William J. Cahill, Jr.
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

REGULATORY DOCKET FILE COPY

April 5, 1978
Re: I. P. Unit No. 2.
Docket No. 50-247

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Director of Nuclear Reactor Regulation
Attn: Robert P. Geckler, Project Manager
Environmental Projects Branch No. 1
Division of Site Safety and
Environmental Analysis
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Dr. Geckler:

This transmittal is in response to Enclosure 2 to Mr. George W. Knighton's letter of July 26, 1977 to Mr. William Cahill requesting information relative to our request titled "Request for License Amendment to Eliminate Requirement for Termination of Operation with Once-Through Cooling System" dated March, 1977. This transmittal provides responses to questions I, V-3, and XV-1, 2 and 3, the remaining information to be provided as indicated in my letter of March 3, 1978.

On March 31, 1978 Dr. Kenneth Marcellus telephoned Dr. Sigurd Christensen at Oak Ridge National Laboratory to review whether any other materials were needed. Dr. Christensen requested that a response for question III be provided and that supplemental information was needed relative to questions V-5 (part 2) and XVI (part 2). These items are in preparation and will be provided shortly.

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PDR ADOCK 05000247
P PDR

Should you have any questions, please contact me or Dr. Kenneth L. Marcellus (212-460-6059).

Sincerely yours,

William J. Cahill, Jr.

klm/klg

Enclosure:

cc: Richard Rush (ORNL)

Request I. Information needed to calculate estimates of F_c (the fraction of live organisms killed by entrainment)

Response: A magnetic tape containing 1977 entrainment survival data along with a printout of that tape and the documentation necessary to interpret that data is being transmitted by copy of this letter to Dr. Richard Rush, Oak Ridge National Laboratory.

Request V.3. For the present simulations of 1974, of 1975, and of 1976 conditions with the Lawler, Matusky and Skelly real-time model (Sections 10 and 12 of the McFadden 1977 Report), provide tables in the format of Table V-1 for both the "no compensation, with power plants" runs (step (4), p. 10.66) and the "with compensation, with power plants" runs (step (6), p. 10.66). A total of six such tables is therefore requested. Document the full set of input parameters for these model runs. Also provide the relevant "output" biological parameters (e.g., adult survival rates).

Response: The attached Tables Nos. V-1-a through V-1-d (3 pages for each table) contain the requested information for 1974 and 1975 regarding impingement in the real-time life cycle model (RTLC). Similar tables containing 1976 data are not available as this data set has not yet been analyzed using the RTLC.

The following comments relate to Tables V-1-a through V-1-d.

1. The requested information regarding standing crops has been provided at the beginning of each month and at the end of the last month. The standing crops at the end of the intervening months are nearly the same as those at the beginning of each succeeding month.

2. In the model implementation of impingement, f-factors were computed based on the following plant flows:

Roseton 1 and 2	0.8353×10^{-3}	mi^3/day
Indian Point 2 and 3	1.8353×10^{-3}	mi^3/day
Bowline 1 and 2	1.0040×10^{-3}	mi^3/day

The impingement f-factor is computed as follows:

$$f = \frac{\text{Numbers Impinged}}{(N_{Ave}) * (Q_p/V) * \Delta T}$$

where

N_{Ave} = average standing crop

Q_p = plant flow

V = plant region volume

T = impingement period

Since the plant flow used in the computation of f was also used in the impact year, the plant flow canceled out of the computation. Separate f-factors were computed for the JII and JIII periods based on the following model input values for the number of juveniles impinged:

	1974		1975	
	JII	JIII	JII	JIII
Roseton	3600	2900	2000	300
Indian Point	28000	48000	52500	40000
Bowline	7500	110000	600	43000

These values were determined by calibration.

3. The "estimated impingement values" were calculated by multiplying the estimated impingement rates for 1974 and 1975 given in Tables 3-IV-31, 3-IV-32, and 3-IV-33 for Indian Point, Bowline, and Roseton, respectively, of Supplement I by the average projected power plant flows for each month over the period 1976-2013. The measured impingement rate at Indian Point Unit 2 was multiplied by 6.5 to account for the reported collection efficiency. The corrected rate was then used to predict impingement under projected flow conditions at Units 2 and 3. Application of the Unit 2 rate to predict impingement at Unit 3 is probably conservative since data collected during 1976-77 suggest that the impingement rate at Unit 3 may be lower than that at Unit 2.

Further, since the "estimated impingement values" presented in the attached tables have not been scaled-down to reflect the projected 8% decline in population levels due to plant operation, they are conservative estimates.

TABLE V-1-a. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1974 AS OBTAINED FROM THE LMS RTLC MODEL WITHOUT COMPENSATION (KO/KE = 1.0) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII[a]	JIII	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
AUG 74		Roseton	1&2	107.9	208	-	208	3600	-	3600	143
		Indian Point	2&3	239.5	1846	-	1846	28000	-	28000	7404
	During	Bowline	1&2	129.7	532	-	532	7500	-	7500	171
		Totals		477.1	2586	-	2586	39100	-	39100	7718
SEP		Roseton	1&2	81.7	416	-	416				86
		Indian Point	2&3	202.2	3994	-	3994				4860
	During	Bowline	1&2	109.0	1066	-	1066	a	-		288
		Totals		392.9	5476	-	5476				5234
OCT		Roseton	1&2	55.5	1200	-	1200				88
		Indian Point	2&3	187.8	12493	-	12493				2258
	During	Bowline	1&2	77.6	3721	-	3721	a	-		1723
		Totals		321.0	17414	-	17414				4069
NOV		Roseton	1&2	63.0	761	-	761				233
		Indian Point	2&3	196.9	8803	-	8803				4734
	During	Bowline	1&2	42.0	2871	-	2871	a	-		943
		Totals		301.9	12435	-	12435				5910
GRAND TOTAL							37,911				22,931

[a] JII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.

TABLE V-1-a. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1974 AS OBTAINED FROM THE LMS RTLC MODEL WITHOUT COMPENSATION (KO/KE = 1.0) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII	JIII[b]	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
DEC		Roseton	1&2	70.1	-	406	406	-	2900	2900	56
		Indian Point	2&3	194.0	-	9592	9592	-	48000	48000	5998
	During	Bowline	1&2	78.3	-	30231	30231	-	110000	110000	10962
		Totals		342.5		40284	40229		160900	160900	16960
JAN 75		Roseton	1&2	70.7	-	313	313				56
		Indian Point	2&3	122.1	-	7105	7105	-	b		2726
	During	Bowline	1&2	86.8	-	23371	23371				22684
		Totals		279.6	-	30789	30789				25466
FEB		Roseton	1&2	84.3	-	236	266				22
		Indian Point	2&3	109.3	-	5139	5139				7323
	During	Bowline	1&2	70.1	-	17190	17190	-	b		4576
		Totals		263.7	-	22565	22565				11921
MAR		Roseton	1&2	93.3	-	190	190				25
		Indian Point	2&3	137.8	-	3943	3943				1657
	During	Bowline	1&2	77.6	-	13041	13041	-	b		12390
		Totals		308.8	-	17174	17174				14072
APR		Roseton	1&2	62.3	-	161	161				33
		Indian Point	2&3	212.5	-	3221	3221				7300
	During	Bowline	1&2	46.5	-	10269	10269				17645
		Totals		321.1	-	13651	13651	-	b		24928
GRAND TOTAL							124,408				93,397

[b] JIII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.

TABLE V-1-a. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1974 AS OBTAINED FROM THE LMS RTLC MODEL WITHOUT COMPENSATION (KO/KE = 1.0) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	MODEL STANDING CROPS				FIELD-ESTIMATED STANDING CROPS	PERCENT STANDING CROP ABOVE BOWLINE		
								FIELD DATA	
		JI	JII	JIII	TOTAL JUVENILES	TOTAL JUVENILES	MODEL PREDICTIONS	SLED & TUCKER	BEACH SEINE
JUL 74	Beginning	22690880	-	-	22690880	21691000	69.3	34.3	54.7
AUG	Beginning	14676634	122208	-	14798842	3765000	62.9	74.7	83.6
SEP	Beginning	82893	5978408	-	6061301	5460000	64.4	NA	67.9
OCT	Beginning	-	4949212	-	4949212	2832000	19.8	NA	27.9
NOV	Beginning	-	4008450	-	4008450	1404000	19.6	NA	5.6
DEC	Beginning	-	3280726	-	3280726	866000	19.5	NA	2.8
JAN 75	Beginning	-	-	2638554	2638554	NA	19.5	NA	NA
FEB	Beginning	-	-	2107916	2107916	NA	19.5	NA	NA
MAR	Beginning	-	-	1685845	1685845	NA	19.5	NA	NA
APR	Beginning	-	-	1349087	1349087	NA	19.6	NA	NA
	End	-	-	1079690	1079690	NA	19.6	NA	NA

NA - Not available

TABLE V-1-b. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1974 AS OBTAINED FROM THE LMS RTLC MODEL WITH COMPENSATION (KO/KE = 0.78) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII[a]	JIII	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
AUG 74		Roseton	1&2	107.9	210	-	210	3600	-	3600	143
		Indian Point	2&3	239.5	1986	-	1986	28000	-	28000	7404
	During	Bowline	1&2	129.7	541	-	541	7500	-	7500	171
		Totals		477.1	2737	-	2737	39100	-	39100	7718
SEP		Roseton	1&2	81.7	420	-	420			3600	86
		Indian Point	2&3	202.2	3972	-	3972				4860
	During	Bowline	1&2	109.0	1082	-	1082	a	-		288
		Totals		392.9	5474	-	5474				5234
OCT		Roseton	1&2	55.5	1221	-	1221				88
		Indian Point	2&3	187.8	12683	-	12683				2258
	During	Bowline	1&2	77.6	3730	-	3730	a	-		1723
		Totals		321.0	17634	-	17634				4069
NOV		Roseton	1&2	63.0	782	-	782				233
		Indian Point	2&3	196.9	8929	-	8929				4734
	During	Bowline	1&2	42.0	2851	-	2851	a	-		943
		Totals		301.9	12562	-	12562				5910
GRAND TOTAL							38,407				22,931

[a]JII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.

TABLE V-1-b. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1974 AS OBTAINED FROM THE LMS RTLC MODEL WITH COMPENSATION (KO/KE = 0.78) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII	JIII[b]	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
DEC		Roseton	1&2	70.1	-	446	446	-	2900	2900	56
		Indian Point	2&3	194.0	-	10253	10253	-	48000	48000	5998
	During	Bowline	1&2	78.3	-	31606	31606	-	110000	110000	10962
		Totals		342.5	-	42305	42305	-	160900	160900	16960
JAN 75		Roseton	1&2	70.7	-	331	334				56
		Indian Point	2&3	122.1	-	7458	7458	-	b		2726
	During	Bowline	1&2	86.8	-	24025	24025				22684
		Totals		279.6	-	31817	31817				25466
FEB		Roseton	1&2	84.3	-	250	250				22
		Indian Point	2&3	109.3	-	5358	5358				7323
	During	Bowline	1&2	70.1	-	17602	17602	-	b		4576
		Totals		263.7	-	23210	23210				11921
MAR		Roseton	1&2	93.3	-	200	200				25
		Indian Point	2&3	137.8	-	4118	4118				1657
	During	Bowline	1&2	77.6	-	13427	13427	-	b		12390
		Totals		308.8	-	17745	17745				14072
APR		Roseton	1&2	62.3	-	170	170				33
		Indian Point	2&3	212.5	-	3391	3391				7300
	During	Bowline	1&2	46.5	-	10702	10702				17645
		Totals		321.1	-	14263	14263	-	b		24978
GRAND TOTAL							129,340				93,397

[b] JIII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.

TABLE V-1-b. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1974 AS OBTAINED FROM THE LMS RTLC MODEL WITH COMPENSATION (KO/KE = 0.78) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

		MODEL STANDING CROPS				FIELD-ESTIMATED STANDING CROPS	PERCENT STANDING CROP ABOVE BOWLINE		
								FIELD DATA	
MONTH (Period)	TIME	JI	JII	JIII	TOTAL JUVENILES	TOTAL JUVENILES	MODEL PREDICTIONS	SLED & TUCKER	BEACH SEINE
JUL 74	Beginning	23574704	-	-	23574704	21691000	69.5	34.3	54.7
AUG	Beginning	15785708	163828	-	15949536	3765000	63.6	74.7	83.6
SEP	Beginning	202348	6845285	-	7047633	5460000	64.7	NA	67.9
OCT	Beginning	-	5569584	-	5569584	2832000	19.8	NA	27.9
NOV	Beginning	-	4438737	-	4438737	1404000	19.7	NA	5.6
DEC	Beginning	-	3618582	-	3618582	866000	19.6	NA	2.8
JAN 75	Beginning	-	-	2830450	2830450	NA	19.5	NA	NA
FEB	Beginning	-	-	2230035	2230035	NA	19.5	NA	NA
MAR	Beginning	-	-	1781078	1781078	NA	19.6	NA	NA
APR	Beginning	-	-	1436924	1436924	NA	19.6	NA	NA
	End	-	-	1167945	1167945	NA	19.6	NA	NA

NA - Not available

TABLE V-1-c. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1975 AS OBTAINED FROM THE LMS RTLC MODEL WITHOUT COMPENSATION (KO/KE = 1.0) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII[a]	JIII	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
AUG 75		Roseton	1&2	107.9	25	-	25	2000	-	2000	86
		Indian Point	2&3	239.5	667	-	667	52500	-	52500	14808
	During	Bowline	1&2	129.7	9	-	9	600	-	600	34
		Totals		477.1	701	-	701	55100	-	55100	14928
SEP		Roseton	1&2	81.7	40	-	40				43
		Indian Point	2&3	202.2	1067	-	1067				6596
	During	Bowline	1&2	109.0	13	-	13	a			29
		Totals		392.9	1120	-	1120				6668
OCT		Roseton	1&2	55.5	787	-	787				235
		Indian Point	2&3	187.8	19016	-	19016				3548
	During	Bowline	1&2	77.6	289	-	289	a			21
		Totals		321.0	20092	-	20092				3804
NOV		Roseton	1&2	63.0	556	-	556				183
		Indian Point	2&3	196.9	30751	-	11409				2367
	During	Bowline	1&2	42.0	234	-	234	a			11
		Totals		301.9	31541	-	12199				2561
GRAND TOTAL							34,112				27,961

[a]JII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.

TABLE V-1-c. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1975 AS OBTAINED FROM THE LMS RTLC MODEL WITHOUT COMPENSATION (KO/KE = 1.0) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII	JIII[b]	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
DEC		Roseton	1&2	70.1	-	46	46	-	300	300	74
		Indian Point	2&3	194.0	-	5220	5220	-	40000	40000	3999
	During	Bowline	1&2	78.3	-	8490	8490	-	43000	43000	6764
		Totals		342.5	-	13756	13756	-	83300	83300	10837
JAN 76		Roseton	1&2	70.7	-	51	51				0
		Indian Point	2&3	122.1	-	4789	4789	-	b		18030
	During	Bowline	1&2	86.8	-	9190	9190				1147
		Totals		279.6	-	14030	14030				19177
FEB		Roseton	1&2	84.3	-	40	40				22
		Indian Point	2&3	109.3	-	3264	3264				939
	During	Bowline	1&2	70.1	-	6889	6889	-	b		2724
		Totals		263.7	-	10193	10193				3685
MAR		Roseton	1&2	93.3	-	34	34				25
		Indian Point	2&3	137.8	-	2619	2619				1420
	During	Bowline	1&2	77.6	-	5574	5574	-	b		4308
		Totals		308.8	-	8227	8227				5753
APR		Roseton	1&2	62.3	-	29	29				16
		Indian Point	2&3	212.5	-	2266	2266				0[c]
	During	Bowline	1&2	46.5	-	4533	4533				5075
		Totals		321.1	-	6828	6828	-	b		5091
GRAND TOTAL							53,034				44,543

[b] JIII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.
[c] Indian Point Unit 2 was not online.

TABLE V-1-c. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1975 AS OBTAINED FROM THE LMS RTLC MODEL WITHOUT COMPENSATION (KO/KE = 1.0) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	MODEL STANDING CROPS				FIELD-ESTIMATED STANDING CROPS	PERCENT STANDING CROP ABOVE BOWLINE		
								FIELD DATA	
		JI	JII	JIII	TOTAL JUVENILES	TOTAL JUVENILES	MODEL PREDICTIONS	SLED & TUCKER	BEACH SEINE
JUL 75	Beginning	12620928	-	-	12620928	16249000	49.5	98.7	42.3
AUG	Beginning	27369648	-	-	27369648	5316000	57.0	5.9	35.1
SEP	Beginning	585246	5873028	-	6458274	6374000	53.5	NA	11.0
OCT	Beginning	-	5131145	-	5131145	6051000	11.7	NA	14.7
NOV	Beginning	-	4086594	-	4086594	1071000	11.4	NA	8.3
DEC	Beginning	-	3245903	-	3245903	484000	11.2	NA	NA
JAN 76	Beginning	-	-	2703416	2702416	NA	11.2	NA	NA
FEB	Beginning	-	-	2184366	2184366	NA	11.1	NA	NA
MAR	Beginning	-	-	1789116	1789116	NA	11.1	NA	NA
APR	Beginning	-	-	1465499	1465499	NA	11.2	NA	NA
	End	-	-	1093516	1093516	NA	11.2	NA	NA

NA - Not available

TABLE V-1-d. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1975 AS OBTAINED FROM THE LMS RTLC MODEL WITH COMPENSATION (KO/KE = 0.825) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII[a]	JIII	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
AUG 75		Roseton	1&2	107.9	26	-	26	2000	-	2000	86
		Indian Point	2&3	239.5	687	-	687	52500	-	52500	14808
	During	Bowline	1&2	129.7	9	-	9	600	-	600	34
		Totals		477.1	722	-	722	55100	-	55100	14928
SEP		Roseton	1&2	81.7	43	-	43				43
		Indian Point	2&3	202.2	1137	-	1137				6596
	During	Bowline	1&2	109.0	13	-	13	a			29
		Totals		392.9	1193	-	1193				6668
OCT		Roseton	1&2	55.5	832	-	832				235
		Indian Point	2&3	187.8	20011	-	20011				3548
	During	Bowline	1&2	77.6	296	-	296	a			21
		Totals		321.0	21139	-	21139				3804
NOV		Roseton	1&2	63.0	576	-	576				183
		Indian Point	2&3	196.9	11884	-	11884				2367
	During	Bowline	1&2	42.0	233	-	233	a			11
		Totals		301.9	12693	-	12693				2561
GRAND TOTAL							35,747				27,961

[a] JII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.

TABLE V-1-d. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1975 AS OBTAINED FROM THE LMS RTLC MODEL WITH COMPENSATION (KO/KE = 0.825) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

MONTH (Period)	TIME	POWER STATION	UNIT	COOLING WATER WITHDRAWN (MCM)	MODEL IMPINGEMENT NUMBERS (ACTUAL MODEL CALCULATED OUTPUT VALUES) JII	JIII	TOTAL JUVENILES	MODEL IMPINGEMENT INPUT NUMBERS JII[b]	JIII	TOTAL JUVENILES	ESTIMATED IMPINGEMENT VALUES
DEC		Roseton	1&2	70.1	-	49	49	-	300	300	74
		Indian Point	2&3	194.0	-	5719	5719	-	40000	40000	3999
	During	Bowline	1&2	78.3	-	8996	8996	-	43000	43000	6464
		Totals		342.5	-	14764	14764	-	83000	83000	10837
JAN 76		Roseton	1&2	70.7	-	54	54				0
		Indian Point	2&3	122.1	-	5112	5112	-	b		18030
	During	Bowline	1&2	86.8	-	9332	9332				1147
		Totals		279.6	-	14798	14798				19177
FEB		Roseton	1&2	84.3	-	42	42				22
		Indian Point	2&3	109.3	-	3420	3420				939
	During	Bowline	1&2	70.1	-	7058	7058	-	b		2724
		Totals		263.7	-	10520	10520				3685
MAR		Roseton	1&2	93.3	-	35	35				25
		Indian Point	2&3	137.8	-	2721	2721				1420
	During	Bowline	1&2	77.6	-	5692	5692	-	b		4308
		Totals		308.8	-	8448	8448				5753
APR		Roseton	1&2	62.3	-	29	29				16
		Indian Point	2&3	212.5	-	2350	2350				0[c]
	During	Bowline	1&2	46.5	-	4646	4646				5075
		Totals		321.1	-	7025	7025	-	b		5091
GRAND TOTAL							55,555				44,543

[b] JIII Impingement f factors were computed for each plant based on total model impingement input numbers shown here.
[c] Indian Point Unit 2 was not online.

TABLE V-1-d. COMPARISON OF NUMBER OF STRIPED BASS IMPINGED AND OF STANDING CROPS FOR 1975 AS OBTAINED FROM THE LMS RTLC MODEL WITH COMPENSATION (KO/KE = 0.825) WITH ESTIMATES DERIVED FROM PLANT AND FIELD SAMPLING DATA.

		MODEL STANDING CROPS				FIELD-ESTIMATED STANDING CROPS	PERCENT STANDING CROP ABOVE BOWLINE		
								FIELD DATA	
MONTH (Period)	TIME	JI	JII	JIII	TOTAL JUVENILES	TOTAL JUVENILES	MODEL PREDICTIONS	SLED & TUCKER	BEACH SEINE
JUL 75	Beginning	13863915	-	-	13863915	16249000	49.6	98.7	42.3
AUG	Beginning	28247088	-	-	28247088	5316000	56.7	5.9	35.1
SEP	Beginning	1121703	6489959	-	7611662	6374000	53.9	NA	11.0
OCT	Beginning	-	5742163	-	5742163	6051000	11.7	NA	14.7
NOV	Beginning	-	4482331	-	4482331	1071000	11.4	NA	8.3
DEC	Beginning	-	3533593	-	3533593	484000	11.3	NA	NA
JAN 76	Beginning	-	-	2874490	2874490	NA	11.2	NA	NA
FEB	Beginning	-	-	2279362	2279362	NA	11.1	NA	NA
MAR	Beginning	-	-	1853150	1853150	NA	11.1	NA	NA
APR	Beginning	-	-	1518306	1518306	NA	11.2	NA	NA
	End	-	-	1145364	1145364	NA	11.2	NA	NA

NA - Not available

XV.1 Please provide the raw data on which this report was based. For each sample, provide at least: gear type, sampling speed, time of day, date, volume filtered, and number of organisms caught (by life stage). Provide any additional information needed to reproduce the analyses. Provide the data in a format which clearly indicates which samples were "matched" (i.e., approximately coinciding in time and space). Provide a means of identifying the samples included in each particular analysis.

Response: Work sheets of data sets used in the report are attached. These provide all the numbers used in the analytical calculations.

The sheets labeled "1974 Gear Evaluation Data", "1975 Comparability Study", and "1975 Tow Speed Efficiency Data" contain the "matched" data. The matching is indicated by time of day of sample collection for the 1974 data, and by sample number for the two sets of 1975 data.

The data presented on the sheets labeled "1974 Gear Mouth Size Efficiency Data", "1975 Net/No Net Experiment" and the "1975 Sustained Filtration Data" are grouped by replicates for each test item (gear, tow speed, tow duration).

1974 Gear Evaluation Data

XV-1

D Page 1 of 7

Sample#	GEAR	DATE	TIME of DAY	TOW SPEED	VOLUME FILTERED	STRIPED BASS LARVAE
8000 00	62	6/24/74	14:30	0.80	373.44	46
9000 01	65		14:30		385.42	66
8000 02	62		14:45		306.27	56
9000 03	65		14:45		405.12	59
8000 04	62		14:55		311.05	94
9000 05	65		14:55		383.33	97
8000 06	62		15:05		271.63	100
9000 07	65		15:05		356.29	56
8000 08	62		15:20		281.07	92
9000 09	65		15:20		0.0+	123
8000 10	62		15:35		292.89	153
9000 11	65		15:35		424.18	287
8000 12	62		15:50		298.15	220
9000 13	65		15:50		0.0+	274
8000 16	62		16:30		323.54	46
9000 17	65		16:30		232.01	128
8000 18	62		16:40		328.61	30
9000 19	65		16:40		299.61	124
8000 20	62		16:50		269.76	105
9000 21	65	6/24/74	16:50	0.80	236.78	152
8000 22	60	6/24/74	18:10	0.80	89.54	8
9000 23	65		18:10		276.65	156
8000 24	60		18:20		83.35	53
9000 25	65		18:20		266.34	101
8000 26	60		18:25		78.35	55
9000 27	65		18:25		384.17	62
8000 30	60		18:50		82.83	19
9000 31	65		18:50		306.71	31
8000 32	60		19:00		84.19	27
9000 33	65		19:00		218.93	55
8000 34	60		19:15		70.79	5
9000 35	65		19:15		332.36	85
8000 36	60		19:25		70.03	33
9000 37	65		19:25		305.46	73
8000 38	60		19:35		73.60	30
9000 39	65		19:35		307.66	137
8000 40	60		19:45		62.79	22
9000 41	65		19:45		269.04	17
8000 42	60		20:00		69.26	24
9000 43	65	6/24/74	20:00	0.80	314.70	20

GEAR 60 = 0.5 m ring net
62 = 1.0 m ring net
65 = 1.0 m² Tucker Trawl

TOW SPEED: centimeters/second

VOLUME FILTERED: m³

+ Zero volumes indicate value outside tolerance. Data not included in analyses

197[illegible] Year Evaluation Data

NATIONAL 42-384

XV-1

D Page 247

Sample #	Gear	Date	Time of day	Tow Speed	Volume Filtered	Striped bass Larvae
000444	86	6/25/74	12:35	090	258.79	14
000445	65		12:35	090	233.87	153
000446	86		13:00	090	263.88	16
000447	65		13:00	090	252.63	105
000448	86		13:20	080	217.04	57
000449	65		13:20		275.21	135
000450	86		13:30		291.27	112
000451	65		13:30		227.51	149
000452	86		13:40		240.70	106
000453	65		13:40		360.97	71
000454	86		13:50		268.47	121
000455	65		13:50		366.66	172
000456	86		14:15		0.0+	10
000457	65	6/25/74	14:15	080	314.43	71
000460	60	6/26/74	12:45	080	0.0+	5
000461	64		12:45		359.01	12
000462	60		12:55		0.0+	10
000463	64		12:55		344.79	36
000464	60		13:05		95.04	11
000465	64		13:05		307.55	29
000466	60		13:15		85.41	4
000467	64		13:15		253.52	16
000468	60		13:30		0.0+	5
000469	64		13:30		335.0[illegible]	17
000470	60		13:40		0.0+	21
000471	64		13:40		313.26	18
000472	60		14:05		91.30	2
000473	64		14:05		151.75	3
000474	60		14:20		91.76	1
000475	64		14:20		303.44	9
000476	60		14:45		84.21	6
000477	64		14:45	080	377.67	6
000478	60		14:55	090	91.31	2
000479	64	6/26/74	14:55	080	319.79	29

Gear 60 = 0.5 m² ring net
64 = 1.0 m² Epibenthic sled
65 = 1.0 m² Tucker Trawl
86 = 1.0 m² Kenson net

Tow speed: centimetres/second

Volume Filtered: m³

+ Zero volumes indicate value outside tolerance. Data not included in analysis

1974 Year Evaluation Data

NATIONAL 42-384

XV-1

D Page 347

Sample #	Gear	Date	Time of day	Tow speed	Volume filtered	Striped bass larvae
900080	62	6/26/74	16:45	080	315.33	25
900081	64		16:45		360.78	2
900082	62		16:55		254.82	11
900083	64		16:55		0.0 +	5
900084	62		17:05		205.39	14
900085	64		17:05		360.35	6
900086	62		17:20		363.24	26
900087	64		17:20		148.19	10
900088	62		17:30		316.37	20
900089	64		17:30		442.63	36
900090	62		17:45		328.95	32
900091	64		17:45		224.73	16
900092	62		17:55		265.33	21
900093	64		17:55		354.72	23
900094	62		18:05		305.00	25
900095	64		18:05		301.13	14
900096	62		18:15		357.30	37
900097	64		18:15		249.89	10
900098	62		18:30		292.93	21
900099	64	6/26/74	18:30	080	372.04	22
900100	86	7/2/74	17:30	080	364.13	10
900101	64		17:30		420.76	5
900102	86		17:40		308.33	11
900103	64		17:40		377.51	9
900104	86		17:55		306.53	7
900105	64		17:55		356.56	11
900106	86		18:12		334.24	20
900107	64		18:12		291.56	8
900108	86		18:25		317.46	2
900109	64	7/2/74	18:25	080	309.24	3
900250	62	7/8/74	21:30	090	335.66	11
900251	65		21:30		234.14	3
900252	62		21:55		355.62	2
900253	65		21:55		235.01	0
900254	62		22:10		335.36	0
900255	65		22:10		267.51	0
900256	62		22:25		321.91	4
900257	65		22:25		213.17	6
900258	62		22:37		340.92	1
900259	65		22:37		281.63	0
900260	62		22:53		325.60	2
900261	65		22:53		222.12	1
900262	62		23:05		356.62	11
900263	65		23:05		227.04	0
900264	62		23:20		358.34	3
900265	65		23:20		253.01	0
900266	62		23:40		386.77	3
900267	65		23:40		303.12	0
900268	62		23:50		327.25	6
900269	65	7/8/74	23:50	090	211.02	1

GEAR 62 = 1.0 m ring net
64 = 1.0 m² Epibenthic sled
65 = 1.0 m² Tucker Trawl
86 = 1.0 m Hardy net

Tow speed : centimeters/second

Volume Filtered : m³

+ Zero volume indicates value outside tolerance. Data not included in analyses

197 [illegible] Expedition data

NATIONAL 42-384

XV-1

D Page 4 of 7

Sample #	Gear	Date	Time of day	Tow speed	Volume filtered	Striped bass larvae
100270	86	7/9/77	22:35	080	177.05	1
100271	65		22:35		246.70	1
100272	86		22:45		267.75	2
100273	65		22:45		231.53	0
100274	86		23:10		277.99	14
100275	65		23:10		221.33	1
100276	86		23:35		256.23	2
100277	65		23:35		204.46	1
100278	86		24:00		221.07	3
100279	65	7/9/77	24:00		241.29	5
100280	86	7/10/74	00:25		181.16	0
100281	65		00:25		145.05	3
100282	86		00:35		187.68	0
100283	65		00:35		134.28	1
100284	86		00:45		186.00	0
100285	65		00:45		246.11	8
100286	86		01:05		188.93	0
100287	65		01:05		105.89	6
100288	86		01:15		236.09	1
100289	65	7/10/74	01:15	080	217.84	2
800290	86	7/10/74	02:10	080	230.62	2
900291	64		02:10		178.27	1
800292	86		02:25		122.01	8
900293	64		02:25		272.16	12
800294	86		02:35		151.69	1
900295	64		02:35		0.0 +	2
800296	86		02:45		175.37	4
900297	64		02:45		374.21	0
800298	86		03:00		179.21	0
900299	64		03:00		372.68	0
800300	86		03:20		217.97	0
900301	64		03:20		359.97	0
800302	86		03:35		187.69	0
900303	64		03:35		128.44	0
800304	86		03:45		150.65	0
900305	64		03:45		0.0 +	0
800306	86		04:00		169.11	0
900307	64		04:00		0.0 +	1
800308	86		04:10		140.39	2
900309	64	7/10/74	04:10	080	298.99	0

GEAR: 64 = 1.0 m² Epibenthic sled
65 = 1.0 m² Tucker Trawl
86 = 1.0 m Hensen net

TOW SPEED: centimetres/second

VOLUME FILTERED: m³

+ Zero volumes indicate value outside tolerance. Data not included in analyses

1974 [illegible]

NATIONAL 42-384

XV-1

D Page 5 of 7

Sample #	Gear	Date	Time of day	Tow speed	Volume filtered	Estimated bass larvae
900310	62	7/11/74	00:35	080	285.14	0
900311	64		00:35		0.0 +	0
900312	62		00:50		284.95	0
900313	64		00:50		0.0 +	0
900314	62		01:50		290.60	1
900315	64		01:50		160.64	3
800316	62		02:10		233.51	0
900317	64		02:10		110.30	0
800318	62		02:20		275.21	1
900319	64		02:20		0.0 +	1
800320	62		02:30		297.31	2
900321	64		02:30		0.0 +	0
800322	62		02:40		298.62	2
900323	64		02:40		264.00	3
800324	62		02:50		285.55	4
900325	64		02:50		271.10	0
800326	62		02:58		234.65	1
900327	64		02:58		383.93	1
800328	62		03:08		246.17	1
900329	64	7/11/74	03:08	080	0.0 +	0
800300	60	7/11/74	03:25	080	78.85	0
900331	64		03:25		122.92	2
800332	60		03:35		90.62	1
900333	64		03:35		132.08	0
800334	60		03:45		85.99	0
900335	64		03:45		229.24	0
800336	60		03:55		95.10	0
900337	64		03:55		342.77	2
800338	60		04:04		0.0 +	0
900339	64		04:04		357.44	0
800340	60		04:17		79.55	0
900341	64		04:17		122.51	0
800342	60		04:26		85.43	1
900343	64		04:26		366.71	0
800344	60		04:35		DATA MISSING - SAMPLE VOID	
900345	64		04:35		0.0 +	0
800346	60		04:44		91.82	0
900347	64		04:44		0.0 +	0
800348	60		04:54		73.06	0
900349	64	7/11/74	04:54	080	0.0 +	0

GEAR 60 = 0.5 m ring net
62 = 1.0 m ring net
64 = 1.0 m² epibenthic sled

TOW SPEED: centimeters/second

VOLUME FILTERED = m³

+ Zero volumes indicate value outside tolerance. Data not included in analysis

1974 Year Evaluation Data

NATIONAL 42-384

XV-1

D Page 6 of 7

Sample #	Gear	Date	Time of Day	Tow Speed	Volume Filtered	Striped Bass Larvae
900350	60	7/11/74	22:05	090	0.0 +	0
900351	65		22:05		230.17	0
900352	60		22:15		0.0 +	0
900353	65		22:15		295.83	0
900354	60		22:28		72.86	0
900355	65		22:28		254.16	0
900356	60		22:38		88.26	1
900357	65		22:38		262.02	1
900358	60		22:46		81.55	0
900359	65		22:46		238.54	1
900360	60		22:55		88.16	0
900361	65		22:55		285.57	1
900362	60		23:05		81.05	0
900363	65		23:05		291.20	0
900364	60		23:15		86.49	0
900365	65		23:15		279.53	0
900366	60		23:25		79.48	0
900367	65		23:25		0.0 +	0
900368	60		23:33		78.23	3
900369	65	7/11/74	23:33	090	267.92	0
800632	86	7/23/74	14:55	080	230.32	1
900633	64		14:55		175.68	1
800634	86		15:08		244.15	1
900635	64		15:08		0.0 +	0
800636	86		15:20		243.22	0
900637	64		15:20		201.77	0
800638	86		15:30		256.93	2
900639	64		15:30		124.55	0
800640	86		15:40		260.77	0
900641	64		15:40		0.0 +	1
800642	86		15:50		312.28	1
900643	64		15:50		0.0 +	0
800644	86		16:05		234.44	0
900645	64		16:05		0.0 +	0
800646	86		16:15		263.10	1
900647	64		16:15		0.0 +	2
800648	86		16:25		264.16	0
900649	64		16:25		0.0 +	0
800650	86		16:35		225.29	0
900651	64	7/23/74	16:35	080	242.41	0

Gear 60 = 0.5 m ring net
64 = 1.0 m² Epibenthic sled
65 = 1.0 m² Tucker Trawl
86 = 1.0 m Hensen net

Tow speed = centimetres/second

Volume Filtered = m³

+ Zero volumes indicate value outside tolerance. Data not included in analyses

19 [illegible] Larvae Data

NATIONAL 42-384

XII-1

D Pope 7 of 7

Sample #	Gear	Date	Time of day	Tow speed	Volume Filtered	Striped bass larvae
00780	62	8/1/74	21:20	080	384.69	0
00781	64		21:20		0.0 +	1
00782	62		21:30		383.37	0
00783	64		21:30		0.0 +	0
00784	62		21:40		367.31	0
00785	64		21:40		163.96	1
00786	62		21:50		0.0 +	0
00787	64		21:50		0.0 +	0
00788	62		22:00		367.46	1
00789	64		22:00		0.0 +	1
00790	62		22:10		340.13	0
00791	64		22:10		121.01	0
00792	62		22:20		377.92	0
00793	64		22:20		108.53	0
00794	62		22:30		358.34	0
00795	64		22:30		0.0 +	0
00796	62		22:40		0.0 +	0
00797	64		22:40		143.34	0
00798	62		22:50		397.44	1
00799	64	8/1/74	22:50	080	0.0 +	0

GEAR 62 = 1.0 m ring net
64 = 1.0 m² Epibenthic sled

TOW SPEED = centimetres/second

VOLUME FILTERED = m³

+ Zero volumes indicate value outside Tolerance. Data not include in analyses

1975 Comparability Study data

XV-1

E Page 1 of 2

Sample #	GEAR	DATE	TIME OF day	TOW SPEED	VOLUME FILTERED	STRIPED BASS YOLK-SAC	POST YOLK-SAC	EGG
850001	64	5/30/75	06:17	120	197.98	63	0	1
855001	60		06:17	120	92.88	3	28	22
850002	64		06:37	100	311.05	71	142	3
855002	60		06:37	100	87.78	2	61	12
850003	64		06:54	100	288.12	54	198	12
855003	60		06:54	110	98.56	16	74	5
850004	64		07:21	100	328.05	26	38	3
855004	60		07:21	130	96.67	23	1	1
850005	64		07:40	100	297.68	7	13	0
855005	60		07:40	110	84.46	36	3	27
850006	64		07:59	100	310.32	225	45	58
855006	60		07:59	125	99.22	29	0	4
850007	64		08:15	100	323.17	62	106	54
855007	60		08:15	125	80.74	38	1	31
850008	64		08:33	095	280.63	102	152	27
855008	60		08:33	120	93.08	57	5	10
850009	64		08:49	100	318.24	12	4	0
855009	60		08:49	110	77.30	33	2	6
850010	64		09:04	100	279.52	135	27	17
855010	60	5/30/75	09:04	110	74.38	59	3	14
850011	64	5/30/75	09:24	100	279.87	257	49	284
855011	86		09:24	100	293.65	188	79	0
850012	64		09:38	100	276.61	11	195	6
855012	86		09:38	100	347.10	34	58	1
850013	64		09:53	100	273.12	59	21	11
855013	86		09:53	100	282.42	92	8	29
850014	64		10:07	100	287.64	3	7	0
855014	86		10:07	95	300.69	33	27	0
850016	64		10:37	100	278.61	79	50	0
855016	86		10:37	90	290.33	86	41	0
850019	64		11:20	100	295.83	54	62	5
855019	86		11:20	100	277.18	81	23	7
850021	64		11:46	100	305.26	44	87	2
855021	86		11:46	90	278.60	49	26	12
850022	64		12:10	100	306.10	430	0	15
855022	86		12:10	95	299.49	302	128	3
850023	64		12:42	100	309.94	334	124	2
855023	86		12:42	85	266.19	224	124	1
850024	64		12:54	100	321.20	287	372	0
855024	86	5/30/75	12:54	90	94.21	236	99	10

GEAR: 60 - 0.5 m² ring net
64 - 1.0 m² Epibenthic sled
86 - 1.0 m² Hensen net

Tow speed: centimeters/second

Volume filtered in m³

1975 Comparative Gear study to

XV-1

E page 2 of 2

Sample #	GEAR	DATE	TIME OF DAY	TOW SPEED	VOLUME FILTERED	STRIPED BASS YOLK-SAC	POST YOLK-SAC	EGG
850025	65	5/30/75	13:14	110	309.64	7	3	1
855025	60		13:14	100	66.92	0	0	0
850026	65		13:23	110	329.54	7	4	0
855026	60		13:23	100	67.50	0	0	0
850027	65		13:33	110	298.69	7	3	0
855027	60		13:33	101	75.04	0	0	0
850028	65		13:44	125	272.47	1	24	0
855028	60		13:44	120	81.75	0	0	0
850029	65		13:54	115	286.72	1	14	0
855029	60		13:54	125	82.98	0	0	0
850030	65		14:03	105	325.32	4	10	0
855030	60		14:03	125	84.81	0	0	0
850031	65		14:13	095	330.60	10	8	0
855031	60		14:13	130	84.29	0	0	0
850032	65		14:23	110	313.75	11	52	3
855032	60		14:23	130	83.75	1	0	0
850033	65		14:34	110	330.76	40	35	7
855033	60	5/30/75	14:34	130	84.83	0	0	0
850035	65	5/30/75	15:09	110	343.13	18	6	6
855035	86		15:09	095	207.29	7	0	0
850036	65		15:24	110	331.56	17	24	3
855036	86		15:24	085	238.57	3	0	0
850037	65		15:35	110	314.61	8	112	0
855037	86		15:35	090	241.48	3	0	0
850038	65		15:45	110	317.06	51	165	0
855038	86		15:45	085	224.54	1	5	0
850039	65		15:57	115	359.02	32	253	0
855039	86		15:57	090	217.05	1	16	0
850040	65		16:08	105	324.80	1	156	1
855040	86		16:08	090	232.90	1	0	0
850041	65		16:20	105	326.46	51	220	0
855041	86		16:20	090	232.35	0	2	0
850042	65		16:32	105	364.82	69	55	0
855042	86		16:32	085	239.87	0	5	0
850043	65		16:43	105	316.63	0	57	0
855043	86		16:43	090	239.61	1	0	0
850044	65		16:55	105	323.74	41	130	0
855044	86	5/30/75	16:55	090	272.15	0	0	0

Gear: 60 = 0.5 m ring net
65 = 1.0 m² Tucker Trawl
86 = 1.0 m Hiwen net

Tow speed: Centimeters/second

Volume Filtered = m³

1975 - Tow speed effloway data

XV-1

B 1/1

SAMPLE#	DATE	TIME OF DAY	VOLUME FILTERED	striped bass Post Yolk-sac	TOW SPEED
750001	7/9/75	21:10	319.43	0	120
755001		21:10	379.22	2	80
750002		22:00	255.75	0	120
755002		22:00	317.65	0	80
750003		22:14	320.57	2	120
755003		22:14	300.64	0	80
750007		23:25	291.08	3	120
755007		23:25	348.43	0	80
750008		23:44	320.39	6	120
755008	7/9/75	23:44	347.75	0	80
750010	7/10/75	00:06	334.09	7	120
755010		00:06	349.17	1	80
750011		00:19	295.89	4	120
755011		00:19	321.91	5	80
750012		00:31	279.00	5	120
755012		00:30	348.70	0	80
750013		00:42	312.55	2	120
755013		00:41	330.95	0	80
750014		00:52	317.47	8	120
755014		00:51	361.74	0	80
750015		01:00	245.27	3	120
755015		01:02	360.24	8	80
750016		01:13	322.35	0	120
755016		01:12	335.44	0	80
750017		01:25	301.67	0	120
755017		01:24	335.08	0	80
750018		01:40	333.01	2	120
755018		01:39	350.97	0	80
750019		01:49	339.43	0	120
755019		01:50	330.38	0	80
750020		02:05	254.01	0	120
755020		02:04	343.32	0	80
750021		02:15	309.96	7	120
755021		02:14	294.66	2	80
750022		02:23	273.54	0	120
755022		02:24	218.10	0	80
750023		02:38	318.84	0	120
755023		02:38	197.45	0	80
750024		02:49	339.62	0	120
755024		02:48	282.44	0	80
750025		02:59	322.59	0	120
755025		02:59	326.15	0	80
750026		03:25	256.54	0	120
755026		03:24	388.96	0	80
750027		03:34	259.44	8	120
755027		03:34	365.82	0	80
750028		03:44	287.36	7	120
755028		03:42	350.97	3	80
750029		03:53	341.76	0	120
755029	7/10/75	03:52	387.55	1	80

Volume = m^3
Tow speed = cm/sec

1974 Mouth Size Efficiency data

XVI-1

DAYTIME SAMPLES

c Page 1 of 5

Sample #	Gear	Mouth Size	Date	Time of day	Volume Filtered	Striped Bass Larvae
900121	Tucker Trawl	1.25 m²	7/1/74	14:10	419.49	4
123				14:25	420.07	0
125				14:45	515.07	7
127				15:20	545.90	16
129				15:30	535.02	6
900131	Tucker Trawl	1.25 m²	7/1/74	15:40	519.45	7
800120	Tucker Trawl	1.0 m²	7/1/74	14:10	311.03	3
800122				14:25	271.02	0
900133				16:00	482.15	13
900135				16:10	421.00	0
900137				16:25	403.95	0
900139	Tucker Trawl	1.0 m²	7/1/74	16:35	393.94	0
800124	Tucker Trawl	0.75 m²	7/1/74	14:45	253.74	5
800126				15:20	262.53	10
800136				16:25	165.99	1
800138				16:35	306.84	4
800140				16:45	205.88	3
800142	Tucker Trawl	0.75 m²	7/1/74	16:55	212.53	3
800128	Tucker Trawl	0.50 m²	7/1/74	15:30	193.46	6
800130				15:40	216.29	1
800132				16:00	210.47	6
800134				16:10	195.68	2
900141				16:45	238.38	0
900143	Tucker Trawl	0.50 m²	7/1/74	16:55	193.70	1
900151	Epibenthic sled	1.0 m²	7/1/74	19:25	303.99	2
153				19:50	379.44	6
155				20:05	236.12	5
157				20:30	153.11	6
900159	Epibenthic sled	1.0 m²	7/1/74	20:45	339.37	16
800148	Epibenthic sled	0.75 m²	7/1/74	19:10	315.81	23
150			7/1/74	19:25	338.91	51
166			7/2/74	16:15	108.63	4
800170	Epibenthic sled	0.75 m²	7/2/74	17:00	343.23	3
900152	Epibenthic sled	0.50 m²	7/1/74	19:50	268.30	20
800154			7/1/74	20:05	221.90	17
900161			7/1/74	21:05	134.15	3
900163			7/1/74	21:17	196.91	3
900165	Epibenthic sled	0.50 m²	7/2/74	16:00	59.64	2

1974 Gear mouth Size Efficiency data

NATIONAL 42-384

DAYTIME SAMPLES (CONTINUED)

Sample #	Gear	Mouth size	Date	Time of day	Volume filtered	Striped bass larvae
800158	Epibenthic sled	0.25 m²	7/1/74	20:45	116.04	17
800160	↓	↓	7/1/74	21:05	108.28	3
800162	↓	↓	7/1/74	21:17	116.96	4
900169	↓	↓	7/2/74	16:45	112.89	3
900171	Epibenthic sled	0.25 m²	7/2/74	17:00	128.15	10

NIGHTTIME SAMPLES

Sample #	Gear	Mouth size	Date	Time of day	Volume filtered	Striped bass larvae
900183	Tucker trawl	1.25 m²	7/2/74	21:50	350.20	10
187	↓	↓	↓	22:40	298.86	11
189	↓	↓	↓	22:55	343.06	10
191	↓	↓	↓	23:10	348.02	3
900193	Tucker trawl	1.25 m²	7/2/74	23:25	349.79	4
800182	Tucker trawl	1.0 m²	7/2/74	21:50	154.55	2
800188	Tucker trawl	0.75 m²	7/2/74	22:55	155.71	4
800194	↓	↓	↓	23:40	135.52	1
800196	Tucker trawl	0.75 m²	7/2/74	23:55	170.05	0
800190	Tucker trawl	0.50 m²	7/2/74	23:10	119.72	2
900193	↓	↓	↓	23:25	349.79	4
900195	↓	↓	↓	23:40	216.08	2
900197	Tucker trawl	0.50 m²	7/2/74	23:55	71.74	1
900199	Epibenthic sled	1.0 m²	7/3/74	00:15	169.10	1
201	↓	↓	↓	00:30	405.93	0
203	↓	↓	↓	00:50	442.76	0
205	↓	↓	↓	01:00	415.40	2
207	↓	↓	↓	01:23	431.31	1
900209	Epibenthic sled	1.0 m²	7/3/74	01:40	439.88	3
800198	Epibenthic sled	0.75 m²	7/3/74	00:15	337.99	2
200	↓	↓	↓	00:30	376.01	1
214	↓	↓	↓	02:45	151.23	4
216	↓	↓	↓	02:55	335.79	6
218	↓	↓	↓	03:20	337.05	6
800220	Epibenthic sled	0.75 m²	7/3/74	03:30	344.31	1
800202	Epibenthic sled	0.50 m²	7/3/74	00:50	244.57	0
900211	↓	↓	↓	02:00	229.15	1
900217	Epibenthic sled	0.50 m²	7/3/74	02:55	106.81	0

NATIONAL 42-384

NIGHTTIME SAMPLES (CONTINUED)

SAMPLE #	GEAR	MOUTH SIZE	DATE	TIME OF DAY	VOLUME FILTERED	STRIPED BASS LARVAE
900219	EPIBENTHIC SLED	0.25 m²	7/3/74	03:20	55.77	0
900221	EPIBENTHIC SLED	0.25 m²	7/3/74	03:30	70.77	0

DAYTIME SAMPLES

SAMPLE #	GEAR	MOUTH SIZE	DATE	TIME OF DAY	VOLUME FILTERED	STRIPED BASS LARVAE
900441	EPIBENTHIC SLED	1.0 m²	7/16/74	13:02	294.52	1
447				13:48	198.23	0
449				14:00	98.30	1
900457	EPIBENTHIC SLED	1.0 m²	7/16/74	14:54	114.27	0
800440	EPIBENTHIC SLED	0.75 m²	7/16/74	13:02	321.28	1
442			7/16/74	13:16	180.64	1
444			7/16/74	13:26	339.80	0
476			7/17/74	20:00	249.45	2
478				20:07	283.80	2
480				20:18	231.64	1
482				20:30	238.95	4
800484	EPIBENTHIC SLED	0.75 m²	7/17/74	20:45	200.72	1
800446	EPIBENTHIC SLED	0.50 m²	7/16/74	13:48	149.79	0
800448				14:00	155.64	0
800450				14:15	171.06	0
900459				15:55	119.80	1
463			7/16/74	16:23	79.15	0
483			7/17/74	20:30	87.90	0
485				20:45	51.99	1
900487	EPIBENTHIC SLED	0.50 m²	7/17/74	20:55	97.05	0
800452	EPIBENTHIC SLED	0.25 m²	7/16/74	14:33	75.24	3
454				14:43	75.28	1
456				14:54	39.65	0
458				15:55	34.52	0
460				16:10	77.49	1
800462			7/16/74	16:23	93.04	0
900477			7/17/74	20:00	56.77	0
900479	EPIBENTHIC SLED	0.25 m²	7/17/74	20:07	28.49	0

NIGHT TIME SAMPLES

SAMPLE #	GEAR	MOUTH SIZE	DATE	TIME OF DAY	VOLUME FILTERED	STRIPED BASS LARVAE
900489	TUCKER TRAWL	1.25 m²	7/17/74	21:20	399.36	0
491				21:35	376.35	0
493				21:45	387.77	4
495				22:05	431.70	6
497				22:15	400.79	12
499				22:25	372.06	1
501				22:40	383.76	2
503				22:55	341.16	8
900505	TUCKER TRAWL	1.25 m²	7/17/74	23:05	380.43	0

1974 [illegible]ar mouth Size Effici[illegible] data

NATIONAL 42-384

XV-1

NIGHT TIME SAMPLES (CONTINUED)

c Page 4 of 5

Sample #	Gear	mouth size	Date	Time of day	Volume Filtered	Striped bass larvae
800 488	Tucker Trawl	1.0 m²	7/17/74	21:20	185.15	4
800 490				21:35	162.68	2
800 492				21:45	234.22	7
900 507				23:40	217.27	1
509			7/17/74	23:50	232.07	4
511			7/18/74	00:02	263.24	3
513				00:15	209.71	1
515				00:25	241.13	5
900 517	Tucker Trawl	1.0 m²	7/18/74	00:40	200.00	8
800 494	Tucker Trawl	0.75 m²	7/17/74	22:05	161.77	7
498			7/17/74	22:25	103.39	7
512			7/18/74	00:15	147.02	2
514				00:25	82.95	4
518				00:50	263.81	1
800 522	Tucker Trawl	0.75 m²	7/18/74	01:15	114.48	2
800 500	Tucker Trawl	0.5 m²	7/17/74	22:40	113.48	0
502				22:55	130.85	2
504				23:05	118.69	4
506				23:40	194.71	4
508			7/17/74	23:50	62.55	0
800 510			7/18/74	00:02	71.11	2
900 519				00:50	208.26	0
900 521				01:05	207.77	2
900 523	Tucker Trawl	0.5 m²	7/18/74	01:15	195.47	0
900 527	Epibenthic sled	1.0 m²	7/18/74	21:10	210.34	3
529				21:20	235.36	1
537				22:20	249.78	7
539				22:35	226.25	4
541				22:45	233.19	8
900 543	Epibenthic sled	1.0 m²	7/18/74	22:57	237.92	3
800 526	Epibenthic sled	0.75 m²	7/18/74	21:10	115.87	0
800 528				21:20	86.70	1
800 545				23:20	204.27	4
900 547				23:30	143.92	0
549			7/18/74	23:45	238.23	6
551			7/19/74	00:05	196.27	2
553				00:20	227.36	7
900 555	Epibenthic sled	0.75 m²	7/19/74	00:30	193.66	1

1974 Mean mouth Size Efficiency data

XV-1

NIGHTTIME SAMPLES (CONTINUED)

Sample #	Gear	Mouth Size	Date	Time of day	Volume Filtered	Striped bass larvae				
800 532	Epibenthic sled	0.5 m²	7/18/74	22:00	66.20	4				
536				22:20	194.28	9				
544				23:20	183.53	3				
800 548			7/18/74	23:45	91.11	0				
900 559	Epibenthic sled	0.5 m²	7/19/74	01:00	51.44	0				
800 538	Epibenthic sled	0.25 m²	7/18/74	22:35	30.67	5				
550			7/19/74	00:05	60.94	0				
552				00:20	104.45	1				
554				00:30	91.98	0				
558				01:00	66.65	0				
800 562	Epibenthic sled	0.25 m²	7/19/74	01:20	57.81	0				

1975 net / no-net

NATIONAL 42-384

XV-1

F 1/1

Sample #	Gear	Duration	Tow speed	Volume Filtered		Sample #	Gear	Duration	Tow speed	Volume Filtered
780001	Tucker Trawl	5.1	85	247.94		780032	Epibenthic sled	5.8	95	321.04
780002		5.0	85	310.59		780033		5.4	95	312.64
780003		5.2	90	246.44		780034		5.6	90	328.90
780004		5.1	90	310.41		780035		5.7	100	344.56
780005		5.3	90	313.55		780036		5.7	100	382.79
780006		5.0	90	299.24	with	780037		5.3	105	347.49
780007		5.0	95	318.62		780038		5.6	95	335.32
780008		5.2	95	305.26	NET	780039		5.5	95	310.15
780009		5.1	100	333.27		780040		6.2	90	333.33
780010		5.1	100	348.35		780041		5.7	100	363.37
780011		5.2	95	281.50		780042		5.8	90	311.28
780012		5.0	95	305.11		780043		5.7	90	292.32
780013		5.0	100	354.74		780044		5.5	105	370.89
780014		5.2	100	313.94		780045	Epibenthic sled	5.7	110	377.94
780015	Tucker Trawl	5.3	95	287.63						
780016	Tucker Trawl	5.3	90	339.06		780047	Epibenthic sled	5.3	110	368.79
780017		5.2	100	330.62		780048		5.4	100	327.04
780018		5.2	100	312.63		780049		5.3	110	367.53
780019		5.5	100	390.44		780050		5.5	110	387.2
780021		5.2	100	318.70	without	780051		5.5	110	390.43
780022		5.2	100	310.93		780052		5.5	110	377.7
780023		5.0	100	336.05	NET	780053		5.5	110	389.48
780024		5.2	100	352.52		780054		5.3	110	383.45
780025		5.2	105	322.64		780055		5.5	110	394.39
780026		5.1	105	325.44		780056		5.4	110	379.15
780027		5.2	105	304.21		780057		5.4	110	384.45
780028		5.1	100	359.58		780058		5.4	110	381.17
780029		5.1	105	361.40		780059		5.5	110	370.1
780030	Tucker Trawl	5.2	105	318.24		780060	Epibenthic sled	5.4	110	334.02

Duration = minutes
Tow speed = cm/sec
Volume = m^3

1975 Sucotown filtration data

XV-1

A Page 1 of 2

sample #	GEAR	Duration	Tow Speed	Volume Filtered	SAMPLE #	GEAR	Duration	Tow SPEED	Volume FILTERED
780061	EPIBENTHIC SLED	2.7	110	197.96	780123	EPIBENTHIC SLED	15.0	100	934.78
780064		2.5	95	171.43	780124				971.21
780065		2.5	110	156.09	780125				1030.37
780066		2.5	100	153.78	780126				1022.46
780068		2.5	100	152.78	780128				1022.92
780069		2.5	100	169.04	780129				999.21
780070		2.5	110	166.97	780130				956.47
780071	EPIBENTHIC SLED	2.5	100	166.84	780131				1092.15
					780132	EPIBENTHIC SLED	15.0	100	953.02
780076	EPIBENTHIC SLED	5.0	90	266.01	780133	EPIBENTHIC SLED	17.5	100	1059.61
780079			100	312.04	780134				1079.01
780080			110	337.63	780135				1096.40
780081			90	293.03	780136				1156.16
780082			90	296.80	780137				1063.92
780084			90	308.39	780138				1161.78
780085		5.0	100	316.55	780139				1173.82
780086		5.5	90	339.95	780140				1232.35
780088	EPIBENTHIC SLED	5.0	95	301.52	780141				1210.76
					780142	EPIBENTHIC SLED	17.5	100	1150.71
780091	EPIBENTHIC SLED	7.5	100	443.81	780143	EPIBENTHIC SLED	20.5	90	1082.56
780092				490.86	780144		20.0	100	1113.9
780093				458.03	780145				1124.96
780094				418.38	780146				1080.1
780095		7.5		452.26	780148				1038.[illegible]
780096		7.6		450.78	780149				1064.12
780098		7.5		509.11	780150				1013.17
780099				476.23	780151				1151.60
780100				456.66	780152	EPIBENTHIC SLED	20.0	100	1099.62
780101	EPIBENTHIC SLED	7.5	100	435.70					
780103	EPIBENTHIC SLED	10.3	100	633.78					
780104		10.0		592.35					
780105				621.25	Duration =	minutes			
780106				602.21	Towspeed =	cm/sec			
780108				600.48	Volume =	m^3			
780109				615.70					
780110	EPIBENTHIC SLED	10.0	100	614.27					
780113	EPIBENTHIC SLED	12.5	100	798.81					
780117				910.00					
780118				856.48					
780119				833.53					
780120				842.37					
780121				799.23					
780122	EPIBENTHIC SLED	12.5	100	797.03					

1975 [illegible] filtration data

XV-1

A Page 2 of 2

Sample #	Gear	Duration	Tow speed	Volume filtered	Sample #	Gear	Duration	Tow speed	Volume filtered
780154	Tucker Trawl	2.6	100	167.11	780196	Tucker Trawl	12.5	100	871.84
780155		2.6	95	163.91	780197		12.5		781.95
780156		2.6	100	166.43	780198		12.5		836.00
780157		2.5	95	151.63	780199		12.5		824.01
780158			95	154.41	780200		12.6		823.68
780159			100	159.05	780201		12.6		803.99
780160			100	144.26	780202		12.5		848.90
780161			95	147.61	780203		12.5		765.6[illegible]
780162	Tucker Trawl	2.5	95	151.26	780204		12.5		766.08
					780205	Tucker Trawl	12.5	100	786.2[illegible]
780164	Tucker Trawl	5.0	90	308.71					
780165			100	308.66	780206	Tucker Trawl	15.2	90	980.12
780166				333.02	780207		15.0		992.76
780167				318.88	780208				940.00
780168				326.15	780210				1000.68
780169				320.04	780211				1013.95
780170				342.09	780212				1018.38
780171			100	361.71	780214			90	844.68
780172			90	321.85	780215		15.0	80	786.74
780173	Tucker Trawl	5.0	90	329.74	780216		15.2	95	989.[illegible]
					780217	Tucker Trawl	15.3	100	1184.97
780174	Tucker Trawl	7.5	100	443.68					
780175				458.74	780218	Tucker Trawl	17.5	100	1264.18
780178				472.37	780219				1275.2[illegible]
780179				459.34	780220				1302.5[illegible]
780180				418.14	780221				1293.1[illegible]
780181				450.27	780222				1123.31
780182				470.46	780223				1115.20
780183				493.01	780225				1208.95
780184				494.22	780226			100	1190.[illegible]
780185	Tucker Trawl	7.5	100	483.60	780227	Tucker Trawl	17.5	90	1133.1[illegible]
780186	Tucker Trawl	10.2	80	660.14	780228	Tucker Trawl	20.0	95	1245.25
780187		10.2		651.98	780229		20.3	90	1270.75
780188		10.7		666.99	780230		20.2	100	1300.38
780189		10.4		686.10	780231		20.0	90	1287.1[illegible]
780190		10.0		673.05	780232		20.0	90	1311.31
780191		10.4	80	727.77	780233		20.2	90	1309.15
780192		10.0	95	735.51	780234		20.0	90	1272.28
780193		10.5	95	784.50	780236		20.0	100	1374.24
780194		10.0	100	703.12	780237		20.0	100	1266.33
780195	Tucker Trawl	10.2	100	671.05	780238	Tucker Trawl	20.2	90	1236.8[illegible]

Duration = minutes
Tow speed = cm/sec
Volume = m^3

XV.2. Provide a table similar to Table C-1, but expanded to include total volume sampled, tow speed, and any other variables which differed between groups. Provide a similar table for 1975 sampling (and 1976, if any).

Response: Attached is a table similar to Table C-1 but expanded per your request. In addition a table relative to the 1975 sampling is also provided. No gear comparability data were collected in 1976 and accordingly no 1976 data are available.

XV-2 1 of 2

1974 Gear Comparability Study (Supplement to Table C-1)+

Gear	Time	Date	Number of Samples	Mean Catch* per 1000 m^3	Standard Deviation	Mean Volume (m^3) Filtered	Mean Tow Speed (cm/s)
1.0 m ring net	day	6/24	10	5.5777	0.6698	305.64	080
1.0 m^2 Tucker Trawl			8	5.7338	0.6295	346.59	080
0.5 m ring net	day	6/24	10	5.6763	0.7460	77.47	080
1.0 m^2 Tucker Trawl			10	5.2778	0.7669	303.20	080
1.0 m Hensen net	day	6/24	6	5.3104	0.9843	256.69	083
1.0 m^2 Tucker Trawl			7	6.0080	0.4772	290.49	083
0.5 m ring net	day	6/26	6	3.6078	0.8463	89.84	080
1.0 m^2 Epibentic sled			10	3.8498	0.6758	311.58	080
1.0 m ring net	day	6/26	10	4.3183	0.2394	300.45	080
1.0 m^2 Epibenthic sled			9	3.7249	0.8321	312.72	080
1.0 m Hensen net	day	7/02	5	3.2436	0.7857	326.14	080
1.0 m^2 Epibenthic sled			5	2.9895	0.4929	351.13	080
1.0 m ring net	night	7/08	10	2.2168	1.0403	344.61	090
1.0 m^2 Tucker Trawl			10	0.9450	1.3037	244.78	090
1.0 m Hensen net	night	7/09-10	10	1.4382	1.3842	220.20	080
1.0 m^2 Tucker Trawl			10	2.2319	1.2148	229.45	080
0.5 m ring net	night	7/11	8	0.7731	1.4646	82.01	090
1.0 m^2 Tucker Trawl			9	0.5249	0.7881	267.22	090
1.0 m Hensen net	night	7/10	10	1.5671	1.7204	172.67	080
1.0 m^2 Epibenthic sled			7	0.8139	1.4964	287.51	080
1.0 m ring net	night	7/11	10	1.3130	0.9733	271.87	080
1.0 m^2 Epibenthic sled			5	1.3553	1.3839	237.99	080
0.5 m ring net	night	7/11	8	0.6287	1.1643	85.05	080
1.0 m^2 Epibenthic sled			7	0.6816	1.1944	239.09	080
1.0 m Hensen net	day	7/23	10	0.8481	0.9135	253.47	080
1.0 m^2 Epibenthic sled			4	0.4752	0.9505	186.10	080
1.0 m ring net	night	8/01	8	0.3214	0.5953	372.08	080
1.0 m^2 Epibenthic sled			4	0.4900	0.9800	134.21	080

*Transformation: $\log_e (1000\ C/V + 1)$

where C = catch
V = volume in m^3

+TI 1977. 1974 and 1975 Gear Evaluation Studies, Consolidated Edison Company of New York, Inc.

1975 Gear Comparability Study

Gear	Time	Date	Number of Samples	Mean Catch Per 1000 m^3* Yolk-Sac	Post Yolk-Sac	Egg	Mean Volume (m^3) Filtered	Mean Tow Speed (cm/s)
1.0 m^2 Epibenthic sled	day	5/30	10	5.1608	4.5487	2.9278	293.48	101
0.5 m ring net			10	5.4196	3.8512	4.6504	88.51	116
1.0 m^2 Epibenthic sled	day	5/30	10	5.1351	4.6566	2.0410	264.00	100
1.0 m Hensen net			10	5.3308	4.8706	2.1673	272.98	95
1.0 m^2 Tucker Trawl	day	5/30	9	2.9917	3.5787	0.7662	310.83	110
0.5 m ring net			9	0.2841	0	0	79.09	118
1.0 m^2 Tucker Trawl	day	5/30	10	3.7272	5.9531	0.6631	335.18	108
1.0 m Hensen net			10	1.5481	1.2806	0	234.58	89

*Transformation: $\log_e (1000\ C/V + 1)$

where

C = catch

V = volume in m^3

XV.3. There appear to be some errors in table callouts in the last paragraph on page III-11 and in the date given in the title to Table III-5. Please clarify.

Response: Errata to the Gear Evaluation Studies report that have been compiled to date are attached. No table callouts errors have been identified from the last paragraph on page III-11.

objectives of the 1974-1975 studies conducted by TI were to:

- Develop a method of comparing data from 0.5 m and 1.0 m ring (or conical) nets (NYU and QLM-LMS gear), 1.0 m Hensen nets (NYU and QLM-LMS gear) and the 1.0 m^2 epibenthic sled and 1.0 m^2 Tucker trawl (TI gear) by applying correction factors

- Determine the effect of net mouth size on the catch efficiency of the epibenthic sled and Tucker trawl

- Determine the effect of tow speed on the catch efficiency of the 1.0 m^2 Tucker trawl

- Determine the ratio of the volume of water strained through both a 1.0 m^2 epibenthic sled and a 1.0 m^2 Tucker trawl equipped with 50~~0~~5 μ mesh to the volume of water that would have passed through the net frame had no net been present (filtration efficiency)

- Describe the effect of tow duration on filtration efficiency for the 1.0 m^2 Tucker trawl and 1.0 m^2 epibenthic sled

Table III-2

Parametric and Nonparametric Tests for Equality of Mean Catch from 1974 Gear Comparability Study

Gear	Time	Date	t-Test of Equality of Means t		df	Wilcoxon Rank Sum Test Z	
1.0 m ring; 1.0 m^2 Tucker trawl	Day	6/24	0.505	ns	16	0.62	ns
0.5 m ring; 1.0 m^2 Tucker trawl	Day	6/24	1.178	ns	18	1.29	ns
1.0 m Hensen; 1.0 m^2 Tucker trawl	Day	6/25	1.668	ns	11	1.59	ns
0.5 m ring; 1.0 m^2 Epibenthic sled	Day	6/26	0.632	ns	14	0.54	ns
1.0 m ring; 1.0 m^2 Epibenthic sled	Day	6/26	†			2.37	*
1.0 m Hensen; 1.0 m^2 Epibenthic sled	Day	7/2	0.612	ns	8	0.73	ns
1.0 m ring; 1.0 m^2 Tucker trawl	Night	7/8	2.411	*	18	2.12	*
1.0 m Hensen; 1.0 m^2 Tucker trawl	Night	7/9,10	1.362	ns	18	1.13	ns
0.5 m ring; 1.0 m^2 Tucker trawl	Night	7/11	†			0.00	ns
1.0 m Hensen; 1.0 m^2 Epibenthic sled	Night	7/10	†			0.83	ns
1.0 m ring; 1.0 m^2 Epibenthic sled	Night	7/11	†			0.00	ns
0.5 m ring; 1.0 m^2 Epibenthic sled	Night	7/11	†			0.12	ns
1.0 m ring; 1.0 m^2 Tucker trawl	Day	7/22	✓			✓	
0.5 m ring; 1.0 m^2 Tucker trawl	Day	7/22	✓			✓	
1.0 m Hensen; 1.0 m^2 Tucker trawl	Day	7/23	✓			✓	
1.0 m Hensen; 1.0 m^2 Epibenthic sled	Day	7/23	†			0.51	ns
1.0 m ring; 1.0 m^2 Epibenthic sled	Day	7/24	✓			✓	
0.5 m ring; 1.0 m^2 Epibenthic sled	Day	7/24	✓			✓	
1.0 m ring; 1.0 m^2 Tucker trawl	Night	7/29	✓			✓	
0.5 m ring; 1.0 m^2 Tucker trawl	Night	7/29,30	✓			✓	
1.0 m Hensen; 1.0 m^2 Tucker trawl	Night	7/30	✓			✓	
1.0 m Hensen; 1.0 m^2 Epibenthic sled	Night	7/30	✓			✓	
1.0 m ring; 1.0 m^2 Epibenthic sled	Night	8/1	†			0.18	ns
0.5 m ring; 1.0 m^2 ~~Tucker trawl~~ Epibenthic sled	Night	8/1,2	✓			✓	

✓ = Catch not sufficient for analysis; fewer than five samples with non-zero catch
* = Significant at α = 0.05
ns = Not significant at α = 0.05
† = Assumptions of normality and equality of variance not met; see Table III-1
df = degrees of freedom

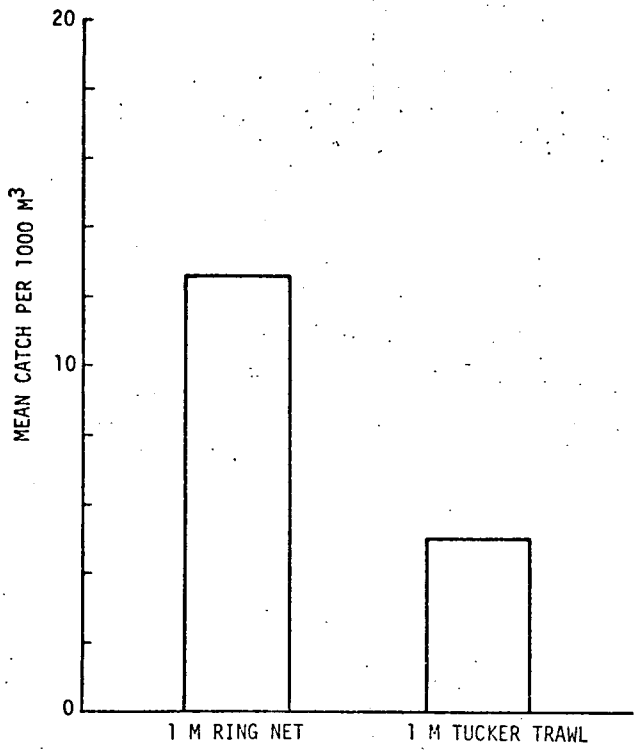

Figure III-1. Mean Catch of Striped Bass ~~Post Yolk Sac~~ Larvae by 1.0 m Ring Net and 1.0 m^2 Tucker Trawl during Darkness, 8 July 1974

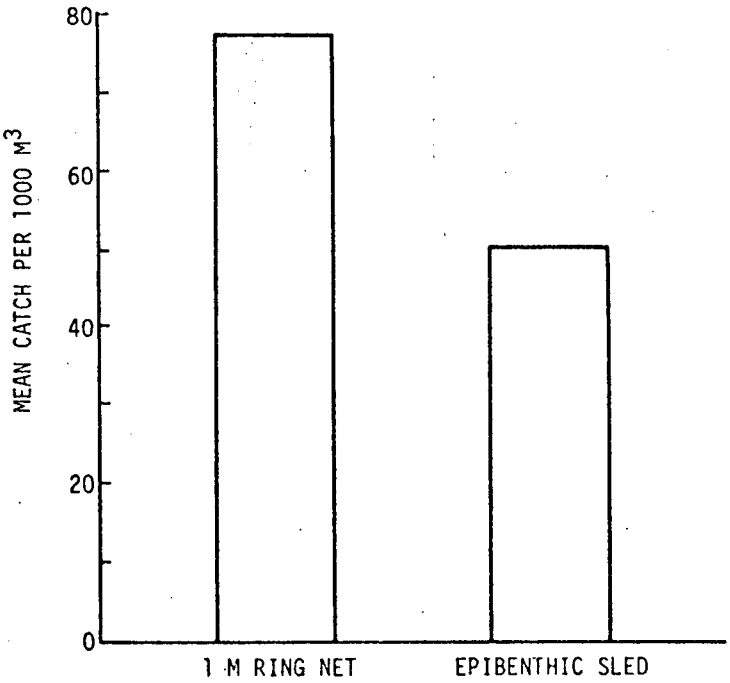

Figure III-2. Mean Catch of Striped Bass ~~Post Yolk Sac~~ Larvae by 1.0 m Ring Net and 1.0 m^2 Epibenthic Sled during Daylight, 26 June 1974

Table III-4

Tests for Normality, Homogeneity of Variance, and Lack of Fit in Gear Mouth Size Efficiency Study of 1974

Gear	Time	Date	Normality W		n	Homogeneity of Variance F	Lack of Fit F		df
1 m Epibenthic sled	Day	7/1	0.97	ns	19	0.39	0.53	ns	2,15
1 m Tucker trawl	Day	7/1	0.83	*	24	---	---		
1 m Epibenthic sled	Night	7/3	0.88	*	17	---	---		
1 m Tucker trawl	Night	7/3	0.84	*	13	---	---		
1 m Epibenthic sled	Day	7/16	0.80	*	24	---	---		
1 m Tucker trawl	Day	7/15	✓			✓	✓		
1 m Epibenthic sled	Night	7/18,19	0.86	*	25	---	---		
1 m Tucker trawl	Night	7/17,18	0.87	*	33	---	---		
1 m Epibenthic sled	Day	8/5	✓			✓	✓		
1 m Tucker trawl	Day	8/6	✓			✓	✓		
1 m Epibenthic sled	Night	8/7,8	✓			✓	✓		
1 m Tucker trawl	Night	8/8,9	✓			✓	✓		

* Significant at $\alpha = 0.05$
ns Not significant at $\alpha = 0.05$
✓ Insufficient data for analysis; fewer than five samples with non-zero catch
df Degrees of freedom
n Number of valid samples

Table III-5

Analysis of Variance of Larval Striped Bass Catch per Volume Using Epibenthic Sleds with Five Different Mouth Sizes During Daylight of 1 July 197~~3~~4

Source	d.f.	Sum of Squares	Mean Square	F
Slope	1	1.1804	1.1804	1.80+
Residual	17	11.1446	0.6556	
lack of fit	2	0.7377	0.3688	0.53+
pure error	5	10.4069	0.6933	
Total	18	12.325		

\+ not significant at $\alpha = 0.05$

services group

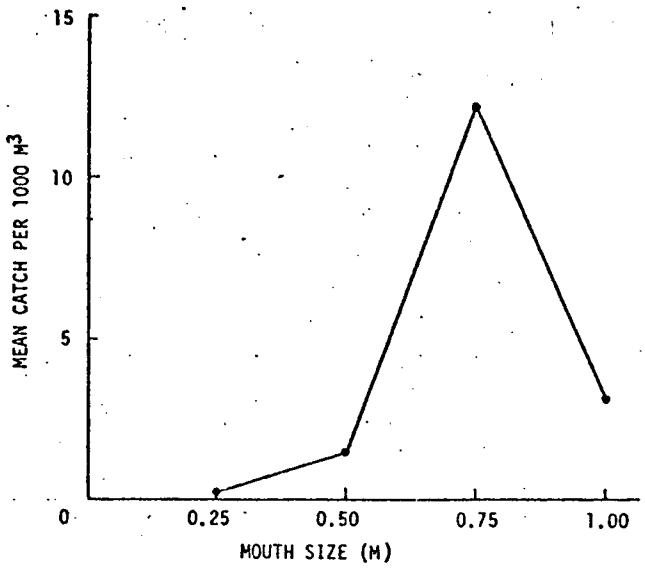

Figure III-7. Mean Catch of Larval Striped Bass by Epibenthic Sleds with Four Mouth Sizes, during Darkness, 3 July 1974

2. 1975 Tow Speed Efficiency Study

Nonparametric analysis by the Wilcoxon rank sum test indicated that a 1.0 m^2 Tucker trawl caught significantly ($Z = \cancel{6.64}$ 2.14; $\alpha = 0.05$) more post yolk-sac striped bass per volume at a tow speed of 120 cm/s than at 80 cm/s; the 50% increase in tow speed approximately tripled the mean catch from 2.55 to 8.61 larvae/1000 m^3. Gear efficiency with respect to tow speed depends on the size and type of organisms sampled (Aron and Collard, 1969) and the organism's ability to perceive the gear and avoid it (Barkley, 1964; Sissenwine et al, 1974). The Tucker trawl's maximum obtainable efficiency for post yolk-sac larvae had not been reached at 80 cm/s--and may not have been reached at 120 cm/s. TI, in its ichthyoplankton surveys of the Hudson River, usually tows the Tucker trawl at 90-120 cm/s; tow speeds greater than 120 cm/s reduce depth control and stability of this gear.

XV-3
6-16

Table C-1

Mean Catch of Larval Striped Bass during 1974 Gear Comparability Study

Gear	Time	Date	No. of Samples	Mean Catch per 1000 m^3	Standard Deviation
1.0 m ring net	Day	6/24	10	5.5777	0.6698
1.0 m^2 Tucker trawl			8	5.7338	0.6295
0.5 m ring net	Day	6/24	10	5.6763	0.7460
1.0 m^2 Tucker trawl			10	5.2778	0.7669
1.0 m Hensen net	Day	6/24	6	5.3104	0.9843
1.0 m^2 Tucker trawl			7	6.0080	0.4772
0.5 m ring net	Day	6/26	6	3.6078	0.8463
1.0 m^2 Epibenthic sled			10	3.8498	0.6758
1.0 m ring net	Day	6/26	10	4.3183	0.2394
1.0 m^2 Epibenthic sled			9	3.7249	0.8321
1.0 m Hensen net	Day	7/2	5	3.2436	0.7857
1.0 m^2 Epibenthic sled			5	2.9895	0.4929
1.0 m ring net	Night	7/8	10	2.2168	1.0403
1.0 m^2 Tucker trawl			10	0.9450	1.3037
1.0 m Hensen net	Night	7/9,10	10	1.4382	1.3842
1.0 m^2 ~~Epibenthic sled~~ Tucker trawl			10	2.2319	1.2148
0.5 m ring net	Night	7/11	8	0.7731	1.4646
1.0 m^2 Tucker trawl			9	0.5249	0.7881
1.0 m Hensen net	Night	7/10	10	1.5671	1.7204
1.0 m^2 Epibenthic sled			7	0.8139	1.4964
1.0 m ring net	Night	7/11	10	1.3130	0.9733
1.0 m^2 Epibenthic sled			5	1.3553	1.3839
0.5 m ring net	Night	7/11	8	0.6287	1.1643
1.0 m^2 Epibenthic sled			7	0.6816	1.1944
1.0 m Hensen net	Day	7/23	10	0.8481	0.9135
1.0 m^2 Epibenthic sled			4	0.4752	0.9505
1.0 m ring net	Night	8/1	8	0.3214	0.5953
1.0 m^2 Epibenthic sled			4	0.4900	0.9800

services group