Trip Planning and Site Selection

Lauren Pulliam

TCEQ Water Quality Planning Division

Surface Water Quality Monitoring Team

Site Selection

- Dependent on biological monitoring objective(s)
- Biological Monitoring Fact Sheets, details sampling requirements for each of the four monitoring categories for wadeable freshwater streams
  - Aquatic Life Monitoring
  - Aquatic Life Assessment
  - Receiving Water Assessment
  - Use Attainability Analysis
- Special studies
- Quality assurance document (QAP/QAPP):
  - Sampling objectives
  - Biological monitoring requirements
  - Ensure quality/comparability of data

Where to sample?

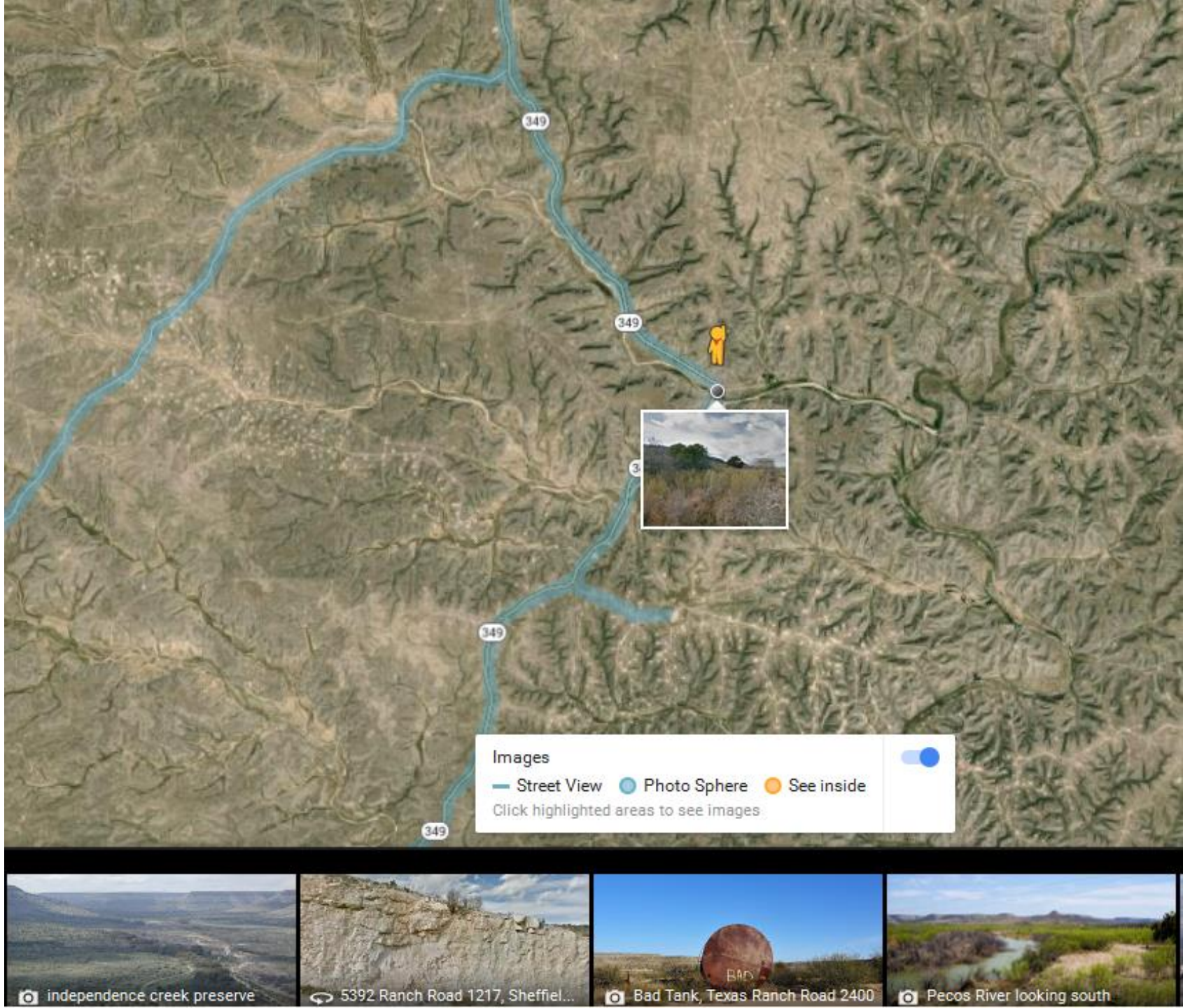
- Site selection depends on monitoring objectives
  - ALM: routine, representative site to provide baseline data or determine if ALU is attained; data used in IR
  - RWA: unclassified water bodies, sampling located in relation to discharge point; sample to determine appropriate ALU and DO criteria; may also require sampling of downstream tributaries; coordinate with WQSIT
  - UAA: purpose to determine if existing designated ALU and DO criteria are appropriate. Multiple sites often necessary to adequately characterize ALU for the study area; coordinate with WQSG
  - ALA: essentially UAA on unclassified water bodies, or those not in Appendix D of the Surface Water Quality Standards, and do not support presumed ALU; sample to determine if presumed ALU is appropriate. Multiple sites may be necessary; coordinate with WQSG

Where to sample?

- Site should be representative of biology and water quality
  - Avoid areas with major tributary confluence or contaminant sources
  - 30-100m upstream of bridge
- Reconnaissance trips to assess access, appropriate reaches for sampling, site stability
- Obtain landowner permissions if site must be accessed on private property
- Check for existing SWQM monitoring station
  - Station Location (SLOC) form for new Monitoring Station ID may be required
  - See SWQM Data Management Reference Guide for instructions
- Best available habitat type for benthic macroinvertebrates
  - Riffles
    1. Cobble/gravel
    2. Debris jams
    3. Emergent vegetation
    4. Root wads
    5. Sand
    6. Bedrock
  - Runs and Glides
  - Pools (least preferable habitat)
  - Snags
- Diversity of habitat types for fish
  - Riffles, runs, glides, pools, undercut banks, snags, brush piles

Google it

- Google street view for initial desktop analysis
- Potential site access issues/locations
- Historical imagery




Ranch Rd 1217
Sheffield, Texas
Street View - Dec 2007
Currently shown: Dec 2007
2007
2013
© 2014 Google
Hide imagery
Back to Map
Earth
3743 Ranch Road 1217, Sheffiel...
3757 Ranch Road 1217, Sheffiel...
3735 Ranch Road 1217, Sheffiel...
3755 Ranch Road 1217, Sheffiel...
3747 Ranch Road 1217, Sheffiel...
3763 Ranch Road 1217, Sheffiel...
3769 Ranch


Ranch Rd 1217
Sheffield, Texas
Street View - Feb 2013
Currently shown: Feb 2013
2007
2013
Hide imagery
Earth
3743 Ranch Road 1217, Sheffiel...
3757 Ranch Road 1217, Sheffiel...
3735 Ranch Road 1217, Sheffiel...
3755 Ranch Road 1217, Sheffiel...
3747 Ranch Road 1217, Sheffiel...
3763 Ranch Road 1217, Sheffiel...
3769 Ranc


Ranch Rd 1217
Sheffield, Texas
Street View - Feb 2013
Currently shown: Feb 2013
2007
2013
Hide imagery
Earth
3743 Ranch Road 1217, Sheffiel...
3757 Ranch Road 1217, Sheffiel...
3735 Ranch Road 1217, Sheffiel...
3755 Ranch Road 1217, Sheffiel...
3747 Ranch Road 1217, Sheffiel...
3763 Ranch Road 1217, Sheffiel...

When to sample?

- Index Period:
  - Minimize variability, maximize efficiency/accessibility, address critical low-flow/temperature conditions
  - Critical period: minimum flow and DO, maximum temperatures
- Exceptions:
  - Special studies with specific seasonal objectives
- Refer to Biological Monitoring Fact Sheets

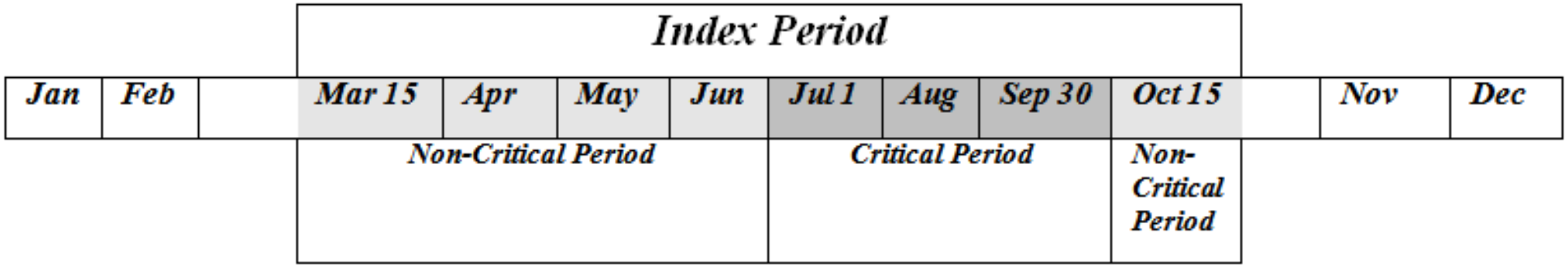
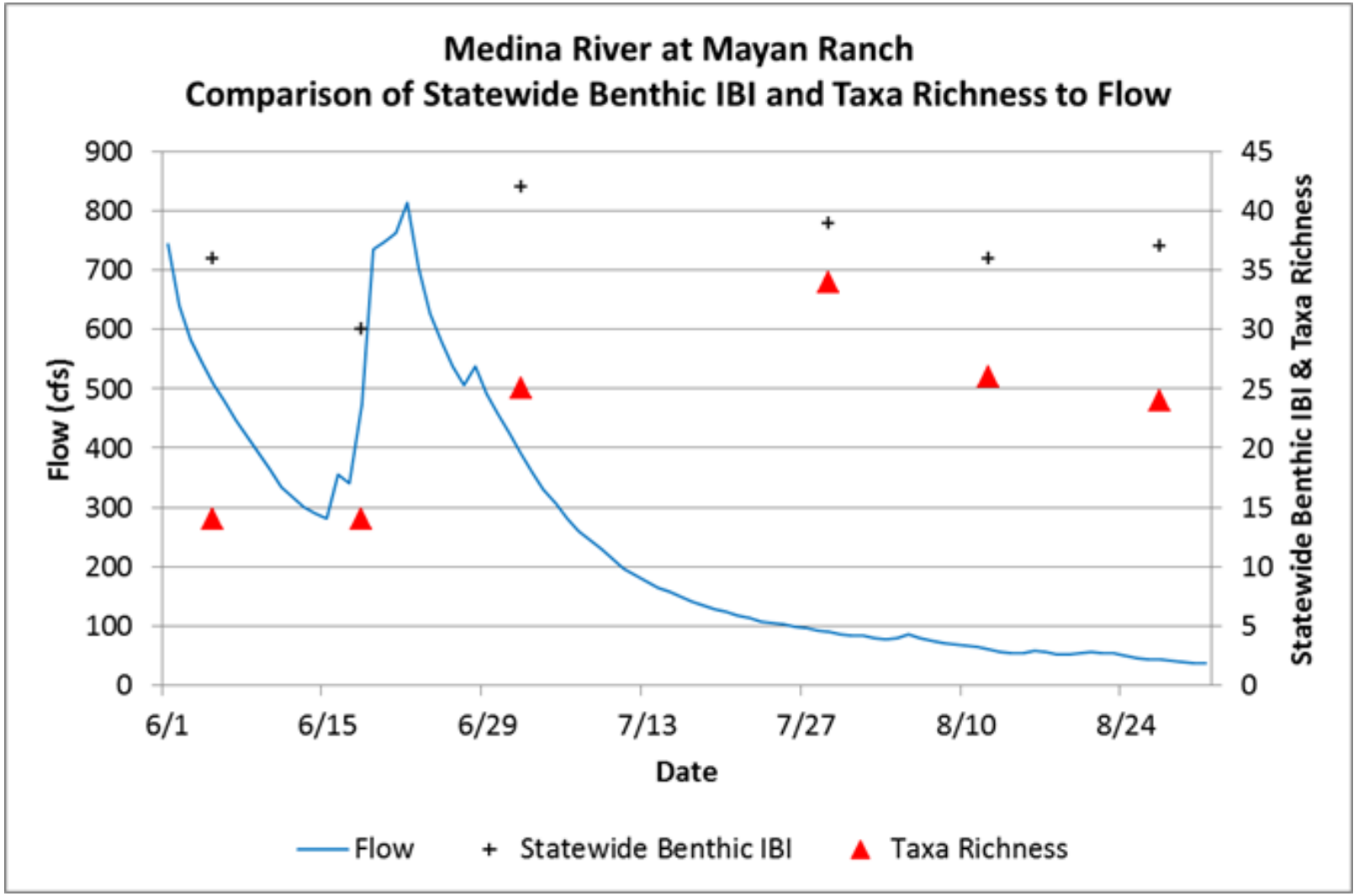


Figure 2.1. The index period.

When to sample?

- Collect biological samples during “stable, unscoured flow conditions”
- Significant scouring events: biological samples should be collected after a minimum of two weeks of normal flow
- Extreme weather conditions: one month of normal flow

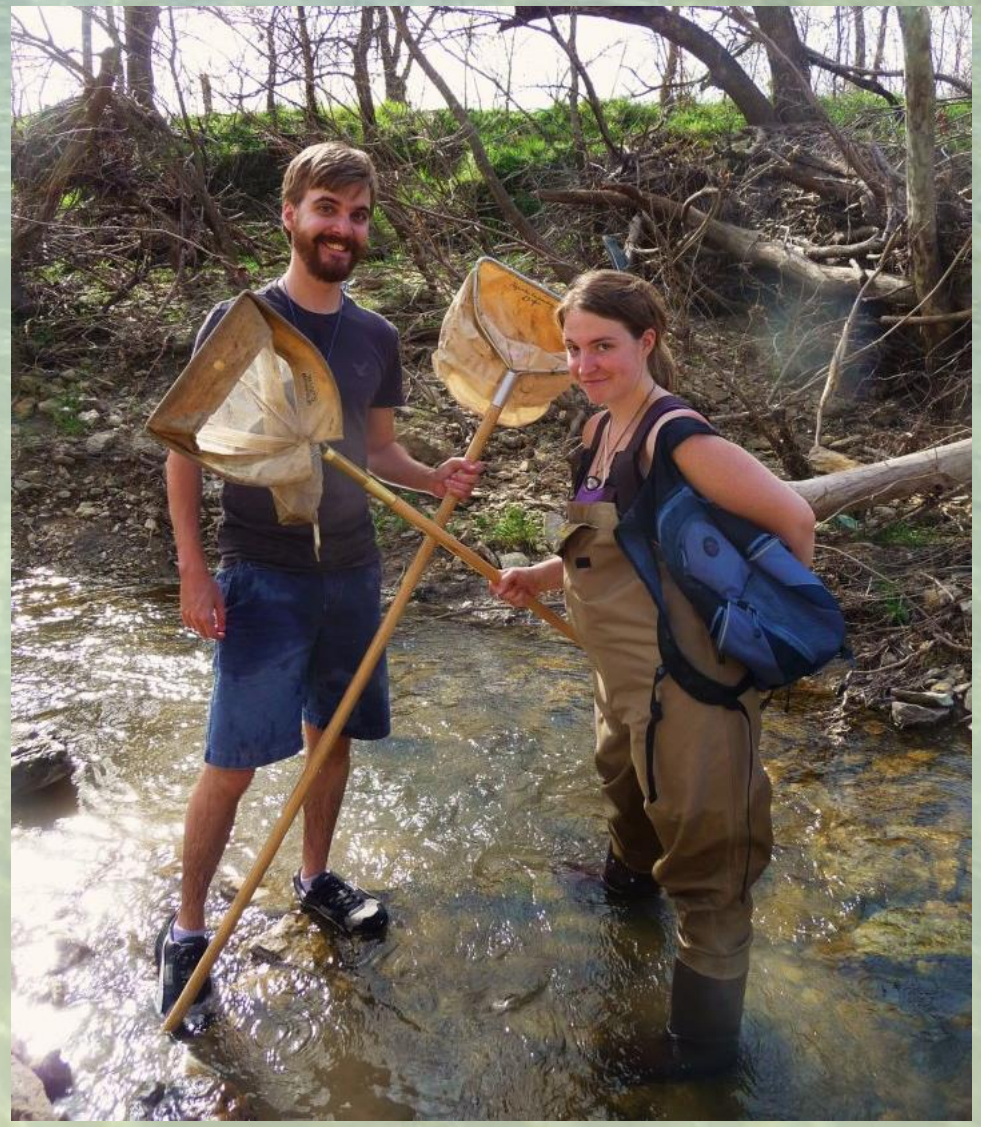


What to sample?

- In addition to fish, benthic macroinvertebrate, habitat, 24-hour dissolved oxygen and flow data…
  - General information: monitoring station ID, location, sampling date, time, and depth
    - Coordinates for each end of the reach strongly encouraged
  - Water appearance
  - Water odors
  - Weather
  - Biological activity (e.g. excessive macrophyte or algal growth, presence of fish, birds, amphibians, reptiles and mammals)
  - Stream uses (e.g. swimming, wading, boating, fishing, pumping)
  - Watershed activities (construction, mowing, livestock)
  - Sample information (e.g. number of replicates)
  - Missing parameter(s)

Trip Planning Considerations

- Field sampling crew: 4-6 people usually sufficient
  - Fish, benthic, habitat expertise
- Gather required field gear:
  - Nets, seines, physical habitat equipment, flow meters, electroshocking equipment, boats, etc.
  - First aid kits
  - Labels, field forms (see “Biological Data Summary Packet”)
  - Equipment and Materials list located in Appendix A of SWQM Procedures Manual
- Vehicle maintenance checks
- Trip plan



Trip Plan

MONITORING & ASSESSMENT SECTION TRIP PLAN *Rev. 1—09/18/2012*								
Trip Lead	Bill Harrison		Contact #		Alt Contact #			
Passengers-Vehicle #1	**Passengers-Vehicle #2**	**Passengers-Vehicle #3**			**Vehicle Type**		**License #**	
Lauren Pulliam				1	2008 Dodge Ram		104-6264	
				2				
				3				
Purpose of Trip	Meeting		Training		Field	Benthic Sampling		

TRIP ITINERARY

	Date	Time	Location	Hotel Name	Hotel Phone #
Depart	7/1/2015	8:00 am	HQ		
Arrive	7/1/2015	11:00 am	Bandera	Mayan Ranch	(830) 460-3036
Depart	7/2/2015	3:00 pm	Bandera		
Arrive	7/2/2015	6:00 pm	HQ		
Depart					
Arrive					
Depart					
Arrive					
Depart					
Arrive					

Hotel Name_Arrive

Trip Plan (continued)

FLIGHT INFORMATION					
	Date	**Time**	**Location**	**Airline**	**Flight #**
Depart					
Arrive					
Depart					
Arrive					

Rental Car Y/N	Rental Car Company	Other Local Transportation	Local Contact	Local Contact #

FIELD PLAN					
Boats Y/N	Type of Boats (List All)				
	Date	**Time**	**Location (nearest town)**	**Water Body Name**	**Launch or Access Point**
Arrive	7/1	12:00 pm	Medina	North Prong Medina River	SWQM Station 18447 @ SH 16
Depart	7/1	5:00 pm	Medina	North Prong Medina River	SWQM Station 18447 @ SH 16
Arrive	7/2	9:00 am	Bandera	Medina River	Mayan Ranch
Depart	7/2	3:00 pm	Bandera	Medina River	Mayan Ranch
Arrive					
Depart					

Name of Nearest Medical Facility	**Location/Directions**	**Phone #**
Methodist Boerne Emergency Center	134 Menger Springs Ste 2000 Boerne, TX	(830) 331-3000

Trip Planning Considerations

- Meeting/conference call/email to field sampling crew before trip to provide:
  - Contact information
  - Map/directions to sampling site(s)
  - Overview of general sampling plan
  - Let field crew know field sampling assignment so they can review procedures manual if needed prior to sampling
  - Fish crew should be on the TPWD permit
  - Adequate sampling gear for field crew
  - Logistical considerations
    - Lunch in field, groceries needed
    - Hotels/lodging arrangements
    - Meeting location
- Field work often requires improvisation!