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December 11, 2000

DEC 12 2000

Ref: 08-895

Ms. Ellen Caldwell
Environmental Protection Specialist
Water Quality Protection Division
Region 6
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 15202-2733

VIA OVERNIGHT MAIL

Re: Public Comment on Louisiana TMDLs

Dear Ms. Caldwell:

This is to provide public comment on behalf of the Sierra Club and Louisiana Environmental Action Network (LEAN) regarding the nine Total Maximum Daily Loads (TMDLs) for the Mermentau and Vermilion/Teche River basins, on which EPA gave notice in the Federal Register on November 13, 2000. (65 Fed. Reg. 67742-67743). In addition, this provides comment on the EPA prepared TMDLs for Bayou Descannes and Bayou Nezpique, which EPA recently filed with the U.S. District Court in Sierra Club v. Clifford.

The nine TMDLs are for pollutants and situations that are very important to Louisiana. Excessive salinity is causing serious problems. For example, more than 100 workers were laid off at Bayou Lafourche because of excessive salinity in the bayou. The parish's water plant near Lockport had to dilute chlorides and could not meet drinking water standards. The viability of communities is at stake. This situation is described in the attached New Orleans Times-Picayune articles. Unfortunately, the TMDLs are all done in such a fashion as to have no effect on such problems.

All of these TMDLs, like the others EPA has done or approved for Louisiana, were done to avoid any reduction of a point source. As a result, they do not meet legal requirements, and they will not lead to any reduction of water pollution. They also do not address the means or timetables for any non-point source reductions. (All of the deficiencies noted below occur in each TMDL to one degree or another, although they may be discussed in regards to one TMDL individually).

The Bayou Teche TMDL for chloride avoids any reductions. It takes a monthly average of loading over a six month period, uses that average as the current load, and, then, since the average is below the TMDL, it requires no reductions. (See that TMDL at p. 6). That averaging is improper as a mathematical matter since the TMDL is exceeded at least 50 % of the time, so

LAW FIRM FOR THE ENVIRONMENT
400 MAGAZINE STREET, SUITE 401, NEW ORLEANS, LA 70130-2453
T: 504 522-1394 F: 504 566-7242 E: ejusla@earthjustice.org W: www.earthjustice.org

Responses:

We appreciate all comments concerning the nine TMDLs submitted to the Federal Register and noticed November 13, 2000. EPA responses to these comments are found below.

Response to comment in paragraph 3 at left: No dischargers currently have permit limits for sulfates, chlorides, or total dissolved solids (TDS). These TMDLs require dischargers to meet criteria for these parameters at "end-of-pipe". By meeting criteria at "end-of-pipe", point sources will not cause or contribute to water quality standards violations. The criteria are the concentrations used to calculate the wasteload allocations (WLAs). As a result, all point sources will be required to have permits for sulfates, chlorides, and TDS where none had them previously.

Response to comment in paragraph 4 at left and corresponding page: Louisiana water quality standards state that numerical criteria for total dissolved solids, sulfates, and chlorides "generally represent the arithmetic mean of existing data from the nearest sampling location plus three standard deviations."

The rationale for using average concentration to calculate the current loading is consistent with the water quality criteria for chloride, sulfate, and TDS adopted by LDEQ. The water quality criteria for these parameters are based on the arithmetic mean of existing data from the nearest sampling location plus three standard deviations. The water quality criteria include three standard deviations which represent the variability of the mean concentration on a long-term basis. Therefore, the current loading represents the average loading measured at the monitoring station based on readily available data.

EPA used water quality criteria to calculate TMDLs and WLAs because the water quality criteria are the maximum allowable ambient concentrations. Use of such criteria also provide for the most conservative approach as it is assumed that dilution is zero. The TMDLs are also viewed as the maximum assimilative capacity of the stream above background.

Whenever the average concentration is lower than the water criteria, the current loadings should be lower than the TMDL. As a result, no load reduction is needed. Although the average concentration is below the water quality criterion, some of the individual measurements could be above the water quality standards just due to the statistical chance and temporal and spatial variability in the measurements not accounted for in establishing the water quality criteria.

Although no load reduction will be required as a result of the TMDLs for Bayou Cocodrie (TDS) and Bayou Teche (chlorides), no increase in loads via point and/or non-point sources will be allowed until additional data clearly demonstrate that the criteria are not being exceeded in greater than 30% of the measurements in either of these water bodies. This has been clearly indicated in both of these documents.

some reductions must be required. The Bayou Cocodrie TMDL for TDS uses the same defective averaging approach (TMDL p. 6).

The Vermillion River TMDL for sulfate identifies a load reduction of 28,418.48 lb/day as necessary to meet standards. (TMDL p. 7). The TMDL lists 90 dischargers of sulfates at 8,202.52. (Id. at 7-10). The wasteload allocation (WLA), however, is set at that same amount, 8,202.52. That is the same amount as all existing permit limits. Therefore, no reduction from any point source is required. If the point sources were reduced to zero, over one-quarter of the load reduction necessary would be achieved, but by EPA's methodology, no reduction is achieved. In addition, the WLA is not done for individual dischargers. They are treated as a group. Thus, individual reductions are avoided. The Bayou Teche TMDL has similar problems. Approximately 10 % of the necessary load reduction is possible through point source reductions, but by setting the WLA at the existing levels, no reduction is required. (TMDL p. 6). The Bayou Cocodrie TMDL is defective in the same manner. Approximately 3/4 of the load is from point sources, but no reductions are required. (TMDL p. 7).

The White Lake Total Dissolved Solids (TDS) TMDL is not seasonal as Clean Water Act (CWA) § 303(d) requires. (TMDL p. 6). The given reason for that is that there is no seasonal water quality standard. That demonstrates a misunderstanding of the seasonality requirement in the statute. It is not merely to address seasonal variations in the standards, but in the load or the contributions to the load. The TMDL also just repeats the existing permit limits as the WLA, so no reductions are required. The White Lake TMDL for chlorides repeats these same errors.

The TMDLs do not meet the requirements of § 303(d) of the Clear Water Act, applicable regulations or EPA's TMDL Guidance(s) because: the wasteload allocations (WLAs) by themselves are not set at levels necessary to achieve standards, or even to levels to reduce the impairment as much as possible, while reliance in the TMDL is made on reductions to nonpoint sources in the load allocations (LAs), without any "reasonable assurances" the LAs will be achieved. See in this regard, EPA's 1991 TMDL Guidance, p. 15: "Where there are not reasonable assurances, under the CWA, the entire load reduction must be assigned to point sources." And, see Draft August 12, 1999 EPA TMDL Guidance at 3-16: "Before EPA approves a TMDL in which some of the load reductions are allocated to nonpoint sources in lieu of additional load reduction allocated to point sources, there must be reasonable assurances that the nonpoint source reductions will in fact occur."

Requiring no reduction of point sources, or treating existing end-of-pipe requirements as the WLA, does not meet the intent of § 303(d) or the regulations since it does not establish the TMDL at the level necessary to achieve water quality standards. These are further defective TMDLs for limiting themselves to low flow events as the critical condition.

Response:

Response to comment in paragraph 1 at left: No dischargers currently have permit limits for sulfates, chlorides, or TDS. These TMDLs require dischargers to meet criteria for these parameters at "end-of-pipe". By meeting criteria at "end-of-pipe", point sources will not cause or contribute to water quality standards violations. The criteria are the concentrations used to calculate the wasteload allocations (WLAs). As a result, all point sources will be required to have permits for sulfates, chlorides, and TDS where none had them previously.

It should also be noted that WLAs were calculated in the draft sulfate TMDL for the Vermilion River (subsegments 060801 and 060802) in Table 2. Table 2 has been moved to Appendix A of the final TMDL. Also, based on new information, the number of dischargers has been increased from 90 to 139. WLAs have also been calculated for these dischargers.

Response to comment in paragraph 2 at left: TDS, chlorides, and sulfates are not parameters that generally require critical conditions. Parameters such as dissolved oxygen, for example, are affected by other conditions such as temperature. TDS, chlorides, and sulfates are not. As for existing limits, there are none. All limits are new.

Response to comment in paragraph 3 at left: EPA regulations at 40 CFR 122.44(d)(1)(vii) require that effluent limits in NPDES permits for point sources be consistent with assumptions and requirements of wasteload allocations for the discharge contained in an EPA-approved TMDL. To address that requirement, EPA guidance provides that in watersheds impaired by a blend of point and nonpoint sources, where any wasteload allocation to a point source is increased based on the assumption that loads from nonpoint sources will be reduced, the State should provide reasonable assurances that the nonpoint source load allocations will in fact be achieved (See Robert Perciasepe, Assistant Administrator, Office of Water, New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs), August 8, 1997, p.5). EPA's current guidance and policies on the establishment of TMDLs does not yet specifically address implementation of TMDLs for waters impaired only by nonpoint sources or by a blend of point and nonpoint sources in which nonpoint sources dominate. However, if a point source receives an allocation in a TMDL for such a waterbody, EPA believes, consistent with established policy, that a State should still provide some assurances that required nonpoint source load reductions will occur in the future. Those assurances will be evaluated by EPA on a TMDL-by-TMDL basis.

EPA has stated that "[t]he primary implementation mechanism [for waters impaired solely or primarily by nonpoint sources] will generally be the State section 319 nonpoint source management program coupled with State, local and Federal land management programs and authorities" (Perciasepe Memo at p.5). The LDEQ receives federal funding under the Clean Water Act Section 319(h) Nonpoint Source program. The Louisiana Nonpoint Source Management Plan identifies that the LDEQ will continue to work cooperatively with the federal, state and local partners that assist them in the implementation of statewide educational programs and watershed protection and restoration projects to restore the designated uses of waterbodies. The Management Plan also identifies the State's goal to address nonpoint sources of pollution in the Mermentau/Vermilion basin by the end of 2007. It is anticipated that the state will evaluate if actions have been successful in restoring designated uses in the Mermentau/Vermilion basins by the end of 2008. EPA Region 6 feels that, based on the Perciasepe memo, this offers a reasonable assurance that NPS reductions will occur.

We further note that the TMDLs have no implementation plans, or identification of implementation measures of any sort. Those are required under EPA's 1997 directives to the States. In addition, EPA's new TMDL regulations interpret the Clean Water Act to require such measures in TMDLs. At a minimum, the State's § 303(e) and § 319 plans must be revised to implement these TMDLs, but there is no indication this will be done.

Thank you for your consideration of these comments.

Very truly yours,

Eric E. Huber

EEH:kef

cc: David Gillespie
Sierra Club
LEAN
GRN
Beth Teel, Tulane Environmental Law Clinic

Response:

Response to comments in paragraph 4 of previous page: No dischargers currently have permit limits for sulfates, chlorides, or TDS. These TMDLs require dischargers to meet criteria for these parameters at "end-of-pipe". By meeting criteria at "end-of-pipe", point sources will not cause or contribute to water quality standards violations. The criteria are the concentrations used to calculate the wasteload allocations (WLAs). As a result, all point sources will be required to have permits for sulfates, chlorides, and TDS where none had them previously.

In response to the comment in the last sentence, it should be noted that these TMDLs and the estimated current loads were developed using average annual flows as opposed to low flows.

Response to comment in paragraph 1 at left: On July 14, 2000, President Clinton signed the Military Construction Appropriations Bill which includes a rider prohibiting the obligation or expenditure of funds made available for fiscal years 2000 and 2001 to implement the new TMDL rule. Because implementation plans, and the development and/or approval by EPA of implementation plans is part of the new TMDL rule, it is EPA's interpretation that implementation will not be included in EPA developed TMDLs.

The Times-Picayune

Library: **Stories**

Record ID: **806289**

Headline Idea to unplug **Bayou** Lafourche stirs waters

Diverting fresh water unpopular with some

Byline By The Associated Press

Date Thursday, November 16, 2000

Text HOUMA -- Sediment, vegetation and saltwater are causing problems in **Bayou** Lafourche and officials are talking about diverting more fresh water through the **bayou** -- not a popular idea with everyone.

Alex Breaux, director of the **Bayou** Lafourche Fresh Water District, told the Houma-Terrebonne Chamber of Commerce on Tuesday about efforts to get federal money to cover the cost of flushing out the **bayou**, a primary source of water for residents and businesses.

Pumping stations at the Mississippi River near Donaldsonville send some water through the **bayou**, but not nearly enough to counter the buildup of sediment and vegetation in recent years, he said.

"**Bayou** Lafourche is plugging up," Breaux said.

Complicating the problem are the recent drought and coastal erosion, which have led to salt water intrusion up the **bayou** to central Lafourche, creating problems for many businesses and residents.

Valentine Paper Mill in **Lockport** temporarily laid off more than 100 workers because of high salinity in the **bayou**. Mill officials have said the plant cannot produce specialty products under those conditions. They also have warned that unless the water problem is addressed, the layoffs could become permanent.

The amount of water drawn from the **bayou** has increased in recent months because of sugar cane grinding. Thibodaux-area sugar mills use large amounts of **Bayou** Lafourche water.

Breaux asked the chamber's board of directors to support a resolution that mirrors a Thibodaux Chamber of Commerce resolution acknowledging the problem and encouraging the Fresh Water District to spur projects that would improve **Bayou** Lafourche water flow.

The chamber delayed voting until next month.

Donaldsonville residents and businesses oppose pumping more river water into the **bayou**, Breaux said. Lawsuits have been filed to keep the Fresh Water District from raising water levels.

Bayou Lafourche intersected the Mississippi River at Donaldsonville until the turn of the century, when it was dammed as a flooding measure.

Today, Donaldsonville residents are concerned that more water pumped into the **bayou** will raise the potential for flooding and affect recreational structures they have built along the bayou's edge, such as gazebos and piers, Breaux said.

Caption

Column

Words 348

Section NATIONAL

Response:

The Times-Picayune

Library: **Stories** Record ID: 940542

Headline A BITTER PROBLEM; Saltwater intrusion threatens Lafourche

Bayou community gets first big taste of erosion Salt in Lafourche water threatens **bayou** living

Byline By Pam Louwagie
West Bank bureau

LOCKPORT -- They turned on their kitchen faucets and a sign of catastrophe poured out: The Gul

Date Sunday, December 3, 2000

Text Invading Lafourche

The Gulf of Mexico is constantly trying to push its way into the waterways of southeastern Louisiana, scientists say. This time, helped along by southerly winds, it sneaked all the way to the point where lower Lafourche sucks its drinking water from **Bayou** Lafourche, about 50 miles from the Gulf. Dry conditions and malfunctioning pumps that were supposed to put more Mississippi River water into the **bayou** failed to keep it at bay.

It wasn't the first time lower Lafourche faced the problem. The parish's water plant near **Lockport** has had to dilute touches of saltwater by mixing it with their reserved pools of fresh water. But this year, the saltwater was so concentrated and stayed for so long that the water plant couldn't mask it. And water officials said it was the first time such high levels of salt -- three times the federal drinking water standards that set maximum chloride levels of 250 parts per million -- had reached people's taps.

The greater salt content was noticeable. Coffee made with the water tasted bitter. Soap didn't lather well in the shower. Officials put out warnings to those on low-sodium diets.

Rain and northerly winds pushed the saltwater back toward the Gulf after nearly two weeks, but officials warn that it could easily come back.

"In 45 years, we've never had this," said Dirk Barrios, general manager of Lafourche Parish Water District No. 1. "If we don't get some help, it can happen again. It can happen again next week."

Finding a solution

Coastal erosion is nothing new in Louisiana.

Encroaching saltwater has turned marsh grasses brown and left open water to ripple in the wind. Fishers catch saltwater creatures farther inland than they used to. Locals joke about their bayou-side yards someday turning into valuable beachfront property.

Still, to most who have spent their lives on the **bayous** and waterways, everyday life didn't seem threatened.

Until they tasted the salty water.

"You knew it was inevitable, that sooner or later it would happen," Barrios said. "But you didn't expect it to happen."

Response:

Warnings from environmentalists have spurred the government to begin rebuilding marshes by unleashing silt-laden water from the Mississippi River, which was leveed years ago to prevent flooding.

While some experts say that's the key to holding off saltwater intrusion in the long run, individual communities have had to come up with their own methods for the short term.

Early this year, an underwater dam built by the Army Corps of Engineers stopped saltwater from reaching drinking-water plants in Plaquemines Parish. In Houma, officials have a backup source of water in **Bayou** Black if the water they normally get from the Intracoastal Waterway is too salty.

In Lafourche, officials are considering several options, including a plan to increase the amount of water pumped from the Mississippi River into **Bayou** Lafourche where the two intersect at Donaldsonville.

"There's been an enormous increase in interest in that project," said Len Bahr, Gov. Foster's coastal adviser. "Not only for the environmental part of it, but the safety part of it."

That project is five years and millions of dollars away, though. In the meantime, Lafourche Parish water officials say they'll push for shorter term projects, including bigger storage facilities to supplement the one-day supply of nearly 12 million gallons, building another water intake pipe further up **Bayou** Lafourche, or constructing an inflatable weir to block saltwater from coming up the **bayou**. Officials say they don't know how much the options would **cost**.

Hurting livelihood

Meanwhile, officials fear more days of salty drinking water could drive away businesses and residents.

Oil companies operating out of the port use more than 1 million gallons of fresh water a day to mix with drilling fluids, said Ted Falgout, executive director of the port commission that oversees busy Port Fourchon, which has an estimated $900 million annual impact on the local economy and handles about 75 percent of the central Gulf's deep-water drilling.

If companies have to start barging in their water, they could decide to move elsewhere, such as Mobile, Ala., or Galveston, Texas, Falgout said.

That would hurt support businesses such as Asco, formerly L&L Oil and Gas Services, which sells fresh water to oil companies.

"Port Fourchon is one of my bigger areas of business," Asco Executive Vice President Danny Brown said. "We'd hate to lose the business just because of water."

At Valentine Paper Inc., which shut down for four days, temporarily laying off 120 people, the saltwater intrusion jolted its manager into calling for change.

"How far does it have to go before people who can do something about it take action?" asked Tom Bingham, saying the mill lost about $40,000 each day it was shut down.

Bigger implications

Those who study coastal erosion say the viability of communities is at stake. An estimated 35,000 people had salty drinking water in Lafourche in November.

"What it means is we'd better wake up and start taking these water problems seriously," Davis said. "It's not merely about wetlands and habitats for ducks, as

Response:

important as that is; it's about having water to drink and use.'
In some ways, environmentalists say the saltwater in people's taps may have sparked necessary panic. Lafourche's water district declared an emergency and held a meeting with federal and state officials last month.
"It takes a while for people to learn how these issues really play out," Davis said. "I think it finally is dawning on people that the salt problems are getting worse. . . . If you do not have dependable fresh water, you do not have a dependable future."

Caption STAFF PHOTOS BY SUSAN POAG
Lockport resident Al Sevin, a retired, 33-year employee of Lafourche Parish Water District, said he and his wife bought about a dozen bottles of water during the worst of the recent salt-water intrusion episodes.

David Fanguy of Lafourche Parish Water District No. 1 maintenance department takes a sample of water from **Bayou** Lafourche on Friday morning to monitor chloride, a procedure that is done every four hours.

A combination of erosion, drought and wind has allowed saltwater to seep into **Bayou** Lafourche (looking south, toward **Lockport**, near where the Company Canal enters the bayou), prompting the water district to declare an emergency.

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Response:

GULF RESTORATION NETWORK

Working to Protect and Preserve the Gulf of Mexico

839 St. Charles Ave., Suite 309 · New Orleans, LA 70130
Mailing Address: P.O. Box 2245 · New Orleans, LA 70176
Phone: (504) 525-1528 · Fax: (504) 525-0833

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December 11, 2000

Ellen Caldwell
Environmental Protection Specialist
Water Quality Protection Division
U.S. Environmental Protection Agency
Region 6
1445 Ross Ave.
Dallas, TX 75202-2733

Re: Bayou Cocodrie TMDL for Total Dissolved Solids (TDS), subsegments 060201 and 060202

Dear Ms. Caldwell,

On behalf of the Gulf Restoration Network (GRN) I submit the following comments regarding the total maximum daily loads (TMDLs) on the above mentioned water segments which are the subject of a recent federal register notice by your agency. The GRN is a diverse coalition of 44 local, regional, and national organizations concerned about the short and long-term health of the Gulf of Mexico, and committed to restoring it to an ecologically and biologically sustainable condition. Members of the Network are located in each of the states along the Gulf of Mexico.

The GRN has serious concerns regarding the U.S. Environmental Protection Agency's (EPA) and Louisiana Department of Environmental Quality's (LDEQ) efforts to address water quality in this segment of the State of Louisiana. Specifically, the TMDL for Bayou Cocodrie subsegments 060201 and 060202 does not satisfy the requirements of § 303(d) of the Clean Water Act, applicable federal regulations or TMDL Guidance documents of the EPA for the following reasons:

I. Load reductions do not consider elevated TDS concentrations

Several TDS concentrations measured in subsegments 060201 and 060202 exceed the daily TDS limit of 100 mg/l. However, by averaging the concentrations, the report concludes that the current loading in Bayou Cocodrie is well under the 127,613.64 lb/day TDS limit and, therefore, no load reductions need to take place. This determination does not take into consideration that:

- 6/19, over 30%, of measurements made at monitoring station 0311 exceeded the TDS limit of 100 mg/L. The six measurements exceeded the limit by between 14%-106% and 2 other measurements were within 8% the 100 mg/L criterion.

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Response:

Response to comment #1 at left and corresponding page: Louisiana water quality standards state that numerical criteria for total dissolved solids, sulfates, and chlorides "generally represent the arithmetic mean of existing data from the nearest sampling location plus three standard deviations."

The rationale for using average concentration to calculate the current loading is consistent with the water quality criteria for chloride, sulfate, and TDS adopted by LDEQ. The water quality criteria for these parameters are based on the arithmetic mean of existing data from the nearest sampling location plus three standard deviations. The water quality criteria include three standard deviations which represent the variability of the mean concentration on a long-term basis. Therefore, the current loading represents the average loading measured at the monitoring station based on readily available data.

EPA used water quality criteria to calculate TMDLs and WLAs because the water quality criteria are the maximum allowable ambient concentrations. Use of such criteria also provide for the most conservative approach as it is assumed that dilution is zero. The TMDLs are also viewed as the maximum assimilative capacity of the stream above background.

Whenever the average concentration is lower than the water criteria, the current loadings should be lower than the TMDL. As a result, no load reduction is needed. Although the average concentration is below the water quality criterion, some of the individual measurements could be above the water quality standards just due to the statistical chance and temporal and spatial variability in the measurements not accounted for in establishing the water quality criteria.

Although no load reduction will be required as a result of the TMDLs for Bayou Cocodrie (TDS) and Bayou Teche (chlorides), no increase in loads via point and/or non-point sources will be allowed until additional data clearly demonstrate that the criteria are not being exceeded in greater than 30% of the measurements in either of these water bodies. This has been clearly indicated in both of these documents.

These high TDS concentrations are ignored when an average concentration value is used in determining load reductions.

- 6/20, 30%, of measurements made at monitoring station 0103 exceeded the TDS criterion of 100 mg/L. The six measurements exceeded the limit by between 12%-116%, with 5 more measurements within 20% of the 100 mg/L criterion. Again, some of the TDS concentrations measured were over *twice* the criterion established for fish and wildlife designated uses. This is a serious concern that needs to be addressed, not ignored.
- On page 3 of the TMDL report, it is stated that more than 30% of the TDS measurements exceeded the TDS criterion of 100 mg/L, and that is why a TMDL was created in the first place. This statement suggests that there are conflicting conclusions within the same TMDL report: the above statement indicates that Bayou Cocodrie has elevated TDS concentrations that need to be reduced, while in the same report it is concluded that no pollutant reductions are necessary. If there was a significant number of TDS measurements that exceeded the concentration limit, a plan should be implemented which reduces these concentrations to an acceptable level.

Since TMDL are not supposed to exceed 100 mg/l on a *daily* level, there remain serious TDS pollutant problems that need to be addressed either by decreasing the TDS concentration discharged from Cleco Coughlin power station or by implementing non-point source reductions in a timely manner.

II. Insufficient number of TDS samples

Because of the limited number of TDS measurements that were taken in Bayou Cocodrie, there is insufficient data to determine the TDS load reduction in Bayou Cocodrie. Station 0103 only had 20 samples taken over an approximate three-year period and measurements were only taken once every other month. Also, the last data were recorded on April 14, 1998, over 2.5 years ago. Station 0311 had only 19 samples taken over a three-year period and the last data were recorded on April 14, 1998, over 2.5 years ago. The small number of samples taken and the lack of recent data that were used in the development of this TMDL suggest that the conclusion that no load reductions are necessary is questionable and warrants further inspection.

On page 8 of the TMDL report it is stated that:

> *Sampling is conducted on a monthly basis or more frequently if necessary to yield at least 12 samples per site each year.*

Samples at both monitoring sites were taken at most SIX times each year. This indicates a direct contradiction of monitoring procedure within the TMDL report. This contradiction must be investigated and resolved before the results of this TMDL are accepted.

Response:

Response to comment #2 at left: Concern was raised with regard to the number of samples used to generate this TMDL. In order to meet Court appointed deadlines for completion of these TMDLs, EPA was limited to using all existing and readily available data that it had at its disposal. The data used to develop these TMDLs were the only existing data that EPA could locate. At present and in the future, the Louisiana Department of Environmental Quality (LDEQ) will monitor water quality stations within river basins on a rotating basis at frequencies stated in the TMDL report. Water quality stations within the Vermilion-Teche River Basin were last sampled in 1998 and will be sampled again, on a monthly basis, in 2003.

III. Threats to fish and wildlife

Fish and wildlife may not be affected by an *average* TDS instream concentration. However, it appears to have been predetermined that a TDS concentration over 100 mg/l poses an ecological threat to fish and wildlife. There is evidence which indicates that these organisms are being exposed to levels double this concentration. This can not be ignored.

The TMDL report suggests that *additional* TDS loads may be added to Bayou Cocodrie without exceeding the TMDL. The determination that more pollutants (to be specific, 29,030.54 lbs/day) could be added to the watershed before exceeding the criterion waste load of 127,613.64 lb/day neglects the fact that about 30% of samples at both monitoring stations exceeded the total daily maximum load of 100 mg/l. If the load was indeed increased, a far greater threat to fish and wildlife resources would result since it is the *day-to-day* TDS concentration that affects these organisms, not the TDS concentration value that represents a three-year running average.

In closing, subsegments 060201 and 060202 were NOT originally listed on the court ordered 303(d) lists, but after review by the EPA, the Bayou Cocodrie TMDL report was ranked *high priority*. Please make sure that Bayou Cocodrie remains a high priority in the remediation of its water quality problems, rather than ignoring the high TDS concentrations that pose a risk to the water's fish and wildlife.

Thank you for considering these comments.

Respectfully submitted,

Cynthia Goldberg

Cynthia Goldberg
Grassroots Program Director
Gulf Restoration Network

Response:

Response to comment #3 at left: Louisiana water quality standards state that numerical criteria for total dissolved solids, sulfates, and chlorides "generally represent the arithmetic mean of existing data from the nearest sampling location plus three standard deviations."

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GULF RESTORATION NETWORK

Working to Protect and Preserve the Gulf of Mexico

839 St. Charles Ave., Suite 309 · New Orleans, LA 70130
Mailing Address: P.O. Box 2245 · New Orleans, LA 70176
Phone: (504) 525-1528 · Fax: (504) 525-0833

December 11, 2000

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Ellen Caldwell
Environmental Protection Specialist
Water Quality Protection Division
U.S. Environmental Protection Agency
Region 6
1445 Ross Ave.
Dallas, TX 75202-2733

Re: Bayou Teche TMDL for Chloride (subsegment 060205), Bayou Teche TMDL for Sulfate (subsegment 060205), Vermilion River TMDL for Sulfate (subsegments 060801 and 060802), White Lake TMDL for Total Dissolved Solids (subsegment 050703)

Dear Ms. Caldwell,

On behalf of the Gulf Restoration Network (GRN) I submit the following comments regarding the total maximum daily loads (TMDLs) on the above mentioned water segments which are the subject of a recent federal register notice by your agency. The GRN is a diverse coalition of 44 local, regional, and national organizations concerned about the short and long-term health of the Gulf of Mexico, and committed to restoring it to an ecologically and biologically sustainable condition. Members of the Network are located in each of the states along the Gulf of Mexico.

The GRN has serious concerns regarding the U.S. Environmental Protection Agency's (EPA) and Louisiana Department of Environmental Quality's (LDEQ) efforts to address water quality in segments throughout the Vermilion-Teche River Basin. Specifically, the TMDLs for the above-mentioned subsegments do not satisfy the requirements of § 303(d) of the Clean Water Act, applicable federal regulations or TMDL Guidance documents of the EPA for the following reasons:

I. Insufficient Sampling of Pollutant Concentrations

Data for the Total Dissolved Solids (TDS) concentrations for White Lake, subsegment 050703, were taken only *every other month* between January 1995 and April 1998. On page 7 of the TMDL report it is stated that "sampling is conducted on a monthly basis or more frequently if necessary to yield at least 12 samples per site each year." However, this TMDL lists only 6 samples per year, only half of the number of samples required to abide by TMDL reporting methodology.

Response:

Response to comment #1 at left and corresponding page: Concern was raised with regard to the number of samples used to generate these TMDLs. In order to meet Court appointed deadlines for completion of these TMDLs, EPA was limited to using all existing and readily available data that it had at its disposal. The data used to develop these TMDLs were the only existing data that EPA could locate. At present and in the future, the Louisiana Department of Environmental Quality (LDEQ) will monitor water quality stations within river basins on a rotating basis at frequencies stated in the TMDL report. Water quality stations within the Vermilion-Teche and Mermentau River Basins were last sampled in 1998 and will be sampled again, on a monthly basis, in 2003.

The TMDL reports for Bayou Teche (for both chloride and sulfate) and Vermilion River only provide data for the summer and fall of 1998. Data from the remaining parts of the year are not included in the TMDL reports, despite the fact that the pollutant standard for all three TMDLs is for January through December. In particular:

- The Bayou Teche TMDL for chloride only includes data from June17, 1998 to December 2, 1998. More than 6 months of data are missing.
- The Bayou Teche TMDL for sulfate only includes data from June 17, 1998 to December 2, 1998. Again, more than 6 months of data are missing.
- The Vermillion River TMDL for sulfate only includes data from June 17, 1998 to November 17, 1998. Seven months of data are not included in this report.

The load reductions that were calculated for each of these three TMDL reports are not representative of the pollutant concentrations that exist over a one-year time period. Pollutant concentrations need to be sampled during the winter and spring seasons to accurately assess the pollutant load reductions in each water body segment.

II. Inappropriate load reduction of 0.00 lb/day for the Bayou Teche TMDL report for chloride

A TMDL report for Bayou Teche, subsegment 060205, was created for chloride because 33% of the sample concentrations exceeded the water quality standard of 40 mg/L. The TMDL report, however, concludes that no reductions are necessary due to the fact that the average chloride concentration in subsegment 060205 of 34.13 mg/L is less than the criterion value. On page 7 of the report, 24,103 lb/day are designated as a "reserve load", indicating that an additional 24,103 lb/day may be added to Bayou Teche without exceeding the total maximum daily load. This reasoning is flawed for the following reasons:

1) The TMDL was created to help resolve a documented water quality problem in Bayou Teche. The report should in no way conclude or allude to the fact that *more* pollutants may be added to the water body.

2) Over 30% of the samples taken at Bayou Teche were over the 40 mg/L standard and 5 other samples were within 25% of the 40 mg/L standard. These values indicate that 75% of the samples are either exceeding or approaching the water quality standard for fish and wildlife propagation. In order to resolve this water quality problem, pollutant loads need to be *reduced*, not *increased* in the near future.

In order to provide full remediation of the lakes and water bodies listed on the 303(d) list, the *average* pollutant concentration at a particular monitoring site cannot be used in the calculation of the load reduction. All too often, the average pollutant concentration falls below the water quality standard set by the state and the water body is excused from point source and non-point source load reductions. The following are suggestions on how data

Response:

Response to comment #2 at left and corresponding page: Louisiana water quality standards state that numerical criteria for total dissolved solids, sulfates, and chlorides "generally represent the arithmetic mean of existing data from the nearest sampling location plus three standard deviations."

The rationale for using average concentration to calculate the current loading is consistent with the water quality criteria for chloride, sulfate, and TDS adopted by LDEQ. The water quality criteria for these parameters are based on the arithmetic mean of existing data from the nearest sampling location plus three standard deviations. The water quality criteria include three standard deviations which represent the variability of the mean concentration on a long-term basis. Therefore, the current loading represents the average loading measured at the monitoring station based on readily available data.

EPA used water quality criteria to calculate TMDLs and WLAs because the water quality criteria are the maximum allowable ambient concentrations. Use of such criteria also provide for the most conservative approach as it is assumed that dilution is zero. The TMDLs are also viewed as the maximum assimilative capacity of the stream above background.

Whenever the average concentration is lower than the water criteria, the current loadings should be lower than the TMDL. As a result, no load reduction is needed. Although the average concentration is below the water quality criterion, some of the individual measurements could be above the water quality standards just due to the statistical chance and temporal and spatial variability in the measurements not accounted for in establishing the water quality criteria.

Although no load reduction will be required as a result of the TMDLs for Bayou Cocodrie (TDS) and Bayou Teche (chlorides), no increase in loads via point and/or non-point sources will be allowed until additional data clearly demonstrate that the criteria are not being exceeded in greater than 30% of the measurements in either of these water bodies. This has been clearly indicated in both of these documents.

can be used to determine current loads and load reductions that would better address water quality problems:

1) Use a weighted average to represent the overall pollutant concentration. It would be appropriate to weigh those data values that exceed the criterion with more importance than those which fall well below the standard value. A sample equation for calculating an overall pollutant concentration, **X**, is:

X = [**Sum**(all concentrations below criterion) + **Sum**(all concentrations above criterion) + $m\Sigma^{n}_{i=1}$ (concentration above criterion$_i$-criterion)]/(total number of data points)

where n is the number of data points above the criterion value and m is a multiplier less than 1.

2) If over 30% of the data points exceed the criterion value, use only the data values above the criterion value in calculating the average pollutant concentration. By using this value, it is assured that a load reduction greater than 0.00 lbs/day will be assigned to the water body if there is a significant percentage of samples with chloride concentrations that exceed the water quality standard.

If new methods to address the problem of assigning 0.00 lbs/day reduction when a significant proportion of samples are over the criterion value are not implemented, the TMDL process serves no useful purpose. We would suggest the two methods listed above as possible solutions to this problem.

Thank you for considering these comments.

Sincerely,

Cynthia Goldberg

Cynthia Goldberg
Grassroots Program Director
Gulf Restoration Network

Response:

State of Louisiana

Department of Environmental Quality

M.J. "MIKE" FOSTER, JR.
GOVERNOR

J. DALE GIVENS
SECRETARY

December 1, 2000

Ms. Ellen Caldwell (6WQ)
Water Quality Protection Division
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Comments on TMDLs for Louisiana Waterbodies
Federal Register Notice November 13, 2000

Dear Ms. Caldwell:

The Louisiana Department of Environmental Quality has reviewed the TMDLs prepared by Region 6 EPA for waterbodies in the Mermentau and Vermilion-Teche River Basins of Louisiana noticed in the November 13, 2000 Federal Register (Volume 65, Number 219). These include TMDLs for White Lake, Vermilion River, Bayou Teche, Bayou Cocodrie, and Indian Creek Reservoir. The Department's comments regarding these TMDLs are enclosed.

Sincerely,

Emelise Cormier

Emelise Cormier
Environmental Technology Division

Cc (w/attachments):
Barbara Romanowsky, LDEQ/EED
Emelise Cormier, LDEQ/ETD

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Responses to comments can be found below.

COMMENTS RE: TMDLs
POSTED IN FEDERAL REGISTER NOVEMBER 13, 2000

Comments on Bayou Teche TMDL for Sulfate

(1) Comment: Subsegment 060205 no longer exists. Subsegment 060301 has been extended to encompass the reach that was formerly covered by subsegment 060205. Any discussion below will be in terms of the original subsegments.

(2) Comment: The data in Appendix A is from a site that is in subsegment 060301, not 060205. Therefore, the water quality data do not correspond to the subsegment mentioned in the report.

(3) Page 3, third paragraph: "…to exceed 250, 259, and 500 mg/l for chloride, sulfate, and TDS…" Comment: The second number is incorrect.

(4) Page 3, fourth paragraph: "Six months (June, 1998 – December, 1998)…" Comment: Seven months were assessed. This also needs to be changed on page 6, second paragraph.

(5) Comment: How recent is the discharger list in Table 2, page 5? Some of the permit numbers and flows do not match a list compiled by LDEQ last year. Also, some facilities listed in Table 2 are not in subsegment 060205.

(6) Comment: 47 years of flow data were used. The last 5 years of data would be more representative of the current conditions in Bayou Teche. For future reference, be aware that there are two distributaries south of the USGS station at Arnaudville; therefore, the station at Arnaudville will not be representative of the flows downstream of the distributaries.

(7) Comment: Page 9, first reference: Is this reference supposed to be listed for this sulfate TMDL?

Comments on Bayou Teche TMDL for Chloride

(1) Comment: Subsegment 060205 no longer exists. Subsegment 060301 has been extended to encompass the reach that was formerly covered by subsegment 060205. Any discussion below will be in terms of the original subsegments.

(2) Comment: The data in Appendix A is from a site that is in subsegment 060301, not 060205. Therefore, the water quality data do not correspond to the subsegment mentioned in the report.

(3) Page 3, third paragraph: "…to exceed 250, 259, and 500 mg/l for chloride, sulfate, and TDS…" Comment: The second number is incorrect.

Bayou Teche TMDL for Sulfate

(1) Subsegment 060205 has been combined with the same TMDL written for subsegment 060301. Both subsegments now have the same TMDL as we are aware that subsegment 060301 was extended to include subsegment 060205.

(2) Since the TMDL for subsegment 060205 was combined with the TMDL for subsegment 060301, the data in Appendix A represents water quality for the entire subsegment as it is located at the furthest point downstream in subsegment 060301.

(3) "259" has been corrected to read "250".

(4) Both of these corrections have been made in the TMDL.

(5) In the TMDL for subsegment 060301 (which is inclusive of subsegment 060205), the discharger list has been modified to exclude facilities not discharging to Bayou Teche and to include dischargers which discharge to both 060301 and the former 060205. Based on information provided by LDEQ, the number of dischargers in this subsegment has been changed from 21 to 16 (see Table 2 of final document). Also, the explicit 25% margin of safety originally added to the design flows has been removed. In this TMDL, the margin of safety is implicit. WLAs have been adjusted to reflect these changes in the number of dischargers and associated design flows.

(6) Based on flow information provided by LDEQ, the average flow has been adjusted from 885cfs to 760cfs. This flow value takes into account the reduction of flow between Arnaudville and Breaux Bridge (See appendix B of final TMDL report). The TMDL has been adjusted accordingly with this change in flow used in the calculation. However, the load reduction remains at 14.5%.

(7) The cited reference has been removed from the reference section for this TMDL.

Bayou Teche TMDL for Chloride

(1) Subsegment 060205 has been combined with the same TMDL written for subsegment 060301. Both subsegments now have the same TMDL as we are aware that subsegment 060301 was extended to include subsegment 060205.

(2) Since the TMDL for subsegment 060205 was combined with the TMDL for subsegment 060301, the data in Appendix A represents water quality for the entire subsegment as it is located at the furthest point downstream in subsegment 060301.

(3) "259" has been corrected to read "250".

(4) Page 3, fourth paragraph: "Six months (June, 1998 – December, 1998)…" Comment: Seven months were assessed. This also needs to be changed on page 6, second paragraph.

(5) Comment: How recent is the discharger list in Table 2, page 5? Some of the permit numbers and flows do not match a list compiled by LDEQ last year. Also, some facilities listed in Table 2 are not in subsegment 060205.

(6) Comment: 47 years of flow data were used. The last 5 years of data would be more representative of the current conditions in Bayou Teche. For future reference, be aware that there are two distributaries south of the USGS station at Arnaudville; therefore, the station at Arnaudville will not be representative of the flows downstream of the distributaries.

(7) Comment: Page 10, first reference: Is this reference supposed to be listed for this chloride TMDL?

Comments on White Lake TMDLs for Chlorides and TDS
Subsegment 050703

1. The TMDLs are based on average flow rather than harmonic mean flow as called for by LDEQ regulations for chlorides, sulfates, and TDS.

2. The flow used in the calculation of the TMDLs is limited to stormwater run-off from Subsegment 050703, the immediate White Lake watershed. The TMDLs do not account for the flow from the Mermentau Basin, all of which flows through Grand Lake to the Gulf of Mexico through the Catfish Point and Schooner Bayou control structures. The portion of that flow which flows through the Schooner Bayou structure must, of necessity, flow through White Lake.

   The harmonic mean White Lake flow may be estimated as the harmonic mean flow from the Mermentau Basin at the Intracoastal Waterway (2,780 sq mi) plus the harmonic mean run-off from the Grand and White Lake watersheds (Subsegments 050701 and 050703) less evaporation in Grand and White Lakes and the discharge from the Catfish Point control structure. It is acceptable to LADEQ to assume that the average flow through the Schooner Bayou control structure is half the flow through the Catfish Point control structure. There are six USGS sites in the Mermentau Basin, including the site on Bayou des Cannes at Eunice, for which recent flow data are available to assist in the calculation of harmonic mean flow for the Mermentau Basin at the ICWW.

3. Bayou des Cannes at Eunice is not a representative reference site for flow in White Lake. A simple site-specific water budget (for which climatological data is available) would be acceptable. That approach would also be appropriate for Grand Lake.

Bayou Teche TMDL for Chloride continued

(4) Both of these corrections have been made in the TMDL.

(5) In the TMDL for subsegment 060301 (which is inclusive of subsegment 060205), the discharger list has been modified to exclude facilities not discharging to Bayou Teche and to include dischargers which discharge to both 060301 and the former 060205. Based on information provided by LDEQ, the number of dischargers in this subsegment has been changed from 21 to 16 (see Table 2 of final TMDL report). Also, the explicit 25% margin of safety originally added to the design flows has been removed. In this TMDL, the margin of safety is implicit. WLAs have been adjusted to reflect these changes in the number of dischargers and associated design flows.

(6) Based on flow information provided by LDEQ, the average flow has been adjusted from 885cfs to 760cfs. This flow value takes into account the reduction of flow between Arnaudville and Breaux Bridge (See appendix B of final TMDL report). The TMDL has been adjusted accordingly with this change in flow used in the calculation. However, the load reduction remains at 0%.

(7) The cited reference has been removed from the reference section for this TMDL.

White Lake TMDLs for Chlorides and TDS (Subsegment 050703)

(1) To address this comment EPA cites the following:

LAC 33:IX.1115.B. Flow Conditions. Except where indicated elsewhere in this Chapter, the water quality standards specified herein shall apply during all flow conditions greater than the critical flows defined in LAC 33:IX.1115.C.

LAC 33:IX.1115.C.8. For chlorides, sulfates, and total dissolved solids (TDS), criteria are to be met below the point of discharge after complete mixing. Because criteria are developed over a long-term period, harmonic mean flow will be applied for mixing.

EPA's interpretation of these regulations are that harmonic mean flow is recommended to calculate dilution due to headwater flow below the point of discharge after complete mixing. However, in calculating WLAs for individual point source dischargers, dilution due to headwater is assumed to be zero (i.e., no mixing zone was allowed) and the water quality standards should be met at the end-of-pipe . Since the TMDLs require that the point sources and the non-point sources should meet the water quality standards at the point of discharge, the ambient water quality standards will be met at all flow conditions greater than the critical flows. The average flow used in the TMDLs with zero dilution provides a conservative level of protection at or above the harmonic mean flow which allows dilution.

(2) and (3) EPA appreciates the comments. EPA will recalculate flow values as necessary during the implementation phase of these TMDLs.

4. The margin of safety for the TMDLs has been assumed to be covered by the conservative assumptions of the TMDL calculations. This would be acceptable if the TMDL calculations were acceptable.

5. Implementation is not addressed in these TMDLs. In this case, the operation of the Catfish Point and Schooner Bayou control structures controls chlorides and TDS in White Lake. The TMDLs should include a statement as to how it is proposed that the chlorides and TDS criteria will be met.

Comments on Indian Creek and Indian Creek Reservoir TMDL for Temperature

The TMDL report provides a rationale for the calculation of a total thermal load allocation for nonpoint sources, and a total maximum daily thermal load for the subsegment. This TMDL is not acceptable for the reasons stated below.

1. The system is dominated by the reservoir and LDEQ agrees that the calculation of a temperature TMDL for the reservoir alone will adequately represent the Indian Creek system. However, the calculation of the TMDL / LA makes no sense at all. The heat content of the lake should be calculated from zero degrees Kelvin rather than zero degrees Centigrade. When calculated that way, the percent reduction in heat content required to meet criteria is 0.36 percent. The percent reduction in heat load required to drop the heat content of the reservoir by 0.36 percent must be determined by a heat balance that includes the three processes for transfer of heat: conduction, radiation, and evaporation.
2. Temperature (thermal load) must be treated as a non-conservative pollutant that is affected by evaporative, conductive, and radiative losses. Temperature can be modeled for calculation of a TMDL by the EPA supported model QUAL2E, which provides a detailed temperature and heat balance summary with the final output.
3. The calculation is based on an average flow rate for the watershed. The state has determined that the appropriate critical flow for a temperature TMDL is the critical low flow that is also used in the development of a dissolved oxygen TMDL. The critical low flow of the Indian Creek watershed is addressed by the Bayou Boeuf TMDL.
4. Evaporation from the reservoir is not addressed. Almost all of the critical low flow from the watershed evaporates from the reservoir. The Bayou Boeuf TMDL addresses evaporation from Indian Creek Reservoir at critical summer temperature conditions. QUAL2E will address evaporation in conjunction with a flow/temperature model.
5. The margin of safety for the TMDL has been assumed to be covered by the conservative assumptions of the TMDL calculations. This would be acceptable if the TMDL calculations were acceptable.
6. Implementation is not addressed in this TMDL. Where there are no point sources, implementation is limited to best management practices for the control of non-point pollution. The TMDL should include a statement as to how it is proposed that the temperature criteria be met.

(4) We appreciate the comment, but EPA believes the TMDL calculations are acceptable. As such, EPA also believes the margin of safety for these TMDLs is covered by the conservative assumptions of the TMDL calculations.

(5) On July 14, 2000, President Clinton signed the Military Construction Appropriations Bill which includes a rider prohibiting the obligation or expenditure of funds made available for fiscal years 2000 and 2001 to implement the new TMDL rule. Because implementation plans, and the development and/or approval by EPA of implementation plans is part of the new TMDL rule, it is EPA's interpretation that implementation will not be included in EPA developed TMDLs. Therefore this TMDL will not address how Catfish Point and Schooner Bayou control structures will be operated to implement the White Lake TMDL.

Comments on Indian Creek and Indian Creek Reservoir TMDL for Temperature

(1)EPA appreciates the comment. However, EPA believes the use of degrees C or degrees Kelvin is immaterial to the outcome of this TMDL. The difference in % load reduction using degrees Kelvin is due to the mathematical factor used to convert units from degrees C to degrees Kelvin. No real improvement to the TMDL or current load estimate is apparent using degrees Kelvin. Also, EPA assumes that the three processes for transfer of heat: conduction, radiation, and evaporation, effectively cancel each other out and do not factor into the heat load reduction calculation.

(2) Once again, EPA assumes that the three processes for transfer of heat: conduction, radiation, and evaporation, effectively cancel each other out and do not factor into the heat load reduction calculation. Also, EPA does not agree that QUAL2E is an appropriate model for use in lakes.

(3) EPA believes that use of the average flow is appropriate in this TMDL.

(4) Once again, EPA assumes that the three processes for transfer of heat: conduction, radiation, and evaporation, effectively cancel each other out and do not factor into the heat load reduction calculation. Also, EPA does not agree that QUAL2E is an appropriate model for use in lakes.

(5) We appreciate the comment, but EPA believes the TMDL calculations are acceptable. As such, EPA also believes the margin of safety for these TMDLs is covered by the conservative assumptions of the TMDL calculations.

(6) On July 14, 2000, President Clinton signed the Military Construction Appropriations Bill which includes a rider prohibiting the obligation or expenditure of funds made available for fiscal years 2000 and 2001 to implement the new TMDL rule. Because implementation plans, and the development and/or approval by EPA of implementation plans is part of the new TMDL rule, it is EPA's interpretation that implementation will not be included in EPA developed TMDLs.

Comments on EPA's Bayou Cocodrie TMDL for Total Dissolved Solids (TDS) for Subsegments 060201 and 060202

Summary:
The procedure used by EPA in calculating this TMDL is not consistent with the LDEQ methodology used for the TMDL for dissolved copper in Subsegment 060201. The EPA procedure is flawed in five (5) ways: (1) It does not take the headwater flow or load into consideration; (2) Average flows were used for the TMDL determination when the LDEQ regulations require a harmonic mean as the critical flow for TDS; (3) The method used to calculate the WLA load, only acknowledged the point source load inputs without determining the point source load removals from the bayou. Also by assigning the one listed discharger the entire WLA, additional dischargers can not be added; (4) Due to the assignment of the TDS criteria to the point source, an equitable reduction was not made between the point and nonpoint source dischargers; (5) A margin of growth was not taken into consideration for the point and nonpoint sources.

Noted problems:

1. Page 3, 2nd paragraph: Subsegment 060202 flows from the Cocodrie Diversion Canal to its intersection with Bayou ~~Cocodrie~~ Boeuf.

2. Page 4, 1st paragraph: LDEQ disagrees with the proposed TMDL values and the percentage nonpoint reductions. The listed additional TDS load shown in this paragraph is not shown in the calculations. Also the average flow was stated as the critical flow, whereas the Louisiana Water Quality Regulations (**33:IX .1115.C.8**) require the harmonic mean flow.

3. Table 1 shown on page 5: The total land use acreage listed for segment 0602 in the table equals 15,190 acres. LDEQ's 1993 Non-point Source Pollution Assessment Report listed the total acreage for segment 0602 as 1,054,665 acres.

4. Paragraph 2.2 on page 5: ~~Louisiana's water quality standard for TDS is 100 mg/l (Subsegments 060201 and 060202).~~ Louisiana's water quality standard for TDS in subsegments 060201 and 060202 is 100 mg/l.

5. Section 2.3, 1st paragraph on page 6: The paragraph describes a single point source discharging treated sanitary wastewater. The paragraph then lists the flow from this discharger as 118 million gallons per day (mgd). However, the only point source listed in Appendix B is Cleco Coughlin power station. While this power station probably has some sanitary wastewater, cooling water is probably its primary discharge. This is very misleading.

6. Section 3.1, paragraph 5 on page 6: The average flow was stated as the critical flow where the Louisiana Water Quality Regulations (**33:IX .1115.C.8**) require the harmonic mean flow. Also the average flow listed for the subsegments 060201 and 060202 was based on the average runoff and drainage area for these subsegments only. It did not take

Bayou Cocodrie TMDL for TDS (Subsegments 060201 and 060202)

The summary comments at left appear to have been iterated more explicitly by those comments enumerated under "Noted problems". Therefore, EPA will address only the enumerated comments below.

(1) This correction has been made to the TMDL report.

(2) The additional TDS load listed in the Executive Summary was removed from this TMDL report. The WLAs and LAs were re-calculated based on the current load, as opposed to the TMDL (see Section 3). Although no load reduction will be required as a result of this TMDL, no increase in loads via point and/or non-point sources will be allowed until additional data clearly demonstrate that the criteria are not being exceeded in greater than 30% of the measurements in this water body. This has been clearly indicated in Section 3 of this report.

To address the comment concerning average flow, EPA provides the following:

LAC 33:IX.1115.B. Flow Conditions. Except where indicated elsewhere in this Chapter, the water quality standards specified herein shall apply during all flow conditions greater than the critical flows defined in LAC 33:IX.1115.C.

LAC 33:IX.1115.C.8. For chlorides, sulfates, and total dissolved solids (TDS), criteria are to be met below the point of discharge after complete mixing. Because criteria are developed over a long-term period, harmonic mean flow will be applied for mixing.

EPA's interpretation of these regulations are that harmonic mean flow is recommended to calculate dilution due to headwater flow below the point of discharge after complete mixing. However, in calculating WLAs for individual point source dischargers, dilution due to headwater is assumed to be zero (i.e., no mixing zone was allowed) and the water quality standards should be met at the end-of-pipe . Since the TMDLs require that the point sources and the non-point sources should meet the water quality standards at the point of discharge, the ambient water quality standards will be met at all flow conditions greater than the critical flows. The average flow used in the TMDLs with zero dilution provides a conservative level of protection at or above the harmonic mean flow which allows dilution.

(3) Table 1 has been corrected to reflect land use acreages for segment 0602 as listed in LDEQ's 1993 Non-point Source Pollution Assessment Report.

(4)This correction has been made to the TMDL report.

(5) The reference to sanitary wastewater has been removed from this paragraph in Section 2.3.

(6) We refer to the response to comment #2 above in response to the comment regarding EPA's use of average flow as opposed to harmonic mean flow.

In response to the comment concerning calculation of average flow in these subsegments, EPA will recalculate flow values as necessary during the implementation phase of these TMDLs.

into consideration the flow coming from the headwaters at Lake Cocodrie or any point source flow additions or removals.

7. Sections 3.2-3.4, pages 6-7: The TMDL calculations are flawed based on the following:
   A. The average flow was used instead of the harmonic mean flow as required by Louisiana regulations.
      1. A harmonic mean could be determined for these subsegments using two USGS historical daily flow stations located at Bayou Cocodrie near Clearwater, as it leaves Cocodrie Lake, USGS site #07382000 and Bayou Courtableau at Washington, La, includes Bayou Cocodrie and Bayou Bocuf, USGS site #07382500. Data for these sites can be downloaded off the internet from the USGS historical data site: www://waterdata.usgs.gov/nwis/LA/search.components/textsearch.cgi?mode=basin".
      2. The flow from Cocodrie Lake is a controlled flow by the dam at the outlet of the lake into Bayou Cocodrie and is not typical to the adjoining drainage area. Because of this fact, the Cocodrie Lake outlet flow and drainage area should be removed from the cumulative determined harmonic mean flow and drainage area for Bayou Courtableau at Washington, when calculating an average harmonic mean to drainage area ratio for the drainage area.
   B. All of the WLA load is assigned to one discharger, disregarding any additional current discharger as well as future dischargers.
   C. A margin of growth was not applied to the point source WLA or nonpoint LA loads. See comments in Section 8 below.
   D. EPA states that there would be no reduction in nonpoint loading required to meet this TMDL. However the load listed in Section 3.4 equates to a nonpoint TDS concentration of 22.9 mg/l based on the average runoff flow entering the subsegments. If the Lake Chicot LDEQ water quality site is used as a representative site for T.D.S. nonpoint runoff. Its average T.D.S. concentration of 75 mg/l would mean a considerable reduction in nonpoint loading based on EPA's calculations.
   E. Due to the assignment of the T.D.S. criteria as the point source critical T.D.S. concentration along with an inaccurate flow determination (See Section 7.G.2 below), an equitable load reduction was not made between the point and nonpoint source dischargers.
   F. Headwater LA loads were not accounted for in the calculations.
   G. When calculating the critical flows for the subsegments the headwater and point source flows were not considered in the calculations.
      1. The headwater to these subsegments is Cocodrie Lake. The flow at the outlet from the lake is regulated by a dam. A harmonic mean can be determined for the lake outlet using the long-term USGS daily flow measurement station located at the outlet.
      2. The TMDL acknowledges a point source flow of 118 mgd but does not add it to the critical flow. This is appropriate, in this situation, because the discharger in question uses Bayou Cocodrie water as its process water and then discharges it back into the bayou upstream of the intakes. During

(7)(A) We refer to the response to comment #2 above in response to the comment regarding EPA's use of average flow as opposed to harmonic mean flow.

(7)(A)(1) and (2) EPA believes that because we are looking at average ***annual*** streamflow, and assuming that outflow from Cocodrie Lake is equal to inflow ***over the long term***, the average flow used in this TMDL appropriately accounts for headwater flows (including Cocodrie Lake) on an annual basis.

(7)(B) The entire WLA was allocated to one discharger because this was the only discharger that could be located in this subsegment. No other dischargers have been provided with LDEQ's comment so we must still assume that this is the only discharger present. As stated in the TMDL report, there will be a need to include TDS limits in permit requirements based upon a wasteload allocation resulting from this TMDL unless it can be demonstrated that TDS is not present in the discharger's effluent. If, as LDEQ has indicated, there is little or no TDS being discharged in the listed discharger's effluent, wasteloads can be taken from the stated WLA and reserved for future growth in the area. This consideration should be addressed during the implementation phase of this TMDL.

(7)(C) EPA believes that conservative assumptions should allow for future growth during the implementation phase of this TMDL. If, as LDEQ has indicated, there is little or no TDS being discharged in the listed discharger's effluent, wasteloads can be taken from the stated WLA and reserved for future growth in the area.

(7)(D) EPA does not believe WQ site #0312 (Lake Chicot north of Ville Platte) is representative of these subsegments as it is not on the mainstem of Bayou Cocodrie, is located within subsegment 060302, and is a lake station.

(7)(E) EPA believes more equitable WLAs and LAs may be achievable during the implementation phase of these TMDLs when the existing TDS discharge concentrations from point sources are known. If, as LDEQ has indicated, there is little or no TDS being discharged in the listed discharger's effluent, wasteloads can be taken from the stated WLA and reserved for future growth in the area or re-allocated to non point sources.

(7)(F) EPA believes that the instream concentration of 96.22 mg/l adequately accounts for headwater loads.

(7)(G)(1) EPA believes that because we are looking at average ***annual*** streamflow, and assuming that outflow from Cocodrie Lake is equal to inflow ***over the long term***, the average flow used in this TMDL appropriately accounts for headwater flows (including Cocodrie Lake) on an annual basis.

(7)(G)(2) EPA appreciates the comment and will consider this approach in the future during implementation of this TMDL.

summer critical conditions there is a negative net change in flow to the bayou. To calculate the bayou's WLA TDS net load increase or decrease would require a historical review of the discharger's DMR loads compared to its intake TDS loads.

H. Section 3.3 of page 7 talks about point source discharges of treated sanitary wastewater. However, the only point source listed in Appendix B is Cleco Coughlin power station. While this power station probably has some sanitary wastewater, cooling water is probably its primary discharge. Why would EPA talk about sanitary wastewater in section 3.3?

I. EPA's calculation says no reduction is required. However, on page 7 (section 3.3) EPA is saying point sources need TDS limits, and it suggests the limit for point sources needs to be 100 mg/L. Do point sources need TDS limits, and must the limit for point sources be 100 mg/L?

8. Section 3.6, page 8: Using conservative approaches can imply an implicit margin of safety, but it does not consider the margin of growth for the point or nonpoint loading. Since there is a power plant and a community nearby it would be reasonable to assume that additional industry may move into the area. Also the high percentage of forested lands could mean there are available lands for farming and/or urban growth. These facts indicate that point and nonpoint margins of growth are warranted for these subsegments and should be included in the calculations.

Comments Vermilion River TMDL For Sulfate, Subsegments 060801 and 060802

General: This TMDL is unacceptable. It does not conform to the regulatory requirements for assessing sulfates at the harmonic mean flow. The sources of input data for this TMDL are not adequately documented. An adequate margin of safety was not used in the establishment of the TMDL. Numerous point source and nonpoint sources of sulfates were not identified and received no allocations in the TMDL.

1. Page 3, Executive Summary, third paragraph, fourth sentence: The sulfate maximum value is misquoted. It should be 250 mg/l, not 259 as shown.

2. Page 3, Executive Summary: Errors in the TMDL discussed below including using an inappropriate data station on Ruth Canal, using average flow rather than harmonic mean flow, using an out of date list of point sources, etc. are reflected in the Executive Summary and need to be corrected.

3. Page 5, Study Area Description: What is the source of information for your statement that corn, soybeans, and milo are the primary crops in the Basin? The latest imagery we have is from 1990 and shows soybeans, sugarcane, and rice as the 3 primary crops. A copy of the land use map is attached for your information.

(7)(H) We expanded the possibility for the discharge to be something other than sanitary wastewater in section 3.3 given the probability that the discharger primarily discharges cooling water. However, it has been stated in Section 3.3 that there will still be a need to include TDS limits in permit requirements based upon a wasteload allocation resulting from this TMDL unless it can be demonstrated that TDS is not present in discharger effluent.

(7)(I) There will be a need to include TDS limits in permit requirements based upon a wasteload allocation resulting from this TMDL unless it can be demonstrated that TDS is not present in discharger effluent. The limit to be used in the 100mg/l criterion concentration that must be met at end-of-pipe in order for water quality standards to be met.

(8) EPA believes that conservative assumptions should allow for future growth during the implementation phase of this TMDL. If, as LDEQ has indicated, there is little or no TDS being discharged in the listed discharger's effluent, wasteloads can be taken from the stated WLA and reserved for future growth in the area.

Vermilion River TMDL for Sulfate (Subsegments 060801 and 060802)

(1) "259" has been corrected to read "250".

(2) Although the water quality station on Ruth Canal was listed as a data source in the draft TMDL, it was not used to develop the TMDL. All references to this water quality station throughout this report have been removed.

To address the comment regarding the use of the average flow as opposed to the harmonic mean flow, EPA cites the following:

LAC 33:IX.1115.B. Flow Conditions. Except where indicated elsewhere in this Chapter, the water quality standards specified herein shall apply during all flow conditions greater than the critical flows defined in LAC 33:IX.1115.C.

LAC 33:IX.1115.C.8. For chlorides, sulfates, and total dissolved solids (TDS), criteria are to be met below the point of discharge after complete mixing. Because criteria are developed over a long-term period, harmonic mean flow will be applied for mixing.

EPA's interpretation of these regulations are that harmonic mean flow is recommended to calculate dilution due to headwater flow below the point of discharge after complete mixing. However, in calculating WLAs for individual point source dischargers, dilution due to headwater is assumed to be zero (i.e., no mixing zone was allowed) and the water quality standards should be met at the end-of-pipe . Since the TMDLs require that the point sources and the non-point sources should meet the water quality standards at the point of discharge, the ambient water quality standards will be met at all flow conditions greater than the critical flows. The average flow used in the TMDLs with zero dilution provides a conservative level of protection at or above the harmonic mean flow which allows dilution.

The list of point sources has been changed to reflect those listed in LDEQ's *1999 Review and Assessment of the 1987 Vermilion River Watershed TMDL for Dissolved Oxygen.* WLAs have been changed to reflect this change.

(3) The list of primary crops in the Basin have been changed in the TMDL report to reflect those listed.

4. Page 5, Study Area Description: What is the source for your average annual rainfall of 57 inches? Information on the Louisiana Office of State Climatology website indicates that the average annual precipitation in the Lafayette area is 58.36 inches.

5. Page 5, Study Area Description: The land uses cited in Table 1 are for all of Segment 0608, not just subsegments 060801 and 060802.

6. Page 6, Water Quality Standards: The waters are also designated for agriculture use in addition to the uses cited.

7. Page 6, Identification of Sources: For consistency you should have cited the October 28, 1999 Court Ordered 303(d) List instead of the 1998 Louisiana Water Quality Inventory. There are several other potential sources shown on the court ordered list which should have been listed in addition to "unknown sources".

8. Page 6, Point Sources: The point sources used are out of date. Many of them no longer exist. The TMDL should have been based on at least the 139 dischargers with a total flow of 47.69 cfs identified in LDEQ's *1999 Review and Assessment of the 1987 Vermilion River Watershed TMDL for Dissolved Oxygen*. Since EPA is treating sulfates as a conservative substance and dissolved oxygen is a non-conservative substance, EPA should have reviewed the entire list of dischargers in the two subsegments to establish point sources of sulfates. There are probably numerous sources of sulfates which are not sources of oxygen demand since potable water criteria for sulfates is only 250 mg/l. Numerous industries and commercial establishments discharge cooling and other process waters which are not oxygen demanding sources but could be sulfate sources if the potable water source exceeds 35mg/l.

9. Page 6, Nonpoint Sources: A typical concern in potable water treatment and production is the leaching of natural deposits of magnesium sulfate or sodium sulfate. Since Louisiana is exceptionally rich in mineral resources, the presence or absence of high levels of sulfates in area drinking waters should have been investigated.

10. Page 6, TMDL Load Calculations: The Louisiana regulations state: "For chlorides, sulfates and total dissolved solids, criteria are to be met below the point of discharge after complete mixing. Because criteria are developed over a long-term period, harmonic mean flow will be applied for mixing." **(33:IX.1115.C.8)** The flow which should have been used to calculate both the current and TMDL loadings should have been the harmonic mean flow.

    We have no record of an average flow determination for the Vermilion River at Surrey Street. We have no records showing drainage area determinations for the watershed at either the Surrey Street or Perry locations. Documentation showing the development of the flow used for the TMDL should be included in the TMDL report. LDEQ would recommend determining the flow using the water budget model and climate information available from the Louisiana Office of State Climatology. The Vermilion River at Surrey

(4) Average annual precipitation has been changed from 57 to 58.36 inches.

(5) Table 1 has been changed to reflect land use acreages in segment 0608 as listed in LDEQ's 1993 Non-point Source Assessment Report.

(6) Agriculture has been added as an additional designated use for these subsegments.

(7) Additional potential sources from the 1999 Court Ordered 303(d) List have been added to the report.

(8) The list of point sources has been changed to reflect those listed in LDEQ's *1999 Review and Assessment of the 1987 Vermilion River Watershed TMDL for Dissolved Oxygen*. WLAs have been changed to reflect this change.

(9) EPA appreciates the comment.

(10) We refer to the response to comment (2) above in response to the comment regarding EPA's use of average flow as opposed to harmonic mean flow.

Flow information for the Vermilion River at Surrey Street was received by EPA from LDEQ in a fax dated 1/27/2000. EPA will defer to LDEQ as to how that flow was developed.

Street and Perry is impacted by tides which occasionally cause negative flows. There are significant gaps in the USGS flow records at each station.

DEQ Station 0680 is on Ruth Canal and is not representative of the conditions in the Vermilion River in Subsegment 060801. Station 0680 was not used in the assessment which resulted in the listing for sulfate. The appropriate station to use is DEQ Station 0045, Vermilion River near Lafayette at LA Hwy 3073.

Equation 1 is incomplete as shown. The units on the conversion factors are incorrect.

Since the wrong flow has been used, all loads and allocations have been computed incorrectly.

Since the average flow is much larger than the harmonic mean flow and the use of point source design flows rather than point source average flows is required by EPA for the performance of TMDLs, the margin of safety does not in fact exist in this TMDL. No provisions have been made for future growth of either point or nonpoint sources.

11. Page 13, References: The list of references seems to have no relationship to data sources actually used for the development of this TMDL. It is surprising that LDEQ publications specifically concerning the Vermilion River are not listed in the references.

12. Page 18, Appendix B: Although this purports to be a flow determination methodology, no methodology is found. No documentation was found to support use of the flows identified. Such documentation should include USGS determinations, drainage area determinations, flow calculations, etc.

(10) (continued) Although the water quality station on Ruth Canal was listed as a data source in the draft TMDL, it was not used to develop the TMDL. All references to this water quality station throughout this report have been removed. EPA utilized water quality station 0677 (Vermilion River North of Intracoastal City).

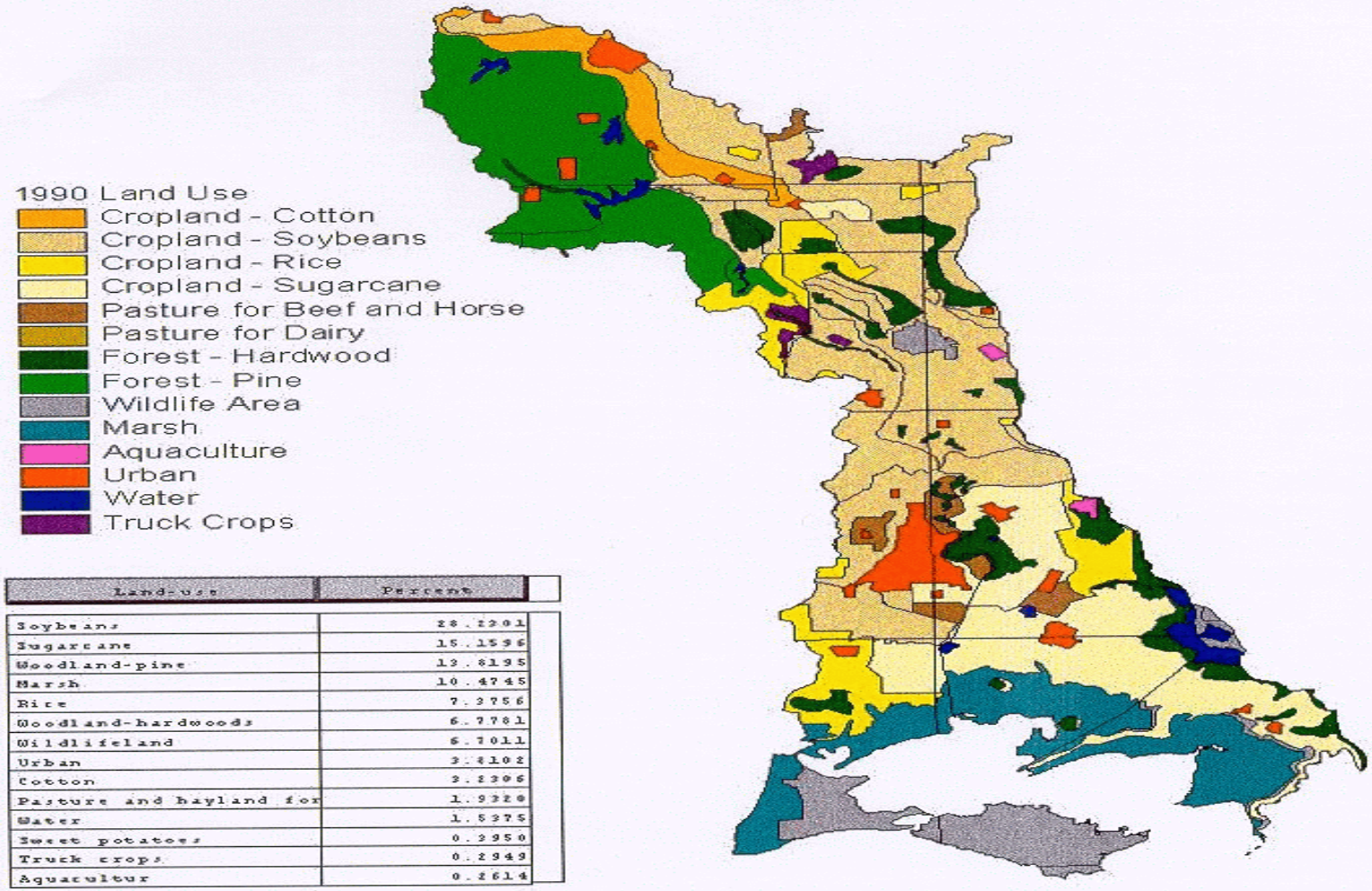
Equation 1 is complete as shown. However, the units (lb/day) on the conversion factors (5.39 and 8.34) were unnecessary and have been removed from the report.

EPA used average flows in this TMDL. We defer to the response to comment (2) above for the rationale behind using average flow values. Flow information for the Vermilion River at Surrey Street was received by EPA from LDEQ in a fax dated 1/27/2000.

(11) The list of references has been amended to reflect data sources used for the development of this TMDL.

(12) Flow information for the Vermilion River at Surrey Street was received by EPA from LDEQ in a fax dated January 27, 2000. EPA will defer to LDEQ as to how that flow was developed. We agree that no methodology is actually found in Appendix B. Appendix B has been re-titled as “Flow Information” to better reflect the information described.

Vermilion-Teche River Basin
1990 Land Use



Land-use	Percent
Soybeans	28.2201
Sugarcane	15.1596
Woodland-pine	13.8195
Marsh	10.4745
Rice	7.2756
Woodland-hardwoods	6.7781
Wildlifeland	6.7011
Urban	3.8102
Cotton	3.2306
Pasture and hayland for	1.9320
Water	1.5375
Sweet potatoes	0.2950
Truck crops	0.2949
Aquacultur	0.2614