Sam Rayburn Reservoir: Planned Water Quality Activities

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Planned Activities

- Bio-West, Inc -- Intensive Survey
- TPWD – Fisheries Monitoring and Management Program
- TCEQ -- Ambient Water Quality Monitoring Dissolved Oxygen Monitoring
- ANRA -- Ambient Water Quality Monitoring
- Abitibi -- Quarterly Monitoring

Bio-West -- Intensive Survey

- **Intensive Survey of Papermill Creek**
  - **Stream Segment No. 0615A**
- Screening of the environmental conditions of Papermill Creek to determine whether a more comprehensive study of this watershed is warranted

Screening

- For any aquatic community impairment in Papermill Creek
- For designated aquatic life use attainment
- For any significant physical or chemical contamination occurrences in the sediment as well as the water column
- For possible human health risks due to pollutants present

Screening

- The secondary purpose of this intensive survey will be to determine whether Papermill Creek is a significant source of pollutants to the Angelina River and Sam Rayburn Reservoir

Sampling Locations

Proposed Intensive Survey Monitoring Stations		
Site #	**TCEQ Station #**	**Site Description**
A	None	Papermill Creek at FM 842 or Twin Oaks Road
B	None	Papermill Creek below the confluence with Mill Creek
C	10502	Papermill Creek upper bifurcation channel, just upstream of the Angelina River confluence
D	None	Mill Creek at FM 2021 or near confluence with Paper Mill Creek

Sampling Activities

Table A6-2. Sampling Activities Per Station				
	Site A	**Site B**	**Site C**	**Site D**
24-hour (temp., D.O., cond., pH)	X	X	X	X
Field Parameters (water quality)	X	X	X	X
Water Chemistry	X			
Sediment Chemistry (plus 1 replicate)	X	X	X	X
Fish Sampling		X	X	X
Benthic Sampling		X	X	X
Toxicity – Water & Sediment	X		X	

Field Parameters

- **Flow**
- **Dissolved Oxygen**
- **Temperature**
- **Conductivity**
- **pH**
- **Secchi Depth**

Surface Water Quality

Surface Water Quality Analytes		Station A
Biochemical Oxygen Demand	Chloride	**Aluminum (dissolved)**
Chemical Oxygen Demand	Sulfate	**Arsenic (dissolved)**
Oil & Grease	Alkalinity	**Barium (dissolved)**
	Hardness	**Cadmium (dissolved)**
Turbidity		**Chromium (dissolved)**
Color	Nitrate + Nitrite	**Copper (dissolved)**
Total Suspended Solids	Ammonia	**Iron (dissolved)**
	Organic Nitrogen	**Lead (dissolved)**
Adsorbable Organic Halogens	Orthophosphorus	**Magnesium (dissolved)**
Volatile Organics	Total Phosphorus	**Manganese (dissolved)**
Semi-volatile Organics	Chlorophyll a	**Mercury (total)**
	Phaeophytin a	**Nickel (dissolved)**
	Fecal Coliform	**Selenium (total)**
		Silver (dissolved)
		Zinc (dissolved)

Sediment Sample Analytes

Sediment Sample Analytes	
2,3,7,8 TCDD	Total TCDD
Total PeCDD	Total HxCDD
2,3,7,8 TCDF	Total TCDF
Total PeCDF	Total HxCDF
Total Organic Carbon	
Sediment Particle Size	
Semi-volatile Organics	
Pesticides (Site A only)	
Total PCBs (Site A only)	

Aluminum	Arsenic
Barium	Cadmium
Chromium	Copper
Lead	Manganese
Mercury	Nickel
Selenium	Silver
Zinc	

Toxicity

- Acute water and sediment toxicity
- Samples will be collected at Sites A and C
- Shipped to the U.S. EPA laboratory in Houston
- Sampling procedures will follow those outlined in the TCEQ Surface Water Quality Monitoring Procedures Manual
- Analysis will follow the procedures required for the U.S. EPA, Region 6 Ambient Toxicity Monitoring Program

Fish & Benthic Sampling

- Sites B, C, and D
- Using TCEQ “Receiving Water Assessment Procedures Manual (1999)”

Results

- Presented to the “Technical Advisory Committee of the Conservation Community”
- Used to design strategy for Fish and Habitat study of the Sam Rayburn Reservoir
- Contact Ed Oborny, Bio-West, Inc.

TPWD

Statewide Freshwater Fisheries Monitoring and Management Program

- Primarily an inventory of major sport fishes and important prey species
- 2 years of doubled fish population sampling
- Report issued yearly
- Todd Driscoll, TPWD 409-384-9572

TCEQ & ANRA

Ambient Water Quality Monitoring

- Used by the TCEQ for Assessment Purposes
  - ✓Evaluate compliance with standards
  - ✓Determine if waterbody is impaired
- FY 2004 (9-1-03 – 8-31-04)
- 24 Stations – Variety of Parameters
  - ✓Dissolved Oxygen, Metals in Water, Conventional Param, Water Toxicity, Bacteria, Field Param.

TCEQ & ANRA

Ambient Water Quality Monitoring

- **Contact Mr. David Hancock, ANRA**
- **936-632-7795**

TCEQ TMDL

Ambient Water Quality Monitoring

- 24 hour Dissolved Oxygen Measurements
- 5 measurements in 2003
- 5 measurements in 2004

Abitibi Consolidated

- Quarterly Sampling
- Papermill Creek (0615A) & Angelina River (0615)
- 8 sampling stations
- Alkalinity, Biochemical Oxygen Demand, Chloride, Sulfate, pH, Color, Temperature, Ammonia, Phosphate, Dissolved Oxygen, Total Suspended Solids, Total Dissolved Solids
- Contact Mr. Charles Hughes 936-633-1647

www.tnrcc.state.tx.us/water/quality/tmdl/

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