

Volume 22

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Number 6

New Hatchery To Be Dedicated This Month



The Spirit Lake Fish Hatchery—hatchery is contained in the rear section of the building.

Jack Kirstein Photo.

Modern Spirit Lake Facility More Than A Hatchery

Denny Rehder

The new Spirit Lake Hatchery Building will be dedicated Saturday, June 29. The recently completed facility was first used for the hatchery operation this spring.

The new building offers a sharp contrast to the old building that has been used since 1917. Its clean, modern look has attracted hundreds of people.

The design of the new building was started over two years ago and the contract let last fall for \$161,520.

Varied Facilities

The building is made up of three main units. The central unit is a lobby with an aquarium, pool, and information desk. The aquarium displays Iowa fish on permanent display.

The east wing contains the hatchery operation, equipment room, fish lab, a rough lab, loading pit, three offices, and a crew room with lockers and showers.

The west wing houses the furnace room, restrooms, four offices, and a conference room and library. The conference room will accommodate large groups with facilities for showing slides and motion pictures.

Hatchery is Modern Labor-saver

The hatchery equipment is basically the same as that in the old hatchery with increasing use of plastics and metals in place of wood.

The young fish are moved to trucks with a minimum of handling. They flow through a water system by gravity which eventually brings them out of the building through a hose into the waiting trucks.

Fisheries personnel carried out their hatchery operation in the new quarters this spring. Production of young walleyes hatched and stocked came to 71,400,000 fry. This is above average.

Spirit Lake is the major walleye hatchery and an important northern pike hatchery for Iowa. However, it serves the entire state as do the other fish hatcheries.

The new facility is expected to cut labor involved with the hatching

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CIRCULATION THIS ISSUE 54,000

COMMISSION MINUTES

Mason City
May 1, 1963

The Conservation Commission accepted the resignation of Glen Powers as Director and named Everett Speaker, Superintendent of Biology, as acting Director for the Conservation Commission effective June 1, 1963.

FISH AND GAME

A resolution was adopted asking the Iowa Congressmen to request the establishment of a cooperative fishery research unit at Iowa State University.

Approval was given for the construction of a latrine at a cost of about \$4,000 on the Ventura fishing access at Clear Lake.

Approval was given for an experimental snagging season at Littleton Dam on the Wapsipicon River contingent upon the results of a study this year to determine the species composition of that area.

An option was accepted for land purchase in Monroe County consisting of 225 acres at a cost of \$70 per acre for a small lake site.

Opening dates for 1963 hunting seasons were set as follows: November 9 for pheasants, November 9 for Hungarian partridge, November 2 for quail, September 14 for squirrels and rabbits and October 19 for raccoon hunting.

Approval was given for zoning of Lake Odessa to restrict boat speeds in certain areas such as ditches and duck hunting areas.

Due to recent passage of Senate File Number 238 allowing transfer of fish and game areas to local governing bodies, approval was given to proceed on the original plans for small lake development by the Conservation Commission. This action to rescind plans which required cooperative acquisition, development and maintenance of such areas.

LANDS AND WATERS

The Commission met with a delegate from Clear Lake and Ed Lamson presented a plan for landscaping, repaving, and construction of a sea wall on the lake shore

adjacent to downtown Clear Lake business district. This plan was approved.

Permission was given for a fireworks display July 4 on Lake Cornelia in Wright County.

Approval was given for a permit for road widening and improvement adjacent to Nine Eagles State Park in Decatur County.

A permit was approved for the use of water from Lake Keomah by cottage owner, Jack Johns.

A report was given on the condition of the Springbrook State Park group camp by the Chief of Lands and Waters.

A request for a state pier to be constructed on West Okoboji Lake by the Arnolds Park Lions Club was denied due to safety precautions.

Permission was granted for scientific investigation of the Indian Village Preserve in O'Brien County by Professor David Baerries of the University of Wisconsin.

Approval was given the Engineering Section for the extension of Chautauqua Park Point on Storm Lake on the condition that riprapping of the extension would be paid for by other than state funds.

Two options were approved for land acquisition in the Whitebreast Forest area in Lucas County consisting of 104 acres of timber at a cost of \$1,560 and 161 acres at a cost of \$5,000.

Approval was given for two options adjacent to Lizard Lake in Pocahontas County consisting of 10½ acres at \$4,200 and four acres at a total cost of \$2,000.

COUNTY CONSERVATION PROJECTS

Buena Vista County received approval for an addition to the Buena Vista County Park consisting of 80 acres of land at a cost of \$8,000.

Fayette County received approval for an addition to Gouldsberg Park of 4.3 acres of land at a total cost of \$327.50.

Fayette County also received approval for the acquisition of 45.4 acres of land at a total cost of \$4,195 located approximately two miles northeast of West Union for an area to be called Duttons Cave Park.

Keokuk County received approval for the acquisition of 40.24 acres of land as a gift for a recreational area to be located one-half mile east of What Cheer and called Highland Park. This area is an abandoned clay pit containing eight acres of water area.

Benton County received approval for a revision of the development plan for Hannen Park.

Black Hawk County received approval for development of Canfield Park which would provide extensive archery range facilities.

Cedar County received approval for a development plan for Red Oak Park and Lamp Park.

Delaware County received approval for development plan for

In the Spring Comes Chubs

This is the season of the chub. There are dozens of varieties of chub and their role in the pattern of fishes is to provide food for other fish. They are also fun to catch in the spring and, surprisingly enough, they are pleasant to eat.

The Iowa Conservation Commission has been trying, without notable success, to encourage fishing for chubs in the spring. The great advantage to chub fishing is that they will bite; the disadvantage is that most of them are too small to be of much use or sport on ordinary tackle. But if you use a light fly rod and find a hole full of foot-long chubs, you can have an interesting time. And, if you can get them cleaned soon enough, they are remarkably good to eat.

It is no problem to catch a chub. He is a most accommodating fish with an appetite that is never satisfied. They also provide their own bait, which is quite a help. All you need is a couple of worms as "primer," then you can use a chub, piece by piece, to catch other chubs.

Sunday was not the kind of day when most people like to fish. The sun was hidden, the wind was a bit raw and there was a touch of rain in the air. But small boys are not bothered much by these things, nearly so much as their elders. One of the easiest ways to entice a small boy—or a couple of them—is to put him on a creek bank with a fish pole and let him try and catch a chub. You can observe and give advice, or you can retreat a safe distance to do your own fishing and let him work out his own problems.

Small chubs delight in removing worms from hooks. They have tremendous energy in pulling at loose ends of worms and there is something distinctive about the way they jerk on a line. The first thing to do is to get a small chub and start cutting him in small pieces beginning with the tail.

Chubs are partial to eating other chubs, particularly the tails. The advice is to use small bait. This wasn't true Sunday when the chubs, running up to 14 inches, delighted in trying to swallow large chunks of what might have been their child. They did, however, die the line at eating the head of the chub. They moved it about a bit, though they were curious about their late lamented friend; but they refused to take the bait. When they faced the glassy stare of another chub they drew back. But there was not another part of the chub that they were not intent on devouring.

Chub fishing can be fun if you like to catch fish and aren't particular what size they are. It takes light tackle and the admiration of a couple of small boys to give the afternoon the right touch. You can be sure that the chubs and the boys will cooperate. *From Tipton Conservative.*

the Dundee Wildlife and Fishing Access Area.

Grundy County received approval for a revision of a development plan for the county school arboretum area operated eight miles north of Grundy Center.

Ida County received approval for a development plan for the Hieber Access Area located on the Maple River.

Marion County received approval for the revision of the development plan for Veterans Park which changes the use of a large barn located on that area.

Scott County received approval for development plan for Scott County Park consisting of 1,275 acres of land which would provide many outdoor recreation facilities for year around use. Plans call for development of a camping area, picnic areas, planning and development of a winter sports area, and an 18-hole golf course.

GENERAL

Travel was authorized for commission personnel to the American Association for Conservation Information annual meeting at Omaha, Midwest Fish and Game Officers meeting at Denver, Colorado, Association of Conservation Engineers at Fort Collins, Colorado.

BOWFISHING GIANT RECORDED

Attention, all ye olde bowfishers! You haven't been forgotten. Measure and weigh those monster rough fish you thread on a feathered shaft.

If the hook and line fishermen can establish their Iowa record, why not the bowfishermen, too?

The rules for legal entries are the same as hook-and-line fishing. Fish must be measured from snout to tip of tail (total length); must be weighed on scale legal for trade to within the nearest ounce, and weight must be tested by signatures of two witnesses. Photo of archer and fish should be submitted with following data to the State Conservation Commission, Fish Orders, East 7th and Court, Des Moines: name and address of angler, date, name of stream, lake, and county where caught, total length, weight, and the names and addresses of two witnesses to the weighing.

Yearly records and standing records over the years will be established.

Put on your hip boots and step up your favorite fish plinkin'. Let's see who can really bring home the rough fish lunkers.

IOWA MAMMALS

Eldie Mustard
Game Biologist

BOBCAT (Wildcat)

Lynx rufus

Identification Bobcats range in length from 30-40 inches including tail. Weights generally from 12-25 pounds, rarely up to 30 pounds. Females are smaller than males. Tail usually has several black markings, but tip is black above and light below, not black tip as in lynx.

Habitat Irregular occurrence in Iowa, probably found along major streams which afford isolated habitats.

Reproduction One litter of 2-4, usually 3, kits per year following a gestation period probably greater than 63 days. Breeding occurs mainly in late winter. Kits stay with mother until late summer or early fall, then hunt by themselves.

Food An adept and ardent hunter, a bobcat may cover 20-25 miles in a single night on an irregular hunting route. This carnivore's food consists mainly of small mammals, deer can be taken mainly in winter. A kill is partially covered with debris, the bobcat returning to feed.

Bobcats are primarily nocturnal, can swim well, and can climb trees easily, often resting in tree limbs. Den sites may be located in a log, rocky ledge, or a cave.

Although probably quite common in Iowa, the bobcat is not a protected species and a hunter occasionally kills one. Because of its rarity, they do not conflict with man's interests in Iowa and should be given status-protection because they are one of Iowa's vanishing wildlife species. Iowa presently has a continuously open season and pays



Gone now, the bison roamed Iowa prairies in great numbers.

a bounty on bobcats. Bobcat fur is used for jackets and trim.

Animals of Iowa's Recent Past

The elk (*Cervus canadensis*), wolf (*Canis lupus*), bison (*Bison bison*), black bear (*Ursus americanus*), and mountain lion (*Felis concolor*) were once found in varying abundance in Iowa. They were here—but they are now gone.

What caused these species to be extirpated? Most amateur naturalists would immediately reply that hunters were responsible, but that is only part of the answer, and a small part at that.

These animals were creatures of the wilderness and they simply could not compete with the continual press of civilization as we know it in Iowa. In a sense, they couldn't tolerate our civilization and our civilization couldn't tolerate them for one reason or another.

BISON

The bison, as an example, once roamed the state in fairly large numbers. This animal furnished meat and clothing to many of the early settlers and travelers, and

was a very important animal to the early frontiersman because of this. Iowa's settlers brought three things with them: the ax, the plow, and the desire to create an agrarian empire out of Iowa's vast prairie wilderness. Acre after acre of prairie grass was turned under and where the bluestem and compass plant once grew corn and other crops were planted to feed an expanding civilization. Each acre of grassland that fell under the plow represented a necessary, but irreparable loss of the habitat bison needed to survive. Eventually, there was no more prairie and no more bison.

In a way, most naturalists and conservationists are sentimental romanticists at heart, for who has not felt his pulse quicken when reading of the early explorers' accounts of buffalo herds which stretched from horizon to horizon and thundered past their vantage points for hours?

As a means of getting us back to reality, we recall a situation where an ecology professor was giving a lecture on relationships of various animals to their habitat, and he started dreamily telling about the vast herds of bison which once were found on the prairie and plains. Suddenly, as though his reverie was broken, he stoically commented, "What would we do with 40 million buffalo?"

Indeed, what would we do with them? Would the Iowa farmer tolerate them trampling his corn, eating forage intended for cattle and sheep, and tearing up his fences? He would not and he could not if he himself were to survive.

The buffalo was a victim of civilization and, after all, the hunter is only part of civilization as we know it. It is true that hunters killed millions of buffalo, some used for food and clothing and some left to rot on the prairie sod where they fell. In many respects the decline of the bison is a sorry tale of wanton destruction, but the bison's doom was predetermined when the first settler loaded his

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The Woodlands of Western Iowa

William Farris
District Forester

Only a few trees and shrubs were reported by early travelers and botanists in western Iowa. This tree growth in the mid 1800's was almost entirely confined to stream borders and low protected ravines. Only occasional scattered trees appeared on the exposed slopes. Since that time (and especially during the last 70 years) forest cover has staged a rapid invasion of many former prairie sites.

The invasion of onetime prairie land by shrub and timber species in many parts of western Iowa is striking. Among the many reasons that have been advanced to explain this trend are: (1) cessation of the extensive fires that frequently swept over the prairies; (2) overgrazing by livestock after settlement; (3) removal of high nitrogen surface soil by erosion; and (4) beginning about 700-800 years ago a change from a dry cycle favoring grassland climax to a more moist cycle favoring forest climax vegetation.

Among the earliest shrub invaders of the grasslands were prairie crabapple, hazel, coralberry and sumac.

What Trees?

Following close behind the shrubs were such pioneer tree species as bur oak, hackberry, butternut, shagbark hickory, green ash, white ash, and American elm. These now predominate in the upland stands of western Iowa. Other kinds of trees that require more moist conditions—white oak, black oak, northern red oak, black walnut, maple, willow, cottonwood, and basswood—are found throughout western Iowa on the better sites. These latter species are mainly confined to stands on the bottoms, on protected lower slopes, and in ravines. Numerous instances of their entry into undisturbed woodlands on more exposed locations have been witnessed. This latter trend gives significant evidence that the initial timber cover has modified conditions so that better opportunities for efforts toward timber stand improvement are possible.

Tree growth in the bluffs area of western Iowa is chiefly limited to northerly and easterly slopes. The impetus of forest invasion appears to be carrying over on ridge-tops and the exposed western slopes as well. A relative newcomer that is aggressively establishing itself here is the eastern red cedar.

The pioneer hardwoods making up the present upland stands are mainly low-quality trees that have become established under very adverse conditions. Therefore, other than yielding fence post material and fuel wood, the harvest of wood products has been poor. Contributing to the low quality of these

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"Play him, Helen, play him!"

YELLOW BASS COMEBACK AT CLEAR LAKE?

Kenneth D. Carlander
Iowa Cooperative Fishery
Research Unit

Clear Lake was famous for its yellow bass fishing in the early 1950's, but in the last few years the yellow bass have been too small to interest many fishermen. One valuable feature of the yellow bass is that they bite in the summer when other fishing is often in a slump. From their introduction into the lake in the early 1930's through 1955, thousands of yellow bass 8 to 11 inches long were caught. In a 10-week period in 1953, over 88,000 yellow bass were caught by fishermen.

Decline in Size

Since 1956 very few 8-inch yellow bass have been seen and most yellow bass caught in 1960 and 1961 were between 6 and 7 inches long. In 1962, however, some 8-inch yellow bass were caught. Perhaps the bigger yellow bass will come back this year. The changes in sizes of the yellow bass since 1952 are illustrated in the accompanying graph. It is obvious that the average size decreased greatly from 1955 to 1960. There is also a noticeable increase in size in 1962, which suggests that yellow bass may be staging a comeback.

These data are from experimen-



The rushes around Clear Lake have always been popular with yellow bass fishermen.

tal gill net catches, but they accurately represent changes in the fish population and in the sizes of fish which fishermen catch.

The Iowa Cooperative Fishery Research Unit which is sponsored by the Iowa State Conservation Commission and Iowa State University has been studying the fish populations of Clear Lake for several years to determine what changes take place in the abun-

dance, growth and food habits of fish and to determine how these changes affect fishing.

Ten-Year Study

Studies of the fish scales indicated that the 6- and 7-inch yellow bass caught in recent years are 3 to 6 years old and a few even 8 years old. In 1952, the 8-inch bass were only 3 years old. The ages of the fish at various sizes are indicated by Roman numerals on the graph.

Such stunting or extremely slow growth has been noted in several fish populations, but rarely are the records as complete as these in showing the history of the stunting. Stunting is usually associated with overcrowding of the fish, with increased competition for food and space. The gill-net catches indicate an increase in numbers of yellow bass in 1955, at the same time as the growth rate was decreasing.

The 1962 gill net catches do not show a decrease in population density to correlate with the increased growth reported. It is believed that there was a population density decrease even though it was not shown in the gill net catches. The volume of the lake increased, as discussed later, and there was no evidence of increased numbers of yellow bass which would be needed to maintain the same population density in the increased habitat. Perhaps the yellow bass moved around more with their increased growth and were caught more readily in the nets.

Fish Removal

Recognizing the stunted fish problem, the fish management section of the Commission started removal of yellow bass in 1959 in an attempt to decrease the population enough to increase the growth of the remaining fish. Robert Cooper, the area fishery superintendent, supervised seining, electric shocking and even chemical treatment to reduce the population.

At times large numbers of yellow bass were removed but it proved impossible to sufficiently decrease the yellow bass population without damage to other species. The poundage removed was probably not as high as that caught by anglers when the yellow bass were of attractive size. Some experience in other states with species of stunted fish showed benefit in increased growth when over 50 per cent of the population was removed. No evidence of increased growth of yellow bass was evident until 1962, and it is believed that the increased volume was the principal factor involved in the growth.

Low Water Levels

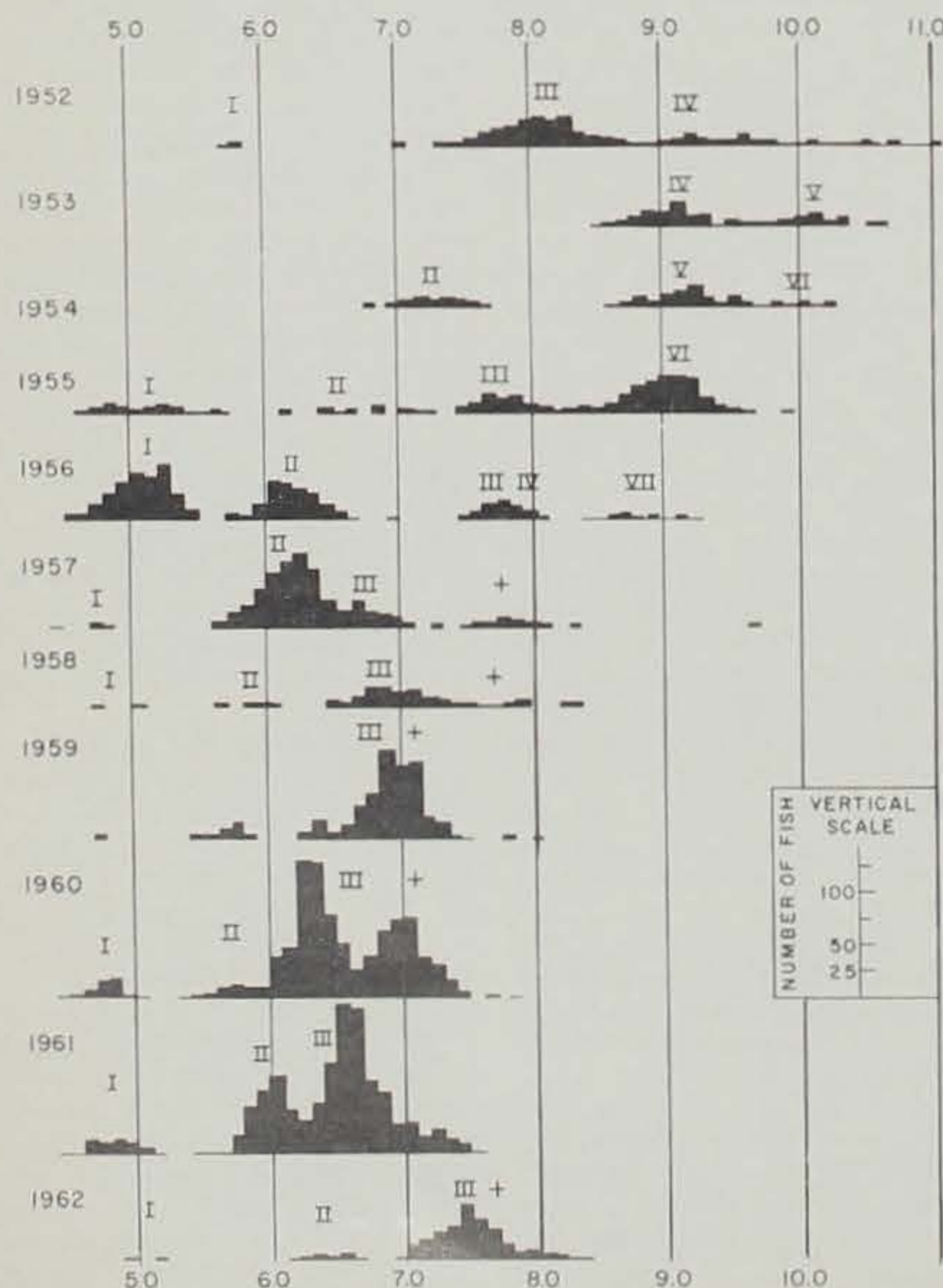
Water levels started dropping in Clear Lake in 1955, because of drought. From 1950 to 1955, water levels were above the outlet level at least part of each year and more than 14 inches below it any time. The water level dropped until it reached a low of 3.34 below outlet level in December 1958. This was even lower than in the drought of the 1930's. The water level did not get within foot of the outlet from August 1956 until the spring of 1962.

This drop in water level reduced the area of the lake by over 50 per cent and the volume of water by over 25 per cent. This certainly had a profound effect on the fishing and living areas for the yellow bass. The decline in growth of yellow bass parallels quite well the decline in water level and volume.

Water levels were almost as high in the summer of 1961 as in 1959 and 1960. In 1962 water levels came up further and for a short time overflowed the outlet. It was anticipated that this increase in living space would result in increased growth of yellow bass. There was little evidence of increased growth in 1961. The yellow bass were plun-

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YELLOW BASS, CLEAR LAKE, AUGUST GILLNETS
TOTAL LENGTHS IN INCHES



Graphic illustration of the population change at Clear Lake. The Roman numerals refer to the age of the fish taken.

YELLOW BASS—

(Continued from page 44)

er for their length, than in the preceding two years. The increased growth in 1962 was not spectacular, but in August the yellow bass were about an inch longer than they had been in August 1961 or 1960. The growth during the summer is evident from the sizes of yellow bass taken each

What is Ahead?

look forward to the 1963 fishing season. Will the yellow bass continue to increase? Will Lake again have 10-inch yellow bass? When the yellow bass are growing most rapidly in the lakes the yellow bass over 6 to 8 inches long ate small fish. In past years there has been little evidence of yellow bass feeding on small fish, which may be needed for really rapid growth. We examined the stomachs of many yellow bass last summer in hopes of finding that they were beginning to eat small fish again as their growth increased somewhat. There was no evidence that they were turning to this larger, high-protein food. This year we hope to continue the studies and hope to find continued growth. If not, efforts will be made to increase the abundance of forage fish in hopes the yellow bass will start utilizing them again.

While the otter's preferred food is fish, it also eats snails and shells and other fresh-water shellfish. His favorite food is crayfish.

Ordinary sized whale will eat a variety of small fish and crustaceans for breakfast.



Jim Sherman Photo.

Yellow bass such as these were once common at Clear Lake.

MAMMALS—

(Continued from page 43)

family and plow in the wagon and headed west.

Bison and civilization were incompatible and civilization, with all the changes necessary to keep it moving, kept rolling on, using the bison for sustenance and destroying the survivors because they just didn't fit into the scheme of things.

WOLF

The wolf was closely associated with bison herds, followed them, and killed and ate the stragglers and the unwary. Wolves also included such animals as deer, elk, and antelope in their diet. Civilization, with the vast changes wrought by it, caused declines and virtual extirpation of the native animal populations utilized by the wolf for food. Our agrarian civilization replaced these animals with cattle, sheep, hogs and horses and it brought the wolf into direct conflict with man's interests when the wolf sought to utilize the domestic stock which had replaced his ancestral native food supply. This conflict of interest led to the extirpation of the wolf and, while guns, traps, and poisons were the instruments used to destroy the wolf, the underlying cause again was a changing environment brought about by a different civilization.

ELK

Early settlers reported that elk were plentiful, with some elk herds containing 500 animals. Elk, because they lived in primarily open country, were very vulnerable and were an easily secured source of meat. Their vulnerability was capitalized upon by the settlers who needed red meat and who lived in a civilization where beef and pork were rarities.

The winter of 1856 was extremely severe and thousands of elk were killed by men, women, and children using such implements as axes and corn knives as the elk lay helplessly trapped in the deep drifts. This slaughter, together with several severe winters, essentially marked the passing of the elk from the Iowa scene. The last published report of elk occurrence in Iowa was a herd of 40 which passed near Wall Lake in 1869.

Man, climate, and a changing environment combined to extirpate the elk from Iowa.

LIONS AND BEARS

The mountain lion and black bear were quite common in early Iowa. An account in Scott (1937. Mammals of Iowa. Iowa State Coll. J. Sci. 12(1):43-97.) reports that a mountain lion was killed near Ocheyedon in Osceola County in 1909. Scott also stated that black bears were common in wooded parts of Iowa until about 1850.

This concludes the series on mammals of Iowa and, although all mammals were not considered, those included were thought to be of most interest to our readers.



George Tovey Photo.

SPEAKER ASSUMES DIRECTOR'S DUTIES

Everett Speaker is now serving as Acting Director of the State Conservation Commission. He was named to fill the post vacated by Glen G. Powers, who is now Director of Planning and Coordination for the Commission. Speaker will serve as Acting Director until the Conservation Commission appoints a permanent Director.

Speaker is a native Iowan who has worked with the Commission for over thirty-two years. He first joined the Iowa Fish and Game Department, a predecessor of the present Commission, in 1931 as Assistant to the State Fish Pathologist. During the years that followed, he was advanced to Fisheries Supervisor, Assistant Superintendent of Fisheries, and Superintendent of Fisheries under the Fish and Game Commission.

He remained in the Fisheries post after the creation of the Conservation Commission in the middle thirties. In 1948, he became Super-

intendent of Biology, the post he has held since that time.

Speaker is now serving as chairman of the Upper Mississippi River Conservation Committee, an organization whose work encompasses five states and several Federal agencies. He served as secretary of the Committee for four years.

He is a Fellow in the Iowa Academy of Science, serving on the Conservation Committee in that organization; has served as national secretary-treasurer of the American Fisheries Society for four years; is a member of the Wildlife Society and the American Institute of Fisheries Research Biologists; and has served two years as secretary of the Mississippi River Flyway Council.

Speaker is the co-author of the popular *Iowa Fish and Fishing*, an award-winning book well-known to many Iowa fishermen.

"BOBWHITE"?

The bobwhite call we are familiar with is just one of at least eleven or twelve different calls that have been described.

The bobwhite note may be heard in a variety of imperfections followed by perfect ones. The average rate is about four calls per minute. This common bobwhite call is normally confined to unmated males eagerly calling for a mate

but presumably doomed to a summer of loneliness, from lack of physical prowess or lack of unmated females.

Under exceptionally favorable atmospheric conditions bobwhites have been heard calling fully a mile distant in flat open country. The bobwhite can vary the volume and intensity of this call by minute gradations. Unmated cocks have been observed dueting vigorously, after periods of silence,

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THE MINNOW FAMILY

David H. Thompson

The word "minnow" is used loosely to mean almost any small fish. Some people even seem to think that all minnows are the young of larger kinds of fishes and ask what they will be when they grow up. This leads to misunderstandings. Minnows—true minnows—are members of a definite family of fishes just as there are the sunfish family, the catfish family or the trout family. To avoid confusion it is better to use the word "fry" for the newly hatched young and "fingerlings" for older juvenile fishes.

The Minnow Family has by far the greatest number of species of any fish family in our fresh waters. In Illinois lakes and streams, out of a total of more than 200 different species representing 30 fish families, about 50 are true minnows. They include many that are commonly called shiners, chubs and daces. They also include the carp and goldfish, which are immigrants from the Old World.

The minnows are not easily recognized because the features that set them apart from other fish families cannot be seen at a glance. All native American minnows, no matter whether they are the size of a book match, or that of the giant 80-pound squawfish of the Rocky Mountains, have these characteristics: no scales on the head, no teeth in the jaws, no spines in the fins, and a dorsal fin with less than ten soft rays.

Minnows play a most important and many-sided part in aquatic life. Because of their large numbers and small sizes they serve as a direct link in the food chain between the abundant small plant and animal life on which they feed and the larger carnivorous fishes which, in turn, feed on them. For example,



The carp is one of Iowa's sizable minnows.



Jack Kirstein Photo.

WHERE ARE THE GIANT TREES?

Iowans are continuing to find giant cottonwoods. Although many thought we had found Iowa's largest tree a few months ago, others have found still larger ones. The latest is from the northern part of the state. This tree measures 27 feet, 8 inches, and is located four and a half miles east of Cresco on Highway No. 9.

Remember, when measuring a tree, the measurement should be taken four and a half feet above the ground. In the case of a growth or a branch on the trunk at this point, the circumference is measured at the point below this where the circumference is least. In case the tree branches below four and a half feet, it is considered as two trees and the larger fork is measured above the branching. Circumference is read to the nearest inch.

Iowa may be able to claim the national record for cottonwood, if we go over thirty feet in circumference.

it requires as little as 2½ pounds of minnows for a bass to add one pound of weight.

Quantities of them are caught in natural waters or reared in ponds for bait by game fishermen. The hornyhead chub, horned dace and common shiner grow large enough to furnish good sport for youngsters and fly fishermen in the pools and rapids of our cleaner creeks. Herons, bitterns and kingfishers depend on them for food. Minnows aid us by eating mosquito wigglers.

Various types of breeding habits are found in the minnow family. The female carp followed by one or more males broadcasts her thousands of sticky eggs as she wallows and splashes through beds of water plants. Many small kinds merely scatter their eggs over the sand or gravel bottoms of lakes, ponds and streams, then leave them to hatch a week or two later without any further care. In many cases, the male digs or builds a nest to receive the eggs. He often stays to keep it clean and guard it against enemies. The male of the blunt-nosed minnow, commonest and most widespread fish in the family, finds and cleans a spot for the attachment of eggs on the underside of a rock, mussel shell, board or tin can where he stands guard until they hatch. The horny-

head chub and the common shiner build large nests of pebbles to receive their eggs. Sometimes the shiner crowds into a hornyhead's nest. As a result a few of the eggs are cross-fertilized to produce hybrids between the two.

Among all of these nest-builders the males are larger than the females. During the breeding season only, each of these wears his own spring plumage of bright colors and is especially equipped with horns, bumps and knobs called pearl organs.

Small streams, small fish and small people belong together. When we are young, flowing water, although only a step across, attracts us like a magnet. Anyone fortunate enough to have grown up in a neighborhood with a clean, natural creek seldom regrets that he lived in the days before comic books and television.

BOBWHITE—

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as they come together and do battle.

Next to the bobwhite note, the covey call is best known to outdoor people. It is one of the most delightful of natural sounds, as scattered birds are being called together in the waning light of a quiet evening. It is used by both sexes at all seasons, frequently

WESTERN WOODLANDS—

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stands is their general use for grazing of livestock—a practice that also impairs their values for watershed protection and wildlife habitat.

Cutting practices in the past has been generally poor. It has been concentrated heavily on the higher grade and veneer quality trees, such as black walnut. In many instances areas that probably should have been left in timber have been cut with the idea of converting them to crop or pasture land.

No. 566 Watershed Program

Of special interest is the P. 566 Watershed Program in western Iowa. At the present time two of these watersheds have Forest Programs. This program consists of protection from overcutting and damaging logging, protection from grazing, timber stand improvement and tree planting. These measures are needed to restore build up and maintain an adequate stocking of desirable trees in the woodlands. At the same time the measures will improve the woodland and increase yields and returns to the landowner. The programs are carried out by State Conservation Commission District Foresters in cooperation with the Soil Conservation Service.

The woodlands of western Iowa have a great potential. Through proper management these woodlands can provide much more substantial benefits to western Iowa than they have previously. Present woodlands and many critical areas of marginal crop and pasture land can be developed into source of important multiple-use value. With the development of the woodlands more and better markets will become available to the landowner.

In addition to watershed, wildlife and timber aspects, the widespread interest of the local people in simply the aesthetic and recreational qualities of forested land cannot be forgotten.

with great tenderness and feeling. Its variations include a group notes, some rapid, some slow, softly uttered for only companions and others loud and ringing to the world to hear.

One call of this group is referred to as "morning awakening." When the weather is pleasant usually in the fall and winter, but whites greet the morning, just a few moments, at a certain intensity. This vocalization responds to the crowing of domestic roosters and other game birds as they optimistically greet a new day.

A subdued call included in the group is used to call the brood together. Scattered, hidden chicks are reassembled as if by magic as they come stumbling on uncertain legs in response to this tender note.

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FORTUNES OF THE SUMMER FISHERMAN

Why We Have Slow Hot Weather Fishing

Tom Moen
Fisheries Biologist



Summer fishermen will do best at dusk or early morning.

Jack Kirstein Photo.

The Effect of Warm Water

The warming of the aquatic environment also brings about changes in the vast complex of other organisms found in lakes and streams. The study of water life and the changes taking place constitute the science of limnology. The limnologist knows that the development of almost all water life is increased by an increase in water temperature. The warmer temperatures bring about the congregation of fishes upon their spawning beds and the birth of thousands of young fish, the emergence of swarms of aquatic insects that lived a relatively inactive life as larvae during the winter months, and the bloom of myriads of small planktonic organisms that are so necessary as food for the newly hatched fish. Directly and indirectly the limnology of the water in which the fisherman tries his luck will influence the species he catches, the size of the fish, and the rate of catch. With the help of a few figures from creel census reports and the lakes sur-

vey findings we can delve a little deeper into the how-come and why-for of this phenomenon.

Role of the Creel Census

A special creel census is conducted on a number of our major lakes on a year round basis. The results of this census effort provide data on many aspects of sportfishing in these lakes as well as important information concerning the success of fisheries management practices. The creel census data clearly points out the importance of the early season fishing in the natural lakes and the lack of success during the warm summer months of July and August.

One of the criteria for measuring fishing success in the number of fish caught per hour by the average fisherman. For example, the average fisherman caught 0.74 fish per hour in May and June of 1962 when fishing Spirit Lake and then dropped to 0.56 fish per hour in July and August. During the same year East Okoboji fishermen did very well with an average catch of 4.0 fish per hour during

May and June, and 2.6 in July and August. This is an excellent success rate for both periods but still shows the typical decline.

To pick a more extreme case we might look at the Clear Lake data for 1961 where the fishermen were taking fish at the rate of 1.75 fish per hour in May and June, then took less than 0.25 fish per hour in July and August. As stated above, this decline in success is nothing new to most fishermen, but the magnitude of the difference in the total numbers taken in these two periods might surprise them.

When for Walleyes?

If you would like to have the best chance of catching a walleye, for instance, plan your fishing trip or trips for May and June. Walleye fishing is consistently the best during this period over the many years that we have collected census data.

The 1962 season on Spirit Lake walleyes was no exception when fishermen caught 12,800 walleyes during May and June and only 1,800 during the following two months. The catch in May and June accounted for 60 per cent of all the walleyes taken during the entire fishing season. Occasionally the good walleye fishing will continue into July as it did in 1961 when only 2,500 were caught in Spirit Lake during May, 9,000 in June, 6,200 in July and only 2,100 in August. Most of the walleyes taken in July were taken in the first two weeks. If you recall, the early part of the summer of 1961 was quite cool, thus delaying the development of fish and fish food organisms. Relatively few walleyes were caught during the early part of September that year.

Warm Weather Fish

This early season success applies to most of the species that are taken on hook and line but not all of them show the drastic change that is usually noted in the walleye catches. A few species are ac-

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"The guy at the tackle shop didn't tell me these lures were that good!"

HATCHERY—

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operation by one-third or even one-half, according to fisheries personnel. There is also room for expanding the hatching program to 25 per cent over the present capacity if needed.

Included in the new building is the Biology Station for those biology personnel who work in the Great Lakes region. This includes office space and a finished lab.

Certainly of high importance in addition to the new building is the construction of nursery ponds to the west for rearing the young fry after hatching. These ponds will release certain small lakes in the area from nursery use and open them again to public fishing.

SUMMER FISHERMAN—

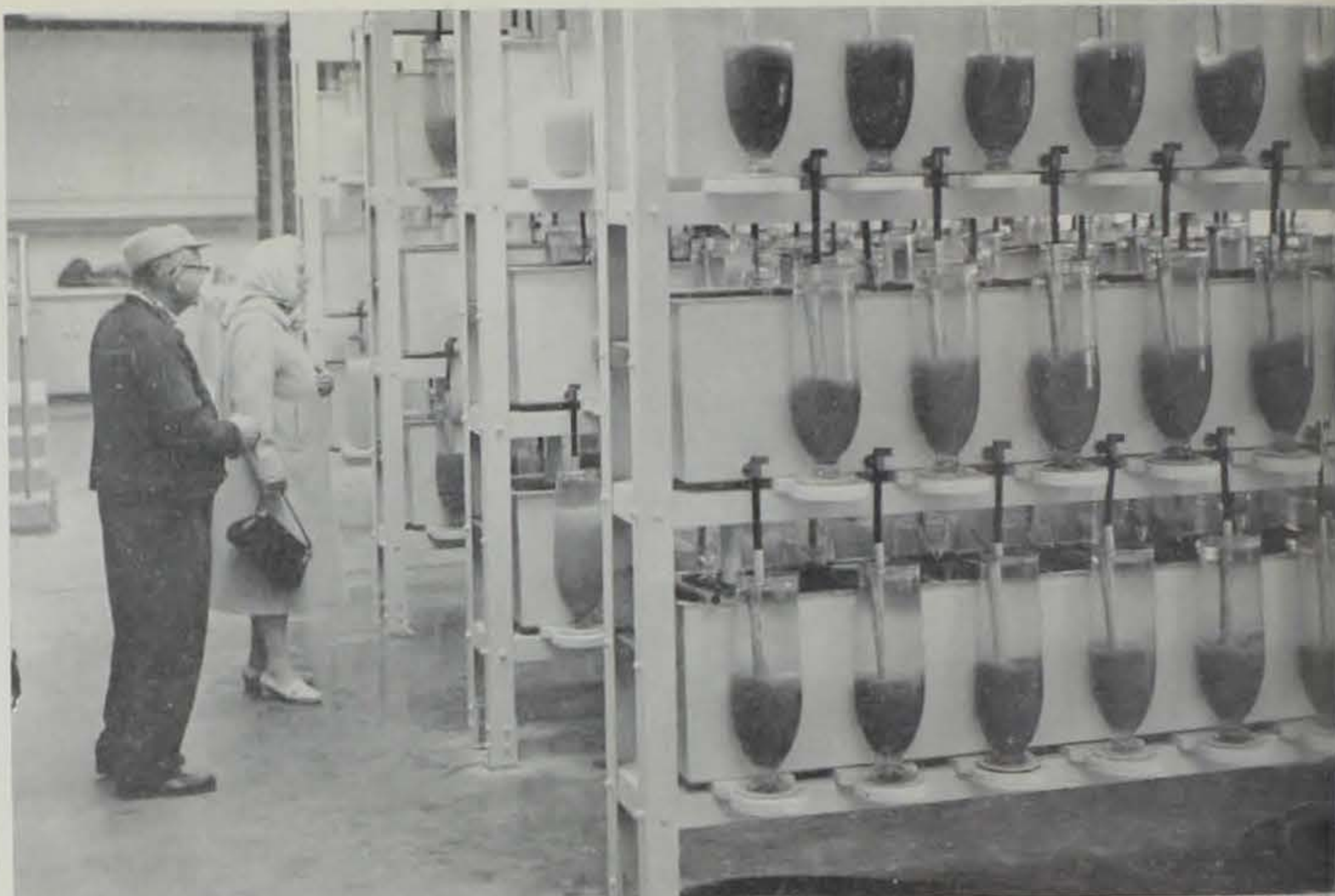
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tually taken in greater numbers during July and August. One of the best known in this group is the yellow bass. Catfish and bullheads are often taken in good numbers during the late summer months. Given equal populations of walleye and northern pike in a body of water, northern pike will be taken more frequently than the walleye. These predator fish, often referred to as game fish, require large numbers of young fish in their diet. This diet may be supplied by minnows, darters, or the young of any species living in the lake, including their own. Shoreline seining with small mesh seines helps determine the success of the reproduction of the various species and provides an estimate of the relative abundance of the type of food needed by the predator fish.

Abundant Food

This shoreline seining operation is an important part of the lakes survey program and makes use of a minnow seine 500 feet long. This work is carried on during the months of July and August, at a time when most of the young fish can be caught in the small mesh ($\frac{1}{4}$ -inch bar measure). Anyone who has had a chance to observe the numbers of young fish taken in a haul made with this net can readily understand why fishing for walleye can be very poor in late July or August. In one haul that captures the fish in about one acre of shoal water, it is not unusual to count over ten thousand small fish. In 1954 the lakes survey crew made ten hauls with this net at various locations on Spirit Lake and averaged over 30,000 young yellow perch per haul. With natural food as abundant as all that, who can catch a fish?

What Can You Do About It?

First of all, if you plan to continue to enjoy the sport of fishing you will have to learn to live with it. This is an annual natural phenomenon and vitally necessary in some degree to assure your future fishing. You can also turn some of this knowledge to your advan-



The batteries at the new hatchery were in use this spring. From the front, batteries two and four contain green walleye eggs while batteries one and three contain more advanced eggs. There are 280 jars for hatching purposes, and they produced over 71 million fry this year.



The hose provides a direct line from the fry tanks to the stocking truck. Techniques like these reduce handling and labor.



Fay Fronk, in charge of the hatchery phones out any dead or infertile eggs from the batteries.

tage with a good chance of increasing your fishing success.

Keep in mind that although this late summer period usually means poor fishing for all species, especially the predators, the pan fish, such as bluegill, crappie, white bass, yellow bass and bullhead can be counted on to furnish some fishing through the summer months. You may have to change tactics during this late summer fishing period in order to bring the odds in your favor. This ability to make changes in tactics is often the key to why some fishermen consistently bring home the fish, no matter what the season.

Whatever your preference as to species, fish during the peak of the feeding periods, just at dusk and again in the early morning hours.

These are the peak activity periods of life in the water, particularly aquatic insects, which in turn attract fish. An hour of fishing during one of these activity periods may prove as productive as 4 or 5 during the day.

May the fortunes of your summer fishing improve!

BOBWHITE—

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Another interesting note in Mr. Bobwhite's vocabulary is termed the food call. This is a commonly used soft, clucking note of the cock to the hen during the nesting season. When a grasshopper or other insect is captured or being dismembered, he calls her to partake of his capture. This call is uttered from a low, horizontal po-

sition, with quivering wings. The insect is being pounded submission for Mrs. Bob, who under the heavy strain of the nesting season.

The caterwauling call, a ringing, blurring, quarrelsome sound accompanied by a puffing out the feathers of the breast belly and depressing the head neck feathers as cocks approach or meet one another in the field.

Calls used by the bobwhite nearly run the full range of man experience i.e., lost, distressed, alarm, battle cry, and conventional notes added to those already mentioned.

The bobwhite is just one of native residents with a variety of musical songs.