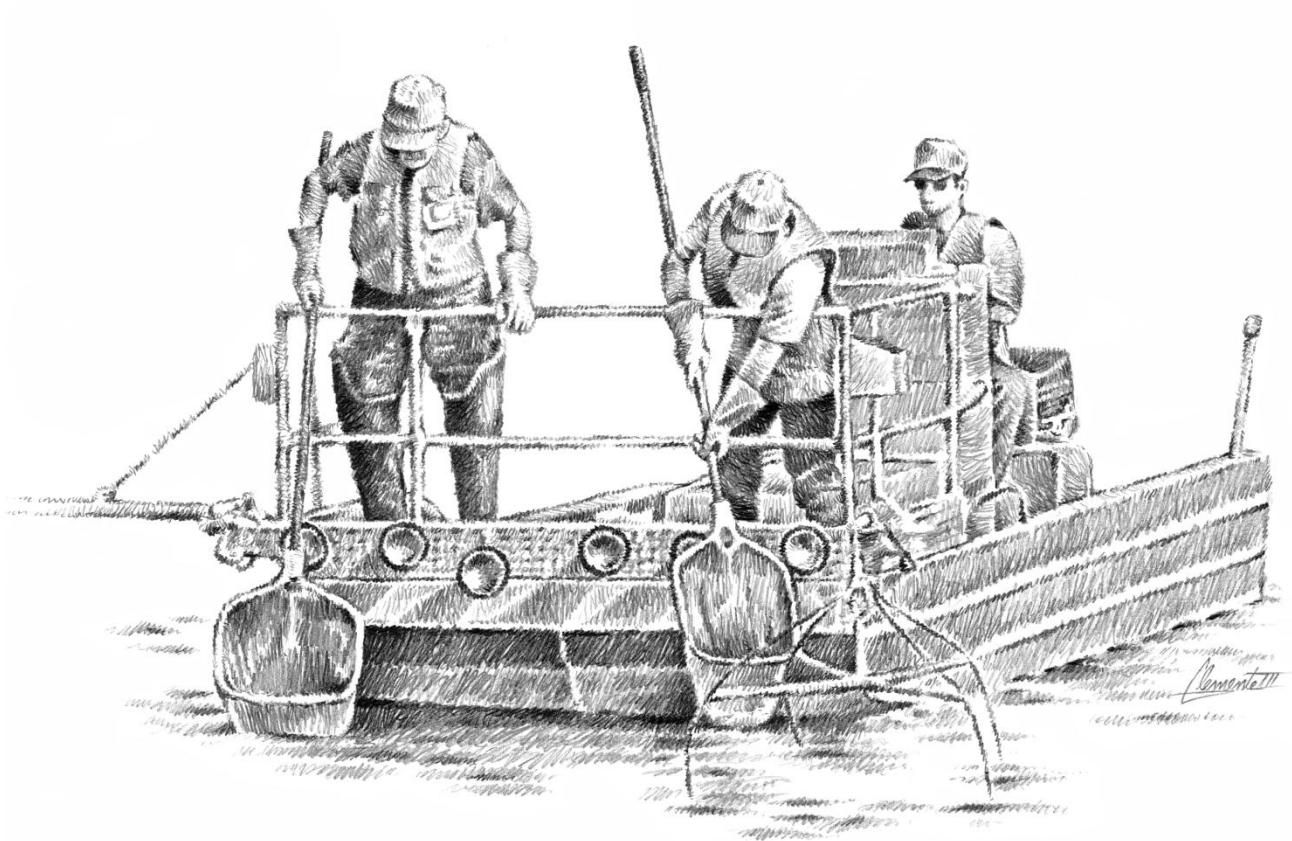


INLAND FISHERIES ANNUAL REPORT 2012



IMPROVING THE QUALITY OF FISHING

Carter Smith
Executive Director



Gary Saul
Director, Inland Fisheries



INLAND FISHERIES ANNUAL REPORT 2012



TEXAS PARKS AND WILDLIFE DEPARTMENT

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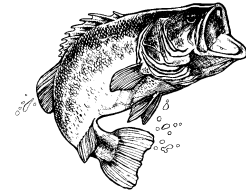
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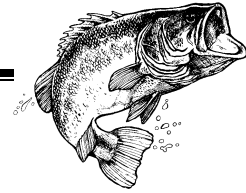
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INLAND FISHERIES OVERVIEW



Mission

To provide the best possible fishing opportunities while protecting and enhancing freshwater aquatic resources.

Scope

The Inland Fisheries Division is responsible for managing the fishery resources in approximately 1,000 public impoundments and about 191,000 miles of rivers and streams together totaling 1.7 million acres. These resources are used by 1.85 million anglers, whose fishing activities result in at least \$2.38 billion in trip and equipment expenditures.

Agency Goals

Texas Parks and Wildlife Department's Land and Water Resources Conservation and Recreation Plan (2009) establishes four primary goals to direct the agency's division operating plans and decisions regarding the state's conservation and recreation needs.

- Practice, Encourage and Enable Science-Based Stewardship of Natural and Cultural Resources
- Increase Access to and Participation in the Outdoors
- Educate, Inform and Engage Citizens in the Support of Conservation and Recreation
- Employ Efficient, Sustainable and Sound Business Practices

Division Goals

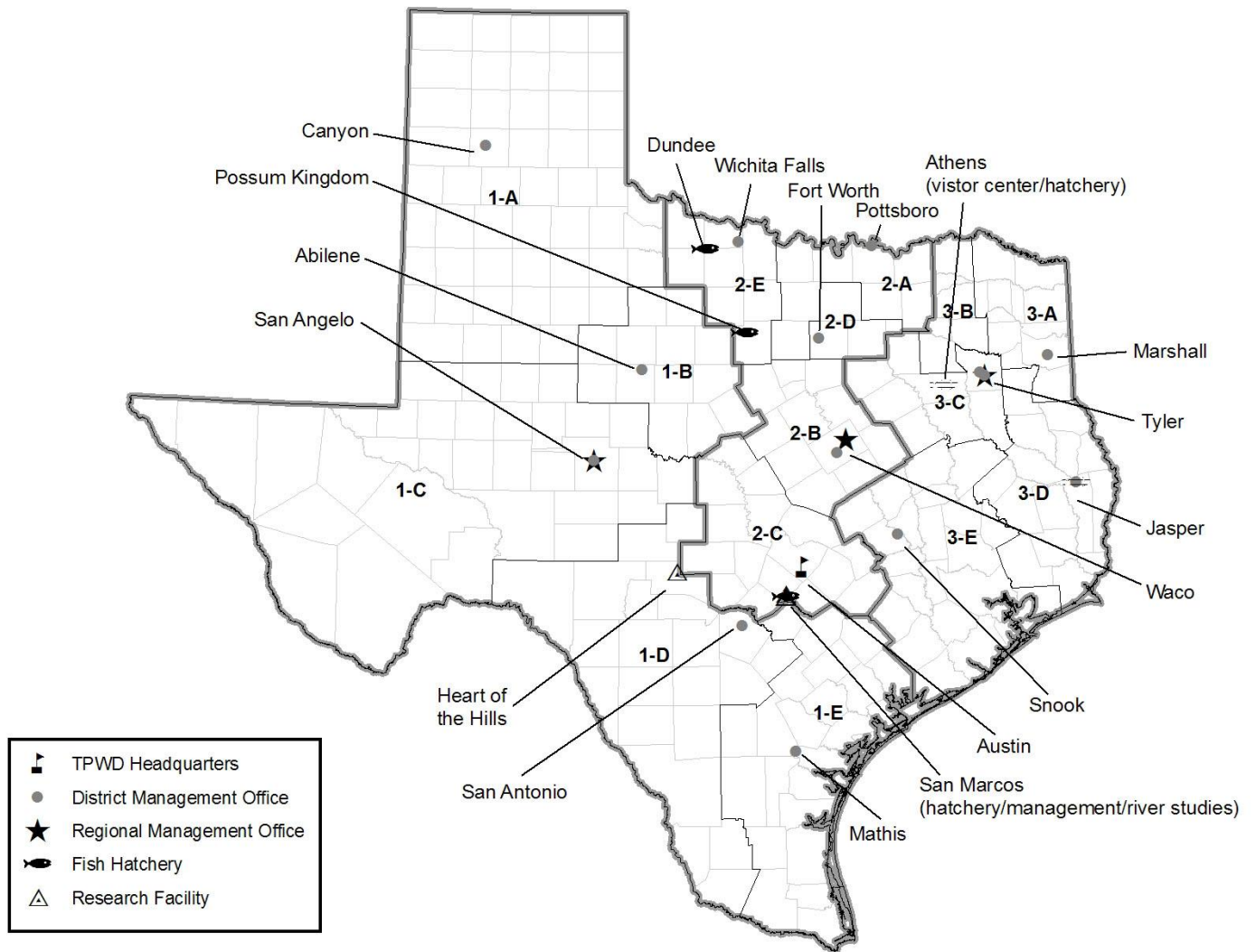
The Division goals were developed to address the major issues facing the freshwater fisheries resources of Texas.

- Maintain or restore appropriate conditions to support healthy aquatic ecosystems.
- Maintain quality fish communities for recreation and ecological health and value.
- Maintain or increase constituent satisfaction, participation or stewardship.
- Employ efficient and sustainable business practices in fisheries management.

Staff

Inland Fisheries has 204.75 positions assigned to management, hatchery, research, outreach, habitat, laboratory services and administrative branches.

Facilities



Contact Information

Inland Fisheries Division • Texas Parks and Wildlife Department
 4200 Smith School Road • Austin, Texas 78744
 (800) 792-1112 or (512) 389-4444 • www.tpwd.state.tx.us/fishboat/fish

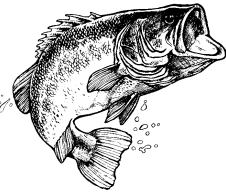
Funding and Allocation

In FY12 \$16,358,564 was budgeted for Inland Fisheries (not including fringe benefits or capital construction). Federal Aid grants are expected to reimburse the Department \$9,868,183 on eligible Inland Fisheries activities. The allocation of Federal Aid monies was \$2,785,761 for Fish Hatchery facilities and \$7,082,422 for Management and Research, Habitat, Outreach, and Administrative and Laboratory services.

FY 12 Budget by Program

Administration	\$1,450,243
Management and Research	\$5,814,677
Hatcheries	\$4,415,747
Habitat	\$3,261,211
Outreach/Texas Freshwater Fisheries Center	\$924,518
Analytical Labs	\$492,168
Total FY12 w/o fringe	\$16,358,564

ADMINISTRATION



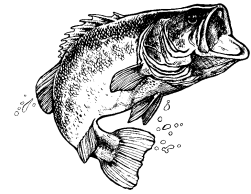
Description

The administrative function of the Inland Fisheries Division occurs at Texas Parks and Wildlife Department headquarters in Austin. The administrative staff provides critical leadership, management of budgets and grants, and managerial support to a large number of field offices that work to carry out the mission of the division, largely outside the walls of headquarters. The Inland Fisheries Division seeks to maximize collaborative efforts between its work groups to accomplish projects and to achieve the larger goals of the division. These efforts, at least in part, are due to the close coordination of a small group of leaders who direct activities of staff in the areas of fisheries management and research, hatcheries, habitat conservation, information and regulations, analytical services, and Texas Freshwater Fisheries Center (outreach).

Organization

Administration organizational chart is located in **Appendix - Organization Charts**.

HABITAT CONSERVATION



Program Description

Healthy fish populations and quality freshwater fishing opportunities depend upon healthy habitats in Texas streams, rivers and reservoir systems. The Inland Fisheries Division's goals and objectives for conservation of freshwater fish habitats are accomplished through science and conservation partnerships with other TPWD divisions, non-governmental organizations, private landowners, local communities, river authorities, local, state and federal agencies, and other conservation organizations.

Specific conservation actions are led and coordinated by the Division's Habitat Conservation Branch, which consists of 31 employees with multidisciplinary training and expertise in aquatic biology and ecology, hydrology, fluvial geomorphology, riparian and floodplain ecology, instream flow science, toxicology, restoration science and conservation policy. Responsibilities include a broad range of natural resource issues including watershed protection and restoration; instream flow science; fish conservation; management of aquatic invasive species; harmful algal blooms monitoring and research; environmental response, damage assessment, and restoration; and other topics affecting the health of Texas fisheries, their habitats and other aquatic resources.

Accomplishments

Staff members served on the Fort Worth District of the U.S. Army Corps of Engineers' Interagency Review Team (IRT), evaluating numerous stream and wetland mitigation bank proposals in North, Central and East Texas. Staff also participated in the development of standard guidelines for designating stream mitigation banks.

Participated in the planning of habitat restoration and flood abatement projects initiated by the Corps of Engineers including restoration of Alazan, Martinez, Apache, and San Pedro creeks in San Antonio; Cibolo Creek; Leon Creek; Keys Creek and the San Marcos River.

Performed field investigations and reviewed applications for sand and gravel permits for disturbance or taking of substrate materials in the Atascosa, Blanco, Brazos, Colorado, Concho, Dry Frio, Frio, Guadalupe, Llano, Lampasas, Nueces, Sabinal, Sabine, San Marcos, and South Llano rivers; Barton Creek, Cypress Creek, Hondo Creek, Independence Creek, Salado Creek, and numerous smaller streams to assure that activity would not adversely affect fish and wildlife resources or recreational opportunities.

Staff mentored middle and high school students that participated in Service Learning Texas' Healthy Habitats Program. This included providing guidance on aquatic habitat restoration projects conducted by the students.

Participated in watershed protection planning for the Lampasas River, Alligator and Geronimo creeks, upper Cibolo Creek and upper Llano River watersheds.

Hosted five Watershed Conservation Workshops for riverside landowners along the Pedernales, Blanco, and Concho rivers. Workshops were designed to teach landowners about management practices that improve riparian function, enhance fish and wildlife habitats, and sustain instream flows.

Staff members participated in the cross-divisional Paddling Trails Team and supported the designation and opening of five new trails in 2012. Ten additional trails are scheduled to launch near Caddo Lake in February 2013.

Secured grant funding and worked with local community partners to develop seven new leased-access fishing areas on the Brazos, Colorado, Guadalupe and Neches rivers. These areas will also serve as conservation demonstration areas for proper management of riparian and instream habitats.

Updated the watershed best management practices website (www.watershedbmpps.com).

Coordinated the design, format, and content for two editions of the Texas Watersheds newsletter, a full color electronic publication that replaced the Texas Wetland News. The new newsletter increased the size and scope of content, soliciting a greater number of articles and expanding coverage to a watershed scale.

Conducted fish monitoring and conservation activities in various watersheds:

- Removed smallmouth bass and hybrids from enduring pools (result of the drought) in the upper Blanco River and stocked pure Guadalupe bass in the reach where the removal efforts occurred. Future Guadalupe bass stockings, with genetic and population monitoring, are planned.
- In partnership with the South Llano Watershed Alliance and other private landowners, assessed and developed 16 restoration projects encompassing 53,000 acres and 35 miles of the Llano River and tributaries.
- Collected Guadalupe bass from the South Llano River to supplement broodstock and stocked 108,000 Guadalupe bass fingerlings to support genetic restoration efforts.
- Conducted quarterly monitoring in Salt Creek, the last remaining water body in Texas that contains genetically pure Pecos pupfish. Work included DNA sampling and genetic analysis.
- Along with US Fish and Wildlife Service personnel, participated in upkeep and monitoring of Comanche Springs pupfish and Pecos gambusia in Phantom Springs.
- In partnership with the US Fish and Wildlife Service, established a refuge population of the federally endangered Clear Creek gambusia.
- Continued to assist with assessment and restoration of the federally endangered Rio Grande silvery minnow in the Big Bend Region of the Rio Grande. Participated in a structured decision making workshop focused on recovery at the National Conservation Training Center. Established permanent cross-sections within Big Bend National Park and the lower Canyons portion of the Rio Grande Scenic River as part of Big Bend National Park inventory and monitoring efforts to complement the minnow re-introduction project.
- In partnership with the Commission for Environmental Cooperation, supported a workshop to achieve bi-national consensus on conservation priority areas in the Big Bend region.
- Worked to complete the Devils River Monitoring Plan and Management report.
- Surveyed 10 miles of the Devils River for existing populations of *Cyprinodon eximius*.
- Conducted fish assemblage and habitat surveys on the Devils River to monitor the status of fish populations, determine habitat associations, and collect fin clips to determine genetic purity of northern largemouth bass.
- Collaborated with University of Texas researchers to survey large reaches of the Brazos River between Possum Kingdom Reservoir and Lake Whitney in search of endemic minnows.

- Supported efforts by Texas Tech University to refine captive spawning and rearing of minnows to increase opportunities for reintroducing populations in the middle reaches of the Brazos River and better understand reproductive and larval fish requirements. In response to the drought, worked with Texas Tech and the Possum Kingdom State Fish Hatchery to hold populations of endemic minnows to ensure those candidates for federal listing would be available for reproductive studies and repatriation efforts. Approximately 750 of those minnows were released into the lower Brazos to jumpstart populations.
- In partnership with BIO-WEST, Inc., launched a radio-tracking study of blue sucker, a state threatened species, in the lower Sabine River to determine spawning locations and determine differential habitat use among varying life stages.

Surveyed members of Guadalupe River Trout Unlimited to assess direct expenditures and economic impact of this user group on the Guadalupe River rainbow trout fishery. Also launched an economic impact and attitude and opinion survey of anglers fishing rivers and streams in a 24-county area of the Texas Hill Country, in collaboration with Texas Tech University. Both surveys used an internet-based platform to query participants.

Finalized a settlement in a Natural Resource Damage Assessment case at the Malone Superfund Site adjacent to Swan Lake in the Galveston Bay system, recovering approximately \$3.1 million for injuries to natural resources related to a former hazardous waste injection facility.

Developed an amendment to the Explorer Pipeline Restoration Plan that provided for establishment of a wetland nursery at the Inland Fisheries field office in Snook to supply daughter colonies in Lake Raven at Huntsville State Park.

Continued to monitor habitat construction projects encompassing approximately 90 acres of riparian habitat, 120 acres of freshwater wetland and 125 acres of estuarine wetland to ensure success criteria are met.

Investigated 90 fish and wildlife kills and 58 pollution events, documenting impacts and providing guidance on clean-up techniques.

Recovered \$59,404 in civil restitution and investigation costs associated with fish kills. A portion of the restitution funds were allocated to three habitat enhancement projects:

- Development of a conservation demonstration area at the South Llano River
- East Texas reservoirs artificial fish attractors
- Aquatic habitat enhancement in Waco, Aquilla, and Lake Brazos reservoirs

In partnership with the Texas Commission on Environmental Quality, completed sample processing and analysis on the biological, water quality, and habitat data collected in Pine Island and Little Pine Island bayous near Beaumont. This stream segment has historically had dissolved oxygen concentrations that do not meet the minimum criteria set by the state. Data were evaluated and a report was published by TCEQ.

Produced a final report on the effects of the Wichita River Desalinization Project. The project was designed to assess potential influences on fish assemblages and water quality from a desalinization plant that discharges into the river near Wichita Falls. Pre-project baseline data were collected in 2005 and 2008, and post-project samples were collected 2009-2011.

Staff participated with state and federal counterparts regarding the natural resource damage assessment and restoration planning for the Deepwater Horizon oil spill. Activities included:

- Hosting public meetings in Galveston to explain the damage assessment and early restoration processes to the public and introduce the Phase I Early Restoration Plan
- Participating in technical work groups involved in assessing impacts to birds, sea turtles, marine mammals, shoreline habitats and the human use of natural resources
- Participating on drafting and review teams for the development of the Programmatic Environmental Impact Statement and Early Restoration Plans
- Consolidating data collected on shoreline oiling, stranded wildlife and recovered birds during the Texas response
- Participating in Trustee Council discussions and meetings while serving on Assessment, Restoration and Executive sub-committee.

Staff members participated in the Clean Gulf Conference, with one serving as a primary instructor and others participating in a Habitat Equivalency Analysis Workshop for conference attendees.

In partnership with the U.S. Environmental Protection Agency, U.S. Coast Guard, Texas General Land Office, and Texas Commission on Environmental Quality, staff participated in a Natural Disaster Operational Workgroup (NDOW) focused on the coordination of multi-agency response efforts and the development of database software, Response Manager, to assist in that coordination. Habitat Conservation staff led development of modules to collect and track information related to affected wildlife response activities and provide sensitive wetlands response guidance. Staff also participated in a NDOW hurricane field exercise in Corpus Christi and Ingleside: 170 federal and state emergency responders worked together to implement a centralized database system, ensure communications interoperability and build efficiency for future responses. TPWD and the other participating state and federal agencies received a 2011 Oil Spill Prevention and Response “Responder of the Year” award for their efforts.

Helped collect field data to support the following Texas Instream Flow Program (TIFP) priority studies:

- Middle and lower Brazos River – Collected water quality, fish habitat use, and stream channel data to support development of instream flow and water quality models.
- Lower San Antonio River – Conducted seasonal fish sampling and collected habitat, water quality, and hydrological data.
- Middle Trinity River – In cooperation with the Trinity River Authority and TIFP partners, conducted sampling to update biological data in six reaches between the confluence of the Trinity River with the East Fork Trinity River and Lake Livingston, a distance of more than 200 river miles. Fishes, mussels, and benthic macroinvertebrates were sampled along with physical habitat and water quality. Information will be used to plan an instream flow study scheduled to begin in 2013.
- Lower Guadalupe River – Developed plans for baseline sampling in consultation with the Guadalupe-Blanco River Authority and TIFP partners.

Participated in a collaborative process, involving more than 80 scientists and local stakeholders, to identify instream flow regimes that could be used to guide releases from Lake O’ the Pines on Big Cypress Bayou, which, along with Little Cypress and Black Cypress bayous, feeds Caddo Lake. At the 2012 Science Workshop in Jefferson, Texas, the Northeast Texas Municipal Water District and the Corps of Engineers voluntarily agreed to implement flow regime recommendations crafted through the process.

Provided technical assistance and guidance to the Science Advisory Committee, expert science teams, and stakeholder groups charged with developing environmental flow recommendations and standards for the Nueces, Rio Grande, Colorado-Lavaca, Brazos, and Guadalupe-San Antonio basins.

Participated in water rights evaluations associated with four major proposed projects including Lower Bois d'Arc Creek Reservoir, Cedar Ridge Reservoir on the Clear Fork of the Brazos River, Lake Columbia on the Neches River, and the Brazos River Authority's System Operation Permit which affects operations on all BRA reservoirs.

In partnership with the Angelina Neches River Authority, the Texas Commission on Environmental Quality, and the Texas Water Development Board, developed a proposed methodology for determining compensatory mitigation requirements for the Lake Columbia Reservoir Project.

Participated in Federal Energy Regulatory Commission licensing efforts for Toledo Bend Reservoir on the lower Sabine River and a new hydropower project on Lake Livingston in the Trinity River basin. Staff also reviewed and commented on hydropower license surrenders for Morris-Sheppard Hydroelectric Project on the Brazos River (Possum Kingdom Reservoir) and Ray Roberts Dam Hydroelectric Project on the Elm Fork Trinity River; as well as an exempt hydropower license surrender on the Guadalupe River near Cuero.

Conducted Least Disturbed Streams Surveys as part of a continuation of the Texas Aquatic Ecoregion Project that originated in the early to mid-1980's in partnership with the Texas Commission on Environmental Quality. The current project updated historic surveys and added new candidate streams. A list of potential streams was developed and staff participated in field work on three sites. Sampling will be conducted over the next five to six years with approximately six streams sampled per year for water quality, benthic macroinvertebrates, fish, and physical habitat.

Completed aquatic nuisance species management activities, applying approved herbicides and/or biological controls, in the following public water bodies:

- Lake Austin – Permitted the stocking of 17,369 triploid grass carp, including 3,000 purchased by TPWD, to manage hydrilla.
- B.A. Steinhagen Reservoir – Treated approximately 1 acre of giant salvinia with herbicides and stocked approximately 47,907 giant salvinia weevils.
- Caddo Lake – Treated approximately 1,138 acres of giant salvinia and water hyacinth with herbicides.
- Choke Canyon Reservoir – Treated approximately 20 acres of water hyacinth.
- Lake Fork – Treated approximately 96.5 acres of water hyacinth.
- Lake Gonzales – Treated approximately 18 acres of water hyacinth.
- Lake Livingston – Treated approximately 15 acres of water hyacinth.
- Lake Wood – Treated approximately 36 acres of water hyacinth.
- Nueces River – Treated approximately 179 acres of giant reed.
- Sam Rayburn – Treated approximately 44 acres of giant salvinia with herbicides and stocked approximately 3,097 giant salvinia weevils to assist with management of the invasive plant.
- Toledo Bend – Treated approximately 393 acres of giant salvinia and water hyacinth with herbicides and stocked approximately 111,000 giant salvinia weevils.

Revised Aquatic Vegetation Management in Texas: A Guidance Document, solicited public comment and published on the TPWD website.

Developed the Texas State Comprehensive Management Plan for Aquatic Nuisance Species, which was subsequently approved by the federal Aquatic Nuisance Species Task Force. Initial federal funding was awarded to Texas for implementation of the plan.

To comply with new National Pollutant Discharge Elimination System regulations, as well as Texas Pollutant Discharge Elimination System regulations administered through the Texas Commission on Environmental Quality, developed a Pesticide Discharge Management Plan (PDMP) which was submitted to TCEQ and subsequently approved. A Notice of Intent to treat invasive species with pesticides was also submitted to TCEQ and approved.

Staff members served on a number of advisory boards, panels and organizing committees, including:

- Gulf Coast Prairie Landscape Conservation Cooperative
- Great Plains Landscape Conservation Cooperative
- Desert Landscape Conservation Cooperative
- Southeast Aquatic Resources Partnership
- Desert Fish Habitat Partnership
- National Fish Habitat Partnership
- Texas Chapter of the American Fisheries Society
- Texas Riparian Association
- Gulf and South Atlantic Regional Panel on Aquatic Invasive Species
- Western Regional Panel on Aquatic Nuisance Species
- Mississippi River Basin Regional Panel on Aquatic Nuisance Species
- Federal Invasive Species Advisory Committee
- Board of Directors, Texas Invasive Plant and Pest Council and Vice-Chair, Texas Invasive Species Coordinating Committee

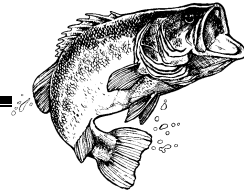
Issued 166 exotic species permits (64 for shrimp and fish, 15 research permits, 73 water spinach permits, 14 zoological permits), 50 permits to sell nongame fish, 30 public water stocking permits and 7 broodfish collection permits.

Additional details about river and stream surveys, grants and donations, and partnership efforts can be found in **Appendix – Surveys Conducted in Public Waters** and **Appendix – Work with Other Organizations**.

Organization

The Habitat Conservation organizational chart is located in **Appendix – Organization Charts**.

FISHERIES MANAGEMENT AND RESEARCH



Program Description

The Division's fisheries management program assesses fish communities, fish habitat, angler access, and angler use of public water resources. Sampling activities performed by this group are guided through scientifically-accepted procedures (e.g. Fishery Assessment Procedures Manual) that ensure a high degree of data quality, integrity, and validity for statistically analyzing trends and making sound fisheries management decisions. This team develops fisheries management plans for individual water bodies, develops the statewide fish stocking plan, stocks fish in public waters, recommends changes to harvest regulations, implements habitat improvement projects, assists with treatment of invasive aquatic species, conducts public outreach, manages our urban fishing programs, and performs research to evaluate and improve fisheries management strategies. Staff provide assistance and information to the general public, fishing-related industries, water controlling authorities, local governments, angling groups, civic groups, property owners, media, universities, and other natural resource agencies. Staff are located at three regional offices and 15 district offices statewide.

The Inland Fisheries research program at the Heart of the Hills Fisheries Science Center in Mountain Home provides leadership, support, and coordination for all research activities supported by the Division. The program also provides intensive research investigations, literature reviews, statistical analyses, staff training, and science-based position papers that inform decision-makers on critical aquatic resource-related issues or problems.

Accomplishments

Conducted 344 surveys on 155 reservoirs covering 1,289,277 surface acres of water. Conducted three additional surveys on one river. For a detailed list of waters surveyed, see **Appendix – Surveys Conducted in Public Waters**.

Prepared comprehensive reports and fisheries management plans on 41 public reservoirs. Reports were made available to reservoir controlling authorities and the general public through the agency website.

Provided recommendations and supporting information that led to species-specific harvest regulation changes on five reservoirs, statewide changes to legal device regulations, and restrictions to discourage the spread of zebra mussels and other invasive aquatic animals in selected waterways.

Conducted habitat improvement activities that affected 3,380 surface acres on 30 public reservoirs.

Directed the stocking of 12,346,519 fish of 17 different species in 280 different water bodies. Detailed stocking reports can be found in **Appendix – Stocking Reports**.

Coordinated and participated in 249 outreach events reaching 16,336 people.

Management staff and program directors spent considerable time dealing with drought, low water levels and their associated effects on fisheries and the people who utilize them, as well as planning for and modifying stocking plans.

Staff spent considerable time dealing with zebra mussels. Efforts included planning, securing funds and implementing a public awareness campaign; hosting public and stakeholder meetings; monitoring infested waters; helping to develop early detection methods (eDNA testing using PCR); inspecting contaminated boats and investigating reported sightings.

Research works to improve the efficiency and effectiveness of Division operations. This year's fishery management research focused on:

- Effects of changing water levels on fish and habitats (four studies)
- Development of channel catfish fisheries (five studies)
- Improving stocking or sampling techniques (eight studies)
- Alligator gar management (four studies)
- Other applied research topics (12 studies)

Nineteen additional research studies were underway in the Division's hatchery and analytical services branches. Research staff coordinated these studies and assisted with experimental design, data analysis, peer review of proposals, and other aspects of the research process. For a list of current research studies, see **Appendix – Research and Special Projects**.

Worked with the Wildlife Division and USFWS to allocate federal endangered species grant funds to research projects best aligned with TPWD priorities for species conservation.

Coordinated development of Division-wide conservation and research priorities for the middle Trinity River. These priorities will guide the Inland Fisheries Division as the Senate Bill 2 process unfolds in the basin. Collaborative research and data collection will begin in FY13 and will inform the instream flow-setting process.

Helped design a monitoring regime for aquatic resources at the new Devils River natural area, assisted with a survey of fish in the Rio Grande's Big Bend, and provided field support for an evaluation of Rio Grande silvery minnow restoration efforts.

Collaborated with Texas Cooperative Fish and Wildlife Research Unit scientists on a study evaluating Guadalupe bass restoration in the South Llano River and studies of toxic golden alga blooms. Staff also served on unit student graduate advisory committees.

Completed evaluation of several tagging techniques for alligator gar. Results were published in a scientific journal and distributed to division staff. They have been incorporated into new management activities and special projects.

Discussed Division goals and research findings during interviews for the nationally broadcast In-Fisherman television series, Ken Milam's Outdoors radio show in Austin, and a department video news release.

Completed field sampling of Devils River minnow habitat use in Pinto Creek for a joint study with the Division's river studies group.

Worked with Division leaders as well as partners from Oklahoma Department of Wildlife Conservation, Southeast Aquatic Resources Partnership, and Reservoir Fish Habitat Partnership to develop priority needs for a Science Forum organized by the Gulf Coastal Prairie Landscape Conservation Cooperative.

Staff members made 10 presentations of research results to professional, scientific conferences.

Staff members published six scientific articles in peer-reviewed, professional journals and six studies in the Department's Management Data Series. A complete list of published work can be found in **Appendix – Presentations, Articles and Publications**.

Management staff coordinated and assisted with the Bass Brigades Camp, a leadership development program for high-school age youth.

Management staff continued to monitor and assess impacts from golden alga fish kills, including kills at two new locations: North Anson Reservoir and Brady Creek Reservoir.

Management staff analyzed and provided creel data for Amistad Reservoir to Texas A & M University staff who were contracted by TPWD to perform an economic analysis of the reservoir's fishery.

Staff from management and river studies, along with Texas State University staff, coordinated and conducted a fish population sampling trip on the Devils River. Habitat and management staff completed the Devils River standardized aquatic monitoring plan and a survey report on the Devils River fish community.

Management staff developed a set of Frequently Asked Questions for the ShareLunker web site.

Members of the management staff received the AFS Sportfish Restoration award for best research project and the Texas Chapter of the American Fisheries Society Worker of the Year Award in the category of Administration.

Management staff provided fish-care advice and valuable information to competitive tournament organizers, weigh-in facility planners, and participants.

Management staff attended numerous meetings and gave presentations at stakeholder meetings concerning stump-cutting issues on lakes Dunlap and Conroe. Staff led discussions on habitat restoration projects at these lakes to enhance habitat lost due to removal of stumps.

Management, research, and river studies staff worked with the Brazos River Authority (BRA) to develop thresholds for the 11 reservoirs controlled by the BRA. Staff had considerable input in the BRA's Operational Guideline development process. The document includes limiting or managing the impacts of reservoir fluctuations as part of the authority's System Operation Permit.

Management and hatchery staff participated in striped bass broodfish collection below Lake Livingston. Staff also inspected the Toledo Bend tailrace; the Brazos River below Possum Kingdom Reservoir, Whitney Reservoir and Lake Waco; and the Guadalupe River below Canyon Reservoir dam in an effort to find broodfish.

Staff from management, research, hatcheries and the Communications Division continued work on the Neighborhood Fishin' Program, developing and evaluating marketing strategies to further increase participation by urban anglers. Staff participated in research evaluation at all 14 NFP sites.

Management and research staff participated in a meeting to discuss and provide input on potential impacts of the Red River Chloride Control Study Phase III on the fishery in Lake Texoma.

Collaborated with the City of Waco and Baylor University to develop and maintain an aquatic plant nursery at the Waco Wetlands. The nursery will provide aquatic plants to use in reservoirs for habitat improvements.

Worked with the City of Austin and the Lower Colorado River Authority (LCRA) on stocking grass carp into Lake Austin to help control hydrilla.

Gathered tournament and grass carp data during the Carp Anglers Group Championship Tournament on Lady Bird Lake.

Management staff administered the Native Aquatic Plant Nursery at Texas Freshwater Fisheries Center. The nursery expanded by six raceways, a 66% increase. Plants were produced for nine aquatic habitat projects, including provision of an in-kind match for a large Reservoir Fish Habitat Partnership project on Lake Palestine.

Staff were active in educating anglers and the public about invasive aquatic plants and animals. Efforts included placing Asian carp awareness signs at the Lake Wright Patman spillway and downstream, and setting up an invasive plant display at several events.

Management staff continued support of the Reservoir Fisheries Habitat Partnership (RFHP), leading the nation in recruiting Friends of Reservoirs chapters and affiliates (5 total; 8 pending). Grassroots efforts included use of a RFHP grant on Lake Palestine and application for a \$20,000 RFHP grant to enhance fish habitat in East Texas reservoirs.

Organized and led a highly successful Toyota Texas Bass Classic at Lake Conroe. Cumulative donations hit the \$1.25 million mark this year. Opportunities for promotion of our programs were maximized, including video pieces, public displays, and promotion of proper fish-care practices.

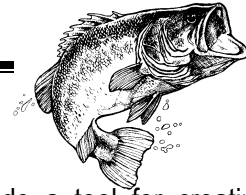
Coordinated two meetings with the Freshwater Fisheries Advisory Committee to gather constituent input on fisheries issues.

Staff were active in professional service, serving as associate editors of a scientific journal, conducting a workshop on catfish sampling and aging at the Southern Division American Fisheries Society's annual meeting, chairing the AFS Skinner Award Committee and serving on the Southern Division's Small Impoundments Committee. Individuals on this team served as officers for the Texas Chapter of the AFS (including President), Secretary/Treasurer of the Southern Division AFS, and President-Elect of the Organization of Fish and Wildlife Information Managers.

Organization

Fisheries Management and Research chart is located in **Appendix – Organization Charts**.

FISH HATCHERIES



Program Description

Fish hatcheries provide functional support for fisheries management and provide a tool for creating, enhancing and maintaining fish populations in Texas public waters. The Inland Fisheries Division operates five fish hatcheries located in San Marcos (AE Wood), Athens (Texas Freshwater Fisheries Center), Graford (Possum Kingdom), Electra (Dundee) and Brookeland (John D. Parker East Texas Fish State Hatchery). Stocked fish must meet specific requirements including number, size, genetic integrity, disease-free status, and time of stocking. Hatchery stocked fish are used to establish initial year classes in new or renovated reservoirs, supplement natural recruitment, and increase angler opportunities. Additionally, stocked fish are used to increase species diversity and restore fish populations that have been decimated or reduced due to natural or man-made influences. They are also used to provide immediate recreational and educational opportunities by stocking catchable size fish in or near urban areas. In all, we stock more than 15 million fingerling fish of various species into fresh water each year.

Accomplishments

Stocked 12.3 million fish in 280 locations. The total included 9.6 million fingerlings, 2.4 million fry and 297,395 adult fish. Detailed stocking reports can be found in **Appendix – Stocking Reports**.

Made significant progress toward completing the John D. Parker East Texas State Fish Hatchery. Construction is anticipated to be finished by spring 2013. Although the facility was still under construction, production began in 2012 with more than 2 million fingerlings produced for stocking in public water.

Devoted significant time and energy toward developing strategies to mitigate effects of widespread drought across Texas and sustain hatchery operations. Strategies included modified hatchery operating and water reuse conservation plans, modification to existing pumping systems and development of auxiliary pumping systems. Unfortunately, drought conditions at the Dundee Fish Hatchery forced a temporary suspension of hatchery production in FY12.

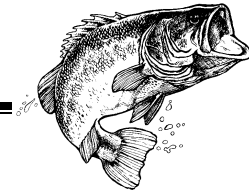
Staff authored or co-authored three reports for the TPWD Management Data Series and made four oral presentations at professional conferences and symposia. Details can be found in **Appendix – Presentations, Articles and Publications**.

Staff conducted 15 research projects on aspects of fish rearing and golden alga control in hatchery environments. A complete list of research topics can be found in **Appendix – Research and Special Projects**.

Organization

Inland Fisheries Hatcheries chart is located in **Appendix – Organization Charts**.

ANALYTICAL SERVICES



Program Description

The analytical laboratories serve a unique function within Inland Fisheries by providing state-of-the-science analyses in environmental chemistry, water quality, fish pathology, and genetics. Analytical Services conducts a variety of chemical analyses in support of divisional, interdivisional, and interagency programs. Analyses are routinely performed for the Kills and Spills Team, Law Enforcement Division's Environmental Crime Unit, and in support of research conducted by Inland Fisheries staff. The collective expertise of the Analytical Services staff allows customized analyses aimed at meeting the changing needs of the department and the state.

The Environmental Chemistry Laboratory (ECL) specializes in analyzing contaminants in fish tissues, which is a complex matrix and very few labs nationwide perform similar analyses. Water and sediment samples also are analyzed. Analytes of concern are both naturally occurring and resulting from anthropogenic activities. They include heavy metals, pesticides, industrial wastes, and biotoxins such as those created by harmful algae. In addition to providing services for investigations of fish kills and pollution, the ECL analyzes environmental samples to establish baseline data or in support of department research.

The Fish Health and Genetics Laboratory provides specialized expertise in fish health and genetics, and in support of hatchery discharge permits. In-house expertise facilitates timely and efficient response to emerging and ongoing concerns. Fish health expertise imparts an ability to focus on specific pathogens of interest. Genetics expertise and equipment are used to facilitate management and advance scientific knowledge of important sport fish, including largemouth bass, striped bass, catfish, and species of concern such as Guadalupe bass. In the case of fish kill investigations, the two analytical labs may work together to analyze both biological and chemical agents of concern.

Accomplishments

Completed water quality analyses on a total of 93 water samples in support of hatchery discharge monitoring at the AE Wood, Dundee, Jasper, and Possum Kingdom fish hatcheries and Heart of the Hills Fisheries Science Center.

Conducted analyses on 71 fish health cases comprising 3,439 individual fish.

Conducted 177 cell counts and 122 bioassays in association with golden alga monitoring, research, or fish kill investigations.

Completed genetic analyses (allele frequency and genotypes) for 1324 largemouth bass collected from 30 public reservoirs in fall electrofishing surveys.

Completed genetic analyses for 451 largemouth bass submitted in support of special studies:

- Victor Braunig (n =196)
- Falcon Reservoir (n = 235)
- Devils River (n = 20)

Determined genotypes for 20 northern largemouth bass collected from Kickapoo Reservoir to serve as future broodfish.

Completed genetic analyses of largemouth bass in cooperation with Mississippi State University (n = 359), Louisiana Department of Wildlife and Fisheries (n = 61), and Arkansas Fish and Game Commission (n = 1).

Completed genetic analyses on 213 largemouth bass submitted to the ShareLunker program or used in Operation World Record (OWR). This total includes the following:

- ShareLunker entries for 2012 (n = 13)
- Ancestry, relatedness, and reference samples (n = 40)
- OWR study lakes (158 fish from four water bodies)
- Male broodfish for use in OWR (n = 87)

Completed genetic analyses on a total of 770 micropterids in support of the Guadalupe bass restoration program. These samples included:

- AEW production fingerlings (n = 492)
- Blanco River (n = 72)
- Johnson Creek (n = 206)

Evaluated *Morone* broodfish (50 striped bass and 20 white bass) at two diagnostic markers prior to using their offspring in fingerling production of striped bass and white bass. No hybrids were detected.

Completed genetic analyses on two tissue samples from fish entered as Texas water body records for Guadalupe bass and yellow bass. The fish were identified as hybrids, northern largemouth bass X Florida largemouth bass and white bass X yellow bass, respectively, and not the species that would have qualified as water body records. Additionally, two putative yellow bass from Toledo Bend Reservoir were identified as white bass. Staff also completed genetic analysis on a potential state record largemouth bass for Arkansas; however, the angler did not have a valid fishing license.

Continued work to evaluate and refine an early detection method for zebra mussels using shed DNA (eDNA).

A total of 242 samples were received by the Environmental Contaminants Laboratory. These included:

- Samples submitted in support of the Kills and Spills Team (n = 39) and Environmental Crimes Unit (n = 63) investigations. The total includes samples submitted for an interagency investigation of a fish kill in the Red River.
- Water submitted for metals and toxin analyses in support of golden alga monitoring activities (n = 94)
- Miscellaneous samples submitted for a variety of projects (n = 46), including nine for contaminants analyses from State Parks

The ECL provided instrument time and subject matter expertise for Texas State University graduate student Laura McCalla's thesis research entitled "Potential Effects of a Large-Scale Housing Development and Associated Golf Course on the Edwards Aquifer in San Marcos, Texas."

The ECL received \$41,877.33 for restitution resulting from environmental crimes investigations.

ECL staff assisted Law Enforcement Environmental Crime Units with two search warrants.

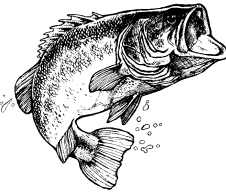
Coordinated unwanted chemical and waste disposal for the Inland Fisheries Division.

Staff participated as judges in local and statewide science fairs.

Organization

The chart for Analytical Services can be found in **Appendix – Organization Charts**.

INFORMATION AND REGULATIONS



Program Description

The Information and Regulations group works closely with the Fisheries Management and Research branch during the regulatory process to develop fishing regulation change proposals, obtain public input on the changes, and communicate the proposals to the Texas Parks and Wildlife Commission. Staff also provide administrative support to Division staff based in Austin and furnish expertise for division-wide and agency-wide assessments of relevant data. This group handles the freshwater fishing web pages, river access information including Texas Paddling Trails, Angler Recognition, and general information to the public. Staff are located at Texas Parks and Wildlife Department headquarters in Austin.

Accomplishments

Worked with Management & Research and Coastal Fisheries staff to update Take Me Fishing web pages for major metro areas: Austin, San Antonio, Dallas-Fort Worth and Houston-Galveston.

Updated Angler Recognition Program application and rules brochure, began building list of Official Weigh Stations and reorganized web pages with a new “Catch of the Month” feature, ready for launch in FY13.

Assisted with public information effort on new regulations and emergency order to prevent spread of invasive exotic aquatic species.

Posted regular web updates to keep public apprised of two red tide events on the Texas coast; golden alga blooms in the Brazos, Red, Rio Grande and Colorado river basins; and an outbreak of blue-green algae on Lake Texoma.

Created new brochure on Largemouth Bass in Texas.

Worked with Communications staff on updates/revisions to the Freshwater Fish Pocket ID Guide.

Texas Paddling Trails team opened five new paddling trails.

Assisted by staff from Coastal Fisheries, conducted reviews of and planning for the following human dimension-related surveys:

- Guadalupe River economic survey with Guadalupe River Trout Unlimited
- Hill Country Anglers survey with Texas Tech University
- Finalized the 2009 statewide angler survey and Lake Amistad survey; began work on next statewide angler survey (all with Texas A&M University)

Participated in a department review team to select a replacement vendor for the license point-of-sale system.

Assumed administration of Freshwater Fisheries Advisory Committee with the retirement of the Region 1 program director and organized the fall and spring meetings of the committee.

Issued a total of 888 grass carp applications.

Coordinated and participated in meetings with Oklahoma Department of Wildlife Conservation and Louisiana Department of Wildlife and Fisheries staff to discuss current and potential fishing regulations.

Assisted with the agency's regulatory hearing process for proposed changes to the 2012-2013 hunting and fishing regulations.

Assisted with updates to the Outdoor Annual.

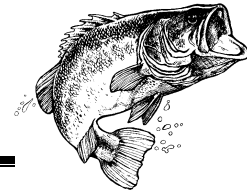
The following changes in fishing regulations, recommended by staff to improve angling quality, optimize angling opportunity, and protect fisheries resources, were adopted by the Texas Parks and Wildlife Commission.

- Aquilla Reservoir (Hill County) – Changed the 18-inch minimum length limit for largemouth bass to a 14-inch minimum length limit.
- Lake Fort Phantom Hill (Jones County) and Lake Proctor (Comanche County) – Changed the 16-inch minimum length limit for largemouth bass to a 14-inch minimum length limit.
- Possum Kingdom Reservoir (Palo Pinto County) – Changed the current two-fish daily bag limit for striped bass to a five-fish daily bag, retaining the 18-inch minimum length limit.
- Lake Naconiche (Nacogdoches County) – Implemented an 18-inch minimum length limit and five fish daily bag for largemouth bass. Prohibited use of trotlines, juglines, and throwlines.
- Regulations to Prevent Spread of Aquatic Exotic Species – Prohibited the transport of live, non-game fishes from the Red River below Lake Texoma downstream to the Arkansas border, Big Cypress Bayou downstream of Ferrell's Bridge Dam on Lake O' the Pines including the Texas waters of Caddo Lake, and the Sulphur River downstream of the Lake Wright Patman dam. Exempted boaters leaving Lake Texoma, Lake Lavon, and the Red River from Lake Texoma upstream to I-44 bridge in Wichita County and downstream to the Arkansas border from the application of exotic species regulations, provided all bait buckets, live wells, bilges, and any other receptacles, containers, or systems that could contain water are emptied prior to departure.
- Fishing Devices in State Parks – Each person is restricted to no more than two fishing poles while fishing from a dock, pier, jetty, or other man-made structure in a state park. No fishing devices other than pole and line are allowed on those structures.
- Gear Tags are now required for throwlines and minnow traps in fresh water, in addition to other devices that already required gear tags. The time limit for re-dating gear tags was reduced from 30 days to 10 days.
- Changed age for license exemption from 64 to 65 for Oklahoma residents fishing in Texas.

Organization

The Information and Regulations organizational chart can be found in **Appendix – Organization Charts**.

TEXAS FRESHWATER FISHERIES CENTER



Description

The Texas Freshwater Fisheries Center (TFFC), located in Athens, is a multipurpose facility that provides educational experiences to the public while also producing millions of fish annually to meet the stocking needs of fisheries managers. TFFC also serves as headquarters for the Toyota ShareLunker program. An average of 58,000 people visit TFFC annually, over 20,000 of those are youth. Special events are held throughout the year to encourage and enhance constituent participation. These numbers result in connections to aquatic resources in Texas, information about Inland Fisheries management and hatchery work and great fishing experiences.

Accomplishments

Open to the public for 308 days in FY12, the Visitor Center provided a high quality experience including facility tours (guided and self guided), workshops and aquatic education classes. The center also provided support materials for the general public, teachers and students. Visitors included 52,845 people from 48 states and 10 foreign countries.

Provided hands-on fishing for 28,392 visitors, with 204 receiving First Fish Awards. A total of 16,806 people visited the hatchery ponds via guided tram tour.

Planned and executed ten major events including Fly Fish Texas, Outdoor Fools Day, Cinco de Mayo, ShareLunker & Hall of Fame Awards Banquet, National Fishing Day and community outreach events such as Halloween at the Hatchery and Fireworks at the Fishery.

Staff and volunteers facilitated numerous educational seminars and workshops open to the general public, including but not limited to fly fishing classes, hunter education classes, wildlife and pond management seminars, and monthly bird and nature walks.

Hosted the 2012 Texas State-Fish Art Contest Awards Ceremony for all Texas winners. All first place winners attended the National State-Fish Art Expo in Little Rock, Arkansas.

Facilitated the annual Wetland Adventure, a three-day event involving more than 100 Stephen F. Austin State University School of Education preservice teachers and hundreds of regional school students.

Provided annual STAAR Academy for Athens ISD students, offering intensive science education classes for high school, fifth grade and eighth grade students. TFFC offers experiential activities to target school-identified weaknesses in standardized tests.

Continued to maintain Facebook pages for TFFC (more than 900 fans) and the Toyota ShareLunker Program (now more than 4,150 fans).

Had a successful Toyota ShareLunker season with 13 ShareLunkers entered:

- Seven identified as pure Florida largemouth bass
- Two spawned, producing 132,791 fry
- Stocked 95,183 fingerlings into nine sites

Organization

The chart for Texas Freshwater Fisheries Center can be found in **Appendix - Organization Charts**.

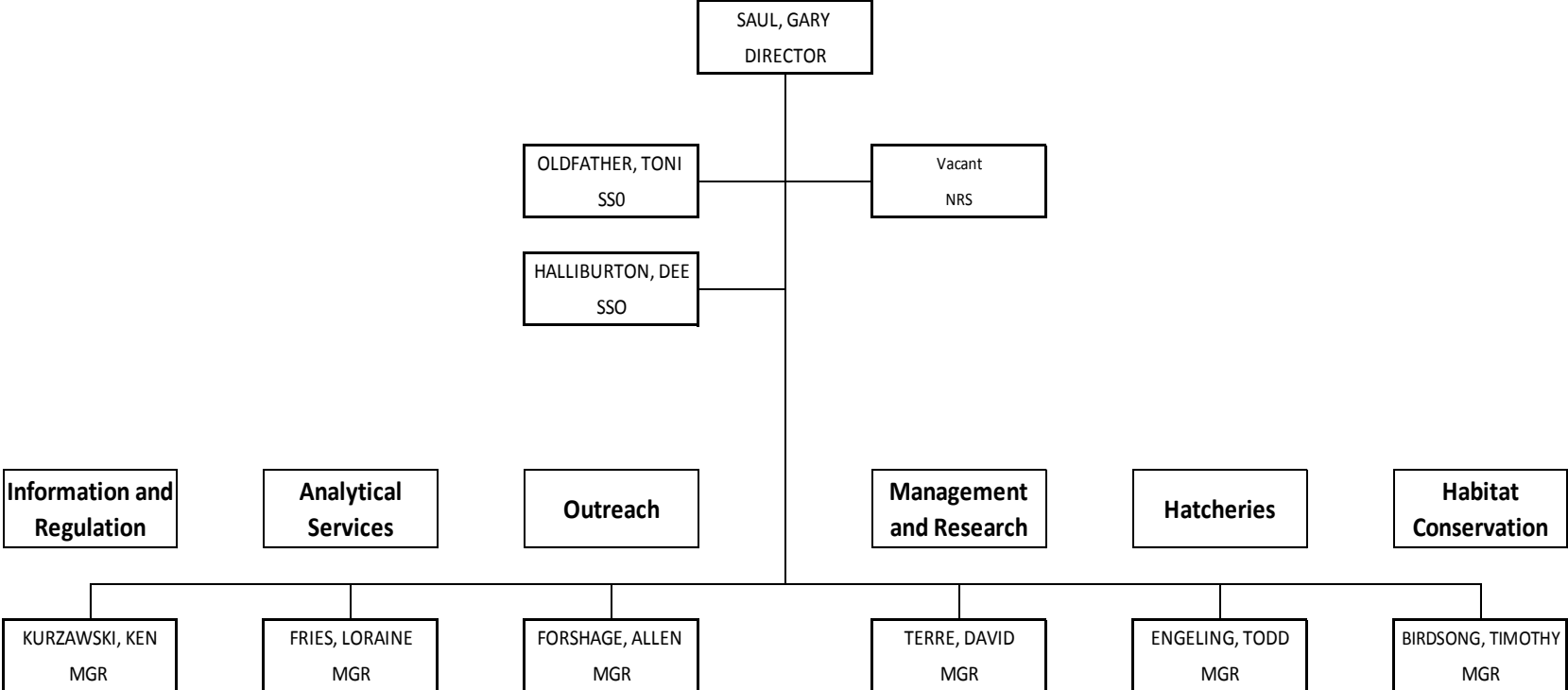
APPENDIX

Organization Charts

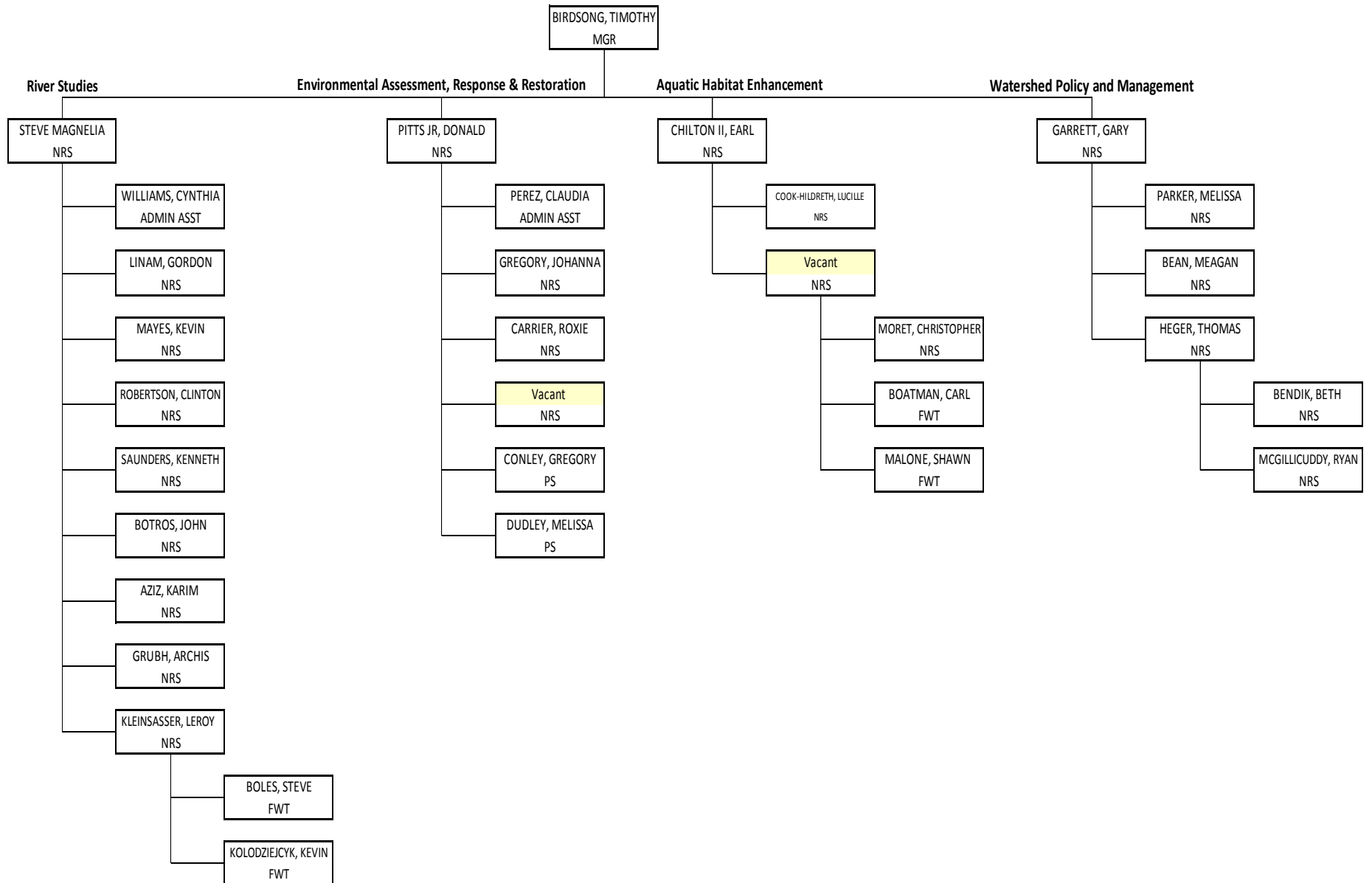
Legend

Abbreviation	Job Title
ADMIN ASST	Administrative Assistant
CHEMIST	Chemist
CLERK	Clerk
FWT	Fish and Wildlife Tech
INFO SPEC	Information Specialist
MGR	Manager
NRS	Natural Resources Specialist
PARK SPEC	Park Specialist
PRG SUP	Program Supervisor
PS	Program Specialist
SSO	Staff Services Officer
WEB ADMIN	Web Administrator

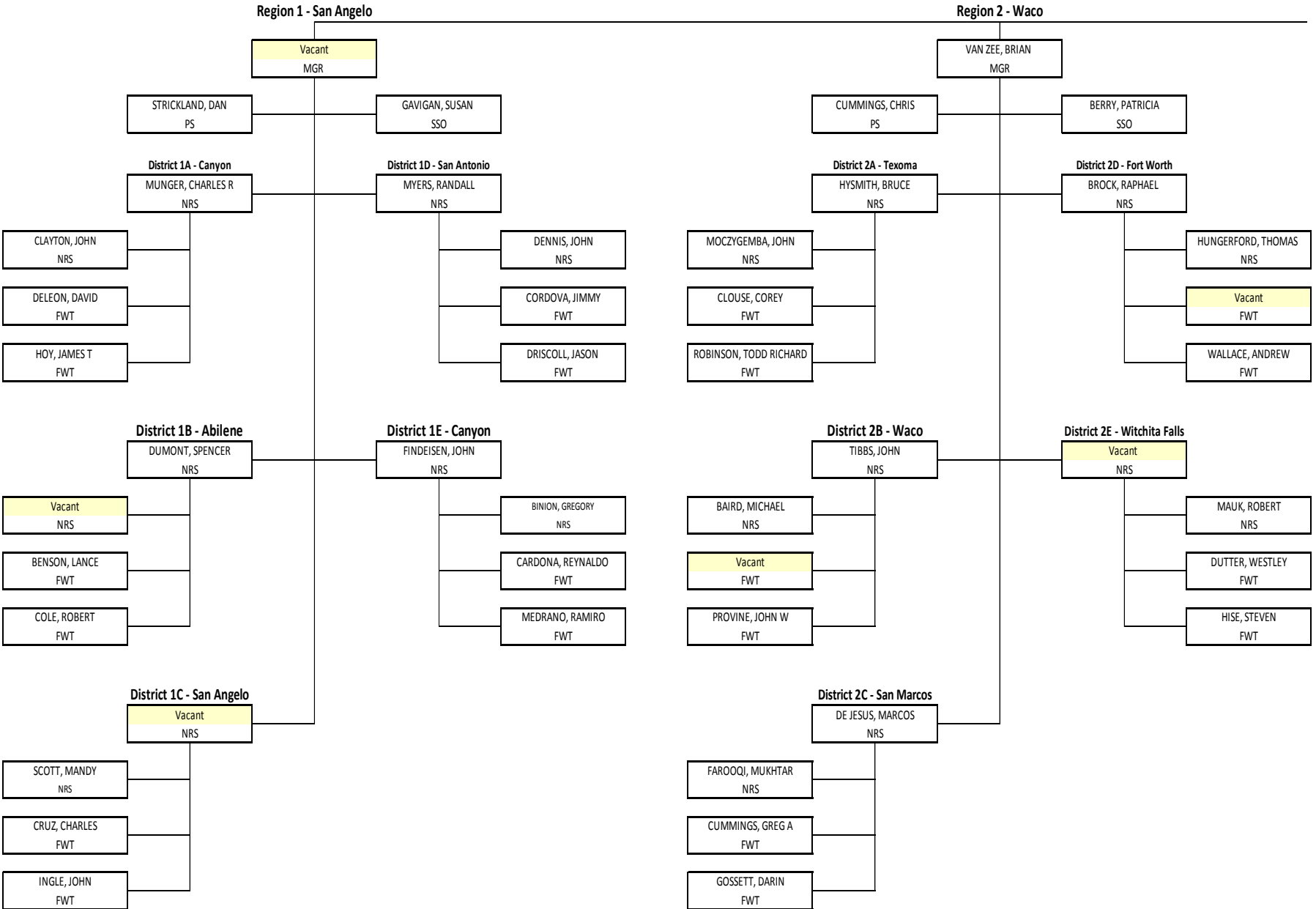
Inland Fisheries Administration



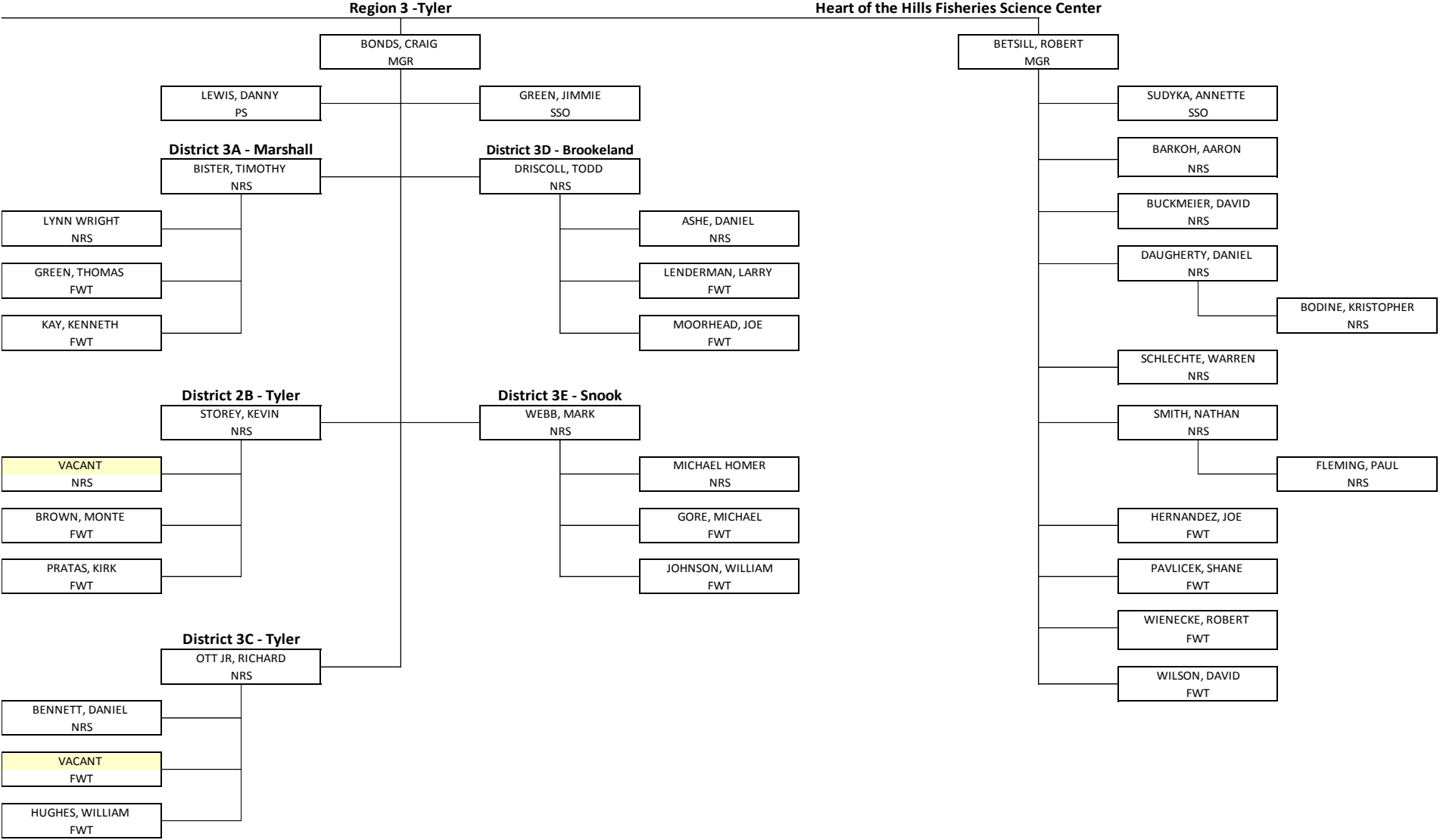
Habitat Conservation



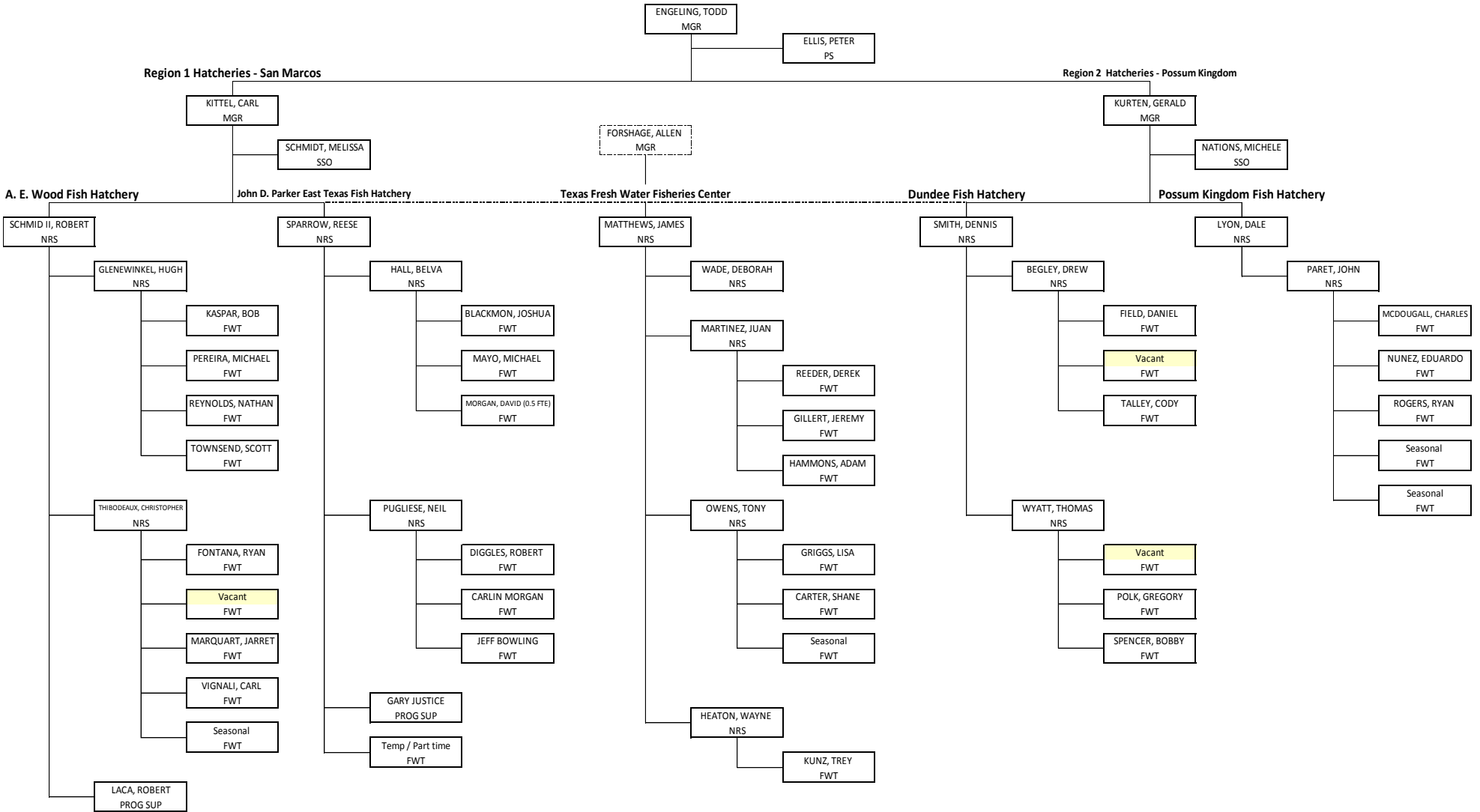
Fisheries Management and Research Regions 1 & 2



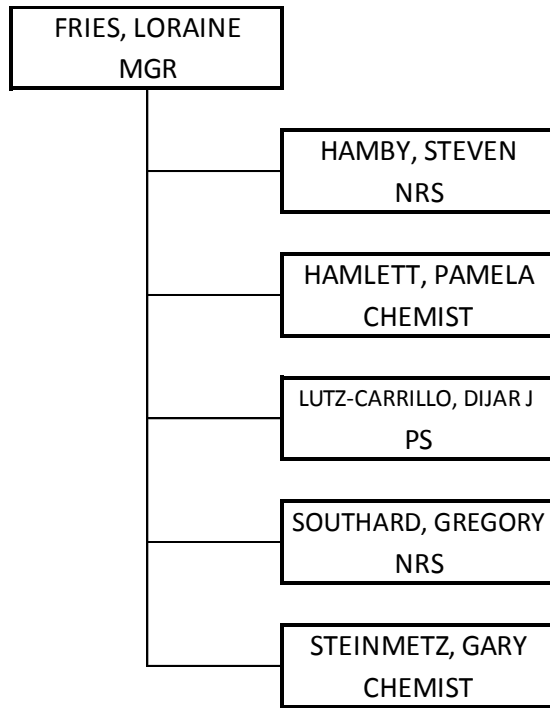
Fisheries Management and Research Region 3 & Heart of the Hills



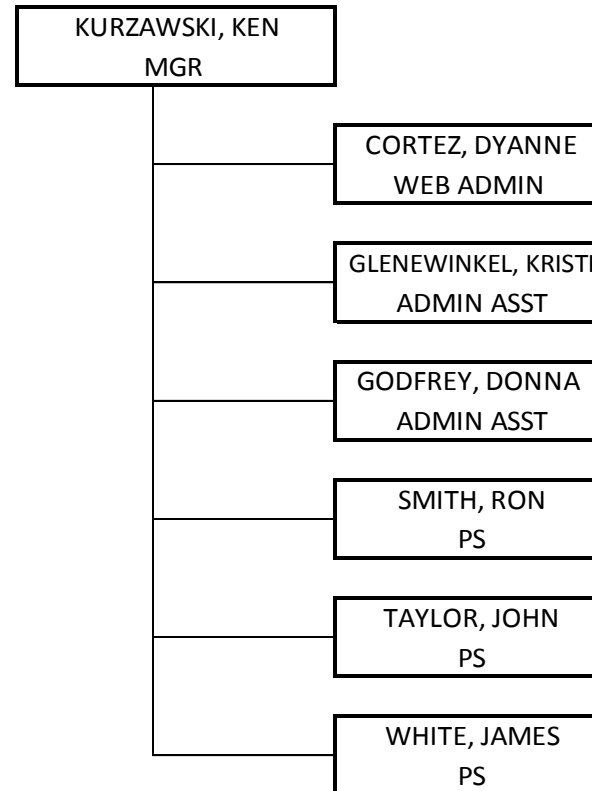
Hatcheries



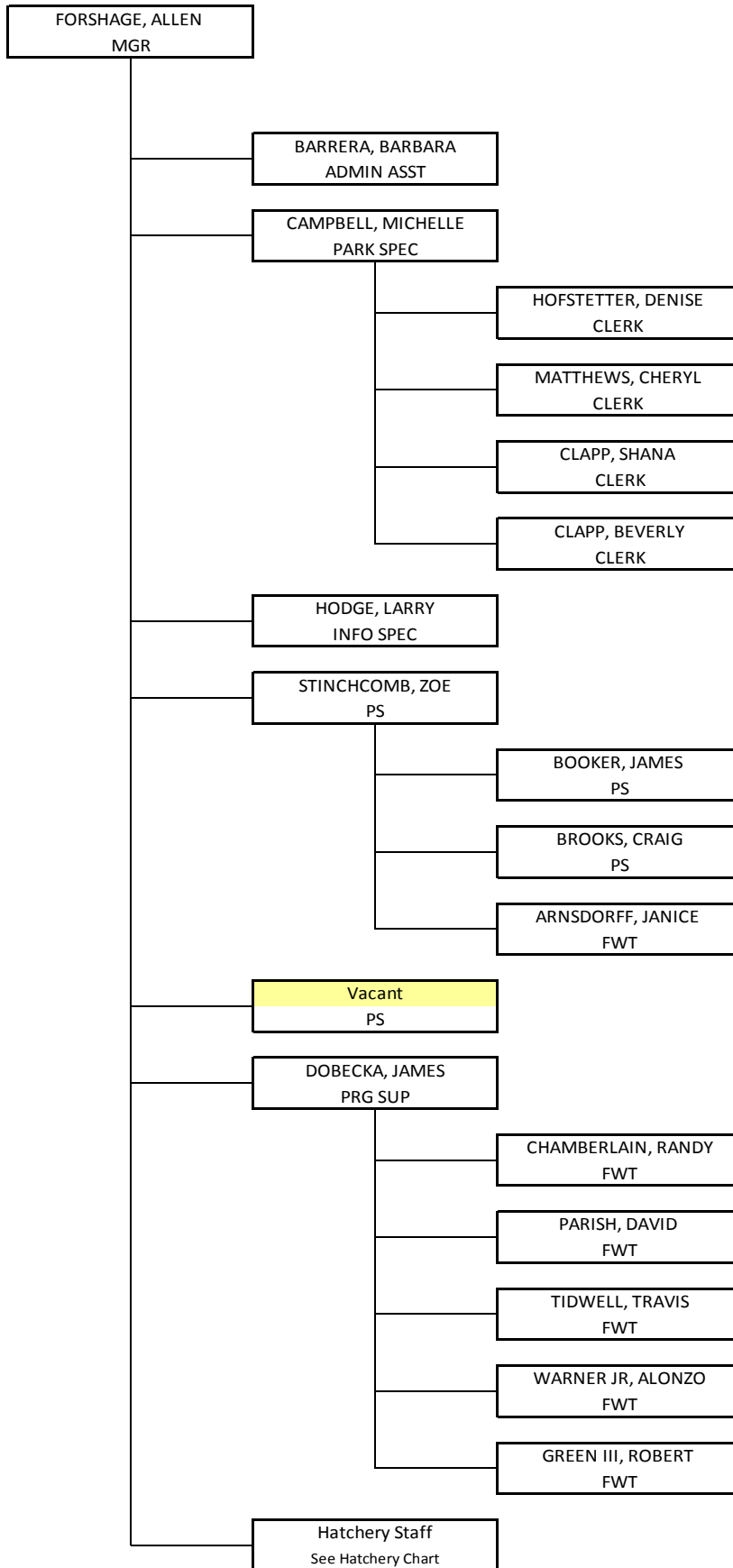
Analytical Services



Information and Regulations



Texas Freshwater Fisheries Center



Surveys Conducted in Public Waters

Reservoir Surveys

Reservoir	Size	Creel	Angler Access	Electrofish	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
75-Acre Lake	75			X						
Abilene	595			X	X					X
Alan Henry	2,884			X	X					
Amistad	63,680	X		X	X					
Aquilla	2,366						X			
Arlington	1,939			X						
Arrowhead	14,969			X	X					X
Ascarate	50			X						
Athens	1,799			X			X			
Austin	1,589			X			X			
B. A. Steinhagen	10,687						X			
Bastrop	906						X			
Beal Park Lake	1								X	
Benbrook	3,635				X					
Big Creek Lake	520			X	X					
Bob Sandlin	9,116			X			X			
Brady Creek Reservoir	2,020								X	
Brandy Branch	1,257			X	X		X			
Bridgeport	11,954								X	
Bringle	199						X			
Brownwood	6,509					X				
Buchanan	22,211			X	X					
Buena Vista Park Lake	1	X								
Buffalo Springs	241		X			X	X			
Bullfrog Pond	1	X								
C. J. Kelly Park Pond	1								X	
Caddo	27,472			X			X			
Calaveras	3,110			X	X					
Canyon	8,308			X	X					
Cedar Creek Reservoir	32,623	X		X	X					X
Central Park Pond #1	2	X								
Choke Canyon Reservoir	25,989			X	X					X
Christoval	50			X						
Cisco	1,050			X	X					X
Coleman City	2,000					X				
Coletto Creek Reservoir	3,100	X	X	X	X					X
Comanche Trails Park (Odessa)	1								X	
Conroe	20,118	X					X			
Cooper Reservoir	19,018			X	X					
Cypress Springs	3,461						X			
Daingerfield State Park	74			X						
Daniel	924									X
Diversion	3,133		X			X	X			
Dunlap	410			X						X
Eagle Mountain	8,505			X						
Fairfield	2,034								X	

Reservoir	Size	Creel	Angler Access	Electrofish	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Falcon	86,843			X	X					X
Fayette County	2,400			X	X					
Fort Phantom Hill	4,213			X	X					X
Gibbons Creek Reservoir	2,770			X			X			
Gilmer Reservoir	1,010	X								
Gladewater City	481						X			
Graham	2,396			X	X					
Granbury	8,310				X					
Granger	4,009		X			X	X			X
Grapevine	6,892		X	X	X	X				X
Greenbelt	2,025	X		X	X					X
Greenbriar Park	3	X								
H-4	696			X	X					X
Hawkins	634			X	X		X			
Holbrook	650		X			X	X			
Houston County	1,330			X			X			
Hubbard Creek Res.	14,922			X	X	X				X
Hurst Chisholm Park	3	X								
Inks	768			X			X			
Iowa Park	325			X						
J. B. Thomas	7,282			X						
Jacksboro	116			X	X					X
Jacksonville	1,208		X				X			
Joe Pool	7,470			X			X			
Kickapoo	6,028									X
Kirby	740			X	X					X
Kurth	726		X				X			
Lady Bird Lake	469			X	X		X			
Lake Corpus Christi	18,256	X			X					
Lake Findley	247		X				X			
Lake Fork	27,264	X		X	X		X			
Lake Georgetown	1,297					X				
Lake O' the Pines	16,269						X			
Lake Pflugerville	180						X			
Lake Wood	229			X	X					X
Lakeside Park	3	X								
Langford Creek	162			X						
Lewisville	29,592	X		X	X					X
Livingston	83,277	X		X	X		X			X
Lone Star	1,516						X			
Lost Creek	368									
Lyndon B. Johnson	6,502		X				X			
Mackenzie	896		X			X	X			
Madisonville	64						X			
Martin Creek Reservoir	4,981		X				X			
Mary Jo Peckham Park	5	X								
McClellan	339				X					X
Meadow Lake	59	X								
Medical Center South	7	X								

Reservoir	Size	Creel	Angler Access	Electrofish	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Medina	5,410		X			X				
Meredith	16,411				X					
Mesquite City Lake	5	X								
Mexia	897			X	X		X			
Millers Creek	1,794	X		X	X					X
Miller's Pond	6	X								
Monticello	2,001	X		X	X		X			
Moss	1,140			X						
Nacogdoches	2,212		X				X			
Nacouche	692		X	X		X	X			X
Nasworthy	1,380			X						
Navarro Mills	5,061		X				X			
Nocona	1,362		X	X	X	X	X			X
O. H. Ivie	19,149	X		X			X			X
Old Winters	309			X	X					X
Palestine	25,560			X	X					
Palo Pinto	2,399	X		X	X					X
Pat Cleburne	1,558			X	X		X			X
Pat Mayse	5,940		X			X	X			
Pickens Lake	30						X		X	
Pinkston	447	X	X	X	X		X			
Placid	198		X				X			
Purtis Creek State Park	349		X	X			X			
Quitman	799			X			X			
Raven	204			X			X			
Ray Hubbard	22,745			X			X			
Ray Roberts	25,600		X	X	X	X	X	X	X	X
Sam Rayburn	114,500	X		X			X			
San Augustine City	200		X				X			
Sheldon	1,230						X			
Somerville	11,456						X			
South Lakes Park Pond	4	X								
South Weeks	1	X								
Southside Lions Park	8	X								
Stillhouse Hollow	6,429						X			
Striker Reservoir	1,920		X				X			
Sweetwater	630	X								
Texoma	74,686			X	X				X	
Timpson	223		X				X			
Toledo Bend	181,600	X	X	X	X		X			
Tom Bass I	1	X								
Tom Bass III	15			X						
Tradinghouse Creek	1,793						X			
Tucker	68			X	X					X
Twin Buttes	9,080			X						X
TXU Contract Lake #1	110						X			
Tyler East	2,276	X	X	X	X		X			X
Tyler State Park	65		X				X			
Tyler West	2,224	X	X	X	X		X			X

Reservoir	Size	Creel	Angler Access	Electrofish	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Victor Braunig	1,350			X	X					
Waco	8,465	X		X	X		X			X
Walter E. Long Reservoir	1,269						X			
Weatherford	1,158		X	X	X	X	X			X
Welsh	1,334		X	X	X	X	X			
Wheeler Branch Res.	180			X	X					
White River Reservoir	1,418			X						
White Rock Lake	1,088		X	X	X	X				X
Whitney	23,560			X	X		X			
Winters-Elm Creek	316			X	X					X
Wright Patman	20,143						X			
Totals	1,289,277	36	32	83	58	18	70	0	9	38

River and Stream Surveys

River Basin	Miles	Affected River Reach	Category	Objective	Methods
Brazos	290	Middle and lower Brazos River	Biological and habitat survey	Developed flow-ecology relationships for fish to support instream habitat analysis	Seine, electrofish, water quality, habitat, and hydrology sampling
Brazos	160	Middle Brazos River between Possum Kingdom and Whitney reservoirs	Native fish conservation	Survey fishes to find native cyprinids and assess current populations	Seining
Brazos	290	Upper and Lower Brazos River	Native fish conservation	Rescue and hold native minnows at Possum Kingdom fish hatchery for reproductive studies and repatriation efforts	Stocked 750 minnows
Brazos	30.5	Proposed Cedar Ridge Reservoir project reach	Technical guidance	Provided technical oversight	Technical review
Cypress	0.2	Big Cypress, Little Cypress, and Black Cypress bayous; Caddo Lake	Technical guidance	Identify instream flow regimes and Caddo Lake water levels	Collaborative process
Guadalupe		Main stem and tributaries	Biological, habitat, and water quality surveys	Plans for baseline sampling in the lower Guadalupe River were developed in consultation with TIFP study partners and the Guadalupe-Blanco River Authority	Technical review
Guadalupe	0.1	Lower Canyon Reservoir gorge	Habitat restoration	Reduce potential for sediment transfer into the Canyon Reservoir tailrace	Native aquatic plant installation
Guadalupe	11	Canyon Reservoir tailrace	Habitat restoration	Map instream habitat to guide habitat improvement projects for rainbow trout	Geo-referenced sidescan sonar mapping
Guadalupe	11	Canyon Reservoir tailrace	Economic impact	Determine economic impact of Guadalupe River Trout Unlimited on Canyon Reservoir tailrace trout fishery	Web-based survey
Guadalupe	10	Upper Blanco River	Native fish conservation	Re-establish pure Guadalupe bass population in areas where hybridized individuals had been removed	Stocked pure Guadalupe bass fingerlings
Guadalupe/San Antonio	167	Reaches of San Marcos, lower Guadalupe, and San Antonio rivers	Native aquatic species conservation	Determine habitat requirements for the state threatened golden orb mussel species for use in habitat modeling	Quantitative mussel survey
Llano	23	South Llano River from headwaters to Junction, Texas	Native fish conservation	Continued genetic restoration efforts for Guadalupe bass	Stocked pure Guadalupe bass fingerlings
Neches		Proposed Columbia Reservoir project reach	Technical guidance	Developed proposed methodology for determining compensatory mitigation requirements for Columbia Reservoir project	Technical guidance
Nueces	1.5	Nueces River at Laguna and Three Rivers and Frio River	Hydraulic habitat survey	Collected data for instream habitat modeling for Nueces BBEST process; relates to Senate Bill 3	Surveying and hydrologic assessment
Rio Grande		Alamito Creek	Habitat restoration	Developed native fish habitat restoration project and acquired funding through DFHP	Technical guidance
Rio Grande		McKittrick Creek	Native fish conservation	Evaluate feasibility of reintroducing Rio Grande cutthroat trout	Seine and visual assessment

River Basin	Miles	Affected River Reach	Category	Objective	Methods
Rio Grande		Lower Rio Grande	Native fish conservation	Established permanent cross-sections within Big Bend National Park and the lower canyons of the Rio Grande Scenic River as part of Big Bend National Park inventory and monitoring efforts to complement the Rio Grande silvery minnow reintroduction project	Surveying and hydrologic assessment
Rio Grande	55	Lower Pecos River	Native fish conservation	Conducted regional fish assemblage collections, discharge, and water quality measurements associated with spring inputs	Seine, discharge, and technical guidance
Rio Grande		Salt Creek	Native fish conservation	Conducted quarterly monitoring of Pecos pupfish in Salt Creek, including genetic analysis by the AE Wood analytical services lab	Sampling, genetics assessment
Rio Grande	4.6	Pinto Creek	Native fish conservation	Evaluated habitat utilization and variables affecting reproduction of the Devils River minnow	Electrofishing, seining, and geo-referenced aerial mapping
Rio Grande	20	Devils River	Sport fish enhancement and native fish conservation	Conducted a fisheries survey of the river for monitoring purposes	Angling CPUE and seines
Rio Grande	94	Devils River	Sport fish enhancement and native fish conservation	Produced a standardized aquatic sampling methodology for long-term monitoring of the fishery	Technical guidance
Rio Grande	10	Devils River	Native fish conservation	Surveyed river adjacent to Devils River Ranch south unit for populations of <i>Cyprinodon eximius</i>	Seining
Sabine	14.9	Main stem and tributaries	Fish kill/pollution investigation	Investigated fish kills and pollution complaints, documented impacts, and provided guidance on clean-up techniques	American Fisheries Society Guidelines
Sabine	146	Lower Sabine River downstream of Toledo Bend Reservoir	Technical guidance	Provided technical expertise and comment during the Federal Energy Regulatory Commission relicensing of the Toledo Bend hydropower project	Technical guidance
Sabine	146	Lower Sabine River downstream of Toledo Bend Reservoir	Biological, habitat, and water quality survey	Launched a radio-tracking study of blue sucker, a state threatened species, in the lower Sabine River.	Electrofishing, acoustic and radio telemetry
Sabine	90	Lower Sabine River between Bon Wier and Orange, Texas	Biological and habitat survey	Determine distribution and abundance of mussels in the lower Sabine River	Quantitative mussel survey
San Antonio	282	Lower San Antonio River	Instream flow survey	Conducted seasonal biological and habitat sampling in support of the ongoing instream flow study	Seine, electrofishing, drift net, water quality, and hydrology sampling
San Antonio/ Lower Guadalupe		San Antonio River (Falls City and Goliad) and Guadalupe River (Seguin and Cuero)	Fish and Macroinvertebrate biology	Quantify relationships between organic drift (larval fishes, macroinvertebrates, and coarse particulate organic matter) and discharge under base flow conditions and various tiers of pulse flows	Drift net, seine

River Basin	Miles	Affected River Reach	Category	Objective	Methods
Sulphur	9.5	Main stem and tributaries	Fish kill/pollution investigation	Investigated fish kills and pollution complaints, documented impacts, and provided guidance on clean-up techniques	American Fisheries Society Guidelines
Trinity	32.1	Main stem and tributaries	Fish kill/pollution investigation	Investigated fish kills and pollution complaints, documented impacts, and provided guidance on clean-up techniques	American Fisheries Society Guidelines
Trinity		Lower Trinity River, downstream from Livingston Reservoir	Technical guidance	Provided technical expertise and comment during the Federal Energy Regulatory Commission licensing process for a proposed hydropower project	Technical guidance
Trinity	200	Middle Trinity River, upstream from Livingston Reservoir	Biological, habitat, and water quality surveys	With partner agencies, conducted baseline biological sampling in six reaches preparatory to scoping an instream flow study that will commence in 2013	Multiple gears
Statewide		Rivers and streams in a 24-county area within the historical range of Guadalupe bass	Economic Impact	Determine the direct expenditures and economic impact of anglers fishing for Guadalupe bass in target area	Web-based survey
Statewide		Statewide	Biological, habitat, and water quality surveys	Updated historic surveys of the Texas Least Disturbed Streams Project and surveyed additional streams; information will be used for developing reference conditions for assessment	Electrofishing and seines
Statewide		Statewide	Outreach	Provided public information on river and stream ecosystems at the Toyota Texas Bass Classic	Display booth
Statewide		Statewide	Technical guidance	Provided technical guidance to Senate Bill 3 Science Advisory Committee, Expert Science teams, and stakeholder groups in the Nueces, Rio Grande and Brazos river basins	Technical guidance
Statewide		Statewide	Technical guidance	Provided technical guidance in water rights evaluations for proposed reservoirs	Technical guidance
Statewide		Statewide	Technical guidance	Explored uses of unmanned aerial vehicle technology to evaluate potential applications in support of TPWD fish and wildlife management programs	Workshop
Statewide		Statewide	Technical review	Performed field investigations and made recommendations to issuances of TPWD "Sand and Gravel" permits to assure activities would not adversely affect fish and wildlife resources or recreation opportunities on Texas rivers and streams	Technical review
Statewide		Statewide	Technical review	Provided technical guidance on ecological risk assessments and participated in a workgroup to update guidance on the conduct of ecological risk assessments under the Texas Risk Reduction Program	Technical guidance

Stocking Reports

Inland Fisheries Hatchery Stockings by Species

Species	Adult	Fingerling	Fry	Total
Blue catfish	41	105,810		105,851
Bluegill	545	85		630
Channel catfish		505,697	337,308	843,005
Florida largemouth bass	480	7,926,177	83,277	8,009,934
Guadalupe bass		209,343		209,343
Palmetto Bass		6,605		6,605
Rainbow trout	284,032	140		284,172
Red drum		423,824		423,824
Redear sunfish		5		5
ShareLunker largemouth bass	184	102,298		102,482
Sharpnose shiner	372			372
Smalleye shiner	372			372
Smallmouth bass		20,225		20,225
Striped bass		252,640		252,640
Sunfishes-mixed spp.		240		240
Sunshine bass		75,000		75,000
Triploid grass carp	11,369	450		11,819
Walleye			2,000,000	2,000,000
Grand Total	297,395	9,628,539	2,420,585	12,346,519

Waterbody	Blue catfish	Bluegill	Channel catfish	Florida Largemouth bass	Guadalupe bass	Palmetto Bass	Rainbow trout	Red drum	ShareLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass	Walleye	Triploid grass carp	Redear sunfish	Sharpnose shiner	Smalleye shiner	Sunfishes, mixed	Total
Dixieland			2,514																2,514
Converse North Park City Lake			970																970
Fannin Lake			3,762																3,762
Nueces			2,004																2,004
Lake Melton			319																319
Balmorhea			4,422																4,422
Marble Falls			211,835																211,835
Texoma			200																200
Penick Park Pond (White Oak)			50																50
Texana			106,229																106,229
Nolte (Meadow)			49,833																49,833
Flatrock			12,239																12,239
Ingram			15,461																15,461
Harper Community Park Lake			150																150
Fisherman (Contract Lake)				2,060					11,948										14,008
Cisco				128,770															128,770
Veterans Park (White Settlement)				211															211
White Settlement Duck Pond				179															179
Coleman City (Coleman County)				104,477															104,477
Millers Creek				87,759		6,605													94,364
White River Reservoir				37,067									1,620,000						1,657,067
Leon				175,182															175,182
Bellwood				8,531					8,429										16,960
Blanco River					103,293														103,293
Pena Colorado							1,850												1,850
West Guth Park Pond (Corpus Christi)							502												502
Brazos River																372	372		744
Hay Meadow Spring																		150	150
West Bull Slough																		90	90
Lake Pflugerville														450					450
Grand Total	105,851	630	843,005	8,009,934	209,343	6,605	284,172	423,824	102,482	20,225	252,640	75,000	2,000,000	11,819	5	372	372	240	12,346,519

Research and Special Projects

Heart of the Hills Fisheries Science Center

Dan J. Daugherty and Nathan G. Smith

Title: Modeling effects of year-class frequency and life history on sport fishery metrics.

Objective: Determine the effect of the frequency of strong year-classes on fishery characteristics for three life-history strategies of fishes (short-, intermediate- and long-lived) using simulation modeling of three model sport species.

Nathan G. Smith, Dan J. Daugherty, and David L. Buckmeier

Title: Relation between reservoir hydrology and year-class strength of sport and forage fishes.

Objective: To correlate year-class strength of sport and forage fish species with hydrologic variables in multiple reservoirs throughout the Colorado River watershed.

Nathan G. Smith

Title: Striped bass stocking evaluation of Lake Livingston and Livingston Tailrace.

Objectives: Determine survival, growth, and diet of striped bass fingerlings in Lake Livingston and Livingston Tailrace from time of stocking until fall dispersal, evaluate the contribution of each stocking group captured as adults, and quantify the extent of natural reproduction in Livingston Tailrace and the lower Trinity River by estimating YOY abundance and evaluating proportion of adult spawners.

David L. Buckmeier, Nathan G. Smith, Dan J. Daugherty, and Clint Robertson

Title: Seasonal movement and habitat use of alligator gar and striped bass in the Trinity River.

Objective: 1) Determine seasonal movement and habitat use of alligator gar and striped bass in the lower Trinity River and 2) identify alligator gar spawning areas in the lower Trinity River.

David L. Buckmeier

Title: Gar age validation and tag retention

Objectives: To 1) Validate annulus formation in otoliths, scales, and pectoral fin rays in gar and 2) Document retention of PIT (passive integrated transponder), CWT (coded wire tag), and Floy T-bar tags in gar for at least one year.

Nate Smith and Paul Fleming

Title: Guadalupe bass restoration: stocking evaluation

Objective: Assessment of remediation stocking to ameliorate Guadalupe bass hybridization in the upper Guadalupe River.

David L. Buckmeier, Nate Smith, Paul Fleming and Kris Bodine

Title: Importance of river-reservoir transition zones for river and reservoir fish communities (Parts I and II).

Objectives (part I): 1. Identify frequency, timing, and hydrologic conditions associated with movement through river-reservoir transitional zones by large-bodied fluvial species. 2. Determine seasonal variability in abundance of other species within river-reservoir transitional zones to identify those using both river and reservoir habitats. 3. Examine diet of migrant predators in transitional zones to determine possible effects on the resident fish community.

Objectives (part II): 1. Map important riverine and tributary habitats used by adult white bass and blue catfish. 2. Characterize meso- and macro-scale physical habitat (e.g., depth, substrate, temperature) used by each species during the spawning season.

Stephan Magnelia, David L. Buckmeier, Warren Schlechte, and Tim Bonner

Title: Evaluation of stream flow and habitat availability for Devil's River minnow in Pinto Creek.

Objective: Assess the instream flow needs of the Devil's River minnow in Pinto Creek.

Dan Daugherty, Kris Bodine, and Greg Binion

Title: Characterization of alligator gar spawning stock abundance, spatial distribution, and exploitation in Choke Canyon Reservoir, Texas.

Objectives: 1) Determine alligator gar spawning stock abundance in Choke Canyon Reservoir, 2) Characterize the spatial distribution of spawning alligator gar in Choke Canyon Reservoir, and 3) Estimate annual, seasonal exploitation rates of alligator gar spawning stock in Choke Canyon Reservoir.

Kris A. Bodine and Paul Fleming

Title: Evaluation of an alternate technique for attaching external radio transmitters to catfishes.

Objectives: 1) Evaluate 30-day and 1-year retention of external radio transmitters fastened to the supraoccipital bone of catfishes and 2) Determine effects of transmitter attachment on growth and mortality of catfishes.

Dan Daugherty and Todd Driscoll

Title: Patch characteristics of artificial, structural habitat enhancement and effects on fish community use.

Objectives: 1) Determine the effect of artificial structure patch configuration on fish utilization, community composition, and size structure, 2) Determine the effect of artificial structure patch size on fish utilization, community composition, and size structure, and 3) Identify patch-level metrics that influence fish use of enhanced habitats.

A. E. Wood Hatchery

Hugh Glenewinkel

Title: Effects of two pond-filling strategies on production of channel catfish fingerlings.

Objective: Determine if stocking channel catfish fry into filling ponds as opposed to holding fry in kettles for seven days before filling negatively affects fish survival, growth and feed conversion efficiency in the production of 75-mm fish.

Aaron Barkoh et al.

Title: Short-term preservation of striped bass milt for fingerling production.

Objectives: To determine if fresh and short-term (1-2-day) preserved striped bass milt will yield the same egg fertilization and fry hatch rates.

Staff

Title: Effect of temperature on largemouth bass *Micropterus salmoides* egg incubation time, hatch rate and fungus *Saprolegnia* spp. colonization.

Objectives: Determine if increasing incubation temperature by 2-5 F above ambient can increase largemouth bass fry production.

Carl Vignali and Hugh Glenewinkel

Title: Effects of acute and chronic elevated pH exposure on survival of koi fry.

Objectives: Determine the effects of acute (instantaneous) and chronic (acclimation) exposure of selected pH levels (9 – 10.5) on survival of 3- to 5-day old koi.

Possum Kingdom Hatchery

Dale D. Lyon et al.

Title: Enumeration of Florida largemouth bass fry: an index for gravimetric estimation of numbers.

Objectives: 1) verify the accuracy of the Jensorter fry counter for enumeration of FLMB fry, 2) document the validity of the current gravimetric index of 275 fry/g used for estimating numbers of largemouth bass fry, or to provide more reliable estimates, if possible.

Dale D. Lyon and Aaron Barkoh

Title: Evaluation of smallmouth bass spawning performance at two stocking densities in indoor concrete raceways.

Objectives: Determine the effect of a 60% higher broodfish stocking density on spawning success of smallmouth bass in indoor concrete raceways.

Dale D. Lyon, Aaron Barkoh, John Paret, Ryan Rogers

Title: Evaluation of the functional potential of ozone-treated water for fingerling fish culture in plastic-lined ponds.

Objectives: 1) Verify the effectiveness of the ozone treatment system at Possum Kingdom Hatchery in eliminating *Prymnesium parvum* cells and toxicity, and 2) evaluate the effects of ozone-treated water used in pond culture of warm water fishes.

Dundee Hatchery

Aaron Barkoh and Thomas Wyatt

Title: pH tolerance by striped bass fry and fingerlings in hard water.

Objectives: To determine for striped bass fry and fingerlings (1) the 96-h LC₅₀ of pH, (2) the maximum pH levels (i.e., pH levels at which 89% of the fish survive) tolerated for 96 h, and (3) the no-effect levels of pH.

Gerald L. Kurten, Aaron Barkoh, Thomas Wyatt, Hugh Glenewinkel, and John M. Paret

Title: Effect of water exchange on fish production and water quality in nine-inch channel catfish fingerling production ponds.

Objectives: Determine the effect of conservative water use and liberal water use on fish production, incidence and severity of disease, water quality, and production costs.

Thomas Wyatt, Aaron Barkoh, and J. Warren Schlechte

Title: Ammonia tolerance by striped bass fry and fingerlings in hard water.

Objectives: Estimate the 96-h LC₅₀ of NH₃-N for striped bass fry and fingerlings, determine the maximum concentrations of NH₃-N (concentrations at which 89% of the fish survives) that striped bass fry and fingerlings can tolerate for 96 h at select pH and temperature, and determine the no-effect-levels (NOEL) of NH₃-N for striped bass fry and fingerlings.

Drew Begley and Ryan Rogers

Title: Standardization of aluminum sulfate (alum) treatments to control pH in *Morone* spp. fingerlings production ponds.

Objective(s): (1) Determine the phenolphthalein alkalinities of pond waters at Dundee and Possum Kingdom State Fish Hatcheries, and (2) Determine the effectiveness of alum treatments in lowering pH and the time required for pH to return to pretreatment levels, and estimate the alum concentration required to decrease pH by 0.5 in 24 h. Verify the 1:1 relationship between phenolphthalein alkalinity and alum treatment rate.

Drew Begley and Aaron Barkoh

Title: Refining a fish model bioassay for managing *Prymnesium parvum* ichthyotoxicity during fingerling *Morone* spp. production.

Objectives: (1) Compare the sensitivities of *Pimephales promelas* fry (fathead minnow; FHM) and *Morone* spp. fry to *P. parvum* ichthyotoxin using bioassays conducted at 18-20 °C and using DADPA cofactor at pH 8.0, 8.5, and 9.0. (2) Develop a bioassay for *P. parvum* ichthyotoxin using *Morone* spp. as test fish. (3) Develop a FHM bioassay for *P. parvum* ichthyotoxin as surrogate for the *Morone* spp. bioassay. The *Morone* spp., striped bass (*M. saxatilis*) and palmetto bass (*M. saxatilis* ♀ x *M. chrysops* ♂), will be used in this study.

Texas Freshwater Fisheries Center

Jim Matthews and Tony Owens

Title: Refinement of alkalinity-adjustment strategies for a recirculating raceway system.

Objectives: Determine the amount of sodium bicarbonate required to optimize nitrification in a recirculating system at the Texas Freshwater Fisheries Center.

Juan Martinez and Tony Owens

Title: Efficacy of supplemental feeding and inoculation of Florida largemouth bass fingerling pond with zooplankton to increase growth and survival.

Objectives: Determine if inoculation and regular supply of zooplankton improves largemouth bass production variables in ponds.

Staff

Title: Comparison of three stocking densities for production of advanced Florida largemouth bass *Micropterus salmoides floridanus* fingerlings.

Objectives: Determine the stocking rate that provides the best survival and production of advanced largemouth bass in ponds.

Fish Health and Genetics Lab

Loraine T. Fries, Greg Southard, and Dijar J. Lutz-Carrillo

Title: Statewide survey of Texas for golden alga *Prymnesium parvum*.

Objectives: To collect baseline statewide prevalence, environmental, and genetics data for *P. parvum*.

Dijar Lutz-Carrillo and Greg Southard

Title: Detection of zebra mussels in the absence of veliger formation.

Objectives: Develop genetic markers for the detection of zebra mussel-specific dissolved DNA from water samples: 1) develop primers and protocols to amplify species-specific DNA fragments from the zebra mussel (*Dreissena polymorpha*) mitochondrial genome; 2) develop and optimize protocols for isolating environmental DNA (eDNA) shed by zebra mussels into the water column; 3) quantify detection levels of zebra mussel eDNA based on the density of zebra mussels in a water body; and 4) quantify the power and error rate of the developed assay at the specified level of sensitivity through a series of blind tests.

Dijar Lutz-Carrillo et al.

Title: Inferred reproductive behavior of captive Guadalupe bass: evolving strategies for genetic conservation and restoration.

Objectives: 1) identify parents of all sampled offspring (Guadalupe bass production over two years); 2) resolve the mating system (behavior and fidelity) of Guadalupe bass in captivity; and 3) evaluate modifications to the crossing strategy (between years) and effects on the effective number of brooders.

Contaminants Lab

Pamela Hamlet and John Tibbs

Title: Organic screening of blue catfish for pharmaceuticals in liver and brain tissue.

Objective: Determine presence of anthropogenic chemicals in blue catfish.

Fisheries Management - Statewide

Michael Baird, Tim Bister, Mukhtar Farooqi, Tom Hungerford

Title: An evaluation of growth of selectively-bred largemouth bass in six Texas reservoirs.

Objective: Compare length and weight of age-4 ShareLunker and resident largemouth bass in six Texas reservoirs.

Management Region 1

John Findeisen

Title: Comparison of catfish catch and harvest among three angling gear types at Choke Canyon Reservoir.

Objectives: To determine catch-per-unit-effort, catch-per-unit-hook-effort, total harvest, and size structure of catfish of three angling gear types at Choke Canyon Reservoir.

Ben Neely and Spencer Dumont

Title: Determination of angler attitudes and perceptions on blue catfish management and implications for system-specific management.

Objectives: Determine the proportion of anglers in the Abilene area who specifically fish for blue catfish. Determine an angler-accepted size for trophy blue catfish in the Abilene area. Determine if area anglers would accept more stringent blue catfish harvest regulations. Make recommendations for future blue catfish management in area fisheries.

John Dennis

Title: Stocking sub-adult northern largemouth bass in a power plant reservoir.

Objectives: 1) determine 72-h post-stocking mortality of the stocked fish, 2) determine the contribution of the stocked fish to the reservoir's largemouth bass population at 8, 20, and 32 months following each stocking, 3) determine the effect of each stocking on largemouth bass abundance, size structure, and genetic composition, and 4) determine the effect of each stocking on the reservoir's fishery.

Randy Myers

Title: Depressurization illness in tournament-caught largemouth bass at Amistad Reservoir and comparison of treatment methods.

Objectives: 1) Determine incidence of depressurization illness (DI) in tournament-weighted largemouth bass and incidence of DI treatment by tournament anglers at Amistad Reservoir, Texas. 2) Determine if DI affects survival of tournament-released largemouth bass by comparing 3-d post-release survival of fish exhibiting DI versus fish not having the condition at Amistad Reservoir, Texas. 3) Determine and compare effectiveness of side-fizzing, mouth-fizzing, and deep-release methods for increasing survival of largemouth bass afflicted with DI by comparing 3-d post-release survival of treated fish versus untreated fish, among treatment methods, and at two water temperatures (60-65 F and 75-80 F). 4) Determine if timing of treatment influences survival of affected fish by comparing 3-d post-release survival between fish treated within 1-h of depressurization and 4-5 h following depressurization. 5) Determine if level of experience in applying fizzing-type DI treatment influences survival of affected fish by comparing 3-d post-release survival between fish treated by trained and non-trained individuals.

Charlie Munger

Title: Harvest and survival of channel catfish in community fishing lakes.

Objectives: Determine survival of stocked 9-inch channel catfish in CFL's. Determine angling and natural mortality rates for channel catfish in CFL's.

John Clayton

Title: Seasonal association between surface water quality, climate variables, and cell counts of *Prymnesium parvum* in the Jim Bertram Lake system (Lubbock).

Objectives: 1) Investigate the relationships between seasonal fluctuations of *P. parvum* cell counts and nutrients (nitrogen and phosphorous), total hardness (calcium hardness and magnesium hardness), turbidity, salinity, water temperature, dissolved oxygen (DO), and pH, 2) Investigate changes in seasonal weather patterns (wind, rainfall and cloud cover) on the above-mentioned water quality parameters, and 3) Document temporal and spatial progression of golden alga blooms within the Jim Bertram Lake system.

Mandy Scott, John Taylor and Jeremy Leitz

Title: Effectiveness of a constituent-led marketing campaign targeting non-traditional anglers in an urban area.

Objectives: Collaborate with local Hispanic youth and other community partners to plan and implement a marketing campaign for recruiting non-traditional anglers to the TPWD urban fishing program in San Angelo. Use pre- and post-marketing surveys to evaluate the effectiveness of this type of marketing campaign, and potential for statewide application.

Greg Binion and Muhktar Farooqi

Title: Evaluation of growth and survival of standard hatchery produced and selectively bred Florida largemouth bass: Implications for stocking success and efficiency.

Objectives: 1) Compare differences in growth between standard hatchery offspring (HOS) Florida largemouth bass (FLMB) and selectively bred Luncker offspring (LOS) derived from the Toyota ShareLunker Program. 2) Quantify relative survival of fingerling HOS and LOS.

Management Region 2

Bruce Hysmith

Title: Largemouth bass exploitation in Amon G. Carter Reservoir, Texas: would changing harvest regulations be successful?

Objectives: 1) Estimate total annual exploitation adjusted for tournament mortality of largemouth bass in Amon G. Carter Reservoir; and 2) Assess potential of alternative largemouth bass harvest regulations.

John Tibbs, Rick Ott, and Tom Hungerford

Title: Evaluation of an experimental 30"-45" slot length limit for blue catfish in three Texas reservoirs.

Objectives: 1) Quantify winter jugline effort for blue catfish, before and after the regulation is enacted. 2) Measure attitude and opinions of jugline anglers, as well as the economic impact of the fishery, before and after the regulation is enacted. 3) Measure attitude and opinions of pole-and-line anglers, as well as the economic impact of the fishery, after the regulation is enacted. 4) Measure size structure of pole-and-line angler harvest before and after the regulation is enacted. 5) Measure size and age structure of jugline harvest before and after the regulation is enacted. 6) Measure size and age structure of blue catfish samples collected by low pulse DC before and after the regulation is enacted. 7) Determine if blue catfish contaminants are above action levels in three different size ranges.

Robert Mauk

Title: Wichita River monitoring in response to microfiltration/reverse osmosis plant discharge.

Objectives: 1) Determine if there are changes in fish and benthic assemblages in a segment of the Wichita River in response to point source discharge of reject water from the City of Wichita Falls new microfiltration/reverse osmosis treatment plant; 2) Assess changes in Wichita River water chemistry that could affect fish and other aquatic resources during the study period; and 3) Determine if there is any enhancement of golden alga risks in the study area as a result of potential changes in water chemistry.

Michael Baird

Title: Population assessment of the Alligator gar *Atractosteus spatula* in the lower Brazos River, Texas.

Objective: 1) Estimate alligator gar population abundance and size structure in the lower Brazos River.

Robert Mauk

Title: Angler characteristics, catch, and harvest for Neighborhood Fishin' Program Lakes.

Objectives: 1) Determine if the Neighborhood Fishing Program is meeting stated goals in terms of percentage of children participating, and creation of new anglers. 2) Examine NFP angling participation, catch, and harvest throughout the year, to determine if fish stocking schedules and rates can be altered to better meet temporal demand/expectations. 3) Examine angler catch using percent-of-success as an index. 4) Determine angler expectations in terms of catch and harvest of stocked fish.

Greg Cummings

Title: Habitat association of rainbow trout in the Canyon reservoir tailrace.

Objectives: 1) Integrate channel topography, instream cover and substrate delineations to develop highly accurate hydrodynamic models for assessing habitat quantity and quality. 2) Determine rainbow trout habitat availability and association. 3) Evaluate accuracy and effectiveness of side scan sonar for habitat mapping in the tailrace.

Management Region 3

Todd Driscoll

Title: Annual economic value of recreational angling at Sam Rayburn Reservoir with emphasis on black bass tournaments.

Objectives: 1) Estimate annual number of black bass tournaments and associated participants at Sam Rayburn Reservoir; 2) Estimate annual direct expenditures, recreational value, and economic impact of black bass tournaments to Texas and counties surrounding Sam Rayburn Reservoir; and 3) Estimate total annual direct expenditures, recreational value, and economic impact of black bass tournaments to Texas and counties surrounding Sam Rayburn Reservoir.

Kevin Storey

Title: A case history of Lake Fork: Texas' premier trophy largemouth bass fishery.

Objectives: To create a manuscript that chronicles the history of Lake Fork, and provides the following lessons to fisheries managers throughout the southeast: 1) To document the application of innovative techniques in the planning of Lake Fork and the subsequent development of a trophy largemouth bass fishery, 2) to demonstrate the ineffectiveness of traditional fisheries and creel sampling for collecting data on trophy largemouth bass and the identification of alternative methods, and 3) the development and promotion of non-traditional techniques in competitive bass fishing tournaments.

Aaron Jubar

Title: The Lake Fork trophy bass survey.

Objectives: 1) To annually monitor angler catches of trophy-size largemouth bass (> 7 pounds and/or 24 inches) at Lake Fork Reservoir through a volunteer angler reporting program held in cooperation with the Lake Fork Sportsman's Association and Lake Fork Chamber of Commerce; 2) Foster cooperative work relationships between sponsoring organizations, area businesses, local fishing guides, and Lake Fork anglers; 3) Use angler catch data to help publicize, promote, and educate anglers about trophy bass fishing opportunities at Lake Fork Reservoir; and 4) Use angler catch data, in conjunction with results of standardized population and creel surveys, to monitor trends in Lake Fork's largemouth bass fishery and to help evaluate management programs.

Mark Webb

Title: Texas Parks and Wildlife habitat establishment initiative.

Objectives: 1) Determine aquatic plants suitable for habitat enhancement in Texas reservoirs; 2) develop techniques for establishing founder colonies in Texas reservoirs; and 3) monitor survival, growth and spread of founder colonies.

Dan Ashe

Title: Contribution, growth, and diet of stocked largemouth bass in two aquatic vegetation types in Toledo Bend Reservoir.

Objectives: 1) Estimate percent contribution, growth, and diet of stocked largemouth bass fingerlings in two aquatic vegetation types.

Dan Bennett

Title: Estimating harvest and catch rates of alligator gar (*Atractosteus spatula*) from Trinity River bow fishing tournaments.

Objectives: 1) Estimate tournament effort, harvest rate, size distribution and harvest of alligator gar from bow fishing tournaments on the Trinity River. 2) Collect contact information, fish aging structures, and fish tissue samples provided by anglers targeting alligator gar.

Craig Bonds, Juan Martinez, Tony Owens, and Allen Forshage

Title: Comparison of growth, diet and survival of 6" pellet-reared versus minnow-reared LMB.

Objectives: 1. Determine survival rates of 6-inch largemouth bass (OWR) reared on synthetic diet (pellets) and natural diet (minnows) and stocked (25/acre, minimum; 50/acre, maximum) in a 20 acre lake. 2. Determine performance (growth, body condition, food habits, and vulnerability to angling) of 6-inch pellet-reared and minnow-reared largemouth bass and stocked (25/acre) in a 20 acre lake. 3. Determine cost to raise 6-inch largemouth bass using either pellets or minnows.

Dan Bennett and Tim Bister

Title: Evaluating the Efficacy of Mapping Underwater Macrophyte Distribution, Structural Habitat, and Fish Assemblages Using Low-cost Side Scan Sonar.

Objectives: 1) Evaluate the suitability of side scan sonar imagery to produce detailed georeferenced maps within a GIS to identify and define coverage of submerged macrophyte distribution in impoundments. 2) Determine the efficiency, accuracy, and relative cost effectiveness of using side-imaging sonar to produce a map product.

Presentations, Articles and Publications

Technical Presentations

- Bean, P. T., D. J. Lutz-Carrillo, and T. H. Bonner. Population genetic structure of the Guadalupe bass *Micropterus treculii*. Annual Conference of the American Fisheries Society. Seattle, WA, September 2011.
- Bennett, D. Angler effort and harvest characteristics relevant to alligator gar before and after a one-fish-per-day creel limit at annual bow-fishing tournaments on the Trinity River, Texas. Southern Division American Fisheries Society Annual Meeting, Biloxi, MS.
- Bennett, D. B. Using recreation grade side-imaging sonar to produce classified maps of submerged macrophyte distribution in a Geographic Information System. Texas Aquatic Plant Management Society, Bandera.
- Buckmeier, D. L., and N. G. Smith. 2012. Accuracy and precision of alligator gar age estimates from otoliths, pectoral fin rays, and scales. Annual Meeting of the Southern Division of the American Fisheries Society, Biloxi, MS, January 29.
- Buckmeier, D., N. Smith, P. Fleming, and K. Bodine. Temporal trends in fish assemblages within river-reservoir interfaces: implications for conservation and management. Annual meeting of the Texas Chapter of the American Fisheries Society, Galveston, TX, February 11.
- Daugherty, D. J., and N. G. Smith. 2012. Effects of strong year-class frequency on fishery dynamics for three life-history strategies of fishes. Annual Meeting of the Southern Division of the American Fisheries Society, Biloxi, MS, January 29.
- Dennis, J. 2012. Barotrauma in tournament largemouth bass at Amistad Reservoir and comparison of treatment methods. Annual meeting of the American Fisheries Society, Minnesota.
- Forshage, A. and D. J. Lutz-Carrillo. Florida largemouth bass in Texas: an exception to the rule. Annual Conference of the American Fisheries Society. Seattle, WA, September 2011.
- Glenewinkel, H. 2012. Koi carp as hatchery brood fish forage. The 2012 Midcontinent Warm Water Fish Workshop, Overland Park, Kansas, February 6-8.
- Grabowski, K., B. Betsill, D. Lawson, and R. Patiño. Land use practices in the Upper Colorado River and Concho River basins 1985-2011: associations with golden alga blooms. Annual Meeting of the Texas Chapter of the American Fisheries Society, Galveston, TX, February 11.
- Hamlett, P. Occurrence of Endocrine Disruptor Compounds in Earthworms from Land Applied Biosolids. TPWD Water Quality Team meeting, October 2011.
- Kittel, C., R. Laca, R. Schmid, C. Thibodeaux, and C. Vignali. 2012. Safe eco-driving. The 42nd Annual Texas Aquaculture Association Conference and Trade Show, Bay City, TX, January 27.
- Kittel, C., R. Laca, R. Schmid, C. Thibodeaux, and C. Vignali. 2012. Safe eco-driving. The 2012 Midcontinent Warm Water Fish Workshop, Overland Park, Kansas, February 6-8.

- Ott, R. A. Sampling reservoir catfishes by gill net: the Texas perspective. Southern Division American Fisheries Society Annual Meeting, Biloxi, MS.
- Schmid, R. Thirty years in aquaculture. Aquaculture America 2012, Las Vegas, NV, March 1.
- Southard, G. M., L. T. Fries, and A. Barkoh. Oxidizing golden alga: controlling *Prymnesium parvum* cell density and toxicity using hydrogen peroxide. Annual Meeting of the Texas Chapter of the American Fisheries Society, Galveston, TX, February 11.
- Southard, G.M., L.T. Fries, and A. Barkoh. Effects of oxidative compounds on golden alga *Prymnesium parvum* (Haptophyta) cell density and toxicity. Poster presentation at the 6th Symposium of Harmful Algae in the U.S., Austin, TX.
- VanLandeghem, M., R. Patiño, M. Farooqi, and G. Southard. Landscape-level associations between water quality and golden alga presence, abundance, and toxicity in reservoirs of West Texas. Presentation at the annual meeting of the Texas Chapter of the American Fisheries Society, Galveston, TX.

Scientific Publications & Reports

- Begley, D. C., A. Barkoh, G. L. Kurten, and L. T. Fries. 2012. Use of aluminum sulfate to reduce high pH in fingerling striped bass production ponds fertilized with nitrogen and phosphorus to control *Prymnesium parvum*. Management Data Series 274. Texas Parks and Wildlife Department, Austin.
- Bodine, K. A., D. L. Buckmeier, J. W. Schlechte, and D. E. Shoup. 2011. Effect of electrofishing sampling design on bias of size-related metrics for blue catfish in reservoirs. Pages 607-620 in P.H. Michaletz and V.H. Travnichek, editors. Conservation, ecology, and management of catfish: the second international symposium American Fisheries Society, Symposium 77, Bethesda, Maryland.
- Buckmeier, D. L., and K. S. Reeves. 2012. Retention of passive integrated transponder, T-bar anchor, and coded-wire tags in Lepisosteids. North American Journal of Fisheries Management 32:573-576.
- Daugherty, D. J., J. W. Schlechte, R. Wienecke. 2011. Selection of interstice size by juvenile flathead catfish. Pages 485-493 in P.H. Michaletz and V.H. Travnichek, editors. Conservation, ecology, and management of catfish: the second international symposium American Fisheries Society, Symposium 77, Bethesda, Maryland.
- Fleming, B.P., D.G. Huffman, T.H. Bonner, and T.M. Brandt. 2011. Metacercarial distribution of *Centrocestus formosanus* among fish hosts in the Guadalupe River drainage of Texas. Journal of Aquatic Animal Health 23:117-124.
- Glenewinkel, H., A. Barkoh, T. Engeling, L. Hall, J. Paret, and T. Owens. 2011. Guidelines for the culture of black bass. Management Data Series 267. Texas Parks and Wildlife Department, Austin.

- Lyon, D. D., A. Barkoh, and W. Pires, Jr. 2011. Enumeration of Florida largemouth bass fry: verification of an index for estimating numbers. Management Data Series 268. Texas Parks and Wildlife Department, Austin.
- Munger, C. 2012. Survival and harvest of channel catfish in two community fishing lakes. Management Data Series 270. Texas Parks and Wildlife Department, Austin.
- Neely, B. C. and S. C. Dumont. 2011. Effect of soak duration on precision of channel catfish catch with baited, tandem hoop nets. Pages 567-561 in P.H. Michaletz and V.H. Travnicek, editors. Conservation, ecology, and management of catfish: the second international symposium American Fisheries Society, Symposium 77, Bethesda, Maryland.
- Sakaris, P. C., D. J. Daugherty, and D. L. Buckmeier. 2011. Validation of daily ring deposition in the otoliths of age-0 blue catfish and flathead catfish. Pages 689-697 in P.H. Michaletz and V.H. Travnicek, editors. Conservation, ecology, and management of catfish: the second international symposium American Fisheries Society, Symposium 77, Bethesda, Maryland.
- Schlechte, J. W., T.O. Smith, and A. Barkoh. 2012. Biological, social, and economic impacts of exempting a largemouth bass fishing tournament from slot length limits at Lake Fork Reservoir. Texas. Management Data Series 272. Texas Parks and Wildlife Department, Austin.
- Webb, M. A., R. A. Ott, Jr., C. C. Bonds, R. M. Smart, G. O. Dick, and L. Dodd. 2012. Propagation and Establishment of Native Aquatic Plants in Reservoirs. Management Data Series 273. Texas Parks and Wildlife Department, Austin.

Popular Articles

- Ashe, D. 2012. The litter bug family goes on a picnic. Lakecaster Vol. 23 No. 9.
- Ashe, D. 2012. Toledo Bend catfish. Lakecaster Vol. 23 No. 7.
- Ashe, D. 2012. Save Money on Fuel. Lakecaster Vol. 23 No. 5.
- Ashe, D. 2012. Acid seeps and fish kills. Lakecaster Vol. 23 No. 3.
- Ashe, D. 2011. Fish Aging. Lakecaster Vol. 23 No. 1.
- Ashe, D. 2011. Fish Habitat and Low Lake Levels. Lakecaster Vol. 22 No. 11.
- Cole, R. 2012. Common crappie misconceptions popular among anglers. Abilene Reporter News.
- Cruz, C. 2012. Rainfall presents a chance to restock. San Angelo Standard Times.
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- Driscoll, M.T. 2012. Approximately 2 million Florida largemouth bass stocked at Sam Rayburn and Toledo Bend. Lakecaster Vol. 23 No. 8.

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Driscoll, M.T. 2011. Mudbugs and Lipless Crankbaits. Lakecaster Vol. 22 No. 12.

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Dumont, S. 2012. Be on the lookout for exotic, invasive zebra mussels. Abilene Reporter News.

Dumont, S. 2012. A bronzeback should be on every angler's fishing bucket list. Abilene Reporter News.

Dumont, S. 2012. Small lakes offer some great summer fishing opportunities. Abilene Reporter News.

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Dumont, S. 2011. Look no further than Lake Abilene for good bass and crappie fishing. Abilene Reporter News.

Dumont, S. 2011. TPWD recommends return to 14-inch limit at Fort Phantom Hill Lake. Abilene Reporter News.

Dumont, S. Texas Parks and Wildlife has the skinny on Lake Cisco bass. Abilene Reporter News.

Dumont, S. 2011. Toyota ShareLunker season begins. Abilene Reporter News.

Dumont, S. 2011. Fish populations in Abilene lakes to be sampled this fall. Abilene Reporter News.

Dumont, S. 2011. New fishing regulations affect some Texas reservoirs. Abilene Reporter News.

Farooqi, M. 2012. ShareLunker: in pursuit of an even larger largemouth. San Angelo Standard Times.

Farooqi, M. 2012. Lake Fork: a multi-species trophy fishery. San Angelo Standard Times.

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Farooqi, M. 2011. Golden alga a deadly problem for Colorado River reservoirs. San Angelo Standard Times.

Farooqi, M. 2011. Sampling of area fisheries. San Angelo Standard Times.

Gore, M. 2011. Native Plant Restoration Projects to Benefit Lake Conroe and Lake Houston. Dockline Magazine, September issue.

Gore, M.S. 2011. Native Plant Restoration Projects to Benefit Lake Conroe and Lake Houston. Dockline Magazine. Lake Conroe and Lake Houston Editions, pp. 38-39.

Hodge, Larry D. 2012. Underwater Re-Evolution. Texas Parks & Wildlife, Vol. 70, No. 3.

Hodge, Larry D. 2012. Big Bass on the Border. Texas Parks & Wildlife, Vol. 70, No. 8.

Hodge, Larry D. 2012. Sunny with a Chance of Fun. Texas Parks & Wildlife, Vol. 70, No. 9.

Hodge, Larry D. 2012. A State Full of Slabs. Texas Sportsman, February issue.

Hodge, Larry D. 2012. Texas' Cool Cats of June. Texas Sportsman, June issue.

Homer, M. 2012. Things to Consider for the Not-so-skilled Fisherman. Dockline Magazine, July issue.

Homer, M. 2012. Lake Houston Sports and Recreation Foundation Stock Lake Houston. Dockline Magazine, July issue.

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Ingle, J. 2011. Oxygen injection system makes great gift for bass fishermen. San Angelo Standard Times.

Scott, M. 2012. Plenty of catfish to be found in West Texas waters. San Angelo Standard Times.

Scott, M. 2012. Brigade camps educate youth. San Angelo Standard Times.

Scott, M. 2011. Electrofishing survey gives us glimpse at fish populations. San Angelo Standard Times.

Webb, M. 2012. TPWD Welcomes New Biologist. Dockline Magazine, June issue.

Webb, M. 2012. Higher Water Levels Mean Great Fishing. Dockline Magazine, May issue.

Webb, M. 2012. Big Blue Cats Return Home to Lake Livingston. Dockline Magazine, April issue.

Webb, M. 2012. Seven Coves Bass Club Receives Special Recognition for Conservation Work. Dockline Magazine, March issue.

Webb, M. 2012. Boat Road Marking Planned for Lake Conroe. Dockline Magazine, January issue.

Webb, M. 2011. Fishing Hot Spots for Lake Conroe Anglers. Dockline Magazine, November issue.

Outreach Events

Inland Fisheries staff members were event leaders at 249 outreach events for targeted user groups (youth under 17, minorities, women, and physically challenged) in which 16,336 individuals participated.

	Youth 17 & under	Adults	Total
Males (1)	6,961	1,547	8,508
Females (2)	5,795	2,033	7,828
Minorities	4,828	717	5,545
Phys. Challenged	750	150	900
Total (1+2)	12,756	3,580	16,336

Work with Other Organizations

Program Contracts and Agreements

BIO-WEST, Inc. (Ed Oberney)	Radio Tracking of Blue Sucker in the Lower Sabine River	\$212,450
Cypress Valley Navigation District	Boating access and aquatic vegetation management on Caddo Lake	\$75,000
Texas Aquatic Vegetation Control Program	Improving and Maintaining Access to Texas Public Waters for Recreational Boaters and Anglers	\$1,867,502
Nature Conservancy (Ryan Smith)	An Evaluation of the Relationship between Flow and Habitat Availability for the Devils River Minnow	\$16,774
Nueces River Authority	Control and management of <i>Arundo donax</i> along the Nueces and Sabinal Rivers	\$150,000
Nueces River Authority	Control and management of <i>Arundo donax</i> along the Nueces and Sabinal Rivers (purchase order contract)	\$12,000
Nueces River Authority	Control and management of <i>Arundo donax</i> along the Nueces River	\$67,000
San Jacinto River Authority	Management of nuisance aquatic vegetation in Lake Conroe	\$100,000
Statewide herbicide contractors	Certified Pesticide Applicators pool for state contracts involving management of nuisance aquatic and wetland vegetation using EPA approved herbicides	
Texas AgriLife Research (Charles Randklev)	Mussel Survey of the lower Sabine River	\$50,600
Texas AgriLife Research (Charles Randklev)	Mussel and Macroinvertebrate Data Collection in the Middle and Lower Brazos	\$27,770
Texas State University (Tim Bonner)	Focal Larval Fish Species Distribution and Habitat Use in the San Antonio River	\$165,000
Texas State University (Tim Bonner)	Assessment of Focal Larval Fish Species in the San Antonio River	\$49,000
Texas State University (Tim Bonner)	An Evaluation of the Relationship between Flow and Habitat Availability for the Devils River Minnow	\$8,135
Texas State University (Yixin Zhang)	Bigclaw River Shrimp in the San Marcos River: Invasive Species' Impact	\$51,560

Texas Tech University (Gene Wilde)	Population Dynamics Model for Fishes of the Upper Brazos River	\$281,395
Texas Tech University (Thomas Arsuffi)	Recreational and Economic Impact of Guadalupe Bass in Hill Country Streams	\$10,441
Trinity River Authority (Webster Mangham)	Biological Baseline Sampling in the Middle Trinity River	\$24,000
University of North Texas (Jim Kennedy)	Habitat Requirements for <i>Quadrula aurea</i> (Golden Orb) in the Lower San Antonio and Guadalupe River Drainages	\$35,000
University of North Texas	Restoration of native aquatic vegetation in two Texas lakes	\$150,000
The Bait Barn	Purchase of 47,632 channel catfish to support the Neighborhood Fishin' Program	\$138,133
Inks Dam National Fish Hatchery	Purchase of 10,224 channel catfish to support the Neighborhood Fishin' Program	\$22,963
Texas A&M University	Purchase of 8,304 channel catfish to support the hatchery program	\$4,000
Crystal Lake Fisheries	Purchase of 273,552 rainbow trout to support the winter stocking and Neighborhood Fishin' programs	\$256,245
Texas State University (Glenn Longley)	Student Workers	\$26,078
Auburn University (Jeff Terhune)	Southeastern Fish Disease Cooperative Project	\$8,000

Texas Freshwater Fisheries Center is operating under a Memorandum of Understanding with Stephen F. Austin State University. This allows a collaborative approach to interpretive projects and materials, providing educational programs for students and the general public and professional development for teachers and preservice teachers.

Grants and Donations

Guadalupe River Trout Unlimited	Support of intern for work on Guadalupe River	\$14,000
Natural Resources Conservation Service	San Antonio River and Estuarine Sampling	\$165,000
Sabine River Authority	Aquatic vegetation management on Toledo Bend Reservoir	\$50,000
Sabine River Authority	Aquatic vegetation management on Lake Fork Reservoir	\$20,000
Texas Water Development Board	Habitat Requirements for <i>Quadrula aurea</i> (Golden Orb) in the lower San Antonio and Guadalupe River Drainages	\$35,000
Texas Water Development Board	Radio Tracking of Blue Sucker in the Lower Sabine River Sub-basin	\$225,000
Texas Water Development Board	Mussel Survey of the Lower Sabine River	\$55,000
Texas Water Development Board	Mussel and Benthic Macro-invertebrate Data Collection in the Middle and Lower Brazos River	\$30,570
Texas Water Development Board	Riparian Productivity along the Lower Brazos River	\$40,000
Texas Water Development Board	Riparian Productivity along the Lower Brazos and Lower Guadalupe rivers	\$55,000
Texas Water Development Board	Biological Baseline Sampling in the Trinity and Guadalupe rivers	\$48,069
Texas Parks and Wildlife Foundation	ShareLunker/Operation World Record	\$37,500
Toyota	Toyota ShareLunker Program	
William E. Armentrout Foundation	Wetland Adventure programs, teacher workshops, science academy, technology for exhibits and improvements to visitor facilities at fishing ponds	\$40,000
Texas Bass Classic Foundation	Texas State-Fish Art Contest	\$17,000
KAST restitution fund grant	Construction of artificial PVC fish attractors to be placed in East Texas reservoirs	\$22,000
East Texas Woods and Waters Foundation	20-year lease on 12.5 acres of Neches River angler access	\$10,000

Reservoir Fisheries Habitat Partnership	Habitat Improvements on Lake Palestine	\$10,000
Texas Bass Classic Foundation	Support of Neighborhood Fishin' Program	\$158,000
Texas Bass Classic Foundation	New Marketing Approaches for Neighborhood Fishin'	\$30,000
Texas Bass Classic Foundation	Texas State-Fish Art Program	\$16,000
Sportsman's Club of Ft. Worth	Support of Neighborhood Fishin' program in Tarrant County	\$20,000
City of San Antonio	Support of Neighborhood Fishin' program	\$11,812
City of Wichita Falls	Support of Neighborhood Fishin' program	\$1,250
City of Mesquite	Support of Neighborhood Fishin' program	\$4,375
City of Denton	Support of Neighborhood Fishin' program	\$3,325
City of Amarillo	Support of Neighborhood Fishin' program	\$6,125
City of Waco	Support of Neighborhood Fishin' program	\$1,250
Travis County	Support of Neighborhood Fishin' program	\$1,250
Harris County	Support of Neighborhood Fishin' program	\$5,625
City of Duncanville	Support of Neighborhood Fishin' program	\$2,625
City of Hurst	Support of Neighborhood Fishin' program	\$2,625
City of Fort Worth	Support of Neighborhood Fishin' program	\$2,625
City of College Station	Support of Neighborhood Fishin' program	\$2,500
Private (Gary Moore Memorial)	Support of Neighborhood Fishin' program	\$75



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