

SECTION 2 - EXISTING, HISTORICAL AND PROJECTED TRAFFIC

EXISTING AND HISTORICAL TRAFFIC

BAYOU SORREL LOCK TRAFFIC

Table 2 - 1 displays the distribution of 1992 Bayou Sorrel Lock traffic by ten major commodity groups. The mapping of this ten commodity group scheme with the 4-digit Waterborne Commerce Statistics Center (WCSC) commodity codes and the Lock Performance Monitoring System (LPMS) commodity codes is shown in table 2 - 2.

As table 2 - 1 shows, approximately 90 percent of the total traffic that moved through the Bayou Sorrel lock in 1992 consisted of Petroleum Products, Industrial Chemicals, Non-Metallic Minerals, and Metallic Ores with Petroleum Products comprising almost a third of the total volume of Bayou Sorrel lock traffic.

Table 2 - 3 summarizes lock utilization at Bayou Sorrel lock for the years 1991 through 1999. Displayed are traffic volumes and average delay per tow estimates.

SYSTEM TRAFFIC

Table 2 - 4 displays the distribution of commodity types for each of the primary locks within the study area by way of commodity group percentages for the year 1992. Commodity group percentages for individual locks generally reflect the percentages of their respective segments. For example, the locks located on the IWW western mainstem (Algiers, Harvey, Bayou Boeuf, Calcasieu, and Leland Bowman) reveal the high percentage of refined petroleum products traversing this waterway segment, comprising nearly 50 percent of the total traffic. On the Morgan City - Port Allen Route, the commodity group percentages at the locks of Port Allen and Bayou Sorrel show not only the importance of Petroleum Products but also the significant percentage of Industrial Chemicals, Non-metallic Minerals, and Metallic Ores. The commodity group percentages at Old River lock reveal the type of traffic that travels on the Atchafalaya River. As table 2 - 4 shows, Petroleum Products and Non-Metallic Minerals comprise the bulk of traffic on this waterway segment.

In order to illustrate traffic flow patterns between the primary system locks, table 2 - 5 displays a matrix of traffic flows between locks expressed as a percent of each lock's total traffic volume.

Historical traffic on the three GIWW segments is displayed in table 2 - 6. Traffic volume on these segments has fluctuated significantly over the last 20 years. Traffic for the system, which fell to a 20-year low in 1982, rebounded by the year 1988 to a new record high level. Historical average lock delays for the period 1989 - 1999 for the three GIWW segments are presented in table 2 - 7.

Table 2 - 1

Commodity Distribution for 1992 Bayou Sorrel Lock Traffic

Commodity Group	Total Bayou Sorrel Traffic (Tons)	% Of Total Traffic
Farm Products	508,452	2.3%
Metallic Ores	2,265,514	10.3%
Coal	14,219	0.1%
Crude Petroleum	1,125,637	5.1%
Non-Metallic Minerals	4,607,857	21.0%
Forest Products	86,102	0.4%
Industrial Chemicals	6,047,484	27.5%
Agricultural Chemicals	490,081	2.2%
Petroleum Products	6,740,743	30.7%
All Other	97,760	0.4%
Total	21,983,849	100%

Source: Waterborne Commerce of the United States

Table 2 - 2

**Commodity Group Definitions
By Waterborne Commerce Statistics Center
And Lock Performance Monitoring System**

Classifications

	WCSC	LPMS
1. FARM PRODUCTS		
Corn.....	6344.....	63
Sorghum Grains.....	6447.....	64
Wheat.....	6241.....	62
Soybeans.....	6522.....	65
Grains & Oilseeds NEC..	6442, 6443, 6445, 6521,	64, 65
	6534, 6590	
Other Agri Products....	6654, 6781, 6839, 6856,	68
	6857, 6871, 6872, 6891,	
	6893, 6899	
Grain Mill Products....	6746, 6747.....	67
Animal Feeds.....	6782.....	67
Other Food/Tobacco....	6653, 6654, 6811, 6817,	66-68
	6822, 6835, 6838, 6839,	
	6858, 6861, 6865, 6885,	
	6887-6889, 6891	
 2. METALLIC ORES & PROD		
Iron Ores & Conc.....	4410.....	44
Other Metallic Ores....	4630, 4650, 4670, 4690.....	46
Iron & Steel Shapes....	5320, 5330, 5360, 5370	53
Other Iron & Steel Prod....	2990, 4420, 4860,	48, 53
	5312, 5315, 5390	
Nonferrous Metal Prod..	4680, 5421, 5422, 5429.....	46
Fabricated Metal Prod....	5480.....	54
 3. COAL		
Coal.....	1100.....	10
 4. CRUDE PETRO		
Crude Petroleum.....	2100.....	21
 5. NONMETALLIC MINERALS		
Limestone.....	4322.....	43
Stone, Sand, & Gravel.....	4310, 4331.....	43
Other Nonmetallic Minerals..	3271, 4323, 4338,	49
	4741, 4782, 4783, 4900	
Building Cement.....	5220.....	52
Lime.....	5210.....	52
Stone, Clay, & Glass.....	5240, 5290.....	52
Waterway Improvemnt Matr..	4335.....	43
Misc Nonmetallic Minrnl Prod	5290.....	52

Table 2 - 2

Commodity Group Definitions
 By Waterborne Commerce Statistics Center
 And Lock Performance Monitoring System
 Classifications

	WCSC	LPMS
6. FOREST PRODUCTS & PULP		
Logs.....	4170.....	41
Rafted Logs.....	4170.....	41
Pulpwood Logs.....	4170.....	41
Wood Chips & Staves.....	4161.....	41
Forest & Other Timber Prod.....	4110, 4150, 4170, 4190	41
Lumber Prod & Furniture.....	4189, 5540, 7400, 7900	41, 55, 70
Pulp.....	4225.....	42
Standard Newsprint Paper.....	5110.....	51
Paper & Paperboard.....	5120.....	51
Paper Scrap.....	4225.....	42
Paper & Paperboard, NEC.....	5190.....	51
7. INDUSTRIAL CHEMICALS		
Industrial Chemicals..	3211, 3212, 3219, 3220, 3230, 3240, 3250, 3260, 3272- 3276, 3279, 3281-3286, 3292, 3297-3299	32
8. AGRICULTURAL CHEMICALS		
Agricultural Minerals.....	3190.....	31
Agricultural Chemical.....	3110, 3120, 3130, 3190, 3291	31, 32
9. PETROLEUM PRODUCTS		
Gasoline.....	2211.....	22
Jet Fuel & Kerosene.....	2211, 2221.....	22
Distillate Fuel Oil.....	2330.....	23
Residual Fuel Oil.....	2340.....	23
Lubricating Oil & Grease...	2350.....	23
Naptha & Petroluem Solv....	2429.....	24
Asphalt, Tars, & Pitches...	2430, 5290.....	24
Coke & Petroleum Coke.....	1200, 2540.....	24
Liquefied Gases.....	2640.....	29
Other Petro & Coal Prod....	2410, 2990.....	29

Table 2 - 2

Commodity Group Definitions
 By Waterborne Commerce Statistics Center
 And Lock Performance Monitoring System
 Classifications

	WCSC	LPMS
10. ALL OTHERS		
Fish & Shellfish.....	6134,6136.....	61
Unmanufactured Shells.....	4515.....	45
Basic Textile Prod.....	6894,7500.....	68
Apparel.....	7500.....	70
Rubber,Plastics & Leather..	7600,7900.....	70
Machinery.....	7110,7120.....	70
Transportation Equipment.	7210,7220,7230,7900....	70
Miscellaneous, NEC.....	3293,4333,6888,7300....	99
	7800,7900,8900,9900	

Table 2 - 3

**Lock Utilization Summary - Bayou Sorrel Lock
(1991 - 1999)**

Year	Number of Tows	Tonnage (1,000's)	Avg Delay Per Tow (Hrs)
1991	6,593	25,825	4.9
1992	6,120	21,140	2.1
1993	7,365	25,985	3.8
1994	6,693	24,283	2.2
1995	6,626	24,001	2.4
1996	6,218	23,397	4.9
1997	6,515	25,080	3.1
1998	5,874	22,644	11.1
1999	6,189	23,158	4.7

Source: Lock Performance Monitoring System. (LPMS)

Table 2 - 4

Commodity Group Percentages by Lock - 1992

Group	Old River	Port Allen	Bayou Sorrel	IHNC	Algiers	Harvey	Bayou Boeuf	Calcasieu	Leland Bowman
Farm Prod	6	2	2	2	2	7	3	2	2
Metallic Ores	1	10	10	5	3	6	3	7	7
Coal	0	0	0	37	0	0	0	0	0
Crude Petroleum	3	5	5	7	27	12	24	15	13
Non-metallic Minerals	49	23	21	8	7	18	9	3	4
Forest Products	1	1	1	1	0	0	0	1	1
Industrial Chemicals	6	27	28	9	14	15	14	24	25
Agricultural Chemicals	1	2	2	3	1	1	1	2	2
Petroleum Products	33	29	30	27	45	40	45	45	45
All Other	0	1	1	1	1	1	1	1	1
Total	100	100	100	100	100	100	100	100	100

Source: Waterborne Commerce Of The United States

Table 2 - 5

Common Traffic Flows Between Locks - 1992

Lock (traffic from)	Percent of Traffic that Uses:									
	Old River	Port Allen	Bayou Sorrel	IHNC	Algiers	Harvey	Bayou Boeuf	Calcasieu	Leland	Bowman
Old River	100.0	0.0	0.0	0.0	1.0	0.5	2.0	21.0	24.0	
Port Allen	0.0	100.0	97.1	0.3	0.0	0.0	1.5	78.1	78.6	
Bayou Sorrel	0.0	99.2	100.0	0.4	0.2	0.1	1.8	80.1	80.6	
IHNC	0.0	0.4	0.4	100.0	24.3	8.1	27.1	23.3	24.6	
Algiers	0.3	0.0	0.2	28.5	100.0	0.0	74.2	58.8	63.5	
Harvey	1.0	0.0	0.3	31.4	0.0	100.0	90.7	74.3	79.3	
Bayou Boeuf	1.0	1.5	1.7	26.0	60.1	22.3	100.0	69.3	74.5	
Calcasieu	4.0	46.9	47.0	13.6	29.1	11.2	42.4	100.0	100.0	
Leland Bowman	5.1	44.8	45.0	13.6	29.9	11.3	43.3	96.7	100.0	
Total System	9.9	27.8	27.0	26.4	27.0	4.9	31.6	49.9	50.0	

Table 2 - 6

GIWW Tonnage
Selected Years, Selected Segments, Total Tonnage

Year	Mississippi River to Sabine 1/	Morgan City - Port Allen Alternate Route 2/	Mobile Bay - New Orleans 4/
1998	61,366,000	24,008,000	23,306,000
1997	66,973,000	26,437,000	24,786,000
1996	68,714,000	25,064,000	24,633,000
1995	68,322,000	25,463,000	23,319,000
1994	67,915,000	24,588,000	24,082,000
1993	65,340,000	27,097,000	25,756,000
1992	66,460,000	23,727,000	23,742,000
1991	65,328,000	24,342,000	23,449,000
1990	67,679,000	29,632,000	25,782,000
1989	66,415,798	27,264,185	25,972,550
1988	69,292,154	27,072,639	27,267,590
1987	63,967,724	19,682,861	24,069,572
1986	64,471,662	25,180,797	23,589,414
1985	63,092,992	23,150,132	21,577,873
1984	55,840,086	21,324,578	20,413,239
1983	51,545,852	19,253,008	16,524,665
1982	50,372,504	17,833,864	15,184,211
1981	52,591,854	18,083,914	17,342,703
1980	54,916,394	19,066,976	19,124,329
1979	55,947,248	20,254,735	21,238,833
1978	61,753,493	18,066,503	22,610,406
1977	63,277,175	18,456,491	24,795,828
1976	59,108,942	18,961,414	23,201,285
1975	56,750,361	17,083,459	21,726,203
1974	60,839,703	15,895,856	21,307,231
1973	62,265,498	14,269,832	19,323,261
1972	68,904,972	19,173,890	21,613,217
1971	70,563,298	14,368,939	18,660,228
1970	65,129,464	16,637,934	16,075,626
1960	36,263,828	2,773,826 3/	7,606,145
1950	21,707,241	1,818,760 3/	4,065,913

Source: Waterborne Commerce of the United States

1/Mississippi river to GIWW west
mile 266.

2/ Not included in Mississippi River to Sabine traffic.

3/ Via Plaquemine Lock, Bayou Plaquemine, Bayou Sorrel
Lock,
and the borrow pit of East Atchafalaya Protection Levee.

4/ Inner Harbor Navigation Canal to GIWW East, mile 134.

Table 2 - 7

Average Delay by Lock
1989 - 1999
(Hours)

Lock	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989
Old River	0.2	0.2	0.3	0.2	0.2	0.5	0.2	0.3	0.3	0.3	0.3
Port Allen	2.7	2.2	4.5	3.4	2.1	2.7	2.0	1.5	2.1	2.2	1.2
Bayou Sorrel	4.7	11.1	3.1	4.9	2.4	2.2	3.8	2.1	4.9	3.9	3.2
IHNC	6.4	12.5	22.3	11.0	7.6	9.2	14.6	6.3	12.3	16.2	11.6
Algiers	4.3	4.5	4.9	4.4	3.3	4.1	8.8	4.4	4.9	4.6	4.6
Harvey	1.2	1.7	2.3	1.2	0.7	1.5	9.0	2.3	3.2	4.2	2.4
Bayou Boeuf	0.4	0.4	0.6	0.7	0.9	0.7	1.6	0.5	0.7	0.4	0.7
Calcasieu	0.9	0.7	1.0	2.2	2.5	1.1	1.6	0.8	0.8	1.2	2.7
Leland Bowman	1.6	0.6	0.6	1.0	0.6	0.5	1.1	0.5	0.4	1.0	0.8

Source: Lock Performance Monitoring System
(LPMS)

PROJECTED TRAFFIC

OVERVIEW

System traffic was categorized into ten commodity groups. A summary of this classification scheme was presented earlier in table 2 - 2. The level of aggregation represented by the ten categories balances two competing requirements: 1) the need to generalize the specific information within each movement so as to facilitate analysis and 2) the need to preserve as much as possible those unique attributes of each specific commodity. Tonnage projections are presented in this report according to the ten-group format, although projections for specific commodities were performed at a more detailed level where it was found to be appropriate.

PROJECTIONS

A review of the 1992 commodity distribution for the entire waterway system of traffic, displayed in table 2 - 8, shows that nearly 88 percent of total tonnage was associated with coal, crude petroleum, non-metallic minerals, petroleum products and industrial chemicals. Because of their importance to the total system of traffic, as well as for Bayou Sorrel lock traffic, traffic projections for these groups must be regionally focused and specific to existing origin-destination patterns in order to be meaningful.

Traffic projections for these commodity groups were conducted by the WEFA Group under contract with the New Orleans District. In order to determine which regions for WEFA to focus their analysis on, a review of 1992 Waterborne Commerce detail records, provided by the Waterborne Commerce Statistics Center (WCSC), was conducted. It should be noted that at the time this analysis was conducted, the most recent database available by WCSC was 1993. However, in 1993 the Mississippi River basin was experiencing severe flooding affecting navigation over several months. Because of this, it was decided to use the 1992 WCSC database since this represented a more typical year of commerce on the inland waterway system. The records in the WCSC database represented individual barge-level movements that traveled any portion of the GIWW - Mississippi River to Sabine, GIWW - Morgan City to Port Allen Alternative Route, Atchafalya River or the Innerharbor Navigation Canal waterways. Within this database, is origin/destination information that was used to determine the most common origin regions and destination regions for each of the above mentioned commodity groups.

As a result of this effort, WEFA was asked to provide long-term (25 year) consumption projections of coal by Electric Utility companies in the South Atlantic region (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina and Tennessee); Crude Petroleum production projections for the region of the Gulf of Mexico (Onshore); Non-Metallic Minerals production projections for the Southwest region (Arkansas, Louisiana, New Mexico, Oklahoma and Texas) and Industrial Chemicals production projections also for the Southwest region.

For Petroleum Products, WEFA was asked to provide consumption projections for the whole group itself and for the major subgroups of Gasoline, Jet fuel, Distillate fuel oil, Residual fuel oil, Liquefied Petroleum Gas and Other Petroleum products expressed in BTU's for the South Atlantic region, the Southwest region and the Midwest region (Illinois, Indiana, Michigan,

Table 2 - 8

Commodity Distribution for 1992 Total System Traffic

Commodity Group	Total System Traffic (Tons)	% Of Total Traffic
Farm Products	2,242,409	2.8%
Metallic Ores	4,369,926	5.4%
Coal	7,909,035	9.8%
Crude Petroleum	13,783,793	17.0%
Non-Metallic Minerals	12,568,341	15.5%
Forest Products	345,238	0.4%
Industrial Chemicals	12,033,383	14.8%
Agricultural Chemicals	1,511,647	1.9%
Petroleum Products	25,697,391	31.7%
All Other	643,689	0.8%
Total	81,104,852	100%

Source: Waterborne Commerce of the United States

Minnesota, Ohio and Wisconsin).

The remaining 12 percent of total system traffic in 1992 consisted of the five remaining commodity groups: Grain, Metallic Ores, Forest Products, Agricultural Chemicals and Miscellaneous. Since the level of traffic among these remaining commodities were minor compared to the groups previously considered, projected traffic for these commodities were derived through the use of national-level projections.

For the commodity groups of Metallic Ores, Forest Products, Agricultural Chemicals and Miscellaneous, long term traffic projections were taken from "U.S. Long-Term Economic Outlook, Volume 1 – Trend/Moderate Growth Scenario, Third Quarter 1997" published by the WEFA Group. In these publications, long-term Industrial Production Indexes for various industry groupings are provided. For grain, long-term traffic projections were adapted from work previously developed in October 1996 by Jack Faucett Associates (JFA) for the Upper Mississippi River and Illinois Waterway Navigation Study.

Table 2 – 9 shows the growth factors corresponding to each of the ten commodity groups discussed above. For grain, coal, crude petroleum, non-metallic minerals, industrial chemicals, and petroleum products, growth factors were developed for the periods 1992 – 2000, 2000 – 2010 and 2010 – 2020. For the remaining commodities, growth factors were developed for the periods 1992 – 2000 and 2000 – 2010. The growth factors were applied to the 1992 base tonnage to yield future system tonnage for these same periods. For succeeding periods the growth factor associated with the last developed forecasted period was carried forward.

Projected tonnages for the total waterway system and for Bayou Sorrel lock are presented in tables 2 – 10 and 2 – 11. These represent the mid growth or most likely traffic growth scenario. Low growth and High growth traffic projections will be discussed and presented in section 9 of the Economics Appendix under Sensitivity Analysis.

Table 2 - 9

Traffic Growth Factors by Commodity Group

Commodity Group	Time Period					
	1992 - 2000	2000 - 2010	2010 - 2020	2020 - 2030	2030 - 2040	2040 - 2060
Farm Products	1.22	1.19	1.13	1.13	1.13	1.28
Metallic Ores	1.12	1.23	1.23	1.23	1.23	1.51
Coal	1.42	1.00	1.11	1.11	1.11	1.23
Crude Petroleum	0.73	0.83	1.02	1.02	1.02	1.04
Non-metallic Minerals	1.22	1.17	1.13	1.13	1.13	1.28
Forest Products	1.24	1.28	1.28	1.28	1.28	1.64
Industrial Chemicals	1.26	1.31	1.24	1.24	1.24	1.54
Agricultural Chemicals	1.13	1.08	1.08	1.08	1.08	1.17
Petroleum Products	1.09	1.09	1.09	1.10	1.10	1.21
Miscellaneous	0.99	1.27	1.27	1.27	1.27	1.61

Table 2 - 10

Projected System Traffic Growth
(In Thousands of Short Tons)

Mid Growth

Commodity Group	1992	2000	2010	2020	2030	2040	2060
Farm Products	2,242.41	2,735.74	3,255.52	3,678.73	4,156.96	4,697.38	6,012.64
Metallic Ores & Mins	4,369.93	4,894.32	6,020.02	7,404.64	9,107.72	11,202.49	16,915.76
Coal	7,909.04	11,205.09	11,205.09	12,437.65	13,805.79	15,324.43	18,849.05
Crude Oil	13,783.79	10,062.17	8,351.60	8,518.63	8,689.00	8,862.79	9,217.31
Non-Metallic Mins	12,568.34	15,333.38	17,940.07	20,272.28	22,907.68	25,885.68	33,133.67
Forest Products	345.24	428.10	547.97	701.40	897.79	1,149.17	1,884.64
Industrial Chemicals	12,033.38	15,162.07	19,862.34	24,629.34	30,540.39	37,870.06	58,319.91
Agricultural Chemicals	1,511.65	1,708.16	1,844.82	1,992.40	2,151.80	2,323.95	2,719.01
Petroleum Products	25,697.39	28,054.38	30,616.70	33,471.06	36,652.15	40,209.80	48,713.57
Miscellaneous	643.69	634.64	806.00	1,023.60	1,299.97	1,650.96	2,658.02
Total	81,104.85	90,218.04	100,450.11	114,129.73	130,209.27	149,176.70	198,423.58

Table 2 - 11

Projected Bayou Sorrel Lock Traffic Growth
(In Thousands of Short Tons)

Mid Growth

Commodity Group	1992	2000	2010	2020	2030	2040	2060
Farm Products	508.45	620.31	738.17	834.13	942.56	1,065.10	1,363.33
Metallic Ores & Mins	2,265.51	2,537.38	3,120.98	3,838.81	4,721.74	5,807.73	8,769.67
Coal	14.22	21.76	21.76	24.15	26.80	29.75	36.60
Crude Oil	1,125.64	821.72	682.03	695.67	709.58	723.77	752.72
Non-Metallic Mins	4,607.86	5,621.59	6,577.26	7,432.30	8,398.50	9,490.31	12,147.59
Forest Products	86.10	106.77	136.66	174.93	223.91	286.60	470.03
Industrial Chemicals	6,047.48	7,619.83	9,982.00	12,377.69	15,348.34	19,031.93	29,309.17
Agricultural Chemicals	490.08	553.79	598.10	645.94	697.62	753.43	881.51
Petroleum Products	6,740.74	7,196.54	7,838.63	8,565.31	9,382.41	10,305.76	12,551.31
Miscellaneous	97.76	126.11	160.16	203.41	258.32	328.07	528.19
Total	21,983.85	25,225.79	29,855.73	34,792.32	40,709.79	47,822.46	66,810.12