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Texas' Water Recreation Treasures

State Rivers, Streams, Lakes, Provide Outstanding Opportunities for Canoeing, Kayaking, Fishing, But Can These Waters Be Protected?

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In general, the history of the development, management, and use of water resources in Texas suggests that recreation has often been short-changed.

Some of the early efforts to tame Texas waters focused on building dams on major rivers. Obviously, these efforts dealt a crippling blow to individuals and interests who cherish the experience of paddling down a free-flowing Texas river in its natural state. While dams create a new type of recreation resource (a lake) which obviously has its own unique value, the fact cannot be escaped that the fundamental nature of a river is forever altered once waters are impounded.

Photo by TAMU RPTS Department

Many types of water recreation, like boating, are very popular among Texans.

The management of dams is often at odds with recreational uses. Because dams and reservoirs are built to store water supplies, the idea of releasing flows for recreation and other purposes has largely been ignored. Instead, one of the few cases when large flows are released is during floods — a time when even the most ardent kayaker would likely be hesitant to get into the water. Even if fewer dams existed in Texas, it is still likely that a tug of war over how to manage rivers, streams, and lakes would still occur. The inescapable fact is that Texas, with a burgeoning population of larger numbers of urban residents, is already facing growing water demands. In the more arid areas of Texas, the water supply issues will be even more pronounced.

Even if many people are passionate about water recreation, it is difficult to preserve enough water to meet these priorities when choices have to made between drinking water, the need of businesses and industries, and water for fun.

It needs to be pointed out that this tendency of Texas to use water primarily for development is firmly rooted in Texas water law. Official uses of water recognized by Texas are (in order) domestic and municipal use, industrial purposes, irrigation, mining, hydroelectric power, navigation, and recreation and pleasure. Even if the desire existed to preserve waters for recreation, it is a tough sell to designate supplies from rivers and streams for such popular recreational uses as canoeing, water skiing, boating, and duck and goose hunting.

Water quality issues also need to be addressed. Even if enough water flowed through a scenic Texas stream, would you necessarily want to get in your boat and enjoy it? Water quality standards for contact recreation (in which people are expected to get out in the water and enjoy it) are stringent. Sadly enough, many streams in Texas do not meet water quality standards for recreation. For many years, it was recommended that the Trinity River downstream of Dallas should not be used for recreation because it was effluent-dominated. Other water quality concerns which affect recreation include fecal coliform bacteria, toxic chemicals, pesticides, viruses, and bacteria. The point is, even if enough water is flowing, it has to be of sufficient quality to make it safe for recreation.

In spite of the dire picture presented so far, Texas contains a wealth of recreation resources. Thousands of Texans have flocked to New Braunfels to lazily tube down the Guadalupe. Countless others swarm to Barton Springs near Austin each year to immerse themselves in those clear spring waters. Countless others relish taking a big trophy fish out of a lake, stream, or bay, or water skiing a scenic lake.

Obviously, the issues which have been presented so far

ask us to ponder difficult questions. Should water recreation be considered as an equal partner when decisions about allocation and management of water resources are made? Are there sufficient water resources to meet all the diverse needs of present and future Texans? What are the difficulties facing those charged with making decisions about how to provide water-based recreation for the state's citizens? How should the values of water-based recreation be measured?

Photo by TAMU RPTS Department

Water recreation provides a comforting way to relate to nature for many Texans.

Introduction

Recreation issues are interwoven into Texas water policies like a bowl of tangled spaghetti noodles. Still, some basic issues can be identified.

First, remember that recreation is officially classified as a low priority beneficial use.

Second, consider that the Texas Water Rights Adjudication Act of 1967 requires that reserving streamflows for recreational uses should be considered when water rights permits are issued or renewed. In fact, these permits can be restricted to protect recreational interests.

Third, keep in mind that keeping rivers and lakes safe and healthy for recreation is a key component of Federal water quality rules. Under the Clean Water Act, states must designate how specific stream segments will be used. Common types of use include protecting aquatic life so waters are fishable and ensuring that waters are safe to swim in. Other assigned uses include drinking water supplies, navigation, and providing a resource for industries. To support these designated uses, water quality criteria are developed to limit such parameters as dissolved oxygen, temperature, pH, total dissolved solids, fecal coliform bacteria, and toxic substances.

A fundamental factor to mull over when considering water recreation issues is that much of Texas' water policy has been built around the idea of developing water supplies for varied uses. On the other hand, managing water for recreation interests may rely more on the principle of keeping water in place in the stream. Many experts say that policies developed years ago ill serve today's water recreation needs. "The lords of yesteryear — agriculture, oil and gas, and industries — influenced water policy before there were other voices to be heard," says Ronald Kaiser of the Texas A&M University (TAMU) Recreation, Parks, and Tourism Sciences Department. "It is now time to bring recreation interests and newer concerns to the bargaining table as partners."

Given the demand for outdoor water recreation and nature tourism, many experts say it makes sense to allocate more waters, as well as public lands, for these purposes. That's much easier said than done. First, there's no clear estimate how much water is needed for recreational use. The current version of the Texas Water Development Board (TWDB) *Water for Texas* plan states that it "focuses on economic viability while keeping an eye on environmental sensitivity. Human activities, such as… fishing, boating, swimming and other pursuits, and our quality of life depend on this vital resource."

Still, despite the myriad of tables, charts, and figures in this document, no estimate is shown for water recreation needs. A surrogate measure may be to look at the amount of water devoted to protecting instream flows. Maintaining river flows can provide additional waters for recreation while, at the same time, enhancing conditions for aquatic life and improving water quality.

If Texas decides to allocate more water for recreation, is there enough water to go around? Can more water be allocated for recreation while still meeting other demands, most of which are expected to increase? According to the TWDB, overall water use is expected to jump from roughly 16.6 million acre-feet (AF) today to more than 18.4 million AF by 2050. If these estimates prove true, demands for water will likely increase while supplies will remain stable or decline.

What does all this mean for recreational water users? In Texas, only 36% of the State's 40,000 perennial river miles have been classified for a specific use. Only about half (51%) of the total surface area of Texas reservoirs (about 3 million acres) have been so designated. The overwhelming majority of stream segments which have been classified are designated to support recreation, the safe consumption of fish taken from these waters, and the support of aquatic life.

According to the Texas Natural Resource Conservation Commission (TNRCC), there are many cases in which the water quality within streams is not adequate to support recreational use. The 1996 TNRCC Water Quality Inventory states that only 72% of Texas river miles exhibit sufficient water quality to fully satisfy recreational use criteria. Conversely, the water quality in nearly all Texas reservoirs (96% of the surface area) supports recreation uses.

Issues affecting recreation in Texas (including water-based activities) were identified in a report prepared by the TAMU Recreation, Parks, and Tourism Sciences Department for TPWD. The efforts were led by Peter Witt and were summarized in a 1998 report, *Texas Outdoors—A Vision for the Future*. This study suggests recreation demand will increase, but this higher level of activity needs to be balanced with ecosystem protection. Needed actions, according to this report, are to better coordinate the work of agencies which manage recreation, to increase public education, to repair infrastructure, and to seek external funding.

Texas' Water Recreation Resources

Excellent descriptions of Texas water recreation resources exist that can provide valuable assistance to paddlers, canoeists, kayakers, and fishermen.

Just how much water is there in Texas which may support recreation? Data from the U.S. Geological Survey (USGS) show that Texas contains 11,247 named rivers and streams which total roughly 80,000 miles. Data from the TWDB show that Texas contains roughly 6,687 square miles of inland waters, as well as 5,700 reservoirs which are larger than 10 acres. According to the TPWD, there are roughly 1.2 million surface acres of inland water suitable for boating, fishing and water-skiing.

An Analysis of Texas Waterways was first published in the 1970s by Texas A&M University. According to this book, one of the great strengths of Texas rivers is that they provide a diverse array of recreation experiences. In Central and West Texas, recreational users can find whitewater experiences on many streams. This guide provides detailed information about rivers, streams, and bayous throughout the State which support rafting, canoeing, and kayaking. It includes maps of sites with the greatest potential for enjoyable recreation experiences. This book is on the TPWD World Wide Web site (http://www.tpwd.state.tx.us).

Photo by TAMU RPTS Department

Many Texas streams and rivers are designated to support swimming, tubing (above) and other forms of contact recreation.

Verne Huser, who has been a river guide for more than 40 years, has written a book, *Rivers of Texas*, which was recently published by the Texas A&M University Press. The book discusses the history and politics through which many stretches of Texas rivers have been dammed or altered in other ways. It also discusses river reaches which are still free-flowing and, therefore, ideal for recreation. Huser also comments about the need to seriously consider how Texas rivers ought to be managed including, in some cases, the idea of leaving them in their natural and pristine state.

Steve Daniel, a researcher in the TAMU Philosophy Department, is a whitewater enthusiast who often paddles along rivers throughout Texas. He recently wrote a book, *Texas Whitewater*, which was published by the Texas A&M University Press. According to Daniel, Texas has very few dependable whitewater stream segments, though there are sites which, at times of high flows, may support high quality paddling. Arroyos and draws in the Texas Panhandle, the Davis Mountains, and the Big Bend may churn up whitewater rapids following storms. Typically, Daniel says, the Llano Estacado and the Balcones Escarpment often provide an excellent opportunity for whitewater recreation. The book describes outstanding rivers and stream segments in Texas for paddling, canoeing, and kayaking. It classifies waters that may be best for paddlers with varied skill levels, and clarifies the rights of recreational users to access water resources.

Another recent book which describes recreational opportunities is *Flyfishing the Texas Coast*, which was written by Chuck Scates and Phil Shook. The book presents a overview of the history and development of saltwater fishing throughout the Texas coast and provides advice about how to fish specific bays and estuaries. Advice is given about how to fish near coastal jetties, in sites with heavy surf, and in offshore areas. The book highlights excellent opportunities for coastal flyfishing in Texas.

How Many People Participate?

Although data are scattered in a number of places and are difficult to aggregate, there are clues about the extent to which Texans participate in recreation.

In a 1996 study, TPWD analyzed data from 1994 about the number of Texans who participated in outdoor recreation activities. Results show that swimming in natural waters was the most popular (roughly 5.1 million Texans participated), followed by freshwater fishing and boating (each with 3.8 million) and saltwater fishing (1.6 million). TPWD also asked Texans to rank the outdoor recreational activity that was most important to them. Fishing was ranked second (only to camping), swimming third, and boating ninth. Other popular types of water recreation include goose and duck hunting and water skiing.

The U.S. Fish and Wildlife Service (USFWS) conducted a state-by-state analysis of recreation associated with fishing and wildlife in 1996. They estimated that 2.6 million people fished in Texas, while another 3.6 million participants indulged in wildlife watching and nature photography.

Recent studies by TAMU researchers provide information about recreational water use as well as the economic impact of these activities. A 1998 statewide survey by Myron Floyd of the Recreation, Parks, and Tourism Sciences Department suggests that 85% of Texans have fished at least once in their lifetime, and that over a third (35%) have gone fishing within the past year. A 1998 study by David Scott, also of the Recreation Department, suggests that fishing, swimming, and boating are among the outdoor activities in which most Texans participate. In 1998, Lonnie Jones and Aysen Tanyeri-Abur of the Agricultural Economics Department worked with the Texas A&M University Sea Grant Program to project the economic effect of boating, fishing, bird watching, and ecotourism along six Texas bays and estuaries. According to

this study, the direct impact of recreation in these Texas bays was estimated at more than $866 million.

Studies by TPWD and TWDB suggest that, in 1992, Texans spent roughly $3.3 billion to travel to fish, swim, boat or water ski at many sites throughout the State. In 1995, more than 610,700 pleasure boats were registered in Texas and sales of fishing licenses generated more than $20 million. Combined spending on equipment and clothing for boating, fishing, and water skiing for 1995 topped $600 million.

Photo by TAMU RPTS Department

A common complaint of recreational water users is that it's difficult to access streams and rivers.

University Research

Research and extension professionals at universities throughout Texas are studying issues associated with water recreation. Much of the work of university professionals involves measuring the extent to which people participate in water-related recreation throughout Texas.

Bob Ditton of the TAMU Wildlife and Fisheries Department has conducted many studies of the economic and social impacts associated with water recreation. "In the past, people have seen water recreation as frivolous, not to be taken as seriously as agriculture or industry, but recently, these issues are being understood to a much greater degree," he says. Ditton has conducted many surveys of people who use lakes and rivers for recreation. Ditton has led efforts to survey freshwater anglers at Lake Texoma, Toledo Bend Reservoir, and lakes in the Central Texas and San Antonio regions. Using questionnaires and other tools, the researchers seek to learn about the attitudes of people towards water recreation, how much money they spend on these activities, and demographic data. These data can be used to craft management and conservation strategies. "We ask what people are looking for in a water recreation experience," Ditton says, "We try to find out how the public feels about how recreational waters should be managed."

Examining the economics related to a variety of water recreation issues has been an ongoing research interest of Lonnie Jones in the Agricultural Economics Department. In 1995, Jones and graduate student Notie Lansford examined the value homeowners in the Highland Lakes region placed on having their homes sited near lakefronts. The research confirms the perception that many people are willing to pay a premium for homes with easy access to recreational lakes.

Ron Kaiser of the TAMU Recreation, Parks, and Tourism Science Department has explored many issues related to water recreation, including what enthusiasts most desire in these experiences. In 1994, Kaiser worked with the National Park Service to survey individuals who boated down the Rio Grande near the Big Bend National Park. Results suggest these users sought high quality waters, were concerned about pollution, and prized the solitude that comes in a park.

TAMU researchers are studying the potential impact of the changing population, in Texas and the United States, on the future of recreational fisheries. The project was carried out by Ditton, Stephen Murdock and M. Nazrul Hoque of the Rural Sociology Department, and David Loomis of the University of Massachusetts. Results from this project suggest natural resource managers need to be aware of demographic factors which will affect the United States during the next 50 years (especially the aging population and increasing minority populations) and realize that the numbers of traditional anglers will likely decrease. As a result, innovative strategies to encourage sportfishing may have to be developed.

Creating and developing parks which are environmentally sensitive is the aim of a recent project by Jon Rodiek of the TAMU Urban and Regional Planning Department. Rodiek worked with the Lower Colorado River Authority to develop a concept and design for a riverside park in LaGrange which will be used for fishing, canoeing, and observing wildlife. The park is designed to bring wildlife and people together in ways that produce minimal adverse ecological impacts. Barring motorized craft, keeping visitors on trails, and designating a spot for launching canoes are means to that end.

At Southwest Texas State University (SWT) and the University of North Texas (UNT), researchers have been studying how water use has the potential to degrade aquatic environments. Recreation may directly and indirectly impact the environment, according to Tom Arsuffi of the SWT Biology Department. Boat propellers can chop water vegetation, while boat engines may pollute waters with fuel. Large numbers of people can trample plant life and disrupt animal habitats. "Where there is water, people will accumulate," says Arsuffi, "When that happens, you have the problems of trash and waste disposal to deal with." Arsuffi, Paula Williamson, and Francis Rose of the SWT Biology Department are now leading a team effort to develop educational resources at the Aquarena Center in San Marcos. This project, sited at Spring Lake, will allow tourists to interact closely with the wetlands ecosystem, but it is designed to not adversely impact the environment. A carefully installed boardwalk system gets people into the wetlands to observe, learn, and enjoy.

"Education is key," says Arsuffi. "In order to fully understand and appreciate the importance of the wetlands, people need to get out there to see it," he says.

At UNT, researcher Ken Dickson and graduate student Anne Lee of the Institute of Applied Sciences have studied the extent to which use of jet skis may be impairing the quality of Lake Lewisville. They recently sampled parts of the lake where heavy recreational use occurs to assess if trace levels of MTBE (a pollutant associated with reformulated gasoline) are present at these sites. Preliminary results suggest that MTBE concentrations are slightly elevated near sites with heavy jet ski use.

Analyzing why Texas has failed to protect its wild and scenic rivers for recreation and other purposes is the scope of a recent study by Andrew Schoolmaster of the UNT Geography Department. In this project, Schoolmaster examined federal and state programs for river preservation and identified strategies used to enact these programs. He then tried to use this information to assess why Texas has failed, on nine different attempts, to pass river protection laws. Schoolmaster says his studies show that many states have developed standards for rivers which support high value recreational use. He suggests that, in order for such a program to be passed in Texas, the rights of private landowners as well as human needs for continued water and land use must be addressed.

At Texas Tech University, a multidisciplinary team of researchers is working with TPWD to gather the opinions of people from throughout Texas about outdoor recreation issues. Project leaders include David Schmidly of the Office of Research and Graduate Studies, Nick Parker of the Cooperative Fish and Wildlife Research Unit, Robert Baker of the Biology Department, and Tom Musiak of the Landscape Architecture Department. The team is conducting focus groups and telephone surveys to learn about values the public places on fish and wildlife resources, and if water and land habitats should be protected for recreational use. Future work will involve identifying measures and funding mechanisms needed to protect natural resources, including outdoor recreation, in the future. "In virtually every part of Texas, with almost every group we've interviewed, water shows up as a high priority concern. There are a lot of opinions about how water should be managed and developed, but water supplies and water quality related to recreation are high on the priority list of many Texans."

Recently, James Steely of the Architecture Department at the University of Texas at Austin wrote a book which chronicles the development of parks throughout Texas. The book describes the role of the Federal government to construct many parks during the New Deal, the creation of the Texas state parks system, and the development of recreational resources at these parks. Summaries of resources at many state parks are presented.

Other Issues

Once awareness of water recreation has been heightened and more people participate, this love of the outdoors may actually imperil natural areas. Encouraging conscientious use of nature and cultivating an awareness of the fragility of the environment can help preserve natural resources. Still, large numbers of environmentally-aware people can adversely affect natural resources.

Kaiser, Daniel, and Arsuffi, suggest it may become necessary to limit access to some recreational areas to protect the environments. At the Hamilton Preserve northwest of Austin, access to a pristine swimming grotto is limited to a set number of people per day. Kaiser and Daniel suggest that access to rivers could be restricted by limiting public parking areas. Arsuffi suggests a viable strategy may be to identify the most ecologically sensitive areas and limit access to them, while directing human traffic to more hardy sites. Another strategy could be to develop the potential for recreation and ecotourism on private property, thereby increasing access as the amount of land for these purposes.

A key issue focuses on the ability of recreational users (especially kayakers, paddlers, canoeists, and anglers) to gain access to their favorite sites. Texas rivers present a prickly problem because 96% of the land the public must often cross to get to rivers and streams is privately owned. Often, tension has built up between landowners and water recreation users. The problem is compounded by the fact that there are too few public access points, according to many experts.

Kaiser suggests that the interests of many parties could be satisfied by creating scenarios in which everyone wins. Creating parking at access points to rivers could assist paddlers, while restricting the numbers of users on the river. Landowners could lease or rent some of their lands to recreational users, or they could charge a small fee for recreational users to gain access to a river. The TWDB *Water for Texas* plan states that ensuring adequate public access to water is a "key to meeting the recreational needs for streams and saltwater."

In 1997, Ditton and TAMU student Troy Baker surveyed roughly 5,000 people who fish Texas rivers to obtain their views on access issues. Results show these anglers feel that existing access points are overused. Those surveyed said they would fish rivers and streams more often if additional access points were provided, and that they would be willing to pay up to $50 per year if it would improve public access.

Summary

At a time in which water planning is a major activity

throughout Texas, this may be an ideal opportunity to reflect on water recreation issues. While the need to develop water for future uses is important, recreational issues remind us that arguments can also be made to reserve water for non-use. After all, one of the goals of water resources management ought to be to manage resources so that people can enjoy them for recreation and many other purposes. We suggest there is merit in keeping water in place, in the stream. Maintaining flows in rivers will improve conditions for recreation, benefit aquatic ecosystems, and improve water quality. At the same time, it is recognized that existing water consumptive demands must be met, now and in the future when these needs will increase.

Special attention should be given to exploring strategies which may benefit recreational users and private landowners. The promise exists of being able to enhance the ability of many recreational experiences associated with Texas rivers and streams, while providing an economic boost to rural residents and communities.

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