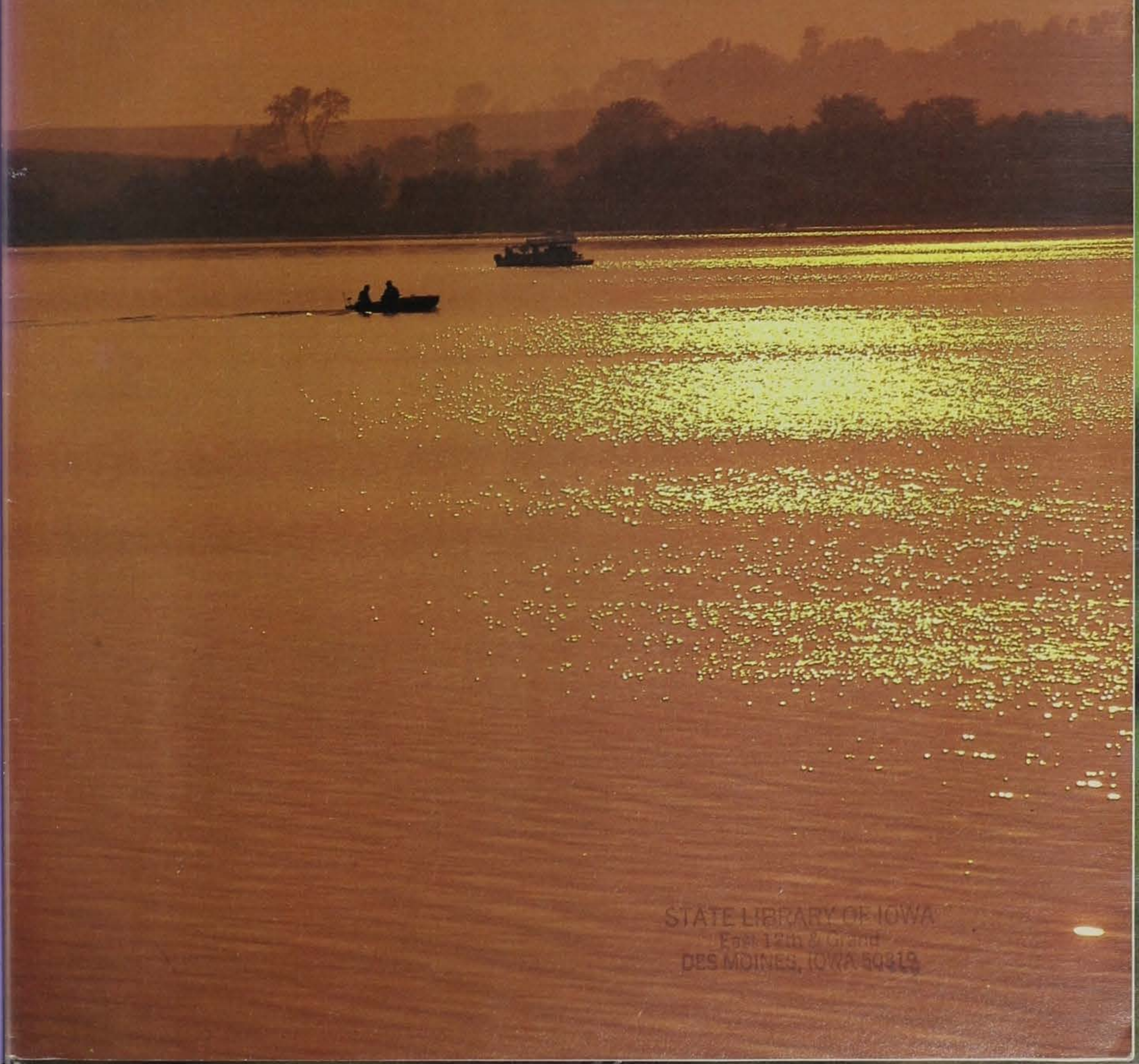
Iowa CONSERVATIONIST

July 1991

Department of Natural Resources



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FEATURES

DEPARTMENTS

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COVERS

Front -- Summer at Big Creek State Park by Ron Johnson.
Back -- Garden spider by Roger A. Hill.

Summer Mushrooms

Some Are Not

Sulfur mushroom

Article and photos by
Lois H. Tiffany and George Knaphus

By late May, most Iowans who hunt morel mushrooms have put away their collecting baskets until next spring. They may have some morels stored away in a freezer, but most hunters wish that the season lasted much longer. The Iowa morel season, beginning around April 15 and ending four or five weeks later, seems very short. However, there are some people who do not stop mushrooming when the morel season ends. They may not say much about it, but they continue to take walks in the woods and harvest other edible fungi from June into October or even November.

Pleurotus ostreatus
Oyster mushroom

Coprinus micaceus
Inky cap

Coprinus comatus
Shaggy mane

For those who want to expand their edible wild mushroom collecting season, there is good news and bad news. The good news is that edible fungi do occur throughout the growing season. Many of them have their own limited season, but some can occur for months with the appropriate growing conditions. The bad news is that collectors must learn to recognize the common edible mushrooms and limit collection to those.

Of the hundreds of species of mushrooms and other fleshy fungi that grow in Iowa, a relatively small group are edible, good and easily recognized with experience. A few mushrooms are deadly poisonous, and these should be identified so that they can always be avoided.

There is another group of mushrooms that is toxic and will cause illness, most typically vomiting, nausea and diarrhea. There is also a large group of mushrooms that is not edible or is too difficult to identify without laboratory equipment and special experience. There are no easy rules to determine whether a given mushroom is poisonous or not. The collector must learn to know the individual kinds — what the field characteristics are that distinguish them, when they are in season and where they grow.

Of the group that is common, edible and easily recognized with a little study and field experience, the oyster mushroom, *Pleurotus ostreatus* is a good species to learn. It has a long season, developing from May through October if moisture is available. It always grows on wood -- on downed logs, dead standing trees, even from wound areas on living trees where the fungus is growing in the available wood. Oyster mushrooms typically develop in overlapping clusters, with the stipe attached at one side of the ivory-colored cap and the white gills extending down the stipe from the underside of the cap.

Another "long season" edible mushroom is the inky cap, *Coprinus micaceus*. It also grows on wood, often on stumps or tree roots in the ground, but the mushrooms may appear to be clustered around the stumps or even growing from the ground. These small mushrooms usually develop in groups soon after a rain anytime during the growing season. They quickly self-digest as their black spores develop and the entire cap dissolves into a black inky mass. Self-digestion will occur even if young inky caps are placed in the refrigerator;

Cantharellus cibarius
Chantarelle

Laetiporus sulphureus
Sulfur mushroom

therefore, this mushroom must be used immediately after collection. It is a soft mushroom and the dark color after cooking is unpleasant for some people.

The shaggy mane, *Coprinus comatus* is a larger mushroom that remains bell-shaped, dissolving from the lower edge toward the top. All species of *Coprinus* self-digest with age, and some species contain an alcohol-soluble compound that certain people react to. Shaggy manes usually develop singly or in small groups in grassy areas or along paths from mid-June into October. They are quite good when prepared as morels, but like the inky caps, the shaggy manes do not store well in the refrigerator.

The chantarelle, *Cantharellus cibarius*, grows singly or in scattered groups on the ground in woods, usually in oak woods in Iowa, from mid-July to mid-August. They are bright yellow-orange on both the top and lower surface, with broad ridges on the lower surface extending down along the stipe. They are wonderfully edible and a favorite of many wild mushroom collectors.

The sulfur mushroom, *Laetiporus sulphureus*, is also orange and yellow, but grows in large shelf-like clusters on downed logs or from apparently healthy living standing trees. This fungus is not a mushroom, and has small holes or pores on the lower bright yellow surface. However, these develop only with age, and the lower surface may look almost smooth when young. Sulfur shelf becomes quite tough with age, fades in color, and may persist in this inedible stage for some time. It typically develops from mid-summer through October, but has been collected in Iowa as early as late May. It is a good edible fungus, especially the more tender edges of the young shelves.

Before searching for either chantarelle or sulfur shelf, a collector should know there is another orange mushroom, *Omphalotus olearius*, sometimes called jack-o-lantern mushroom, that is poisonous. It has a more central stalk and thin, knife-edge gills on the lower surface of orange fleshy caps. It often occurs in clumps of a dozen or more at the base of stumps, trees or on wood from summer into October. These gilled mushrooms are striking in appearance, but quite poisonous. Thus, any orange fungus collected should be examined, differences noted for each collection and identification checked very carefully. Incidentally, young *O. olearius* mushrooms luminesce, or glow, in the dark. Viewing a large

Omphalotus olearius
Jack-o-lantern

Calvatia gigantia
Giant puffball

Never eat a mushroom you have not identified. Some are delicious, some are poisonous and some are both.

glowing clump on a dark night in an October woods is a memorable experience!

The special edible fungus of the late summer-fall season is the giant puffball, *Calvatia gigantia*. They develop singly, in clusters or in arcs on the ground in the woods. The roundish young giant puffballs range from softball to volleyball size up to 18 inches in diameter. When young and edible, they are white with a thin covering that peels readily from a white almost marshmallow-textured inner tissue. One young giant puffball provides a mushroom feast for a group. With age, the inner tissue becomes yellowish, then brown and water-soaked with a strong odor. Eat *only* when the puffball is pure white throughout.

Several common edible fungi have been briefly introduced — oyster mushrooms, inky caps, shaggy manes, chantarelles, sulfur shelf and giant puffballs. Also characterized is a poisonous mushroom -- jack-o-lantern -- that is orange and should be learned to avoid confusion with the chantarelles and sulfur shelf.

Most of the *deadly* poisonous mushrooms are species of *Amanita*, and any species of *Amanita* should be avoided. Thus, for safe mushroom collecting, learn very well the field characteristics of the genus *Amanita:*

- The mushrooms occur singly or in small groups on the ground under trees usually in the woods in summer into fall.
- There is a cap or sheath-like covering around the base of the mushroom, sometimes somewhat fused to the stipe. This may be below the ground and can be determined only by carefully digging around the base so that you can see the entire structure.
- The gills on the underside of the mushroom cap are not attached to the central stipe.
- A white spore print is produced at maturity.
- A ring of tissue is usually found on the stalk, remnants of a covering over the lower surface of the cap when it was young.
- Caps come in a variety of colors from white to brilliant orange, often with popcorn-like clumps of tissue scattered over the upper surface.

Most mushroom books have pictures and drawings illustrating these features. Study these carefully before collecting.

The six mushrooms or fungi described are distinctive enough to be recognized by most people and are edible. Also described are two which are severely or

deadly poisonous. There are hundreds of other mushroom and fungus species which you will see and may be tempted to eat. Never eat a mushroom that you have not identified. Some are delicious, some are poisonous and some are both. If you are interested in expanding your edible mushroom knowledge, learn to identify one additional safe and edible mushroom at a time. *You must not presume that a mushroom is safe because it does not look like a poisonous mushroom you already know.*

There are many other edible and delicious mushrooms which can be eaten and enjoyed. However, similar appearance to deadly or troublesome mushrooms demands *very careful identification.* Review these important guidelines:

- Be absolutely *sure* of the identity of *each* mushroom you plan to eat. There may be two or more species in one area.
- Don't eat much the first time if you haven't eaten this species before. You may be allergic. Don't overeat any mushroom: you may trigger an allergic response.
- Never eat *any* mushroom that looks like *Amanita.* Always dig under the mushroom and pry up to get all of it. The cup or swelling at the base of an *Amanita* is a clear warning.
- Don't eat older, potentially spoiled mushrooms of any kind. A spoiled nontoxic mushroom can make you ill.
- Lawns are often treated with pesticides and some people are concerned that the pesticides may be taken up into mushrooms. Consider this possibility.
- Check your identification with the pictures and information in at least one reliable mushroom field guide. You may find it reassuring to have several sources of information.

Whether you decide to try eating mushrooms or not, it is still very interesting to see these important recycling organisms in their ecological niche. The bride-like, but deadly, beauty of a white *Amanita* brings the same awe which accompanies the sight of a rattlesnake. Viewing the splendor of a brilliantly colored, gracefully shaped mushroom adds to the pleasure of a woodland hike. Enjoy admiring them as a vital part of the complexity of our natural world.

Lois H. Tiffany is the chairperson of the botany department at Iowa State University. George Knaphus a professor with the botany department.

Amanita bisperigera

Further information on mushrooms can be found in --

Mushrooms and Other Related Fungi by L.H.Tiffany and G. Knaphus. Bulletin No. 129, Extension Service ISU.

Mushrooms and Related Fungi of Midcontinental United States by D.M. Huffman, L.H. Tiffany and G. Knaphus, 1989, ISU Press, Ames, Iowa.

Mushrooms of North America by O.K. Miller, 1980, E.P. Dutton, N.Y.

Edible and Poisonous Mushrooms of Canada by J.W. Groves, 1979, Publ. 1112, Agriculture Canada Research Branch.

Jerry Leonard

Pond Principles

by Don Kline

Ponds are very popular outdoor recreation areas in Iowa, as evidenced by the more than 80,000 already built throughout the state. There are many uses for a pond and the opportunity to catch a few fish is always near the top of the list. Iowa's ponds annually produce some of the biggest fish caught within the state, and currently the state record bluegill (3 lbs., 2 oz.) and bullhead (5 lbs., 8 oz.) come from ponds.

Each pond is unique, with its own physical and environmental make-up, and each requires active management if the pond is to succeed.

There are several areas where management can have a significant impact on the angling potential a pond will provide. These areas are the watershed, fish stocking, harvest limits and vegetation control.

Notice that I use the words "angling potential." The farm pond owner will be managing the fish populations and environmental conditions to allow the angler an opportunity to catch a fish. It is then up to the angler to use their skill to take advantage of the farm pond owner's management.

The "watershed" or land drainage area above the pond is of vital importance, because of its overriding impact on the pond. Moving surface water will carry a continuing supply of nutrients to the pond, which can be beneficial or harmful depending on the amount of material moved to the pond. This continuing resupply of nutrients is needed to keep the aquatic ecosystem going. However, many of the fish and vegetation management problems can be traced to an oversupply of nutrients. There is also the potential for bringing in life-threatening pollutants from the watershed.

For our purposes, a pond is between one-half and five acres in size and more than eight feet deep. A pond is large enough to provide good fishing potential yet small enough to be efficiently managed. A newly created or renovated pond is ready for fish to be added.

In Iowa, experience has shown that the combination of bluegill, largemouth bass and channel catfish works best in most ponds. All three of these fish species can provide excellent fishing and are suited to Iowa's climate. They are warm-water fish adapted to summer water temperatures of mid- to upper 80s. We have other game fish species, but most of them require some special water habitat — a real challenge for those who want to try intensive pond management. Needless to say, the bluegill-bass-catfish combination will definitely test management skills.

The original fish stocking for a new or renovated pond should include 1,000 bluegill, 100 channel catfish and 70 largemouth bass "fingerlings" for each surface-acre of water. These fish seem small, but because they will not have significant competition from other fish for the first two years, their survival and growth will be much better than in future years.

The regime for stocking each fish species is based on knowledge of the life history and management of the individual species. Bluegills are used to provide adequate food for the larger bass and catfish, as well as serve as panfish. Largemouth bass and channel catfish will act as predators of the bluegill, and because of their larger size, offer the po-

tential for trophy angling.

Bluegill and channel catfish are stocked in the fall so they can establish themselves in the pond before the bass. The plan is to have some bluegill large enough by late summer of the next year to be able to spawn. This first bluegill spawn will produce a good food supply for the hungry, growing bass and channel catfish.

The channel catfish will need the advanced start over the bass to be able to gain enough length so they will not end up as food for the bass.

Largemouth bass are stocked the next spring after the fall bluegill and catfish stocking. They will grow to about eight inches in length by the time the bluegill have spawned and be ready to take advantage of this important forage. In many ponds, the rapidly growing bass will be able to spawn by the next spring. The bass-bluegill combination will be underway and should last many years with careful management.

Channel catfish cannot be expected to successfully reproduce, because bluegill eat the eggs and bass eat the young, so periodic restocking is necessary to maintain the catfish population. Future catfish stockings will have to be made with larger fish, more than seven inches long.

Bluegill, largemouth bass and channel catfish will all grow well during the first few years, and most fish management involves watching for signs of change which signal problems ahead. As the fish populations develop, four or five sizes of bluegill and largemouth bass, from young-of-the-year to adults will appear. Farm pond managers have to constantly be on the lookout for signs of bass over-harvest and stunted bluegill.

Over-harvest of bass occurs when more bass are harvested each year than can be replaced by the maturing bass population. An over-harvested bass population lacks the ability to control bluegills. As the number of bluegills increase, their growth slows down and a stunted population develops. Eventually, both the bass and bluegill populations provide poor fishing.

Size and quota limits on largemouth bass are two good ways to manage the problem of bass over-harvest. A local fisheries biologist can help find and apply effective limits. Harvest limits are effective techniques, but in the face of out-of-control aquatic vegetation they may not do.

Aquatic vegetation can be a big problem in Iowa's ponds because of the abundant nutrient supply from agricultural lands. By late spring, dense stands of vegetation may extend 20 to 30 feet out from shore and effectively limit fishing. Aquatic vegetation at this point has reached the "weed" stage and control measures are needed. Most people think eliminating all the weeds is the best approach, but remember we are dealing with an aquatic ecosystem which functions best when each part is working effectively. When any part of the system is changed, the change affects many other parts.

Aquatic vegetation is a very important part of an aquatic ecosystem. The stems and branches provide shelter for smaller, more vulnerable fish of all species. The root and soil combination in the bottom provides an excellent living area for aquatic microinvertebrates — insect larvae and worms — while the stems and leaves provide support for many insects and microflora — all serving as food for fish. In addition, scattered stands of aquatic vegetation make excellent places to fish for those large fish looking for a meal.

Many methods have been used to control aquatic vegetation including pulling or raking, covering the bottom with black plastic, chemicals, grass carp (white amur) and deepening the shoreline. All of these methods work, but all do not work effectively at all times and on all types of vegetation. Each of these methods can be considered. Selecting one to meet the pond's specific needs and is least damaging to the ecosystem is important. Again, a local fisheries biologist can help.

DNR Photo

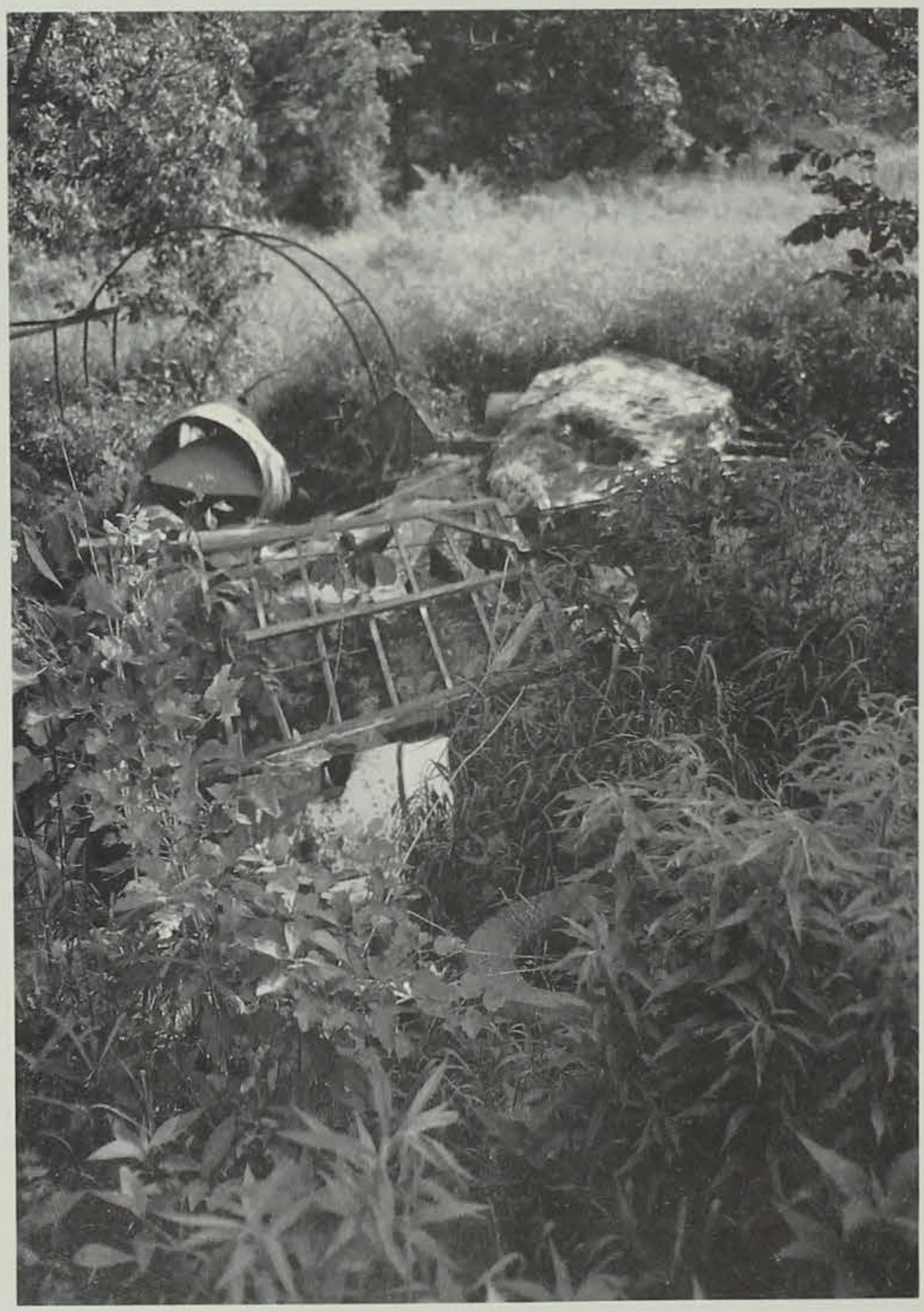
▲ Original farm pond stocking should include 1,000 bluegill for each surface acre of water to ensure an adequate food supply for channel catfish and bass.

Take every opportunity to enjoy the recreational potential of your pond through the outdoor exercise it affords, the chance to test your skill against the natural instincts of the fish, the fine meal the fish provide and the enjoyment of watching the pond develop under your management.

Don Kline is a fisheries management biologist with the DNR at Brighton.

Old McDonald Had Some Junk . . .

For a good portion of Iowa's population, getting rid of garbage means taking the bag or bags of trash out to the curb. In some communities, it may also require a few minutes of separating for recycling. But for the rural communities, farms in particular, disposing of waste can mean a little more work. Farming, as well as other businesses, can generate a fair quantity of waste at any one time. But without hauling services in Iowa's countryside, what's to be done with the household garbage, broken farm implements, construction waste and dead animals? The responsibility is the farmer's. They may do their own hauling to the rendering plant, salvage yard or landfill, or they may exercise other options with the certain restrictions.



Article and photos by Julie Sparks

Burying

Farm machinery, vehicles and equipment used on the farm may be buried on the site, provided all fluids are drained and all batteries and tires removed. Fluids include motor oils, motor fuels, lubricating fluids, coolants, solvents and agricultural chemicals.

Tree stumps, brush and the ashes from burning these materials may be buried.

Farm buildings may be buried provided they are emptied of any contents not authorized for burial.

Dead animals resulting from operations on the farm may be buried on site in the following quantities -- seven slaughter or feeder cattle, 44 swine (butcher or breeding), 73 sheep or lambs or 400 poultry carcasses -- on any given acre per year. All other species will be limited to two carcasses per acre. Animals which die within two months of

birth may be buried without regard to quantity.

All farm animals, farm waste and farm buildings must be buried in moderately well to excessively well drained soil, as defined by tables contained in the county soil survey and soil interpretation records published by the U.S. Soil Conservation Service. Other soils may be used if artificial drainage is installed to obtain a water level depth of more than two feet below the burial depth of the carcasses. The depth of the burial pit shall not exceed six feet.

Buried animals, buildings or waste must be immediately covered with a minimum of six inches of soil and finally covered with a minimum of 24 inches of soil (30 inches in the case of dead animals).

Additionally, farm waste, farm buildings and dead animals must be disposed of with the following separation distances -- at least 100 feet from any private and 200 feet from any public well being used or which may be used for domestic purposes; at least 50 feet from an adjacent property line; at least 500 feet from an existing neighboring residence; more than 100 feet from any body of surface water; and outside the boundaries of a floodplain, wetland or shoreline area. Trees, brush and stumps may be buried within 100 feet of surface water and within a floodplain or shoreline area.

Burning

Landscape waste originating on the farm may be disposed of by open burning. However, burning waste produced by clearing, grubbing and construction operations is limited to areas located at least one-quarter mile from an inhabited building.

Burning residential or household waste is permitted provided there is not a more restrictive local ordinance.

Paper or plastic pesticide containers (except those formerly containing organic forms of beryllium, selenium, mercury, lead, cadium or arsenic) and seed corn bags resulting from farming activities on the premises can be burned. Such burning is limited to areas located at least one-quarter mile from any inhabited building, livestock area, wildlife area or water course. The amount of bags or containers should not exceed one day's accumulation or 50 pounds, whichever is less.

Farm buildings may be burned provided all chemicals and asphalt shingles are removed. Burning may be conducted only when weather conditions are favorable with respect to surrounding property and permission from the local fire chief is obtained before the burning.

Burning household waste is permitted, provided there is not a more restrictive local ordinance.

By definition, for disposal purposes --

Farm animals include cattle, swine, sheep or lambs, horses, turkeys, chickens and other domestic animals.

Farm buildings include barns, machine sheds, storage cribs, animal confinement buildings and homes located on site and used in conjunction with crop production, livestock or poultry raising and feeding operations.

Farm waste includes machinery, vehicles and equipment used in conjunction with crop production or livestock operations, trees, brush and grubbed stumps or the ashes from their burning. However, this does not include agricultural chemicals, fertilizers or domestic household waste.

Residential waste includes refuse generated from household activities and landscape waste. It does not include tires and garbage (food waste).

Prohibited Disposal

The following cannot be burned or buried and must be disposed of in accordance with the law.

Tires and batteries

Petroleum products

Pharmaceutical products and equipment

Toxic wastes

Materials containing asbestos

MORE *for your* MONEY

Does owning your dream home seem out of reach? By purchasing an energy efficient house, your dream can become a reality.

Picture the home of your dreams -- 2,500-square-foot contemporary with vaulted ceilings, open floor plan. Or maybe it's a large two-story colonial. Now imagine receiving your first heating bill. Does the picture fade? It doesn't have to. If you can afford a house, you can afford an energy efficient house.

An energy efficient mortgage can help you buy the home of your dreams as well as make it an affordable dream. Energy efficient mortgage programs have been available since the early 1980s. These programs were designed to give credit for energy efficiency in "newer" homes and allow the buyers of

energy inefficient older homes to borrow extra money to make their homes efficient, while rolling the cost of the energy efficiency improvements into their mortgage.

An energy efficient mortgage allows lenders to stretch the qualifying "debt-to-income ratios" for purchasers of energy efficient homes. What is a debt-to-income ratio? Lenders use this ratio to compare your gross monthly income to your monthly housing costs. Monthly housing costs include your principal, interest, taxes and insurance. The assumption is that any energy efficient home will have lower heating and cooling costs. This allows a buyer to dedicate a larger percentage of their income to paying their monthly mortgage.

Figure 1 illustrates the advantage the energy efficient home has over the conventional home. For this example, we'll compare a conventional home costing $90,000 to an energy efficient home costing $92,250. If you purchased the energy efficient home, your monthly mortgage payment would be about $20 per month higher than the payment for the conventional home, but

Article by Randy Martin
Illustrations by Larry Pool

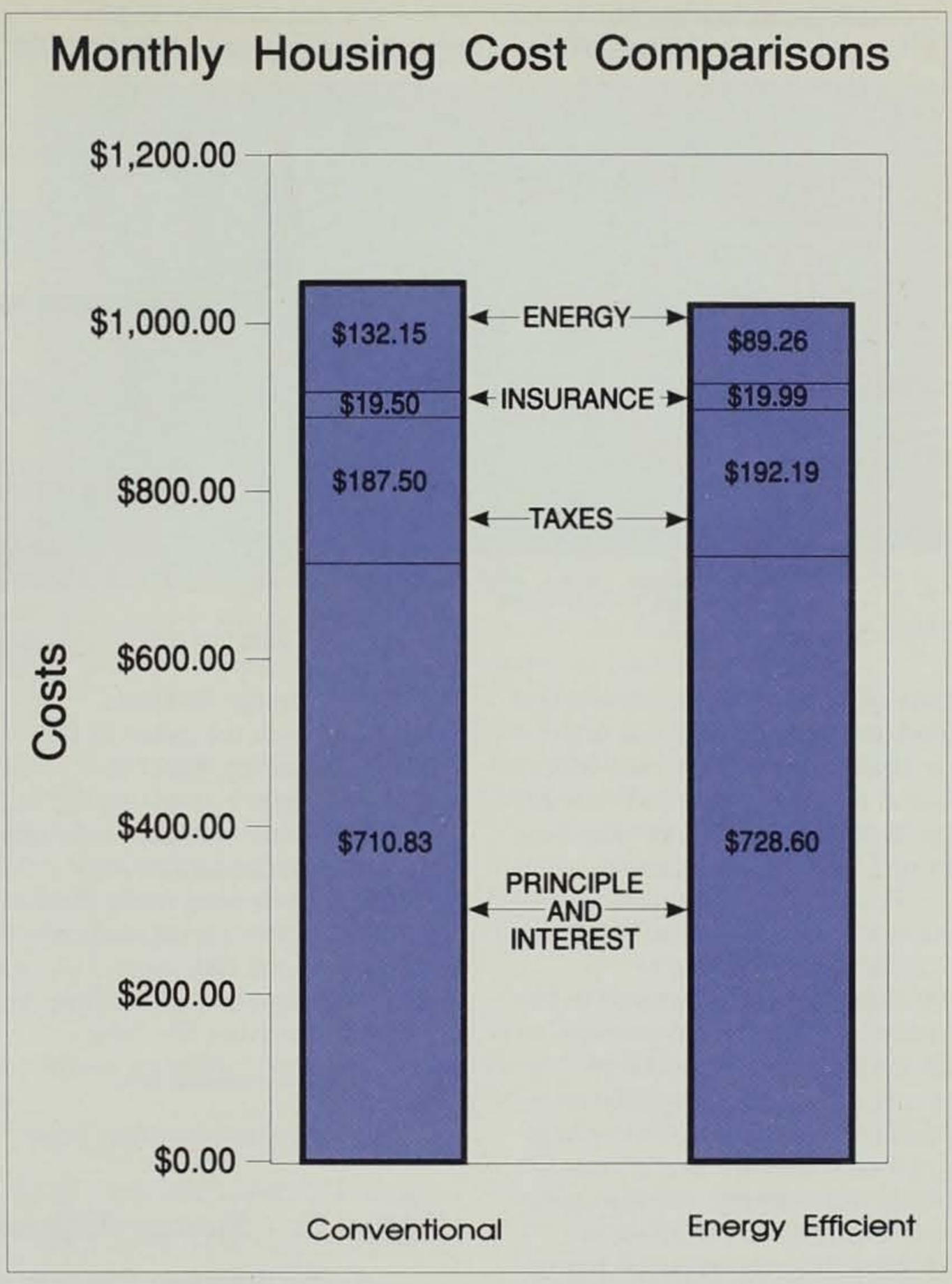


Figure 1. Although an energy efficient home's PITI payment is higher than a conventional home, the amount saved in energy costs more than makes up for the difference.

average monthly energy bills would decrease by $40 per month. This leaves you with an extra $20 in your pocket each month. And when tax time rolls around, you'll be able to deduct the additional mortgage interest on your income tax, saving you additional money. Deducting mortgage interest on an energy efficient home is much easier than trying to deduct the higher energy bills of a conventional house.

Currently, the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac), the Federal Housing Administration and the Veterans Administration have energy efficient mortgage programs. *Figure 2* lists each program's qualifying debt-to-income ratios.

Although they sound like great programs, only one out of every 3,750 loan applicants have taken advantage of these programs. Why? There are several reasons why the energy efficient mortgage programs are not being used, including:

❒ Each national lending agency has its own program with its own rules.

❒ Most lenders are not clear about the programs and for this reason do not always inform applicants of their availability.

❒ The national lending agencies have provided no clear or consistent guidelines as to what constitutes an "energy efficient" home. Consequently, the lender doesn't want to be the one to risk determining what is "energy efficient."

Determining a home's energy efficiency level has always been difficult for these programs. In an effort to make this an easier task, Iowa recently passed legislation requiring a home energy rating system. The system, when completed, can be used to evaluate the energy efficiency of each home that is sold and provide a rating on a consistent scale. The system will allow you to compare the energy efficiency of homes of different sizes and styles. Previously, energy efficiency was based on past energy consumption, which was highly dependent on the size of the home and the occupant's lifestyle. Lenders will soon have an objective method of determining qualifications for an energy efficient mortgage. This new rating system is scheduled to begin on July 1, 1992, for new home construction and July 1, 1993, for existing homes.

What can these programs do for you? If you're planning on purchasing a home, these energy efficient mortgage options can be used to 1) help you qualify for a loan on a home

Figure 2. Allowable Dept-to-Income Ratios

National Lending Agency	Maximum Housing Related Debt-to-Income Ratios (PITI)*	Maximum Debt-to-Income Ratio Allowed for an Energy Efficient Home
FHA	29%	31%
Fannie Mae	28%	30%
Freddie Mac	28%	No limit -- based on anticipated dollar savings
VA	Estimated annual cost of energy included in housing related debt. PITI+E**	

* PITI = Principle, Interest, Taxes, and Insurance
** E = Annual estimated Energy costs

Figure 2. Allowable "debt-to-income ratios." Lenders use this ratio to compare your gross monthly income to your monthly housing costs.

that costs more than the normal debt-to-income ratio will allow or 2) allow you to borrow additional funds to make an energy inefficient home you're planning to purchase more efficient.

For the first example, let's suppose your household has an annual gross income of $40,000. Under a normal debt-to-income ratio of 28 percent with a down payment of 10 percent, you could qualify to purchase a home with a selling price of $90,800. But if that home were energy efficient, you could qualify to purchase a home selling for $99,200 based on a 30 percent debt-to-income ratio. *Figure 3* illustrates the impact that an energy efficient mortgage can have.

As you can see, purchasing a home using one of the energy efficient mortgage programs will allow you to purchase a home with a higher value. Often the extra energy features only increase the costs 2 to 3 percent. A 2.5 percent increase to cover the added energy features would increase the price of the $90,800 home by $2,270. Looking at figure 3, notice the energy efficient mortgage allows you to borrow an additional $8,356. This leaves more than $6,000 that you can spend on other amenities like more square footage, better kitchen cabinets, finishing the basement, window coverings or any other project.

If a new home is not in your future, or you cannot find one that has already been made energy efficient, there is another option for you. If the home of your dreams has everything but low utility bills, an energy efficient mortgage can help you transform that inefficient home into an affordable dream. An energy efficient mortgage will allow you to borrow the extra funds to install the energy efficiency improvements that your dream home needs. These extra funds become part of your mortgage, spreading the costs out over a maximum of 30 years. You usually have four to six months to make the improvements after the loan is funded. In order for energy efficiency improvements to qualify under these programs, most lending agencies require an analysis by a fee appraiser.

Figure 3. Energy Efficiency Advantage

Annual Income	Maximum Purchase Price with a 28% Debt-to-Income Ratio	Maximum Purchase Price With a 30% Debt-to-Income Ratio	Energy Efficiency Advantage
$20,000	$45,435	$49,613	$4,178
$30,000	$68,152	$74,420	$6,267
$40,000	$90,870	$99,226	$8,356
$50,000	$113,587	$124,033	$10,445
$60,000	$136,305	$148,839	$12,535
$70,000	$159,022	$173,646	$14,624
$80,000	$181,740	$198,453	$16,713
$90,000	$204,457	$223,259	$18,802
$100,000	$227,175	$248,066	$20,891

* Assumes a 10% interest rate -- 30-year term, 10% down payment, property taxes figured at 2.5% and insurance at .26% of purchase price.

Figure 3. Purchasing a house using one of the energy efficient mortgage programs will give you more house for your money.

Figure 4. Annual Income Needed*

Conventional Home Sale Price	Annual Income Required for Purchase at 28% Debt	Energy Efficient Home Sale Price	Annual Income Required for Purchase at 30% Debt
$70,000	$30,594	$71,750	$29,269
$80,000	$34,965	$82,000	$33,450
$90,000	$39,336	$92,250	$37,631
$100,000	$43,706	$102,500	$41,812
$110,000	$48,077	$112,750	$45,994
$120,000	$52,448	$123,000	$50,175
$130,000	$56,818	$133,250	$54,356
$140,000	$61,189	$143,500	$58,537
$150,000	$65,559	$153,750	$62,719

*Assumes a 10% interest rate -- 30-year term, 10% down payment with property taxes figured at 2.5% and insurance figured at .26% of purchase price and the increase for energy efficiency figured at 2.5%.

Figure 4. Although energy efficient homes may cost more up front, actual monthly expenses are less than for a conventional home. This means home buyers can purchase a house with a higher selling price.

Energy efficient mortgage programs not only help the home buyer, but if you are a builder, capitalizing on one of these programs can greatly expand the number of homeowners that can qualify to purchase one of your homes. The trick is, you have to build an energy efficient home.

As a builder, you know that whenever you add features to a home, it increases the cost, which has to be passed along to the buyer. Most builders look at this as decreasing their pool of potential purchasers. But, by building energy efficient, the purchaser's debt-to-income ratio can be increased to more than cover the additional cost of the energy features. *Figure 4* illustrates the annual income needed to purchase a conventional or energy efficient home.

Selling an energy efficient house does require some additional marketing. An energy efficient home costs more, while potential buyers can't necessarily see these energy features. If two houses look the same, except the energy efficient house costs more, which one is the buyer likely to choose? It is more difficult to sell what cannot be seen. For this reason, many builders shy away from building energy efficient houses. The general home-buying public is more interested in first costs. But as we saw in the graph, the home buyer would be ahead from the start by purchasing the energy efficient home, and by using an energy efficient mortgage program, they can actually qualify to purchase a larger home or one with more "extra features."

> If the home of your dreams has everything but low utility bills, an energy efficient mortgage can help you transform that inefficient home into an affordable dream.

Everyone benefits when a builder chooses to build an energy efficient house.

- the builder benefits by increasing the pool of potential home buyers;
- the real estate agent receives a slightly higher commission;
- the lender lends more money on a potentially more secure mortgage;
- the building supplier sells more building supplies;
- the home buyer has lower energy costs and, as seen in the first example, is money ahead from the start;
- utilities benefit by not having to build a new power plant or add capacity to the pipeline as soon, and;
- Iowa benefits by keeping more dollars circulating in the local economy rather than being sent to another state or nation to import energy supplies.

As we have seen, energy efficient mortgages offer many advantages to the home buyer, but if they aren't used, no one benefits. So, when comparing homes, it is recommended that you not only consider what your principal, interest, taxes and insurance will be, but also what your average monthly energy costs will be. Iowa will soon have a home energy rating system to assist you in comparing efficiencies and will provide you with an estimate of your average monthly energy costs. Don't let a higher cost for an energy efficient home scare you away. Two homes may look the same, but only one may be your affordable dream.

Randy Martin is a program planner with the department's energy bureau in Des Moines.

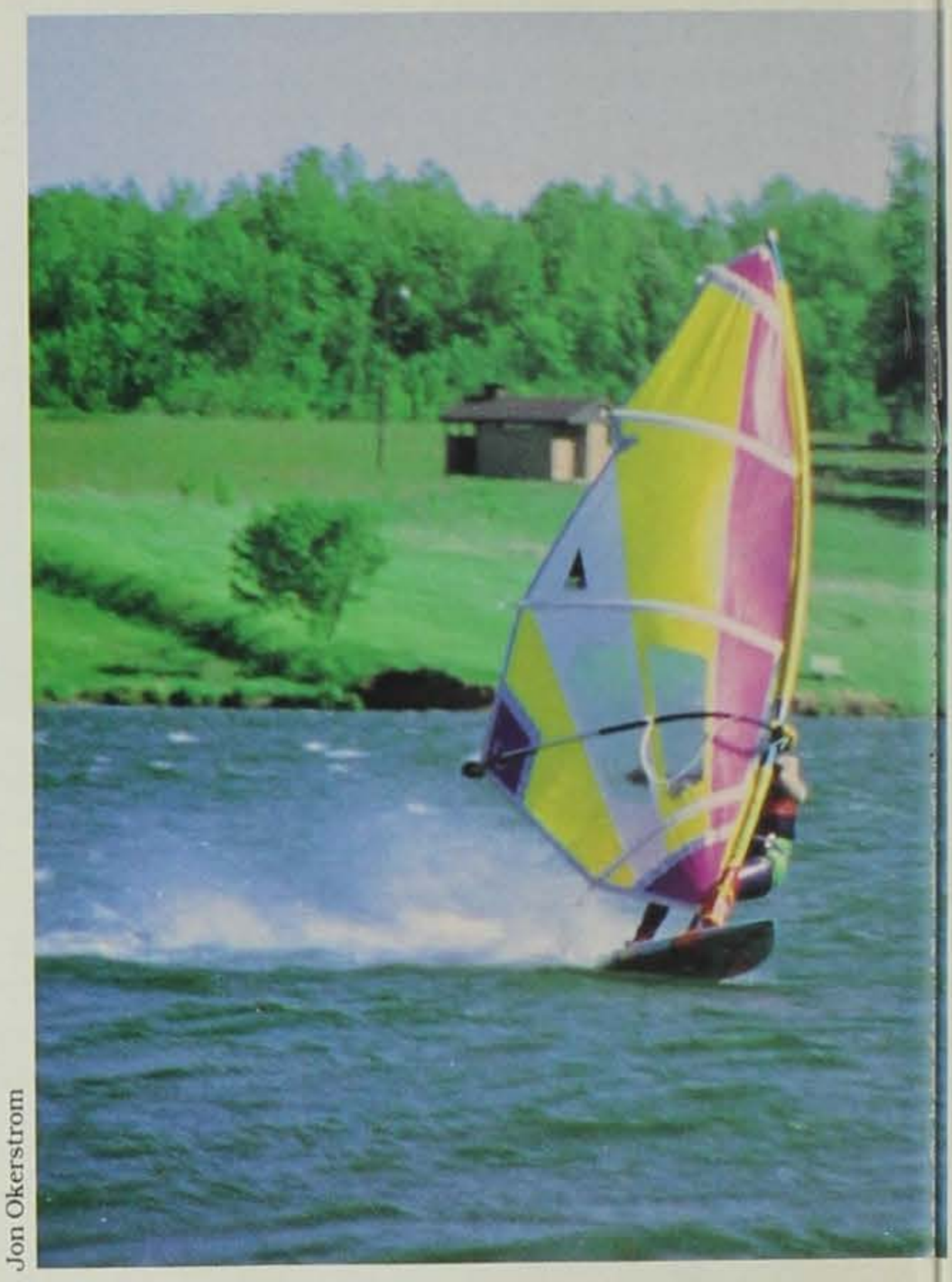
by Jerry Reisinger

Looking Toward Tomorrow

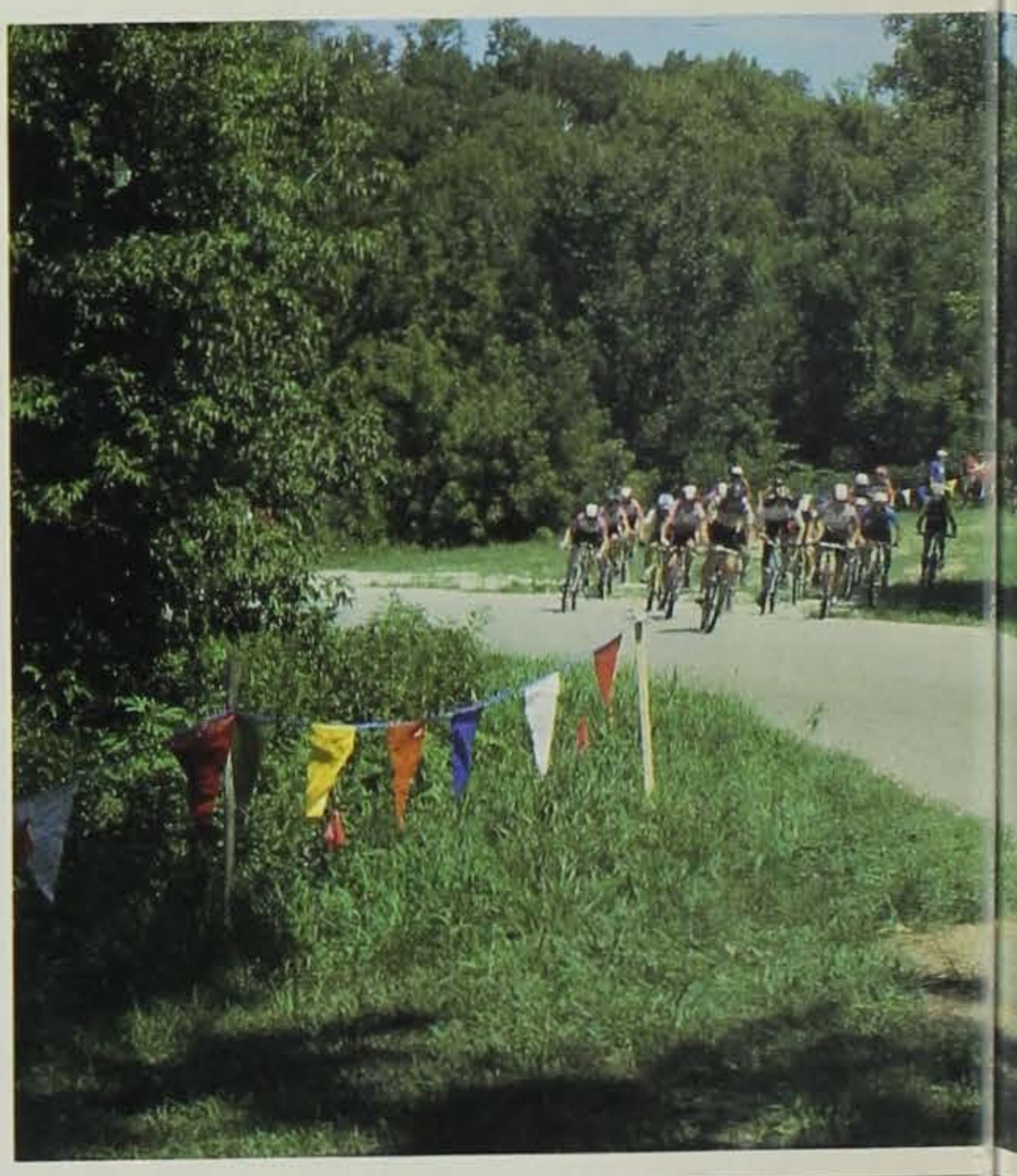
The Iowa state park system has grown tremendously since the 1930s. In 1935 and 1936 alone, the number of Iowa state parks increased from 54 to 65. State park development got its first big boost through programs established by President Franklin D. Roosevelt during the Great Depression. The Civilian Conservation Corps (C.C.C.), the Works Progress Administration (W.P.A.) and other "New Deal" programs all contributed a tremendous amount of capital improvement for state parks.

The lodges, cabins, beach buildings, bridges, trails, park residences and other facilities which these organizations helped to make a reality now form the backbone of Iowa's state park system.

The work begun in the 1930s continued into the next decade. However, World War II signaled a dramatic decline in both state park capital development efforts and in park attendance. Programs like the C.C.C. and W.P.A. were largely phased out with the beginning of the war. State park staffing was reduced and park attendance also suffered due to gasoline rationing and the fact that so many young men were in the armed forces. However, after World War II, significant funds were made available from the Iowa Legislature allowing some



Jon Okerstrom



Scot Michelson

Popular non-consumptive sports such as windsurfing and sailing produce no contaminants for the water and air.
◄

ambitious state park projects to be initiated, including construction of the lake at Geode State Park and park development in areas such as Lake Darling, Nine Eagles and Rock Creek.

During the 1950s, state park attendance increased dramatically. This decade saw a tremendous increase in the popularity of camping. The Legislature continued to make funding available and development was implemented at areas such as Prairie Rose, Green Valley and Viking Lake state parks. In 1955, a formal prison labor program was started using inmates from the Fort Madison Penitentiary and the Men's Reformatory at Anamosa. This program resulted in a great number of park improvements. Today, state parks in northeast Iowa still receive a great deal of labor for constructing and maintaining trails and fences, cutting wood, enhancing wildlife habitat, and other park projects from inmates housed at the Yellow River Forest Luster Heights Camp near Harper's Ferry.

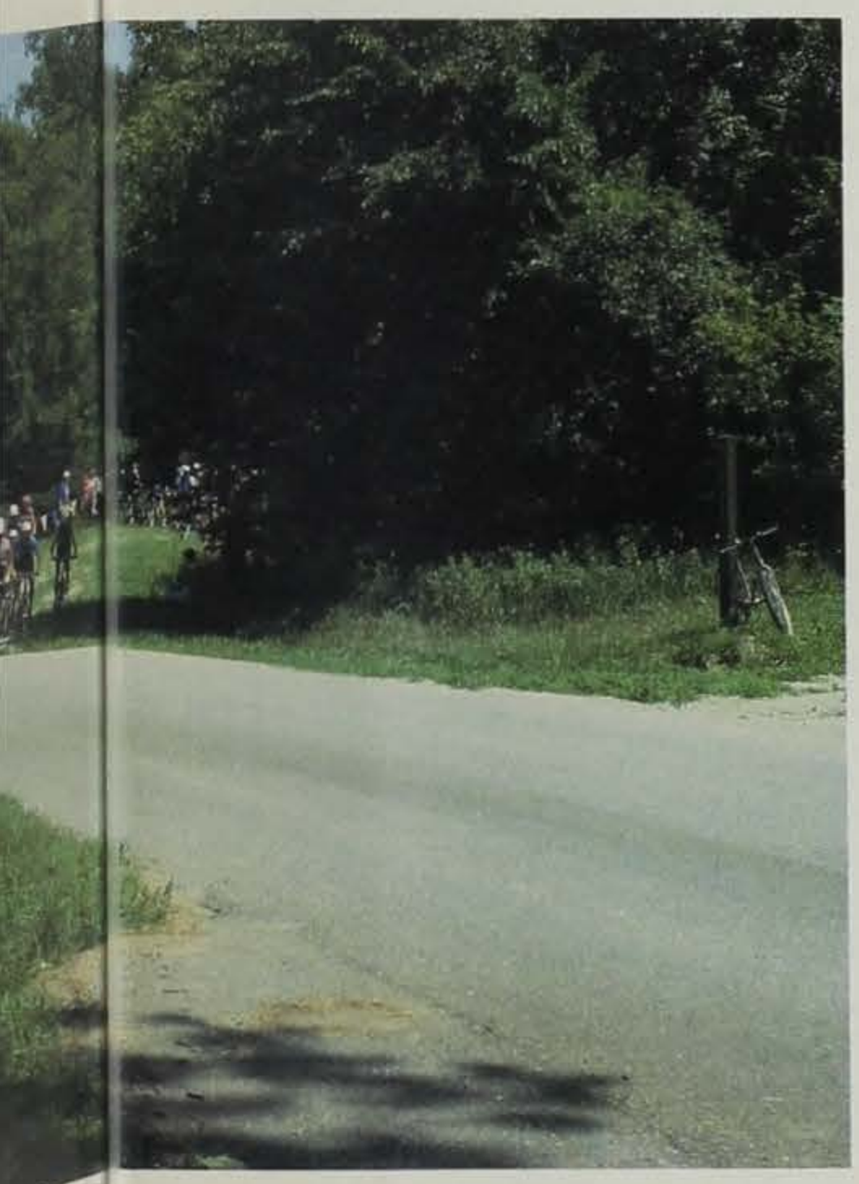
In the early 1960s, ongoing park improvement and expansion continued. Through the "Iowa Large Lakes" program, large lakes, strategically located to provide water-based recreation for the growing numbers of Iowa residents in urban areas, were established. The Brushy Creek, Volga River and Pleasant Creek state recreation areas sprang up from this concept.

In the 1970s, park visitation continued to increase, although the initial "energy crisis" did result in a slowdown in attendance during the mid-70s. Major capital improvements at Big Creek State Park resulted in Iowa's newest major outdoor recreation facility. Development was still not implemented to any great extent, however, at the other state recreation areas.

The decade of the 1980s saw a number of major outdoor recreation facility developments stalled early on due to a lack of funding. However, some important funding did fall into place and sizable projects were completed at George Wyth and Lake Manawa state parks and the Pleasant Creek State Recreation Area.

During recent years, a primary goal of the Iowa state park system has been to broaden opportunities available to visitors. Recent special efforts to provide some new

Bicycling in Iowa parks has become more popular with improved roadways and specially designed bicycle paths. ▼



Ron Johnson

activities to park visitors have included annual state park weeks, special events such as triathlons, buckskinner rendezvous, and placement of additional park facilities for non-traditional uses.

These "non-traditional" uses have become more and more popular in the last 10 years. One such special interest is windsurfing. The growing sport of windsurfing sends streaks of neon excitement across many of Iowa's lakes and occasionally on major rivers with participants both young and old. Hard-core wind enthusiasts sail from spring thaw until the water freezes in the winter. And then, some of them sail snow and iceboards to satisfy their addiction to wind power until the lakes become liquid again.

This nonconsumptive sport of windsurfing is a welcome activity in our state parks. They produce no contaminants to foul the water and air, and the only noise is the splash of water and the exuberant shout of a sailor who has just gotten some "major air time" (a big jump), or who is "really dialed in and cruising" (going very fast).

As we move into the 90s, windsurfing is experiencing a growth in popularity. Windy weekend days at the Pleasant Creek State Recreation Area near Cedar Rapids now attract 20 sailors or more, compared to a handful just a few years ago. A few organized windsurfing clubs actively promote the sport. Beyond that, getting started is as simple as approaching a sailor at your local beach and asking questions.

Bicycling Iowa's state parks has also been a growing trend the past few years. Not too many years ago, many state park roads were still undeveloped and there were no trails accessible by bicycle. Today, blacktopped roads in nearly all state parks and improved bicycle paths leading through scenic and peaceful areas such as Lake MacBride, Big Creek and George Wyth state parks have attracted greater numbers of pedal pushers. The combination of better bicycling conditions along with the existing lakes in many of the state parks has helped spur the growing trend of triathlons.

Triathlons are endurance events that see the participants competing in consecutive swimming, bicycling and running segments. At Pleasant Creek, hearty souls swim one kilometer (.625 miles), bike 40 kilometers (25 miles) and run eight kilometers (five miles). Participants can be stronger in one or two of the events and still enter.

There are many ways that Iowa's state parks continue to change to accommodate modern lifestyles without compromising the valued, environmentally sensitive lands and waters. For example, cable television is provided at the Emerson Bay Recreation Area campground. There is a new modern art sculpture and emergency helicopter landing pads at Pleasant Creek. Modern playground equipment is available in many parks and new air-conditioned cabins were recently constructed at Backbone State Park. These are quite modest additions to only a few of the state parks that have traditionally been, and continue to be, safe havens of tranquility and places for peaceful respite for wildlife and humans alike.

There are many ways that Iowa's state parks continue to change to accommodate modern lifestyles without compromising the valued environmentally sensitive lands and waters.

Jerry Reisinger is a park ranger at Pleasant Creek State Recreation Area near Cedar Rapids.

WARDEN'S DIARY

CHUCK HUMESTON

"LET'S GO TO THE PARK, DAD!"

During the summer I spend a lot of time at Pine Lake State Park, usually to check on anglers or boaters, but also to help out from time to time with a problem that may pop up. It brings back memories of when I was dealing with those problems on a daily basis as a park ranger.

Trying to keep a park as a place for rest, relaxation and renewal can be a task when you realize on weekends these places become small cities in themselves, with visitors who bring their problems from home to the park.

I got my feet wet the very first night. Sometimes people don't realize what parking lots are for. I drove by a shelter and there was a "motorcycle riding organization" with a bike parked in the shelter. My task was to see that the bike was parked in the lot. Now, you have to realize that many times the philosophy behind park law enforcement is, "just tell the person what they are doing wrong and they will cheerfully comply." In addition, the ranger may not be wearing a sidearm, cuffs, radio, stick or any equipment basic to the law enforcement profession because that may look "offensive."

So, wearing defensive equipment consisting of a keyring, I walked up to these guys, expecting these people to "cheerfully comply," and asked them to please move the bike. They were wearing chains, leather and colors. They were drinking, and they made it immediately clear I

Trying to keep a park as a place for rest, relaxation and renewal can be a task when you realize on weekends these places become small cities in themselves.

was not invited to the party. They told me where to go and they did not mean home. Wishing I had taken a job elsewhere, I argued with them and they finally moved the bike with a lot of grumbling. So went my first lesson in "cheerful compliance."

We also had a swimming beach, and for public safety we allowed swimming only in a roped-off area. One day I got a call to the beach. Out in the water a man was back-stroking across the lake. I yelled at him to come in the swimming area. He continued back-stroking and yelled, "Unjust laws must be broken to be changed," over and over. I drove to the boat ramp and waited, and I said, "Get out of the lake." He stood in the water and laughed at me. I had had it. "You are under arrest," I said. He stopped laughing; I suppose the key ring intimidated him. "I'm not getting in that car with you," he argued. "I don't really want to ride with you either," I countered, "but you either get out of the lake or I'm pulling you out." He came out, and we got in the car and headed for the jail in Iowa City.

He was dripping all over my car. I cranked up the air conditioner. "I'm cold!" he cried. "I'm sure you are, but I'm hot, it's my car, and remember you didn't want to ride with me anyway, so be quiet!" I answered. Now sometimes even the best of the law enforcement brethren do not understand park laws. I walked into the jail with my soaked prisoner and was met with,"You arrested him for *what*?!?"

Even basic rules to protect the area may not be met with "cheerful compliance." It was a hot, dry summer and the park was a tinderbox. We put up a four by eight foot sign at the entrance stating "NO FIRES -- HIGH FIRE HAZARD."

Driving by a shelter area I saw a couple cooking a steak with, you guessed it, a fire. I asked the man,"Did you see the sign at the entrance?" "Yes," he answered indifferently. "Well, please put out the fire."

"After we're done." he said. Seeing I was not going to get "cheerful compliance," and that the keyring wasn't helping, I walked back to my squad car and strapped on an emergency backpack sprayer full of water, walked up to their fire, took careful aim, pumped the sprayer -- squish, squish, squish -- and the fire was out along with the steak. "The sign says NO FIRES," I said. They left.

But you know, for every one of those situations, the uncooperative people are outnumbered by the people who say, "What a beautiful place. We love coming here; it's so peaceful." Thank goodness for the cheerfully compliant!

PRECYCLING: THE FIRST STEP

By using just a pen, your shopping list and a few minutes of your time, you can have a marked, beneficial effect on Iowa's environment. Precycling, the step before recycling, is truly volume reduction at the source, the highest priority on the waste management hierarchy.

"Precycling" means purchasing only those products that can be reused or recycled as well as making overall environmentally sound purchasing decisions as you shop.

Precycling also involves looking at how products are packaged. Consumers are lured by packaging used to attract attention and make a sale. Packaging is the fourth largest industry in the United States and accounts for one-third of all solid waste. Approximately 90 percent of packaging is thrown away immediately after use. Each person in the U.S. disposes of 440 pounds of packaging each year.

The amount of plastic packaging is expected to double in this decade due in part to the increased use of convenient microwaveable foods and the consumer demand for single-serving items. Currently, more than 57 billion pounds of plastic are produced annually in the U.S. and 13 billion pounds of that plastic make up food packaging. Only a small percentage of this plastic is being recycled and the combination of many of the types of plastics in microwaveable containers makes recycling some of these containers impossible.

Julie Sparks

▲
The first step in precycling is to *think* before you buy. Single-serving and disposable products are not only "wasteful" but costly, too. Look for reuseable, recycled, or at least recycle*able* products.

According to the U.S. Department of Agriculture, Americans spent $32.3 billion on food packaging in 1988 — up from $28 billion in 1986. In 1988, eight percent of the money consumers spent on food products paid for packaging. In 1986, this totaled more than the nation's farmers received in net income.

How much packaging is too much? Any packaging that does not directly relate to preserving or protecting the product can be considered excessive. Generally, few products require more than one or two layers of packaging. Ask yourself why a product has extra packaging. Is it to prevent tampering, to catch your eye or to make a sale?

Consider the added cost of the packaging you are buying (the packaging may be worth more than the food itself), and the additional cost you will be spending as a taxpayer to dispose of that convenience. This disposal cost has long been ignored, but it is an important "hidden" cost in each purchase we make.

To make an impact on our throw-away society, practice the five "R"s: Reduce, Reuse, Repair, Recycle, Reject.

Reduce packaging trash by purchasing products that are not excessively wrapped. Reach for products packaged in recyclable materials such as paper, cardboard, glass and aluminum. Look for the recycling symbol (a triangle of three arrows) on

packages, indicating that the package is recyclable or made from recyclable materials. Tell your retailers why you are not purchasing an overpackaged product and what kind of

packaging you would rather purchase.

Reduce the amount of junk mail you receive by writing to Direct Market Association, 6 East 43rd Street, New York, New York 10017. While you will continue to receive mail from existing lists containing your name, requesting to have your name removed from any new mailing lists will prevent new sources of junk mail from arriving at your door.

Reuse anything you can. Glass jars can be reused and recycled. Plastic margarine tubs can carry food to work -- the list of ideas for extending the life of common products is almost endless.

Repair rather than dispose of broken small appliances and toys. Purchase repairable items with longer lifespans.

Recycle. Organize a recycling program at your office, school, apartment building or church.

Reject. By rejecting overpackaged products, you are practicing "demand-side waste management." A product that stays on the shelf too long will be replaced by a product consumers will buy. A wholesaler with no demand will stop placing orders with the manufacturer, who may start looking at their product in a different, and perhaps recyclable, way.

For more information, contact the Waste Management Authority Division, Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

Winter Upland Wildlife Survey

The recently completed 1991 winter upland wildlife survey in Iowa indicated an increase in sightings of pheasants, quail, partridge and jackrabbits over those observed during the last few years, according to Terry Riley, wildlife research biologist for the Department of Natural Resources.

During the first half of the 1990-91 winter, most of the state was covered with snow. Complete snow cover probably was a major factor contributing to the unusually high number of observations this year, whereas the lack of snow cover hindered counts during the previous four years.

Information gathered from a northern Iowa study indicated pheasant survival was pretty good this winter where there was adequate winter cover. Riley said that pheasants don't survive well in areas where winter cover is poor. "Complete snow cover reduces the value of poor winter cover even further," said Riley. "Based on this information, it is safe to say that Iowa's pheasant population survived winter in good shape in most areas, and pheasant numbers should be relatively high for this year's nesting season."

Areas with poor winter cover and poor nesting habitat probably will experience similar or lower populations than in 1991. "A lot of this now depends on how well nesting and chick survival go this spring and summer," said Riley. If there is good weather for nesting and brood-rearing, fall populations should be similar to, or higher than, those in 1990.

Quail and partridge sightings were affected by snow conditions also. These birds stand out much better against the snow and can be readily seen.

Ron Johnson

Quail and partridge survived well during the winter, but the August 1990 survey indicated numbers were down for both of these species when compared to 1989. "Mild spring and summer weather will be needed to ensure both of these species continue to grow in number and expand their range in Iowa," says Riley.

Studies indicate Iowa's cottontail and jackrabbit populations did relatively well during the winter. According to Riley, complete snow cover made them easier prey for predators, but high numbers for both species last fall should have resulted in good winter populations. "Unless we have a poor reproductive season this year, Iowa's rabbits should be able to sustain the healthy populations experienced during the last few years," said Riley.

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:
--Aug. 1, Charles City
--Sept. 5, Anamosa

Environmental Protection Commission:
--July 15-16, Des Moines
--Aug. 19-20, Des Moines
--Sept. 16-17, Des Moines

State Preserves Advisory Board:
--Sept. 10, Des Moines

Amana Recycling Efforts Raise $1,000 for Iowa Wetlands

Employees of Amana Refrigeration, Inc., recently presented the Iowa Natural Heritage Foundation with a check for more than $1,000 as the culmination of an innovative, one-year-old recycling program.

With this program introduced in April 1990, Amana employees deposited newspapers, plastic jugs and used motor oil in special outdoor containers on company property. Amana then has the materials recycled. The program was expanded last fall to include use by residents of the Amana Colonies. Total amounts of materials collected during the year were:

-- More than 91,300 pounds of newspapers

— More than 5,300 pounds of plastic jugs, equivalent to approximately 34,000 one-gallon milk jugs.

— More than 1,300 gallons of used motor oil.

The company estimates that if the newspapers and milk jugs had gone to landfills, they would have taken up about 14,000 cubic feet of space.

"Usage was much heavier than we expected," said Henry Meyer, Amana chairperson and CEO. "The employees have been very enthusiastic and supportive of the program and usage continues to remain high. With many of our employees coming from small communities without recycling systems in place, the Amana program is very convenient for them."

The company received $506 in refunds for the recycling of newspapers and plastic. Amana contributed $500 and the total of $1,006 was presented by employees to Gerald Schnepf, executive director of the Iowa Natural Heritage Foundation. This year's contribution will support the Foundation's "Wetlands for Iowa" program.

The company also announced plans to continue the program. Funds next year will be used by the foundation for tree planting and nature trail development in Iowa.

Iowan Finalist for National Volunteer Award

Twilah Raes of Welton was recently selected as one of two finalists to receive the Winchester Group's Hunter Education Volunteer Instructor of the Year award.

The award is given annually to volunteers who have advanced the cause of safe hunting through training and education.

Among Raes' achievements since she became a hunter education instructor in 1983, include coordinating seven hunter education classes a year, organizing an experimental course using a shooting preserve and volunteer instructors to provide an actual pheasant hunt for the students. Raes also began an adult education course covering deer hunting techniques, and has testified on behalf of the Iowa Wildlife Federation in Illinois concerning the need to preserve fragile Midwest wetlands.

The National Hunter Education conference was held in San Antonio, Texas April 12.

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Richard Schmitz of Ankeny caught the new state record muskellunge on April 20, 1991, from Big Creek Lake in Polk County. The muskie weighed in at 39 lbs., 13 oz. and was 51 inches in length.

National Recognition to Iowa Programs

Two Iowa programs promoting innovative sollutions to environmental problems received a National Environment Achievement Award June 4 in Washington, D.C.

Osage Municipal Utility Company was recognized for its comprehensive community energy program that saves the town $1.2 million annually in energy costs. Energy-saving measures include using high pressure sodium bulbs in street lights, giving residents free fluorescent light bulbs and providing free energy audits to local industries.

Also receiving an award were the Practical Farmers of America with their research that seeks to improve farming methods throughout the Midwest. Among other activities, the cooperating farmers conduct field trials which compare a customary farming practice side-by-side with a single alternative practice.

The awards were presented by members of the Renew America Searching for Success program, in partnership with National Environmental Awards Council.

Editor's Note

The logo is back! After 10 months without recycled paper (by the State of Iowa's definition), we now have a paper stock that meets the State's requirements and we can use the recycled logo again.

Previously, the *Iowa Conservationist* had been using a recycled paper that did not meet the State's post-consumer waste guidelines.

This issue of the *Conservationist* is printed on Sunweb recycled paper, manufactured in Deferiet, New York, and distributed by Champion.

The paper, a 60-pound coated stock, contains 50 percent recycled fibers, of which 10 percent are post-consumer waste. Champion's definition of post-consumer waste -- "waste made up of finished materials which would normally be disposed of as a solid waste having completed its lifecycle as a consumer item" -- is acceptable by the State of Iowa standards and the recycled content exceeds Iowa's requirements.

Once again our recycled logo will appear on page 2.

Iowa Energy Data Bank Now Available

Did you ever wonder how much energy is used in Iowa? Or need to know what the price of gasoline was 20 years ago? Now you can find answers to these and many more questions by making one simple phone call.

The Iowa Energy Data Bank provides data on energy supply, distribution and consumption in the state, as well as the entire country. Topic categories currently include general energy-related statistics, renewable energy resources in Iowa and prices of various fuels.

The data bank is stored and accessed through a computer bulletin board and is available to anyone with a computer capable of communicating at 300, 1200 or 2400 baud by dialing through a modem (515) 242-6345.

For more information concerning the operation or contents of the data bank call Richard Ney, Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034, (515) 281-7018.

OUTDOOR ADVENTURES

Article by Cele Burnett
Photo by Lowell Washburn

What's wet up to its knees in marshwater and muck, catches crayfish, spiders and tiny red worms, and frequently yells, "Hey, look at this?"

Give up? It's a rambunctious group of kids on their first marsh adventure.

Such hands-on activities are designed to break down barriers, both physical and psychological, to the point where people can feel themselves not only completely surrounded by their natural environment, but totally involved with it as well.

Once people have experienced this involvement with nature, they are more hesitant to destroy it. They realize that to do so would be to destroy themselves. And, in the process, they have achieved a heightened awareness and a greater sensitivity for all forms of life, including fellow human beings.

Some people call it acclimatization, and some call it nature sensitivity. But most call it fun! It is a total sensory plunge into the natural environment. The kids pick up the ooze at the bottom of the marsh, smelling the decaying plant life and straining the slimy stuff through their fingers. They share in the experience of sitting, motionless and silent, in the tall grasses of the prairie, listening to the insects drone and the wind whisper through the grass. They feel the cool dampness of the deep woods, searching for the myriad of colors and shapes of decomposing fungi and eagerly tasting the sweetness of wild raspberries and mulberries.

. . . hands-on activities are designed to break down barriers, both physical and psychological, to the point where people can feel themselves not only completely surrounded by their natural environment, but totally involved with it as well.

They realize the significance of the food chain and understand the interconnectedness of life, with humans as one link in the chain. They've watched the producers, consumers and decomposers acting out their life roles. They've seen the mushrooms growing on the rotting log, graphically illus-

trating the life-to-death-to-life processes of nature. They've torn apart a pine cone or a leaf and, when told to put it back together again, they realize it's just not possible.

Whatever you call them, these outdoor adventures are sensory and sharing experiences for this group of kids sloshing into the water, hand-in-hand, sometimes hesitantly, to discover their shared natural home together.

Cele Burnett is a naturalist with the Story County Conservation Board.

CALENDAR

JULY 20-21

Frontier Days. Fort Defiance State Park, Emmet County, is the location for black powder shooting, knife and tomahawk throwing and early 1800s trades. For more information, contact Fort Defiance State Park, Estherville, Iowa 51334, (712) 362-2078.

JULY 20-21

Black Hawk Water Carnival. Carnival, street parade, water float, fireworks and 10k run at Black Hawk State Park, Sac County. For more information, contact Black Hawk State Park, P.O. Box 7, Lake View, Iowa 51450, (712) 657-8712.

AUGUST 10

Whaletown Triathlon. Swimming, running and biking event at Lake Anita State Park. For more information, contact Lake Anita State Park, Rte. 1, Anita, Iowa 50020, (712) 762-3564.

AUGUST 10-11

Chichaqua Free Skinners Rendezvous. Crafts, nature hikes, canoe rental and displays at the Chichaqua Wildlife Area, five miles east of Elkhart. For more information, contact the Chichaqua Wildlife Area at (515)967-2596 or the Polk County Conservation Board, Jester Park, Granger, Iowa 50109, (515) 999-2557.

AUGUST 24

Big Creek Triathlon. Swimming, running and biking event at Big Creek State Park. For more information, contact Des Moines YMCA, 1000 Porter, Des Moines, Iowa 50315, (515) 285-0444.

AUGUST 17

Iowa Bluebird Conference. Springbrook Education Center at Guthrie Center, is the location for a conference on bluebirds and other nongame wildlife. For more information, contact Iowa Department of Natural Resources, Wildlife Research Station, Rte. 1, Boone, Iowa 50036, (515) 432-2823.

AUGUST 24-25

Iowa Game Fair and Outdoor Recreation Show
Black Hawk Park is the location for the sixth annual game fair. Events include shooting activities, outdoor recreation exhibits, seminars and a photo contest. For more information, contact Bert Hallewas, Black Hawk County Conservation Board, 2410 W. Lone Tree Rd., Cedar Falls, Iowa 50613, (319) 266-6813.

SEPTEMBER 28-29

Fort Atkinson Rendezvous. Buckskinners, period costumes, food and crafts, military drills and theatrical production within the historic fort walls. For more information, contact Volga River State Recreation Area, Rte. 1, Box 72, Fayette, Iowa 52141, (319) 425-4161.

The Problem With Paint

How much paint do you waste? Do you buy much more than you need? Is an extra gallon really necessary to make sure you don't run out or to have on hand for touch-up? Can the touch-up paint be found when the need arises? Or, are your paint supplies a useless, mysterious hodge-podge?

Ron Johnson

More than one billion gallons of paint are purchased annually in the United States in an attempt to brighten and lighten the old homestead. But while we are doing some sprucing up, we can also keep our environment clean by learning how to properly dispose of paint.

If liquid paint and paint products go to the landfill, down the drain or into storm sewers, pollution of water supplies can result. Pollution involves costly clean-up which eventually comes out of everyone's pocket.

Because they can get smashed in garbage truck mechanisms and result in a costly mess, liquid paint or paint products are rejected by sanitary haulers. Oil-based paint and other paint products such as paint brush cleaners and paint thinners are flammable and can cause fires or explosions, damaging trucks and injuring workers. If liquid paint or paint products end up in the landfill, they can mingle with rainwater and other liquids to form an undesirable leachate that can seep down into water supplies and contaminate our drinking water.

If paint or paint products are dumped down the household drain, they go to the waste water treatment plant or to a septic tank. Many waste water treatment plants were designed before the large array of chemicals we now use were around. Some chemicals may pass through the treatment process without being substantially affected and be released back into rivers, lakes and streams. Other chemicals can actually destroy the bacteria that process water in a septic tank. If this happens, the chemicals can travel to our groundwater.

Tossed in the storm sewer, paint and paint products have a direct route into rivers, lakes and streams. Fish, wildlife, plants and humans do not find

by Marilyn Krogulski

paint or paint products to be a healthy addition to their water supplies.

What can be done? We can reprogram our behavior to save money and help protect our environment.

❖ When shopping for paint, always choose a latex paint if possible as it is a better choice for the environment. Latex paint has fewer hazardous ingredients. Only water is needed for thinning the paint and cleaning brushes. Oil-based (solvent-based) paints, paint thinners and brush cleaners contain many toxic ingredients. Some of these ingredients may cause cancer and birth defects. In case of fire, more danger exists due to the flammability and explosive characteristics of oil-based paint, thinners and brush cleaners. Choose oil-based paint only if a latex paint will not be suitable for your project. Avoid aerosol paint, which is also extremely flammable and explosive.

❖ Buy only what is needed. If you think paint may be needed for touch-up, be realistic about the amount to save.

❖ Label paint so you know for which project it was used and when. Seal the paint and store it upside down so there is less chance of air entering and drying it out. Store it in a warm, dry place where it will not freeze.

❖ Do not keeppaint until it becomes unusable. Do a good deed -- give away excess to a neighbor, community theater group or service organization.

❖ When you paint, read the directions on the can. Wear gloves and masks if advised to do so. Always make sure you have proper ventilation. Have windows open and use fans to pull fumes outside. Keep children away from the location you are painting. Because paint fumes may permeate the entire house, make sure children are out of the house and do not return until the fumes are gone. Pregnant women should not be involved in painting or be exposed to fumes.

What happens when we decide to turn over a new leaf? What do we do with the motley assortment already stacked up in our "paint pit"?

❖ Thinners and brush cleaners can be filtered and reused. Strain your thinner or brush cleaner by pouring it through a coffee filter in a funnel to catch the paint debris. Dry out the filter with the particles in it, wrap it in newspaper, and put it in the trash. Try to keep thinners and brush cleaners in the original containers, not those that formerly held food or drinks as someone may inadvertently ingest them. If you do need to use a different container, label it clearly. Store your thinners and brush cleaners in a safe, well-ventilated area. Give away unwanted, usable thinners and brush cleaners.

❖ Check your paints. If any of them are completely dried out, they can go in the trash. Leave lids off cans so disposal workers will know the paint is dried out.

❖ If the paint is still usable, use it up or give it away.

❖ To dry out unusable water-based (latex) paint:

-- Dry liquid paint in an area with adequate ventilation, away from children and pets.

-- Dry smaller quantities by removing the paint can lid and allowing the liquids to evaporate. Stir occasionally to hasten evaporation.

-- Pour larger quantities in layers (about one-half inch thick) in a cardboard box lined with plastic or newspaper. Repeat as necessary.

-- For paint that has separated and cannot be mixed, pour off the clear liquids on top, leaving a semi-solid paint sludge in the can to dry. Pour the liquid into a cardboard box lined with plastic and mix with an equal amount of absorbent materials (such as clay-based cat litter). The end product should be similar in texture to the absorbent.

Paint the homestead if you want, but don't paint water supplies with pollution. Phase out excess paint and phase in a cleaner, safer environment. Keep in mind that when you buy a product, you also buy the responsibility for its safe use and safe disposal.

Call the Groundwater Protection Hotline, 1-800-532-1114 and ask for a fact sheet about paint. Fact sheets on pesticides, cleaning products and motor oil are also available.

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

Watch for this symbol when you shop. This symbol is used in Iowa to designate household hazardous products which need to be used as directed and disposed of properly.

Marilyn Krogulski is a program planner for the department's Waste Management Authority Division in Des Moines.

Cruising for Clams

by Gary Ackerman

Rick started clamming as a summer job while still in high school. He started as a "tender," assisting an experienced diver, for the usual 10 percent of the gross and personal expenses while traveling. He quit the second year to organize his own operation. His family already owned an old pickup truck, a good flat-bottom boat and an old 33-horsepower engine. All he'd need was a compressor, wet suit, regulator and accessories. About $1,000 should pay for the necessities, including Iowa license fees costing $30.

This scenario is not unlike many others that occur yearly as many new clammers enter a most competitive and dangerous venture on the Mississippi River along Iowa's eastern border. The occupation of being a commercial fisher for freshwater mussels, called "clams" by the clamming community, is an attractive way to get rich quick. Clammers have increased rapidly since 1986, about doubling each year. In 1990, the states of Iowa, Illinois, Wisconsin and Missouri licensed more than 2,000 commercial clammers. Some 26 commercial clam-buying stations were distributed on the banks of the Mississippi River.

Each year, thousands of tons of freshwater mussel shells are sold to Japan for use in the cultured pearl industry. Perfectly round spheres are cut from the thicker portions of the mussel shell and then implanted into oysters. The oyster reacts by overlaying the sphere with thin layers of nacre, or mother-of-pearl, and the result is a cultured pearl.

For more insight into the life of a young clammer, let's go along with Rick and his tender, Art, on a typical day of work.

I jumped into his new rig. He buys a new truck every year. This year, it was a bright red four-wheel drive. It was pulling a long and impressive custom-built aluminum plate boat backed by a pair of shiny new 75 horsepower outboard motors. I guessed it would take two of them to push the big boat when overloaded with tons of shell. The trailer was also custom-built of aluminum. A local welder built it to specifications to fit the boat. It featured custom rollers over the bottom. It had rear guides along each side with special submersible lights mounted in them. The trailer's fenders featured side steps to climb up and over the steep-sided boat, and it had an electric winch

to load it. No doubt at all — the entire rig had to cost in excess of his annual wage. The truck roared, heading north toward McGregor.

The first stop was the River Side Cafe for coffee and doughnuts. Talk was mostly about clamming. Local buyers were quoting very high prices for washboards this year, referred to as "boards" to clammers. Price was to range from $1 to $1.50 per pound, depending upon the size and quality of the shell. Live boards would bring premium prices, but they would have to exceed a four-inch minimum size. Dead boards under three and one-half inches would bring only junk prices of 10 cents per pound; hence, they are named "tenners" by clammers. Threeridge and other commercial clam species including pigtoe, pimpleback and mapleleaf would bring 50 cents per pound. Generally, these species are sold in the aggregate by most clammers. No doubt these price increases will encourage even more clam harvest this year. It is almost unbelievable how clam prices have inflated recently. In 1980, clams sold for an average of only a dime per pound. Because of limited resources and increasing demand in the Orient's cultured pearl market, the same kinds, only poorer quality, are selling on the riverbank for $1.50 per pound.

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Biological considerations raise concern for the washboard mussel. Size distribution of the commercial catch indicates that the washboard population in the Upper Mississippi River is a very old population of organisms. Most of the live shells harvested range in age from 20 to 45 years. Most of these large, old shells have now been harvested. Washboards grow very slowly at this latitude; it might take 20 years to produce a washboard three and three-fourth inches; perhaps 25 years to produce one four inches. Our limited data indicates that washboards have very poor year-class development. These same diving surveys showed highly variable populations of young washboard throughout the river. Realizing these concerns, resource managers have established restrictions to

Jerry Leonard

Tom Boland

A clammer lowers a collection net to his partner waiting in the river below.

maintain current populations despite increased clamming activity.

Rick and Art remained quiet as we drove to Marquette where we launched the boat. A new boat landing was being developed under the bridge. It has the potential to accommodate a great many recreationists. A gentle shove rolled the boat into the water, and soon we were moving down the river.

Morning sun loomed over Wisconsin revealing a light green cast to seemingly naked trees clinging to shallow soils of the steep hillsides. Several small flocks of mallards flew rapidly upriver propelled by a chilly southeasterly breeze and by the primordial urge to continue the species. The first waves were gentle swells, but soon hard winds collided with heavy currents to create forceful whitecaps. The river was high, swollen by spring runoff and the current was treacherous, racing along Iowa's rocky bank carrying with it midwestern mud.

Nearly every clammer I have talked with relates some horror story about a close encounter with almost certain death. Always it was plain dumb luck or uncanny cunning that saved them from their fate. Clamming is dangerous. A few years ago, a father and son drowned near Prairie du Chien when their boat sank and they became entangled in their clamming gear. Last year, a young man drowned while attempting to swim from shore to a clamming boat. Two divers were severely burned by some unknown caustic chemical leaking from sunken barrels downstream from the Quad Cities. Many careless divers lose their hearing to an infection of the inner ear caused by a water-borne bacteria. It is common to observe unattended clammers pulling their boat around with their lifeline. I've stopped them and asked them to get out of the navigational channel before being run over by a tow boat! These are the ignorant. Then there is always that unexpected accident just waiting to happen.

Art's hoarse voice was clearly audible over the low growl of the motors as the boat slid slowly over the water along the steep rock banks, just above where the Wisconsin and Mississippi rivers collide. He picked a protected eddy just below an outcropping rocky point to give them some protection from the currents.

"There was a good bed of boards here last year. There ought to be some of 'em left," yelled Art. "Rick, do you think I should go a bit closer to shore? The depth sounder shows it's 30 feet deep here. We'll have a hard time holding the boat on the riprap."

Rick quickly responded. "Move the boat over the 20-foot contour. That will put us about mid-way and on top of the riprap. When you get the boat positioned, signal and I'll drop the anchor," he said. Rick skillfully tossed the light anchor overboard, carefully playing out about 50 feet of line, jiggling it until it hooked firmly among the rocks. Rick was busily pulling on a dry suit he had just purchased. He was going to give it a try for early spring work, for the cold water was impossible to work in with the usual wet suit. He started the com-

Tom Boland

A net full of washboard clams is unloaded and sorted into piles by grade and size.

pressor, carefully checked his regulator, and adjusted his face mask before taking several deep breaths from his mouthpiece. Everything was ready to go. Lastly, he strapped on his 60-pound weight belt before climbing down the steel ladder on the side of the boat and into the murky depths of the river. Art carefully played out a 100-foot lifeline which had the air hose attached to it with duct tape. When Rick was positioned on the river bottom, Art slid a five-foot net tied to a steel ring down the lifeline. This would be snapped into his shoulder harness, just under his head and it would fit down between his legs as he crawled over the bottom. This would leave both hands free for rapidly picking up the clams from the bottom of the river.

In about 20 minutes, Rick gave a sharp pull on the lifeline to signal it was time to pull up the catch. Art pulled up the net containing a mixture of 80 pounds of dead and live clams. He rapidly emptied the net before lowering the lifeline back down to Rick. Art then began washing and grading the clams. The largest box held the "tenners." Another box held dead washboards approximately four inches in size, another held the larger dead washboards, and a large plastic tub of water held live washboards. The last tub held other commercial shells over two and three-fourths inches in size.

By the end of the day, they usually had a 100-pound mixture of threeridge, mapleleaf and pigtoe which they sold in the aggregate. Art carefully scrubbed debris from the dead shells, measured them, and placed them carefully in their respective containers. He followed the same procedures with live ones, but was extra careful as he measured smaller clams -- passing them through an aluminum ring of the precise minimum size.

The net was filled five times before Rick surfaced to rest and warm up with coffee. He was chilled, shaking slightly, and his lips were white-blue. But soon he recovered to return to the depths of the river. He made repeated dives throughout the day, taking good rests between dives, and moving the boat slowly downstream to seek new territory. The day began at 9 a.m. and it ended at 4 p.m. His harvest that day was 1,600 pounds of clams, consisting of 800 pounds of "tenners," 600 pounds of dead washboards, 150 pounds of live washboards and 50 pounds of other clams. He sold them that evening to a local buyer for a total of $780. Discounting Art's share and normal operating expenses, but not counting his capital investment, he would clear $677 for a dangerous and difficult day's work. "Some days are better, but we have a lot more poorer ones," said Rick.

I enjoyed spending the day with Rick and Art; however, I know why I don't want to be a clammer. I am sometimes motivated by the prospect of making money like almost everyone; but I am just too much a coward to risk diving into total blackness for hours, days and years. Besides, I'm claustrophobic!

Gary Ackerman is a DNR fisheries biologist for the Mississippi River area at Guttenberg.