TMDLs for Mercury in Selected Subsegments In the Pearl River Basin, Louisiana

(090101, 090102, 090103, 090105, 090106, 090107, 090201, 090202-05126, 090203, 090204, 090205, 090206, 090207, 090207-5112, 090501)

Fact Sheet

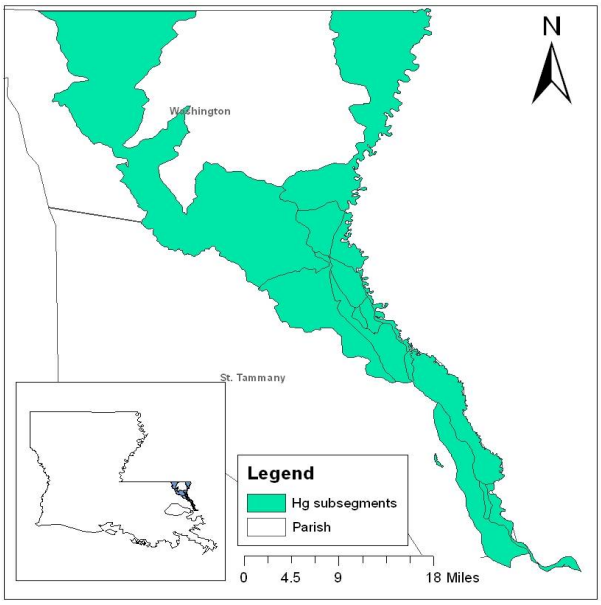

Figure 1. Location of the impaired subsegments in the Pearl River Basin.

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (at Title 40 of the *Code of Federal Regulations* Part 130) require states to develop Total Maximum Daily Loads (TMDLs) for waterbodies that are not meeting water quality standards. A TMDL establishes the amount of a pollutant that a waterbody can assimilate without exceeding the water quality standard for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and nonpoint sources to restore and maintain the quality of the state's water resources.

A TMDL for a given pollutant and waterbody includes the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \sum WLAs + \sum LAs + MOS$$

This fact sheet describes the TMDLs that have been developed for mercury in 15 subsegments in the Pearl River Basin in eastern Louisiana (Figure 1). The Louisiana Department of Environmental Quality (LDEQ) included the 15 subsegments on the state's 2004 section 303(d) list of impaired waterbodies because of mercury impairments (Table 1). The impaired designated uses for the 15 subsegments are primary or secondary contact recreation, fish and wildlife propagation, and outstanding natural resource water. The subsegments are classified as fully supporting (F), not supporting (N), insufficient data (I), or not assessed (X). Louisiana's section 303(d) list identifies atmospheric deposition as the suspected cause of the mercury impairment in the 15 listed subsegments in the Pearl River Basin.

To estimate the mercury loading to the watershed, a two-step method was used. First, point and nonpoint source loads were estimated. Then the necessary reductions in fish tissue mercury concentrations were calculated. Nonpoint source loads were estimated from regional atmospheric deposition data obtained from the National Atmospheric Deposition Program's station LA28. Information on point sources was obtained from LDEQ's EDMS database. Because no permits specified a mercury limit, a water quality criterion of 12 ng/L was assumed for selected facility discharges. The criterion was multiplied by available flow data to obtain a load.

EPA has a fish tissue mercury concentration maximum of 0.5 ppm (mg/kg). To establish a percent reduction in the selected segments, the average concentration in the worst-case species was used. The species average concentration was divided by the target fish tissue concentration. The reduction factor was then used to obtain the allowable loading to each subsegment.

In TMDL development, allowable loadings from all pollutant sources that cumulatively amount to no more than the TMDL must be established, thereby providing the basis for establishing water quality-based controls. WLAs were given to permitted point source discharges. The LAs include background loadings and human-induced nonpoint sources. An implicit MOS was used. A summary of the TMDLs for each of the subsegments is presented in Table 2.

Table 1. Section 303(d) listing for subsegments included in this report

Sub-segment	Subsegment name	Subsegment description	Designated use			
			PCR	SCR	FWP	ONR
090101	Pearl River	Mississippi state line to Pearl River Navigation Canal	N	F	N	
090102	East Pearl River	Holmes Bayou to I-10	F	F	N	
090103	East Pearl River	From I-10 to Lake Borgne	F	F	N	
090105	Pearl River Navigation Canal	Pools Bluff to Lock No. 3	F	F	N	
090106	Holmes Bayou	Pearl River to West Pearl River	F	F	N	N
090107	Pearl River	Pearl River Navigation Canal to Holmes Bayou	F	F	N	
090201	West Pearl River	Headwaters to Holmes Bayou	F	F	N	N
090202-5126	Morgan River	Porters River to West Pearl River	X	X	N	X
090203	Bogue Chitto	Pearl River Navigation Canal to Wilson Slough	F	F	N	
090204	Pearl River Navigation Canal	Below Lock No.3	F	F	N	
090205	Wilson Slough	Bogue Chitto to West Pearl River	I	I	N	I
090206	Bradley Slough	Bogue Chitto to West Pearl River	I	I	N	I
090207	Middle River and West Middle River	West Pearl River to Little Lake	F	F	N	
090207-5112	Morgan Bayou	Headwaters near I-10 to Middle River			N	
090501	Bogue Chitto	Mississippi state line to Pearl River Navigation Canal	F	F	N	N

Table 2. Summary of mercury TMDLs, WLAs and LAs for the Pearl River Basin

Subsegment	Existing load	Percent reduction	Total allowable loading	∑ WLAs	∑ LAs
	lb/yr		lb/day		
090101	6.05	16	1.4E-02	6.2E-04	1.3E-02
090102	3.14	0	8.6E-03	0.0E+00	8.6E-03
090103	0.85	47	1.2E-03	0.0E+00	1.2E-03
090105	0.83	20	1.4E-03	0.0E+00	1.4E-03
090106	0.19	0	5.2E-04	0.0E+00	5.2E-04
090107	1.43	20	3.1E-03	0.0E+00	3.1E-03
090201	1.95	49	2.7E-03	0.0E+00	2.7E-03
090202-05126	0.03	59	3.5E-05	0.0E+00	3.5E-05
090203	0.99	32	1.8E-03	0.0E+00	1.8E-03
090204	1.66	41	2.7E-03	0.0E+00	2.7E-03
090205	0.16	18	3.5E-04	0.0E+00	3.5E-04
090206	0.39	18	8.9E-04	0.0E+00	8.9E-04
090207	3.46	64	3.4E-03	0.0E+00	3.4E-03
090207-05112	0.23	64	2.2E-04	7.4E-05	1.5E-04
090501	9.88	33	1.8E-02	0.0E+00	1.8E-02

For More Information

EPA seeks input on this proposed TMDL, including comments, information, and data from the public. For additional information on this TMDL project, please contact the EPA staff member listed below:

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