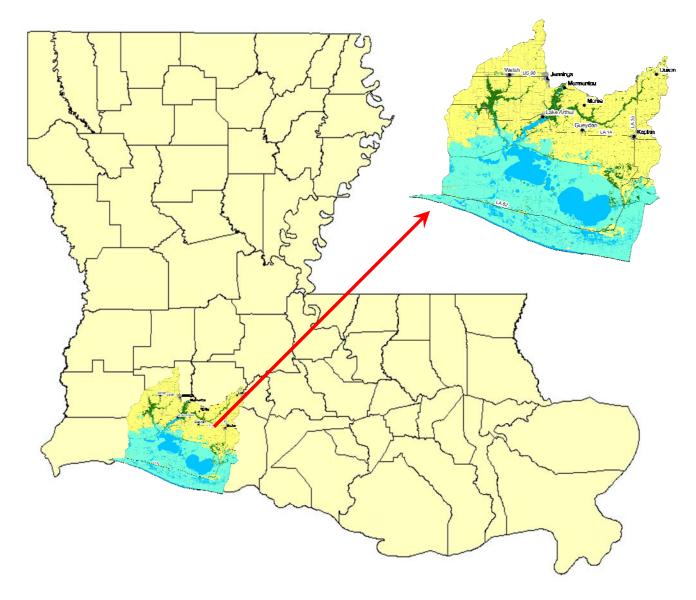


Natural Resources Conservation Service 3737 Government Street Alexandria, Louisiana 71302 LOWER MERMENTAU RIVER WATERSHED RAPID WATERSHED ASSESSMENT HUC: 08080202 LOUISIANA

Rapid Watershed Assessment Lower Mermentau River



Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, stakeholders, conservation districts, and other community organizations. These assessments help landowners and local leaders set priorities and determine the best actions to achieve their goals.

Helping People Help the Land An Equal Opportunity Provider and Employer

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## Lower Mermentau River Watershed – HUC - 08080202

## <u>Purpose</u>

This rapid watershed assessment (RWA) organizes resource information into one document that local conservationist, units of government, and others can use to identify existing resource conditions and conservation opportunities. This will enable the user to direct technical and financial resources to the local needs in the watershed. This RWA provides a brief description of the Lower Mermentau Watershed's natural resources, resource concerns, conservation needs, and ability to resolve natural resource issues and concerns.

## **Physical Description**

The 1.5 million acre Lower Mermentau River Watershed is located in five parishes in south central Louisiana. The majority of the project area consists of rural agricultural lands and about .6 million acres of coastal marsh. The Grand Chenier and Pecan Island ridge systems are linked by Louisiana Highway 82 and divide the watershed into two distinct watersheds along an east-west line. This area has been the heart of Louisiana's rice production for over a hundred years and is expected to continue into the future.

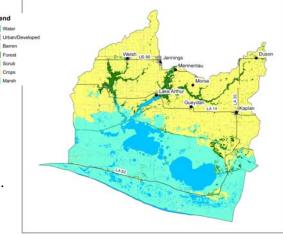
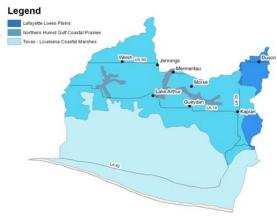


Figure 1: Land Use

## **Ecoregions**

Ecoregions are regions with similar ecological characteristics. Ecoregions are delineated based on characteristics such as climate, land surface form, soils, vegetation, land use and hydrographic modifications (levee systems) to form management units with similar biological, chemical and physical features (Omerik, 1987). A Roman numeral hierachial scheme has been adopted for different levels of ecological regions. The Lower Mermentau River Watershed lies within the West Gulf Coastal Plain. The area comprises parts of three physiographic belts which roughly parallel the Gulf Coast and a fourth belt transverse to them, the western margin of the Mississippi Valley.



**Figure 2: Ecoregions** 

## **Refuge Areas**

The project area is home to two refuge areas. The White Lake Wetlands Conservation Area, managed by the Louisiana Department of Wildlife and Fisheries, is located in western Vermilion Parish and contains 70,965 acres. The Rockefeller Wildlife Refuge, located in eastern Cameron and western Vermilion Parishes, is owned and maintained by the State of Louisiana and encompasses approximately 86,000 acres, but due to beach erosion the most recent surveys indicate that only 76,042 acres remain.



Figure 3: Refuge Areas

## Aquifers

Within the lower Mermentau Watershed lies the Alluvial and Chicot Aquifers. The Chicot is the principle source of ground water in southwestern Louisiana and is the most extensively pumped aquifer in the state. Almost half of the ground water used in the state is pumped from the Chicot aquifer system. In 1990, a total of 609 million gallons per day was withdrawn from the Chicot aquifer over a 13 parish-area. Of this total, 70 percent was used for irrigation and aquaculture, 25 percent for public supply and industrial use, the remaining 5 percent for domestic use and power generation. The Chicot aquifer has been losing water for more than 10 years.

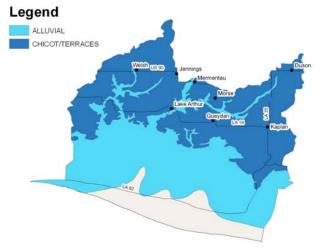


Figure 4: Aquifers

## Climate

The average annual rainfall over the watershed ranges from about 58 inches along the coastal area to about 60 inches in the northern part of the watershed. Along the coast, July is the wettest month and September is the driest. For the entire watershed, slightly over 50 percent of the rainfall occurs during the six month period April through September. The average annual temperature is about 68 degrees Fahrenheit and does not vary significantly throughout the watershed. July and August are the hottest months with a mean temperature of about 83 degrees, and December and January are the coldest months with a mean temperature of about 54 degrees.

The average length of the frost-free season is about 262 days. The average annual lake evaporation is about 45 inches.

### Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. For the purpose of this assessment the soils will be categorized by common soil series. They include Crowley, Kaplan, Judice, Midland, Morey, Mowata, Vidrine; on the floodplains – Basile, and Brule. These soils can be found on the nearly level, poorly drained portion of the watershed in southwest Louisiana. Patoutville, Coteau, Memphis, Jeanerette, and Frost soils are well drained, occur on gentle slopes, and erosion control is a minor problem. In the Coastal Marshes area the soils include Allemands, Kenner, Creole, Clovelly, Gentilly, Lafitte, Larose, Bancker, Scatlake, and Ged. Soils in the coastal area are clay and silt of moderate to high organic content, sand, and shell fragment on cheniers or beach ridges. For the coastal Marsh soils that are firm enough for cattle to walk on, they are used for range and wildlife.

#### Hurricanes

The Louisiana Gulf Coast is struck by a hurricane an average of three times per decade. From 1900 to 1980 approximately 20 hurricanes have had a negative impact on the wetlands within the watershed. The most damaging storm ever recorded in the watershed was Hurricane Audrey (Category 4) in June 1957, which devastated southwest Louisiana, destroying or severely damaging 60-80 percent of the homes and businesses from Cameron to Grand Chenier. Forty thousand people were left homeless.

### Gas and Oil Wells

Louisiana ranks fourth among the states in crude oil production behind Texas, Alaska, and California (excluding Federal offshore areas, which Louisiana produces more than any single state). Louisiana ranks second in the nation in natural gas production. Nearly one-half of Louisiana households use natural gas as their primary energy source for home heating. It is expected that twenty-five percent of the Liquefied Natural Gas (LNG) will run through the Seventh District by the year 2015. The project area is also home to the West hackberry salt dome which is a Strategic Petroleum Reserve with a capacity of 219 million barrels of oil.

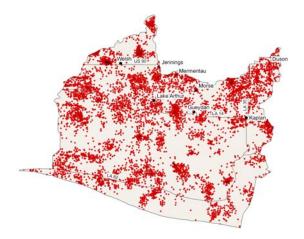
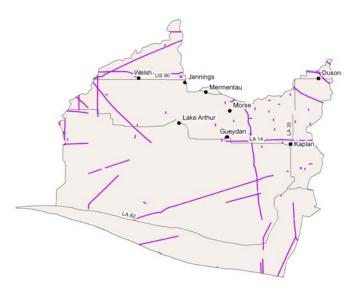


Figure 5: Gas and oil wells

#### **Gas Pipeline**

The pipeline industry is a vital part of the oil and gas industry in Louisiana. Louisiana has an extensive pipeline network. Pipelines transport crude oil and natural gas from the well head to the processing plants and refineries. Pipelines transport natural gas from producing states such as Louisiana to utility companies, chemical companies and other users throughout the nation. Pipelines are also used to transport chemical products. There are an estimated 25,000 miles of pipe moving natural gas through interstate pipelines. There are 7,600 miles of pipelines that carry natural gas through intrastate pipelines to users within the state's boundaries.



**Figure 6: Gas pipelines** 

#### Water Quality Gaging Stations

Gaging stations are facilities used by hydrologists to automatically monitor streams, wells, canals, reservoirs and or other waterbodies. Instruments at these stations collect information on water height, discharge, water chemistry and water temperature. These stations collect information about the stream and transmit it to the United States Geological Survey via a satellite communication system. The data is then processed and delivered to the public via the internet. The gaging stations for the Lower Mermentau can be found on the map at the left.

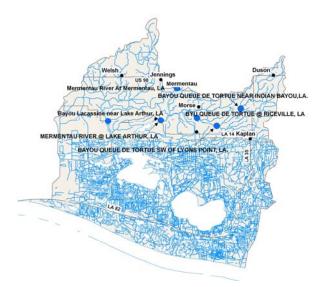


Figure 7: Gaging Stations

## **Total Maximum Daily Loads**

Section 303(d) of the Federal Clean Water Act and the U.S. Environmental Agency's Water Quality Planning and Management Regulations requires states to develop total maximum daily loads (TMDLs) for waterbodies that are not meeting water quality standards. A TMDL establishes the amount of a pollutant that a waterbody can assimilate without exceeding the water quality standards for that pollutant.

The Mermentau River Basin is located in southwestern Louisiana, and it encompasses the prairie region of the state and a section of the coastal zone. The Mermentau River Basin is bounded on the north and east by the Vermilion-Teche River Basin, on the west by the Calcasieu River Basin, and on the south by the Gulf of Mexico. The Mermentau River Basin is approximately 3,710 square miles in area, excluding the gulf waters segment (LDEQ, 1996). The slope of the land toward the Gulf is very gradual, and as a result, the streams in the Mermentau Basin are characteristically sluggish. Fish kills have been commonly reported throughout the basin. Because waterbodies in the basin have little gradient and sluggish flows, their recreation potential is low (LDEQ, 1990). Prior studies have shown that the water quality problems in the basin are largely due to agricultural runoff and hydrologic modification (Smythe and Malone, 1990).

## **Designated Uses**

According to the Louisiana Department of Environmental Quality (LDEQ), the designated uses for streams and rivers in this watershed include Primary Contact Recreation (PCR) – Swimming, Secondary Contact (SCR), Fish and Wildlife Propagation (FWP) – Fishing, Drinking Water Supply (DWS), Outstanding Natural Resource (ONR), Oyster Propagation (OYS), Agricultural Use (AGR), and Limited Aquatic and Wildlife (LAL). Table 1 lists the stream subsegments within the watershed, including all of the ambient parameters such as organics, pesticides, etc. for all Water Quality Network (WQN) sites for the past five years. The suspected causes of impairment can be found on the table as well.

This area is typical of the basin with its low relief, which is an ideal condition for agricultural use. Segment 0505 is comprised of Bayou Queue de Tortue as the main stem with several tributaries. These tributaries include Indian Bayou, Prime Gully, Coulee des Iles/Bayou Grand Marais, Lyon's Point Gully, Lazy Point Canal, and many unnamed tributaries.

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Average annual precipitation in the segment, based on the nearest Louisiana Climatic Station in Crowley is 56.91 inches based on a 30-year record (LSU, 1999). Land use in the Mermentau River Basin is largely agricultural. Rice and soybean farming operations are the predominant land use types in the Bayou Queue de Tortue watershed.

Originally, this area was covered by tall prairie grasses, among which were scattered clumps of trees (SCS, 1962). In the segment under study, agricultural uses account for 86.5 percent of the total segment area.

Bayou Queue de Tortue has been heavily hydromodified in all reaches except the upper (above LA Hwy. 35) and lower (below LA Hwy. 91) reaches. Berger (2000) stated that in order to irrigate the rice fields, Bayou Queue de Tortue is periodically dredged. Dredging of the bayou has occurred for many years. It has altered the route and flow of the bayou. Dredging has probably reduced the bayou's abilities to perform natural processes, such as sediment transport and fish propagation (Smythe and Malone, 1989a-f, 1990). Bayou Queue de Tortue changes significantly from its headwaters to its lower segments.

## Table 1: Lower Mermentau Water Quality Conditions

F – Fully supporting their designated use N – Not fully supporting their designated use

		PCR	SCR	FWP	DWS	ONR	ΟYS	AGR	LAL			IR		
										Impaired Use for		Category for		
										Suspected Cause	Suspected Causes of Impairment	Suspected Causes	TMDL Due Date	TMDL Priority
Lower N	lermentau River	_	_					_						~ · · <b>,</b>
	RWA	F	F	Ν				F		FWP	Ammonia (Total)	IRC4a	2002	
50401	Mermentau River	F	F	N				F		FWP	Ammonia (Total)	IRC4a	2002	
		F	F	Ν				F		FWP	Fipronil	IRC4a	2002	
		F	F	Ν				F		FWP	Nitrate/Nitrite (Nitrite + Nitrate as N)	IRC4a	2000	
		F	F	Ν				F		FWP	Nitrate/Nitrite (Nitrite + Nitrate as N)	IRC4a	2000	
		F	F	Ν				F		FWP	Nitrate/Nitrite (Nitrite + Nitrate as N)	IRC4a	2000	
		F	F	Ν				F		FWP	Oxygen, Dissolved	IRC4a	2000	
		F	F	Ν				F		FWP	Oxygen, Dissolved	IRC4a	2000	
		F	F	Ν				F		FWP	Oxygen, Dissolved	IRC4a	2000	
		F	F	Ν				F		FWP	Phosphorus (Total)	IRC4a	2000	
		F	F	Ν				F		FWP	Phosphorus (Total)	IRC4a	2000	
		F	F	Ν				F		FWP	Phosphorus (Total)	IRC4a	2000	
	Lake Arthur and Mermentau													
50402	River	F	F	Ν						FWP	Ammonia (Total)	IRC4a	2002	
		F	F	Ν						FWP	Ammonia (Total)	IRC4a	2002	
		F	F	Ν						FWP	Nitrate/Nitrite (Nitrite + Nitrate as N)	IRC4a	2002	
		F	F	Ν						FWP	Nitrate/Nitrite (Nitrite + Nitrate as N)	IRC4a	2002	
		F	F	Ν						FWP	Oxygen, Dissolved	IRC4a	2002	
		F	F	Ν						FWP	Oxygen, Dissolved	IRC4a	2002	
		F	F	Ν						FWP	Phosphorus (Total)	IRC4a	2002	
		F	F	Ν						FWP	Phosphorus (Total)	IRC4a	2002	

According to a 1992 LDEQ report, "the upper headwater areas above have not been hydromodified as much as lower segments. Between river mile 22.5 and 30.7 the bayou is highly channelized, sluggish, and extremely turbid. The stream bank is extremely unstable and erosion is severe with numerous tree roots exposed and trees falling into the bayou. Between river mile 30.7 and 16.6 the bayou is a natural unchannelized swampy area with numerous sinuosities. Dominant tree species include bald cypress, tupelo gum and other southern swamp species. Aquatic macrophytes and floating aquatic vegetation is abundant.

The Louisiana Environment Center, Natural Resources Conservation Service (NRCS), Louisiana Farm Bureau Federation (LFBF), LDEQ, Louisiana Department of Natural Resources (LDNR), and Louisiana Department of Agriculture and Forestry (LDAF) have implemented a Master Farmer Program. The program has three phases. Phase II is the development of watershed-specific Model Farms. When developed, these operations will be used for BMP demonstrations, water quality monitoring of selected BMPs and education and outreach through field days (Louisiana Environment Center 2007). An agricultural producer in the Mermentau Watershed allowed their operation to be developed into a "Model Farm" and they agreed to allow their operation to be used for demonstration on BMPs for a period of at least three years. The goal on this site is to determine if there are water quality improvements by using surface water to flood rice/crawfish ponds. The size of the field is 40 acres. Surface water is pumped from the Mermentau River to flood rice/crawfish ponds. Irrigation water will be sampled using an automatic sampler at even intervals throughout the flooding process. When the irrigation water is drained, samples will be taken at even intervals during the final drain period using an automatic sampler.

Water samples will be collected for approximately 2 years to determine the levels of nitrates, total phosphorus, BOD, total solids, total dissolved solids and total suspended solids in the initial flood water and also the water being discharged from the rice/crawfish pond. Composite samples will be collected at both stations.

Descriptive statistics (Mean, Median and Standard Deviation) will be calculated for samples collected at flooding and at drainage. A T-Test will be used to determine if any significant difference exists between the flooding and drainage samples. Level of significance will be 0.10.

It is hypothesized that there will be a significant reduction in sediment concentration discharges from the rice/crawfish pond when compared to the sediment concentration of the surface water used for the initial flood (Louisiana Environment Center 2007).

## Threatened and Endangered Species Status

The Endangered Species Act provides protection to animals that are experiencing a decline in population, or nearing extinction. Table 2 lists the species of concern and their designation.

Species	Status	Critical Habitat
Piping Plover (Charadrius melodus)	Threatened	Yes
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	Delisted	No

#### **Table 2: Threatened and Endangered Species**

Federally listed as a threatened species, the piping plover (*Charadrius melodus*), as well as its designated critical habitat, occur along the Louisiana coast. Piping plovers winter

in Louisiana, and may be present for 8 to 10 months annually. They arrive from the breeding grounds as early as late July and remain until late March or April. Piping plovers feed extensively on intertidal beaches, mudflats, sand flats, algal flats, and washover passes with no or very sparse emergent vegetation; they also require unvegetated or sparsely vegetated areas for roosting. Roosting areas may have debris, detritus, or micro-topographic relief offering refuge to plovers from high winds and cold weather. In most areas, wintering piping plovers are dependent on a mosaic of sites distributed throughout the landscape, because the suitability of a particular site for foraging or roosting is dependent on local weather and tidal conditions. Plovers move among sites as environmental conditions change, and studies have indicated that they generally remain within a two-mile area. Major threats to this species include the loss and degradation of habitat due to development, disturbance by humans and pets, and predation.

The project-area forested wetlands may provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), which has officially been removed from the List of Endangered and Threatened Species as of August 8, 2007. Bald eagles nest in Louisiana from October through mid-May. Eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water in the southeastern parishes. Eagles winter, and infrequently nest in immature pine trees near large lakes in central and northern Louisiana. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants (i.e., organochlorine pesticides and lead).

Breeding bald eagles occupy "territories" that they will typically defend against intrusion by other eagles, and that they likely return to each year. In forested areas, bald eagles often select the tallest trees with limbs strong enough to support a nest that may weigh more than 1,000 pounds. Most nests are located in the upper 30 feet of the tree; the coneshaped nest may be 6 to 8 feet in diameter from top to bottom.

## <u>Resource Concerns</u>

Resource concerns are issues related to the natural environment. Natural resources include soil, water, air, plants, animals, and humans. A series of public meetings were held in the watershed to obtain input on the resource concerns from the general public. Some of those concerns are found below. The remainder of the concerns can be found in Appendix A.

#### Soil

- Dredging soils to be used for wetland restoration and storm protection. Due to the rapid disappearance of coastal marsh in the Lower Mermentau area, residents feel that dredged material should be used for marsh creation. Restoring and protecting the marsh areas in the watershed help buffer the effects of tropical storm systems.
- Coastal erosion The U.S. Army Corps of Engineers (USACE) maintain deep water channels. There is a need for more land rights protection. The land that erodes away does not belong to the landowner anymore. It belongs to the state. The Gulf is encroaching 37 feet per year. There is a need to address the coastal erosion concern from Rockefeller Refuge to the Mermentau River.

## Water

- Quality of water One participant was concerned about water quality from a health standpoint. This person lost both parents to cancer.
- Supplemental water source One participant was concerned with the fact that if a problem occurs within the local water system, can water from another system be redirected to the impacted system?
- Calcasieu Locks are too small to remove excessive water Participant stated that a directive was needed to mandate ingress and egress. He stated that the major area where water can be released in the Mermentau Basin is at the Calcasieu Locks.

## Animals

- Invasive animal species A participant is concerned about the vegetative damage to the marsh caused by the nutria. When vegetation is removed from the surface of the marsh as a result of overgrazing by nutria, the fragile organic soil is exposed to erosion through tidal action. Other participants stated that beaver and coyote control was also needed in the watershed.
- Wildlife habitat more emphasis needs to be placed on maintaining and protecting wildlife habitat

## Plants

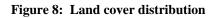
- Aquatic invasive species control Some waterbodies in the watershed are choked with waterlillies and water hyacinths. There is a need to have an aggressive campaign to alleviate the nuisance plant giant salvinia.
- Marshes supporting a sustainable seafood industry Steps need to be taken so that the region does not lose the capability to produce seafood. Vermilion Parish is the leading seafood producing parish, which has a positive impact on the local tax base. Female shrimp have to go into deep water to hatch and then they migrate back to the marsh to grow. If we lose our marsh we will lose our ability to produce shrimp.

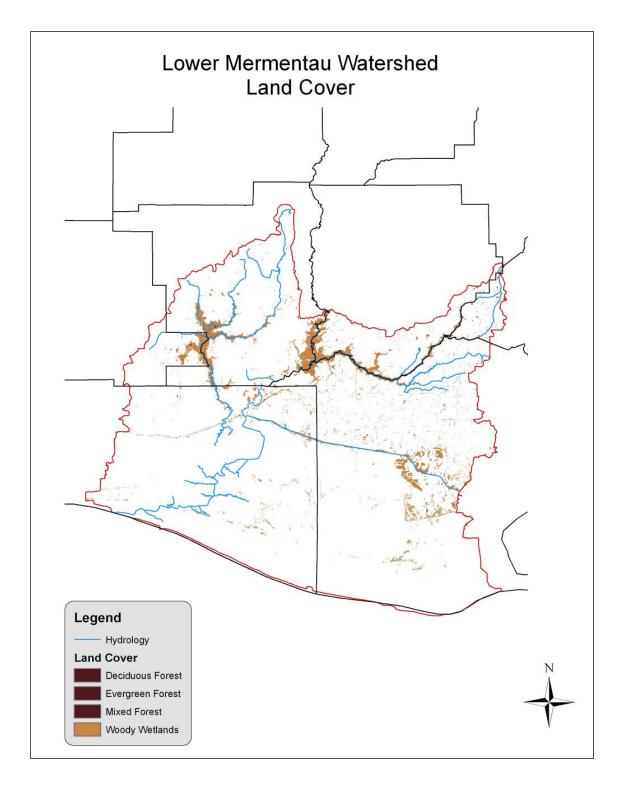
## Humans

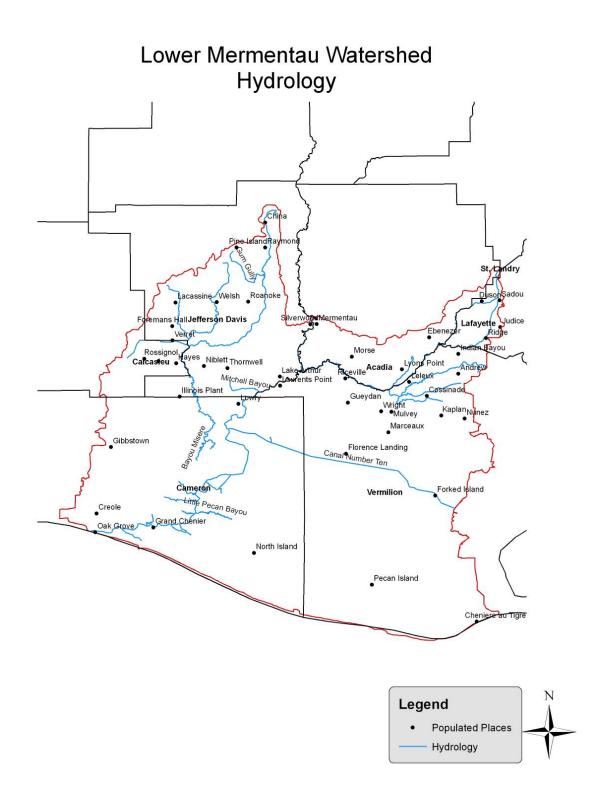
- Supporting a sustainable seafood industry Vermillion Parish is the leading seafood producing parish, which has a positive impact on the local tax base. Female shrimp have to go into deep water to hatch and then they migrate back to the marsh to grow. If the watershed loses it's marsh areas, then it loses it's ability to produce shrimp.
- Education and Information Outreach Louisiana, as well as the entire nation needs to be educated on the impacts of coastal erosion.
- Development of urban areas into residential smart growth participant stated that he did not see any big solution. Everybody wants drainage but they don't want to surrender any property. People are building in places that should not be developed due to the frequency of flooding.

One of the resource concerns identified by stakeholders was wildlife habitat restoration, protection, and enhancement. The objective of this risk assessment was to identify areas of high value (risk) for wildlife. The focus was on large game. The cultural and resource

characteristics identified by local NRCS planning specialists to be considered during the risk assessment included: land cover, stream proximity, and soil hydric classification.

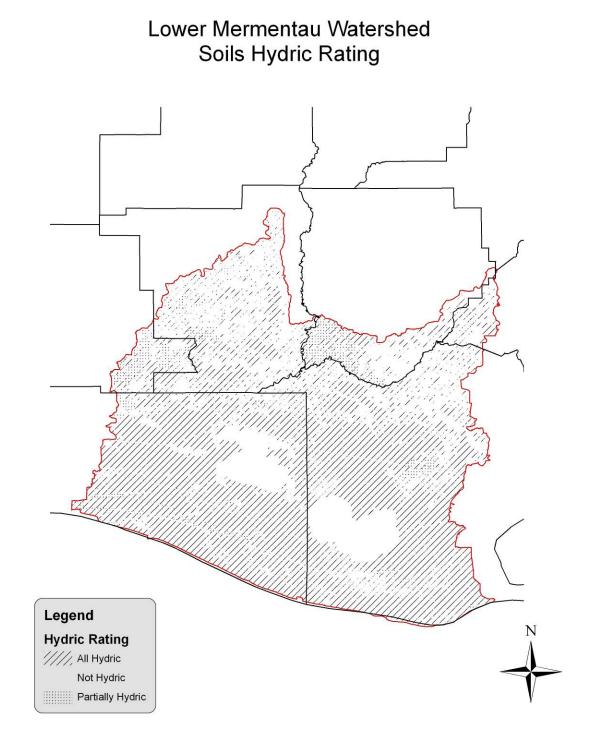




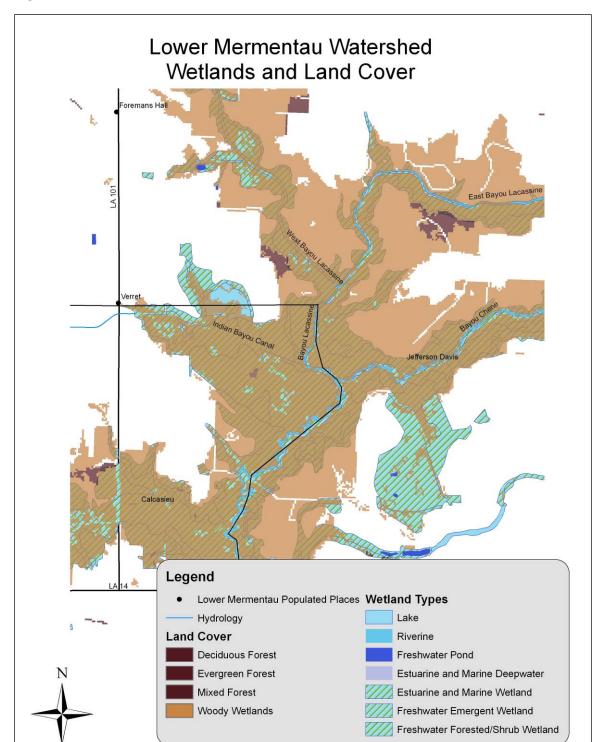


Typically soils that are classified as hydric support wetland plant communities which provide wildlife habitat. Figure 10 shows the distribution hydric soils in the project area.

Figure 10: Hydric soils distribution



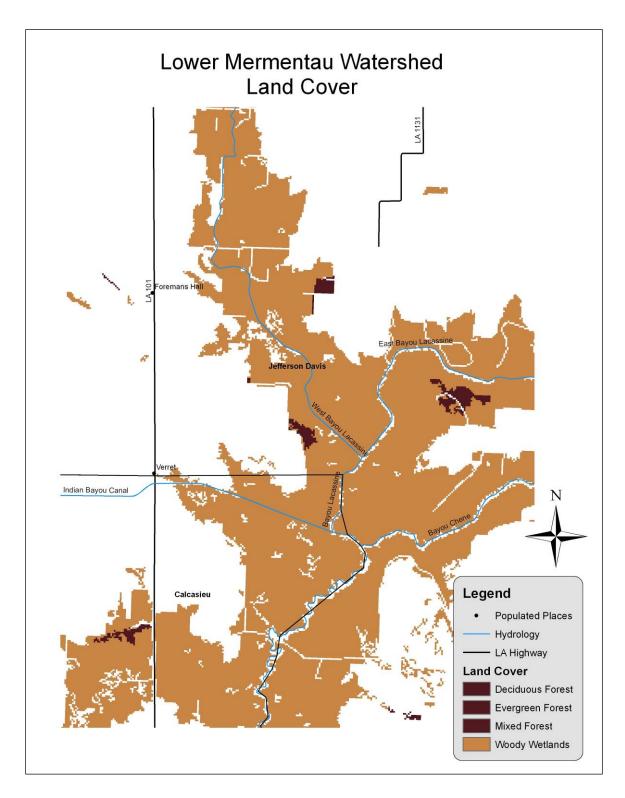
Isolated wildlife habitat acreage has less potential for enhancement. This was the rationale for the continuity factor in the risk matrix. Figure 11 depicts the wetland distribution in the area.





Most big game species do best when habitat transition zones are abundant. Figure 12 depicts the distribution of habitat types in the RWA.

Figure 12: Habitat types



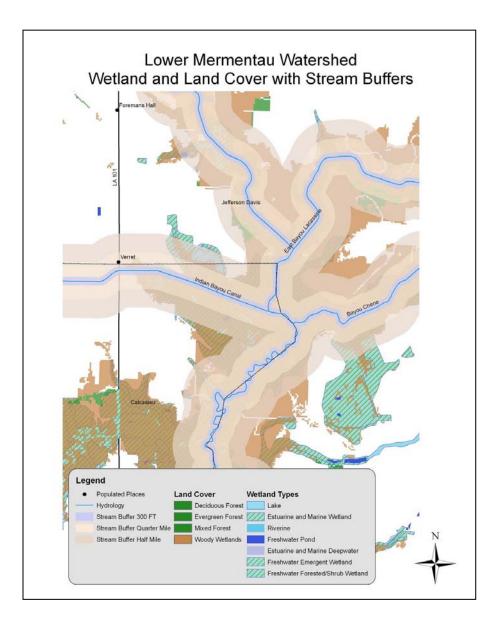
The risk factors discussed above were combined to determine the habitat areas which are of greatest value and therefore of greatest risk (Table 2).

Table 5. Habitat alea va	alue allu lisk		
RISK	LOW	MODERATE	HIGH
Wetlands	Least continuity	Moderate continuity	Greatest continuity
Stream Proximity	.5 mi.	.25 mi.	300 ft.
Forest	Absent (1)		Present(3)

Table 3:	Habitat area	value and risk

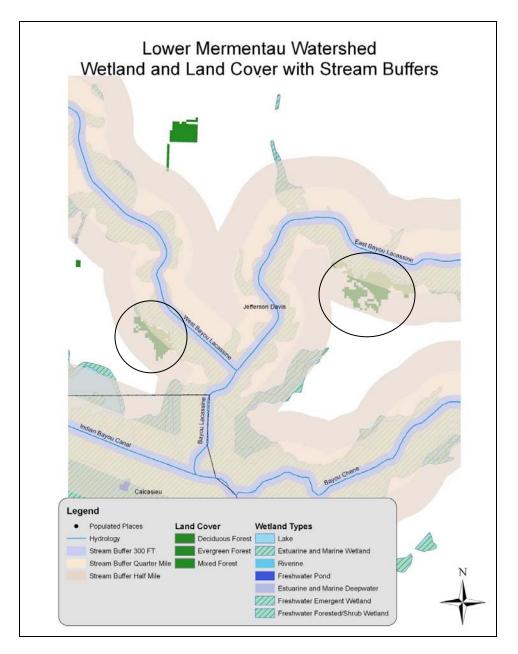
When this matrix is applied using GIS technology the various levels of risk become apparent. The continuous woody wetland area near both a travel corridor (water way network/stream) and a forested area define a high risk wildlife habitat area.

#### Figure 13: Wetland and land cover with stream buffers



The two circled forested areas in the northern part of Figure 14 are considered moderate risk areas based on the risk factors.

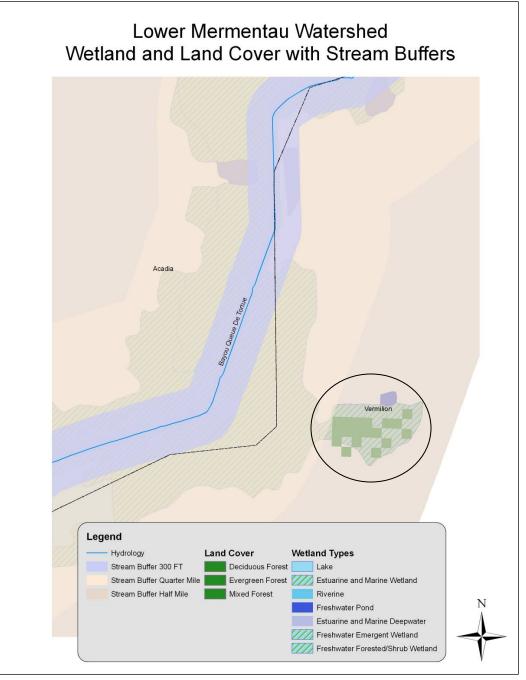
#### Figure 14: Moderate risk areas in the watershed



One treatment consideration is to use the Wildlife Habitat Incentives Program (WHIP) to enhance the habitat. The areas of high risk would benefit significantly from habitat improvements. These areas might also be high priority for the Wetland Reserve Program (WRP).

The circled area on Figure 15 identifies a low risk area do to the distance between the forested area and the travel corridor (Bayou Queue De Tortue).

Figure 15: Low risk area



Human activities can be especially damaging to high and moderate risk areas if not conducted with concern for the habitat.

## Lower Mermentau River - HUC 08080202 - Assessment

## **Description**

This assessment matrix has been developed to provide an estimate of conservation systems which may be needed to address resource concerns identified in the RWA Resource Profile. This can also be described as likely future conditions within the watershed.

Conservation systems have been described in this assessment as systems of conservation practices developed to address resource concerns on various landuses. Systems include benchmark (BM) and resource management systems (RMS). BM is best described as land units that have had no treatment or one or more resource concerns treated with conservation practices. RMS is described as land units which have all known resource concerns treated with conservation practices. The level of treatment to an individual resource concern is credited when the practice(s) used, meet or exceed a predetermined level of treatment, known as quality criteria.

Resource concerns have been described in this RWA. These concerns were identified at a public meeting held in the watershed area. There was a comment period as well, whereby interested parties were encouraged to submit their concerns. Other resource concerns likely exist within the watershed but only make up a small percentage of what needs to be treated. Further investigation and analysis will need to be completed in order to better define all resource concerns.

Resource professionals provided an estimate by percent of conservation systems that will likely be applied to BM systems and untreated land units to address resource concerns identified in the resource profile. These systems are not meant to be comprehensive or address all resource concerns for each land unit in the watershed; rather, only the typical system of conservation practices that could be applied. Numerous alternatives and combinations of practices exist that should be made available to landowners and producers in order to meet their desired level of treatment.

Federal programs identified to implement conservation systems include, but are not limited to; Environmental Quality Incentives Program (EQIP), WHIP, and WRP. Other funding available for implementation includes various private, local, and state program funds.

This assessment provides estimates only that have been developed using local conservation and work groups to identify resource concerns, participation rates, and conservation systems likely to be applied. This information was merged with state average cost lists and estimated operation and maintenance costs to generate a cost estimate by individual practice for each conservation system projected to be applied.

#### Table 4: Lower Mermentau Crop Assessment

	Rapid V	Vatersh	ed Asse	ssment ]	For:										
1E:_Low	er Mermentau River B		Future Conditions For:						1: CROPX 2: LIVESTOCK 3: TIMBER 4: POULTRY 5: LIVESTOCK (mash)						
Manag	Management Systems Quantity				I	Effects*					Implem	ientation	ı		
	Practices	Unit	Quantity	Soil Erosia	onWater Q	uan Water C	Qual Plant Cond	CTA	EQIP	WRP	WHIP	CSP	CRP	CREP	C
Baseline		AC/NO.				-	~			1	1	1	1	1	
	No conservation														
	practices being applied														
	at this level														
rogressive															
	No conservation														
	practices being applied														
	at this level														
RMS				(+)5	(+)5	(+)5	(+)5								
1010	Conserv. Crop Rotat. 328	acres	109,266	( ) 9		( ')	( ' )	X	X			X			
	Grade Stab. Struct. 410	nos.	4,856					X	X			X			
	Irrigat. Land Level. 464		109,266					X	X			X			
	Irrigat. Water Convey., Pipe. 430	ft.	2,913,750					X	X			X			
	Irrigat. Water Manage. 449		109,266					X	X			X			
	Nutrient Manage. 590	acres	145,688					X	X			X			
	Pest Manage. 595	acres	145,688					X	X			X			
	Wet. Wild. Habit. Manage. 644	acres	109,266					Χ	X			X			
							Estimat		. Eram						
NI-4							Esumat	ea 11ff	е гтат	e – 5 1	ears				
Notes:															

Note: See attachments for economic analysis

\*Note: Effects are numerical values placed on benchmark conditions and degree of change in conditions by conservation system (s) application. Scale ranges from (-) most damaging to resources to (+) best protection offered by treatment.

## Table 5: Lower Mermentau Crop Variables

				Enter Water	shed Variabl	es Below								
Water	rshed Name	Lower	Mermentau Rive	er Basin	Wat	tershed Code	0808	0202	]	Help				
La	nduse Type		Сгор		] La	anduse Acres	185,000	] ı	5%					
Typical U	nit Size (ac)		60		Pero	cent TA of FA	<b>20</b> %	Cost	-Share Rate	50%				
Estimated Time Frame = 5 years			icipation Rate	75%	COMPARE	Calculated Participation Rate								
Curr	ent Conditio	ns	Pro	jected Chan	ae		<u> </u>	ed Future Co						
					<u> </u>	C			Acres					
System	Percent	Acres	System	Percent	Acres	System	Percent	Total	Static	Treated				
Baseline	25%	46,250	Baseline Progressive	25% 0%	11,563 0	Baseline	<b>6</b> %	6%	6%	11,563	11,563	0		
			RMS	75%	34,688									
			Must Total 100%	100%										
Curr	ent Conditio	ns	Pro	jected Chan	ge		Projecte	ed Future Co	_					
System	Percent	Acres	System	Percent	Acres	System	Percent	Total	Acres Static	Treated				
Progressive	60%	111,000	Progressive RMS	25% 75%	27,750 83,250	Progressive	15%	27,750	27,750	O				
			Must Total 100%	100%										
Curr	ent Conditio	ns	Pro	jected Chan	ge		Projecte	ed Future Co	ndition					
System	Percent	Acres	System	Percent	Acres	System	Percent		Acres	_				
								Total	Static	Treated				
RMS	15%	27,750	RMS	100%	27,750	RMS	<b>79</b> %	145,688	27,750	117,938				
Grand Totals	100%	185,000					100%	185,000	67,063	117,938				

## Table 6: Lower Mermentau Crop Assessment

Conservation Systems by Treatment Level	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Soil Erosion – Irrigation induced	Water Quantity – Inefficient Water Use on Irrigated Land	Water Quality – Excessive Nutrients and Organics in Surface Water	Plant Condition – Productivity, Health and Vigor
Baseline			Syst	tem Rating ->	0	0	0	0
No Conservation Practices being applied at this level	0	0	0	0	0	0	0	0
Total Acreage at Baseline	46,250	11,563	0	11,563				1
Progressive			Syst	tem Rating ->	0	0	0	0
No Conservation Practices being applied at this level	0	0	0	0	0	0	0	0
Total Acreage at Progressive Level	111,000	27,750	0	27,750				
RMS			Syst	tem Rating ->	5	5	5	5
Conservation Crop Rotation (ac.) 328	20,813	20,813	88,453	109,266	4	4	3	4
Grade Stabilization Structure (no.) 410	925	925	3,931	4,856	4	4	3	4
Irrigation Land Leveling (ac.) 464	20,813	20,813	88,453	109,266	4	4	3	4
Irrigation Water Conveyance, Pipeline (ft.) 430 Irrigation Water Management (ac.) 449	555,000 20,813	555,000	2,358,750 88,453	2,913,750 109,266	1 4	5 4	1 3	4
Irrigation vvater Management (ac.) 449 Nutrient Management (ac.) 590	20,813	20,813 27,750	88,453 117,938	109,266	4 3	2	5	4
Pest Management (ac.) 595	27,750	27,750	117,938	145,688	2	2	5	4
Wetland Wildlife Habitat Management (ac.) 644	20,813	20,813	88,453	109,266	2	2	2	4
		· ·						
Total Acreage at RMS Level	27,750	27,750	117,938	145,688				

### Table 7: Lower Mermentau Crop Conservation Cost

WATERSHED NAME & CODE	LOWER	MERMENTAU P	IVER BASIN -	08080202		ANDUSE ACRES	185,	000		
LANDUSE TYPE		CR	OP		TYPICAL L	JNIT SIZE ACRES	60			
CONSERVATION COST TABLE					CALCULATED	PARTICIPATION	75	%		
	FUTURE		FEC	DERAL			PRIVATE			
	New	Installation	Management	Technical		Installation	Annual O & M			
Conservation Systems by Treatment Level	Treatment Units	Cost 50%	Cost - 3 yrs 100%	Assistance 20%	Total Present Value Cost	Cost 50%	+ Mgt Costs 100%	Total Present Value Cost		
Progressive										
No Conservation Practices being applied at this level	0	\$0	\$0	\$0	\$0	\$0	\$0	\$		
Subtotal	0	\$0	\$0	\$0	\$0	\$0	\$0	\$		
RMS										
Conservation Crop Rotation (ac.) 328	88,453	\$0	\$0	\$0	\$0	\$0	\$0	9		
Grade Stabilization Structure (no.) 410	3,931	\$1,965,625	\$0	\$393,125	\$2,358,750	\$1,965,625	\$39,313	\$2,135,82		
Irrigation Land Leveling (ac.) 464	88,453	\$11,145,094	\$0	\$2,229,019	\$13,374,113	\$11,145,094	\$668,706	\$14,040,23		
Irrigation Water Conveyance, Pipeline (ft.) 430	2,358,750	\$4,717,500	\$0	\$943,500	\$5,661,000	\$4,717,500	\$188,700	\$5,534,47		
Irrigation Water Management (ac.) 449	88,453	\$0	\$530,719	\$106,144		\$0	\$176,906	\$284,15		
Nutrient Management (ac.) 590	117,938	\$0	\$2,476,688	\$495,338		\$0	\$825,563	\$1,326,04		
Pest Management (ac.) 595	117,938	\$0	\$707,625	\$141,525		\$0	\$235,875	\$378,86		
Wetland Wildlife Habitat Management (ac.) 644	88,453	\$0	\$2,653,594	\$530,719	\$2,939,517	\$0	\$884,531	\$1,420,75		
Subtotal	117,938	\$17,828,219	\$6,368,625	\$4,839,369	\$28,448,703	\$17,828,219	\$3,019,593	\$25,120,36		
Grand Total	117,938	\$17,828,219		\$4,839,369		\$17,828,219	\$3,019,593	\$25,120,36		
	111,550	\$11,020,215	\$0,500,025	<i>φ</i> -1,000,000	\$20,110,103	\$11,020,215	\$5,015,555	\$23,120,30		
Resource Status Cumulative Co	onservation					Chart Refers To				
Application on Private L		•			Landuse Type	CRO	OP			
					Calculated Particip		75%			
Current 25% 60%			5%							
						age PV Costs pe				
Future 6% 15% 7	9% I				System	Federal	Private			
			40000		Prog	#DIV/0!	#DIV/0!			
0% 20% 40% 60	%	80%	100%		RMS	\$241.22	\$213.00			
🗖 Baseline 🛛 🗖 Progressive	□ RMS									

## Table 8: Lower Mermentau Crop Funding Sources

WATERSHED NAME & CODE	R MERMENTAU RIVER BASIN - 080							LA	IDUSE .	ACRES	185,000
LANDUSE TYPE		С	ROP			T	YPICA	L UNI	T SIZE	ACRES	60
POSSIBLE SOURCES OF FUNDING					CALC	ULAT	ed pa	RTICIP	ATION	75%	
	FUTURE FARM BILL								OTHER	۱S	
Conservation Systems by Treatment Level	New Treatment Units	ста	EQIP	WRP	WHIP	CSP	CRP/ CREP	Fed	State	Local	NOTES/COMMENTS
Progressive											
No Conservation Practices being applied at this level	0										
2											
New Treatment Acreage	0										
RMS											
Conservation Crop Rotation (ac.) 328	88,453	х				х			х		
Grade Stabilization Structure (no.) 410	3,931	х	х			х			х		
rrigation Land Leveling (ac.) 464	88,453	х	х			х			х		
rrigation Water Conveyance, Pipeline (ft.) 430	2,358,750	х	х			х			х		
rrigation Water Management (ac.) 449	88,453	х	х			х			х		
Nutrient Management (ac.) 590	117,938	х	х			х			х		
Pest Management (ac.) 595	117,938	х	х			х			х		
Vetland Wildlife Habitat Management (ac.) 644	88,453	х	х			х			х		
New Treatment Acreage	117,938										

 Table 9: Lower Mermentau Livestock Assessment

AE:_Lowe	Rapid V er Mermentau River B	F	uture C	1: CROP 2: LIVESTOCK X 3: TIMBER 4: POULTRY 5: LIVESTOCK (marsh)										
Manage	ement Systems	Qua	ntity	Effects	;*		Implementation							
0	Practices	Unit		Water Qual Water Qual Pla	int Cond Domes Ar	i CTA	EQIP	WRP	WHIP	CSP	CRP	CREP	Ot	
Baseline		AC/NO.											1	
	No conservation													
	practices being applied			-										
	at this level													
	at this level													
rogressive	N.T													
	No conservation													
	practices being applied													
	at this level													
RMS				(+)4 (+)4 (+	)5 (+)5									
	Fence 382	ft.	11,025,000			X	X			X				
	Grade Stab. Struct. 410		2,756			X	X			X				
	Heavy Use Area Pro. 561	acres	4,134	_		X	X			X				
	Nutrient Manage. 590		110,250	4		X	X			X				
	Pipeline 516	ft.	2,756,250			X	X			X				
	Prescribed Graz. 528	acres	110,250	_		X	X			X				
	Watering Facil 614	nos.	4,134	-		X	X			X				
				-										
			1	1										
					Fatime	ted Tin	In Fram	a = 5 V	0.045					

\*Note: Effects are numerical values placed on benchmark conditions and degree of change in conditions by conservation system (s) application. Scale ranges from (-) most damaging to resources to (+) best protection offered by treatment.

#### Table 10: Lower Mermentau Livestock Variables

				Enter Water	shed Variabl	es Below														
Wate	rshed Name	Lowerl	Mermentau Rive	er Basin	Wat	ershed Code	0808	0202	]	Help										
La	nduse Type	L	ivestock (pastur	re)	] La	anduse Acres	140,000	] ।	nterest Rate	5%										
Typical U	nit Size (ac)		80		Perc	ent TA of FA	<b>20</b> %	Cost	-Share Rate	<b>50</b> %										
Estimated Time Frame = 5 years			ticipation Rate	75%	COMPARE	75%		Participation		Next										
Curr	ent Conditio	ns	Pro	jected Chan	ae		Proiecte	ed Future Co	ndition											
					Acres	Euroteuro			Acres											
System	Percent	Acres	System	Percent	Acres	System	Percent	Total	Static	Treated										
			Baseline	25%	8,750							C.W.		6.07						_
Baseline	25%	35,000	Progressive	0%	0	Baseline	6%	8,750	8,750	0										
			RMS Must Total 100%	75% 100%	26,250															
Curr	ent Conditio	ns		jected Chan	ae		Projecte	ed Future Co	ndition											
					<u> </u>	<b>a</b> .			Acres											
System	Percent	Acres	System	Percent	Acres	System	Percent	Total	Static	Treated										
Progressive	<b>60</b> %	84,000	Progressive RMS	25% 75%	21,000 63,000	Progressive	15%	21,000	21,000	0										
			Must Total 100%	100%																
Curr	ent Conditio	ns	Pro	jected Chan	ge		Projecte	ed Future Co												
System	Percent	Acres	System	Percent	Acres	System	Percent	T-4-1	Acres	Transford										
DMO	4.50/	24,000	DMO	4000/	24,000	DMO.	70%	Total	Static	Treated										
RMS	15%	21,000	RMS	100%	21,000	RMS	<b>79</b> %	110,250	21,000	89,250										
Grand Totals	100%	140,000					100%	140,000	50,750	89,250										
Grand Totals	100 76	140,000					100 %	140,000	50,750	03,230										

### Table 11: Lower Mermentau Livestock Assessment Information

WATERSHED NAME & CODE	LOWER	MERMENTAU P	IVER BASIN -	08080202		LANDUSE ACRES	140,000			
LANDUSE TYPE		LIVESTOCK	(PASTURE)		TYPICAL	UNIT SIZE ACRES	8	:0		
ASSESSMENT INFORMATION					CALCULATED	PARTICIPATION	75%			
	Benchmark Conditions	Fu	ture Conditio	ns		RESOURCE	CONCERNS			
Conservation Systems by Treatment Level	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Water Quality – Excessive Nutrients and Organics in Surface Water	Water Quality – Harmful Levels of Pathogens in Surface Water	Plant Condition – Forage Quality and Palatability	Domestic Animals – Inadequate Stock Water		
Baseline			Syst	em Rating ->	0	0	0	0		
No Conservation Practices being applied at this level	0	0	0	0	0	0	0	0		
Total Acreage at Baseline	35,000	8,750	0	8,750						
Progressive			Syst	em Rating ->	0	0	0	0		
No Conservation Practices being applied at this level	0	0	0	0	0	0	0	0		
Total Acreage at Progressive Level	84.000	21,000	0	21,000						
	04,000	21,000	-							
RMS				em Rating ->	4	4	5	5		
Fence (ft.) 382	2,100,000	2,100,000	8,925,000	11,025,000	4	4	4	4		
Grade Stabilization Structure (no.) 410	525	525	2,231	2,756	2	2	3	2		
Heavy Use Area Protection (ac.) 561	788	788	3,347	4,134	3	3 4	3 4	4		
Nutrient Management (ac.) 590 Pipeline (ft.) 516	21,000 525,000	21,000 525,000	89,250	110,250 2,756,250	4 3	4	4 4	2		
Prescribed Grazing (ac.) 528	21,000	21,000	2,231,250 89,250	2,756,250	3	3	4	3		
Watering Facility (no.) 614	788	788	3,347	4,134	3	3	4 4	5		
Tracing Comp (10.) 014	100	100	0,041	4,104				<u> </u>		
Total Acreage at RMS Level	21,000	21,000	89,250	110,250						

### Table 12: Lower Mermentau Livestock Conservation Cost

WATERSHED NAME & CODE	LOWER	MERMENTAU R	IVER BASIN -	08080202	L	ANDUSE ACRES	140,000		
LANDUSE TYPE		LIVESTOCK	(PASTURE)		TYPICAL U	INIT SIZE ACRES	8(	)	
CONSERVATION COST TABLE					CALCULATED	PARTICIPATION	75%		
	FUTURE		FEI	DERAL			PRIVATE		
Conservation Systems by Treatment Level	New Treatment Units	Installation Cost 50%	Management Cost - 3 yrs 100%	Technical Assistance 20%	Total Present Value Cost	Installation Cost 50%	Annual O & M + Mgt Costs 100%	Total Present Value Cost	
Progressive									
No Conservation Practices being applied at this level	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	-								
Subtotal	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
RMS									
Fence (ft.) 382	8,925,000	\$7,273,875	\$0	\$1,454,775		\$7,273,875	\$290,955	\$8,533,558	
Grade Stabilization Structure (no.) 410	2,231	\$1,115,625	\$0	\$223,125		\$1,115,625	\$22,313	\$1,212,226	
Heavy Use Area Protection (ac.) 561	3,347	\$2,008,125	\$0	\$401,625		\$2,008,125	\$602,438	\$4,616,364	
Nutrient Management (ac.) 590	89,250	\$0	\$9,639,000	\$1,927,800		\$0	\$3,213,000	\$5,160,813	
Pipeline (ft.) 516	2,231,250	\$2,063,906	\$0	\$412,781	\$2,476,688	\$2,063,906	\$82,556	\$2,421,332	
Prescribed Grazing (ac.) 528	89,250	\$2,231,250	\$0	\$446,250		\$2,231,250	\$0	\$2,231,250	
Watering Facility (no.) 614	3,347	\$1,673,438	\$0	\$334,688	\$2,008,125	\$1,673,438	\$100,406	\$2,108,144	
Subtotal	89,250	\$16,366,219	\$9,639,000	\$5,201,044	\$30,317,058	\$16,366,219	\$4,311,668	\$26,283,687	
Grand Total	89,250	\$16,366,219	\$9,639,000	\$5,201,044		\$16,366,219	\$4,311,668	\$26,283,687	
Resource Status Cumulative C		1	-			Chart Refers To LIVESTOCK			
Application on Private L	ands		ŀ		Landuse Type Calculated Particip		(PASTORE) 75%		
Current 25% 60%			5%		Calculated Farticip	allori Nale	1370		
			<u> </u>		Aver	age PV Costs pe	r Ac		
Future 6% 15% 7	9%				System	Federal	Private		
					Prog	#DIV/0!	#DIV/0!		
0% 20% 40% 60	1%	80%	100%		RMS	\$339.69	\$294.50		
Baseline Progressive	RMS	7							

### Table 13: Lower Mermentau Livestock Funding Sources

WATERSHED NAME & CO	<mark>de</mark> :r Mermei	ITAU	RIVER	BASI	N - 080			LA	DUSE	ACRES	140,000
LANDUSE TY	<mark>PE</mark> LIVE	стос	K (PA	STURE	E)	Т	YPICA	L UNI	T SIZE	ACRES	80
POSSIBLE SOURCES OF FUNDING						CAL	CULAT	ED PA	RTICIP	ATION	75%
Conservation Systems by Treatment Level	FUTURE New Treatment	ста	EQIP		M BILL		CRP/		OTHER State	Local	NOTES/COMMENTS
	Units						CREP				
Progressive											
No Conservation Practices being applied at this level	0										
New Treatment Acrea	ge 0										
RMS											
Fence (ft.) 382	8,925,000	х	х			х			х		
Grade Stabilization Structure (no.) 410	2,231	х	х			х			х		
Heavy Use Area Protection (ac.) 561	3,347	х	х			х			х		
Nutrient Management (ac.) 590	89,250	х	х			х			х		
Pipeline (ft.) 516	2,231,250	х	х			х			х		
Prescribed Grazing (ac.) 528	89,250	х	х			х			х		
Watering Facility (no.) 614	3,347	х	х			х			х		
New Treatment Acrea	ge 89,250										

 Table 14:
 Lower Mermentau Livestock (Marsh) Assessment

ME: Lowe	Rapid Watershed Assessment For: E:_Lower Mermentau River Basin HUC 08080202(Marsh)								uture C	1: CROP 2: LIVESTOCK 3: TIMBER 4: POULTRY 5: LIVESTOCK (marsh)						
	ement Systems	Qua			Effe	cts*		Implementation								
0	Practices	Unit	Quantity	Water Qua	ıl Water Qual	Plant Cond	lDomes Ani	CTA	EQIP	WRP	WHIP	CSP	CRP	CREP	С	
Baseline		AC/NO.														
	No conservation															
	practices being applied			1												
	at this level			1												
rogressive																
	No conservation															
	practices being applied															
	at this level			1												
RMS				(+)4	(+)4	(+)5	(+)5									
	Fence 382	ft.	5,630,625			`´		X	X			X				
	Pipeline 516	ft.	1,299,375					X	X			X				
	Prescribed Burning 338		216,563					X	X			X				
	Prescribed Graz. 528 Water Well 642	acres nos.	216,563 217	-				X X	X X			X X			-	
	Watering Facil 614	nos.	650	-			-	X	X			X				
	watering racii. 014	1105.	0.00	-				21	21			- 22			-	
				1												
				1												
				1												
				-			Estimat	ed Tim	ie Fram	e = 5 Y	ears					
Notes:																

Note: See attachments for economic analysis

\*Note: Effects are numerical values placed on benchmark conditions and degree of change in conditions by conservation system (s) application. Scale ranges from (-) most damaging to resources to (+) best protection offered by treatment.

### Table 15: Lower Mermentau Livestock (Marsh) Variables

				Enter Water	shed Variabl	<u>es Below</u>				
Water	shed Name	Lowerl	Mermentau Rive	er Basin	Wat	tershed Code	0808	0202	]	Help
La	nduse Type	L	ivestock (marsh	ı)	La	anduse Acres	275,000	] ı	nterest Rate	5%
Typical U	nit Size (ac)		1,000		Pero	cent TA of FA	<b>20</b> %	Cost	-Share Rate	<b>50</b> %
Estimated Time Frame = 5 years			icipation Rate	75%	COMPARE	75%		Participation		Next
Curr	ent Conditio	ns	Pro	jected Chan	ae		Projecte	ed Future Co	ndition	
					<u> </u>	<b>C</b> _1			Acres	
System	Percent	Acres	System	Percent	Acres	System	Percent	Total	Static	Treated
Baseline	25%	68,750	Baseline Progressive	25% 0%	17,188 0	Baseline	6%	17,188	17,188	0
			RMS	75%	51,563					
Curr	ent Conditio		Must Total 100%	100% jected Chan			Draiaate	ed Future Co	ndition	
Curr	ent Conalito				<u> </u>			a Fulure Co	Acres	
System	Percent	Acres	System	Percent	Acres	System	Percent	Total	Static	Treated
Progressive	<b>60</b> %	165,000	Progressive RMS	25% 75%	41,250 123,750	Progressive	15%	41,250	41,250	0
			Must Total 100%	100%						
Curr	ent Conditio	ns	Pro	jected Chan	ge		Projecte	ed Future Co		
System	Percent	Acres	System	Percent	Acres	System	Percent		Acres	
						-		Total	Static	Treated
RMS	15%	41,250	RMS	100%	41,250	RMS	<b>79</b> %	216,563	41,250	175,313
Grand Totals	100%	275,000					100%	275,000	99,688	175,313

## Table 16: Lower Mermentau Livestock (Marsh) Assessment Information

WATERSHED NAME & CODE	LOWER N	MERMENTAU P	IVER BASIN -	08080202		LANDUSE ACRES	275,000			
LANDUSE TYPE		LIVESTOC	(MARSH)		TYPICAL	UNIT SIZE ACRES	1,0	000		
ASSESSMENT INFORMATION				,	CALCULATE	PARTICIPATION	75%			
	Benchmark Conditions	Fu	ture Conditio	ns		RESOURCE	CONCERNS			
Conservation Systems by Treatment Level	Total Units	Existing Unchanged Units	New Treatment Units	Total Units	Water Quality – Excessive Nutrients and Organics in Surface Water	Water Quality – Harmful Levels of Pathogens in Surface Water	Plant Condition – Forage Quality and Palatability	Domestic Animals – Inadequate Stock Water		
Baseline			Syst	em Rating ->	0	0	0	0		
No Conservation Practices being applied at this level	0	0	0	0	0	0	0	0		
	-	-	_	-			-			
Total Acreage at Baseline	68,750	17,188	0	17,188						
Progressive			Syst	em Rating ->	0	0	0	0		
No Conservation Practices being applied at this level	0	0	0	0	0	0	0	0		
······································	_	_	_	_	_	_	_			
Total Acreage at Progressive Level	165,000	41,250	0	41,250						
RMS			Syst	em Rating ->	4	4	5	5		
Fence (ft.) 382	1,072,500	1,072,500	4,558,125	5,630,625	4	4	4	4		
Pipeline (ft.) 516	247,500	247,500	1,051,875	1,299,375	2	2	4	5		
Prescribed Burning (ac.) 338	41,250	41,250	175,313	216,563	2	2	4	1		
Prescribed Grazing (ac.) 528	41,250	41,250	175,313	216,563	4	4	5	3		
Water Well (no.) 642	41	41	175	217	2	2	3	5		
Watering Facility (no.) 614	124	124	526	650	2	2	4	5		
Total Acreage at RMS Level	41.250	41,250	175,313	216,563						

## Table 17: Lower Mermentau Livestock (Marsh) Conservation Cost

WATERSHED NAME & CODE	LOWER	MERMENTAU R	IVER BASIN -	08080202	l	ANDUSE ACRES	275,	000	
LANDUSE TYPE		LIVESTOC	(MARSH)		TYPICAL U	INIT SIZE ACRES	1,0	00	
CONSERVATION COST TABLE					CALCULATED	PARTICIPATION	75%		
	FUTURE		FEI	ERAL			PRIVATE		
Conservation Systems by Treatment Level	New Treatment Units	Installation Cost 50%	Management Cost - 3 yrs 100%	Technical Assistance 20%	Total Present Value Cost	Installation Cost 50%	Annual O & M + Mgt Costs 100%	Total Present Value Cost	
Progressive									
No Conservation Practices being applied at this level	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Subtotal	0	\$0	\$0	\$0	\$0	\$0	\$0	\$	
	0	φU	20	φu	\$ <b>0</b>	\$U	\$U		
RMS	4 550 405	00 744 070							
Fence (ft.) 382 Pipeline (ft.) 516	4,558,125 1,051,875	\$3,714,872 \$972,984	\$0 \$0	\$742,974 \$194,597	\$4,457,846 \$1,167,581	\$3,714,872 \$972,984	\$148,595 \$38,919	\$4,358,21 \$1,141,48	
Prescribed Burning (ac.) 338	175,313	\$2,191,406	\$0 \$0	\$438,281	\$2,629,688	\$2,191,406	\$43,828	\$2,381,15	
Prescribed Grazing (ac.) 536	175,313	\$4,382,813	\$0 \$0	\$876,563	\$5,259,375	\$4,382,813	\$0	\$4,382,81	
Water Well (no.) 642	175,515	\$296,278	\$0 \$0	\$59,256	\$355,534	\$296,278	\$5,926	\$321,93	
Watering Facility (no.) 614	526	\$262,969	\$0 \$0	\$52,594	\$315,563	\$262,969	\$15,778	\$331,280	
				· · ·					
Subtotal	175,313	\$11,821,322	\$0	\$2,364,264	\$14,185,586	\$11,821,322	\$253,046	\$12,916,87	
Grand Total	175,313	\$11,821,322	\$0	\$2,364,264		\$11,821,322	\$253,046	\$12,916,87	
	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		+++++++++++++++++++++++++++++++++++++++		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Resource Status Cumulative Co	onservatior	1				Chart Refers To			
Application on Private L	ands				Landuse Type	LIVESTOCK	· · ·		
Current 25% 60%			5%		Calculated Particip	ation Rate	75%		
					Aver	age PV Costs pe	r Ac		
Future 6% 15% 7	9%				System	Federal	Private		
					Prog	#DI∨/0!	#DIV/0!		
0% 20% 40% 60	1%	80%	100%		RMS	\$80.92	\$73.68		
Baseline Progressive	RMS	7							

## Table 18: Lower Mermentau Livestock (Marsh) Funding Sources

WATERSHED NAME & COL	DE :R MERMEI	R MERMENTAU RIVER BASIN - 080							IDUSE /	ACRES	275,000
LANDUSE TY	PE LIVE	STO	CK (MA	ARSH )	)	Т	YPICA	L UNI	r size /	ACRES	1,000
OSSIBLE SOURCES OF FUNDING									RTICIP	ATION	75%
Conservation Systems by Treatment Level	FUTURE New Treatment	ста	EOID				CRP/		OTHER State		NOTES/COMMENTS
	Units	CIA	LGIL	WIN	WITT	Car	CREP	reu	State	LUCal	
rogressive											
Io Conservation Practices being applied at this level	0										
New Treatment Acreag	je 0										
RMS											
Fence (ft.) 382	4,558,125	х	х			х			х		
Pipeline (ft.) 516	1,051,875	х	х			х			х		
Prescribed Burning (ac.) 338	175,313	х	х		х	х			х		
Prescribed Grazing (ac.) 528	175,313	х	х			х			х		
Nater Well (no.) 642	175	х	х			х			х		
Natering Facility (no.) 614	526	х	x			х			х		
New Treatment Acrea											

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# Appendix A

## **Rapid Watershed Assessment Meeting**

Rapid Watershed Assessment Meeting	
Abbeville Public Library	
Abbeville, LA	
August 23, 2007	
8:00 AM	

### **Attendees**

VRCS Vermilion SWCD Vermilion SWCD VRCS LDAF/OSWC Resident Producer Landowner/Producer	Dexte J.C. O Mitzi Dan I Jonat Charl Rend Mark
Landowner/Producer	Rend Mark Ashle
	DAF/OSWC Resident Producer

Rose Shuff Dexter Sapp J.C. Griffin Mitzi Dohrman Dan Didier Jonathon Perry Charles Broussard Renda Hebert Mark Shirley Ashley Broussard Acadiana RC&D NRCS Vermilion SWCD Vermilion SWCD NRCS State Rep. Candidate Landowner/Producer Landowner/Producer LSU AgCenter Kaplan Herald

## FacilitatorScott EdwardsRecorderMitzi Dohrman

Mr. Scott Edwards called the meeting to order at 8:05 a.m. Mr. Sherrill Sagrera, welcomed everyone to the meeting on behalf of Acadiana RC&D, Vermilion SWCD and NRCS, then Mr. Sagrera turned the floor back over to Mr. Edwards.

Mr. Edwards introduced himself and explained what the Rapid Watershed Assessment is. He stated that instead of a two to three year plan, the Rapid Watershed Assessment is something that happens quickly. Mr. Edwards stated that community suggestions are vital in making this project successful. Mr. Edwards further explained that the format that would be used for this meeting will be a round robin with priority issues being documented. Handouts consisting of fact sheets, maps and a questionnaire were available for those in attendance. Mr. Edwards then introduced Mr. Dexter Sapp.

Mr. Sapp introduced himself and presented a power point presentation on the watershed overview. He stated the area encompassed in the Lower Mermentau River Watershed was 1.5 million acres. He went on to explain the benefits of the assessment, boundaries based on hydrologic units, project objectives & methods in the Lower Mermentau, the concerns being addressed in the meeting, and the watershed resource profile. Mr. Sapp concluded the presentation by stating the main objective is quality of life, clean water and a productive environment.

Mr. Edwards thanked Mr. Sapp for his presentation. Mr. Edwards next began to identify watershed concerns by having Mrs. Mitzi Dohrman post the concerns stated for viewing. Concerns posted during the meeting were as follows:

- Water Quality saltwater intrusion
- Drainage

- Canal bank protection along Intracoastal Waterway
- Infrastructure (from Rita Damage)
- Coastal erosion
- Solid Waste Disposal around and in bayous and streams (Education Renewable/Alternative Energy)
- Conversion of Ag land to residential use. (Planning Process)

Quality of Water

Participant was concerned about water quality from a health standpoint. Participant lost both parents to cancer.

Surface Water Recharge

Participant would like to some freshwater from the Red River diverted to their area to help push back the saltwater from the Gulf

Concerns of water usage from the aquifer (Power plants)

There should be a way for industries to utilize other water sources which would ease the pumpage on the Chicot Aquifer. Participant stated the water wells in his area had tested 12 grains of salt/gallon in 1931. Now they are getting readings of 23 grains of salt/gallon. Stated that the water park in Rayne is going to be a nightmare.

Water Districts dumping saltwater into drainage

Protection of Oil & Gas industries (Infrastructure Protection)

Forty-nine percent of all the natural gas that comes out of Kaplan, LA is sent to 1/3 of the nation and this industry needs to be protected.

Protecting Wildlife habitat

Mitigation of abandoned oil field pipelines

There is not much regulation on abandoned pipelines and it is hard to find out information. Old lines are not removed and in some cases abandoned lines have leaked. There have been instances where the leakage has been mixed in with the good soil

Coastal and Inland Wetland protection Need more extensive levee systems

Invasive species – both animal and plant

Dredging soils used as storm protection

Dredged materials should be used for wetland and marsh creation. This issue should be presented to state and federal regulatory agencies. There is a big push to stop up canals. Canals have altered the hydrology.

Aquatic invasive species control

Waterbody on property was choked with waterlillies, and water hyacinths. The state had sprayed some chemicals to kill the vegetation and this worked. But since the hurricanes there has been some foreign aquatic vegetation that has taken over the waterbody and the state has stopped its spraying campaign and the bayous are clogged.

Condition of state roads

The parish roads in Vermilion Parish are OK. The problem is with the state roads for example Hwy. 335.

#### Tourism

Completing the cleaning of drainage from hurricane Rita

After Hurricane Rita there are still drainage ditches that are clogged. How will RWA help the process?

All planning efforts between agencies are coordinated

Studies have been done in the past. All agencies need to work together so that there will not be an overlap of efforts

Private property protected from mineral activities

Pipeline company had been traversing participant's property without the participant's permission. Something needs to be done about this. Participant had to enlist the services of a lawyer in this matter.

Better utilization of sediment sources

Participant stated that he has some coastal property that could use some sediment. His property does not have a way to get any sediment

Supporting a sustainable seafood industry

Need to be certain that we don't lose the capability to produce seafood. Vermilion Parish is the leading seafood producing parish which has a positive impact on the local tax base. Female shrimp have to go into deep water to hatch and then they migrate back to the marsh to grow. If we lose our marsh we will lose our ability to produce shrimp.

Increasing infrastructure of Agmac. Canal

Participant stated that something should be done to maintain the integrity of the 4 control structures in order to keep an adequate freshwater supply.

To develop adequate surface water

Participant made an analogy concerning the flush the toilet situation in that he would not like to see an abundance of water from the upstream parishes being released in a matter that would cause flooding in the southern parishes. Participant stated that water should be released through multiple streams enroute to the southern parishes. Participant made reference to some bottomland that was cleared in St. Landry Parish and planted to soybeans.

Develop an inclusive plan for fresh water diversion

We are tearing down protection levees when we need to be building more. Lots of money has been spent for Leland Bowman Locks, Schooner Bayou, and Catfish Locks. If you get a southeast wind for 2 days, saltwater can go around the Leland Bowman Locks and up the GIWW. Until we repair the 12 mile stretch of levees we will continue to get saltwater intrusion.

Increase nationwide education on Coastal Louisiana

Renewable and Alternative Energy

Mr. Edwards concluded the posting of concerns and allowed a ten minute break before asking those in attendance to vote on the top three priority concerns.

Mr. Edwards reconvened the meeting with a recap of all the priorities listed. Mr. Edwards then asked all attendees to vote from all priority concerns for their top three concerns.

## Water Quality – Saltwater Intrusion received 9 votes; Coastal Restoration and Hurricane Protection received 5 votes; and Solid Waste Disposal received 3 votes.

Mr. Edwards then introduced Mr. Dan Didier. Mr. Didier thanked all for attending the meeting. He stated the importance of community involvement and public input of future concerns. Mr. Didier stated that NRCS will work together to put all concerns in a report that will be available to the public upon request. Mr. Didier stated that if anyone had concerns that they did not present today and would like to address, they may contact him at the Abbeville NRCS field office. The deadline for completion of the assessment is June 2008. The public will be notified of availability of the document. Hardcopies will be available and the document will be posted on NRCS's website.

With no further business or discussion, Mr. Edwards concluded the meeting adjourned.

Lower Mermentau Rapid Watershed Assessment Meeting	
LSU AgCenter	
Jennings, LA	
August 28, 2007	
9:00 AM	

#### **Attendees**

Mike Perry	IMCAL RC&D
Robert Sarver	Bayou Nezpique GDD
Curtis Welch	Landowner
Tommy Price	Landowner
Edward Wild	Landowner
Rolland McCain	Landowner
Frank Chapman	NRCS
Wendell Bertrand	Landowner - FSA
Emelise Cormier	LDEQ – Water Quality
Christy Rogers	LDEQ – Water Quality
Donald Berken	Jeff Davis Farm Bureau
Ernest Girouard	Landowner
Eddie Eskew	LSU AgCenter
Johnny Guinn	Jeff Davis Police Jury

Gary Wicke Keith Hawkins David Richard Dean Roberts Dexter Sapp Gordon Newton Scott Romero Tom LeJeune David Joubert Rosalie Guinn Joe Guidry Kyle McLain Tom Hess Cameron AgCenter LSU AgCenter Stream Company Stram Company NRCS NRCS NRCS Bunge-Barge Farmer Landowner Thornwell LA Farm Bureau LDWF

## FacilitatorMike PerryRecorderScott Romero

Opening comments were given by RC& D Coordinator Mike Perry. Introductions were done. Handouts consisting of fact sheets, maps and a questionnaire were available for those in attendance. Mike gave a PowerPoint presentation on the Rapid Watershed Assessment process. Dexter Sapp gave a PowerPoint presentation as well.

Mike stated that the focus of the meeting was to get input from the participants concerning resource concerns that they may have in the Lower Mermentau area. Mike stated the ground rules by which input would be received from the participants.

The concerns/issues/problems that were stated were as follows:

• Benchmarks (Existing) flood elevations can't be used (Corps of Engineers and FEMA)

Participant stated that the benchmark flood elevations have changed and now property values in the Jeff Davis area are affected. Either the Corps of Engineers or FEMA changed the standards because they stated that the land has subsided. Participant thinks that perhaps some resource person on the national level made this decision without having knowledge of field conditions

• Saltwater Intrusion

Lower Jeff Davis has concerns over saltwater intrusion. With each storm or drought occurrence in the southern end of the parish participant stated that they end up with saltwater issues due impart that there are breaks in the levees that have not been repaired. The levee system is 60 years old. There is no authorization to maintain, fix and repair the levees and structures in the watershed. There needs to be authorization enacted by Congress to maintain and repair the levees and structures in the watershed.

- Gulf Intracoastal Waterway Silted In The GIWW is silted back to 9 feet. Participate went on to state that a lot of people lost land to the GIWW. There was no common sense in regards to the construction of the locks
- Non-point Source Pollution Participant stated that Louisiana has the dirtiest water. The Mermentau Basin is locked in. Whatever gets into the basin stays in. In 1951 we changed the hydrology. Everything that is dumped into the Mermentau stays there.
- Outlet to Gulf ingress and egress fisheries and nonpoint pollution Every time we put in a structure to block something, we leave no ingress for fisheries. We levee everything in and nothing can get out. Participant stated that they could not get anything for ingress of fisheries. We can millions of dollars for locks but we need a plan that will benefit both groups.
- Soil Erosion

Participant states that water leveling has been a long time practice but in the West Fork of Lacasiene Bayou area, the farmers get the blame for poor water quality. But the resident feels that the landfill is the culprit for the poor water. Another participant stated that you can't control runoff and that the blame should not be placed on the farmers when rain falls from the sky. Another participant stated that when you cultivate you will get some runoff. It was stated that laser leveling was is not as bad as water leveling. Also runoff water from the northern participant stated to their area a lot faster. Another participant stated that kills plants.

Coastal Erosion

The Corps of Engineers maintains deep water channels. However the flow is restricted in the channels. There is a need for more land rights protection. The land that washed away does not belong to the landowners anymore. It belongs to the state. Something needs to be done about the conduit. The Gulf is encroaching 37 feet per year. There is a need to address the coastal erosion concern from Rockefeller Refuge to the Mermentau. On the south end of the Rockefeller basin – a contract will be done to repair the Big Constance erosion Control Structure. Work is being done to raise the levees in the area. Participant stated that he has been to numerous meetings whereby discussion was held about opening and closing the locks.

- Calcasieu Locks are too Small to Remove Excessive Water articipant stated that a directive was needed to mandate ingress and egress. He stated that the major area where we can release water in the Mermentau Basin is at the Calcasieu Locks. Through CWPPRA 10 blocks have been put in.
- Exotic Plants (Invasive) Participant stated that he has a problem with Giant Salvinia. It was also stated that there needed to be an aggressive campaign to alleviate invasive plant and animal species. Participate stated his disgust with the tallow trees.
- Look at the Total Watershed for Treatment Participant stated that in his opinion it has always been North vs. South and a more holistic approach was needed for the watershed.

- Emergency Operations for Locks, etc During Storms There needs to be a mandate in place in case of emergencies or storm events to open the Calcasieu Locks.
- Corps of Engineers Should Maintain GIWW Levees There are huge erosion rates along the GIWW. There is a need for more protection for erosion control. There needs to be a mandate that the Corps maintain the width of the GIWW. Participate stated that in one place the GIWW was initially 300 feet across but now it is 1 mile across.
- Pesticides and Herbicides Runoff Impacting Local Water bodies There is a serious concern downstream of enters the water bodies upstream
- Beaver and Coyote Control is Needed
- Point and Nonpoint Source Pollution
- Education and Information Outreach Louisiana as well as the Nation needs to be educated on the impacts of coastal erosion
- Maintain and repair the Cameron Creole Watershed. This has an effect of the Lower Mermentau Watershed
- Fire Ant Control is needed
- There is an Issue with the Corps of Engineers Permits Needed to Clean the Drainage Ditches

After the comment period was done, it was stated to the participants that the final assessment will be completed in June 2008 hardcopies will be available, the assessments will be posted on NRCS's website and the public would be notified of the availability of the assessments.

There being no further business, the meeting was adjourned.