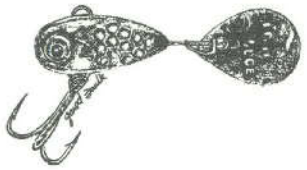
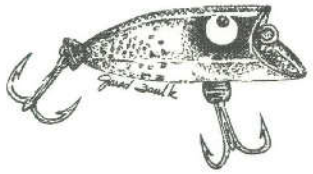
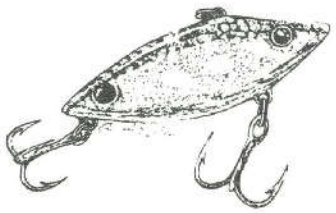
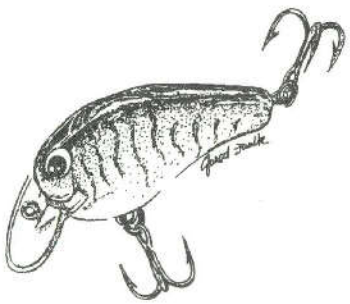
Texas Largemouth Bass Management

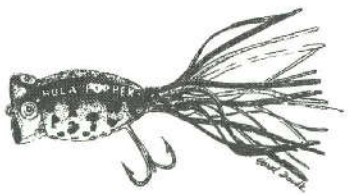
Program Report











Texas Largemouth Bass Management Program Report

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1995

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SPORT FISH RESTORATION

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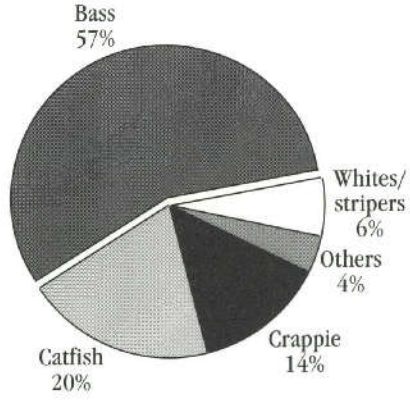
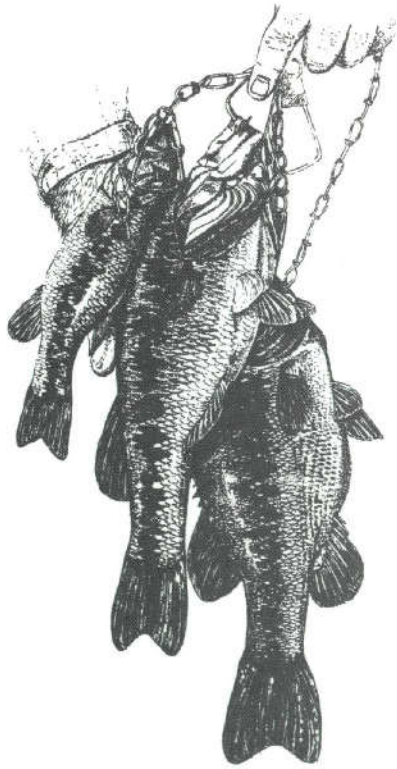
INTRODUCTION

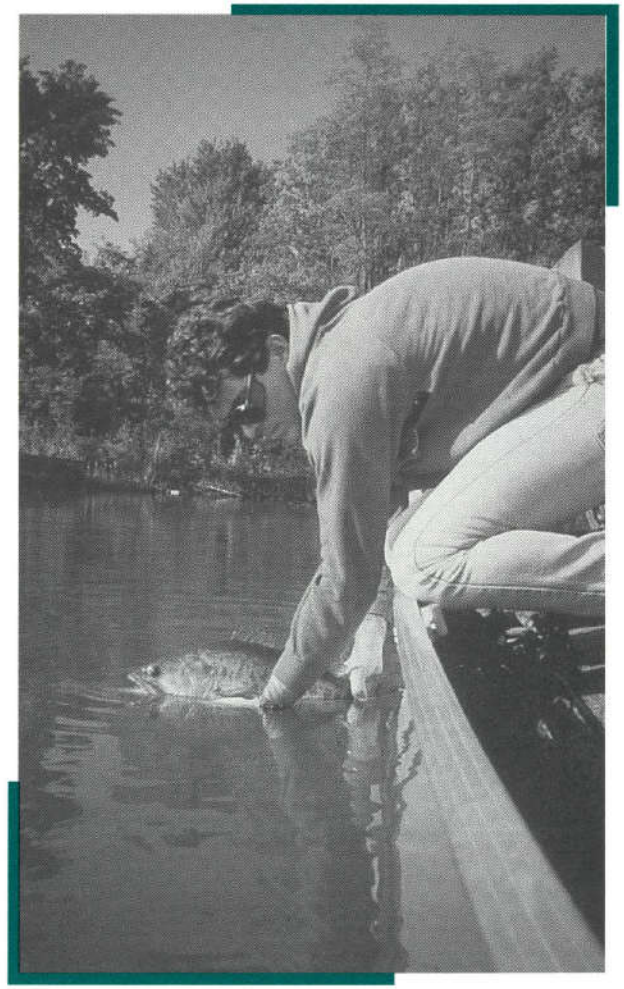
Bass fishing plays an important role in outdoor recreation in Texas and is the most popular type of freshwater sport fishing in Texas. Among anglers surveyed, 57% preferred fishing for bass (Kevin Hunt, Texas A&M University, College Station, Texas, personal communication). Catfishes were the second most preferred group at about 20%. Based on surveys and license sales, there are about 354,000 licensed bass anglers in Texas. These anglers spend an average of $91 per trip and an estimated $301 million per year on bass fishing. This includes expenditures for the trip only and does not include cost of equipment such as boats and fishing tackle.

Bass management has always been one of the key activities of the Inland Fisheries staff of Texas Parks and Wildlife Department (TPWD) because of the important recreational and biological role bass play. The goal of largemouth bass management is to provide the highest quality angling. This report provides information on the past, present, and future management of largemouth bass in Texas. To place current management practices in context, previous management efforts are summarized. Management tools that help provide quality angling, primarily harvest regulations, stocking, and habitat evaluation and improvement are explained. The importance of managing for a diverse angling public is discussed in reference to angling quality. Measurement of how anglers perceive the success of management efforts and the importance of public input and education in the management process are also discussed. Fishing tournaments, an important aspect of bass fishing in Texas, are discussed. This report can help enhance communication between TPWD and bass anglers which will further the goal of providing the highest quality angling to Texas anglers.

Texas Anglers' Preferences







HISTORY OF BASS MANAGEMENT IN TEXAS

Reservoir construction has had a direct and indirect influence on management of bass and other fishes in Texas. In 1950, Texas had approximately 500,000 acres of public reservoirs. Reservoir construction increased during the next two decades, and by 1970, 1.5 million acres of reservoirs existed. New reservoirs provide excellent fishing; however, as reservoirs age, more intensive management is needed to maintain angling quality.

Prior to the mid-1970's, harvest regulations for all black basses were a 7-inch minimum length limit with a daily bag limit of 15 bass of which no more than 10 could be longer than 11 inches. Biologists during this period believed regulations should provide the maximum harvest for anglers with a fair distribution of that harvest. The general belief was that game fish populations, including bass, could not be overharvested by anglers, and regulations reflected this belief.

This philosophy began to change in the mid-1970's due to documented overharvest of bass populations and a decline in reservoir construction. Studies showed anglers were extremely effective in harvesting catchable-size bass from a population leading to declines in fishing quality. Various harvest regulations that affect the number and size of fish anglers can keep were investigated to prevent overharvest of bass and sustain or improve angling quality.

Texas has been at the forefront of efforts to improve angling using harvest regulations. In 1975, a 10-inch minimum length limit and 10 fish bag limit for black bass were imposed statewide to reduce overharvest of largemouth bass by anglers. Changes specific to individual reservoirs began in 1979 when 16-inch minimum length limits for largemouth bass were imposed on two reservoirs. In 1980, a 14-inch minimum length limit was first used on one reservoir. Slot length limits that protect bass within a set size range from harvest were first used in 1981. Other minimum and slot limits were established throughout the early and mid-1980's. The next statewide change and one of the most important came in 1986 when a 14-inch minimum length limit and 5-fish daily bag limit were enacted. This change not only resulted in substantial improvement in statewide largemouth bass populations but also highlighted the recreational value of bass by de-emphasizing harvest. Use of length and bag limits has continued to evolve to maintain or improve angling quality.

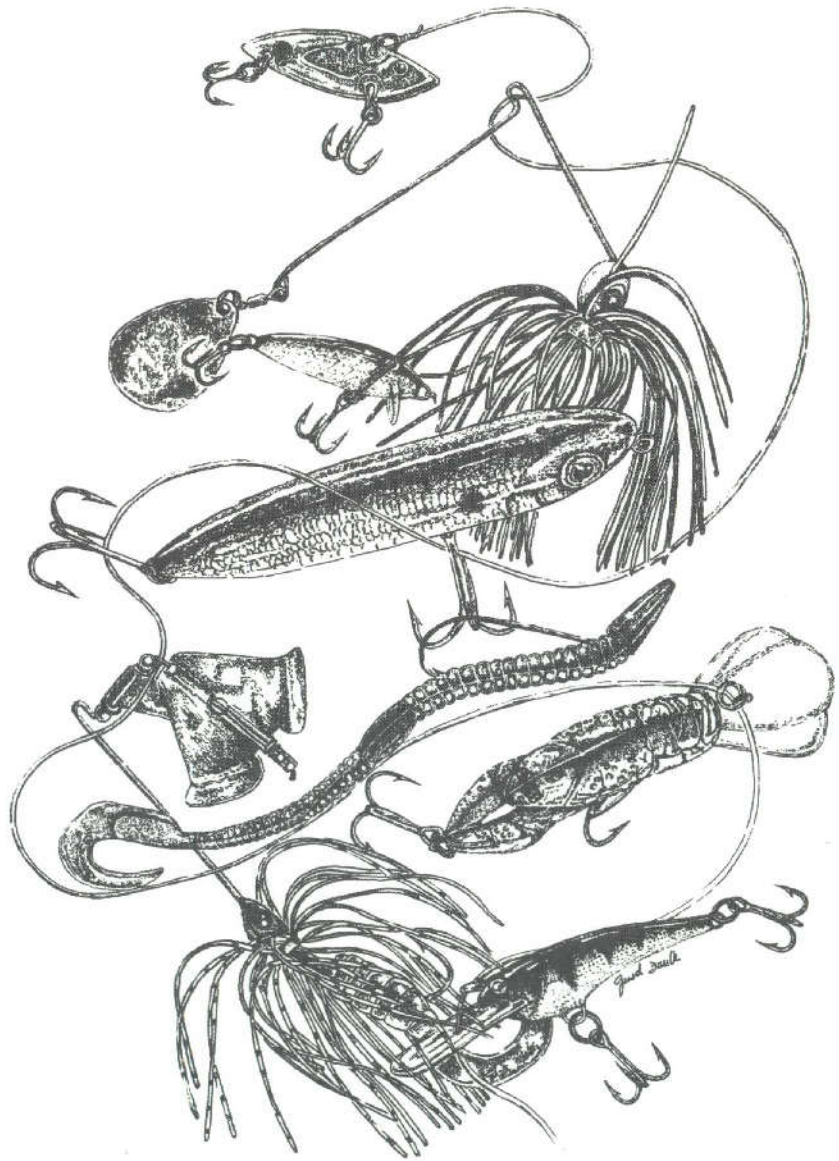
Stocking has also been a popular and important management tool and has been used to develop fish populations in new reservoirs and to supplement populations in existing reservoirs. The U.S. Commission of Fish and Fisheries began stocking in Texas in the 1890's. Stocking of hatchery-reared largemouth bass by the Texas Game, Fish, and Oyster Commission, as the TPWD was then known, began in 1941. In 1966, hatchery production was increased and widespread stocking began.

Up through the 1970's, only northern largemouth bass, which are native to Texas, were stocked. Records from the U.S. Commission of Fish and Fisheries indicate stockings in Texas included "black bass" (presumably northern largemouth bass) from Virginia, Illinois, and Missouri.

In the early 1970's, TPWD began evaluating Florida largemouth bass, a largemouth bass subspecies native to peninsular Florida. This was prompted by research in California that indicated Florida largemouth bass grow faster and to larger sizes than northern largemouth bass. The objectives of Florida largemouth bass introductions were to increase the quality of largemouth bass fisheries by increasing the size of bass caught and to provide more trophy fish. Specifically, Florida largemouth bass were introduced to add Florida largemouth bass genes to the existing gene pool. In 1972, TPWD first stocked Florida largemouth bass into public reservoirs. Since then, approximately 325 public reservoirs have been stocked.

Florida largemouth bass have made substantial contributions to the largemouth bass gene pool in many Texas reservoirs. Evidence of the impact of Florida bass introductions is in the increased number of large bass caught in Texas. The long-standing state record of 13.5 pounds set in 1943 was broken by a 14.1-pound Florida largemouth bass in 1980. Since then, numerous bass over 14 pounds have been caught. In fact, the record-breaking fish from 1980 is not heavy enough to be included on the current list of the top 50 largemouth bass caught in Texas.

The third type of largemouth bass stocked was a first generation cross between northern and Florida largemouth bass. These fish were named Kemp's bass in honor of the late Robert J. Kemp, Jr. who while Fisheries Director for TPWD played an important role in the beginning of the Florida largemouth bass program. Use of Kemp's bass has been limited since crosses occur readily in reservoirs where northern and Florida largemouth bass coexist.



MANAGEMENT TOOLS

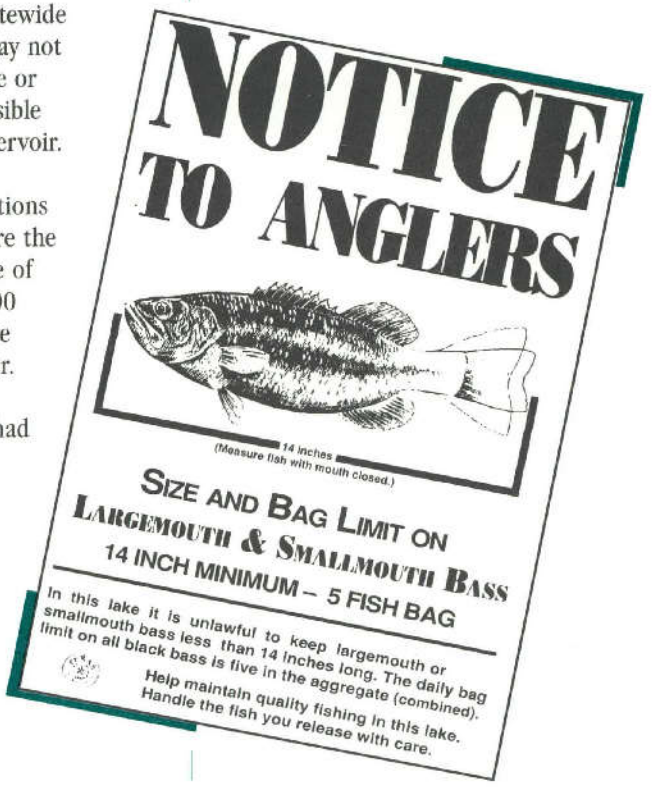
Fisheries biologists use management tools to modify both fish communities and angler use to bring about desired changes in fishing quality. Information from surveys of fish communities and anglers is the foundation upon which successful management is based. In Texas, reservoirs 500 acres and larger are surveyed every 1-3 years.

Electrofishing is the primary survey method used to collect data on largemouth bass populations. Data are obtained on abundance, age, size structure, growth rate, body condition, recruitment, and genetic composition. Creel surveys are conducted on reservoirs sampled annually and for special circumstances, such as evaluation of harvest regulations. During creel surveys, anglers are interviewed either during their fishing trip or immediately upon the trip's completion. Information on what species anglers were fishing for, how many hours they spent fishing, and number and size of fish caught is obtained. Anglers fishing on the day of a creel survey are counted to determine fishing pressure. Surveys of fish communities and anglers will continue to serve as an important tool in the development of management strategies to improve bass angling in Texas.

Harvest Regulations

Harvest regulations are one of the most important tools for managing largemouth bass populations and angling. Fisheries biologists use harvest regulations to develop the best possible angling. Statewide regulations that are used on most reservoirs have been developed to increase understanding among anglers and to aid enforcement. A disadvantage of statewide regulations is they may not always be appropriate or produce the best possible angling for every reservoir.

While harvest regulations on most reservoirs are the same statewide, some of the approximately 700 public reservoirs have regulations that differ. As of September 1, 1995, 51 reservoirs had largemouth bass harvest regulations that differed from statewide regulations. These harvest regulations have been tailored to the characteristics of the reservoirs and their largemouth bass populations to correct problems that have resulted in poor angling or to maintain or improve angling quality. Regulations may be changed in response to shifts in the largemouth bass population, or angler use or desires.



Selection of appropriate harvest regulations is influenced by the interaction of largemouth bass growth and recruitment. By examining growth and recruitment, biologists gain insight into how a population could be manipulated to improve or maintain bass angling quality. Growth is important because it determines the length of time needed for fish to grow to harvestable size and the length of time fish will be protected by length limits. Recruitment is the number of small fish available to replace adults that die naturally or from angler harvest. When electrofishing surveys reveal abundant small bass (about 8 inches in length), this is considered evidence of good recruitment. If, based on the previous observations of the local biologist, the number of small bass is low, then poor recruitment is suspected. Eight inches is used as a guideline as angler harvest is the only substantial source of mortality after bass reach this length. Since Texas reservoirs vary greatly from one end of the state to the other, bass growth and recruitment are usually evaluated relative to other nearby reservoirs that have similar physical characteristics.

Angler perception and acceptance of a regulation are also important in selection of appropriate harvest regulations. Without angler acceptance and compliance, harvest regulations will not succeed. Regulation proposals first receive internal staff review at meetings held during the summer. Throughout the following fall and winter, the public is informed of regulation proposals and asked for input through news releases and public presentations. Biologists seek this input and explain reasons for possible changes to determine whether a regulation change would be acceptable to the public. All regulation proposals must be presented for public comment at annual regulatory hearings held statewide in February and March. Comments made at these hearings are recorded and considered by the Texas Parks and Wildlife (TPW) Commission, usually during their March meeting, prior to their acting on regulation proposals. Regulation proposals approved usually become effective the following September.

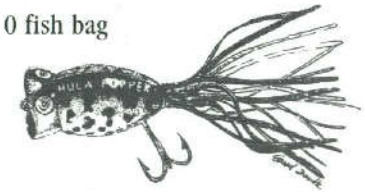
Other factors used to select appropriate harvest regulations include angler use and a reservoir's location and physical characteristics. Reservoirs located near population centers or with desirable fisheries generally receive heavy angling pressure. Angler harvest in most reservoirs greatly affects the size structure of a bass population. Manipulation of the harvest by prohibiting or encouraging the harvest of selected sizes of bass can be used to improve angling quality. Some reservoirs are more productive than others. This determines how many pounds of fish, both sport and prey fishes, a reservoir can produce and the growth rates for these fish. Bass populations in low and high productivity reservoirs or in reservoirs with light or heavy angler use will likely differ and require different regulations.

Angler education programs are crucial to the success of any management program. Regulations should be clearly posted at reservoirs or rivers and be listed in pamphlets that are readily available to anglers. This is particularly important when regulations are customized to individual reservoirs. Education programs provide anglers with a better understanding of regulations and reasons for implementation. Success of customized management for largemouth bass in Texas can only be achieved if anglers are well informed.

Harvest regulations used by TPWD are bag limits (including catch and release) and minimum and slot length limits (see the following Harvest Regulations table).

Largemouth Bass Harvest Regulations
September 1995

14-inch minimum length limit	5 fish bag
16-inch minimum length limit	5 fish bag
18-inch minimum length limit	5 fish bag
14-18 inch slot length limit	5 fish bag
14-21 inch slot length limit	5 fish bag; only 1 over 21 inches
14-24 inch slot length limit	5 fish bag; only 1 over 24 inches
Catch and Release	0 fish bag



Bag Limits

Bag limits regulate the number of fish that can be legally harvested in 1 day and are mainly used to distribute the total harvest among as many anglers as possible. Studies in Texas and in other states have shown bag limits alone are seldom effective in reducing total harvest. Minimum or slot length limits reduce harvest more effectively.

Because of this, bag limits are combined with regulations that limit the length of fish that can be kept. Also, anglers may perceive a bag limit as a goal and use the limit to measure the success of their fishing. Bag limits are particularly important to anglers who want to harvest some fish as the limit dictates the number of fish they may take home after a day's fishing.

The current statewide bag limit for largemouth bass is 5 per day. Bag limits currently range from 0 to 8 bass per day. Only Toledo Bend Reservoir, where the bag is 8 to standardize with Louisiana regulations, has a bag greater than 5.

A total catch-and-release regulation (zero bag limit) has been used to manage for trophy largemouth bass or to improve catches of large bass in new reservoirs or in areas with high fishing pressure such as urban and state park lakes. This regulation can also be used to rebuild populations depleted by overfishing or catastrophic events such as oxygen depletions or pollution. Above-average largemouth bass growth is required, and recruitment should be low to moderate. At some of the reservoirs where catch-and-release regulations are in effect, anglers can weigh large bass at a lakeside weigh station before releasing them. Availability of weigh stations at reservoirs with record fish potential should be an important consideration when implementing catch-and-release regulations.

Minimum Length Limits

Minimum length limits are used to protect largemouth bass smaller than a specified length from harvest. The purposes of minimum length limits are to prevent depletion of bass populations, to restructure bass populations by increasing abundance of larger-size fish, or to protect bass until they have spawned to increase their genetic contribution to a population. A **14-inch minimum length limit** has been used to protect largemouth bass populations from overharvest where bass recruitment and growth are average. In 1986, a 14-inch minimum length limit and 5-fish bag limit replaced a 10-inch minimum length limit and 10-fish bag limit as the statewide limits and are the current statewide regulations. Abundance of bass 10 inches and larger in 28 study reservoirs increased an average 163% two years after the 14-inch and 5-fish bag limits were implemented (Terre and Zerr 1992).

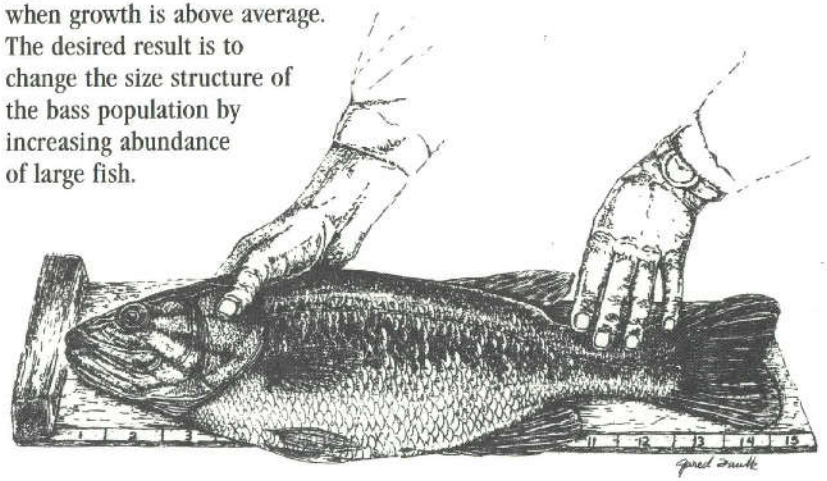
When bass growth is average or above or recruitment is variable, a **16-inch minimum length limit** has been used. In new reservoirs, this limit will provide additional protection from harvest beyond the 14-inch minimum length limit. The additional protection can also be used to restructure bass populations in existing reservoirs. Habitat loss due to severe water level fluctuations, such as those in West Texas, can negatively affect bass recruitment requiring increased protection for catchable-size fish. When water levels rise, recruitment often increases which increases bass abundance. These bass can be protected from harvest beyond 14 inches by the 16-inch limit.

An **18-inch minimum length limit** has been used to protect largemouth bass populations from initial overharvest in new reservoirs and on some heated reservoirs to increase numbers of large fish or to build the foundation necessary for a trophy bass fishery. New and existing reservoirs are frequently stocked with Florida largemouth bass. A minimum length limit above 14 inches protects these stocked bass and allows them to spawn for several years increasing Florida largemouth bass influence in the population. This limit is used when growth is above average. The desired result is to change the size structure of the bass population by increasing abundance of large fish.

Other minimum length limits may be considered. A minimum length limit less than 14 inches for largemouth bass may also be appropriate where growth is slow and potential to produce larger bass is extremely low. Spotted and Guadalupe bass are currently managed with a 12-inch minimum length limit because of the small maximum size attained by these species. Minimum length limits above 18 inches may be appropriate for producing "trophy" largemouth bass where bass growth is above average.

Slot Length Limits

Slot length limits are used to protect largemouth bass within a selected length range and allow harvest of fish below and above the slot range. When recruitment is high on



reservoirs with minimum length limits, bass smaller than the minimum length may become overabundant. This increased density can increase competition for food and lead to poor body condition and slow growth, especially for small bass. Slot length limits direct harvest toward the overabundant small fish to reduce their density and improve growth. Bass protected from harvest under this regulation usually provide sufficient reproduction to sustain abundance and allow some harvest of small bass. Slot length limits also restructure bass populations to provide anglers with catch-and-release angling for slot-size bass. An additional benefit is the production of bass that exceed the upper limit of a slot. Depending on where this upper limit is set, these fish can provide trophy-size fish for anglers to catch.

Harvest of bass below the lower end of a slot limit is crucial to the success of a slot length limit. Bass anglers have been at the forefront of practicing voluntary catch and release, but there are times when harvest is needed. Anglers need to be kept informed on the important role their harvest plays in determining the success of slot limits. If small bass are not harvested, the slot will not have the desired effect. Conversely, if too many small bass are harvested, recruitment into the slot will not be sufficient to replace slot size and larger bass lost to angling and natural mortality. This would result in a reduction in fishing quality. Changing the regulations back to a minimum length limit could be considered in this situation.

A 14- **to 18-inch slot length limit** has been used to protect from harvest intermediate-size bass where growth rates are slow to average. Harvest opportunity is provided, especially for smaller bass, and angler catch rates can be high. Where growth is above average, a **14- to 21-inch slot length limit** has been used to protect a larger size group of bass. Faster growth improves chances for producing bass greater than 21 inches. This regulation has been used as a "trophy" regulation in Texas although other regulations, such as high minimum length limits or catch and release, can be more suited to the production of trophy bass. Only one largemouth bass 21 inches or greater can be harvested. This restriction was implemented to better distribute harvest of trophy-size fish.

An additional slot limit, implemented on Fayette County Reservoir, is a **14- to 24-inch slot length limit**. This regulation is being used to further limit the harvest of large bass and to increase the chances for production of trophy fish. Anglers are allowed to harvest only one largemouth bass 24 inches or greater.

Other slot length limits may be considered for future management of largemouth bass. A 12- to 15-inch slot length limit has been used in Texas to manage smallmouth bass. A similar slot length limit may be appropriate for largemouth bass where growth is slow and recruitment is above average.

Other Regulations

Other types of regulations could be used in the future to manage bass populations. Maximum length limits are the opposite of minimum length limits as harvest of fish is prohibited above rather than below a specified length. These limits could be implemented to maximize angler catch of trophy fish and, similar to a slot limit, allow some harvest of small fish to reduce their abundance. Prerequisites for this regulation would include above-average growth and recruitment. Similar to reservoirs with catch-and-release regulations, reservoirs with maximum length limits should have a lakeside weigh station so anglers can weigh trophy bass before releasing them.

Closed seasons have been used to protect largemouth bass during the spawning period or other times when vulnerability to harvest is high. There are no closed seasons for largemouth bass in Texas; however, other states (mostly in the northern U.S.) have such restrictions. Recruitment is generally sufficient in Texas and protection during spawning is not needed. Success of such restrictions is mixed, and closed seasons can be unpopular with anglers.

Quotas are another option that may be consider in the future. These could be used to limit the number of fish anglers harvest over a specified period, especially unusually large fish, or the number of anglers allowed to fish a reservoir.

Limitations on the means and methods of catching largemouth bass could be imposed to extend additional protection from harvest. Current restrictions on means and methods, such as allowing only use of pole and line angling, have been implemented to protect all sport fishes, including largemouth bass.

Stocking

Stocking hatchery-reared largemouth bass has been shown to be effective in establishing initial year classes in new or renovated reservoirs, supplementing angler catch in waters with limited natural reproduction, and altering the gene pool of existing largemouth bass populations. Florida largemouth bass are the primary bass currently stocked in Texas and are stocked to take advantage of their ability to grow to large size. Northern largemouth bass will continue to be maintained in reservoirs or used for stocking in areas more suited for this type of

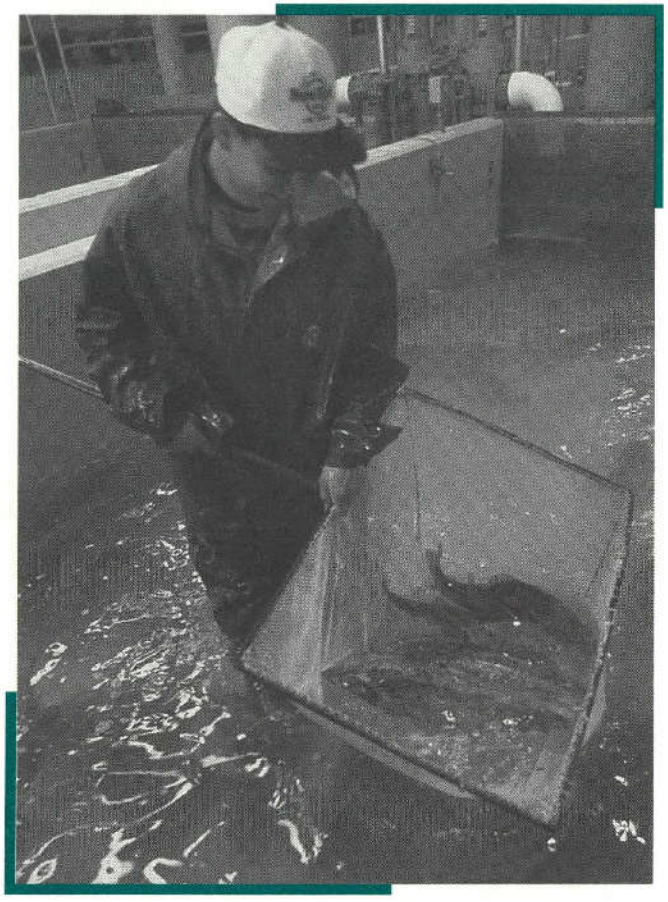
largemouth bass. The different characteristics of Florida and northern largemouth bass can be used to increase the stocking success or for different management objectives. For example, northern largemouth bass are more adapted to cooler climates than Florida largemouth bass that evolved in a warm climate. Stocking northern largemouth bass in northern areas of the state, especially the Panhandle, would be one way to take advantage of these differences. Differences in catchability between Florida and northern largemouth bass may also be used to achieve management objectives. Florida largemouth bass are generally less likely to be caught than northern largemouth bass. Differences in catchability also exist within each subspecies.

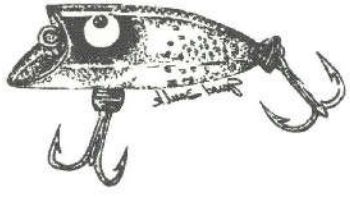
Stocking Priorities

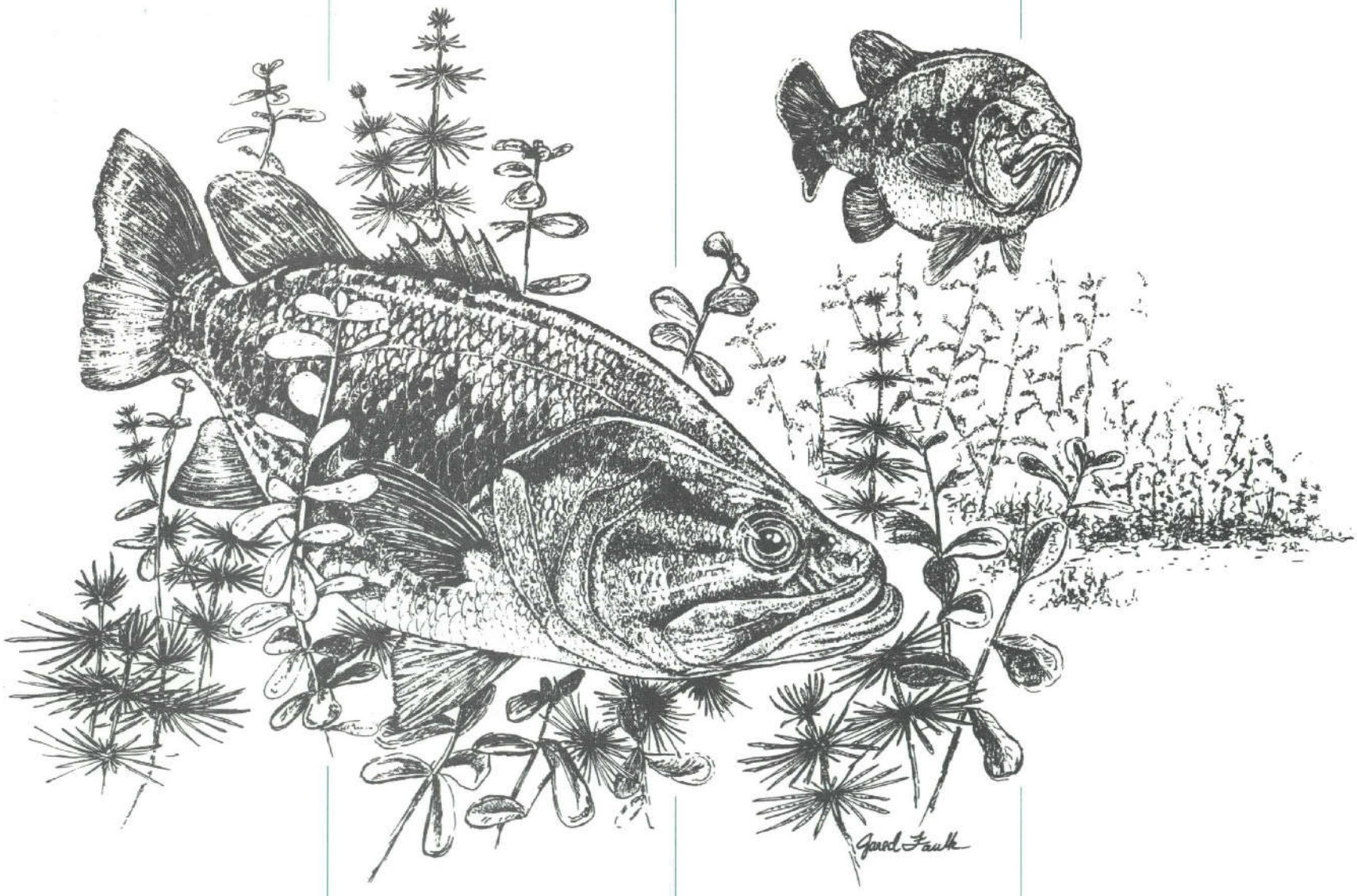
Stocking requests of fisheries managers frequently exceed the production capacity of Texas hatcheries. When this occurs, stocking requests are prioritized according to standard criteria. These criteria were established to ensure available fish were directed to waters that offer the greatest potential for achieving management goals. Largemouth bass will not be stocked into waters where they will have an adverse impact on state- or federally-listed threatened or endangered species.

Priorities for stocking are as follows:

1) Research evaluations - Stocking requests for research purposes tend to involve relatively few fish, and knowledge gained through research can have wide applicability.
2) New or renovated reservoirs - Stocking largemouth bass into these types of waters is usually successful in establishing initial year classes that lead to naturally-sustaining populations.
3) Restoring populations decimated by catastrophe - Catastrophes such as oxygen depletions or pollution can occasionally eliminate fish populations. If the chance of a recurrence of the catastrophe is low, largemouth bass will be stocked to re-establish the population.
4) Existing reservoirs - Most stocking falls into this category. District biologists prioritize fish stocking needs within their district. Program directors and the Austin administrative staff discuss these priorities and decide on a statewide list. Information used for prioritizing requests includes: angling pressure, projections of largemouth bass recruitment in the absence of stocking, levels of Florida largemouth bass genetic influence, and expected survival of stocked bass based on availability of food and habitat. The current target for Florida bass genetic influence in reservoirs is 20%. This includes






Jared Faulk

both pure Florida bass and all levels of intergrades.

Techniques for transporting and handling fish have been refined through research so the initial survival of stocked largemouth bass now averages about 97% (Pitman and Gutreuter 1993). More research directed at assessing survival of stocked fish to catchable size could lead to refinement of recommended stocking rates. Further research to determine the relative effects of food, habitat, predation, and fishing on recruitment of largemouth bass could also lead to more effective use of hatchery production. Another research need is continued evaluation of Florida largemouth bass stocking on bass population genetics.

Habitat Evaluation and Improvement

Habitat is one of the most important factors affecting largemouth bass production. Habitat includes water, aquatic and terrestrial vegetation, and substrate. In the past, habitat-related activities in Texas reservoirs involved addition of habitat through use of artificial reefs, preserving habitat during pre-impoundment planning, chemically treating noxious aquatic vegetation, or attempting to establish beneficial aquatic vegetation.

Constructing artificial reefs to concentrate catchable-size fish was the most common habitat activity in Texas in the late 1970's to early 1980's. Reefs constructed of brush, trees, rock, or man-made materials are usually successful in attracting and holding fish. These techniques vary in their relative success based on the fish-attracting ability and durability of the reef material. Construction of attractors by TPWD has been curtailed because their construction is labor intensive and because attractors have an undesirable effect in some fish communities by intensifying harvest while not increasing total fish production.

Another important habitat activity has been development of clearing plans for new reservoirs that include preservation of existing habitat such as standing timber and brush. While most reservoirs are constructed by agencies other than TPWD, staff biologists have been involved in development of pre-impoundment clearing plans. Protection of the natural habitat found in pre-impoundment reservoir basins and upstream areas can aid in development of sustainable fisheries and reduce future needs for habitat restoration projects.

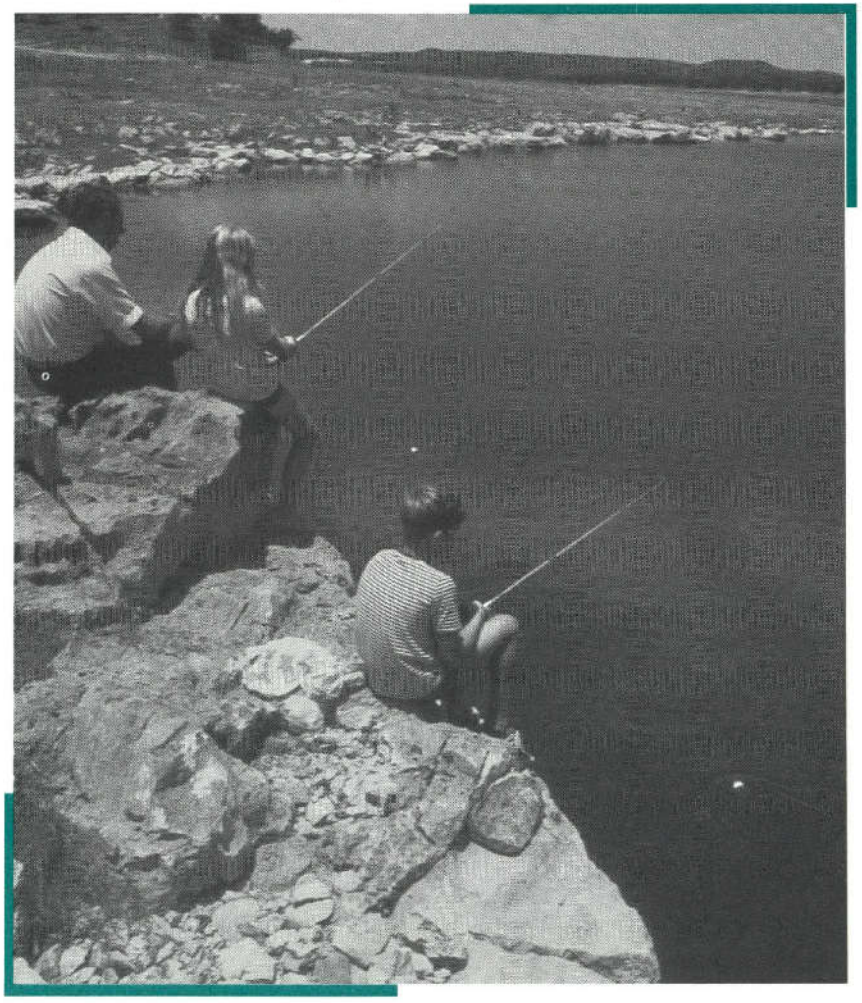
Aquatic vegetation, either submersed (below water), emergent (above water), or floating, is also an important component of the habitat in a reservoir. Abundance and types of aquatic vegetation in a reservoir have influenced past TPWD management. Species not native to North America (waterhyacinth, hydrilla, and Eurasian watermilfoil) have been chemically controlled to improve access in public waters, reduce potential harm to human activities, promote native aquatic vegetation, and enhance fish and wildlife habitat.

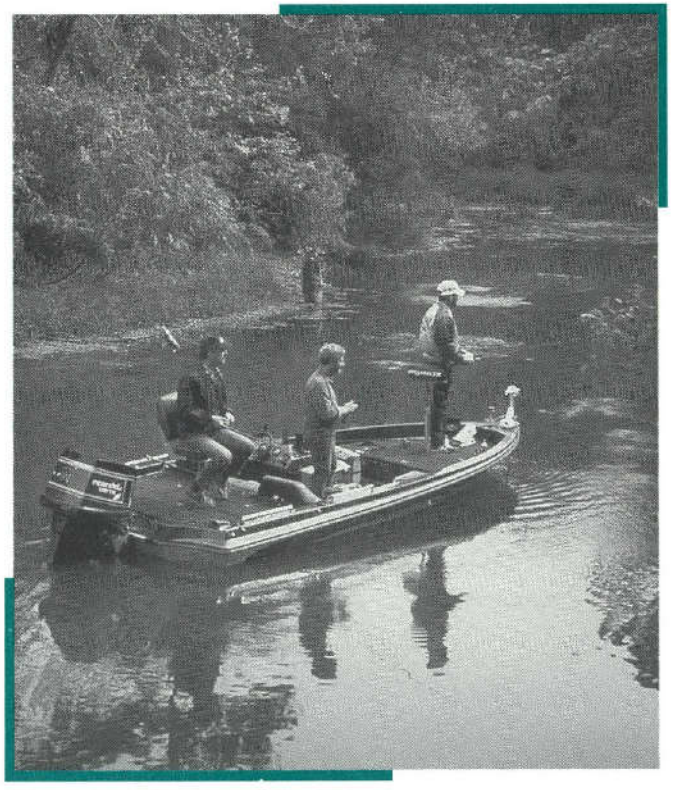
Dense areas of aquatic plants can block or restrict access by anglers and other recreational users and impede municipal and industrial uses of a reservoir. Native or non-native aquatic vegetation can increase to levels detrimental to fish populations. When submersed aquatic plants become extremely abundant in a reservoir, predator fishes may experience reduced growth when prey fishes hide in dense vegetation and become difficult to capture.

Aquatic vegetation can be beneficial to largemouth bass abundance. Research in Texas determined optimum levels of largemouth bass recruitment and abundance are reached when aquatic vegetation coverage is about 20% of a reservoir's surface area (Durocher, et al. 1984). Aquatic plants serve as a vital link in a food chain that benefits most fishes. Insects and crustaceans, which serve as food for larger fishes, feed on aquatic plants and the bacteria that grow on the plants. Aquatic plants also serve as cover for juvenile and adult fishes.

Increasing the abundance of desirable species of aquatic vegetation has proven difficult. A list has been developed by TPWD of terrestrial and wetland plants that can be valuable as fish habitat when introduced into the fluctuation zone of reservoirs with limited vegetative habitat (Howells 1986). Research has been conducted on revegetating areas of reservoirs that experience fluctuating water levels, such as those in West Texas, and on enhancing survival and growth of transplanted native aquatic vegetation. Additional projects are being initiated in reservoirs to evaluate which plants do best under the various conditions found around the state.

Other habitat improvement techniques, such as planting trees and shrubs or building barriers made of brush or rock to stabilize shorelines and improve shallow habitat areas, have not been used extensively in Texas reservoirs. The use of cypress and willow trees in a limited number of reservoirs is being evaluated. If these techniques prove successful, they could be expanded to older Texas reservoirs experiencing shoreline erosion and habitat loss. Expansion will require involvement of concerned angler groups and increased funding to purchase plants and other materials.





ANGLER MOTIVATION AND ANGLING QUALITY

Anglers in Texas, including bass anglers, fish for a variety of reasons. Because of this, anglers measure fishing success or quality by different standards. Fisheries managers have to be responsive to these differences and the types of angling desired by these anglers. If that is accomplished, the success and angler acceptance of programs will be enhanced, and more anglers will be provided with the quality angling opportunities they desire and deserve.

Texas fisheries managers have the advantage of reviewing numerous surveys of freshwater anglers to determine their attitudes and motivations on fisheries management and fishing, their species preferences, annual expenditures, and demographics (see Surveys of Angler Preferences and Satisfaction, pg. 14). Among licensed anglers surveyed in 1992 who stated a preference for fishing for bass, the average age was 42 years and 87% were male (Robin Riechers, Texas Parks and Wildlife Department, Austin, Texas, personal communication). These anglers fished an average of 23 days per year for bass, and about 11% indicated they were members of a bass fishing club. Bass fishing was important to these anglers as 26% listed it as their most important outdoor activity.

One option is to manage for the "average" angler. Survey results have shown "average" anglers probably do not exist; rather, there is a diverse group of anglers. A more appropriate option is to consider the diversity of reasons why anglers fish for bass and how their attitudes about fishing determine the quality of their fishing experience.

Motivations for fishing can be separated into catch and non-catch items. Among the non-catch items, many anglers rated as very to extremely important factors such as being outdoors, fishing with family and friends, fishing for relaxation, and getting away from their regular routine or the demands of other people. The catch components rated as very important were the fun of catching fish, the experience of the catch, and the challenge or sport of fishing. Items of moderate importance were to develop skills, to obtain fish for eating, and to catch a trophy-sized fish. Rated as low in importance was fishing to win a trophy or prize.

Anglers' agreement or disagreement with statements on catching bass provide insight into factors that contribute to a successful, quality fishing trip. The statement that gained the most (74%) agreement among anglers was that a fishing trip can be successful even if no fish are caught. The importance of non-catch items listed above probably influences anglers' responses to this statement. Around 60% of anglers agreed they are just as happy if they do not keep all the fish they catch. Most statements on catching bass were agreed to by about half the anglers. There was low agreement among surveyed anglers with a statement on wanting to keep all the fish they catch.

Diversity among bass anglers is reflected in the wide variety of reasons why people fish, both catch and non-catch related. At one end of the angling spectrum are the least specialized participants; at the other end are the most specialized participants who make fishing a central part of their lives. Research-

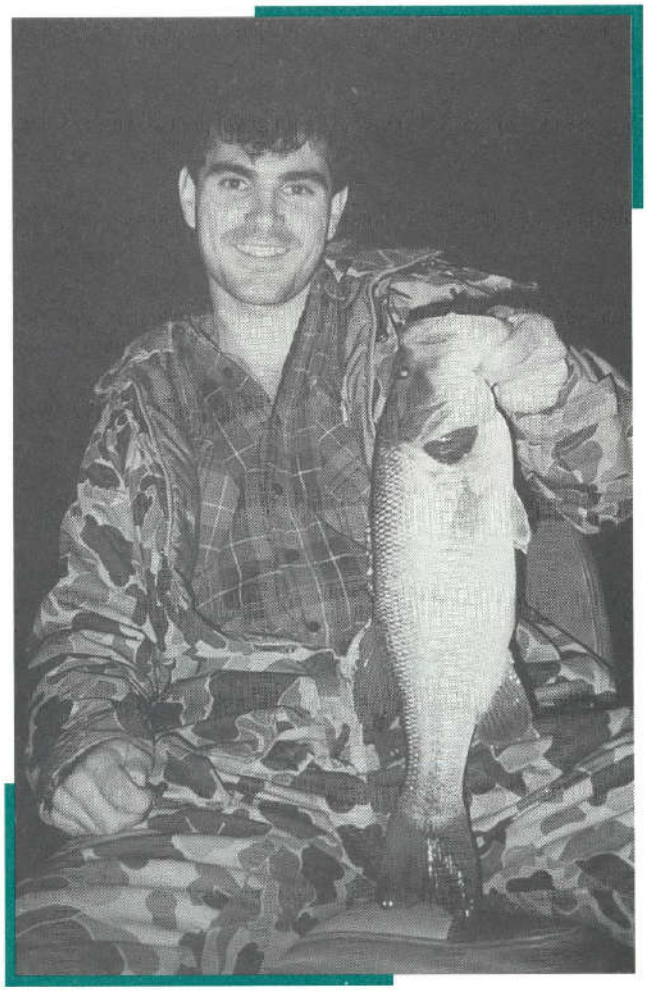
ers in recreation activities, including fishing, use the term recreation specialization to describe such diversity within a group. These differences were demonstrated in a study by Wilde and Ditton (1994) that looked at differences between bass anglers (those who responded in a general way when asked what species they preferred to fish for) and largemouth bass anglers (those who gave a specific response such as black bass, largemouth bass, or bigmouth bass). Bass anglers had less fishing experience, fished fewer days, and were less likely to participate in fishing tournaments or belong to a fishing club than largemouth bass anglers. Both bass and largemouth bass anglers reported relaxation and being outdoors as the most important reasons for fishing. Largemouth bass anglers were more catch oriented than bass anglers. Bass anglers were more likely to eat the fish they caught, and expressed lower agreement with items concerning release of captured fish.

Surveys of Angler Preferences and Satisfaction

One of the goals of largemouth bass management in Texas is to satisfy the recreational fishing needs and preferences of a diverse set of user groups. To achieve this goal, managers must monitor the satisfaction of those user groups. Given timely and accurate information on user satisfaction, success of management can be judged, and management alternatives to address concerns or problems can be selected.

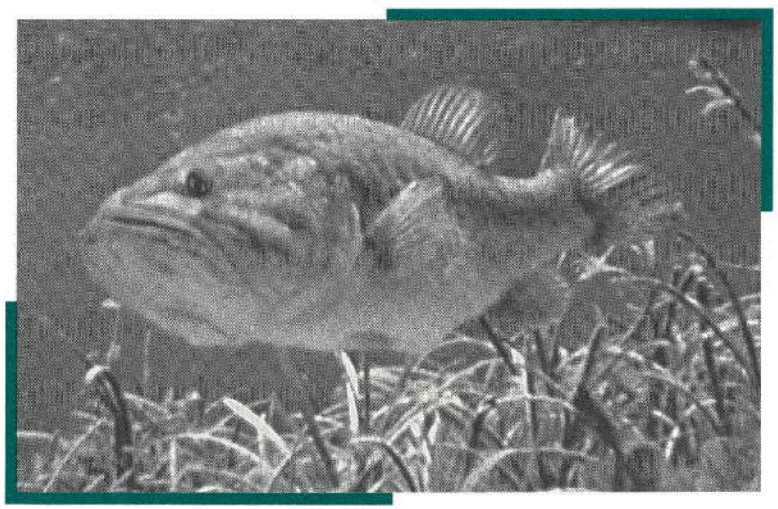
Angler attitudes and preferences are surveyed statewide every 3 years by TPWD in conjunction with scientists at Texas A&M University. These surveys are used to assess levels of public support for management activities. Results of these surveys are made available to the public and other fisheries managers through press releases, scientific publications, and other media outlets.

In the years between statewide surveys, species-specific surveys are conducted. Because of the importance of bass angling in Texas, black bass anglers were surveyed in 1992 and 1995. In addition, expanding the base for the surveys to include non-anglers may shed light on ways to increase angling participation.



PUBLIC INVOLVEMENT

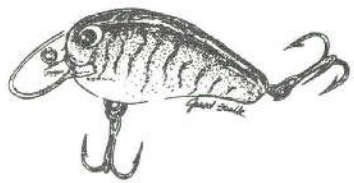
The most recognizable goals of TPWD are to manage and conserve the state's outdoor recreational resources while providing quality outdoor opportunities for the use and enjoyment of current and future generations. Just as important is the goal to educate the public about the state's natural resources to foster informed decision making about conservation of these resources. The development of this report as a joint effort between TPWD Inland Fisheries staff and representatives of bass angling groups is part of the process of achieving these goals.

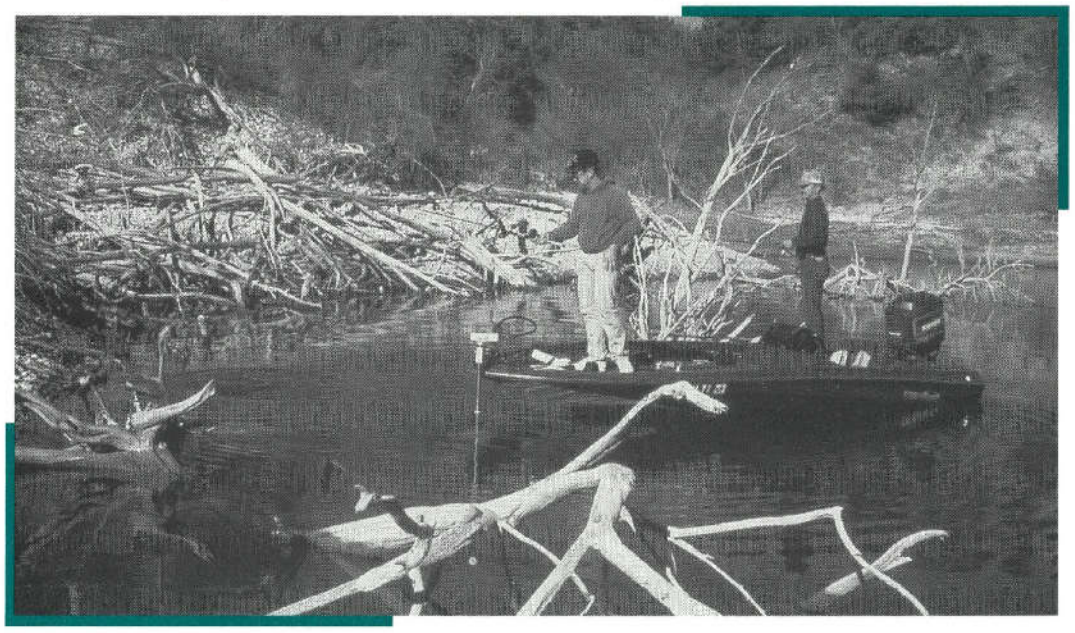


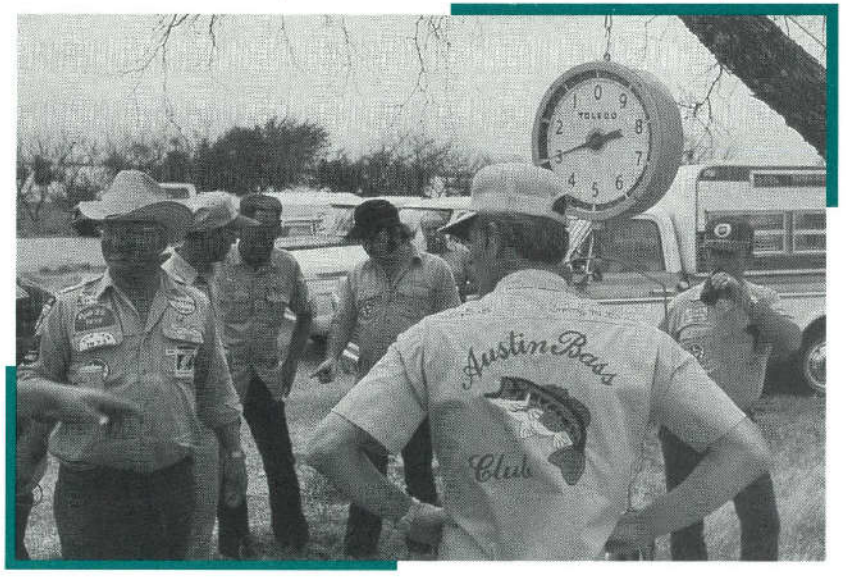
Texas is participating in a national trend of increasing public involvement in the management of public resources. Previously, biologists considered only the biological limits of a reservoir or river when selecting management goals and strategies. The perception was that the outcome of fisheries management activities was the only factor affecting angler satisfaction. This view has changed. Anglers' perceptions, and therefore levels of satisfaction, are influenced by methods used to manage fisheries. Fishery managers now consider anglers' preferences and support for various management strategies as well as fish population characteristics when choosing among alternative management strategies. Also, as the state's population demographics continue to change, management goals may need to change. Monitoring angler attitudes and preferences ensures that management goals reflect the public's desires. Now and in the future, fisheries biologists will need to deal as much with anglers as with fish communities.

Additional efforts are needed to inform and involve the angling public. Most previous efforts to distribute information have been passive in nature. Information was prepared and sent out with little or no follow-up. Future efforts must be more comprehensive using all types of media and organizations. New approaches should be pursued such as video or audio public service announcements on both commercial and local-access television and radio outlets. Organization newsletters, fishing periodicals, and local-, lake-, or area-specific publications can be used to reach anglers.

Another vehicle for public input is the Texas Freshwater Fishery Advisory Board. This board consists of members appointed by the Chairman of the TPW Commission. The members represent the State's freshwater angling public, aquaculture industry, freshwater fishing industry, fisheries educators, and conservation groups. The board acts in an advisory capacity to TPWD on issues pertaining to freshwater fisheries management and research. Meetings of the board are held at least twice a year or whenever warranted by current issues.






Austin Bass
Club

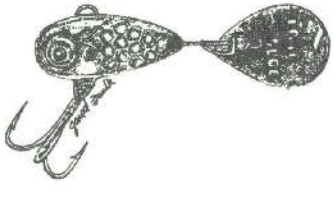
FISHING TOURNAMENTS

Fishing tournaments are one of the many legitimate uses of Texas' fisheries resources. Bass tournament anglers have been an important part of fishing in Texas for the last two decades and have been at the forefront of many of the efforts to improve bass angling. Among Texas bass anglers surveyed in 1992, 18% fished in tournaments (Robin Riechers, Texas Parks and Wildlife Department, Austin, Texas, personal communication). While tournaments involving hundreds of boats and thousands of dollars in prizes are the most visible, most contests are conducted by bass clubs where 10 boats or less are involved.

Fishing tournaments have increased in popularity since the early 1970's. The number of competitive fishing events held annually in North America during 1989 was estimated at 31,000 with about 1,600 events in Texas (Schramm et al. 1991). Black bass events accounted for about 78% of the total. The estimate for Texas is probably low. In 1993, tournaments scheduled by bass clubs associated with Bass Anglers Sportsman Society, Honey Hole Bass Club Affiliation, and Texas Association of Bass Clubs totaled approximately 5,500. The Tournament Angler Directory (Published by Tournament Angler News. Lindale, Texas) lists approximately 270 additional tournaments conducted by tournament trails, local organizations, etc. The total number held in 1993 would probably have exceeded 6,000 if all tournaments, such as weekly after-work tournaments, were included.

The impact of fishing tournaments on fish populations and on non-tournament angling activities has been a much-debated subject among anglers and fisheries managers. A major concern has been the survival of fish caught and later released after a weigh-in. Research on this topic has shown survival rates of largemouth bass caught, handled properly, and released after tournaments can exceed 90%. Most of the remaining conflict between tournament and non-tournament anglers centers around use of the increasingly-crowded public waters.

These concerns, the increasing numbers of fishing tournaments, and the opportunity to obtain additional information on angler use of bass populations led TPWD to investigate obtaining more information on tournaments. Fishing tournament information can be used to supplement largemouth bass population structure and abundance data collected by TPWD biologists to enhance our existing knowledge or highlight potential problems in bass populations. Tournament results provide information on fish caught, angling effort, how many fishing tournaments are held each year, and when and where tournaments are held. A voluntary reporting system was initiated in 1978 for bass clubs to report tournament results. This system provided information on a portion of tournaments held each year in Texas but was discontinued in the mid-1980's. Since this information is still valuable to TPWD, a voluntary reporting program was reinstated in 1994 to continue to obtain information on fishing tournaments. The success of this program will be evaluated to determine if voluntary reporting can be successful in providing the needed information.



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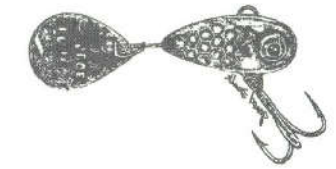

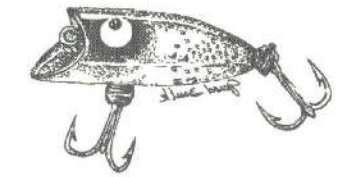

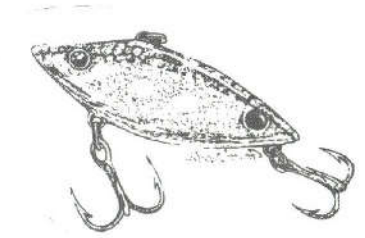

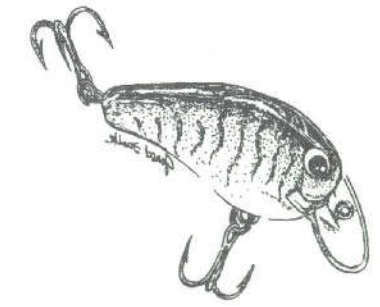

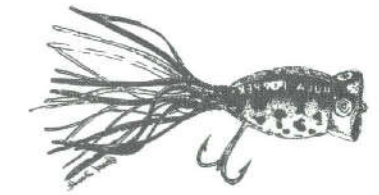

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