ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

In Reply Refer To:
FWS/ES
ER-75/972

50-247

Mr. Daniel R. Muller
Assistant Director for
Environmental Projects
Division of Reactor Licensing
Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Muller:

Reference is made to Mr. Knighton's letter dated September 24, 1975, requesting our review of the environmental report to accompany the application for a facility license amendment for extension of the operation with once-through cooling for Indian Point Nuclear Generating Station, Unit 2 (50-247); and ER Supplements 1 and 2, Westchester County, New York. These comments do not constitute our final assessment of the need for closed-cycle cooling at Unit 2, because we have not completed our analyses of Supplements 1 and 2 to the subject environmental report. Comments on these will be transmitted in the near future.

We have reviewed the environmental impact documentation and conclude that, because of various deficiencies, apparent inconsistencies and omissions, the subject report does not adequately support an extension of the period of once-through cooling from May 1, 1979 to May 1, 1981. It is reasonable to expect that completion of aquatic study programs in the very near future will provide useful data which, in conjunction with ER Supplements 1 and 2, will allow additional analyses and facilitate the ultimate decision on whether fisheries considerations necessitate modification of the present cooling system.

Within six months after completion of the study programs outlined in the subject environmental report, scheduled for January 1, 1977, the Nuclear Regulatory Commission (NRC) should review all pertinent data and make its ultimate determination on the issue of once-through versus closed-cycle cooling for Unit 2. NRC should not permit Con Edison to operate the existing once-through system indefinitely by approving a potentially endless

2550

series of applications for additional extensions, unless data collected during the last six months of 1975 and 1976 demonstrate conclusively that closed-cycle cooling is not necessary to protect fishery resources.

Sections 1.2 and 4.1.1; Pages 1-3 and 4-1 to 4-6

Con Edison has concluded that the completion of the Indian Point Study program, scheduled for January 1, 1977, will enable regulatory agencies to determine conclusively whether cooling towers must be installed at Unit 2. The licensee should be prepared to accept regulatory analyses and licensing board decisions which may demonstrate that closed-cycle cooling is a cost-effective means of protecting the fishery resources of the Hudson River. Con Edison has been collecting and analyzing aquatic data for the past ten years, but is still unable to convince regulatory agencies and licensing boards that once-through cooling at Indian Point will not have a serious and irreversible impact on striped bass.

NRC and Con Edison should realistically assess whether limitations on the analytical usefulness of aquatic data collected in the Hudson River can be overcome, regardless of refinements in sampling methods and increases in sampling effort. They should carefully review limitations on precision, accuracy, and application of data collected by aquatic sampling techniques, especially those used at Indian Point during the past ten years. Improved sampling strategy, increased effort, and innovative techniques, regardless of their sophistication, may not be able to provide the information which has been identified as being critical to resolving existing conflicts.

Section 2.1.2.4; Page 2-16

The conclusion that local reductions in the size of the Neomysis americana population will not adversely affect the striped bass population is confusing. Con Edison has concluded that entrainment and impingement of striped bass will reduce the population. It is unclear how the removal of N. americana as a food source for young striped bass can do anything other than add to the recognized mortality from entrainment and impingement.

Section 2.1.3.1; Pages 2-21 and 2-25

The licensee used observations by Lawler, Matusky, and Shelly Engineers to determine that the survival rate of striped bass eggs passing through the plant is about 20%. Since 80% of the eggs die upon passage through the circulating water system, it seems prudent to assume 100% mortality in all analyses, based on the likelihood that the same factors which produce 80% immediate mortality cause a complete latent mortality.

Section 2.1.3.2; Pages 2-26 to 2-30

It is clear from initial arguments (Page 2-26) developed in the subject environmental report that Table 2-9 was not intended to describe the age composition and reproductive capacity of each age class present in the Hudson River striped bass population at a fixed point in time. Table 2-9 is simply an attempt to follow one year class through eight consecutive years and to estimate egg production by that year class in each of those years. The table does not lend itself to the licensee's argument (Page 2-27) that "Natality (lxMx) is the relative number of eggs produced by each of the age group components of the spawning stock." The only way in which Table 2-9 can be used to estimate the impact of the reduction of a specific year class (by entrainment and impingement at IP 2) on the overall spawning capacity of the striped bass population in a given year is to make many assumptions which were not considered in the subject environmental report. The relative contribution of a given year class to the overall spawning capability of the population in any year depends not only on the strength, survival, and age-specific fecundity of that year class, but also on the strength, survival, and age specific fecundity of previous and subsequent year classes. Only if year class size, survival, and fecundity are assumed to be constant for all year classes can Table 2-9 be used to develop and support the licensee's arguments (Pages 2-27 to 2-31; Table 2-11). There are no data in the subject report which support these assumptions. The licensee recognized the importance of these assumptions (Page 2-29) by stating that "...naturally occurring reductions of spawning success over five, six, and seven years are common occurrences..."

The licensee failed to present sufficient data to support its claim that the striped bass population can readily sustain natural variations in spawning success. The fact that reductions in spawning success occur naturally does not justify a conclusion that the population could safely withstand an increase in total mortality rate for entrainment and impingement. The possible cumulative impacts of natural and man-induced reductions in survival should be stressed. Resiliency and compensation must be viewed in terms of total mortality and relative magnitude of its components.

Section 2.1.3.1.4.3; Pages 2-43 to 2-50

The licensee's method of using historical records from the commercial fishery to empirically demonstrate compensation may be in error. Without clearly stating, the subject environmental report assumes an equivalency of CPUE, abundance and density, and makes several other important but questionable assumptions concerning commercial landings and fishing effort.

The assertion that the catch of striped bass per unit of fishing effort (CPUE) can be used as an index of relative abundance of stock size requires additional consideration. Spatial and temporal availability of the fishable stock to fishermen often contributes more to fishing success than an abundance of target species. This is especially true in the striped bass fishery where static inshore fishing gear, mostly haul seines, pound nets, and gill nets, take most of the commercial catch. Since striped bass fisheries tend to be highly seasonal, local weather conditions, market conditions, and availability and abundance of other desirable species can influence fishing effort directed at striped bass.

Use of various indices of fishing effort to develop CPUE estimates requires extreme caution and detailed understanding of the local fishing industry. The number of units of licensed gear is not always an accurate index of the number of units of operating gears. Koo's (1970) work in Chesapeake Bay may not be directly applicable to New York and New Jersey waters, where major differences in effective fishing effort and strategy exist among haul seines, pound nets, and various types of gill nets (See attached Tables 1-5 and Figures 1-5).

Since data on sampling effort and abundance of the specific life stages of the striped bass in the Hudson River are available as far back as 1965, it is not entirely clear why Con Edison did not present a limited analysis of stock-recruitment relationships in the Hudson River (as per "second empirical demonstration of compensation" - Pages 2-43 to 2-47). This omission is especially puzzling since the same data were used to develop the "first empirical demonstration of compensation" (Pages 2-42 to 2-43), based on stock density (CPUE) and growth.

<u>Section 2.1.3.1.5</u>; <u>Pages 2-47 to 2-48</u>

Tables 2-18, 2-19, 2-20, and especially 2-21 and 2-22 are very misleading. They do not reflect the wide variations in circulating water pump operation and power modes for Units 1 and 2. The fact that circulation water flows and power modes were not uniform throughout 1972 and 1973 makes it extremely difficult to accurately predict the seasonal and yearly magnitude, species composition, and length composition of impingement at Units 1, 2, and 3 at full power. Annual impingement counts presented in the subject environmental report were not adjusted upward to reflect potential operation at full power, nor were they adjusted upward to reflect losses which are known to occur from the fixed screens before those screens are lifted and washed, and impinged fishes are collected on the traveling screens. The impact of impingement of striped bass, white perch, and tomcod at Units 1, 2, and 3 on Hudson River fisheries cannot be estimated accurately unless reliable data are obtained to make both adjustments. The technique of adjusting upward by 25% for "missed sampling" and 25% for "undersampling" (Table 2-21) points out the arbitrary nature of Con Edison's impingement estimates. Data have not been submitted which support either adjustment; although these adjustments appear generously high, they may be too low.

<u>Sections 3.1 and 4.1.2.1.2</u>; <u>Pages 3-1 to 3-3 and 4-11</u>

Since Units 1 and 3 are not presently discharging thermal effluent into the Hudson River and Unit 2 is expected to be uprated to 3216 MWt, the Routine Thermal Monitoring Program appears incapable of determining the extent of the thermal plume resulting from <u>plant</u> thermal discharges (for comparison with applicable State and Federal criteria). The Routine Thermal Monitoring Program and Intensive Thermal Survey Program should be conducted during full power operation of at least Units 2 and 3, preferably Units 1, 2, and 3.

Section 3.2; Page 3-18

It is difficult to support the licensee's claim that aquatic monitoring flexibility must be retained so that improvements in the data and their acquisition can be implemented during future studies. Con Edison's monitoring programs have been characterized by numerous changes in sampling locations, techniques, and frequencies, owing largely to changes in consultants. These changes have created enormous difficulties in comparing data in time and space. After ten years of monitoring in the Hudson River, Con Edison should know which sampling techniques are most efficient and produce the most reliable data, and which sampling locations and frequencies provide the most representative and useful data. Allowing the licensee to alter required aquatic monitoring programs without prior approval of NRC would only cause additional complications in interpreting existing and new data and would prolong regulatory decisions.

Section 3.4.2; Page 3-27

During unusual incidents of high impingement, especially violations of Environmental Technical Specifications, Con Edison should shut down two or more circulating water pumps at each unit (2 and 3). Since each of the three condensers at each unit is fed by two independent circulating water pumps, each in its own forebay and having its own traveling screen, this procedure is viable. Without additional impingement and plant operating data and cost/benefit analyses, we cannot accept the licensee's position that it will reduce circulating water flow only when this reduction does not create a significant reduction of power.

Section 4.2.1.1.2; Pages 4-36 to 4-38

It is unclear why the dollar value of the commercial fishery for striped bass was not included in the cost analysis of the impact of continued once-through cooling at Unit 2. Exclusion of this commercial loss makes the cost/benefit analysis incomplete and unsatisfactory.

The above comments represent the views of the U. S. Fish and Wildlife Service on the environmental report. We appreciate this opportunity to comment and anticipate further involvement.

Sincerely yours,

W. J. Olds Jr.

Deputy Associate
Director

TABLE / —Landings of major species of foodfish in New York State by haul seines, 1929-1972, in thousands of pounds

Year	Flounders[#] Summer	Flounders[#] Winter	Bluefish	Carp	Northern puffer	American shad	White perch	Striped bass	Scup	Weak-fish
1929		5	11	77		4.	5	66		46
1930		5	6	69		1	3	41		33
1931		15	4	64		37	19	28		25
1932		4	13	55		1	2	6	1	99
1933			1	64		4	3	4	1	32
1935		15	*	54		10	*	8	32	120
1937		*	2	83		20		83	40	317
1938	*	7	2	146		12	3	71	39	301
1939	1	7	6	100		60	2	82	25	355
1940		4	4	114	2	16	*	110	41	406
1942	5	10	1	38	2	3	*	136	278	771
1943	2	13	*	54	2	11	1	234	188	832
1944	5	6	*	35	71	29	*	281	196	532
1945	4	1	*	120	77	49	2	117	232	1,116
1946	15	101	8	132	234	23	37	367	212	1,145
1947	6	25	12	34	10	43	1	147	99	782
1948	2	6	16	173	29	66	2	247	338	454
1949	1	1	3	54	10	43	40	592	178	226
1950	32	18	27	52	25	28	36	484	161	68
1951	2	24	6	16	91	7		566	657	77
1952		4	15	16	5	6	228	431	444	64
1953	6	5	19	7	16	4	3	410	334	29
1954	28	27	9	10	2	4	14	382	526	36
1955	12	7	22	13	9	5	14	408	122	23
1956	44	17	27	9	5	4	16	290	174	41
1957	35	3	29	8	30	4	61	446	311	62
1958	20	2	8	6		2	20	318	335	21
1959	5	3	16	5	5	12	14	380	367	16
1960	*	1	45	10	4	3	14	532	350	19
1961	*	1	55	3	5	6	8	651	436	10
1962			29	8	4	3	6	493	207	13
1963			50	4		7	1	374	416	18
1964			122	3		*	115	687	496	3
1965			233	3		2	30	577	464	7
1966			186	2			58	748	371	6
1967			168	4		5	78	1,042	242	1
1968			61	2		3	84	901	289	
1969			432	2			63	873	105	11
1970	3		630			*	158	905	135	88
1971			619			1	101	688	122	412
1972	1	1	431			7	53	407	62	598

flounders were not identified by species prior to 1937

* less than 500 pounds

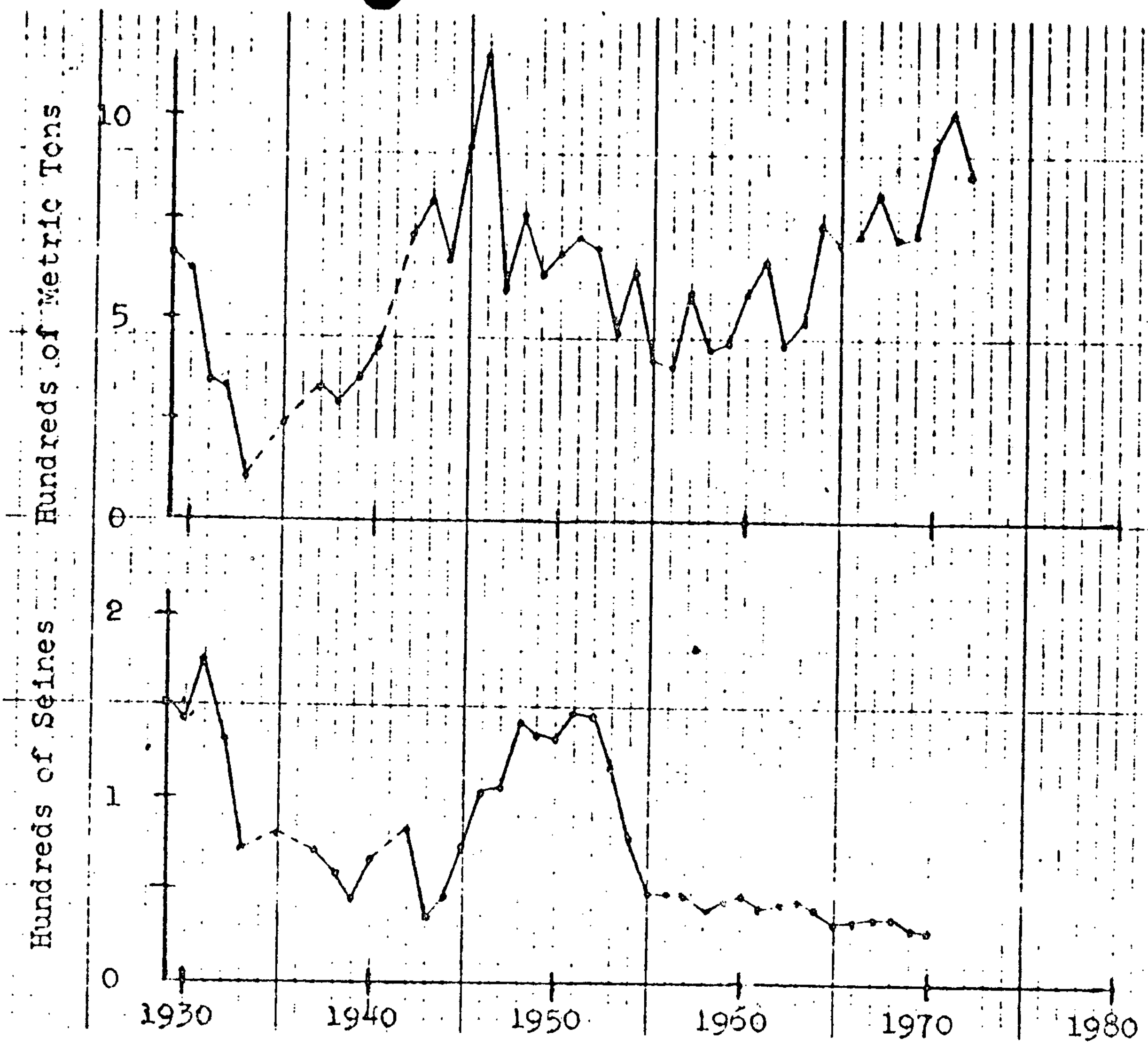

FIGURE / .--Landings by haul seines and numbers of haul seines in New York, 1929-1972

TABLE 2 --Landings of major species by all types of gill nets in New York State, 1929-1972, in thousands of pounds

Year	American shad	Bluefish	Weakfish	Striped bass	Atlantic mackerel	Alewife	Carp	White perch
1929	159	186	116	3	445	25	4	3
1930	165	342	205	3	195	11	10	4
1931	307	152	141	5	64	19	9	9
1932	396	302	144	12	157	12	7	5
1933	332	186	85	9	163	13	3	5
1935	435	177	158	16	88	39	89	48
1937	963	46	34	25	102	10	43	
1938	961	27	132	33	360	8	48	22
1939	1,173	6	75	29	342	13	23	28
1940	1,282	9	32	43	266	42	29	36
1942	1,319	2	78	30	188	*	1	32
1943	1,665	10	164	26	294	25	2	32
1944	1,655	14	83	46	369	1	1	11
1945	2,014	5	40	23	225	3	10	16
1946	1,421	16	66	13	248	1	13	10
1947	927	4	11	7	121	4	39	1
1948	1,056	32	82	23	40	2	3	27
1949	716	21	44	2	28	*	1	8
1950	386	14	5	11	1		1	23
1951	406	10	7	14	5	3	1	3
1952	484	28	5	30	77	1	1	3
1953	462	22	24	55	151	2	2	7
1954	583	135	40	39	60		6	5
1955	501	106	29	75	71	91	17	2
1956	579	170	42	92	57	42	8	3
1957	466	108	29	85	21	18	5	5
1958	431	48	15	77	6	1	2	11
1959	491	37	6	133	22	*	5	7
1960	271	67	22	133	29		4	3
1961	235	113	4	84	10		2	5
1962	216	166	5	48	2		2	3
1963	131	131	9	51	7		*	4
1964	78	166	1	55			1	4
1965	120	341	13	81			1	3
1966	68	205	3	80	26		5	1
1967	79	208	*	269	4		3	2
1968	113	281	4	377	10		2	2
1969	123	292	18	267	39		2	3
1970	96	183	70	176	16	5	2	2
1971		108	166	88				
1972		150	354	77	2			

* less than 500 pounds

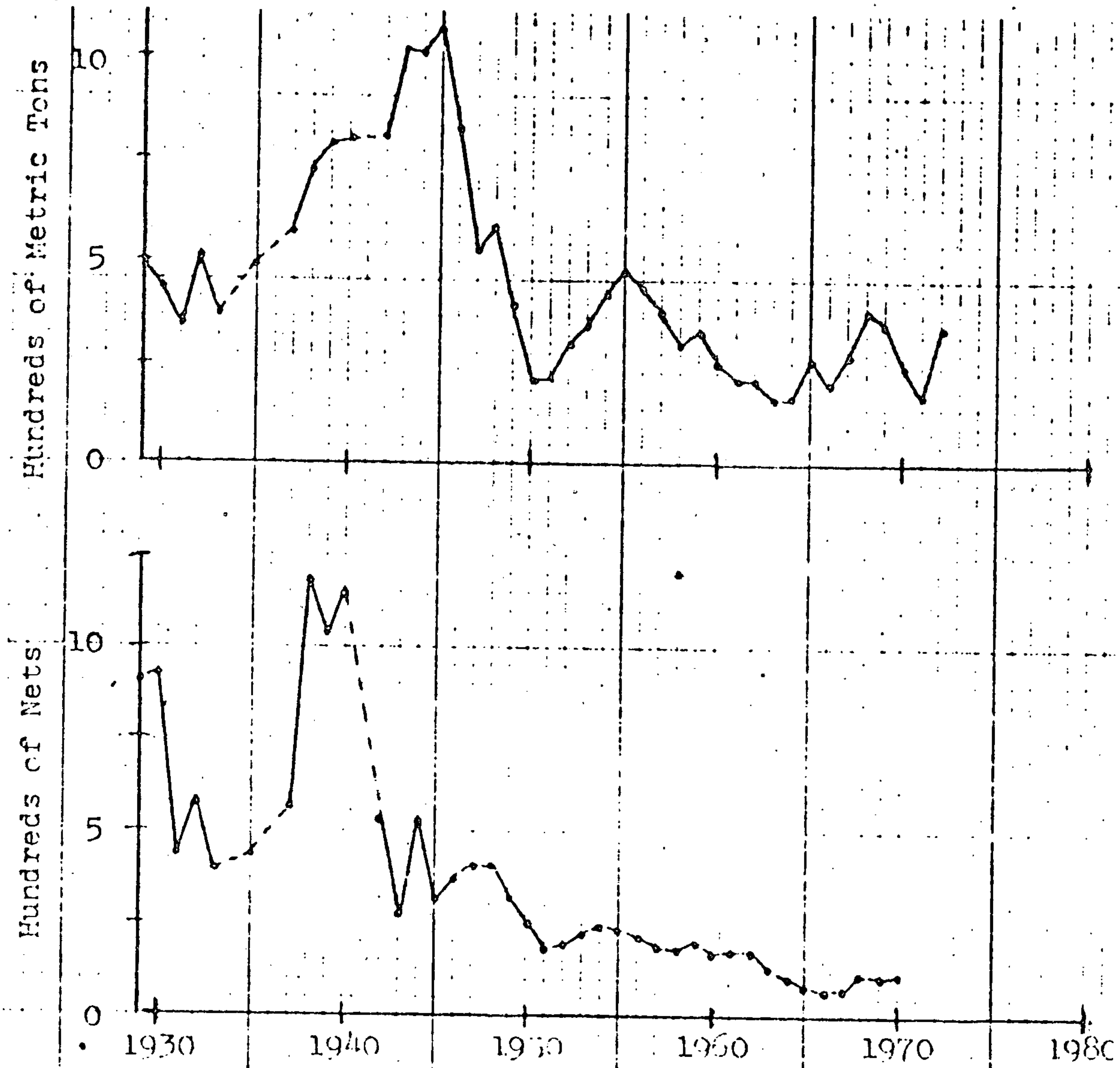

FIGURE 2 .--Landings by gill nets of all types and numbers of gill nets in New York, 1929-1972

TABLE 3.-- Landings of major species in New York State by drift gill nets, 1929-1970, in thousands of pounds

Year	Alewife	Bluefish	Atlantic mackerel	American shad	Striped bass	Weakfish
1929	25		445	149		
1930	11	6	195	148		1
1931	19		64	304	*	*
1932	12		153	345	2	
1933	13	26	36	298	2	
1935	39		60	424	5	
1937	10	23	6	933	7	6
1938	8	5	105	946	15	
1939	13		257	1,159	10	
1940	42	8	266	865	*	13
1942	*	1	188	805	1	53
1943	25	5	294	1,073	13	90
1944	1	1	358	1,088	*	23
1945	3	1	225	1,073	1	17
1946	1	9	248	850	*	66
1947	4	4	121	603	3	11
1948	2	32	40	612	3	82
1949	*	21	28	452	2	44
1950		14	1	241	6	5
1951	3	10	4	282	1	7
1952	1	28	77	368	15	5
1953	2	4	151	334	12	23
1954		39	59	391	11	17
1955	91		68	289	8	
1956	42	40	54	234	20	8
1957	18	37	21	235	3	7
1958	1		6	221	8	
1959	*		22	206	4	
1960			29	143	8	
1961			10	91	9	
1962			2	112	5	
1963			7	69	3	
1964				33	2	
1965				58	2	
1966				39	1	
1967				45	1	
1968				68	1	
1969				64		
1970				47	3	

* less than 500 pounds

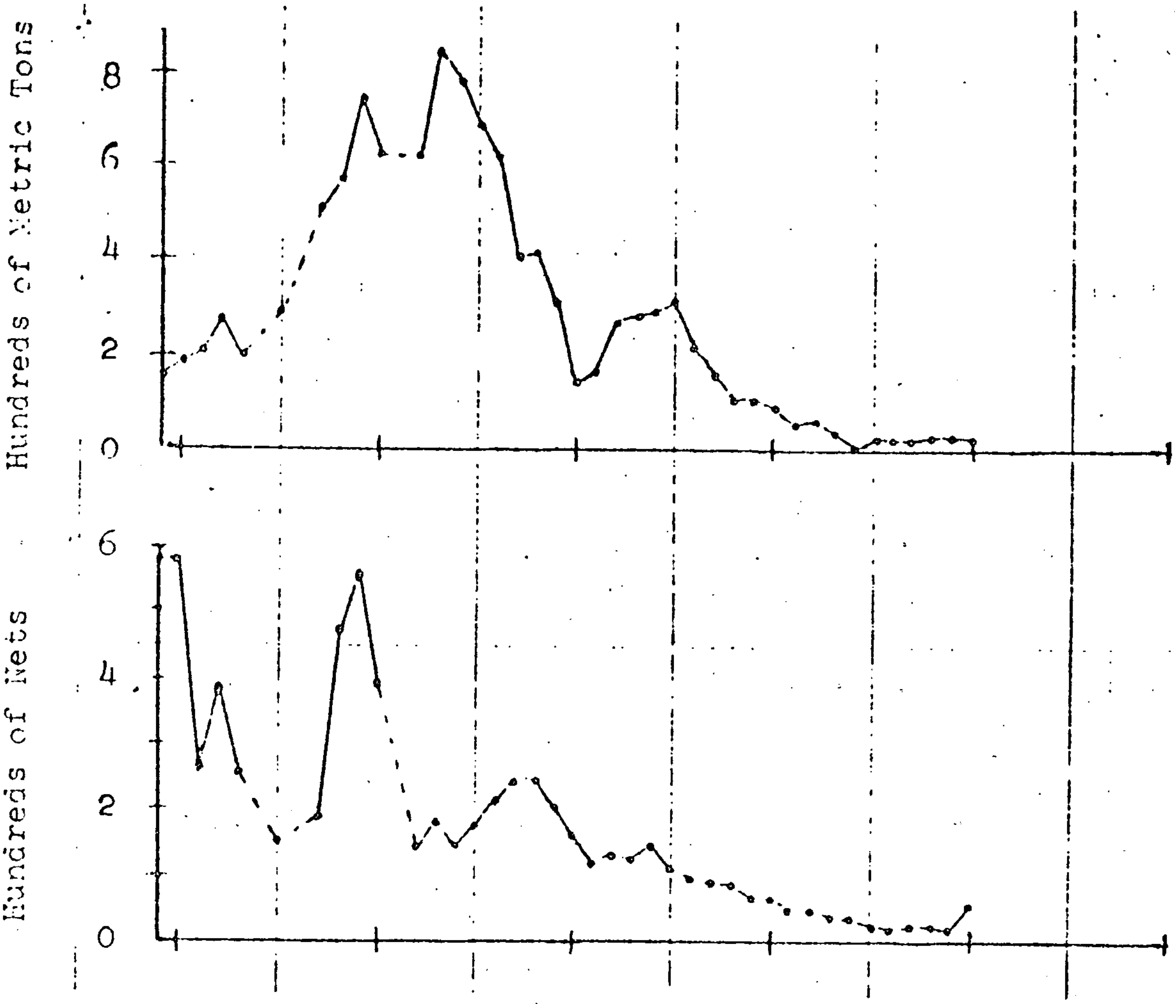

FIGURE 3 --Landings by drift gill nets and numbers of drift gill nets in New York, 1929-1970

TABLE 4.—Landings of major species in New York State by runaround gill nets, 1929-1970, in thousands of pounds

Year	Bluefish	Butterfish	Northern kingfish	Atlantic mackerel	Striped bass	Weakfish
1929	186	2			2	101
1930	293	1			1	103
1931	104	28	4		2	63
1932	218	11	*	62	8	41
1933	102			127		32
1935	148	18		27	*	130
1937	6			96		4
1938	5			206		14
1939	2	1	17	85		21
1940						15
1942	1					10
1943	5					49
1944	12	1	1	11	8	59
1945	4	*	2	*		13
1946	7					
1953	2					
1954	45					18
1955	78					20
1956	96		*	1		25
1957	53		1			16
1958	27		*		*	8
1959	25					4
1960	29					20
1961	76				3	3
1962	119					5
1963	41				1	9
1964	114				26	1
1965	226				30	13
1966	160			26	35	3
1967	158			4	196	*
1968	199	2	*	6	220	4
1969	247		*	23	156	11
1970	140		11	9	103	48

* less than 500 pounds

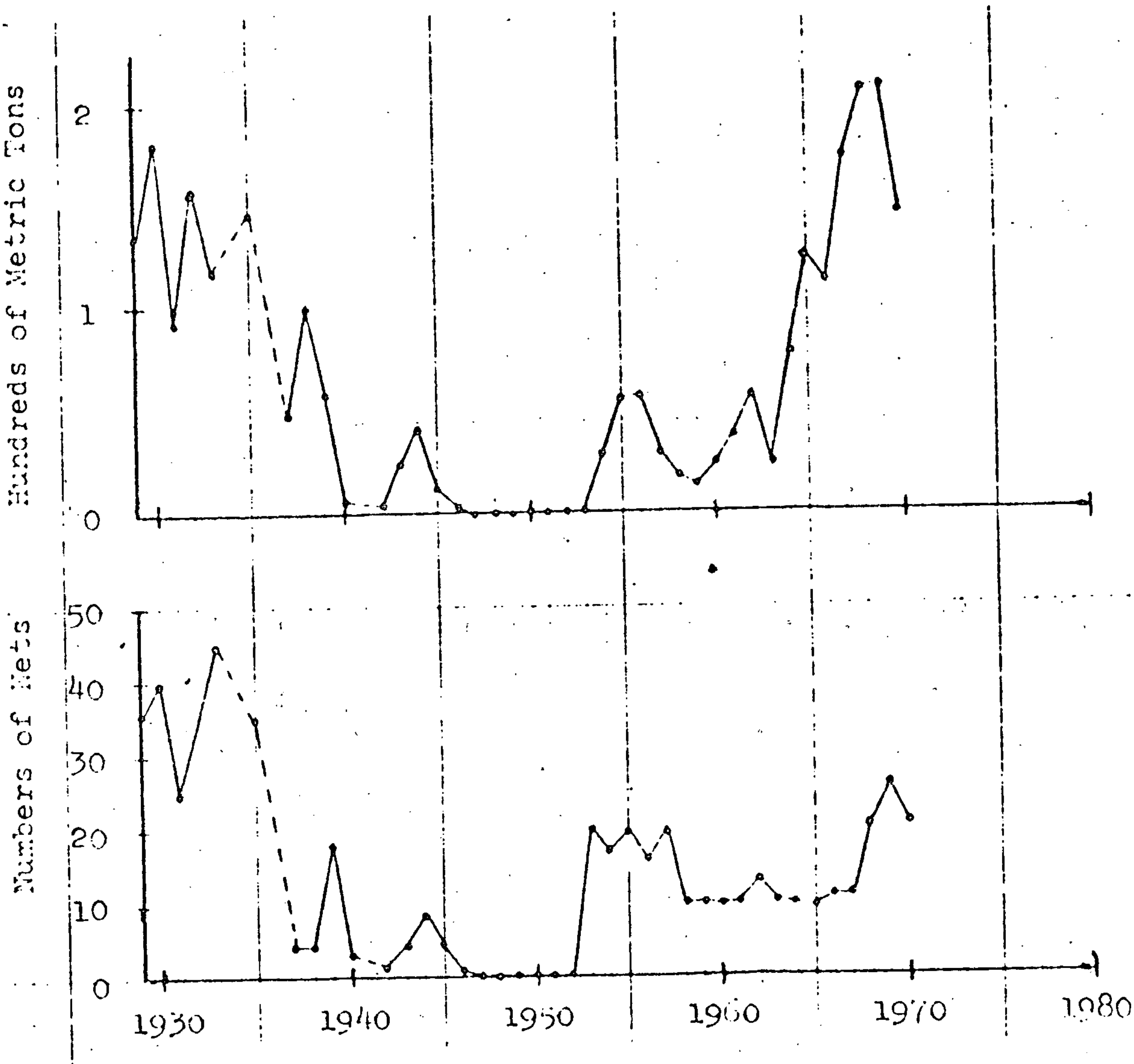

FIGURE 4 --Landings by run-around gill nets and numbers of run-around gill nets in New York, 1929-1970

TABLE 5 --Landings of major species in New York State by stake and anchor gill nets, 1929-1970, in thousands of pounds

Year	Striped bass	Weakfish	American shad	Carp	White perch	Bluefish
1929	1	15	10	4	3	33
1930	2	101	17	8	3	44
1931	3	78	3	6	7	47
1932	2	103	52	6	3	83
1933	7	53	34	2	4	58
1935	10	28	11	61	45	29
1937	18	24	30	42		17
1938	17	118	15	45	21	17
1939	19	50	14	23	25	2
1940	43	5	416	29	36	1
1942	29	15	514		32	
1943	13	25	592	1		
1944	37	1	567	*	13	1
1945	22	10	941	2	13	1
1946	13		571	12	9	
1947	5		324	37	*	
1948	20		444	1	21	*
1949			264		4	
1950	5		145		18	
1951	13		124	*	1	
1952	15		117	1	*	
1953	43	1	128	*		17
1954	38	5	189	2		53
1955	67	9	211	1		29
1956	72	10	345	1	1	35
1957	82	6	231	2	1	19
1958	70	7	211	1	11	20
1959	129	1	285	*	7	12
1960	125	2	127	1	3	38
1961	73	1	143	1	5	36
1962	44		103	1	3	47
1963	47		62	*	4	89
1964	28		45	1	4	52
1965	50		63	1	3	115
1966	44		29	1	1	44
1967	72		34	2	2	50
1968	157		45	1	2	81
1969	111	7	59	1	3	45
1970	70	23	49	1	1	43

* less than 500 pounds

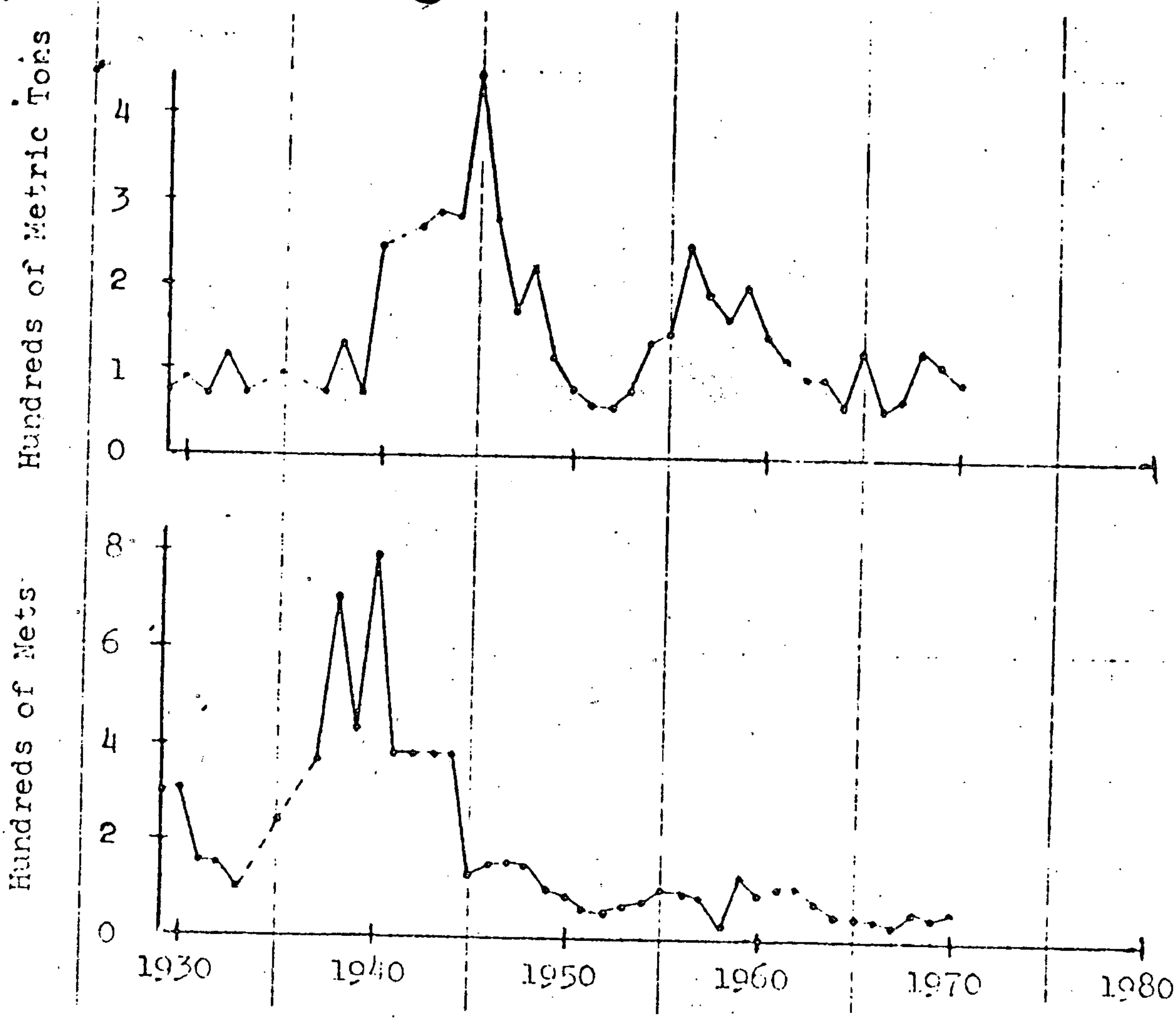

FIGURE 5 --Landings by stake and anchor gill nets and numbers of stake and anchor gill nets in New York, 1929-1970