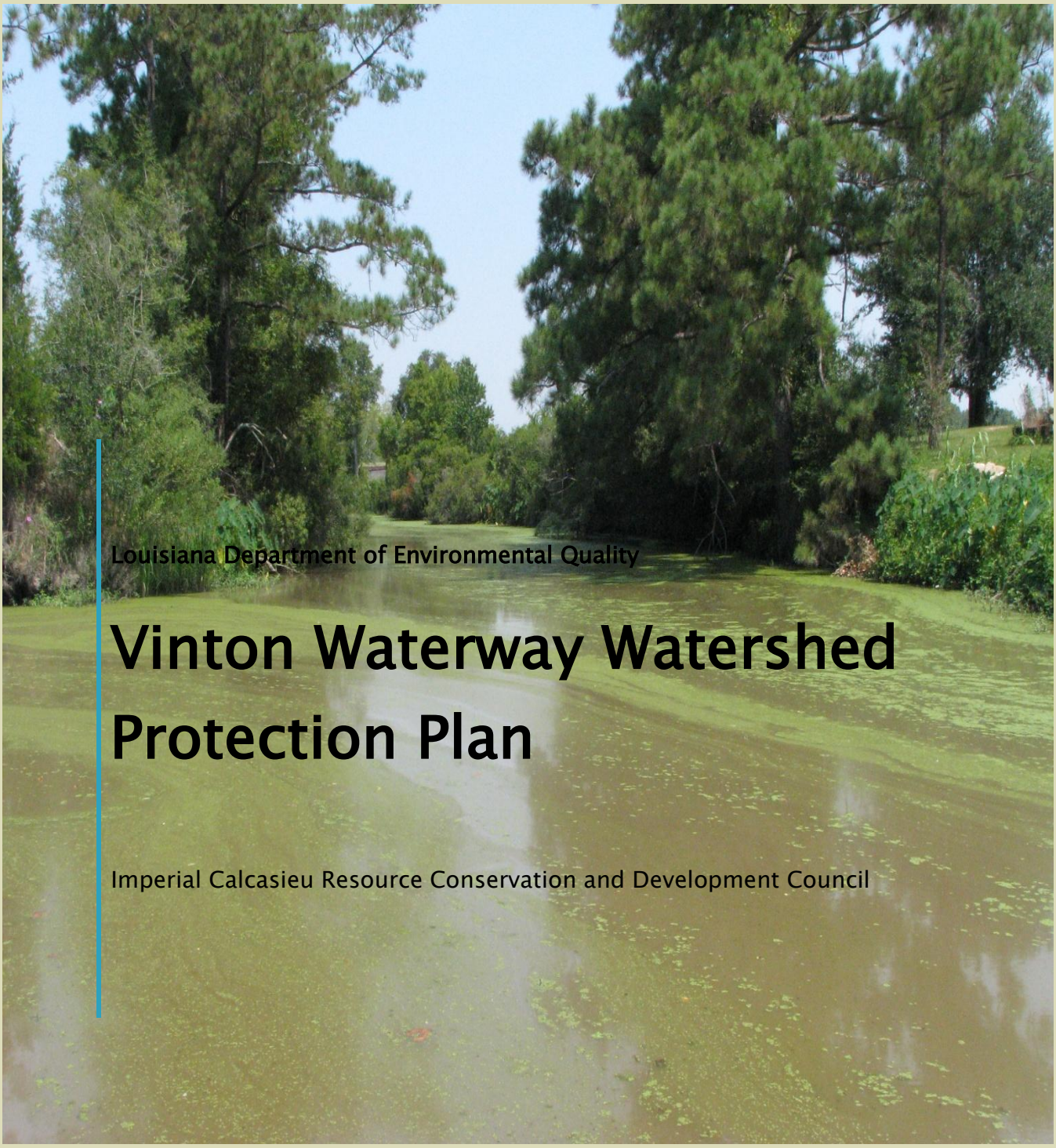


Louisiana Department of Environmental Quality

Vinton Waterway Watershed Protection Plan

Imperial Calcasieu Resource Conservation and Development Council

FIGURES

Table of Contents

1.0 Introduction

Louisiana's greatest renewable natural resource is its substantial collection of surface waters. These waterbodies include rivers, bayous, lakes and vast areas of wetlands. Surface waters are an accessible source of water for a score of purposes that include drinking water and irrigation. Many common agricultural practices and industrial processes depend upon the reliability of these surface waters.

Many commercially navigable rivers and bayous, along with the (GIWW) Gulf Intracoastal Waterway, provide a water highway for an economically crucial transportation industry. The far reaching and extensive areas of wetlands, both marsh and swamp, provide habitat for Louisiana's varied and diverse wildlife population and act as a renewable supply house for a thriving seafood trade.

Figure 1 Port of Vinton

The focus of the Federal Clean Water Act of 1972 was to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Since the 1980's significant achievements have been made at point source discharges to address water pollution. Clean Water Act programs have shifted in the last few decades to a watershed based strategy. A watershed is an area that drains or contributes water to a particular point, stream, river, lake, or ocean. Large watersheds are often referred to as basins. Watersheds can range in size from a few acres to more than a million. Louisiana has 12 large watersheds or basins, which are further divided into 476 smaller watersheds called subsegments. These subsegments are approximately equivalent to the 10 digit hydrologic units (HUCs) delineated by the U.S. Geological Survey (USGS). These are further subdivided into smaller watershed identified by 12-digit HUCs.

The Louisiana Department of Environmental Quality (LDEQ) has also identified 12 ecoregions characterized by unique soils, fauna, and agricultural crops.

Louisiana DEQ has assessed over 9400 miles of rivers and streams in the state and of these over 80% are considered impaired and not meeting their designated uses. The most probable cause for these impairments is attributed to unknown sources. The most common impairment for Louisiana waters was found to be low dissolved oxygen. Nearly half of all impaired water bodies can attribute their

inability to meet water quality standards to nonpoint source (NPS) pollution. Nonpoint source pollution (NPS) occurs when small amounts of pollutants from many different origins are carried into waterways by rainfall events. Excess rain that cannot be absorbed into the soil becomes runoff carrying litter, sediment, bacteria, nutrients (phosphorus and nitrogen), and toxic substances like pesticides into local water bodies. It is estimated only 10 percent of water quality impairments are due to point source discharges.

Section 303(d) of the Clean Water Act requires states, recognized tribes, and territories to place waterbodies not meeting their intended uses or exceeding their water quality standards on a 303(d) list. States must develop TMDLs or Total Maximum Daily Loads for every water body on a 303(d) list. A TMDL is the amount of pollutant that a waterbody can integrate without exceeding the known water quality standard for that pollutant. Pollutant loads in a waterbody can be ascribed to point and nonpoint discharge sources using TMDLs.

A TMDL was completed on the Vinton Waterway (Subsegment 110601) in April 2007. The Vinton Waterway was listed on the 2008 Water Quality Integrated Report 303(d) list as not supporting its Fish and Wildlife Propagation use because of low dissolved oxygen levels. Sources of the sediments that are thought to be contributing to the low dissolved oxygen and causing increased turbidity levels are changes in tidal circulation or flushing, streambank modification or destabilization, and/or rural residential impacts. Because point sources were considered to have an insignificant impact on existing violations of water quality standards, all of the load reductions for the Vinton Waterway were allocated to nonpoint sources. In order to meet water quality standards, the TMDL requires a 65% reduction of manmade nonpoint source pollutants in the Vinton Waterway.

This watershed protection plan will address the steps and actions needed to improve the water quality in the Vinton Waterway. By reducing the NPS pollution sources that are suspected of causing impairments water quality standards can be met. In an agricultural based community such as this, efforts should be undertaken to educate and inform local landowners and operators of the Best Management Practices (BMPs) applicable to this watershed. Along with the education about BMPs, watershed and NPS pollution facts should also be provided to all vested members of this community.

Contaminants in rainwater are not limited to cities or urban communities, rural areas contribute to NPS pollution as well. Nonpoint source pollution can be the result of agriculture activities (livestock/crop), forestry practices, urban runoff, home sewage systems, resource extraction (oil and gas), construction, and hydromodification.

The Environmental Protection Agency (EPA) is authorized by Section 319 of the Clean Water Act (CWA) to issue grants to states to assist in implementing management programs to control nonpoint sources of water pollution. The Louisiana Department of Environmental Quality (LDEQ) is the lead agency to direct/oversee the Louisiana State Nonpoint Source Program.

The intention of this watershed plan is to explain the water quality concerns in Vinton Waterway and describe the BMPs and programs available to correct these problems. Water quality in the watershed and subsequently in the smaller subwatersheds that drain into the Vinton Waterway can be degraded by the impacts of nonpoint source pollution. Implementing BMPs and other conservation practices will reduce the amount of nonpoint source pollution entering the Vinton Waterway and as a result improve water quality. An improvement in water quality will allow the waterway to once again fully meet is designated uses.

In a watershed where agriculture activities represent the majority of land use the implementation of Best Management Practices (BMPs) are the obvious choice for reducing contaminated runoff from crop and pasture land and stream bank modifications.

This watershed plan is being written to comply with the 9 key elements that were included in the USEPA's 2004 Grant Guidelines for Section 319 of the Clean Water Act. USEPA Region 6 has required that states write or revise watershed plans in accordance with these guidelines prior to the use of Section 319 incremental funds for project implementation.

2.0 USEPA's Nine Key Elements

USEPA has incorporated nine key elements in their national guidelines for the Nonpoint Source Program and Section 319 grants. The nine key elements consist of:

a. An identification of the causes and sources that will need to be controlled to achieve the load reductions estimated in the watershed-based plan.

b. An estimate of the load reductions expected for the management measures described.
c. A description of the NPS management measures that will need to be implemented to achieve the load reductions estimated and an identification of the critical areas in which those measures will be needed to implement this plan.
d. An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the resources relied upon to implement this plan.
e. An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.
f. A time line for implementing the NPS management measures identified in this plan that is plausible.
g. A description of interim, measureable milestones for determining whether NPS management measures or other control actions are being implemented.
h. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, criteria for determining if watershed based plans need to be revised.
i. A monitoring component to evaluate the effectiveness of implementation efforts over time, measured against the criteria established under item (h).

The information in this watershed protection plan is expected to aid local landowners and stakeholders in making decisions on how to restore the Vinton Waterway to its designated uses.

3.0 Description of Watershed

The Vinton Waterway (subsegment 110601) is located in Calcasieu Parish in southwest Louisiana. It is bordered on the west by the Sabine River, (the state line between Louisiana and Texas), on the north by the Sabine River Diversion Canal, on the east by Calcasieu River, and on the south by the GIWW.

Figure 2 Vinton Waterway at Interstate 10

Vinton Waterway is classified as an estuarine system. An estuary is a partly enclosed body of water that has an open connection to the sea with one or more streams or rivers flowing into it. In an estuarine system coastal tidewaters and freshwater stream flows interact in a dynamic manner. Estuaries are complex receiving waters with unique physical, chemical and biological characteristics. Circulation in an estuary is affected by freshwater inflow, tides, and wind shear. The distribution of pollutants carried from the watershed may be affected by the flushing properties of an estuarine system.

Estuaries are usually more densely populated than other areas of the coast, in fact, over half of the world's population can be found in coastal cities. Human activities both directly and indirectly can have tremendous impacts on the water quality in an estuarine system. Some of the pollutants found to be affecting estuaries are increased sediment loads from soil erosion, deforestation, overgrazing, and other poor farming practices. Excess nutrients from sewage, animal wastes, and unnecessary or improper fertilization practices can cause lower dissolved oxygen levels, especially, in the warmer months of the year. Water diversion and flood control devices along with the filling or draining of adjacent wetlands can be detrimental to the dynamics of an estuarine system. Too much or not enough freshwater inflow can negatively impact the plant and animal communities found in an estuary.

Figure 3 Vinton Waterway near confluence with Intracoastal Waterway

The area surrounding the Vinton Waterway is almost exclusively rural and undeveloped with over 10,000 acres of the watershed involved in some type of agricultural activity. The agriculture crops primarily

grown in the parish are rice, soybean, sugarcane, livestock and crawfish with the largest amount of acres dedicated to pasture and hay for livestock production. Also comprising a significant part of this watershed's land cover are wetland and evergreen forests. Less than 10 percent of the watershed is considered developed. Only a small portion of the Vinton Waterway is located in the city limits of the City of Vinton.

The Vinton Waterway Watershed is a subsegment of the Lower Sabine River Basin (12010005) located in the extreme southwest region of the state. The drainage area of the Sabine Basin comprises approximately 2,870 square miles. The Sabine River basin extends from the Texas state line near Shreveport, LA to the Gulf of Mexico. Many of the streams in the basin are naturally slow-moving because of low grade or minimum slope conditions. Streams with little or no flow tend to become stagnant during crucial times of the year. Waterbodies with limited or low flow conditions have little potential for reaeration and are typically characterized as having low dissolved oxygen levels. However, the Sabine River itself tends to have a substantial amount of flow throughout the entire year. The Vinton Waterway is 10 miles long with a watershed drainage area of 110 mi^2 (35,025 acres). Hampton Coulee (HUC 080802060103) and Coon Gully are two smaller subwatersheds located in the larger 10 digit HUC Vinton Waterway watershed. There are no major changes in topography throughout the entire watershed area. The watershed has the greatest elevations, about 25 feet above sea level, in a small area of the northern part of the drainage basin. Elevations then gradually fall to only 5 feet or so above sea level at the southern end of the watershed.

The waterway links the Port of Vinton to the Gulf Intracoastal Waterway (GIWW). The Intracoastal Waterway (ICWW) is a 3,000 mile waterway along the Atlantic and Gulf coasts of the United States. The Gulf Intracoastal Waterway (GIWW) extends from Brownsville, Texas to Carrabelle, Florida. The GIWW waterway is a major shipping route for states in the gulf coast region. It provides an inland shipping passage away from the perils of travel on open waters.

Figure 4 Barge traffic on GIWW near Vinton Waterway

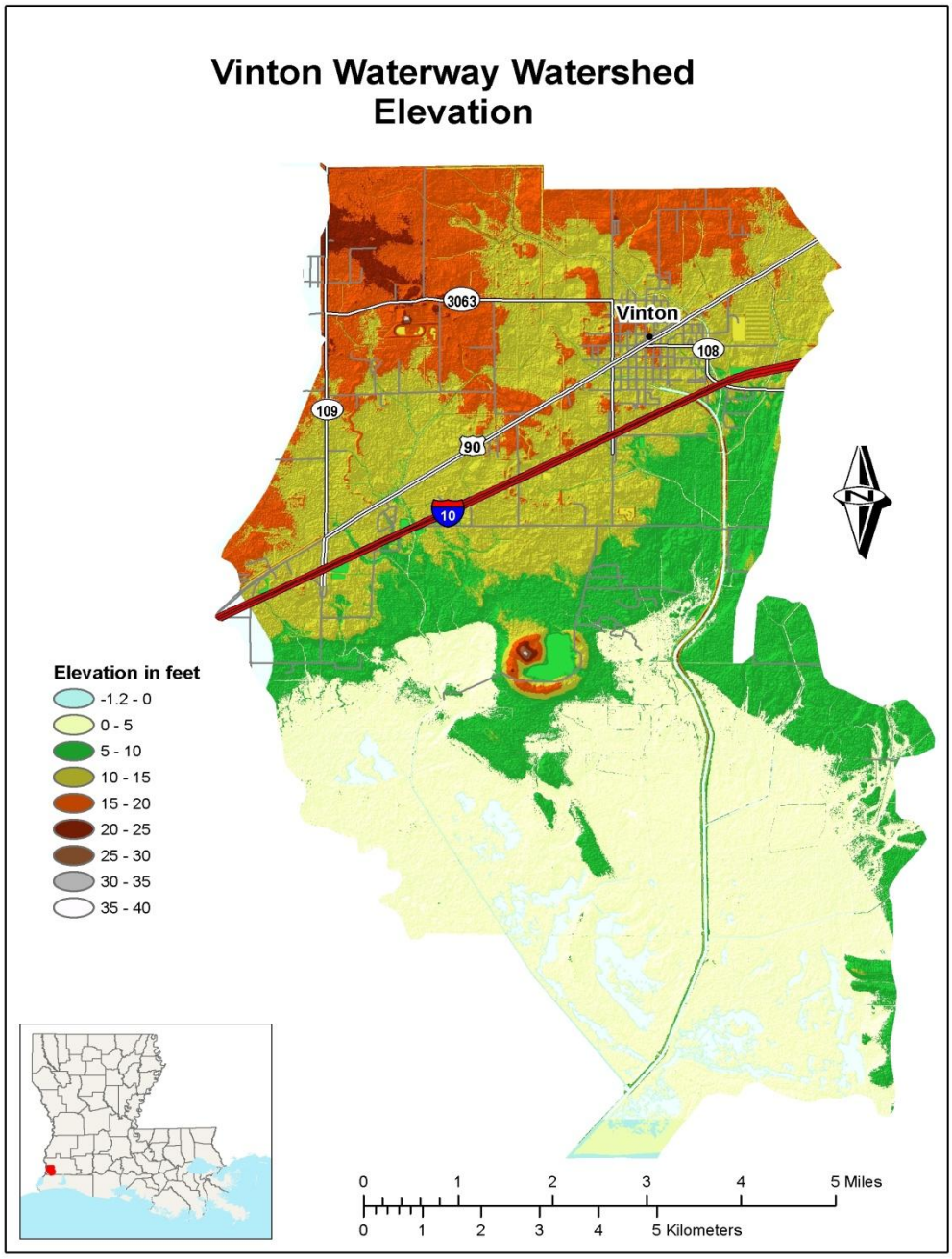


Figure 5 Elevation map of watershed

Figure 6 Public Boat Launch on Vinton Waterway

There are several public and private boat launches located on the Vinton Waterway. They serve as a convenient and direct access to nearby fishing and hunting areas, located adjacent to and immediately south of the watershed. Commercial fishing as well as pleasure fishing and hunting are economically important to the gulf coast region as a whole and also for small towns such as Vinton. There are a number of well known and established hunting and fishing camps in the area.

3.1 Soil and Vegetative Types

A large part of the Vinton Waterway watershed is located in the Gulf Coastal Ecoregion. This subsegment drains from north to south with elevations close to 25 feet above sea level in the northern reaches to elevations less than 5 feet above sea level in the southern end. This prairie region of southwestern Louisiana was once very extensive comprising more than 2 million acres. Today, only a few small, isolated remnants remain. The region has an impervious clay pan layer located anywhere from 6 inches to as great as 36 inches below the surface. This impassable layer prevents downward percolation and also restricts upward capillary movement of water through the soil profile. Soils are typically neutral to alkaline and tend to stay saturated in winter months and can become very dry in late spring and fall when experiencing decreased amounts of precipitation. Silt loams are poorly drained soils found on flat land, typically less than 5 percent slope. Kinder-Messer and Leton silt loams along with Morey loam make up more than 90 percent of the soil types for this area.

Coastal Prairie vegetation is extremely diverse and dominated by grasses such as Gulf cordgrass (*Spartina* spp.), Dallisgrass, Bahiagrass (*Paspalum* spp.), Bluestems (*Andropogon* spp.) Little Bluestems (*Schizachyrium* spp.), Switchgrass, browntop (*Panicum* spp.). Sedges such as white-top sedge and offshoot sedge (*Carex* spp.),and yellownut grass (*Cyperus* spp.) Also present is a multitude of forbs such as Blazing star (*Liatris* spp.), Buttterfly/milk weed (*Ascelepias* spp.), white and purple

prairie clover (*Petalostemum* spp.), coneflowers (*Rudbeckia* spp.), and *Coreopsis* spp. Historically trees in this area where confined to ridges and small "island" areas that had slightly higher elevations where the soils did not stay as saturated as the surrounding lower relief areas. Trees typically were longleaf pine and bottomland hardwoods along with shrubs such as deciduous holly, button bush, and palmettos. These areas were kept in climax vegetation by grazing herds of bison and periodic fires. Without episodes of natural suppression, introduced and other woody species become problematic as they form almost impenetrable stands. The two woody species that local landowners have the most trouble with are Chinese tallow trees, *Triadica sebifera* and wax myrtle, *Myrica* spp.

The climate conditions for this area are considered to be semi-tropical with average overnight lows of 41.2^{0}F and average daytime highs of 91.3^{0}F. Yearly rainfall amounts can total more than 60 inches in any given year. Rainfall generally coincides with cold fronts in the winter and heat generated thunderstorms in the summer. Because of the area's close proximity to the Gulf of Mexico, tropical storms or hurricanes can add a considerable amount to this yearly average.

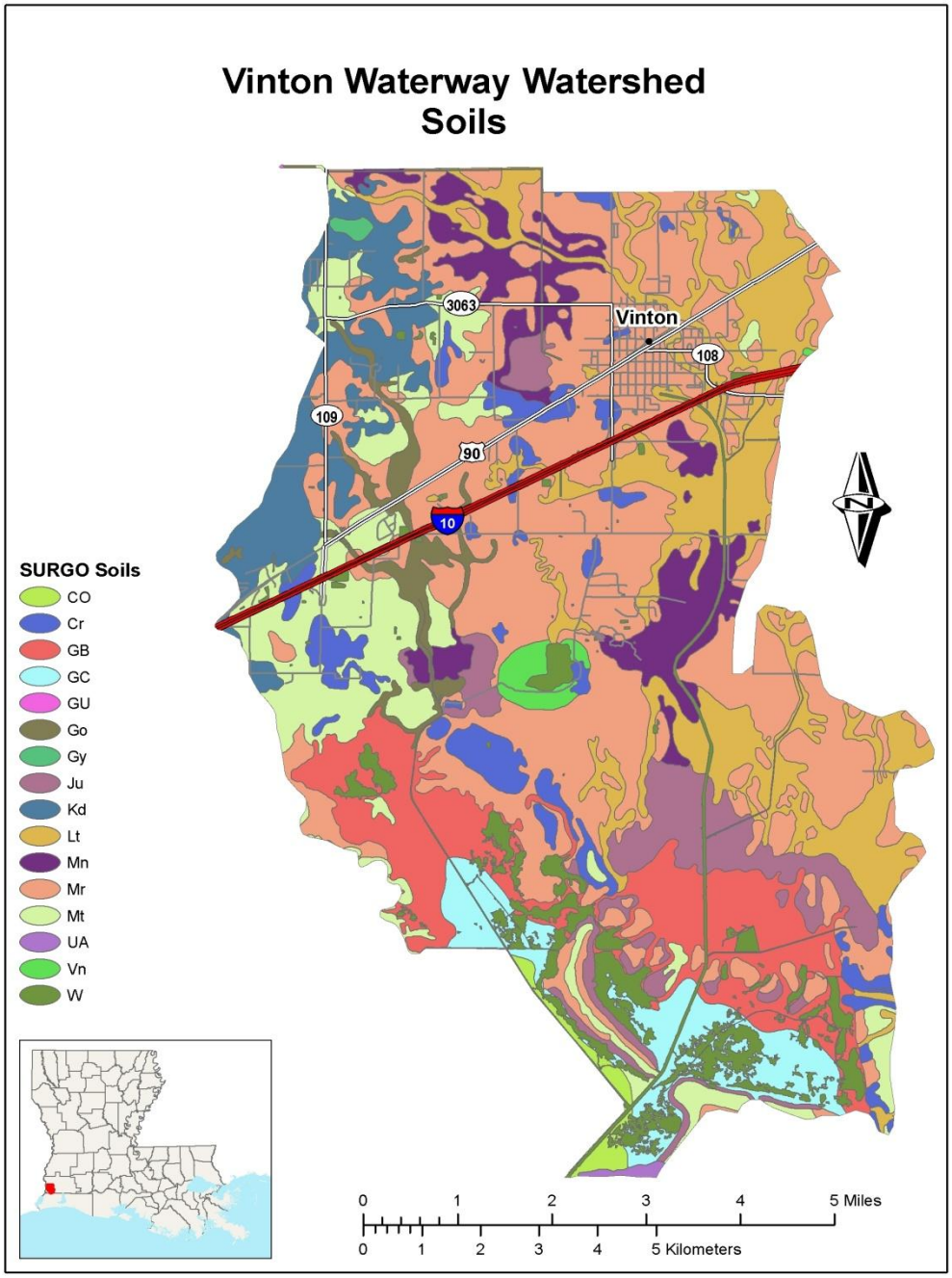


Figure 7 Map of soil types

3.2 History of the Area

The City of Vinton is located south of what was once referred to as Old Spanish Trail. Old Spanish Trail was an overland transportation route that meandered from Sabine River to Calcasieu River essentially becoming a foot print for what is now U.S. Highway 90. The prairie region was bordered by nearly impassable wetlands and bayous, but this was not the only reason it was unsettled. In the early 1800's the French and Spanish governments disputed the western boundary of Louisiana and the United States acquired this property line dispute in conjunction with the Louisiana Purchase. A neutral strip or buffer zone was agreed upon in 1806 with both countries agreeing to a no claim on the land in question, referring to it as the Rio Hondo Territory. Beginning in 1810, all settlers were removed from the territory which included a sizeable portion of what is now Calcasieu Parish. This policy of forced relocation continued until after the Civil War. In 1827, Jean Baptise Granger settled acreage between what is now Vinton and Big Woods. However, the area remained sparsely populated until two significant events took place that helped to shape the future development of Calcasieu Parish and the establishment of Vinton itself. A railroad line from New Orleans, Louisiana to Beaumont, Texas was constructed by J. Pierpont Morgan's Louisiana & Texas Railroad Company to facilitate the harvest and shipping of some of the finest longleaf pine and untapped cypress stands in the world. Vinton began as a whistle-stop switching track called Blair. The source of this name is thought to be from a family who resided in the state of Iowa but owned a large tract of land in the area at this time. A former professor of agriculture from Indiana, Dr. Seaman Knapp, completed the founding of Vinton. Dr. Knapp purchased the tract of land that would become the town of Vinton from the U.S. Government. Dr. Knapp is also credited with bringing in a large influx of settlers from his hometown of Vinton, Iowa. When the U.S. Postmaster General registered the post office, the name of Dr. Knapp's hometown was chosen. The town of Vinton was incorporated on October 10, 1910 by proclamation by then Governor Jared Sanders. Alexander Perry was appointed as the first Mayor. The town grew steadily aided by the oil boom following a petroleum discovery in Ged, a settlement a few miles to the southwest.

According to the United States Census Bureau the town of Vinton has a total area of 4.9 square miles. The 2000 U.S. Census date has a total population of 6,469 with

more than half that amount residing outside the city limits. This area is predominantly agricultural, producing crops such as rice, soybeans, crawfish, and cattle. The largest employer in the area is the Delta Downs Race Track and Casino.

Figure 8 Delta Downs Racetrack & Casino

The area suffered tremendous structural damage to home and businesses because of Hurricane Rita in 2005. Like most small rural towns in Louisiana, repair and improvements are slow because of a lack of funding and a depressed economy. The City of Vinton does, however, have an updated and improved waste water system. A large part of the residential wastewater lines in the city were updated recently. At the treatment plant, wastewater is first collected into a 27 acre lagoon where it is held for approximately 10 days. From the lagoon the water is drawn into an irrigation pipeline system and sprayed onto fields of native and improved grasses. In the past, these fields were harvested and utilized as a source of forage for livestock. This method of wastewater treatment greatly decreases the amount of effluent discharged into Coon Gully.

In addition, two large single family housing complexes have been built within the city limits of Vinton since Hurricane Rita in 2005. The housing complexes have large areas of impervious surfaces and are equipped with storm drain systems that lead to nearby ditches and streams. Storm water from one of the new housing development areas drains directly into Hampton Coulee .

Figure 9 Single family housing complex

4.0 Review of Historical Data

Identifying and recognizing seasonal trends in water quality data that has been collected is key to understanding the conditions that need to be addressed in a watershed. LDEQ has monitored the water quality in the Vinton Waterway for many years. Neither historical trends nor seasonal patterns were apparent in the data analyzed (LDEQ 2007). The Vinton Waterway was listed on the 2008 Water Quality Integrated Report as not supporting its Fish and Wildlife Propagation use because of low dissolved oxygen levels. The suspected cause of this impairment could be hydromodification from tidal circulation, tidal flushing, streambank modification and bank destabilization. The Vinton Waterway is listed as fully supporting primary and secondary contact recreation.

Samples were collected at sampling site 1168, which is located on the Vinton Waterway, south of the town of Vinton, Louisiana. These samples were collected monthly in 2002 and again in 2006. The water samples collected were analyzed for a variety of parameters including water temperature, turbidity, dissolved oxygen, percent oxygen saturation, pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Fecal Coliform, Salinity, Specific Conductivity, and a variety of organic and inorganic substances. Analysis of water samples collected indicated below stream standard levels for dissolved oxygen and consequently high turbidity and TSS levels.

4.1 Explanation of the TMDL

A TMDL sets the pollutant limits for the water body by determining the following:

- Waste load allocation from point sources
- Load allocations from nonpoint and natural sources
- Margin of safety (MOS) to allow for any unknowns in the scientific methods used

To achieve the water quality standard for dissolved oxygen in the Vinton Waterway the TMDL calls for a 65% reduction of all nonpoint sources of TSS. No reduction in the permit limits for the city of Vinton's Waste Water Treatment Plant (WWTP) or any other permitted discharger is required by this TMDL. This watershed protection plan will address the suspected sources of NPS pollution and the implementation of BMPs needed to reach this 65% reduction.

4.1.1 Relationship between turbidity and TSS

Total Suspended Solids (TSS) of a water body is determined by filtering a known

amount of a water sample through a weighted filter; drying that filter and then reweighing it to obtain a value. Turbidity is the cloudiness or haziness of water caused by individual suspended particles. Turbidity is an indicator of the TSS in a water body. An analysis of TSS versus turbidity at this sampling site shows an obvious connection, with higher TSS values corresponding with higher turbidity readings. A linear regression was performed for this station and the results were that 79% of the variation in turbidity is accounted for by turbidity and the remaining 21% of variation in turbidity is unexplained.

4.2 Designated Uses

Waters of the state have designated uses that are established by the water quality standards provided in LAC 33:IX.1111. These uses include, but are not limited to, primary and secondary contact recreation, fish and wildlife propagation, drinking water supply, oyster propagation, agriculture, and outstanding natural resource waters. Designated uses for Vinton Waterway per LAC Title 33, Part IX Subpart 1 are Primary Contact Recreation; Secondary Contact Recreation; and Fish and Wildlife Propagation.

Primary Contact Recreation is any recreational or other water contact use involving prolonged or regular full-body contact with the water and in which the probability of ingesting appreciable amounts of water is considerable. Examples of this type of water use include swimming, skiing, and diving.

Secondary Contact Recreation is any recreational or other water contact use in which body contact with the water is either incidental or accidental and the probability of ingesting appreciable amounts of water is minimal. Examples of this type of water use include fishing, wading, and boating.

Fish and Wildlife Propagation is the use of water for aquatic habitat, food, resting, reproduction, cover, and/or travel corridors for any indigenous wildlife and aquatic life species associated with the aquatic environment. This use also includes the maintenance of water quality at a level that prevents damage to wildlife and aquatic species and contamination of aquatic species consumed by humans. The 2008 Integrated 305(b) Report states the Vinton Waterway is not fully supporting its fish and wildlife propagation use for dissolved oxygen. The suspected cause of this impairment is thought to be streambank modification and bank destabilization brought about by tidal circulation and tidal flushing.

4.3 TMDL Description

Understanding water quality standards is important because they are the basis for determining whether a water body is meeting its designated use. The Vinton Waterway was included on the LDEQ final 2008 303(d) list as not supporting its designated use for fish and wildlife propagation. The water quality standard that relates to fish and wildlife propagation includes dissolved oxygen (DO) concentrations and total dissolved solids (TDS) and subsequently total suspended solid (TSS).

The Vinton Waterway watershed contains three smaller subsegments, Hampton Coulee, Gum Gully, and Coon Gully. The entire watershed area is sparsely populated and the land use is predominately agricultural in the upper reaches and mostly uninhabited, undeveloped wetlands in the lower reaches.

There are 11 permitted dischargers in the watershed area. They include the Town of Vinton Waste Water Treatment Plant, Delta Downs Race Track and Casino, and several large truck stops.

5.0 Description of Subsegments

Gum Gully is located northwest of the Vinton Waterway. This smaller subsegment receives drainage from the western edge of the town of Vinton including several large truck stops and casinos.

Hampton Coulee is located north and east of the Vinton Waterway and drains predominantly agricultural lands. It also receives runoff, via storm drains, from a newly constructed single family housing complex. Streambanks of the Hampton Coulee are almost completely covered with both native grasses and riparian vegetation. Hampton Coulee drains a substantial amount of the populated area of the watershed.

Figure 10 Hampton Coulee near City of Vinton

Coon Gully receives drainage from the far eastern part of the watershed. It also receives runoff from mainly agricultural lands. However, Coon Gully is the receiving water for the City of Vinton Waste Water Treatment Plant (WWTP) effluent. The streambanks are almost completely vegetated with limited amounts of littering.

Figure 11 Coon Gully at junction with Vinton Waterway

6.0 Nonpoint Source Pollution

Various land uses can contribute to the biological and chemical loading of a waterway. Not only do agricultural and urban based land uses have the potential to affect water quality but the natural ecosystem can also have an effect. Failing or inadequate septic systems used to treat home sewage can be a factor in high levels of nutrients and organics of nearby streams. The straightening, dredging, and altering of drainage pathways, also known as hydromodification, is often a source of NPS pollution. These hydrological changes can affect the rate at which water flows and the paths that excess rainwater follows during heavy rain events. Home sewage and hydromodification, however, are not considered land use categories and are not factored into the table below.

Land Use	Percent Coverage
Water	3.4%
Developed	7.8%
Forest	8.5%
Grass/Shrub	1.8%
Pasture/Hay	31.5%
Cultivated Crops	12.6%
Wetlands	34.4%
Total	100.0%

Figure 12 Land use in watershed

6.1 Agriculture Areas

Figure 13 Rice field in watershed

The predominant land use in this watershed is agricultural, with more than 40% of the land involved in some type of agricultural production. The principal agriculture crop in the Vinton Waterway

watershed is pasture land that is used to produce hay grown for grazeing livestock such as cattle, sheep, goats, and horses. Agricultural producers rely on their livestock as a source of both food and income.

Figure 14 Livestock production in watershed

Another major agricultural crop in the area is crawfish. Crawfish farming is seasonal, usually from late winter to early summer, and is dependent upon an ample supply of freshwater. Traditionally fields are flooded after rice has been harvested and then seeded with adult crawfish. These “seed” crawfish are the stock from which future generations are harvested.

Because of the close proximity to the Delta Downs Racetrack and Casino, a large number of horse farms and training facilities are located in the watershed.

Figure 15 Horse farm and training facility

Runoff from pasture land and stables can contain organics and nutrients associated with livestock manure. Animal waste can potentially contribute both bacteria and surplus nutrients to nearby streams, especially if animals are allowed direct access to the waterbody. Pesticide and fertilizer runoff is also possible from pasture land if the operating practices include pest management and nutrient enhancement. Streams and drainage byways that are used as a source of drinking water for livestock will have areas of soil disturbance at the water’s edge. These areas of disturbance are caused by livestock hooves crushing the vegetation of the streambank when they travel to and from and then loiter around their drinking water source. These areas of disturbance can sometimes encompass extensive areas of the sides and bottoms of the stream. During rainfall events these disturbed areas are a source of NPS pollution, releasing

sediments that contain nutrients and organic matter into the waterway. The rotting organic matter will not only lead to offensive odors but it can also decrease the amount of dissolved oxygen in the waterbody. Other agriculture activities such as soybeans and rice production also have the potential to release excess nutrients, organic matter, sediments, and pesticide residues to nearby streams. Fences erected to exclude animals from drinking or loafing near streams can alleviate the streambank erosion, and riparian or grassed buffer zones can limit the amount of runoff a stream receives from adjacent pastures and or stables.

Figure 16 Livestock utilizing drainage canal for a drinking water source

6.2 Developed Areas

Figure 17 Downtown Vinton

The 2001 land use classification on the Vinton Waterway Watershed area divided developed areas into high, medium, low density and open space. As you can see from Figure 18 most of the developed areas are classified as low density and open space. The drainage area is almost completely rural with the city of Vinton being the only urbanized community located in the watershed. This small town can, however, still contribute a significant amount of nonpoint source pollution to the surrounding bayous. Historically, water quality sampling of urbanized areas have shown that during rainfall events the greatest amount of pollutants entering the water bodies occur during the first “flush”. The initial runoff after a period of dry weather is commonly referred to as a flushing event. In urbanized areas

impenetrable surfaces such as roads, rooftops, and parking lots do not allow penetration of rainfall nor do they retain water for any length of time. When these areas are inundated by rain they are essentially washed clean by the first inch or so of rainfall. Parking lots and roads, as a rule, are designed to discourage water from pooling by efficiently and rapidly directing rainwater away from the area and into nearby drainage pathways.

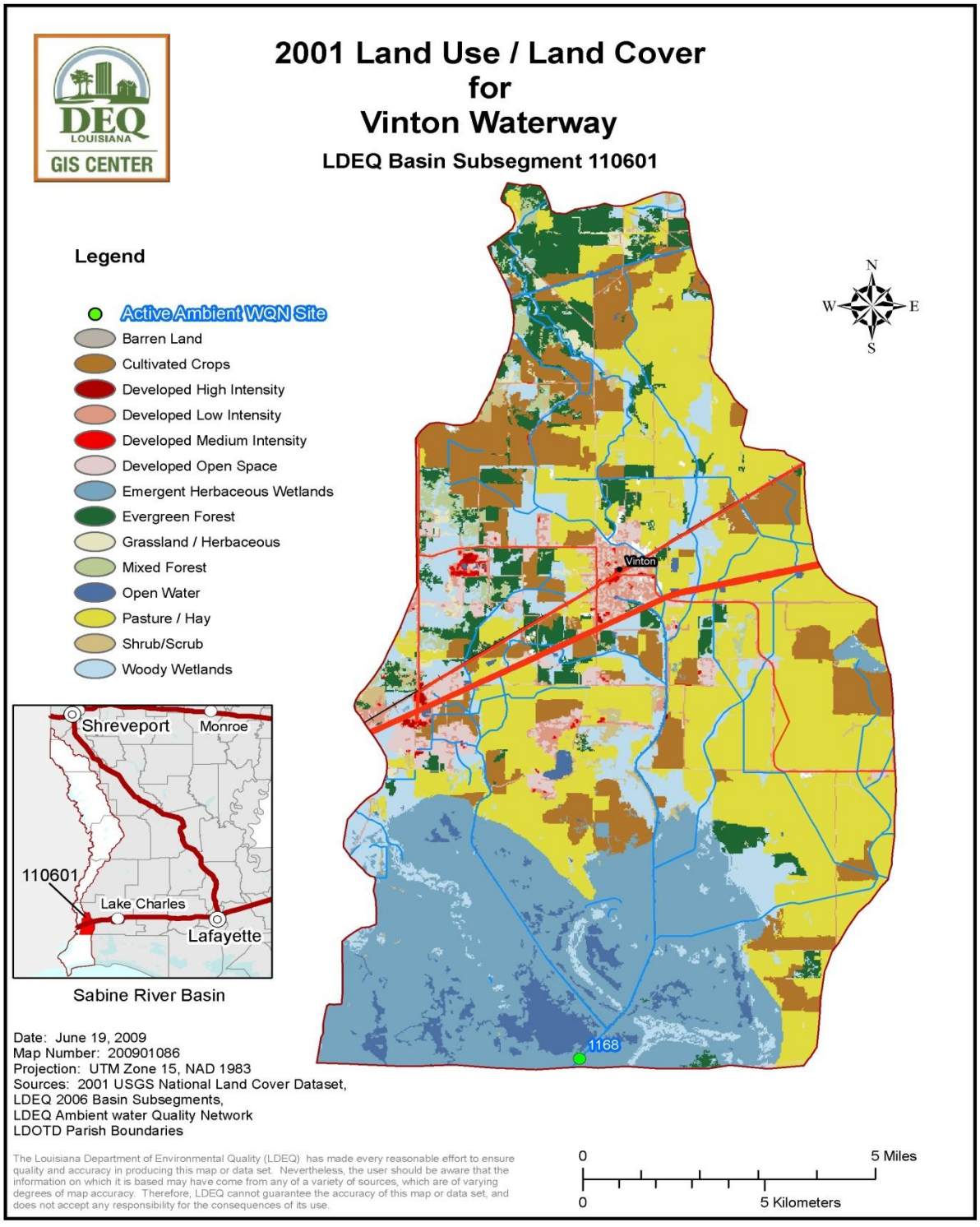


Figure 18 Land use for watershed

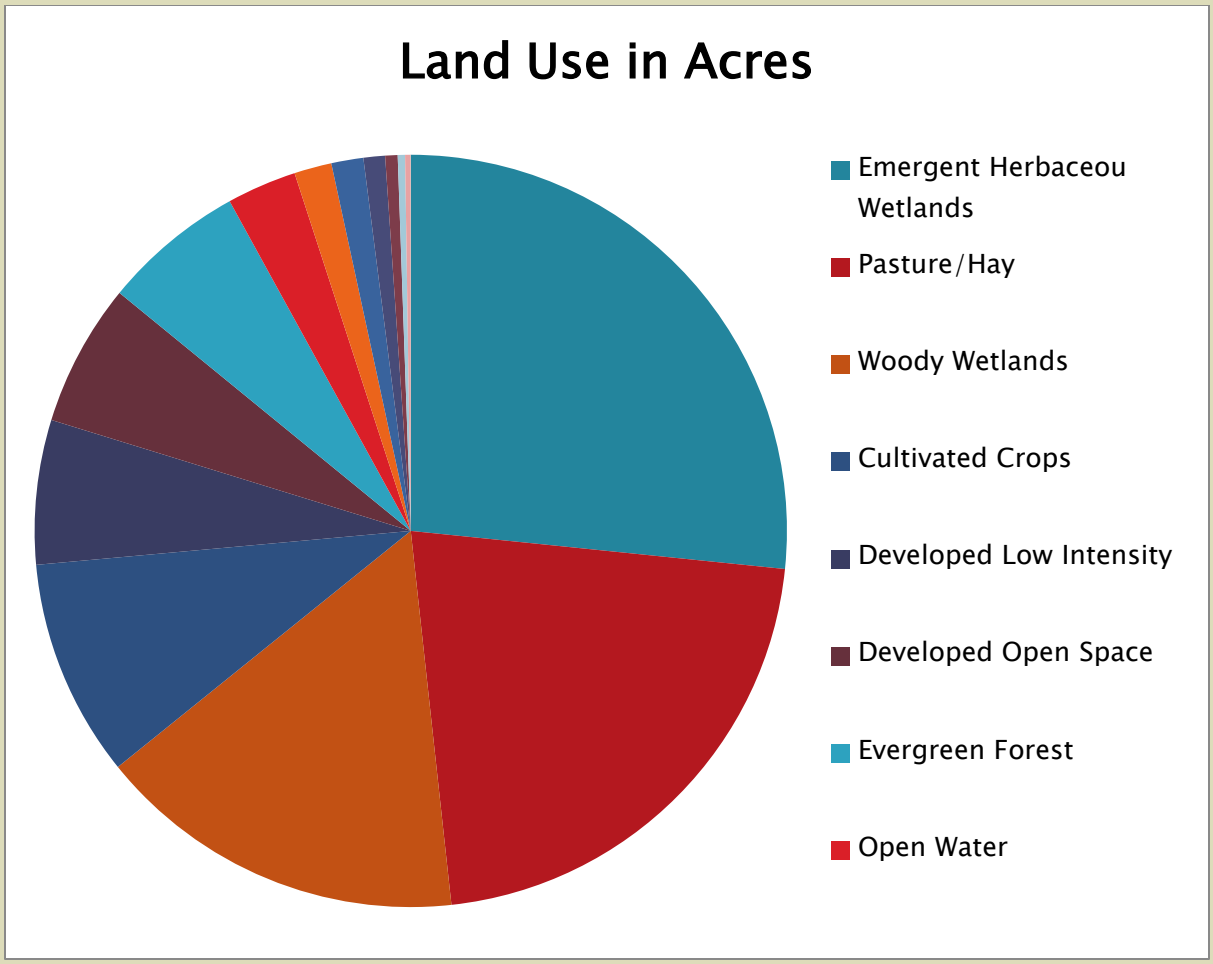


Figure 19 Land use in acres

Land Use Type	Number of Acres
Emergent Herbaceous Wetlands	9,322
Pasture/Hay	7,586
Woody Wetlands	5,579
Cultivated Crops	3,278
Developed Low Intensity	2,173
Developed Open Space	2,150
Evergreen Forest	2,137
Open Water	1,049
Mixed Forest	564
Shrub/Scrub	482
Grassland/Herbaceous	324
Developed Medium Intensity	187
Deciduous Forest	110
Developed High Intensity	80
Barren Land	4

6.2.1 Urban Nonpoint Source Pollution

Urban nonpoint source pollution comes from a variety of sources:

- Air pollution that has settled on impervious surfaces during dry spells
- Litter on streets and sidewalks
- Petroleum residues from automobiles
- Tar and heavy metals from roads
- Chemicals from pesticide and fertilizer applications
- Sediment from construction activities
- Illegal storm sewer and drainage dumping
- Malfunctioning home sewer systems
- Overloaded municipal waste water treatment plants

Urbanization of an area converts formerly vegetated spaces into areas that have increased amounts of impervious or hard surfaces. Increasing the amount of hard surfaces in an area directly increases the amount of runoff that area will experience during rain events. Increased runoff raises the potential for pollutants to be carried into nearby receiving waters. Watersheds are directly impacted and will be physically, chemically, and biologically changed when they undergo urbanization. Additionally, as urban populations expand nonpoint source pollution associated with human activities will increase. This increase is the result of greater amounts of contaminants being carried into surface waters by untreated rainfall runoff.

A watershed area will also be impacted hydrologically when it undergoes urbanization. Prior to development, natural drainage areas have a greater ability to retain rainfall. Retention of storm water during rain events will result in greater infiltration and less runoff. The amount of retention and infiltration is dependent upon on soil type, vegetative cover, and topography. Urbanization of previously undeveloped, natural areas will convert permeable or “softscape” areas into “hardscape” areas when conventional materials and construction practices are used. These impervious surfaces allow for virtually no filtration and little retention of storm water. Manmade or renovated ditches are sometimes used to funnel rainfall from developed areas. Flooding of urban areas is not only an inconvenience to residents but can also be a tremendous safety concern. Uncontrolled and frequent flooding of commercial and residential areas can have huge economic impacts as well. Rainfall events that cause water to overflow roadside and city street ditches will transport greater amounts of

contaminants into the drainage system of a watershed. The removal of vegetation along the sides of a drainage channel will increase the sediment load of flood water. The vegetated buffer strip paralleling a stream is a natural filter that absorbs pollutants before they reach a waterway. Removing or decreasing the size of this vegetative buffer zone can directly increase the pollutant loading of a stream.

6.3 HYDROMODIFICATION

Figure 20 Hydromodification to improve drainage

Hydromodification is defined as those practices or activities that affect natural stream flow. These activities can include channelization, straightening, or maintenance dredging of natural stream channels and ditches to remove sediment deposits. These measures are commonly done to increase and improve drainage. To funnel rainwater from an area as quickly as possible the natural bend or meandering of a stream is eliminated. The unnatural and steep slope on a modified stream bank will wash out or slough off as water from rain events attempt to reach the natural flood plain. Eroding stream banks allow tremendous amounts of soil to be carried into the drainage system. Eroded banks are a huge contributor to NPS sediment pollution. Dredging or the removal of sediments from streams is another example of hydromodification. Drainage ditches and even ship channels like the Intracoastal Waterway (ICWW) can become impacted or even filled when sediment laden waters deposit soil suspended in runoff. Understandably, because of the high sediment load in rainfall runoff, there is a nearly continuous need for dredging in coastal Louisiana. This upkeep is necessary to protect low lying areas from flooding and to maintain navigable waterways. Hydromodification in the Vinton Waterway watershed is usually limited to the clearing and cleaning out of established ditches or gullies and the localized dredging of the waterway, to facilitate barge traffic at the Port of Vinton.

Figure 21 Concrete manufacture located on Vinton Waterway

6.4 Home Septic Systems

A substantial amount of the NPS pollution in Louisiana is attributed to sewage runoff. Over one million Louisiana households are equipped with on-site sewage and wastewater disposal systems. It is estimated that greater than 50% of these systems are malfunctioning or performing inadequate waste water treatment. These system failures can be attributed to poor design, improper installation, incompatible soil types and/ or a lack of regular maintenance. Sewage that has not been properly treated is easily transported during rain events from discharge ditches to nearby streams, bayous and eventually into larger bodies of water such as rivers and lakes. Improperly treated wastewater contains harmful bacteria, other pathogens, and nutrients such as nitrogen and phosphorus. Excess nutrients in water bodies can lower oxygen levels and raise water temperatures by increasing the growth and decay of aquatic vegetation. Evidence of failing septic systems is easily recognizable in both rural and urban communities. Ditches that are receiving inadequately treated wastewater will have a distinct, unpleasant sewage odor and support algae and dark green "marshy" vegetation.

Figure 22 Discharge of wastewater into roadside ditch

6.5 Wastewater Treatment Facilities

The City of Vinton's wastewater treatment Plant (WWTP) applies treated wastewater on pasture land using a sprinkler irrigation system. Wastewater from Vinton residents and businesses enter the facility through municipal sewer pipelines and flows into a 27 acre oxidation or settling pond where it is held for approximately 10 days. The

wastewater is pumped from the pond and delivered via a piping and sprinkler system to approximately 175acres. The irrigation system is designed to allow separate areas to be watered at different times. Rotating irrigated areas helps to facilitate maximum uptake of effluent and allows for opportunities to mow areas in need of maintenance. Runoff from the irrigated land is gravity fed through a series of perimeter ditches for further treatment. The runoff is funneled to a contact chamber where chlorine is used to eliminate harmful bacteria such as *E. coli*. Before wastewater is released into Coon Gully a safe level of chlorine is obtained.

During certain times of the year the area will experience lower than normal amounts of rainfall. During these dry periods the WWTP will discharge little or no treated wastewater into Coon Gully.

In the past, local ranchers have harvested hay from this irrigated pasture to feed livestock.

Figure 23 Oxidation pond at WWTP

Figure 24 Pump used to transfer water from oxidation pond to irrigation pipeline

Figure 25 Area irrigated with treated wastewater

Figure 26 Wastewater discharge site from WWTP into Coon Gully

Figure 27 Silviculture in watershed

6.6 Forestry

Over 25% of the Vinton Waterway watershed is comprised of evergreen and deciduous forests. Most of the forested areas in this watershed occur in what is considered to be wetlands. There is some silviculture activity in the watershed with more than 2,000 acres of evergreen pine forests. Silviculture is the cultivation, harvest, and transportation of lumber. Poor or inadequate management practices during silviculture activities can lead to nonpoint source pollution. Nonpoint source pollution from forestry activities can include sediments, nutrients from fertilizers, and pesticides from herbicidal and insecticidal sprays. Heavy machinery, used to harvest and transport trees destroys vegetation and disturbs the soil resulting in erosion. Tree limbs and other debris from harvesting are often washed into forest streams by rainfall. This organic matter not only slows or stops stream flow but adds to the biological oxygen demand of the waterbody when it decays. The removal of trees along forest streams allows greater sunlight penetration and can increase water temperatures of the streams tremendously. Higher water temperatures and greater sunlight exposure will dramatically decrease the dissolved oxygen carrying capacity of a stream. Lower oxygen levels combined with sediment laden water can be detrimental to many species of invertebrates and vertebrates commonly found in forest streams.

The vast majority of these pine forests occur north of Interstate 10 where elevations are at least 10 feet above sea level. South of Interstate 10 elevations approach zero and only areas with higher elevations such as levees, canal banks, and naturally occurring ridges can support tree growth.

7.0 Other Issues

All actions in a community, both natural and man-made produce some type of byproduct, which at times can be a source of pollutants. Sometimes these pollutants are naturally assimilated back into the system causing no long-term ill effects. Other times, however, these pollutants are being added continuously and the environment has little or no chance to absorb these persistent pollutants.

7.1 Feral Hogs

In the last few years, many parts of the country, including the Vinton area, have experienced an increase in the numbers of feral hogs. Feral hogs populations are usually found clustered in areas of dense vegetation and permanent water. Feral hogs reproduce easily and are afforded ideal habitat in this watershed. Secluded and nearly inaccessible forested wetlands allow for concentrated groups to thrive without fear of natural or man-made predation. In their search for food, feral hogs can disturb, or "root up", large areas of stream banks and destroy a large amount of cropland in a single night. The rooting activity of hogs can also compromise the integrity of rice field and flood protection levees. Sediments and fecal bacteria from these disturbed areas have the potential to be transported into streams becoming a contributing factor to water quality impairment.

Figure 28 Feral hogs

7.2 Illegal dumping

As in most communities, both rural and urban, evidence of illegal dumping of trash can be easily seen. Seldom traveled backroads and bridge crossings are favored dumping sites. Items found at these illegal dump sites can include many of the following:

- Common household garbage consisting of paper, plastic, glass, and food items

- Furniture, appliances, and other large, heavy items
- Carcasses of animals from fishing, hunting, and road mortalities
- Construction debris – wood, shingles, metal, paint, and other hazardous materials

Trash dump sites can become an element of NPS pollution runoff. Animals and plants can be harmed directly and indirectly by discarded plastics, metals, and other types of trash. Plastics and metals degrade slowly and can be a long-term source of contamination when they break down and leach chemicals into surface and ground water supplies. Surrounding areas of soil can also become contaminated by chemicals leached from hazardous materials. Piles of trash, whether in roadside ditches or on the banks of a waterway, spoil the natural beauty of an area.

8.0 Implementation Plan for Dissolved Oxygen in the Vinton Waterway Watershed

An implementation plan is the starting point of how the LDEQ's NPS program will focus efforts and resources within the watershed. The Vinton Waterway is not meeting its designated use for Fish and Wildlife Propagation because of low dissolved oxygen levels. The TMDL focused on sediment as the primary suspected cause of low dissolved oxygen levels in the waterway.

To reach the load reduction goals established by the TMDL, this watershed based plan will focus on the efforts necessary to expand ongoing programs in the watershed. This implementation plan has been developed as a living document that will be modified as needed to integrate the most up-to-date information, define new approaches, and acknowledge new partnerships between stakeholders.

A strategic course of action for reducing nonpoint source pollution and thus restoring the Vinton Waterway watershed to its intended designated use will be the implementation of agricultural BMPs and conservation habitat enhancements. There are various conservation best management practices currently in place and many more are at the planning stage at this time. Runoff from residential and urban areas can also contribute to low dissolved oxygen, and control of these NPS pollution sources will also be discussed in this watershed protection plan.

9.0 Turbidity

Turbidity is a measure of how clear or cloudy a waterbody appears to be. Turbidity is caused by individual suspended solids that generally affect the color of water. The greater the amount of total suspended solids (TSS) in the water the cloudier it appears and usually the greater the turbidity. Suspended materials can include soil particles (clay, silt, sand), algae, microbes, plankton and other substances. Lower levels of turbidity that persists for long periods of time are thought to be more detrimental to overall water quality than very brief higher levels of turbidity. Excess sediments in a waterbody can have various detrimental effects.

The temperature of turbid water is altered, because suspended solids absorb and retain more heat than clearer or less turbid waters. Consequently, this lowers dissolved oxygen concentrations because warm water holds less dissolved oxygen than cold water. High turbidity levels decrease the amount of light in the water column thus suppressing photosynthesis and the production of dissolved oxygen by aquatic plants and phytoplankton. Fish eggs and benthic macroinvertebrates (i.e. crawfish, shrimp, and insect larvae) can be smothered when suspended particles sink and cover stream bottoms. Recreational use of a turbid waterbody drops off because of declining populations of popular gamefish and the less-than-appealing nature of swimming in water with little or no visibility. All of these problems mentioned above are further compounded when the sediments being washed into streams contain not only soil particles but excess nutrients, organics, and toxic substances such as pesticides and petroleum residues.

9.1 Causes of turbidity

Natural tidal fluctuations of estuarine systems cause deposited sediments to be redistributed into the water column on a regular basis. Unprotected stream banks can cause an increase in the sediment loading of a waterbody from tidal flushing and wave action from boat traffic.

Turbidity may also be affected by the amounts of natural dissolved organic acids such as tannins and lignins, which give water a tea color. Waterbodies surrounded by evergreen forests and wetlands are generally brown in color because of the decomposition of leaves and decaying vegetation. Runoff from adjacent low lying wooded areas can have a huge impact on stream turbidity.

Turbid conditions are also created when high sediment loads are washed into streams because of storm runoff. Sediment is the result of erosion. It is the solid material, both mineral and organic, that is in suspension having been moved from its place of origin by air, water or gravity. Construction activities and some agricultural practices can cause significant land disturbances that contribute to waterways laden with sediments after rainfall events.

Urban areas are rife with streets, parking lots, and rooftops; impervious surfaces that do not absorb rainwater. Contaminants on these hard surfaces are then washed into storm drains or ditches and ultimately end up being discharged into larger waterbodies such as the Vinton Waterway. Sediments are not the only pollutant carried with storm water. Urban contaminants can include motor oil, heavy metals, litter, fertilizers, pesticides, automotive products, untreated sewage, and many others.

Erosion occurs when soil particles are first detached then transported and deposited in another place by either wind or water. There are many different kinds of erosion; the most common to agriculture are sheet, rill, and gully erosion. These and some other types of erosion are described in more detail below.

9.1.1 Sheet Erosion

Sheet erosion is slow-acting form of erosion whereby a thin film of water, moving across land with no vegetative cover, transports soil particles by rolling them along the surface of the ground. Sediments are held in suspension until runoff slows enough that they can be deposited. Sediments are commonly deposited into adjacent low-lying areas or they can be transported directly into nearby surface waters. Sheet erosion is most common on construction sites and crop lands.

9.1.2 Rill Erosion

Rill erosion is easily seen and identified unlike sheet erosion which can be virtually invisible. Rill erosion is seen as thin parallel lines cut into the soil surface occurring at regular intervals and spaced close together. The channels range in size from 5mm to 2000mm wide. Rill erosion can cut small channels into the soil that may widen and deepen to become gullies.

9.1.3 Gully Erosion

Gully erosion is characterized as a scoured out area that is not crossable or tillable with grading equipment. It is most commonly a progression of rill erosion that

happens when the amount of runoff escalates because of prolonged and intense rainfall events.

Figure 29 Drainage canal with gully and bank erosion

9.1.4 Stream Bank Erosion

Stream Bank Erosion contributes substantially to the sediment pollutant loads of surface waters. Erosion takes place when streams beds or banks are scoured away during prolonged high stream flows.

9.1.5 Wind Erosion

Wind Erosion is when soil is transported and deposited by wind. There are three types of wind erosion: siltation, suspension, and surface creep. The Dust Bowl Era was so named because of wind erosion displacing massive quantities of topsoil from the country's Midwest region in the 1930's.

Runoff from agricultural land can contain large amounts of sediments if the land has been recently tilled and is without vegetated buffer strips. Sediments resulting from sheet or rill erosion are comprised of surface soil and are more likely to contain larger amounts of pollutants than sediments resulting from subsurface soils.

The topsoil of a field is usually richer in nutrients and may contain chemicals from pesticide applications. Along with sediment, these nutrients and chemicals can be transported into the local waterbody by storm water.

10.0 Best Management Practices

Best Management Practices (BMPs) describe ways to manage land or activities to reduce or prevent pollution of surface and groundwater. When these practices are applied they protect the health of the people living in the watershed and also safeguard the other uses of water such as recreation, animal habitat, fisheries, and agricultural uses such as irrigation or livestock water. BMPs are usually simple, uncomplicated, and beneficial for the entire watershed.

10.1 Urban BMPs

When cities or towns experience rain events, excess storm water in storm drains or ditches does not usually receive treatment at a waste water treatment plant. Instead, the storm water drains directly

into local bayou, rivers, lakes or reservoirs. Pollutants from many different sources can be carried by rainwater and deposited into local waterbodies. Examples of NPS pollution in urban runoff include sediments, heavy metals, pesticides, untreated sewage, litter, bacteria, organic matter, excess nutrients, oils and lubricants.

Several urban BMPs that may control or eliminate origins of NPS pollution are listed below.

Excess nutrients from lawn and garden fertilizers can be controlled by applying slow release fertilizers in the amounts and times recommended by a soil test.

Pesticides should only be used where and when they are explicitly needed. Select chemicals that are the least toxic and break down quickly and always follow the manufacturer's directions.

Construction of silt fences, grassed waterways and buffer zones to control the amount of sediments transported from bare soil areas. Areas with the potential for sediment loading are new home and commercial construction sites.

Use commercial car washes or when washing your car at home do so on a grassy area so that soapy water does not immediately enter storm drains.

Pet waste contains not only excess nutrients but bacteria and other pathogens as well. Proper disposal of pet waste can be accomplished by burying it at least 5 inches in the ground, flushing it down the toilet or putting it in the garbage for trash collection.

Household chemicals should never be poured down sinks or storm drains. As with pesticides and fertilizers, home owners should read and follow directions for the proper use and disposal of any chemicals they might use. Common household chemicals that have the potential to be hazardous are paints, some cleaning products, automobile lubricants and fluids.

Anti Litter Campaigns can bring awareness and compliance to litter laws already in place.

Encourage homeowners to perform maintenance inspections and necessary repairs to individual home sewage systems.

Local communities can implement and schedule "Trash Bash" Days to provide responsible disposal of potentially hazardous household chemicals and refuse.

Storm drain markers are a subtle reminder that whatever is introduced into the drainage system ends up in local bayous, rivers or lakes.

Public participation, education and outreach are an important component to NPS pollution control. Communities working together using BMPs can help to prevent storm water pollution. BMPs that are in use today can and will be enhanced, upgraded and changed over time as different and better ways of managing our natural resources are discovered.

10.2 Agricultural BMPs

Over 30% of the Vinton Waterway watershed is in some type of agriculture production. Another large part of this watershed is comprised of woody wetlands and evergreen forests. The principal means to combat NPS agricultural pollution is to implement BMPs that are viable to the types of agriculture activities practiced in the watershed. This plan will also describe BMPs that can be implemented to lessen NPS pollution resulting from hydromodification of drainage pathways, malfunctioning home septic systems, and urban area runoff.

Figure 30 Crawfish farm

Louisiana's economy relies a great deal on a diverse and thriving agricultural industry. Just a few of the crops grown and harvested in Louisiana are rice, soybeans, sorghum, wheat, corn, milo, sugarcane, cotton, crawfish, catfish, and livestock such as cattle, sheep, and goat. High crop yields essentially require the addition of fertilizers at strategic times. Various pesticides both herbicidal and insecticidal are used frequently to control undesirable species in a crop and ensure maximum yields. Seasonal factors contribute to NPS pollution loading of streams. Spring planting takes advantage of seasonal rains but it also increases the chance that sediments and chemicals will be present should runoff occur.

The predominant row crops grown in the area are rice and soybean. Of the two, rice has the potential to produce the greatest

sediment load to nearby streams. Almost the entire sediment loading from rice fields stems from the release of water in the spring. Large amounts of water are discharged from rice fields in the spring after the land has been leveled and seeded. Land leveling a rice field involves disking a field when it is covered by a few inches of water. Apparently, the disk leveling breaks down high areas of the field by transporting soil into suspension. The suspended soil is then allowed to settle out into low spots, in doing so, the field becomes level. In comparison to spring discharges, summer and fall releases are fairly clean with a much smaller sediment load.

Rice BMPs such as a precision land leveling and drilled seeding could reduce the sediment levels in the Vinton Waterway to the levels prescribed in the TMDL.

Crops in the area are generally harvested at the end of the growing season in late summer and early fall. Land left bare from the removal of harvested crops cannot completely revegetate before winter rains begin. The unprotected topsoil is a potential source of NPS pollution because it can be easily transported by winter rains into ditches and eventually into the Vinton Waterway. Conservation tillage practices can be used by soybean farmers to leave crop residue on fields after harvesting for the upcoming winter months.

A successful implementation plan to control erosion requires an understanding of the erosion process. The key to erosion control is to prevent the detachment of soil particles and reduce the volume of runoff. This can be achieved through practices that limit soil disturbance and maintain vegetative cover. Sediment control practices or devices can protect overall water quality by trapping or slowing down suspended soil particles already in suspension. Silt fences, compost berms, filter socks, grassed waterways, and sediment control basins are examples of some sediment control practices that can be implemented.

Local farmers and ranchers can select from a wide variety of BMPs established by the National Resource Conservation Service (NRCS). Various conservation practices related to the agriculture activities that they are pursuing are available to the landowner. Some of the BMPs include no till or low till cropping, vegetative filter strips, residue management, riparian buffer zones, nutrient and pesticides management, livestock exclusion from stream banks, alternative livestock watering areas, and numerous other practices. Landowners may also qualify for

cost sharing for implementing these practices and NRCS technical assistance is always available. These BMPs are explained in detail in the NRCS's Field Office Technical Guide. Louisiana's State University Agriculture Center is also a source of information on applicable BMPs for specific areas and crops grown.

Recommended BMPs for the protection of water quality are as follows:

Conservation Tillage the practice in which crop residue is left on the soil's surface to reduce erosion and runoff, conserve soil moisture, and retain nutrients and pesticides applied to the field.

Crop Nutrient Management is controlling and accounting for all fertilizer applications to ensure that only what is needed to fully maximize growth is applied; thus, reducing the amount that could potential leave the field in runoff.

Pest Management employs various methods to maintain insects, weeds, and disease below levels that are economically harmful but do not add to the pollutant loads of receiving waters.

Conservation Buffers can be simple grassed waterways adjacent to drainage ditches and bayous located in a field to well established wooded riparian areas along the banks of major waterways. Vegetated buffers are an excellent way to trap potential pollutants that may otherwise find their way into surface waters.

Irrigated Water Management can help reduce NPS pollution of both ground and surface waters that might otherwise be caused by traditional irrigation methods.

Grazing Management on pasture lands can lessen the impacts of grazing and browsing activities by decreasing the potential of soil erosion. Adequate riparian or buffer zones have a substantial impact on water quality.

Animal Feeding Operations Management uses runoff controls, waste storage and utilization, and nutrient management to minimize off-site waste discharge.

Erosion and Sediment Control protects water quality, wildlife habitat, and agriculture land by conserving soil and reducing the amount of sediment transported into surface waters.

10.3 BMPs in Watershed

Vinton Waterway Watershed has a significant amount of BMPs currently in place. There are over 30 conservation practices being implemented at this time that are protecting a wide range of resources. These resource protection

programs affect thousands of acres of land, both agriculture and native wetlands.

A few of the practices currently in place or under contract at this time are:

- **Wildlife Habitat Initiative Program** 28 acres of critical area planting affecting 173.6 total acres
- **Wildlife ponds** 56 ponds affecting 436.8 acres
- **Cross-fencing** for livestock grazing management 90,384 feet affecting 2058 acres
- **Riparian forest buffer** 84 acres
- **Fire break, tree/shrub planting site** 108,360 feet of fire break and 672 acres reforested
- **Grade stabilization structures with underground irrigation pipeline** 112 structures and 39,200 feet of pipeline affecting 1,568 acres
- **Heavy use protection** 126 acres
- **Nutrient management** 1260 acres affecting 1,811.6 acres
- **Wetland Wildlife Habitat Management** on more than 10,000 acres
- **Upland Wildlife Habitat Management** on more than 1,400 acres

Figure 31 Grade stabilization structure to control stream bank erosion

11.0 Farm Bill Conservation Programs

The conservation provisions in the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill) will provide conservation opportunities for farmers and ranchers for years to come. The new provisions build on the conservation gains made by farmers and ranchers through the 1985, 1996 and 2002 Farm Bills. They simplify existing programs and create new programs to address high priority environmental goals. Technical and financial assistance for landowners seeking to conserve, improve, and sustain soil, water and other natural resources is authorized by the federal government under provisions of the Food Security and Rural Investment Act . The programs described below relate directly to the installation and maintenance of BMPs.

Figure 32 Fence constructed through EQIP program to restrict livestock access to canal

Environmental Quality Incentives Program (EQIP) was established to provide voluntary conservation programs for farmers and ranchers who face serious threats to soil, water and related natural resources. EQIP offers financial, technical, and educational help to implement practices designed to protect and conserve natural resources. Law dictates that 60% of available funds be directed to livestock related concerns. Cost-sharing for the producer is generally 75% for certain conservation practices. Incentive payments may be made to encourage producers to perform land management practices such as nutrient, pest, irrigation water, and wildlife habitat management.

Conservation Reserve Program (CRP) is another voluntary program that offers annual rental payments, incentive payments, and cost-share assistance for implementing long term conservation practices on highly erodible land. Eligible land can be accepted into CRP where certain special conservation practices such as filter strips and riparian buffers are to be implemented.

Conservation Stewardship Program (CSP) is a voluntary conservation program, sponsored by NRCS, that encourages producers to concentrate on resource concerns using a comprehensive approach by:

- Undertaking additional conservation activities; and
- Improving, maintaining, and managing existing conservation activities.

CSP is available on Tribal and private agricultural lands and non-industrial private forest land. The program provides unbiased access to all producers, regardless of operation size, crops produced, or geographic location.

The Conservation Stewardship Programs offers payments to producers who qualify and become contractually obligated to address resource concerns on all lands under the applicant's control.

Wetland Reserve Program (WRP) is a program to restore and protect wetlands and associated lands. Landowners may sell

a permanent or multi-year easement or enter into a 10 year cost share contract with USDA to protect or restore beneficial wetlands. The applicant voluntarily limits future use and development of the land but maintains ownership. NRCS provides the technical assistance for a conservation plan for the restoration and maintenance of the wetland. The landowner retains control of access to the land and may lease the land for hunting and fishing and other recreational activities that do not require development.

Wildlife Habitat Initiative Program (WHIP) is designed for people who want to develop and improve wildlife habitat on private lands. Plans are developed in consultation with NRCS and the local Conservation District. USDA will provide cost-share up to 75% for the installation of wildlife practices.

Forest Land Enhancement Program (FLEP) replaces and expands the Stewardship Incentive Program and Forestry program. FLEP will provide up to $100 million over six years to private, non-industrial forest owners. The program also provides help to prevent and fight fires on private land.

Grazing Reserve Program (GRP) will use multiyear easements and rental agreements to improve management of private grazing lands. Cost-share for the restoration of native grasses can be as high as 75%.

12.0 Master Farmer Program

The Master Farmer Program is a voluntary environmental stewardship program that recognizes outstanding producers in their conservation efforts. The program is sponsored by the LSU Agriculture Center and implemented by a partnership with NRCS, Louisiana Farm Bureau, LDEQ, Louisiana Cooperative Extension Service (LCES), USDA, and LDAF.

There are three (3) phases of the Master Farmer Program encompassing environmental stewardship, production, and management. Phase I concentrates on education and the implementation of BMPs for the particular kind of crop grown. Phase II includes “field days” where model farms are visited and working BMPs are demonstrated. Phase III is the completion of comprehensive conservation plan for the individual farm. All the phases must be completed before a Master Farmer Certification is awarded. Master Farmers can be an inspiration for other landowners in their communities. They maintain contact and receive updated and valuable information on conservation practices and ideas. Master Farmers are also great

ambassadors for water quality protection and enhancement in their local watersheds.

13.0 Ongoing Actions

13.1 Public Outreach and Education

Currently efforts to educate and inform the public on NPS pollution impacts and solutions are ongoing through a number of different venues. Some of these include informational public meetings, educational demonstrations, and handouts in the form of brochures and pamphlets.

Local libraries and elementary schools were presented with educational DVDs and other appropriate teaching materials to use in their classrooms when discussing conservation and resource concerns.

A comprehensive list of locations in the area that accept recyclable items or hazardous materials was mailed with monthly utility bills to residents. These recycling locations provide a community a place to safely dispose of refuse and potentially hazardous materials that might otherwise end up in local waterways.

Multiple demonstrations explaining the causes and effects of NPS pollution to the local watershed are being held at the library during the summer months. Three age groups are targeted and the water quality education lessons are specific to each individual group.

Various outreach and informational literature has been created specifically for this watershed area. A brochure was developed to give a better understanding of NPS pollution and its sources. The brochure was created using graphics and photographs that related directly to the local watershed area. This was done to relate the information on a more personable level. The brochure was titled "Does your bayou have the blues?" and can be found in the Appendix section.

Additionally, as land use information was gathered it was apparent that the area contained a large number of various sized horse operations. A brochure targeting horse owners was produced that explained sources and solutions to pollutants carried in runoff from horse operations. This brochure is made available at numerous locations frequented by this targeted audience. A copy of this brochure can also be found in the Appendix section of this watershed protection plan.

In order to measure the effectiveness of outreach activities and educational material, a questionnaire was developed to gauge the local community's general knowledge of NPS pollution. This survey

was mailed to nearly 2000 residents as an insert in their monthly utility bill. Over 15% of the surveys were returned. An evaluation of those questionnaires returned indicated a reasonable understanding of NPS pollution and how it affects local waterbodies. An example of this survey is included the Appendix.

13.2 Drain Marking

The city of Vinton is not equipped with an extensive storm drain system. There is only a small number of storm drains located in the town and in the newly constructed single family housing complexes. A few of those drains have been marked with metal plaques obtained from LDEQ and the remaining ones will be denoted in the future.

Figure 33 Storm drain marking by students

13.3 Water Education Day

A full day of Water Education was enjoyed by students at two local area schools. Students were informed of the sources of NPS pollution and possible solutions with the aid of a watershed model that clearly illustrates potential sources of runoff contaminants. Along with NPS pollution information, students were also introduced to the importance of wetlands for their ability to naturally filter pollutants from runoff and at the same time provide a habitat for the many unique plants and animals found in the area.

Figure 34 Water Education Day

13.4 Bank restoration/protection

Signs of erosion can be observed in numerous locations along the banks of the Vinton Waterway. There is a substantial amount of scour and undercutting of the

bank in the areas where Coon Gully and Hampton Coulee enter the waterway. This large scale erosion is the result of high velocity flows during heavy rain events. Areas of the bank south of the public boat launch show moderate to severe signs of scour and undercutting. Wave action produced either naturally by wind or artificially by boat traffic can quickly erode unvegetated or unprotected streambanks.

Figure 35 Streambank erosion on Vinton Waterway

A vegetative restoration project was undertaken in September 2009 by the Imperial Calcasieu Resource Conservation and Development Council along with concerned area landowners and volunteers. Three areas of the Vinton Waterway were planted with California bulrush, *Schoenoplectus californicus*, a native freshwater emergent plant, to try and control erosion. California bulrush are commonly used to stabilize eroding banks and to provide food and habitat for wildlife. Two of the areas planted were at the mouth of the two main tributaries of the waterway, Coon Gully and Hampton Coulee. A third location was planted south of the boat launch in an area that had been undercut by wave action.

Figure 36 Volunteers planting bullwhips

When the plants were monitored 6 months later, survival rates were very high, but they were not exhibiting a lot of new growth. This may be because of climatic conditions or because of the heavy clay content of the banks. Vinton Waterway was dredged to facilitate barge traffic and the heavy clay substrate was used to cap and shape the streambank. Soils composed of large amounts of clay are excellent for building purposes but are inhospitable for vegetative growth.

Figure 37 California bulrush planted for erosion control

Figure 38 Bullwhips after less than one year.

Plants were monitored again in late August 2010. The bullwhips that were planted at the mouth of the two major tributaries of the waterway were surviving but still not exhibiting much new growth. However, the plantings that were installed along the banks of the waterway, south of the boat launch and port, are not only surviving but have spread laterally 1.5 feet from center.

Over 9,000 feet of the waterway will be dredged as a post Hurricane Rita maintenance project. The project is anticipated to be completed by early spring 2011. There are specifications in the construction plans for sediment fences and revegetation of the streambanks during and after dredging activities. Regular on-site monitoring during these activities would be beneficial to make certain that appropriate sediment control measures are being used.

Future stream bank plantings are scheduled and are expected to be completed by September 2011. These plantings are a multiagency endeavor between the LDAF and Gulf Coast Soil and Water Conservation District.

Figure 39 Dredging on the Vinton Waterway

13.5 Stream Sampling

Water samples are being collected in the watershed area in an effort to distinguish which areas are contributing to the pollutant load. The sampling regime

began in April 2011 and will continue until April 2012. The sampling sites include the two major tributaries, Hampton Coulee and Coon Gully, and the Vinton Waterway itself below where these tributaries enter. These grab samples are collected monthly and are being analyzed by a contract laboratory. Parameters being tested are Total Organic Carbon (TOC), 5-Day Biological Oxygen Demand (BOS), Total Suspended Solids (TSS), and Fecal Coliform. Once areas are identified as potential sources of NPS loading appropriate BMPs can be implemented.

Figure 40 Hampton Coulee sampling site

Figure 41 Coon Gully sampling site

Figure 42 Vinton Waterway sampling site

14.0 Sediment Load Reductions Necessary

Estimated sediment load reductions to reach 65% TMDL recommendation.

Land Use	Acres	Sediment Load	Reduction Necessary	Sediment Loading Goal
Crop	3,278	16,390 tons	65%	5,736.5 tons
Pasture	7,586	8,345 tons	65%	2,920.8 tons
Forestry	2,137	6,411 tons	65%	2,244 tons

Estimated soil loss by land use derived using Revised Universal Soil Loss Equation (RusLe2) Version 1.26.6.4 (Nov. 13, 2006)

14.1 Sediment load reductions by land use type

Less than15% of the entire watershed is considered to be developed; the remainder is either involved in some type of agricultural production or is considered emergent wetlands. The management measures that would need to be implemented in order to reach the reduction goal set by the TMDL would be applicable agricultural BMPs.

Reducing cultivated or row crop sediment loading from 5 tons per acre to 1.75 tons per acre by implementing all necessary BMPs, including but not limited to no drill till, irrigation water management, grade stabilization structures, filter strips, water/sediment control basin, and cover crops.

Pastureland sediment loading would have to be decreased from 1.1 tons per acre to less than 0.40 tons per acre by such BMPs as prescribed grazing, heavy use protection areas, strategic fencing, and alternate water sources to name a few. This watershed's predominantly land use is hay and pasture

Sediment loading resulting from normal forestry practices would require a reduction from 3 tons per acre to 1.05 tons per acre. Recommended BMPs for forestry practices consist of proper stream bed crossings, well-established riparian zones, heavy use protection areas, and others. Forestry BMPs have been created for and can be implemented in any stage of silvicultural activity.

15.0 ESTIMATED COST OF BMPS

Practice Name	Cost
Comprehensive Nutrient Management Plan	$700/plan
No till	$50/acre
Conservation Cover	$210/acre
Contour Farming	$10/acre
Cover Crop	$82/acre
Critical Area Planting (seedbed prep/planting)	$174/acre
Critical Area Planting (smoothing,shaping,etc.)	$1225.50/acre
Diversion	$6.10 – $13.80/cubic yard
Fence	$1.64 – $4.10/linear foot
Field Border	$657.50 – $740/acre
Filter Strip	$740/acre
Forest Trails and Landings	$121 – $200/each
Grade Stabilization Structure – Riser	$124.50 – $1678.50/each
Grade Stabilization Structure – Straight Pipe	$57.04 – $360.90/foot
Grade Stabilization Structure – Earthfill Modification	$6.10 – $13.80/cubic yard
Grassed Waterway	$4.66/cubic yard
Heavy Use Area Protection	$3.00 – $11.96/cubic yard
Irrigated Land Leveling	$315 – $429/acre
Irrigation Reservoir	$3 – $12/cubic yard
Microirrigation System (plus $0.52/ft)	$47,250 each
Irrigation Sprinkler System	$60.50/liner foot
Irrigation Water Management	$12/acre
Mulching	$5/square yard – $1239/acre
Nutrient Management	$60 – $216/acre
Pasture and Hay Planting	$141– $242 acre
Pipeline	$3 – $4/linear foot
Pond	$3 – $16/cubic yard
Pond Sealing	$0.94/square foot
Precision Land Farming	$315 –$429acre
Prescribed Grazing	$12 – $262.50/acre

Practice Name	Cost
Pumping Plant	$3,543 – $4,777.50/each
Range Planting	$142 – $162/acre
Residual Management–(Various Practices)	$20 – $50/acre
Roof Runoff Structure	$8.86/linear foot
Sediment Basin	$2.30 – $9.20/cubic yard
Stream Crossing	$80/linear foot
Streambank/Shoreline Protection	$5.28 – $100/linear foot
Structure for Water Control	$50 – $1800 each
Terrace	$2 – $8/cubic yard
Tree/Shrub Establishment	$112 – $108.50/acre
Vegetative Barrier	$1.36/linear foot
Waste Storage Facility	$200 – $400/cubic yard
Waste Treatment Lagoon	$8 – $13/cubic yard
Water and Sediment Control Basin	$2.30 – $9.20 cubic yard
Water well	$4500/each
Watering Facility	$500 –$600/each

Taken from Louisiana EQIP handbook; all practices selected address water quality and/or soil erosion concerns.

These figures are an average cost; EQIP contracts are normally a 50% cost-share with up to a 90% cost-share for beginning, disadvantaged, or limited resource farmers. Estimated costs have been interpreted from the NRCS EQIP 2010 State Average Cost worksheet.

Cost-share funding for BMPs is a crucial component in a successful watershed protection plan. A number of federal and state funding sources exist for BMP implementation, riparian zones, and land conservation. The LDEQ and LDAF can provide the 319 funding to assist in the implementation of BMPs that address water quality problems on subsegments on the 303 (d) list. LDAF provides cost-share funding to implement BMPs in watersheds where TMDLs have been completed and have watershed protection plans.

Cost to implement and maintain BMPs for the entire watershed.

Land Use Type	Estimated Cost of BMP implementation/acre/year	Total for watershed
Cropland	$292.50	$963,699.75
Forest	$321.15	$686,136.98
Pasture	$154.00	$1,170,400.00
	Total	$2,820,236.73

These figures do not factor in cost-share programs or assistance from other sources.

15.1 Technical assistance needed

Technical assistance to plan and implement the BMPs called for in this watershed protection plan are essential. Knowledgeable and experienced technicians certified by NRCS would ensure the success of this project. NRCS will fund technical support in this watershed for their programs, primarily EQIP. Other programs outside of NRCS sponsored plans will have to be funded some other way. Along with a certified technician, part-time or contract employees might be necessary to fully assist landowners in the watershed. The ideal place for housing personnel to address these programs would be the local Soil and Water Conservation District (SWCD) office. Local landowners are familiar and comfortable with the office location and its staff. It is crucial to include financial assistance to this SWCD office to make certain that an increased workload, resulting from implementing these NPS BMPs, can be managed.

Funding for the implementation of the management measures necessary to restore the Vinton Waterway to its designated uses will have to be based on a multi-year schedule. Landowner participation can be encouraged by outreach and education activities. But it has been proven repeatedly that a working and feasible project model can be the key to convincing others to commit to conservation practices. Resource conservation and protection plans are often complex and require adequate time to plan and execute. Therefore, sufficient funding and a lenient time frame will be needed to guarantee that a watershed based protection plan can be planned, carried out, and maintained.

15.2 Financial Assistance Needed

*figures in table below do not include NRCS expected costs or salaries

Position/Type	Cost	5 years	10 years	15 years	20 years
Coordinator	$50,000/yr	$250,000	$525,000	$827,500	$1,160,000
Part-time Asst.	$22,500/yr	$112,500	$236,250	$372,375	$522,000
District Support	$15,000/yr	$75,000	$157,000	$247,000	$346,825
Total	$87,500/yr	$437,500	$918,250	$1,446,875	$2,028,825

note Estimated NRCS technician GS 9/11 salary range, including benefits, $52,000 - $85,000/year.

Funding necessary to implement recommended BMPs in Vinton Waterway watershed are variable and complex. Practices that are eligible for cost-share with NRCS would greatly negate overall costs. BMPs or resource protection programs not currently eligible for cost-share would require 100% funding by the individual landowner or from some type of local, state, or federal agency.

15.3 Monitoring Schedule

LDEQ will continue to monitor at their ambient site on the Vinton Waterway, to determine if the watershed implementation plan is achieving the reductions recommended by the TMDL. This waterbody is scheduled to be monitored on a 4-year basin cyclic program; data collected and analyzed will be reported through LDEQ's website. The goal of this watershed implementation plan is to expand current monitoring efforts into a long-range site specific program. Funding opportunities and cooperative agreements with vested partnership groups are being sought to create and implement a monitoring plan. McNeese State University is one such group interested in pursuing 319 grant monies to fund water quality data collection and research.

15.4 Interim Milestones and future objectives

The objective of this watershed protection plan is for the Vinton Water to fully meet its designated uses. This can be accomplished by implementing as many urban and agricultural BMPs as possible. The TMDL requires a 65% reduction in NPS pollution sources in the entire watershed. The BMPs programs will be implemented through a multi-agency partnership including Natural Resource Conservation Service (NRCS), the Louisiana Cooperative Extension Service (LCES), LSU AgCenter, USDA-Agriculture Research Service (ARS), LDEQ, the City of Vinton, and agriculture producers. Education programs instituted

by the Imperial Calcasieu RC&D Council and the local Soil and Water Conservation District will inform local landowners of the importance of watershed water quality and the programs available to them.

Controlling NPS pollution runoff will require a cooperative effort of agricultural producers, landowners, government, private citizens and organizations. Efforts will be made to reach as many of the aforementioned groups as possible to ensure that all applicable and necessary BMPs are planned and implemented.

Future objectives for the urban NPS pollution program will focus on the education of city officials, planners, developers and the general public about sources of pollution. This program will not only rely on educational materials already cultivated, but will continue to build on new information and programs that have been effectively used in other watersheds.

Interim milestones to measure the implementation and the success of BMPs will continue to be developed as activities are put into practice. Some of these have already been established through various project workplans, others are probable, and some have yet to be anticipated. Reports run by the local NRCS and SWCD office will report exactly how many and what types BMP practices have been applied for and implemented. The local FSA office is another place to reveal exactly how much agricultural land is currently in production, left fallow, or being used as grazing land. These local conservation offices are the key to measuring if the objectives of this watershed protection plan are being met.

Programs such as EQIP, WHIP, CSP, CRP, and others are continuous ongoing programs that are available to landowners and producers. These programs are dependent upon funding, landowner eligibility, and the application processes themselves. Great strides in water quality improvement have resulted in other agricultural based watersheds through the implementation of BMPs and there is much confidence that this endeavor will also be successful,

The success of this implementation plan to improve water quality in the Vinton Waterway watershed depends upon the approval and cooperation of the local landowners and various government conservation agencies. Existing outreach efforts will need to be expanded and directed toward the landowners, producers, and decision makers that have the greatest impact on reducing the sources of sediment in the watershed.

REFERENCES

Allen, C.M., M. Vidrine, B. Borsari, and L. Allain. 2001. Vascular flora of the Cajun prairie of southwestern Louisiana.

Agricultural Management Practices for Water Quality Protection U.S. Environmental Protection Agency 12 Sept 2008. U.S. Environmental Protection Agency. 10 Oct 2008 http://www.epa.gov/watertrain/agmodule

American Fact Finder. United States Census Bureau. 31 Jan 2008. http://www.factfinder.census.gov

Bollich, P.K., Feagley, S.E., Gambrell, R.P., Groth, D.E. 1996. Mermentau River Basin Nonpoint Source Project. Phase II Proposal. Influences of Tillage Practices on Rice Field Floodwater Quality.

Brown, Clair A. 1972. Wildflowers of Louisiana and Adjoining States. Louisiana State University Press. Baton Rouge, Louisiana.

Brown, Lester. Chaney, C.R. 1999. Cool-Season Pasture and Forage Varieties. Louisiana Cooperative Extension Service. Louisiana State University Agricultural Center.

Ecoregions of Louisiana (EPA). 11 December 2008 http://www.eoearth.org/article/ecoregions_of_louisiana

Funderburg, E.R., Tidwell, E.K. 1998. Pasture Fertilization in Louisiana. Louisiana Cooperative Extension Service. Louisiana State University Agricultural Center.

Grace, J.B., L. Allain, and C. Allain. 2000. Vegetation associations in a rare community type-coastal tallgrass prairie. Management Measures for Agricultural Sources. Polluted Runoff (Nonpoint Source Pollution). U.S. Environmental Protection Agency. 13 Jan 2010 http://www.epa.gov/owow/nps

National Conservation Practice Standards. U.S. Natural Resource Conservation Service (NRCS) September 2008

National Management Measures for the Control of Nonpoint Pollution from Agriculture. U.S. Environmental Protection Agency. July 2003

National Management Measures for the Control of Nonpoint Source Pollution from Hydromodification. U.S. Environmental Protection Agency. July 2007

National Management Measures for the Control of Nonpoint Source Pollution from Forestry. U.S. Environmental Protection Agency. May 2005

National Water Quality Inventory: Report to Congress; 2003 Reporting Cycle. U.S. Environmental Protection Agency. October 2007

Nonpoint Source Pollution. National Ocean Service. 26 Sept 2007 http://www.oceanservice.noaa.gov/education/kits/pollution

LDEQ. 1998. Dissolved Oxygen Use Attainability Analysis, Mermentau River Basin. LDEQ, Office of Water Resources.

LDEQ. 2000. Recommended Forestry Best Management Practices for Louisiana.

LDEQ. 2000. Louisiana's Nonpoint Source Management Plan. Volume 6. State of Louisiana Water Quality Management Plan. Louisiana Department of Environmental Quality, Office of Environmental Assessment.

LDEQ. 2003. Environmental Regulatory Code Title 33 Part IX. Water Quality. Baton Rouge, Louisiana.

Listed Water Information. Waters. US Environmental Protection Agency. 25 June 2009 http://oaspub.epa.gov/tmdl

LNHP. 1986-2004. The Natural communities of Louisiana, Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.

Louisiana's Water Quality Assessment Method and Summary Data/Integrated Report Rationale. 19 August 2008. Louisiana Department of Environmental Quality. Baton Rouge, LA.

NonPoint Source Pointers (Factsheets). "NPS Home." U.S. Environmental Protection Agency (EPA), Office of Water. Nonpoint Source Pollution Pointer No's 1 through 7 EPA841-F-96-004 (A through G) http://www.epa.gov/OWOW/NPS/facts/index.html.

Polluted Runoff: Nonpoint Source Pollution. U.S. Environmental Protection Agency, Office of Water. http://www.epa.gov/OWOW/NPS/.

A Primer on Water Quality. U.S. Geological Survey. Reston, VA. March 2001

Renard, K.G., G.R. Foster, G.A. Weesies, D.K. McCool, and D.C. Yoder coordinators. 1997. Predicting soil erosion by water: A guide to conservation planning with the Revised

Universal Soil Loss Equation (RUSLE). U.S. Department of Agriculture, Agriculture Handbook No. 703.

Smith, L.M. 1993. Estimated presettlement and current acres of natural plant communities in Louisiana. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.

Tidwell, E.K., Redfern, D.D. 1997. Forage Testing: Why, What, and How. Louisiana Cooperative Extension Service. Louisiana State University Agriculture Center.

TMDL for Turbidity for Vinton Waterway (Subsegment 110601) in the Sabine River Basin, Louisiana. Louisiana Department of Environmental Quality. 26 March 2007.

Urban Based Nonpoint Pollution: Urban Brochure. Louisiana Department of Natural Resources. 22 Apr 2010.

USEPA 2004b. What is Nonpoint Source (NPS) Pollution? Questions and Answers.

USEPA 2004c. Nonpoint Source Pollution: The Nation's Largest Water Quality Problem.

USEPA 2004d. Managing Nonpoint Source Pollution from Agriculture.

US Gazetter files: 2000 and 1990. United States Census Bureau. 03 May 2005 http://www.census.gov/geo/www/gazetteer/gazette.html

APPENDIX

Mail Survey

The City of Vinton and the Imperial Calcasieu Resource and Conservation Development Council is asking for your help to protect water quality in our local waterways. By answering the questions below you can help us determine where to focus our education and outreach efforts.

Your input is important and greatly appreciated.

How would you finish this sentence: Dumping things such as engine oil, paint, litter or other waste liquids into street drains …...

Please ✔ appropriate box

- ☐ is okay, because the water flows into the sewer and then to the wastewater treatment plant.
- ☐ is not okay, because the water flows to the nearest stream or pond.
- ☐ I have no idea.

How much of a water quality problem for local streams do you feel each of the following pose?

	Serious Problem	Moderate Problem	Small Problem	No Problem
garden/lawn fertilizer running off yards?	☐	☐	☐	☐
garden/lawn pesticides running off yards?	☐	☐	☐	☐
pet waste?	☐	☐	☐	☐
automobile maintenance fluids such as oil& antifreeze?	☐	☐	☐	☐

Which of the following types of products have been used on your lawn or garden during the past growing season for pest control?

Please circle all that apply

Household products (soap-based sprays)	Weed killer (i.e. Roundup)	Biological agents (i.e. ladybugs)
Products labeled for organic farmers	Insecticides (i.e. Sevin)	Did not use pesticides
Broadcast weed/fertilizers (i.e. Weed-n-Feed)		Do not have a yard/garden

In the past year have you ever seen anyone dumping items into a storm drain?

☐ **Yes** ☐ **No**

An abundance of information on water quality and other environmental issues and concerns can be obtained at these sites:

www.deq.state.la.us
www.epa.gov
www.imperialcalcasieurcd.org
www.lsuagcenter.com

Thank you for your help!

Please return completed survey to Vinton City Hall.

Any questions? Please feel free to call Imperial Calcasieu RC&D @ 337-824-0975 Ext. 5

NPS Informational Brochure

What is Nonpoint Source Pollution?

Water pollution that does not come out of a pipe, but results when small amounts of pollutants from many different origins are carried into waterways by rain events. Nonpoint source pollution (NPS) is not limited to cities or urban communities, rural areas contribute to NPS pollution as well.

Most of the water in Louisiana bayous, rivers, and lakes comes from rainfall runoff. Excess rain that cannot be absorbed into the soil becomes runoff which carries litter, sediment, bacteria, nutrients (from fertilizers), and toxic substances into local water bodies.

Nonpoint source pollution (NPS) can be the result of:

- Agriculture activities-crops/livestock
- Forestry practices
- Urban runoff
- Home sewage systems
- Oil/gas exploration
- Construction
- Hydromodification (changing the natural flow of water i.e. straightening a ditch, widening or dredging a canal).

"Be the Solution to Nonpoint Source Pollution"

Imperial Calcasieu RC&D Council
2003 Port Drive
Jennings, LA 70546
337-824-0975 Ext. 5

For more information please visit:
www.epa.gov

www.deq.louisiana.gov

www.usda.gov

Does your bayou have the blues?

Understanding Nonpoint Source Pollution

Agriculture is big business in Louisiana and will always be essential to the state's economy. These agricultural practices contribute to pollutants unintentionally being washed into nearby water bodies. These nonpoint source contaminants may include sediments, residual pesticides, excess fertilizers and large amounts of organic matter. This can result in algal blooms and bacteria levels unsafe for human contact.

Louisiana forestland covers almost half of the land area of the state. Silviculture is the practice of cultivation, harvest and transport of trees into lumber. During and up to two years following a harvest the forestland is disturbed and is a transition stage of cover. It is at this time that most erosion and sedimentation occurs.

City storm water systems are pathways for dirt, oil, and debris that collect on paved areas such as streets and parking lots. These pollutants are transported via the storm water systems and are deposited into local water systems.

Many homes, camps, and even some businesses in Louisiana are not connected to a municipal sewage treatment plant. A considerable amount of the state's nonpoint source pollution can be attributed to inadequately treated sewage runoff. Sewage runoff can result in an excess of nutrients and dangerous bacteria levels in water bodies.

Resource extraction including surface and subsurface mining, oil and natural gas activities have been identified as a contributing factor to degradation of surface and ground water. Waters are polluted with sediment from these land disturbing activities and from chemicals that seep from surface and underground mines.

Development or expansions of residential and industrial areas are construction activities whose major pollution is sediment. Additional impacts from these areas can be specific pollutants such as oils, fuels, paints, chemicals, sanitary, and solid wastes.

Hydrologic modifications (i.e. straightening a ditch, widening or dredging a canal) are manmade alterations to the way water moves naturally. These types of modifications can also include bank stabilization, channel alignments, locks and dams, levees, spillways, and impoundments. In a natural system, with no interferences, water "percolates" through many different mediums (sand, dirt, rocks, and grassy areas) before reaching a receiving water body. These different mediums help to filter pollutants from the water and can also act as holding areas of standing water waiting to go through the system.

The horse industry is an important and fast growing agriculture based activity in our state. Regardless of the number of horses owned or whether the pursuit is for profit or pleasure, proper management of potential site runoff is important.

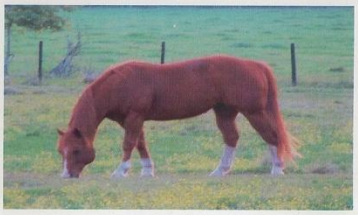
Horse waste can pollute our waterways. Even though manure is natural and organic, when it is carried into streams it can cause a multitude of problems. Harmful bacteria can pose a health threat to swimmers and waders. Excess nutrients transported into local waterbodies over fertilize causing an increase in algae populations and decreasing dissolved oxygen levels.

Sediment is also a common pollutant washed from pastures and livestock facilities. Excess sediments can cause multiple problems - lowering dissolved oxygen levels, blocking sunlight penetration, raising water temperatures, and clogging the gills of fish.

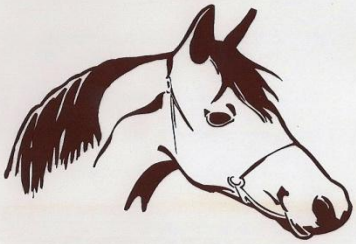
"Be the Solution to Non Point Source Pollution"

Imperial Calcasieu RC&D Council
2003 Port Drive
Jennings, LA 70546
337-824-0975 Ext. 5

For additional information:
www.deq.state.la.us
www.epa.gov
www.lsuagcenter.com
www.imperialcalcasieurcd.org



A Horse Owner's Guide to Protecting Water Quality



Conservation Awareness for:

Boarding Stables

Equestrian Centers

Small farms

Urban Horse Owners

Facilities Design

Situate barns, corrals, and high-use areas on locations that drain away from nearby streams.

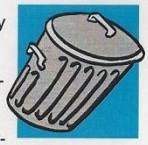
Divert surface runoff from these sites to areas with adequate vegetation to filter the flow.

Manure storage areas and containers should be covered to protect from rain-

Pasture Management

•Maintain healthy pastures with sufficient vegetative cover.
•Partition pastures into multiple grazing areas.
•Rotate animals to fresh pasture when grass is 3-4 inches high.
•Let grass reach 8-10 inches in height before regrazing.
• Refrain from grazing wet fields when possible.

Collecting/Storing



Remove manure and soiled bedding on a daily basis from stalls and store in sturdy, insect resistant, leak proof containers such as: plastic garbage cans with lids, wooden or concrete storage sheds, composters, or pits that are lined with impermeable materials

Use and Disposal

Stall waste can be composted for on-site use and can be given away to nurseries, greenhouses, and local gardeners. When fertilizing pastures, gardens or lawns with composted material do not do so immediately before rain events when runoff potential is higher.

Insect Controls

A temporary fix to insect problems are chemical treatments. Other control methods, biological or physical are longer lasting solutions.

Physical Controls

Some common physical controls are pheromone traps, tarps, bug zappers and fly-tight storage sheds.

Biological Controls

Enhancing bat, swallow, or other insect-eating animal habitats on your property can decrease your dependency on chemical controls. Purple martin and bat houses placed near barns or stables can help to increase the population of these beneficial insect-eaters.

If you choose to use chemicals for insect control, use the least toxic chemicals available, such as:

•Pyrethrin-based insecticides

•dehydrating dust (silica gels)

•insecticidal soaps

•horticultural oils