



Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249
Tel (914) 788-2055

Fred Dacimo
Vice President
License Renewal

NL-09-131

September 24, 2009

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Entergy Nuclear Operations Inc. Reply to Request for Additional Information (RAI) Environmental Report - Impingement Data
Indian Point Nuclear Generating Unit Nos. 2 & 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

REFERENCE: 1. Meeting Minutes, Telephone Conference, August 11, 2009, between Mr. Andrew Stuyvenberg NRC and Entergy Staff Regarding Impingement Data
2. Entergy Nuclear Operations Inc. Letter NL-07-156, "Supplement to License Renewal Application (LAR) – Environmental Report References," dated December 20, 2007

Dear Sir or Madam:

Entergy Nuclear Operations, Inc (Entergy) is providing, in Attachment 1, impingement data in accordance with a request provided during a telephone conference call (reference 1) regarding issues that required additional information for data provided in reference 2. The NRC has been unable to generate impingement densities Entergy produced in Table C-7 and entrainment densities Entergy produced in Table C-9 of Entergy's comments on the DSEIS using the data Entergy submitted by reference 2.

Attachment 1 provides the additional information requested for two issues: 1) information on data provided in reference 2 and correction values, if any, that have been applied to historical data to derive the correct data, 2) information on the annual total of each representative important species (RIS) fish impinged and the volume of water withdrawn during all weeks of sampling for both unit 2 and 3 for an independent assessment of the results provided by reference 2.

If you have any questions, or require additional information, please contact Mr. Robert Walpole at 914-734-6710.

A128
LRR

I declare under penalty of perjury that the foregoing is true and correct. Executed on
September 24, 2009.

Sincerely,

A handwritten signature in black ink, appearing to be 'FRD/cbr', written in a cursive style.

FRD/cbr

Attachment: 1. License Renewal Application Environmental Report RAI-Impingement
Data

cc: Mr. Samuel J. Collins, Regional Administrator, NRC Region I
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel
Mr. Kenneth Chang, NRC Branch Chief, Engineering Review Branch I
Mr. John Boska, NRR Senior Project Manager
Mr. Paul Eddy, New York State Department of Public Service
NRC Resident Inspector's Office
Mr. Francis J. Murray, Jr., President and CEO, NYSERDA

ATTACHMENT 1 TO NL-09-131

LICENSE RENEWAL APPLICATION ENVIRONMENTAL REPORT RAI
IMPINGEMENT DATA

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3
DOCKET NOS. 50-247 AND 50-286

**INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION
ENVIRONMENTAL REPORT-IMPINGEMENT DATA**

During a conference call on August 11, 2009, the NRC had three issues that they needed information on. Part of Issue 2 and all of issue 3 have been resolved. The information for Issue 1 and part of Issue 2 is provided below.

Issue 1

Entergy provided impingement data to NRC in Enclosure 3 to RAI response by letter NL-07-156 dated December 20, 2007 (ML080080313; cover letter at ML080080205). The impingement data included in letter NL-07-156 (Reference 2) in file contains estimated numbers of the total seasonal impingement for many taxa. During an August 11, 2009, conference call between NRC staff and Entergy (Summary at ML0914200362), Entergy staff suggested that all of the impingement data may be incorrect and could be divided by the number of days sampled for the given year (paragraph 2 of enclosure 2 to ML0914200362, excerpted in Figure 1) in order to derive correct estimates. However, NRC staff have found that the estimates of the seasonal total number impinged included in reference 2 do not match the estimated seasonal total number impingement reported in the annual reports of the Hudson River Ecological Study in the Area of Indian Point (ML080080209, ML080080214, ML080080216, ML080080291, ML080080298, ML080080306), even when NRC staff divides the Entergy reported values by the number of days sampled (see example in Table 1 and Figure 2). The NRC staff needs to know which data (annual reports, Entergy-supplied, corrected figures, or other data) are correct and what correction values, if any, have been applied to historical data to derive the correct data.

Part of Issue 2

NRC staff may need the annual total of each representative important species (RIS) fish impinged and the volume of water withdrawn during all weeks of sampling for both Units 2 and 3 in order to independently calculate the impingement results provided by Entergy (NL-07-156).

Response for Issue 1 and Issue 2:

Data Sources

Annual impingement abundance data, adjusted for collection efficiency, were obtained for Indian Point Units 2 and 3, using data available in each annual monitoring report.

Each annual report was considered the most valid source of historical impingement abundance data, intake flows, and sampling or operating dates for that calendar year because, based on our recollection and participation in the process as a sampling contractor, each annual report was the product of collaboration and peer review among the impingement sampling contractors and the owners and operators of each unit.

The reference list below presents a citation for each annual report and the table or table numbers from within each report supplying the data presented in this document.

Impingement Abundance Data:

For the period 1979 through 1980 impingement collections were scheduled daily for Indian Point Units 2 and 3 as long as at least one circulating water pump was operated on that day.

The 1981 impingement study marked a change in impingement sampling at Indian Point Units 2 and 3, and according to the 1981 Indian Point Ecological Study Report, sampling occurred daily from January 1 through June 30 as long as at least one circulating water pump was operated on that day. Beginning on July 1, 1981, a stratified random sampling design was first implemented to collect impingement samples on 70 of the remaining days in the year at Indian Point Unit 2, and 55 of the remaining days in the year at Indian Point Unit 3, as long as at least one circulating water pump was operated on the scheduled dates. If the unit was not operating, or if other circumstances prevented sampling on the scheduled dates, the missed dates were rescheduled by randomly selecting from among the remaining unscheduled dates in each stratum. This revised sampling design was maintained from 1982 through September 30, 1990, with an annual allocation of 110 randomly selected sampling dates among four seasonal strata per year according to the target allocations of sampling effort at Indian Point Units 2 and 3 described in the table below. A systematic design was implemented at Indian Point Unit 2 (IP2) during October 1 through December 31, 1990, with impingement sampling scheduled to occur on one day (Tuesday) per week during this period. Indian Point Unit 3 (IP3) was not operating during the period October 1 through December 31, 1990.

Seasonal Stratum (1 July 1981 through 30 September 1990)	Random Sampling Days at IP2	Random Sampling Days at IP3
1 January – 31 March	30	27
1 April – 30 June	10	18
1 July – 30 September	11	31
1 October – 31 December	59	34
1 January – 31 December	110	110

Annual impingement abundance, adjusted for collection efficiency, was obtained from the tables in each annual report referenced below, for each fish taxon except for the two sturgeon species. The annual abundance data for the two sturgeon species (shortnose sturgeon and Atlantic sturgeon) represent the collection efficiency annual total abundance values derived from the independent QC of sturgeon data documented in a memorandum from Mark Mattson and Susan Ward of Normandeau Associates, Inc. to Dara Gray of Indian Point Energy Center dated June 26, 2009, and identified in Table 4 of that memorandum as "CE Adjusted Level 5 Count".

Intake Flow Data:

For the period 1982 – 1990, actual dates of plant operation and average daily volume were obtained from the respective tables in each annual report. The average daily operating volume multiplied by the actual number of days the plant operated in that month determined that total monthly operating volume and the monthly volumes were summed to obtain the annual operating volume for each Unit and Year. For the years 1979 – 1981, report tables provided the number of days during which the unit was in operation, and a total monthly volume, so

annual totals by unit were derived from simply summing the monthly total volume. Volumes provided include service water, as specified in each table referenced below.

References:

<u>Annual Report</u>	Table Providing Data IP2		Table Providing Data IP3	
	<u>Abundance</u>	<u>IP2 Intake Flow and Operating Dates</u>	<u>Abundance</u>	<u>IP3 Intake Flow and Operating Dates</u>
Texas Instruments Incorporated, December 1980. Hudson River Ecological Study in the Area of Indian Point 1979 Annual Report.	Table D-2, 1990 Report	Tables A-15, A-16	Table D-3, 1990 Report	Tables A-15, A-16
1980 HR Ecol Study IP 1980 - 890.pdf	Table D-2, 1990 Report	Table 3-9	Table D-3, 1990 Report	Table 3-9
1981 HR Ecol Study IP 1981 - 5430.pdf	Table D-2, 1990 Report	Tables 3-4 and 3-5	Table D-3, 1990 Report	Tables 3-4 and 3-5
1982-HR Ecol Study IP 1982 - 8100.pdf	Table 3-6	Table 3-4	Table 3-7	Table 3-5
1983-HR Ecol Study IP 1983 - 7900.pdf	Table 3-4	Table 3-2	Table 3-5	Table 3-3
1984 - HR Ecol Study IP 1984 - 950.pdf	Table III-2	Table II-2	Table III-3	Table II-3
1985 - HR Ecol Study IP 1985 - 3730.pdf	Table 4-1	Table 3-4	Table 4-2	Table 3-5
1986 - HR Ecol Study IP 1986 - 3720.pdf	Table 4-1	Table 3-4	Table 4-2	Table 3-5
1987 - HR Ecol Study IP 1987 - 6310.pdf	Table 4-1	Table 3-4	Table 4-2	Table 3-5
1988 - HR Ecol Study IP 1988 - 910.pdf	Table 4-1	Table 3-4	Table 4-2	Table 3-5
1989 - HR Ecol Study IP 1989 - 6330.pdf	Table 6	Table 4	Table 7	Table 5
1990 - HR Ecol Study IP 1990 - 5050.pdf	Table 3-1	Table 2-4	Table 3-2	Table 2-5

Annual Impingement Abundance Estimates for Indian Point Unit 2 and Unit 3

Species	Year	Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
		Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
ALEWIFE	1979	2,493	976.00	15,054	958.90
ALEWIFE	1980	10,322	1,017.90	6,493	804.50
ALEWIFE	1981	58,346	760.00	9,101	856.70
ALEWIFE	1982	2,223	992.85	0	248.64
ALEWIFE	1983	4,549	1,202.86	212	83.40
ALEWIFE	1984	3,310	626.20	4,704	1,073.20
ALEWIFE	1985	2,343	1,259.58	2,824	690.34
ALEWIFE	1986	2,026	943.95	1,416	938.90
ALEWIFE	1987	3,562	1,042.71	1,166	771.42
ALEWIFE	1988	1,345	1,185.62	698	1,136.39
ALEWIFE	1989	584	918.96	860	829.47
ALEWIFE	1990	1,103	1,019.34	897	879.78
BAY ANCHOVY	1979	91,512	976.00	189,302	958.90
BAY ANCHOVY	1980	347,559	1,017.90	77,129	804.50
BAY ANCHOVY	1981	1,327,578	760.00	117,433	856.70
BAY ANCHOVY	1982	113,550	992.85	72	248.64
BAY ANCHOVY	1983	128,626	1,202.86	404	83.40
BAY ANCHOVY	1984	3,684	626.20	109,086	1,073.20
BAY ANCHOVY	1985	8,686	1,259.58	4,743	690.34
BAY ANCHOVY	1986	85,495	943.95	16,665	938.90

Species	Year	Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
		Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
BAY ANCHOVY	1987	24,786	1,042.71	6,082	771.42
BAY ANCHOVY	1988	31,224	1,185.62	4,219	1,136.39
BAY ANCHOVY	1989	1,496	918.96	4,572	829.47
BAY ANCHOVY	1990	14,711	1,019.34	6,947	879.78
AMERICAN SHAD	1979	12,420	976.00	39,500	958.90
AMERICAN SHAD	1980	44,285	1,017.90	13,885	804.50
AMERICAN SHAD	1981	227,867	760.00	22,421	856.70
AMERICAN SHAD	1982	1,492	992.85	5	248.64
AMERICAN SHAD	1983	8,504	1,202.86	10	83.40
AMERICAN SHAD	1984	242	626.20	458	1,073.20
AMERICAN SHAD	1985	1,340	1,259.58	1,656	690.34
AMERICAN SHAD	1986	6,423	943.95	4,904	938.90
AMERICAN SHAD	1987	2,639	1,042.71	1,730	771.42
AMERICAN SHAD	1988	356	1,185.62	148	1,136.39
AMERICAN SHAD	1989	3,438	918.96	5,868	829.47
AMERICAN SHAD	1990	1,450	1,019.34	1,568	879.78
BLUEFISH	1979	129	976.00	7,550	958.90
BLUEFISH	1980	10,603	1,017.90	10,094	804.50
BLUEFISH	1981	10,874	760.00	8,297	856.70
BLUEFISH	1982	1,453	992.85	0	248.64
BLUEFISH	1983	7,269	1,202.86	550	83.40

		Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
Species	Year	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
BLUEFISH	1984	30	626.20	6,464	1,073.20
BLUEFISH	1985	582	1,259.58	27	690.34
BLUEFISH	1986	4,044	943.95	1,515	938.90
BLUEFISH	1987	6,028	1,042.71	745	771.42
BLUEFISH	1988	3,156	1,185.62	510	1,136.39
BLUEFISH	1989	627	918.96	605	829.47
BLUEFISH	1990	5,805	1,019.34	3,028	879.78
HOGCHOKER	1979	34,304	976.00	17,638	958.90
HOGCHOKER	1980	42,244	1,017.90	17,477	804.50
HOGCHOKER	1981	25,591	760.00	23,289	856.70
HOGCHOKER	1982	56,240	992.85	449	248.64
HOGCHOKER	1983	22,176	1,202.86	817	83.40
HOGCHOKER	1984	1,985	626.20	9,447	1,073.20
HOGCHOKER	1985	26,314	1,259.58	13,145	690.34
HOGCHOKER	1986	50,452	943.95	22,875	938.90
HOGCHOKER	1987	34,818	1,042.71	9,585	771.42
HOGCHOKER	1988	72,516	1,185.62	13,969	1,136.39
HOGCHOKER	1989	86,877	918.96	34,401	829.47
HOGCHOKER	1990	28,022	1,019.34	12,213	879.78
ATLANTIC MENHADEN	1979	42	976.00	686	958.90

		Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
Species	Year	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
ATLANTIC MENHADEN	1980	63	1,017.90	218	804.50
ATLANTIC MENHADEN	1981	1,146	760.00	1,034	856.70
ATLANTIC MENHADEN	1982	88	992.85	0	248.64
ATLANTIC MENHADEN	1983	136	1,202.86	4	83.40
ATLANTIC MENHADEN	1984	8	626.20	23	1,073.20
ATLANTIC MENHADEN	1985	367	1,259.58	47	690.34
ATLANTIC MENHADEN	1986	6,370	943.95	3,296	938.90
ATLANTIC MENHADEN	1987	800	1,042.71	146	771.42
ATLANTIC MENHADEN	1988	162	1,185.62	27	1,136.39
ATLANTIC MENHADEN	1989	159	918.96	89	829.47
ATLANTIC MENHADEN	1990	748	1,019.34	387	879.78
BLUEBACK HERRING	1979	305,261	976.00	12,140	958.90
BLUEBACK HERRING	1980	29,346	1,017.90	11,418	804.50
BLUEBACK HERRING	1981	255,782	760.00	15,788	856.70

		Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
Species	Year	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
BLUEBACK HERRING	1982	1,081	992.85	111	248.64
BLUEBACK HERRING	1983	46,854	1,202.86	2,878	83.40
BLUEBACK HERRING	1984	3,251	626.20	10,216	1,073.20
BLUEBACK HERRING	1985	8,337	1,259.58	47,551	690.34
BLUEBACK HERRING	1986	7,219	943.95	10,640	938.90
BLUEBACK HERRING	1987	35,259	1,042.71	62,467	771.42
BLUEBACK HERRING	1988	23,696	1,185.62	2,608	1,136.39
BLUEBACK HERRING	1989	23,233	918.96	32,735	829.47
BLUEBACK HERRING	1990	17,947	1,019.34	2,767	879.78
RAINBOW SMELT	1979	37,002	976.00	26,833	958.90
RAINBOW SMELT	1980	21,458	1,017.90	6,164	804.50
RAINBOW SMELT	1981	725	760.00	961	856.70
RAINBOW SMELT	1982	1,212	992.85	68	248.64
RAINBOW SMELT	1983	2,196	1,202.86	132	83.40
RAINBOW SMELT	1984	844	626.20	733	1,073.20
RAINBOW SMELT	1985	3,552	1,259.58	1,806	690.34
RAINBOW SMELT	1986	10,879	943.95	2,776	938.90

		Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
Species	Year	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
RAINBOW SMELT	1987	7,280	1,042.71	1,782	771.42
RAINBOW SMELT	1988	5,651	1,185.62	1,713	1,136.39
RAINBOW SMELT	1989	306	918.96	84	829.47
RAINBOW SMELT	1990	431	1,019.34	891	879.78
SHORTNOSE STURGEON	1979	4	976.00	3	958.90
SHORTNOSE STURGEON	1980	0	1,017.90	2	804.50
SHORTNOSE STURGEON	1981	0	760.00	0	856.70
SHORTNOSE STURGEON	1982	0	992.85	0	248.64
SHORTNOSE STURGEON	1983	0	1,202.86	0	83.40
SHORTNOSE STURGEON	1984	3	626.20	2	1,073.20
SHORTNOSE STURGEON	1985	0	1,259.58	0	690.34
SHORTNOSE STURGEON	1986	0	943.95	0	938.90
SHORTNOSE STURGEON	1987	4	1,042.71	2	771.42
SHORTNOSE STURGEON	1988	7	1,185.62	2	1,136.39
SHORTNOSE STURGEON	1989	0	918.96	2	829.47
SHORTNOSE STURGEON	1990	3	1,019.34	0	879.78

		Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
Species	Year	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
SPOTTAIL SHINER	1979	8,716	976.00	4,179	958.90
SPOTTAIL SHINER	1980	2,216	1,017.90	1,912	804.50
SPOTTAIL SHINER	1981	863	760.00	444	856.70
SPOTTAIL SHINER	1982	697	992.85	361	248.64
SPOTTAIL SHINER	1983	1,096	1,202.86	31	83.40
SPOTTAIL SHINER	1984	1,015	626.20	1,263	1,073.20
SPOTTAIL SHINER	1985	1,974	1,259.58	558	690.34
SPOTTAIL SHINER	1986	591	943.95	663	938.90
SPOTTAIL SHINER	1987	2,198	1,042.71	421	771.42
SPOTTAIL SHINER	1988	1,275	1,185.62	401	1,136.39
SPOTTAIL SHINER	1989	3,809	918.96	397	829.47
SPOTTAIL SHINER	1990	2,667	1,019.34	444	879.78
ATLANTIC STURGEON	1979	75	976.00	61	958.90
ATLANTIC STURGEON	1980	24	1,017.90	17	804.50
ATLANTIC STURGEON	1981	8	760.00	7	856.70
ATLANTIC STURGEON	1982	2	992.85	1	248.64
ATLANTIC STURGEON	1983	6	1,202.86	0	83.40
ATLANTIC STURGEON	1984	6	626.20	10	1,073.20

		Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
Species	Year	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
ATLANTIC STURGEON	1985	19	1,259.58	25	690.34
ATLANTIC STURGEON	1986	6	943.95	6	938.90
ATLANTIC STURGEON	1987	6	1,042.71	2	771.42
ATLANTIC STURGEON	1988	2	1,185.62	0	1,136.39
ATLANTIC STURGEON	1989	0	918.96	0	829.47
ATLANTIC STURGEON	1990	0	1,019.34	3	879.78
STRIPED BASS	1979	77,756	976.00	18,480	958.90
STRIPED BASS	1980	30,206	1,017.90	18,320	804.50
STRIPED BASS	1981	60,601	760.00	26,911	856.70
STRIPED BASS	1982	8,258	992.85	49,365	248.64
STRIPED BASS	1983	19,023	1,202.86	67	83.40
STRIPED BASS	1984	4,551	626.20	6,414	1,073.20
STRIPED BASS	1985	53,451	1,259.58	27,011	690.34
STRIPED BASS	1986	8,417	943.95	2,305	938.90
STRIPED BASS	1987	24,879	1,042.71	3,794	771.42
STRIPED BASS	1988	70,969	1,185.62	16,089	1,136.39
STRIPED BASS	1989	21,047	918.96	3,747	829.47
STRIPED BASS	1990	19,370	1,019.34	2,611	879.78

		Indian Point Unit 2	Indian Point Unit 2	Indian Point Unit 3	Indian Point Unit 3
Species	Year	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters	Estimated Annual Number Impinged (adjusted for collection efficiency from Annual Reports)	Estimated Annual Intake Volume (from Annual Reports) in millions of cubic meters
ATLANTIC TOMCOD	1979	79,980	976.00	255,695	958.90
ATLANTIC TOMCOD	1980	672,329	1,017.90	162,343	804.50
ATLANTIC TOMCOD	1981	382,531	760.00	78,202	856.70
ATLANTIC TOMCOD	1982	118,015	992.85	976	248.64
ATLANTIC TOMCOD	1983	117,234	1,202.86	12,361	83.40
ATLANTIC TOMCOD	1984	2,709	626.20	95,855	1,073.20
ATLANTIC TOMCOD	1985	39,558	1,259.58	9,723	690.34
ATLANTIC TOMCOD	1986	117,378	943.95	13,602	938.90
ATLANTIC TOMCOD	1987	684,568	1,042.71	1,097	771.42
ATLANTIC TOMCOD	1988	9,800	1,185.62	8,807	1,136.39
ATLANTIC TOMCOD	1989	6,082	918.96	2,422	829.47
ATLANTIC TOMCOD	1990	96,874	1,019.34	25,036	879.78
WHITE CATFISH	1979	4,745	976.00	1,599	958.90
WHITE CATFISH	1980	679	1,017.90	796	804.50
WHITE CATFISH	1981	611	760.00	761	856.70
WHITE CATFISH	1982	549	992.85	292	248.64
WHITE CATFISH	1983	1,692	1,202.86	40	83.40
WHITE CATFISH	1984	2,216	626.20	11,360	1,073.20
WHITE CATFISH	1985	4,980	1,259.58	1,606	690.34
WHITE CATFISH	1986	2,399	943.95	1,078	938.90
WHITE CATFISH	1987	1,480	1,042.71	887	771.42