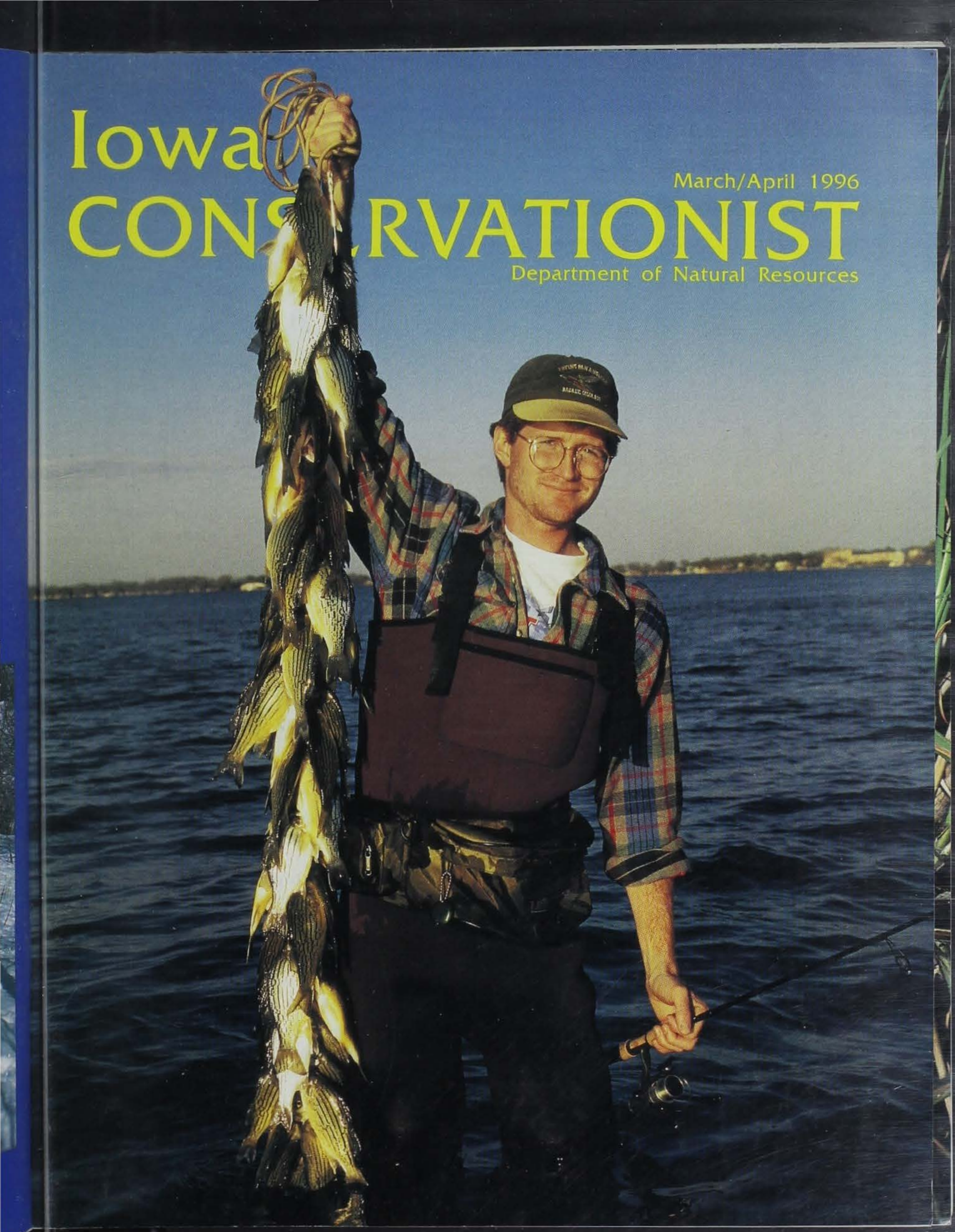
Iowa CONSERVATIONIST

March/April 1996

Department of Natural Resources



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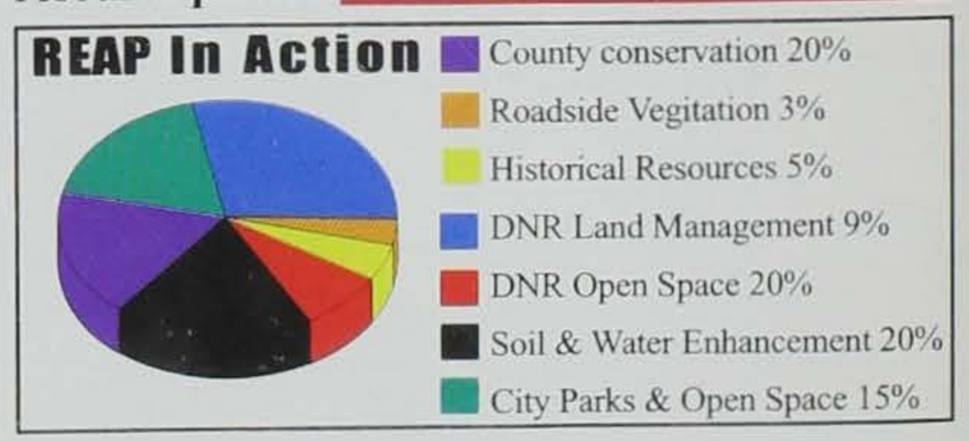

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Front -- Yellow bass at Clear Lake by Lowell Washburn.
Inside Back -- Pintails on ice by Roger A. Hill.
Back -- Dutchman's breeches by Roger A. Hill.

1996 Fishing Forecast

Northwest

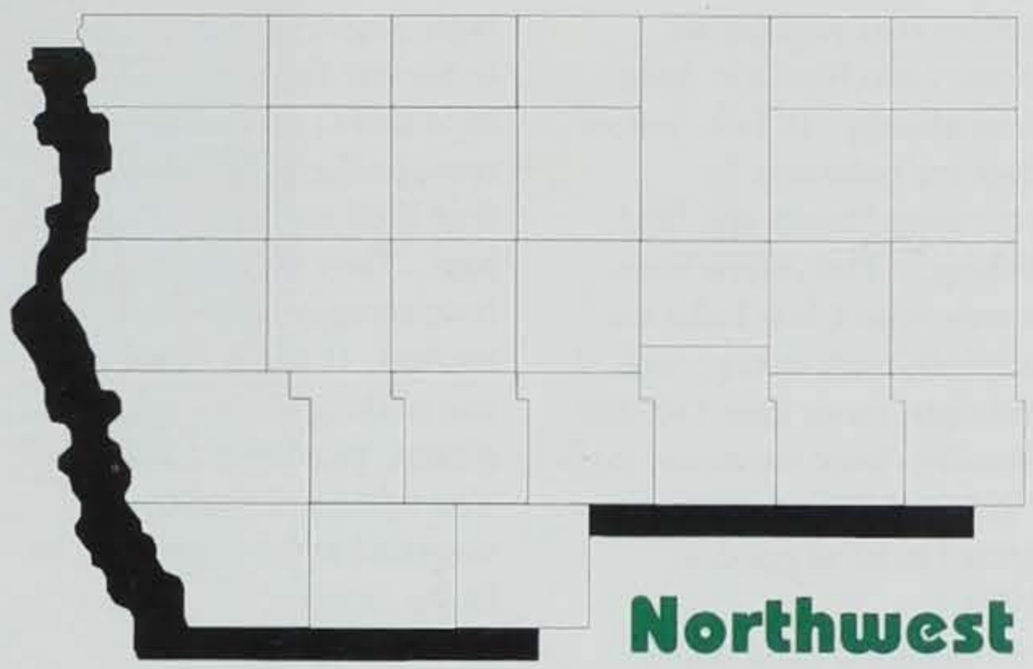
Species	Lake or Stream, *County*	Comments
Walleye	Clear Lake, *Cerro Gordo*	Population has improved. Three consecutive strong year classes means Clear Lake's walleye fishery is making a comeback. Many fish over the 14-inch minimum length limit should be available in 1996.
	Lake Cornelia, *Wright*	Provided some good fishing in 1995. Surveys show good numbers of 1-pound fish as well as 3- to 4-pounders.
	Black Hawk, *Sac*	1995 saw the best walleye fishing in Black Hawk Lake in 50 years. Lots of 15- to19-inch fish and 1996 should be a repeat, only bigger fish.
	Storm Lake, *Buena Vista*	Large populations of big fish, most falling in the 17- to 20-inch range. 1996 should be an excellent year in Storm Lake.
	Spirit Lake, *Dickinson*	Walleye fishing on Spirit Lake should be good. Some good-sized 20- to 25-inch fish will be available from older year classes but persistence will be necessary.
	Lost Island, *Palo Alto*	The strong 1992 walleye year class will be recruited into the fishery. Plenty of fish will be harvested and there will also be opportunity for anglers to practice catch-and-release.
	East Okoboji, *Dickinson*	Walleye fishing on this lake should be good during 1996 with good numbers of legal-sized 14-inch-plus fish available.
	WF-Des Moines, *Emmet*	This river has been a fairly consistent producer for the last three years and this will continue in 1996 if water levels are maintained.
	Little Sioux River, *Dickinson & Clay*	The 1996 season will be good but somewhat below the past two seasons. Again, river fishing is dependent on water conditions.
	Iowa River, *Hardin*	1995 survey revealed excellent numbers of 3/4- to 1-pound walleyes below Eldora.
	WF-Des Moines, *Humboldt*	Consistently good fishing. Fish of a variety of sizes.
Yellow Perch	Lake Cornelia, *Wright*	Extreme abundant population. Fish run small, averaging about 7 inches.
	Little Spirit, *Dickinson*	Surveys indicated two strong year classes of three- and four-year-old fish present in this lake, which should result in some excellent perch fishing for 1996.
	Spirit Lake, *Dickinson*	Perch fishing should be good but somewhat overshadowed by the exceptional harvest of the past two seasons. Persistence and the ability to move and find the fish will be key factors affecting fishing success.
	West Okoboji, *Dickinson*	Recruitment of the 1992 and 1993 year classes will result in improved catch success in 1996. Flexibility is the key to success in this lake.
	Trumbull Lake, *Clay*	Good numbers of 8-1/2- to 10-inch fish should produce some good angling -- especially in the winter.

by Thomas W. Gengerke, regional fisheries supervisor

When you think of panfishing in Iowa's natural lakes, most anglers will mention either yellow perch or bullhead. These two panfish are the most widespread throughout the region, however, another species is important in several natural lakes. This fish is the *yellow bass* and it can be found in substantial numbers in Clear Lake, Black Hawk Lake and North Twin Lake.

The introduction of yellow bass into these lakes was not intentional. In Clear Lake the fish were incidentally mixed in with shipments of fish from the Mississippi River. Yellow bass first appeared in Clear Lake in the early 1930s. Their introduction into Black Hawk and North Twin occurred at a later time. They now, however, are firmly established.

Like most panfish,



Northwest Iowa

Bullhead	Black Hawk, *Sac*	Rave reviews from anglers in 1995 about the size and quality of the bullheads in Black Hawk Lake. Huge population of 9- to 11-inch fish.
	Brown's Lake, *Woodbury*	Excellent population of large 10- to12-inch yellow bullheads. Look for these lunkers in shallow water during the early spring.
	Clear Lake, *Cerro Gordo*	More than 40,000 harvested, averaging 3/4 pounds in 1995. 1996 should be another good year.
	Center Lake, *Dickinson*	An excellent population of adult fish will produce very good angling in 1996.
	High Lake, *Emmet*	Numbers have increased since 1993 and will provide some great angling in 1996.
	Tuttle Lake, *Emmet*	Surveys indicate good numbers of adult bullheads available for the angler.
	Silver, *Dickinson*	This lake is a consistently good producer and will be again in 1996.
	Lost Island, *Palo Alto*	Numbers are tremendous and size will be 8 to 10 inches. Excellent angling.
	Spirit Lake, *Dickinson*	Bullhead numbers are adequate to provide some fine angling in 1996. The "North Grade" has been worked on with improved parking provided. The bridge has been replaced with concrete culverts, but the bullheads don't care as long as there is a current to attract them.
Channel Catfish	Big Sioux River, *Lyon, Sioux & Plymouth*	Large numbers of small 1/2- to 2-pound fish are present and if river conditions are good, some excellent catfishing will result in 1996. Flathead fishing was good in 1995 with some 40-pound fish creeled. And remember, a 62-pound state record blue catfish was caught in 1995. You never know.
	Little Sioux River, *Dickinson & Clay*	Traditionally good catfishing -- especially for the 1- to 3-pound fish and 1996 should be a banner year after three years of good water conditions.
	WF-Des Moines, *Emmet & Palo Alto*	Numbers are excellent and should provide some excellent angling in 1996 if good water conditions can be maintained.
	Iowa River, *Hardin*	1995 survey revealed 1- to 2-pound catfish are plentiful, with fish up to 10 pounds.
	Des Moines River, *Kossuth & Humboldt*	Consistently good catfish stream. Fish snags, holes and pools below riffle areas.
	Boone River, *Hamilton*	Quality habitat. Scenic river with plenty of public access.
	Clear Lake, *Cerro Gordo*	Fish average 1 to 1-1/2 pounds. Best fishing occurs from June through August.
	Lake Smith, *Kossuth*	1/2- to 2-pound fish are common. Good shoreline access.
	Storm Lake, *Buena Vista*	Excellent catfish in Storm Lake during 1995. Numbers and size should both increase in 1996, mainly due to fast growth and high stocking densities.
	Black Hawk, *Sac*	Catfish fishing in Black Hawk has been excellent for the past five years and 1996 should be no exception.
	Snyder Bend, *Woodbury*	An under-fished channel catfish hot spot with a few big flatheads thrown in.

yellow bass population density can fluctuate quite dramatically. In fact, yellow bass are notorious for providing "boom and bust fishing." The yellow bass numbers on Clear Lake are currently very strong. For example, more than 150,000 streakers were harvested in 1995, and fishing is expected to be as good in 1996.

Bass are quite prolific, with a short life span. When population densities are high, anglers are encouraged to harvest these fish. They are excellent to eat and are much more preferred by anglers than their cousin the white bass. They are also noted for their scrappy fight once hooked. If you happen to fish one of these natural lakes this season, give yellow bass a try. You will be pleasantly surprised at the action as well as the eating.

(See "Clear Lake's Yellow Bass Explosion" on page 16.)

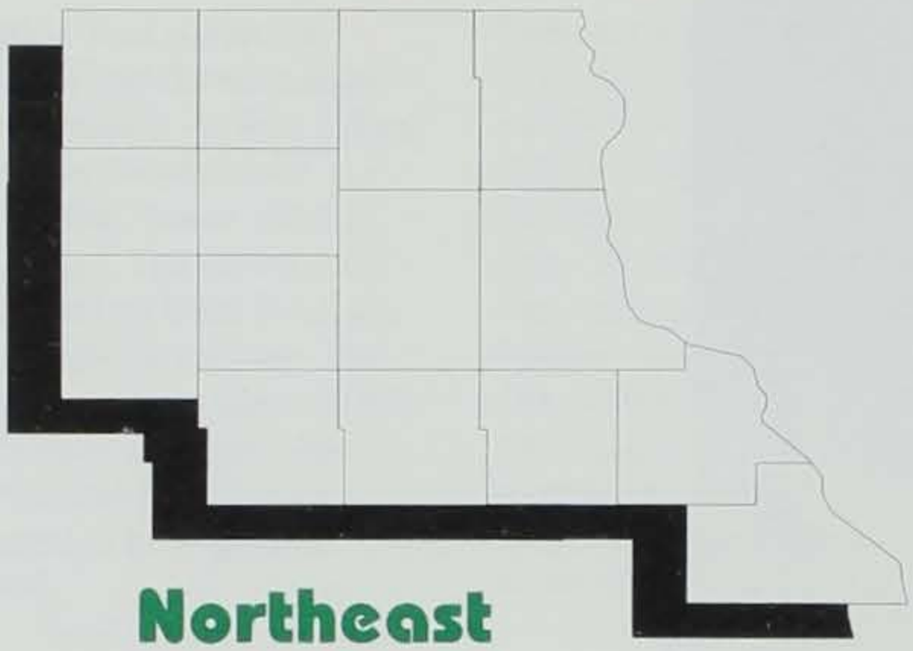
Lowell Washburn

Northwest

Muskellunge	West Okoboji, *Dickinson*	Most consistent producer. Late summer and fall. The numbers of sub-legal fish are increasing and should produce some good activity along with the 36-inch-plus legal fish for 1996.
	Spirit Lake, *Dickinson*	The population is improving. The state record was broken in 1995 with record fish still present. Persistence is the key.
	Clear Lake, *Cerro Gordo*	A 39-pounder was caught last year. May was the most productive month in 1995.
Bluegill	West Okoboji, *Dickinson*	The 1996 harvest was fair to good with sorting required.
	Lake Pahoja, *Lyon*	Larger fish will provide some good angling in 1996. Surveys indicate good numbers of "gills" present, which should translate into some good catch success for 1996.
	Blue Lake, *Monona*	1996 will be a super year for bluegill in Blue Lake. Lots of 8 to 9-inch bluegill for the taking. Get in on the fun!
	Arrowhead Lake, *Sac*	Excellent population of 8- to 9-inch fish.
	Crystal Lake, *Hancock*	Large numbers of 7-inch fish currently available to anglers.
	Little Wall Lake, *Hamilton*	6- to 8-inch fish are common. Best opportunities are in spring/early summer before the vegetation gets too thick.
Crappie	Clear Lake, *Cerro Gordo*	Crappies averaged 10 inches in 1995. Fish the canals in April and bulrush/cattail beds in May.
	Interstate Park Lake, *Franklin*	7- to 8-inch crappies are very abundant.
	Upper & Lower Pine Lake, *Hardin*	Fish crappies in the shallows during the spawn in May and drift fish open water above the thermocline during the summer months.
	Center Lake, *Dickinson*	9-inch crappies should produce some quality open water and winter angling in 1996.
	Ingham, *Emmet*	Surveys still indicate good numbers of fair-sized 8- to 9-inch fish present -- the trick is to locate the fish. Think shallow in late May and early June.
Northern Pike	Silver Lake, *Worth*	Excellent population. 2- to 3-pound fish are the dominant size with some fish exceeding 8 pounds.
	Beeds Lake, *Franklin*	Good variety of sizes of pike available. Fish the weedline with spinnerbaits,
	West Okoboji, *Dickinson*	Excellent fishing was experienced for somewhat small, less than 3-pound fish in 1995. The survival and growth of this strong year class will result in some good angling for larger fish in 1996.
	Silver Lake, *Palo Alto*	Good numbers of 2- to 5-pound pike available for the open-water and winter angler.
	Tuttle Lake, *Emmet*	Northern fishing has been a tradition on this Iowa, Minnisota border lake.

Ken Formanek

		Recent surveys have resulted in some excellent catches which indicate some fine angling will be available in 1996.
	Spirit Lake, *Dickinson*	Consistent producer -- small to medium 2- to 5-pound fish -- springtime above the developing weed beds and emergent rushes in Anglers Bay.
	Trumbull Lake, *Clay*	The survey resulted in good numbers. Try early spring in areas of running water.
Smallmouth Bass	Spirit Lake, *Dickinson*	With a stable population the last few years, spring and early summer fishing have been good. The 1996 season should also produce some fine angling especially if weather conditions are stable.
	West Okoboji, *Dickinson*	Consistent producer throughout the spring and summer -- rock structures hold a variety of sizes with state-record potential always present. Sub-legal bass catches in 1994 and 1995 indicate good numbers coming up.
	Iowa River, *Hardin*	Best habitat is between Alden and Eldora. Fish the slack water in back eddies.
	Winnebago River, *Cerro Gordo*	Fish up to 17 inches collected in 1995 survey.
	WF-Des Moines, *Humboldt*	Quality size fish frequent rocky substrates near Humboldt.
Largemouth Bass	Blue Lake, *Monona*	This should be the year of the bass in Blue Lake. Lots of bass between 12 and 17 inches. Remember to practice catch-and-release.
	Yellow Smoke, *Crawford*	Fishing the tree stumps and drop-offs should produce a lot of legal bass.
	Briggs Woods Lake, *Hamilton*	Excellent bass population. 1995 survey revealed most adults range between 12 and 16 inches.
	Upper & Lower Pine Lake, *Hardin*	Healthy population with numerous legal-sized fish available.
	Lake Pahoja, *Lyon*	Surveys indicate good numbers of bass, some take-home size.
	West Okoboji, *Dickinson*	Consistent producer for the knowledgeable angler -- spring through fall.
	Mill Creek Lake, *O'Brien*	The 1995 electro-fishing survey indicated good numbers of legal-sized 15-inch-plus bass in this small lake along with a good sub-legal population.
White Bass	West Okoboji, *Dickinson*	Nice 1- to 3-pound-sized fish. Try through the ice in deep water, 50 to 60 feet.
	East Okoboji, *Dickinson*	Feeding frenzy at north end if the spillway is running.
Yellow Bass	Clear Lake, *Cerro Gordo*	Tremendous harvest in 1995. Fish will average 1/2-pound and should continue to provide excellent panfishing in 1996.
	Black Hawk, *Sac*	The average size is 8 to 10 inches. Several fish in 3/4- to 1-pound size range were caught in 1995. Late April and early May provide the best opportunity.



Northeast
Iowa

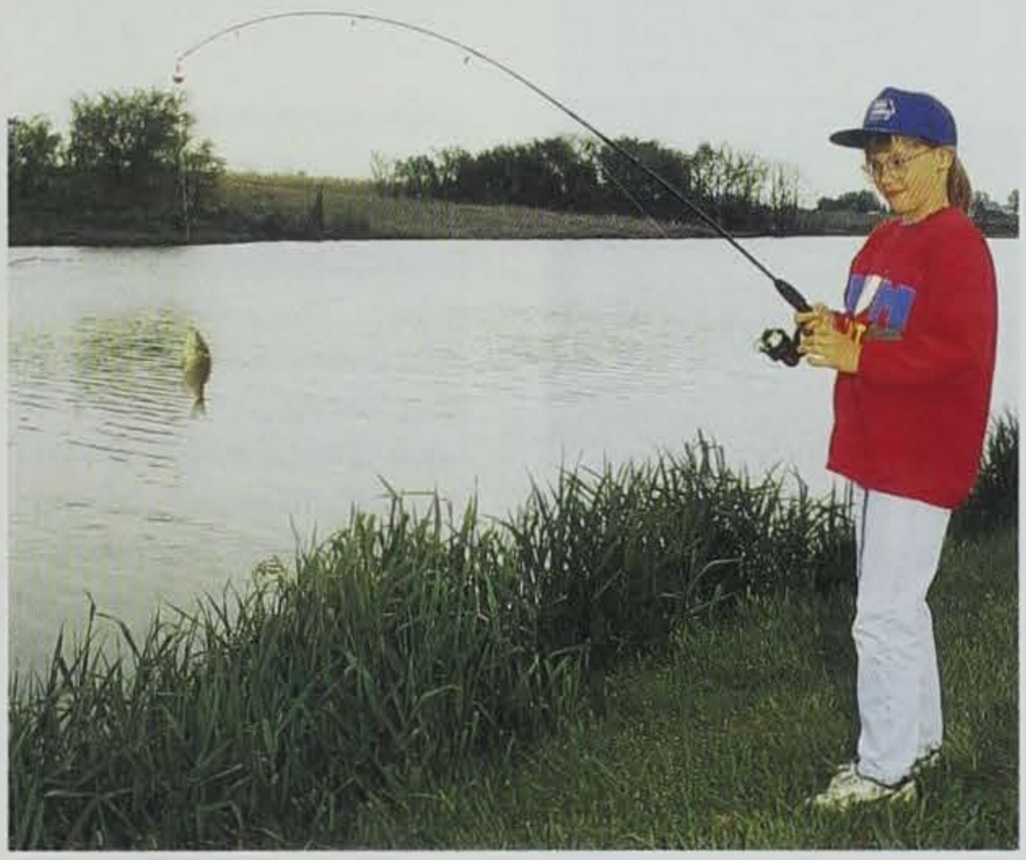
by Dave Moeller,
regional fisheries supervisor

The long-awaited open-water season has just arrived. And you are ready? Reels cleaned and lubed, tackle box organized and fully re-stocked, new line on the reels, and a few new types of lures purchased to try for the first time. Anticipation is running high. Let's take a look at some of the better waters you will want to fish this year. In addition to the species and waters mentioned in the table below, here are a few others you might want to try.

Early in the spring just after ice-out is prime time for *saugers* in the mighty Mississippi. This close cousin of the walleye congregates in late March and early April in the tailwater areas just below the navigational dams. The tailwaters of dams 9 near Harpers Ferry, 10 at Guttenberg, 11 at Dubuque

Northeast

Species	Lake or Stream, *County*	Comments
Bluegill	Alice Wyth, *Black Hawk*	Newer borrow lake on west end of George Wyth Park. Sunken brush piles hold good numbers of 6- to 8-inch fish.
	Casey, *Tama*	Common size is 6 to 7 inches. Fish the recently placed stake beds.
	George Wyth, *Black Hawk*	6- to 7-inch fish common.
	Lake Delhi, *Delaware*	Fish up to 8 inches common. Concentrate on early spring and late fall.
	Lake Hendricks, *Howard*	Try for larger bluegills off points or along the deeper water on the north and east sides.
	Mississippi River Pools 9 through 15	Look for an increase in numbers. As aquatic vegetation returns after the 1993 flood, anglers can expect numbers of bluegills to increase in 1996. Concentrate on the quiet backwater habitats during the spring and fall periods.
	Sweet Marsh Segment B (Martens Lake), *Bremer*	Floating cattail mats and deep water near the dike produce 6- to 8-inchers.
	Volga, *Fayette*	Smaller size but plentiful in old creek channels or around artificial structures. Handicap-accessible floating fishing dock.
Channel Catfish	Casey, *Tama*	Early season is the best.
	Cedar River, *Bremer, Black Hawk, Chickasaw & Floyd*	Excellent numbers from Charles City downstream. Occasional flathead below Waterloo.
	George Wyth, *Black Hawk*	Good numbers of average-size fish.
	Lake Delhi, *Delaware*	Avoid mid-summer due to high recreational boat traffic.
	Lake Meyer, *Winneshiek*	Cage program has been going for several years and has built up good numbers of fish.
	Maquoketa River, *Delaware, Jones & Jackson*	All sizes of cats present in good numbers.
	Mississippi River, Pools 9 through 15	Very strong populations of all year classes. We expect excellent fishing for catfish beginning with drift fishing during their spawning run in June and July extending through stink bait fishing during summer. Numerous fish in the 5- to 8-pound range. No bag or possession limits for cats on the Mississippi.
	Shell Rock River, *Butler*	Lots of 1- to 3-pounders. Fish seem to congregate in shallow riffles in the fall.
	Turkey River, *Clayton*	Try the deeper water below riffles or below snags from Elkader downstream.



Ken Formanek

and 12 at Bellevue are prime sauger hotspots. Limits of ten saugers are not uncommon during the peak of the run. Saugers also make excellent eating.

Also coming up soon is the annual spawning of *suckers* in several inland rivers. This is a great way for mom, dad and the kids to get out and release some of that pent-up fishing fever following a long winter. The Upper Iowa, Yellow, Turkey, Volga and Maquoketa rivers are prime sucker streams. The tackle is simple -- a # 8 long-shanked hook baited with a gob of worms and enough weight to hold it on the bottom -- and the action is furious. Sucker meat is delicious, but bony, so most anglers either pickle them or grind the meat and deep fry it as thin patties. Either way, you're in for a real treat.

Another species that provides a lot of angling enjoyment to Mississippi

	Upper Iowa River, *Allamakee*	Large population of medium-sized catfish from the Lower Dam to the Mississippi. Try below riffles.
	Volga, *Fayette*	Many years of fingerling catfish stockings have established an excellent population. Very large cats are occasionally taken.
	Wapsipinicon River, *Buchanan*	Abundant 3-pound-plus fish. Largest population below Independence.
Crappie	Casey, *Tama*	Find 8- to 10-inch fish in the brush piles and stake beds.
	George Wyth, *Black Hawk*	8- to 10-inchers generally hold in deep water structure.
	Lake Delhi, *Delaware*	Fish during the spring and fall to avoid heavy boat traffic.
	Mississippi River, Pools 9 through 15	Netting surveys indicate black crappie populations are increasing. Many fish observed in the 10- to 15-inch size range.
	Sweet Marsh Segment B (Martens Lake), *Bremer*	Very abundant 8- to 11-inch fish.
Largemouth Bass	Casey, *Tama*	Very good numbers and sizes. 18-inch size limit.
	Lake Hendricks, *Howard*	Excellent opportunity for large bass along riprap or around stumps along east shore.
	Mississippi River, Pools 9 through 15	Electro-fishing surveys in springtime produce good numbers of 2- to 3-pound fish. Populations are in general decline due to slow destruction from sedimentation of backwater habitats.
	Sweet Marsh, Segment B (Martens Lake), *Bremer*	Heavy vegetation makes fishing difficult in the summer. Excellent numbers and size range.
	Volga, *Fayette*	Large population of sub-legal fish. Try along the riprap or near deeper snags along the west shore.
Northern Pike	Cedar River, *Black Hawk & Bremer*	Good numbers of pike in entire reach.
	Mississippi River, Pools 9 through 11	Most fish from 5 to 8 pounds with some up to 15 pounds. Fish the backwaters in spring and near the mouths of tributary streams during hot summer weather.
	Sweet Marsh Segment B (Martens Lake), *Bremer*	Good numbers are resulting from annual fingerling stockings.
	Wapsipinicon River, *Buchanan, Black Hawk & Bremer*	From Independence upstream is excellent fishing. Pike spawned in 1993 are now 20 to 25 inches.

River anglers is the *freshwater drum,* also known as sheepshead. This fish is so plentiful it supports a substantial commercial fishery as well as a major sport fishery. The serious action begins in June and continues right on through the warm summer months. Drum love current, so look for them along the main channel borders, side channels and especially near the wing dams. They love crawlers and crayfish presented right on the river bottom.

Ron Johnson

One of my personal favorites is the *white bass*, or striper. This fish loves to smack lures and then test the drag system on your reel. Look for this speedster primarily in the Mississippi River, however, Hartwick Lake near Delhi also supports a good striper population. White bass enjoy a combination of current and rock which makes the Mississippi wing

Northeast

Smallmouth Bass	Cedar River, *Bremer & Black Hawk*	Strong populations downstream from Waverly and Waterloo.
	Cedar River, *Mitchell*	Excellent habitat below the Mitchell impoundment. Catch-and-release area from Otranto to St. Ansgar.
	Maquoketa River, *Delaware*	Catch-and-release area below the Lake Delhi dam holds very high numbers of 14- to 20-inch smallmouth.
	Maquoketa River, *Jones & Jackson*	Downstream from Monticello and Canton have excellent habitat and good numbers of bass.
	Mississippi River, Pools 9 through 11	This species is slowly responding to increases in riverine habitat. Populations are on the increase. Fish rock structure and in current with either live or artificial baits.
	Shell Rock River, *Butler*	Areas of excellent habitat scattered between Greene and Shell Rock. High numbers of fish more than 12 inches.
	Shell Rock River, *Floyd*	Best accessed from canoe or by wading.
	Turkey River, *Clayton*	Excellent habitat near Eldorado, Clermont to Big Spring and Elkader to Garber.
	Upper Iowa River, *Allamakee Howard & Winneshiek*	Most popular canoeing stream in the state. Best fishing early above Kendalville, later below Decorah. New catch-and-release area from Decorah to Upper Dam.
	Volga River, *Fayette*	Very scenic stream. Best from Fayette to Mederville.
	Wapsipinicon River, *Buchanan*	Rocky areas below Independence have the highest number of bass.
Trout	Bloody Run, *Clayton*	Large stream stocked with browns and rainbows from April through October. Special brown trout segment on lower end (above Bloody Run Park) with a 14-inch minimum length limit and artificial-only restriction.
	Ensign Hollow, *Clayton*	Catch-and-release stream. Three years spent improving habitat has resulted in good survival of stocked brown trout fingerlings.
	French Creek, *Allamakee*	Lower portion stocked with rainbows from April through November. Entire stream has reproducing brown trout population.
	Little Mill, *Jackson*	Catchable brown trout stocked twice a month and fingerling brown trout stocked yearly. Areas of improved habitat hold fish.
	Little Turkey River, *Delaware*	Bank hides installed in 1995 increased trout habitat. Stocked with catchable brown trout and fingerling brown and brook trout.
	Pine Creek, *Allamakee & Winneshiek*	Walk-in access to very scenic stream. Stocked with browns twice monthly from April through November.

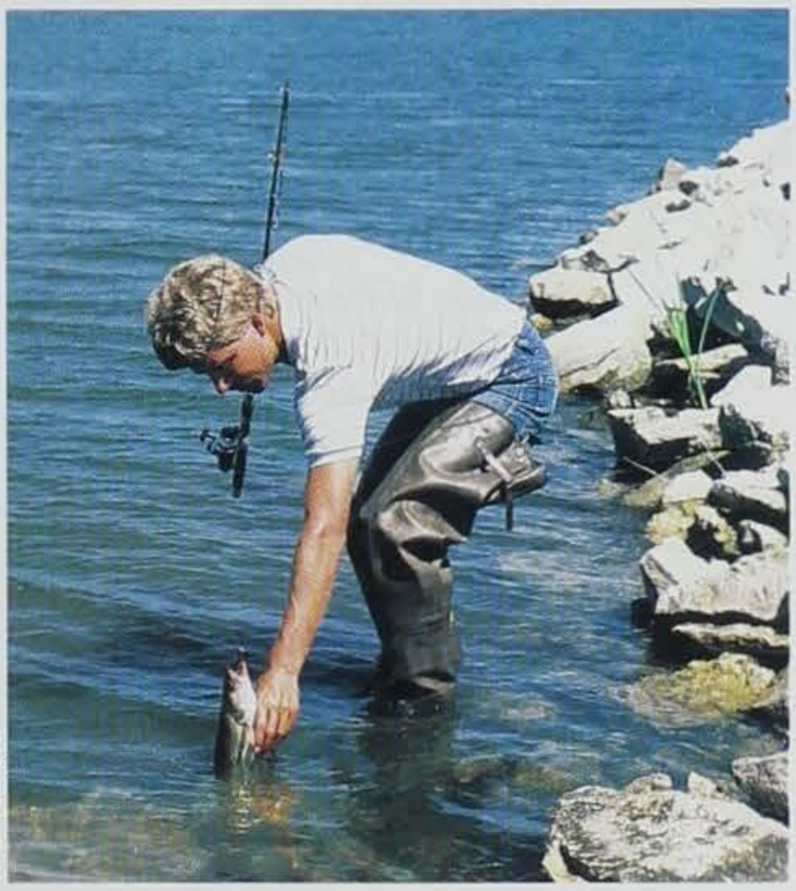
dams a favored haunt. They love to run in schools, so be ready for some fast and furious action when you locate them.

Iowa offers a real diversity of both quality fish populations and types of waters to fish. It is now up to you to get out and enjoy these angling opportunities. Here's hoping your fishing outings are numerous, enjoyable and full of action.

Ron Johnson

Ken Formanek

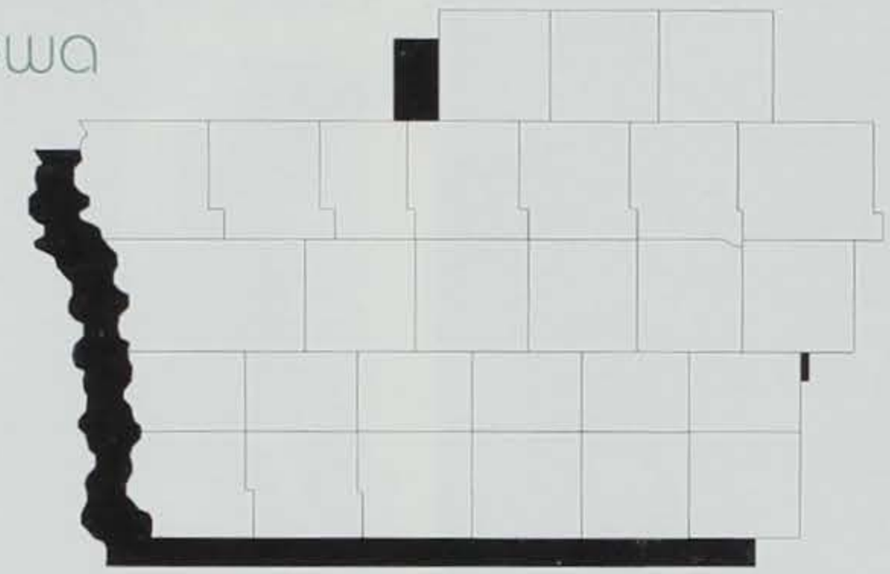
	Richmond Springs, *Delaware*	Located in Backbone State Park. Stocked at least weekly with catchable rainbows. Naturally reproducing brown trout are increasing in numbers with most in the 8- to 10-inch range.
	Sny Magill/ North Cedar, *Clayton*	Excellent drive-up or walk-in access on Sny Magill which is stocked from April through November with brown and rainbow trout. North Cedar is walk-in access and is stocked with browns once per month in the lower portion and with fingerling brooks once annually in the upper end.
	Spring Branch, *Delaware*	Habitat improvements completed on 900 feet of stream in 1995. 14-inch size limit on brown, rainbow and brook trout. Excellent insect hatches.
	Trout Run, *Winneshiek*	Handicap-accessible. Located on and below the Decorah Trout Hatchery. Stocked with browns and rainbows from April through October.
Walleye	Cedar River, *Bremer, Black Hawk, Chickasaw & Floyd*	Fingerling stockings have resulted in good populations. Deep holes can hold fish all year. Good success in spring below dams.
	Mississippi River, Pools 9 through 15	There is a good population of walleye which will be entering the legal size of 15 inches during 1996. If river conditions are suitable, anglers can expect the 1996 spring and fall tailwater fishing to be much improved over recent years. Wing dams and rock piles are most productive for larger walleyes during the summer months.
	Wapsipinicon River, *Buchanan*	Good numbers and size of walleye from Independence downstream to county line. Fish more than 10 pounds caught every year.



Ron Johnson

Southwest

Iowa



by Joe Schwartz,
regional fisheries supervisor

Look for 1996 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

Southwest

Species	Lake or Stream, *County*	Comments
Bluegill	Anita, *Cass*	Consistent large fish. Try the structure.
	Badger Creek, *Madison*	Good for large numbers of 7-1/2- to 8-1/2-inch fish.
	Beaver, *Dallas*	6-1/2- to 7-1/2-inchers are common.
	Big Creek, *Polk*	Large numbers of 6- to 7-inch fish. The lake was down 20 feet through the winter. Check with park ranger for current water conditions.
	Hickory Grove, *Story*	7- to10-inch fish. Lake will be drawn down through the summer. Won't be able to get a boat on the lake.
	Icaria, *Adams*	Nice looking 7- to 8-1/2-inch fish with some up to 9-1/2 inches.
	Little River, *Decatur*	7- to 9-inch fish are common. Excellent bluegill lake.
	Meadow, *Adair*	Good 6- to 9-inch fish. Redear are dandys.
	Nine Eagles, *Decatur*	Try marked fish reefs. Good redear are present. Little fishing pressure.
	Prairie Rose, *Shelby*	Average 8 inches. Population increasing. Best looking bluegills in a long time.
	Twelve Mile, *Union*	Fish 8 to 9 inches are common. Try around flooded trees. Excellent bluegill lake.
	Viking, *Montgomery*	8-inchers common. Best in spring and early summer.
Crappie	Anita, *Cass*	First crappie lake to start in the spring. Nice fish 8-1/2 to 10-1/2 inches. Numerous 8-inch fish move into the fishery. Should be good by fall.
	Arrowhead, *Pottawattamie*	7- to 8-inch fish.
	Badger Creek, *Madison*	Nice 8- to 9-inch fish.
	Big Creek, *Polk*	Most fish will be 7 to 9 inches this year. A few 10-inch-plus. The lake was down 20 feet through the winter. Check with the park rangers for current water conditions.
	Don Williams *Boone*	Nice but inconsistent on catches.
	Easter, *Polk*	6 to 8 inch common, few fish up to 11 inches.
	Icaria, *Adams*	Fish are up to 1 pound. Try fishing riprapped areas. Good number of 8-to 10-inch fish.
	Littlefield, *Audubon*	Lots of 8- to 10-inchers last fall. Should be good this spring. Try face of the dam.
	Little River, *Decatur*	Try around flooded trees. Lots of 8-to 10-inch fish. Some 12-inchers.
	Manawa, *Pottawattamie*	Good early fishing in lagoons
	Meadow, *Adair*	Strong year class of 9- to 10-inch fish.
	Orient, *Adair*	Always turbid water, but still good crappie fishing, 8 to 9 inches.
	Prairie Rose, *Shelby*	Fish are 8 to 11 inches. Good all summer but, best in spring.
	Red Rock, *Marion*	Big fish. Fish when water is clear, try feeder stream embayments.
	Rock Creek, *Jasper*	7- to 8 1/2-inch fish. Fall fishing is 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 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 *walleyes,* and fishing deeper structure for *bass* produce fish during this season. *Catfishing* 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.

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

Southwest Iowa had a long, cold spring in 1995, and it affected our fishing significantly. We had a better and longer walleye season last year at Icaria and Twelve Mile because of the

	Saylorville, *Polk*	Excellent-sized fish. 7 to 9 inches for most.
	Slip Bluff, *Decatur*	8- to 9-inch fish.
	Twelve Mile, *Union*	7 to 12 inches and better numbers than in past. Fish size should be better than last year.
	Viking, *Montgomery*	9 to 10 inches, best in spring.
Largemouth Bass	Anita, *Cass*	Perennial favorite. Bass up to 6 pounds Fish the structure.
	Beaver, *Dallas*	Good catch-and-release fishery for less than 15-inchers.
	Big Creek, *Polk*	Try new structure if lake fills.
	Easter, *Polk*	Up to 5 pounds. Mostly 10- to 14-inchers
	Farm Ponds	Many private ponds in SW Iowa have good bass.
	Green Valley, *Union*	A 22-inch length limit here. Any keeper will be a real trophy.
	Little River, *Decatur*	Great fishing. Try fishing submerged brush and trees. Good numbers of 2- to 3-1/2-pounders.
	Mariposa, *Jasper*	Good catch-and-release fishery.
	Meadow, *Adair*	Good bass lake for fish up to 5 pounds.
	Nine Eagles, *Decatur*	Good numbers of small fish, an occasional large fish.
	Prairie Rose, *Shelby*	Fish the stake beds and brush piles.
	Red Rock, *Marion*	Fish drop-offs or other structure.
	Saylorville, *Polk*	Lots of small bass -- few legals. Fish face of dam, Big Creek outlet or any rocky area.
	Twelve Mile, *Union*	Excellent for 12- to 18-inch fish. Several excellent tournaments last year showed good numbers of fish are still in the lake.
	Viking, *Montgomery*	Good population of 12- to 15-inch fish.
	West Lake Osceola, *Clarke*	Good summer time bass fishing.
Walleye/ Saugeye	Des Moines River, *Polk & Boone*	Fish below Corps dams, low-head dams and gravel riffles.
	Icaria, *Adams*	Fish are up to 10 pounds.
	Little River, *Decatur*	Average fish are 14 to 18 inches.
	Manawa, *Pottawattamie*	Was good in '95, looks good for '96. Mostly 14-inch fish.
	Saylorville, *Polk*	Fish sandy points, old river channel.
	Below Saylorville and Red Rock, *Polk & Marion*	Good numbers of fish because concentrated below dams. Fish up to 10 pounds.
	Twelve Mile, *Union*	Fish artificial reefs. Fish are 14 to 17 inches. Up to 4 pounds. Best walleye lake for numbers in SW Iowa.

unusually long cool water period. Very good catches were taken all spring with one angler taking more than 60 fish at Twelve Mile. The cool water slowed the crappies, bass and bluegill seasons, however. Fishing for these species, especially crappies was slow. May, typically the best fishing month for panfish, was mediocre at best. Crappie never cooperated in their usual fashion and bluegill were repeatedly chased from nests by cold weather. Mid-summer bass fishing picked up considerably with tournament anglers reporting extremely good catches at Anita and Twelve Mile and acceptable catches at our other good bass lakes. Late summer fishing for channel catfish was excellent on all of our rivers. Low water conditions provide excellent wader fishing for "cats" and many limits were taken.

Ron Johnson

Southwest

Bullheads	Beaver Lake, *Dallas*	Good growth, good catches.
	Green Valley, *Union*	11- to 13-inch fish. Numbers are down.
	Little River, *Decatur*	Nice fish, big catches. 10- to 12-inchers.
	Manawa, *Pottawattamie*	Nice-sized fish. Average 1 pound -- 12-inchers.
	Rock Creek, *Jasper*	Fish are definitely keepers but not as many as in the past.
	Springbrook, *Guthrie*	Medium-sized, but lots of them.
	Twelve Mile, *Union*	Nice fish, catches are down, but still worth trying.
Channel Catfish	Big Creek, *Polk*	Really nice fish, lots of them and not many catfish anglers.
	Easter, *Polk*	Excellent for fish 12 to 17 inches.
	Green Valley, *Union*	Starting to see 3- to 5-pounders again.
	Icaria, *Adams*	All sizes up to 5 pounds, occasional 15 pounds.
	Little River, *Decatur*	Fish small bays in mid-summer. Many 3- to 10-pounders.
	Littlefield, *Audubon*	Fish north shore on strong south wind.
	Manawa, *Pottawattamie*	Good numbers, most 2 to 6 pounds. Up to 12 pounds.
	Meadow, *Adair*	Fish are 2 to 6 pounds.
	Mormon Trail, *Adair*	Good numbers.
	Nodaway, *Adair*	Best early. Vegetation makes fishing difficult in summer.
	Orient, *Adair*	Stocked every year.
	Red Rock, *Marion*	12 to 20 inches -- best from Mile-Long bridge.
	Saylorville, *Polk*	Excellent channel and flathead fishing. Lots of 2- to 4-pound fish.
	SW Rivers	Catfish are abundant in all of our rivers.
	Twelve Mile, *Union*	Cats 2 to 3 pounds common, good early on cut shad.
	Viking, *Montgomery*	All sizes to 6 pounds. A few big ones.
	Willow, *Harrison*	Abundant 12- to 14-inch cage-reared fish.
Yellow Perch	Anita, *Cass*	Abundant 8- to 9-inchers easily caught on worms.
Yellow Bass	Carter Lake, *Pottawattamie*	Lots of small fish.
	Icaria, *Adams*	6- to 9-inch fish. Hard hitters, good eating, lots of fish.
	Manawa, *Pottawattamie*	Lots of small fish, but an occasional pounder.
White Bass	Red Rock, *Marion*	Fish in mid-summer, off of dam towards beach or up towards marina. Also good in Des Moines River up to Scott Street dam in spring.

by Stephen J. Waters, regional fisheries supervisor

Do you want to start your new fishing year off with a bang? Do you want to catch bunches of fish, even big ones, and have some great eating as a bonus? If you answered "yes" to these loaded questions, then read on.

When water temperatures reach about 50 degrees Fahrenheit, *catfish* go on a feeding spree, feeding on fish that have died during the winter. Fish your bait in the shallower (2- to 6-foot), warmer portion of a lake or river with the wind blowing across or toward you. Use an egg-type sinker to lighten the bait and set the hook after a short run. The best areas for early spring catfish angling are lakes Rathbun, Coralville, Darling, Pleasant Creek, Kent, Macbride, the Mississippi River, and all inland rivers.

The Mississippi is Iowa's most diverse fishing hole. "Mr. Mississippi

Southeast

Fish Species	Lake or Stream, *County*		Comments
Bluegill	Mississippi River,	Pool 16	Andalusia backwaters, Credit Island Slough and Wyoming Island Slough.
		Pool 17	Big Timber, Cleveland Slough, Hidden Acres, Bogus Island, Blanchard Slough and Eagle Fill.
		Pool 18	Huron Island, Burnt Pocket, Johnson Slough and Dasher Chute.
		Pool 19	Burlington Island, Turkey Chute, Blackhawk Bottoms, Lead Island Chute, Niota weedbeds, Rabbit Island riprap, Devils Creek weedbed and Gray's Bay.
	Odessa, *Louisa*		Good fishery expected.
	Farm Ponds		Exceptional angling -- best chance for a trophy.
	Pleasant Creek, *Linn*		Good quality, 7 to 8 inches, low numbers.
	Geode, *Henry*		Average harvest size 7- to 8-plus inches, trophy fish available.
	Hannen, *Benton*		Good numbers, 6 to 8 inches.
	Hawthorn, *Mahaska*		Average harvest size 6 to 8 inches.
	Kent, *Johnson*		All sizes, easy shoreline access.
	Iowa, *Iowa*		Good for 6- to 8-inch fish.
	Keomah, *Mahaska*		Average harvest size 6 to 9 inches, low numbers.
	Diamond, *Poweshiek*		Average harvest size 6 to 8 inches.
	Red Haw, *Lucas*		Average harvest size 6 to 8 inches.
	Union Grove, *Tama*		Good numbers of 7- to 8-inch fish.
	Wapello, *Wapello*		Large numbers of 6- to 7-inch fish.
	Sugema, *Van Buren*		Excellent numbers of 6- to 7-inch fish, some 8-inch fish available.
Channel Catfish	Mississippi River		All pools excellent.
	Inland Rivers		Good to excellent.
	Rathbun, *Appanoose*		Exceptional fishery, all sizes.
	Coralville, *Johnson*		Exceptional fishery, all sizes.
	Otter Creek, *Tama*		Lots of 14- to 18-inch fish.
	Kent, *Johnson*		Excellent fishery, 12 to 16 inches average.
	Miami, *Monroe*		Good for a variety of sizes.
	Macbride, *Johnson*		Excellent for 1- to 4-pound fish.
	Darling, *Washington*		Good for a variety of sizes.
	Geode, *Henry*		Average harvest size 15 to 18 inches.
	Iowa, *Iowa*		Average harvest size 15 to 18 inches.
Crappie	Rathbun, *Appanoose*		Superb crappie lake. Average size 9 to 11 inches, trophy fish available.

Whiskers" can be caught in nearly all parts of the river using a variety of baits, but best bets are above and below wingdams and riprapped heads of islands where there is a current. Stumpfields and riprapped shorelines are hotspots during the pre-spawn and spawning periods.

The Great River's *walleye* and *sauger* angling is what legends are made of. The navigation lock-and-dam habitat produces great catches in late winter, early spring and late fall. Jigging sonars or jig-and-minnow combinations are highly effective. Wingdam fishing during summer and early fall will also produce stimulating action. Try backtrolling crankbaits or three-way nightcrawler rigs on the upstream side of the wingdams and don't forget the 15-inch size limit.

The Mississippi River also produces excellent catches of *white bass, drum, carp, crappie, bluegill* and *largemouth bass*. White bass frequent similar habitats of walleye and sauger, and serve as a great bonus fish.

Look for crappie, bluegill and largemouth bass in the rivers backwaters near stumpfields, brush and vegetation. Remember, there is a 14-inch length limit on largemouth bass.

Interest in *flathead catfish* seems to have reached a new high in southeast Iowa, due primarily to great fishing for these "big ones." Bank pole or rod and reel, using green sunfish or bluegill for bait, is the preferred technique. Fish deep holes in summer and fall, and around bridge pilings in interior rivers and in side channels, eddy areas, and below locks and dams on the Mississippi River.

For bluegill and crappie, traditional baits and techniques are highly successful, but why not try a new angling technique or two. Don't put your ice-fishing equipment away

Southeast

	Mississippi River	Same comments as in bluegill section.
	Coralville, *Johnson*	Excellent for 8- to 10-inch fish, 13 to 15 inches common.
	Odessa, *Louisa*	Average harvest size 8 to 10 inches.
	Geode, *Henry*	Average harvest size 8 to 10 inches.
	Iowa, *Iowa*	Good numbers from 8 to 10 inches.
	Darling, *Washington*	Average harvest size 7 to 10 inches, trophy fish available.
	Miami, *Monroe*	Good numbers of 8-inch fish.
	Diamond, *Poweshiek*	Good numbers of 8- to 10-inch fish.
	Macbride, *Johnson*	High number of 7-inch fish, 10- to 11 -inch fish available.
	Union Grove, *Tama*	Good quality but low numbers.
	Sugema, *Van Buren*	Good numbers of 8- to 10-inch fish.
Largemouth Bass	Mississippi River	Same comments as bluegill section.
	Farm ponds	Best chance for a trophy, great fishing.
	Odessa, *Louisa*	Variety of sizes.
	Miami, *Monroe*	Good numbers, various sizes.
	Pleasant Creek, *Linn*	New 18-inch size limit, excellent catch-and-release.
	Iowa, *Iowa*	Good numbers, various sizes.
	Darling, *Washington*	Variety of sizes, lots of structure.
	Geode, *Henry*	Good catch-and-release fishery, some trophy fish.
	Macbride, *Johnson*	Getting better every year, lots of 2- to 3-pounders.
	Coralville, *Johnson*	Average size 14 to 16 inches, excellent in spring.
	Union Grove, *Tama*	Lots of smaller fish, trophy fish available.
	Sugema, V*an Buren*	18-inch size limit, excellent catch-and-release for 14- to 17-inch fish, excellent structure.
	Diamond , *Poweshiek*	Good numbers of 2- to 4-pound fish with trophy sizes present.
	Wapello, *Davis*	No-kill regulation, lots of 10- to 14-inch fish. Lots of structure.
	Hawthorn, *Mahaska*	Good numbers of slot length fish (12 to 16 inches).
Walleye	Mississippi River	Seek locks and dams and wingdams. Excellent for sauger too.
	Rathbun, *Appanoose*	Best angling late spring to summer.
	Macbride, *Johnson*	Good number of 1- to 3-pound fish, trophy fish available.
	Des Moines, *Wapello*	Hot action below the Ottumwa hydropower dam.
	Coralville, *Johnson*	Good in spring and late fall in upper end and around I-80 bridge.
White Bass	Mississipppi	Seek locks and dams and wingdams.

Ken Formanek

when the warm season arrives. Keep your ice flies, waxworms and small bobbers handy because these baits often will out produce the traditional bluegill baits. And, why not try fly fishing for spring crappie and bluegill? What could be more fun for a bluegill angler than fly fishing with small surface poppers during the morning and evening hours of summer?

Have you tried drift fishing for bluegills and crappies during the summer when they have moved away from shore and are suspended about 8 to 12 feet below the surface? Lower your baits to this level, and let the wind or trolling motor push you around the lake. Note where you catch fish and return for a similar drift pattern. I believe you'll find new techniques, bait and equipment can revitalize one's interest in angling, and enhance your fishing experiences.

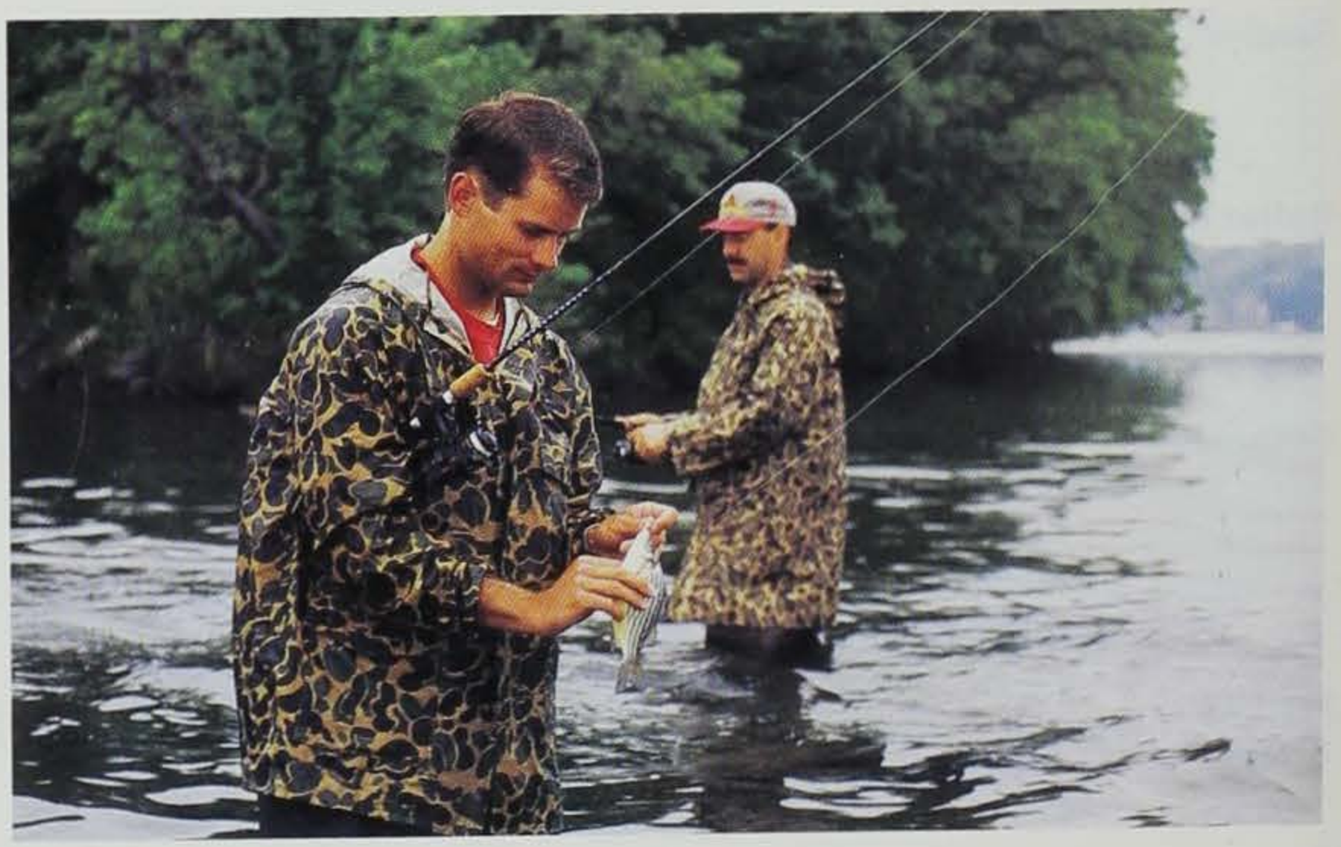
	Rathbun, *Appanoose*	Lots of 12- to 15-inch fish.
	Coralville, *Johnson*	Lots of 12- to 14-inch fish. Best in late summer.
	Macbride, *Johnson*	Good numbers of 10- to 14-inch fish.
	Des Moines, *Wapello*	Hot action below the Ottumwa hydropower dam.
Carp	Mississippi River	Good angling in all pools.
	Inland Rivers	Good angling in major rivers.
	Darling, *Washington*	Lots of 2-pounders.
	Macbride, *Johnson*	Lots of 2- to 4-pound fish.
Flathead Catfish	Mississippi River	Best below locks and dams, wingdams and side channels.
	Skunk, lower Iowa, Des Moines and Wapsipinicon	Big fish in deep holes and around bridge pilings during summer.
	Coralville, *Johnson*	Good numbers of 10- to 30-pound fish. Fish shallow flats in mid-summer.
Wipers	Iowa River, *Johnson*	Strong year class of 14-inch fish, all sizes available.
	Coralville, *Johnson*	Tailwaters best, fish to 10 pounds.
Saugeye	Iowa River, *Johnson*	Exceptional fishery, lots of 2- to 4-pound fish with 10-pound fish available.
	Coralville, *Johnson*	Best in early spring and late fall around I-80 bridge.
	Sugema, *Van Buren*	Fair numbers of 14- to 18-inch fish.
Redear Sunfish	Hawthorn, *Mahaska*	Average harvest size 8+ inches.
	Iowa, *Iowa*	Good numbers of 8- to 10-inch fish.
	Geode, *Henry*	Average harvest size 8+ inches.
	Diamond, *Poweshiek*	Average harvest size 8 inches.
Bullhead	Darling, *Louisa*	8- to 10-inch fish.
	Odessa, *Louisa*	8- to 11-inch fish.
	Keomah, *Mahaska*	10-inch average fish.
	Macbride, *Johnson*	Best east of causeway in May and June.
	Otter Creek, *Tama*	Lots of 10-inch fish.
Freshwater Drum	Mississippi River, all pools	Abundant, cooperative and tasty. Fish a crawler almost anywhere.

They're scrappy.
They're tasty.
They're easy to catch,
and best of all — they're abundant.
It's

CLEAR LAKE'S YELLOW BASS EXPLOSION

Up in the northern half of Iowa, everyone is talking about it -- in the bait shops, at school, on the job. Even the people who don't fish know about them. The yellow bass are back in Clear Lake, and they are back in force.

It is as predictable as anything in the fishing world can be. During the month of May, schools of adult yellows will migrate into shallow, rocky habitats to spawn. Here the scrappy "streakers" will stack up like piranhas in the Amazon and will feed nearly as voraciously. For a two-week period this 3,600-acre natural lake will become an angler's paradise. And for those enthusiasts who cash in on the frenzied feeding binges, catches of 50, 60 or even 100 or more bass per outing become routine.



Catches of more than 100 bass can be routine in peak years during feeding frenzies.

Article and photos by
Lowell Washburn

"At Clear Lake we generally see angler success really picking up by mid-May," said Jim Wahl, DNR fisheries biologist. "The hottest action occurs as pre-spawn when fish concentrate in the shallows. Going by past experience, I would say that the peak harvest will take place around Memorial Day weekend."

"Going by past experience, I would say that the peak harvest will take place around Memorial Day weekend . . . Last year was the best for yellow bass at Clear Lake since 1978. We are anticipating another banner year during '96."

Last season, up to 1,000 fish per day were taken from the best reefs, and during 1995 the total angler take during the spawning run was estimated at around 100,000 adult yellow bass. "Last year was the best for yellow bass at Clear Lake since 1978," said Wahl. "We are anticipating another banner year during '96."

"This is definitely one fish species people do not have to feel bad about taking home," said Wahl. "Because yellow bass are so prolific and so short-lived, we want anglers to harvest as many adults as possible."

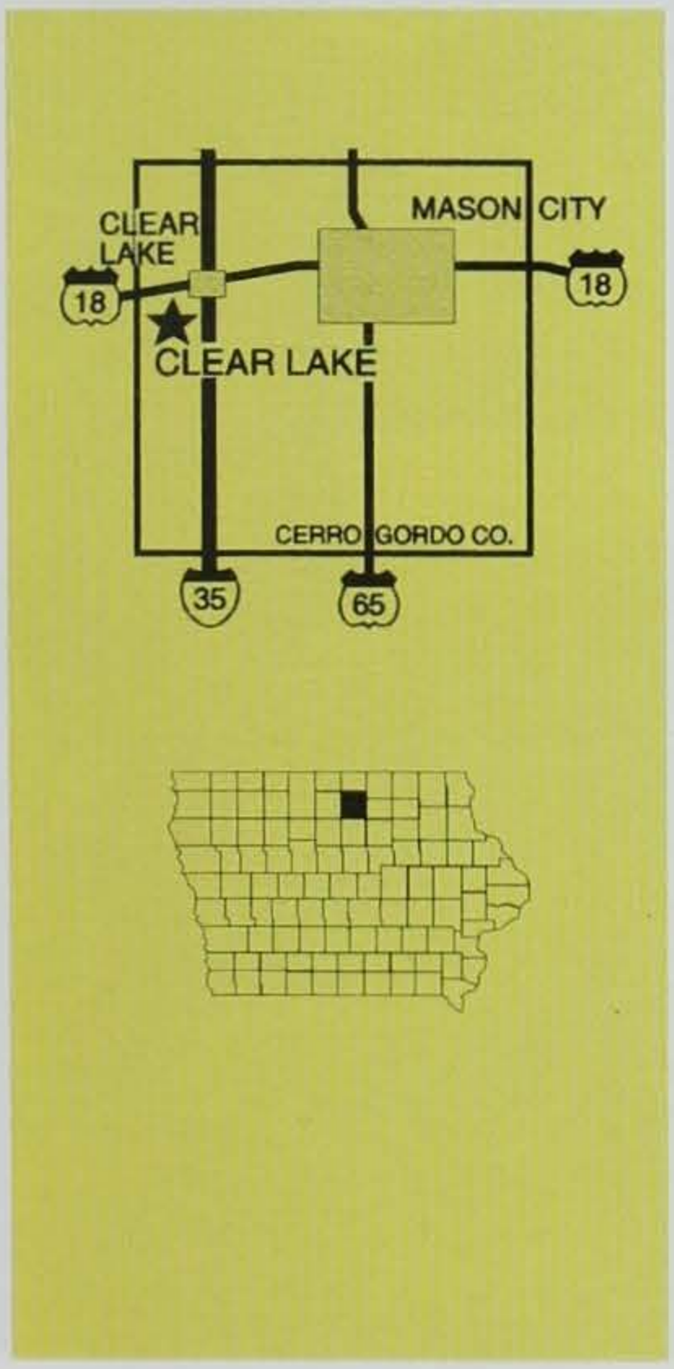
Whether or not anglers can actually put on enough pressure to dent a yellow bass population is hard to say. But one thing is certain, it only takes a relative handful of successful spawners to produce a significant year class. During 1994, spawning success was regarded as excellent for Clear Lake yellow bass, and during 1995 it was the highest ever recorded.

"One way or the other, existing adult year classes are going to disappear in the very near future and they might as well be utilized," said Wahl. "Last year we had anglers traveling here from all across the state, and we expect even more of the same this year."

Wahl also noted that during last spring's spawning run, angler success was so high many people started releasing fish because they didn't know what to do with them.

"After a few nights of cleaning 50 or 60 fish, many anglers turned to keeping 10 or 20 for the table and letting the rest go," said Wahl. "By the end of Memorial Day weekend, we were looking to recruit a new batch of anglers who didn't have their freezers full or who weren't burned out on cleaning fish."

People fishing out of waders are bound to catch more of the tasty yellows.

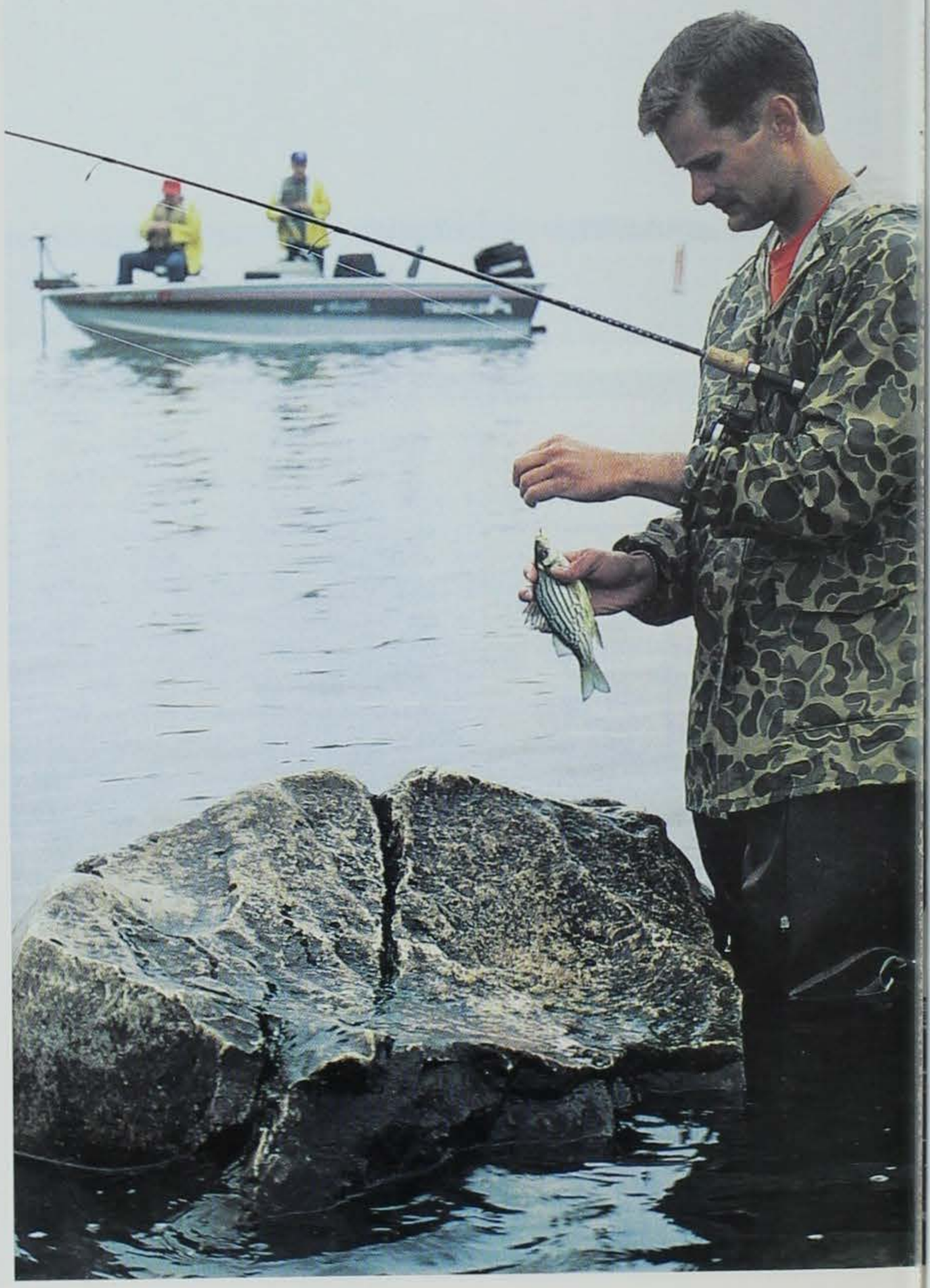


A human reef forms in Clear Lake's waters. Yellow bass seem unaffected by these shoulder-to-shoulder anglers.

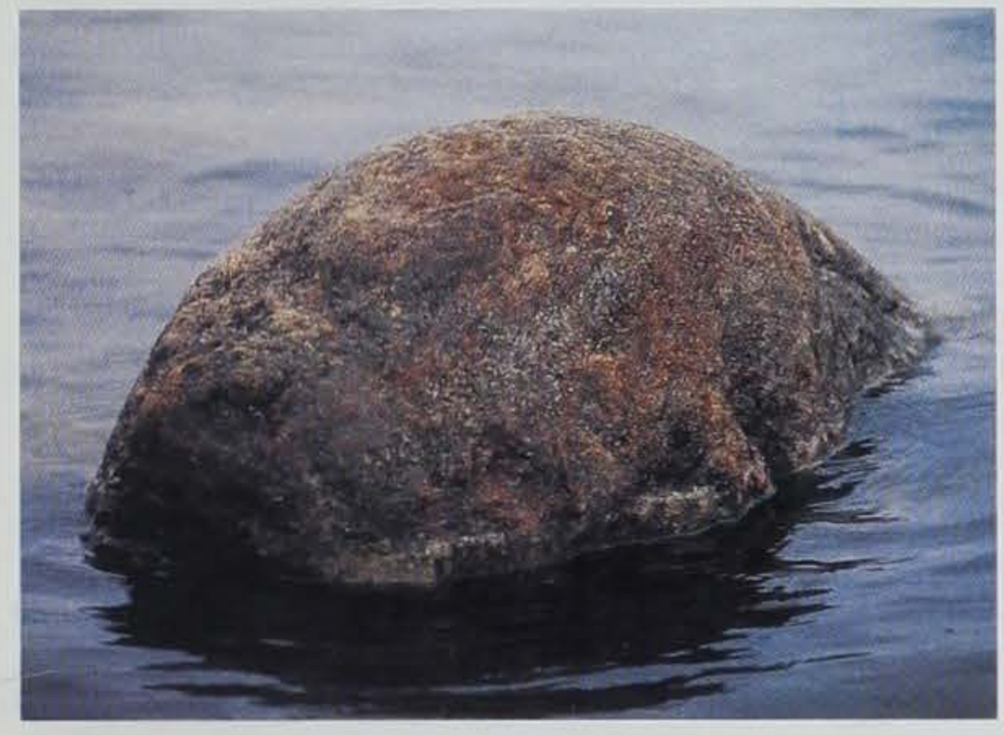
The yellow bass is listed among the most aggressive and hard fighting of North American panfish. It is also an excellent table fish, and the firm white flesh ranks as an equal to walleye. Unfortunately, the scrappy "streaker" is also a classic example of a "boom or bust" fish species. They are dynamic, prolific and short lived. The yellow bass is widely distributed in Iowa, but only appears in significant numbers at Clear Lake, Black Hawk Lake and North Twin Lake. Clear Lake is the premier fishery. Here, as elsewhere, yellow bass are frequently the victim of over-population, extremely slow growth, and massive die-offs. Since the mid-1960s, the lake's yellow bass populations have only provided quality recreation on adult fish during seven of the past 30 years. But when food supplies and fish densities are sufficient to allow yellows to attain a size acceptable to the angler, it is guaranteed to produce "television-grade" angling. Clear Lake is currently in that mode with bountiful supplies of healthy adults eager, willing and able to satisfy your fishing dreams.

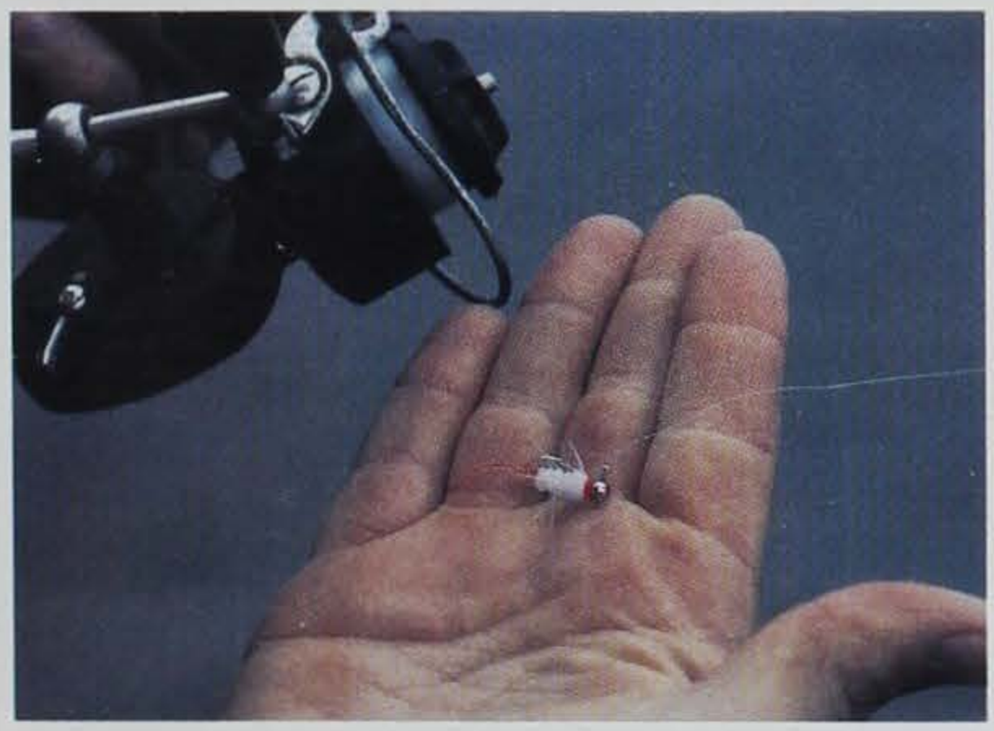
WHEN TO GO:

Adult yellow bass typically begin moving into spawning areas during late April. By mid-May, the action is heating up and peak fishing will occur around Memorial Day weekend. After that, fish will actually begin to spawn, and although the schools will remain in the same areas, angler success will decline. Fair to good catches can, however, still be obtained by using smaller tackle and more refined presentations. Two-pound test line leaders and 1/32- to 1/8-ounce. lures work best. During the summer months, yellows can be taken over sand flats or near emergent vegetation. Excellent fall fishing can be found in late September and October.



Find a combination of shallow water and rocks, and chances are you'll find the fish.





■ WHERE TO GO:

Two components are crucial to cashing in on spawning yellow bass -- shallow water and rocks. The best action is enjoyed by anglers who fish in depths of 2 to 4 feet of water. Although spawning yellows favor habitats comprised of softball- to boulder-sized rock, they will also congregate over shorelines consisting of coarse gravel substrate. The most popular spots include Dodge's Point, the Island, and the east shore in the vicinity of the outlet and Outing Club.

■ HOW TO FISH:

Since the fish attain their greatest densities in extremely shallow water, anglers fishing from chest waders are far more successful than those fishing from boats. As long as a person moves slowly and keeps disturbance to a minimum, schools seem unaffected by the shoulder-to-shoulder, human reefs that form along the more popular habitats. The best action often comes during mid-afternoon as water temperatures peak.

■ TACKLE:

Ultra-light spinning gear and fly rods are the most popular tackle. Flies, spinners and jigs all work well. The main thing is to remember to think small.

■ SIZE:

Yellow bass are generally considered acceptable at 7 inches in length. During the 1996 spawning run there will be two separate adult year classes available to anglers. The oldest consists of a strong population of 9- to 11-inch or larger fish weighing from 1/2 to 3/4 of a pound. Biologists also anticipate a run of 6- to 7-inch yellows as a result of a very strong class of 1994 fish. There is no length or daily limit on yellow bass.

State Park Profile

Green Valley

Come for the Fishing, Stay for the Relaxation

Green Valley State Park, located in Union County, is sitting in a recreational hot spot in southern Iowa. Why? It's one of three lakes in Union County that will host thousands of visitors in search of excellent fishing and summer fun.

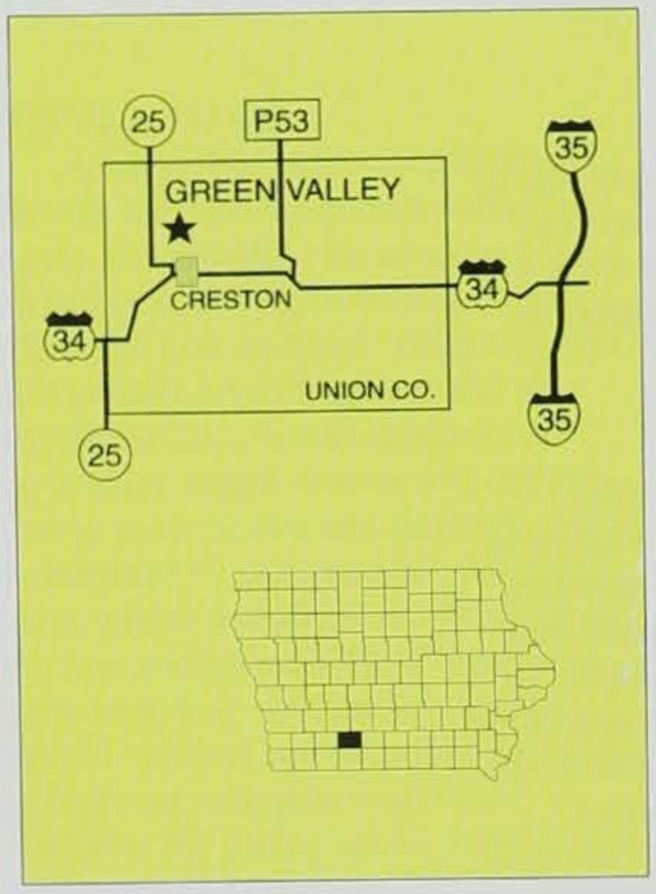
Unlike many state parks, Green Valley was not created to preserve a significant historical, geological or archeological site. The park, once native prairie, was farmland and grazing land when the decision was made to create the park. Why then pick this site? Green Valley was created out of a joint effort by three entities, each benefiting from the lake development. In 1949, a proposal was sent to the legislature for a recreation area and artificial lake near the Creston.

The Iowa Conservation Commission (now known as the DNR) chose this area because of its geographical location -- it would fit into the 25-year conservation plan calling for a 25-mile driving distance to any state-owned lake by all Iowans.

Creston was in search of a second reservoir to serve as an emergency water supply after the scare of the 1934 drought. A location north of Summit Lake on the west edge of town was the ideal site.

Finally, Southwestern Federated Power Cooperative (now known as CIPCO) was building a stream turbine power plant one and a half miles away from the proposed location. They, too, were in need of a large reservoir to operate the facility. The lake would need to withstand a maximum yearly water withdrawal of nearly 150 million gallons.

Working together, the three entities approved a plan for a lake large enough to serve all three needs. The Conservation Commission contributed $301,640 towards the project since recreation would be the main purpose of the lake. The City of



by Sherry Baudler

Iowa DNR

Creston agreed to a $100,000 payment and Southwestern Federated Power rounded out the project with $125,000 dedicated to the project.

With funding in place, construction on the new lake began in 1951. The park received its name from a "name the lake contest" put on by the Creston Chamber of Commerce. From 538 entries, selections were narrowed to three -- "Green Valley Lake," "Rainbow Lake" and "Bluegrass Lake." Lena Simpson's entry "Green Valley Lake" was chosen and approved by the Conservation Commission. Official dedication ceremonies for Green Valley State Park took place September 20, 1953.

For the next two decades the park continued to be developed -- putting in roads, and establishing a beach and campground. In 1970, Green Valley was chosen as a site to study the effects of water skiing on shoreline erosion. A temporary ski zone was designated on the western portion of the lake near the campground. Although the study was completed in the 1970s, water skiing still remains on the lake today.

Various construction projects took place during the 1980s. Five fishing jetties, four boat ramps and two silt retention dikes were constructed. Also, two fishing piers were constructed, accessible to people with varying disabilities.

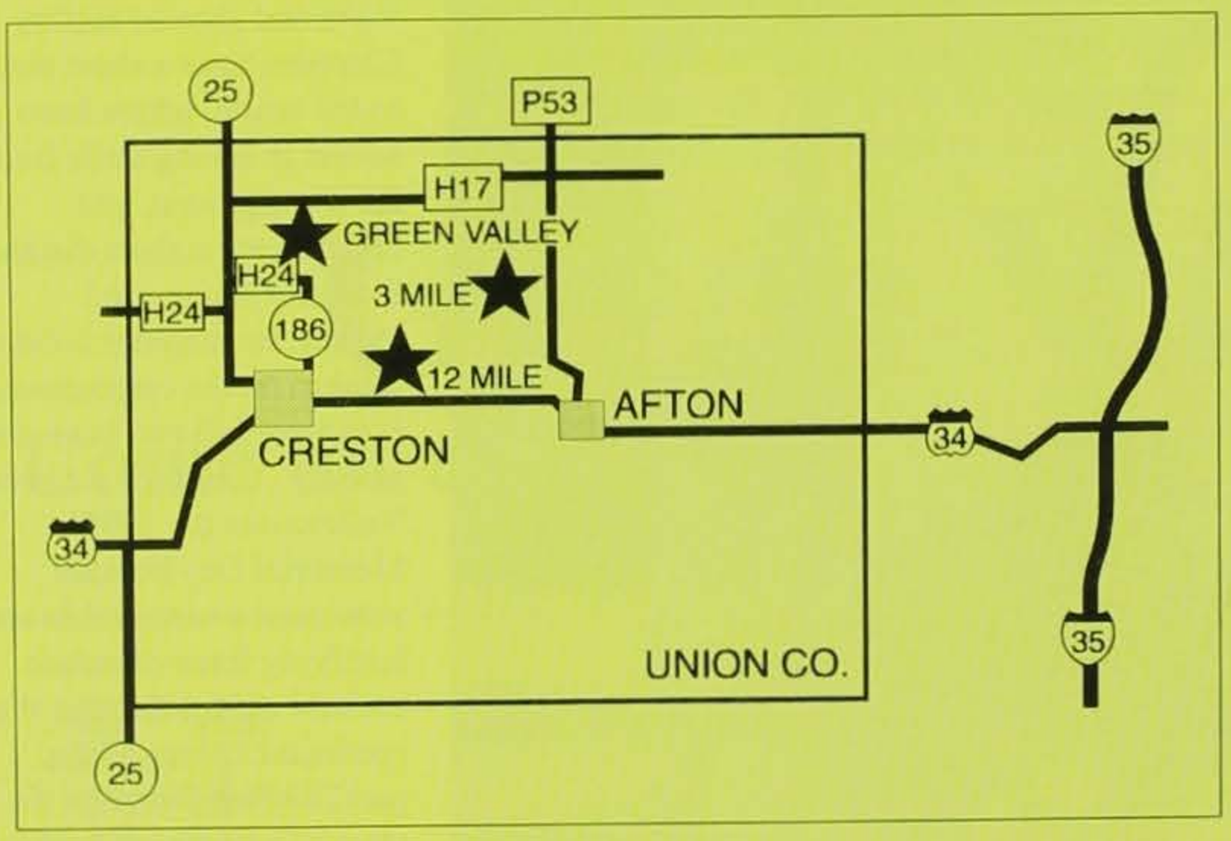
Today, Green Valley State Park is a 990 acres including the 390-acre lake. A variety of water and land recreation opportunities await visitors.

The campground, located in the heart of the park, is home to 145 campsites (85 with electricity) and has a modern rest room and shower facility. Campers have a short walk to the beach, hikers have access to hiking trails from the campground, and children are a short distance from the playground. During the summer holiday weekends, the campground is usually full and busy with activity. Campers at Green Valley over the 1995 Memorial Day holiday witnessed a memorable and terrifying force of nature. A tornado ripped through the northwest corner of the park, allowing visitors the view of a lifetime. Luckily the campground, located on the east side of the lake, escaped the destructive path of the mighty storm. The tornado continued for 45 miles before dissipating.

Generally, however, nature provides a safe and enticing atmosphere for park visitors. A day of picnicking in any of the seven picnic areas is sure to provide relaxation and summer fun. If you enjoy hiking, Green Valley has approximately 11 miles of hiking trails surrounding the lake. As you walk the trails, take time to observe

Mark Sedlmayr

Mel Moe



Above: A partial aerial view of Twelve Mile Lake (Creston is in the background). Twelve Mile Lake, Green Valley State Park and the new Three Mile Lake are all within a 5- to 10-mile radius of each other.

the beauty of the native prairie. Prairie grasses such as big bluestem, switchgrass, Indian grass, and little bluestem tower around you. Wildflowers such as compass plant, purple coneflower, blazing stars, asters, coreopsis, black-eyed Susan, and lead plant provide a rainbow of color for people to enjoy. Other hikers harvest some goodies -- nuts, berries and mushrooms.

Because Green Valley State Park is a wildlife refuge, wildlife watching is a popular attraction. Spring and fall bring an abundance of waterfowl, shorebirds and migrating songbirds. March and April are usually the best months to "catch" the migration. Common waterfowl such as Canada and snow geese, mallards, buffleheads, shovelers and many others can be found. Some of these birds take up residence at the park. Canada geese being the most notable of these.

During the past four years, several new nest structures for Canada geese have been placed on the lake and surrounding farm ponds. These have been a great success for our resident Canada goose population. Twelve broods of geese were present at the park in 1995. Out of these broods, parks and wildlife staff banded 74 young geese.

Shorebirds such as avocets, yellowlegs, killdeer and terns are visible at the beach. Migrating warblers and other songbirds can be spotted in the timbered area on the west side of the lake. Occasionally one might see a bald eagle or osprey traveling through the area. We are also fortunate to have red-tailed hawks and great horned owls nesting in the park.

While there are a variety of things to do at the park, probably the biggest attraction is the fishing. In the spring of 1994, a 22-inch minimum length limit was placed on largemouth bass making Green Valley the premier "trophy lake" in Iowa. The bass fishery continues to improve due to habitat improvements and length limits.

Catfish are sought after for a good part of the year. Most fish run in the 4-pound range with the maximum being around 15 pounds. A new project, scheduled for the summer of 1996, is placement of catfish cages in the lake. The cages will hold a few thousand small catfish. The fish will be raised to about 10 inches before being released into the rest of the lake. This program will give these fish a head start and help to improve the fishery.

Late May and early June bring the crappies to shore for spawning. During the spring of 1995, crappie size averaged 7 to 8 inches. Hopefully, the spring of 1996 will have 8- to 9-inch fish lining the shoreline.

Bullheads are about 1 to 1-1/2 pounds and are found in the coves and silt ponds. Bluegills can be caught all summer long and are running between 6 and 7 inches in length. Redear sunfish were stocked in 1995 as fry. In a couple of years we should have catchable redear.

How is Green Valley maintaining the quality and beauty of the ecosystems in the

Iowa DNR

Roger A. Hill

area? Fisheries personnel are always working on providing excellent fishing for anglers. Fish habitat such as sunken trees and stake beds are placed in the lake. Creel and shocking surveys have been conducted on Green Valley as well as Twelve Mile Lake to aid in monitoring fish populations. Stocking is used to maximize the chances of successful fishing.

In 1994, Green Valley State Park became one of six state parks and recreation areas to incorporate an ecosystem management plan. The purpose of establishing this plan is to maintain existing examples of prairie vegetation, select areas of hardwood vegetation, grassland open spaces and necessary shade trees in heavy use areas. Tree nurseries, prescribed burning, seeding and transplanting are just a few of the techniques incorporated to carry out the plan. With a successful plan intact, visitors can be assured to find the beauty of the native prairie ecosystem at Green Valley for years to come.

Mark Sedlmayr

Above: A tornado provided a terrifying thrill for a full campground during the 1995 Memorial Day weekend.

Top Left: Beach house at Green Valley.

Left: The ecosystem management plan at Green Valley is aimed at restoring native prairie to the area.

Right: Seven picnic areas are located throughout the park. This picnic area also has a fishing pier accessible to people with varying disabilities.

Below: Fish shocking survey reveals a couple of the trophy-sized largemouth bass at Green Valley.

Iowa DNR

Mike McGhee

What about the other two lakes located in this recreational hot spot of southern Iowa? If you would like to try your luck fishing elsewhere, Twelve Mile Lake, located five miles west of Green Valley, is another excellent fishing lake. The 1,500-acre game management area includes a 560-acre lake maintained by the DNR for anglers to enjoy. Although there are no modern facilities such as rest rooms or fish cleaning stations, and no campground, Green Valley's facilities are only a short distance away. Fishing at Twelve Mile is very good all year long. Anglers can try their luck fishing for largemouth bass (15-inch length limit), catfish, bullheads, walleyes, saugeyes, crappies, bluegills, redear and green sunfish. Hunting is allowed on this area.

Lastly, a new lake is currently being developed for the outdoor enthusiasts. Three Mile Lake is located approximately 10 miles from Green Valley and only a few miles from Twelve Mile Lake. This 3,100-acre area, including an 870-acre lake will provide yet another vast recreation opportunity for people.

The Union County Conservation Board is maintaining 350 acres of the area and developing it. A beach has been completed and a 30-36 unit modern campground and shower facility is scheduled to be constructed this spring and summer. Eight sleeping cabins with air conditioning and heating are also scheduled for construction in the modern campground. Other developments on the drawing board include a primitive campground with approximately 25 sites, a marina/ concession building near the beach, and picnic areas, parking areas, a trap range, and a lodge. The proposed lodge will accommodate 125 people and have a deck surrounding the building, and a concrete basement to serve as a storm shelter. A portion of the lake will be opened to water skiing.

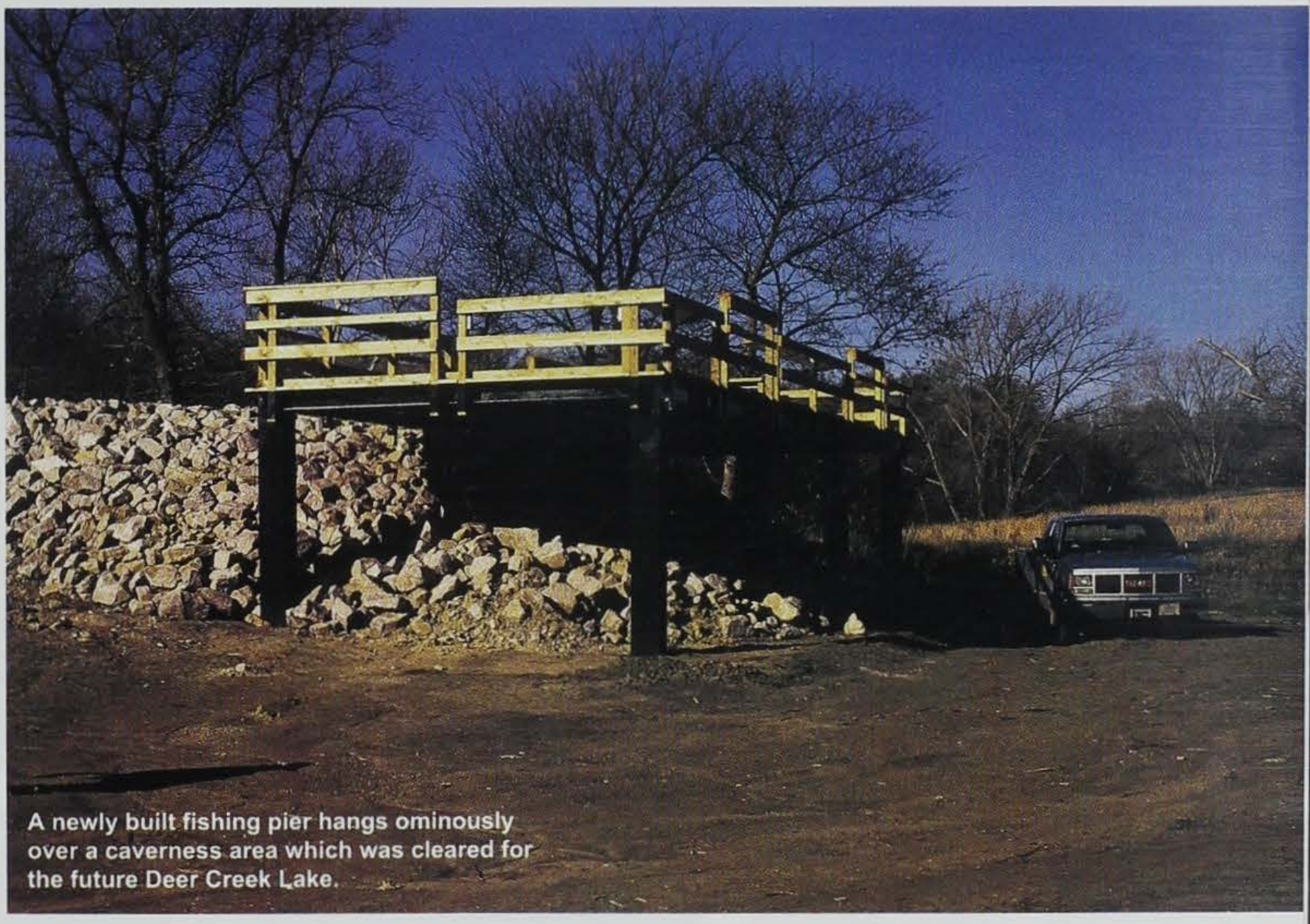
The remainder of Three Mile will be managed by the DNR. Anglers can expect to find a variety of fish once the lake fills. In 1995, fisheries personnel stocked the lake with 550,000 bluegill (1 to 3 inches), 75,000 redear sunfish (1 to 2 inches), 350,000 fathead minnows (2 to 3 inches), 17,000 largemouth bass (5 inches), 44,000 channel catfish (3 inches), and 4,500 walleye (7 to 10 inches). The possibility of stocking smallmouth bass is also being considered. Fishing should be excellent by 1999. Hunters will also be able to try their luck in certain areas of Three Mile.

Green Valley State Park, Twelve Mile Lake and Three Mile Lake are three great recreational lakes all within a 5 to 10-mile radius of each other. A number of recreational opportunities await anyone visiting Union County -- excellent fishing, boating, swimming, camping, picnicking, hiking and even hunting at two of the lakes. You couldn't ask for anything better, could you?

Sherry Baudler was the park attendant at Green Valley State Park until recently when she moved into the department's Des Moines office as an environmental specialist.

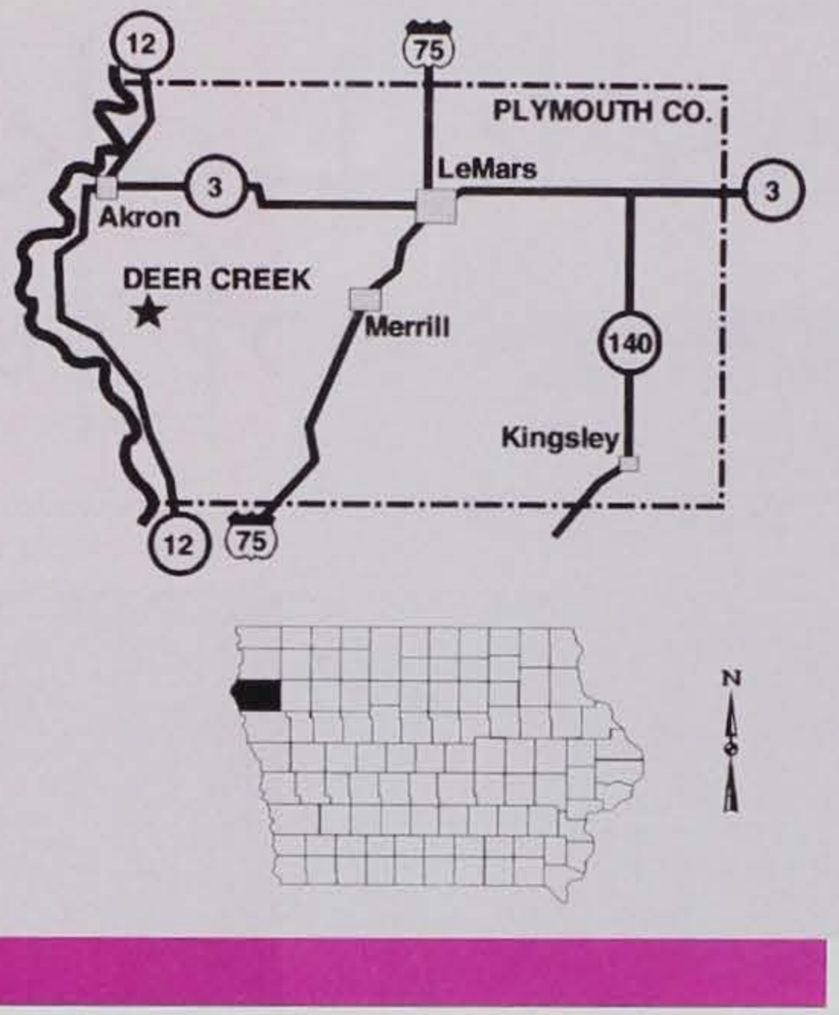
Deer Creek Lake a hole lot of fun . . .

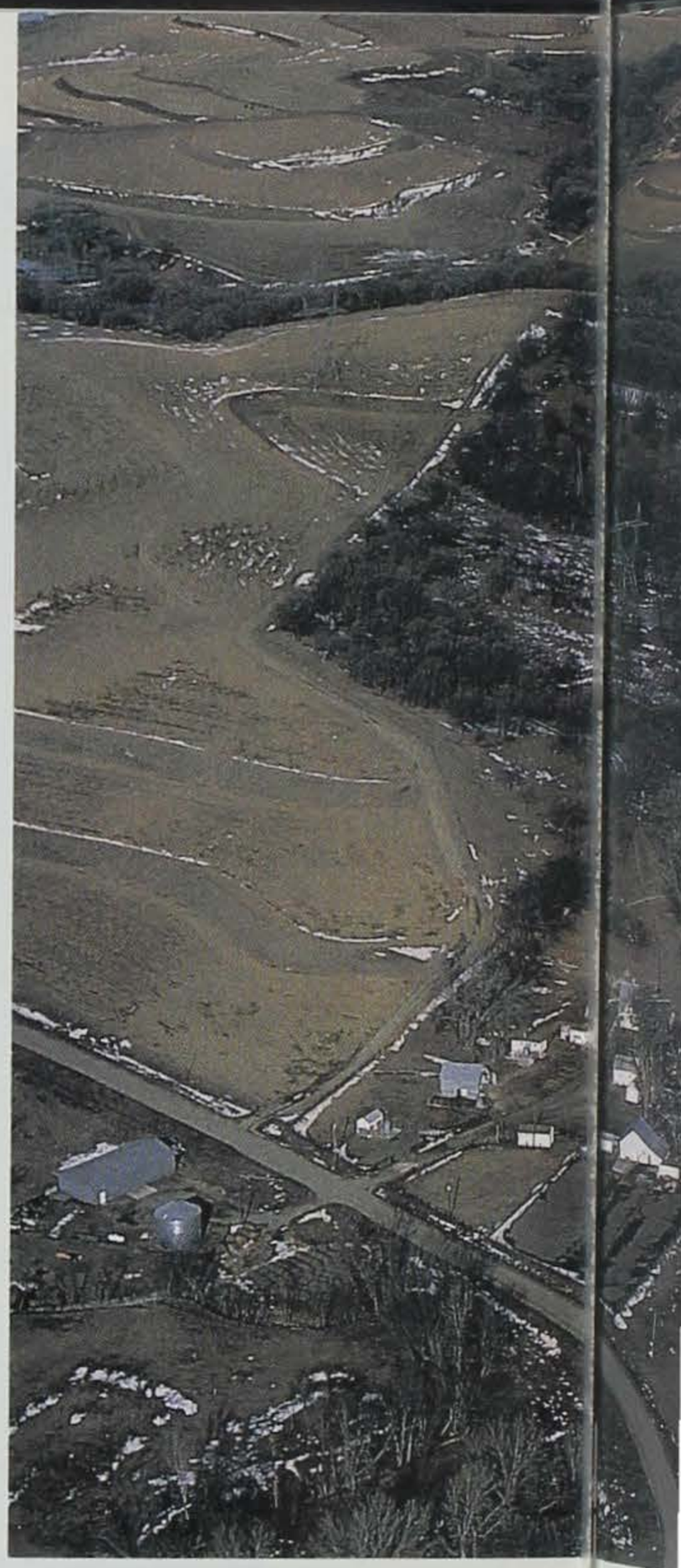
Article and photos by Jim Christianson



A newly built fishing pier hangs ominously over a caverness area which was cleared for the future Deer Creek Lake.

Wow! A new lake in Plymouth County. Where? What size? How long will it take to build and what kind of fish will be stocked? These were just a few of the enthusiastic questions posed when the Deer Creek lake construction project started to take shape in the late 1980s.





Deer Creek Lake, a small impoundment nestled in the loess hills region of western Plymouth County, was constructed in 1994 by the Department of Natural Resources with funds created by the 1984 Wallop-Breaux Amendment. Roughly tripling the funding for sportfish restoration, these funds come from a user-fee based excise tax on fishing tackle and accessories, and federal motorboat fuel taxes.

From a geographic and demographic analysis of Iowa, the Department of Natural Resources found areas lacking in water-based recreation, particularly fishing. Fishing ranks very high in recreational pursuits among Iowa's outdoor enthusiasts. General plans were made to provide fishing recreation to these areas and coupled with an expanded funding source, Deer Creek Lake became a reality.

A number of criteria were used in making the northwest Iowa lake site selection, including road and building interference, existing habitat, general landscape, population density, proximity to existing resources and the presence of willing sellers. The two most important factors were lake basin slope and watershed characteristics. The Soil Conservation Service and local citizens also assisted in site selection.

Starting with the initial landowner contacts in 1986, the development of Deer Creek Lake progressed fairly rapidly. A private consulting firm was hired to analyze the feasibility of constructing a lake at the selected site. This on-site feasibility analysis involved such things as material suitability studies for standing water retention and dam construction, watershed and lake area ratios for water filling and maintenance (the water budget) and cultural considerations. The consultant recommended proceeding with the project.

An informational public meeting was held in the area and input was solicited form interested individuals, particularly landowners directly affected by the project.

At this point, the lake development was dependent on the willing-seller-concept of landowners in the area.

The first parcel of land was purchased in 1988. Construction began in June 1993 and the dam was completed in August 1994.

Along with the dam construction, a number of other in-lake habitat enhancements were made. Underwater rock and earthen reefs and islands and five gravel spawning beds were constructed. Trees, cleared for dam construction were anchored adjacent to or incorporated into underwater islands. Approximately 2,500 feet of shoreline was riprapped, primarily to armor the vulnerable shoreline areas against erosion, and secondarily to provide some shallow water rock habitat. Fisheries personnel constructed structures in six areas of the lake basin using wooden pallets, cedar trees and cement blocks. Two silt-retention structures were constructed to improve water quality. An aeration system was installed. Access roads, a boat ramp and a wheelchair-accessible pier were constructed for the angling public.

Deer Creek Lake will be approximately 45-surface acres, have a maximum depth of 28 feet and an average depth of about 12 feet. Research

■ **Above: An aerial view of Deer Creek Lake, one of Iowa's newly created water-based recreational areas.**
■ **Left: Workers assemble pallets for fish habitat.**

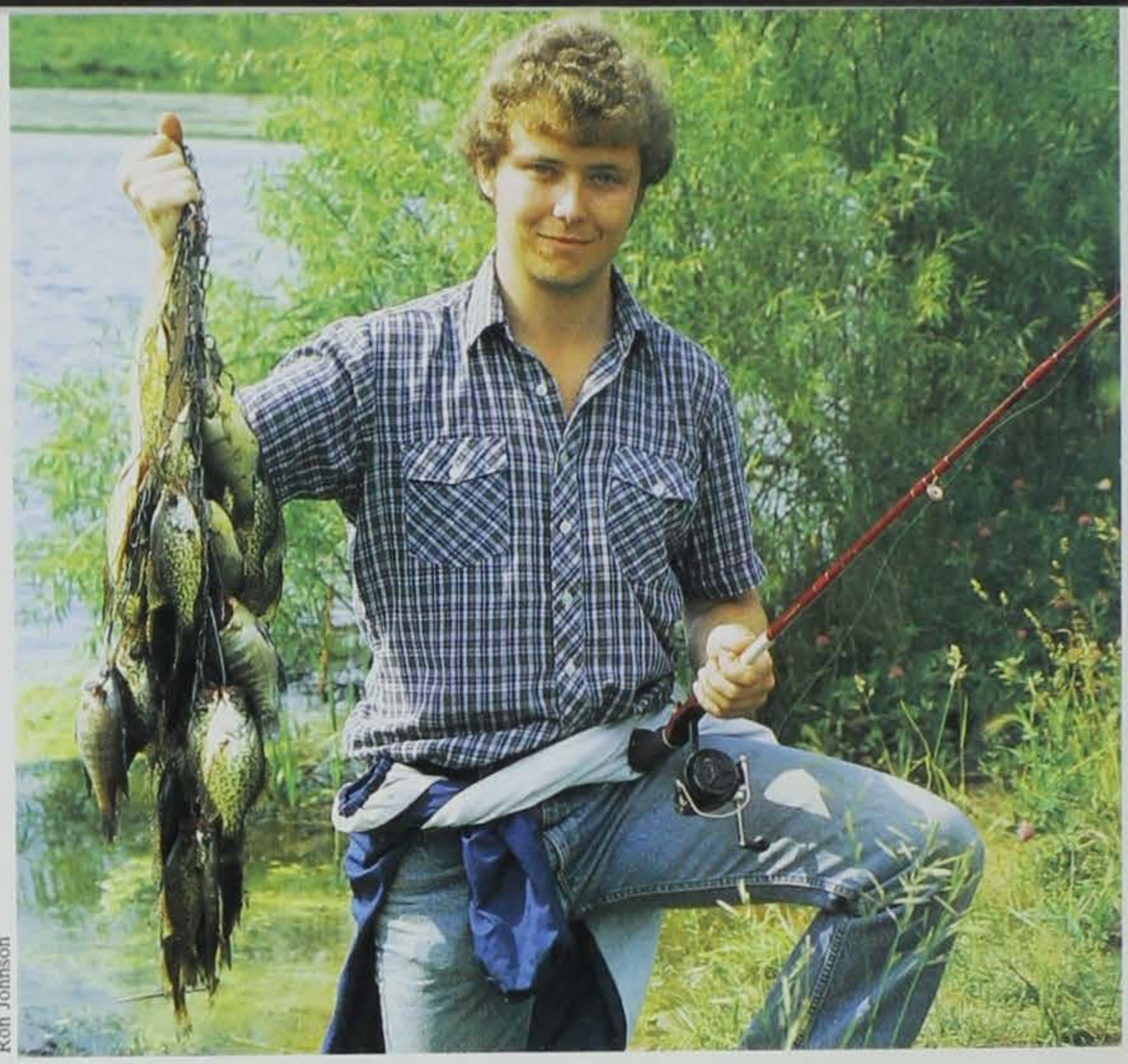
indicates, with some management effort, the lake will support a good sport fishery.

The fish management strategy is to provide a quality largemouth bass, bluegill, crappie and channel catfish fishery. With the exception of the channel catfish, which will have to be stocked periodically to maintain a fishable population, these species will be self-sustaining. Initial fish management efforts, after stocking, will involve a minimum length limit of 15 inches on largemouth bass. Regulations can be adjusted as the structure of the fish community matures.

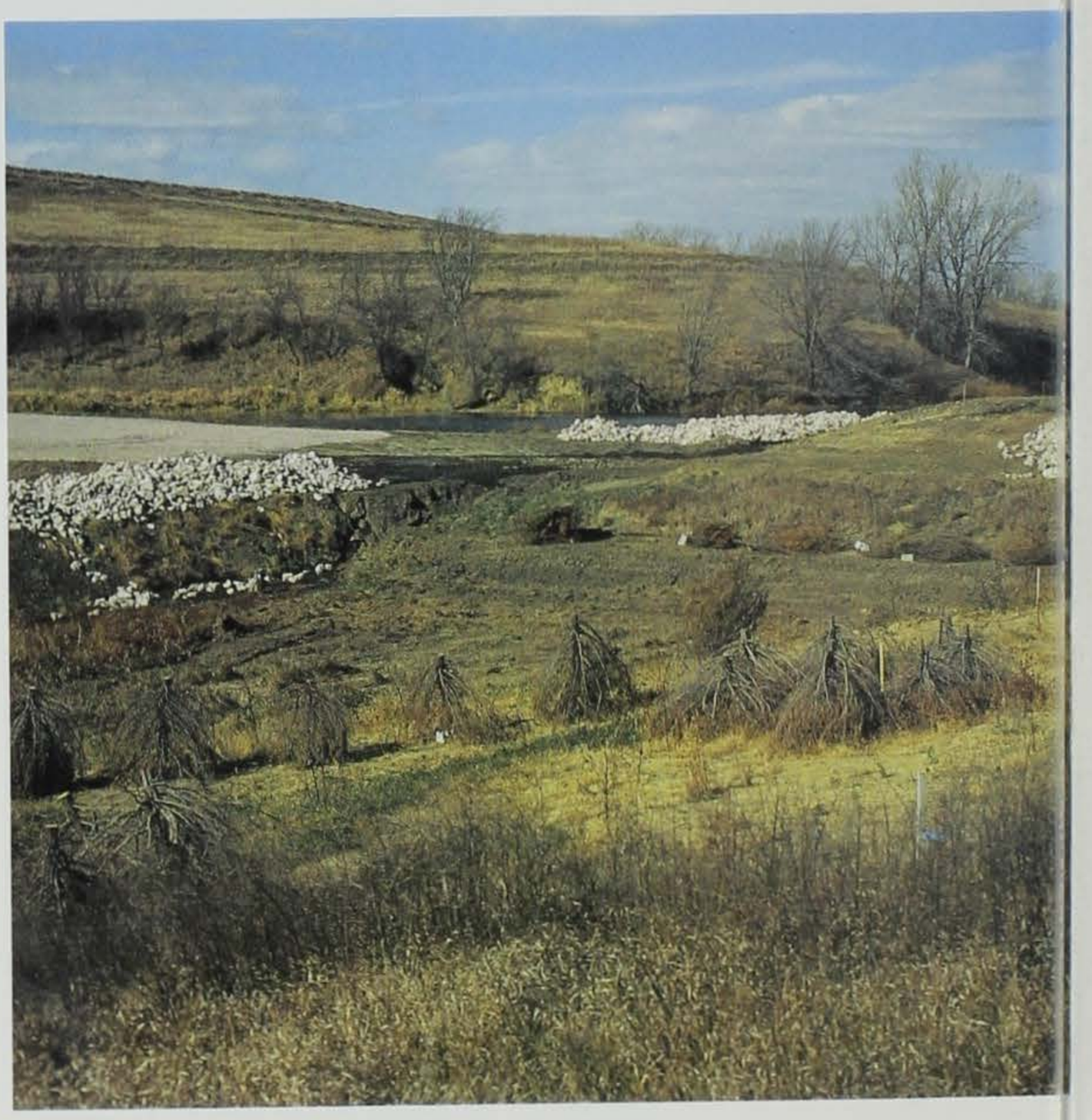
Fish growth is typically excellent in new impoundments as the fish population literally explodes into the available habitat. This will result in anglers harvesting bluegills and channel catfish within two years after initial stocking. Catch-and-release bass fishing will occur for about two to three years after initial stocking. The fastest growing largemouth bass will be harvested between the third and fourth year. Angler use is expected to be heavy, therefore, if a good bass fishery is to develop, anglers must respect the bass length limit. Battle the bass at the lake and take the bluegills, crappies and channel cats home for a meal.

Deer Creek Lake represents progress in providing water-based recreation in needed areas of the state, but this development -- the lake and the associated land acquisition -- will be much more to the outdoor enthusiast. All of us will benefit, with enhanced wildlife and recreational opportunities involving nature observation, education, fishing, hunting and hiking. The Deer Creek Lake project will truly be a multiuse area, serving the multiple interests and personalities of its users.

Jim Christianson is a fisheries biologist for the department at Spirit Lake.



Ron Johnson



1995 FISH AWARDS

The following list includes the top 10 entries and released of each species taken in 1995.
Current state records are highlighted in red.
An(*) indicates a new record.

weight/length	date	angler, hometown	location, county
BASS, LARGEMOUTH (MINIMUM -- 7 LBS. OR 22")			
10 lbs. 12 ozs. 23.5"	**5/1984**	**Patricia Zaerr, Davenport**	**Lake Fisher, Davis**
9 lbs. 8 ozs.	3/30	Joshua Flanders, Melrose	Farm Pond, Lucas
9 lbs. 8 ozs.	5/24	Russell Bricker, Earlham	Badger Creek Lake, Madison
9 lbs. 8 ozs.	8/1	Michael Jerkins, Hamilton	Strip Pit Pond, Marion
8 lbs. 8 ozs.	5/15	Martin Williams, Clarinda	Windmill Lake, Taylor
8 lbs. 8 ozs.	6/4	Bradley Alan Anfinson, Hawkeye	Volga Lake, Fayette
8 lbs. 8 ozs.	7/23	David M. Moores, Woodbine	Dunlap Pond, Harrison
8 lbs. 6 ozs.	7/27	Rodney A. Wittrock, Sioux City	Farm Pond, Woodbury
8 lbs. 4 ozs.	4/15	David Kirkland, Cincinnati	Farm Pond, Appanoose
8 lbs. 3 ozs.	4/14	Royce L. York, Tama	Farm Pond, Iowa
8 lbs. 2 ozs.	8/20	Lindsey Frese, Bridgewater	Farm Pond, Adair
8 lbs. 2 ozs.	4/26	Michael L. Clark, Atlantic	Lake Anita , Cass
8 lbs. 2 ozs.	8/2	Jason S. Johnson, Mapleton	Farm Pond, Monona
Released -- 22"	9/23	Chris Van Dyne, Corydon	Farm Pond, Wayne
Released -- 23.5"		Louis J. Amodeo, Des Moines	Farm Pond
Released -- 24.5"	4/1	Arlie Vander Hoek, Pella	Diamond Lake, Poweshiek
Released -- 23"		Rick D. Schuster, Kellerton	Farm Pond, Ringgold
Released -- 23"	9/15	John C. Pirck, Davenport	Sand Pit, Muscatine
Released -- 22"	5/5	Jeff Renner, Denison	Green Valley, Union
Released -- 23"	8/7	Brian Paul Cortesio, Centerville	Resevoir, Appanoose
Released -- 22"	4/22	Bruce Werts, Russell	Farm Pond, Lucas
Released -- 22.25"	4/14	Mark Gleason, Rockwell City	Badger Lake, Webster
Released -- 22.5"	4/23	Steve Latimer, Ames	West Lake Osceola, Decatur
Released -- 22.5"	5/14	Dan Putz, Dyersville	Quarry, Delaware
Released -- 22"	3/25	Brett K. Monteleone, Newton	Farm Pond, Union
Released -- 22"	3/19	Gary W. Burns, Mount Pleasant	Lake Geode, Henry
Released -- 22.5"	6/4	Roger D. Buchholz, Waterloo	Lake Ponderosa, Poweshiek
Released -- 22.5"	4/1	Jeff Kunkel, Bronson	Farm Pond, Woodbury
Released -- 23"	10/29	John Hooper, Indianola	Farm Pond, Warren

weight/length	date	angler, hometown	location, county
Released -- 22.5	6/10	Richard A. Hill, Des Moines	Lake Nodaway, Adair
Released -- 23"	4/14	Shawn G. Calzaretta, Sigouney	Farm Pond, Keokuk
Released -- 23"	5/24	Greg Averill, Omaha, NE	West Okoboji, Dickinson
Released -- 22"	6/3	Kenneth Olsen, Audubon	Farm Pond, Audubon
Released -- 23"	4/16	Bobby Hull, Blockton	Farm Pond, Taylor
Released -- 22"	5/19	Jay P. Walton, Ames	Little River Lake, Decatur
Released -- 22.5"	7/2	Susan L. Padget, Swisher	Farm Pond, Davis
Released -- 22.5"	6/13	Lenus Reyer, Cherokee	Farm Pond, Buena Vista
Released -- 22.75"	7/20	Dennis A. Carbaugh, Red Oak	Pond, Montgomery
Released -- 23"	8 /30	Rob Welch, Ames	Peterson Pit, Story
Released -- 23"	9/24	Chris Specht, Madison	Farm Pond, Warren
Released -- 24"	10/28	Gene Murray, Wapello	Farm Pond, Jefferson
Released -- 22"	5/14	Jason Michalec, Cedar Rapids	Rock Quarry, Linn

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

9 lbs. 4 ozs. 29"	**7/1983**	**Richard Pauley, Mystic**	**Lake Rathbun, Appanoose**

BASS, ROCK (MINIMUM -- 1 LB.)

1 lbs. 8 ozs. 10.5"	**6/1973**	**Jim Driscoll, Dubuque**	**Mississippi River, Dubuque**

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

7 lbs. 12 ozs. 22.75"	**9/1990**	**Rick Gray, Dickinson**	**West Okoboji, Dickinson**
5 lbs. 11ozs.	9/10	Dan Reis, Fort Atkinson	Upper Iowa River, Howard
5 lbs. 8 ozs.	4/13	Jeff Lenz, Milford	West Lake Okoboji, Dickinson
5 lbs. 8 ozs.	5/6	Adam Smith,Waverly	Cedar River, Bremer
5 lbs. 6 ozs.	9/17	Alan Riemenschneider, Spirit Lake	West Okoboji, Dickinson
5 lbs. 4 ozs.	9/24	J. D. Speltz, Armstrong	West Okoboji, Dickinson
5 lbs. 3 ozs.	5/6	Richard Kraus, Spirit Lake	West Okoboji, Dickinson
5 lbs.	5/22	Darwin Wackerbarth, Spirit Lake	West Okoboji, Dickinson
4 lbs. 15 ozs.	2/6	Dan Williams, Arnolds Park	West Okoboji, Dickinson
4 lbs. 15 ozs.	3/16	Todd Drown, Mountain Lake	Big Spirit, Dickinson
4 lbs. 13 ozs.	5/18	John A. Prochmow, Okoboji	West Okoboji, Dickinson
Released -- 20.5"	5/15	Rollie Peschon, Spirit Lake	West Okoboji, Dickinson
Released -- 20"	4/19	Dwane Krogman, Lismore, MN	West Okoboji, Dickinson
Released -- 20"	5/18	Joe Morocco, Spirit Lake	West Okoboji, Dickinson
Released -- 20.5"	1/1	Eric Jorgensen, Ankeny	West Okoboji, Dickinson
Released -- 20"	5/28	Tim Meyer, Omaha, NE	Lower Gar Lake, Dickinson
Released -- 22"	7/20	Barry Termaat, Sioux City	West Okoboji, Dickinson

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

3 lbs. 14 ozs. 20"	**5/1972**	**Bill Born, Milford**	**West Okoboji, Dickinson**
3 lbs.		Bill Ferns, Spirit Lake	West Okoboji, Dickinson
3 lbs.	9/12	Alan Michael Glesne, Elkader	Mississippi River, Allamakee
2 lbs. 14 ozs.	8/22	Stan Erickson, Bettendorf	Mississippi ,Scott
2 lbs. 12 ozs.	5/2	Barbara Stewart, Spirit Lake	East Okoboji ,Dickinson
2 lbs. 12 ozs.	5/2	George Leininger, Spirit Lake	East Okoboji, Dickinson
2 lbs. 12 ozs.	8/13	Doug Tomlinson, Oskaloosa	Des Moines River, Marion
2 lbs. 12 ozs.	9/26	Dale E. Morris, Fort Dodge	East Okoboji, Dickinson
2 lbs. 11 ozs.	12/23	Barry Andersen, Arnolds Park	West Okoboji, Dickinson
2 lbs. 11 ozs.	12/28	George, Barnes, Eagle Grove	East Okoboji , Dickinson
2 lbs. 10 ozs.	11/7	Richard W. Ruden, Dubuque	Mississippi River, Dubuque
2 lbs. 10 ozs.	12/21	Betty M. Kruchten, Spirit Lake	West Lake Okoboji, Dickinson

weight/length	date	angler, hometown	location, county
BASS, WIPER (MINIMUM -- 4 LBS.)			
17 lbs. 5 ozs. 30.5"	**11/1993**	**Joseph F. Kafer, Des Moines**	**Des Moines River, Polk**
16 lbs. 2 ozs.		Richard Spurgin, Des Moines	Des Moines River, Polk
10 lbs. 2 ozs.	1/21	Ralph Hoagland, Monroe	Des Moines River, Marion
6 lbs. 8 ozs.	7/15	Ed Mohler, Polk City	Lake Red Rock, Marion
6 lbs. 6 ozs.		Mike Monteleone, Newton	Red Rock Dam, Marion
BASS, YELLOW (MINIMUM -- 3/4 LB.)			
1 lbs. 9 ozs. 14.5"	**4/1991**	**Bill Campbell, Council Bluffs**	**Lake Manawa, Pottawattamie**
1 lbs. 4 ozs.	4/23	Gary D. Mart, Carroll	Black Hawk, Sac
1 lbs. 3 ozs.		Dixie D. Howell, Boone	Black Hawk, Sac
1 lbs. 2 ozs.	4/3	Jolınny L. Mc Intyue, Omaha , NE	Private Pond, Adams
1 lbs. 2 ozs.	7/3	Mark Berg, Aracadia	Farm Pond, Crawford
1 lbs. 2 ozs.	1/2	James V. Kloubec, Marion	Brown's Lake, Jackson
1 lbs. 1 ozs.	5/7	Kenneth Nomann, Palmer	Black Hawk, Sac
1 lbs. 1 ozs.	5/26	Dwell Gilson, Council Bluffs	Pony Creek, Mills
1 lbs.	5/9	William T. Cleveland, Lake View	Black Hawk Lake, Sac
15 ozs.	5/7	Tyson Irwin, Lake View	Black Hawk Lake, Sac
15 ozs.	5/95	Darryl Lee Anderson, Palmer	Black Hawk, Sac
BLUEGILL (MINIMUM -- 1 LB.)			
3 lbs. 2 ozs. 12.75"	**7/1986**	**Phil Algreen, Earlham**	**Pond, Madison**
2 lbs.	7/30	Chad Smith, Milo	Farm Pond, Warren
1 lbs. 14 ozs.	5/22	Larry L. Powers, Clarinda	Farm Pond, Page
1 lbs. 14 ozs.	6/16	DeShon Orr, Brooklyn	Pond, Poweshiek
1 lbs. 13 ozs.	5/14	Tom Travis & Tim Andrews, Cascade	Farm Pond, Jones
1 lbs. 9 ozs.	9/28	Beth A. Harn, Janesville	Otter Creek, Tama
1 lbs. 8 ozs.	5/25	Mark L. Bentley, Iowa City	Farm Pond, Johnson
1 lbs. 8 ozs.	6/5	Billy Quintus, Eagle Grove	Gravel Pit, Humboldt
1 lbs. 8 ozs.	6/5	Curtis L. White, Creston	Farm Pond, Adair
1 lbs. 8 ozs.		Rick Stanley, Anita	Farm Pond, Cass
1 lbs. 8 ozs.	9/17	Chris Baumann, Las Vegas, NV	Corydon Resevoir, Wayne
1 lbs. 8 ozs.	6/10	Rebekah Morgan, Menol	Pond, Cass
1 lbs. 8 ozs.	7/23	Bill Ferns, Spirit Lake	Big Spirit, Dickinson
BOWFIN/DOGFISH (MINIMUM -- 5LBS.)			
11 lbs. 8 ozs. 31"	**5/1989**	**Bill Gretten, Blue Grass**	**Mississippi River, Clayton**
9 lbs.	6 /5	Steven J. Alt, West Liberty	Lake Odessa
6 lbs. 6 ozs.	5/20	Bill Deutmeyer, Dyersville	Mississippi River,Clayton
BUFFALO (MINIMUM -- 20 LBS.)			
51 lbs. 45"	**4/1986**	**Jeff Duis, Sibley**	**East Okoboji Lake, Dickinson**
23 lbs. 4 ozs.	5/18	Clarence Ward, Council Bluffs	Lake Manawa, Pottawattamie
21 lbs. 14 ozs.	5/2	Carl Hutchens, Mason City	Winnebago River, Cerro Gordo
BULLHEAD (MINIMUM -- 2-1/2 LBS.)			
5 lbs. 8 ozs. 22"	**1989**	**Michael Hurd, Ellsworth**	**Farm Pond, Hamilton**
5 lbs. 6 ozs.	5/15	Robert Edward Monaco, Des Moines	Farm Pond, Polk
3 lbs. 6 ozs.	3/9	Kevin A. Mc Coy, Pacific Junction	Farm Pond, Mills
2 lbs. 12 ozs.	5/29	Matthew J. Chance, Des Moines	Lake Icaria, Adams

weight/length	date	angler,hometown	location,county
CARP (MINIMUM -- 25 LBS.)			
50 lbs. 44"	**5/1969**	**Fred Houghland, Glenwood**	**Glenwood Lake, Mills**
33 lbs.	9/27	Alan Michael Glesne, Elkader	Mississippi River, Allamakee
27 lbs. 8 ozs.		Chasen J. Mathies, Kiron	Spirit Lake, Dickinson
25 lbs. 4 ozs.	5/20	Gary Burmood, Esterville	East Okoboji, Dickinson
CATFISH, BLUE (MINIMUM -- 20 LBS.)			
***62 lbs. 42.5"**	**9/1995**	**Darrell E. Carter, Jefferson**	**Big Sioux River, Plymouth**
49 lbs. 11ozs.	8/16	Donna Hans, Omaha, NE	Missouri River, Harrison
32 lbs. 8 ozs.	6/9	Adam W. Barber , Salem	Des Moines River, Lee
CATFISH, CHANNEL (MINIMUM -- 15 LBS.)			
36 lbs. 8 ozs. 40.5"	**8/1993**	**Ronald Godwin, Earlham**	**Middle Raccoon River, Dallas**
28 lbs.	1/11	Delmer Gonder, Spirit Lake	West Okoboji, Dickinson
26 lbs.	7/7	F. Gerald Baum, Dyersville	Gravel Pit, Dubuque
26 lbs.	7/29	Michael J. Paben, Revere	Des Moines River, Lee
23 lbs.	7/1	Robert Myers, Ames	Big Creek, Polk
22 lbs. 4 ozs.	4/9	Keith Nitzschke, Spencer	East Okoboji, Dickinson
22 lbs.	7/23	Joe Railsback, Ceder Rapids	Pleasant Creek Lake, Linn
21 lbs.	4/29	Mike Hahn, Mapleton	Farm Pond, Monona
20 lbs. 12 ozs.	8/13	Gary L. Kaut, Isanti	Pleasant Creek Lake, Linn
20 lbs.	8/9	Jeff Mitchell, Nevada	Farm Pond, Story
19 lbs. 13 ozs.	9/13	Charles D. Shook, Missouri Valley	East Okoboji, Dickinson
19 lbs. 13 ozs.	8/12	David Hunt, Council Bluffs	East Okoboji, Dickinson
CATFISH, FLATHEAD (MINIMUM -- 20 LBS.)			
81 lbs. 52"	**6/1958**	**Joe Baze, Chariton**	**Lake Ellis, Lucas**
52 lbs. 6 ozs.	6/3	Dan E. Glasgow Sr., Montrose	Des Moines River, Lee
46 lbs. 3 ozs.	6/21	John P. McGee, Albia	Des Moines River, Marion
45 lbs.	10/1	Billy Cochran, Council Bluffs	Missouri River, Monona
44 lbs.	8/3	Kurt Carson, Marshalltown	Des Moines River, Warren
41 lbs. 1ozs.	3/18	Joseph C. Baldus, Cedar Rapids	Corralville Resv, Johnson
40 lbs. 1ozs.	6/2	Tom Parady, Hamilton	Des Moines River, Lee
40 lbs.	9/12	Sidney Simpson, Des Moines	Des Moines River, Polk
37 lbs.	9/2	Mike Dolan, Eagle Grove	Boone River, Hamilton
36 lbs.	7/4	Nile L. Mischke, Jefferson	Racoon River, Greene
33 lbs.	9/17	Kenneth Clark, Sioux City	Missouri River, Woodbury
CRAPPIE (MINIMUM -- 2 LBS.)			
4 lbs. 9 ozs. 21.25"	**5/1981**	**Ted Trowbridge, Marshalltown**	**Green Castle Lake, Marshall**
3 lbs. 4 ozs.	10/21	Guy S. Wood, Alden	Farm Pond, Davis
3 lbs. 3 ozs.	4/24	Mark Doud, Oskaloosa	Farm Pond, Mahaska
3 lbs. 2 ozs.	7/13	Jon Hightshoe, Creston	Farm Pond, Union
3 lbs. 1 ozs.	10/16	Tom Weber, Cedar Rapids	Coralville Reservoir, Johnson
2 lbs. 11 ozs.	5/12	Kevin R. Karr, Wapello	Mar Holtz, Louisa
2 lbs. 10 ozs.	5/31	Roger Eddy, Anita	Lake Anita, Cass
2 lbs. 8 ozs.	5/17	Bill Mentzer, Audubon	Farm Pond, Audubon
2 lbs. 8 ozs.	2/1	Marlan L. Feltner, Atlantic	Morman Trail, Adair
2 lbs. 8 ozs.	7/7	Troy Valentine, Sioux Rapids	Gravel Pit, Buena Vista
2 lbs. 6 ozs.	5/8	Kevin C. Grant, Cedar Rapids	Coralville Reservoir
2 lbs. 6 ozs.	4/19	Dave Yager, Fenton	Pit, Palo Alto

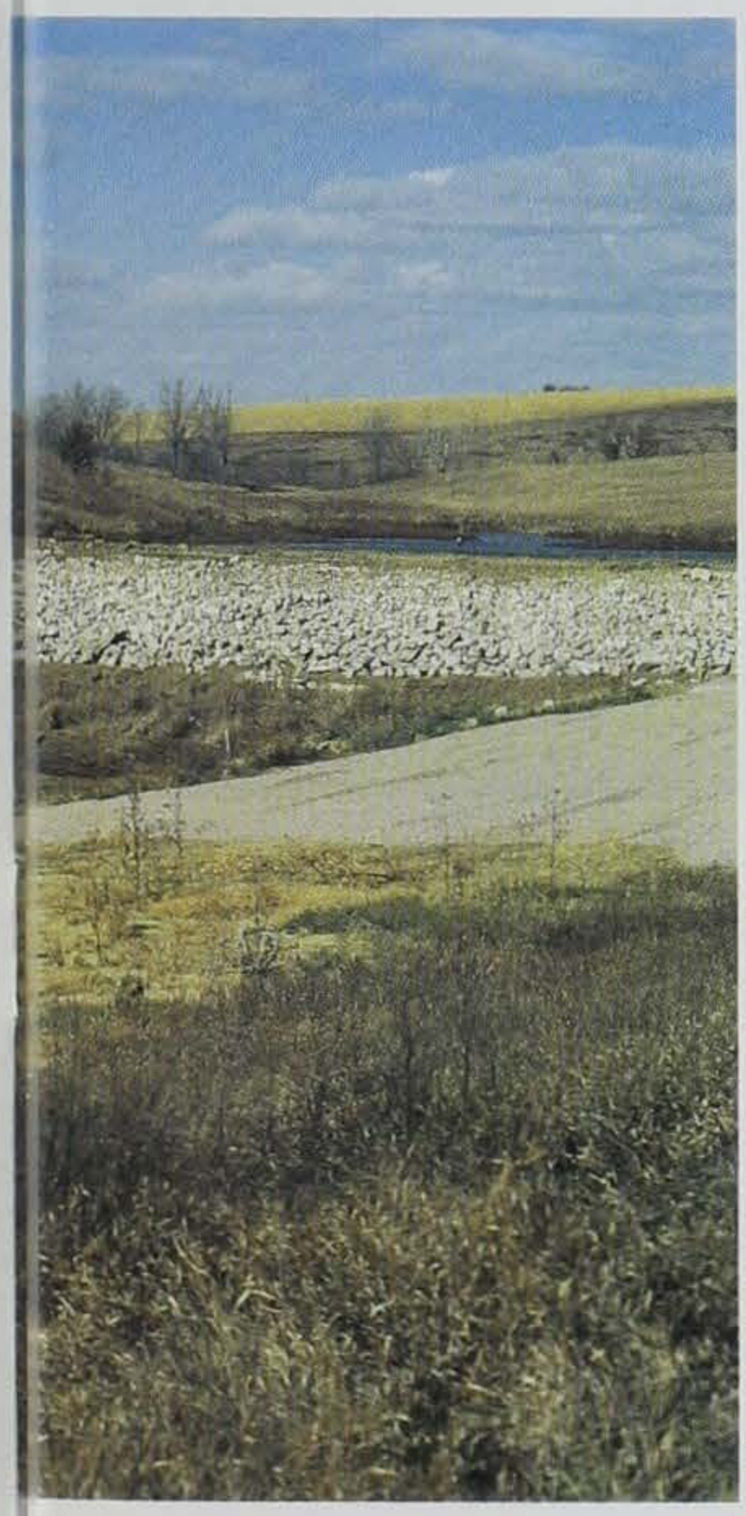
weight/length	date	angler, hometown	location, county
FRESHWATER DRUM (MINIMUM -- 15 LBS.)			
46 lbs. 38.5"	**10/1962**	**R.F. Farra, Clarion**	**Spirit Lake, Dickenson**
21 lbs.	9/28	A. J. Bodensteiner, Lawler	Mississippi, Allamakee
17 lbs. 7 ozs.	4/26	Clarence Oward, Council Bluffs	Lake Manawa, Pottawattamie
GAR, LONGNOSE (MINIMUM -- 6 LBS.)			
17 lbs. 8 ozs. 51"	**9/1992**	**Kevin Riley, Cedar Rapids**	**Mississippi River, Clayton**
GAR, SHORTNOSE (MINIMUM -- 2 LBS.)			
***4 lbs. 3 ozs. 30.5"**	**5/1995**	**Jim Steel, Mt. Pleasant**	**Skunk River, Henry**
3 lbs. 11 ozs.	6/27	John T. Bambara, Oskaloosa	Des Moines River, Marion
GOLDENEYE/MOONEYE (MINIMUM -- 1-1/4 LBS.)			
2 lbs. 4 ozs.	**4/1992**	**Mark Ekle, Farmington**	**Des Moines River, Van Buren**
MUSKELLUNGE (MINIMUM -- 15 LBS. 0R 40")			
***45 lbs. 9 ozs. 52"**	**9/1995**	**Jerry L. Curry, Mitchellville**	**Spirit Lake, Dickinson**
37 lbs. 3 ozs.	8/2	Rick Petersen, Spencer	Big Spirit, Dickinson
35 lbs. 15 ozs.	1/6	Cory Dean & Scott Wernimont, Spirit Lake	West Okoboji, Dickinson
34 lbs. 10 ozs.	9/2	Pat Karels, Papillion	West Okoboji, Dickinson
31 lbs. 14 ozs.	6/19	Chad Northey, Waterloo	West Okoboji, Dickinson
22 lbs. 9 ozs.	10/7	Kerry B. Moore, Omaha, NE	West Okoboji, Dickinson
19 lbs.	9/4	Galen L. Streich, Estherville	West Okoboji, Dickinson
17 lbs. 12 ozs.	2/10	Charles Herreid, Okoboji	West Okoboji, Dickinson
17 lbs. 12 ozs.	6/6	Bob Hamilton, Sheldon	East Okoboji, Dickinson
Released -- 51.5"	7/3	Ben Erdman, Wittemore	Spirit Lake, Dickinsen
Released -- 46"	8/7	Dale Witt, Spencer	Spirit Lake, Dickinson
Released -- 41"	8/26	Shannon Green, Spencer	West Okoboji, Dickinson
MUSKELLUNGE, TIGER (MINIMUM -- 15 LBS. 0R 40")			
27 lbs. 2 ozs. 47"	**8/1989**	**Shannon Green, Spencer**	**Spirit Lake, Dickinson**
NORTHERN PIKE (MINIMUM -- 10 LBS. OR 34")			
25 lbs. 5 ozs. 45"	**2/1977**	**Allen Forsberg, Albert City**	**West Okoboji, Dickinson**
23 lbs. 7 ozs.	2/18	Dwayne Nehring, Spencer	Area Lake, Clay
19 lbs. 6 ozs.	7/7	Daryl Krogman, Worthingotn	Big Spirit, Dickinson
17 lbs. 11 ozs.	12/29	Bob Lockey, Spencer	West Okoboji, Dickinson
17 lbs. 8 ozs.	9/9	Rosemary Neighbors, Grinnell	Diamond Lake, Poweshiek
16 lbs. 4 ozs.	9/11	Brent Boelman, Belmond	West Okoboji, Dickinson
16 lbs. 1 ozs.	1/21	Bill Wolfgram, Fairbank	West Lake, Dickinson
15 lbs. 4 ozs.	3/19	Eldon L. Ray, Orient	Farm Pond, Adair
14 lbs. 12 ozs.	9/23	Vincent Work, Sioux City	West Okoboji, Dickinson
12 lbs. 14 ozs.	4/27	Brian G. Brus, Newell	Little Sioux River, Buena Vista
Released -- 37"	3/11	Todd M. Hardy, Shell Rock	Shell Rock River, Butler
Released -- 37"	11/24	Steven J. O'Braza, Carlisle	Des Moines River, Polk
Released -- 37"	6/0	Keith Nitzschke, Spencer	East Okoboji, Dickinson
Released -- 36.5"		Ray Ford, Ruthven	Lost Island, Palo Alto
Released -- 36"	10/15	Dale Witt, Spencer	West Okoboji, Dickinson

weight/length	date	angler, hometown	location, county
PADDLEFISH (MINIMUM -- 25 LBS.)			
107 lbs. 69.5"	**3/1981**	**Robert Pranshke, Onawa**	**Missouri River, Monona**
PERCH, YELLOW (MINIMUM -- 1 LB.)			
2 lbs. 3 ozs. 14.75"	**3/1994**	**Daniel Borchardt, Mason City**	**Morse Lake, Wright**
1 lbs. 14 ozs.	1/13	Bruce Loring, Ruthven	Palo Alto
1 lbs. 12 ozs.	3/5	Lance Messerly, Webster City	Silver Lake, Palo Alto
1 lbs. 12 ozs.	1/31	Leroy G. Rozeboom, Sanborn	Big Spirit, Dickinson
1 lbs. 11 ozs.	3/7	Roy Wilson, Spencer	Silver Lake, Palo Alto
1 lbs. 11 ozs.	2/18	Don Bonstead, Milford	Spirit Lake, Dickinson
1 lbs. 11 ozs.	3/7	Roy Wigen, Spencer	Silver Lake, Palo Alto
1 lbs. 11 ozs.	2/14	Rod Douma, Sanborn	Spirit Lake, Dickinson
1 lbs. 10 ozs.	3/11	Alan Bohr, Royal	Trumball, Clay
1 lbs. 8 ozs.	1/2	Mathew Johannes, Sibley	Farm Pond, Dickinson
1 lbs. 8 ozs.	2/14	Paul Kinnetz, Spencer	Trumbull, Clay
SAUGER (MINIMUM -- 2-1/2 LBS. OR 18")			
6 lbs. 8 ozs. 25"	**10/1976**	**Mrs. W. Buser, Sloan**	**Missouri River, Woodbury**
4 lbs. 9 ozs.	12/27	Roger P. Postel, Worthington	Mississippi River, Clayton
4 lbs. 7 ozs.	3/29	Craig, Miller, Dubuque	Mississippi River, Jackson
4 lbs. 1 ozs.	11/2	Ron Bliss, Andrew	Mississippi River, Jackson
4 lbs.	3/16	Danny, Steenhard, New Hampton	Mississippi River, Sauger
3 lbs. 4 ozs.	4/17	Dave Gross, Dubuque	Mississippi River, Clayton
3 lbs. 4 ozs.	4/12	John C. Kepler, Cedar Rapids	Mississippi River, Clayton
3 lbs. 4 ozs.	3/19	Randy E, Harms, Monticello	Mississippi River, Clayton
3 lbs. 2 ozs.	12/27	Denny J. Wade, Winfield	Mississippi River, Des Moines
3 lbs. 2 ozs.	4/8	Francis K. Carlson, Cedar Rapids	Mississippi River, Clayton
3 lbs. 1 ozs.	3/25	Bill Deutmeyer, Dyersville	Mississippi River, Clayton
Released -- 19.5"	9/0	Craig A. Kling, New Liberty	Mississippi River, Louisa
Released -- 20"	2/22	Bernard Lee Lehman, Eldridge	Mississippi River, Clinton
Released -- 21.5"	10/7	Mark Marz, Cedar Rapids	Mississippi River, Jackson
Released -- 21"		Eric G. Klaren, Earlvillve	Mississippi River, Clayton
Released -- 20.5"	7/3	Dennis M. Jansen, Dubuque	Mississippi River, Dubuque
Released -- 18"	5/22	Bob Hansen, Cedar Falls	Mississippi River, Allamakee
Released -- 18.75"	11/2	Joseph Olinger, LeClaire	Mississippi River, Scott
SAUGEYE (MINIMUM -- 6 LBS.OR 25")			
***9 lbs. 26.5"**	**11/1995**	**Don Marlin, Albia**	**Des Moines River, Wapello**
8 lbs. 13 ozs.	4/15	Ron L. Alberts, Tiffin	Iowa River, Johnson
7 lbs. 9 ozs.		Liming Hou, Ames	Saylorville, Dam
7 lbs. 5 ozs.	2/5	Nick Cappussi, Cedar Rapids	Tailwaters Coralville Lk, Johnson
7 lbs. 1 ozs.	9/0	Dave Wallenburg, Inwood	Sioux River, Lyon
5 lbs. 8 ozs.	6/17	Neil Batten, Council Bluffs	Icaria, Adams
Released -- 25"	12/1	Jack, Machacek, Central City	Iowa River, Johnson
STURGEON, SHOVELNOSE (MINIMUM -- 3 LBS.)			
12 lbs. 33"	**4/1974**	**Randy Hemm, Douds**	**Des Moines River, Van Buren**

weight/length	date	angler, hometown	location,county
SUCKER (MINIMUM -- 4 LBS.)			
15 lbs. 1 ozs. 32.25"	**9/1983**	**Glen E. Dittman, Onawa**	**Missouri River, Monona**
7 lbs. 15 ozs.	2/25	Noah Bailey, Waukee	Saylorville Spillway, Polk
6 lbs. 11 ozs.	3/13	Douglas L. Peet, Cedar Rapids	Cedar River, Linn
SUNFISH (MINIMUM -- 1 LB.)			
1 lbs. 13 ozs. 10.25"	**9/1967**	**Dale Cornick, Burlington**	**Lake Geode, Henry**
1 lbs. 1 ozs.	5/16	Chris J. Tate, Humbolt	Farm Pond, Wapello
TROUT, BROOK (MINIMUM -- 1 LB. OR 13")			
***6 lbs. 1 ozs. 19.25"**	**6/1995**	**Al Weidenbacher, Dubuque**	**Bankston Creek, Dubuque**
2 lbs. 1 ozs.	6/6	Bryan Timmerman, Waterloo	Wexford Creek, Allamakee
1 lbs. 8 ozs.	6/9	Matt Lovelace, Coralville	Richmond Springs, Delaware
1 lbs. 8 ozs.	5/21	Jason Unsen, Dubuque	French Creek, Allamakee
1 lbs. 5 ozs.	5/15	Dennis Myhre, Decorah	Trout Run, Winneshiek
1 lbs. 4 ozs.		Mark Berkenbosch, Newton	Coldwater Creek, Winneshiek
1 lbs. 3 ozs.	4/28	Nathan Schon, Waukon	Trout River, Winneshiek
1 lbs. 2 ozs.	4/29	William R. Flattery Jr, Marion	Grannis, Fayette
1 lbs. 1 ozs.	5/24	Lawrence B. Henry, Decorah	Trout Run, Winneshiek
1 lbs. 1 ozs.	6/19	Janet Hazen, Muscatine	Richmond Springs, Delaware
Released -- 13.25"	5/6	Joe Connelly, Omaha, NE	Little Paint, Allamakee
Released -- 13"	4/20	Gary J. Woerdehoff, Dubuque	North Bear, Winneshiek
Released -- 14"	5/15	Eileen Runge, Clinton	Hickory Creek, Allamakee
Released -- 13.5"	7/1	Derek Pavelec, Readlyn	Bear Creek, Fayette
Released -- 13"	6/4	Nicholas J. Traeger, Dyersville	Richmond Springs, Fayette
Released -- 13"	4/14	Patrick Fortune, Ankeny	Coldwater Creek, Winneshiek
Released -- 14.5"	6/23	Clark Derhammer Jr, Cedar Rapids	Richmond Springs, Delaware
Released -- 14"	7/3	Gene Traeger, Dyersville	Richmond Springs, Clayton
TROUT, BROWN (MINIMUM -- 3 LBS. OR 18")			
***15 lbs. 6 ozs. 29"**	**6/1995**	**Gerold Lewis, Gladbrook**	**North Prairie Lake, Black Hawk**
12 lbs. 6 ozs.	8/12	Mike Amundson, Waterloo	Bear Creek, Fayette
12 lbs.	6/16	Matt Lovelace, Coralville	Spring Branch, Delaware
8 lbs. 9 ozs.	1/13	Aaron Bauch, Traer	Trout Run, Winnebago
8 lbs. 6 ozs.	5/18	Josh Decker, Evansdale	Little Paint Creek, Alamakee
7 lbs. 13 ozs.	5/4	Jay Stidham, Waterloo	South Bear Creek, Winneshiek
7 lbs. 8 ozs.	5/17	Arthur Hussmann, Scotch Grove	Richmond Springs, Delaware
7 lbs. 4 ozs.	6/23	Daniel Derhammer, Cedar Rapids	Richmond Springs, Delaware
5 lbs.	2/24	Dick Christianson, Waterville	Village Creek, Allamakee
5 lbs.	10/0	James D. Mormann, Waverly	Big Paint, Allamakee
4 lbs. 8 ozs.	4/14	Brent Hagen, Denison	Little Mill, Jackson
Released -- 19"	4/16	Eileen Runge, Clinton	South Bear Creek, Winneshiek
Released -- 19"	7/9	Brian James Axon, Frankfort	Spring Branch Creek, Delaware
Released -- 18.5"	7/22	Mike Schmitt, Omaha, NE	North Bear, Winneshiek

weight/length	date	angler, hometown	location, county
TROUT, RAINBOW (MINIMUM -- 3 LBS. OR 18")			
19 lbs. 8 ozs. 35"	**7/1984**	**Jack Renner, Waterloo**	**French Creek, Allamakee**
14 lbs. 2 ozs.	4/29	Chris Buren, Mason City	North Bear Creek, Winneshiek
12 lbs. 14 ozs.	6/4	Eric Graham, Solon	Richmond Springs, Delaware
12 lbs.	4/17	Jeremy Geisler, Monona	North Bear Creek, Winneshiek
11 lbs. 12 ozs.	5/16	Ron Fenchel, Le Claire	Big Mill, Jackson
11 lbs. 7 ozs.	4/27	Kyle R. Grober, Alta Vista	South Bear Creek, Winneshiek
11 lbs. 6 ozs.	5/26	Clark Derhammer Jr, Cedar Rapids	Richmond Springs, Delaware
11 lbs. 1 ozs.	4/21	Tom Vorland, Northwood	Silver Creek, Allamakee
10 lbs. 11 ozs.	5/12	Kenneth Jordan, Ottumwa	Bloody Run Creek, Clayton
10 lbs. 7 ozs.	4/28	Marty Liepa, Des Moines	Trout River, Allamakee
10 lbs. 6 ozs.	6/19	Janet Hazen, Muscatine	Joy Springs, Fayette
10 lbs. 6 ozs.	5/11	Mike Amundson , Waterloo	French Creek, Alamakee
Released -- 23"	5/18	Edward G. Singer, Independence	Richmond Springs, Delaware
Released -- 20"	2/6	Mark Cottrell, Kensett	Kuenans Quarry, Worth
WALLEYE (MINIMUM -- 8 LBS. OR 28")			
14 lbs. 8 ozs. 30.5"	**9/1986**	**Gloria Eoriatti, Ankeny**	**Des Moines River, Polk**
13 lbs. 11 ozs.	2/25	Charlie Sexton, Clinton	Mississippi River, Clinton
13 lbs. 7 ozs.	4/2	Greg Kautman, Dubuque	Mississippi River, Dubuque
12 lbs. 4 ozs.	3/25	Roger D. Akerman, Titonka	West Branch DSM River, Emmet
12 lbs.	11/16	Harold E. Hurd, Clarksville	Shell Rock River, Butler
11 lbs. 9 ozs.		Brett A. Hora, Denver	Cedar River, Bremer
11 lbs. 5 ozs.	11/19	Eric Lahart, Albia	Des Moines River, Wapello
11 lbs. 4 ozs.	2/2	Guy Powell, Des Moines	Des Moines River, Polk
11 lbs. 3 ozs.	3/12	Jimmie Clark, De Witt	Mississippi River, Jackson
11 lbs. 3 ozs.	10/24	Morey Green, Emmetsburg	Five Island Lake, Palo Alto
11 lbs. 1 ozs.	1/7	Ted Reis, Cherokee	West Okoboji, Dickinson
Released -- 28.5"	3/10	Randy Simmen, Central City	Wapsipinicon River, Linn
Released -- 28"	5/18	Gary M. Staake, Spirit Lake	Big Spirit Lake, Dickinson
Released -- 28"	10/0	Steve Tolk, Spirit Lake	Spirit Lake, Dickinson
Released -- 29.5"	5/3	Jeffrey Rhinehart, Brooklyn	Holiday Lake, Poweshiek
Released -- 28"	6/3	Travis Witt, Spencer	Spirit Lake, Dickinson
WHITE AMUR (MINIMUM -- 25 LBS.)			
51 lbs.	**9/1988**	**Leon Allen, Omaha, NE**	**Viking Lake, Montgomery**
44 lbs. 5 ozs.	5/6	James M. Phelps , Shellsburg	Hannen Lake, Benton
39 lbs.	5/21	Chris Yeager, Council Bluffs	Viking Lake, Montgomery

■ Clockwise from left: Deer Creek Lake will provide a quantity of largemouth bass, bluegill, crappie and channel catfish.
■ Brush and timber are assembled for a proposed underwater island.
■ The multifaceted habitat of the lake bed includes an underwater reef, spawning beds and cedar trees.



OTHER WALLOP-BREAUX LAKES

1) Lost Grove Lake, Scott County -- Lost Grove Lake has a very high potential for providing excellent sport angling and recreational boating because of the favorable topography of the site, aesthetic appeal of the valley, and its close proximity to more than 300,000 people in eastern Iowa, including Scott, Clinton and Muscatine counties.

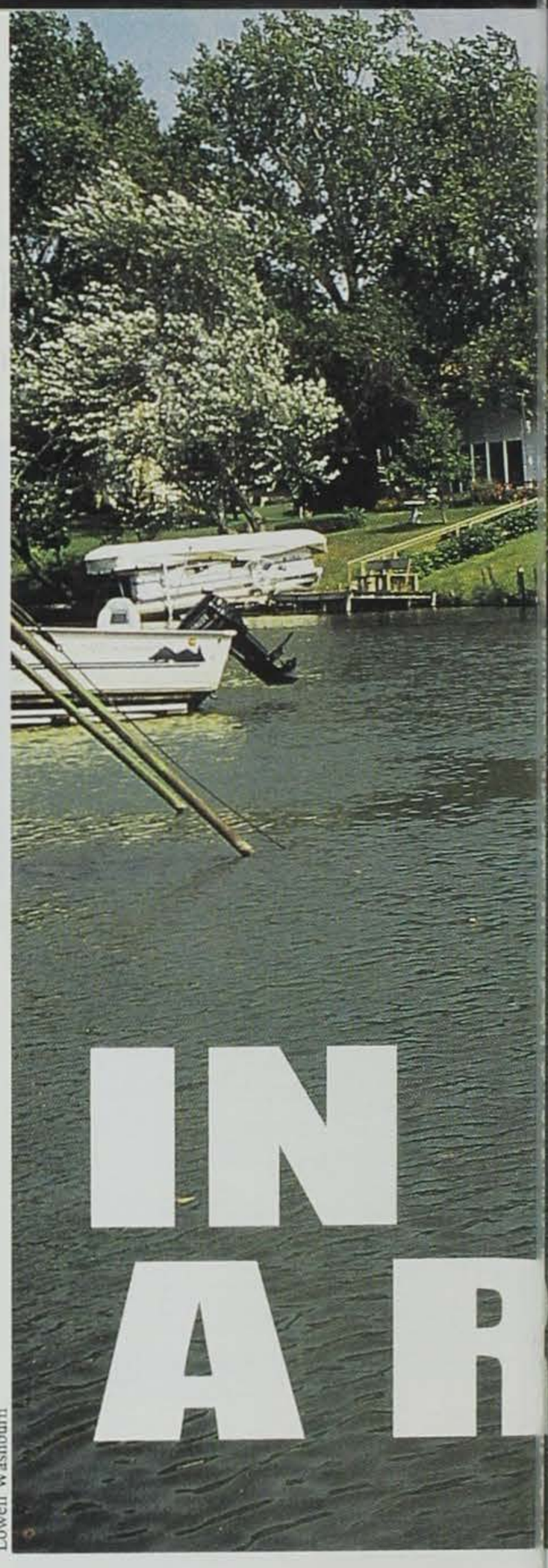
The lake site is in northeastern Scott County four miles west of Princeton, Iowa, on a branch of Lost Creek. A proposed dam near county road 230 will impound about 350 acres of water which will stretch for three miles to Utica Ridge Road (Z16) on the west end. Land acquisition is nearly completed at the lake site.

2) Lake Shawtee, Fremont County -- The Lake Shawtee project lies on Honey Creek in northeastern Fremont County midway between Randolph and Imogene. The site was chosen in 1984 after fisheries biologists investigated 33 potential lake sites in southwestern Iowa, concluded it was the best site, and predicted it would produce excellent fishing and recreational boating. Currently, land appraisal and acquisition from willing sellers are underway.

3) Whitewater Lake, Dubuque County -- Whitewater Lake is a proposed new lake located in Dubuque County in northeast Iowa. This artificial public lake will contain 112 surface acres and be approximately 15 miles west of Dubuque. It will also be near Farley and Epworth and within two miles of U.S. Highway 20.

4) Beaver Lake, Dallas County -- This 34-acre lake, near Dexter, was completed in 1989.

Natural lake canal fishing for those



Lowell Washburn

The glacial lakes of northwest Iowa were formed by the scouring action of the Wisconsin glacier which covered Iowa between 20,000 and one million years ago. As the great ice sheet melted and retreated, the lakes filled with water and created Iowa's natural lakes.

Although these lakes remain natural in many ways, several have been altered as human development increased along their shorelines. Canals, lagoons and marinas are all waterways which have been constructed by humans breaking the natural shoreline to provide boat access and quiet harbor to the main lake basin. Not all of the natural lakes have canals, but most of the larger lakes do, and in some instances there are several on one lake.

Throughout the years, opportunistic anglers have discovered how productive these side channels can be. Although nearly all species of fish use the canals, members of the sunfish family appear to have the greatest attraction. Largemouth bass, crappie and bluegill are frequently taken. These species will readily use the quiet, warm, mud-bottom habitat of these canals.

Let's take a closer look at how to capitalize on fishing natural lake canal systems.

Spring is the optimal season to fish in canals. Shortly after ice-out, fish begin to congregate there. Depending on the weather, this usually occurs in

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by Jim Wahl

early April. Don't wait too long after the ice leaves the lake because you may miss some of the hottest action. This is particularly true for crappies. In many cases, some of the best crappie angling takes place during the first warm weather after ice-out.

Most biologists believe the initial movement of fish into the canals is for feeding and not spawning migration. In Storm Lake and Black Hawk Lake, crappies move into the canals to take advantage of the plentiful gizzard shad. In West Okoboji and Clear Lake, crappies and bass may feed on spottail shiners or young panfish attracted to the canal's warmer water. Because canals are shallow (6 feet deep or less) and have a mud bottom, they heat-up quickly. Water in the canal may be as much as 10 degrees warmer than the main lake.

Ed Thelen, an avid bass angler from Spirit Lake, says he tries to find the warmest water in the canal when fishing bass in the early spring. A temperature difference of even a couple degrees can often mean the difference between a successful or unsuccessful trip. When searching for the warmest water in the canal, start near the back end. This area will be generally, but not always, warmer. Wind direction plays an important role and can move warm water into unlikely spots if strong enough.

Thelen also recommends fishing during the warmest part of the day for early-season bass. Typically, the most consistent results for him through the years have been between 3 and 4 p.m. each day. Keep in mind that fish are

A jig with pork rind is a favorite bass bait when water temperatures are cool. As the water warms, try spinnerbaits or plastic worms. Although these are preferred baits, crankbaits should not be overlooked.

cold-blooded animals, so the warmer spring temperatures and warmer waters mean more active fish.

A jig with pork rind is Thelen's favorite bass bait when water temperatures are cool. As the water warms, he suggests trying spinnerbaits or plastic worms. Although these are preferred baits, Thelen says crankbaits should not be overlooked. Plugs retrieved quickly along a riprapped shoreline or in the open water of the canal can be particularly effective.

Because canals are made by humans, they are somewhat lacking in natural cover. There is, however, no shortage of artificial habitat. Docks, boat hoists and riprapped banks provide attractive cover for bass and panfish. Bass are very structure-oriented and will use nearly all docks and hoists. According to Thelen, the key to fishing canal structure is figuring out which part of the dock or hoist bass are holding on, and then making the proper presentation to trigger a strike.

Although initial movements into the canals are to feed, bass, crappie and bluegill will remain there to spawn. Crappie spawn in May when water temperatures range between 60 and 68 degrees. Bass are the next to spawn from late May to early June in water temperatures between 60 and 70 degrees. Both crappies and bass will leave the canals shortly after spawning, and generally don't return until the following spring. Thelen noted that bass usually leave the canals by mid-June. Bluegill are the last members of the sunfish family to spawn. Normally beginning in mid-June, the spawning may continue through July in water temperatures between 65 and 75 degrees.

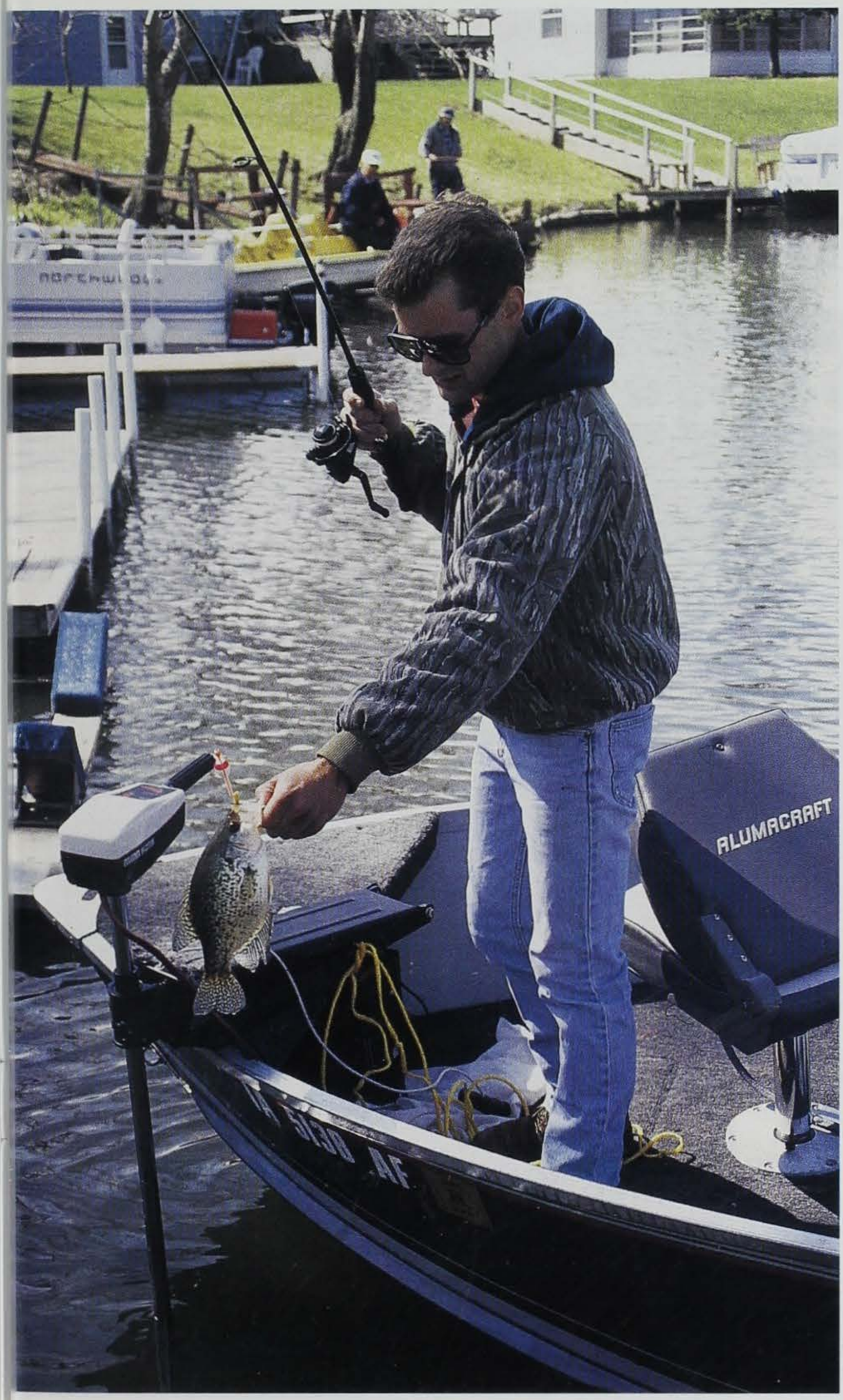
When fishing for crappies, stay close to structure. Crappies love to hang in the shade of a dock or hoist. They are typically suspended off the bottom, so keep your bait up. Some anglers prefer to use a small bobber to keep the bait above feeding crappies.

Bluegills feed closer to the bottom than crappies and are less structure-oriented. In fact, Thelen recommends trying away from the docks and hoists, particularly early in the season. Bluegills also tolerate warmer water and will stay in the canal for a longer period of time. Bluegills are frequently taken during early ice on the Okoboji canals.

If you haven't explored fishing in natural lake canals, consider trying it this year. Concentrate your efforts during the spring and don't wait too long after ice-out. Anglers should also remember to respect private property. The water in the canal is open to public use, however, the docks, hoist and shoreline in many instances are private. If you are unsure, check first to avoid any trespassing problems.

Jim Wahl is a fisheries biologist for the department at Clear Lake .

Jim Wahl



Jim Wahl

Lowell Washburn

The key to fishing canal structure is figuring out which part of the dock or hoist bass are holding on, and then making the proper presentation to trigger a strike.

------ curbing a desire to toss it, Iowans are enthusiastically renewing their approach to how garbage is handled as they recycle options to -------┐

dumping it

For decades Iowans and Americans have placed their garbage on the curb or along side the road in front of their homes. This weekly ritual sends our garbage out to the curb, gone forever and never to be thought of again. At least that's what we used to think. In the last ten years, people around the world have realized that the garbage we place at our curbs is not gone forever. The places our garbage is sent are filling up. New landfills result in residents having to pay more to dispose of their garbage.

Iowans are now taking more responsibility for their waste and are taking steps toward reducing the need for new landfills. We have begun cleaning up our groundwater, saving valuable resources and creating a new sector of economic development known as recycling. Today, garbage is not the only thing Iowans put at the curb. One and a half million Iowa residents from nearly 500 communities have the opportunity to recycle materials through curbside recycling programs.

The materials that can be recycled vary from community to community and include newspapers, catalogs, magazines, cereal boxes, corrugated cardboard, old mail, tin cans, aluminum cans, textiles, clear glass, brown glass, green glass and plastic containers. Just as the variety of curbside recycling materials vary, so do the curbside recycling programs.

As with many resident services, the best method of providing the service in one community may not be the best way in another community. Some communities collect recyclable materials at the curb by using a four wheel cart containing four separate bins, some use an 18-gallon bin with or without a lid, one community uses a program with three six-gallon buckets, another type of program uses a blue bag that residents put their recyclables in and one program uses a 95-gallon cart with wheels.

Some programs provide weekly collection of recyclables, with collection taking place on the same day as garbage collections, while others have recycling collection day on a day other than

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by Jeff Geerts

Michelle Javornik, City of Bettendorf

Bettendorf is one of the few communities in Iowa using a semiautomatic collection method.

garbage collection. Some communities provide collection every two weeks and one community provides collection on a monthly basis.

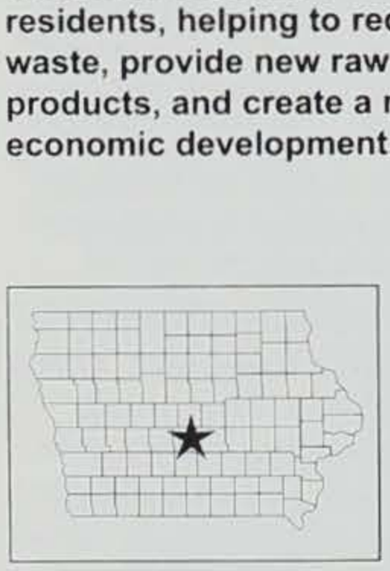
Materials may be collected using a manual system, semi-automated system, or fully-automated system. Manual collection systems require the recycling collector to physically pick up the recycling container and unload it into the collection vehicle. A semiautomated system usually requires the recycling collector to place the container onto a lift or hoist that empties the contents into the collection vehicle. A fully-automated system does not require any physical exertion. The fully-automated collection vehicle comes with a movable arm directed by the recycling collector to reach out, grab and lift the standardized container and dump its contents into the collection vehicle.

Collection vehicles differ widely in how the materials are transported. Some collection vehicles have five or more compartments for specific materials such as mixed paper, newspaper, clear glass, plastic and metal. In some communities, the materials are collected by a two-compartment truck with paper going in one compartment and everything else going into the other. Some communities allow residents to commingle or mix their recyclables together, requiring sorting at a recycling center. Employees of the center are responsible for sorting one or two types of material off a conveyor belt.

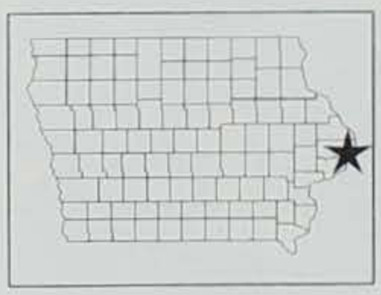
Michelle Javornik, City of Bettendorf

1991. Residents set their materials out in three six-gallon buckets. One bucket holds paper, one holds glass, and the other holds metals and plastic. The residents of Clinton are able to recycle corrugated cardboard, newspaper, office paper, phone books, catalogs, magazines, computer paper, all colors of glass containers, all types of plastic containers, tin cans and aluminum cans. Materials are set out for collection on the same day garbage is collected. A one-person crew collects and sorts the materials at the curb into a five-compartment truck which is taken to the Clinton Area Recycling Environment recycling center for additional sorting and processing.

Nearly 500 communities in Iowa make curbside recycling available to their residents, helping to reduce landfill waste, provide new raw materials for products, and create a new sector of economic development.



The city of Des Moines implemented a curbside recycling program for its more than 60,000 households in November 1994. The program uses a green 18-gallon rectangular shaped plastic bin collected weekly on the same day as garbage collection. Materials accepted in the program include newspaper, tin food and beverage cans, aluminum food and beverage cans, clear glass, PET (#1) and HDPE (#2) plastic containers, corrugated cardboard and mixed paper including paper sacks, chipboard, old mail, catalogs and magazines. Newspapers are placed in the bottom of the bin, mixed paper is placed into a paper sack and placed in the bin on top of the newspaper. The plastic, glass and metal is also placed directly in the bin. Corrugated cardboard boxes are flattened and placed in or under the bin. The material is collected by a one-person crew employed by the city. At the curb, the recycling collector then sorts the material into five specific compartments on the collection vehicle and taken to Weyerhaeuser Recycling in Des Moines for sorting and processing.



The city of Clinton began its curbside collection program in December

The city of Bettendorf implemented its curbside recycling program in

Bob Armstrong, American Recycling

North English recycleables are taken back to the materials recovery facility for additional sorting and processing.

April 1995. Bettendorf is one of the few communities in Iowa using a semiautomatic collection method. Residents use either a 95- or 68-gallon cart with two wheels for easy mobility. The cart is divided into two sections, one for newspaper, magazines, office paper, old mail and chipboard, and the other for glass containers of any color, tin cans, aluminum cans and foil, and PET and HDPE plastic containers. Cardboard is set next to the cart. Once every four weeks, the materials are collected on the same day as the garbage collection. The city of Bettendorf collects the recyclables using one-person crews. The crew member rolls the cart to the back of the collection vehicle which is split into two sections. The cart is tipped onto a hook on the back of the truck that dumps the materials into their respective sections. The material is then sent to the Scott County materials recovery facility for further sorting and processing.

They use a two-person crew and a regular garbage truck. The bags are taken to Comprehensive Systems of Charles City where their contents are sorted and processed.

North English has a curbside recycling program that was started in 1993. The program uses a four-wheel cart containing four, five or six bins. Aluminum and tin cans, all colors of glass containers, all types of plastic containers (except polystyrene), newspapers, old mail, magazines, chipboard, office paper, corrugated cardboard and textiles are collected. Metals are placed in one bin, plastic, paper and glass are individually placed in the other bins. Corrugated cardboard is typically flattened and placed next to or under the cart, and textiles are placed in a plastic bag in the bins. Ron Cox Sanitation and Recycling of South English is the private hauler for both recyclables and regular garbage in North English. They use a three-person crew and collect both garbage and recyclables at the same time by pulling a partitioned trailer behind their garbage collection vehicle. Collected materials are then taken back to the materials recovery facility for additional sorting and processing.

Chuck Goddard, Clinton County Area Solid Waste Agency

Communities' curbside collection methods are as varied as the colors and shapes of the containers they use.

A "blue bag" curbside recycling collection system was implemented in Charles City in 1991. Residents are given a transparent blue bag each time they purchase groceries at the local grocery stores. Materials accepted for recycling include all types of plastic containers, all colors of glass containers, tin and aluminum cans, textiles, and all types of paper including chipboard, magazines and books. Residents place the commingled materials in the blue bags and place them at the curb for weekly collection on their regular garbage collection day. Jendro Sanitation of Charles City is the private hauler responsible for collecting the recyclables.

Nearly 500 communities in Iowa make curbside recycling available to their residents. No matter how the collection of the materials takes place, the communities are all achieving positive results. They are reducing waste going to the landfill, providing new raw materials to be used again in the production of a product, and creating a whole new sector of economic development in Iowa. They are also helping the entire state of Iowa reach its goal of reducing the amount of waste going to our landfills by 50 percent by July 1, 2000. Communities need to match their system with what will work best for their community and combine it with education, commitment and participation for the program to be successful. Recyclables we put at the curb do reappear, but unlike waste we send to the landfill, recyclables return as new products to make our lives better and easier.

Jeff Geerts is a environmental specialist with the department's Waste Management Assistance Division in Des Moines.

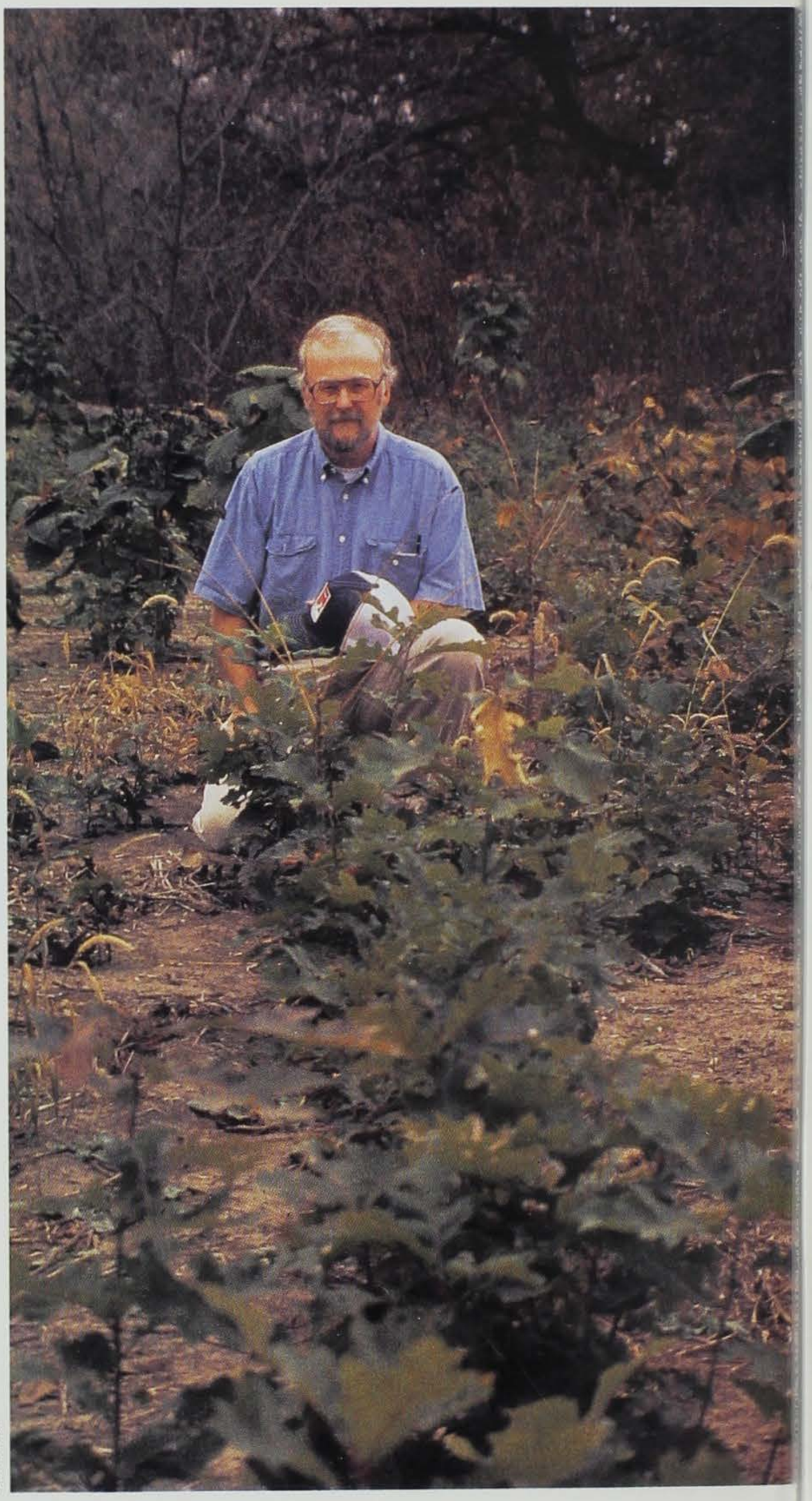
Nuts to forestry

New Technology for New Forests

by Stan Tate

We all know squirrels plant walnuts, and the seedlings come up everywhere -- in the flower beds, in the yard, even in that impossibly small patch of real estate between the house foundation and the gravel mulch that runs right up to the concrete blocks. If it is so easy for the squirrels, it should be easy for us to do the same thing.

Over the years I have seen several cases where direct seeding of walnuts has been quite successful, and a huge number of cases where it has been a miserable failure. Why can it work so well in a few cases, but fail so often in most cases? Why is it extremely rare to find oak plantings successfully established by planting acorns?



Gail Kantak

The author admires one growing season of growth on oak seedlings started from acorns direct seeded into the field. Weed and grass control is critical for success in direct seeding. The very close seedling spacing seems to enhance seedling growth.

We have been working pretty hard here in southeast Iowa trying to find the answer to these questions, and to develop a system that will help us reestablish new forests quickly, easily and for less cost. We still have a lot to learn, but feel we are beginning to understand how to successfully start new forests by planting acorns and walnuts.

This summary of tips, thoughts and rules of thumb comes from the efforts of a unique team of local people who are intensely interested in forestry, and in seeing forestry used as an economic development tool for our region -- providing jobs, saving soil, filtering water and making our countryside more beautiful. More than 40 persons made major contributions of time, money and resources to this project, organized and financed through the Geode Rural Conservation and Development (RC&D) of Burlington, and the Rural Development Through Forestry Program, administered by the Iowa DNR Forestry Division.

A word of caution to readers -- the best way to establish new forests is still by planting seedlings, using the well-developed technology of seedling cold storage, cold handling, machine and hand planting, combined with a rigorous program of weed and grass control for at least three years. We have a great deal of experience with this system, and confidence in good survival and growth. Contact any DNR district forester for the information that, if carefully followed, will go a long way towards insuring a successful new forest.

Despite this warning, many Iowans have been fascinated with the potential gains direct seeding promises. Labor reductions can be substantial. A young person in great shape may be able to hand plant 500 seedlings a day in easy terrain. I have a good deal of gray hair, and most people would say I'm not a great athlete, but I can hand plant 360 nuts per hour (at least for a couple of hours) and never break a sweat. I use a special tool called a trapdoor planter sold by Geode RC&D in Burlington for $25.

The savings for machine-planting are equally promising. Experienced three-person machine planting crews seldom average much more than 10 or 12 acres per day planting seedlings. The new automatic machine developed by Geode RC&D can plant 20 acres per day, and only requires one operator.

Seed is cheaper than seedlings. You can purchase walnuts for 2 to 5 cents apiece, while good quality seedlings cost 22 cents apiece or more. This may or may not constitute a real savings however, since not even cleaned and floated seed will yield 100 percent seedlings. Viability can be as low as 30 percent.

If your primary aim is to save time and money on establishing your new forest, remember, the most expensive planting is the one that fails. If, however, you want to help Iowa develop a new and exciting land conservation technology, you may want to try direct seeding. Study up, don't cut corners, and have fun.

Success is insured, at least in part, by avoiding mistakes. If you are planting tree seeds, here is a short list of things to avoid:

Don't plant seed that is already dead. (Think this sounds silly, read on.)

Don't plant in grass or weeds.

Don't plant in good mouse or squirrel habitat.

Don't plant too deeply or too shallow.

If I wanted to write a recipe for direct seeding failure, it would go something like this: Collect your walnuts and acorns, put them in a big pile and let them really get heated up as the walnut hulls break down. Or better yet, let the seed dry out really well (either way is sure to kill them). Then store the seed over the winter, and plant real early in the spring, when the squirrels and mice are really hungry. Heck, even groundhogs like those acorns you worked so hard to collect. While you're at it, plant into deep grass, right at the edge of the timber, where the mice and squirrel population is really high. Don't try to control the grass or weeds (too much work), which will insure any seed that sprouts will have almost no chance to survive the grass and weed competitions.

I am embarrassed to say the previous paragraph is almost an exact description of my own first attempt at direct seeding some 15 years ago, and is amazingly typical of why direct seeding fails so often.

On a more positive note, here are a few things to concentrate on that we have learned promotes success.

Make sure you have good seed. Collect it as soon as it falls, or buy it from a reputable seed dealer. Clean off the walnut hulls only if you are going to use one of the new automatic machines for planting. Soak acorns overnight in water, and never let them get completely dry. Crack open a bunch of the nuts to make sure they are OK. The nut meats should be moist, firm and brightly colored. If you think you have a bad batch, clean off the hulls and caps, and float them. Most of the bad seed will float. Keep and recheck the "sinkers." If most of the sinkers are unsound, toss out the lot, but don't give up. Often the first nuts to fall off the tree are unsound. Go back a little later in the seed drop and try again.

If you are buying seed from a dealer, ask him to sell you seed on a "pure live seed basis," or to guarantee a minimum percentage of seed that is sound.

Plant the seed right away, if you can. Virtually all of the hardwood species in Iowa can be planted as soon as the seed falls off of the tree.

Many people have observed that once the direct seeded seedling has completed its first growing season in good shape, it does exceptionally well in the following years.

If you must wait until spring to plant, properly store your seed over winter. Even properly stored seeds can lose some of their viability. Walnut and oak require cold, damp storage, except for trees in the white oak group which must be planted in the fall.

Plant at the right depth. Avoid loose soil and pack the seed in well. Seed on or near the soil surface will dry out and die, or be eaten by birds, mice and squirrels. Never underestimate how much, and how quickly, your planting can be gobbled up. Planting deeply, and packing the seed in very tightly makes it more difficult (but definitely not impossible).

Plant walnuts two to five inches deep, and plant acorns one to three inches deep. The shallower depths are better if there is plenty of soil moisture and you are sure you will have very little rodent pressure.

Choose your planting site carefully. Avoid using direct seeding in areas with a lot of surrounding timber. If there is good squirrel habitat within 100 yards, you should use seedlings rather than seed. If there is heavy, unmown grass or weeds within 50 feet, you should use seedlings to establish your planting.

If you have grass or weeds in or within 50 feet of your planting site, they must be eliminated as completely as possible for at least the first growing season. Plowing, disking or burning will provide some short-term control. These practices need to be followed up with herbicide applications to provide weed control for at least the first 90 days of the growing season. Mowing is not an acceptable grass control practice by itself because it does nothing to eliminate the grass roots, and even very short mowing may not reduce the mouse population to acceptable levels.

The new seedling that grows from the acorn or walnut uses almost all of the food reserves stored within the nut itself within the first 20 to 30 days of growth. At this time the seedling has only a few small leaves to collect sunlight and make food for the plant. Dry soil, shade from weeds, or insect or rodent damage at this stage can cause serious problems. Young seedlings are very vulnerable during the first 60 to 90 days of growth, and

Geode RC&D

This prototype direct seeding machine allows a single operator to plant up to 20 acres per day. It is capable of planting walnuts and acorns as close as 6 inches apart in the row while traveling 2-1/2 m.p.h..

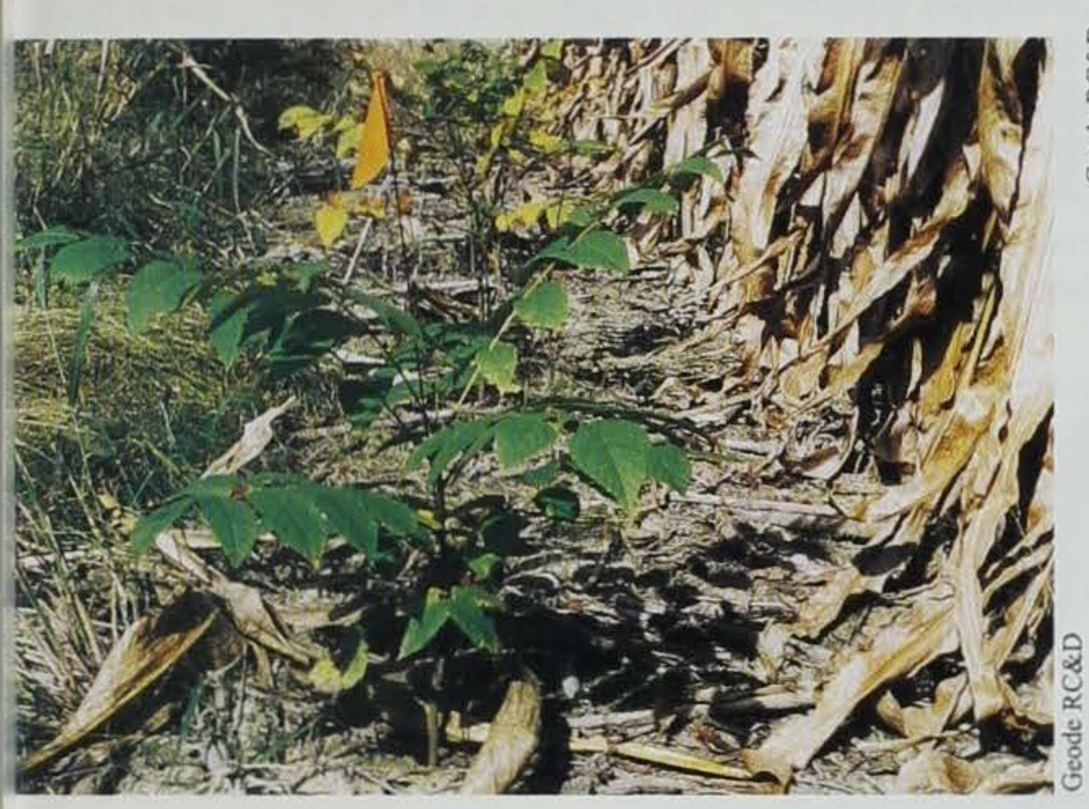
Forestry Invades The Cornfields

In 1991, Geode RC&D of Burlington, in cooperation with the DNR's Forestry Division and the Rural Development Through Forestry Program, attempted their first "multicropping project" growing walnut and red oak seedlings in a corn field. Even though the project was beset with weed control problems, it showed a possible 80 to 90 percent cost reduction in establishing trees.

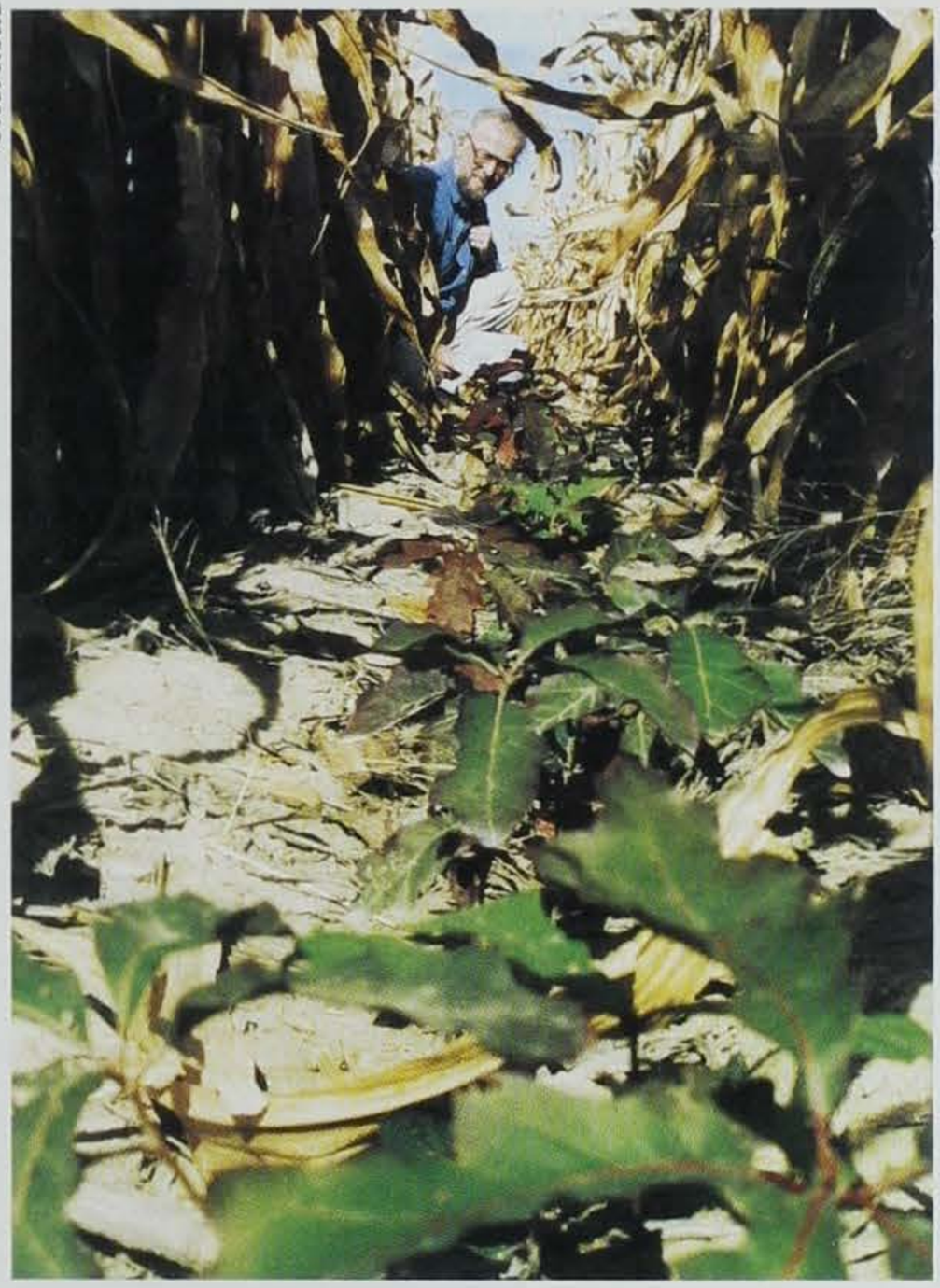
Based on these early experiences with multicropping, the board of directors of Geode RC&D decided to support additional work as an integral component of their upcoming direct seeding project.

In 1993, a direct seeding project was started. Part of this project used prototype machines to plant acorns and walnuts in a no-till corn field.

Both acorns and walnuts were planted as part of the field testing of a two-row nut planter and a one-row nut planter. After the nuts were planted in rows about 12 feet, 6 inches apart, corn was no-till planted in the areas between the tree rows. Considering this is the first time either the foresters or the farmers ever attempted tree/corn intercropping, things turned out good. The trees grew to a height of 6 to 18



Geode RC&D



Geode RC&D

inches the first year, and the corn produced a modest crop of 93 bushels per acre.

Growing trees within a no-till corn field eliminates the need for many previously important tree establishment steps. The herbicides used to control grass and weeds in the cornfield also benefit the trees. The need for mowing is eliminated. In addition, the corn plants will shelter the young tree seedlings from drying winds and hot sun. In the 1994 test, trees shaded by corn grew more than trees with equally good weed control in full sunlight (and wind).

This system can be used with any size corn planter. The tree rows can be as close together as 12 feet, 6 inches (for four-row narrow corn) or as far apart as you like, but preferably some even-multiple of the width of your planter. You need to allow one corn row width for the trees. In other words, skip one row of corn and plant one row of trees instead.

If the tree rows are close together, you may only be able to grow corn for three to five years before the trees get big enough to start getting in the way of planting and harvesting operations. Tree rows planted further apart will allow corn to be grown for longer periods.

In our area, there is still quite a bit of four-row equipment. A farmer might plant a multicrop of corn and trees on a field to eventually be taken out of production. The farmer would plant 12 rows of corn and then skip one row, leaving space for the trees to be planted. The tree planting could be done using either seedlings or direct seeded using acorns and walnuts. After the trees begin interfering with the machinery, the farmer could switch from 12 rows of corn to 8 rows. Eventually the entire area could be seeded down for hay production or filled in with more trees. Many different cropping scenarios are possible, allowing great flexibility in designing multicropping plans to fit virtually any situation.

Using a multicropping system can provide continued income until the trees get large enough to provide their full benefits. At the same time, it will be easier for us to begin moving our most highly erodible land into more conserving uses with benefits for the economy, soil, wildlife, water quality, and beauty of our state.

-- ST

Above left: An obviously "happy" walnut seedlng, planted by direct seeding and grown for one season. Damage to seedlings by the combine was negligible.

Above: These direct seeded red oak got off to a great start nestled in this no-till corm. Nuts were plated six inches apart and three to five inches deep using an automatic prototype direct seeding machine. Seedlings seem to benefit form high density planting.

therefore, must have almost perfect growing conditions to make maximum growth. It is certainly possible to get seedlings firmly established and 6 to 12 inches tall by the end of the first growing season. Many people have observed that once the direct seeded seedling has completed its first growing season in good shape, it does exceptionally well in the following years. It seems to make up for a slower first year by not suffering the "transplant shock" a nursery seedling goes through.

Use machines for larger plantings. Tree planting machines can be used successfully if you can accurately limit their planting depth, and you have a very low gear on your tractor. You will need to go one m.p.h., and drop one nut every second (difficult to do) in order to have your seeds planted 18 inches apart.

High-density plantings seem to be the most successful. Planting seeds six inches apart in the row seems to help the new seedlings get off to a faster start. I like to mix walnuts and acorns together in the row, using one walnut to every four or five acorns.

Truax Company of Minneapolis is manufacturing a machine for direct seed planting. It is designed to be mounted on a three-point hitch tractor and is ground driven.

Geode RC&D of Burlington has developed and tested prototypes for both one- and two-row planters, and may have machines commercially available in the future. Geode can be hired to do large-scale direct seeding projects. Several other forestry vendors plan to get into commercial direct seeding in the near future.

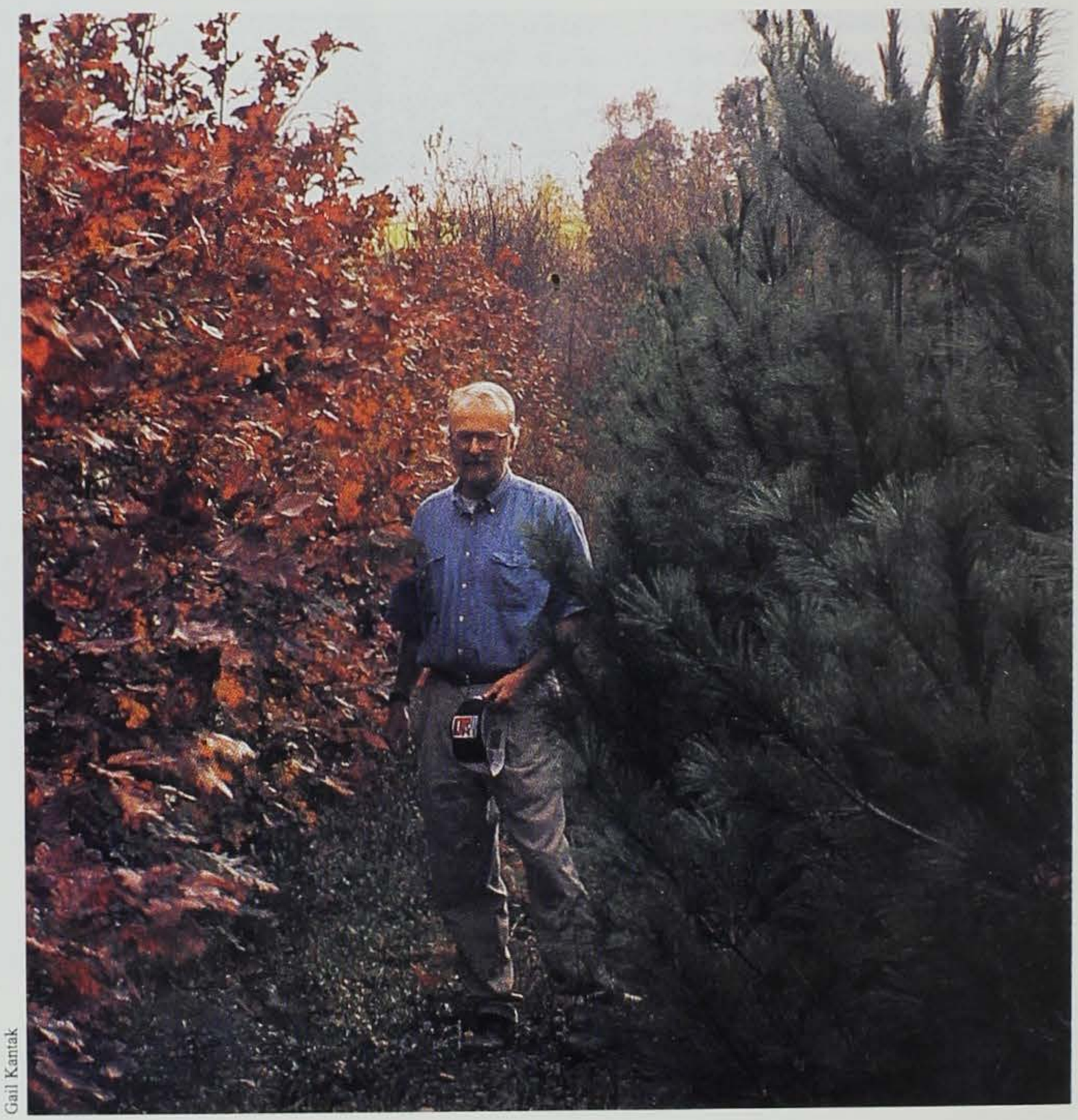
These automatic machines make large-scale direct seeding much more practical. They can plant seeds at accurate depths at six inches apart in the row, and can work at field speeds of two to three m.p.h.

Broadcasting and disking can be used successfully, but we have also seen a lot of failures. The seed can be spread by hand, by a manure spreader or fertilizer cart. The seed is then covered by disking and/or harrowing. Caution must be taken not to get the seed too deep -- one to three inches is about right. Use at least four bushels of walnuts and one bushel of oak per acre, since this is not a precision technique. Rolling with a cultimulcher after planting is important.

If you would like more information on direct seeding, contact:

Geode RC&D
3002A Winegard Dr.
Burlington, IA 52601
Phone: 319/752-6395

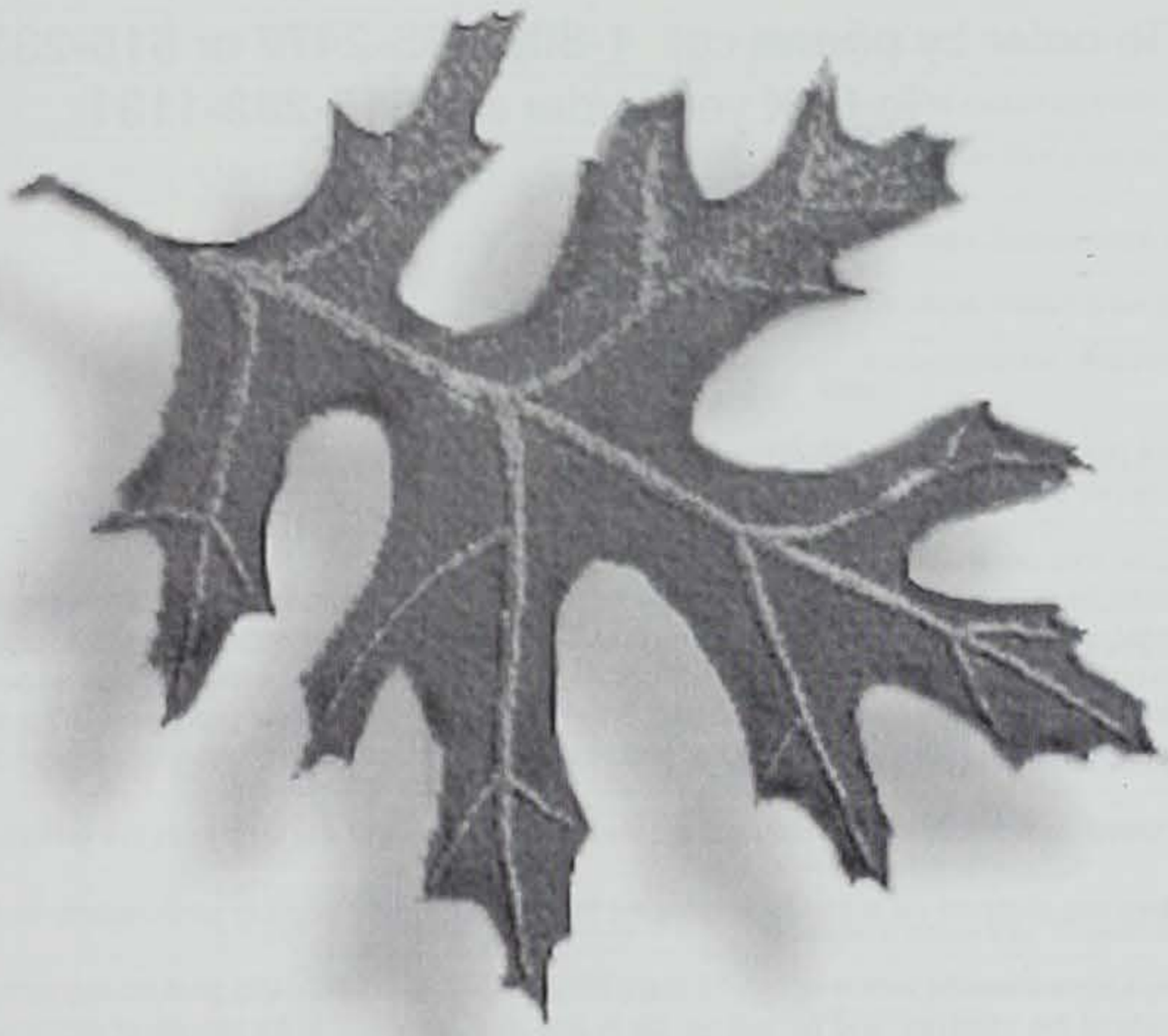
Stan Tate is a district forester for the department located in Wapello.



These oak trees were planted as acorns and have just completed their sixth growing season. These trees were grown by Tree Farmer Larry Krotz of Washington, Iowa. Krotz is an enthusiastic proponent of direct seeding.

Gail Kantak

planting Iowa's future



the Oak

Iowa's oaks are suffering. The floods of '93 and poor seed years will result in a sparse oak population for future generations if planting isn't increased now. Do what you can to ensure the prosperity of our state tree -- plant an oak this spring.

See pages 48 - 49 to place an order.

Iowa DNR State Forest Nursery

1996 Seedling Order Form

To order by **phone** call **1-800-865-2477** or **515-233-1161**
To **FAX** your order call **515-233-1131**

Now accepting MasterCard and Visa

Restrictions Plants must be ordered in units of 100 and the total order must be a minimum of 500 plants. (Wildlife and songbird packets may be ordered separately and may be added to in units of 100.) The nursery stock must be planted and used for establishing or improving existing forest, erosion control, wildlife or water conservation. Nursery stock cannot be resold or given away with roots attached, to any person, firm, corporation or agency, or planted for new windbreak, shade or ornamental purposes. All plantings must be protected from fire and domestic livestock grazing. All trees planted or used in violation of the above restrictions are subject to forfeit for destruction.

Payment For orders more than $100, the nursery will bill you for 20 percent of the cost with the remainder to be paid by March 1.

Spring Delivery Orders are shipped via a state refrigerated truck to a drop-off point in each county in April.

Claims Claims for any cause must be made within 10 days after receipt of plants. We give no warranty, expressed or implied, as to the productiveness or life of the material, and we will not be in any way responsible for results or economic losses incurred or claimed by the consumer.

MAIL ORDER FORMS TO:

Iowa Department of Natural Resources • State Forest Nursery • 2404 South Duff • Ames • Iowa • 50010

Detach and mail to address above.

Iowa DNR Seedling Order Form

(Please Print)

_____
(Landowner Name)

_____
(Mailing Address)

_____
(City) (State) (Zip)

_____
(Area Code) (Phone Number)

☐ I will pick up my order at the Nursery when notified.

☐ Delivery to a drop-off point by refrigerated state truck. List county where seedlings are to be delivered.
County: _____

1. These trees are to be planted in _____ County.

2. Did you purchase plants from the Nursery last year?

☐ Yes ☐ No

General Seedling Information

PRINTED ON RECYCLED PAPER

Plants must be ordered in units of 100 and the total order must be a minimum of 500 plants.
Wildlife and songbird packets may be ordered separately.

Code #	Species	Mature Size Range	Seedling Age (Years)	Seedling Height Range	Moisture			Light		Remarks	$$ /100
					Dry	Well-Drained	Moist	Full Sun	Some Shade		
16.0	E. Red Cedar	40-50'	2	6-16"	x	x	x	x	x	Tolerates poor, gravely sites. Prefers airy site. Very drought resistant. Good wildlife food and cover. Native.	$14
30.0	White Pine	50-60'	3	6-12"		x	x	x	x	Intolerant of air pollutants. Good timber tree. Adaptable to most sites. Native to NE Iowa.	$14
30.1			3	13-18"							
20.0	Scotch Pine	30-60'	2	12-18"	x	x		x		Hardy. Adaptable.	$14
17.0	Red Pine	50-80'	3	10-16"		x		x		Requires cool sites. Good timber tree.	$14
15.0	Ponderosa Pine	60-100'	2	10-16"	x	x		x		Recommended for western Iowa only.	$14
10.0	Jack Pine	35-50'	2	10-16"	x	x		x		Hardy and adaptable. Good cover for coal spoil banks.	$14
43.0	White Spruce	40-60'	3	8-16"	x	x	x	x		Good wildlife habitat. Medium growth rate.	$14
13.0	Norway Spruce	40-60'	3	8-16"		x		x	x	Good wildlife habitat. Medium to fast growth.	$14
24.0	Black Walnut	50-70'	1	10-24"		x		x		Valuable wood products tree. Requires deep, rich, well-drained soil. Native.	$22
08.0	Green Ash	50-60'	1	8-24"		x	x	x		Valuable wood products tree. Very good firewood. Native.	$22
28.0	White Ash	50-80'	**SOLD OUT**	8"		x		x		Valuable wood products tree. Very good firewood. Native to all but NW Iowa.	$22
21.0	Silver Maple	60-80'	1	8-14"		x	x	x	x	Bottomland sites. Valuable wood products tree. Good firewood. Native.	$22
21.1			2	18" Top pruned							
83.0	Cottonwood	75-100'	1	8" Rooted Cutting	x	x	x	x		Good for fuelwood plantation. Very adaptable.	$22
53.0	Poplar, Hybrid	40-60'	1	8" Rooted Cutting	x	x	x	x		Good for fuelwood plantation. Very adaptable.	$22
86.0	Willow	40-60'	**SOLD OUT**	Rooted Cutting			x	x		Good for streambank protection and filtration.	$22
41.0	Red Oak	60-80'	2	12-17"			x	x	x	Valuable wood products tree. Excellent firewood. Native to all but NW corner of state.	$22
41.1			2	18-24"							
41.2			2	18" Top pruned							
04.0	Bur Oak	70-80'	2	12-24"	x	x	x	x		Adaptable to various soils. Excellent firewood. Native.	$22
29.0	White Oak	50-80'	2	10-16"		x	x	x		Valuable wood products tree. Excellent firewood. Native to all but NW corner of state.	$22
29.1			2	17-28"							
29.2			**SOLD OUT**	Top pruned							
33.0	Swamp White Oak	50-60'	1	8-12"	x	x	x	x		Good wildlife food. Native. Grows well on wet sites, as well as dry.	$22
54.0	Pin Oak	60-90'	2	8-24"	x	x	x	x		Good wildlife food. Native, Brilliant red fall color.	$22
51.0	Mixed Oak	50-80'	2	12-18"						May contain red oak, white oak, bur oak and black oak in varying proportions.	$22
79.0	Nanking Cherry	6-10'	1	10-15"	x	x	x	x		Hardy dense shrub. Good for wildlife food and cover. Flowers early, pink to white. Fruits are edible.	$22
39.0	Common Chokecherry	20-30'	1	6-12"	x	x	x	x	x	Hardy. Good food for wildlife. Native.	$22
55.0	Crab, Siberian	15-25'	2	18-24"		x		x	x	Good wildlife food and cover.	$22
46.0	Dogwood,Silky	10-15'	1	6-15"		x	x	x	x	Hardy. Especially good for wet, swampy areas. Prefers partial shade. Forms large colony of plants from original. Native.	$22
18.0	Dogwood,Redosier	10-15"	1	6-15"		x	x	x	x	Hardy. Red twigs. Forms large colony of plants from original. Good cover. Native.	$22
80.0	Highbush Cranberry	8-12'	1	6-12"		x	x	x	x	Good wildlife food and cover.	$22
01.0	Honeysuckle, Amur	12-15'	1	6-12"	x	x		x	x	Occasional winter killing of branches in northern Iowa. Good wildlife habitat and food for birds.	$22
01.1			2	13-18"							
47.0	Lilac, Common	8-15'	1	6-12"		x		x		Hardy. Shrub border or in groupings. Good wildlife habitat.	$22
12.0	Ninebark	5-9'	1	10-18"		x	x	x	x	Very hardy. Good wildlife habitat. Native to most of state.	$22
03.0	Olive, Autumn	6-8'	1	6-12"		x		x	x	Good wildlife food and cover. Plant on protected sites. Not recommended for northern Iowa.	$22
78.0	Serviceberry	15-20'	1	6-12"	x	x	x	x	x	Large shrub or small tree. Excellent wildlife food. White flowers in early spring.	$22
31.0	Wild Plum	10-15'	2	10-18"	x	x	x	x		Good wildlife food and cover. Forms large colony of plants from original. Native.	$22
96.0	Wildlife Packet									200 plants valuable to wildlife. 50 conifers, 50 hardwoods, 100 shrubs.	$35
95.0	Songbird Packet									Mixed variety of 20 plants beneficial to songbirds.	$15

THE PRACTICAL CONSERVATIONIST

Sending Out Those Invitations-- Planting Songbird and Wildlife Packets

by Kathryn Stangl

Why, Where and What You Can Attract

The pure enjoyment gained from having an abundance of wildlife on your land is one of the big reasons for wildlife cover plantings. On practically every farm or home there is a nonproductive area or a fence row that can be developed for wildlife.

The songbird or wildlife planting packets provided by the State Forest Nursery are designed to attract many varieties of wildlife. Deer, squirrels, rabbits, quail, ruffed grouse, various songbirds and many other species of wildlife native to Iowa can be visitors attracted by your plantings. In addition, wildlife plantings can improve the beauty of your land.

Wildlife Needs

When developing habitat remember, wildlife have four basic requirements for survival -- food, water, cover and space. The combination of these is unique for each species, often varying with age and season. When these requirements are in good supply, they contribute to the well-being of wildlife. If any of the habitat requirements are in short supply, they limit the number and distribution of wildlife, and are called limiting factors. Even in small yards, the right choice and placement of wildlife plantings can meet many of these needs.

Food -- Each wildlife species eats specific foods, regardless of other foods available. In addition, some plants have more nutritional value than others and this may vary according to the time of year. For this reason, both the quantity and the quality of food are important.

Cover -- Cover is needed to protect wildlife while feeding, sleeping, playing, nesting and traveling. Cover can take many forms, such as vegetation, burrows, rocks or other natural features.

Water -- All wildlife need water. Sources of water are surface water, snow, dew and succulent vegetation.

Space -- Wildlife need space if they are to survive. Overcrowding leads to severe competition for all the habitat requirements essential to life. For this reason, only a specific number of animals can live in an area.

Arrangement -- In addition to the four basic requirements, the arrangement of food, cover, water and space in an area will determine wildlife numbers and their distribution. The best arrangement is a combination of small habitat blocks close together.

How to Prepare the Site

To grow and survive, tree seedlings need minerals, moisture and sunlight. Site preparation and subsequent mechanical or chemical weed control can make these nutrients more available for use by the tree seedlings.

Ideally, competing vegetation should be reduced in late summer or autumn, prior to planting. This can be accomplished by cultivating the soil, or, if soil erosion is a concern, by applying herbicides in bands or circles where the trees are to be planted. Soil disturbance is almost certain to be followed by the growth of annual weeds. Plan to control them by chemical or mechanical means.

When To Plant

Planting seedlings at the proper time of the year will help ensure a successful wildlife planting. It is best to plant tree seedlings in early spring, between April 1 and May 15, when the seedlings are dormant. Soil moisture and temperature at this time of the year are ideal for high survival and vigorous tree growth. Depending upon the weather, tree planting can be extended later in the spring, if adequate soil moisture is present. Poorly drained areas should be planted later in the spring.

How to Care for Seedlings

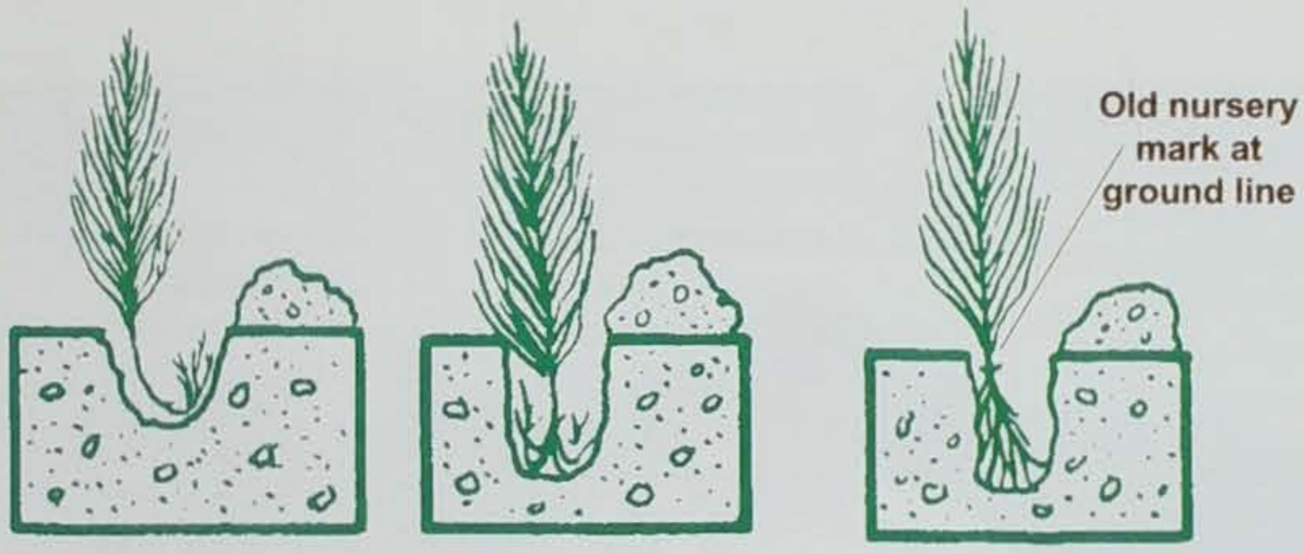
The songbird and wildlife packets, and all seedlings have been given the best possible care in the nursery to provide vigorous and healthy stock. How you handle the seedlings when you receive them can have a major impact on the seedlings' survival and growth.

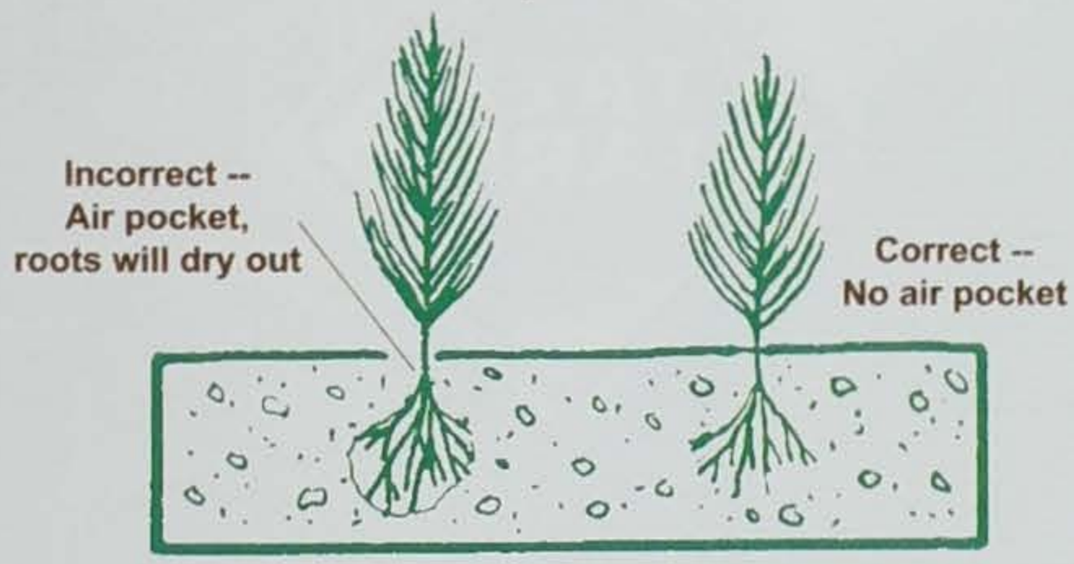
Tips to remember on seedling care include:

- Provide adequate moisture to the seedling.
- Store seedlings in a cool area out of direct sunlight or in a cooler.
- Plant the seedlings as soon as possible, but no later than one week after arrival.
- Avoid exposing the root system to direct sunlight or wind during the planting operation.
- Carry seedlings in a bucket with water, or in a tree planting bag with moist peat moss.
- Prune excessively long roots (greater than eight inches) to aid in proper planting.
- Handle seedlings carefully to avoid damaging the buds or stem.

Planting Techniques

Planting machines which attach to a tractor with a three-point hitch, and planting bars, augers or shovels are available in many counties through the county conservation board. Regardless of the planting method used, it is very important to keep the seedling roots moist at all times. The hole or slit for planting should be deep enough to prevent the roots from curling or bunching up. (See the illustrations at right.) Long roots should be trimmed. Determine how deep the seedlings were in the ground at the nursery. Place your seedlings in the hole and spread the roots. Place soil around the roots and use your foot to pack the soil firmly. Do not pack the soil too hard or the roots may become damaged.





Benefits Obtained From Wildlife Plantings

Viewing and enjoying an abundance of wildlife on your land is an obvious reason to establish wildlife cover plantings. Not as well known perhaps, are the benefits gained by farmers and home owners who encourage the presence of wildlife on their property.

When a sod and a shrub fence row are compared, an average sod fence row (per mile) contains 500 beneficial ladybird beetles, 79,000 insects injurious to crops, two nesting birds, 84 harmful small animals and eight beneficial small animals. By contrast an average shrub fence row (per mile) contains 20,000 beneficial ladybird beetles, 54,000 insects harmful to farm crops, 21 nesting birds, 21 harmful small animals and 28 beneficial small animals. In the fight for pest control, shrub plantings such as these offer very real economic returns.

Weed Control And After-Planting Care

Weed control is necessary for the first three to five years after planting. There are several ways to control weeds, including cultivating, mowing, mulching and chemical control. You can decide which method will work best for you.

What To Order?

The State Forest Nursery sells songbird and wildlife packets, as well as single species of seedlings. Songbird packets contain a mixed variety of 20 plants beneficial to songbirds. Each wildlife packet contains 50 scotch pine, 50 amur honeysuckle, 50 gray dogwood, and 50 red oak. The packet is sufficient to plant one-quarter acre. If you have any unusual sites, please contact the nursery for a modification of the packet contents or to order additional trees. Wildlife and songbird packets may be ordered separately. Other seedlings must be ordered in units of 100 and the total order must be a minimum of 500 plants. (See the seedling order form on pages 48 and 49.)

Suggestions For Successful Wildlife Plantings

- Vary plant cover in fence rows, windbreaks and yards to create multi-layered habitat with maximum edge and a variety of food sources for wildlife.
- Favor trees and shrubs with high wildlife value, especially seed-, berry- and fruit-producing species. Plants which hold their mast (berries or nuts) through the winter and early spring, such as dogwood, chokecherry and ninebark, supply wildlife with a food source throughout the critical winter period.
- Conifers provide an important source of winter cover for wildlife. These should be included within a planting scheme.
- Restore previously disturbed sites by planting trees, shrubs or permanent cover crops.

On farms and acreages

- Delay mowing of grasslands until after July 15 to allow ground-nesting wildlife maximum nesting success. Avoid mowing road ditches.
- Fence woodlots and designated wildlife habitat areas to prevent trampling, soil compaction and overgrazing of vegetation by livestock.
- Establish living fence rows of trees, shrubs or vines around field boundaries to reduce soil erosion, retain soil moisture and provide food, cover and travel lanes for wildlife.
- Leave standing food plots for wildlife and avoid fall plowing.

CONSERVATION UPDATE

1995 Iowa Tree Farmer of the Year

by George Warford, district forester, Adel

Roger Howell of Earlham is Iowa's Tree Farmer of the Year for 1995.

Howell owns two farms -- a 244-acre farm in Guthrie County and another 220-acre farm in Dallas County. Originally, the farms were purchased as an investment. Howell speculated as greater Des Moines expanded westward, property values would increase when urban dwellers sought acreages in "the country."

These farms turned out to be very good investments, as property values have increased dramatically in the six to seven years since they were purchased. "There's just one problem," Howell said. "I became hooked on trees and managing the resource more in tune with the environment and nature. I can't bear the thought of people living in my woods now."

Howell hired a professional forestry consultant to do the first 75 acres of "crop tree release" on his Guthrie County timber. Through this action, valuable black walnut trees were released from crowding by removing less desirable trees to improve the walnut trees' vigor and quality. Undesirable "weed trees," such as honey locust, were also eliminated to make room for natural regeneration of native black walnut and oak. He has since completed "crop tree release" by himself on the balance of his Guthrie County farm plus about 25 acres on his Dallas County farm.

George Warford

Between his two farms, Howell has planted more than 40 acres of trees. Howell credits the 32-hour Master Woodland Manager Course, cosponsored by Iowa State University Extension Forestry and the DNR's Forestry Division, with sparking his interest in forestry and conservation.

Between the two farms, Howell has planted more than 40 acres of trees, seeded 40 acres of switchgrass and more than 30 acres of native prairie, and established two wetlands totaling 2.5 acres. In addition, he has put up dozens of nesting boxes for bluebirds, woodducks and kestrels.

He certainly practices wise management on his Tree Farms, but his selection for the 1995 Tree Farmer Award also recognizes his unique ability to involve other landowners and communities in good woodland management and tree planting projects. Some examples of this ability are:

- He is an active member of the Iowa Woodland Owners Association, the National Arbor Day Foundation, Pheasants Forever, Ducks Unlimited and the Tree Farm System.
- He founded Trees Forever committees in Van Meter and Earlham and received the Governor's Service Award for his role in community tree plantings in Van Meter.
- He was the driving force behind Van Meter and Earlham receiving Tree City USA awards.
- He helped to secure more than $30,000 in Earlham and more than $10,000 in Van Meter for tree planting grants.
- He represented Iowa at the first National Woodland Stewardship meeting in Nebraska City, Nebraska last year.

The Iowa Committee of the National Tree Farm System currently has

certified 990 Tree Farms covering more than 75,000 acres. All certified tree farmers are recognized because of their outstanding efforts in woodland management and reforestation. Their dedication insures healthy and productive woodlands.

Tree Farms also provide outdoor recreation opportunities, wildlife habitat and watersheds for improved water quality. The common thread among Tree Farmers is their desire to wisely manage and use the woodland resource, yet leave a valuable resource for the next generation to enjoy and profit from as well.

Howell credits the Master Woodland Manager course, cosponsored by Iowa State University Extension Forestry and the DNR's Forestry Division, with sparking his interest in forestry and conservation. The goal of the 32-hour Master Woodland Manager course is to teach participants woodland management principles -- not only to apply those principles to their own woodlands, but to encourage others to also practice wise management.

Roger Howell epitomizes this goal by serving as one of Iowa's finest ambassadors for conservation and forestry. Congratulations!

George Warford

This view from the deck of Howell's Dallas County farm home looks out on the quarry pond on the property. Howell has established wetlands and prairie in addition to his tree plantings. He practices a multi-use approach to land management and conservation.

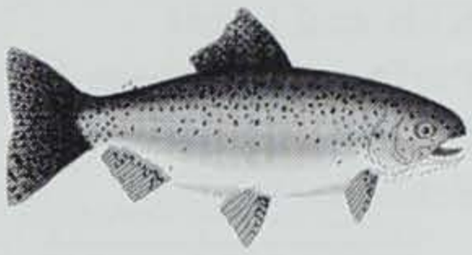
Spring '96 Toxic Cleanup Days

Spring cleanups are just around the corner and you may be cleaning out kitchen cupboards, the garage, basement or workshop. Instead of throwing out those household materials you no longer need, set them aside for Toxic Cleanup Days.

Toxic Cleanup Days (TCD) allow Iowans to dispose of their household hazardous wastes and provide an opportunity for education on alternatives to disposal, or in some cases, proper disposal management in the home. If you are stumped about what to do with unusable chemicals in your home, call the DNR at (515)281-4367.

Counties holding Spring '96 Toxic Cleanup Days (TCDs) and the scheduled dates are listed below. Watch local newspapers for phone numbers to call for appointments.

- **April 27**
  Buena Vista County
  Palo Alto County
- **May 4**
  Pottawattamie County
  Adair County
- **May 11**
  Wapello County
  Davis County
- **May 18**
  Appanoose County
  Wayne County



1-800-ASK-FISH

Iowa anglers and anglers nationwide who want to know about fishing in Iowa now have a toll-free line available, offering the most up-to-date information, according to DNR Fisheries Bureau Chief Marion Conover.

"Anglers can access a tremendous amount of information with this line," Conover said. "Callers can get everything from the current fishing report to the location of Iowa's lakes and facilities available there, including camping and boat ramps. A listing of license sellers, Iowa's fishing regulations and handicapped-accessible sites are as close as a phone call. The toll-free, 1-800-ASK-FISH (275-3474) line is a complete source for anyone desiring information about fishing in Iowa."

Conover said that so far more than 20 states are participating and others are expected to be added this year. The program is supported by the Wallop-Breaux/Sport Fish Restoration funds.

CONSERVATION UPDATE

Kids and Local Partnerships Team Up to Green Iowa Schools

Recently, you may have noticed new and beautiful tree plantings for shade and wind protection at your local schools. Or, perhaps your son or daughter or even your grandchild is quizzing you on what the state tree of Iowa is (the answer is the oak). This interest in trees and forests by Iowa's youth may be attributed, in part, to a unique six-year-old Iowa program for teachers and students called *Trees For Kids* and *Trees For Teens*.

Trees For Kids (*TFK*) and *Trees For Teens* (*TFT*) are educational and planting programs for elementary and secondary schools in Iowa. Both products produce free teaching materials to Iowa teachers, such as posters on identifying Iowa's oaks, crossword puzzles on parts of trees and other classroom activities. In addition, through a unique partnership with state and local businesses and volunteers, teachers can receive a free tree to plant with their class during Earth Week at the end of April or in early May.

TFK and *TFT* are made possible through funding and support from the DNR's Forestry Division, Iowa Nursery and Landscape Association (INLA), Iowa Bankers Association (IBA), MidAmerican Energy, Peoples Natural Gas, Iowa Wood Industries Association, Trees Forever and Iowa State University Extension Forestry.

Free *TFK* and *TFT* teacher packets of materials are designed and distributed to teachers by the DNR with assistance from an active committee of *TFK* partners. Original artwork for unique posters is provided by bio-medical illustration students at Iowa State University. The INLA nurseries and garden centers, in conjunction with local IBA banks, Tree Forever committees and other businesses, help provide landscaped-sized trees to participating teachers and students. In 1995, *TFK* and *TFT* worked with more than 3,800 teachers and 300,000 students across Iowa. They in turn, with local support, planted more than 83,000 trees on schools and other public areas.

Jerry Davenport, a counselor at Woodrow Wilson School in Cedar Rapids said, "Tree planting through the *Trees For Kids* program is a wonderful way for students to gain ownership in the trees and feel good about their school."

Todd Brokshus, past president of INLA stated, "How can you teach an adult to plant a tree if they haven't planted one as a kid or with their kids? We see *Trees For Kids* as an investment in new tree planting customers today and tomorrow."

Trees For Kids was honored in 1993, by the National Arbor Day Foundation with its only education award. Shelly Jorgensen, vice-president of First Bank and Trust in Spirit Lake said, "Kids are Iowa's most important resource and we want local boys and girls to have the opportunity to learn how important trees are and how much fun it is to plant them."

Trees For Kids/Teens '96 gives students and teachers a great opportunity to celebrate Iowa's sesquicentennial with the theme "Iowa's history is in its trees." A new video produced by Iowa State University Extension and funded by a REAP conservation education grant will be distributed this spring to all school and public libraries as part of *Trees For Kids*. A new two-sided color poster featuring Iowa's state tree, the oak, will also be available for teachers as part of their *Trees For Kids* packets.

Since 1992, funding for the printing and distribution of educational materials has come from Peoples Natural Gas. According to Jim Landsers of Peoples Natural Gas, "Trees are vital to society and Peoples Natural Gas is proud to be a partner with local groups and other concerned corporations throughout the state to educate Iowa's youth on the benefits of trees."

In 1994, MidAmerican Energy, the INLA and the Iowa Wood Industries Association joined Peoples in program funding and expansion. Doug Howe, an analyst for purchasing services at MidAmerican Energy stated, "MidAmerican Energy is committed to leading efforts to improve its natural environment of the communities we serve and we see our involvement in *Trees For Kids/Teens* as part of that commitment."

John Walkowiak

Students at Devonshire School in Waterloo work with city forester, Todd Derifield on a *Trees For Teens* project. INLA nurseries work with IBA bankers to provide landscape-sized trees to participating teachers.

Ken Formanek

Care, as well as tree planting, is also a part of *Trees For Kids* as these students at Dallas Center-Grimes Elementary water their new windbreak. Funding from MidAmerican Energy, Peoples Natural Gas and others makes this opportunity possible.

Many local volunteer Trees Forever committees in Iowa have supplemented their local educational efforts with *Trees For Kids/Teens* materials and still others have informed local teachers about the availability of the programs' educational materials.

Join in and celebrate Iowa's sesquicentennial celebration with Iowa's *Trees For Kids* and *Trees For Teens* programs. For more information on *Trees For Kids* or *Trees For Teens* contact either Lisa Schieffer, *Trees For Kids* intern at 515/281-4915, John Walkowiak, urban forester at 515/242-5966 or write to *Trees For Kids*, Forestry Division, Iowa DNR, Wallace State Office Building, Des Moines, IA 50319-0034.

It's Official -- Iowa Muskie Largest In North America For 1995

A 52-inch, 45.58-pound Spirit Lake muskellunge caught last September by Mitchellville's Jerry Curry was the largest muskie caught in North America in 1995, according to a news release from Muskies, Inc. the National Freshwater Fishing Hall of Fame in Hayward, Wisconsin just released its list of 1995's top catches and Curry's fish took the year's top honors.

The huge muskie, a new state record and the largest ever taken from Spirit Lake, topped by more than five pounds the previous state record caught in West Okoboji in 1991. Muskies, Inc. reports that Spirit Lake has produced more than 500 muskie catches over the past 25 years, nearly half of which were more that 40 inches in length.

On his Sept. 2, 1995, morning muskie hunt with fishing partner Al Akin, Curry used a braided 36-pound line and was casting a yellow and green spinner bait when the fish hit. Both anglers knew immediately that the fish was a potential record. After landing the fish they headed directly for Shuck's Bait and Tackle at Milford to have it weighed. Gary Owen, DNR conservation officer, verified the catch. The fish is being mounted and will later be displayed at Shuck's.

Curry is a charter member of the Upper Great Plains Muskie Chapter.

Shuck's Bait and Tackle

PHEASANTS forever®

Iowa Pheasants Forever chapters are working with farmers and landowners to establish wildlife habitat.

The goal of **Pheasants Forever** is to restore pheasant populations through quality habitat. PF is paying landowners to plant food plots, nesting cover, shelterbelts and other habitat for game and nongame wildlife.

Iowa currently has 98 chapters throughout the state looking to work with local farmers and landowners for the benefit of all upland and wetland wildlife.

For help planting wildlife habitat or more information about **Pheasants Forever**, contact Jim Wooley (S. Iowa) at 515/774-2238 or Matt O'Connor (N. Iowa) at 319/352-0318, or write PF at 1205 Ilion Ave, Chariton, Iowa 50049

Think Habitat!

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:
--March 14,
Des Moines
--April - no meeting
--May 9,
Waverly

Environmental Protection Commission:
--March 18,
Des Moines
-- April 15,
Des Moines
--May 20,
Des Moines

State Preserves Advisory Board:
--March 12,
Des Moines

Outdoor Enthusiasts Support Federal Aid Programs

According to a recent survey, hunters and anglers enthusiastically support the Sport Fish Restoration (Dingell-Johnson/Wallop-Breaux) and Wildlife Restoration (Pittman-Robertson) programs once the programs are understood. Although both are funded by outdoor enthusiasts, it was disappointing to find that most of those surveyed were unaware of the contributions these programs make to fish and wildlife management.

These programs are funded through federal excise taxes on firearms and ammunition; archery equipment; fishing rods, reels and equipment; and motor boat fuels. The taxes are collected from manufacturers and passed on to hunters, shooters, anglers and boaters. The U.S. Fish and Wildlife Service then distributes revenues back to the states, where they are used to supplement state funding for fish and wildlife management, as well as aquatic and hunter education programs. Enthusiasts voiced strong support after the programs were explained.

Just two percent of the anglers surveyed knew the excise tax on fishing equipment was a source of funding for state fisheries programs. Seventy-nine percent had never heard of Sport Fish Restoration, and approximately 95 percent had never heard of either Dingell-Johnson or Wallop-Breaux. Iowa currently receives approximately $2.5 million each year from federal programs for fisheries management, almost $7 for every fishing license sold. These funds are used to build new lakes and renovate others, construct fishing piers, boat ramps and fish cleaning stations, purchase land, improve stream habitat, protect water quality and develop education and research programs.

Only three percent of the hunters surveyed knew the excise taxes helped fund wildlife management programs. Sixty percent had never heard of the Wildlife Restoration Fund and 82 percent said they had never heard of Pittman-Robertson. Iowa annually receives approximately $3 million dollars from the Wildlife Restoration Fund. These monies are used to develop and manage the state's 325 wildlife areas, totaling more than 270,000 acres. This includes the construction of boat ramps and parking lots, and habitat developments such as wetlands and the establishment of native grasses, food plots, trees and shrubs. Funds are used for wildlife research projects and studies designed to help manage Iowa's wildlife populations. Hunter safety education programs, attended by more than 10,000 students each year, are also partially funded through the Wildlife Restoration Fund.

Most enthusiasts were firmly opposed to using the funds for programs not benefiting fish and wildlife. Seventy-three percent of the hunters opposed funding for programs such as a crime prevention, and 82 percent opposed using any of the money for federal health care. Of the anglers surveyed, seventy-six percent opposed using the funds for programs such as highway construction and maintenance, and 75 percent oppose using the funds for reducing the national debt.

CLASSROOM CORNER

by Bob Rye

Readin,' Rottin' and 'Rithmetic -- Classroom Composting

The activity is adapted from the *Recycling Study Guide* by the Wisconsin Department of Natural Resources.

Background:

Before beginning this activity read the brochure *Home Composting -- Turning Your Spoils to Soil* or the *Home Composting Presentation Guide* booklet, available from the Waste Management Assistance Division of the DNR. Reading the booklet and viewing the companion video, *Home Composting, Turning Your Spoils to Soil*, (see Resource Materials at right), will acquaint you with the essentials of composting. These resources define the terms and techniques associated with composting, demonstrate how to build various indoor and outdoor composting bins and describe how to troubleshoot your compost pile.

When someone mentions "recycling," they often think only of recycling glass, aluminum and newspapers. But, another 25 to 30 percent of the household garbage normally thrown out also can be recycled. These "other recyclables" are food scraps, leaves, grass clippings and other biodegradable organic wastes. Organic wastes can be recycled by composting.

Composting creates optimal conditions for decomposition to occur. Decomposition is the biochemical process by which bacteria, fungi and other microscopic organisms break organic "wastes" into nutrients that can be used by plants and animals. Decomposition occurs in nature whenever a leaf falls to the ground or an animal dies. It is essential for the continuation of life on earth. The result of decomposition in a compost pile is a nutrient-rich humus excellent for improving soil quality and plant growth.

Air circulation is important to decomposition, thus the best compost bin is one with wire or screen sides. Mass is also important, since approximately one cubic yard of compost is needed to generate good decomposition temperatures (104-107°F). An aquarium, with its small size and glass sides, is not the best compost container, but may be the most suitable alternative for your classroom. (See the *Spoils to Soil Guide,* for help on pests, such as gnats, and how to minimize them. Follow the guidelines it suggests.) Consider constructing an outdoor compost pile with wire sides on the school grounds. Remember decomposition and composting go on during all seasons of the year.

Quick facts about composting include:

- soil provides microorganisms for decomposition;
- organic wastes need to be varied, *and* high in carbon and nitrogen;
- nitrogen is needed by the organisms involved in decomposition;
- worms eat wastes, make droppings and aerate the wastes;
- water is needed for normal functioning of life;
- most biological processes need adequate amounts of oxygen; and
- heat is produced by the activity and kills certain organisms such as weed seeds.

Age:

Grades 4-12

Objective:

To have the students learn about recycling in nature and actually recycle organic matter by composting.

Materials:

1. aquarium
2. organic waste material (sawdust, hair, wood ash and leaves - - avoid meat scraps, fats and oils which inhibit decomposition and attract animals)
3. lawn fertilizer with nitrogen only (no herbicides or insecticides)
4. manure
5. green grass
6. soil
7. red earth worms (1-2 doz.)
8. thermometer
9. trowel

Resource Materials:

Iowa DNR, 1994. *Home Composting --Turning Your Spoils to Soil,* brochure

Iowa DNR, 1994. *Turning Your Spoils to Soil -- Home Composting Presentation Guide,* 39 pp

Home Composting --Turning Your Spoils to Soil, video

The video is available locally from county conservation boards, public libraries' film services, ISU's Horticulture Extension Service, Council of Governments, regional recycling coordinators, DNR field offices, Springbrook Conservation Education Center's film library, the Iowa Recycling Association, Iowa Natural Heritage Foundation, and the DNR's central office video library. It is also available from the community service "free rental" shelves of *Movies To Go* video stores.

Extensions:

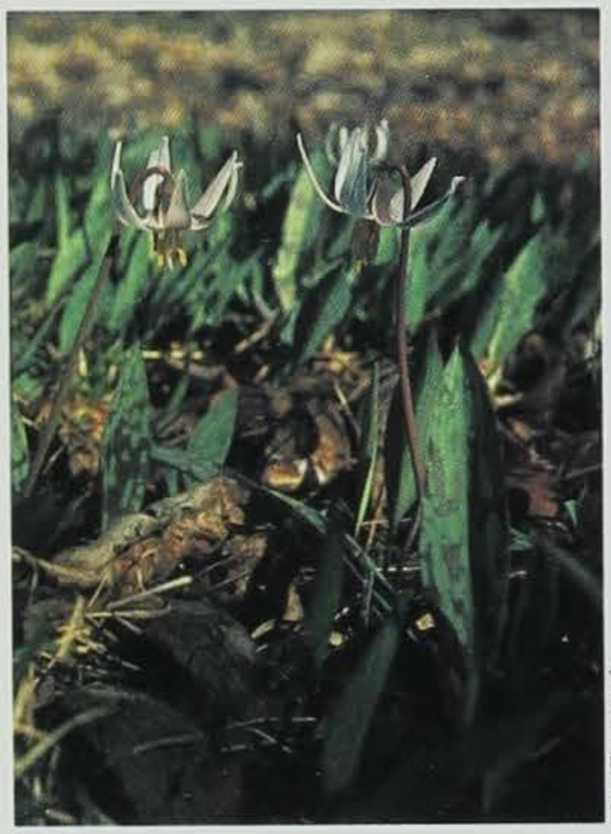
1. Create another compost pile and add manufactured materials like pencils, cans and rubber bands. You will see a big difference in decomposition rates.

2. Take a field trip to a local park or forest. Examine rotting log or leaf litter.

3. Use a large funnel (milk bottle with the bottom cut off and a screen over the top) to help capture and study tiny soil animals (put soil in the funnel and a light bulb over it).

4. Investigate what happens to the leaves and lawn wastes in your community.

5. Create compost piles which are lacking part of the "ingredients." Compare the new piles to your original.



Ken Formanek

Decomposition occurs in nature whenever a leaf falls to the ground or an animal dies.
On the woodland floor, leaf litter decomposes and creates the natural compost wildflowers find beneficial.

Bob Rye is a training officer at the department's Springbrook Conservation Education Center in Guthrie County.

Procedure:

1. Discussion: What "ingredients" do you think are needed to construct a compost pile? Why? Make a list of ingredients, for example; soil, organic wastes, nitrogen, worms, water, air, time, heat and mass.

2. Design a plan for making a mini-compost pile in the classroom. Decide who will bring what material and when.

3. Create the mini-compost pile:

- **a.** Use different sizes of organic waste to compare decomposition rates.
- **b.** Alternate layers of one inch of soil, two inches of organic waste, a sprinkle of fertilizer and a sprinkle of water.
- **c.** Cover with one inch of soil and water the pile to make it moist but not soggy.
- **d.** Add earthworms and observe their behavior.
- **e.** Place your compost pile where it will be at room temperature (not in direct sun).

4. Place thermometer in the middle of the pile. Wait one hour and record the temperature.

5. Record the temperature at the same location and depth and time each day.

6. Gently mix the compost once a week to aerate it. A good time to turn the compost is after the temperature peaks and begins to drop. Watch for pests such as gnats around indoor compost piles.

7. Be patient. Occasionally check the moisture and add water if needed.

8. Make charts of your observations.

Evaluation:

Discuss these questions:

How does composting reduce the amount of waste you would have thrown out?

What would happen to organic wastes that end up in the land fill?

Is the landfill a gigantic compost pile?

Are there problems with placing large amounts of organic materials in landfills?

DOWN the DRAIN

What Happens to Our Wastewater

?

by Terry Kirschenman

Flush it. Dump it. Pour it down the drain. What happens to all that "stuff" known as wastewater?

Wastewater treatment is a service taken for granted by the general public, and few realize the complexity of the operation, the usefulness of its by-products and the relative bargain of this service. Despite their complexity, wastewater treatment plants are designed for two basic purposes -- to speed up the natural purification processes that occur in rivers, lakes and streams and reduce pollutants that may interfere with these processes. Designing treatment plants to do these things is a science constantly developing to provide efficient treatment at the lowest cost. However, the goal remains the same -- to produce a stream of water that is safe to return to the environment.

HISTORY

Treatment plants as we know them are a fairly recent development. The science of bacteriology was not developed until the last half of the nineteenth century. The Bible may record the first law mandating separation and land application of human wastes. Sewers constructed in Roman times until the 1840s were principally for storm drainage only. Human waste was not specifically directed to the sewers of London until 1815, Boston until 1833, and Paris until 1880.

Treatment facilities constructed from 1900 to 1930 were built primarily to remove suspended solids and oxygen-demanding pollutants. From 1930 to 1960, emphasis was on reducing the toxic pollutants and controlling the release of disease-causing bacteria and viruses. Since 1960, additional emphasis has been on protecting the receiving stream from pollutants such as ammonia nitrogen, which is toxic to fish and other aquatic life. Adequately controlling residual sludges generated from the treatment process and recycling these solids for beneficial use has been more recent.

The degree of treatment required for each community depends on the waste quantity and uses of the receiving stream. Larger streams can handle higher pollutant loads without adverse environmental effects. Small streams generally handle less. The federal Clean Water Act of 1972 set minimum treatment standards for all plants, and a goal of fishable and swimmable streams throughout the United States. At many locations, the Iowa DNR requires more advanced treatment than the federal minimum to protect streams for specific uses. Therefore a treatment plant must have adequate capacity to handle the volume of water, microorganisms to convert the organic pollutants in the water to a solid biomass, and settling or straining processes to remove waste solids and microorganisms.

Wastewater is 99.9 percent water by weight. Hence, the name "wastewater." The size of treatment plants is often an issue of wastewater volume. Only a small fraction of the untreated wastewater is solid matter. The treatment challenge is removing that small objectionable fraction quickly before the treated water is discharged into the receiving stream.

Many cities have sewer collection systems allowing the wastewater to flow by gravity to a treatment plant. Municipalities are required by law to properly treat all polluted waters and all wastewater treatment plants are limited in the amount of flow that can be accommodated. A tight collection system will produce average flows of less than 100 gallons per person per day.

A wastewater treatment plant typically consists of several process units designed to remove different pollutants. The various units have specific tasks, with an overall objective of removing at least 85 percent of the oxygen-demanding pollutants and suspended solids. To a certain extent, all receiving streams have an ability to handle limited pollutants naturally, and for this reason, it is not necessary to remove 100 percent of the organic wastes from the water.

The primary measurement made is BOD -- biochemical oxygen demand.

This is not a pollutant, but rather an indication of the amount of oxygen in the water necessary for decomposition of organic wastes. The greater the BOD, the greater the degree of pollution. If it is not reduced by the treatment plant, the oxygen-demanding pollutants may deplete the oxygen in the receiving stream, killing fish and the aquatic life they feed on. Fish and other aquatic life need an adequate supply of dissolved oxygen to survive.

Suspended solids may also contain many BOD pollutants, and are reduced to not only meet BOD requirements, but also for reasons of aesthetics and public health.

TREATMENT PROCESSES

Most treatment plants include the same basic processes -- preliminary treatment, primary treatment, biological oxidation and final clarification. The solids generated from the treatment processes are concentrated into a sludge. This sludge is further treated or stabilized so it can be disposed of or used as a soil conditioner without posing any health problems.

Preliminary treatment includes the physical removal of large debris that has found its way into the collection system -- sand, bricks, rags and wood. This stage normally includes screening facilities and grit removal. The screens have steel bars with spacings of about one inch. The grit removal equipment removes sand and small stones. Grit removal tanks are designed to slow the water just enough to let the heavy sand and gravel drop to the bottom. Some grit removal systems spin the wastewater as it moves through the tank; the cyclonic effect helping separate the grit from the wastewater.

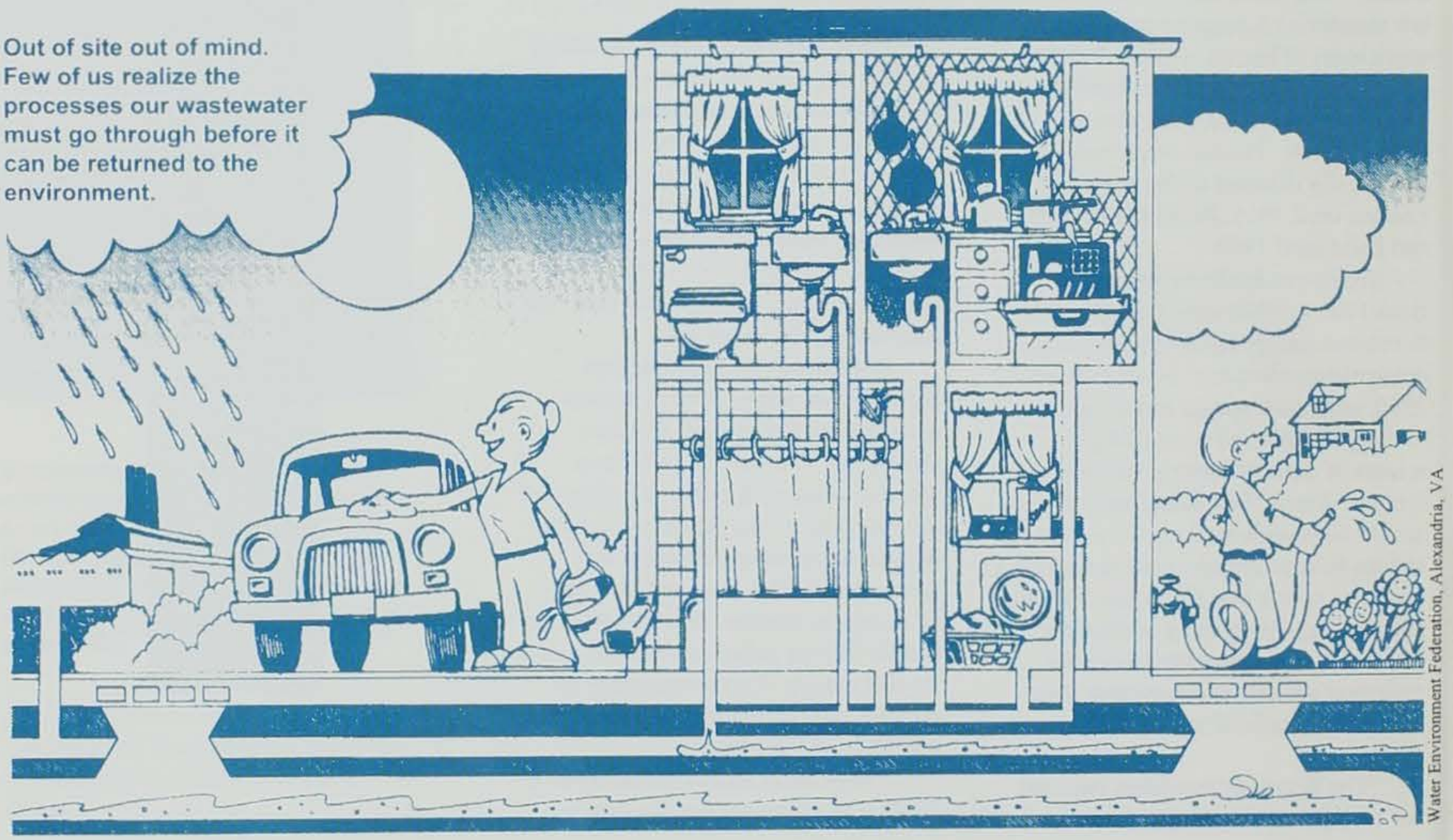
These two units remove the large material that tends to plug pipes, clog pumps, cause wear on equipment or collect in later treatment. The grit and debris is collected, lime-stabilized to reduce odor and bacteria, and hauled to a sanitary landfill.

In **primary settling** the wastewater goes to clarifiers -- typically, circular tanks eight feet deep. These settling tanks provide a period of several hours to allow most suspended solids to settle to the bottom. This mass of settled solids is called raw sludge. Up to 60 percent of the solids and more than 30 percent of the BOD pollutants are removed by the primary clarifiers. A mechanical scraper at the bottom of the tank collects the settled sludge, and surface skimmers collect any rising oil and grease. The wastewater is collected near the top of the tank and directed to the next process.

The wastewater is subjected to **biological oxidation** in the next treatment stage by a separate unit containing microorganisms, including protozoa, fungi, algae, and a wide variety of bacteria, numbering in the millions. Biological oxidation speeds up the natural decay of the wastes. It is the heart of the treatment plant.

With the solids removed in the previous stages, most of the pollutants in the wastewater, at this point, are

Out of site out of mind. Few of us realize the processes our wastewater must go through before it can be returned to the environment.



Water Environment Federation, Alexandria, VA

dissolved. In the biological oxidation stage, treatment units provide an oxygen-rich environment allowing the microorganisms to use the organic pollutants as food. When the process is completed, the microorganisms are removed from the wastewater by settling or straining.

The most common units used for biological oxidation are trickling filters or activated sludge tanks. In trickling filter plants, the microorganisms attach themselves as a slime to the surface of corrugated plastic. When the wastewater is trickled over the corrugated plastic, the attached microorganisms feed on the pollutants as they drip and trickle past. Some older treatment plants use rock as a media, but modern trickling filter towers use corrugated plastic about 20 feet deep. The air spaces in the corrugated plastic give the microorganisms access to the oxygen they need.

In activated sludge facilities, the microorganisms are suspended in a tank filled with wastewater by mixing equipment and/or air pumped into the wastewater. The microorganisms are usually mixed in this oxygen-rich solution for 4 to 12 hours. Activated sludge process technology has been used for many years.

Final Clarification - At first glance the final clarifiers look the same as primary settling tanks, but they are typically deeper and larger. Their main function is to capture the microorganisms leaving the biological oxidation units. As in the primary tanks, these units still the water to provide settling and separation. Once the microorganisms are collected at the bottom of the tank, the sludge solids, which are mostly microorganisms, are sent back to the activated sludge tank to continue their job or diverted to a sludge digestion unit if they are no longer needed. The wastewater is clear at this point and is collected near the top of the tank. The wastewater is now either discharged to the receiving stream or gets disinfected.

Disinfection - Disinfection eliminates disease-causing bacteria and viruses remaining in the wastewater. The need to provide disinfection depends on the uses of the receiving water. Treated wastewater discharged into a stream used for swimming, water skiing or other water contact recreation must be disinfected.

Disinfection is typically done by mixing in small doses of chlorine. The chlorine destroys most of the remaining bacteria and viruses contained in the wastewater. Another type of disinfection uses ultraviolet (UV) light. UV light does not kill the bacteria, but it eliminates the threat of disease in the wastewater by making the bacteria or virus unable to reproduce. It employs tubes with UV lamps located in the flow path of the wastewater. Both types of disinfection are effective. Chlorine disinfection has been used routinely since 1911 whereas UV disinfection technology is more recent.

Sludge Digestion - The wastewater sludge solids collected from the settling tanks must be further treated or "digested" prior to disposal to reduce odors and the potential for disease. Two types of digestion tanks are employed -- one uses oxygen, one does not. With adequate temperature, either digestion process can be used to significantly reduce the disease-causing bacteria in the wastewater sludge. Both are biological processes using concentrated sludge as a source of food for microorganisms.

Concrete pads and tanks, glass lined steel tanks, or earthen basins designed to protect the groundwater are used to store the resulting "biosolids" prior to disposal. Most communities in Iowa apply their biosolids (digested sludge) to farm land as a fertilizer.

ADDITIONAL TREATMENT PROCESSES

There are numerous other types of treatment processes and combinations of the above -- sand filters, stabilization lagoons and aerated lagoons -- all of which employ physical processes to remove solids from the wastewater such as settling or filtering in addition to the biological oxidation. Lagoons are the most common approach used by small communities in the Midwest. They differ from the previously described

Despite their complexity, wastewater treatment plants are designed for two basic purposes -- to speed up the natural purification processes that occur in rivers, lakes, and streams and reduce pollutants that may interfere with these processes.

mechanical treatment plants by accomplishing all treatment in two or three ponds, and do not have an elaborate means of removing sludge solids after settling. After many years of use, the lagoons must be cleaned of the wastewater sludge sediments.

While the appearance of treatment plants has changed with time and new technology, the need to dispose of the residue has not changed. Pollutants remain misplaced resources in the same way weeds can be misplaced flowers. There always has and always will remain only three places to dispose of waste -- air, land and water. If we remove it from the water, it must go in the air or on the land. We all have a stake in ensuring pollutants can be turned into resources for our children and grandchildren.

Terry Kirschenman is an environmental engineer for the department's wastewater section in Des Moines.

WARDEN'S DIARY

by Chuck Humeston

"If Not For Bad Luck, Then No Luck At All"

I was assigned to work in the southern tier of counties during the opening of the Missouri deer hunting season.

It seemed to me that, sometimes, the Missourians tried to bend the state border just a little in their favor. Funny thing though, I had lunch with a Missouri warden that weekend who told me some "Iowegians" attempted the same thing.

Anyway, that's another story about breaking the rules to increase your "luck." This first story is about bad luck and a very determined hunter.

I was in the fire station in Albia waiting to receive an assignment for the night. The previous night had been sort of a long one, and the chair I had plopped myself into was feeling good -- very good.

I was about half asleep when fellow conservation officer John Mertz walked in and sat down beside me. Now, normally the other officers don't offer much information to me about this column. Usually it's, "I'm not telling you anything about it, Hum, because you'll put it in the magazine!"

Who, me? Where'd they get that idea?

"Well," John told me, "I've got a letter I've got to send you. I found this guy out duck hunting. Talk about bad luck. You won't believe it."

He was right. John sent me the letter. I read it and thought, "This *defines* bad luck!"

Here's the letter (with the victim's authorization). He sent the note to John with a copy of his "latest" stamps. Apparently John had encountered this fellow and had given him a ticket for "no stamp." As for his luck . . . well, read for yourself.

"*John, here's the whole 'stamp etc.' story.*

- Jan. '95 -- bought combo license, habitat and state stamp.

- Aug. 5 -- Arrived English River N. of Kenora.

- Backed boat into someone else's car -- $800.00 damage.

- Loaded boat and lost billfold ***and*** *stamps en route to camp.*

- Fell in lake.

- Returned home and bought ***all new*** *stamps at hardware store and put them, "somewhere I could remember," while waiting for duplicate license to arrive.*

- Met you and got nailed for no stamps.

- After you left we picked up, decided to scout the marsh west of us.

- Brand new motor-hit stump, broke shaft and ***lost*** *prop.*

- Towed back to Bennington. Bad day.

- Got home, couldn't find ***second*** *set of stamps.*

- Oct. 23 -- bought ***third*** *set of stamps and paid $28.00 fine.*

So far, ***NOT*** *a good duck season.*

If this keeps up I won't be able to afford to go hunting!

Thanks for only citing 'No State Stamp.' I appreciate the work you folks do.

Safe and Happy Hunting."

The same to you, sir. And may 1996 go much better for you! Bad luck isn't just restricted to duck hunters though . . .

These guys were ice fishing and after quite a while of "no nibbles" one of them said, "Let's try someplace else." He took off walking across the wind-chilled ice, but after a few minutes noticed his companion wasn't with him. He looked back and his companion was very close to where they were sitting but he was standing -- listing to one side.

"What's wrong?"

"Uh, I think I've stepped in a hole someone else made in the ice." He'd gone under the ice and the tip of his boot was caught on the lip of the hole. No matter how he tried he couldn't pull it out. He pulled and pulled and finally pulled out his foot, but just the foot -- the socks and boot were under the ice. About that time he got a bite on both his lines.

There he was standing on the ice, one leg raised and barefoot, trying to balance on the other leg and catch fish with both free hands. After failing to land either bite he gave up. He finally knelt down, plunged his hand into the slush in the hole and "fished" for his footwear. Fortunately it was shallow enough that he was able to retrieve his boot and socks.

Is it any wonder why the next time I saw him he asked whether the department had ever thought about regulating a maximum size for ice-fishing holes? I think he was looking for holes to be mandated under a size -10 EE.

One of my friends went pheasant hunting with his kids. In the course of their hunt they came to a creek which of course he, as the father, crossed first. Naturally he slipped and fell in, about up to his neck, but he managed to save his shotgun. He told his kids, "Well, obviously we can't cross here. Go upstream and try it there." The boys left and the next thing he heard was, "Splash" -- twice. Everyone made it out safely and they piled into the car sopping wet and miserable.

My friend pulled the car directly into the garage hoping to change clothes in the garage and avoid notice by his wife. Almost on cue she returned home and found three cold, wet, mostly undressed males standing in puddles in the garage. Without missing a beat she fixed them all with a stare and said, "I'm not surprised at all about *you,* but I can't believe you kids would *both* follow him!"

Yeah, occasionally even officers don't have the best luck. I'd come upon these guys fishing on a river below a dam. My route to them was blocked by a creek but being the *athletic* individual I am, I decided "no problem, I'll *vault* this creek." I took off running and just as I planted my foot to jump I hit the BIG muddy spot. In I went with a giant splash and a few exclamations. I decided those fishermen were probably legal anyway, got in the car and went home. My wife found me drying off my gun and the other assorted equipment I carry on my belt. She had that questioning stare to which I responded, "Don't ask. Don't even ask!"

Sometimes your luck is just best not talked about, it wouldn't be believed!