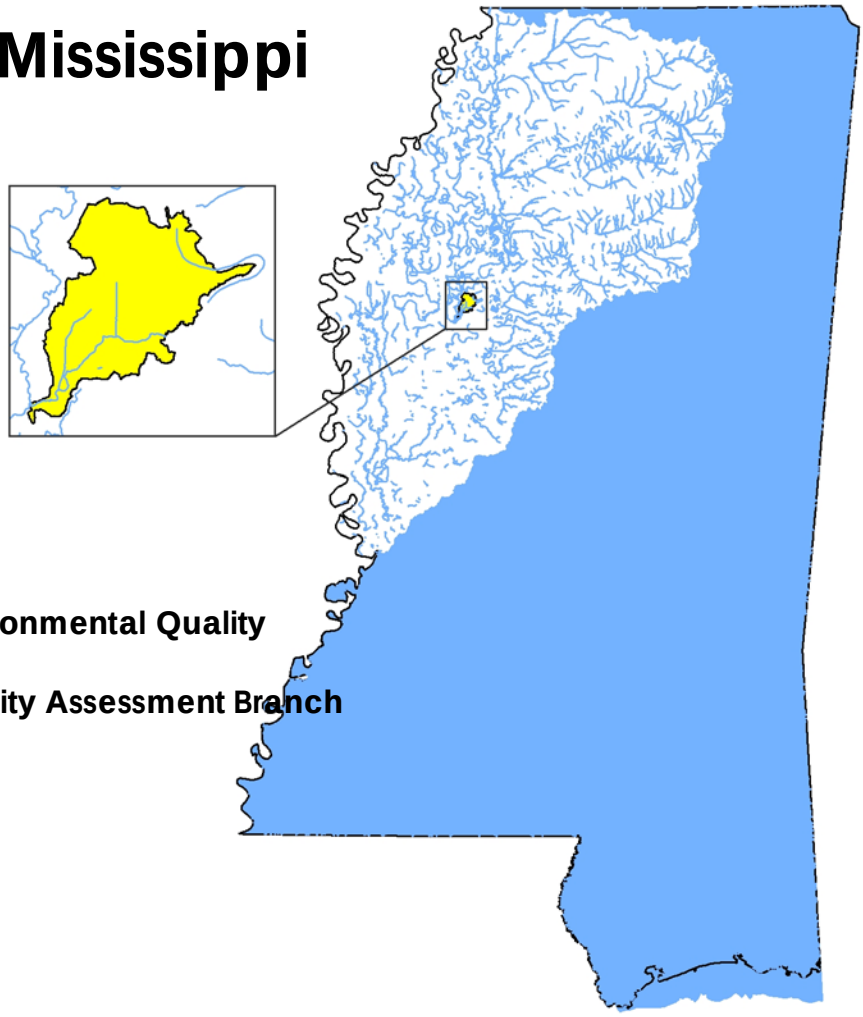
FINAL REPORT
May 2013

Specific Conductivity TMDL for Turkey Bayou

Yazoo River Basin

Leflore County Mississippi



Prepared By

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FOREWORD

The report contains one or more Total Maximum Daily Loads (TMDLs) for water body segments found on Mississippi's current Section 303(d) List of Impaired Water Bodies. The implementation of the TMDLs contained herein will be prioritized within Mississippi's rotating basin approach.

As additional information becomes available, the TMDLs may be updated. Such additional information may include water quality and quantity data, changes in pollutant loadings, modifications to the water quality standards or criteria, or changes in landuse within the watershed. In some cases, additional water quality data may indicate that no impairment exists.

Prefixes for fractions and multiples of SI units

Fraction	Prefix	Symbol	Multiple	Prefix	Symbol
10^{-1}	deci	d	10	deka	da
10^{-2}	centi	c	10^{2}	hecto	h
10^{-3}	milli	m	10^{3}	kilo	k
10^{-6}	micro	μ	10^{6}	mega	M
10^{-9}	nano	n	10^{9}	giga	G
10^{-12}	pico	p	10^{12}	tera	T
10^{-15}	femto	f	10^{15}	peta	P
10^{-18}	atto	a	10^{18}	exa	E

Conversion Factors

To convert from	To	Multiply by	To Convert from	To	Multiply by
Acres	Sq. miles	0.0015625	Days	Seconds	86400
Cubic feet	Cu. Meter	0.028316847	Feet	Meters	0.3048
Cubic feet	Gallons	7.4805195	Gallons	Cu feet	0.133680555
Cubic feet	Liters	28.316847	Hectares	Acres	2.4710538
cfs	Gal/min	448.83117	Miles	Meters	1609.344
cfs	MGD	.6463168	mg/l	ppm	1
Cubic meters	Gallons	264.17205	μg/l * cfs	Gm/day	2.45

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i. Listing Information

Name	ID	County	HUC	Cause	Mon/Eval
Turkey Bayou	951611	Leflore	08030207	Specific Conductivity	Monitored
Near Itta Bena From Lake Henry to mouth at Quiver					

ii. Water Quality Standard

Parameter	Beneficial use	Water Quality Criteria
Conductivity	Fish and Wildlife	There shall be no substances added to increase the conductivity above 1000 micromhos/cm for freshwater streams

iii. NPDES Facilities

NPDES ID	Facility Name	Permitted Discharge (MGD)	Receiving Water
MS0044032	Americas Catch	2 MGD (Max)	Turkey Bayou

iv. Phase 1 Total Maximum Daily Load for Conductivity Equivalents

LA (eq/day)	WLA (eq/day)	MOS	TMDL (eq/day)
59.29	6.95	implicit	66.24

EXECUTIVE SUMMARY

Turkey Bayou is included on the Mississippi 2012 Section 303(d) List of Water Bodies due to specific conductivity. This listing was based on conductivity data that indicate impairment in the watershed. The applicable state standard specifies that there shall be no substances added to increase the conductivity above 1000 micromhos/cm for freshwater streams. Data were collected In 2010 on Turkey Bayou which indicated conductivity exceedances.

The Turkey Bayou watershed is located in the United States Geologic Survey (USGS) Hydrologic Unit Code (HUC) 08030207. The headwaters of Turkey Bayou begin near Itta Bena Mississippi and flow southwest into the Quiver River. There is one NPDES Permitted discharger located in the watershed.

A mass-balance approach was used to develop this TMDL. Measurements of flow in Turkey Bayou are not available. Because of this, a flow coefficient was developed for this watershed based on flow data from the Yalobusha River watershed. The flow coefficient was then applied to the Turkey Bayou watershed. A photo of the water body is shown in Figure 1.

Figure 1. Turkey Bayou Monitoring Station Near Itta Bena

INTRODUCTION

1.1 Background

The identification of water bodies not meeting their designated use and the development of total maximum daily loads (TMDLs) for those water bodies are required by Section 303(d) of the Clean Water Act and the Environmental Protection Agency's (EPA) Water Quality Planning and Management Regulations (40 CFR part 130). The TMDL process is designed to restore and maintain the quality of those impaired water bodies through the establishment of pollutant specific allowable loads. The impairment is caused by elevated conductivity in the creek. Thus, this TMDL has been developed for conductivity for the 303(d) listed segment shown in Figure 2.

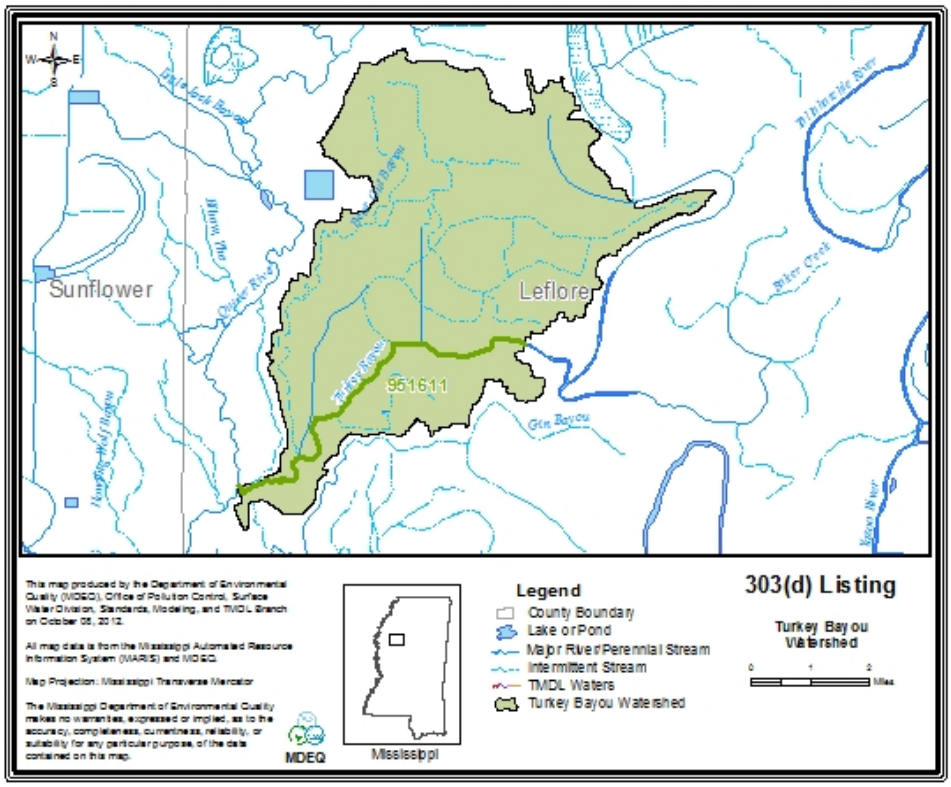

Figure 2. Turkey Bayou Watershed 303(d) Listed Segment

1.2 Discussion of Conductivity

Conductivity *k* is a measure of the ability of a fluid to carry an electric current. This ability depends on the presence of ions; on their total concentration, mobility, temperature, and valence; and on the temperature of measurement. Solutions with compounds are relatively good conductors. Conversely, organic compounds do not dissociate in liquid and do not typically conduct a current.

Conductance *G* is defined as the reciprocal of resistance, *R*:

$$G = 1/R$$

where the unit of *R* is ohm and *G* is ohm^{-1} (sometimes written mho). Conductance of a solution is measured between two spatially fixed and chemically inert electrodes. To avoid polarization at the electrode surfaces, the conductance measurement is made with an alternating current signal. The conductance of a solution, *G* is directly proportional to the electrode surface area, *A* (cm^2), and inversely proportional to the distance between the electrodes, *L*, (cm). The constant of proportionality is *k* such that:

$$G = k * (A/L)$$

K Is called "conductivity" (preferred to "specific conductance"). It is a characteristic property of the solution between the electrodes. The units of *k* are 1/ohm-cm or mho per centimeter. Conductivity is customarily reported in micromhos per centimeter (μmho/cm).

To compare conductivities, values of *k* are reported relative to electrodes with *A*=1 cm^2 and *L*=1 cm. The equivalent conductivity, Λ, of a solution is the conductivity per unit of concentration. As the concentration is decreased toward zero, Λ approaches a constant, designated as Λ°. With k in units of micromhos per centimeter it is necessary to convert concentration to units of equivalents per cubic centimeter; therefore,

$$\Lambda = 0.001k / concentration$$

where the units of Λ, k, and concentration are mho-cm^2/equivalent, μmho/cm, and equivalent/L, respectively. (Clesceri, 1998.)

1.3 Applicable Water Body Segment Use

The water use classification for the listed segment of Turkey Bayou as established by the State of Mississippi in the *Water Quality Criteria for Intrastate, Interstate and Coastal Waters (MDEQ, 2012)* regulation is Fish and Wildlife Support. The designated beneficial use for Turkey Bayou is Aquatic Life Support.

1.4 Applicable Water Body Segment Standard

The water quality standard applicable to the use of the water body and the pollutant of concern is defined in the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*. (MDEQ, 2012) The applicable standard specifies that there shall be no substances added to increase the conductivity above 1000 micromhos/cm for freshwater streams. This water quality standard will be used as the targeted endpoint to evaluate impairments and establish this TMDL.

1.5 Selection of a Critical Condition

Specific conductivity can be affected by many factors. The addition of fresh water (rain) lowers the specific conductivity because rainwater has a low conductivity, and the increase in water levels dilutes mineral concentrations. Conversely, during low-flow conditions the dissolved solids are more concentrated. Conductivity is also affected by temperature. As the temperature increases so does the conductivity.

Under normal conditions, the 7Q10 low-flow would be the critical condition for this stream. However, due to the only NPDES permitted discharger being a Hydrograph Controlled Release (HCR) facility, the critical condition is established as the stream flow required before America's Catch can release its effluent. Therefore, the critical condition for this TMDL is established as minimum HCR conditions, and a stream flow of 11cfs (7.11MGD).

1.6 Selection of a TMDL Endpoint

One of the major components of a TMDL is the establishment of instream numeric endpoints, which are used to evaluate the attainment of acceptable water quality. Instream numeric endpoints, therefore, represent the water quality goals that are to be achieved by meeting the load and wasteload allocations specified in the TMDL. The endpoints allow for a comparison between observed instream conditions and conditions that are expected to restore designated uses. The instream conductivity target for this TMDL is 1,000 micromhos per centimeter (μmho/cm).

WATER BODY ASSESSMENT

This TMDL Report includes an analysis of available water quality data and the identification of all known potential pollutant sources in the Turkey Bayou watershed. There is one point source that discharges to the water body. Other nonpoint pollutant sources are unknown, but were characterized by the best available information, monitoring data, and literature values. This section documents the available information for Turkey Bayou.

2.1 Discussion of Instream Water Quality Data

The State's 2010 Section 305(b) Water Quality Assessment Report includes conductivity water quality data are available for the listed segment. This water body is not supporting the use of aquatic life support. This conclusion was based on diel data collected at station 111A49 given in Appendix A. A summary of the data is shown in Figure 3 and Table 1. A map of the monitoring station is shown in Figure 4.

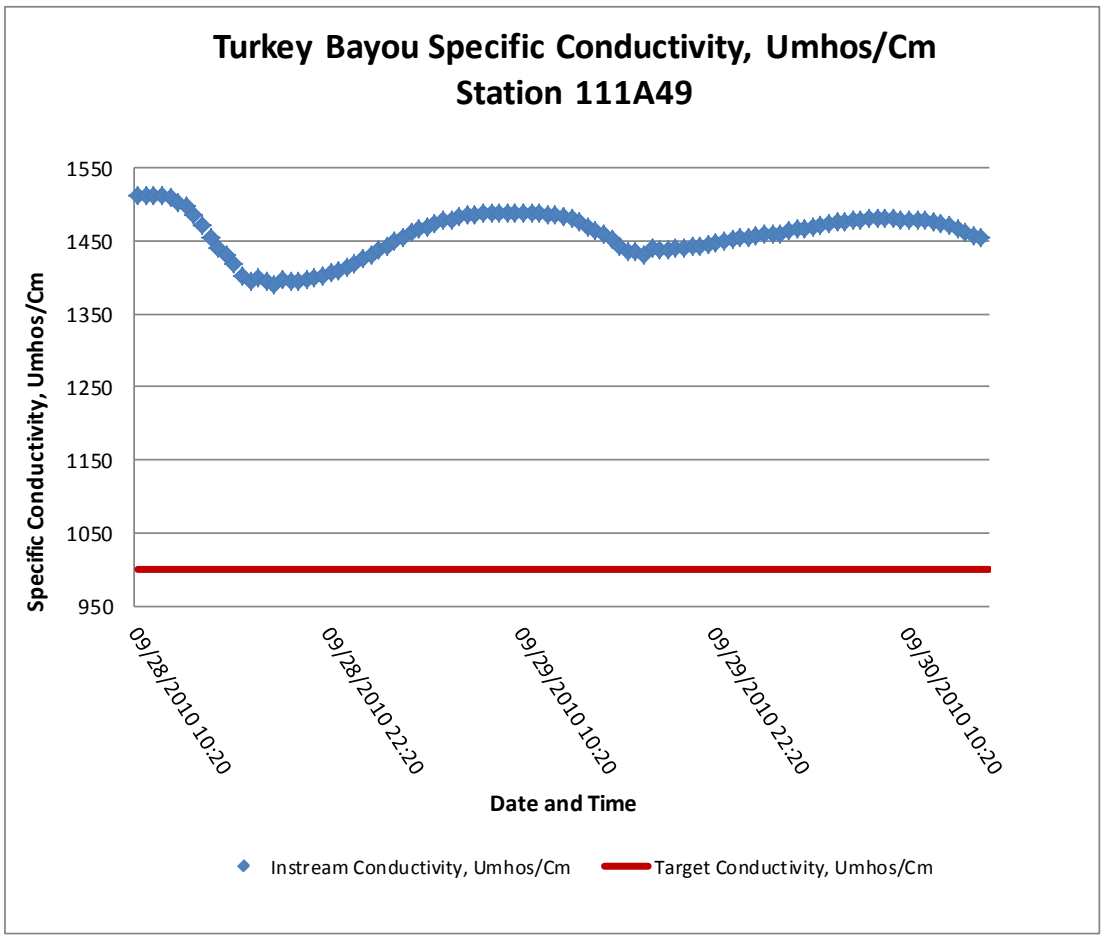

Figure 3. Turkey Bayou Specific Conductivity Data

Table 1. Summary of Turkey Bayou Specific Conductivity Data 9/28/2010 - 9/29/2010

Station	Max Conductivity (µmho/cm	Min Conductivity (µmho/cm	Avg Conductivity (µmho/cm	% exceedance
111A49	1513	1390	1458	100

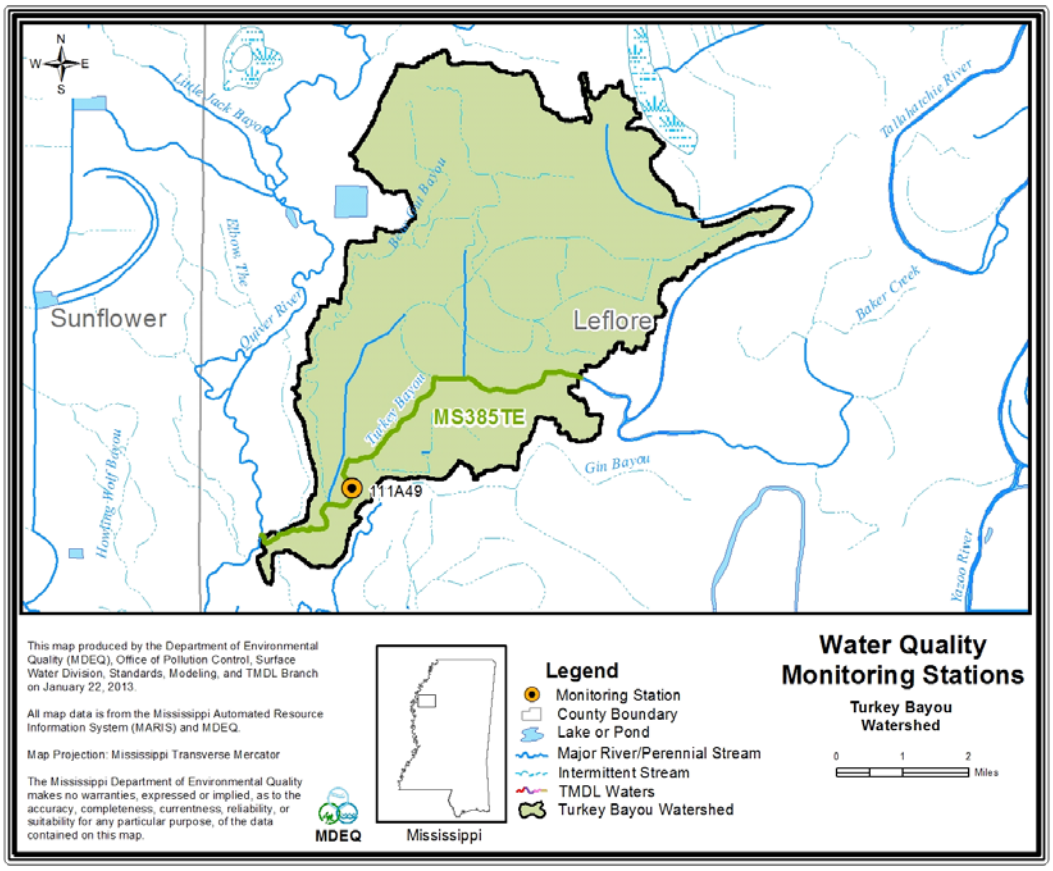

Figure 4. Turkey Bayou Monitoring Station

2.2 Assessment of Point Sources

The first step in assessing pollutant sources in the watershed was locating the NPDES permitted sources. There is one NPDES facility permitted to discharge in the watershed. This point source, shown in Figure 5, is America's Catch, MS0044032. It is a catfish processor and has a flow of 2 MGD (max) (3.0 cfs).

The treatment type for this facility is an HCR lagoon. The primary function of an HCR lagoon is to allow a facility's discharge to be restricted when the flow in the stream is low and the ability of the stream to accept a discharge is limited. As the flow increases, the stream's capacity to assimilate the discharge increases,

and the treatment plant flow previously stored can be released to the receiving stream. (USEPA, 1984.)

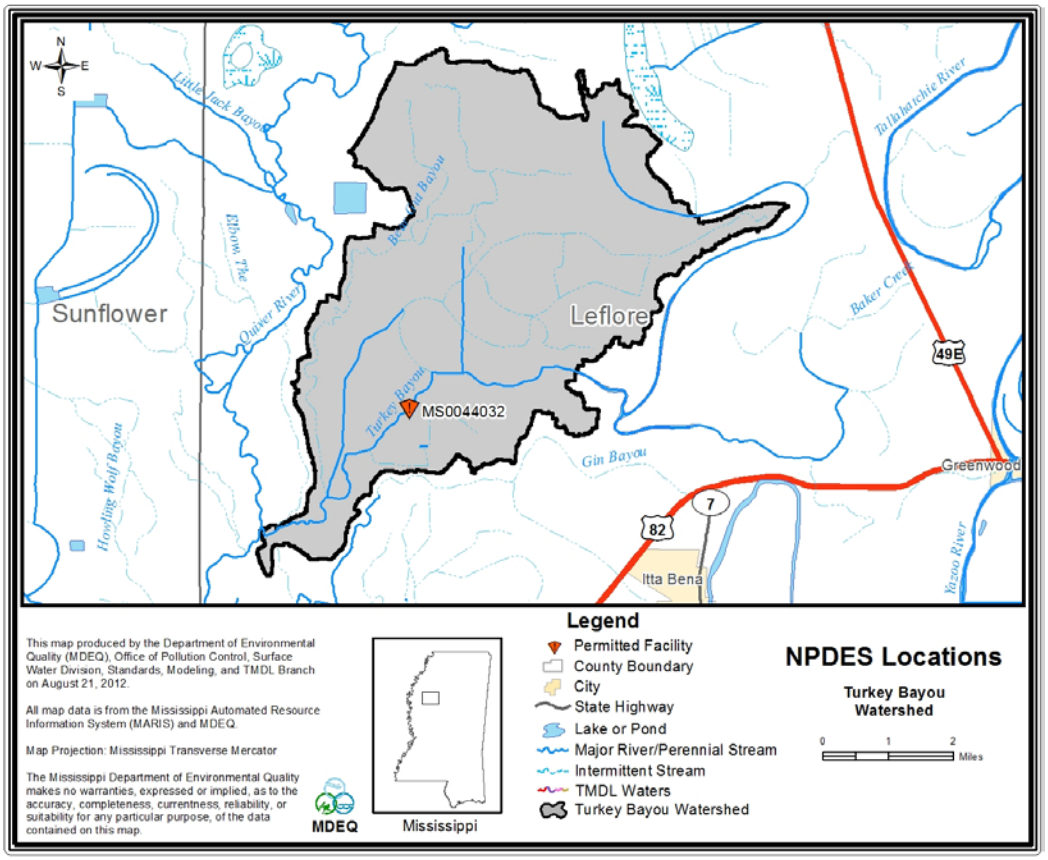

Figure 5. Turkey Bayou NPDES

2.4 Assessment of Nonpoint Sources

Nonpoint sources of conductivity results from the transport of pollutants into receiving waters by overland surface runoff and groundwater infiltration. Other nonpoint pollution sources include atmospheric deposition and natural weathering of rocks and soil.

There are also several other catfish farms/ponds surrounding Turkey Bayou that may contribute to the conductivity exceedance. Water seepage or pond discharge could contain pollutants that raise conductivity. Figure 6 shows a catfish feeding bin located next to Turkey Bayou, and Figure 7 shows the Aerial photography of the watershed.

Figure 6. Catfish Feeding Bins near Turkey Bayou

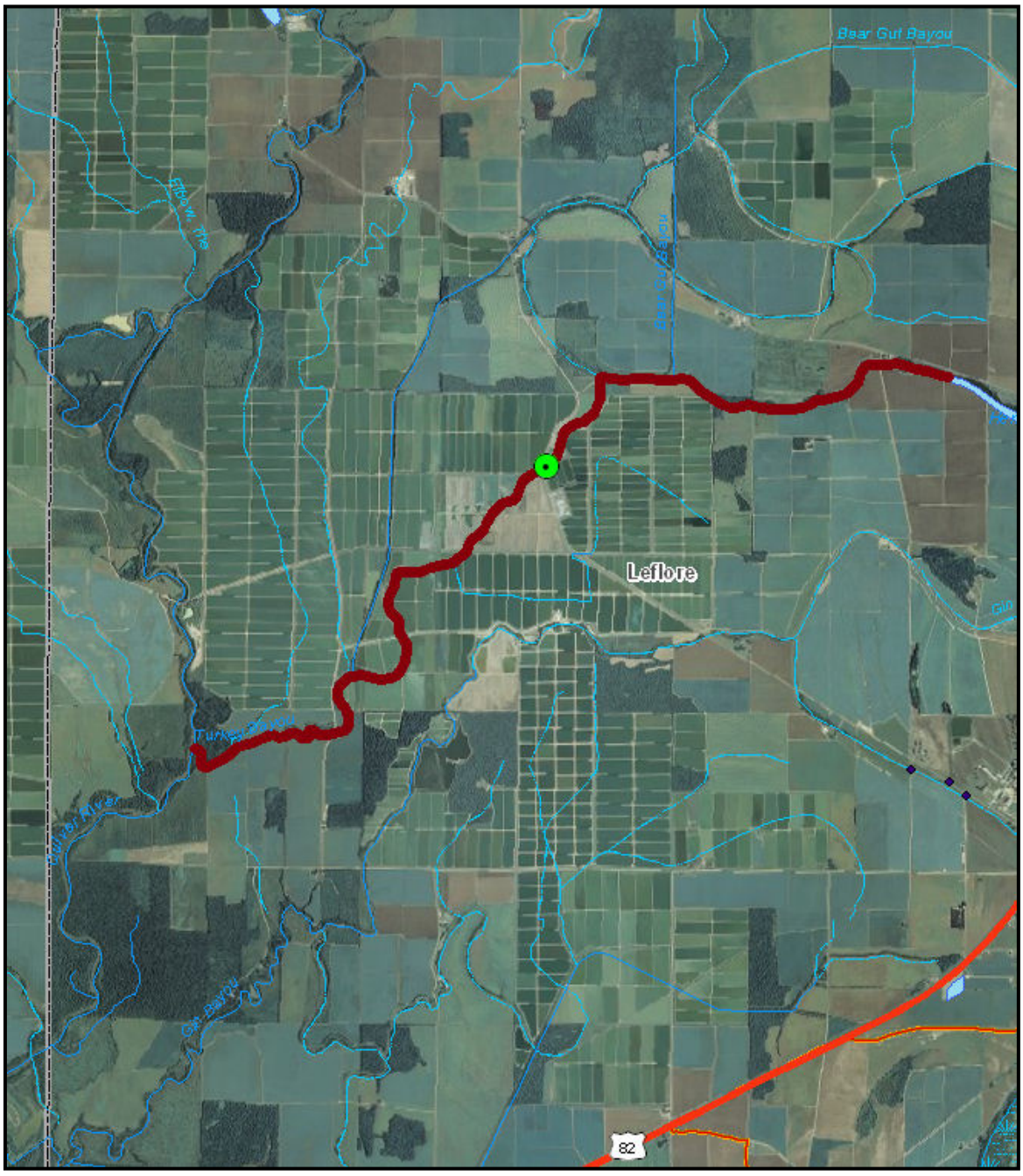

Figure 7. Aerial photography of Turkey Bayou Watershed

The approximately 18,000-acre drainage area contains many different landuse types, including urban, forest, cropland, pasture, water, and wetlands. The land use information for the watershed is based on the National Land Cover Database (NLCD). Cropland is the dominant landuse within this watershed. The landuse distribution within the watershed is shown in Figure 8 and Table 2.

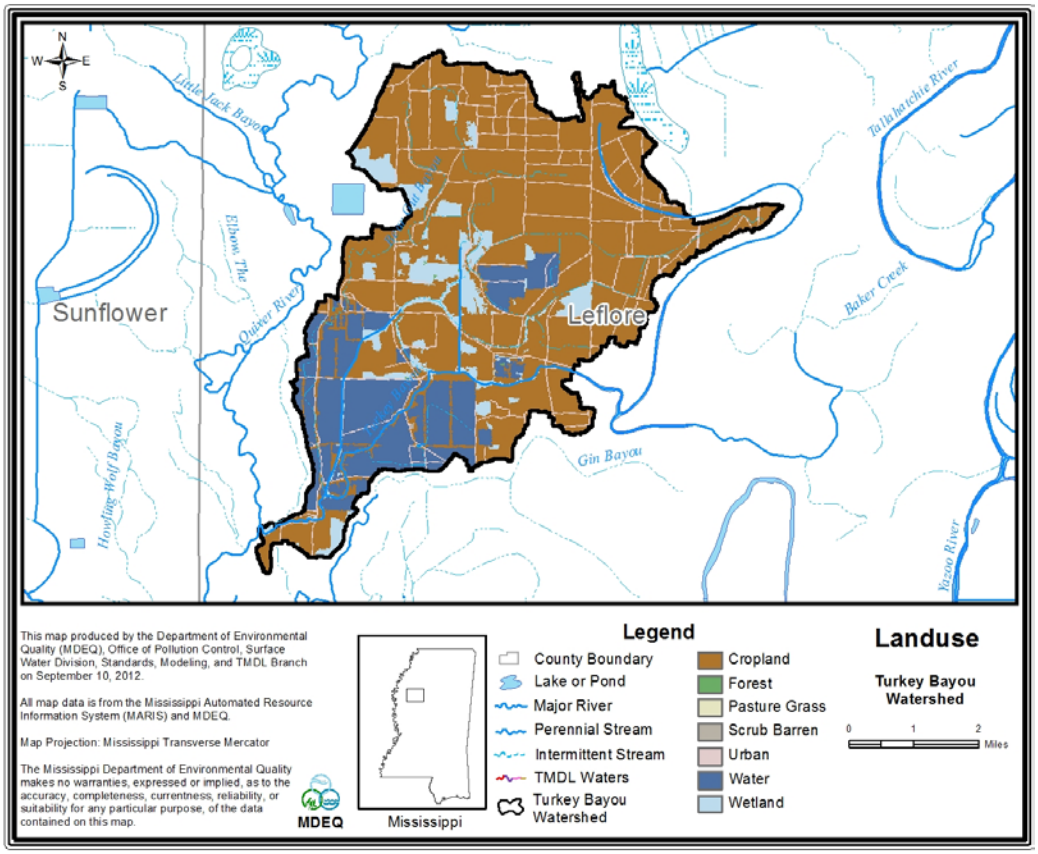

Figure 8. Landuse Distribution Map for Turkey Bayou Watershed

Table 2. Landuse Distribution, Turkey Bayou Watershed

	Urban	Forest	Scrub	Water	Cropland	Wetland	Total
Area (acres)	1,109.5	8.2	3.8	3,309.5	12,040.5	1,492.5	17,963.94
%	6.2%	0.05%	0.02%	18.4%	67.0%	8.3%	100.0%

TMDL CALCULATIONS

Establishing the relationship between the instream water quality target and the source loading is a critical component of TMDL development. It allows for the evaluation of management options that will achieve the desired source load reductions. The link can be established through a range of techniques, from qualitative assumptions based on sound scientific principles to sophisticated modeling techniques. Ideally, the linkage will be supported by monitoring data that allow the TMDL developer to associate certain water body responses to flow and loading conditions. In this section, the selection of the TMDL estimation procedures is discussed.

3.1 Flow Estimation

For specific conductivity, the low-flow is normally the critical condition of the stream. However, at the low-flow conditions, the NPDES permitted discharger is not allowed to release to Turkey bayou. Therefore, in order to account for this point source's effluent, the regulatory flow established for this TMDL is 11 cfs to match the HCR permit limits.

3.2 Load Evaluation

A mass balance approach was used to estimate this TMDL. Conductivity loading was calculated using the conductivity data and the regulatory flow. The following equation is used to calculate the conductivity load:

$$Concentration(0.001k / \Lambda) * Q\ cfs * 5.39 = eq\ Load$$

where C equals concentration in equivalents/L and Q equals average monthly flow in cfs. An expression for the loading can be developed by setting one critical or representative flow and concentration, and calculating the conductivity load using this equation. The conversion factor will change the equation from a concentration to a load per day.

The target load is calculated by substituting the standard or 1000 μmho/cm for k and determining the equivalent load.

$$0.001*1000\ \mu mho / cm * 12.29\ cfs * 5.39 = 66.24\ eq / d$$

3.3 Load Calculations for Turkey Bayou

The average conductivity for Turkey Bayou is 1458 μmho/cm. The average conductivity load is:

$$0.001*1458\ \mu mho / cm*12.29\ cfs*5.39 = 96.58\ eq / d$$

This TMDL is based on a regulatory LA flow of 11 cfs and a WLA flow of 1.29 cfs. The needed reduction can be calculated by comparing the target load to the critical period load.

$$\frac{96.58 - 66.24}{96.58} = 31.4\%\ reduction$$

The same percent reduction is calculated from the concentrations involved in the measured conductivity and the water quality standard.

$$\frac{1458\ \mu mho / cm - 1000 \mu mho / cm}{1458\ \mu mho / cm} = 31.4\%\ reduction$$

ALLOCATION

4.1 Wasteload Allocation

In August 2010, America's Catch entered into an agreed order (5832-10) with MDEQ for violation of the total suspended solids (tss) discharge limit. The specific conductivity of the effluent can be calculated from salinity or total dissolved solids (tds) data. There are no data available for these parameters for America's Catch. However, it is believed that because the facility was in violation of tss it may have had excessive tds as well. Because there are no tds or salinity data available for Turkey Bayou, the concentration of America's Catch will be limited to the in-stream concentration of 1000*µmho* and is calculated as follows:

$$0.001*1000\mu mho / cm*1.29\ cfs*5.39=6.95\ eq / d$$

4.2 Load Allocation

The load allocation is 59.29 equivalents per day. This is calculated at the HCR minimum flow.

4.3 Incorporation of a Margin of Safety

The margin of safety is a required component of a TMDL and accounts for the uncertainty. The two types of MOS development are to implicitly incorporate the MOS using conservative assumptions or to explicitly specify a portion of the total TMDL as the MOS. The MOS selected for this TMDL is implicit, based on conservative assumptions.

4.4 Seasonality

Seasonality is not relevant in these calculations because the HCR minimum regulatory flow was assumed to be the critical flow.

CONCLUSION

This TMDL is based on a desktop approach using MDEQ's regulatory assumptions and literature values. The results indicate impairment in the stream and an overall 31.4% reduction is needed to restore water quality. This TMDL recommends effluent monitoring of conductivity for America's Catch effluent and in-stream monitoring. It further recommends this watershed for cleanup activities to reduce the overall nonpoint source load which is causing the conductivity to be above the standard.

5.1 Future Monitoring

MDEQ has adopted the Basin Approach to Water Quality Management, a plan that divides Mississippi's major drainage basins into five groups. During each yearlong cycle, MDEQ's resources for water quality monitoring will be focused on one of the basin groups. During the next monitoring phase in the Yazoo Basin, the Turkey Bayou watershed may receive additional monitoring to identify any change in water quality.

5.2 Public Participation

This TMDL will be published for a 30-day public notice. During this time, the public will be notified by publication in the statewide newspaper. The public will be given an opportunity to review the TMDL and submit comments. MDEQ also distributes all TMDLs at the beginning of the public notice to those members of the public who have requested to be included on a TMDL mailing list. TMDL mailing list members may request to receive the TMDL reports through either, email or the postal service. Anyone wishing to become a member of the TMDL mailing list should contact Greg Jackson at (601) 961-5098 or Greg_Jackson@deq.state.ms.us.

At the end of the 30-day period, MDEQ will determine the level of interest in the TMDL and make a decision on the necessity of holding a public meeting. If a public meeting is deemed appropriate, the public will be given a 30-day notice of the meeting to be held at a location near the watershed. All comments received during the public notice period and at any public hearings become a part of the record of this TMDL. All comments will be considered in the submission of this TMDL to EPA Region 4 for final approval.

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DEFINITIONS

Aerated Lagoon: A relatively deep body of water contained in an earthen basin of controlled shape which is equipped with a mechanical source of oxygen and is designed for the purpose of treating wastewater.

Ambient Stations: A network of fixed monitoring stations established for systematic water quality sampling at regular intervals, and for uniform parametric coverage over a long-term period.

Assimilative Capacity: The capacity of a body of water or soil-plant system to receive wastewater effluents or sludge without violating the provisions of the State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters and Water Quality regulations.

Background: The condition of waters in the absence of man-induced alterations based on the best scientific information available to MDEQ. The establishment of natural background for an altered water body may be based upon a similar, unaltered or least impaired, water body or on historical pre-alteration data.

Biological Impairment: Condition in which at least one biological assemblages (e.g. , fish, macroinvertebrates, or algae) indicates less than full support with moderate to severe modification of biological community noted.

Chloride: (Cl^-) one of the major inorganic anions in water and wastewater. Chloride concentration is higher in wastewater than in raw water because sodium chloride (NaCl) is a common article of diet and passes unchanged through the digestive system.

Conductivity: Measure of the ability of an aqueous solution to carry an electric current. This ability depends on the presence of ions; on their total concentration, mobility, and valence; and on the temperature of measurement.

Conventional Lagoon: An un-aerated, relatively shallow body of water contained in an earthen basin of controlled shape and designed for the purpose of treating water.

Critical Condition: Hydrologic and atmospheric conditions in which the pollutants causing impairment of a water body have their greatest potential for adverse effects.

Daily Discharge: The "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonably represents the calendar day for

purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily average" is calculated as the average.

Designated Use: Use specified in water quality standards for each water body or segment regardless of actual attainment.

Discharge Monitoring Report: Report of effluent characteristics submitted by a NPDES Permitted facility.

Effluent Standards and Limitations: All State or Federal effluent standards and limitations on quantities, rates, and concentrations of chemical, physical, biological, and other constituents to which a waste or wastewater discharge may be subject under the Federal Act or the State law. This includes, but is not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, pretreatment standards, and schedules of compliance.

Effluent: Treated wastewater flowing out of the treatment facilities.

First Order Kinetics: Describes a reaction in which the rate of transformation of a pollutant is proportional to the amount of that pollutant in the environmental system.

Groundwater: Subsurface water in the zone of saturation. Groundwater infiltration describes the rate and amount of movement of water from a saturated formation.

Impaired Water body: Any water body that does not attain water quality standards due to an individual pollutant, multiple pollutants, pollution, or an unknown cause of impairment.

Land Surface Runoff: Water that flows into the receiving stream after application by rainfall or irrigation. It is a transport method for nonpoint source pollution from the land surface to the receiving stream.

Load Allocation (LA): The portion of a receiving water's loading capacity attributed to or assigned to nonpoint sources (NPS) or background sources of a pollutant

Loading: The total amount of pollutants entering a stream from one or multiple sources.

Mass Balance: An equation that accounts for the flux of mass going into a defined area and the flux of mass leaving a defined area, the flux in must equal the flux out.

Nonpoint Source: Pollution that is in runoff from the land. Rainfall, snowmelt, and other water that does not evaporate become surface runoff and either drains into surface waters or soaks into the soil and finds its way into groundwater. This surface water may contain pollutants that come from land use activities such as agriculture; construction; silviculture; surface mining; disposal of wastewater; hydrologic modifications; and urban development.

NPDES Permit: An individual or general permit issued by the Mississippi Environmental Quality Permit Board pursuant to regulations adopted by the Mississippi Commission on Environmental Quality under Mississippi Code Annotated (as amended) §§ 49-17-17 and 49-17-29 for discharges into State waters.

Point Source: Pollution loads discharged at a specific location from pipes, outfalls, and conveyance channels from either wastewater treatment plants or industrial waste treatment facilities. Point sources can also include pollutant loads contributed by tributaries to the main receiving stream.

Pollution: Contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the State, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance, or leak into any waters of the State, unless in compliance with a valid permit issued by the Permit Board.

Publicly Owned Treatment Works (POTW): A waste treatment facility owned and/or operated by a public body or a privately owned treatment works which accepts discharges which would otherwise be subject to Federal Pretreatment Requirements.

Regression Coefficient: An expression of the functional relationship between two correlated variables that is often empirically determined from data, and is used to predict values of one variable when given values of the other variable.

Salinity: Measure of the mass of dissolved salts in a given mass of solution.

Storm Runoff: Rainfall that does not evaporate or infiltrate the ground because of impervious land surfaces or a soil infiltration rate than rainfall intensity, but instead flows into adjacent land or water bodies or is routed into a drain or sewer system.

Total Maximum Daily Load or TMDL: The calculated maximum permissible pollutant loading to a water body at which water quality standards can be maintained.

Waste: Sewage, industrial wastes, oil field wastes, and all other liquid, gaseous, solid, radioactive, or other substances which may pollute or tend to pollute any waters of the State.

Wasteload Allocation (WLA): The portion of a receiving water's loading capacity attributed to or assigned to point sources of a pollutant.

Water Quality Standards: The criteria and requirements set forth in *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*. Water quality standards are standards composed of designated present and future most beneficial uses (classification of waters), the numerical and narrative criteria applied to the specific water uses or classification, and the Mississippi antidegradation policy.

Water Quality Criteria: Elements of State water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports the present and future most beneficial uses.

Waters of the State: All waters within the jurisdiction of this State, including all streams, lakes, ponds, wetlands, impounding reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, situated wholly or partly within or bordering upon the State, and such coastal waters as are within the jurisdiction of the State, except lakes, ponds, or other surface waters which are wholly landlocked and privately owned, and which are not regulated under the Federal Clean Water Act (33 U.S.C.1251 et seq.).

Watershed: The area of land draining into a stream at a given location.

ABBREVIATIONS

7Q10 .. Seven-Day Average Low Stream Flow with a Ten-Year Occurrence Period

BASINS.....Better Assessment Science Integrating Point and Nonpoint Sources

BMP ..... Best Management Practice

CWA ..... Clean Water Act

DMR ..... Discharge Monitoring Report

EPA ..... Environmental Protection Agency

GIS.....Geographic Information System

HUC ..... Hydrologic Unit Code

LA ..... Load Allocation

MARIS..... Mississippi Automated Resource Information System

MDEQ .....Mississippi Department of Environmental Quality

MGD ..... Million Gallons per Day

MOS ..... Margin of Safety

NPDES .....National Pollution Discharge Elimination System

RBA..... Rapid Biological Assessment

TDS.....Total Dissolved Solids

USGS..... United States Geological Survey

WLA .....Waste Load Allocation

WWTP .....Wastewater Treatment Plant

Appendix A – Turkey Bayou Specific Conductivity Data, (μmho/cm), USGS Study

Date	Conductivity, (umho/cm)
09/28/2010 10:30	1513
09/28/2010 11:00	1513
09/28/2010 11:30	1513
09/28/2010 12:00	1512
09/28/2010 12:30	1509
09/28/2010 13:00	1503
09/28/2010 13:30	1497
09/28/2010 14:00	1486
09/28/2010 14:30	1472
09/28/2010 15:00	1456
09/28/2010 15:30	1441
09/28/2010 16:00	1431
09/28/2010 16:30	1418
09/28/2010 17:00	1402
09/28/2010 17:30	1396
09/28/2010 18:00	1399
09/28/2010 18:30	1394
09/28/2010 19:00	1390
09/28/2010 19:30	1397
09/28/2010 20:00	1396
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09/29/2010 01:00	1431
09/29/2010 01:30	1438
09/29/2010 02:00	1444
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09/29/2010 03:30	1461
09/29/2010 04:00	1466
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09/29/2010 05:00	1474
09/29/2010 05:30	1478
09/29/2010 06:00	1480

Date	Conductivity, (umho/cm)
09/29/2010 06:30	1483
09/29/2010 07:00	1485
09/29/2010 07:30	1487
09/29/2010 08:00	1488
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Date	Conductivity, (umho/cm)
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09/30/2010 15:30	1451