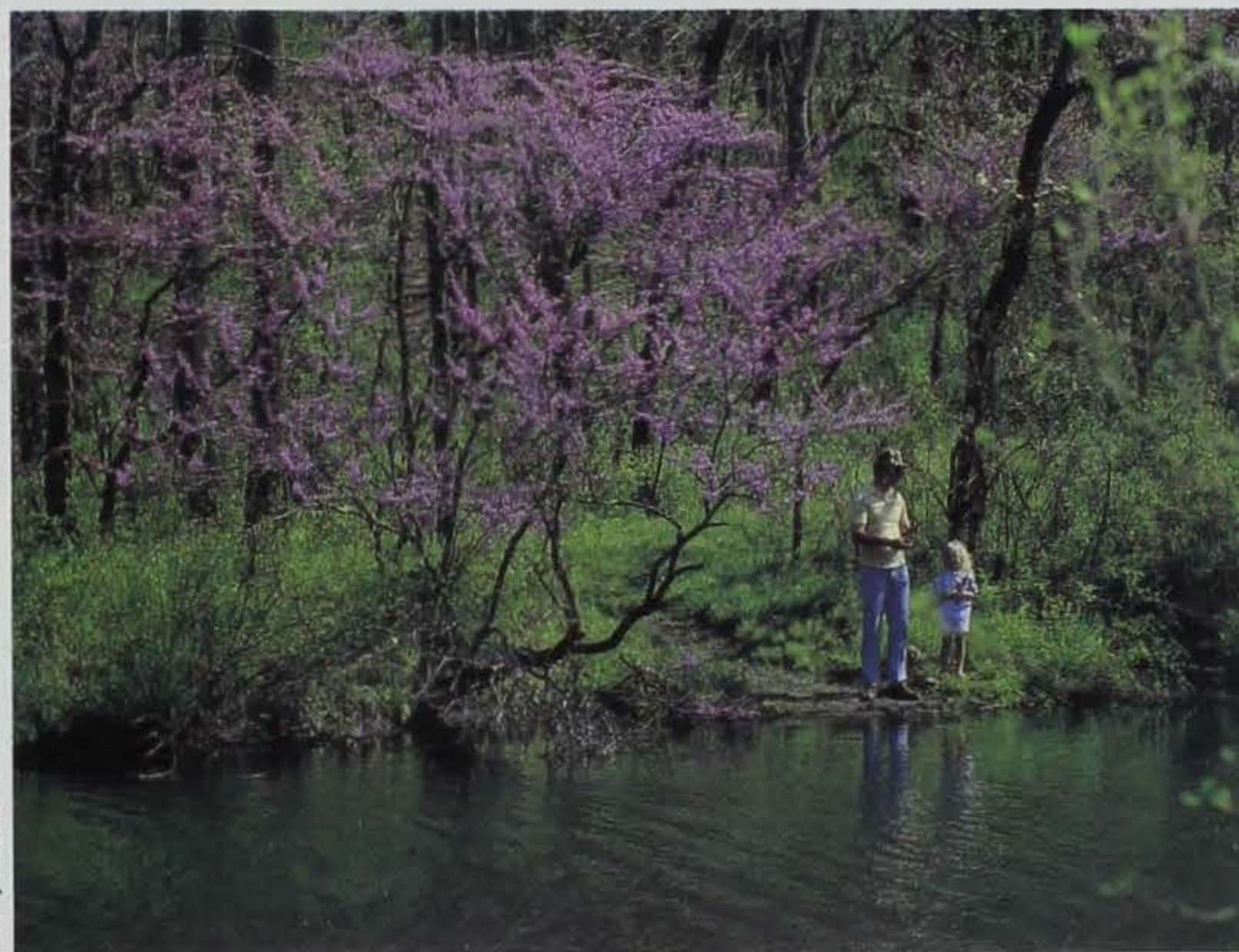




RON JOHNSON



RON JOHNSON



Fishing, Iowa's most popular participant sport, contributes to an important portion of the state's economy and to the enjoyment and relaxation of nearly a million Iowans. It is not difficult to understand why angling is so popular. The sport can be mastered by all individuals and is enjoyed by young and old, alike. The purpose of the fishing trip may be to land a trophy, secure fish for a neighborhood cookout, teach a novice or just relax. Whatever your reason for fishing, feel assured, you have a lot of company.

Obviously a sport as popular as fishing has a very significant impact on individuals other than the angler. Fish and wildlife agencies are involved in maintaining and improving fish populations. This is accomplished with funds obtained from the fishing license fees and an excise tax paid on some fishing tackle. The tackle manufacturers are interested in supplying the quantity and types of gear desired by the angler, and restaurants, motels and service stations have an obvious interest in fishing activity in their area.

To get a handle on the importance of angling to the various states' economies, the U.S. Fish and Wildlife Service, in cooperation with the Bureau of Census, surveys individuals in each state to determine important facts and fishing trends. These surveys are conducted at five-year intervals and help direct federal and state fisheries programs. The most recent survey indicated 771,000 Iowans fished in 1985. These individuals took 14.5 million fishing trips and spent \$255 million. These results are similar to other studies that show anglers spend between \$12 and \$40 per trip.

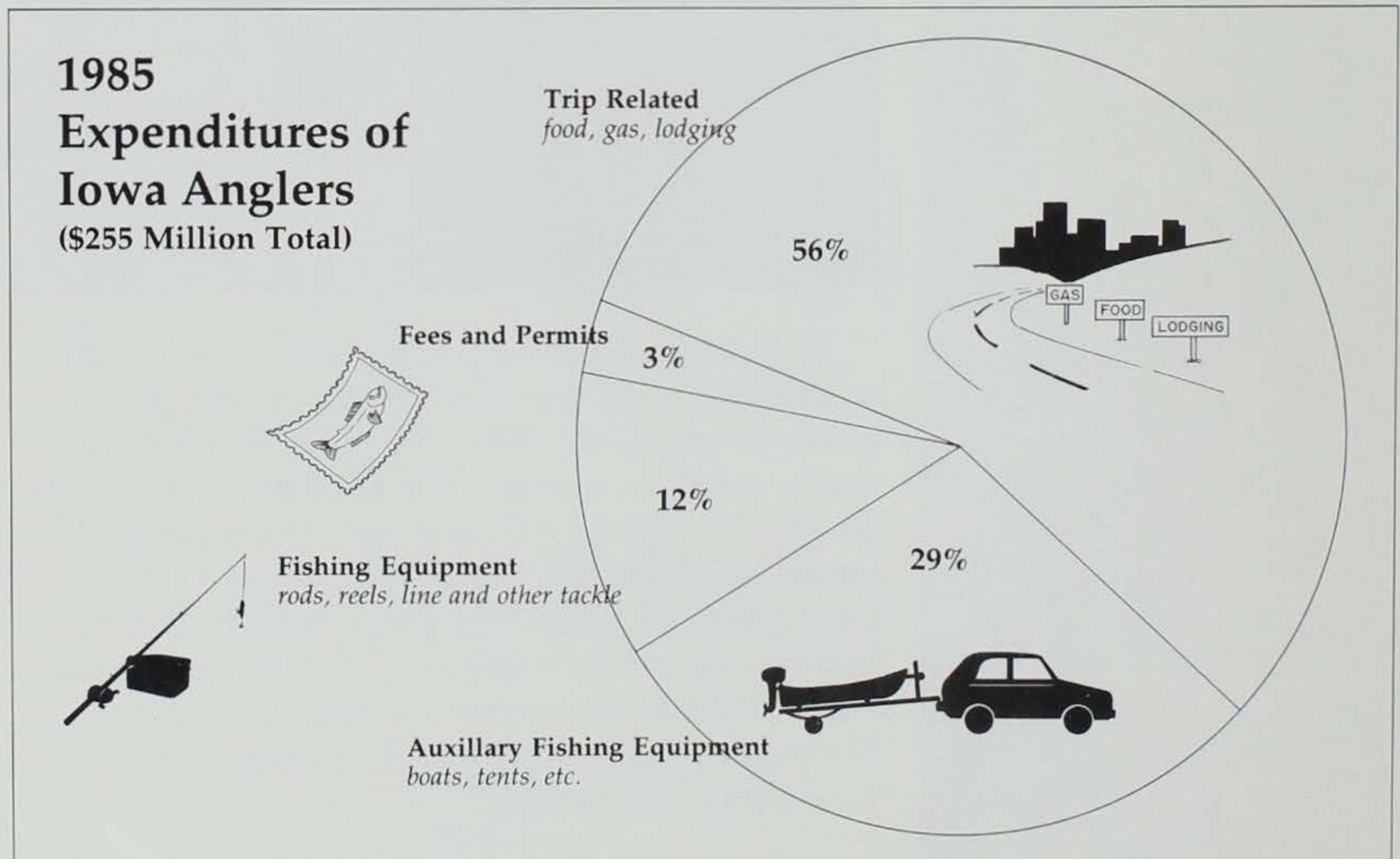
According to the survey, the number of Iowa anglers increased by 125,000 from 1980 to 1985. More recent figures indicate the popularity of fishing continues to increase, and experience shows the number of trips taken by anglers to a particular lake or stream depends primarily on the quality of fishing the area offers. An example of the relationship between the quality of a fishery and the number of anglers attracted is Swan Lake in Carroll County. Recently, money was spent to improve the water quality of Swan Lake and

the fishery. Prior to this work, Swan Lake hosted 5,000 fishing trips annually; however, after renovation, the lake supported a whopping 30,000 happy, successful anglers, and the number continues to increase each year. The opposite, however, occurs when the quality of a fishery declines. Contamination of fish with toxic pollutants, siltation of lakes and streams, and fish kills from hazardous spills, all act to reduce angler use of, and interest in, a particular fishery.

How do anglers spend their money in pursuit of their recreation? Not surprisingly, the greatest expenses of the angler are related to travel (56 percent). These expenses include food, gas, lodging, equipment rental and boat fuel. The second area of expense is special auxiliary equipment purchased primarily for fishing but used for other activities (29 percent). These include such items as boats, tents and campers. Twelve percent of the angler's expenditures goes toward fishing equipment -- rods, reels and line. Licenses, tags and permits required for the privilege of fishing totaled three percent of the angler's expenditures.

It is obvious angling is very popular among Iowans and expenditures of anglers in pursuit of their recreation is important to Iowa's economy and management of a valuable and renewable resource. Angling popularity will continue to grow in Iowa if the quality of the resource is maintained and improved.

Don Bonneau is the fisheries research supervisor for the department in Des Moines.



WARDEN'S DIARY

The Invisible Line by Chuck Humeston

Time after time, I prove to myself to never say, "Now, I've seen everything!" When you think you've seen all the tricks, someone comes up with a new wrinkle. So it was, one hot summer day south of Emmetsburg.

While walking the bank of the Des Moines River, I came upon three gentlemen enjoying the day. Two were obviously fishing, with pole and line, off a sandbar. The third person was sitting, on top of a cooler, near the water sipping on a can of the brew.

After making some small talk, I asked to see their fishing licenses. The two with rod and reel in hand reached for their wallets and produced the licenses. Well, the third man never got up from the cooler nor even appeared to be the least bit interested in me (you get used to that after a while). There was no fishing rod to be seen anywhere. So I asked him, "Sir, are you fishing today?" He answered, "No, I just came along to watch."

I hear that answer a lot, but this time I really had no reason to dispute it. So, I bid them a nice day and continued up the river; however, it just didn't seem right for some reason -- walk all that way on a hot day just to watch? I reached my car, drove a couple of miles down the road, parked and started hiking through a field back to where the three were fishing.

Maybe it was just my natural nosiness as a warden; I don't know. I found a tree to hide behind on the bank above them and watched. The two continued to fish, and the one continued sitting with the suds. I was beginning to think my time might be better used finding an air conditioner.

I was just standing up to hike back when the man stood up from the cooler. He picked up the



ILLUSTRATION BY NEWTON BURCH

cooler, moved it to one side, reached down and picked up a clear monofilament line reeling it in by hand! One end was tied to a stick driven in the sandbar on top of which sat the cooler. He reeled in the line, checked the bait on the hook, tossed the line back in the river and replaced the cooler on top of the stick.

Ingenious! I almost stood on that line while I talked with him earlier. I never saw it! After climbing down the bank, I walked up to them and said, "Hello, again."

I reached down, picked up the line and asked, "Are you fishing or just watching?" He simply said, "I don't have a license." I had to compliment him on his idea; we talked while I wrote the citation.

I've checked a lot of people fishing on the riverbank since then. Folks, I don't walk around those coolers three times because I'm disoriented or waiting for music to stop so I can sit down — I just keep looking for that elusive invisible line.

Maybe it was just my natural nosiness as a warden; I don't know. I found a tree to hide behind on the bank above them and watched. The two continued to fish, and the one continued sitting with the suds.

CONSERVATION UPDATE

Compact Fluorescent Lighting

by Kristine Maggard,
energy information intern

Imagine walking into your local hardware or department store to pick up a light bulb. You look around and decide to try one of those new high efficiency bulbs, one that saves energy and money. You take it to the counter, then glance at the price tag: \$20!

Is efficient lighting worth the money? Yes, but consumers should not be in the dark when they make the move to energy-saving substitutes.



RON JOHNSON

Fluorescent light bulbs can last up to 13 times longer than standard incandescent bulbs and use considerably less electricity. However, consumers must carefully follow manufacturer's guidelines to achieve the optimum results.

Compact fluorescent lightbulbs represent the latest marvel in the rapidly changing lighting industry. Lasting nearly 13 times longer than an incandescent bulb, compact fluorescents can save up to nine times the cost of traditional lighting.

Life expectancy ranges from 9,000 to 12,000 hours for these new bulbs, compared to a traditional bulb's 900- to 1000-hour life. And, switching to a new fluorescent bulb saves

electricity, thus reducing the burden on the environment. Lighting alone accounts for 25 percent of all the electricity used in this country and burning fossil fuels to produce electricity is the leading cause of smog, acid rain and carbon-dioxide build-up. Switching to a new fluorescent bulb can save 300 pounds of coal over the bulb's life.

Light quality and intensity vary, but you may be surprised at how closely new fluorescents resemble the warm glow of incandescent lighting. Replacing a 75-watt incandescent with an 18-watt compact fluorescent still provides the same amount and quality of illumination. Fluorescents simply work on a different principle.

Unlike the incandescent bulb in which 90 percent of the energy produced is given off as wasted heat, compact fluorescents contain photons in the coating of the bulb that begin to glow when an electrical current passes through the gases contained inside the bulb. Once the current is established, only a small amount of electricity is needed to maintain it. Many business and industries are already putting theory into practice and saving money through efficient lighting, but homeowners need to weigh several options before attempting to retrofit their homes.

For example, compact fluorescent bulbs will pay for themselves only if used in fixtures

that are on for at least four hours a day. Shorter periods of use only wear on the bulb, considerably weakening its lifespan.

Energy efficient bulbs are of different sizes and shapes than standard bulbs, so check the shade or fixture being replaced to make sure it was designed to accommodate one. If it is not, the bulb will emit less light than anticipated, even though the bare bulbs give off the same amount of light. Many incandescent fixtures are too small for compact fluorescents, which are larger and heavier than traditional bulbs. This also makes them unsuitable for some standing lamps or hanging fixtures.

If a light is currently on a dimmer switch, even fewer energy-saving retrofits can be used. In general, dimming rules out compact fluorescents, though a few exceptions are appearing on the market and are likely to become more common in the future.

Temperature conditions can also limit use. Most compact fluorescents do not work well, or at all, in the cold and at least one warns not to use in temperatures above 95 degrees F or in humid conditions. Compact fluorescent floodlights are not waterproof and must be mounted under cover if used outdoors. Always look on the package or inquire about any restrictions.

Compact fluorescents are generally guaranteed by their manufacturers

because they are larger, longer investments. Warranty periods typically range from 90 days to two years, but keep in mind that a 10,000-hour bulb may use only 500 of its hours in 90 days. A new fluorescent bulb will probably pay for itself twice over its 10,000-hour lifetime, but beware of suspicious life expectancy claims and lumen ratings of which some off-brands boast. Regard the claims of even large, respected manufacturers with a wary eye. Do not be misled by overstated claims on energy-saving products. When examining a package, put faith in solid facts like the power rating, the lumen output and the lifetime.

Unfortunately, compact fluorescents are not available at most local hardware and department stores. Because few homeowners know about non-standard choices, they do not buy them, so most stores do not stock them. In turn, absence of the bulbs from store shelves keeps consumers from learning about them.

The best source for homeowners are still mail-order firms. Cost for a single bulb ranges from \$17 to more than \$20, but high efficiency lighting is a sound investment for a bright future. Write: Rising Sun Enterprises, Inc., Box 586, Old Snowmass, Colorado 81654; Real Goods, 966 Mazzone St., Ukiah, California 95482; Seventh Generation, 10 Farrell St., South Burlington, Vermont 05403.

Iowa All-Time Record Fish

Weight	Length	Where Caught	County	Date	Angler	Town
Bass, Largemouth 10 lbs. 12 ozs.	23-1/2"	Lake Fisher	Davis	5-84	Patricia Zaerr	Davenport
Bass, Ocean-Striped 9 lbs. 4 ozs.	29"	Lake Rathbun	Appanoose	7-83	Richard Pauley	Mystic
Bass, Rock 1 lb. 8 ozs.	10-1/2"	Mississippi River	Dubuque	6-73	Jim Driscoll	Dubuque
Bass, Smallmouth 6 lbs. 8 ozs.	21-3/8"	Spirit Lake	Dickinson	5-79	Rick Pentland	Estherville
Bass, White 3 lbz. 14 ozs.	20"	West Okoboji	Dickinson	5-72	Bill Born	Milford
Bass, Wiper *12 lbs. 11 ozs.		Des Moines River	Boone	4-89	Aaron E. Crook	Boone
Bass, Yellow 1 lb. 8 ozs.	13-1/2"	Cedar River	Black Hawk	9-86	Timothy Dolan	Waterloo
Bluegill 3 lbz. 2 ozs.	12-7/8"	Farm Pond	Madison	7-86	Phil Algreen	Earlham
Bowfin (Dogfish) 10 lbs. 2 ozs.	30-1/2"	Mississippi River	Allamakee	5-87	Joel Morgan	Dike
Bullhead 5 lbs. 8 ozs.	22"	Farm Pond	Hamilton	1986	Michael Hurd	Elsworth
Buffalo 51 lbs.	45"	East Okoboji	Dickinson	4-86	Jeff Duis	Sibley
Carp 50 lbs.	44"	Glenwood Lake	Mills	5-69	Fred Houghland	Glenwood
Catfish, Blue *40 lbs.		Missouri River	Harrison	6-89	John DeLong, Jr.	Missouri Valley
Catfish, Channel 31 lbs.	37"	Gravel Pit	Cedar	6-86	Kyle Gettschalk	Lowden
Catfish, Flathead 62 lbs.	46"	Iowa River	Johnson	7-65	Roger Fairchild	Coralville
Crappie 4 lbs. 9 ozs.	21-1/4"	Green Castle Lake	Marshall	5-81	Ted Trowbridge	Marshalltown
Freshwater Drum 46 lbs.	38-1/2"	Spirit Lake	Dickinson	10-62	R. F. Farra	Clarion
Muskellunge 38 lbs. 5 ozs.	48"	West Okoboji	Dickinson	12-86	Dan Dickinson	Spirit Lake
Muskellunge, Tiger *27 lbs. 2 ozs.	46-1/2"	West Okoboji	Dickinson	8-89	Shannon Green	Spencer
Northern Pike 25 lbs. 5 ozs.	45"	West Okoboji	Dickinson	2-77	Allen Forsberg	Albert City
Paddlefish 107 lbs.	69-1/2"	Missouri River	Monona	3-81	Robert Pranschke	Onawa
Perch, Yellow 1 lb. 15 ozs.	14-3/4"	Spirit Lake	Dickinson	9-74	John Walz	Estherville
Sauger 6 lbs. 8 ozs.	25"	Missouri River	Woodbury	10-76	Mrs. William Buser	Sloan
Sturgeon (Shovelnose) 12 lbs.	33"	Des Moines River	Van Buren	4-74	Randy Hemm	Douds
Suckers (Misc.) 15 lbz. 1 oz.	32-1/4"	Missouri River	Monona	9-83	Glen E. Dittman	Onawa
Sunfish (Misc.) 1 lb. 13 ozs.	10-1/4"	Lake Geode	Henry	9-67	Dale Cornick	Burlington
Trout, Brook 2 lbs. 14 ozs.	17"	Canoe Creek	Winneshiek	3-81	Lyle Brown, Jr.	Decorah
Trout, Brown 15 lbs. 4 ozs.	31"	French Creek	Allamakee	7-84	Fred Daus	Minneapolis, MN
Trout, Rainbow 19 lbs. 8 ozs.	35"	French Creek	Allamakee	7-84	Jack Renner	Waterloo
Walleye 14 lbs. 8 ozs.	30-1/2"	Des Moines River	Polk	9-86	Gloria Eoriatti	Ankeny
White Amur 51 lbs.		Viking Lake	Montgomery	9-88	Leon Allen	Omaha, NE

*New state record.

Upcoming NRC, EPC and Preserves Board Meetings

The dates and locations have been set for the following meetings of the Natural Resource Commission, Environmental Protection Commission and the State Preserves Advisory Board of the Iowa Department of Natural Resources.

Agendas for these meetings are set approximately 10 days prior to the scheduled date of the meeting.

For additional information, write or call the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034, (515)281-5384.

Natural Resource Commission:

- April 5, Ames
- May 2-3, Davenport
- June 7, Creston

Environmental Protection Commission:

- April 16-17, Des Moines
- May 21-22, Des Moines
- June 18-19, Des Moines

State Preserves Advisory Board:

- March 13, Des Moines
- June 12, Des Moines

Majority of TIP Cases Deer-Related

Nearly 60 percent of cases investigated under Iowa's Turn-In-Poachers (TIP) program in 1989 were deer-related, according to Department of Natural Resources' officials.

A total of 527 calls resulted in 85 citations being issued in 42 cases. Deer-related calls totalled 300 with 53 citations issued in 23 cases. The citations were issued for illegal taking and possession of deer; falsifying deer license; shooting shotgun slugs from roadway in deer hunting zones one, two and 10; illegal sale of deer meat; and use of citizen-band radios and vehicles to pursue deer.

Other citations issued included shooting of hen pheasants; hunting after hours; illegal possession of furbearers; taking of fish under minimum length limits; and exceeding possession limits for fish.

A total of \$4,150 was approved for reward payment during 1989.

Since Iowa's TIP program began in 1985, more than 3,500 telephone calls have resulted in more than 850 arrests and more than \$44,400 has been approved in rewards.

A minimum of \$100 is paid as a reward for information leading to an actual arrest. Payments of up to \$1,000 have been made to anonymous TIP callers on cases dealing with commercial poach-



Take a Friend Fishing Free Fishing Days

(All Iowa Residents)
June 8, 9 and 10, 1990

Celebrate National Fishing Week
June 4-10, 1990

ers, endangered species or other more severe cases. All TIP information is confidential and anyone reporting a poaching incident is guaranteed anonymity. Persons witnessing or having knowledge of violations against fish and wildlife can call the toll-free TIP hotline number 1-800-532-2020. The TIP number is monitored 24 hours a day.

According to DNR officials, all funds used to pay rewards are raised by the TIP of Iowa organization, a group composed of sporting clubs, corporate members and individuals. For information on becoming a supporting member of TIP, contact Craig Karr, Box 872, Waterloo, Iowa 50704.

Trumpeter Swans Return To Iowa

At least two of the trumpeter swans that wintered in the Des Moines area in 1988 have returned to Iowa.

The Black Hawk County Humane Society

received reports last December of an injured swan on the Cedar River near Waterloo, Iowa. Department of Natural Resources' staff at George Wyth State Park observed a pair of trumpeter swans on Dec. 4, and one of the birds had suffered a minor wing injury. The pair was captured by humane society and park personnel and taken to the society's care facilities. Wing tag and leg band numbers enabled Tom Colvin, director of the Black Hawk County Humane Society, to trace the swans' origins to Minnesota.

The Minnesota DNR has been conducting a trumpeter swan release program. A technician with the program revealed the pair of swans wintered in Des Moines in 1988 and returned to Minnesota the following spring and nested but did not produce cygnets. Trumpeter swans mate for life, and officials with the Minnesota DNR were pleased to discover the pair had returned to Iowa for

another winter. A local veterinarian determined the injured swan may have hurt its wing while landing. The wound was stitched and a speedy recovery is expected.

A third trumpeter swan was located near Waterloo on the Cedar River on Dec. 5. This bird was also released in Minnesota. The pair captured on Dec. 4 was released in the vicinity of the individual swan on Dec. 11. Trumpeter swans are a protected species, and their continued existence depends on a safe, clean environment.

Trumpeter swans nearly reached extinction in the 1930s with an estimated 66 trumpeters left in the wild. They are the largest waterfowl species in North America measuring up to 60 inches from tip of bill to tip of tail. They have a wingspan of up to seven feet and may weight up to 38 pounds. Several release programs such as the one in Minnesota are helping trumpeter swans recover to more stable numbers throughout their range in parts of the United States, Canada and Alaska.

Fishing Report Available

For the latest update on fishing hotspots across the state, call (515)281-3307 for a recorded message. The recording is updated each Wednesday morning and is available April 4 through July 27.

Classroom Corner

by Robert P. Rye

1. Channelization of the Missouri River
 - a. started as early as 1876.
 - b. reduced the channel area by 80 percent.
 - c. reduced habitat diversity and fish populations to almost nothing.
 - d. All of the above.
2. Filter strips are an essential part of every stream or river because
 - a. a strip as narrow as 50 feet can remove the majority of nitrogen and phosphorus in surface runoff.
 - b. they provide habitat for wildlife.
 - c. they improve the esthetic value of the waterway.
 - d. All of the above.
3. Apathy is a major aquatic issue because it is
 - a. a disease in food for common Iowa fish.
 - b. a common source of hazardous chemicals that fish store in tissue.
 - c. the lack of initiative to do anything regarding the aquatic problems in Iowa.
 - d. All of the above.
4. Artificial ponds, lakes and reservoirs are important in Iowa because
 - a. 41 percent of all fishing occurs there.
 - b. they keep agricultural animals out of the rivers and marshes.
 - c. they are under control of private citizens.
 - d. All of the above.
5. Minimum length limits benefit aquatic recreation because they
 - a. increase the number of trophy-sized fish available for harvest.
 - b. protect younger fish that are especially susceptible to being caught.
 - c. allow fish to mature and spawn before being harvested.
 - d. All of the above.
6. A major aquatic issue in Iowa is siltation because it
 - a. causes more than \$10 million a year in losses to fish and wildlife.
 - b. costs the public \$1 million per year for added expenses for their water supplies.
 - c. reduces the longevity of all ponds and lakes.
 - d. All of the above.
7. Which of the following are true statements about Iowa anglers?
 - a. Only 30 percent of anglers are female.
 - b. During the next five years high school students will have the chance to participate in a fishing program called *Fish Iowa!*
 - c. Only 22 percent of the anglers are under 30 years of age.
 - d. All of the above.
8. When catch-and-relase fishing, you
 - a. can catch fish more than once.
 - b. should leave deeply imbedded hooks in the fish.
 - c. should handle fish as little as possible.
 - d. All of the above.
9. The DNR's fisheries biologists use stocking as a management tool because
 - a. they know for sure what fish species are in a body of water.
 - b. it is the best way to control habitat.
 - c. it can be used to establish and maintain populations in new ponds and areas where inadequate natural reproduction occurs.
 - d. All of the above.
10. Chemical contaminants in Iowa rivers
 - a. are a cause for concern because many new chemicals are being used and we do not know about them.
 - b. are non-existent.
 - c. need to be addressed by educational programs.
 - d. a and c.

Answers:

1. d 2. d 3. c 4. a 5. d 6. d 7. d 8. d 9. c 10. d (Currently there are three locations in Iowa where fish exceed federal guidelines for contaminant levels -- they are Pool 15 on the Mississippi, the Des Moines River between Saylorville and Red Rock, and Cedar Lake in Cedar Rapids (see "It's Only Skin Deep," page 14).

COUNTY CONSERVATION BOARD FEATURE

Outdoor Classrooms by Todd Von Ehwegen



CARROLL COUNTY CONSERVATION BOARD

An outdoor classroom supplements the environmental education program in a school by providing new understanding of relationships between people and their environment. These students mulch trees in an outdoor classroom in Coon Rapids.



CARROLL COUNTY CONSERVATION BOARD

The first-grade students watch and listen impatiently as the naturalist explains how to plant a tree. Several students lower the tree into the hole and carefully hold it steady, while the naturalist asks the rest of the students to add a little soil. Eager hands move in a blur, and the hole is filled almost instantly. As the dust clears, the naturalist reminds the ambitious youngsters that they should pack the soil as they fill the hole. They finish the job properly and stand back to admire their contribution to their school's outdoor classroom.

Just what is an outdoor classroom? It is much more than a class held outdoors now and then. An outdoor classroom is an area that supplements and stimulates the environmental education program in a school, providing depth, meaning, and new dimensions to the understanding of relationships between people and their environment through creative learning activities.

Trees, shrubs, wildflowers, vines and prairie grasses are often planted in outdoor classroom areas. These plantings, as well as brush and rock piles and a source of water, are added to provide food, water and shelter for wildlife.

Depending on the resources available and the goals of the development committee, an outdoor classroom can have an exciting variety of stimulating educational features. Some areas provide arboretums, groundwater and weather monitoring stations, animal tracking plots and soil cross-sections. Other outdoor classrooms contain archaeological dig sites, outdoor amphitheaters, erosion control demonstrations and interpretive trails. Still other sites



"Environmental education research has shown that students' self-concept is enhanced, peer socialization and racial integration are facilitated, and student-teacher relationships are improved through shared outdoor education experiences."

include reconstructed marshes and ponds, rock piles for geological studies, and even Native American sites complete with teepees, fire pits and Indian corn plantings.

Every school has potential for an outdoor classroom. School grounds often contain areas that are too hilly or too wet or otherwise undesirable for development. These areas often make ideal outdoor classroom sites. And many schools mow vast expanses of grass for playgrounds and athletic fields, when, in fact, much of this ground could easily be developed into an outdoor classroom.

Depending on the resources available, the size of the outdoor classroom can range from several acres in size to only a few square feet in size. Obviously, a school in the middle of a large city will have a very different outdoor classroom situation than one in rural Iowa. But even a few square feet of undisturbed earth can be loaded with exciting discoveries to enhance a child's understanding of natural environment.

An outdoor classroom located on school grounds has many advantages. It is continuously available and convenient, providing year-round and long-term opportunities for educational studies and investigations. Students can easily explore the out-

doors through the seasons to help them increase their understanding of ecological concepts.

Additionally, special preparations required for field trips, such as transportation, can be eliminated. But more importantly, students are able to get involved in the development stages of an outdoor classroom, providing them with a sense of pride and accomplishment and the realization that their efforts do make a difference.

Community involvement is also a big plus in the development of outdoor classrooms. Garden clubs and other groups are usually very willing to participate — and very valuable — in the development and planning process. And these same community members will have a nearby area for their own use in enjoying and learning about the outdoors.

With wildlife habitat becoming a vanishing commodity, an outdoor classroom can be an oasis in a desert of mowed grass and plowed fields. From field mice to white-tailed deer, wildlife of all shapes and sizes will use the area as a refuge.

Of course, an outdoor classroom does not develop overnight. The most successful sites have thoughtful and careful planning behind them. A committee is formed to make development decisions. Educational goals and

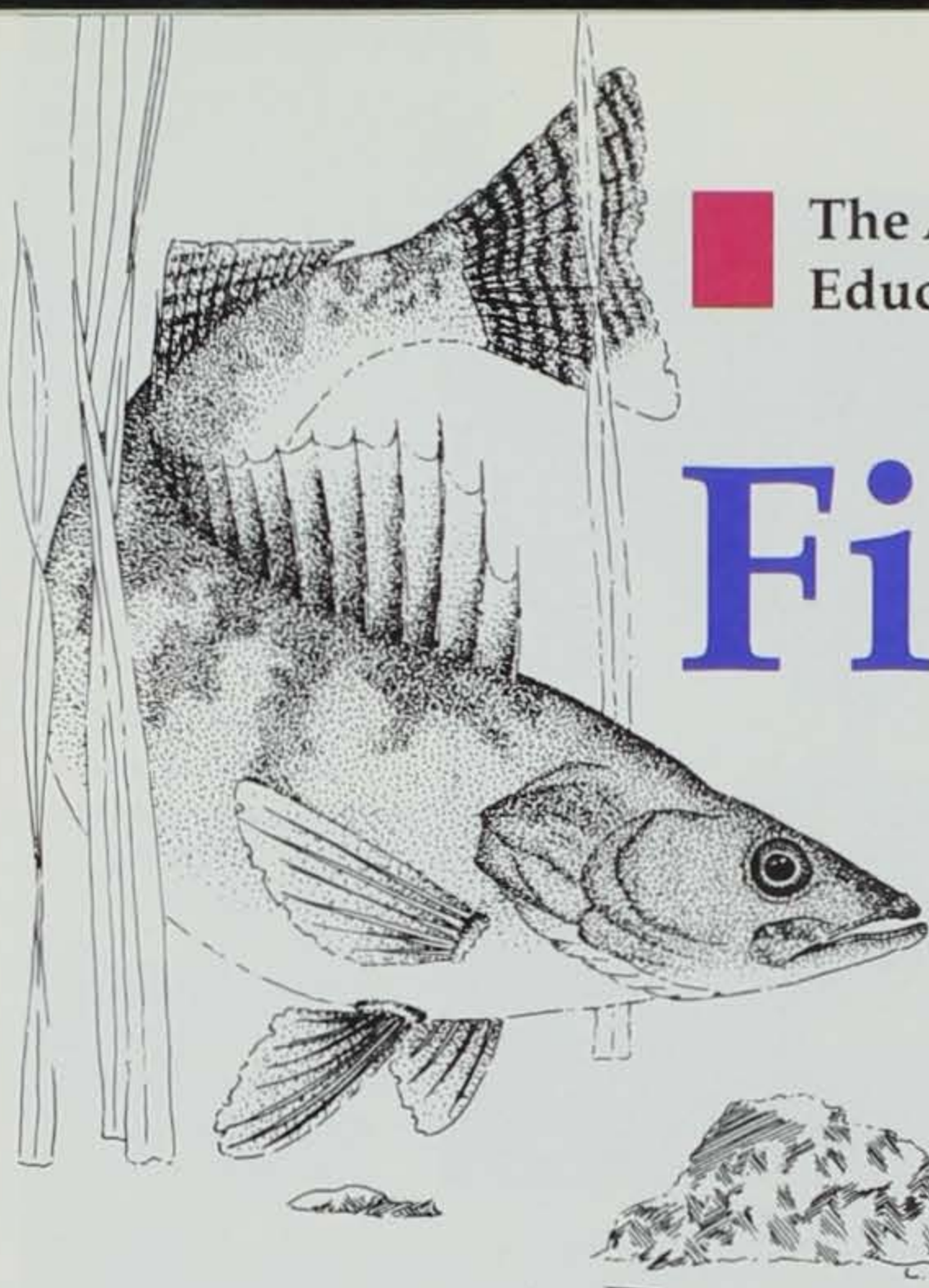
priorities for the area are ironed out, and a master plan and time schedule are drawn up. Publicity is necessary to drum up interest and support within the community, and resources to supply labor and materials need to be developed.

Finally, and most importantly, the best outdoor classrooms are based on involvement. Parents, administrators, teachers, groundskeepers, resource people, and especially students can all work together to create exciting outdoor classrooms.

Environmental education research has shown that students' self-concept is enhanced, peer socialization and racial integration are facilitated, and student-teacher relationships are improved through shared outdoor education experiences. Attitudes are shaped early in life, and outdoor classrooms give children the sensory and learning experiences they need to develop responsible and positive attitudes towards our environment.

Do any schools in your community have outdoor classrooms? Maybe it is time to plant the seed. Contact your local county conservation board for more information.

Todd Von Ehwegen is a naturalist with the Sac County Conservation Board.



**The Aquatic
Education Program**

Fish Iowa!

by Barbara D. Gigar

What is *aquatic education*? Generally speaking, it is an effort to promote public awareness and understanding of water resource-related issues. The quality and longevity of Iowa's waters are largely dependant on land usage and conservation practices of individuals. The goal of the "Fish Iowa!" aquatic education program is to impart knowledge about the components of the aquatic ecosystem to our citizens so they realize the relationships between various user practices and the problems facing our resources. More specifically, our aquatic education program involves projects and efforts around the state including displays, information materials, fishing clinics and school programs.

More than 20,000 Iowans have been trained at Department of Natural Resources' fishing clinics since 1982, and the efforts of our fisheries' personnel will continue in this area as part of "Fish Iowa!" Clinics are conducted in cooperation with other interested parties such as county conservation boards, fishing clubs and city recreation departments. Participants learn about tackle, casting,

fish identification, regulations and safety.

Displays for the general public are planned at several locations around the state. Species identification signs and an information booth were new at the Iowa State Fair in 1989, and more items will be added during the next two years. Five state fish hatcheries will receive new displays by 1994 with informational materials such as the new "Fish Iowa!" identification pamphlet available to visitors. Spirit Lake is the first of these with murals and exhibits slated for completion this spring.

The elementary school program is built around the nationally used Project WILD aquatic manual, a collection of activities that focus on the aquatic ecosystem. In-service workshops to train teachers are conducted around the state. Workshop participants do the WILD activities and receive free instructional materials including the WILD manuals. More than 1,000 Iowa educators will receive aquatic WILD activity manuals purchased by the "Fish Iowa!" program by the end of this school year.

Efforts are now underway to make aquatic WILD more usable in Iowa's schools. A kindergarten-through-sixth-grade resource manual for teachers that contains information, student worksheets and two full-color ecosystem posters created to supplement aquatic WILD. Beginning in the fall of 1990, these, too, will be provided to workshop

participants using "Fish Iowa!" funds. Five audio-visual programs are now being developed and will be available to Project WILD teachers through their area educa-



BARBARA D. GIGAR

Participants at this "make and take" workshop put together their own packets of teaching materials for Project WILD.

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At fishing clinics, participants learn about tackle, casting, fish identification, regulations and safety. Since 1982, more than 20,000 Iowans have attended Department of Natural Resources' fishing clinics.

tion agencies. They are designed for use with the WILD materials and will cover the following topics: Iowa's Waters, Aquatic Plants and Animals; Water Fun (recreation and safety); Life in a Pond (the aquatic ecosystem); and People, Land and Water (addresses our dependency on water and the impacts our actions can have on the resource).

The fishing module for secondary schools is a somewhat new concept. Few people associate fishing with school, but the initial response to the program indicates "Fish Iowa!" may soon be a part of the physical education curriculum in many Iowa schools. Teachers will be trained in the presentation of a module in one-day workshops where they will receive a five-unit instructor's manual and other information materials. Three teaching videos that focus on spin-casting skills, caring for the catch, fish identification, aquatic habitats and general fishing information will be available to schools through area education agencies and spin-casting rigs may be borrowed from distribution centers around the



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state. The program will be piloted this spring with workshops being conducted statewide during the 1990-91 school year.

"Fish Iowa!" is funded under the Federal Aid in Sportfish Restoration Program utilizing grant funds from excise taxes on tackle and other fishing-related expendi-

tures and fees from the sale of Iowa fishing licenses.

Barbara D. Gigar is the aquatic education coordinator for the DNR at the Springbrook Conservation Education Center near Guthrie Center.

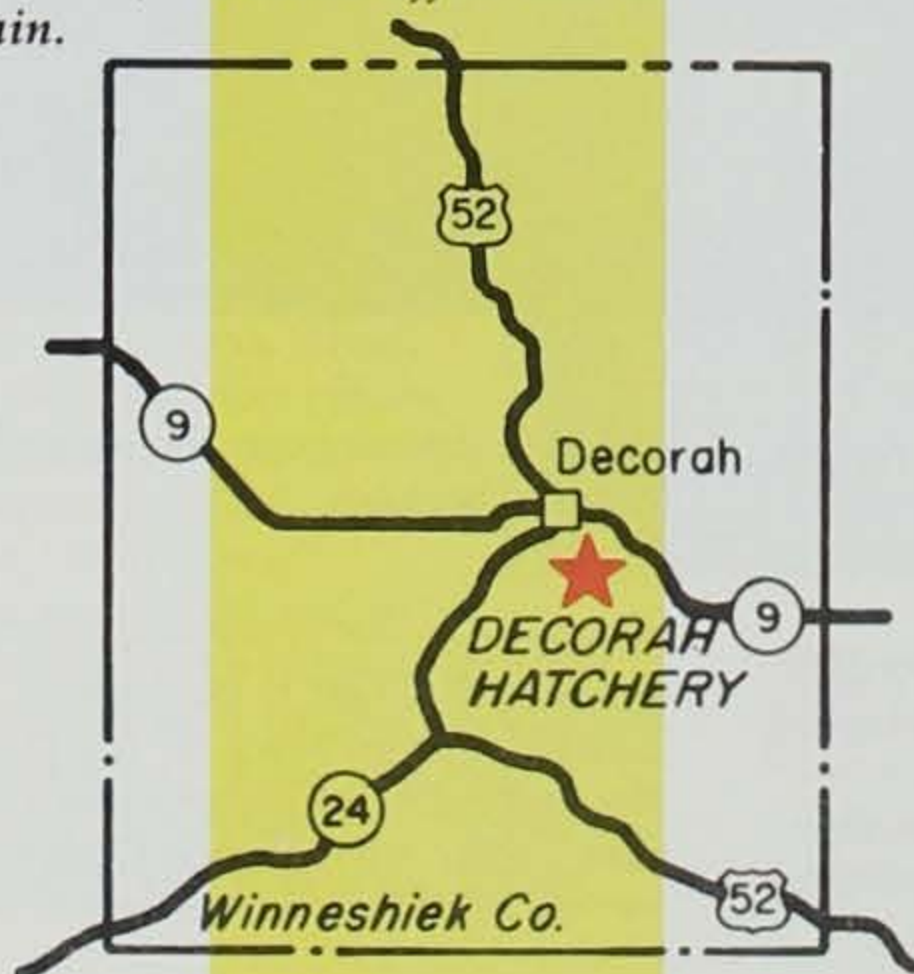
Past and Present The Decorah Hatchery

by Bruce Adair



DNR PHOTO

Though the Decorah Hatchery has recently gone through massive renovation, the stone office and residence buildings, built in the 1930s, remain.



Located at the headwaters of Trout Run, just a couple miles south of the busy town of Decorah in Winneshiek County, is the Decorah State Trout Hatchery -- a must-see for visitors to this scenic region of Iowa.

The facility has its roots in the 1930s, and the picturesque limestone office and residence buildings are dead giveaways. These structures are typical of the efforts of Civilian Conservation Corps engineers and workers from that era.

The tract was originally known as the Siewers Spring Bass Hatchery, constructed on a 17-acre plot of land purchased from the John Hjelle family in 1931 for \$7,500. As the name suggest, the original emphasis was in the culture of bass, specifically smallmouth, taking advantage of the dependable supply of water from Siewers Spring. Expenditures for the initial construction of buildings, ponds and raceways totalled approximately \$25,000.

For more than half a century the Decorah hatchery was a mainstay of our state's hatchery system. It was relied upon primarily for the rearing of rainbow and brown trout, but at times was used for some cool-water and warm-water species as well.

By the mid-1980s, although the stone buildings stood as solid as ever, it was becoming obvious other problems were hampering the use of the facility. The most important item in any hatchery system is its water supply. At Decorah, problems not only with an antiquated water supply system but problems with the water itself were becoming evident.

Taking advantage of monies available from an expansion of the Dingell-Johnson Act, commonly known as Wallop-Breaux, the fisheries bureau of the Iowa Department of Natural Resources decided to renovate the existing hatchery facility at Decorah with a state-of-the-art system. Although the quantity of the water from Siewers Spring, during most years, has been adequate, its quality suffered at times. High nitrate levels; low, fluctuating, dissolved oxygen

levels; and periods of turbidity were severely hampering the use of the hatchery as a dependable trout producer.

Approximately \$2.4 million was spent to upgrade the system to what it is today. The "new" hatchery is an extraordinary facility with the capability of removing the unwanted nitrates, reducing the silt load and even injecting oxygen into the water. Changes in land-use practices, the basis of many groundwater problems in Iowa today, could also be blamed for some of the difficulties encountered at the old facility. Marginal land -- for generations, relegated to pasture in this dairy region -- was now being plowed and placed into row crop production. Along with row crops came additional silt runoff and increased nitrogen entering the groundwater from fertilizers.

The improvements completed in 1989 appear to be adequate to control these problems; however, they are no match for the whims of Iowa weather. Currently, the Decorah hatchery is operating on a marginal water supply due to recent drought conditions. Siewers Spring typically offers 3,000 to 5,000 gallons of water per minute but was flowing at a rate of less than 1,000 gallons of water per minute during most of 1989. Only by supersaturating the water with oxygen has the hatchery been able to stay in operation, but with a little cooperation from the weather this problem should improve.

Basically, all that remains to complete the renovation project is some additional landscape work. Visitors by the thousands have viewed the new operation and the fish. Twenty-four concrete raceways and three lined, earthen ponds will typically contain from 100 to 300 thousand rainbow and brown trout.

The next 50 years look bright for the Decorah State Trout Hatchery as well as for the anglers of northeast Iowa's trout streams.

Bruce Adair is the Decorah Hatchery manager.



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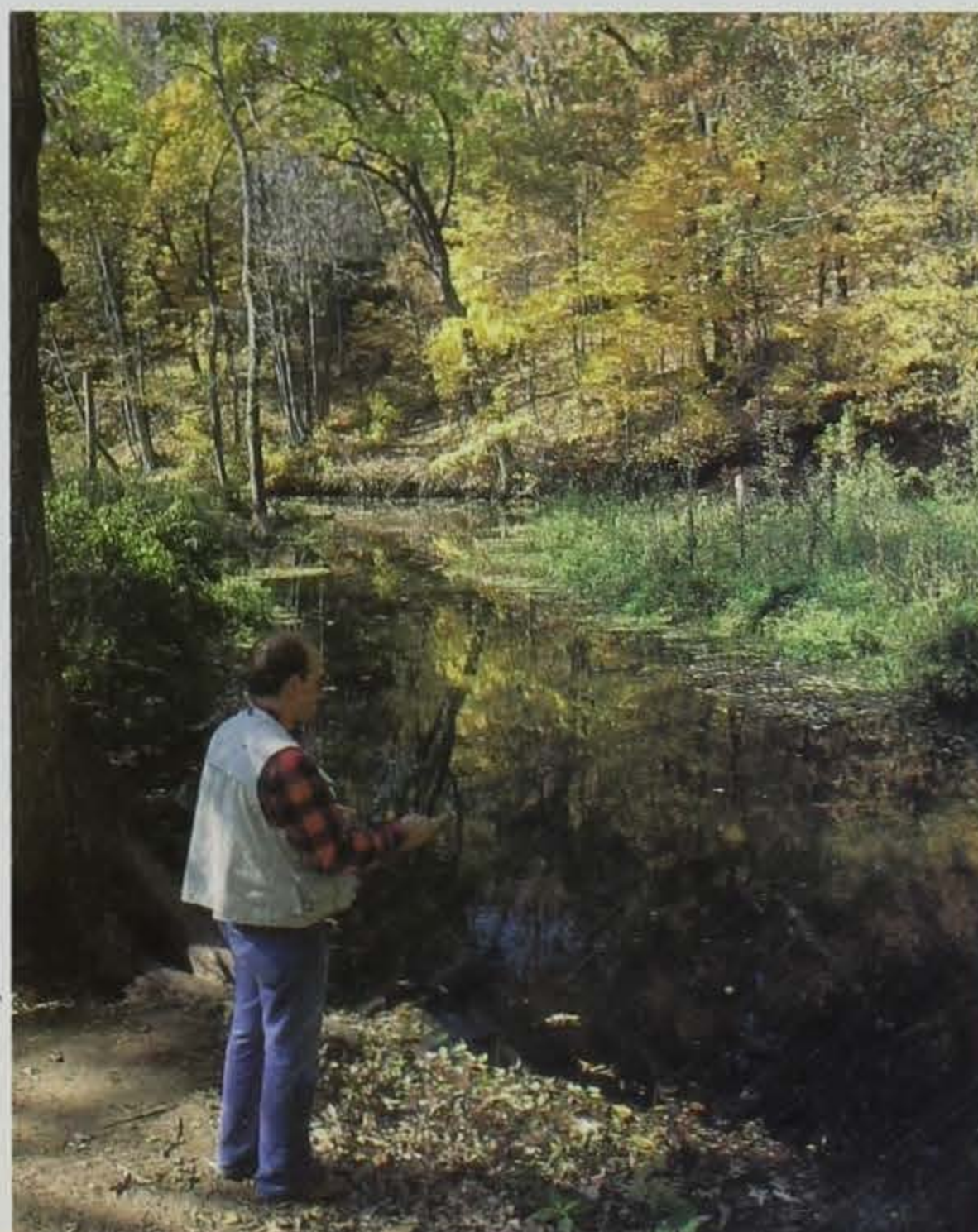


DNR PHOTO



DNR PHOTO

Siewers Spring (above) supplies the water used to run the Decorah State Trout Hatchery. Twenty-four new concrete raceways (left) and three lined earthen ponds will hold between 100 and 300 thousand rainbow and brown trout, providing many opportunities to anglers visiting Iowa's trout country.



RON JOHNSON

Creel Surveys

TELL IT ALL

by Leo Schlunz



JERRY LEONARD

"Hey Karen, get out your fishing license. Here comes the game warden."

"That's just the creel clerk, Joe. He wants to look at our fish and ask how long we have been fishing."

While making my rounds as a creel survey clerk, I have often wondered if such remarks are not being made as I watched one angler fumble with a billfold, while another reaches for the stringer. I also wondered if people like Joe and Karen know why fisheries biologists need this information.

The reason for having creel surveys is to obtain valuable information needed to manage the sport fishery in a lake or stream. And the reason for managing a sport fishery is to provide plenty of fish to catch and a chance for people to enjoy catching them. To achieve these goals the fisheries manager has a whole bag of tricks.

A manager can alter the species composition through stocking. The harvest of a particular species can be restricted by imposing catch and size limits, or increased by improved fishing access as well as adding fish attractors. But before using any of these practices the manager has to know what is being caught and what people would like to catch. The best tool for obtaining this information is a creel survey. Through this information, the biologist knows the type, number and size of fish being harvested. Combining this information with data collected through test netting, the health of the sport fishery is known. This information helps predict the quality of future fishing and determines what kind of changes are needed in future management practices.

Information gleaned from a creel survey may be used by the

biologist in many ways. It may be used to evaluate an annual stocking program, a one-time stocking program, or long-term effects of a particular management program. Sometimes these surveys are used to track the development of a fishery or indicate the cyclic harvest of a species. Survey results are also used to measure the use of fishing access, fishing jetties and fish attractors — information that will help determine if additional structures are needed.

Since 1981, Lake Miami has been stocked yearly with rather expensive six- to eight-inch channel catfish. A creel survey was conducted during the summer of 1987 to evaluate the benefit of these stockings to the angler. Also, during 1987, a study was completed to determine the number of catchable-size channel catfish in the lake. The study determined the lake contained 19 nice sized catfish per surface acre and the creel survey revealed 45 percent of these fish were harvested by anglers. This amounted to more than 1,100 fish, weighing a total of 1,200 pounds. Yes, the creel survey showed anglers were catching channel catfish from Lake Miami and the stocking program was well worth the money it cost.

A good example of using catch surveys to measure long-term effects of a particular management program was at Lake Red Haw. The lake was denuded of vegetation in 1974, one year after the introduction of grass carp (white amur). The lake remains nearly void of vegetation today. Many a shore angler had cursed the weeds along the shoreline, but when the weeds were gone, the boat angler complained the fish were no longer attracted to the edge of the weed beds. Did the removal of weeds help or hinder fishing? Test netting showed a good population of fish. Had catch success really fallen? A creel survey in 1971, while the lakeshore was choked with weeds, showed an overall success rate of one fish per hour. In 1974, the year of stocking grass carp, the catch rate was 1.73. It went up to 1.89 the next year and then fell back to .97 in 1976. The next creel survey

in 1979 showed the highest success rate recorded at Lake Red Haw -- 1.98 fish per hour. A creel survey in 1986 revealed a catch rate of 1.36 fish per hour. These creel surveys showed the removal of vegetation at Lake Red Haw had little effect on fishing success, but did improve the shore angler's access to the lake during summer months.

Creel surveys at Rathbun Lake have been used to track the development of the fishery. In all, there have been 12 annual angler surveys at Rathbun Lake revealing several important facts. The most obvious is crappies are the most-caught fish. This scrappy, good-tasting panfish makes up to 90 percent of the fish caught at the lake. Consecutive surveys from 1972 to 1978 and from 1981 to 1987 demonstrated a link between number of crappie harvested and use of the lake by anglers. Because of the cyclic nature of crappie populations the angler can expect on-again-off-again crappie fishing over the years. If crappie fishing is poor one year, do not despair, within two or three years it will be excellent. Catch rates at Rathbun have ranged from a low of .37 fish per hour to a high of 1.72 in 1987 when anglers harvested nearly half a million fish -- 410,000 of them crappies. This information is very useful to fisheries biologists, campground operators, bait dealers and other local merchants when predicting lake use by anglers.

Besides gathering catch statistics, the creel clerk may also ask several other questions. Usually the questions relate directly to fishing, such

as what kind of fish do the anglers prefer and what kinds are actually caught. Another common question asked during many surveys is the distance the angler traveled to fish. Answers to these and other questions aid in planning the location of new lakes and additional facilities at existing lakes.

The next time a creel clerk talks to you, please do not "bait" them with misinformation or "stringer" them along, instead "cast a straight line." The management biologist uses your information to provide you with good fishing in the future. In fact, your next stringer of

bluegill or that "wall-hanger" walleye may be partly due to the results of a creel survey you participated in.

Leo Schlunz is a fisheries research biologist for the department located in Chariton.



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Creel surveys provide vital information for managing fisheries. Combined with data collected from nettings, creel survey information can help predict the quality of future fishing and determine what kind of changes are necessary to meet the demands of anglers.

