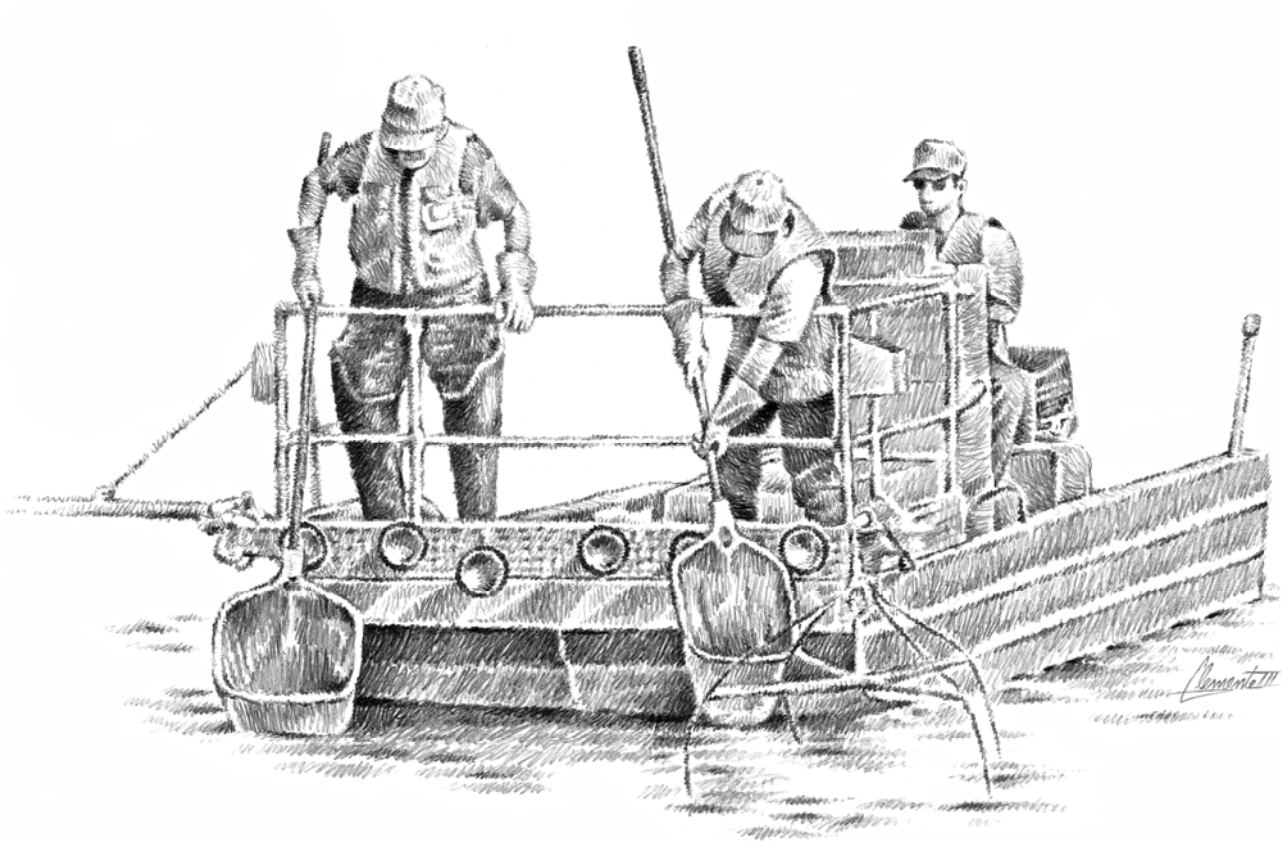


# INLAND FISHERIES ANNUAL REPORT 2007



IMPROVING THE QUALITY OF FISHING

Carter Smith  
Executive Director



Philip P. Durocher  
Director, Inland Fisheries



# INLAND FISHERIES ANNUAL REPORT 2007



# TEXAS PARKS AND WILDLIFE DEPARTMENT

## Commissioners

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Chairman, San Antonio

T. Dan Friedkin  
Vice-Chair, Houston

Mark E. Bivins  
Amarillo

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Lufkin

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Chairman-Emeritus  
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The policy of Texas Parks and Wildlife is to fully comply with the intent of Title VI of the Civil Rights Act of 1964. Title VI provides that no person in the United States shall, on grounds of race, color, or national origin, be excluded from participating in, denied the benefits of, or subjected to discrimination under any program or activity receiving federal financial assistance.

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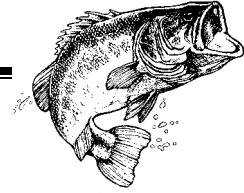
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# INLAND FISHERIES OVERVIEW

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## Mission

To provide the best possible fishing in Texas while protecting and enhancing its freshwater aquatic resources.

## Scope

The Inland Fisheries Division is responsible for managing the fishery resources in approximately 800 public impoundments and about 191,000 miles of rivers and streams together totaling 1.7 million acres. Over 1.8 million anglers, whose fishing activities result in \$2.38 billion in trip and equipment expenditures, use these resources.

## Responsibilities

To assess annually the status, utilization and value of freshwater fishery resources in all public waters in order to develop and evaluate management strategies to prevent resource depletion and to optimize yield.

To maintain or enhance existing fish stocks and species diversity by regulating means and methods of capture and harvest regulation of sport fishes, and by stocking public waters with hatchery-produced fishes.

To inform the Legislature, Commission, resource agencies and resource users of the status of the resource by publishing and presenting results of management and research assessments and the best scientific information available.

To conduct studies and assessments for the enhancement, protection and conservation of aquatic resources.

To conduct investigations and assessments on fish kills and pollution events to protect, mitigate, and restore impacted natural resources and habitats.

To provide recommendations to local, state and federal resource and regulatory agencies to protect and conserve aquatic resources and habitats.

To enhance annually the amount of quality aquatic habitat available to fish, and to anglers, by managing overabundant aquatic vegetation or increasing the habitat where deficiencies exist.

To increase outreach efforts and establish urban fishing programs to increase fishing opportunities for children, the elderly, and the physically or mentally challenged.

To expand fishing and other recreational opportunities in public waters.

To optimize the State's fishing opportunities in State parks and other state-owned facilities.

To restore and protect stocks of endangered or threatened native species.

To increase the State's fish production efficiency by maintaining and renovating existing hatcheries.



## Staff

Inland Fisheries has 225 permanent positions assigned to management, hatchery, research, outreach and administrative branches.

## Funding and Allocation

In FY 07, \$13,667,240 (not including fringe benefits, worker's compensation, or capital construction) was budgeted for Inland Fisheries. Federal Aid grants are expected to reimburse the Department \$9,817,268 on eligible Inland Fisheries activities. The allocation of Federal Aid monies was \$2,404,892 for Fish Hatchery and Research Facilities, \$7,412,376 for Research, Management, and Education/Outreach.

The budget is allocated for personnel, operation, and capital costs to implement three goals from the Department's Strategic Plan "Natural Agenda: A Strategic Plan for Texas Parks and Wildlife 2007 – 2011."

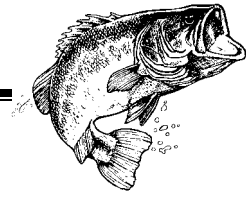
Acquire, improve, or access additional public fisheries and wildlife and their habitat. [Agency Goal #1, Objective #1, and Strategy #1.] \$3,667,198

Design and implement outreach programs to expand fishing, hunting and wildlife-viewing opportunities for targeted user groups. [Agency Goal #2, Objective #2, and Strategy #1.] \$909,293

Protect and manage Texas fish and wildlife resources by determining the status and condition of their habitats, monitoring and assessing their populations, and by undertaking scientific research to address ecosystem- and species-level issues. [Agency Goal #3, Objective #3, and Strategy #1.] \$9,090,749

# ADMINISTRATION

---



## Goal

To direct all Inland Fisheries Division activities within Commission policy and budget, based on the results of Inland Fisheries monitoring and research programs, and to recommend management, operating, and funding strategies to the Executive Director, Texas Parks and Wildlife Commission and Legislature.

## Rationale

The Inland Fisheries administrative staff is responsible for providing program direction to achieve the mission and goals of the Department as expressed in the Texas Parks and Wildlife Department "Natural Agenda: A Strategic Plan for Texas Parks and Wildlife 2007 – 2011." The administrative staff, in concert with field units, guides the collection and interpretation of all information from fisheries survey, research, and evaluation efforts.

## Offices

### *Administrative Addresses*

Headquarters  
4200 Smith School Road  
Austin, Texas 78744  
Phone: (512) 389-4864

Research  
5103 Junction Hwy.  
Ingram, Texas 78025  
Phone: (830) 866-3356

Region I Management  
3407-B S. Chadbourne  
San Angelo, Texas 76903  
Phone: (325) 651-4846

Region I Hatcheries  
(A. E. Wood & Jasper)  
507 Staples Road  
San Marcos, Texas 78666  
Phone: (512) 353-0572

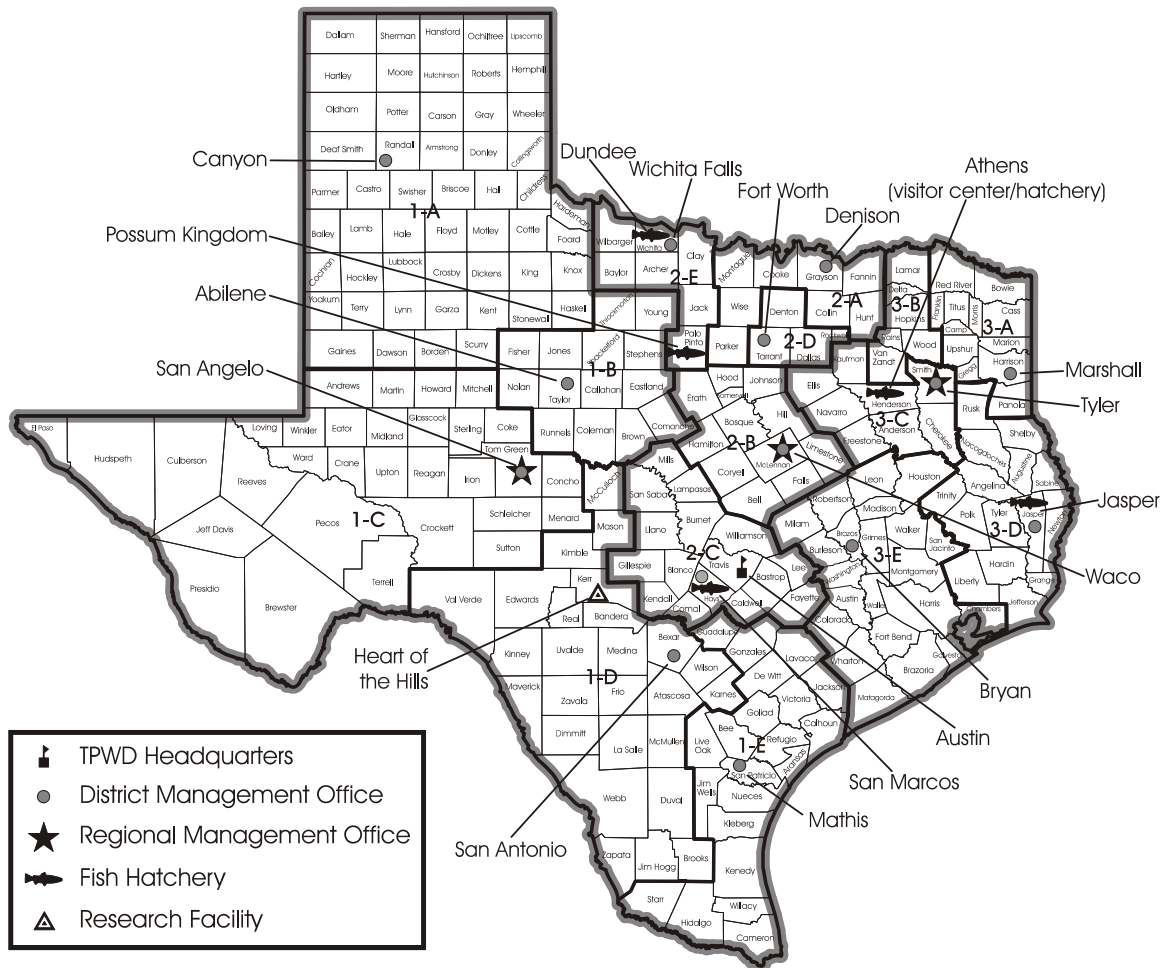
Region II Management  
1601 E. Crest Dr.  
Waco, Texas 76705  
Phone: (254) 867-7974

Region II Hatcheries  
(Dundee & Possum Kingdom)  
600 S. HWY 16  
Graford, Texas 76449  
Phone: (940) 779-2301

Region III Management  
11810 FM 848  
Tyler, Texas 75707  
Phone: (903) 566-1615

Education & Outreach  
5550 FM 2495  
Athens, Texas 75752  
Phone: (903) 670-2224

## Facility Locations Map



## Program Costs

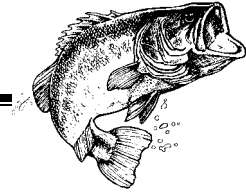
Total administrative cost for FY 07 was \$1,393,162.

## Organization

Administration organizational flow chart is located in **Appendix, Organization Charts**, page 64.

# RESOURCE MANAGEMENT – FISHERIES AND HABITAT MANAGEMENT

---



## Goal

To develop plans and conduct applied management activities for all freshwater impoundments, rivers, and streams.

## Rationale

Effective management of the freshwater resource depends on knowledge of the habitat available, the dynamics and structure of populations and their utilization. Standardized monitoring based on scientifically accepted techniques and survey procedures was begun in 1975 and is updated periodically whenever new procedures to improve the timeliness and precision of estimates are found. Data obtained from these surveys are used to monitor fish populations, habitat, and angler use of fisheries. They provide the foundation for the development of management plans/strategies aimed at improving and protecting recreational fisheries. Statewide management activities supported and evaluated through monitoring data include development of fish stocking plans, fish harvest regulations, and habitat improvement and mitigation. Public support of management activities is obtained through a variety of outreach activities that are designed to educate and inform the public about on-going management programs and fishing opportunities.

## Responsibilities

Monitor public freshwater fisheries resources, including habitat.

Monitor the activities of freshwater fishery users.

Recommend, implement, and evaluate fisheries management plans to protect, increase, or make better use of the fisheries resources.

Formulate and propose regulation for the means and methods of take and bag limits of sport fishes designed to maintain or enhance existing fish stocks.

Recommend, implement, and evaluate activities that enhance the amount of quality habitat available to fish and anglers.

Report on significant findings and results.

Educate and inform the public about Division programs and activities.

Coordinate and/or conduct fishing clinics, events, etc., for young people, as well as for people not usually involved in fishing.

## Methodology

Standardized procedures are detailed in the Inland Fisheries Assessment and Aquatic Enhancement procedure manuals. These manuals provide staff with specific sampling procedures and minimum survey requirements for reservoirs, rivers, and streams. Current staffing does not allow for annual monitoring of all state fresh waters. All major public reservoirs are surveyed at least once every four years. Small reservoirs, rivers, and streams are surveyed on an "as needed" basis and on a schedule determined by local biologists. Listed below are the categories of water bodies sampled and their basic sampling requirements:

### *General Survey Reservoirs*

- Includes all major public reservoirs that are greater than 500 acres in size and are sampled on a four-year rotation basis.
- Sampling activities: Gill netting (spring), structural habitat and aquatic vegetation surveys (summer), electrofishing and trap netting (fall), access survey (year-round), and creel survey (optional).

### *Small Reservoirs*

- Includes all public reservoirs that are less than 500 acres in size. Reservoirs in this category include designated "Community Fishing Lakes" and most state park lakes.
- Sampling activities: Sampling methods typically follow general survey reservoir guidelines; however, choice of sampling methods is determined by local biologists.

### *Rivers and Streams*

- Includes all unimpounded segments of rivers and streams.
- Sampling activities: boat, backpack, and low-pulse DC electrofishing, seining, habitat survey, hoop netting, gill netting, access surveys and creel surveys. Choice of sampling methods is determined by local biologists.

## Program Costs

The total cost for the Management Program for FY07 was \$4,000,899.

## Accomplishments

### *Regulation Changes*

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

- **Lake Texoma (Cooke and Grayson Counties)** - The possession limit for striped bass on Lake Texoma was increased from 10 to 20 fish.
- **Allow harvest of catfish by use of lawful archery equipment** – Legal use of lawful archery equipment (longbow, recurved bow, compound bow, and crossbow) to harvest blue, channel, and flathead catfish was approved for an additional year.

### *Fish Stocking*

A total of 27,718,843 fish were stocked at management's recommendation into 348 locations from January 1, 2007 through December 31, 2007 (*see Appendix, Stocking Reports*, page 104).

## *Fish Monitoring*

### **General Survey Texas Reservoirs**

Reservoir	Size	Creel	Angler Access	Electrofish	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Toledo Bend	181,600	X	X	X			X			
Sam Rayburn	114,500	X		X	X		X			
Falcon	83,654			X						X
Livingston	83,277	X		X	X					
Texoma	74,686				X					X
Amistad	63,680	X	X	X	X		X			
Richland-Chambers	41,356	X			X					
Tawakoni	37,879	X			X		X			
Cedar Creek Reservoir	32,623	X	X	X			X			X
Lewisville	29,592		X	X		X				X
Caddo	27,472			X			X			
Lake Fork	27,264	X		X			X			X
Choke Canyon Reservoir	25,989	X		X	X	X	X			X
Ray Roberts	25,600			X						X
Palestine	23,434			X						
Ray Hubbard	22,745			X	X		X			
Buchanan	22,211			X	X				X	
Whitney	22,180			X						
Lavon	21,400				X					
Wright Patman	20,143						X			
Conroe	20,118	X		X		X	X		X	
O. H. Ivie	19,149	X		X			X			X
Cooper Reservoir	19,018			X		X	X			X
Travis	18,622		X		X					
Lake Corpus Christi	18,256				X					
Meredith	16,411	X		X	X					
Lake O' the Pines	16,269				X		X			X
Possum Kingdom	15,588	X			X					
Arrowhead	14,969	X	X	X		X			X	X
Hubbard Creek	14,922		X	X						X
E. V. Spence	14,640			X		X			X	X
Belton (Bell County)	12,385				X					
Somerville	11,456					X	X			
Red Bluff	11,193				X					
Houston	10,459			X	X	X	X			
Texana	9,727				X					
B. A. Steinhagen	9,719						X		X	
Bob Sandlin	9,116			X			X			
Twin Buttes	9,080			X		X	X			X
Granbury	8,310			X						
Canyon	8,308			X						
Joe Pool	7,470			X			X			

General Survey Texas Reservoirs – January 2007 thru December 2007

Reservoir	Size	Creel	Angler Access	Electrofishing	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Waco	7,173	X		X						X
Grapevine	6,892			X						X
Lyndon B. Johnson	6,449						X			
Pat Mayse	5,865				X					
Medina	5,410				X					
Stamford (Haskell County)	5,124				X					
Proctor	4,474				X					
Fort Phantom Hill	4,213	X	X	X						X
Granger	4,009									X
Cypress Springs	3,461	X			X		X			
Worth	3,458				X					
Murvaul	3,397	X					X			
Bardwell	3,138	X			X					
Calaveras	3,110			X	X	X	X			
Coleto Creek Reservoir	3,100			X						X
Alan Henry	2,884	X		X						
Gibbons Creek Reservoir	2,770	X		X	X	X	X			
Palo Pinto	2,399		X	X		X			X	X
Fayette County	2,394			X			X			
Oak Creek	2,375		X	X	X	X				X
Delta	2,371			X						
Aquilla	2,366	X			X					
Tyler East	2,276		X	X			X			X
Tyler West	2,224		X	X			X			X
Nacogdoches	2,212			X			X			
Fairfield	2,034				X					
Greenbelt	2,025			X						X
Brady Creek Reservoir	2,020				X					
Monticello	2,001	X	X	X		X	X			
Arlington	1,939				X					
Athens	1,799			X						
Millers Creek	1,794		X	X		X			X	X
Casa Blanca	1,680				X					
Colorado City	1,612				X				X	
Austin	1,599			X			X			
Leon	1,590				X					X
Buffalo Creek	1,576				X					
Champion Creek	1,560		X		X	X				
Pat Cleburne	1,558			X						X
Amon G. Carter	1,540	X								
Lone Star	1,516				X		X			
White River Reservoir	1,418		X		X					X
Nasworthy	1,380				X					
Victor Braunig	1,350			X	X					



General Survey Texas Reservoirs – January 2007 thru December 2007

Reservoir	Size	Creel	Angler Access	Electrofishing	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Welsh	1,334	X	X	X		X	X			
Houston County	1,330			X		X	X			
Nocona	1,323			X		X	X		X	X
Lake Georgetown	1,297			X						
Walter E. Long Reservoir	1,269		X		X		X			
Brandy Branch	1,257	X	X	X		X	X			
Sheldon	1,230					X	X			
Wichita	1,224				X					X
Jacksonville	1,208						X			X
Weatherford	1,158			X		X	X		X	X
Moss	1,140				X					
White Rock Lake	1,088		X	X		X	X			X
Crook	1,060				X					
Cisco	1,050		X	X						X
Bonham City	1,020			X	X					
Gilmer Reservoir	1,010						X			
Daniel	924		X							
Bastrop	906		X		X		X			
Mexia	897			X						X
Mackenzie	896				X					
Winnsboro	806				X					
Quilman	799			X			X			
Inks	768								X	
Kirby	740		X	X						
Lake Bryan	737			X		X	X			
Kurth	726	X		X	X		X			
Fort Parker State Park	725				X					
H-4	696			X		X	X			X
Holbrook	650					X				
Hawkins	634			X			X			
Sweetwater	630		X							
Baylor Creek	610			X						X
Pauline	609				X					
Abilene	595		X	X						X
Balmorhea	573			X					X	X
Waxahachie	553	X					X			
Big Creek Lake	520			X		X	X			X
New Ballinger	500				X					
Mineral Wells	440				X					
Lost Creek	368				X					
Lake Wood	229			X		X	X			X
San Augustine City	200				X		X			
Totals	1,437,734	28	26	70	57	28	52	0	12	41

**Small Texas Reservoirs**

Reservoir	Size	Creel	Angler Access	Electrofishing	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Gladewater City	481			X						
Lady Bird Lake	469			X			X			
Pinkston	447		X	X			X			
Alvarado Park	437	X		X						X
Dunlap	410			X						X
McQueeney	396			X						X
Purtis Creek State Park	349			X			X		X	
McClellan	339									X
Marine Creek (Ft. Worth)	250	X		X	X					
Buffalo Springs	241				X					
Timpson	223		X	X			X			X
Raven	204					X	X			
Wheeler Branch Reservoir	180			X						
Bryson	170			X						X
Bellwood	160			X	X		X			
Moss Creek City	160								X	
Bachman Lake (Dallas)	132				X					
TXU Contract Lake #1	110			X						
Newcastle	100				X					X
Mountain Creek Lake (Coke)	95								X	
Center City	89						X			
Fryer	86				X					
Theo (Caprock Canyon)	70			X						
Marvin	65			X						
Tyler State Park	65			X						
Meadow Lake (Round Rock)	59			X						
Saxet Park Lake	52			X						
Canton City	50			X						
Copper Breaks State Park	40			X						
Petrolia City (Old)	36				X					X
Devine Lake	35			X						
Sammon's Park	30			X						
Buescher State Park	25								X	
Bright Lake	18			X						
Hubbard City #4	18			X						
Martin Road	18			X						
Thompson Park	13			X						
Byers City	12				X					X
Hubbard City #3	12			X						
Hubbard City	11			X						
Post City	10			X						
Galveston State Park Pond #2	7			X						
Medical Center South	7			X						

Small Texas Reservoirs – January 2007 thru December 2007

Reservoir	Size	Creel	Angler Access	Electrofishing	Gill Net	Habitat Survey	Veg Survey	Seine	Water Quality	Trap Net
Pampa City	7			X						
Bastrop State Park	6			X					X	
Miller's Pond	6	X								
Reeves Lake	6			X						
Seymour Golf Course	6			X						
Caudle	5			X						
Dimmitt City Lake	5			X						
Galveston State Park Pond #3	5			X						
Hubbard City #5	5			X						
Mary Joe Peckham Park	5	X								
Abernathy Community Lake	4			X						
Childress City Lake	4			X						
Fair Park City Lake	3			X						
Hubbard City #2	3			X						
Medical Center North	3			X						
Towle Park	3			X						
Central Park Pond #1	2	X								
Hereford City Lake	2			X						
Rita Blanca Kids Fishing Pond	2			X						
Beal Park Lake	1								X	
C. J. Kelly Park Pond	1								X	
Galveston State Park Pond #4	1			X						
Hemphill County #1	1			X						
Hemphill County #2	1			X						
Hemphill County #3	1			X						
Strickland Lake	1			X						
Totals	6,270	5	2	52	8	1	7	0	7	9

## Texas Stream Surveys

River	Miles	Creel	Angler Access	Electrofishing	Gill Net	Habitat Survey	Veg. Survey	Seine	Water Quality	Hoop Net	Trap Net
Canyon Tailrace	1	X									
Wichita River	6.2								X		
Totals	7.2	1	0	0	0	0	0	0	1	0	0

## Habitat Enhancement

### Vegetation Planting

Jacksonville  
TXU #1

### District

3C  
3C

### Acres (23.5)

1.5  
22

### Brush Shelter Installation

Arrowhead  
Benbrook  
Brandy Branch  
Canyon  
Holbrook  
Lake Georgetown  
Lower Overton  
Marine Creek (Ft Worth)  
Nasworthy  
Striker Reservoir

### District

2E  
2D  
3A  
2C  
3B  
2C  
3C  
2D  
1C  
3D

### Acres (13)

2  
0.5  
1  
1  
2  
1  
1  
0.5  
3  
1

### Lake Fertilization

Cleburne State Park  
Meridian State Park

### District

2B  
2B

### Acres (157)

107  
50

### Shoreline Improvements

Tyler Nature Center Pond

### District

3C

### Acres (2)

2

### Vegetation Control (Mechanical)

Lake O' The Pines

### District

3A/3C

### Acres (150.6)

150.6

### Vegetation Control (Biological)

Caddo  
Conroe  
Cypress Springs  
Toledo Bend  
Trinity River

### District

3F  
3E  
3F  
3F  
3F

### Acres (7,519.5)

5  
7,500  
3.5  
10  
1

### Vegetation Control (Chemical)

B. A. Steinhagen  
Caddo  
Choke Canyon  
Conroe

### District

3F  
3F  
1E  
3E

### Acres (1863.2)

56.5  
143.15  
173.5  
320

Gladewater City	3F	6
Hawkins	3F	107
Kurth	3F	0.3
Monticello	3F	1.5
Raven	3E	30
Sheldon	3E	150
Toledo Bend	3F	874.5
Tyler Nature Center Pond	3F	0.5
Tyler State Park	3F	0.25

### *Outreach Events*

Inland Fisheries staff members were event leaders at 343 outreach events for targeted user groups (youth under 17, minorities, women, and physically challenged) in which 22,541 individuals participated.

#### Events Summary:

	Youth 17 & under	Adults	Total
Males (1)	9,430	2,009	11,439
Females (2)	8,319	2,783	11,102
Minorities	7,631	1,248	8,879
Phys. Challenged	717	682	1,399
Total (1+2)	17,749	4,792	22,541

### *General Activities*

- Management and habitat staff conducted 405 surveys on 197 reservoirs covering 1,444,004 surface acres of water. Staff conducted 2 additional surveys on 2 rivers and streams (7.2 miles).
- Management and Habitat staff conducted habitat improvement activities that impacted 9,728 surface acres on 29 public reservoirs and 1 river.
- Recommendations from management staff resulted in the stocking of 27,718,843 fish of 16 different species in 348 different water bodies.
- Inland Fisheries staff investigated 165 fish kills or pollution complaints during this year.
- Management staff issued 233 news releases and published 48 popular articles dealing with TPWD management programs and activities.
- Management staff continued work with the Lake Fork Sportsman's Association and the Lake Fork Chamber of Commerce to monitor trophy bass catches at Lake Fork Reservoir. Over the past five years (March 2003 – February 2008), anglers from 46 different states have reported catching 8,310 trophy-size largemouth bass (>7 lbs). Over 16% of these fish were larger than 10 lbs and 33% were longer than the current size limit (24 inches).
- Management staff worked to obtain restitution funds to purchase sport and prey fishes for restocking Canton City Lake following a fish kill.
- Extensive training was provided to fisheries management staff on GIS technology in fisheries management and habitat related work.

- Inland Fisheries staff worked with Gulf States Toyota, the Professional Anglers Association, the Sabine River Authority, and TPW Commissioners to plan, organize, and conduct a benefit bass tournament at Lake Fork April 13-15. The 1<sup>st</sup> Annual "Toyota Texas Bass Classic" showcased a new conservation-minded tournament format, promoted department programs and fisheries management activities, and raised \$250,000 to support our agency's mission.
- Inland Fisheries staff worked with members of the Texas Chapter of the American Fisheries Society (TCAFS) to host a successful Annual Meeting in Lake Jackson March 2-4. A total of 29 oral and 7 poster presentations were given during the meeting program. Eleven presentations were given by Inland Fisheries staff members.
- Management staff initiated or continued to implement integrated aquatic vegetation management plans at lakes Caddo, Conroe, Tyler, Jacksonville, Austin, Hawkins, Purvis Creek, and Cypress Springs. Plans are being carried out in cooperation with local controlling authorities, property owners, angling groups, media, political representatives, and the general public.
- Management staff worked to develop a partnership with the Seven Coves Bass Club, the Texas B.A.S.S. Federation Nation, and the San Jacinto River Authority to establish native aquatic plant nurseries to provide a continual supply of native aquatic plants for planting and establishing fisheries habitat in Lake Conroe. This partnership was made possible by through a larger partnership with B.A.S.S./ESPN and the National Fish and Wildlife Foundation which provided grant money (> \$34,000) to fund the project.
- Management staff initiated a project to evaluate predator fish composition in various aquatic habitats with the application of increasing stocked largemouth bass survival.
- Management staff collaborated on a project with the City of Houston to develop angling education centers at terminals for the Houston Light Rail Line.
- Management and habitat staff controlled 1,579 acres of nuisance aquatic vegetation on 13 public water bodies statewide. Giant salvinia, water hyacinth and hydrilla remain a significant threat to public water bodies statewide. Inland Fisheries continued cooperative work in this area with the State of Louisiana, river controlling authorities, local government entities and public organizations.
- Region 3 management staff continued work with the East Texas Woods and Waters Foundation to raise funds for and do cooperative projects at the Tyler Nature Center. The Tyler Nature Center serves as a major focal point for fisheries-related outreach in the NE Texas area.
- Management staff provided largemouth bass samples to researchers at Texas Christian University for mercury contamination analyses in selected Texas reservoirs.
- Management staff initiated a project to quantify the economic impact of recreational angling at Sam Rayburn Reservoir. This project is unique in that it will incorporate the impact of tournament and non-tournament anglers. The project was funded through a local grant from the Jasper Economic Development District totaling \$10,000.
- Management, research, and hatchery staff continued work to examine performance of offspring produced from selectively bred Sharelunker largemouth bass (13 lb or larger). Advanced-size fingerling bass were stocked into three additional public reservoirs (6 total) to examine the growth and trophy characteristics of these unique fish. This project is an evaluation component of our Division's "Operation World Record Program."
- Management staff worked in cooperation with the City Public Service Board of San Antonio to obtain \$20,000 for the purchase of advanced fingerling largemouth bass to stock in Lake Braunig and continued a special study to evaluate the impacts of the stocking.
- Management staff assisted the Corps of Engineers and the United States Department of Agriculture with the collection and monitoring of water hyacinth weevil, hydrilla flies and giant salvinia weevils at several reservoirs.

- Management staff continued a long term golden alga monitoring program at numerous West Texas reservoirs that have experienced catastrophic kills.
- Management staff co-sponsored a Mini-Expo in El Paso and provided a fishing tank and channel catfish.
- Management staff investigated the use of advanced bio-acoustic techniques and the possibility of using new equipment for monitoring and/or research involving freshwater fisheries in Texas.
- Management staff organized two meetings of the Freshwater Fisheries Advisory Board to receive constituent input on various fisheries issues.
- Management staff initiated a saugeye tracking study to establish habitat selection and movement patterns with the goal of improving angler success and utilization of this species.
- Management staff initiated a project aimed at testing efforts to market the Neighborhood Fishing Program to the Hispanic community using Spanish speaking students from local high schools.
- Management staff completed a project in cooperation with the National Park Service to determine the effects of various tournament release procedures at Lake Amistad and provided the Park Service with recommendations to decrease tournament mortality of largemouth bass.
- Management staff continued a project to evaluate the use of offshore dual-cod trap nets as a part of an overall evaluation of trap net procedures and prepared a publication and presentation for the Southeastern Association of Fish and Wildlife Agencies.
- Management staff continued work on creating bathymetric maps of small reservoirs in the Abilene area utilizing GIS technology to aid anglers on water bodies where no commercial maps were available.
- Management staff initiated a project to investigate the effects of discarded plastic baits on the condition of largemouth bass.
- Management staff initiated a project to evaluate the differences in the effects of active and passive catfish angling techniques on catfish populations.
- Management staff initiated a project to evaluate techniques used to de-pressurize the air bladders of angler caught largemouth bass in an effort to reduce angling mortality.
- Inland Fisheries Kills and Spills staff along with management staff continued long term monitoring of Golden Alga on nine Central and West Texas reservoirs and rivers.
- Management staff continued to coordinate and partner with the Oklahoma Department of Wildlife Conservation and the Oklahoma University Biological Station to sample the fisheries and monitor Golden Alga blooms on Lake Texoma.
- Management staff from the Lake Texoma fisheries station worked with the 6 Old Geezers group who donated \$6,000.00 for use in purchasing a new boat, motor and trailer for the district.
- Management and Hatchery staff continued working on the Neighborhood Fishing program which was expanded to the San Antonio Metroplex in 2007.
- Management staff began evaluating the largemouth bass exploitation on Lake Amon G. Carter by collecting and tagging 782 largemouth bass.

- Management staff worked with the Texas Commission on Environmental Quality to install two 24-hour real-time monitoring stations on the Wichita River as part of a research project to assess the impact of a reverse osmosis water plant in Wichita Falls.
- Management staff continued partnering with the Guadalupe River Chapter of Trout Unlimited to stock rainbow trout as well as secure access for anglers.
- Management staff applied rotenone to five golf course ponds at Quail Creek Golf Course to remove an illegal stocking of diploid grass carp.
- Angler Recognition Program staff set a new high with 1,172 awards issued in 2007.
- GovDelivery subscription service, which allows customers to sign up for e-mail updates on topics of interest, has been well received by the public. Subscriptions to Inland Fisheries-related topics increased steadily throughout 2007.
- Web & Communications staff continued work on long-term project to complete Texas Public Water Access guide and bring it into compliance with current web standards. Completed new template for access-point pages. Data entry and interactive features still in progress.
- Info & Regs staff developed web-accessible format for lake survey reports produced each year by fisheries management biologists. Reports for 2005 and 2006 surveys are now available online to the general public.
- Info & Regs staff produced a new Inland Fisheries exhibit for Expo 2007 highlighting the full range of the Division's work.
- Info & Regs staff worked with field staff to update a brochure on Guadalupe bass and produce a new brochure on carp fishing in Texas.
- Texas Lake Finder and Weekly Fishing Reports continue to rank in the Top 10 most visited pages on the Web site.
- Wetlands Conservation staff coordinated with the Corps of Engineers, U.S Fish and Wildlife Service and other resource agencies on over 184 projects reviewed for various permits, planning or grants to assess the impacts to State fishery resources, including Corps 404 permits, FEMA Hazard Mitigation grants and Department permits and grants.
- Wetlands Conservation staff participated in an interagency coordination process hosted by the U.S. Army Corps of Engineers to seek opportunities to streamline the review and permitting of applications under the federal Clean Water Act and the National Environmental Policy Act.
- Wetlands Conservation staff coordinated with federal, State, and local authorities and planners on developing plans and on-going studies for:
  - Lake Columbia, a proposed 10,000-acre reservoir on Mud Creek in Cherokee County, which would adversely impact approximately 5,746 acres of waters of the U.S.
  - Lake Ralph Hall, a proposed 7,000-acre reservoir on the North Sulphur River, which would affect a part of the Ladonia Unit of the Caddo National Grassland.
  - Lower Bois d'Arc Creek Reservoir, a proposed 16,526-acre reservoir on Lower Bois d'Arc Creek, a tributary of the Red River in Fannin County.
  - Fastrill Reservoir, a proposed 14,000-acre reservoir on the Upper Neches River, would overlap a major portion of the proposed Upper Neches National Wildlife Refuge. It is proposed as a part of the future water supply plan for the Dallas-Fort Worth area.



- Bunker Sands Mitigation Bank, a proposed 3,500-acre bank lying along, and cycling water from the Trinity River just southeast of Dallas. This project would restore overbank flooding and riparian vegetation to an area converted to agriculture in the 1920s.
  - The Middle Neches Mitigation Bank (Pineywoods Mitigation Bank) would establish a bank on 33,000 acres adjacent to and including the Neches River between two national forests to compensate for loss of wetland functions due to construction of a new Interstate Highway 69 through the Pineywoods Ecoregion in East Texas. As a partner with Texas Department of Transportation, Department staff have performed a major part of the field work for this effort.
  - Rattlesnake Ranch Mitigation Bank, a proposed 2,388-acre bank lying along the Trinity River in Houston County.
  - Jodelia Mitigation Bank, a proposed 400-acre bank located within a tight bend of the Guadalupe River in Kendall County.
- Wetlands Conservation staff coordinated with the Corps of Engineers and other agencies on ongoing, multi-year River Basin Studies for Flood Damage Reduction and Ecological Restoration in the Nueces River basin (including several tributary rivers in the Hill Country and the Nueces Estuary), the Colorado River basin in Austin and Wharton, the Trinity River basin in the Dallas/Fort Worth area, the San Antonio River basin in San Antonio, the Cibolo Creek basin in central Texas, the Williamson Creek basin in Austin, the Johnson Creek basin in Arlington, the Leon Creek basin in San Antonio, and the Woodlawn Lake watershed in San Antonio.
  - Wetlands Conservation staff completed the wetland delineation and assisted in acquisition of necessary permits for the proposed East Texas Fish Hatchery near Jasper.
  - Wetlands Conservation staff provided assistance with planning and permitting of a hiking trail expansion at Palmetto State Park and facility development at the new Game Warden Academy in Hamilton County.
  - Wetlands Conservation staff participated in the interagency review board for the issuance of FEMA/Department of Public Safety grants for the "Hazard Mitigation Grant Program" funneling over \$ 150 million in FEMA grants to local governments to reduce or repair damages from natural disasters, such as hurricanes, floods, and wildfires. Staff attempts to assure that such grants are implemented in ways that are sound and do not cause ecological damage.
  - Wetlands Conservation staff coordinated, edited and published the Wetlands Newsletter, distributed twice a year to over 800 readers, featuring articles on conservation efforts, wetlands research, and wetland-related learning opportunities.
  - Wetlands Conservation Staff performed field investigations and made recommendations relative to the issuance of Department "Sand and Gravel" permits for disturbance or taking of substrate materials in the Nueces, Frio, Sabinal, Guadalupe, San Marcos, Blanco, Llano, Colorado, Brazos, Sabine, Paluxy and North Sulphur Rivers; Camp Wood Creek, Onion Creek, and other smaller streams to assure that the activity would not harm the fishery.
  - Wetlands Conservation Staff collaborated with USACE and TCEQ staff to work with Stephen F. Austin State University and Temple-Inland personnel to develop a regional Hydrogeomorphic Assessment Method that would be used to determine the functional capacity of an East Texas Riverine Wetland.
  - Wetland Conservation Staff participated in interagency planning efforts on the Colorado River Corridor Project. Project goals include conservation, restoration, and study of a reach of the Colorado River in a fast-developing region of central Texas.
  - Wetlands Conservation Staff received training to improve their habitat assessment skills, including Natural Stream Channel Assessment, ArcGIS training, and Proper Functioning Condition for Riparian Areas.

### *Special Projects*

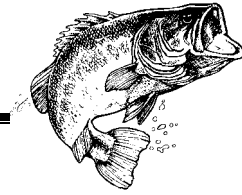
Special projects are included in the **Fisheries Research** section, pages 20–41. These activities are research oriented and are coordinated through fisheries research biologists.

### **Organization**

Fisheries Management flow charts are located in **Appendix, Organization Charts**, pages 65–69.

# RESOURCE MANAGEMENT – FISHERIES RESEARCH

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## Goal

To provide scientifically sound information leading to improved conservation and management of the state's fisheries and aquatic resources.

## Rationale

The scope of fisheries research includes statewide investigations ranging from short-term studies for the purpose of immediate decisions to long-term studies for better understanding of fisheries resources and evaluation of management programs. Communication of basic study findings through publications, press releases and special presentations, as well as providing technical assistance to other functions within Inland Fisheries is the product of this function. Fisheries research is a cooperative function maintaining close liaison with private and governmental entities for information needed to solve common problems of fisheries management programs.

## Facility

### *Description of Heart of the Hills Fisheries Science Center*

- Location – Heart of the Hills Fisheries Science Center is located on an old state fish hatchery approximately 17 miles northwest of Kerrville, Texas on State Highway 27.
- Construction Date – Original construction was completed in 1925. Following subsequent land acquisitions in 1927 and 1942 and additional pond construction, the facility contained 44 hatchery ponds and associated buildings on approximately 56 acres of land.
- Renovation History – A major renovation effort occurred beginning in 1969 when the existing fish hatchery was converted into the current fisheries research station. The 44 hatchery ponds were consolidated to form 25 research ponds ranging in size from approximately 0.5 to 2.0 acres. In 1970, a combination office building and wet laboratory was constructed. Also at that time, an existing 4,800-ft<sup>2</sup> storage building was converted into a wet laboratory. In 1978, a pole barn was constructed to house various field equipment. In 1980, a vehicle maintenance building was constructed, and in 1982 a metal shop building was constructed. An artificial stream system was installed in 1998 and enlarged in 2001. A 30' x 60' metal shop building was constructed in 2004.

## Responsibilities

Conduct special investigations on unique problems identified through management surveys.

Develop new techniques for the management and enhancement of fisheries resources.

Evaluate new techniques and procedures to monitor resources and resource users.

Provide assistance to other functions through library management, literature reviews, design of experiments and statistical data analyses.

Evaluate biological means of eradication of harmful or potentially harmful exotic plants and management of indigenous plants.

Aid in identification and management of exotic fish, shellfish and aquatic plants.

## Program Costs

The total cost for the Research Program for FY07 was \$907,842.

## Accomplishments

### *State-Supported Research Studies*

Work was conducted on the following State-supported research studies:

**Title: Survey of Fish Age Estimation by State and Provincial Natural Resource Agencies**

**Principal Investigator: Dave Buckmeier**

**Objective: To assess status of aging freshwater fish in North America.**

**Completion Date: 2007**

**Title: Effects of Liquid Live Micro-Organisms (LLMO) System on Sediments and Turbidity in Koi Carp Production Ponds.**

**Principal Investigator: Aaron Barkoh**

**Objective: To determine if LLMO can reduce turbidity and sediments and improve fish production in Koi carp production ponds.**

**Completion Date: 2008**

**Title: Ammonia Tolerance by Striped Bass Fry and Fingerlings in Hard Water.**

**Principal Investigators: Aaron Barkoh and Thomas Wyatt**

**Objective: To determine 24-h, 48-h, 72-h and 96-h ammonia tolerance of different age (4-, 10-, 20-, 30-, 38-day-old) striped bass.**

**Completion Date: 2008**

**Title: Mortality, Predation, and Tag Retention of Visible Implant Elastomer Tags for Young-Of-The-Year Largemouth Bass, Channel Catfish, and Blacktail Shiners.**

**Principal Investigator: Kerry Reeves**

**Objective: Evaluate tag-induced mortality and predation, and tag retention for young-of-the-year largemouth bass, channel catfish, and blacktail shiners.**

**Completion Date: 2008**

**Title: Evaluation of New Bowfishing Regulation Allowing Take of Catfish**

**Principal Investigator: Dave Buckmeier**

**Objective: To 1) determine demographics, desires, and opinions of bow anglers, 2) assess statewide bow angling activity, and 3) determine if regulation change increased participation in the sport.**

**Completion Date: 2008**

**Title: Flathead Catfish Passive Integrated Transponder (PIT) Tagging Evaluation**

**Principal Investigator:** Dan Daugherty

**Objective:** Evaluate long-term ( $\geq 270$  d) PIT tag retention in two non-consumable locations in flathead catfish.

**Completion Date:** 2008

**Title: Life History Requirements of the Devils River Minnow**

**Principal Investigator:** Gary Garrett

**Objective:** Determine life history requirements of Devils River minnow in order to aid in implementation of the Devils River Minnow Conservation Agreement.

**Completion Date:** 2008

**Title: Evaluation of a Non-lethal Aging Structure for Blue Sucker**

**Principal Investigator:** Dan Daugherty

**Objective:** Determine the efficacy of pectoral fin-ray cross sections (compared to otoliths) for blue sucker

**Completion Date:** 2009

**Title: Golden Alga Taskforce**

**Principal Investigators:** Aaron Barkoh and numerous members of Inland Fisheries

**Objective:** To explore ways to manage and control golden alga in Texas.

**Completion Date:** Ongoing

**Title: Texas Neighborhood Fishing Program**

**Principal Investigators:** Bob Betsill, Rafe Brock, David Buckmeier, Marcos DeJesus, Jeff Henson, Mark Howell, Tom Hungerford, John Tibbs, Mandy Scott, and Brian Van Zee

**Objective:** To develop and evaluate a program that provides fishing opportunities in all urban areas and emphasizes youth participation.

**Completion Date:** Ongoing

**Title: Establishment of Reservoir Nutrient Criteria for Texas**

**Principal Investigators:** Research staff and Water Quality staff

**Objective:** To draft an approach for monitoring and evaluating nutrient levels in Texas reservoirs that will maintain current water quality and prevent further degradation.

**Completion Date:** Ongoing

**Title: Fishes of Texas Book**

**Principal Investigator:** Gary Garrett

**Objective:** Produce a comprehensive listing of the fishes of Texas, their biology and distribution.

**Completion Date:** Ongoing

**Title: Guadalupe Bass Restoration Project**

**Principal Investigator:** Gary Garrett

**Objective:** Restore hybridized populations of Guadalupe bass to genetic purity.

**Completion Date:** Ongoing

Title: **Biological Monitoring of the Repatriation Efforts for the Endangered Rio Grande Silvery Minnow (*Hybognathus amarus*) in Texas**

Principal Investigators: Gary Garrett and Robert Edwards (UTPA)

Objective: Monitor the status of repatriated Rio Grande silvery minnows (*Hybognathus amarus*) in the Big Bend region of Texas over three years

Completion Date: 2010

### ***Sport Fish Restoration Federal Aid-Supported Studies***

Work was conducted on the following Federal Aid-supported (Sport Fish Restoration) studies:

Title: **Catfish Gear Selectivity Evaluation**

Principal Investigator: David Buckmeier

Objective: To determine a preliminary evaluation of the effectiveness and bias of gears used to sample catfishes with the intent of developing a formal evaluation in future years.

Completion Date: 2007

Title: **Effect of Reservoir Water Level Fluctuation on Littoral Habitat and Angler Access**

Principal Investigator: Dan Daugherty

Objective: Quantify present and future effects of reservoir water level on littoral habitat characteristics and angler accessibility (i.e., useable boat ramps, fishing piers, and bank access) in four Colorado River reservoirs using geographic information systems (GIS) data.

Completion Date: 2009

Title: **Relation between Year-class Strength of Sport and Forage Fishes and Reservoir Hydrology**

Principal Investigator: Nathan G. Smith, David L. Buckmeier, Kerry S. Reeves, and Dan J. Daugherty

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

Completion Date: 2009

Title: **Evaluation of Seasonal Condition of Lake Buchanan Striped Bass**

Principal Investigator: Nathan Smith

Objective: To determine contributing factors of poor condition of adult striped bass in Lake Buchanan and to evaluate seasonal forage availability for Lake Buchanan.

Completion Date: 2009

### ***Land Owner Incentive Program (LIP) Study***

Work was conducted on the following Federal Aid-supported (Landowner Incentive Program) study:

Title: **Restoration of Pecos Pupfish Habitat**

Principal Investigator: Gary Garrett

Objective: Restore existing habitat and create new habitat for Pecos pupfish as called for in the Pecos Pupfish Conservation Agreement.

Completion Date: Ongoing.

## ***State Wildlife Grant (SWG) Studies***

Work was conducted on the following Federal Aid-supported (State Wildlife Grant) studies:

**Title: Spawning Requirements and Seasonal Diet Composition of the Guadalupe Roundnose Minnow and the Texas Shiner**

**Principal Investigators:** Kerry S. Reeves, Nathan G. Smith, and Dan J. Daugherty

**Objective:** Determine spawning requirements and diet composition of the Guadalupe roundnose minnow *Dionda nigrotaeniata* and the Texas shiner *Notropis amabilis*

**Completion Date:** 2008

**Title: Data Standardization and Georeferencing of the Fishes of Texas Database**

**Principal Investigators:** Dean A. Hendrickson, Gary Garrett, Robert J. Edwards, Clark Hubbs

**Objective:** Georeference the entire Fishes of Texas database (70,000+ specimens and approximately 20,000 locality records of Texas fishes)

**Completion Date:** 2008

**Title: Eradication of Invasive Suckermouth Catfish (*Hypostomus plecostomus*) and Determination of Dietary Overlap with Indigenous Fishes in San Felipe Creek, Texas**

**Principal Investigators:** Gary Garrett and Dan Foley

**Objective:** Investigate the efficacy of techniques to eradicate the invasive suckermouth catfish (*Hypostomus plecostomus*) in San Felipe Creek, Texas and to quantify the dietary preference and degree of dietary overlap between the indigenous *Dionda* species (*Dionda argentosa* and *D. diaboli*) and the suckermouth catfish

**Completion Date:** 2008

## ***Texas Nature Conservancy Study***

Work was conducted on the following Texas Nature Conservancy supported (contract) study:

**Title: Assessment and watershed planning for plateau shiner, Nueces River shiner, and Nueces roundnose minnow in the upper Nueces River basin**

**Principal Investigators:** Gary Garrett, Robert J. Edwards, Kerry Reeves, Ryan Smith

**Objective:** Provide information on the status and range of these three species and on their utility as indicators of hydrological integrity and watershed health in order to guide development of freshwater conservation strategies for the Upper Nueces River Basin

**Completion Date:** August 2008

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- Ott, R. A., M. A. Webb, G. Dick, M. Smart. 2007. Evaluation of methods for establishing native aquatic vegetation in Texas reservoirs. Poster presented at the Fourth International Reservoir Symposium, Atlanta, Georgia, June 7.
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- Saunders, Kenny. 2007. Stream sampling and survey techniques. Presented at the monthly meeting of the University of Texas – Brownsville Gorgas Science Society, Brownsville, Texas, September 26.
- Schlechte, J. W., P. L. Radloff, and J. B. Taylor. 2007. Developing nutrient criteria for reservoirs: how it may impact you. Presented at the Annual Meeting of the Southern Division of the American Fisheries Society, Memphis, Tennessee, February 8.
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- Scott, M. K., J. A. Dennis, and R. A. Myers. 2007. Amistad bass release tube related to increased post-tournament mortality. Presented at the Annual Meeting of the Texas Chapter of the American Fisheries Society, Lake Jackson, Texas, March 3.
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- Southard, G. 2007 TPWD Fish Health: Case Reports and Issues. Presented at the 2007 Biennial Fish Diagnosticians' Meeting, College Station, Texas, February 10.
- Southard, G., and L. T. Fries. 2007. Emerging biological threats to Texas freshwater fisheries and hatcheries. Presented at the World Aquaculture Society Conference, San Antonio, Texas, February 26-March 2.
- Southard, G., L.T. Fries, and T. Engeling. Largemouth bass virus (LMBV): Monitoring and management in Texas. Presented at the World Aquaculture Society Conference, San Antonio, Texas, February 26-March 2.
- Taylor, J. B., and J. W. Schlechte. 2007. A nonparametric, multivariate approach to comparing length and weight distributions. Presented at the Annual Meeting of the Southern Division of the American Fisheries Society, Memphis, Tennessee, February 8.
- Taylor, J. B., and J. W. Schlechte. 2007. A nonparametric, multivariate approach to comparing length and weight distributions. Presented at the Annual Meeting of the Texas Chapter of the American Fisheries Society, Lake Jackson, Texas, March 3.

- Taylor, J. B., and J. W. Schlechte. 2007. Similarity indices offer enhanced comparisons of size distributions in aquaculture experiments. Presented at the Triennial Conference of the World Aquaculture Society, San Antonio, Texas, February 27.
- Taylor, J. B., M. K. Scott, J. Heneger, R. K. Betsill, F. Janssen, and C. Scofield. 2007. Using GIS and on-site angler surveys for more-effective marketing of an urban fishing program. Poster presented at the Annual meeting of the American Fisheries Society, San Francisco, California, September 2-6.
- Taylor, John B. 2007. Using the ESRI Bridge for SAS to Marry Geographic Information Systems and SAS: Application to Data Mining of Customer Residence Data. Presented at the 2007 South Central SAS User's Group conference, Austin, Texas, October 1, 2007.
- Taylor, John B. 2007. Using the SAS Bridge for ESRI and Business Analyst to Add Value to Customer Residence Information. Presented at the 2007 ESRI User's Conference Recap, Austin, Texas, October 30, 2007.
- Webb, M. A. 2007. Native Vegetation Restoration in Texas Reservoirs. Annual Meeting of Regional Fishing Education Coordinators. Perry Haines Ranch. May 5, 2007.
- Webb, M. A. and E. W. Chilton. 2007. Lake Conroe: a case history of integrated plant management for hydrilla control. Presented at the Annual Meeting of the Texas Chapter of the American Fisheries Society, Lake Jackson, Texas, March 3.
- Webb, M. A., E. W. Chilton, and R. A. Ott. 2007. Lake Conroe hydrilla management: an integrated pest management approach. Poster Presented at the Fourth International Reservoir Symposium. Atlanta, Georgia, June 7.
- Webb, M. A., E. W. Chilton. 2007. Lake Conroe hydrilla management: an integrated pest management approach. Presented at the Annual Meeting of the Texas Aquatic Plant Management Society, Burnet, Texas, September 17.
- Wyatt, T., A. Barkoh, and J. W. Schlechte. 2007. Ammonia tolerance by striped bass fry and fingerlings in hard water. Presented at the World Aquaculture Society Conference, San Antonio, Texas. February 26-March 2.

## ***Special Projects – Fisheries and Habitat 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 mean length and weight of age-4 ShareLunker and resident largemouth bass in six Texas reservoirs. Approval Date: 10/31/05. Completion Date: 2017



## **Management Region 1**

Charles Munger

Title: Evaluation of a Regulation Allowing Harvest of 2 Walleye under 16 inches

Objectives: To evaluate the effects of a walleye regulation of 5 fish per day bag limit with no more than 2 fish under 16 inches imposed in September 1999. The evaluation will include determination of changes of walleye relative abundance, population size structure, growth and condition, and angler catch and harvest rates. Approval Date: 2/14/01. Completion Date: 2008

Spencer Dumont

Title: Assessment of population genetic composition of Age-0 versus adult largemouth bass

Objectives: Determine if genetic composition from samples of age-0 largemouth bass is an accurate and precise representation of genetic composition of adult largemouth bass. Approval Date: 11/07/06. Completion Date: 2008

Robert Cole

Title: Seasonal distribution and movement patterns of saugeye in Kirby Reservoir, Texas.

Objectives: 1) Determine saugeye seasonal and diel distribution and habitat preferences in Kirby Reservoir using ultrasonic tags; 2) Determine if dissemination of information regarding saugeye seasonal distribution and habitat preference increases angler success and directed effort for saugeye. Approval Date: 11/1/07. Completion Date: 2009

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. Approval Date: 5/15/06. Completion Date: 2011

## **Region 2**

Bruce Hysmith

Title: Evaluation and Genetic Identification of Striped Bass in Lake Texoma and the Red River, Texas-Oklahoma Objective: 1) To determine if inbreeding is occurring in striped bass in Lake Texoma and the Red River below Denison Dam; and 2) to identify possible subpopulations of striped bass in Lake Texoma. Approval Date: 3/3/00. Completion Date: 2008

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) Determine the potential success of alternative largemouth bass harvest regulations.

Approval Date: 2/19/07. Completion Date: 2009

John Tibbs

Title: Factors Related to the Fishing Quality and Trophy Potential of Largemouth Bass Fisheries in Texas Reservoirs Objectives: 1) Determine the relationships among selected biotic and abiotic factors and selected indicators of quality and trophy bass fisheries; and 2) evaluate criteria for stocking Florida largemouth bass. Approval Date: 9/1/98. Completion Date: 2008

Michael Baird

Title: Stress-Induced Post Stocking Mortality of Red Drum, *Sciaenops ocellatus*, and Effects of Acclimation Time and Stocking Season on Survivorship

Objective: Test the effects of two different acclimation times, and stocking season on red drum post-stocking mortality using current hatchery rearing and hauling procedures. Approval Date: 8/5/02. Completion Date: 2008

Steve Magnelia

Title: Survival and Growth of Rainbow Trout Fingerlings Stocked into the Special Regulation Zone of the Canyon Reservoir Tailrace

Objectives: 1) Evaluate survival for micro-tagged rainbow trout fingerlings stocked in the special regulation area of the Canyon Reservoir Tailrace. 2) Evaluate growth for micro-tagged rainbow trout fingerlings stocked in the special regulation area of the Canyon Reservoir Tailrace. Approval Date: 6/06/05. Completion Date: 2007

Rafe Brock

Title: Selection of Potential Texas Urban Fishing Sites

Objective: To develop a set of criteria and a ranking system to help select future urban sites. Approval Date: 04/01/05. Completion Date: 2008

Mark Howell

Title: Wichita River Monitoring Plan 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) Determine if there are 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. Approval Date: 02/2005. Completion Date: 2010

Robert Mauk

Title: Examination of Fingerling Hybrid Striped Bass *Morone saxatilis* x *M. chrysops* 24-h Boat Stocking Mortality and OTC Marking

Objectives: 1) Determine if boat stocking increases 24-h hybrid striped bass mortality because of extra handling and hauling stress; and 2) evaluate mark effectiveness in terms of mortality and marking success/retention for hybrid striped bass fingerlings marked with oxytetracycline hydrochloride (OTC) immersion at 500 and 700 ppm. Approval Date: 04/04/2003. Completion Date: 2007

Robert Mauk

Title: Evaluation of Palmetto Bass and Sunshine Bass in Texas

Objectives: 1) Determine if sunshine bass (female white bass *Morone chrysops* x male striped bass *M. saxatilis*) can be propagated early in the year, reared and stocked before largemouth bass pond space is needed; 2) Determine whether there are differences in age at which the sunshine and palmetto bass (female striped bass *M. saxatilis* x male white bass *M. chrysops*) attain the statewide minimum length limit of 18 inches; 3) Determine if there are survival differences between the two hybrid crosses after stocking; 4) Examine angling catchability of the two hybrid crosses; and 5) Determine trophy growth potential of sunshine bass.

Approval Date: 12/19/07. Completion Date: 2014

### **Region 3**

Craig Bonds

Title: Understanding knowledge and perceptions of largemouth bass anglers utilizing slot-length-limit reservoirs in Texas

Objectives: 1) Determine angler utilization of sub-slot largemouth bass at seven Texas reservoirs; 2) Determine angler understanding of the rationale for using a slot-length limit; and 3) Identify influences on angler perceptions regarding harvest of sub-slot largemouth bass.

Approval Date: 7/11/06 Completion Date: 2007

Mike Brice

Title: Florida Bass Introgression Following Annual Supplemental Stockings. Objective: To determine changes in genetic composition of a largemouth bass population following annual supplemental stockings of Florida largemouth bass at Caddo Lake, TX. Approval Date: 10/16/97. Completion Date: 2007.

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 local counties surrounding Sam Rayburn Reservoir and to Texas; and 3) Estimate total annual direct expenditures, recreational value, and economic impact of black bass tournaments to local counties surrounding Sam Rayburn Reservoir and to Texas.

Approval Date: 5/9/07. Completion Date: 2009

Dan Ashe

Title: Evaluation of Seasonal Predator Assemblage, Abundance, and Size Structure in Different Habitats of Sam Rayburn Reservoir with Implications for Increasing Survival of Stocked Largemouth Bass.

Objectives: 1) Determine seasonal predator assemblages, abundance, and size structure among different habitats at Sam Rayburn Reservoir.

Approval Date: 1/26/07. Completion Date: 2009

Kevin Storey

Title: The Lake Fork Trophy Bass Survey

Objectives: 1) To annually monitor angler catches of trophy-size largemouth bass ( $\geq 7$  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 Forks Largemouth bass fishery and to help evaluate management programs.

Approval Date: 11/13/02. Completion Date: 2008

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. Approval Date: 4/24/98. Completion Date: 2008

### **Austin Headquarters**

Fred Janssen

Title: A Comparison of Population Indices for Fishes Collected from Subjectively and Randomly Selected Sampling Sites at Twelve Texas Reservoirs

Objectives: 1) To compare catch rates and structural indices for target species captured at subjectively and randomly selected sampling sites; and 2) to compare effort (man-hours) required to conduct three survey techniques (frame nets, gill nets and electrofishing) at subjectively and randomly selected sampling sites. Approval Date: 9/22/94. Completion Date: 2008

### ***Special Projects – Education and Outreach***

#### **Texas Freshwater Fisheries Center**

Jim Matthews and Tony Owens

Title: Refinement of Alkalinity Adjustment Strategies for a Recirculating Raceway System.

Objective: To determine the amount of sodium bicarbonate required to optimize nitrification in a recirculating system at the Texas Freshwater Fisheries Center. Approval Date: 9/06/01. Completion Date: 2007.

Deborah Wade

Title: The Effect of Ozone on Largemouth Bass Fry Production in a Re-circulating System.

Objective: To determine if ozone treatment of incubation water for largemouth bass eggs improves fry production. Approval Date: 2/11/04. Completion Date: 2007.

Juan Martinez and Tony Owens

Title: Efficacy of Pond Inoculation and Supplemental Feeding with Zooplankton to Increase Growth and Survival of Florida Largemouth Bass Fingerlings. Objective: To increase production of Florida largemouth bass fingerlings. Approval Date: 11/05. Completion Date: 2008.

## *Special Projects – Fish Hatcheries and Analytical Services*

### **Analytical Services**

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*. Approval Date: 9/2003. Completion Date: 12/2007.

Travis Glenn et al. (including Dijar Lutz-Carrillo)

Title: Identification, development and optimization of novel microsatellites for largemouth bass. Objectives: Develop a microsatellite library, design primers and screen for polymorphic markers. These markers are to be used for a variety of issues, among them: parentage analyses, hatchery versus wild origins of collected specimens, species and population discrimination, as well as evaluations of genetic diversity within hatchery populations. Approval Date: 6/2006. Completion Date: 12/2008.

Dijar Lutz-Carrillo

Title: Evaluation of the CytB (cytochrome B) gene: species and subspecies specific mtDNA PCR-RFLP (polymerase chain reaction – restriction fragment length polymorphisms). Objectives: Use DNA sequence variation to identify conserved species specific endonuclease restriction sites in relevant micropterid and moronid species. Approval Date: 11/2006. Completion Date: 12/2007.

Dijar Lutz-Carrillo

Title: Operation World Record: resolution of OWR progeny (this includes OWR progeny in Raven, Meridian, and Mill Creek as well as the TXU contract lake, and Spring Lake). Objectives: Resolve OWR progeny from wild fishes using microsatellite loci. Approval Date: 11/2005. Completion Date: Ongoing.

Dijar Lutz-Carrillo

Title: Operation World Record: genetic gender determination. Objectives: Identify gender specific markers for largemouth bass based on multiple AFLP assays. Approval Date: 11/2006. Completion Date: 12/2008.

Dijar Lutz-Carrillo

Title: Species Specific Microsatellites for the Resolution of Striped Bass and White Bass. Objectives: Identify species specific microsatellite markers and develop multilocus assays for the discrimination of striped bass from white bass and their associated hybrids. Approval Date: 11/2006. Completion Date: 12/2008.

Dijar Lutz-Carrillo

Title: Evaluation of novel microsatellites for striped bass. Objectives: Screen and optimize publicly available primer pairs for variation at microsatellites in the Livingston/Trinity population of striped bass. These markers may then be used to evaluate changes in genetic diversity over time and assess parentage and thus, hatchery vs wild origin, of collected specimens. Approval Date: 10/2006. Completion Date: 12/2007.

Gregory M. Southard, Loraine T. Fries, and Dave R. Terre  
Title: The Texas Largemouth Bass Virus (LMBV) Statewide Survey. Approval Date: 5/ 2000.  
Completion Date: 12/2007.

### **A. E. Wood Hatchery**

Hugh Glenewinkel

Title: Effects of Two Stocking Densities on Advanced Catfish Production and Water Quality in Earthen Rearing Ponds. Objectives: 1) To compare growth, harvest length, feed conversion, condition (W<sub>t</sub>), and percent return of advanced catfish fingerlings reared at two stocking densities in earthen ponds; and 2) Compare select water quality variables between the two stocking densities. Approval Date: 7/3/01. Completion Date: 2007.

Hugh Glenewinkel, Tony Owens, Lee Hall and John Paret

Title: Black Bass Culture Manual. Objective: Document standard procedures for the culture of black basses. Approval Date: 1/05. Completion Date: 2007.

Jake Isaac, Jr.

Title: Production Performance of Wild Stock and Imperial Stock Channel Catfish Fingerlings in Hatchery Ponds. Objective: Determine differences in growth rate, feed conversion and survival between wild stock and imperial stock channel catfish for the 75-225-mm production period. Approval Date: 07/28/98. Completion Date: 2007.

Chris Thibodeaux

Title: Intensive Spawning and Mass Production of Koi Carp Fry. Objective: To document the techniques developed at the A. E. Wood Hatchery for mass production of koi carp fry. Approval Date: 11/98. Completion Date: 2007.

Chris Thibodeaux, Ted Engelhardt, Glen Alexander and Deborah Wade

Title: Forage Culture Manual. Objective: Document standard procedures for the culture of forage fish. Approval Date: 1/05. Completion Date: 2007.

### **Jasper Fish Hatchery**

Lee Hall

Title: Comparison of Two Brood fish Stocking Densities for Florida Largemouth Bass Fry Production in Earthen Ponds. Objective: Determine the effects of two brood fish stocking densities (kg/ha females) on the size and yield (fry per kilogram of female) of fry from Florida largemouth bass spawning ponds. Approval Date: 3/2006. Completion Date: 2007.

Lee Hall

Title: Effect of LHRH Injections on Spawning of Blue Catfish. Objectives: (1) Collect scientific data necessary to establish the efficacy of LHRH on gamete maturation in pen-spawned blue catfish *Ictalurus furcatus*; (2) Provide the opportunity for legal use of LHRH by USFWS fish culturists to

improve propagation of several species of fish; (3) Determine effect of cover on spawning of blue catfish ponds with clear water. Approval Date: 2/8/2007. Completion Date: 2008.

Reese Sparrow

Title: Smallmouth Bass Culture in Texas. Objective: Document the techniques developed at the Dundee State Fish Hatchery for the smallmouth bass program. Approval Date: 11/98. Completion Date: 2007.

### **Possom Kingdom Hatchery**

Aaron Barkoh, John Paret, Dale Lyon and Steve Hamby

Title: Effects of Barley Straw and Liquid Live Micro-Organisms (LLMO) on Density and Ichthyotoxicity of *Prymnesium parvum* in Hatchery Ponds. Objectives: 1) Determine if decomposing barley straw inhibits *P. parvum* population growth and ichthyotoxicity; 2) Determine if the LLMO system inhibits *P. parvum* density and ichthyotoxicity; 3) Determine effects of decomposing barley straw on water quality, nutrient levels, phytoplankton community structure, zooplankton community structure and fish production; and 4) Determine effects of the LLMO system on water quality, nutrient levels, phytoplankton community structure, zooplankton community structure and fish production. Approval Date: 6/2/04. Completion Date: 2007.

Aaron Barkoh, John Paret and Dale Lyon

Title: Effects of the Liquid Live Micro-Organisms (LLMO) System on Sludge, Water Quality and Koi Carp Production in Hatchery Ponds. Objectives: 1) Determine if the LLMO System reduces sludge; and 2) Determine if LLMO improves water quality and Koi carp production in hatchery ponds. Approval Date: 6/1/04. Completion Date: 2007.

Dale Lyon

Title: Effect of Pine Straw on pH. Objective: Determine if decomposing pine straw can reduce pH in hard water. Approval Date: 11/2006. Completion Date: 12/2007.

Dale Lyon and Aaron Barkoh

Title: Enumeration of Florida Largemouth Bass Fry: an Index for Gravimetric Estimation of Numbers. Objectives: 1) Evaluate the accuracy of the Jensorter fry counter for Florida largemouth bass fry enumeration; 2) Develop an index (fry/g) for estimation of numbers of Florida largemouth bass fry and determine influence of water temperature, fish age and fish length on estimation of fry numbers by weight; and 3) Compare the index from this study with the index (275 fry/g) developed several years ago. Approval Date: 03/24/00. Completion Date: 2007.

Dale Lyon, Lee Hall and Steve Hamby

Title: Effects of Water Hardness on Egg Hatch Rate of Florida Largemouth Bass. Objective: Determine if egg hatch rate increases with increasing water hardness. Approval Date: 2/20/04. Completion Date: 2007.

## **Dundee Hatchery**

Aaron Barkoh, Drew Begley and Dennis Smith

Title: Effects of Barley Straw on Density and Ichthyotoxicity of *Prymnesium parvum* and Water Quality in Hatchery Ponds. Objectives: 1) Determine if decomposing barley straw inhibits *P. parvum* population growth and ichthyotoxicity; and 2) Determine effects of decomposing barley straw on water quality. Approval Date: 12/13/04. Completion Date: 2007.

Aaron Barkoh, Thomas Wyatt and Dennis Smith

Title: Ammonia Tolerance by Striped Bass Fry and Fingerlings in Hard Water. Objectives: 1) Determine the maximum concentrations of un-ionized ammonia that striped bass (*Morone saxatilis*) fry and fingerlings can tolerate for 96 h at selected pH and temperature; 2) Estimate the 96-h LC<sub>50</sub> (median lethal concentration that will kill 50%) of un-ionized ammonia for striped bass fry and fingerlings; and 3) Estimate the no-effect-level of un-ionized ammonia nitrogen to striped bass fry and fingerlings. Approval Date: 4/6/2005. Completion Date: 2008.

Gerald Kurten, Aaron Barkoh, Loraine Fries and Drew Begley

Title: Combined Nitrogen and Phosphorus Fertilization for Controlling *Prymnesium parvum* Toxicity in Fish Culture Ponds. Objective: To determine efficacy of two fertilization regimes of nitrogen and phosphorus (300 N: 40 P and 300 N: 60 P, three times weekly). Approval Date: 8/4/05. Completion Date: 2007.

Tom Wyatt, Reese Sparrow and Juan Martinez

Title: Channel Catfish and Blue Catfish Culture Manual. Objective: Document standard procedures for the culture of channel and blue catfish. Approval Date: 1/05. Completion Date: 2007.

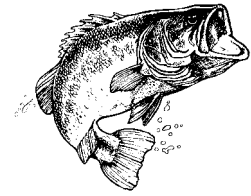
## **Organization**

Fisheries Research Organization flow chart is located in **Appendix, Organization Charts**, page 70.



# ECOSYSTEM/HABITAT ASSESSMENT

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## Goals

The primary goals of the Ecosystem/Habitat Assessment Branch are to: (1) conduct ecological risk and injury assessments; (2) determine water quality and quantity requirements necessary to maintain, protect, and enhance the state's aquatic ecosystems; and (3) restore habitats to mitigate injuries to ecosystems.

## Rationale

The Inland Fisheries Ecosystem/Habitat Assessment Branch is focused on the protection, restoration and enhancement of Texas' extensive aquatic ecosystems in order to sustain and enhance the health and productivity of fish and aquatic resources. Competing demands for water resources in the state, coupled with the need to address potential impacts of emerging conservation issues (e.g., climate change and human population increases), have positioned the Ecosystem/Habitat Assessment Branch at the forefront of aquatic conservation efforts and at the intersection of aquatic science and policy. Data and information collected by the branch through watershed studies and ecological assessments are used to inform policy decisions that support the protection of aquatic ecosystems. These data and information are also used to seek compensation from responsible parties for damages to aquatic ecosystems and design projects to restore and enhance aquatic habitats.

## Facilities

### *Texas Rivers Center*

- The Texas Rivers Center is located on the campus of Texas State University in San Marcos. The facility is located on the Aquarena Center complex at the spring flow headwaters of the San Marcos River and houses several of the staff of the River Studies Program.

### *A.E Wood Fish Hatchery*

- Offices for staff of the River Studies Program, laboratory and shop space are provided for the branch at the state fish hatchery in San Marcos.

### *Fountain Park Plaza*

- Offices are provided at the Fountain Park Plaza complex in Austin for staff of the Kills and Spills Team, Trustee Team, and branch administration.

## Responsibilities

Conduct instream flow assessments for permitting, water planning, river management, etc. to determine the water quantity and quality needed to support aquatic ecosystems.

Conduct water quality assessments for permitting, water quality standards, and planning to determine water quality needed to support aquatic ecosystems.

Determine the cause, extent of injury, and value of losses resulting from kills and pollution incidents that affect state fish and wildlife resources and their habitats.

Pursue compensation for injuries to natural resources that result from oil discharges and hazardous materials releases through the Natural Resource Damage Assessment (NRDA) process under federal and state statutes and rules.

Seek compensation or restoration for injured fish and wildlife resources through state civil restitution actions and by the design, implementation, and oversight of habitat and resource restoration projects through state and federal laws.

Participate in the Ecological Risk Assessment process under the TCEQ Texas Risk Reduction Program for the cleanup of waste sites to ensure that cleanup goals are protective of fish and wildlife resources.

Design and implement contaminant and toxicological studies of aquatic ecosystems to evaluate impacts and provide information regarding conditions to maintain healthy communities.

Review and comment on regulatory agency assessments for permits, rules, and regulations to insure appropriate protection of state fish and wildlife resources.

Represent the agency in interagency committees such as for SB1 (regional water planning), SB2 (State Instream Flow Program), SB818 (clean rivers) to promote actions to protect state fish and wildlife resources, and the Interagency Toxic Substances Coordinating Committee and sub-committees.

Coordinate the department's Golden Alga Task Force to develop critical information through research and monitoring for developing management options for this toxic alga; coordinate developing guidance and information exchange internally, with other agencies, and stakeholders; and overseeing the review of proposals, approval of projects, and contracting for research funded by the department with dedicated funds to address issues related to this alga.

## **Methodology**

Standardized procedures are employed for all investigations, assessments, and studies. The methods used are determined by the task being undertaken and the goals of this effort. The procedures are detailed in the Kills and Spills Team (KAST) Standard Operating Procedures Manual, the interagency Texas Instream Flow Program (TIFP) Technical Overview Document, and the Texas Commission on Environmental Quality's Surface Water Quality Monitoring Procedures Manual. The manuals noted provide specific sampling procedures and requirements for instream flow, water quality, pollution, and fish kill assessments to provide data acceptable within the state regulatory processes that is legally defensible for court and/or regulatory hearings. The procedures used for actions as a federal natural resource trustee for the State of Texas exist under the rules, regulations, and guidelines established under federal law for conducting natural resource injury and damage assessments and restoration projects.

## **Program Costs**

The total cost for the Ecosystem/Habitat Assessment Branch for FY07 was \$936,461.

## Accomplishments

### *State-Supported Studies*

Work was conducted on the following state-supported studies:

Title: **Distributional Survey and Habitat Utilization of Freshwater Mussels**

Principal Investigators: Alexander Y. Karatayev and Lyubov E. Burlakova (Stephen F. Austin State University)

Objective: To collect data on mussel distribution and habitat utilization in the Brazos, Sabine, and San Antonio river basins

Completion Date: 2007

Title: **Fish Assemblage Changes in Three Western Gulf Slope Drainages**

Principal Investigator: Timothy Bonner and Dennis T. Runyan (Texas State University)

Objectives: To quantify fish assemblage changes in three riverine environments in Texas (lower Brazos River, lower Sabine River, and lower San Antonio River) and to analyze stream flow records in these watersheds to describe relationships among hydrologic alterations, fish assemblage changes, and specific fish population changes

Completion Date: 2007

Title: **Wichita River Reverse Osmosis Water Treatment Plant Discharge Study**

Principal Investigators: Mark Howell, Leroy Kleinsasser, Kevin Mayes, and Joan Glass

Objective: To determine potential adverse effects of the plant discharge on the aquatic ecosystem of the Wichita River

Completion Date: 2008

Title: **State Instream Flow Study**

Principal Investigators: Kevin Mayes, Gordon Linam, Tim Jurgensen, Kenny Saunders, Leroy Kleinsasser, Doyle Mosier, Karim Aziz, Praveen Kokkanti, and staff from the Texas Water Development Board, Texas Commission on Environmental Quality, Brazos River Authority, Sabine River Authority, and San Antonio River Authority

Objective: To determine instream flows necessary to maintain a sound ecological environment in Texas rivers and streams initially focusing on the Brazos, Sabine, and San Antonio rivers

Completion Date: 2010

Title: **Mercury Concentrations in Striped Bass from Texas Reservoirs**

Principal Investigators: R. Mills & M. Luedke in conjunction with IF District Offices and the ECL

Objective: Goals of the three year study (2007–2009) are to: 1) Determine if mercury concentrations in striped bass are elevated in reservoirs other than Canyon Lake and 2) Study mercury accumulation patterns between striped bass and largemouth bass in reservoirs with significant mercury bioaccumulation.

Completion Date: 2010

Title: **Assessment of Contaminants in Community Fishing Lakes**

Principal Investigators: M. Luedke & R. Mills, in conjunction with the Neighborhood Fishing Program, IF District Offices and the ECL

Objective: Goals of the on-going study (2005 – current) are to document concentrations of trace metals and bioaccumulative organochlorine compounds in resident fish from CFLs as part of the selection process for inclusion in the Neighborhood Fishing Program

Completion Date: Ongoing

Title: **Selenium Concentrations in Fish from the Wichita River**

(Part of the pre- and post- desalinization plant operations study by River Studies and IF Wichita Falls Office)

Principal Investigators: R. Mills in conjunction with River Studies and the ECL

Objective: Goals of the on-going study (2005 – current) are to: 1) document selenium concentrations in assorted fish species collected at sites above and below the discharge point prior to plant operations (2005, 2007), and after discharges begin (dates unknown) and 2) determine if discharges have an effect on selenium body burdens in fish from the Wichita River.

### ***Federal Aid-Supported Studies***

Work was conducted on the following Federal Aid-supported studies:

#### **Sportfish Restoration Funding**

Title: **Freshwater Game Fish Environmental Assistance and Technical Guidance. F-139-T**

Principal Investigators: David Sager, Doyle Mosier, Cindy Loeffler, Patricia Radloff

Objective: To perform studies and field assessments which identify the extent of man's impact upon water and sport fish in freshwater and to provide technical advice and recommendations to private entities and local, state, and federal regulatory agencies.

Completion Date: Ongoing

#### **State Wildlife Grant Funding**

Title: **Toxic Golden Alga. T-14-P**

Principal Investigators: David Sager, Loraine Fries, Gerald Kurten

Objectives: The Golden Alga (*Prymnesium parvum*) State Wildlife Grant is composed of several projects addressing issues related to golden alga management and assessments in Texas. The objectives are:

Project A (Historical Data Assessment of Golden Alga (*P. parvum*) Fish Kills): Gather and assess available data related to past documented fish kill events caused by golden alga blooms to determine possible underlying conditions or parameters promoting the occurrence of these events.

Project B (Statewide Survey of *P. parvum* Distribution): Determine the level and breadth of *P. parvum* distribution in Texas and collect environmental data and *P. parvum* nucleic acids from representative Texas water bodies.

Project C (Molecular Investigations of the Golden Alga): 1) Construct and characterize a *P. parvum* cDNA library to develop species-specific tests for the organism, 2) Develop a real-time PCR assay to accurately detect and quantify *P. parvum* in raw water samples, and 3) Make the information gained available to the public and researchers using publicly accessed databases.

Project D (Scientific Workshop and Meetings to Coordinate Management Efforts): Conduct a scientific workshop to examine existing information on the golden alga and potential areas for management of the alga and also conduct coordination and information sharing with other stakeholders, researchers, and regulators.

Project E (Nutrient and Oxidative Compound Affects on the Golden Alga): Conduct studies to determine the affects of nutrient manipulations and oxidative compound treatments on the golden alga as potential management options.

Project F (Develop Toxin Standards): Conduct laboratory efforts to isolate and purify standards of the pycnospores toxins released by the toxic golden alga.

Completion Date: Ongoing

Title: **Toxic Golden Alga Research. T-23-P**

Principal Investigator: David Sager

Objective: To fund research and information development to address specific topics identified by the department, through the TPWD Golden Alga Task Force and planning efforts being undertaken for the toxic golden alga, as critical for developing treatments and management strategies for the toxic alga.

Completion Date: Ongoing

Title: **Geomorphic Monitoring of the Upper San Marcos River.**

Principal Investigator: Roy Kleinsasser

Objectives: The five-year project involves continued monitoring of the geomorphology of the upper San Marcos River in the area where dredging is occurring and adjacent river reaches. Baseline data was collected prior to the dredging project and further work is anticipated during and after disturbance to evaluate changes in the channel form.

Completion Date: 2010

Title: **East Texas Mussel Survey**

Principal Investigator: Gordon Linam

Objective: To determine the current distribution and status of rare, endemic freshwater mussels and abundant, diverse assemblages in East Texas through a contract with Dr. Alexander Y. Karatayev and Dr. Lyubov E. Burlakova (Stephen F. Austin State University)

Completion Date: 2007

Title: **Status of Invasive Freshwater Molluscs in Texas**

Principal Investigator: Gordon Linam

Objectives: To review previously documented and recently reported literature on exotic freshwater molluscs, confirm whether these species are still present in Texas, and to evaluate their status and ecological impacts through a contract with Dr. Alexander Y. Karatayev and Dr. Lyubov E. Burlakova (Stephen F. Austin State University)

## ***General Activities***

Many activities have been undertaken during the year. Numerous publications, reports, and presentations have been made and are listed in the **Resource Management – Fisheries Research** section of the report, pages 20 - 41. Additionally, several stream assessments were conducted and are listed in the next table followed by a listing of selected activities for the year.

**Texas Stream Surveys – January 1, 2007 thru December 31, 2007**

River	Miles	Electrofishing	Seine	Mussels	Water Quality	Habitat	Paddling Trail	Other
Attoyac Bayou	11			X	X	X		
Bayou Anacoco	4	X	X			X		X
Big Cow Creek	3			X	X	X		
Brazos River	323	X	X	X	X	X		X
Cibolo Creek	5			X	X	X		
Colorado River	12						X	
Guadalupe River	21						X	
Little River	103	X	X			X		
Navasota River	122	X	X			X		
Sabine River	147	X	X			X		X
San Antonio River	70			X	X	X	X	X
San Marcos River	21							X
Sulphur River	5			X	X	X		
Village Creek	8			X	X	X		
Wichita River	6		X		X	X		

**Other selected activities**

- Kills and Spills Team (KAST) investigated 165 fish kills and pollution complaints and reached settlement on a fish kill civil restitution case during the year, which provided \$32,000 for water quality monitoring in the Medina River over the next two years.
- Staff participated in watershed planning efforts funded by U.S. Environmental Protection Agency through the Texas State Soil and Water Conservation Board and other groups including for the San Antonio River, Plum Creek, and Caddo Lake.
- Staff coordinated the TPWD Golden Alga Task Force activities for research efforts and funding on the toxic golden alga.
- Staff continued to update the golden alga web pages of the agency's web site.
- Staff participated in the interagency Harmful Algal Bloom Committee to share information and coordinate efforts on harmful algae.
- Natural Resource Trustee program (Trustee Program) staff participated in the damage assessment activities associated with 43 individual cases. Of the cases underway, 21 are in the assessment phase and 22 have progressed to restoration planning and implementation.

- Trustee Program staff initiated natural resource damage assessment cases for one spill incident and three waste sites. Assessments were initiated for the approximately 50,000-gallon phosphoric acid spill in the Houston Ship Channel from the Agriphos facility, the Star Lake Canal federal superfund site in Beaumont, Arkema agriculture chemical formulation facility in Bryan and the DuPont Beaumont Works chemical manufacturing facility in Beaumont.
- The Trustee Program finalized formal settlements for two oil spill cases with a total of \$200,000 recovered for environmental and recreational access enhancement projects.
- As lead Administrative Trustee, Trustee Program staff provided design and construction oversight of a 100-acre wetland and 33-acre prairie and riparian habitat restoration project near Gainesville as part of the restoration for the Empire Oil facility.
- Trustee Program staff continued serving as the Lead Administrative Trustee for the Tex-Tin superfund site damage assessment case and are responsible for the implementing the construction of wetlands within Swan Lake adjacent to West Bay. Sediment removed from an adjacent US Army Corps of Engineers dredge materials management unit placed in Swan Lake was contoured the 77 acre marsh to elevations that will support emergent and high marsh. Following contouring, the marsh was planted using a combination of volunteers participating in a Galveston Bay Foundation Marsh Mania event and contractors.
- Trustee Program staff continued serving as the Lead Administrative Trustee for the oversight of restoration action undertaken as part of the Alcoa Lavaca Bay superfund site damage assessment case. Monitoring of utilization was completed for projects that would enhance recreational access to Lavaca Bay including fishing piers constructed at Point Comfort Park, 6-Mile Park and Port Lavaca Bayfront Peninsula as well as boat ramp improvements at 6-Mile Park, Port Lavaca Lighthouse Beach and Magnolia Beach. Monitoring of wetlands vegetation within the constructed 70 acre intertidal marsh adjacent to Powderhorn Lake is ongoing.
- Trustee Program staff continued to serve as the Lead Administrative Trustee for state and federal trustees to complete habitat restoration projects for wetlands, riparian and native prairie habitats at the Nature Conservancy's of Texas' Clymer Meadows Preserve. Restoration and preservation actions are funded by recoveries for natural resource injuries from an agricultural chemical blending facility in Commerce that impacted Sayle Creek.
- Trustee Program staff continued to provide technical review of ecological risk assessments under the Texas Commission on Environmental Quality's (TCEQ) Texas Risk Reduction Program.
- Staff participated in the interagency Statewide Fish Contaminants Monitoring Study with TCEQ and the Department of State Health Services (DSHS). Contaminants Assessment Team members actively participated with regional fisheries crews in the collection of fish tissue samples for analysis.
- Staff participated in the interagency Toxic Substances Coordinating Committee and its Finfish Sampling Subcommittee and Harmful Algal Bloom Subcommittee.
- Continued development of division-wide database for golden alga data and interactive web Kills and Spills reporting tool with GIS Lab and Inland Fisheries division staff.

- Staff prepared a manuscript with Arizona Game and Fish Department staff on current knowledge of and methods used to manage toxic golden alga in reservoirs. The manuscript will be published in the Proceedings of the 2007 American Fisheries Society Reservoir Symposium.
- River Studies staff engaged in a formal team building process to develop team mission, values, and direction.
- River Studies staff led TPWD efforts in the interagency Texas Instream Flow Program. Major initiatives included development of a stakeholder process to incorporate public input in the design, conduct, and review of program studies; baseline fish sampling in priority basins; and development, support, and review of studies funded through the TWDB Research and Planning Fund. A final version of the technical overview was prepared and will be printed in 2008.
- River Studies staff participated in multi-agency efforts to develop information systems for environmental flow assessments, hydrologic and aquatic biology data, and stream classification.
- State Wildlife Grant funding was obtained to develop information on freshwater fish habitat requirements in rivers and streams using an online survey.
- State Wildlife Grant funding was obtained to develop a population dynamics model for fishes of the upper Brazos River. This will provide information needed for conservation purposes, impact assessment, and determination of water quality and quantity needs for the upper Brazos River.
- River Studies staff led efforts in the interdepartmental Texas Paddling Trail Program. Three new trails (Columbus, Goliad, and the Bastrop - El Camino Real) were opened, making a grand total of 11 inland and coastal paddling trails.
- River Studies staff responded to public inquiries concerning local river access plans under Chapter 90 (restrictions on motorized vehicles in navigable streambeds).
- River Studies staff participated in department assessments of major water right permit applications such as the Brazos River Authority's System Operation Project and the Lower Colorado River Authority/San Antonio Water System Water Supply Project.
- River Studies staff coordinated TPWD participation in Federal Energy Regulatory Commission proceedings regarding East Texas Electric Cooperative's Lake Livingston Hydroelectric Project.
- River Studies staff and branch administration staff assisted in the department's support efforts for the legislative Environmental Flows Advisory Committee. Two staff were added in November to assist the program with participation in Senate Bill 3 efforts.
- River Studies staff participated in the Edwards Aquifer Recovery Implementation Program.
- River Studies staff continued participation in the Tiered Aquatic Life Use Development of Texas effort involving the U.S. Environmental Protection Agency, Texas Commission on Environmental Quality, universities, and river authorities.
- River Studies staff participated in a fish sampling methods workgroup associated with the National River and Stream Assessment.



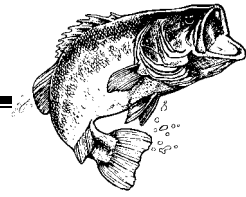
- River Studies staff coordinated with the Texas Commission on Environmental Quality to participate in the National River and Stream Assessment. A two-year contract was signed with TCEQ to help fund this work.
- River Studies staff continued working with the Texas Commission on Environmental Quality to develop guidance for biological and habitat sampling protocols and quality assurance. Work continued on examining the variability in bioassessment data and to develop and refine a regional habitat quality index for use in relating biological data with physical habitat.
- Texas Parks and Wildlife Department will host the Instream Flow Council's FLOW 2008 conference in San Antonio. River Studies staff participated in site visits and planning meetings in preparation for the conference.
- River Studies staff instructed the game warden cadets on fish identification.
- River Studies staff collaborated with Texas State University on various outreach and educational events and exhibits for the Texas Rivers Center. Staff also served on the Texas Rivers Center Master Planning Committee and the River Systems Institute Steering Committee.
- Staff conducted numerous educational outreach presentations at schools, Earth Day celebrations, community events, service organization meetings, and Master Naturalist workshops.
- River Studies staff continued to produce the Tortuga Tex educational cartoon series posted to the Kid's Page on the TPWD web site.
- Staff once again participated in the TWPD Wildlife Expo held in Austin and the Texas Toyota Bass Classic held at Lake Fork. Several educational and public participation exhibits on aquatic ecosystems relating to water quality and quantity issues were displayed at these two events.
- Staff continued to coordinate with Oklahoma state agencies to monitor Lake Texoma and to exchange information about the golden alga.
- Staff communicated information on golden alga to public through news releases, appearance on local morning news show, 1-800 phone information line, and web updates on golden alga blooms and fish kills.
- Staff participated in the departmental Bacterial Total Maximum Daily Load Committee to develop a consistent department position on bacterial TMDLs related to wildlife loadings and especially new bacterial source tracking techniques.

## Organization

The Ecosystem/Habitat Assessment flow chart is located in **Appendix, Organization Charts**, page 71.

# EDUCATION AND OUTREACH

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## Goal

Dedicated to the understanding, celebration and conservation of freshwater sport fishing in Texas through excellence in education, aquaculture, interpretive exhibits, and community relations.

## Rationale

Provide individuals with an informative and exciting opportunity to observe and better understand aquatic life and its management in Texas. Exposure is provided to fisheries management surveys and inventories, fish hatchery operations, scientific research, applied fishery management, fishes and aquatic habitats, and the support anglers and boaters provide to conservation. The educational messages are designed to encourage sport fishing as a recreational activity with “hands-on” angling opportunities provided.

## Facility

### *Texas Freshwater Fisheries Center*

- Location – Texas Freshwater Fisheries Center (TFFC) is located in Henderson County, 4 miles east of Athens, Texas, on 106 acres of land close to Lake Athens.
- Construction Date – The 26,000 ft<sup>2</sup> Visitor Center, with 300,000 gallons of outside aquariums, 1.5-acre fishing pond, 3,000 ft<sup>2</sup> Anglers Pavilion, 150-seat theater with a 25,000-gallon aquarium, 24,656 ft<sup>2</sup> intensive culture building, water quality lab, genetic lab, and 2,788 ft<sup>2</sup> maintenance building, was completed on November 19, 1996. The extensive culture facilities, which include 45 lined ponds with a combined area of 37.3 acres, were completed on August 31, 1998. A 0.7 mile wetlands trail was completed in 2002. The project features all-weather, ADA-compliant trail with interpretive stations about the plants and animals of Texas wetlands. The trail includes an observation beehive, an interactive nature communications center, duck blind, timber-framed pavilions, streams, ponds, pitcher plant bog, wildflower area, hunter education features and a fly fishing area. A restroom was added to the upper trail in 2005. In 2006 a second ticket booth was added to the rear entrance to the facility. In 2007 a new amphitheater and hunter skills trail, including an air rifle range, was completed. The Richard M. Hart & Johnny Morris Conservation Center was completed April 14, 2007. This 14,000 ft<sup>2</sup> building has a large meeting room with seating for up to 300, a classroom, four administrative offices, small conference room, a library, game warden museum, and three game warden offices.

## Responsibilities

### *Visitor Center*

Perform a vital public relations and education function through visitor center tours, hatchery tours, school visitation, public lectures, educational workshops, fishing pond experiences, and ShareLunker Program.

Increase public knowledge of Inland Fisheries Management, Research and Hatcheries.

Provide partners/sponsors with successful avenues to promote their conservation ethic.

Involve the public in the conservation and enhancement of trophy bass fishing in Texas through the ShareLunker Program.

Enhance community relations through hosting public events such as Halloween at the Hatchery, Fly Fish Texas, Outdoor Fools Day, Cinco de Mayo, and Fireworks at the Fishery.

Provide a venue for professional and business meetings and seminars.

Culture 42 different species of fish, reptiles, birds, and mammals for educational displays.

Manage project income and grants to help support the Visitor Center.

Maintain a volunteer program to assist with the daily operations of the Visitor Center.

Actively market and promote TFFC to increase visitation.

Maintain facilities and equipment for peak operation.

### ***Hatchery***

Culture four different species of fish and stock into public waters.

- Florida largemouth bass (including ShareLunker offspring)
- Channel catfish
- Rainbow trout
- Smallmouth bass

Conduct aquaculture research designed to increase hatchery productivity and efficiency.

Maintain facilities and equipment for peak operation and appearance.

### **Program Costs**

The total cost for the Education and Outreach and Hatchery Programs for FY07 was \$1,959,591.

## Accomplishments

### *Visitor Center*

- Visitation to TFFC during CY2007 was 53,108 of which 19,612 were youth. Visitor surveys indicated the most liked activity at the center was fishing. Visitor satisfaction has been rated excellent.
- Visitation to TFFC during FY06 was 50,655 of which 19,404 were youth. Visitor surveys indicated the most liked activity at the center was fishing. Visitor satisfaction has been rated excellent.
- Generated \$279,501 in project income.
- Hatchery Tram Tours – The extensive hatchery tram tour provided 18,564 visitors with information about freshwater fish production in the 45 production ponds.
- Fishing Pond Activity - Adjacent to the Visitor Center is a 1.5-acre casting pond and Anglers Pavilion, which serves as a classroom and staging area for fishing. School age children receive instruction on basic fishing skills, equipment, angler ethics, catch-and-release conservation, and safety. Here, instructors also take the opportunity to reinforce the Visitor Center information on the Sport Fish Restoration Program and its importance to future anglers. Stocked with rainbow trout in winter and channel catfish during summer, the casting pond offers visitors an interactive opportunity to put their newly acquired knowledge to work and catch fish. Over 34,099 visitors fished in the casting pond. More than 451 children received a certificate for catching their first fish at the casting pond.
- Fly Fish Texas - Hosted by TFFC and Texas fly-fishing clubs, Fly Fish Texas provided an interactive educational experience featuring seminars, demonstrations and hands-on experience. Most of the 1,022 attendees were new to the sport and desired inexpensive hands-on training and information.
- Two fly-fishing classes were conducted with approximately 30 adults attending.
- Pre-service teacher groups were trained at TFFC through Stephen F. Austin State University.
- Four summer teacher training workshops were conducted with approximately 153 teachers attending.
- A teacher survey was distributed to youth group leaders in order to receive feedback about the TFFC educational experience. Of 230 distributed surveys, 92 were returned (40%). The three most-enjoyed items were fishing, dive show, and exhibits/fish feeding.
- Staff at the Center spoke before a variety of clubs and organizations during the year. Additional educational outreach included exhibiting at the TPWD's Wildlife Expo in Austin, the state Conference for the Advancement of Science Teaching (CAST) in Houston, and the regional MiniCAST in Tyler, and two fishing and or youth oriented tradeshow.
- Six Boy Scout Fishing Merit Badge Programs were provided to 166 scouts. A TFFC staff person or volunteer was available for teaching or assisting the individual scouts in completing each of the activities. These activities included identifying fishing equipment and tackle along with demonstrating their individual uses, tying knots, identifying safety concerns, understanding fishing laws, catching fish, releasing and processing fish, and practicing good sportsmanship behavior.

- Digital photography workshop conducted by Texas State Photographer Wyman Meinzer trained 20 professional and amateur photographers in the basics of digital photography.
- Seventeen volunteers donated 3,468 hours to the center's educational programs.
- Bluegill family fishing tournament involved 100 adults and youths.
- Hosted a pond management seminar for approximately 100 private pond owners.
- Had a successful ShareLunker year with 16 fish donated.

### *Hatchery*

- Held and stocked 90,159 rainbow trout.
- Reared and stocked 22,754 channel catfish.
- Produced, reared, and stocked 2,039,128 Florida largemouth bass.
- Reared and stocked 4,799 advanced fingerling smallmouth bass.

### **Special Projects**

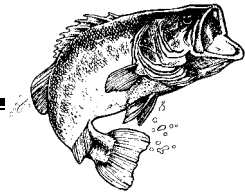
Special projects are included in the **Fisheries Research** section, pages 20–41. These activities are research oriented and are coordinated through fisheries research biologists.

### **Organization**

The organizational flow chart for Texas Freshwater Fisheries Center, Athens, can be found on page 74 of **Appendix, Organization Charts**.

# ANALYTICAL SERVICES

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## Goal

Dedicated to providing high quality and timely analytical services in support of Division and Department programs and activities statewide.

## Rationale

Fisheries management is a multidisciplinary science often incorporating data relating to chemistry, genetics, microbiology, and other disciplines. Analytical Services provides the division with chemical, genetic, and fish health data by employing and equipping staff educated and trained in these specialized disciplines. Analytical methods follow established guidelines or are customized to meet the customers' needs. Services are provided upon request and may be related to research projects, routine monitoring, or response to a fish mortality event.

## Facilities

### *Environmental Contaminants Laboratory (ECL)*

- Location – The ECL is located in Hays County on the grounds of the A. E. Wood Fish Hatchery in San Marcos.
- Major Equipment – Major equipment items used in the lab include: cold vapor atomic absorption spectrometer, cold vapor atomic fluorescence spectrometer, gas chromatograph-mass spectrometer, gel permeation chromatograph, graphite furnace atomic absorption spectrometer, hydride generation atomic fluorescence spectrometer, inductively coupled plasma optical emission spectrometer, and liquid chromatograph-mass spectrometer.

### *A. E. Wood Laboratory (AEW Lab)*

- Location – The AEW Lab is located in Hays County in the Robert J. Kemp, Jr. Fisheries Center on the grounds of the A. E. Wood Fish Hatchery in San Marcos.
- Major Equipment – Major equipment items used in the lab include: automated DNA analyzers (2), ion chromatograph, microplate reader, microscopes with photodocumentation system (compound light with epifluorescence and differential interference contrast, dissecting, and inverted); realtime (quantitative) PCR system; spectrophotometer, and thermalcyclers (4).

## Responsibilities

### *Chemical Analyses*

Provide analytical chemistry data in support of contaminants assessments, kills and spills investigations, and research conducted by Inland Fisheries personnel.

Provide relevant inorganic and organic analyses of fish tissues in support of the Neighborhood Fishing Program.

Provide legally defensible data in support of investigations conducted by Law Enforcement's Environmental Crimes Unit.

Provide analytical chemistry in support of cooperative interagency projects such as the National Coastal Assessment and Statewide Tissue Monitoring programs.

Provide chemical analyses to other TPWD Divisions such as State Parks as needed and as resources permit.

### ***Fish Health Analyses and Related Activities***

Conduct annual fish health inspections of production fish at each hatchery and maintain data documenting pathogens and potential pathogens detected at each facility.

Provide diagnostic services in cases where pathogens are known or suspected to be associated with fish morbidity and mortality at Inland Fisheries hatcheries or in public waters.

Recommend appropriate therapeutics when warranted by pathogen presence and mortality pattern.

Facilitate interstate fish trades with other agencies by evaluating known or suspected health risks associated with fish transfers.

Coordinate and facilitate activities associated with Investigational New Animal Drug (INAD) exemptions to promote aquatic animal drug approvals.

### ***Genetic Analyses***

Provide genetic analyses in support of fisheries management annual surveys and research.

Monitor genetic fitness of hatchery brood fish and recommend management options as needed.

Conduct genetic research in support of ShareLunker and Operation World Record programs.

Conduct research identifying genetic markers and efficient protocols for Inland Fisheries programs.

### ***Hatchery Water Quality Monitoring***

Administer a proficiency testing program and perform laboratory analyses of effluents for the A. E. Wood Fish Hatchery and other Inland Fisheries facilities with discharge permits.

Provide chemical analyses and maintain data for quarterly sampling of hatchery source and receiving waters.

Provide cell counts and bioassays as appropriate and chemical characterization of source waters affected by *Prymnesium parvum*.

## Program Costs

The total cost for Analytical Services for FY07 was \$ 530,513.

## Accomplishments

- Hatchery labs achieved acceptable results on over 92% of the proficiency test samples (39 of 42 tests). Unacceptable results were used to troubleshoot test methods and no lab returned more than one unacceptable result.
- Completed fish health investigations on a total of 70 cases representing 1,828 individual fish (FY 2007).
- Implemented analyses of viral hemorrhagic septicemia, an emerging pathogen of fish.
- Facilitated INAD studies aimed at collecting efficacy data of luteinizing hormone releasing hormone analog to promote spawning in blue catfish and channel catfish.
- Completed 40 cell counts, 90 bioassays, 123 toxin assays, and 121 water analyses in support of fish hatchery, fisheries management, and environmental monitoring operations.
- Completed genetic analysis on 1363 largemouth bass collected from 40 reservoirs as part of fall electrofishing surveys.
- Performed genotyping analyses on the 18 ShareLunkers submitted in 2007. Eight of these fish were identified as Florida largemouth bass.
- Completed identification and characterization of 52 new microsatellite loci useful for micropterids and published those findings in Molecular Ecology Resources.
- Identified mtDNA restriction fragment length polymorphisms (RFLP) useful for taxonomic discrimination of Texas micropterids.
- Identified two microsatellite loci with fixed differences between striped bass and white bass and developed a multiplex to facilitate species identification.
- Developed a mtDNA RFLP to distinguish between palmetto bass and sunshine bass.
- The ITS1 region was sequenced from eight geographically isolated populations of *P. parvum* (4 from Texas) and compared to 13 previously sequenced isolates. Results showed that *P. parvum* from three Texas drainages lacked genetic variation suggesting a recent introduction and rapid expansion of this nuisance alga.
- A total of 167 fish fillets from nine reservoirs was analyzed for mercury in support of a study headed by the Contaminants Assessment Team.



- The ECL received \$50,000 and a total of 41 samples from 21 water bodies in support of the interagency statewide fish tissue monitoring program.
- The ECL received \$52,500 to analyze and report metals, pesticides, PCBs, and polycyclic aromatic hydrocarbons in marine fish tissues (n = 53) and sediments (n = 54) for the final year of the National Coastal Assessment program, an interagency project between the US EPA, Texas Commission on Environmental Quality, and the TPWD.
- The ECL completed analyses on 70 samples associated with 13 cases submitted by the TPWD Environmental Crime Unit and other law enforcement staff.
- The ECL participated in a cooperative study with Texas State University and the City of San Marcos entitled "Occurrence and Fate of Endocrine Disruptors through the San Marcos Wastewater Treatment Plant."
- The ECL assisted the Battleship Texas by troubleshooting their discharge sampling procedures.
- The ECL assisted Meridian State Park by providing chemical characterization of some unknown contents of several 55-gallon drums.
- The AEW Lab and ECL worked together to provide analytical results for a study investigating the efficacy of a solar-powered aeration system to control *P. parvum* in hatchery ponds.
- The ECL received a superior rating for metals analyses of sediments and fish tissue in the intercomparison study sponsored by the National Research Council Canada.
- The ECL participated in four proficiency test studies for organic analyses. Of the 24 matrix/analyte combinations, only one reported value was unacceptable.

## Special Projects

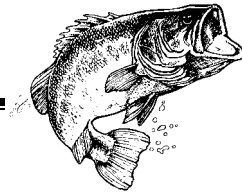
Special projects are included in the **Fisheries Research** section on pages 20–41.

## Organization

The organizational flow chart for Analytical Services can be found on page 73 of **Appendix, Organization Charts**.

# FISH HATCHERIES

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## Goal

To meet the stocking needs for Texas public waters as determined by Inland Fisheries resource management teams.

## Rationale

Freshwater fish hatcheries are an important component of Inland Fisheries resource management. Hatchery-reared fish are used to establish new fish populations, enhance existing populations, support research efforts, and maintain put-and-take or put-grow-and-take fisheries in small urban reservoirs where natural production will not meet angling needs.

## Facilities

### *Dundee Fish Hatchery*

- Location – The Dundee Fish Hatchery is located directly below Lake Diversion approximately 23 miles southwest of Wichita Falls, Texas in Archer County.
- Construction Date – Original construction in 1927 included 44 earthen ponds totaling 32.9 acres. Water for the facility is acquired by gravity flow through 14- and 30-inch pipelines from Lake Diversion.
- Renovation History – Hatchery ponds were renovated in 1958 and expanded to 91 earthen ponds totaling 78.31 acres in 1977. In 1993, seventy-five percent of the production ponds received complete renovation including plastic liners and state-of-the-art harvest basins. The existing plastic liners were replaced and new liners were installed in the remaining ponds in 2006.
- In 2007 the Dundee Fish Hatchery was responsible for producing and distributing more than 3.8 million fingerlings to 102 water bodies.

### *Possum Kingdom Fish Hatchery*

- Location – The Possum Kingdom Fish Hatchery is located below Possum Kingdom Reservoir Dam 10 miles north of Brad, Texas in Palo Pinto County.
- Construction Date – The original 44 earthen ponds totaling 28.98 acres were constructed in 1950.
- Renovation History – In 1993 an intensive incubation and rearing building (60'x 90') was constructed. Pond liners were installed in 75 percent of the production ponds in 1994. Repair of the hatchery water distribution and drain lines as well as the construction of an effluent screening and water re-use system was completed in 2002. Phase two of planned renovations including construction of an intensive rearing facility and a new administrative and laboratory building was completed in July 2005. Renovation and relocation of the facility effluent screening facility was completed in June 2006. An ozone disinfection system is to be constructed in 2009.

- In 2007 the Possum Kingdom Fish Hatchery was responsible for producing and distributing more than 1.2 million fingerlings to 49 water bodies.

### ***A.E. Wood Fish Hatchery***

- Location – The A. E. Wood Fish Hatchery is a state-of-the-art fish production facility located on the San Marcos River in San Marcos, Texas in Hays County.
- Construction Date – Original construction was completed in 1949 and consisted of 92 earthen ponds totaling 61.02 acres of water.
- Renovation History – The hatchery was completely renovated in 1989 to include 50 plastic lined ponds totaling 46.25 acres and a 33,000 square foot production building at a cost of \$14 million. Housed in the culture building are 8 concrete raceways (80'x8'x3') for intensive production and spawning, 22 fiberglass holding troughs (20'x2.5'x2'), a state-of-the-art incubation facility and laboratory. The culture building also houses a 19,000 square foot basement used as mechanical and storage areas. Additionally an effluent treatment and water re-use facility was constructed in 1999 at a cost of \$3,000,000. Pond liners and the facility intake screens were replaced in 2005 and the facility storage reservoir was renovated and relined in 2006.
- In 2007 the A.E. Wood Fish Hatchery was responsible for producing and distributing more than 6.2 million fingerlings to 97 water bodies.

### ***Jasper Fish Hatchery***

- Location – The Jasper Fish Hatchery is located 10 miles northwest of Jasper, Texas in Jasper County.
- Construction Date – The original 33 earthen ponds totaling 42.44 acres were constructed in 1932.
- Renovation History – Thirty additional earthen ponds totaling 21.5 acres were constructed in 1947. In 1993 an intensive incubation and rearing building (60'x 90') was constructed. Planning and design of the East Texas Fish Hatchery located in Jasper County below Sam Rayburn Reservoir began in 2004. Construction of the facility is to begin in 2008 and be completed in 2010.
- In 2007 the Jasper Fish Hatchery was responsible for producing and distributing more than 2.8 million fingerlings to 50 water bodies.

### ***Texas Freshwater Fisheries Center (TFFC)***

See Education and Outreach, page 51.

## **Responsibilities**

Support resource management needs by:

- Providing requested species for stocking through established production programs at Inland Fisheries' hatchery facilities or through contracts with commercial producers.
- Conducting aquaculture research designed to increase productivity and efficiency.

- Ensuring general health and genetic integrity of stocked species.
- Performing vital public affairs and education functions through hatchery tours, public lectures and school visitations.
- Maintaining facilities and equipment for peak operation.

## Program Costs

The total operating and salary cost for the TPWD freshwater fish hatcheries for FY07 (including culture operations at TFFC) was \$4,469,285.

## Accomplishments

### *Species Stocked in Public Waters*

There were 27,718,843 fishes stocked in State waters during 2007. These stockings are presented in the **Appendix, 2007 Stocking Report** (page 104). Largemouth bass (30%), striped bass (22%) and palmetto bass (19%) represent the majority of the fish stocked.

Blooms of golden alga (*P. parvum*) continue to significantly impact culture activities at Dundee and Possum Kingdom Fish Hatcheries. Hatchery and research staff continue to conduct applicable research and revise management plans to control or mitigate the toxic effects of the algae in hatchery production ponds. Current plans call for incorporation of ozone disinfection to the incoming water supply at Possum Kingdom and Dundee to assist in controlling the algae and its toxins.

### *Special Project Activities*

Special projects are included in the **Fisheries Research** section on page 20–41. These activities are research oriented and are a by-product of routine hatchery operations. Study designs are coordinated through Fisheries Research biologists.

### *Other Activities*

In 2004, a site below Sam Rayburn Reservoir in Jasper County was selected from 7 potential sites as the preferred location for a new fish hatchery in East Texas to replace the Jasper Facility. A Design and Engineering firm was selected and programming and design of the new facility has begun. Design of phase one of the projects was completed in 2007. Construction is anticipated to begin the summer of 2008 and require a 18- to 24-month construction period.

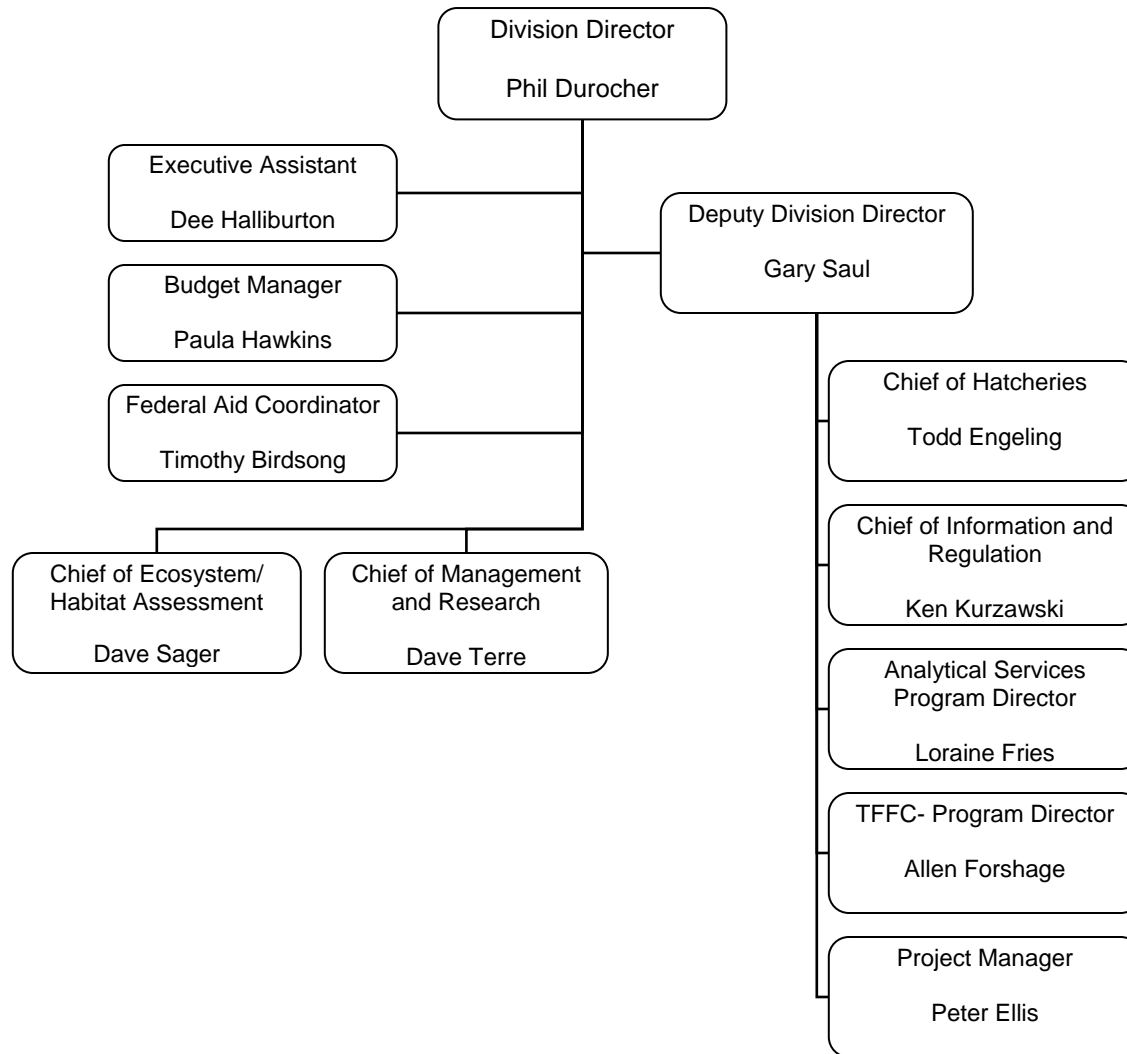
## Organization

Inland Fisheries Hatcheries organizational flow chart is located on page 75 of **Appendix, Organization Charts**.

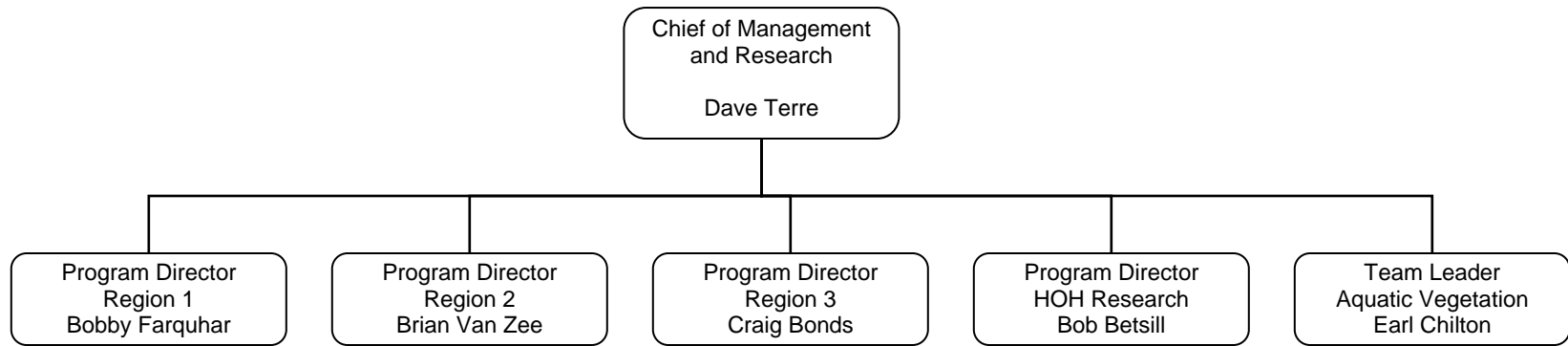
# Appendix

## **Organization Charts**

# Administration

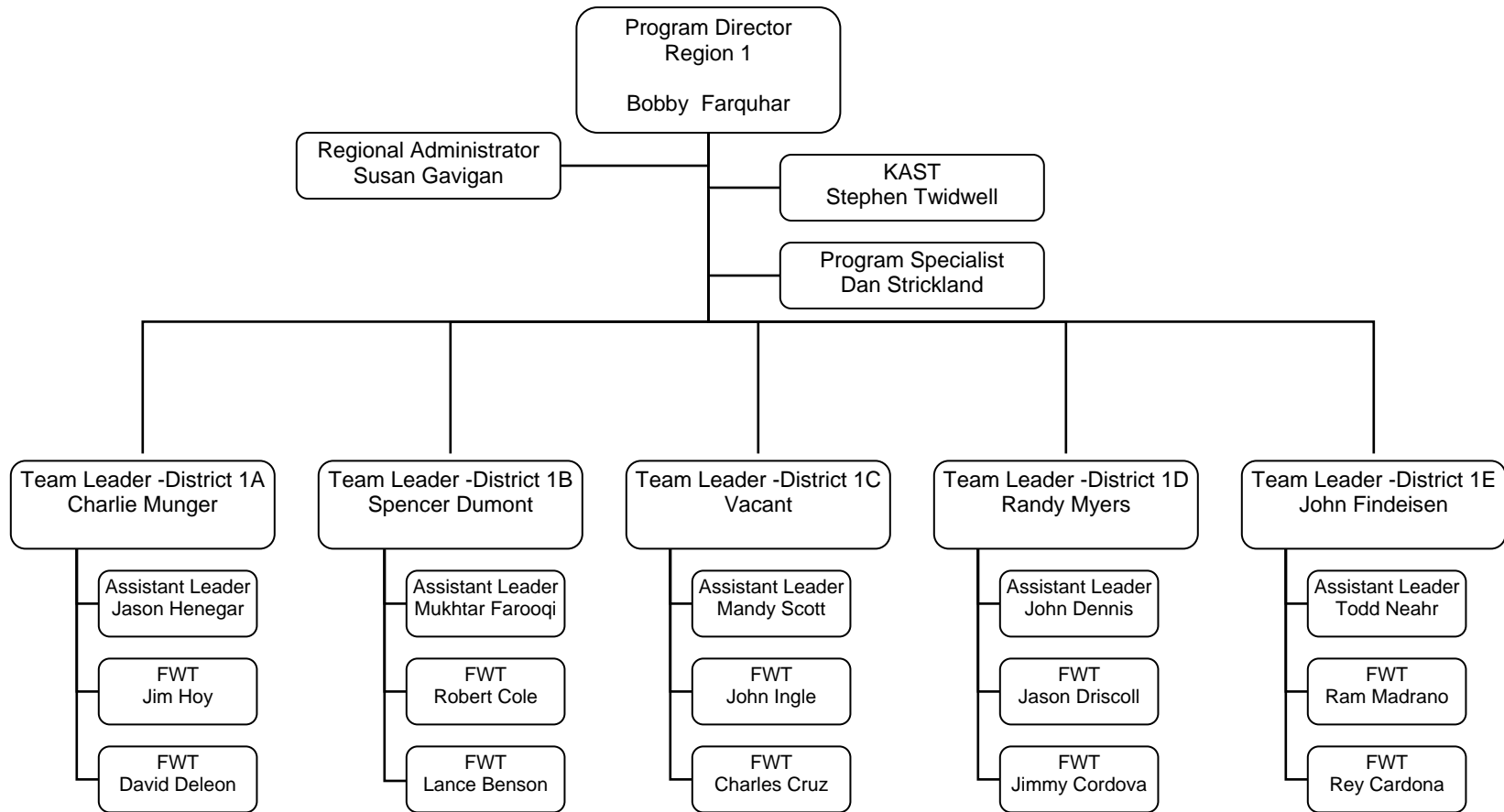


## Management and Research

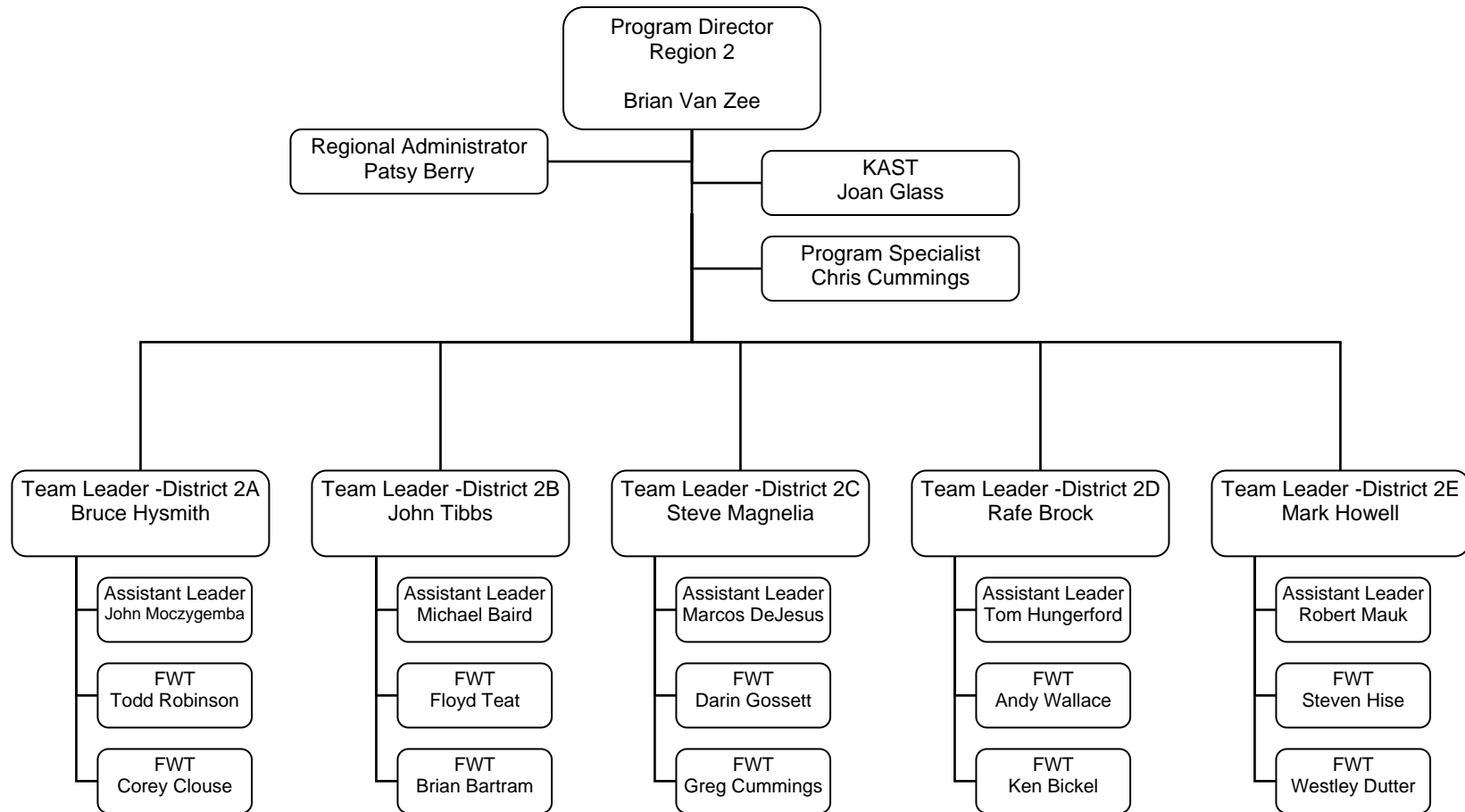




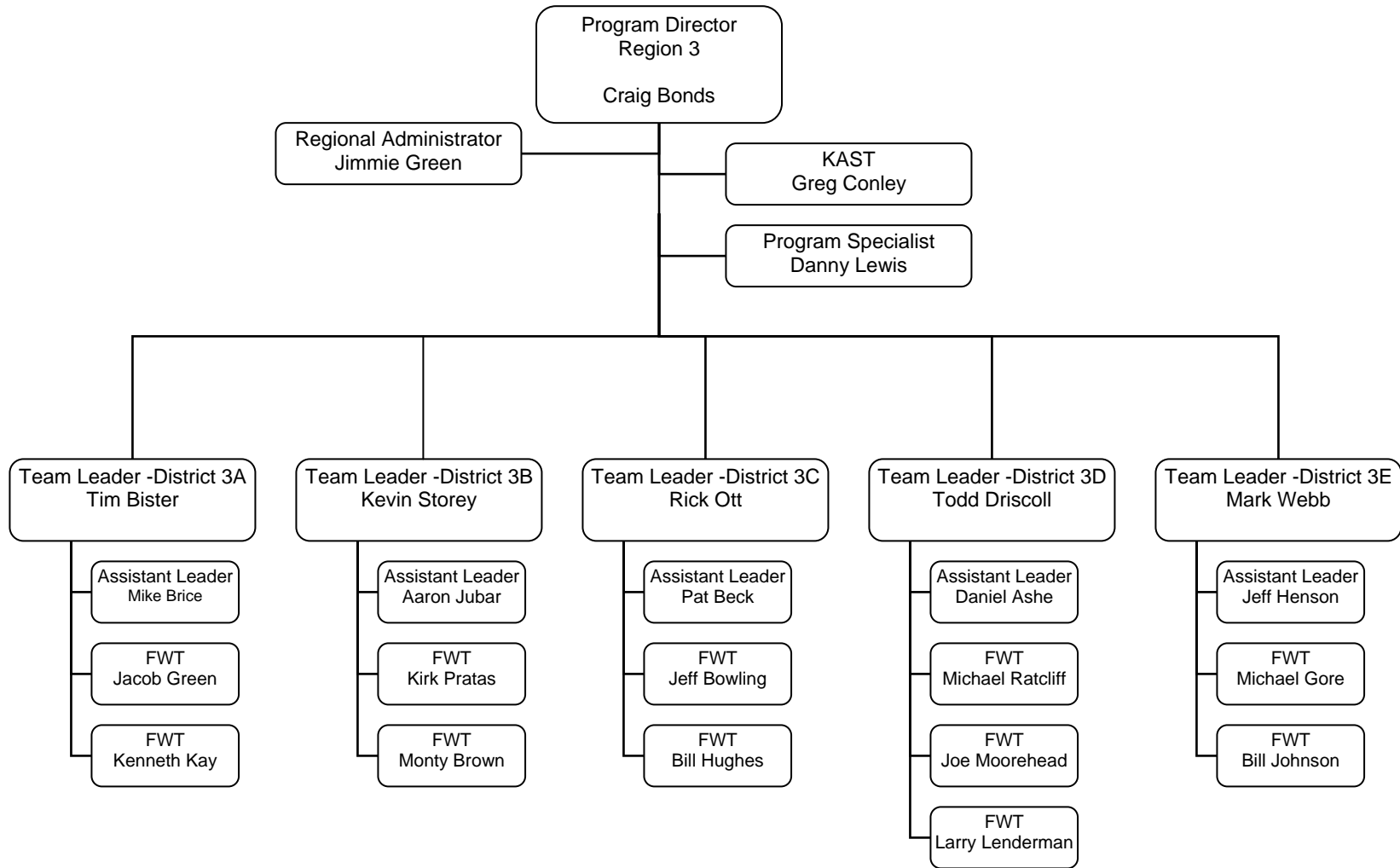
# Management and Research



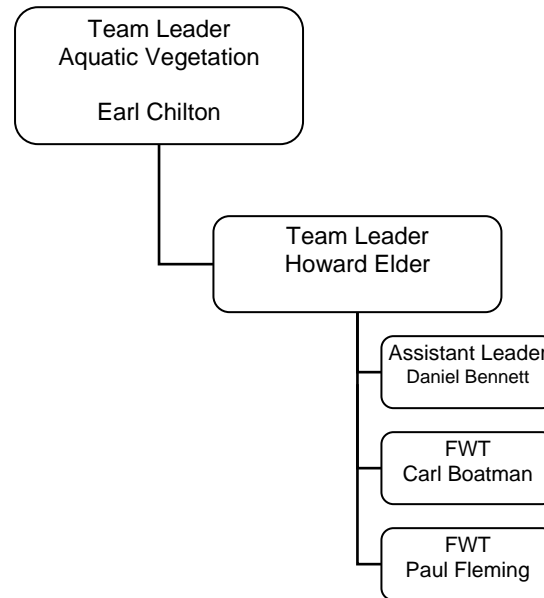
# Management and Research



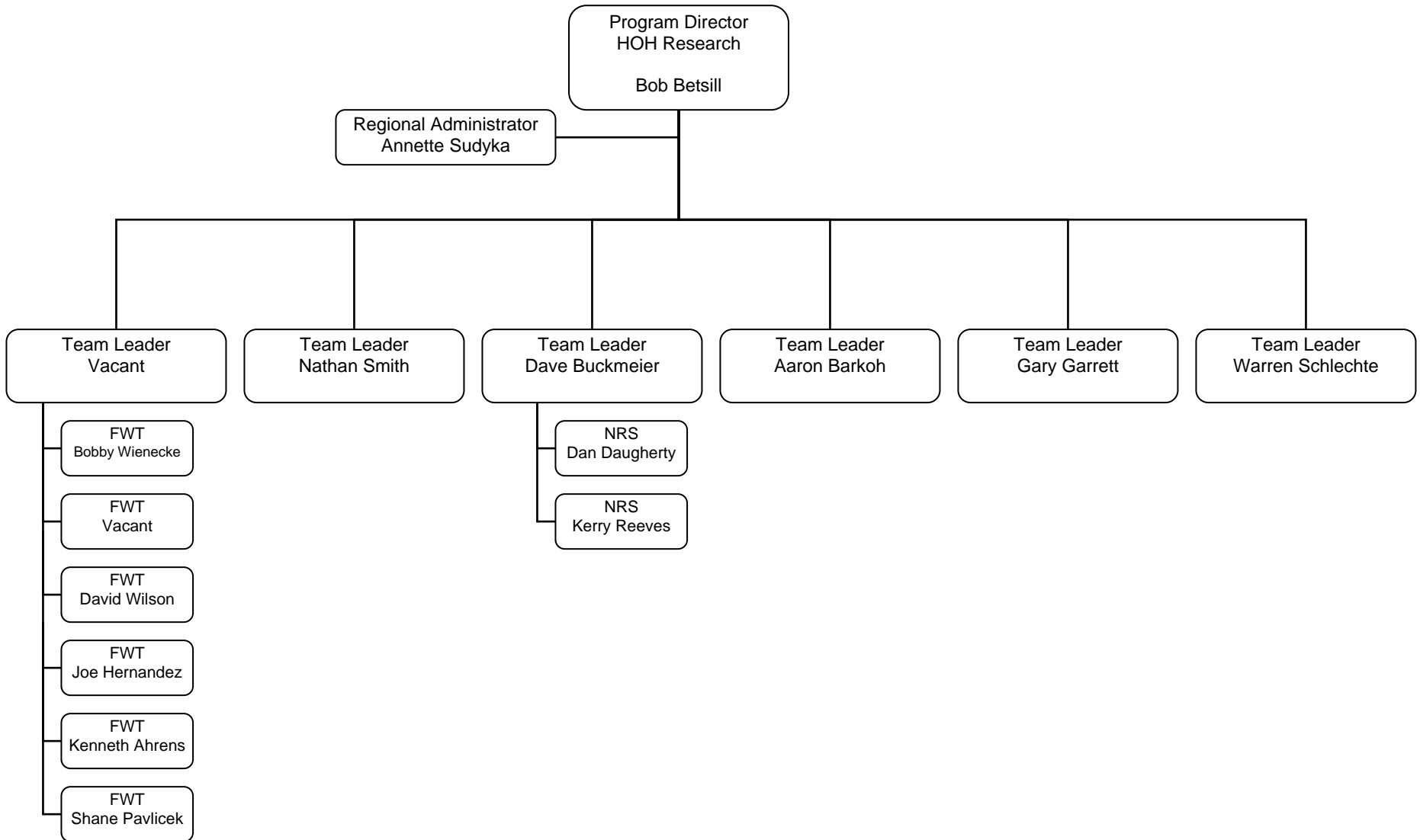
# Management and Research



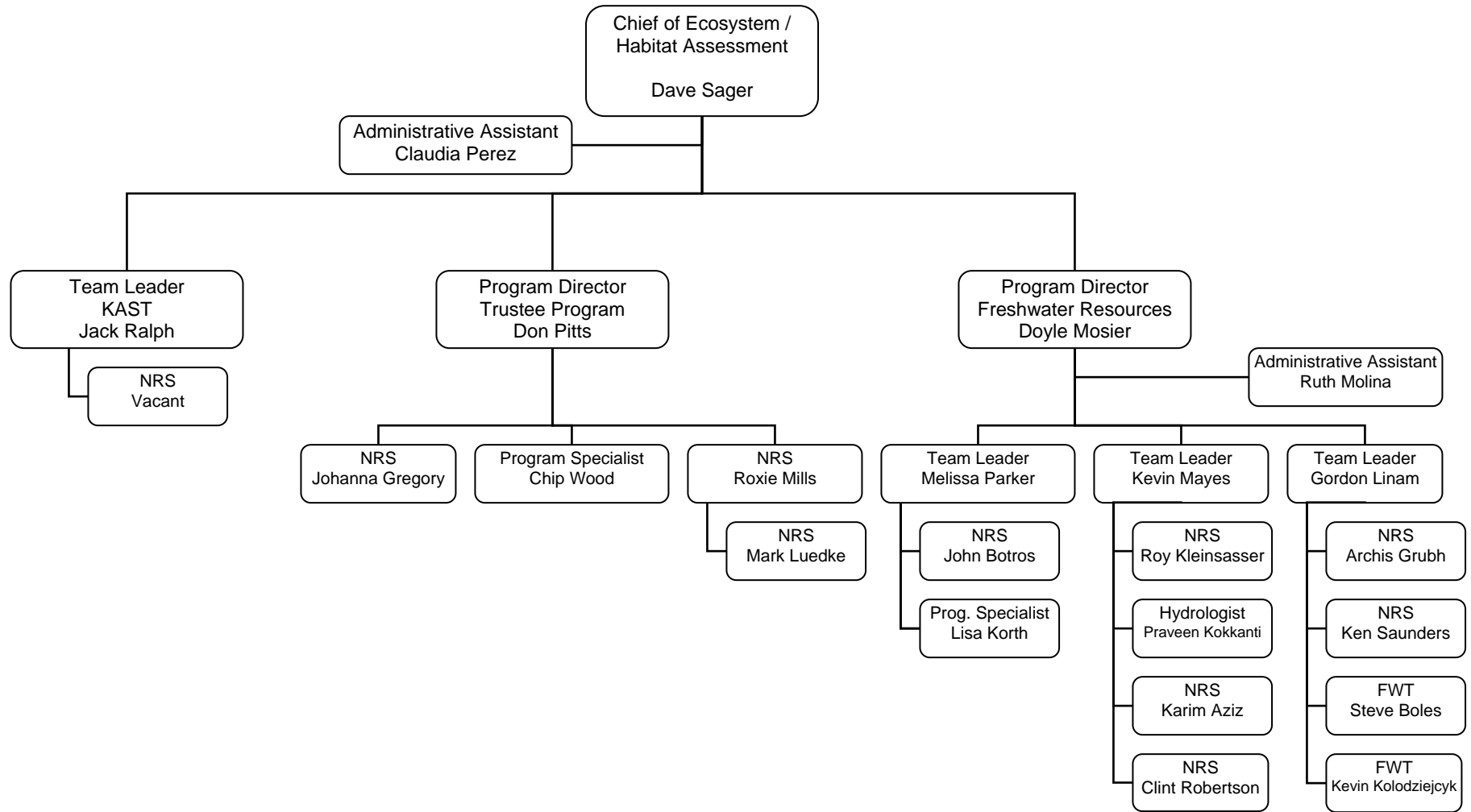
## Management and Research



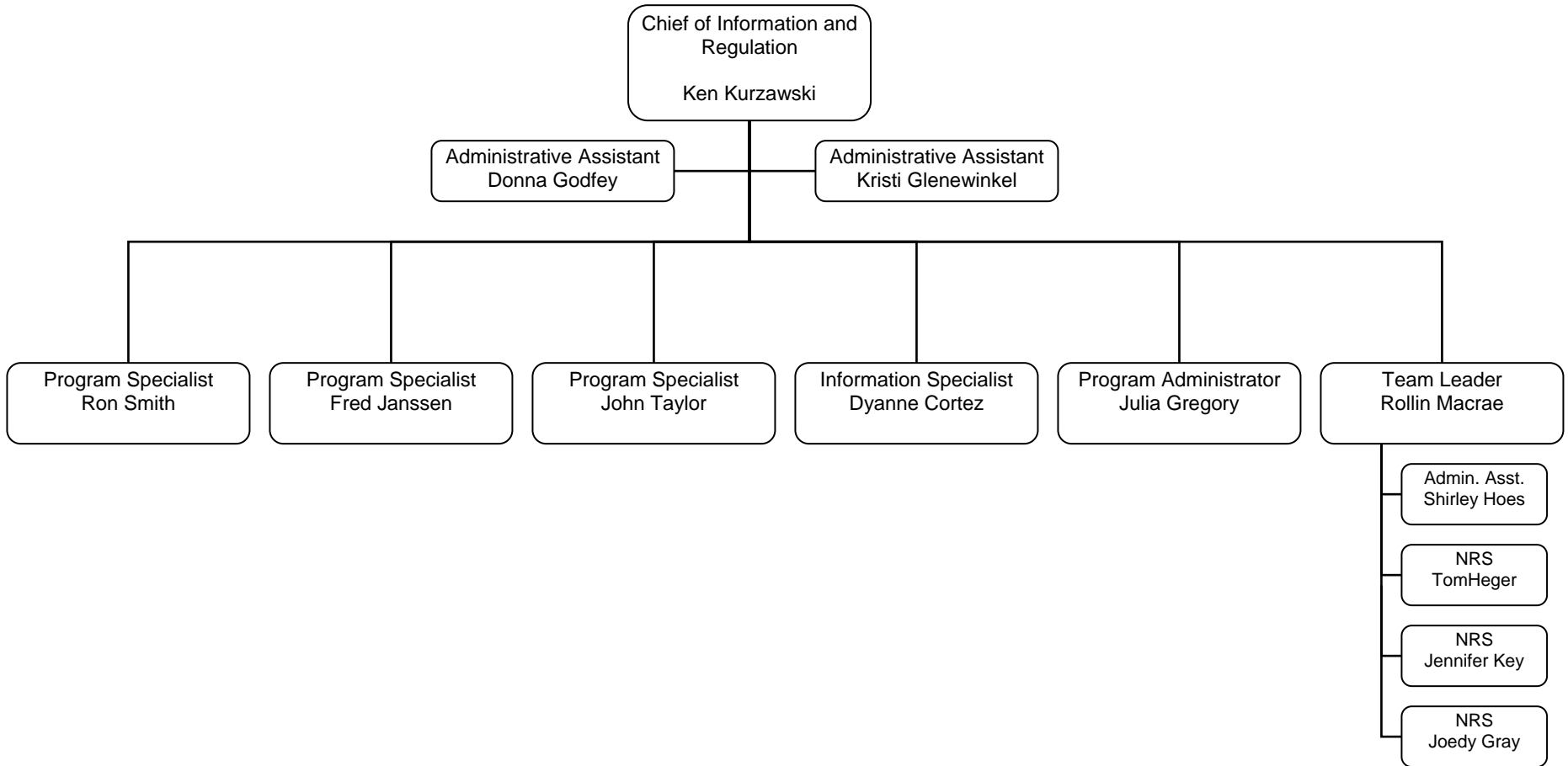
# Management and Research



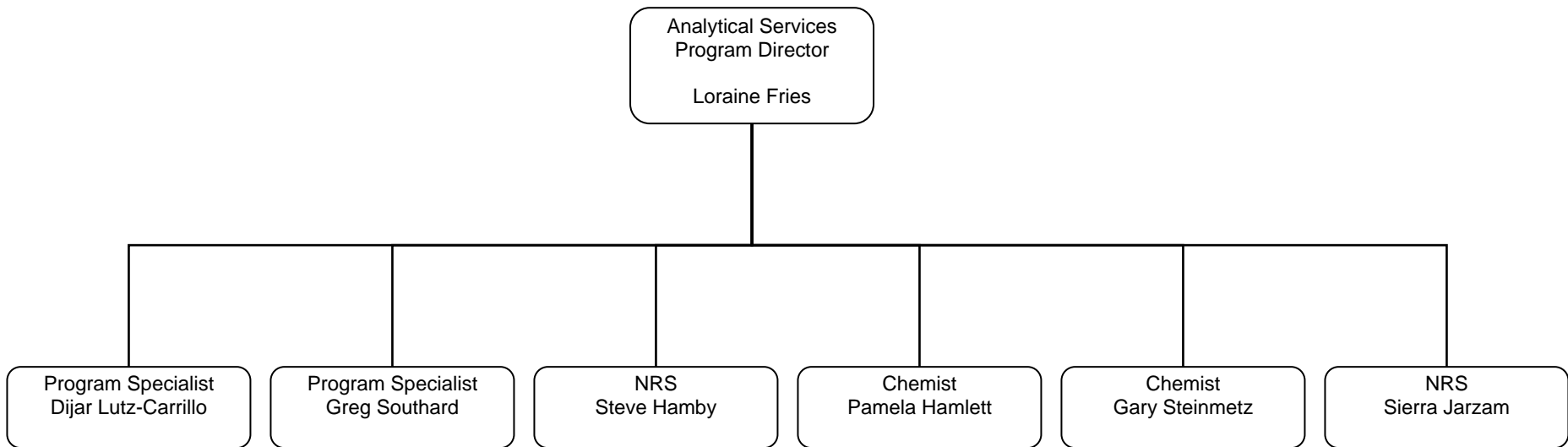
# Ecosystem / Habitat Assessment



# Information and Regulation

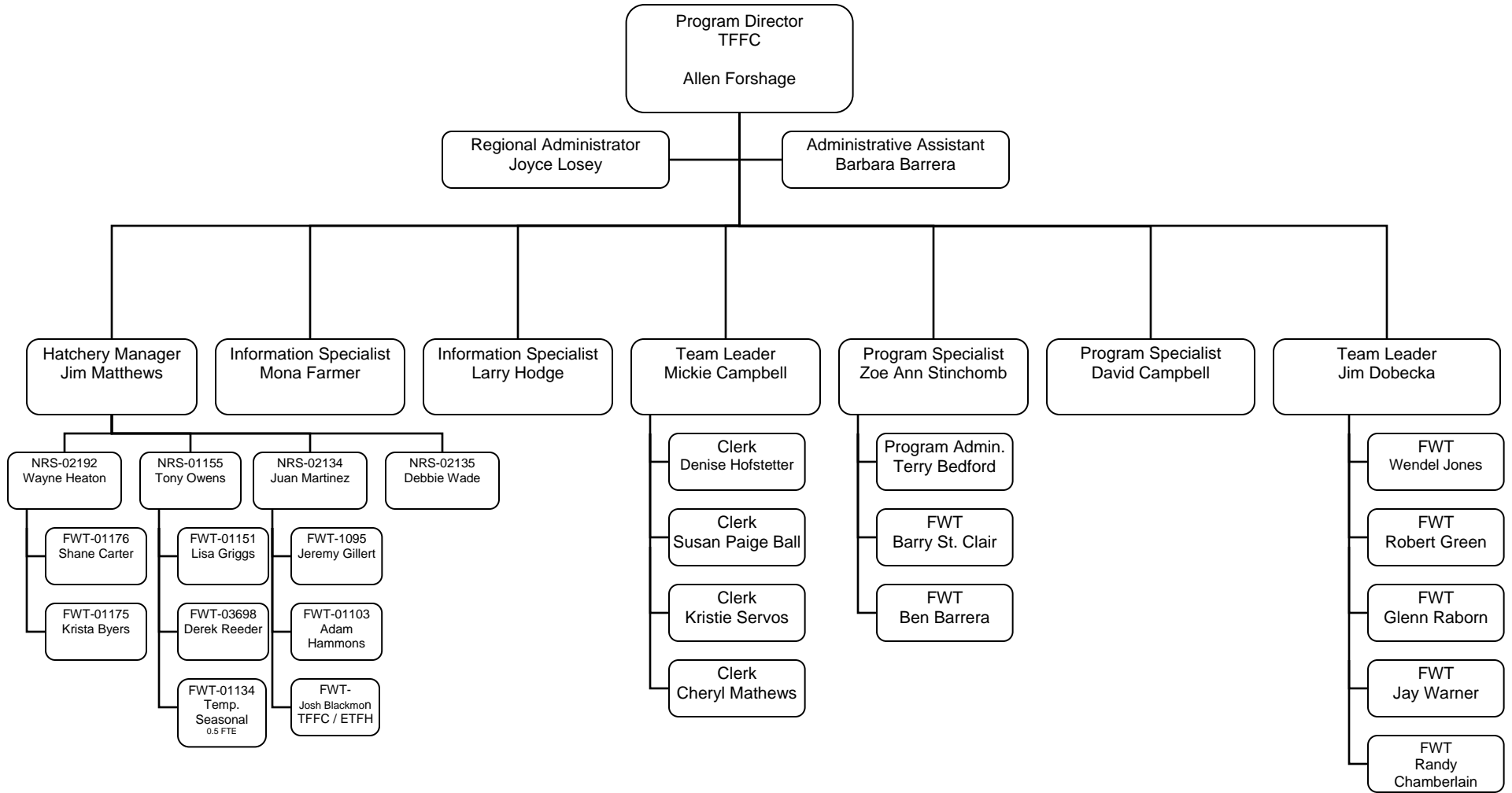


# Analytical Services

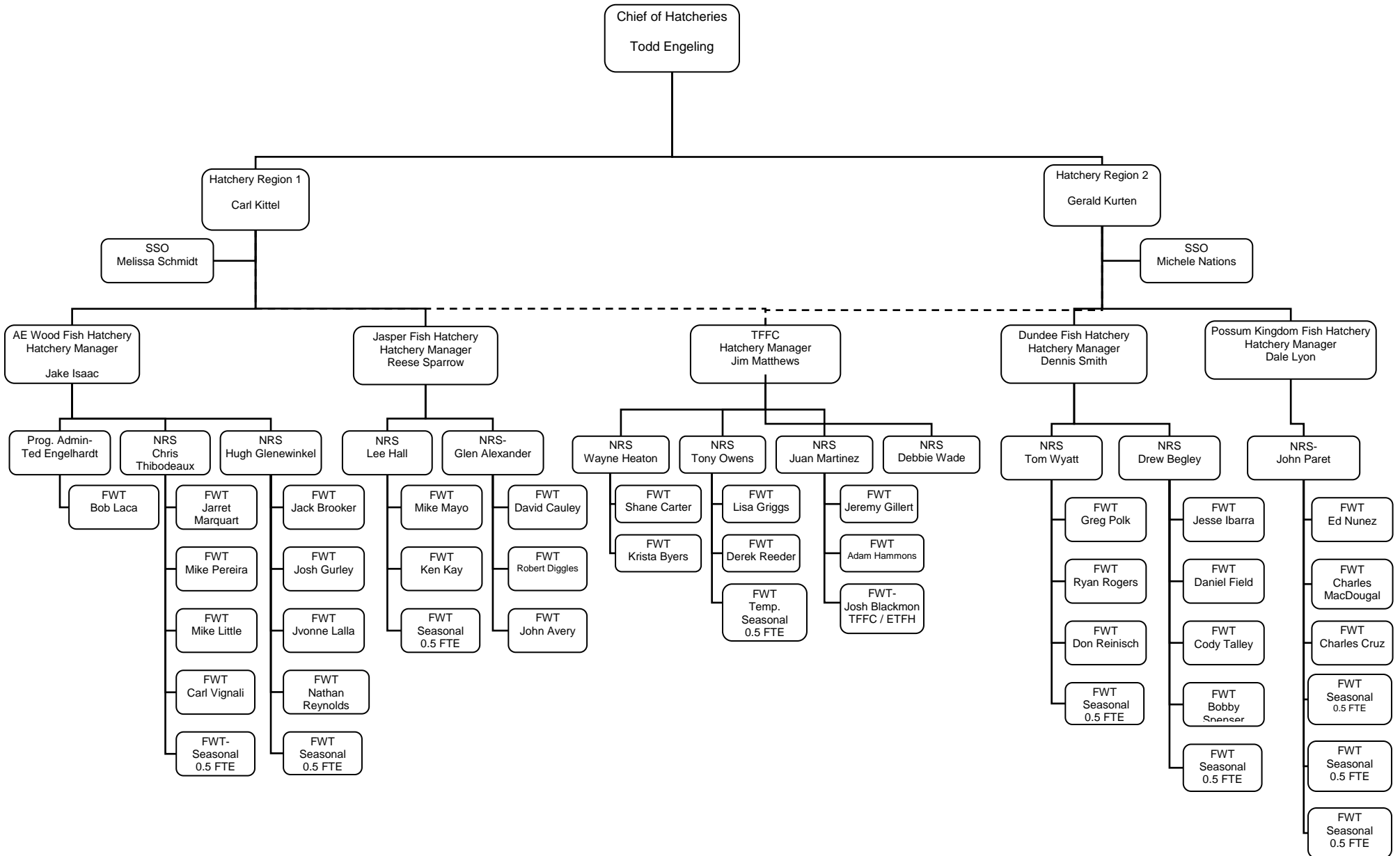




# Texas Freshwater Fisheries Center



# Hatcheries



## **Division Personnel Directory**

Inland Fisheries Division Directory

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Inland Fisheries Division Personnel Directory

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B3220000102	Claudia Perez 3000 S. IH-35, Suite 375 Austin, TX 78704	Fountain Park Plaza	Admn. Asst. IV	Admn. Assistant	<a href="mailto:claudia.perez@tpwd.state.tx.us">claudia.perez@tpwd.state.tx.us</a>	Work: 512-912-7156
B3220000102	Jack Ralph 3000 S. IH-35, Suite 375 Austin, TX 78704	Fountain Park Plaza	NRS VI	KAST Leader	<a href="mailto:jack.ralph@tpwd.state.tx.us">jack.ralph@tpwd.state.tx.us</a>	Work: 512-912-7153
B3220000102	Vacant	Fountain Park Plaza	NRS III	Golden Alga Coordinator		

Inland Fisheries Division Personnel Directory

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B3222100208	Dale Lyon 600 Hwy 16 South Graford, TX 76449	Possum Kingdom-Graford	Manager III	Hatchery Manager	<a href="mailto:dale.lyon@tpwd.state.tx.us">dale.lyon@tpwd.state.tx.us</a>	Work: 940/779-2301 Fax: 940/779-2670
B3221300208	Charles Cruz Hwy 16 South Graford, TX 76449	Possum Kingdom-Graford	F W Tech III			Work: 940 779-2301 Fax. 940 779-2670
B3222200208	McDougall, Charles Eugene 600 Hwy 16 South Graford, TX 76449	Possum Kingdom -Graford	F W Tech III			Work: 940 779-2301 Fax: 940 779-2670
B3222100208	Nunez, Eduardo 600 Hwy 16 South Graford, TX 76449	Possum Kingdom-Graford	F W Tech IV		<a href="mailto:eduardo.nunez@tpwd.state.tx.us">eduardo.nunez@tpwd.state.tx.us</a>	Work: 940/779-2301 Fax: 940/779-2670
B3221300208	John Paret 600 Hwy 16 South Graford, TX 76449	Possum Kingdom-Graford	NRS V	Hatchery Biologist	<a href="mailto:John.paret@tpwd.state.tx.us">John.paret@tpwd.state.tx.us</a>	Work: 940 779-2301 Fax. 940 779-2670
B3222100250	Glen Alexander RR2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	NRS V	Hatchery Biologist	<a href="mailto:glen.alexander@twd.state.tx.us">glen.alexander@twd.state.tx.us</a>	Work: 409 384-2221 Fax: 409 384-4984
B3222200250	Avery, John RR 2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	F&W Tech. III			Work: 409/384-2221 Fax: 409/384-4984
B3222200250	Cauley, David RR 2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	F&W Tech. IV			Work: 409/384-2221 Fax: 409/384-4984
B3222200250	Diggles, Robert RR 2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	F&W Tech. III			Work: 409/384-2221 Fax: 409/384-4984
B3222200250	Hall, Belva Lee RR 2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	NRS IV	Hatchery Biologist	<a href="mailto:lee.hall@tpwd.state.tx.us">lee.hall@tpwd.state.tx.us</a>	Work: 409/384-2221 Fax: 409/384-4984
B3222100250	Ken Kay RR 2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	FW Tech II		<a href="mailto:david.morgan@tpwd.statetx.us">david.morgan@tpwd.statetx.us</a>	Work: 409/384-2221 Fax: 409/384-2221
B3222200250	Mayo, Michael C. RR 2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	F&W Tech. III			Work: 409/384-2221 Fax: 409/384-4984
B3222100250	Sparrow, Reese RR 2, Box 535 Jasper, TX 75951-9685	Jasper Hatchery	Manger II	Hatchery Manager	<a href="mailto:reese.sparrow@twd.state.tx.us">reese.sparrow@twd.state.tx.us</a>	Work: 409 384-2221 Fax: 409 384-4984

Inland Fisheries Division Personnel Directory

B3221000366	Carl Kittel 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	Manager V	Program Director	<a href="mailto:Carl.kittel@tpwd.state.tx.us">Carl.kittel@tpwd.state.tx.us</a>	Work: 512/7353-0313 Fax: 512/353-0629
B32221000568	Jake Isaac 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	Manager III	Hatchery Manger	<a href="mailto:Rob.schmid@tpwd.state.tx.us">Rob.schmid@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Hugh Glenewinkel 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	NRS VI	Hatchery Biologist	<a href="mailto:Hugh.glenewinkel@tpwd.state.tx.us">Hugh.glenewinkel@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Chris Thibodeaux 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	NRS VI	Hatchery Biologist	<a href="mailto:Chris.thibodeaux@tpwd.state.tx.us">Chris.thibodeaux@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Ted Engelhardt 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	Program Specialist III	Facility Manager	<a href="mailto:ted.engelhardt@tpwd.state.tx.us">ted.engelhardt@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000366	Melissa Schmidt 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	SSO I	Admn. Assistant	<a href="mailto:Melissa.schmidt@tpwd.state.tx.us">Melissa.schmidt@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Marquart, Jarret 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. IV		<a href="mailto:Jarret.marquart@tpwd.state.tx.us">Jarret.marquart@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Laca, Robert 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	Maintenance Tech IV		<a href="mailto:bob.laca@tpwd.state.tx.us">bob.laca@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Brooker, Jack 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. IV		<a href="mailto:Jack.brooker@tpwd.state.tx.us">Jack.brooker@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Reynolds, Nathan 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. III		<a href="mailto:nathan.reynolds@tpwd.state.tx.us">nathan.reynolds@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Pereira, Mike 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. III		<a href="mailto:mike.pereira@tpwd.state.tx.us">mike.pereira@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Little, Mike 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. IV		<a href="mailto:Mike.little@tpwd.state.tx.us">Mike.little@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Vignali, Carl 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. III		<a href="mailto:Carl.vignali@tpwd.state.tx.us">Carl.vignali@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629

Inland Fisheries Division Personnel Directory

B32221000568	Lalla, Jvonne 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. III		<a href="mailto:Jovonne.lalla@tpwd.state.tx.us">Jovonne.lalla@tpwd.state.tx.us</a>	Work: 512/7353-0572 Fax: 512/353-0629
B32221000568	Josh Gurley 507 Staples Road San Marcos, Texas 78666	A.E. Wood Fish Hatchery	F&W Tech. II			Work: 512/7353-0572 Fax: 512/353-0629

**INLAND FISHERIES  
IFS PROJECT COST CODES**

### INLAND FISHERIES IFS PROJECT CODES

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
FAAIF	General Administration - Inland Fisheries	XX	Unspecified	STATE
		HA	Hatchery General Administration	STATE
FRMIF	Inland Fisheries Resource Management	XX	Unspecified	STATE
		TT	Training	STATE
		CO	Computer Programming	STATE
		SY	Accident Prevention/Safety Training	STATE
		BB	Angler Awareness/Education	STATE
		FW	Applied Management Activities	STATE
		NN	Angler Recognition	STATE
		PA	Public Assistance / Presentations	STATE
		SES	Statewide Economic Study	STATE
		RBFF	Recreational Boating & Fishing Foundation	STATE
XRM	Risk Management	TT	Training	STATE
		XX	Unspecified	STATE
ACE	Security - Austin HQ Security	XX	Unspecified	STATE
XDR	Disaster Recovery	XX	Unspecified	STATE
XDS	Department Safety Program	TT	Training	STATE
		XX	Unspecified	STATE
XEM	Energy Management	XX	Unspecified	STATE
LEMA	Emergency Management Program Administration		Enter County Code	STATE
RSEN1	Senate Bill 1	XX	Unspecified	STATE
FAA22	General Administration – F22D	XX	Unspecified	F22D
FFD22	Heart-of-the-Hills Fisheries Research Station	NF	New Facilities Development	F22D
		HX	General Operations/Maintenance	F22D
		RF	Renovation of Facilities	F22D
FAS	Artificial Streams	XX	Unspecified	STATE
FAA30	General Administration – F30R	XX	Unspecified	F30R

### INLAND FISHERIES IFS PROJECT CODES

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
FAM30	Office Maintenance	XX	Rent, utilities, telecommunications, any other expenses incurred at facility site	F133M
		HX	Maintenance	F133M
FRM30	Freshwater Fisheries Monitoring and Management	XX	Unspecified	F30R
		HX	Maintenance	F30R
		SM	Scoping Meetings	F30R
		DM	Data Management	F30R
		ES	Electrofishing	F30R
		FG	Gill Netting	F30R
		FJ	Frame Netting	F30R
		HM	Harvest Monitoring	F30R
		RA	Other Monitoring	F30R
		PL	General Planning	F30R
		SR	Survey	F30R
		FW	Applied Management Activities	F30R
		BC	Braunig-Calaeras Project	F30R
		SRES	Sam Rayburn Economic Study	F30R
		TBES	Toledo Bend Economic Study	F30R
		CT	Crappie Telemetry Project	F30R
		OHES	O H Ivie Economic Study	F30R
		SRFP	Sam Rayburn Fish Population	F30R
NVR30	Native Vegetation Restoration	XX	Unspecified	F30R
FRC30	River Recreation	XX	Unspecified	F30R
FAA31	General Administration - F31R	XX	Unspecified	F31R
IR066	Florida Largemouth Bass Growout Study	XX	Unspecified	F31R
IR094	Florida LMB Introgression	XX	Unspecified	F31R
IR095	FLMB Performance Comparison	XX	Unspecified	F31R
IR096	Short Term Mortality of Stocked FLMB	XX	Unspecified	F31R
IR097	Contribution of Stocked Northern LMB	XX	Unspecified	F145R

### INLAND FISHERIES IFS PROJECT CODES

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
IR098	Efficacy of Mass Fluorescent-Chemical Double Marking in LMB	XX	Unspecified	F146R
FAA101	General Administration - F101D	XX	Unspecified	F101D
FFD101	A E Wood FH	NF	New Facilities Development	F101D
		HX	General Operations/Maintenance	F101D
		RF	Renovation of Facilities	F101D
FGB101	Guadalupe Bass - F101D	XX	Unspecified	F101D
FNC101	Florida Bass - F101D	XX	Unspecified	F101D
FNE101	Smallmouth Bass - F101D	XX	Unspecified	F101D
FNG101	Coppernose Bluegill - F101D	XX	Unspecified	F101D
FNL101	Trout - F101D	XX	Unspecified	F101D
FNM101	Walleye - F101D	XX	Unspecified	F101D
FNN101	Striped Bass - F101D	XX	Unspecified	F101D
FNO101	White X Striped Hybrid F101D	XX	Unspecified	F101D
FNQ101	White Crappie - F101D	XX	Unspecified	F101D
FNT101	Other Hybrids - F101D	XX	Unspecified	F101D
FOB101	Northern Largemouth Bass - F101D	XX	Unspecified	F101D
FOC101	Channel Catfish - F101D	XX	Unspecified	F101D
FOD101	Blue Catfish - F101D	XX	Unspecified	F101D
FOF101	Flathead Catfish - F101D	XX	Unspecified	F101D
FOR101	Forage - F101D	XX	Unspecified	F101D
FOS101	Native Sunfish - F101D	XX	Unspecified	F101D
PPF101	Paddle Fish - F101D	XX	Unspecified	F101D
FTR101	Trout – State	XX	Unspecified	STATE
FUR101	Red Drum - F101D	XX	Unspecified	F101D
FWB101	White Bass - F101D	XX	Unspecified	F101D
FNV101	Other Species - F101D	XX	Unspecified	F101D
FFCIF	Texas Freshwater Fisheries Center	MG	Gift Shop	STATE
		MA	Admissions	STATE
		MK	Marketing	STATE
		SL	Sharelunker program	STATE
		XX	Unspecified	STATE
FAA90	General Administration - F90D	XX	Unspecified	F90D
FFD90	Texas Freshwater Fisheries Center	NF	New Facilities Development	F90D
		HX	General Operations/Maintenance	F90D
		RF	Renovation of Facilities	F90D



### INLAND FISHERIES IFS PROJECT CODES

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
		EX	Exhibits	F90D
FGB90	Guadalupe Bass - F90D	XX	Unspecified	F90D
FNC90	Florida Bass - F90D	XX	Unspecified	F90D
		SL	Sharelunker	F90D
FNE90	Smallmouth Bass - F90D	XX	Unspecified	F90D
FNG90	coppernose Bluegill - F90D	XX	Unspecified	F90D
FNL90	Trout - F90D	XX	Unspecified	F90D
FNM90	Walleye - F90D	XX	Unspecified	F90D
FNN90	Striped Bass - F90D	XX	Unspecified	F90D
FNO90	White X Striped Hybrid F90D	XX	Unspecified	F90D
FNQ90	White Crappie - F90D	XX	Unspecified	F90D
FNT90	Other Hybrids - F90D	XX	Unspecified	F90D
FOB90	Northern Largemouth Bass - F90D	XX	Unspecified	F90D
FOC90	Channel Catfish - F90D	XX	Unspecified	F90D
FOD90	Blue Catfish - F90D	XX	Unspecified	F90D
FOF90	Flathead Catfish - F90D	XX	Unspecified	F90D
FOR90	Forage - F90D	XX	Unspecified	F90D
FOS90	Native Sunfish - F90D	XX	Unspecified	F90D
FPF90	Paddle Fish - F90D	XX	Unspecified	F90D
FTR90	Trout – State	XX	Unspecified	STATE
FUR90	Red Drum - F90D	XX	Unspecified	F90D
FWB90	White Bass - F90D	XX	Unspecified	F90D
FNV90	Other Species - F90D	XX	Unspecified	F90D
FED125	Education Programs	XX	Unspecified	F125E
		VFT	Virtual Field Trip	F125E
FOM125	Facility Operating & Maintenance / Visitor Center	XX	Unspecified	F125E
		MK	Marketing	F125E
FCO125	Construction	XX	Unspecified	F125E
FAA95	General Administration - F95D	XX	Unspecified	F95D
FFD95	Dundee FH	NF	New Facilities Development	F95D
		HX	General Operations/Maintenance	F95D
		RF	Renovation of Facilities	F95D
		PARVM	Parvum / Golden Algae	F95D
FGB95	Guadalupe Bass - F95D	XX	Unspecified	F95D
FNC95	Florida Bass - F95D	XX	Unspecified	F95D
FNE95	Smallmouth Bass - F95D	XX	Unspecified	F95D
FNG95	coppernose Bluegill - F95D	XX	Unspecified	F95D
FNL95	Trout - F95D	XX	Unspecified	F95D
FNM95	Walleye - F95D	XX	Unspecified	F95D

### INLAND FISHERIES IFS PROJECT CODES

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
FNN95	Striped Bass - F95D	XX	Unspecified	F95D
FNO95	White X Striped Hybrid F95D	XX	Unspecified	F95D
FNQ95	White Crappie - F95D	XX	Unspecified	F95D
FNT95	Other Hybrids - F95D	XX	Unspecified	F95D
FOB95	Northern Largemouth Bass - F95D	XX	Unspecified	F95D
FOC95	Channel Catfish - F95D	XX	Unspecified	F95D
FOD95	Blue Catfish - F95D	XX	Unspecified	F95D
FOF95	Flathead Catfish - F95D	XX	Unspecified	F95D
FOR95	Forage - F95D	XX	Unspecified	F95D
FOS95	Native Sunfish - F95D	XX	Unspecified	F95D
FPF95	Paddle Fish - F95D	XX	Unspecified	F95D
FTR95	Trout – STATE	XX	Unspecified	STATE
FUR95	Red Drum - F95D	XX	Unspecified	F95D
FWB95	White Bass - F95D	XX	Unspecified	F95D
FNV95	Other Species - F95D	XX	Unspecified	F95D
FAA96	General Administration - F96D	XX	Unspecified	F96D
FFD96	Possum Kingdom FH	NF	New Facilities Development	F96D
		HX	General Operations/Maintenance	F96D
		RF	Renovation of Facilities	F96D
FGB96	Guadalupe Bass - F96D	XX	Unspecified	F96D
FNC96	Florida Bass - F96D	XX	Unspecified	F96D
FNE96	Smallmouth Bass - F96D	XX	Unspecified	F96D
FNG96	coppernose Bluegill - F96D	XX	Unspecified	F96D
FNL96	Trout - F96D	XX	Unspecified	F96D
FNM96	Walleye - F96D	XX	Unspecified	F96D
FNN96	Striped Bass - F96D	XX	Unspecified	F96D
FNO96	White X Striped Hybrid F96D	XX	Unspecified	F96D
FNQ96	White Crappie - F96D	XX	Unspecified	F96D
FNT96	Other Hybrids - F96D	XX	Unspecified	F96D
FOB96	Northern Largemouth Bass - F96D	XX	Unspecified	F96D
FOC96	Channel Catfish - F96D	XX	Unspecified	F96D
FOD96	Blue Catfish - F96D	XX	Unspecified	F96D
FOF96	Flathead Catfish - F96D	XX	Unspecified	F96D
FOR96	Forage - F96D	XX	Unspecified	F96D
FOS96	Native Sunfish - F96D	XX	Unspecified	F96D
FPF96	Paddle Fish - F96D	XX	Unspecified	F96D
FTR96	Trout – STATE	XX	Unspecified	STATE
FUR96	Red Drum - F96D	XX	Unspecified	F96D
FWB96	White Bass - F96D	XX	Unspecified	F96D

### INLAND FISHERIES IFS PROJECT CODES

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
FNV96	Other Species - F96D	XX	Unspecified	F96D
FAA98	General Administration - F98D	XX	Unspecified	F98D
FFD98	Jasper FH	NF	New Facilities Development	F98D
		HX	General Operations/Maintenance	F98D
		RF	Renovation of Facilities	F98D
FGB98	Guadalupe Bass - F98D	XX	Unspecified	F98D
FNC98	Florida Bass - F98D	XX	Unspecified	F98D
FNE98	Smallmouth Bass - F98D	XX	Unspecified	F98D
FNG98	coppernose Bluegill - F98D	XX	Unspecified	F98D
FNL98	Trout - F98D	XX	Unspecified	F98D
FNM98	Walleye - F98D	XX	Unspecified	F98D
FNN98	Striped Bass - F98D	XX	Unspecified	F98D
FNO98	White X Striped Hybrid F98D	XX	Unspecified	F98D
FNQ98	White Crappie - F98D	XX	Unspecified	F98D
FNT98	Other Hybrids - F98D	XX	Unspecified	F98D
FOB98	Northern Largemouth Bass - F98D	XX	Unspecified	F98D
FOC98	Channel Catfish - F98D	XX	Unspecified	F98D
FOD98	Blue Catfish - F98D	XX	Unspecified	F98D
FOF98	Flathead Catfish - F98D	XX	Unspecified	F98D
FOR98	Forage - F98D	XX	Unspecified	F98D
FOS98	Native Sunfish - F98D	XX	Unspecified	F98D
FPF98	Paddle Fish - F98D	XX	Unspecified	F98D
FTR98	Trout – STATE	XX	Unspecified	STATE
FUR98	Red Drum - F98D	XX	Unspecified	F98D
FWB98	White Bass - F98D	XX	Unspecified	F98D
FNV98	Other Species - F98D	XX	Unspecified	F98D
FGC	Grass Carp	XX	Unspecified	STATE
		IS	Grass Carp Inspection	STATE
		GR	Guadalupe River Study	STATE
RGGC	Rio Grande Grass Carp Project	XX	Unspecified	RGGC-1
FNH01	Hydrilla - Galveston Corps	XX	Unspecified	G
		VB	Aquatic Veg - Survey	G
		VC	Aquatic Veg - Chemical Treatment	G
		VE	Aquatic Veg - Biological Treatment	G

**INLAND FISHERIES IFS PROJECT CODES**

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
		VM	Aquatic Veg - Mechanical Treatment	G
FNH02	Hydrilla – Other	XX	Unspecified	STATE
		VB	Aquatic Veg - Survey	STATE
		VC	Aquatic Veg - Chemical Treatment	STATE
		VE	Aquatic Veg - Biological Treatment	STATE
		VM	Aquatic Veg - Mechanical Treatment	STATE
FNW01	Water Hyacinth - Galveston Corps	XX	Unspecified	G
		VB	Aquatic Veg - Survey	G
		VC	Aquatic Veg - Chemical Treatment	G
		VE	Aquatic Veg - Biological Treatment	G
		VM	Aquatic Veg - Mechanical Treatment	G
FNW02	Water Hyacinth – Other	XX	Unspecified	STATE
		VB	Aquatic Veg - Survey	STATE
		VC	Aquatic Veg - Chemical Treatment	STATE
		VE	Aquatic Veg - Biological Treatment	STATE
		VM	Aquatic Veg - Mechanical Treatment	STATE
FSV02	Salvinia – Other	XX	Unspecified	STATE
		VB	Aquatic Veg - Survey	STATE
		VC	Aquatic Veg - Chemical Treatment	STATE
		VE	Aquatic Veg - Biological Treatment	STATE
FSV03	Hydrilla - BOR - Rio Grande River	XX	Unspecified	SAV01-1
		VB	Aquatic Veg - Survey	SAV01-1
		VC	Aquatic Veg - Chemical Treatment	SAV01-1
		VE	Aquatic Veg - Biological Treatment	SAV01-1
		VM	Aquatic Veg - Mechanical Treatment	SAV01-1
FSV04	Salvinia - F&W Service (\$40K)	XX	Unspecified	SAV02-1
		VB	Aquatic Veg - Survey	SAV02-1
		VC	Aquatic Veg - Chemical Treatment	SAV02-1
		VE	Aquatic Veg - Biological Treatment	SAV02-1
		VM	Aquatic Veg - Mechanical Treatment	SAV02-1
FOV01	Other Vegetation - Galveston Corps	XX	Unspecified	G
		VB	Aquatic Veg - Survey	G
		VC	Aquatic Veg - Chemical Treatment	G
		VE	Aquatic Veg - Biological Treatment	G
		VM	Aquatic Veg - Mechanical Treatment	G
FOV02	Other Vegetation – Other	XX	Unspecified	STATE
		VB	Aquatic Veg - Survey	STATE
		VC	Aquatic Veg - Chemical Treatment	STATE
		VE	Aquatic Veg - Biological Treatment	STATE

**INLAND FISHERIES IFS PROJECT CODES**

PROJECT	DESCRIPTION	TASK	DESCRIPTION	GRANT
FMI01	Watermilfoil - Galveston Corps	XX	Unspecified	G
		VB	Aquatic Veg - Survey	G
		VC	Aquatic Veg - Chemical Treatment	G
		VE	Aquatic Veg - Biological Treatment	G
FMI02	Watermilfoil – Other	XX	Unspecified	STATE
		VB	Aquatic Veg - Survey	STATE
		VC	Aquatic Veg - Chemical Treatment	STATE
		VE	Aquatic Veg - Biological Treatment	STATE
FNA01	Alligator Weed - Galveston Corps	XX	Unspecified	G
		VB	Aquatic Veg - Survey	G
		VC	Aquatic Veg - Chemical Treatment	G
		VE	Aquatic Veg - Biological Treatment	G
FNA02	Alligator Weed – Other	XX	Unspecified	STATE
		VB	Aquatic Veg - Survey	STATE
		VC	Aquatic Veg - Chemical Treatment	STATE
		VE	Aquatic Veg - Biological Treatment	STATE
RWDA	Water Data Access	XX		STATE

**INLAND FISHERIES IFS PROJECT CODES**

<b>CODE</b>	<b>DESCRIPTION</b>	<b>FED AID GRANT</b>	<b>Contract</b>	<b>State</b>	<b>Agency</b>
FRMIF/FAAIF	General Administration-State			X	
RRA01F	Administration-Fed Aid	F139T			
FRAS	Freshwater Invest/Respon/Assess/Pollution/Wet Pol (State)			X	
RFTM	Fish Tissue Monitoring		TCEQ		
RSEF	Freshwater COE Permits	F139T			
RCA01F	Freshwater Invest/Respon/Assess/Pollution/Wet Pol (Fed Aid)	F139T			
RSEN1F	Freshwater Planning and Strategy (SB1)	F139T			
RSNF	Freshwater Quality Permits and Standards	F139T			
RSW01F	Freshwater Rights Permits-Fed	F139T			
RGA	Golden Algae (Research SWG)	SWG			
RGBR01	Guad/Blanco River Instream Flow	F139T			
RSV04	REMAP-State			X	
RSV01	River/Stream Evaluation and Studies	F139T			
RSV02	River/Stream Evaluation and Studies		REMAP		
RSV03	River/Stream Evaluation and Studies			X	
XDS	Safety Training			X	
RRG	Sand, Shell and Gravel Permits			X	
RSWG4	SWG-Golden Algae *	SWG	USFWS		
RSWG5	SWG-River Planning	SWG	USFWS		
WEX	Wildlife Expo			X	
XXPALP	Administrative Leave				X
XXPNLP	Annual Leave				X
XXPWEP	Educational Leave				X
XXPELP	Emergency Leave				X
XXPWXP	Executive Leave				X
XXPHOP	Holiday Leave				X
XXPWJP	Jury Duty				X
XXPABP	Leave Without Pay				X
XXPWMP	Military Leave				X
XXPWNP	Non-Premium Comp Time Earned				X
XXPWCP	Non-Premium Comp Time Taken				X
XXPWPP	Premium Comp Time Earned				X
XXPWTP	Premium Comp Time Taken				X
XXPSLP	Sick Leave				X

**\* RSWG4 Task Codes:**

AHDA = Project A = Historic Data Assessment of Golden Alga Kills  
 BSPP = Project B = Survey of P. parvum  
 DSWM = Project C = Scientific Workshop and Meetings to Coordinate Management Efforts

## **Stocking Reports**

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShareLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total		
29th Street			741																			741	
75-Acre Lake			2,034																				2,034
Abernathy Community Lake			610					400															1,010
American Legion Park Pond										2,000													2,000
Amistad																127,685							127,685
Amsler Park			412							1,967													2,379
Andrews City			604																				604
Archer City			1,339																				1,339
Ascarate			300							6,980													7,280
Atlanta City Park Lake			505																				505
Austin			204		261,188																		261,392
B. A. Steinhagen	70,159		210,557																				280,716
B.W. Patterson Park Lake			494																				494
Bachman Lake (Dallas)			660																				660
Balmorhea		58,570	57,708					60,906															177,184
Bandera City Park Lake										1,253													1,253
Bane Park Lake										2,019													2,019
Bardwell									32,098														32,098
Bastrop State Park			683																				683
Bates Allen Park Pond 1			500							1,598													2,098
Beal Park Lake			401							875													1,276
Bear Creek Park (Keller)			556							3,504													4,060
Beaver Pond			676																				676



Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total	
Beckley Pond			520																			520
Bell Street			1,122																			1,122
Bellwood					5,000													20,000				25,000
Belton (Bell County)									1,039,169						16,873							1,056,042
Benbrook					182,472																	182,472
Bentsen State Park			889																			889
Bethany Park Pond A			490																			490
Bethany Park Pond B			558																			558
Bethany Park Pond C			709							2,447												3,156
Bevis Skinner Park Pond			490																			490
Big Creek Lake					123,860																	123,860
Birch Creek #1			385																			385
Blanco State Park #3			756																			756
Blanco State Park #4			736							4,726												5,462
Blanco State Park #5			674																			674
Blue Hole Park Lake										1,025												1,025
Blue Ridge Park Pond			558							500												1,058
Bob Sandlin					455,600																	455,600
Bob Sandlin State Park			560							2,001												2,561
Bonham State Park Lake			1,627																			1,627
Brackenridge Park										2,263												2,263
Brady Creek Reservoir					103,097																	103,097
Brazos Lake		10,203	99,090		35,640			12,712														157,645
Breshears			552																			552
Bridge Bob's Pond			480																			480

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total
Bridgeport					299,781				63,879												363,660
Bright Lake			936																		936
Brownwood	326,174		556		326,520																653,250
Buchanan																1,667,424	128,400				1,795,824
Buena Vista Park Lake			2,001						1,433												3,434
Buescher State Park			1,025						2,019												3,044
Buffalo Run Park Lake		19,007	1,217				9,450														29,674
Buffalo Springs	25,164	24,597			24,361																74,122
Burke-Crenshaw Lake			780						2,998												3,778
Burroughs Park Pond			718						2,009												2,727
Buster Long			783																		783
C. J. Kelly Park Pond			805						875												1,680
Caddo					501,110																501,110
Cal Young Park Lake			662																		662
Calaveras			504					46,581	600,122												647,207
Camp Mohawk County Park Pond			531				700														1,231
Canyon																42,751					42,751
Canyon Lake Project #3			742																		742
Canyon Southeast Park Lake			583						3,518												4,101
Canyon Tailrace									31,096												31,096
Carl Barton Jr. Park Pond									2,206												2,206
Carver Park Lake			401																		401
Casa Blanca								10,719													10,719
Caudle			659																		659

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total	
Cedar Creek Reservoir									1,225,218													1,225,218
Centennial Park Lake (Friendswood)			556							1,000												1,556
Center Municipal Park Lake			600																			600
Central High			478																			478
Central Park Pond #1			5,206							1,830												7,036
Challenger 7 Pond			676																			676
Champion Creek		105,882																				105,882
Chicken Lake			831																			831
Claiborne West Park			650							1,102												1,752
Cleburne State Park			2,675																			2,675
Cleburne-Hulen Park										1,732												1,732
Cliff Park (Dallas)			834																			834
Coleman (Hopkins County)			1,402																			1,402
Coleman City (Coleman County)									533,241													533,241
Colorado City		135,618			135,384																	271,002
Comanche Trails (Big Spring)			1,122							1,509												2,631
Comanche Trails Park (Odessa)			401							7,471												7,872
Community Park Pond A (Rowlett)			646							2,200												2,846
Conroe					504,192				169,027													673,219
Converse North Park City Lake		15,890		9,920				4,689														30,499
Cooper Reservoir									188,931													188,931
Copper Breaks State Park			1,157																			1,157
Copperas Cove City			413							1,000												1,413

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total	
Credit Lake			281																			281
Creekfield			650					1,150														1,800
Cuero Park			171																			171
Daniel		89,679	90,314		280,115																	460,108
Dead Woman Pond			104																			104
Delta		119,455	118,617		118,584																	356,656
Devine Lake		16						9,009				146	21									9,192
Doornbos										550												550
Dry Creek Lake			552																			552
Dupree Park										1,529												1,529
E. V. Spence		180,800	183,235		181,428											35,774						581,237
Eagle Mountain					426,963																	426,963
Eagle Pass City			1,566																			1,566
Earl Scott Pond			514																			514
Eisenhower Park Pond			611							3,556												4,167
Elder Lake			783							2,997												3,780
Eldridge Park Pond										2,000												2,000
Ellen Trout Zoo			1,160																			1,160
Elm		8,500	2,381		8,500																	19,381
Elm Creek Buffalo Wallow			210							1,008												1,218
Elmore City Park			873																			873
Emory City Park Lake										200												200
Engeling WMA Berry		100	611					1,044					25									1,780
Ennis Jaycee Park			1,077																			1,077
Fair Park City Lake			574																			574

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total
Fairfield											423,732										423,732
Falcon			321																	9,048	9,369
Falcon Creek Pond			372																		372
Fannin Lake			1,125																		1,125
Faulkner Park Lake (Lindale)			962																		962
Faulkner Park Lake (Tyler)			709						1,869												2,578
First Capitol Park Pond			500						1,757												2,257
Five Mile Dam			844																		844
Fort Boggy State Park									1,000												1,000
Fort Brown Resaca			1,516																		1,516
Fort Phantom Hill								64,145													64,145
Fort Richardson State Park			692						2,592												3,284
Forty Acre			1,319		4,000																5,319
Frio County Regional Park Lake			510																		510
Frisco Commons Pond									2,752												2,752
Fryer									3,002												3,002
Galveston State Park Pond #1			1,224																		1,224
Gillam-Howell North Lake			404																		404
Gillam-Howell South Lake			646																		646
Girlstown USA (Whiteface)									308												308
Glen Rose City Lake			757						1,001												1,758
Goode Pond			509																		509
Graham								24,001													24,001

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total
Granbury																125,278					125,278
Grapevine					335,768																335,768
Green Valley Community Park Pond A (North Richland Hills)			376							748											1,124
Greenbriar Park (Fort Worth)			556							2,500											3,056
Guadalupe River (Kerr Co.)							41,471														41,471
Hale			828																		828
Hamilton Creek Park Lake (Burnet)			400							375											775
Harlingen City Lake			1,129																		1,129
Harlingen Sports Complex			405							1,010											1,415
Hearne Eastside Park Pond										381											381
Hereford City Lake			960																		960
Heritage Park Lake			552							700											1,252
Herman Brown Park Pond			368							1,500											1,868
Higginbotham Park			673							1,524											2,197
Hi-Lions			780																		780
Holbrook					67,769																67,769
Horseshoe		5,200	707				2,580														8,487
Hubbard City			803																		803
Hubbard City #2			552							551											1,103
Hubbard City #3			828																		828
Hubbard City #4			941																		941
Hubbard City #5			640																		640

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total	
Hurst Chisholm Park			5,580							1,959												7,539
IOOF Lake			838																			838
Irving Street			205																			205
Jacksonville					120,790	2,500																123,290
Jasper City Park Pond			993							1,800												2,793
Johnson Branch 2			120																			120
Keneteso Pond										3,144												3,144
Kennedale City Park			556							1,203												1,759
Kidd Springs Park (Dallas)			493							4,206												4,699
Kitty Hollow Lake										900												900
Knierim			555																			555
L.B.J. State Park			574							1,008												1,582
Lake Corpus Christi										1,502												1,502
Lake Fork					501,174																	501,174
Lake Georgetown									5,495						29,795							35,290
Lake Grady T. Wallace			707																			707
Lake Tyler			5,000																			5,000
Lake Zebco										5,546												5,546
Lakeside Park (Duncanville)			5,555							1,963												7,518
Lakeview Park Pond			400																			400
Lakeview Park Pond (Nacogdoches)										769												769
Lamesa 9th Street Park Lake			565							3,003												3,568
Landmark Inn State Park										1,014												1,014
Lavon																339,114						339,114

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total	
League City (Pool)										200											200	
Leonard Pool		4,988	1,247																			6,235
Lewisville					501,720				149,032													650,752
Lewisville Tailrace (Elm Fork Trinity River)										8,317												8,317
Liberty Municipal Park Pond			400																			400
Little Chocolate Bayou Park Pond #1			671																			671
Little Chocolate Bayou Park Pond #2			320																			320
Live Oak City								6,953		1,006												7,959
Livingston					200,586											796,122						996,708
Llano City			1,750																			1,750
LNVA Barrier Pond			756							2,000												2,756
Louise Hayes Park										2,807												2,807
Lower Overton			1,003							2,004												3,007
Lower Waterworks			1,097																			1,097
Lufkin State School Pond			400																			400
Mackenzie									9,333													9,333
Martin Creek Reservoir	249,050																					249,050
Martin Road			650																			650
Marvin Finn Pond-Sammon's Park #2			402																			402
Mary Joe Peckham Park			9,324							3,135												12,459
McClellan			5,662																			5,662
McDonald Lake		9,342						2,302														11,644
McGovern Lake			676																			676



Stocking Reports – January 2007 thru December 2007

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McQueeney														25								25
Meadow			202																			202
Medical Center South			12,965							3,880												16,845
Medina			185,271						23,859													209,130
Meredith Stilling Basin										2,527												2,527
Meridian State Park			1,255							2,202				1,250								4,707
Mesa Pond			208																			208
Mexia State School			708																			708
Mexia State School #2			493																			493
Mexia State School #3			497																			497
Meyer Park Pond			546																			546
Mike Lewis Park (Grand Prairie)										3,400												3,400
Mill Creek Lake														5,928								5,928
Mill Creek Park			600																			600
Miller Park Pond (Temple)			421							1,164												1,585
Miller's Pond			9,614							1,428												11,042
Monahans Perch Pond										3,097												3,097
Morris Park Lake (Elgin)			400																			400
Moss Creek City		16,500	16,392		16,269																	49,161
Mountain Creek Lake (Coke County)		11,707																				11,707
Mt. Vernon City			1,184																			1,184
Muenster Lake		32,606	36,224					16,291														85,121
Nails Creek Pond #1			608																			608
Nassau			1,122																			1,122

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Nasworthy									8,611												8,611	
Nelson Park										1,505												1,505
New Ballinger																			705			705
New Horseshoe			707					1,390														2,097
Nolan Creek										1,982												1,982
North Concho Park			748																			748
Northwest Park Pond (Irving)			644							3,223												3,867
Oakes Street			7,801							2,672												10,473
Old Newcastle			1,030																			1,030
Onion Creek			503																			503
Optimist Pond			400																			400
Pair-a-Trees Pond			200							519												719
Palestine									1,295,830													1,295,830
Palmetto State Park			640		649					577												1,866
Palo Pinto	120,555																					120,555
Pampa City										1,993												1,993
Paris Sports Complex Pond			368																			368
Parrie Haynes Ranch Pond #1			201																			201
Parrie Haynes Ranch Pond #2			368																			368
Pauline	61,439	50,383			60,961																	172,783
Perch Pond - Lake Ray Roberts			495																			495
Petrolia City (Old)			1,154																			1,154
Pickens Lake			1,087							4,985												6,072
Picnic Pond			682																			682

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Pittsburg City Lake			392							2,006											2,398
Plum Lake			9,266							4,401											13,667
Pond 123			354																		354
Possum Kingdom																1,244,254					1,244,254
Possum Kingdom Tailrace										9,582											9,582
Prairie Creek Lake			786					1,027													1,813
Proctor									62,776												62,776
Purtis Creek (F)						10															10
Purtis Creek State Park						1,000															1,000
Raven														5,088							5,088
Ray Hubbard					543,441				152,637												696,078
Red Hills			868																		868
Reeves Lake			467																		467
Resaca De La Guerra			1,115																		1,115
Resoft Park Lake										1,008											1,008
Rhodes Lake		7,346	1,870																		9,216
Richards Park-Upper										750											750
Richland-Chambers					501,630																501,630
Rita Blanca Kids Fishing Pond		34						34		4,012											4,080
River Park Clear Fork of the Trinity River (Fort Worth)										2,000											2,000
Robinson City Park			1,400																		1,400
Rose Park (Mansfield)										1,300											1,300
Rustic Oaks Park			552																		552
Rutcher Lake		6,080	1,558																		7,638

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Sam Rayburn					500,033																500,033	
Sammon's Park			1,080																			1,080
Samuell Farm Pond #4 (Mesquite)										2,001												2,001
San Gabriel Park										1,257												1,257
Saxet Park Lake			1,310																			1,310
Seabourne Creek Park										2,000												2,000
Serenity Park Pond			208																			208
Seymour Golf Course			946																			946
Sheldon State Park Children's #1			400																			400
Sheldon State Park Children's #2			399																			399
Sikes Lake			1,864																			1,864
Somerville									58,375													58,375
South Lakes Park Pond (Denton)			404							1,900												2,304
South Lakes Park Pond North (Denton)			494																			494
South Llano River State Park			807							2,602												3,409
Southwood Hallowan Pool (College Station)										1,985												1,985
Spring Lake Park			625							4,298												4,923
Springfield			490							1,008												1,498
Sulphur Springs City Park										2,079												2,079
Sweetwater		64,545																				64,545
Synergy Lake			835					1,231														2,066
Tawakoni									172,704							1,237,343						1,410,047

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total	
Taylor Lakes Village Park Pond			214																			214
Teague Park (Gregg County)			416							2,669												3,085
Temple Lion's Park Lake										1,102												1,102
Temple V.A. Center			642																			642
Texana					486,494																	486,494
Theo (Caprock Canyon)			1,773																			1,773
Toledo Bend					502,918																	502,918
Tom Bass I			505																			505
Tom Bass III			885							5,503												6,388
Towne Lake										2,789												2,789
Tradinghouse Creek											391,145											391,145
Trammel					10,634																	10,634
Travis																103,569						103,569
Trinity Park Clear Fork Trinity River (Fort Worth)										2,000												2,000
Tucker			1,704																			1,704
Two - Acre Lake										2,523												2,523
TXU Contract Lake #1														450								450
Tyler Nature Center Pond			498							1,337												1,835
Tyler State Park										3,965												3,965
Tyler Water Department Rearing Pond			8,167																			8,167
Upper Kaufman			1,163																			1,163
Upper Waterworks			989																			989
Victor Braunig									19,538		251,543											271,081
W. M. Brook Park Lake			736																			736

Stocking Reports – January 2007 thru December 2007

Waterbody	Blue catfish	Bluegill	Channel catfish	Fathead minnow	Florida Largemouth bass	Grass carp	Guadalupe bass	Largemouth bass	Palmetto Bass (striped X white bass hybrid)	Rainbow trout	Red drum	Redbreast sunfish	Redear sunfish	ShoreLunker Largemouth Bass	Smallmouth bass	Striped bass	Sunshine Bass (white bass x striped bass hybrid)	Threadfin shad	Walleye	White bass	Grand Total	
Waco City Ponds		1,000	492																			1,492
Waco Optimist (HOT Fairgrounds)										2,009												2,009
Waldron Park										1,003												1,003
Walter E. Long Reservoir									6,740													6,740
Waterloo Park Pond										6,506												6,506
Waxahachie	55,200																					55,200
Wheeler Branch Reservoir		42,040	5,591		4,689										4,500							56,820
White River Reservoir																			2,145,000			2,145,000
White Rock Lake	107,354																					107,354
Whitney																495,015						495,015
Wichita									18,504													18,504
Wichita Borrow Pit		5,986	827																			6,813
Wilson-Ledbetter Park Pond			509																			509
Woldert Park Pond										1,470												1,470
Wolf Creek			1,065																			1,065
Woodland Preserve Pond			83																			83
Woodlawn			805																			805
Woodlawn Casting Pond			1,033																			1,033
<b>Grand Total</b>	1,015,095	1,026,074	1,236,746	9,920	8,333,320	3,510	41,471	131,868	5,380,443	292,271	1,666,542	146	46	12,741	51,168	6,214,329	128,400	20,000	2,145,705	9,048		27,718,843



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