



***System Operations Permit
Water Management Plan
Environmental Studies***



Status of Water Management Plan (WMP)

- **Draft System Operation Permit requires WMP**
- **Major elements of WMP**
 - Document how water is managed and used
 - Environmental studies and adaptive management
 - Accounting plan to track water management and use
- **WMP filed with TCEQ staff Nov. 26, 2012**
- **Awaiting Request for Information from TCEQ**



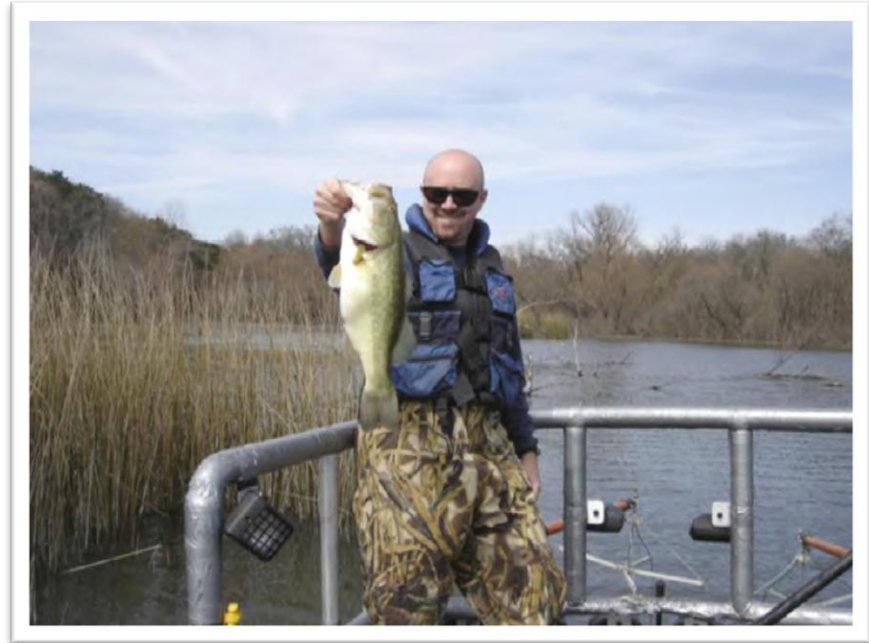
Environmental Studies

- **Reservoir Fisheries Assessment**
- **Initial Stream Assessments**
- **Instream Flow Studies**
- **Evaluate instream flow criteria in Draft Permit**
- **Recommendations to assess and refine instream flow criteria**
- **Adaptive Management**



Reservoir Fisheries Study

- **Complete**
- **Partnered with TPWD Inland Fisheries staff**
- **Develop threshold elevations at which littoral habitat availability is negatively affected**
- **Develop operational guidelines to mitigate negative effects of water level fluctuation**





Initial Stream Assessments

- **Conduct assessments at eight locations at low flow conditions**
- **Identify instream habitat and collect biological data at each location**
- **Evaluate interim low flow values in the permit**





Initial Sampling Locations

Site	SysOp interim low- flow (cfs)	Q95 (cfs)	Sample Date	Sample Discharge (cfs) (* = USGS)
Brazos – Palo Pinto	32	17	02-15-2012 04-25-2012 08-27-12	64* 106 46
Brazos – Aquilla	26	24	02-14-2012 06-20to25-2012	41* 101*-169*
Aquilla Creek - Aquilla	0.1	0.0	05-01-2012 06-13-2012 08-08to09-12	8 4.6 1.11
Leon - Gatesville	4.7	0.4	07-29-2011 06-27-2012	0.7 10
Leon - Belton	4.7	1.8	06-06-2012	20
Lampasas - Belton	4.8	3.6	09-07-2011 06-06-2012 06-12-2012	4.2 13* (hab only) 20
N Frk San Gabriel -Gtwn	1.1	0.4	08-09-2011	3.1
San Gabriel - Laneport	3.6	2.3	08-01-2011 05-10-2012	1.0 10.6



Initial Sampling Summary

- **Interim low-flow values suitable**
- **Brazos River below Whitney not conducive to instream flow studies (IFS)**
- **North Fork San Gabriel needs more evaluation before scheduling IFS**
- **Schedule IFS for all other waterbodies**
- **Future assessment focus: evaluate suitability of Q95 flows recommended by BBEST and BBASC**

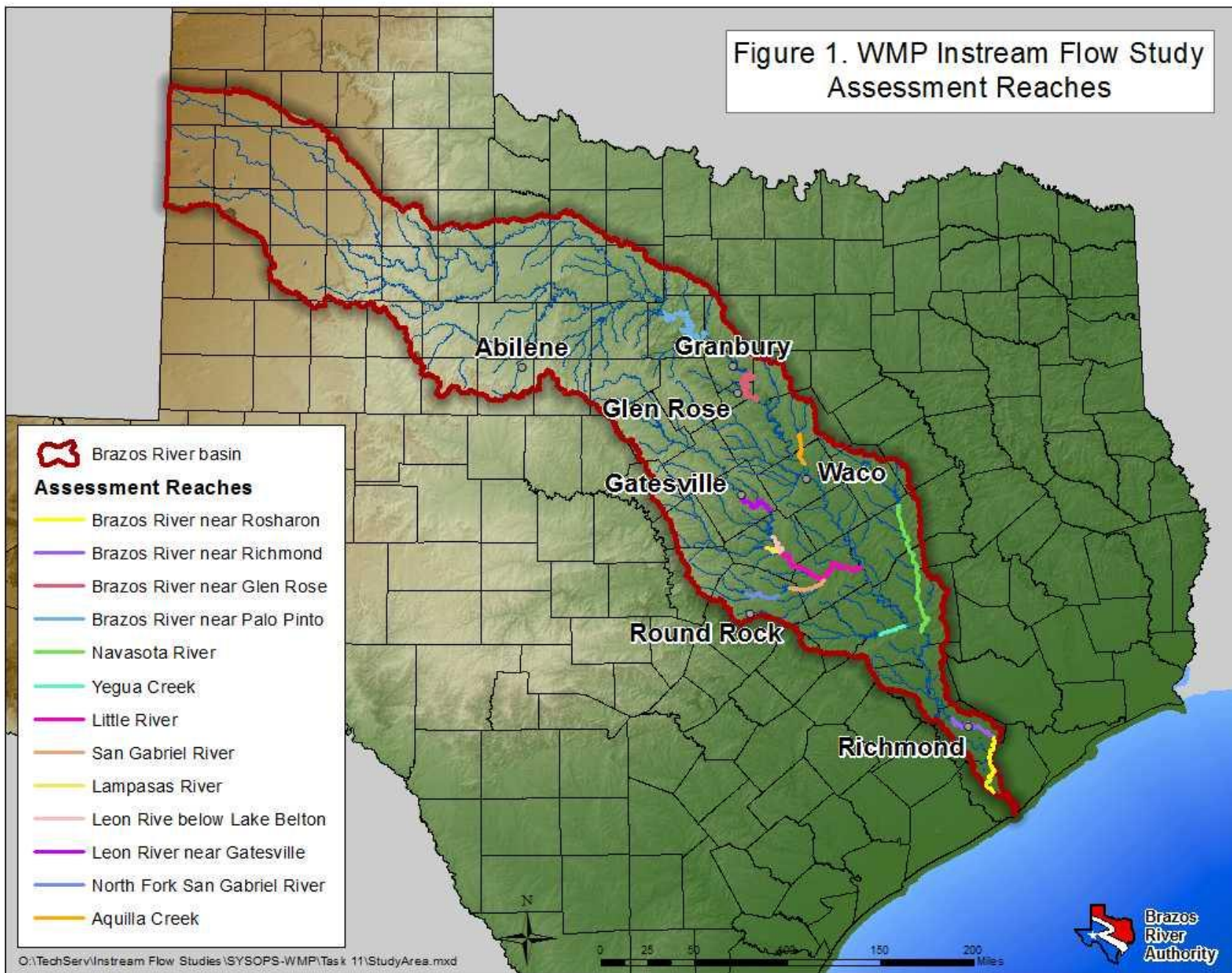


Instream Flow Studies

- **Perform scientific and engineering studies to determine flow conditions necessary for supporting a sound ecological environment in the river basin.**
- **Consistent with Texas Instream Flow Program**
- **Two Phased, Multi-year Assessment**
 - **First Phase – intensive monitoring**
 - **Second Phase – long-term monitoring**



Figure 1. WMP Instream Flow Study Assessment Reaches





IFS Study Anticipated Intensive Monitoring Schedule

- **FY 2013**
 - **Brazos at Palo Pinto**
 - **Brazos at Glen Rose**
 - **Aquilla Creek**
 - **Brazos at Richmond**
- **FY 2014**
 - **Brazos at Palo Pinto**
 - **Brazos at Glen Rose**
 - **Aquilla Creek**
 - **Brazos at Richmond**
 - **Brazos at Rosharon**



Hydraulics Data Collection

- Channel topography
- Water surface elevation and discharge
- Substrate Characterization
- Geomorphic mapping





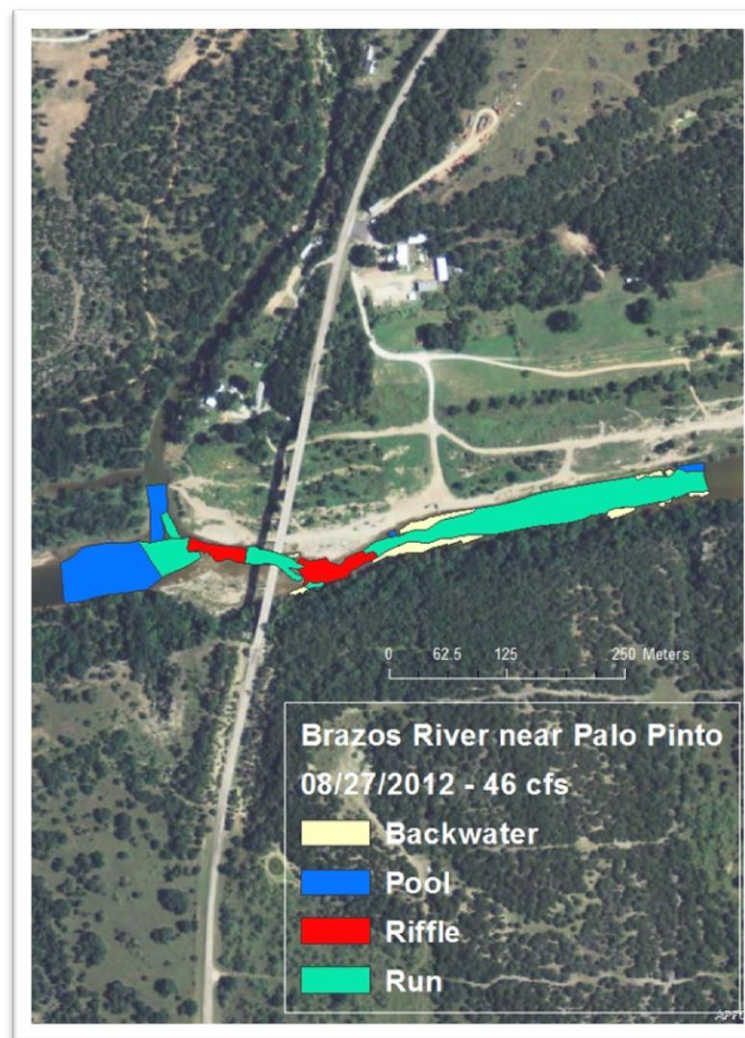
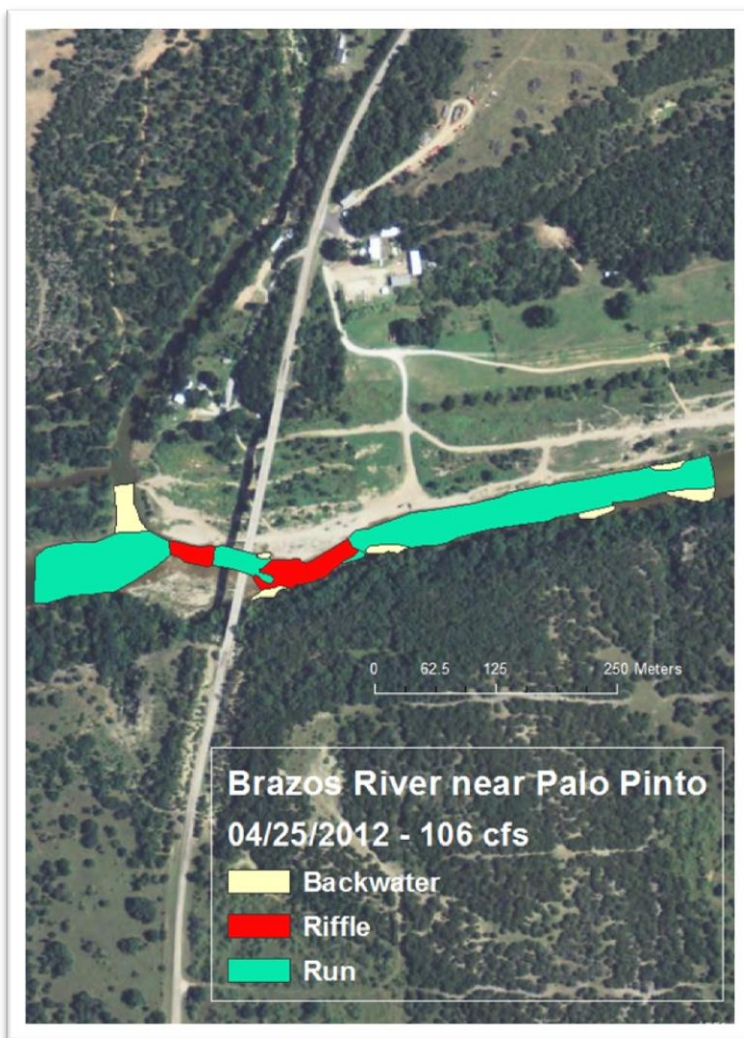
Instream Habitat Surveys

- **Mesohabitat Quantification (e.g. riffles, runs, pools)**
- **Microhabitat – identify and sample small habitat areas**
- **Identify flow requirements to maintain key habitat**





Habitat Comparison at Varying Flows





Biology Data Collection

- **Fish Surveys**
- **Mussel Surveys**
- **Macrobenthic Surveys**
- **Microhabitat sampling**
- **Habitat suitability criteria**
- **Development of Guilds**





Riparian Data Collection

- **Connectivity**
- **Tree, Sapling and Seedling Composition and Relative Abundance**
- **Percent coverage by species**
- **Assess changes over time**





Adaptive Management

- **Work with TPWD to evaluate reservoir fisheries**
- **Evaluate instream flow criteria in Draft Permit**
- **Long-term monitoring to assess instream flow criteria**
- **Revise WMP at minimum of every ten years**





Next Steps for WMP and SYSOPS Permit

- **TCEQ Review Complete, Notice Published June 26, 2013 (est.)**
- **TCEQ Public Meeting July, 2013 (est.)**
- **SOAH Preliminary Hearing Aug. 15, 2013 (est.)**
- **SOAH Contested Hearing Nov. 15, 2013 (est.)**
- **SOAH Proposal for Decision Jan. 25, 2014 (est.)**
- **Commission consideration of PFD April, 2014 (est.)**



Senate Bill 3

- **How it will affect WMP is currently unknown**
- **Anticipate that it will require revision of WMP sooner rather than later**
- **Anticipate that it may require revision of IFS monitoring schedule**



More Information

<http://www.brazos.org/>

