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PARKS & WILDLIFE



April 1975 • 50¢



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magazine**

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of Texas fish, game, parks, waters and all
outdoors.

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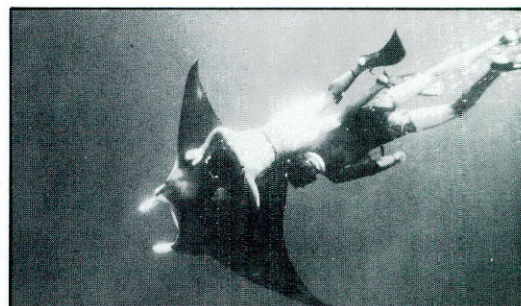
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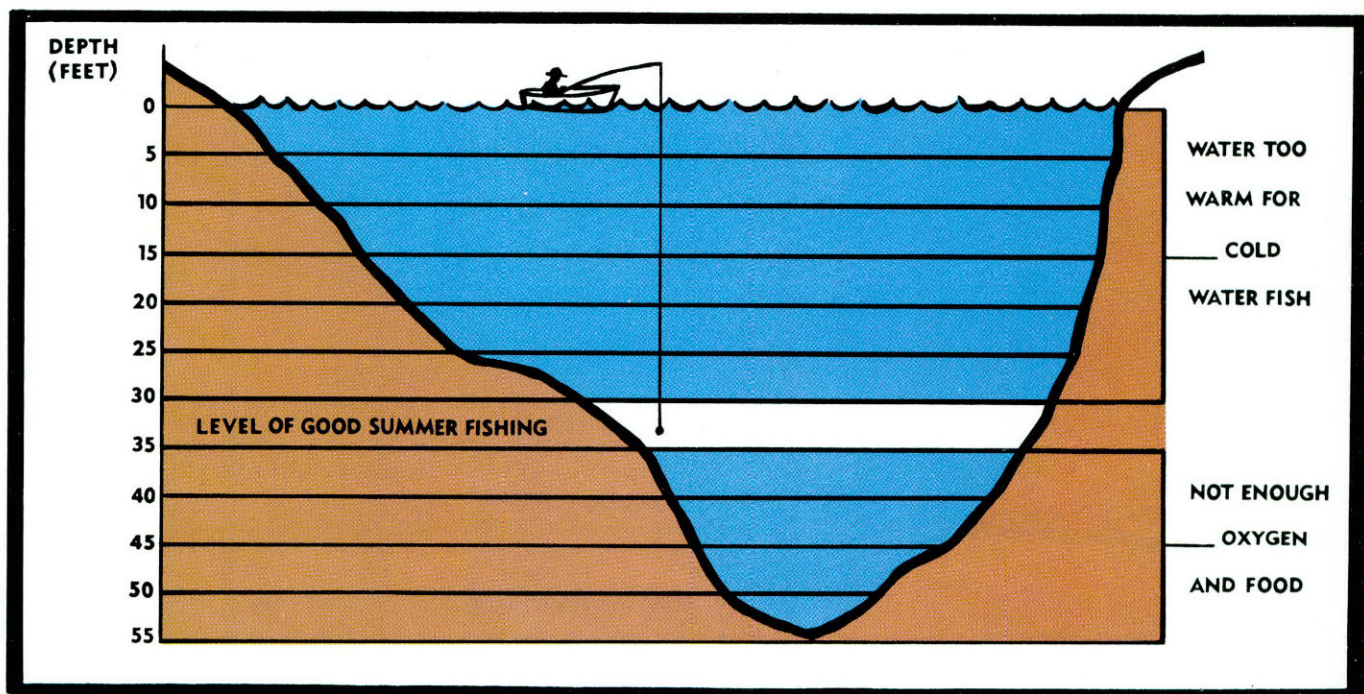
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Front Cover: Many pleasant hours were probably spent fishing from this boat before it fell to disrepair. Now it rests among the wildflowers, being slowly recycled by nature. Photo by Jim Whitcomb.

Inside Front: This angler poses a triple threat to any fish swimming in the swift current passing by his secluded fishing spot. Photo by Bill Duncan.

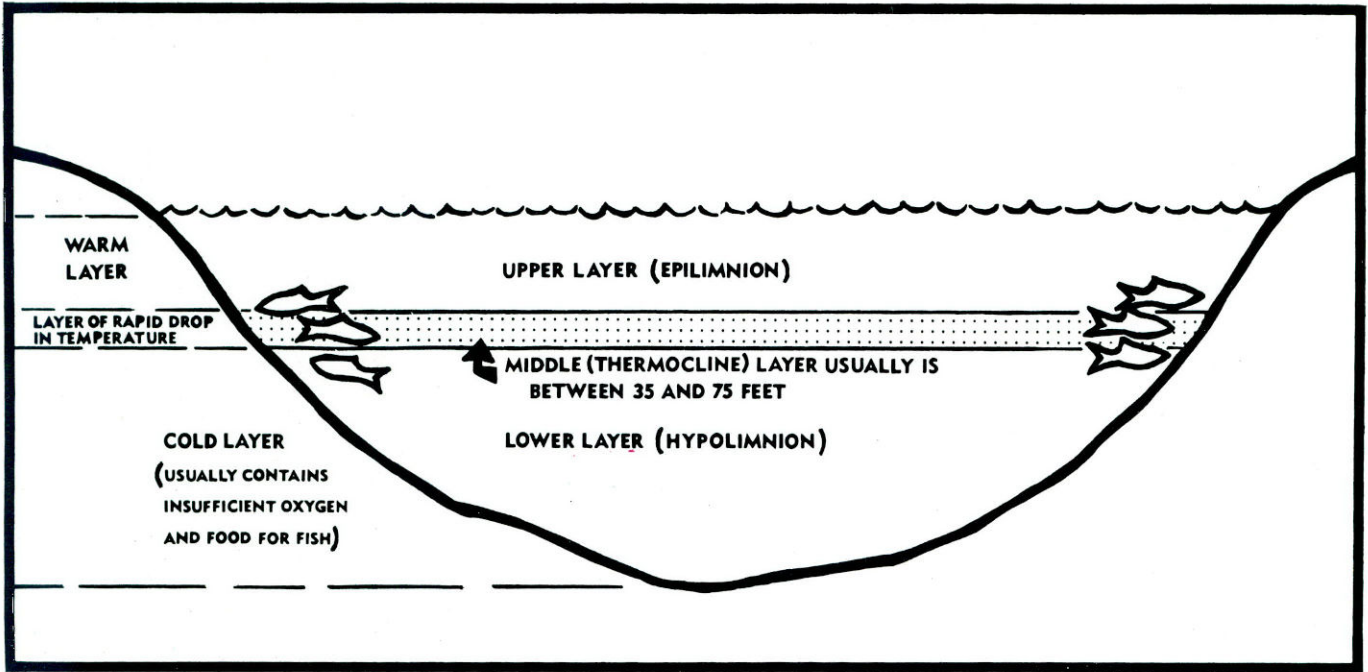
Thermal Stratification

How water temperatures affect fishing



In this hypothetical small impoundment, the best fishing in the summer would be near the 35-foot mark, the level of the thermocline.

by Joe Mayhew, Pollution Program Leader, Environmental Branch



When surface waters heat to 70° F. they are lighter and stay on top. Colder water, being heavier, sinks to the bottom, and a layer of rapid drop in temperature divides the two. This is called stratification. Fish usually are in or near the middle layer because the best combination of temperature, oxygen and food is found there.

Would you like to know where to find fish in a particular reservoir? Would it help if we told you where you can't?

Since some of the physical, thermal and chemical properties of Texas reservoirs are well known, we can tell you, with some certainty, where you will not find fish. These properties have to do with the division of many reservoirs into an upper and lower unit. This phenomenon, known as thermal stratification, is caused by the rapid warming of the surface waters

in the spring. A density layer develops which prevents the mixing of the upper lake (epilimnion) with the lower lake (hypolimnion). The boundary zone between the two layers is known as the thermocline.

What the fisherman needs to know is that the lower lake is effectively isolated from the surface waters throughout the spring, summer and early fall. As a result, the lower lake is not replenished with oxygen from the surface. Once the existing dissolved oxygen supply is depleted, fish must move into the upper

When fall weather cools surface waters to below 60° F., the colder water sinks and mixes with the warmer water below, causing the lake to destratify. With the mixing of the water, fish again come to the surface as they do in spring.

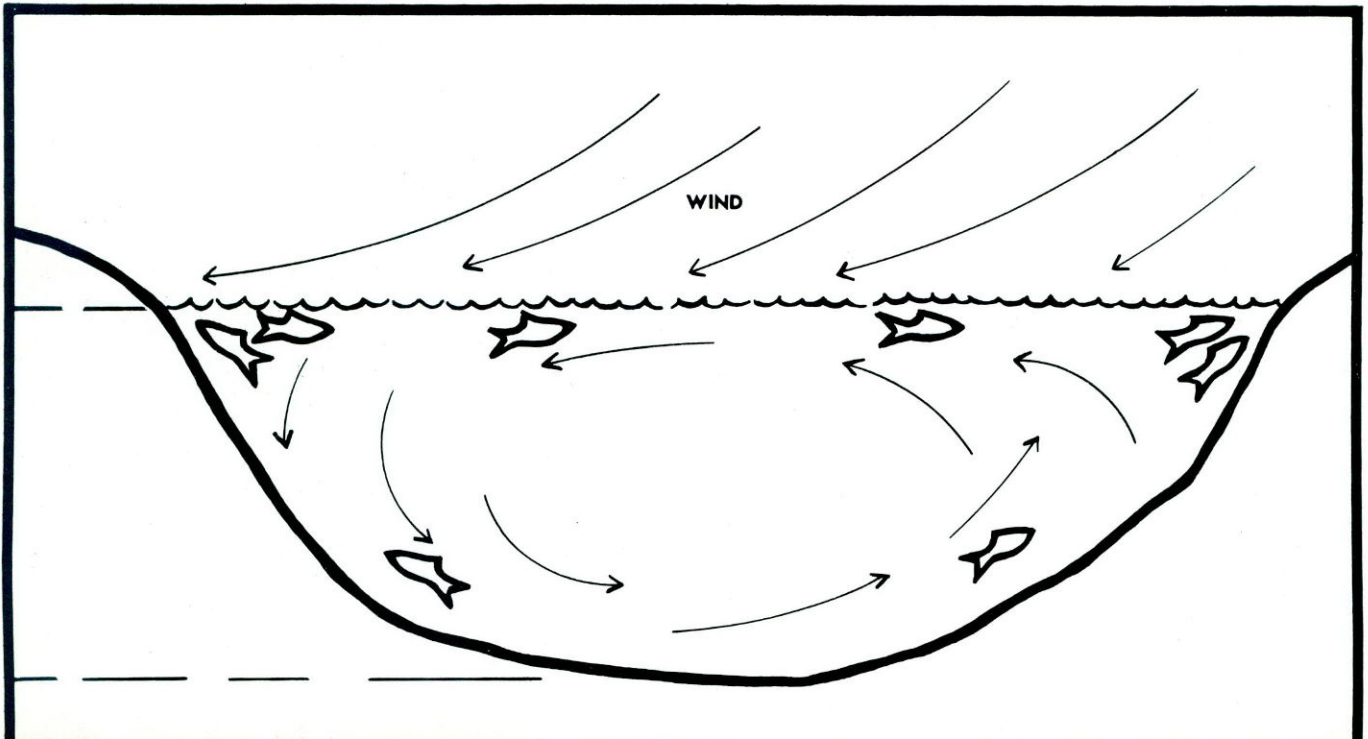


TABLE I

Depth in feet of Oxygenated Waters

Reservoir	Average Depth	Upper Observed Depth	Lower Observed Depth
Lake Sam Rayburn	20	14	25
Toledo Bend Reservoir	15	12	19
Lake Palestine	29	—	—
Lake Tyler	24	18	29
Lake Meredith	78	70	90
Canyon Reservoir	40	25	60
Lake Livingston	24	12	40
Lake Travis	50	45	65
Hubbard Creek Reservoir	40	30	50
Possum Kingdom Reservoir	37	30	40
Lake Granbury	33	20	40
Lake Whitney	52	40	60
Belton Reservoir	37	35	40
Lake LBJ	38	18	65
Amistad Reservoir	83	50	100
Lake Wright Patman (Texarkana)	20	15	25
Lake Bastrop	30	—	—
Lake Spence	41	40	45

lake or die. Therefore, once the oxygen is depleted in the hypolimnion, all fish will be in the epilimnion and, if you want to catch fish, that's where you'll find them. Fish no deeper than the lower boundary of the upper lake.

But how do you know where that boundary is? You can find the oxygen-depleted layer with an oxygen meter, or you can measure the temperature with a submersible thermometer to find the thermocline. The thermocline is defined as the layer of water in a lake which decreases in temperature at a rate greater than one degree centigrade per meter of increased depth.

If you do not have the equipment to make these measurements, TABLE I indicates how deep the upper lake is on certain lakes we have studied. Because the depth of the thermocline can vary a great deal, TABLE I also lists a range of depths observed as being the lower limit of oxygenated waters.

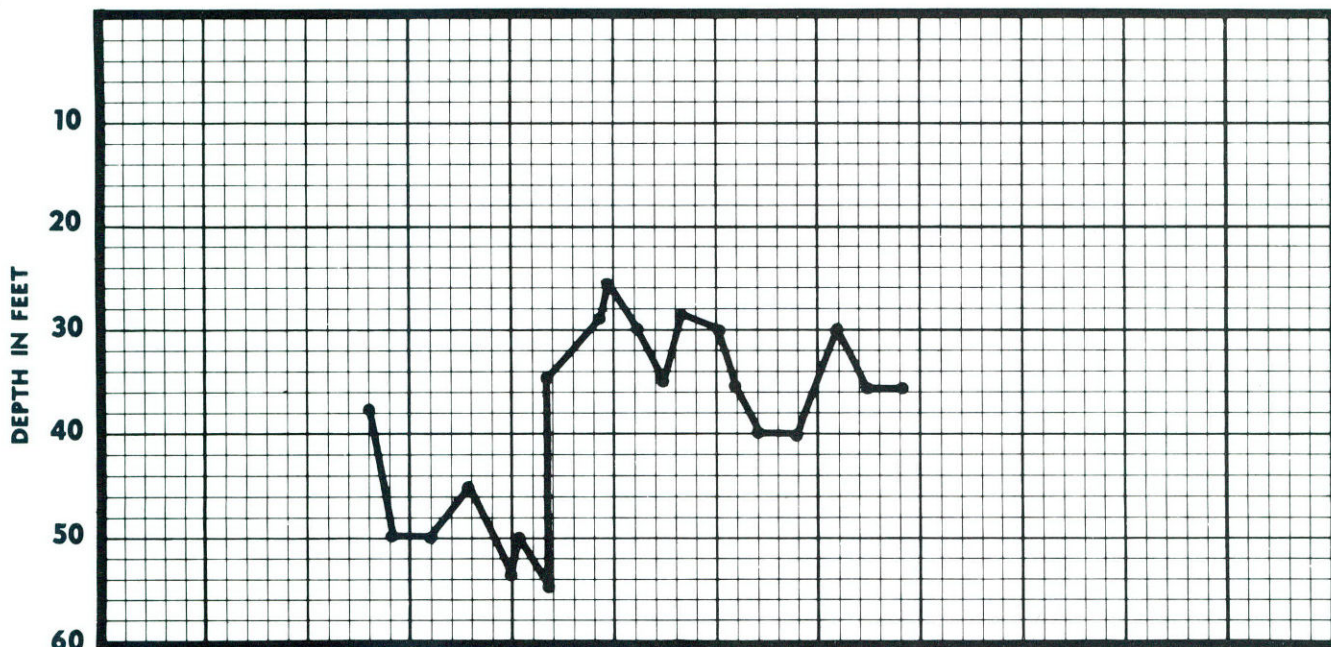
Probably the first thing you may notice is that during the year, the depth of the epilimnion in some lakes varies as much as 47 feet. However, we know that the depth is normally the least in spring and at its maximum in fall. Therefore, you must use some judgment in determining this depth. As an example

TABLE II

Lake Abilene, Taylor Co.	Lake Creek, McLennan Co.
Andrews City Lake, Andrews Co.	Lake Graham, Young Co.
Baylor Lake, Childress Co.	Olney Reservoir, Archer Co.
Colorado City Lake, Mitchell Co.	Throckmorton Reservoir, Throckmorton Co.
Ft. Phantom Hill Lake, Jones Co.	Lake Wichita, Wichita Co.
Lake Kirby, Taylor Co.	Lake Anahuac, Chambers Co.
Lake McClellan, Gray Co.	Lake Dunlap, Guadalupe Co.
Mountain Creek, Coke Co.	Lake Gonzales (H-4), Gonzales Co.
Pauline, Hardeman Co.	Lake Wood (H-5), Gonzales Co.
Rita Blanca, Hartley Co.	Lake Houston, Harris Co.
Lake Stanford, Haskell Co.	Lake McQuinney, Guadalupe Co.
Lake Sweetwater, Nolan Co.	Meadow Lake, Guadalupe Co.
Archer City Lake, Archer Co.	Lake Placid, Guadalupe Co.
Lake Arlington, Tarrant Co.	Sheldon Reservoir, Harris Co.
Lake Benbrook, Tarrant Co.	Lake Nueces, Uvalde Co.
Buffalo Creek Reservoir, Wichita Co.	Town Lake (Austin), Travis Co.
Falcon Reservoir, Zapata Co.	

LAKE LBJ 1974

JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC



of how the depth of the upper lake varies, the simple graph above shows the epilimnion's depth at Lake LBJ during 1974. This information was collected by the Lower Colorado River Authority and indicates fish will normally be found above 55 feet during stratification. To be sure you are not fishing in water with low oxygen, and no fish, it would be wise to fish no deeper than about 30 feet.

As previously indicated, stratification begins in the spring and lasts through the fall in most Texas reservoirs. Generally, this means April through mid-October; however, stratification-destratification times can vary somewhat as a result of local weather conditions such as a warm spring, high winds or floods.

For example, the graph of the epilimnion depths in Lake LBJ indicates the lake stratified in mid-March and destratified in late August. The early stratification was probably due to a warm spring, and the early destratification, in this case, was due to a flood.

But how do you, the fisherman, determine whether a reservoir is stratified? Generally you can do so by determining the surface water temperature. In the spring when the surface water temperature exceeds 70° F. for about two weeks, you can assume the lake is stratified. Conversely in the fall, once the surface water temperature drops below 60° F., you can assume the lake has destratified. If the surface water temperature is between 60° and 70° F., you are on your own.

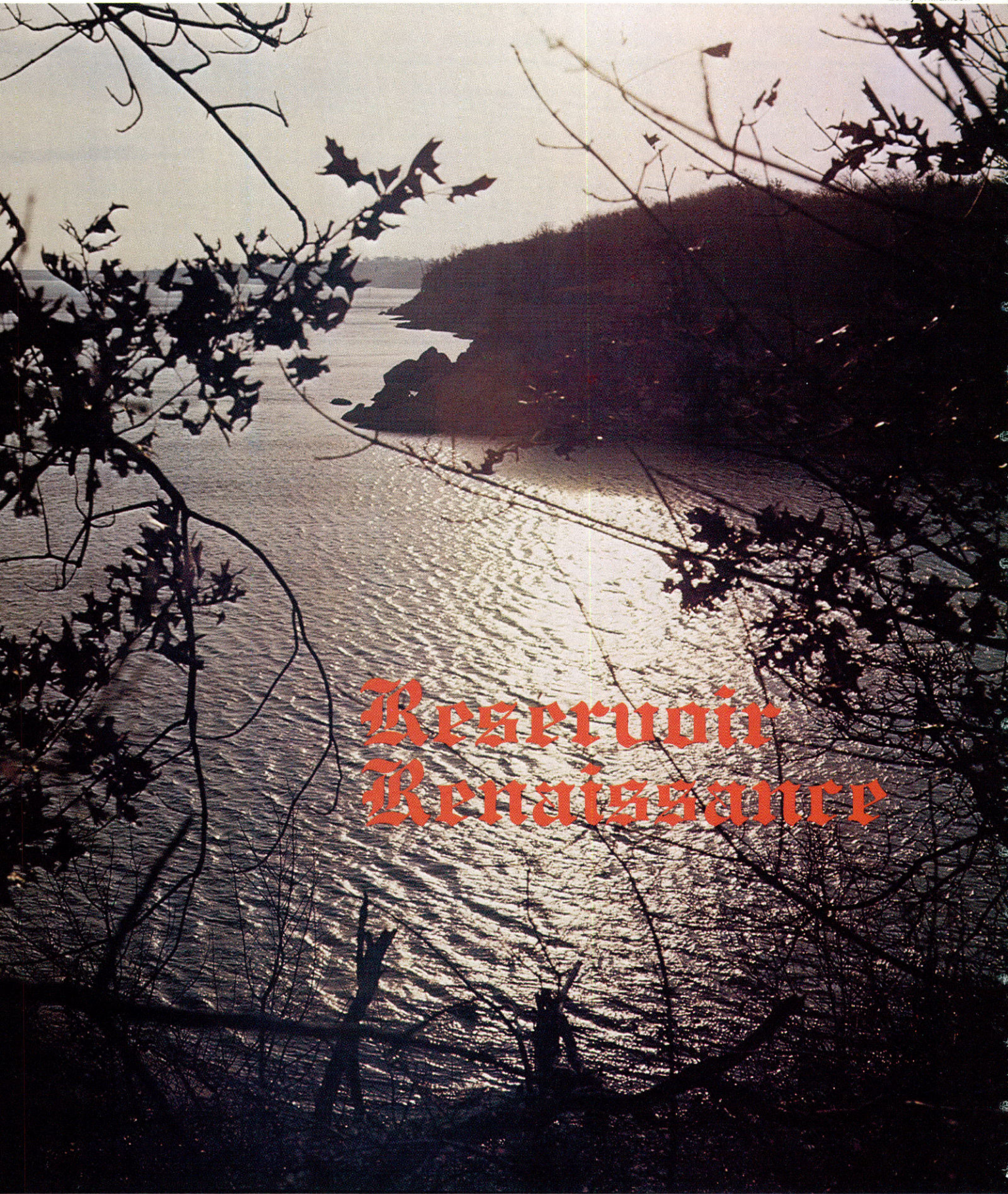
For various reasons, primarily due to the depth, some reservoirs do not stratify for any appreciable length of time, and for fishing purposes may be considered to never stratify. This means that fish are not restricted by low oxygen content from utilizing the lower waters of the lake. TABLE II lists the lakes which do not stratify.

Armed with TABLES I and II, a fisherman should be able to determine at least where not to fish in a reservoir. Although all Texas reservoirs are not included in TABLES I and II, we will continue to collect and compile data and perhaps publish additional tables in some future issue. **

Bill Reaves



A stringer full of fish won't be as difficult once you're armed with the information in TABLES I and II.



Reservoir Renaissance

Texas now has more than 3,000,000 acres of inland surface water, most of which are contained in large man-made impoundments commonly referred to as lakes or reservoirs.

By common definition, the terms "lake" and "reservoir" are synonymous, but not when used in a biological evaluation or comparison. With the exception of Caddo Lake in northeast Texas, all of the state's large water impoundments are artificial reservoirs rather than natural lakes.

Since they provide the major sport fisheries in the state, these impoundments must be continually monitored and studied by this department to ensure these important fish habitats are producing acceptable sport fishing.

Many fishermen do not realize the biological differences which exist between most natural lakes and man-made reservoirs. As a rule, a natural lake is a complex ecosystem created slowly by a changing climate or subtle variations in a stream's flow. Oxbow or river-bend lakes are often formed when new channels are carved by the stream's current.

The bypassed channel gradually evolves into a natural lake. Occasionally, a phenomenon such as an earthquake forms a lake – one theory for Caddo's creation.

Reservoirs, on the other hand, are man-made impoundments, usually constructed for multiple uses such as municipal and industrial water supply, flood control, power generation, irrigation, recreation and fishing – often in that order of priority.

A reservoir can be compared to a household aquarium. Both are artificial environments, created instantly. A freshly established aquarium provides

excellent habitat for fishes and lower forms of aquatic life. However, as waste materials from plant and animal life are deposited, excess nutrients are formed and the optimum habitat is threatened.

Fortunately, man is able to rectify this condition in aquariums with filter systems to clean the water of decaying organic materials and air pumps to replenish depleted oxygen supplies. Reservoirs, however, contain no such filter systems or air pumps and become eutrophic (rich in nutrients). When this natural fertilization becomes excessive, oxygen supplies are reduced and a poor habitat for aquatic life results. Of course, the complex system of environmental factors affecting each impoundment may differ significantly. Some reservoirs become oligotrophic, or poor in nutrients, and provide a sterile environment below optimum for good fish production.

Natural lakes such as Caddo often exhibit some physical characteristics of a river which aid in preventing the stagnation process and also guard against a total lack of nutrient introduction. Thus, a favorable habitat is maintained in the natural lake.

Lakes are often comparatively shallow bodies of water. Due to surface wind action and a lack of thermal water stratification, a shallow lake basin maintains equal water quality throughout, and virtually all of its water capacity is suitable for fish production. In contrast, many reservoirs contain vast areas of deep water which stratify and become devoid of dissolved oxygen during the summer months.

Greater water level fluctuations and moderate currents in lakes inhibit the excessive organic deposits and resulting oxygen depletions common to large reservoirs.



Martin T. Fulfer



Bill Reaves

Man-made impoundments such as Lake Texoma (extreme left) provide sportfishing comparable to that of naturally-formed Caddo (left). However, reservoirs must be managed to maintain excellent fishing. Fish introductions and experiments, such as those with the Florida bass (above), are two ways biologists attempt to ensure good fishing in all Texas reservoirs.

Seasonal flooding of natural lakes also increase water turbidity, which in turn, prevents the excessive growth of aquatic vegetation often found in the more constant-level reservoirs.

Natural streams are our best type of habitat for reproduction of many fish species. With adequate water exchange between a lake or reservoir and stream, natural stocking of fishes will occur each year. But a chain of flood-control impoundments on a stream which restricts adequate water exchange is a threat to its fish production potential.

Reservoir construction may also affect the general ecological balance of a natural stream or lake below it. This has become evident at Caddo Lake since the impoundment of Lake O' the Pines in 1956. After this 18,000-acre reservoir was constructed, some 35 stream miles above Caddo on Cypress Bayou, annual flood waters have been reduced or distributed at a slower rate to Caddo. This decreased water flow and corresponding reduction of turbidity has created an optimum habitat for submerged and emergent aquatic plants.

Most of Texas' native fishes have evolved in stream habitat. Some species have adapted to reservoir environments better than others and it is interesting to note that Caddo contains 69 fish species, more than almost any other body of water in Texas. Because this lake has retained stream characteristics such as currents, channels, abundant cover and water exchange, additional stream species have survived. However, the recent construction of two reservoirs on the upper Cypress drainage, in addition to Lake O' the Pines, now threatens their future existence. A reduction of one important game fish, the white bass, is already evident in Caddo. This fish is dependent upon substantial stream flow for spawning.

Another key to the stream ancestry of the largemouth bass, channel catfish, flathead catfish and other fishes is their behavior patterns in reservoirs. These species utilize submerged creek or river channels for travel, feeding, cover and spawning. Forage fishes also congregate in stream channel bends or undercut banks as they did before the stream was inundated. In many older reservoirs, excessive siltation and deposition of organic materials fill such channels and this important fish habitat is lost.

Although reservoirs do have many inherent limitations, they are capable of producing excellent sport fishing for a number of years after impoundment. Since most of the larger reservoirs in Texas are relatively young, they provide some of the finest sport fishing in the Southwest.

Fisheries scientists are learning, through continuous research and applied management programs, to better manage reservoir habitats and sustain adequate sport fisheries.

Current studies of introduced species such as the striped bass, walleye and northern pike indicate these fishes are capable of filling habitat niches in some reservoirs which have become unsuitable for the continued reproduction of one or more native fish species.

Improved hatchery and rearing techniques are being developed to make possible future large-scale stocking programs in reservoirs. The successful propagation of flathead catfish is an example of recent progress in fish culture techniques. This effective predatory species will be available for stocking in reservoirs where natural flathead reproduction does not occur. Biological control of forage fishes by such predatory game fish is of vital importance in preventing overpopulation of the numerous non-game fishes in reservoir habitats.

Research concerning the largemouth bass is also advancing. A study of the biological factors responsible for bass reproduction in reservoirs is in progress. The objective of this research is to establish criteria for management techniques which may be used in selected reservoirs to maintain adequate bass fisheries. The culture of the hybrid "superbass," a cross of the native largemouth and the Florida subspecies, is a research effort which may well produce a larger, faster growing bass for our reservoirs.

With continued research, fisheries biologists are working to develop management techniques which will provide the continued optimum sport fisheries many of our numerous multiple-use impoundments are now producing.

Through a progressive program of research and management, it's possible a true "reservoir renaissance" can be achieved throughout the state. **

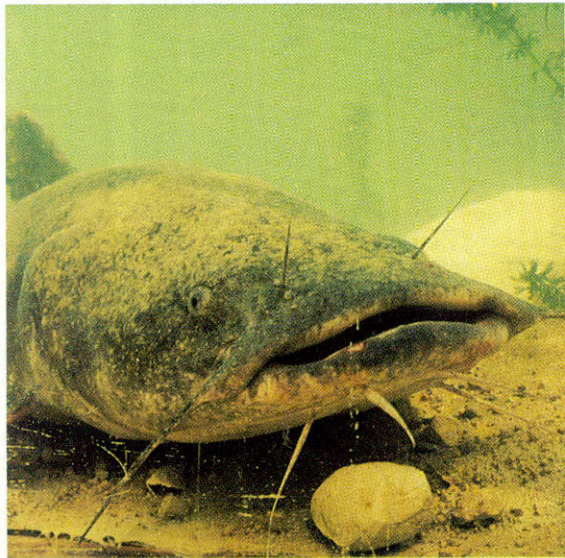


Frank Aguilar

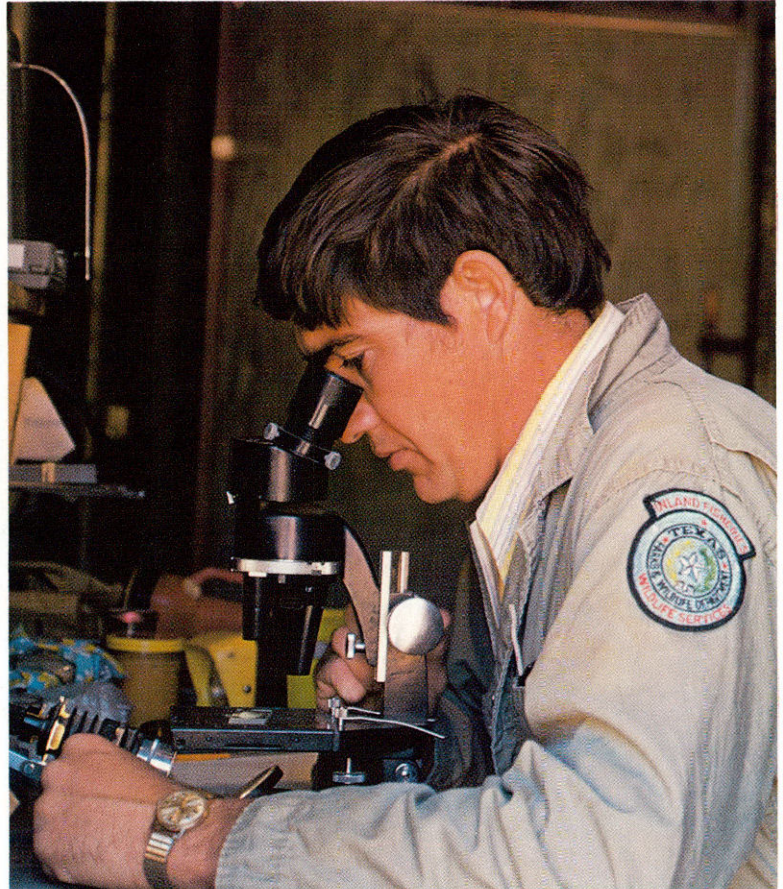


Jim Whitcomb

Neal Cook



Improved hatcheries and rearing techniques have made large-scale stocking programs possible. One result is the successful propagation of the flathead catfish (above) which can now be released in reservoirs where natural reproduction does not occur. Continued research may develop new and better ways to manage the complex ecology of Texas' man-made reservoirs.



OUTDOOR BOOKS

AN ANGLER REFLECTS HOW TO CATCH THE WILY ONES by Roy Wall; **The Naylor Company, P.O. Box 1838, San Antonio, Tex. 78296, 1974; 157 pages, \$7.95.**

Everyone knows how fishermen tend to exaggerate about their catches, especially those that get away. Well, here's a collection of fishing yarns compiled by a native Texan.

However, this book is more than a digest of tall tales. In it the author reveals secret techniques and an insight into the habits of individual fish species.

Although the book is written in a light, conversational style, the author is certainly qualified to give advice to even the most experienced fisherman. Wall was the first man to teach fly-fishing as a university course.

Only another fisherman could fully appreciate and identify with this book.—*Terrie Whitehead*

NATURE, CHILDREN, AND YOU by Paul E. Goff; **Exposition Press, Inc., 900 South Oyster Bay Road, Hicksville, N.Y. 11801, 1974; 123 pages, \$5.**

Here is a book written for big people about little people. Its purpose is to give adults the perspective of a child and to help adults make the outdoors more meaningful to the youngsters.

To achieve this end, the author offers valid suggestions and teaching tips to maintain the child's interest. Often an adult can unintentionally spoil the fun of a hike through the woods by placing too much emphasis on identification and scientific terminology.

If a child asks if the common mounds in forests are where cows and horses are buried, how should the adult respond? Goff recommends the adult find a fallen tree or decaying log, point it out to the child and then ask what the child thinks that particular spot will look like in 10 to 20 years if the wood is not disturbed.

This and more than 100 other situations are discussed by the author. But more important than giving the adult a specific answer for each question, the author provides a pattern of thought for the adult. This perspective should

enable the adult to handle the many other questions which could arise.

Although Goff wrote this book for application to the outdoors, his teaching methods could be adapted for most learning processes. However, Goff is convinced that exploration of nature fills a vacuum within a child.—*Terrie Whitehead*

THE HOUSE OF LIFE, RACHEL CARSON AT WORK by Paul Brooks; **Fawcett Publications, P. O. Box 1014, Greenwich, Conn. 06830; 288 pages, \$1.75.**

Long before ecology was a household word used to describe many facets of conservation, Rachel Carson was crusading, writing and warning about environmental dangers. She became famous in the annals of history by her 1962 literary contribution *Silent Spring*.

That book revealed the government's flagrant use of a pesticide containing properties which concentrate and stay potent for years. This pesticide, used to kill mosquitoes, was DDT, and the end result was the death of thousands of fish and animals.

Excerpts from *Silent Spring* and four other books, along with letters, memoirs and historical data are contained in *The House of Life*. This book might be termed a combination anthology, biography and autobiography. It contains selected chapters from her most famous works along with comments by the author and letters from people who knew Rachel Carson personally.

Probably most interesting are the letters she wrote to close friends and associates about the book she was writing at the time of her death in 1964. Letters written before the publication of *Silent Spring* are especially fascinating because they reveal the progression and stopping points in her research.

An author seems more human when the reader can understand the loneliness of being confined in a room for hours with a typewriter and an incomplete book. This is especially true when the subject is technical and words are difficult to select in each sentence as they were for Rachel.

The author of *The House of Life* did an admirable job in portraying Rachel Carson as a person with strong feelings and problems in accomplishing a mission. Her work is unsurpassed and already a legend. This book is a good introduction to her with comments from those who knew her best.—*Terrie Whitehead*

DECOYING WATERFOWL by A. C. Becker, Jr.; **A.S. Barnes & Co., Inc., P. O. Box 421, Cranbury, N.J. 08512, 1973; 247 pages, \$12.**

Only one statement about decoying ducks holds true for all species — they always land against the wind. After this generality, ducks become quite diverse, not only in physical characteristics but in instincts.

If you want to outsmart a duck, you need to know how to use decoys to the best possible advantage. Probably the easiest way to do this is to read *Decoying Waterfowl*.

This publication is not an identification book illustrating the various species and their characteristic colorings. The author assumes the hunter knows how to identify drakes and hens of various species and is able to shoot with fair accuracy.

As Becker emphasizes and illustrates repeatedly, different ducks and geese respond in different ways. Whereas one species will fall for a white piece of paper as a decoy, another must have a reasonable facsimile with the curvature of the neck arched just right.

The real challenge of waterfowl hunting comes in decoying the difficult species and watching them work the spread. Becker tells how to arrange the decoys on the water in patterns for certain weather conditions and surrounding vegetation.

To cut the cost and maybe add more fun and satisfaction to the sport, the author suggests making home decoys. He goes into considerable detail in recommending particular kinds of wood and lifelike paints, although he admits his prettiest ones never made it to the field.

Becker is author of five other outdoor books and sports editor for the Galveston Daily News.—*Terrie Whitehead*

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PHOTO AND ART CREDITS

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Page 6 — Leroy Williamson; Mamiya C-33, 80mm Sekor; Ektachrome X.

Page 7 (left) — Martin T. Fulfer; Nikon F, 400mm Leitz Telyt; Kodachrome X. — (right) — Reaves; Nikon F, 55mm Micro Nikkor; Ektachrome X.

Page 8 — Frank Aguilar; Nikon F2, 80-200mm Nikkor Zoom; Kodachrome 25.

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Page 12 — Whitcomb; Hasselblad, 50mm Distagon; Ektachrome II.

Pages 12-13 — Tom Blackwell; Mamiya RB67; Ektachrome X.

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Page 15 — Blackwell; Mamiya RB67; Ektachrome X.

Pages 16-17 — James Creighton; Yashica SLR, 21mm Yashinon; Ektachrome X.

Page 18 (top) — Creighton; Nikonos, 28mm Nikkor with underwater strobe; Ektachrome X. — (bottom) — Creighton; Nikonos, 28mm Nikkor with underwater strobe and 1/2 life size extension tube; Ektachrome X.

Page 19 — Creighton; Nikon F in Ikelite housing, 20mm Nikkor with underwater strobe; Ektachrome X.

Page 20 — Creighton; Yashica TL Electro X, 21mm Yashinon; Ektachrome X.

Page 21 — Creighton; Nikonos, 28mm Nikkor with underwater strobe; Ektachrome X.

Page 23 — John Suhrstedt; Nikon F, 50mm Nikkor; Kodachrome II.

Page 25 — Aguilar; Nikon F2, 35mm Micro Nikkor; Kodachrome A; black and white photos from Kodachrome A.

Pages 30-31 — Jana Schnoor; India ink on illustration board.

Inside Back — Suhrstedt; Nikon F, 55mm Micro Nikkor; Kodachrome II.

Back Cover — Whitcomb; Nikonos, 35mm Nikkor; Ektachrome X.

LONG SHOTS SHORT CASTS

compiled by Neal Cook

Wildlife Habitat: Habitat is not just the place where an animal lives; it includes all the things an animal needs to continue living — food, water, cover and a place to raise young. People should stop and consider just exactly what they are doing for wildlife, be it birds, mammals or smaller reptiles and insects. Entire species have been exterminated by man's modification of relatively small acres. So, before a rancher clears his land; a farmer deep-plows his stubble or discs a hedgerow, or a homeowner trims his shrubbery, all should ask if the extra expense and trouble are worth it when wildlife suffers. Homeowners are reminded of the article in the February *Texas Parks & Wildlife* which told how to plant trees and shrubs; and agricultural producers are reminded that our department has extension biologists who can recommend land-use practices which are productive and beneficial for wildlife.

Wildlife Stamps: Periodically readers tell me that they don't hunt or fish, but want to contribute to conservation and ask why this department doesn't have a stamp to sell for non-consumptive enjoyers of our wildlife. Someday this may be feasible; however, other states have tried, and apparently most non-users are also non-payers. Colorado sold \$5 stamps last year which would provide money for research and management of non-game species. That state used television, radio and newspapers for promotion, plus bumper stickers, leaflets and posters. Every departmental office and license sales deputy received stamps to sell. Through this, 828 stamps were sold in one year for a net of \$2,500 for conservation not counting salaries and promotional production costs. Ohio Department of Natural Resources began the sale of wildlife stamps in June 1972 and as of December 31, 1974, that state had managed to sell 2,206 stamps. Their records show that 85 percent of the stamps were purchased by the sportsmen who had already made contributions through the purchase of hunting and fishing licenses, excise taxes on firearms and ammunition, waterfowl stamps and other means by which sportsmen contribute to wildlife.



Tyler State Park

Tyler State Park can offer the visitor a variety of recreational activities. Its 994 acres of pine forest are a camper's delight and 65-acre spring-fed lake is stocked with a plentiful supply of black bass, catfish and sunfish.



by Leroy Williamson, Information Officer, Tyler

Want a recipe for an almost perfect state park?

Take 994 acres of pine forest; sprinkle liberally with a variety of other trees such as blackjack, red oak, post oak, hickory, dogwood and redbud; and include one 65-acre, clear spring-fed lake, complete with a plentiful supply of black bass, catfish and sunfish.

Now add 35 picnic sites, 120 campsites, 35 screened shelters, five restrooms, one hiking trail, one nature trail and one boat launching ramp.

To most of the campsites, add water, electricity and cooking grills. In addition, provide sewer service to 39 sites for trailers. Include restroom facilities with hot and cold water, most complete with showers.

With the lake, include one bathhouse, a concession with snack bar, an outdoor dance pavilion, fishing boats, pedal boats, canoes, kayaks and sailboats for the enjoyment of all park visitors.

Sprinkle a generous supply of wildflowers over the entire area and add a representative sampling of local birds and animals. For a special touch, add the human element: a well-trained, friendly staff to make visitors welcome and to assist at all times to insure that the park outing will be a memorable experience.

Now, blend all ingredients with a rugged and historical area of Northeast Texas, near the "Rose Capital of the World" and within a two-hour drive for more than two million Texans, and you

have Tyler State Recreation Park.

This beautiful park is located eight miles north of the City of Tyler on Farm Road 14, with the park entrance only two miles north of Interstate 20.

The park was acquired by deed from private owners in the mid-thirties, and original park facilities were constructed by the Civilian Conservation Corps (CCC). Although there are still some traces of the early CCC work, the park has been completely refurbished and modernized in recent years.

In September 1963, drenching rains washed out the earthen dam constructed by CCC in 1934-35, completely draining the lake.

Park attendance was drastically reduced by what seemed to be a major disaster at the time, but actually the



Tom Blackwell



Reagan Bradshaw

Leroy Williamson



As you can see from these pictures, the park, with its cool, clear lake is a favorite with water sports enthusiasts during the summer. Facilities include a bathhouse and concession which has fishing boats, canoes, kayaks, sailboats and pedal boats for rent. Due to the size of the lake, water skiing and boat motors over 12 horsepower are prohibited.

condition of the lake was improved.

The once good fishing lake had become overrun with rough and trash fish, and fishing had become poor to fair at best. Total drainage provided department personnel the opportunity to plant the lake bed in rye grass to provide an indirect food supply for future fish. Exposure of the lake bottom to air and sunlight also released fertile elements otherwise unobtainable.

After the dam was repaired and the lake refilled, the lake was stocked with black bass, channel catfish and sunfish to provide anglers with future good fishing.

Yes, Tyler State Park has the facilities and conveniences for an ideal recreation area. In addition to the individual camping, picnic and trailer sites, there is a group camp with accommodations for 40 persons. The group camp is complete with mess hall which is screened, and an enclosed section houses cooking and serving facilities.

Regardless of the season, the beauty of the park remains constant, only changing expressions to match the months. This is especially true of the hiking and nature trails within the park where visitors are likely to get a glimpse of some of the native animals which make the park their home. Squirrels, raccoons, opossums and a variety of birds are often seen, and occasionally a white-tailed deer is sighted.

As ideal as the park appears, there are some restrictions. Depending on the individual viewpoint, these restrictions may enhance or detract from the perfection of the park.

The water enthusiast who enjoys water skiing may be disappointed to find it is prohibited because of the relatively small size of the lake. On the other hand, the fisherman may find it preferable not to have to contend with high-powered boats pulling skiers.

In fact, motor size on the lake is restricted to 12 horsepower or less. Visitors bringing their own boats should be aware of this rule.

Whether using a personal boat or renting a fishing boat, canoe, kayak, sailboat or pedal boat from the concessionaire, everyone will find the lake a quiet, pleasant place to enjoy the superb scenery while joyriding or doing some serious fishing.

Visitors to the park will certainly want to visit the city of Tyler, named for John Tyler, the 10th President of the United States.

When Tyler was named the county seat of Smith County in 1846, there was little need for a park nearby. Most of the citizens lived in scattered log cabins



Visitors to Tyler State Park discover the beauty of the Whispering Pines Nature Trail.

around a large tree-grown square where deer were frequently observed and often shot.

During the Civil War, Tyler was the site for the Confederate States Ordnance Works where rifles were manufactured for the Confederate Army.

Today the city is famous for its roses, Tyler Junior College and the Apache Belles. Anyone planning a camping vacation in the fall will not want to miss

the Tyler Rose Festival.

Tyler State Park is not alone in its perfection. There are many parks in the statewide network with equal facilities, each situated in its own unique locale. For a true Northeast Texas vacation, travelers should visit other state parks in the area: Bonham, Daingerfield, Atlanta and Caddo Lake all have their individual appeal and are within a 110-mile radius of Tyler. **





Beneath the Gulf

Article and photography by James Creighton

Bordering Texas is one of its greatest natural resources and one of its foremost recreational areas—the Gulf of Mexico.

Its vast and many-sided beauty attracts an ever increasing number of visitors each year. A relatively new kind of sportsman, the scuba diver, is also finding his way to the coast as diving grows in popularity.

Stimulated by the televised exploits of Jacques Cousteau, popular movies and improvements in equipment, sport scuba diving has attracted more and more interest within the past few years. This same growth has made it easier for Texas divers to get out into the Gulf either by chartering fishing boats or dive boats.

Traditionally, Gulf divers head for the offshore oil drilling rigs which dot the Texas and Louisiana coasts or the jetties along the lower Texas coast. But recently, trips to the offshore banks have become possible.

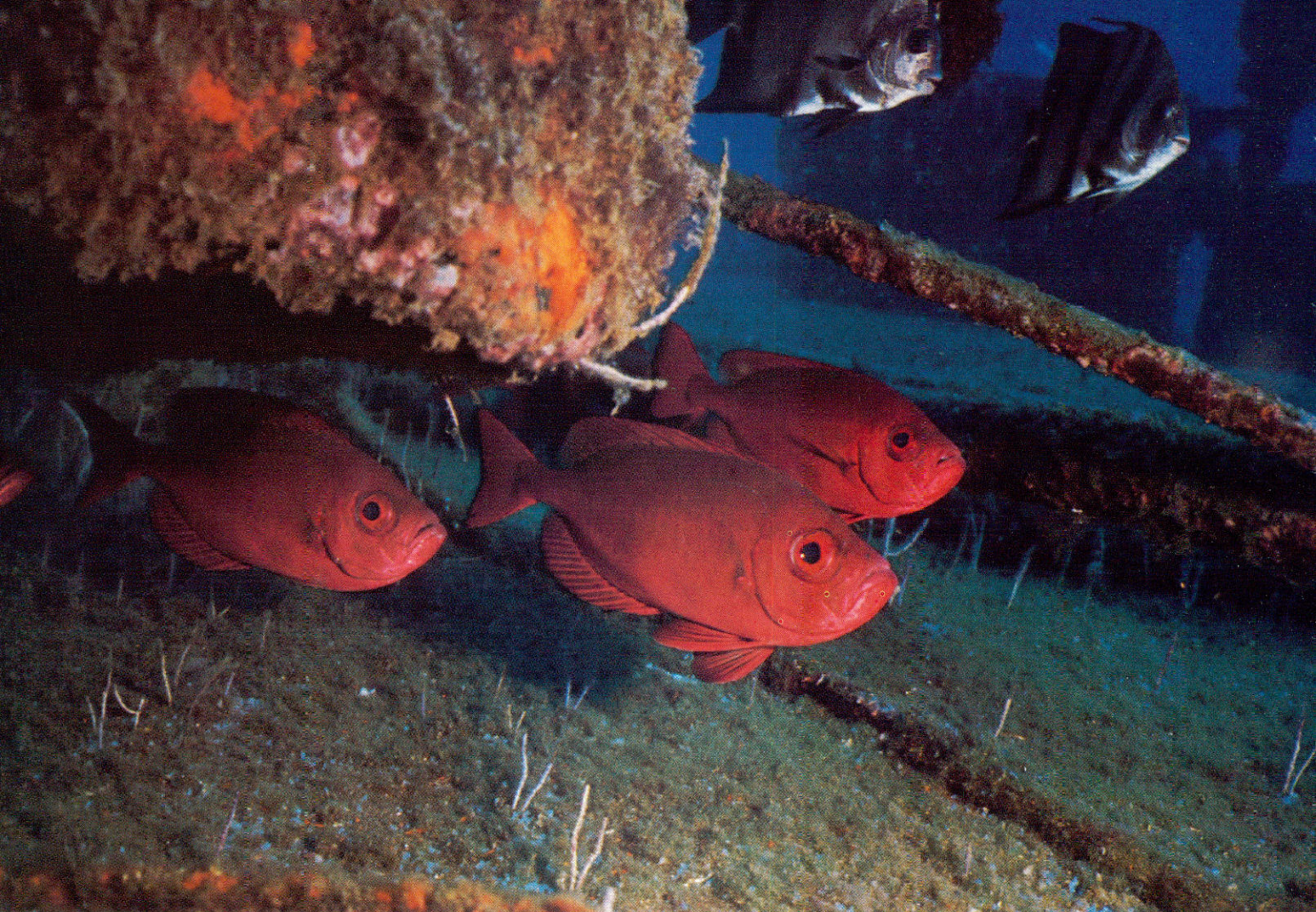
The jetties at Ports Aransas, Mansfield and Isabel are the cheapest and most accessible dive spots along the coast; unfortunately, the visibility ranges from zero after a norther blows in to 10 or 20 feet on calm summer days. Little diving is done on the Galveston and Freeport jetties because of poor visibility.

Don't let the marginal visibility scare you off. Some of the Gulf's prettiest and most interesting creatures live among the jetty rocks. Blennies, for instance, are ridiculous little fish, each with a different personality. Some are friendly, some shy and some downright indignant when divers swim into their area.

During the summer, you might discover several types of tiny, jewel-like tropical fish. Even the granite rocks are covered with brilliantly colored sponges and tunicates—small invertebrates also known as “sea squirts.”

By far the most intriguing of the jetty inhabitants is the octopus. Small, shy and intelligent, the octopus is right at home among the small rocks and rubble of the jetties. Be patient and very still and perhaps a curious octopus will cautiously approach. It may

Scuba diver descends in the open waters off the Texas Gulf coast. Areas such as Flower Gardens and Stetson Bank offer spectacular diving experiences.



Christmas tree worms ▼

▲ Glass-eye snappers, spadefish on V. A. Fogg

Natural reefs, oil rigs and old wrecks form the nuclei of whole ecosystems which lie beneath the surface of the Gulf of Mexico. Minute marine life, which forms and thrives on these structures, attracts and nourishes the surrounding population of small fish. The small fish are eaten by larger fish, which in turn fall prey to even bigger appetites. From the miniscule to the gargantuan, it's all there, a whole new world for the knowledgeable and skilled scuba diver to play in and enjoy.





even take food from your hand. A visit with a friendly octopus can be the highlight of any jetty dive.

Beyond the jetties the waters are rich and the clarity increases dramatically with greater depths, but much of the bottom is flat and muddy. With no solid bottom to attach to, many forms of life have no chance to gain a foothold and grow.

Within the last 20 years the search for oil has moved offshore. Steel legs and crossmembers of offshore drilling platforms now rise from the floor of the Gulf to provide a firm surface, a man-made reef of considerable size. They are quickly encrusted with tiny algae, barnacles, small colonial animals called hydroids, sponges and the like. This food source attracts and nourishes small fish. Larger fish prey on the small fish and big fish chase the medium-sized ones. Other types of fish are drawn to the rig structure for protection and orientation.

Some of the greatest concentrations of fish in the world are found under the drilling rigs. Clouds of baitfish sweep around under the rigs, while cruising the perimeter are great schools of amberjack, jack crevalle and barracuda. Brilliantly colored tropical fish are often found hugging the crossmembers, as much at home on the rigs as their relatives are on Caribbean coral reefs. Down deeper, lurking in the layer of murky water on the bottom are Warsaw

grouper, 500-pound jewfish and, if the rig is deep enough, red snapper.

A recent tragedy has provided much the same artificial marine environment as the oil rigs. On February 1, 1972, the 572-foot tanker *V. A. Fogg* left Freeport to clean her tanks of highly explosive benzene residue. When 45 miles out to sea, she exploded and immediately sank in 100 feet of water, taking all 39 crew members to the bottom.

Today the *Fogg* is an impressive wreck which has attracted the same chains of marine life as the oil rigs. Swimming along her deck in 50 feet of water, a diver is surrounded by schools of friendly spadefish and glass-eyed snapper.

A great deal of twisted metal lies about the *Fogg* because she was torn by both the initial explosion and a later one which was used to remove the superstructure as a navigational hazard. Now the tortured metal is covered with a soft layer of encrusting organisms, and pretty fish swim in and out of the gashes and ripped seams. The *V. A. Fogg* is a perfect example of an artificial reef.

But the natural reefs and banks of the Gulf of Mexico offer the most spectacular diving. The two Flower Garden coral reefs are the most popular of these. They are located about 110 miles east of Freeport and sit atop a single salt dome formation rising



up from 400 feet of water. Visibility underwater is usually 100 feet or better.

In 70 feet of water a diver will find the same types of colorful life as he would on the tropical reefs of the West Indies or the Caribbean. The reef corals form massive rounded heads which, piled one on the other, rise 10 to 20 feet above the white sand of the reef floor. These coral heads are honeycombed with small holes and crevices which offer protection to many kinds of creatures. Tropical fish such as the beautiful blue and yellow queen angel or the saucer-eyed squirrel fish glide in and out of the reef. Bright red tube worms, which extend their gills to form miniature Christmas trees, vanish into coral burrows when disturbed.

Any surface not covered with living corals is encrusted with brightly colored sponges. Above the reef, hanging lazily in mid-water, are schools of huge amberjack and barracuda. These are only a few of the hundreds of fascinating reef inhabitants which make the Flower Gardens something special and the best diving off the Texas coast.

Thirty miles northwest of the Flower Gardens another underwater mountain, Stetson Bank, thrusts up from 200 feet to within 60 feet of the surface.

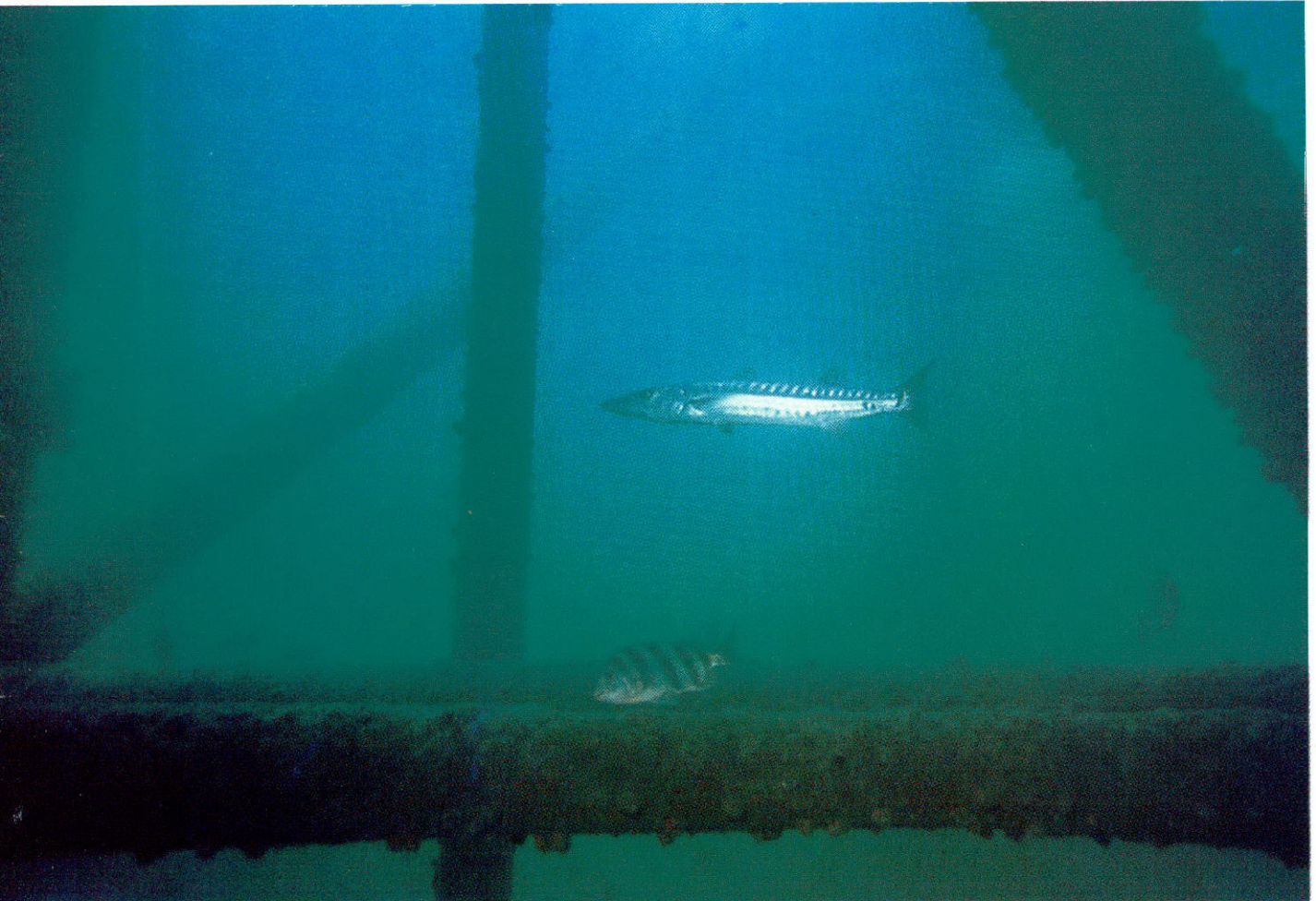
Stetson is only 400 yards in diameter, much smaller than the Flower Gardens. The bank has all the requirements for reef-building coral except the winter water temperature is too cold—below 68 degrees—for reef corals to survive. Nevertheless, many of the tropical varieties of fish thrive at Stetson, as well as the larger open water fish.

The Flower Gardens, V. A. Fogg and Stetson Bank have become accessible to more than a handful of divers only within the past few years. Getting out into the middle of the Gulf of Mexico calls for a seaworthy boat equipped with navigational devices and operated by a competent crew.

In 1972, the first regularly scheduled diving trips into the Gulf were started with the *Aqua Safari* out of Freeport. This 65-foot, steel-hulled vessel is well outfitted with an air compressor, diving platform on the stern and more importantly, a good cook. The ship is available for charter through dive shops, clubs or directly through Aqua Safaris in Freeport.

Traveling to the oil rigs is somewhat easier. Most dive shops along the coast and in many inland cities can arrange trips to the rigs. Many dive clubs also make periodic rig trips.

Interested in diving? The best way to get started



is through a nationally recognized program of instruction. There are several: YMCAs with pools usually offer instructions as does NAUI (National Association of Underwater Instructors), PADI (Professional Association of Diving Instructors) NASDA (National Association of Skin Diving Schools) and SSI (Scuba Schools International).

A scuba course should teach the diver how to safely use scuba equipment in open water. Open water presents the diver with a variety of situations calling for the right decisions and actions on his part. Only proper training and experience can prepare one to make these decisions.

Several supervised open water dives should be included in your basic course. For Gulf diving, it would also be wise to continue your training through a course consisting of six to 10 additional supervised dives, unless the basic course was especially thorough. Safe diving cannot be learned from a textbook alone or by borrowing an old tank and regulator and swimming around in the apartment pool.

A basic scuba course will also teach the use and maintenance of equipment and what accessories are necessary for different dives. Gulf dives call for the basics: tank with backpack, regulator with a submers-

ible gauge to indicate how much air remains in the tank, inflatable vest or buoyancy compensator, mask, fins, snorkel and knife. In addition you will need a waterproof watch, depth gauge and wet suit, except during the summer months. If the water is too warm for a wet suit, wear an old pair of jeans and some cotton gloves to protect yourself against the barnacles which grow on the rigs and the sharp coral of the Flower Gardens.

As in other sports which demand top-quality equipment, scuba gear is expensive to a man of average means, but top-quality equipment, well cared for, can last almost indefinitely. Retail price on an outfit which includes major items such as tank, backpack and regulator with submersible gauge will cost from \$220 to \$400. A basic scuba course is usually from \$50 to \$80 depending on whether the student is expected to supply his own equipment or if gear is furnished.

Dive stores are the best places to shop for equipment. Here you will find instruction, rentals, repair service, air refills and quality equipment.

With proper training and equipment, diving is a safe and thrilling sport, providing access to the wonders of the wilderness world found beneath the surface of the Gulf of Mexico.

**



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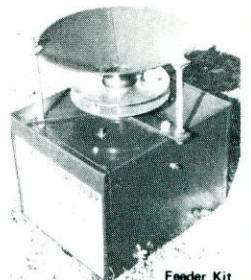
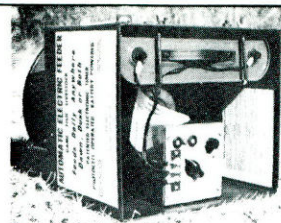
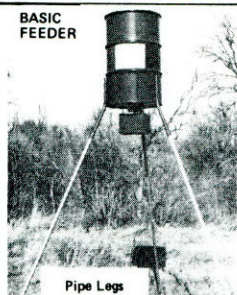
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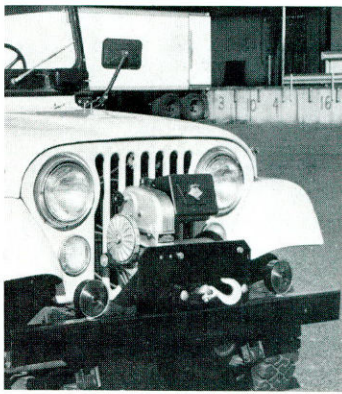


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Legend of the Dogwood Tree

by Ernest J. Biskamp

Before God's Son was crucified,
The dogwood was a tree with pride.
It grew quite tall, its limbs were straight;
It had a fruit which people ate;
Its bark was used to cure the ill
By brewing it with utmost skill.
The cross, Christ bore to Calvary,
Was made from wood of this strange tree.
Since then, it bore a curse of shame,
And never would it be the same.

It shrank to be a scrubby tree,
With limbs as crooked as could be.
It did not have its fruit to share,
Nor did it have that bark, so rare.
Time passed, and then an angel came
To shed the barren tree of shame.
Now in the spring of every year,
Its mass of flowers reappear.
Each flower forms a cross of white,
On Easter day, a lovely sight.



Freezing Seafood

Article by Rocille Campbell, Home Economist, Seafood Marketing

Photography by Frank Aguilar

Freezing seafood at home is not complicated and results in an easy to use, appetizing product. However, freezing does bring about some changes in seafood, so care should be exercised.

Fresh seafood is, of course, best eaten fresh. You should only consider freezing seafood if you have an excess that cannot be eaten within 36 hours. Problems you may encounter with freezing include protein spoilage, rancidity, freezer burn and improper thawing.

Protein spoilage is characterized by a strong ammonialike odor, generally associated with tainted meat or fish products. It is easily avoided by keeping the temperature of the seafood at -10° F. or lower.

Rancidity, however, occurs even at these low temperatures. Since most of the fat in seafood is of the unsaturated type, it becomes rancid more rapidly than saturated fats. This deterioration of fatty acids can be inhibited if exposure to heat, light, oxygen and metals, such as copper and iron, is severely limited.

Freezer burn, or dehydration, occurs when seafood is exposed directly to the air for extended periods

as a result of improper packaging. Dipping or glazing seafood with ascorbic or citric acid, then placing it in a moisture/vapor-proof wrapping or container prevents dehydration. Ascorbic and citric acid dips for home freezing are available in most supermarkets. Ascorbic acid also helps to retard the development of rancidity.

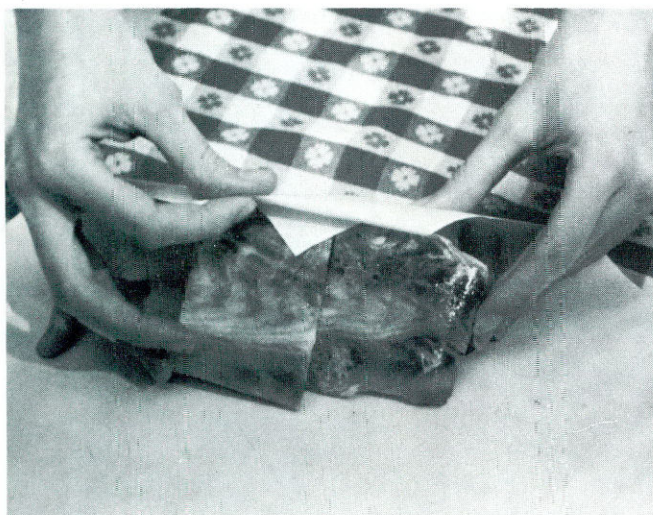
Freeze only fresh seafood. There should be no signs of spoilage or of previous freezing. A good-quality, fresh fish should look as if it has just been caught. The eyes should be full and clear; belly and gill areas bright red, not brownish; flesh firm; and, above all, there should be no objectionable odor. Fresh fillets and steaks should look moist and freshly cut, with no tears or punctures.

Freeze seafood quickly, lowering its temperature as rapidly as possible, and then keep it at a constantly low temperature to ensure maximum storage life. Slow freezing allows large ice crystals to form in the cells of the fish. These crystals break down cell walls and allow moisture to escape when thawed, resulting in a tough, dry, flavorless product.

Fish are classified as either lean or fat. Lean fish



Fish with an exposed cut surface, such as fillets and steaks, should first be frozen solid on wax paper, then glazed by quickly dipping them in cold water.



Glazed seafood can be stored without further covering, however, wrapping it in a moisture/vapor-proof paper further ensures its storage life. Labeling and dating the packages enable you to see what you have and when it should be used to maintain its quality.

have less than five percent fat content and include most of the commercial species taken from the Gulf. Fat species usually have darker flesh, such as mackerel and tuna. Under good conditions, fat fish can be kept for three months in the freezer while leaner species remain in good condition for up to six months.

When freezing seafood, package size should be tailored to the size of your family. Each package should contain just the right amount for one meal. Large packages should be avoided since it takes them longer to freeze and longer to thaw. The recommended maximum size of packages for home freezing is three pounds. For example, for a family of four, a 1½-pound package of fillets or steaks should be about right, allowing one-third pound per person. Allow one-half pound for pan-dressed, three-fourths pound for drawn and one pound of whole fish per person. Naturally, these amounts are flexible depending on individual appetites.

Prior to freezing whole, drawn or dressed fish, clean and wash them thoroughly. Divide into the desired package size and wrap them in moisture/vapor-proof paper. Label and date all packages and place them in the coldest part of the freezer. Leaving the scales on fish will provide additional freezer protection. If

the fish are larger than two pounds each, freeze them in individual packages.

Additional freezer protection is desirable for fillets and steaks or any fish with an exposed cut surface. Fillets and steaks should be frozen solid on waxed paper, then glazed by quickly dipping them in cold water. Be sure they are completely coated with the thin ice that forms. Glazed seafoods can be stored adequately without further covering, but nevertheless it's a good idea to also wrap them in moisture/vapor-proof paper. Waxed butcher paper, plastic wrap or airtight plastic bags are all acceptable.

For increased storage life, a one percent solution of ascorbic acid purchased as a freezing preservative may be used for glazing. Soak fish in solution one or two minutes and then freeze it on waxed paper. Once frozen, a second glaze may be applied for increased protection.

For transporting seafoods over long distances, the following technique is recommended:

Center seafood in a waxed milk carton or plastic container, then fill it with water. A 2½ percent salt solution (½ cup salt per gallon water) or the ascorbic acid solution may be substituted for plain water to help retard rancidity. Once the cartons are solidly

frozen, they can be packed tightly together in an insulated ice chest and covered with crushed ice. Packed this way, the containers will remain frozen for several days.

Differences between freezing shellfish and finfish are slight, mainly in the preparation of the product for freezing. Shellfish from the Texas coast consist primarily of shrimp, oysters and blue crab.

To prepare fresh shrimp, remove and discard the head. Wash the tails in clean water, dip them in a 2½ percent salt or ascorbic acid solution and place them in a moisture/vapor-proof container. It is best to leave the shell on, since it provides additional protection to the meat. Shrimp may also be peeled, deveined and cooked before freezing, but cooked shrimp tends to toughen if frozen for long periods.

Shucked oysters may be frozen but they tend to turn mushy and lose weight upon thawing. The texture also deteriorates, although there is no spoilage involved. If you shuck the oysters yourself, they should be rinsed in clean water before and after shucking. The meat may be dipped in the salt or ascorbic acid solution prior to packaging. Commercially shucked oysters may be frozen in their original airtight container, if there is adequate space for expansion of the liquid.

Crab meat is more perishable than other types of seafood, and care should be taken to freeze it as soon as possible. Crab meat should always be cooked before storage. Boil whole live crabs 15 to 20 minutes in a 2½ percent salt solution. After they have cooled, they should be washed and the meat picked. Separate lump (large pieces of body meat), flake (small pieces of white meat) and claw meat (brown meat) if desired. Pack crab meat in moisture/vapor-proof containers

and cover it with the salt or ascorbic acid solution. Label and date the containers, then freeze them immediately. If commercially packaged crab meat is used, it can be frozen in its original airtight container with no additional treatment. Check with the seafood market when purchased to be sure it has not been previously frozen. Crab meat tends to develop a stronger odor when frozen, but is good up to three months. Because of this stronger odor, some people prefer to use frozen crab meat in soups and casseroles rather than in salads.

For all types of frozen seafood, both shellfish and finfish, the thawing method is important in maintaining the quality of the product. Even though great care is taken in freezing and storing seafood, it can be ruined if not thawed properly. Never thaw seafood at room temperature or under warm water. This gives bacteria and enzymes a chance to become active. Warm water also tends to "cook" the outside of the fish before the inside is thawed, resulting in a tough outer layer. Thawing in the refrigerator is not recommended, since this method usually takes one to three days to accomplish. The best way to thaw seafood is under cold running water, just long enough to allow the pieces to separate easily and become slightly pliable. With this technique, a one-pound package takes about 30 minutes to thaw sufficiently for cooking. Seafood should be cooked immediately after it is thawed, and under no circumstances should it be refrozen.

If properly handled, frozen seafood comes close to the quality of the fresh product, and is easy and convenient to use. Recipes calling for fresh seafood can be used year around by substituting the frozen product for the fresh. **

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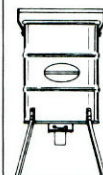
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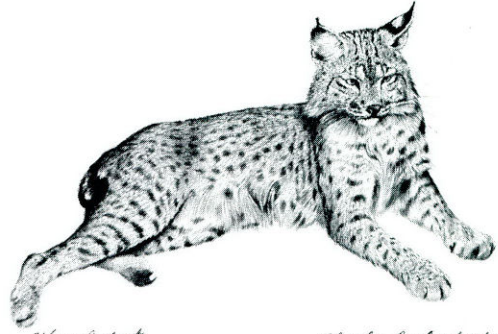
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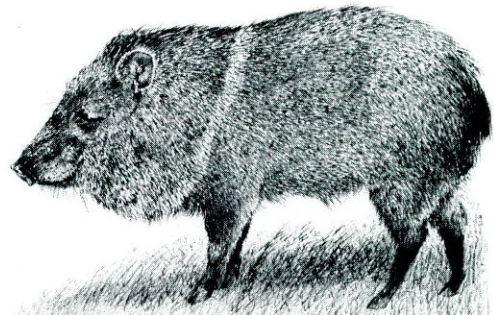
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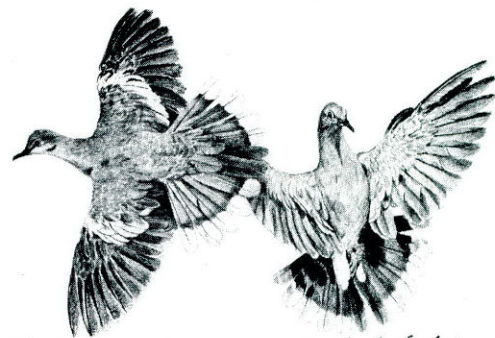
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TSRA MEMBER'S PLEDGE

I certify that I am not now and never have been a member of any organization which has as any part of its program the attempt to overthrow the government of the United States by force or violence; that I have never been convicted of a crime of violence; and that if admitted to membership in the Texas State Rifle Association I will fulfill the obligations of good sportsmanship, and uphold the Constitution of the United States and the Second Amendment thereto.

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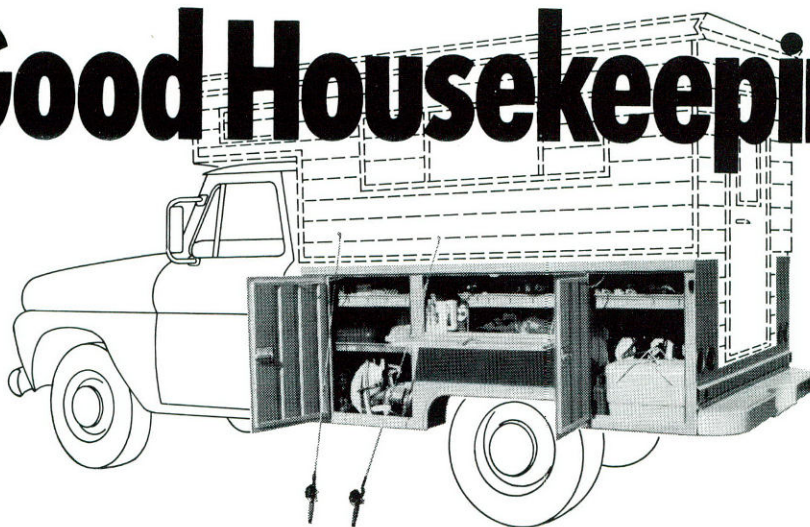
(Your ZIP Code is an essential part of your address. Without it, your application cannot be processed.)

Every year, each member receives the famous "Snortin' Bull" decal with his Membership Card, and quarterly, the Association's Bulletin, the TSRA Sportsman, containing timely information on the latest hunting regulations, game limits and seasons, legislative information, and vital aspects of the shooting sports at national, state, and local level. To assure the accuracy and timeliness of information, TSRA subscribes to the Texas Legislative Bulletin Service and maintains direct liaison with the Texas Legislature, the Texas District and County Attorney's Association, the Texas Criminal Justice Council, and the Texas Parks and Wildlife Department. As required, TSRA publishes special bulletins of interest to its members. Over 70,000 such bulletins were mailed concerning legislation before the 62nd Texas Legislature.

Additionally, TSRA encourages and sponsors junior training programs, hunter safety programs, home firearms safety, competitive marksmanship, state championships, and selects teams to represent the State of Texas at the annual National Championships. Annual dues are \$4.00, and memberships run from Jan. through the following Dec. 31st each year. We urge you to join your fellow Texans and become a member of this honorable Association. You'll be glad you did!

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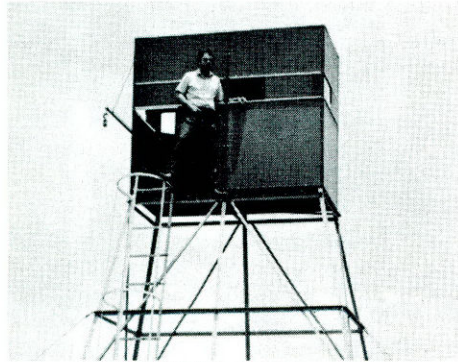
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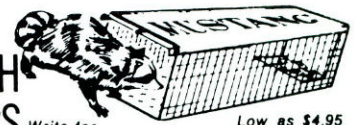
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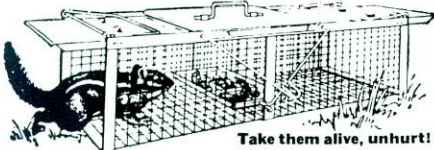


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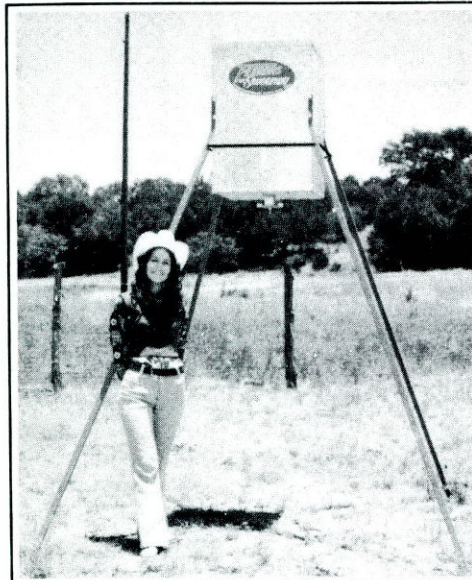
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Young Naturalist

Spring is already here, and our thoughts are turning toward those warm weather water sports that are just around the corner.

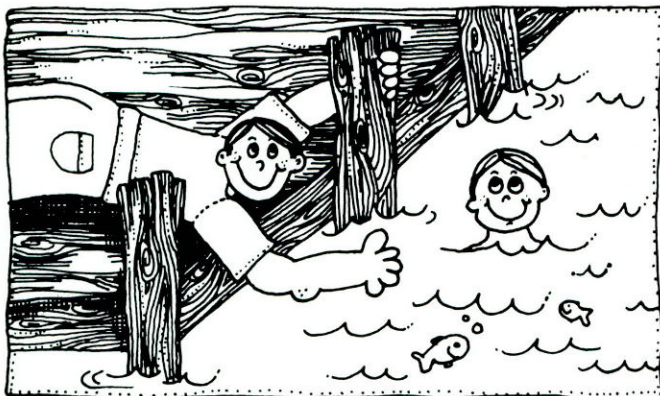
Days filled with swimming, boating, skiing and fishing await the young naturalist. But tragedy could also be waiting for those who cannot swim or who have not been taught basic water safety.

There's no better time than now for the parents of young naturalists to teach their children how to safely enjoy the water. The children should also be taught what to do in an emergency to avoid being drowned while trying to rescue someone else.

According to the Red Cross, the three major causes of drowning have always been: (1) failure to recognize hazardous conditions and dangerous activities; (2) inability to get out of dangerous situations when they develop; and (3) not knowing how to safely help a drowning victim.

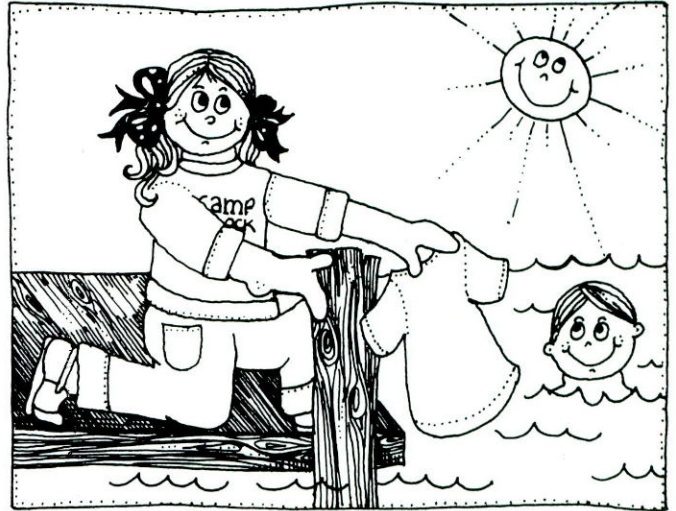
The last cause is probably the most tragic since it often results in a double drowning. Without thinking, the nonswimming adult rushes in to rescue a child, and they both drown. Or a child jumps in to save a younger brother, sister or friend and, during the struggle, the scared victim also drowns the would-be rescuer. These senseless extra drownings could be prevented if the rescuer, whether a swimmer or non-swimmer, knew how to safely help the victim.

Many times the drowning victim is a nonswimmer who has accidentally slipped and fallen into the water within arm's length of a dock or pier. By lying flat on the pier and extending your arm to the victim struggling in the water, you can safely pull the non-swimmer back to the pier. It is a good idea to use your other hand to grip something on the pier so you cannot be pulled into the water. If the victim is too far away, an article of clothing such as your shirt or pants, held tightly in your hand, may extend your reach far enough for the victim to grab hold of the material and be pulled to safety.



Rescuing the Drowning Victim

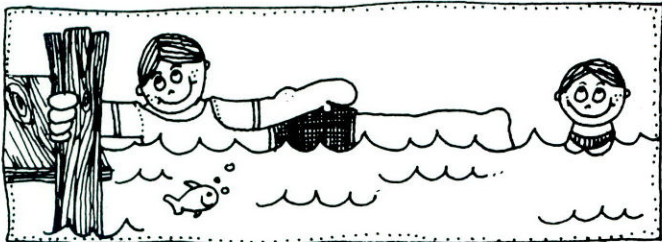
by Ilo Hiller



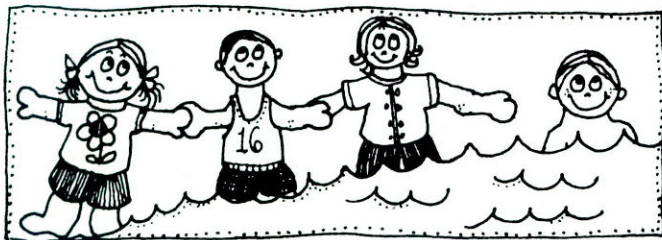
Objects such as boards, tree limbs, fishing poles, landing nets, boat oars and canoe paddles may also be used to extend your reach when they are available.



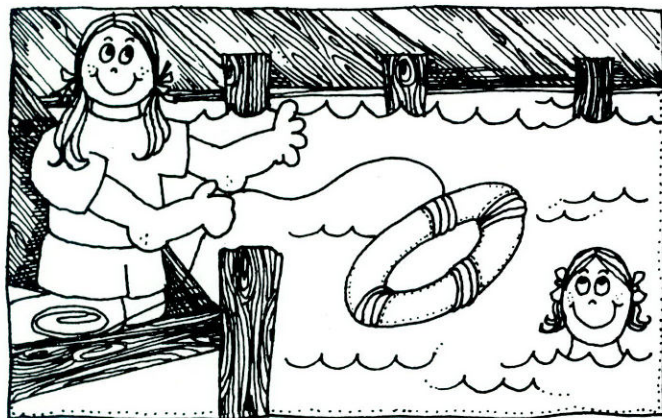
If there is nothing available to lengthen your reach, carefully enter the water, get a tight grip on the ladder or pier and extend your arm through the water to the victim. If the victim is still beyond your reach, extend your whole body through the water, while holding tightly to the pier, and allow the victim to grab your legs.



Several rescuers may work together to reach a drowning victim by forming a human chain. They grip each other's wrists and work their way out from shore to the victim. The person on the shoreside end of the chain remains out of the water or stays in shallow water to be able to pull in the rest of the members of the human chain once the victim is reached.

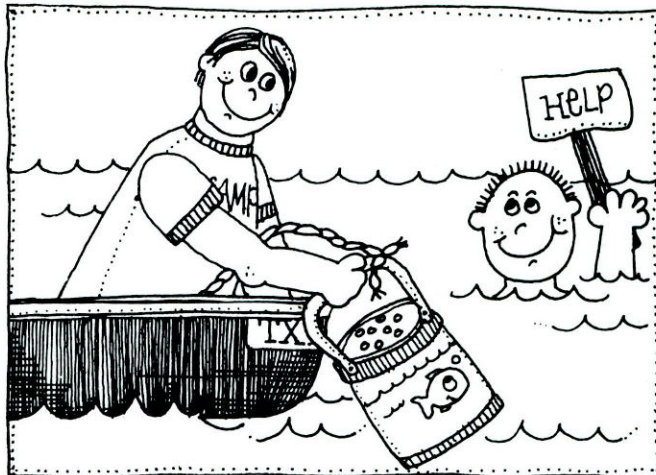


When the victim is beyond the reach of any extended object, throw the victim a floating object. A ring buoy on a line is, of course, the perfect throwable rescue object since the victim can grab it and be pulled to safety. To use one, hold the coiled line in one hand, throw the buoy beyond the victim, carefully pull it within reach and, once the victim has a tight grip on it, pull the ring slowly to shore.



Handy as they may be, ring buoys are not always available, so some other floating object may have to be used to support the victim until additional rescue assistance can be given.

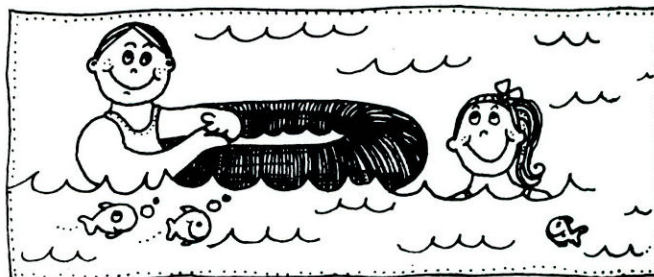
Boaters will have at least one throwable cushion on board, but they also may have other floating objects which can be used in an emergency — water skis, ski belts, boat paddles, tackle boxes, minnow buckets, empty gas cans, boarding ladders, ice chests, water jugs, inflatable toys or mattresses or spare life jackets.



Many of these same emergency objects are also within reach of the shoreside rescuer and can be thrown to the victim.

Never attempt to swim out and rescue someone unless you are a good swimmer and have been trained to handle a struggling victim without getting drowned yourself. Don't become one of the double-drowning statistics.

If you are a good swimmer and there appears to be no other means of rescue, you may attempt the rescue by swimming out to the victim with a floating object such as a ring buoy, inner tube or air mattress. The important thing to remember is to keep the floating object between you and the victim for your own protection. Keep calm and try to calm the victim, if you can, by talking. As soon as the victim grabs the floating object, start swimming toward shore pulling the victim along. If the victim panics and tries to climb across the floating object to you, release it and swim out of reach. Don't let the victim grab you. If you cannot calm the victim enough to be able to complete the rescue, leave the floating object to help support the victim until additional rescue assistance can be attempted, and swim back to shore.



Drownings are a tragic waste of life, and most of them could be prevented if everyone learned how to swim and used common sense around the water. However, since there probably always will be non-swimmers who get themselves into dangerous situations around water, there will continue to be drowning accidents. But we hope that after reading this, you will know how to safely help the drowning victim without becoming a victim yourself. **

LETTERS TO THE EDITOR

Nuisance Nutria

I live in Deerhaven on Lake L.B.J. and have over 200 feet of waterfront. For the past three years or more, nutria (coypu) have been eating and damaging my St. Augustine grass lawn. I have tried poisoned carrots and traps to control or eliminate them, and I have shot many of them. However, this action has not stopped the destruction. Is there any way I can control or eliminate this nuisance animal?

C. H. Bornhorst
Marble Falls

There is no permanent solution to your nutria problem, but trapping and shooting are the most effective temporary methods of control. Since nutria are edible (see "Nutria Feast" February 1975), these destructive visitors will provide you with several pounds of meat for your freezer if you care to utilize them.

It is the habit of an individual nutria to return day after day to the same site to feed, so it is possible to reduce your problem by trapping or shooting only

the animals which feed on your lawn. Your best trap sets are made in the water where the nutria climbs onto the bank. However, killing nutria a distance from the area you want to control is usually a waste of time.

Returning Ridleys

It has been almost eight years since the Ridley sea turtles were hatched and released in the Padre Island surf. Have any of the females returned to lay eggs?

Karen Forsyth
Austin

While working in the area last year, a bulldozer operator familiar with the Ridley project saw a large female turtle come ashore. He turned her onto her back so she couldn't slip back into the water and then went to inform the volunteer turtle watchers that a Ridley had finally arrived at Padre.

The volunteers turned her upright and she proceeded to dig a hole in the sand and lay 117 eggs. The eggs were then recovered from her nest and placed in a wire protector to keep them

safe from predators.

Mrs. Ila Loetscher, Padre Island's official turtle expert, kept the visiting Ridley for several days so it could be studied and tagged by our biologists. The 80-pound turtle was then taken to the beach and released into the surf.

According to a bulletin prepared by the Mexican Fisheries Department of Biology, it takes eight years for Ridelys to mature and return to their birthplace to lay eggs. For this reason, turtle watchers believe that this particular female was one of the 79 Ridelys which hatched and were released in 1966. If this is true, this year should see the return of the females which were among the 1,102 turtles hatched and released in 1967.

Whatever the outcome, you can bet that the volunteer turtle watchers who have been with this project from the beginning will be there watching and waiting for the turtles to return.

Unprotected Lion

I noticed that one of the animals in your wildlife exhibit at the Houston Boat Show was a mountain lion. I have been told that this animal is reduced in numbers. Why doesn't the Texas Parks and Wildlife Department do something to protect them?

Nita Howard
Houston

Since the mountain lion is not protected by any state or federal law, this department is unable to enforce any laws against killing the animal.

During the last two sessions of the Legislature, bills were proposed which would have afforded the mountain lion protection as a game species, but none passed.

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BACK COVERS

Outside: Some of these float-trip enthusiasts beached their canoes and kayaks long enough to stretch their legs and climb to the top of this scenic overlook. The location is on the Trinity River below the Dallas-Fort Worth area. Photo by Jim Whitcomb.

Inside: One of the early spring attractions in East Texas is the beautiful flowering dogwood. Its green fruits, which develop in mid-summer, ripen to a bright red in September and provide food for turkey, squirrels and many songbirds. Photo by John Suhrstedt.



