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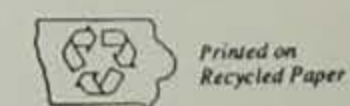
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Bass fishing by Lowell Washburn.



1992 FISHING forecast

northeast

I O W A

Finally, nature is beginning to relax its wintery grip, and the long-awaited open-water fishing season is just around the corner. Of course, you will want to fish some of northeast Iowa's waters. To guide you, the accompanying tables identify, by species, those waters where angling should be very good this year. Equally important to fishing success is coinciding your fishing efforts to those periods and conditions when the species you are pursuing is particularly vulnerable to angling. Let's take a look and see when we should concentrate our fishing efforts.

Walleye - The pre-spawn period from just after ice-out until the water temperature reaches about 48°F is an excellent time to fish below the navigation dams on the Mississippi River and the low-head dams on the interior rivers. Late spring and summer often finds them on the wing dams and along riprap areas on the Mississippi when the river flow is not too strong. Late fall and winter on the "Big River" again finds walleye, and the smaller sauger, in the dam tailwater areas.



Lowell Washburn

Species		
Lake or Stream, County	Comments	
Bluegill		
Casey Lake, <i>Tama</i>	Good numbers of 'gills between 6 and 8 inches.	
Greenbelt Lake, <i>Black Hawk</i>	Fish up to 8 inches common in 8 to 10 feet of water.	
George Wyth, <i>Black Hawk</i>	Fair numbers of 6- to 7-inch fish. Concentrate on the stake beds and brush piles.	
Hartwick Lake (Lake Delhi), <i>Delaware</i>	Fish the bays and outside bends in the upper half of the lake.	
Mississippi River	Good numbers of 8-inchers; shallow backwater habitats most productive during the spawning season.	
Pools 9 through 14	Deep water along the south dike holds most of the fish.	
Sweet Marsh, Segment B, <i>Bremer</i>		
Volga Lake, <i>Fayette</i>	Big 'gills are fairly scarce but lots around 6 inches; drift the deeper water over the old creek channels.	
Channel Catfish		
Cedar River, <i>Black Hawk</i> , <i>Bremer</i> , <i>Chickasaw</i> & <i>Floyd</i>	Tremendous population of catfish in the 3- to 8-pound class.	

Channel Catfish - As soon as the ice goes out, catfish go on a feeding binge. Fish that have died over the winter are their favorite, and fishing with cut-bait or dead minnows is often excellent. Catfishing also is frequently excellent on a rising river and success poor on a falling river. The summer and early fall period of low and stable river flows is also a favored time for "cats."

Bluegill - The weeks just before and after the spawn (around 75°F) are the best. The males are aggressive in

Species Lake or Stream, County	Comments
George Wyth, <i>Black Hawk</i> Lake Hendricks, <i>Howard</i>	Numerous 14- to 18-inch fish, but a challenge to catch. Population strong in 1992 as a result of the cage rearing program.
Lake Meyer, <i>Winneshiek</i>	Cage rearing program continues to provide an excellent population.
Maquoketa River, <i>Delaware</i> , <i>Jones & Jackson</i> Mississippi River <i>Pools 9 through 15</i>	Many "cats" in the 1- to 3-pound range with some up to 8 pounds. Excellent population of 12- to 18-inch fish; best along channel borders and on wing dams in summer and early fall.
Turkey River, <i>Clayton</i>	Many smaller fish; best below Elkader; high water improved the amount of deep water habitat.
Upper Iowa River, <i>Allamakee</i>	Popular catfish stream below Lower Dam; many fish from 2 to 6 pounds.



Ron Johnson

guarding nests and will attack small baits and lures entering "their space." Mid-summer months are also productive, but in the deeper water areas with structure. During summer low-flow conditions, the Mississippi River wing dams frequently produce tremendous numbers of good-sized "gills." The first few weeks after ice-up is another peak time for bluegill fishing.

Largemouth Bass - By far the most productive period is the pre-spawn when the water temperature ranges from 55 to

Volga Lake, *Fayette*
Wapsipinicon River, *Buchanan*
West Fork Cedar River, *Butler*

Crappie
Casey Lake, *Tama*
Mississippi River
Pools 9 through 15
Hartwick Lake (Lake Delhi),
Delaware
Volga Lake, *Fayette*

Excellent catfish lake; 24-pounder caught last year; many in the 2- to 6-pound range.
Best below Independence with high numbers of catfish present.
Heavy brush holds good numbers in the vicinity of Big Marsh.
Nine- to 11-inch fish very abundant; use of minnows for bait prohibited at this lake.
Large numbers in 9- to 11-inch range; May and October best; use with minnows or small jigs in brushy habitat in deep, quiet water.
Fish the submerged trees and recently placed stake beds for 8- to 10-inch crappies.
Improving population of 7- to 8-inch fish; concentrate fishing efforts near the artificial fish structure for best results.

Species	Lake or Stream, County	Comments
Largemouth Bass		
	Casey Lake, <i>Tama</i>	High numbers of 12- to 17-inch fish; 18-inch length limit on this lake.
	George Wyth, <i>Black Hawk</i>	Many 10- to 13-inch fish with a few bass in the 5- to 7-pound range caught every year.
	Lake Hendricks, <i>Howard</i>	Many bass for 1-1/2 to 3 pounds with a few trophy fish from 5 to 8 pounds.
	Lake Meyer, <i>Winneshiek</i>	Majority of population at or near the 15-inch size limit.
	Mississippi River Pools 9 through 14	The largest bass population in the state; best during the pre-spawn in May and the fall months near backwater structure.
	Sweets Marsh, Segment B, <i>Bremer</i>	Large number of bass; fish early as vegetative growth makes it tough to fish during the summer.
	Volga Lake, <i>Fayette</i>	Most bass just under the 15-inch size limit; best success along steeper shorelines.
Northern Pike		
	Cedar River, <i>Black Hawk & Bremer</i>	Moderate population size, good average size with a few large lunkers.
	Maquoketa River, <i>Delaware</i>	All sizes present with fish more than 10 pounds possible. Concentrate your efforts below dams; stocked annually with 2-inch fingerlings.
	Mississippi River Pools 9, 10 and 11	Very strong populations with many fish 5 to 8 pounds, some up to 15; fish the shallow backwaters in the spring and near the mouths of cool-water tributaries in the hot summer.
	Shell Rock River, <i>Bremer</i>	Numerous fish in the 4- to 8-pound range; good natural reproduction in recent years.
	Wapsipinicon River and Tributaries, <i>Buchanan, Black Hawk and Bremer</i>	Large population of small northern pikes; most under 5 pounds but lots of action.
Smallmouth Bass		
	Cedar River, <i>Black Hawk</i>	Fish areas with rock or brush type habitat; good numbers of smallies.
	Cedar River, <i>Mitchell and Floyd</i>	Excellent smallmouth bass population; best above Charles City to the state line.
	Maquoketa River, <i>Delaware</i>	Catch-and-release regulation below Delhi Dam has resulted in increased numbers and excellent fish size.
	Mississippi River Pools 9, 10 and 11	Increasing population; best on rocks, riprap and wing dams in late summer and fall.
	Shell Rock River, <i>Butler and Floyd</i>	Under-fished smallmouth population; many smaller fish in any deep-water habitat; spring concentrations often occur below dams.
	Turkey River, <i>Fayette</i>	High water in 1991 improved quality of bass habitat; concentrate in deep-water areas.
	Upper Iowa River, <i>Howard, Winneshiek & Allamakee</i>	Combines unique scenery with excellent smallmouth population; best below the Lower Dam.
	Volga River, <i>Fayette</i>	Smaller, wading stream with good population of smallies.
	Wapsipinicon River, <i>Buchanan</i>	Average numbers but good concentration of 2- to 3-pound fish; fish the rock riffles.
	Yellow River, <i>Allamakee</i>	Another smaller stream; best from below Volney to the Mississippi River.

62°F and the fish are very actively feeding in shallow water. The fall months from mid-September to when the water cools to about 50°F are also good when the bass are shallow and stocking up on forage for the winter months.

Trout - The trout streams are generally good throughout the April through November stocking season. The fall months are particularly good as angling pressure and streamside disturbance are reduced. An excellent time to fish the stream-reared trout populations (the put-and-grow streams and the special regulation streams) is just after a moderate rain when the normally crystal clear water has a slight color tinge. During this brief period, the angler has a distinct advantage.

Crappie - Like their cousin the bluegill, male crappies become very aggressive during the pre-spawn and spawning period (58 to 68°F), normally in May. The cooler fall months can also be very good. Again like the bluegill, the early ice fishing period is an excellent time for crappies as well.

Northern Pike - The hot months of July and August are the best. Big bobber fishing with a live chub in the deeper backwater areas is very effective. During these hot months, also seek out areas where spring flows or a trout stream enters larger, pike-holding rivers. These cooler waters act like a magnet on northern pikes at this time.

Smallmouth Bass - When the streams are clear enough, the pre-spawn period, from 50 to 60°F is an excellent time for smallies. The clear and stable water conditions of fall also result in good smallmouth angling, often

with good action continuing right into November.

Armed with where and when to pursue your favorite species, the only thing left is the fun part -- the doing. I sincerely hope that your angling enjoyment in 1992 is surpassed only by the beauty of the waters in Northeast Iowa.

-- David L. Moeller, regional fisheries supervisor



Ken Formanek

Species Lake or Stream, County	Comments
Trout	
Bailey's Ford, <i>Delaware</i>	Stocked with catchable rainbow trout from April through October, abundant habitat structures.
Bloody Run, <i>Clayton</i>	Stocked with catchable rainbows and browns from April through October, one of Iowa's largest trout streams.
Fountain Springs, <i>Delaware</i>	Catchable stream with excellent angler access.
French Creek, <i>Allamakee</i>	Stocked with catchable rainbows and browns from April through November, excellent habitat.
Little Turkey River, <i>Delaware</i>	Stocked only with catchable browns; walk-in area; timbered valley.
North and South Bear, <i>Winneshiek</i>	Stocked with catchable rainbows and browns from April through November, both high-quality streams.
Sny Magill, <i>Clayton</i>	A long stream with good flows; stocked with catchable rainbows and browns from April through November.
Spring Branch, <i>Delaware</i>	Fourteen-inch minimum on browns and artificial lures only; intensive stream improvement resulted in several browns more than 20 inches.
Trout Run, <i>Winneshiek</i>	Stocked with catchables April through October; visit the newlyrenovated Decorah Hatchery.
Waterloo Creek, <i>Allamakee</i>	One of Iowa's best trout streams; stocked with catchable browns and rainbows from April through October; numerous insect hatches.
Walleye	
Cedar River, <i>Black Hawk, Bremer, Chickasaw and Floyd</i>	Best angling below dams in the spring; fish up to 10 pounds not uncommon; population has been enhanced by fingerling stocking in the last 5 years.
Mississippi River Tailwaters Pools 9 through 15	Good from November through April; best for lunkers (up to 12 pounds) just after ice-out; 15-inch length limit.
Mississippi River Wing Dams Pools 9 through 15	Best May through October at low flows; slow troll crawlers, leeches or plugs bumping the rocks; 15-inch length limit.
Shell Rock River, <i>Butler, Bremer and Floyd</i>	Recent fingerling stockings have resulted in large number of 1- to 2-pound fish.
Wapsipinicon River, <i>Buchanan</i>	Expanding population from walleye fingerling stockings with some fish up to 6 pounds.
West Fork Cedar River, <i>Butler</i>	Fish are caught in large pools near confluence with Shell Rock River in summer and fall.

southeast

I O W A



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

Bluegill
Mississippi River
Odessa, *Louisa*
Farm Ponds
Pleasant Creek, *Linn*
Geode, *Henry*
Miami, *Monroe*
Hannen, *Benton*

See narrative.
Average harvest size 7 to 8 inches.
Exceptional angling best chance for a trophy.
Average harvest size 6 to 8 inches.
Average harvest size 6 to 8 inches.
Average harvest size 6 to 7 inches.
Average harvest size 6 to 8 inches.

Species		
Lake or Stream, County		Comments
Hawthorn, Mahaska		Average harvest size 6 to 7 inches.
Kent, Johnson		Average harvest size 6 to 7 inches.
Iowa, Iowa		Average harvest size 6 to 7 inches.
Keomah, Mahaska		Average harvest size 6 to 7 inches.
Diamond, Poweshiek		Average harvest size 6 to 8 inches.
Rogers, Benton		Average harvest size 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		Lots of 14- to 20-inch fish.
Diamond, Poweshiek		Average harvest size 12 to 20 inches.
Kent, Johnson		Average harvest size 12 to 18 inches.
Miami, Monroe		Good for a variety of sizes.
Macbride, Johnson		Good for a variety of sizes.
Darling, Washington		Good for a variety of sizes.
Geode, Henry		Average harvest size 14 to 16 inches.
Bob White, Wayne		Average harvest size 18 to 20 inches.
Crappie		
Mississippi River		See narrative.
Rathbun, Appanoose		Average harvest size 9 inches; trophy fish available.
Coralville, Johnson		Average harvest size 9 to 10 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.
Pleasant Creek, Linn		Average harvest size 8 inches.
Darling, Washington		Average harvest size 8 inches; trophy fish available.
Miami, Monroe		Average harvest size 8 inches.



Ron Johnson

the more popular sport fish sought by this river's anglers.

The Mississippi River's protective minimum size limit on *largemouth bass* -- now 14 inches -- has meant a greater number and larger size of bass to interest the angler. Fall electrofishing surveys at the Big Timber Area (a larger area due to the completed restoration project) showed excellent numbers of 12- to 15-inch fish. Other top producing areas in Pool 17 include 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 that backwater bass love structure. Therefore, fish right on top of brush, logs and stumps for great bass fishing action.

Crappie and *bluegill* angling on the Mississippi River for quality-size fish will be good in the same backwaters where good bass fishing can be found. Fish tight to stumps, logs and brush. In areas where deep holes exist (big timber), crappies can be caught suspended in open water during the 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 riprapped heads of islands where there is a current. Stumpfields 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 three-way minnow rigs or bright-colored jigs tipped with minnows. Jigging sonars below the navigation dams is an effective technique late fall through early spring. A 15-inch size limit is in effect for walleye. 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 ends of sand bars, and rocky riffles will produce lots of fish and lots of fun.

Early spring, soon after ice-out, anglers should take note of some fabulous channel catfish fishing. When water temperatures reach about 50°F, these fish go on a feeding spree, feeding on fish that have died during the winter. Plan to use a sour fish bait such as cut shad, and fish in the shallower, warmer portion of the lake or river. The best areas for early spring catfish angling are lakes Rathbun, Coralville and Darling and all river systems.

-- *Stephen J. Waters, regional fisheries supervisor*

Species		
Lake or Stream, County		Comments
Largemouth Bass		
Mississippi River		See narrative.
Farm Ponds		Best chance for a trophy.
Odessa, Louisa		Variety of sizes.
Miami, 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.
Geode, Henry		Good catch and release.
Macbride, Johnson		Good catch and release.
Coralville, Johnson		High population of 10- to 16-inch fish.
Union Grove, Tama		Good catch and release.
Walleye		
Mississippi River		See narrative.
Rathbun, Appanoose		Boat angling late spring-summer.
Macbride, Johnson		Average harvest size of 14 to 20 inches.
Des Moines, Wapello		Hot action below the Ottumwa hydropower dam.



Roger Sparks

White Bass	
Mississippi River	See narrative
Rathbun, Appanoose	Lots of 12- to 13-inch fish.
Coralville, Johnson	Lots of 10- to 15-inch fish.
Macbride, Johnson	Average harvest size of 13 to 15 inches.
Des Moines, Wapello	Hot action below the Ottumwa hydropower dam.

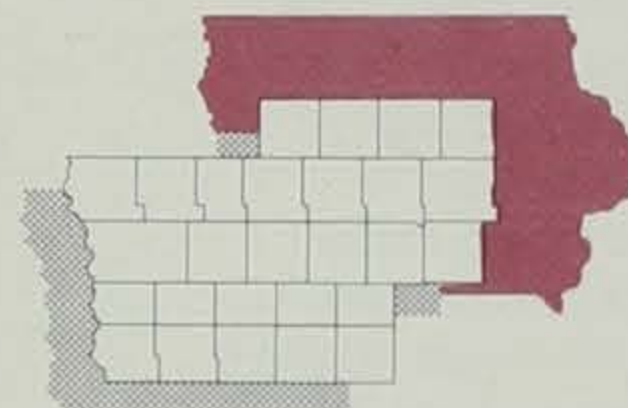
Other Species	
Wipers	
Coralville, Johnson	Four- to 6-pound fish taken in reservoir and below low-head dams in Iowa City.
Iowa River, Johnson	

Redear Sunfish	
Hawthorn, Mahaska	Average harvest size 8 inches.
Iowa, Iowa	Average harvest size 8 inches.
Geode, Henry	Average harvest size 8 inches.



southwest

I O W A



Look for 1992 to be another excellent fishing season for anglers in southwest Iowa. May is usually the top time for fishing the small reservoirs that provide a majority of fishing in the southwestern part of the state, but fishing actually starts much earlier.

Most people think of *catfish* as a warm-weather fish, but good catfishing can be had right after ice-out. The best baits are winter-killed fish found along the shoreline, or sour shad purchased from the bait store. As the season progresses and the weather warms, *walleye* anglers

begin to pick up fish along points and the riprapped face of dams on such lakes as Big Creek, Icaria, Twelve Mile, and Little River.

Mid- to late April usually brings on the best *crappie* fishing, as this panfish moves to the shoreline to spawn and becomes vulnerable to anglers. It's common to see buckets full of nice crappies taken from many Iowa lakes. Minnows and small jigs work best. This fish is exceptional table fare, easy to fillet and they store well in the freezer. *Bass* fishing usually picks up about the time of good crappie fishing and continues into the summer.

May is typically the best month of the year to fish. The weather is beautiful and most species of fish are close to shore where they are

Ron Johnson

Species	Lake or Stream, County	Comments
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Bluegill

Anita, Cass	Jumbos! Ten-inch fish are frequently caught.
Beaver, Dallas	Try flooded trees. Fish are growing fast in this new lake.
Big Creek, Polk	Try the edges of weed beds.
Greenfield, Adair	Medium-sized fish are abundant -- 6-1/2 to 8-1/2 inches.
Hickory Grove, Story	Eight-inch fish.
Icaria, Adams	Nice looking 7- to 8-1/2-inch fish with some up to 9-1/2 inches.
Little River, Decatur	Seven- to 9-inch fish are common. Some 10 inches.
Nine Eagles, Decatur	Try marked fish reefs. Good redear are present.
Prairie Rose, Shelby	Average 7 inches. Population increasing. Best looking bluegills in a long time.
Twelve Mile, Union	Eight- to 9-inch fish are common. Some 10-inches. Try around flooded trees.
Viking, Montgomery	Eight-inch fish common. Try mid-summer drift fishing.

Crappie

Anita, Cass	First crappie lake to start in the spring. Nice fish, 8-1/2 to 10-1/2 inches.
Badger Creek, Madison	Nice fish, 8 to 9-1/2 inches.
Big Creek, Polk	Fish will be 8 to 9 inches this year.
Green Valley, Union	Abundant 7- to 9-inch fish. Super spring fishing from jetties.

readily caught. *Bluegills* are spawning, and are easily taken on worms, small spinners or jigs. *Bass* are aggressive. *Bullheads* and *catfish* are cooperative.

Summer heat moves the fish to deeper, cooler water where they often prove to be more difficult to catch. Drift fishing for *bluegills* and *crappies*, backtrolling for *walleye*, and fishing deeper structures for *bass* produce fish during this season. *Cat-fishing* can be excellent this time of year in both lakes and streams.

The cooler temperatures of autumn make for more pleasant fishing. A bonus to fall anglers, in addition to pleasant weather, is the lack of competition from other anglers. Many people have given up fishing for the year and a fall angler often has super solitary fishing. *Bass*, *walleye*, and the *panfish* all bite well in the fall.



DNR Photo

Winter fishing becomes more popular each year in southwest Iowa. Ice shanties are now a common sight on our lakes as anglers try to escape cabin fever. *Bluegills*

Species Lake or Stream, County	Comments
Greenfield, <i>Adair</i> Icaria, <i>Adams</i>	Try the face of the dam in spring. Fish are up to 1 pound, try fishing newly ripped areas. Good number of 8- to 10-inch fish.
Little River, <i>Decatur</i> Manawa, <i>Pottawattamie</i> Meadow Lake, <i>Adair</i> Prairie Rose, <i>Shelby</i> Red Rock, <i>Marion</i> Saylorville, <i>Polk</i>	Try around flooded trees. Lots of 8- to 12-inch fish. Best crappies in several years. Some 8 to 10 inches. Strong year class of 8- to 9-inch fish. Fish are 8 to 10 inches. Big fish. Fish when water is clear, try feeder streams. Excellent-sized fish.
Largemouth Bass	
Anita, <i>Cass</i> Badger Creek, <i>Madison</i>	Perennial favorite. Bass up to 6 pounds. Still producing good catch-and-release fishing for 2- to 5-pound bass.
Farm Ponds Green Valley, <i>Union</i>	Many private ponds in southwest Iowa have good bass. The 18-inch length limit has produced an abundance of big bass.
Icaria, <i>Adams</i> Little River, <i>Decatur</i>	Lots of 10- to 14-inchers. Great fishing. Try fishing submerged brush and trees. Good numbers of 2- to 3-1/2-pounders.
Nine Eagles, <i>Decatur</i> Rock Creek, <i>Jasper</i> Twelve Mile, <i>Union</i> Viking, <i>Montgomery</i>	Good numbers of small fish, an occasional large fish. Good number of 2- to 4-pounders. Excellent for 12- to 16-inch fish. Good population of 12- to 15-inch fish.
Walleye/Saugeye	
Big Creek, <i>Polk</i> Des Moines River, <i>Polk & Boone</i> Icaria, <i>Adams</i>	Four-pounders common. Fish below flood corps dams, low head dams, and gravel riffles. Fish are up to 10 pounds. Large group of smaller keepers coming on.
Little River, <i>Decatur</i> Saylorville, <i>Polk</i> Twelve Mile, <i>Union</i>	Average fish are 14 to 18 inches. Fish sandy points. Fish artificial reefs. Fish are 14 to 17 inches.
Bullheads	
Beaver Lake, <i>Dallas</i> Green Valley, <i>Union</i> Little River, <i>Decatur</i> Manawa, <i>Pottawattamie</i> Prairie Rose, <i>Shelby</i> Rock Creek, <i>Jasper</i> Twelve Mile, <i>Union</i>	New lake, good growth, good catches. Nine- to 10-inch fish. Nice fish, big catches. Nice sized fish. Average 1 pound. Fish continue to grow. They now average 10 inches. Fish are definitely keepers. Nice fish, big catches.
Channel Catfish	
Big Creek, <i>Polk</i> Easter, <i>Polk</i> Icaria, <i>Adams</i> Little River, <i>Decatur</i>	Really nice fish, lots of them and not many catfish anglers. Very good. All sizes up to 5 pounds, occasionally 15 pounds. Fish small bays in mid-summer. Area biologist was really impressed with catfish seen in '91 survey. Many 3- to 8-pounders.
Littlefield, <i>Audubon</i> Manawa, <i>Pottawattamie</i>	Fish north shore on strong south wind. Good numbers, most 2 to 6 pounds.

Species
Lake or Stream, County

Comments

Mormon Trail, *Adair*
Southwest Rivers
Saylorville, *Polk*

Good numbers.
Catfish are abundant in all of our rivers.
Excellent channel and flathead fishing. Lots of 2- to 4-pound fish.

Twelve Mile, *Union*
Viking, *Montgomery*
Willow, *Harrison*

Cats up to 10 pounds, good early.
All sizes to 6 pounds.
Abundant 12- to 14-inch cage-reared fish.

Yellow Perch

Anita, *Cass*
Big Creek, *Polk*
Icaria, *Adams*

Abundant 8- to 9-inches easily caught on worms.
Perch are now frequently caught in Big Creek.
Seven- to 9-inches. Becoming more abundant.

comprise the majority of fish taken through the ice, but *crappies*, *bass*, *perch*, *walleye* and even *catfish* are also taken.

Season to season species and techniques change in southwest Iowa, but the good fishing continues on.

-- Joe Schwartz, regional fisheries supervisor

northwest

I O W A

Walleye

Clear Lake, *Cerro Gordo*

Twenty- to 24-inch fish are typical, but don't expect limits. Fish rock reefs all year and artificial weed beds during the summer.

East Okoboji, *Dickinson*

Southern one-third of lake, work the weeds and scattered rock piles.

Five Island, *Palo Alto*

Good winter fishing in southern portion of lake for 2- to 5-pound fish.

Lost Island, *Palo Alto*

Early spring and fall fishing will be best.

North Twin, *Calhoun*

There are better-than-average numbers of 14- to 18-inch fish available.

Silver Lake, *Dickinson*

Aeration plus good survival of young fish equals good fishing for large walleyes -- 4 to 6 pounds.

Spirit Lake, *Dickinson*

Moderate numbers of legal-sized fish will provide good fishing if the weather cooperates.

Storm Lake, *Buena Vista*

Excellent fishing during past three years -- 13-pounder in 1989! Several 9-pound fish caught during 1991.

WF-Des Moines River,

Humboldt

Spring (below obstructions). Fall (deep pools). Fingerlings stocked annually. Good size variety -- up to 8 lbs.

West Okoboji, *Dickinson*

Weed lines offer excellent opportunity along with early season fishing off rocky points.

Yellow Perch

Cornelia, *Wright*

Excellent recruitment during 1990. Two-year-old fish will be acceptable during 1992.

East Okoboji, *Dickinson*

Weedbeds are holding more fish. Harvest continues to be good.

Spirit Lake, *Dickinson*

A lot of sorting may be necessary. Good number of 6- to 8-inch fish available.

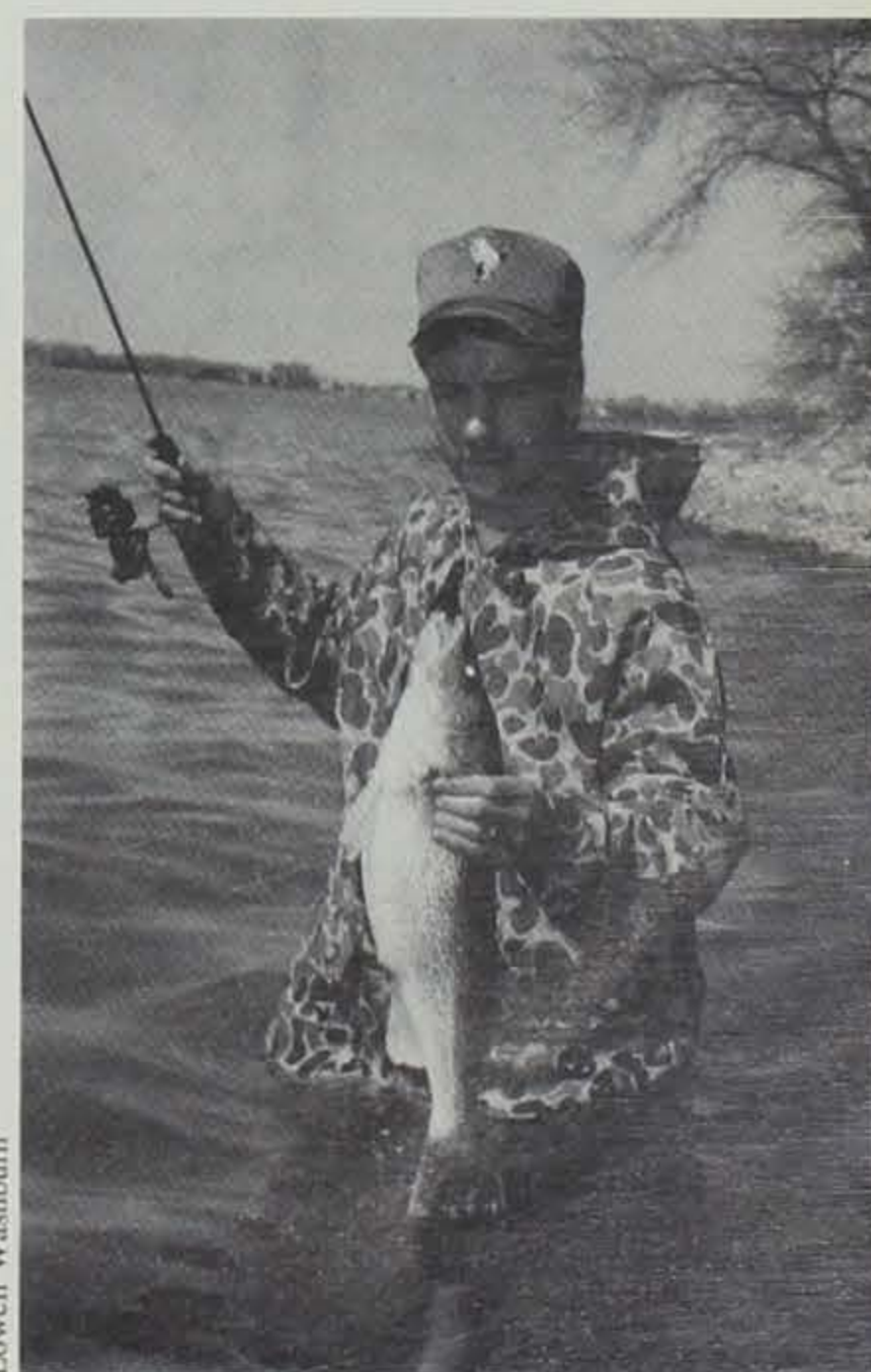
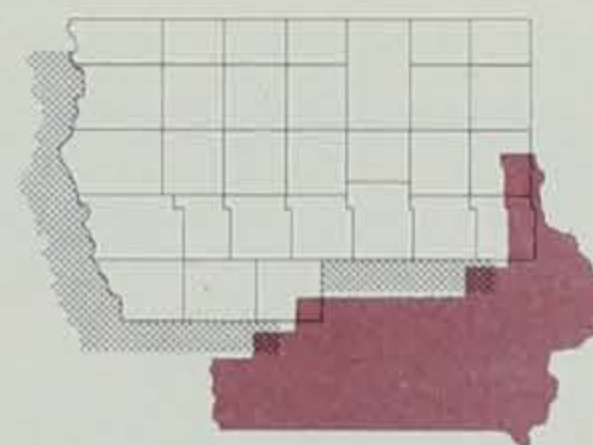
West Okoboji, *Dickinson*

Improving. Fish may be in deeper water (35-45 feet) during warm months.

Bullhead

Black Hawk, *Sac*

Excellent number of 8- to 9-inch fish. Start at inlet.



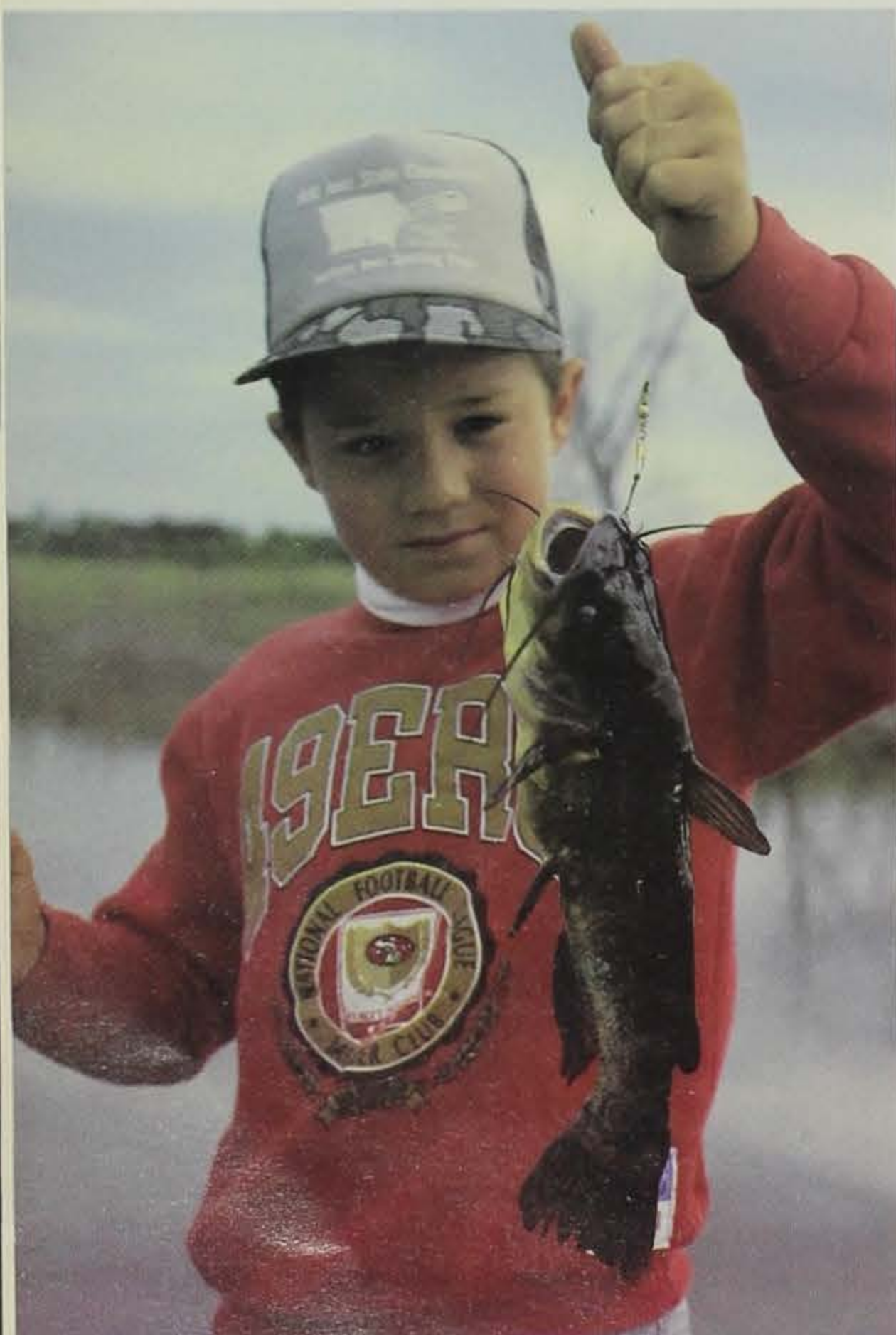
Lowell Washburn

In addition to the species, bodies of water and comments encapsulated in the table, I might also mention a few other species.

White bass can offer a lot of action for those anglers interested. Storm Lake is the best bet, with 12- to 16-inch fish. Troll crank baits in the spring and early summer. East Okoboji is another good choice for the scappy white bass. Look for a sand bottom and try using a jig and minnow rig or a spinner.

West Okoboji holds large numbers of freshwater drum. In fact, at times it's hard not to catch one of these "sheep-head" when fishing a jig. Try a piece of crawdad tail on a jig for guaranteed success.

A traditional summer favorite of many Iowa anglers



Lowe Washburn

Species	Lake or Stream, County	Comments
	Center Lake, Dickinson	Large number of 8- to 10-inch fish. Good shoreline access.
	Clear Lake, Cerro Gordo	Excellent density. Small size -- 7-inch average.
	Cornelia, Wright	Fish in the spring -- April and May.
	Crystal, Hancock	Big fish! 1-1/2 to 2 pounds.
	Crawford Creek, Ida	Lots of fish in the 9- to 12-inch range.
	Ingham Lake, Emmet	May and June are best months. Numbers are improving.
	Silver Lake, Dickinson	Consistently good.
	Spirit Lake, Dickinson	Numbers down slightly, but early spring will be good. Don't forget night fishing.
	Spring Lake, Cherokee	Good fishing for 10- to 14-inch fish, but the number of fish is declining.
Channel Catfish		
	Big Sioux River, Lyon & Sioux	Fish generally average 1/2 to 2 pounds. Large numbers are common.
	Black Hawk, Sac	Shad entrails are excellent bait.
	Clear Lake, Cerro Gordo	Fish range from 1 to 2 pounds. Fish public docks or outside edge of bullrushes.
	Cornelia, Wright	Cage-rearing program provides consistent stockings. Fish at night with frogs.
	Des Moines River, Kossuth & Humboldt	Catfish factory. Good fishing year in and year out. Quality habitat.
	East Okoboji, Dickinson	Best bet for large fish. Two- to 6-pound fish common. Consistent producer during spring and early summer.
	Iowa River, Hardin	1990 survey showed excellent numbers of 1/2- to 1-1/2-pound fish with 2- to 4-pound fish common.
	Little Sioux River, Clay & Cherokee	Water conditions, winter severity, drought effects will tell the story for 1992. Generally good for smaller fish.
	Pahoja, Lyon	Excellent fishing in 1991 for fish from 4 to 8 pounds. Crawlers and chicken livers are good bait.
	Snyder Bend, Woodbury	Excellent numbers of large fish -- 5 to 15 pounds. Early spring is best. Try shad entrails.
	Storm Lake, Buena Vista	Large fish. Islands and submerged reef are good locations. Lots of 1-1/2- to 3-pound fish were caught during 1991.
Muskellunge		
	Clear Lake, Cerro Gordo	May is a good time, always produces fish. Fish range from 34 to 42 inches. Rock reefs and points and artificial weedbeds.
	Spirit, Dickinson	Started to produce again during 1991. Should continue to improve during 1992.
	West Okoboji, Dickinson	Most consistent producer. Late summer and fall. State record in 1991.
Bluegill		
	Beeds, Franklin	Six- to 8-inch fish. Fish from jetties or causeway.
	Briggs Wood, Hamilton	Action. Fish range from 6 to 8 inches. Consistent producer.
	Crystal Lake, Hancock	Recent renovation has provided excellent fishing. Good winter fishery. Nice size -- most fish 6 to 8 inches.

Species	
Lake or Stream, County	Comments
Crawford Creek, <i>Ida</i>	Drift over old creek channel with 1/64-ounce leadhead for 7- to 9-inch fish.
East Okoboji, <i>Dickinson</i>	Excellent harvest in 1991 for 7- to 9-inch fish.
Little Wall Lake, <i>Hamilton</i>	Excellent numbers. Renovated in 1989. Lots of fish more than 7 inches.
Minnewashta, <i>Dickinson</i>	Excellent fishing in 1991. Weedbeds holding fish.
Pahoja, <i>Lyon</i>	High density. Good size structure.
Spring Lake, <i>Cherokee</i>	Lots of fish in the 8- to 9-inch range.
Swan Lake, <i>Carroll</i>	Large number of 7- to 8-inch fish.
Upper Gar, <i>Dickinson</i>	Good fishing. Again, weedbeds holding fish.
West Okoboji, <i>Dickinson</i>	Consistently excellent fishery.
Crappie	
Black Hawk, <i>Sac</i>	Fall fishing for 10- to 12-inch fish.
Clear Lake, <i>Cerro Gordo</i>	Fish the canals in April and May.
Crawford Creek, <i>Ida</i>	Excellent fishing for 8- to 10-inch fish, fall is best.
Crystal Lake, <i>Hancock</i>	Best crappie population in north-central Iowa. Fish range from 7 to 9 inches.
Gustafson, <i>Buena Vista</i>	Good potential for 8- to 10-inch fish. Old creek channel and stake beds are the best areas to fish.
Smith, <i>Kossuth</i>	Fish range from 8 to 10 inches.
Swan Lake, <i>Carroll</i>	Population estimate -- 20,000. All size classes.
Northern Pike	
Crystal Lake, <i>Hancock</i>	Fish up to 8 pounds; 2- to 4-pound pike common — try near submerged weedbeds.
Little Wall Lake, <i>Hamilton</i>	Developing population. Fast growth. High density of 2- to 4-pound fish.
Spirit Lake, <i>Dickinson</i>	Excellent. Spring. Fish developing weedbeds.
West Okoboji, <i>Dickinson</i>	Consistent. Fish developing weedbeds.
Winnebago River, <i>Cerro Gordo, Hancock, Worth & Winnebago</i>	April and May. Especially near tile outlets and feeder streams.
Smallmouth Bass	
Boone River, <i>Hamilton</i>	Fish rocky substrate in slack water or eddy areas.
Iowa River, <i>Hardin</i>	1990 survey revealed good density of a variety of sizes.
Spirit Lake, <i>Dickinson</i>	Shallow water rock structures. Practice catch and release. Excellent spring fishery.
West Fork Des Moines River, <i>Humboldt</i>	1991 survey revealed 12-inch average size below Humboldt.
West Okoboji, <i>Dickinson</i>	Quality and quantity. Catch-and-release fishing popular.
Winnebago River, <i>Cerro Gordo</i>	Smallies feed primarily on crayfish and small baitfish. Use artificial lures that mimic these. Fish up to 17 inches were seen in 1991.
Largemouth Bass	
Briggs Wood, <i>Hamilton</i>	High density. Variety of sizes.
Dog Creek, <i>O'Brien</i>	1990 surveys revealed good number of 15-inch fish. Excellent numbers of legal size -- 15 to 18 inches. Practice catch and release on this small lake.
Indian, <i>Hancock</i>	Excellent numbers of fish more than 15 inches but catch and release is a <i>must</i> on this small lake.
Lower Pine, <i>Hardin</i>	Several good year classes. Structure installed in 1991. Fish stake beds and rock riprap.

is the *flathead catfish*. Live bait and patience is the secret to successfully landing one of these big guys. The Des Moines River (Webster County), the Missouri River (Woodbury and Monona counties) and the Raccoon River (Sac, Calhoun and Carroll counties) all offer excellent fishing. The Raccoon River, in particular, had several fish weighing more than 30 pounds taken from it in 1991.

Whether it's traditional favorites you're after or some of these "other" fish, the choice is yours in northwest Iowa.

-- Thomas W. Gengerke,
regional fisheries supervisor



Ken Formanek

Jean Laaker doesn't worry any longer when she turns on a faucet in her rural Delaware County home just west of Worthington. She is not concerned every time her children take baths. It has been nearly three years since she and her husband Ken had an abandoned well plugged in their yard; a well they believe was contaminating their nearby active well. High bacteria counts forced them to transport water for drinking and cooking for two years while they tried to figure out what was causing high contaminant levels. "It was a pain, dragging that water home all the time," Jean admits. "My husband was bringing jugs of water home from work . . . about five every other day. Bathing was intolerable at times, with a distinct odor present."

The Laaker problem is precisely why the abandoned well plugging program has been established in Iowa. An outgrowth of the 1987 Groundwater Protection Act, the program sets guidelines for identifying and plugging water wells that were no longer used. Many had been abandoned as farmsteads were consolidated. Others were forgotten as deeper, more reliable water resources were tapped. Unless properly plugged, these forgotten wells are potential conduits for bacteria, nitrates, pesticides and other contaminants to enter the underground aquifers which supply about 80 percent of our drinking

water. How many abandoned wells are out there? Voluntary responses to a mid-1980s survey confirmed there were at least 43,000 wells no longer in use. However, authorities know the total is much higher. They point to Iowa's rural setting as evolving proof. At the turn of the century, there were 225,000 farms in the state. That number has been reduced to about half due to urban migration.

Regulations in effect today identify newly abandoned wells and abandoned wells located near sources of contamination as priorities. All wells abandoned after April 25, 1990 are to be properly plugged within 90 days. All wells abandoned prior to that date, but located less than 200 feet from an active well or less than 600 feet from a possible contamination point (pe-

troleum storage area, wastewater treatment facility, feedlot, agricultural chemical storage location, etc.) must be properly plugged by July 1, 1993. Class 1 wells, those 100 feet in depth or shallower and 18 inches or more in diameter are to be plugged by July 1, 1995. Class 2 wells, deeper than 100 feet or less than 18 inches in diameter, and Class 3 wells, sandpoint, tapping shallow sand and gravel aquifers, are to be plugged by July 1, 2000.

The driving force for plugging abandoned wells in Iowa is a grant program which helps pay for well water testing and sealing of old wells. "Abandoned wells are holes through which contamination can migrate to the groundwater,"

explains Dennis Alt of the Department of Natural Resources. The DNR administers the grants-to-counties program. Funding comes through a nitrogen-based fertilizer fee, a pesticide dealer's license fee and a pesticide registration fee. Through fiscal year



the Problem

by Joe Wilkinson

Even assuming each turn-of-the-century farm had just one well, there could quite easily be 100,000 or more abandoned wells. Many of them are marked only by a rusting old windmill or cast-iron pump. Others are not marked at all.

of the Department of Natural Resources. The DNR administers the grants-to-counties program. Funding comes through a nitrogen-based fertilizer fee, a pesticide dealer's license fee and a pesticide registration fee. Through fiscal year

1992, ending this June 30, approximately \$3.4 million will have been awarded through the grants-to-counties program. About \$1.3 million is expected in fiscal year 1993.

All Iowa counties are eligible for the well-plugging dollars, if they meet certain drinking water, wastewater treatment and disposal guidelines. During the first year of available funding, 37 counties participated. That number has grown, with 87 counties being funded this fiscal year. Alt says 95 applications have been made for grant money next year. The grants are divided between water testing and well plugging. Each county distributes funding according to demand from owners of abandoned wells, although there is a \$200 limit for each well to be capped. The cost to plug an abandoned well varies. According to Alt, many shallow wells can be properly plugged for \$150 to \$200. Deeper wells could range in the neighborhood of \$300 to \$500. Depending on the circumstances, and in the case of very deep wells, the bill could hit \$1,000.

For the Laakers, a \$100 county grant was made available. Their well was one of the first in the area to be plugged under the abandoned wells program. They hauled water for two years before a well driller was asked to examine their water situation. When the Laakers mentioned the pit covered by the weathered, rotting boards in the corner of their yard, he investigated and found an abandoned well. This old well was contaminating the same water table from which their newer, active well was drawing water. Contractor Rich Ogden moved his plugging rig into place in April 1989 and using a bentonite slurry, sealed the old shaft. A small crowd of county officials, media and neighbors watched as Ogden carefully removed some of the old apparatus, then slowly filled the hole. He filled from the bottom up, allowing the mixture hardened

properly. Soil was packed around the top and then mounded to divert rainwater from running into the now-sealed well. Jean Laaker says when they tested their active well, several months later, bacteria levels had dropped drastically. "We finally tested it and the excess reading was gone. The water was back to normal. It was a big improvement."

The program is doing what it was designed to do, according to Gary Shawver, of the Iowa Well Drillers Association. "You tell the county you want to plug your well. You know immediately if you get funding. It works smoothly from the landowner's point of view. You don't have to wait for two months to know if you're eligible." Shawver says demonstrations have helped show not only how to plug the wells, but the need for sealing off these contaminant avenues. Still, he sees room for improvement. Shawver says the program does not address the need for chlorinating old wells prior to capping them. "If there's iron bacteria in there, it can be introduced into the aquifer and into a producing well." Shawver, who runs a well drilling and plugging company out of Fredericksburg, says coliform sometimes present in crushed rock and sand (used in the plugging procedure) could be treated through chlorination, also. He cautions landowners who want to handle the plugging duties themselves, though. "It's important for people to realize there is more below the surface than they can see. They have to ensure it's plugged properly, to make sure it does not affect producing wells."

The incentive, of course, is to keep Iowa's underground drinking water safe. "The program is taking care of the immediate problem," says the DNR's Alt. "It is making drinking water safe. People are sealing a source of pollution. It might be only a dent right now, but it is a big achievement." It has also required officials at the local level to get

involved in the groundwater picture. Counties have to prioritize now. They must determine how they can best distribute the funding they have.

What should you do if you have an abandoned well, or suspect one might be affecting your water table? A call to your county courthouse would be the first step. Most counties have a sanitarian or other health officer to field inquiries and administer the program. If you live in one of the counties not involved in the grant program, your questions should be directed to Dennis Alt, Department of Natural Resources Wallace State Office Building, Des Moines, Iowa 50319-0034. A 46-page book describing how to plug abandoned wells is also available, through the DNR's geological survey bureau. To order *Guidelines for Plugging Abandoned Water Wells*, write the Iowa Department of Natural Resources at 123 N. Capitol St., Iowa City, Iowa 52242. The book costs \$2, plus an additional \$1.05 for postage and handling. The book describes terms used in well plugging, different types of wells, and which methods and materials work best in plugging different wells.

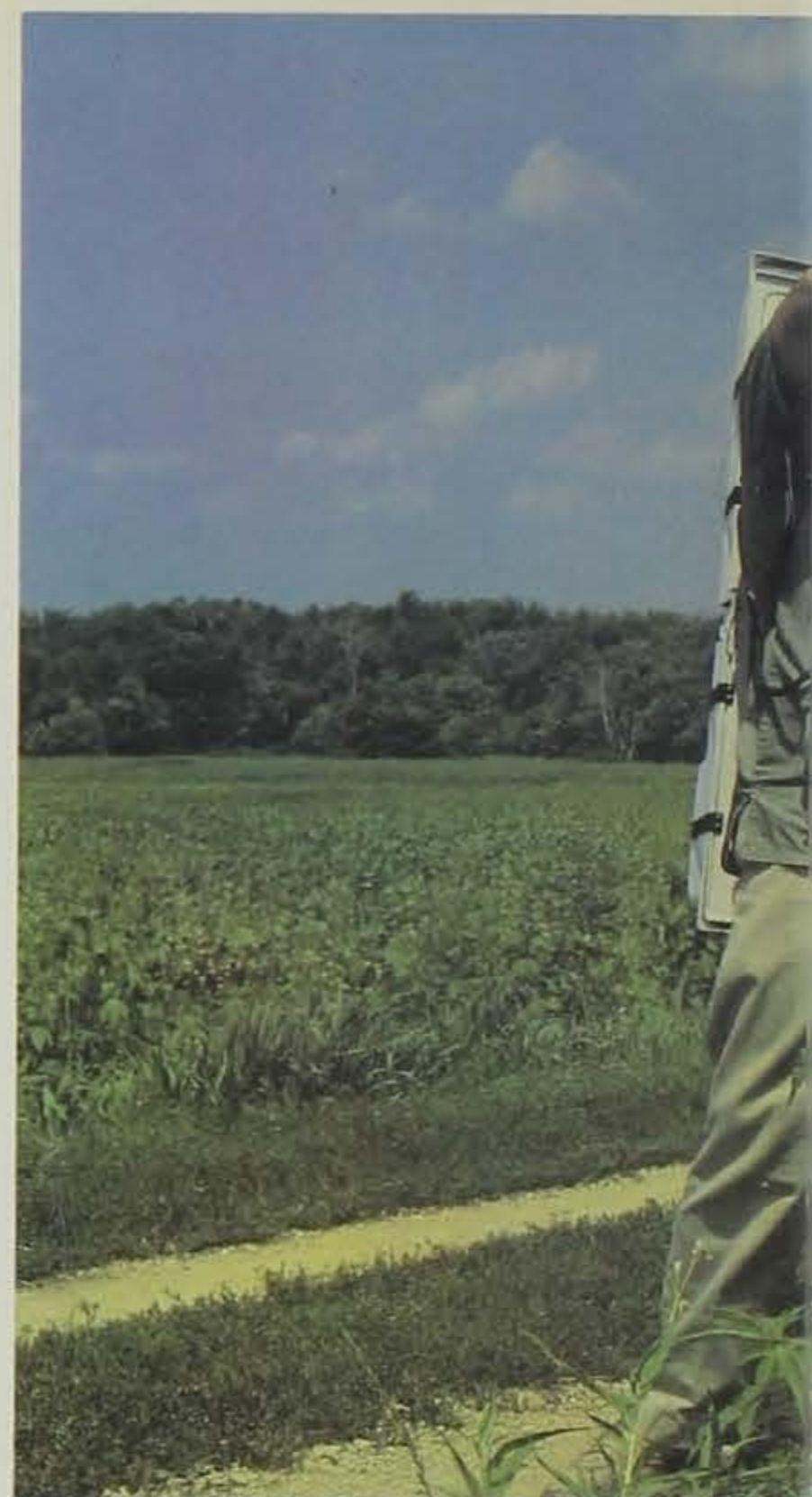
Is all the attention worth it? "We may never know just how well we have protected the groundwater through this program," observes Shawver. Drilled wells are really only in their second generation. A couple hundred years from now, we could have heavy deterioration and serious problems in these abandoned wells. Instead we are capping them, removing deteriorated pipe and properly plugging them now." Alt sees it as a relatively small investment now, saving larger sums spent on a much more expensive problem, if contamination from abandoned wells continues.

Joe Wilkinson is an information specialist for the department in Iowa City.

Bits and Pieces

ARTICLE AND PHOTOS BY RUSS GENT

Sedimentation and the associated loss of backwater habitat have long been recognized as the most important threats to the environmental health of the Mississippi River. However, to track and quantify this habitat degradation, determine what areas are most affected, measure the rate of habitat loss, and effectively save existing habitat is a difficult task. Nevertheless, biologists are assembling this complicated jigsaw-puzzle-pool of data with the use of a computerized mapping system.



At first glance, the Upper Mississippi River appears to have a limitless amount of excellent aquatic habitat. Extensive backwaters with plentiful lakes and intertwined channels provide ideal habitat suitable for a variety of fish and wildlife species. This may have been true in the 1940s following the construction of a series of navigation dams along the Upper Mississippi. With the closure of these dams, extensive areas of the river flood plain were inundated and excellent fisheries habitat was created. However, these navigation dams that created the diverse habitat on the Upper Mississippi River are also responsible for accelerating the loss of this prime backwater habitat.

During recent decades, silt eroded from upland agricultural land has been effectively trapped by the slower current caused by damming the river and has steadily deposited silt in many backwater areas. River biologists have long identified sedimentation, and the associated loss of backwater habitat, as

the single most important threat to the environmental health of the Mississippi River. However, it is difficult to track and quantify this habitat degradation to determine what areas are most affected, the rate of habitat loss and what can be done to effectively save existing habitat.

Tracking this slow habitat change leading from a viable backwater fishery to a shallow vegetated marsh, a process called *eutrophication*, has been a difficult task. Admittedly, a single severe thunderstorm can change the course of small streams or form a silt delta in your favorite fishing spot, but characteristically sedimentation occurs so slowly that we scarcely notice that our aquatic resources are slowly degrading before our very eyes. Information about a variety of interrelated factors, both physical and biological, must be analyzed to get a complete picture about how sedimentation is affecting a backwater area. Because many of these factors exhibit annual fluctuations, depending on annual water levels, this information must be collected over a

long period of time to positively identify what is being lost, and, how fast this habitat is being lost. For this reason, trend monitoring has historically been time consuming and expensive, and it creates a massive amount of data. Interpretation of this stockpile of data creates a unique problem, similar to assembling a complicated jigsaw puzzle.

Although this loss of precious aquatic habitat has been a major concern of river biologists, there has never been adequate funding techniques available to tackle the job of measuring habitat loss on an area as large as the Mississippi River. In 1986, Congress authorized the Environmental Management Program to study, among other things, sedimentation patterns and its impacts on the Upper Mississippi River through a Long-Term Resource Monitoring Program. Through this program, new technological advances are now available to collect trend data and evaluate aquatic habitat loss on the Mississippi. With a network of field offices in the five Upper Mississippi River states (Minnesota, Wisconsin, Illinois, Iowa and Missouri)

1991 Fish Awards

The listing below includes the top 10 and released of each specie taken during 1991.
Current state records are highlighted.

WEIGHT/LENGTH	LOCATION/COUNTY	DATE	ANGLER/HOMETOWN
BASS, LARGEMOUTH (MINIMUM -- 7 LBS. OR 22")			
10 lbs. 12 ozs.--23-1/2"	Lake Fisher, Davis	05/84	Patricia Zaerr, Davenport
10 lbs. 8 ozs.	Farm Pond, Mahaska	06/30/91	Mike Cherveney, Toledo
9 lbs. 4 ozs.	Farm Pond, Ringgold	04/03/91	Steve Knapp, Redding
9 lbs. 3 ozs.	Farm Pond, Shelby	09/27/91	Jim Gray, Dunlap
8 lbs. 13 ozs.	Farm Pond, Ringgold	04/20/91	Dean Robertson, Grundy Center
8 lbs. 8 ozs.	Farm Pond, Taylor	05/19/91	Melvin H. Turner, Minden
8 lbs. 6 ozs.	Farm Pond, Carroll	04/06/91	Elaine Marsh, Coon Rapids
8 lbs. 2 ozs.	Farm Pond, Appanoose	06/19/91	Bill Clark, Exline
8 lbs. 2 ozs.	Quarry	09/04/91	Arlie Van der Hoek, Pella
8 lbs. 1 oz.	Pond, Montgomery	03/31/91	Steve Philby, Red Oak
8 lbs.	Farm Pond, Lucas	04/08/91	Sam Morris, Chariton
8 lbs.	Farm Pond, Warren	03/21/91	Jay T. Gilliam, Norwalk
Released--24-1/8"	Farm Pond, Crawford	09/13/91	Dan Fastje, Denison
Released--23-1/2"	Farm Pond, Marion	1991	Richard Howard, Pleasantville
Released--23-1/2"	Saylorville, Polk	09/10/91	James E. Sawyer, Boone
Released--23"	Farm Pond, Marion	1991	Richard Howard, Pleasantville
Released--23"	Farm Pond, Warren	01/03/91	David Kyle Stacey, West Des Moines
Released--23"	Farm Pond, Warren	01/03/91	David Kyle Stacey, West Des Moines
Released--22-3/4"	Farm Pond, Marion	1991	Richard Howard, Pleasantville
Released--22-3/4"	Pond, Montgomery	03/31/91	Steve Walker, Red Oak
Released--22-5/8"	Farm Pond, Marion	08/23/91	Nate Koerselman, Pleasantville
Released--22-1/2"	Big Creek, Polk	05/19/91	Clay Gee, Ames
Released--22-1/2"	Farm Pond, Warren	04/04/91	Kyle Flinn, Cumming
Released--22-1/2"	Farm Pond, Marion	1991	Dustin Howard, Pleasantville
Released--22-1/2"	Farm Pond, Marion	1991	Richard Howard, Pleasantville
Released--22-1/2"	Farm Pond, Monona	04/21/91	Randall L. Carstens, Castana
Released--22-1/2"	Farm Pond, Marion	1991	Richard Howard, Pleasantville
Released--22-1/2"	Farm Pond, Marion	1991	Richard Howard, Pleasantville
Released--22-1/2"	Pond, Montgomery	08/04/91	Steve Walker, Red Oak
Released--22-1/2"	Pond, Montgomery	06/30/91	Steve Walker, Red Oak
Released--22-1/2"	Drainage Ditch, Louisa	04/02/91	Gene Murray, Wapello
Released--22-1/4"	Pond, Montgomery	10/17/91	Steve Walker, Red Oak
Released--22"	Pond, Montgomery	09/08/91	Steve Philby, Red Oak
Released--22"	Pond, Montgomery	06/30/91	Steve Philby, Red Oak

BASS, OCEAN-STRIPED (MINIMUM -- 5 LBS.)

9 lbs. 4 ozs.--29"	Lake Rathbun, Appanoose	07/83	Richard Pauley, Mystic
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No 1991 entries.

BASS, ROCK (MINIMUM -- 1 LB.)

1 lb. 8 ozs.--10-1/2"	Mississippi River, Dubuque	06/73	Jim Driscoll, Dubuque
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No 1991 entries.

BASS, SMALLMOUTH (MINIMUM -- 4 LBS. OR 20")

7 lbs. 12 ozs.--22-3/4"	West Okoboji, Dickinson	09/90	Rick Gray, Dickinson
5 lbs. 7 ozs.	West Okoboji, Dickinson	02/18/91	Kelly Jessen, Everly
5 lbs. 7 ozs.	Big Spirit, Dickinson	04/21/91	Robert Goff, Ruthven
5 lbs. 3 ozs.	Big Spirit, Dickinson	04/28/91	Rick Petersen, Spencer
5 lbs.	Maquoketa River, Delaware	05/12/91	Mark Stahlberg, Monticello
5 lbs.	Des Moines River, Polk	07/04/91	Tom Arn, Atlantic
4 lbs. 13 ozs.	West Okoboji, Dickinson	05/25/91	Dean Taylor, Sioux City
4 lbs. 13 ozs.	West Okoboji, Dickinson	10/05/91	Tony Taylor, Sioux City
4 lbs. 12 ozs.	West Okoboji, Dickinson	02/13/91	Kelly Jessen, Everly
4 lbs. 10 ozs.	West Okoboji, Dickinson	09/20/91	Richard Buchheit, Spencer
4 lbs. 10 ozs.	Big Spirit, Dickinson	06/19/91	Michael Callahan, Omaha NE
4 lbs. 10 ozs.	West Okoboji, Dickinson	04/14/91	Daryl Krogman, Worthington, MN
Released--24"	Cedar River, Bremer	06/01/91	Amy E. Sires, Janesville
Released--24"	Cedar River, Bremer	06/01/91	Amy E. Sires, Janesville
Released--21"	West Okoboji, Dickinson	09/22/91	Ron Creswell, Spencer
Released--20-1/2"	West Okoboji, Dickinson	04/14/91	Darwin Wackerbarth, Spirit Lake

BASS, WHITE (MINIMUM -- 2-1/2 LBS.)

3 lbs. 14 ozs.--20"	West Okoboji, Dickinson	05/72	Bill Born, Milford
3 lbs. 2 ozs.	Lake MacBride, Johnson	06/02/91	Tom Fuller, Springville
3 lbs. 1 oz.	Lake MacBride, Johnson	06/02/91	Roy T. Fuller, Springville
3 lbs. 1 oz.	Lake MacBride, Johnson	06/02/91	Roy T. Fuller, Springville
3 lbs.	Lake MacBride, Johnson	06/03/91	Roy T. Fuller, Springville
2 lbs. 13 ozs.	Lake MacBride, Johnson	06/02/91	Roy T. Fuller, Springville
2 lbs. 13 ozs.	Lake MacBride, Johnson	06/07/91	Roy T. Fuller, Springville
2 lbs. 12 ozs.	Lake MacBride, Johnson	06/02/91	Tom Fuller, Springville
2 lbs. 12 ozs.	Lake MacBride, Johnson	06/07/91	Tom Fuller, Springville
2 lbs. 11 ozs.	Red Rock, Marion	08/15/91	Douglas Tomlinson, Oskaloosa
2 lbs. 11 ozs.	Lake MacBride, Johnson	06/02/91	Roy T. Fuller, Springville

BASS, WIPER (MINIMUM -- 4 LBS.)

14 lbs. 11 ozs.--29-1/2"	Des Moines River, Polk	10/90	Bart Perrigo, Des Moines
14 lbs. 7 ozs.	Des Moines River, Wapello	10/02/91	James T. Couch, Sr., Ottumwa
13 lbs. 8 ozs.	Des Moines River, Polk	08/04/91	Sivilay Phongvixay, Des Moines
10 lbs. 12 ozs.	Des Moines River, Marion	12/21/91	Gene Lent, Pella
9 lbs. 5 ozs.	Red Rock, Marion	09/05/91	Russ Coffey, Oskaloosa
9 lbs.	Saylorville Lake, Polk	06/24/91	Bill Obermeier, Polk City
8 lbs. 8 ozs.	Red Rock Spillway, Marion	11/14/91	Dick Greiner, Washington
8 lbs.	Red Rock, Marion	05/31/91	George L. Bishop, III, Oskaloosa
8 lbs.	Riverbend, Polk	08/10/91	Robert N. Hodge, Johnston
8 lbs.	Des Moines River, Polk	08/11/91	Robert Hodge, Johnston

BASS, YELLOW (MINIMUM -- 3/4 LB.)

1 lb. 8 ozs.--13-1/2"	Cedar River, Black Hawk	09/86	Timothy Dolan, Waterloo
1 lb. 4 ozs.	Blackhawk Lake, Sac	04/07/91	Larry Bowman, Sac City
1 lb. 4 ozs.		04/20/91	Betty Huffman, Carroll
1 lb. 3 ozs.	Blackhawk Lake, Sac	05/02/91	Jeffrey L. Ryan, Lake View
1 lb.	Shell Rock River, Butler	10/08/91	Andrew Heise-Stoudt, Shell Rock
1 lb.	Shell Rock River, Butler	09/19/91	Tony Duane Rinnels, Shell Rock
1 lb.	Shell Rock River, Butler	10/08/91	Andrew Heiselstaudt, Shell Rock
15 ozs.	Sand Pit, Montgomery	05/03/91	Steve Philby, Red Oak
14 ozs.	Lake Manawa, Pottawattamie	03/28/91	Ted Love, Council Bluffs

14 ozs.	Blackhawk Lake, Sac	06/20/91	William C. Clausen, Lake View
14 ozs.	Blackhawk Lake, Sac	04/13/91	Betty Huffman, Carroll

BLUEGILL (MINIMUM -- 1 LB.)

3 lbs. 2 ozs.--12-7/8"	Farm Pond, Madison	07/86	Phil Algreen, Earlham
2 lbs. 2 ozs.	Farm Pond, Clark	07/31/91	Sid Simpson, Des Moines
1 lb. 13 ozs.	Private Pond, Dallas	09/03/91	Cody Belgarde, Adel
1 lb. 13 ozs.	Farm Pond, Guthrie	12/18/91	Ronald Mingus, Coon Rapids
1 lb. 10 ozs.	Farm Pond, Madison	08/04/91	Gilbert Puchta, Ankeny
1 lb. 8 ozs.	Pond, Warren	06/03/91	Paul Butler, Jr., Des Moines
1 lb. 8 ozs.	Farm Pond, Cass	07/05/91	Wayne Schuler, Council Bluffs
1 lb. 8 ozs.	Farm Pond, Story	06/09/91	Timothy Steven Smith, Cedar Rapids
1 lb. 8 ozs.	Farm Pond, Decatur	07/06/91	Mike L. Kroeger, Waterloo
1 lb. 7 ozs.	Pond, Decatur	06/30/91	Brad Olsen, Leon
1 lb. 7 ozs.	Farm Pond, Polk	1991	Uldis Ilvess, Des Moines

BOWFIN/DOGFISH (MINIMUM -- 5 LBS.)

10 lbs. 2 ozs.--30-1/2"	Mississippi River, Allamakee	05/87	Joel Morgan, Dike
8 lbs. 7 ozs.	Mississippi River, Clinton	01/29/91	Rudy Morgan, Clinton
8 lbs.	Green Island, Jackson	06/16/91	Nancy Kelly, Clinton
6 lbs. 8 ozs.	Bussey Lake, Clayton	04/05/91	Paul D. Christianson, Guttenberg

BUFFALO (MINIMUM -- 20 LBS.)

51 lbs.--45"	East Okoboji, Dickinson	04/86	Jeff Duis, Sibley
38 lbs. 2 ozs.	Clear Lake, Cerro Gordo	04/11/91	Carl Hutchens, Mason City
30 lbs. 3 ozs.	Blackhawk Lake, Sac	03/22/91	Allen E. Burmeister, Auburn
27 lbs.	Lake Manawa, Pottawattamie	06/09/91	Diana Fell, Crescent
26 lbs. 2 ozs.	Clear Lake, Cerro Gordo	05/06/91	Carl Hutchens, Mason City
24 lbs. 5 ozs.	Clear Lake, Cerro Gordo	05/10/91	Judy DeMaris, Mason City
23 lbs. 9 ozs.	Clear Lake, Cerro Gordo	05/10/91	Carl Hutchens, Mason City
22 lbs. 1 oz.	Clear Lake, Cerro Gordo	05/10/91	Carl Hutchens, Mason City
20 lbs. 1 oz.	Clear Lake, Cerro Gordo	05/06/91	Carl Hutchens, Mason City
Released--26-1/2"	Clear Lake, Cerro Gordo	04/14/91	Carl Hutchens, Mason City
Released--26-1/4"	Clear Lake, Cerro Gordo	05/14/91	Carl Hutchens, Mason City

BULLHEAD (MINIMUM -- 2-1/2 LBS.)

5 lbs. 8 ozs.--22"	Farm Pond, Hamilton	1989	Michael Hurd, Elsworth
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No 1991 entries.

CARP (MINIMUM -- 25 LBS.)

50 lbs.--44"	Glenwood Lake, Mills	05/69	Fred Hougland, Glenwood
48 lbs.	Viking Lake, Montgomery	05/30/91	Ronald E. Dale, Clarinda
43 lbs.	Lake Manawa, Pottawattamie	05/25/91	Renato Zurbano, Council Bluffs
35 lbs.	Big Spirit, Dickinson	04/06/91	Anita Carpenter, Sioux City
30 lbs.	Mississippi River, Allamakee	03/26/91	George A. Paulson, Harpers Ferry
26 lbs. 8 ozs.	Lake Manawa, Pottawattamie	05/28/91	Ed Schroeder, Omaha, NE
25 lbs. 8 ozs.	Rock Quarry, Harrison	05/12/91	Joe Peters, Omaha, NE
Released--43"	East Park River, Cerro Gordo	08/04/91	Ruperto Rodriguez, Mason City
Released--39-1/4"	Clear Lake, Cerro Gordo	05/14/91	Carl Hutchens, Mason City

CATFISH, BLUE (MINIMUM -- 20 LBS.)

40 lbs.	Missouri River, Harrison	06/89	John DeLong, Jr., Missouri Valley
26 lbs. 12 ozs.	Des Moines River, Lee	05/11/91	Blaine Martin, Bonaparte

CATFISH, CHANNEL (MINIMUM -- 15 LBS.)

31 lbs.--37"	Gravel Pit, Cedar	06/86	Kyle Gettschalk, Lowden
30 lbs.	Des Moines River, Boone	05/17/91	Raymond Martin, Boone
24 lbs. 6 ozs.	Volga Lake, Fayette	07/02/91	Ray Siegfried, Sumner
23 lbs. 7 ozs.	West Okoboji, Dickinson	01/27/91	Alan Riemenschneider, Spirit Lake
23 lbs. 7 ozs.	Lake Okoboji, Dickinson	01/27/91	Alan Riemenschneider, Spirit Lake
17 lbs. 15 ozs.	East Okoboji, Dickinson	09/30/91	Rick Hayes, Ocheyeden
17 lbs. 15 ozs.	East Okoboji, Dickinson	01/30/91	Rick Hayes, Ocheyeden
16 lbs. 5 ozs.	Lakeview, Sac	06/01/91	LuVerne N. Birt, Sac City
15 lbs. 8 ozs.	East Okoboji, Dickinson	04/24/91	George Leininger, Spirit Lake
15 lbs. 8 ozs.	Private, Johnson	09/14/91	Nancy J. Mauck, Solon
15 lbs.	Pleasant Creek, Linn	07/22/91	James C. Railsback, Palo

CATFISH, FLATHEAD (MINIMUM -- 20 LBS.)

64 lbs. 13 ozs.--51-3/4"	Skunk River, Henry	08/91	Joe Kauffman, Wayland
51 lbs.	Cedar River, Linn	07/31/91	Marvin Thompson, Cedar Rapids
49 lbs.	Des Moines River, Lee	08/24/91	Ken Martin, Farmington
47 lbs.	Des Moines River, Lee	08/16/91	Ken Martin, Farmington
45 lbs. 8 ozs.	Mississippi River, Des Moines	07/23/91	James L. Hubbell, Burlington
44 lbs.	Des Moines River, Van Buren	06/15/91	William V. Marsh, Farmington
43 lbs. 8 ozs.	Boyer River, Sac	08/01/91	Kevin Weber, Sioux City
42 lbs. 2 ozs.	Wapsipinicon River, Clinton	06/01/91	Larry Gottschalk, Lowden
42 lbs. 2 ozs.	Wapsipinicon River, Clinton	06/01/91	Jan Bartels, Toronto
41 lbs. 8 ozs.	Des Moines River, Lee	06/15/91	Ken Martin, Farmington
40 lbs. 4 ozs.	Des Moines River, Lee	05/18/91	Ken Martin, Farmington

CRAPPIE (MINIMUM -- 2 LBS.)

4 lbs. 9 ozs.--21-1/4"	Green Island Lake, Marshall	05/81	Ted Trowbridge, Marshalltown
4 lbs. 4 ozs.	Farm Pond, Iowa	06/24/91	Kenneth C. Schultz, Victor
3 lbs. 2 ozs.	Viking Lake, Montgomery	02/05/91	Dale E. Elmquist, Atlantic
3 lbs.	Lake Wapello, Davis	04/28/91	Bruce Switala, Ottumwa
3 lbs.	Viking Lake, Montgomery	02/02/91	Mike Anusevich, Omaha, NE
3 lbs.	Sand Pit, Plymouth	04/28/91	Mike Anthony, LeMars
2 lbs. 9 ozs.	Des Moines River, Marion	06/06/91	Kim J. Ryan, Pella
2 lbs. 8 ozs.	Farm Pond, Washington	05/16/91	Tyler Klima, Marion
2 lbs. 8 ozs.	Iowa River, Johnson	1991	Carmen Fleming, Cedar Rapids
2 lbs. 6 ozs.	Farm Pond, Davis	05/11/91	John A. Albright, Jr., Cedar Rapids
2 lbs. 6 ozs.	Rathbun, Appanoose	05/17/91	Terry Hofer, LowMoor

DRUM, FRESHWATER (MINIMUM -- 15 LBS.)

46 lbs.--38-1/2"	Spirit Lake, Dickinson	10/62	R. F. Farra, Clarion
17 lbs.	Mississippi River, Allamakee	05/17/91	Jerry Bentley, Calmar

GAR, LONGNOSE (MINIMUM --6 LBS.)

21 lbs. 4 ozs.	Mississippi River, Allamakee	03/07/91	Kathy Whalen, Denver
7 lbs. 12 ozs.	Mississippi River, Clayton	08/03/91	Shannon M. Watt, Waterloo

GAR, SHORTNOSE (MINIMUM--2 LBS.)

No current state record.
No 1991 entries.

GOLDEYE/MOONEYE (MINIMUM -- 1-1/4 LBS.)

No current state record.

No 1991 entries.

MUSKELLUNGE (MINIMUM -- 15 LBS. OR 40")

40 lbs. 5 ozs.--50-1/2"	West Okoboji, Dickinson	06/21/91	Dennis Dean Heidebrink, Rushmore, MN
39 lbs. 13 ozs.	Big Creek, Polk	04/20/91	Richard Schmitz, Ankeny
38 lbs. 12 ozs.	Spirit Lake, Dickinson	06/25/91	Alvin E. Akin, Spirit Lake
38 lbs. 10 ozs.	West Okoboji, Dickinson	10/22/91	Jordan K. Harrison, Cherokee
38 lbs. 3 ozs.	West Okoboji, Dickinson	05/22/91	Tom Weber, Dubuque
35 lbs. 15 ozs.	Big Spirit, Dickinson	06/30/91	Bob Gee, Estherville
32 lbs. 15 ozs.	West Okoboji, Dickinson	06/05/91	Duke Osborn, Omaha, NE
28 lbs.	Big Spirit, Dickinson	10/29/91	Roger Hough, Algona
26 lbs. 7 ozs.	East Okoboji, Dickinson	05/27/91	Alan Riemenschneider, Spirit Lake
26 lbs. 2 ozs.	Spirit Lake, Dickinson	09/28/91	Hugh Hoger, Spencer
Released--48"	Silver Lake, Dickinson	07/18/91	Don Brody, Bigelow, MN
Released--48"	West Okoboji, Dickinson	10/13/91	Mark Mitchell, Estherville
Released--51"	West Okoboji, Dickinson	09/14/91	Brad Leonard, Estherville

MUSKELLUNGE, TIGER (MINIMUM -- 15 LBS. OR 40")

27 lbs. 2 ozs.--47"	West Okoboji, Dickinson	08/89	Shannon Green, Spencer
25 lbs.	Clear Lake, Cerro Gordo	12/30/91	Dale L. Plath, Mason City
Released--42"	Big Creek, Polk	07/09/91	Glenn E. Dudley, Polk City

NORTHERN PIKE (MINIMUM -- 10 LBS. OR 34")

25 lbs. 5 ozs.--45"	West Okoboji, Dickinson	02/77	Allen Forsberg, Albert City
19 lbs. 9 ozs.	West Okoboji, Dickinson	01/27/91	Todd Gruis, Sibley
17 lbs. 7 ozs.	Sand Pit, Osceola	10/01/91	Paul C. Vincent, Paullina
17 lbs. 2 ozs.	West Okoboji, Dickinson	12/26/91	Gene Halling, Milford
16 lbs. 12 ozs.	West Okoboji, Dickinson	01/06/91	Harold H. Higgins, Arnolds Park
16 lbs. 5 ozs.	West Okoboji, Dickinson	12/23/91	Zac Binder, Royal
15 lbs. 12 ozs.	West Okoboji, Dickinson	02/10/91	Craig M. Jones, Dallas Center
15 lbs. 3 ozs.	Mississippi River, Dubuque	03/08/91	Dennis Wallace, Dubuque
14 lbs. 11 ozs.	West Okoboji, Dickinson	12/19/91	Brent Seivert, Hartley
14 lbs. 10 ozs.	Mississippi River, Dubuque	02/10/91	Mike Johannes, Dubuque
14 lbs. 7 ozs.	West Okoboji, Dickinson	12/24/91	Del Gonder, Spirit Lake
Released--34"	West Okoboji, Dickinson	09/15/91	Mark Mitchell, Estherville

PADDLEFISH (MINIMUM -- 25 LBS.)

107 lbs.--69-1/2"	Missouri River, Monona	03/81	Robert Pranschke, Onawa
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No 1991 entries.

PERCH (MINIMUM -- 1 LB.)

1 lb. 15 ozs.--14-3/4"	Spirit Lake, Dickinson	09/74	John Walz, Estherville
1 lb. 8 ozs.	Briggs Woods, Hamilton	09/14/91	David G. Gross, Eagle Grove
1 lb. 6 ozs.	Big Spirit, Dickinson	02/20/91	Barry Anderson, Arnolds Park
1 lb. 5 ozs.	Big Spirit, Dickinson	02/27/91	Irv Schnell, Milford
1 lb. 4 ozs.	Big Spirit, Dickinson	03/03/91	Cork Rozeboom, Sanborn
1 lb. 4 ozs.	Lost Island Lake, Clay	08/23/91	Joan Cooke, Spencer
1 lb. 4 ozs.	Lost Island Lake, Clay	10/15/91	W. James Opoien, Ruthven
1 lb. 3 ozs.	Lost Island Lake, Dickinson	12/29/91	Gary L. DeYoung, Aurelia
1 lb. 3 ozs.	Holiday Lake, Poweshiek	01/27/91	Terry Hall, Brooklyn
1 lb. 3 ozs.	Elk Lake, Clay	12/27/91	Ivan Vust, Ellsworth

1 lb. 2 ozs.	Lost Island Lake, Clay	04/20/91	Jeff Jensen, Ruthven
1 lb. 2 ozs.	Big Spirit, Dickinson	03/11/91	Irv Schnell, Milford
1 lb. 2 ozs.	Briggs Woods, Hamilton	06/01/91	John McGrath, Eagle Grove
1 lb. 2 ozs.	Elk Lake, Clay	12/23/91	Jason Loder, Ruthven

SAUGER (MINIMUM -- 2-1/2 LBS. OR 18")

6 lbs. 8 ozs.--25"	Missouri River, Woodbury	10/76	Mrs. W. Buser, Sloan
5 lbs. 8 ozs.	Mississippi River, Allamakee	04/03/91	Dennis Grauerholz, Nora Spring
4 lbs. 10 ozs.	Upper Mississippi, Clayton	03/30/91	Edward P. Forche, Cedar Rapids
4 lbs. 2 ozs.	Mississippi River, Clayton	03/15/91	Doug Westhoff, Dyersville
4 lbs.	Mississippi River, Dubuque	10/10/91	Thomas Moore, East Dubuque, IL
3 lbs. 14 ozs.	Mississippi River, Jackson	04/01/91	Matthew Baugh, Bellevue
3 lbs. 12 ozs.	Mississippi River, Allamakee	10/20/91	Marvin Lindaman, Cedar Falls
3 lbs. 10 ozs.	Mississippi River, Jackson	10/15/91	Doug Clark, Sr.,
3 lbs. 6 ozs.	Mississippi River, Allamakee	10/23/91	Vern Prhaski, Mason City
3 lbs. 5 ozs.	Mississippi River, Louisa		
3 lbs. 4 ozs.	Mississippi River, Allamakee	10/19/91	Dennis D. Paul, New Hampton
3 lbs. 4 ozs.	Mississippi River, Clayton	04/06/91	Kevin Drees, Dyersville
Released--20-1/4"	Mississippi River, Clayton	04/06/91	Terry Foster, Waverly
Released--19-1/2"	Mississippi River, Clayton	04/13/91	Terry Foster, Waverly
Released--18-1/2"	Mississippi River, Clayton	08/10/91	Dave Gross, Dubuque
Released--18-1/2"	Mississippi River, Jackson	10/15/91	John Dirks, Anamosa

SAUGEYE (MINIMUM --6 LBS. or 25")

6 lbs. 9 ozs.	Des Moines River, Wapello	10/13/90	Kirk Daily, Ottumwa
No 1991 entries.			

STURGEON, SHOVELNOSE (MINIMUM -- 3 LBS.)

12 lbs.--33"	Des Moines River, Van Buren	04/74	Randy Hemm, Douds
3 lbs. 4 ozs.	Mississippi River, Muscatine	12/23/91	Paul Bermel, Muscatine

SUCKER (MINIMUM -- 4 LBS.)

15 lbs. 1 ozs.--32-1/4"	Missouri River, Monona	09/83	Glen E. Dittman, Onawa
4 lbs. 8 ozs.	Shell Rock River, Butler	04/21/91	James E. Huber, New Hampton

SUNFISH (MINIMUM -- 1 LB.)

1 lb, 13 ozs.--10-1/4"	Lake Geode, Henry	09/67	Dale Cornick, Burlington
1 lb. 6 ozs.	Quarry, Marion	09/02/91	Arlie Van der Hoek, Pella
1 lb. 6 ozs.	Quarry, Marion	09/02/91	Arlie Van der Hoek, Pella
1 lb. 5 ozs.	Nine Eagles, Decatur	06/14/91	Caroline Mitchell, Davenport
1 lb.	Farm Pond, Keokuk	07/23/91	Thomas G. Monroe, Sigourney

TROUT, BROOK (MINIMUM -- 1 LB. OR 13")

2 lbs. 14 ozs.--17"	Canoe Creek, Winneshiek	03/81	Lyle Brown, Jr., Decorah
No 1991 entries.			

TROUT, BROWN (MINIMUM -- 3 LBS. OR 18")

15 lbs. 4 ozs.--31"	French Creek, Allamakee	07/84	Fred Daus, Minneapolis, MN
6 lbs. 12 ozs.	Wexford, Allamakee	04/26/91	Bob Hansen, Cedar Falls
6 lbs. 10 ozs.	Buck, Clayton	05/08/91	Tim L. Feldpouch, Guttenberg
6 lbs. 2 ozs.	Hickory, Allamakee	04/28/91	Mindy Torkelson, Monona
5 lbs. 10 ozs.	French Creek, Allamakee	11/06/91	Stanley C. Douglas, Davenport
5 lbs. 1 oz.	Little Turkey, Clayton	07/29/91	Gerry Oberbroeckling, Holy Cross

4 lbs. 14 ozs.	Bloody Run, Clayton	05/19/91	Terry Shannon, Ottumwa
4 lbs. 12 ozs.	Turkey River, Clayton	07/03/91	Tim Hartwig, Marshalltown
4 lbs. 12 ozs.	South Cedar, Clayton	1991	Corey Simon, Waterloo
4 lbs. 10 ozs.	Bloody Run, Clayton	03/10/91	Darrell Edwin Wiley, Jr., Dubuque
4 lbs.	Spring Creek, Mitchell	02/28/91	Ned Gleason, Charles
Released	Joy Springs, Clayton	05/19/91	Tim J. Brcka, Richland

TROUT, RAINBOW (MINIMUM -- 3 LBS. OR 18")

19 lbs. 8 ozs.--35"	French Creek, Allamakee	07/84	Jack Renner, Waterloo
13 lbs.	Richmond Springs, Delaware	06/06/91	Robert Williams, Independence
12 lbs. 4 ozs.	Little Mill, Jackson	07/04/91	Edwin Torrey, Clinton
12 lbs.	North Bear, Winneshiek	05/04/91	Keith Henkel, Dubuque
11 lbs. 14 ozs.	Trout Run, Winneshiek	12/17/91	Lester R. Ellingson, Decorah
11 lbs. 12 ozs.	Richmond Springs, Delaware	04/01/91	Dale Scott Barth, Independence
11 lbs. 10 ozs.	Buck Creek, Clayton	05/01/91	Bill Hall, Dubuque
10 lbs. 3 ozs.	Little Mill, Jackson	07/30/91	Michael J. DeSirey, Clinton
10 lbs.	Backbone St. Park, Delaware	06/13/91	Mike Cannoy, Marion
9 lbs. 15 ozs.	Trout Run, Winneshiek	05/24/91	Phillip D. Turner, Clinton
9 lbs. 13 ozs.	Bankston, Dubuque	06/26/91	Darrell E. Wiley, Jr., Dubuque
Released--20"	Silver, Allamakee	05/15/91	Bob Hansen, Cedar Falls
Released--18-1/2"	Joy Springs, Clayton	05/19/91	Tim J. Brcka, Richland
Released--18"	Pine, Allamakee	05/23/91	Dennis Myhre, Decorah

WALLEYE (MINIMUM -- 8 LBS. OR 28")

14 lbs. 8 ozs.--30-1/2"	Des Moines River, Polk	09/86	Gloria Eoriatti, Ankeny
11 lbs. 6 ozs.	Mississippi River, Allamakee	03/07/91	Richard Frink, Cedar Falls
11 lbs. 2 ozs.	Mississippi River, Allamakee	10/30/91	James A. Browning, Beloit
11 lbs. 2 ozs.	Mississippi River, Allamakee	12/05/91	Curtis Dreier, Postville
11 lbs. 1 oz.	Shell Rock River, Butler	03/26/91	Janet M. Bradley, Clarksville
11 lbs. 1 oz.	Spirit Lake, Dickinson	06/10/91	Don Sander, Holstein
11 lbs.	Holiday Lake, Poweshiek	05/18/91	Wade Clark, Cedar Falls
10 lbs. 12 ozs.	West Okoboji, Dickinson	10/21/91	Mike Andrews, Estherville
10 lbs. 8 ozs.	Storm Lake, Buena Vista	10/23/91	Jeffrey Peck, Alta
10 lbs. 6 ozs.	Mississippi River, Dubuque	01/05/91	Bill Laugesen, Dubuque
10 lbs. 5 ozs.	Mississippi River, Dubuque	03/19/91	Al Smith, Dubuque
Released--28-1/2"	Mississippi River, Allamakee	10/23/91	Vern Prohaski, Mason City
Released--28"	Mississippi River, Clayton	10/19/91	Leon Brockman, Sherrill
Released--28"	Mississippi River, Allamakee	09/26/91	Dan Brenner, Dubuque
Released--26"	Mississippi River, Allamakee	03/25/91	Roger Downs, Waterloo
Released	East Okoboji, Dickinson	09/25/91	Greg Hanson, Spirit Lake

WHITE AMUR (MINIMUM -- 25 LBS.)

51 lbs.	Viking Lake, Montgomery	09/88	Leon Allen, Omaha, NE
47 lbs. 8 ozs.	Arrowhead, Sac	07/21/91	Joe Jacobsen, Sac City
42 lbs.	Central Park, Jones	05/25/91	Jane M. Divoky, Oxford Junction



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Official Big Fish Records Registry

Bass, Largemouth 22" or 7 pounds
 Bass, Ocean-Striped 5 pounds
 Bass, Rock 1 pound
 Bass, Smallmouth 20" or 4 pounds
 Bass, White 2-1/2 pounds
 Bass, Wiper 4 pounds
 Bass, Yellow 3/4 pound
 Bluegill 1 pound
 Bowfin (Dogfish) 5 pounds
 Buffalo 20 pounds
 Bullhead 2-1/2 pounds
 Carp 25 pounds

Catfish, Blue 20 pounds
 Catfish, Channel 15 pounds
 Catfish, Flathead 20 pounds
 Crappie 2 pounds
 Freshwater Drum 15 pounds
 Gar, Longnose 6 pounds
 Gar, Shortnose 2 pounds
 Goldeye/Mooneye 1-1/4 pounds
 Muskellunge 40" or 15 pounds
 Tiger Muskie 40" or 15 pounds
 Northern Pike 34" or 10 pounds
 Paddlefish 25 pounds

Perch (Yellow) 1 pound
 Sauger 18" or 2-1/2 pounds
 Saugeye 25" or 6 pounds
 Sturgeon (Shovelnose) 3 pounds
 Suckers (Misc.) 4 pounds
 Sunfish (Misc.) 1 pound
 Trout, Brook 13" or 1 pound
 Trout, Brown 18" or 3 pounds
 Trout, Rainbow 18" or 3 pounds
 Walleye 28" or 8 pounds
 White Amur
 (Grass Carp) 25 pounds

If you have a fish eligible for submission for a big fish award, please fill out the entry form below or the form included in the 1992 *Iowa Fishing Regulations* booklet. One witness must attest to the weight of the fish to the nearest ounce on scales legal for trade, or to the length, which is measured from the tip of the snout to the tip of the tail (total length). If there is some doubt in species identification, the angler should contact the nearest Department of Natural Resources' personnel in the area for verification.

New all-time record fish must be examined and verified by DNR personnel. The DNR may wish to offer free taxidermy work for record game fish. The only stipulation is the fish will be on public display at the Rathbun Fish Hatchery until the record is broken, at which time the fish will be returned to the angler.

The entry blank should be filled out and mailed with a photo or slide of the angler and fish to: Fish Records, Iowa Department of Natural Resources, Wallace State Office Building, Des

Moines, Iowa 50319-0034. The photo will be returned to the angler.

Large fish will be recognized for each year as well as all-time records over a period of years. An angling award certificate and shoulder patch will be sent to the angler for each qualifying entry. Please allow up to six months for processing and verifying the award. The top 10 record fish and released of each species will be listed in a spring issue of the *Iowa Conservationist* magazine.

ENTRY BLANK FOR IOWA RECORD FISH (Please print)

Name _____

Street/RFD _____

City _____ State _____ Zip _____

Species _____ Date Taken _____

Name of lake/stream _____ County where taken _____

Total Length _____ Weight _____ Released (Y/N) _____

Bait or lure used, etc. _____

Witness

Name _____

Street/RFD _____

City _____ State _____ Zip _____



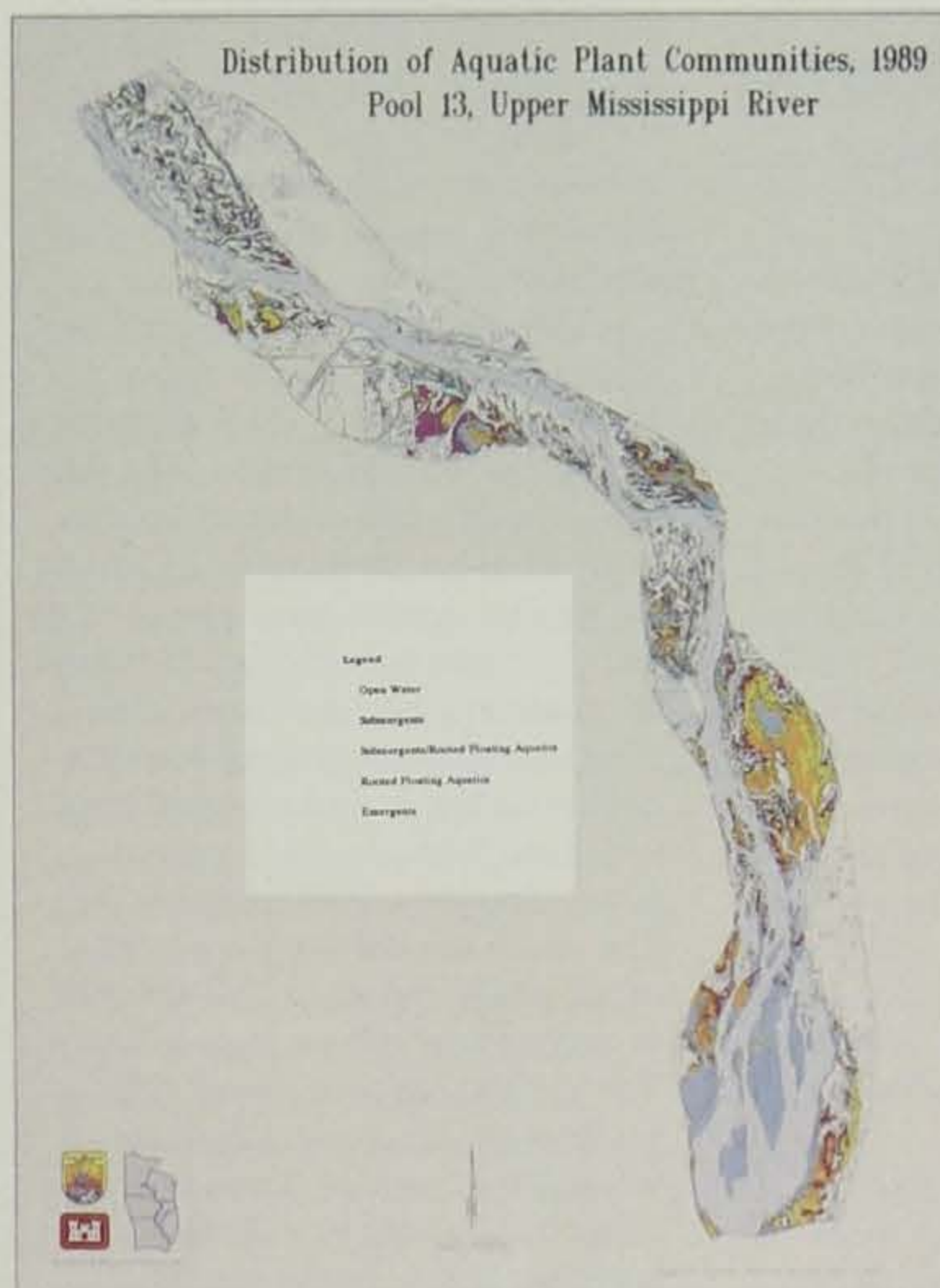
Ground truthing involves determining the signature of individual plant species for later identification of plant beds on Geographic Information System maps. A GIS is a computer data base which can draw maps to illustrate data in a way that is easier to interpret.

GIS maps can be used to plot a variety of data such as vegetation cover types.

collecting a variety of data on sedimentation rates, water quality, vegetation stands, and fish populations, the necessary ammunition is available to track habitat loss and its impacts on the Mississippi.

Analyzing the large volumes of data being generated through the Long-Term Resource Monitoring Program studies poses several problems. Because many of the components being studied are interrelated, interpreting cause-and-effect relationships is both time consuming and expensive. With the application of computer technology, the techniques necessary to organize and process this volume of data are now available. A relatively new process known as a Geographic Information System (GIS) is ideally suited to defining these trends over time.

A GIS is a computer data base which, in addition to displaying output in tabular form, can also draw maps to illustrate the data in a way that is easier to interpret. This technique was developed in the 1970s by landscape archi-

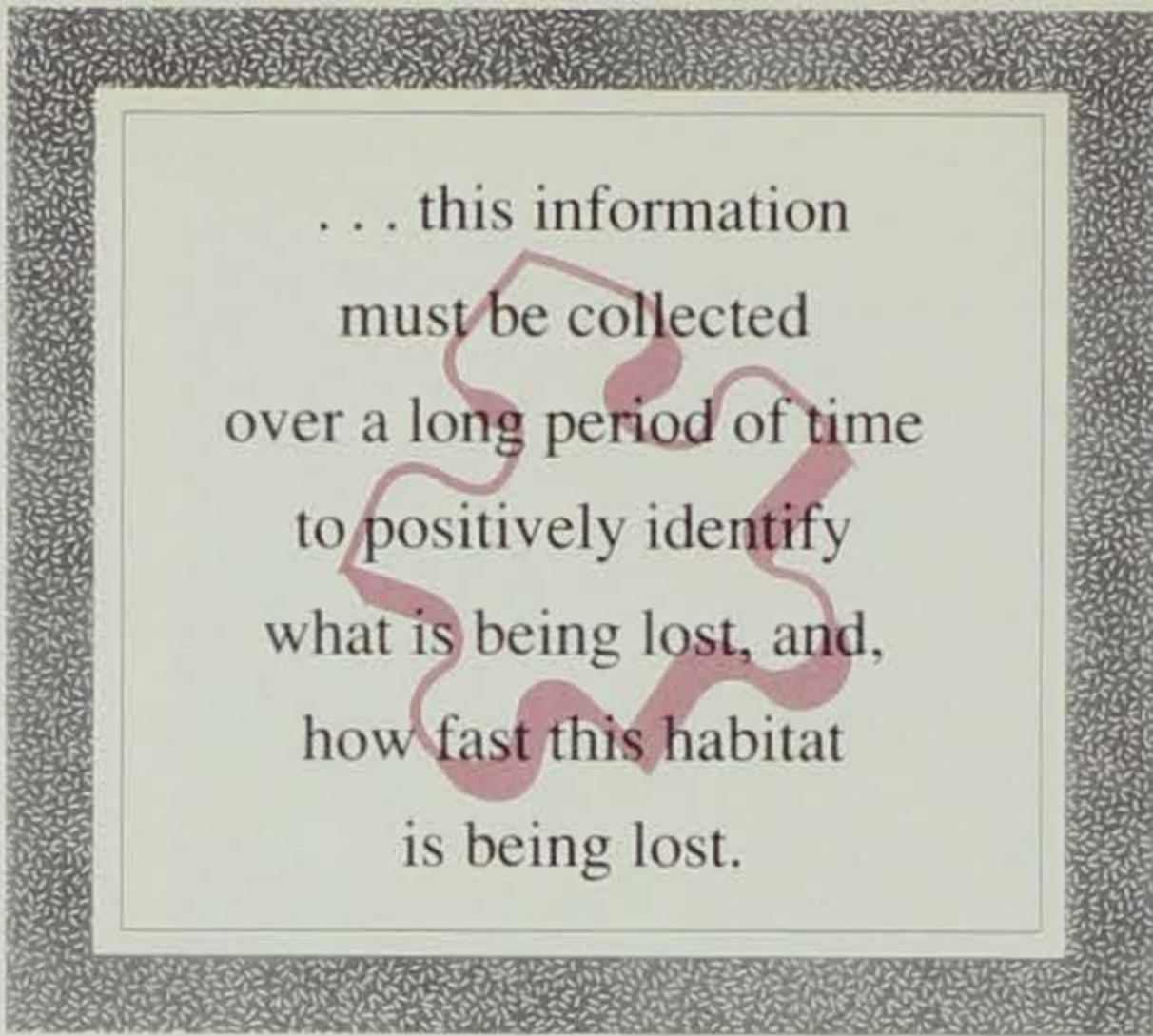


ECTA CAVES
tects at Harvard University who wanted an easier way to visualize alternative landscape designs. This system has been adapted to organize and interpret any area-based data and shows great promise in identifying and cataloging all types of habitat. For instance, emergent plants such as arrowhead are commonly found in very shallow water, one to two feet deep, in the "edge" zone that forms between land and deeper water.

Tracking the area and locations of these "indicator" plants and animals over a period of time will show many annual fluctuations, but through long-term analysis a trend will become apparent. Increased coverage or an invasion of these indicator species in new locations can illustrate the changes taking place and pinpoint the areas where sedimentation is occurring.

The true power of a Geographic Information System, however, goes beyond its ability to draw maps. In its role as a computer data base, a GIS is capable of storing and organizing a vast amount of diverse information. In addition to storing locations of individual plant species, a GIS can hold information on depth contours, soil types, sediment depths, oxygen concentrations, land use and any other data that may be useful. Importantly, these diverse sets of information can be manipulated and combined to produce a map with any combination of overlays to see how these factors interrelate and affect each other. We will then be able to study the river as a whole and see how sedimentation influences fish and aquatic plant distributions or how oxygen concentrations or turbidity levels are influenced by different types of vegetation beds. We are no longer limited to looking at small pieces of the puzzle individually but can selectively join all the pieces to learn what hidden relationships exist.

Of course a GIS is not limited to looking at these relationships at one point in time. All data collected over a period of years, or even decades, can be



... this information
must be collected
over a long period of time
to positively identify
what is being lost, and,
how fast this habitat
is being lost.

combined to point out changes that have occurred but may have gone unnoticed. Gradual erosion and loss of islands bordering the main channel of the Mississippi River has many biologists concerned. These islands not only provide excellent fish habitat and nesting sites for waterfowl, but may act as barriers to dissipate waves that resuspend sediments and raise turbidity levels. Long-term analysis through a Geographic Information System can document the loss of island habitat, tracking the acreage lost on individual islands and possibly locate where this soil was deposited.

Data acquisition in a program the scale of the Long-Term Resource Monitoring Program, which is studying the whole Upper Mississippi, is a large task. Use of a GIS allows some relatively inexpensive shortcuts to acquire information needed using satellite data and other new technologies. Satellites are constantly taking pictures while circling the earth and sending this information back to us in a digitized form which can be easily read by a computer. This data, from selected satellites which can provide the needed detail, can be fed into a GIS and used to map a variety of geographic features. This method can save a lot of time and expense but also has an advantage of producing a map that is up-to-date rather than relying on existing survey maps which may not be current.

Satellite data can fill the need for

low resolution information such as land forms, but high resolution data detailing locations of individual plant beds can also be gathered without intensive field work. Aerial photos using infrared film are an excellent method to fill in more detailed information.

Individual plant species appear as different colors and textures (called signatures) which can be used to identify separate species or groups of plants. Although this method saves extensive field surveys to locate each plant bed, signatures must be verified in the field to ensure that a plant and its

assigned signature match correctly. These locations can then be added to the GIS and used to produce detailed vegetation cover maps.

Other high-tech approaches are also being investigated to simplify data gathering and cut costs. Scanners mounted in airplanes and flown over the river have been used to create maps similar to those produced by satellite transmissions except at greater detail, even better than infrared aerial photos. Radar is also being adapted to "see" below the water surface to produce depth contour maps. Application of these technologies has the advantage of producing already digitized data which can be fed directly into a GIS for immediate use.

With the help of high-tech aids such as a Geographic Information System and advanced methods of collecting the necessary data, river managers will have the tools needed to track the subtle habitat changes that have eluded them in the past. This increased understanding of the mechanisms involved in habitat succession on the Mississippi River will enable computer models to be developed that will allow biologists to peek into the future. These crystal balls will allow us to predict future impacts on the river, and hopefully we will be able to put the puzzle back together before all of the pieces are lost.

Russ Gent is a fisheries biologist at Bellevue.

WARDEN'S DIARY

CHUCK HUMESTON

THE RUSH LAKE RELAYS

Now once in a while you have those days when, try as you might, you just cannot find much going on.

I have heard law enforcement described before as eight hours of boredom interrupted by 20 minutes of sheer terror. This is not always true. You can always find something going on somewhere, but sometimes it turns out to be more than you were looking for. Such was the day my compadre Gary Owen entered the Rush Lake Relays.

Gary had wandered south from Okoboji that day seeking adventure with me. The problem was I was seeking the same thing and getting nowhere, so he jumped in the car with me and we headed south along the chain of lakes bordering the western edge of Palo Alto County.

Snow had piled up everywhere, but we thought somebody was surely hunting somewhere. Finally we reached Rush Lake, a large, northwest Iowa marsh located near the border of three counties -- sort of a limbo located far in the corner away from any conservation officer. I had planned to circle the lake when we saw a car approaching us. It was moving slowly, indicating the occupants were probably hunting in the area. As we met the car, I turned on the red lights. The car drove right past us with the occupants fumbling something inside. "They are unloading a gun," I thought.

Gary jumped out and ran up to the car. When I heard him yell, "Let me see your hands, NOW!" I knew routine had suddenly escalated to something else.

By the time I got up to the car, he had both the men out of the car reaching for the birds flying in the blue sky. "What is going on?" I thought until I reached the car door.

Aha! The telltale odor betrayed them! Burning hemp. Marijuana. The smell inside the car reminded me of a late Sixties rock concert. Searching the car we found the associated paraphernalia. We were just getting both men turned around to handcuff and search when the driver became more agitated and suddenly, the Rush Lake Relays began!

The driver bolted, running down the road. We quickly handcuffed his partner, and Gary took off after the driver.

Now what the driver didn't realize was that Gary is a runner of some ability including a marathon, triathlons and various middle distances. I looked at the passenger and said, "I will put \$10 on the guy in the green jacket."

The escapee had a good start, and he decided to make the race cross-country through the timber. The snow was deep among the trees, forcing him to high-step like an ostrich, running in circles with Gary close behind, looking at me and shrugging his shoulders.

The race course returned to the road and the poor guy just did not have a very good kick in the stretch. He ended up handcuffed too, and we retraced the race track

picking up the items he had tossed out of his pockets.

Gary's record time probably still stands as I doubt there will ever be a request for a rematch.

"The snow was deep among the trees, forcing him to high-step like an ostrich, running in circles with Gary close behind, looking at me and shrugging his shoulders."

CONSERVATION

UPDATE

WHERE CAN I RIDE MY ATV?

by James Zohrer, executive assistant, recreation programs bureau

"Where can I ride my ATV?" This is an often-asked question received by the DNR. Thanks to the ATV registration fund, money is now available to help finance the acquisition, development and maintenance of "ATV parks." The DNR administers a grant program which makes these ATV registration funds available to clubs and political subdivisions for riding area development.

At the present time, four public ATV riding areas have been or are in the process of being established. These ATV parks are provided through cooperative efforts of the Iowa ATV Association, local ATV clubs, the DNR and, in most cases, the U.S. Army Corps of Engineers.

The Coralville riding area, located near Solon on Corps of Engineers-managed property is currently open to the public. This site covers approximately 600 acres and has an extensive system of trails available for novice as well as experienced riders. Using a grant from the DNR, further development of the area is being planned



James Zohrer

by the local ATV riding club. Additional trail improvement work and signing should be completed this summer.

Another area, opening to the public this spring, is located west of Boone on the Saylorville Reservoir area. This property is also managed by the Corps of Engineers. The local ATV club, using a grant from the DNR, will be working on

trail development. This work will include improving existing trails, signing trails and creating a training area for novice riders.

A third area, located on the Corps of Engineers-managed Rathbun Lake property, is also being planned. This 125-acre site will be developed as a cooperative effort between the local ATV club and

the Corps of Engineers with additional funding from the DNR. Plans are to have the area open to the public by mid-summer.

The fourth area, planned for southeastern Iowa near Fort Madison, will eventually include acquisition of 200 acres of land and its development. The site will have an extensive trail system and a campground. It will be

State law requires that every all-terrain vehicle operated on public land or ice be registered and numbered.

Motorcycles may also be registered as ATVs and may use ATV riding areas established through registration funds.

developed by the local ATV club through a grant from the DNR. The area should be open to the public within the next year.

Additional "ATV parks" will be funded in the future as more money becomes available through the ATV registration fund. All of these areas will be open to the public and free of charge.

State law requires that every all-terrain vehicle operated on public land or ice be registered and numbered. The registration fee is \$20 plus a \$1 writing fee for a two-year period. Motorcycles may also be registered as ATVs and may use ATV riding areas established through registration funds. ATVs should be registered with the owner's county recorder.

Registration dollars finance these areas as well as ATV safety training and enforcement efforts. Registering your machine is the first step in building a strong ATV program. Getting involved with a local ATV club or the Iowa ATV Association will insure you have a say in the future of Iowa's ATV program.

For more information on the ATV program, write the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034, or call 515/281-3449.

Conservation Catalog Available

March is a good time to prepare seed field borders, waterways and buffer strips. How do you know? A new, free "how-to" catalog is now available to owners and operators of agricultural land to help them make conservation choices.

The fully illustrated, *Conservation Catalog for the 1990s*, produced by the USDA Soil Conservation Service, explains 19 soil conservation practices in detail.

The 20-page catalog also lists 18 conservation compliance requirements in Iowa. It features estimated 1992 installation costs of conservation practices and values for maintaining and improving wildlife and water quality.

"There are photographs and explanations of all the practices listed. Some of our specifications are outlined, and there are tips on how to install and use the practices," says Jeffrey Vonk, state conservationist for the USDA Soil Conservation Service in Iowa. The catalog is intended to show farmers alternative conservation practices and systems, and to offer choices of various conservation plans. We would like to see every land owner and operator get a copy."

Farmers need flexibility in both the plans and practices they use, to keep economically viable. "Practices with equal soil-saving value can always be substituted for the practices in a conservation compliance plan," Vonk says.

Now is a good time to check your conservation plan schedule. Copies of the free catalog are available at local soil conservation service offices across the state.

Tree For Kids and Trees For Teens

This is the third year for *Trees For Kids*, a coordinated tree education and planting program for elementary and middle school students in Iowa. The program, cosponsored by the DNR, Iowa Nurserymen's Association, Iowa Bankers Association and the Iowa Telephone Pioneers, informs students about the value of trees and encourages the actual planting of free landscape-sized trees (4-6 feet tall) on either the school grounds or other public areas during Earth Week, April 19-25. There is no cost to the schools involved.

In its first two years, the program resulted in 34,000 landscape trees being planted across the state.

In an effort to reach junior high and high school students, the DNR and other *Trees For Kids* partners are developing a demonstration *Trees For Teens* project.

The *Trees For Teens* demonstration project will only be available in the Peoples Natural Gas service areas during 1992.

The teacher's packets for each program contain tree and forestry lesson plans, a large poster, information on choosing, planting and caring for a new tree and information on how to get a free landscape tree. The *Trees For Teens* packet stresses science, community service and environmental career opportunities.

If you wish to participate or know of a teacher who may be interested in either program, contact Lori Buse or Shannon Sage at (515)281-8655 for further information or to receive a free teacher's packet.



Copies of the special 50th anniversary issue of the *Iowa Conservationist* are available for \$3 each. Send correct mailing information and proper remittance to: *Iowa Conservationist*, Iowa DNR, Wallace State Office Building, Des Moines, IA 50319-0034.

CONSERVATION UPDATE

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 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, contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

Natural Resource Commission:

--April 2, Rathbun
--May 7, Decorah

Environmental Protection Commission:

--April 20,
Des Moines
--May 18,
Des Moines

State Preserves Advisory Board:

-- March 11,
Anamosa
(Wednesday)

Hook, Line and School?

by Barbara D. Gigar, aquatic
education coordinator

Why would 40 students from Ruby Van Meter School have fishing tackle? At a lake? On a school day? Why? For a field trip as part of their *Fish Iowa!* unit, of course.

What is *Fish Iowa!*? It is a set of materials available through the DNR's aquatic education program. The basic spincasting module is designed for use in physical education classes and has been distributed through workshops to more than 300 Iowa teachers. Jerry Collins, a physical education instructor at Ruby Van Meter School, is one such educator.

There have been several successful programs using the *Fish Iowa!* materials, but Collins' program is special. About 150 students, ages 13-20 with various disabilities, attend the Ruby Van Meter School in Des Moines. Collins participated in the pilot *Fish Iowa!* workshop in February 1991 and has incorporated the materials into a school-wide program. It is team-taught by the aquatic, physical education and home living skills staffs. Teachers provide hands-on instruction in tackle assembly and casting, as well as informa-



tion about aquatic habitats, fish identification, regulations and safety. Then, everyone goes fishing!

Last spring, three groups of anglers traveled to Easter Lake. The site was chosen because it is in the city of Des Moines, has a handicapped-accessible fishing bridge and three grassy riprap jetties students could use . . . and the fish were biting.

Were the anglers successful? Well, they averaged 54 fish per outing. The catch included walleye, catfish, large-mouth bass and bluegill. The students released the predator fish and kept some of the panfish. Instructors used these to demonstrate cleaning, and everyone was able to sample the fish prepared as part of the students' home living skills class.

Unlike many other physical education activities the whole experience was very popular. All students had some degree

of success regardless of their impairments. "Most of our students are faced with an excess of leisure time," says Collins, "which will only increase once they graduate from our school setting. Through the *Fish Iowa!* project, we can show them how to use some of this leisure time in a more constructive manner. The staff at Ruby Van Meter have truly captured the spirit of the program. It is much more than just fishing."

Fish Iowa! materials may be obtained by attending a three-hour seminar or a six-hour workshop. Seminars are scheduled for Charles City on April 22, 1992, and Davenport on April 28, 1992. Workshops will be held in Cedar Falls on March 25, 1992, and Burlington on April 4, 1992. For more information, contact Barbara D. Gigar, aquatic education coordinator, at 515/747-8383.

CLASSROOM CORNER

by Barbara D. Gigar, aquatic education coordinator

The following activity is a modified version of "Fashion a Fish" from the *Project WILD Aquatic* activity manual, copyright 1987.

Age:

Grades 3-6

Objectives:

Students will be able to:

1. classify fish according to body shape, coloration and mouth structure.
2. describe how adaptations can help fish survive in their habitat.

Method:

Students design fish with a variety of adaptations and describe the habitats where their fish might live.

Background:

Adaptations are features which help animals better survive in their habitat. Some species have very specialized adaptations that allow them to survive in unique habitats. Animals adapted to a narrow range of habitat conditions may be more susceptible to death or even extinction.

In this activity you will provide a variety of adaptations for body shape, coloration and mouth structure. Each adaptation is suited to certain habitat conditions. Students will design a fish with the given adaptations and a habitat in which the new fish might live. Some adaptations of Iowa fish are listed in the table on page 24.

Materials:

Art materials

Procedure:

1. Explain the terms *habitat* and *adaptation*. Discuss the adaptations fish have so they can live in water. List different aquatic habitats found in Iowa (natural lakes, rivers, reservoirs, farm ponds, etc.). What are the special conditions in each? Is the water moving? Is it clear or turbid? Are there plants or other cover available?

2. Divide students into groups of three to four. Discuss the adaptations listed in the chart and the advantage of each. Give each group a set of adaptations, one each for body shape, coloration and mouth structure.

3. Ask students to create fish with each of the adaptations they have been given. Each group should:

- create an artform that represents their fish (drawing, painting, etc.);
- name their fish; and
- draw the habitat where their fish might live and describe how the fish is suited to its habitat.

Extensions:

1. Display the artwork
2. Make a list of Iowa fish with each of the adaptations listed in the chart.
3. Discuss Iowa fish that have adaptations to a narrow range of habitat conditions (i.e., brook trout, paddlefish, skipjack herring, black redhorse, gravel chub, blacknose shiner and crystal darter).

Resource Materials:

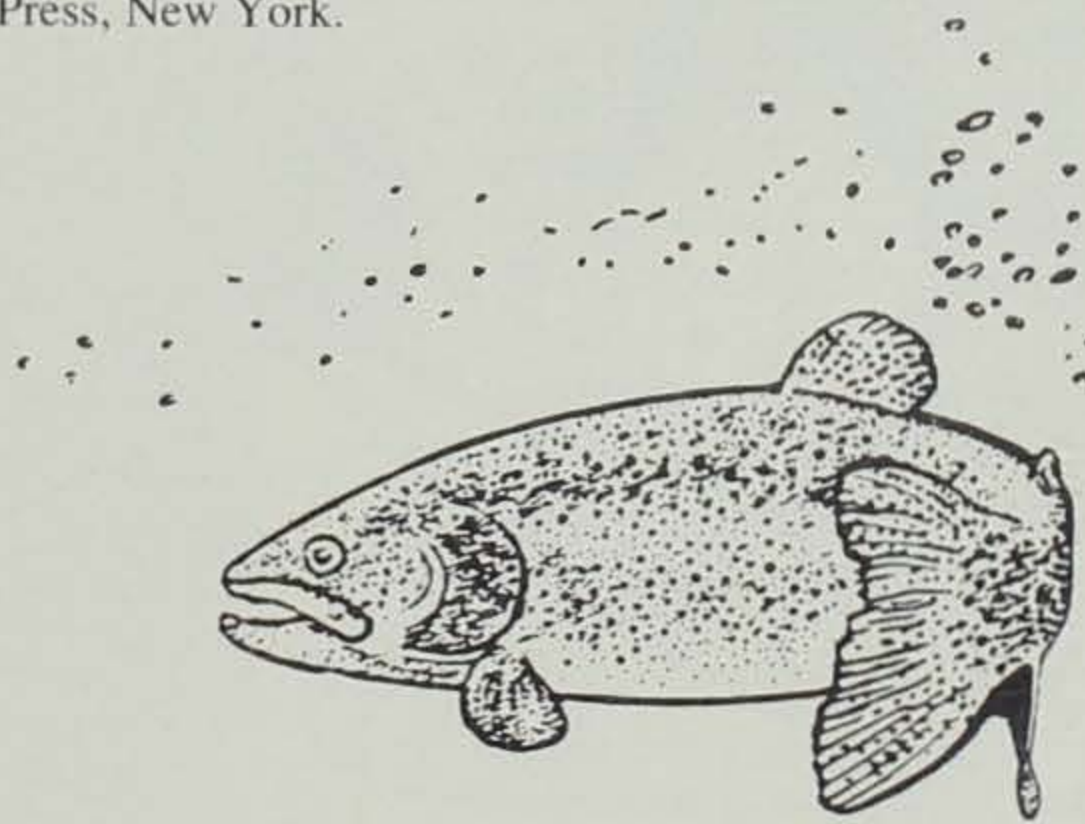
Fish Iowa!: an Introductory Guide to the Fish of Iowa, Iowa Department of Natural Resources, Des Moines.

Habits and Habitats of Fishes in the Upper Mississippi River, U.S. Fish and Wildlife Service.

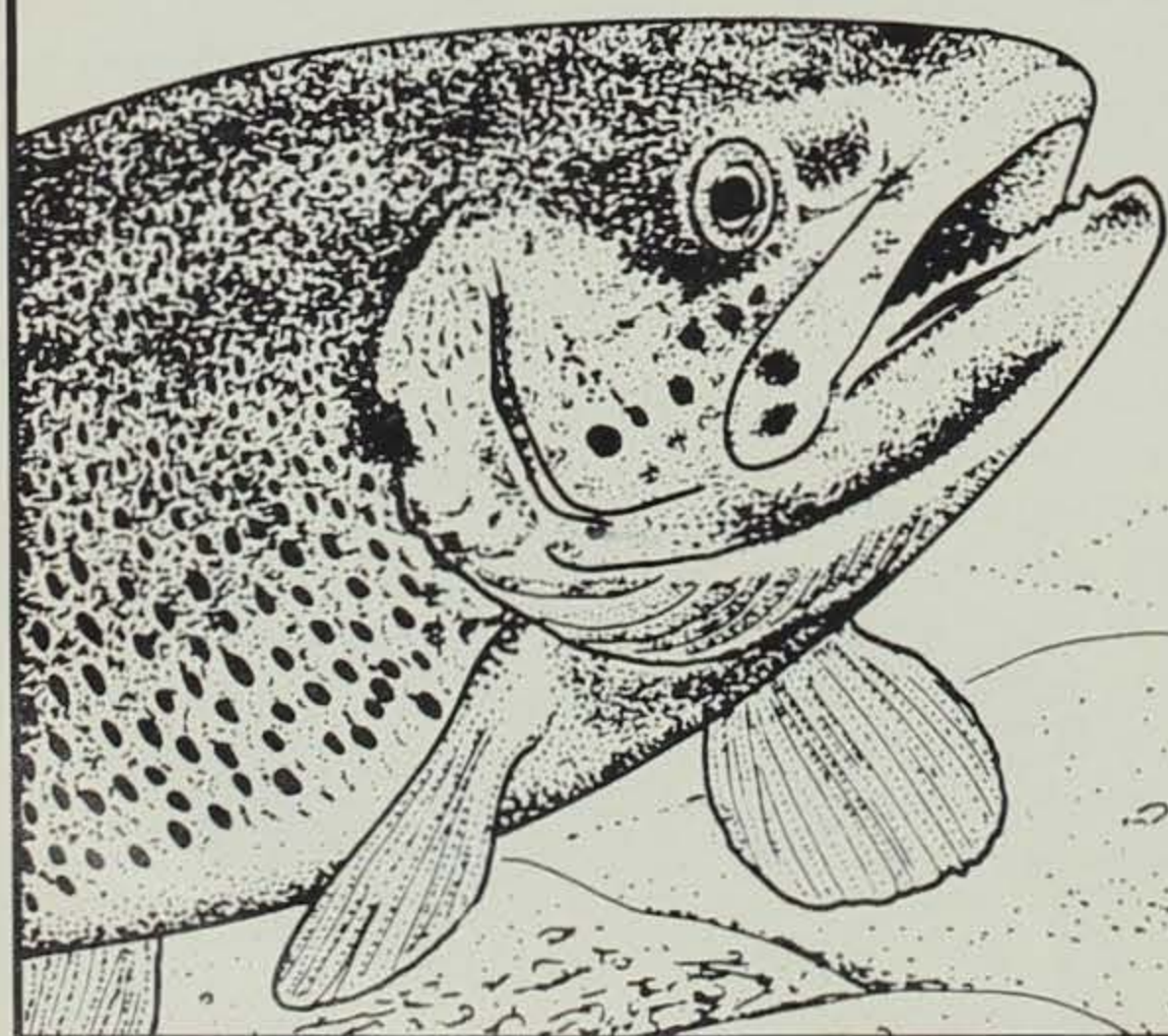
Mayhew, J., (ed.), 1987. *Iowa Fish and Fishing*, Iowa Department of Natural Resources, Des Moines.

Parker, S. 1988. *Pond and River* (Eyewitness Books). Alfred A. Knopf, Inc., New York.

Reid, G.K. 1987. *A Golden Guide to Pond Life*. Golden Press, New York.



ADAPTATION	ADVANTAGE	EXAMPLES
Mouth		
sucker-shaped mouth	feeds on very small plants and animals	suckers, carp
elongate upper jaw	feeds on prey it looks down on	sturgeon
elongate lower jaw	feeds on prey it sees above	crappie
duckbill jaws	grasps prey	pike, muskellunge
extremely large jaws	surrounds prey	bass
Body Shape		
torpedo-shaped	fast moving	trout
flat-bellied	bottom feeder	catfish, sucker
vertical disk	feeds above or below, moves through structure	bluegill (and other sunfish)
hump-backed	helps stay stable in moving water	chub, freshwater drum
Coloration		
light-colored belly	predators have difficulty seeing it from below	minnows, perch
dark upperside	predators have difficulty seeing it from above	bluegill, crappie, catfish
vertical stripes	can hide in vegetation	muskellunge, bluegill yellow perch
horizontal stripes	can hide in vegetation	yellow and white bass
mottled ("spotty")	can hide in rocks on bottom	trout, rock bass, northern hognose, sucker, crappie



by Bill Kalishek

F Is a Trout Just a Trout?

For a certain number of anglers, all trout are the same. Sure, there are brown and rainbow trout, and even brook trout; but, beyond that, they are all similar. To the angler, the only thing that changes is the day of the week the stocking truck shows up to put fish into their favorite stream.

When I was a young trout angler growing up in northeast Iowa, my favorite stream was Bohemian Creek. As soon as rumors of fresh truck tracks on the stocking road began to circulate, it was time to load up the Stingray

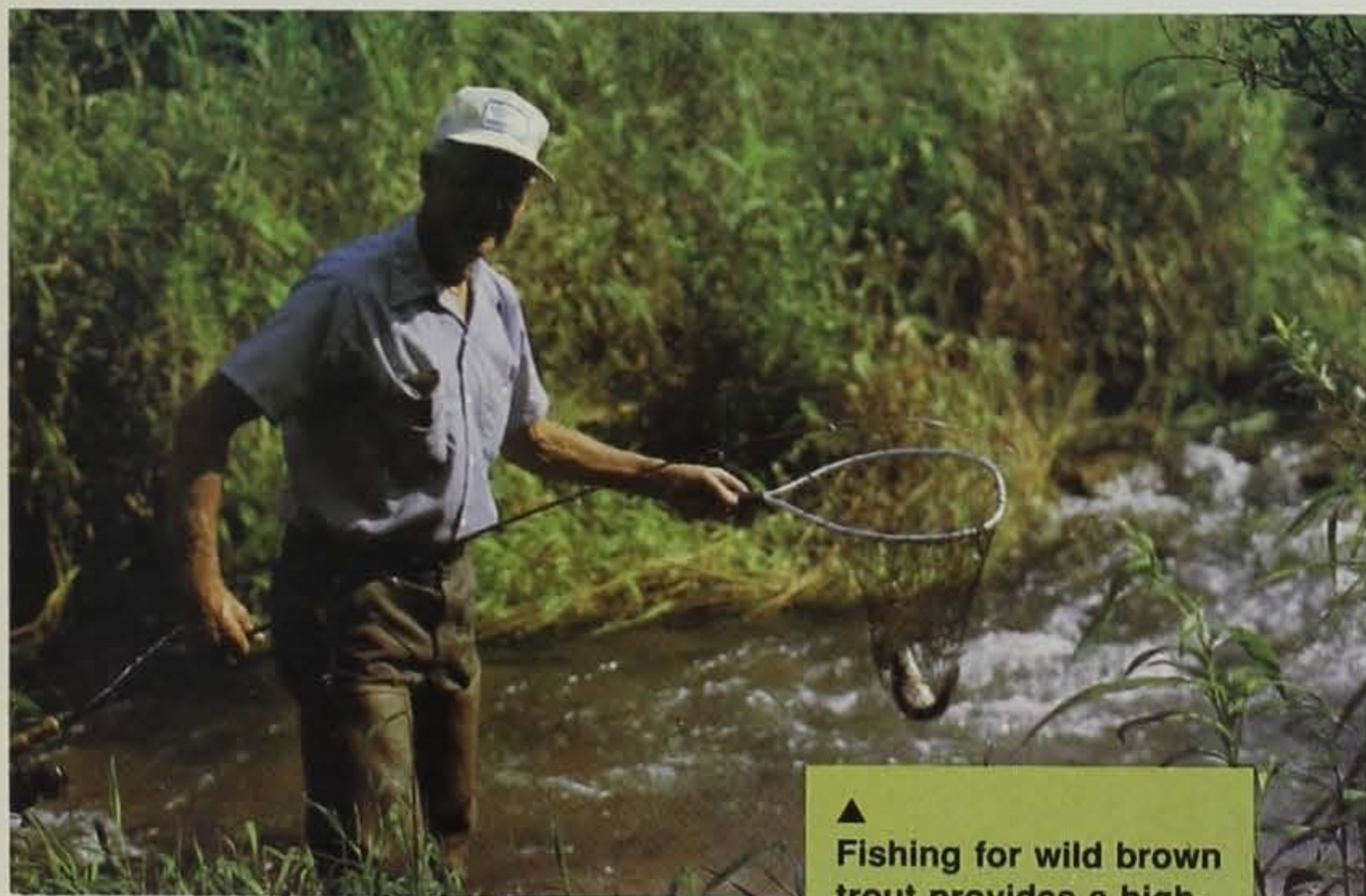
bicycle with fishing gear, lash the fishing pole to the "sissy bar" behind the seat, and peddle off to the creek. This is what trout fishing was all about. Little did I realize in those early years that there were other ways trout could populate a stream besides stocking.

The fact that trout were naturally present in the coldwater streams of northeast Iowa long before my great-grandfather immigrated to the area in the late 1800s was unknown to me. The idea of fishing for trout that had naturally spawned in a particular stream would have been ridiculous to me -- almost as ridiculous as fishing for trout with tiny artificial flies. After all, a glob of nightcrawlers and a bobber did just fine. But times, and people, change.

Today, 25 years removed from that Stingray bike, I'm fortunate to be working on one of the highest quality trout streams in Iowa -- Ensign Hollow.

Ensign Hollow is unique. Historically it supported naturally reproducing brown trout. Adult brown trout live in the stream their entire lives. They lay eggs that hatch and survive to grow into the next generation of trout. The stocking of hatchery fish has not been needed to maintain trout in Ensign Hollow. Why is this considered unique? Of the 85 coldwater streams in Iowa, only a handful have brown trout populations that are naturally reproducing. Ensign Hollow is one of those streams.

Iowa's coldwater streams are very fragile ecosystems. Small, often undetected, disruptions to the watershed can have catastrophic effects. Recent land use changes in the area, in



▲ Fishing for wild brown trout provides a high-quality experience for Iowa trout anglers.

Bill Kalishek

the form of over-grazing and cropping, had just such an effect on in Ensign Hollow. Eight years ago the brown trout population numbered more than 1,400 fish and inhabited two-thirds of a mile of stream. In 1990, the population had decreased to 73 individual trout in only one-fifth of a mile of stream. By 1991, this trout population was teetering on the brink of extinction -- only 16 individuals remained. Fortunately for the anglers of Iowa, interested individuals were already at work reversing this trend. In 1986, a coldwater stream committee was formed. It consists of a group of individuals representing the Iowa Department of Natural Resources, the Iowa Natural Heritage Foundation, the Hawkeye Fly Fishing Association, and a private industry. Their goal was to protect and preserve the few remaining naturally reproducing trout streams in Iowa. Ensign Hollow was chosen for this group's initial effort.

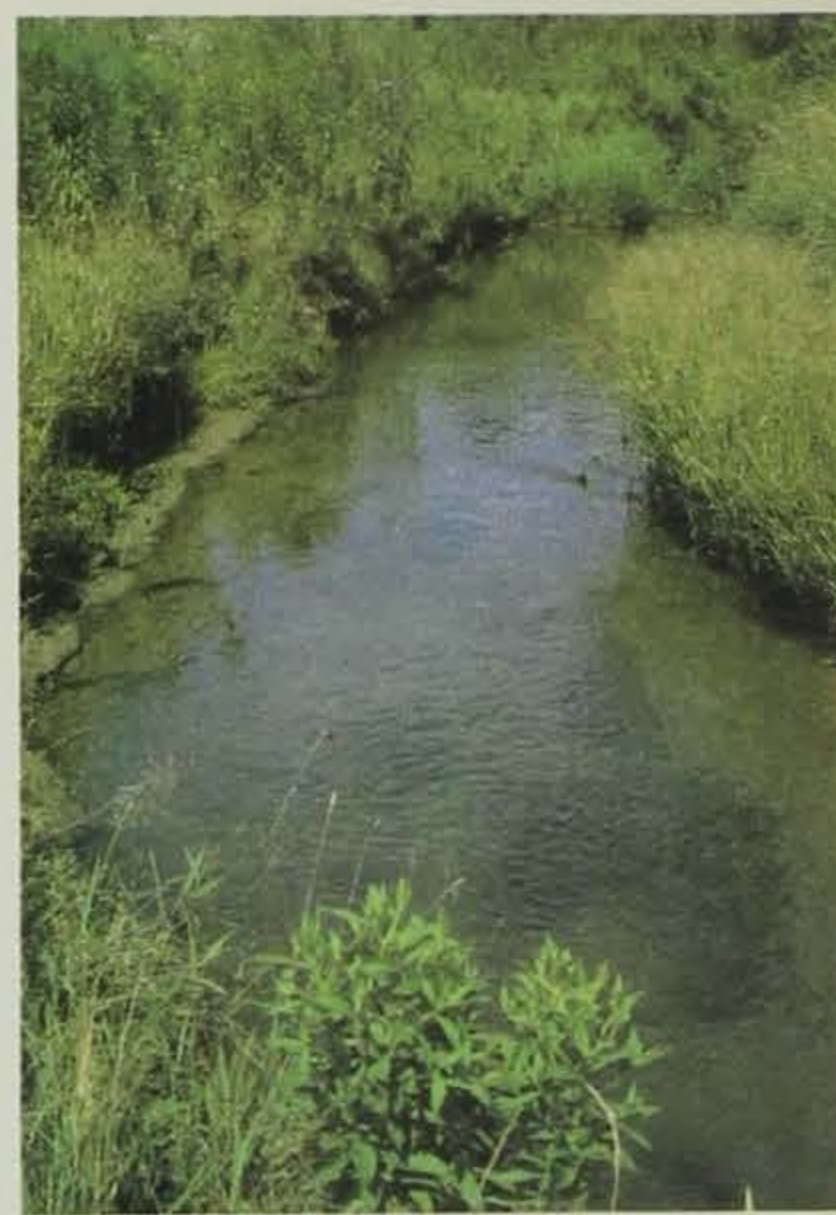
The first step was to contact landowners along the stream length. From these first meetings, the Iowa Natural Heritage Foundation purchased a parcel of land containing more than one-half mile of stream length. Management of this land was turned over to the DNR. This was the first publicly owned property on Ensign Hollow. Unfortunately, this section was downstream of the area that had historically supported brown trout populations.

When the only limit on my fishing was how far I was willing to peddle my bicycle, my buddies and I would never think of releasing a fish we had caught. Any trout, bass or catfish we caught went right onto



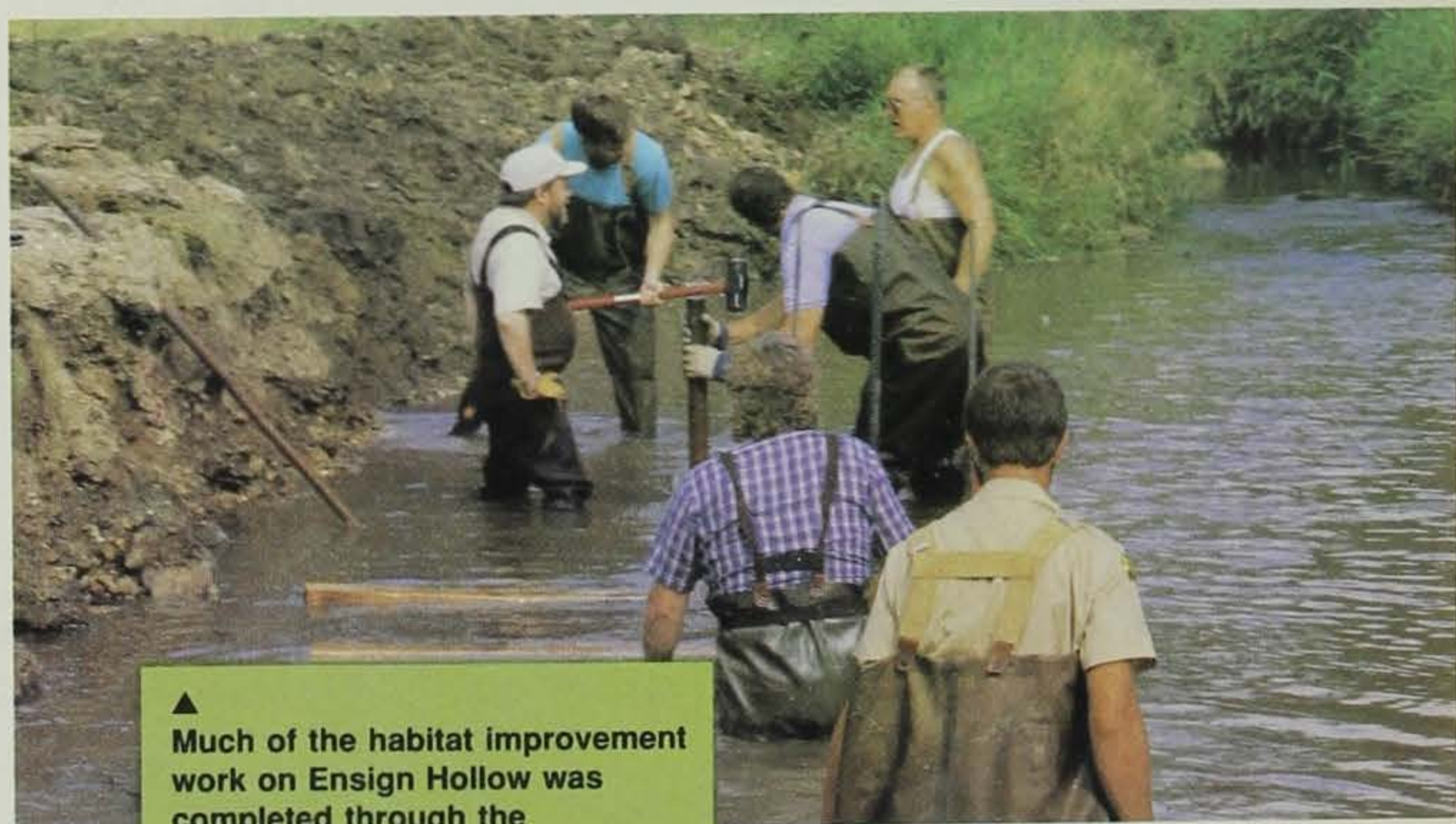
Bill Kalishek

▲ Before the habitat was improved, Ensign Hollow was lacking in overhead cover and water depth.



Bill Kalishek

▲ Bankhides resulted in increased water depth and a high amount of overhead cover.



Ellie Graves

▲ Much of the habitat improvement work on Ensign Hollow was completed through the cooperation of the Hawkeye Fly Fishing Association. This group provided both labor and funds to assist in the completion of this project.

the stringer; even carp and suckers were kept. Today, catch and release of game fish is becoming much more common. Many anglers practice voluntary release of trout. However, to ensure the maximum amount of protection possible for the small nucleus of trout remaining in the stream, a mandatory catch-and-release regulation has been implemented at Ensign Hollow. In order for this regulation to be successful, only artificial lures are allowed to be used. The percentage of trout that die after being hooked and released on live bait is very high -- more than 20 percent. The hooking mortality from an artificial lure is much lower -- usually less than one percent.

Another key to increasing trout numbers in Ensign Hollow is to increase habitat. What type of habitat does a trout need to survive? Two important factors are overhead cover and silt-free gravel on the stream bottom. Much of lower Ensign Hollow was lacking in these habitats and an intensive habitat improvement program was undertaken to remedy this problem. In a pristine trout stream, overhead cover is found in undercut banks. To simulate this natural situation, more than 800 feet of bankhides were installed. Bankhides are wooden structures placed in the stream and anchored with large rock. They provide cavities which trout use for daytime cover. In the process of installing the bankhides, the stream width is narrowed. This results in increased velocities which scour out silt and leave the high-quality rock bottom trout desire.

All of this work will tremendously improve habitat in the portion of Ensign Hollow in public ownership. However, privately

owned reaches of Ensign Hollow also need protection, especially in the areas where trout reproduction has occurred. The Clayton County Soil and Water Conservation District realized this and prepared a water quality protection project for Ensign Hollow. This program is funded through the Resource Enhancement and Protection program. Through a combination of soil erosion control

Why is Ensign Hollow unique? Of the 85 coldwater streams in Iowa, only a handful have brown trout populations that are naturally reproducing. Ensign Hollow is one of those streams.

methods, both in the stream valley and on the hills surrounding the valley, the amount of silt and organic nutrients entering Ensign Hollow will be reduced. The end result will be an increase in water quality, an increase in high-quality rock substrate and, consequently, more areas for trout to live and reproduce.

Reducing soil erosion and increasing habitat will be the beginning of a healthier stream environment. For these improvements to result in an increase in trout, there must be adequate brood stock present to populate these areas. Because of the steady decrease in trout numbers over the past decade, it appears additional trout will have

to be added to the population. The brown trout that inhabited and reproduced in Ensign Hollow were well adapted to thrive in the environmental conditions present in this stream. Do other brown trout have the same characteristics that will allow them to survive? There are many different distinct genetic "stocks" of brown trout present in the country. To determine which stock would be best suited to Ensign Hollow, genetic analysis of the few fish remaining is being conducted. This will result in a genetic "fingerprint" that can then be compared to other brown trout stocks in the United States. Trout of a similar genetic makeup will have the highest probability of survival when stocked in Ensign Hollow. All trout are not the same. This genetic information could be crucial to the success of Ensign Hollow as a quality trout stream.

The techniques of habitat improvement, genetic analysis and special catch-and-release regulations may sound like a lot of work for one small stream. How will all of this benefit the average Iowa angler or, more specifically, that kid who rides his bike to the nearest trout stream? The success of this project will mean an increase in the range and numbers of wild brown trout in Iowa. A growing number of Iowa anglers believe that fishing for a natural trout represents a unique experience worth saving -- a small bit of what was once common in Iowa and has now become so rare.

Bill Kalishek is a fisheries management biologist at the Manchester Fish Hatchery.

ETA CAVES
by Jim Wahl

Dear Diary

Keeping a fishing diary today
can help you achieve greater angling success tomorrow.
Record the secrets of the where, how and why
as well as the who, how many and how big.

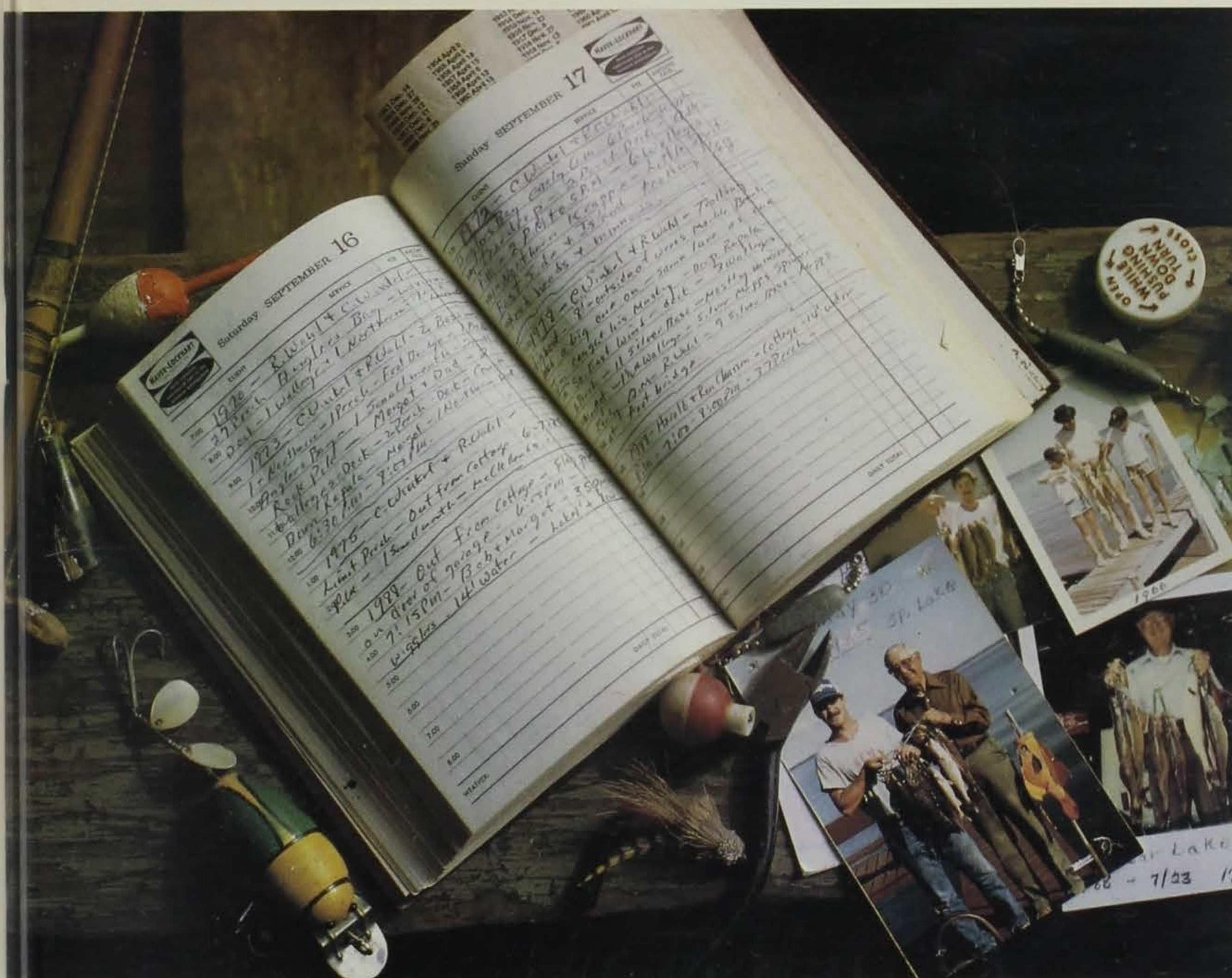
I started keeping a fishing journal when I was 12 years old. Actually it was my father's diary and I contributed to it, particularly after a successful outing. At the time I wasn't so interested in the where, how or why, but more so the who, how many and how big. A trip was particularly noteworthy if I caught more than my older brother, or better yet, my dad. Now, more than 20 years later I still enjoy sitting down and reading those early accounts of fishing trips on Big Spirit Lake. That's part of the beauty of a diary. It helps you relive fishing trips that would otherwise never be retrievable due to the clutter accumulated in the gray matter of your brain. A photograph will do the same, but a brief written narrative can provide even more detail than a photo.

I no longer contribute to that old Spirit Lake diary, although my father still does. But I do keep a diary of my own trips made primarily on Clear Lake. I'm also pleased to say that I've matured some and no longer use it as a forum for bragging, rather an account of detailed information that allows me to be a more successful angler. One value of a diary is that after several years of record keeping, trends or

patterns become evident. Although conditions constantly change, fish do follow patterns from year to year which, if repeated at the appropriate time, will bring you more success.

What type of information should be recorded? First there is the obvious information such as date, location, species caught, how many and what size. That data will jog your memory and help you relive a trip, but it is unlikely it will improve your success in future years. More detailed and useful information that is easily gathered would include: time of day, specific location or habitat, baits or lures used, water temperature, weather conditions, wind direction, water level/river stage, and stomach contents if fish are kept and cleaned.

Nearly all sportfish are vulnerable during a particular period or season of the year. During spawning, for example, fish are not only vulnerable, but concentrated in very specific habitat. Your diary can aid in understanding the spawning requirements of each fish and result in increased success. An example of this is a record in my diary of catching crappies in mid-May when water temperatures reached 60 degrees. I noted in the diary that spawning crappies generally began



Lowell Washburn

biting when the bulrushes started to emerge on the west end of Clear Lake. Using this information, I have been better able to predict and locate spawning crappies.

Another reference in my diary recorded catching walleye on rocky shorelines during the spring. This was another spawning behavior. Walleye spawn shortly after ice-out when water temperatures reached 45 degrees. After closer inspection of my records, I discovered better and more consistent catches when the wind was blowing into a rocky shoreline. I now look for rock substrate on the windward side of the lake when pursuing spring-time walleye.

When cleaning your catch, take a little extra time. Open their stomach and record what you find. This knowledge can have immediate benefits. Several years ago I noticed that nearly all the walleyes I cleaned had young-of-

the-year bullheads in their stomachs. Looking through my tackle box I picked out a black leadhead jig which looked to be a good imitation. Numerous successful trips thereafter proved me right.

I could go on and on, but I think I've made my point. Be observant while fishing. Pay particular attention to the little things and record them. Each year you can build on information from the previous years. Although yearly changes occur, many patterns stay the same.

Diaries may not interest the most casual angler, but they are certainly worth considering, at least to the more avid person. Records of past outings is something you and your partners will treasure in years to come. It might also increase the number of outings you treasure.

Jim Wahl is a fisheries management biologist at Clear Lake.

ETA CAVES STATE PA

Stephens State Forest is Iowa's largest and most widely dispersed state forest.

Divided into seven units, most of the forest is in Lucas County with parts in Clarke, Monroe, Appanoose, Davis and Jasper counties. The Lucas and Whitebreast units lie to the southwest of the town of Lucas in Lucas and Clarke counties. The Cedar Creek, Chariton and 1,000 Acre units lie in northeast Lucas County and northwest Monroe County. The Unionville Unit is dispersed over a wide area from north of Unionville in northeastern Appanoose County, east into

northwestern Davis County south of Blakesburg. The Reichelt Unit is located in Jasper County two miles east of Kellogg on U.S. Highway 6.

The forest is named in honor of the late Dr. T. C. Stephens, a prominent conservationist and professor at Morningside College in Sioux City. The area was named and dedicated in 1951. Prior to that time, the area was referred to as the Lucas-Monroe Forest.

The history of Stephens State Forest goes back to the 1930s. Professor G.B. MacDonald, one-time state forester and professor at Iowa State University was instrumental in bringing

by Randall Cook

about the acquisition of state forest lands in Iowa.

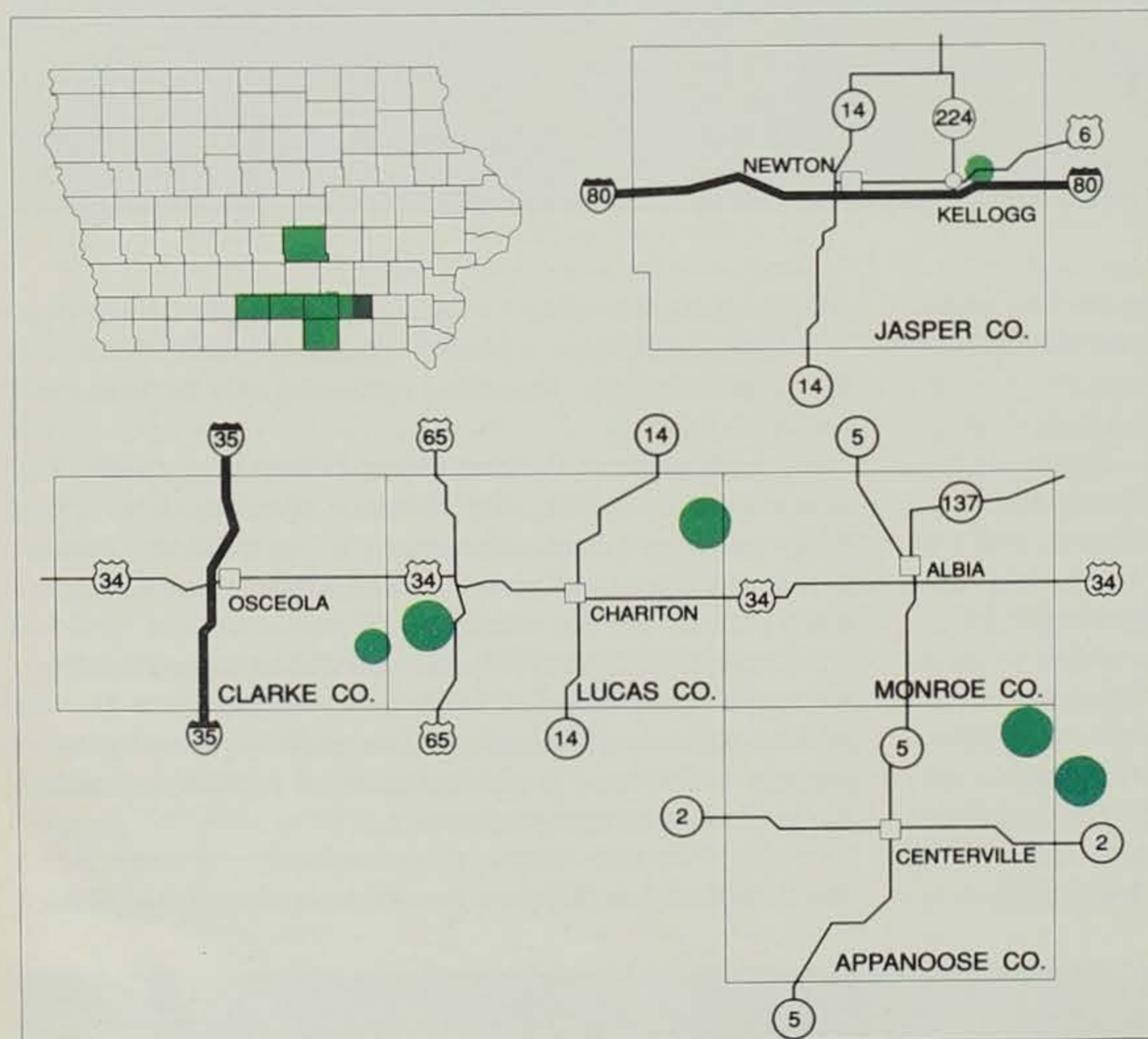
The first lands to become part of the Stephens State Forest were purchased in 1936. These lands were most of what is now called the 1,000 Acre Unit of the forest. Much of the Chariton and Lucas units and about one-third of the Whitebreast Unit were purchased during the years 1936-1938. About two-thirds of the Cedar Creek Unit were purchased in the years 1942-46. In addition, lands purchased by the U.S. Forest Service in southeastern Iowa in the 1930s were purchased by the State of Iowa in 1946. Some of those lands became the original part of the Unionville Unit.

During the 1960s another 185 acres were added to the Lucas Unit and 1,554 acres were added to the Whitebreast Unit. Another 1,516 acres were purchased during the period 1970-1981, bringing the total acreage for the forest to 9,202 acres. From 1982 until 1990, another 1,045 acres were acquired, including a 455-acre tract in Jasper County. The total acreage for the forest at the end of 1990 was 10,328 acres.

Originally, Stephens Forest was intended to serve as an example of forest management for the people of Iowa. The forest was a base of operation for the Civilian Conservation Corps (CCC) program. During the CCC days, demonstration plantings of hardwoods and conifers were completed. Scant records from that time period mention tree planting, thinning and pruning, tree removal, road construction and planting crops for game species.

Beginning in the 1950s, multiple-use management of the forest area intensified. Major emphasis was placed on management of timber, watershed, recreation, soil conservation and grazing. With an increased demand for recreation in the 1950s and 60s came an increase in recreational development which eventually included camping, picnicking, fishing, hunting and trail riding and hiking as

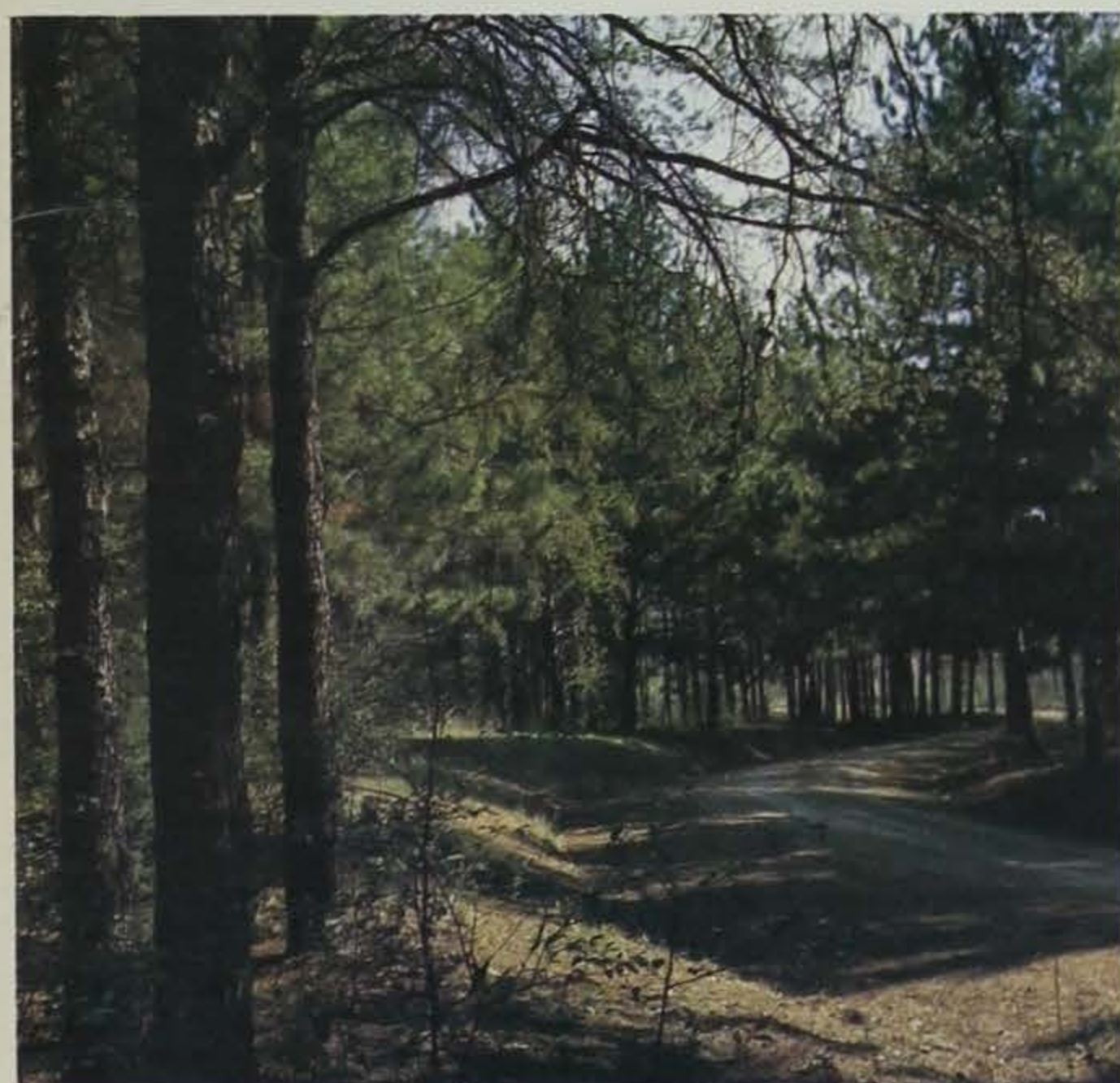
STEPHENS STATE FOREST





Ron Johnson

◀ **Stephens State Forest, the largest state forest in Iowa, is comprised of 10,328 acres, with more than 8,000 acres of forest cover. The remaining acreage includes prairie, wildlife management food plots, ponds and cropfields cultivated for their wildlife benefits.**



Jerry Leonard

acres are in forest cover. The remaining acreage is comprised of prairie, wildlife management food plots, ponds, and cropfields cultivated for their wildlife benefits.

More than 25,000 people enjoy the forest's recreational resources each year. Five separate primitive

campgrounds as well as hike-in campsites for the backpacking enthusiast accommodate campers of all inclinations. The campers enjoy the scenic beauty and diversity of many miles of riding, hiking, snowmobile and cross-country ski trails as well as fishing for bass, bluegill and channel catfish in the five large ponds within the forest.

As many as 4,000 hunters enjoy the ample hunting possibilities at Stephens each year. The development of wildlife habitat is a major emphasis. Many acres of crops are planted at strategic locations around the forest to provide winter food and cover for wildlife. Consideration is given to trees with cavities which can provide den sites for various species of animals.

Dead trees are left standing in small clearcuts to act as perches for hawks and other raptors. Special efforts are made to build brush piles during timber operations to act as nesting sites for birds and mammals.

With the major emphasis at Stephens on timber management demonstration, each year thousands of tree and shrub seedlings are planted to reforest open acreages. Improvement of existing stands of trees is a major effort and is one of the most important goals to ensure the development of quality timber for future generations. Some stands, abused by high-grade logging operations or livestock overgrazing, are healed by clearcutting the low-quality timber and reseeding or planting the site with nursery stock. Mature stands are periodically sold to the wood industry to be processed for lumber and veneer.

A timber inventory was conducted in 1972 and the first sales of timber from the forest were made. The most recent sale in January 1991, was for 72,000 board feet of oak from the Unionville Unit. The sales of sawtimber are scheduled to use the excess growth in mature and over-mature trees. Sustained yield of Iowa's timber resources is a prime consideration on the state forests and the staff is working toward that goal at Stephens State Forest. Plantings have continued through the years with emphasis placed on establishing walnut and pine stands. Pine stands are thinned and pruned to keep them growing at the maximum rate with the excess being processed as fence posts. Much of the improvement of the hardwood timber is done through thinning as well, with firewood derived from its residue.

The Stephens State Forest will continue to provide the multiple resources of wildlife, watershed, timber, recreation and soil conservation for the citizens of the state of Iowa into the 21st century.

Randall Cook is an area forester at Stephens State Forest.

▲ **Stephens is a major timber and recreational resource in southern Iowa. The sales of sawtimber are scheduled to use the excess growth in mature and over-mature trees; however, sustained yield of Iowa's timber resources is a prime consideration on the state forests.**

well as wildlife and forestry research.

In 1970, renewed emphasis was placed on forest management demonstration which remains the primary thrust of Stephens Forest.

Today, Stephens State Forest is a major timber and recreational resource in southern Iowa. More than 8,000



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six nanking cherry, six ninebark, five chokecherry,
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