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MEMORANDUM

Date: December 7, 1999
File: 615E
To: Hudson River Team
From: Trina von Stackelberg
Subject: STB ratio to LMB for River Mile 152

This memorandum summarizes the results of comparisons between observed striped bass concentrations and largemouth bass and white perch concentrations for overlapping years in river miles 113 and 152 of the Lower Hudson River.

Methods

This analysis incorporated only NYSDEC data for available years for largemouth bass and striped bass at river miles 113 and 152. To insure consistency among laboratory techniques over time, only the NYSDEC data were used. In any event, addition of the EPA/NOAA datasets from 1993 and 1995 would only have added a very small number of additional samples. Tri+ concentrations were adjusted according to the Butcher algorithm presented in Chapter 4 of the Baseline Modeling Report. The data were restricted to fish larger than 25cm (all largemouth bass samples and a censoring of less than 25 striped bass samples). All largemouth bass and white perch samples were collected in May and June for both locations. Striped bass were collected in May and June at river mile 113, and June, July, August, and October at river mile 152. There were not enough data available to restrict the comparison to June-June collected samples, so the following tiered approach was followed.

First, the SPSS statistical package was used to calculate average concentrations by year across all months for all species, and the average concentrations compared as a ratio. Then, only the June, July, and August striped bass comparisons were compared to the June largemouth bass and white perch samples, and finally only the June and July striped bass samples. In all cases, the calculated ratios were the same to the second significant digit, although when using only June and July samples, two entire years drop out of the analysis. Based on the comparability

of results for overlapping years, the decision was made to retain all the samples to provide more information.

Results

The tables below show that the average ratio between measured striped bass and largemouth bass at river mile 152 is approximately 2.5 (standard deviation = 1.6) while for white perch this ratio is 3.43 (standard deviation = 4.1). However, if 1990 is eliminated from the white perch comparison, then the ratio becomes 1.62 with a standard deviation of 0.4. However, as there is little justification for eliminating an entire year, we recommend that the ratio of 2.54 be used to approximate striped bass concentrations for 1998 – 2067 for river mile 152.

STB 152	Tri+ ppm	LMB 152	Tri+ ppm	WP 152	Tri+ ppm	STB/LMB	STB/WP
1990	9.02	1990	3.53	1990	0.84	2.56	10.68
1992	15.32	1992	3.24	1992	8.64	4.73	1.77
1993	10.92	1993	9.34	1993	5.45	1.17	2.00
1994	5.61			1994	4.81		1.16
1996	4.28	1996	2.51	1996	2.78	1.71	1.54
				Average --->>>		2.54	3.43

LMB 113	Tri+ ppm	WP 113	Tri+ ppm	STB 113	Tri+ ppm	STB/LMB	STB/WP
1988	7.71			1988	6.31	0.82	
1990	7.84			1990	4.64	0.59	
1992	8.28			1992	2.94	0.35	
1993	4.45	1993	3.25	1993	3.27	0.74	1.01
1994	6.26	1994	1.04	1994	2.30	0.37	2.21
1995	3.27	1995	1.86	1995	1.11	0.34	0.60
1996	3.73	1996	4.94	1996	1.66	0.45	0.34
				Average --->>>		0.52	1.04

At river mile 113, the ratio is very different. Striped bass concentrations in this region are much lower than at 152, with an average ratio of 0.52 as compared to largemouth bass (standard deviation = 0.2).