

**APPENDIX C**

**CLOSED FISHING DAYS BY REGION TO CAP  
SWORDFISH FISHING EFFORT AT THE 1980 LEVEL**

CLOSED FISHING DAYS BY REGION TO  
CAP SWORDFISH FISHING EFFORT AT THE 1980 LEVEL

Prepared for

SWORDFISH INTER-COUNCIL STEERING COMMITTEE MEETING  
ATLANTA, GEORGIA  
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Rationale:

Yield-per-recruit (YPR) analysis (Berkeley and Houde, 1981)\* indicates that female swordfish are presently harvested (1980) at a level that maximizes YPR. Anticipated increasing fishing effort over the entire Atlantic FCZ range will result in growth overfishing if fishing effort is not restrained to its present level.

Equity Considerations:

Restricting fishing effort to its present level over the entire Atlantic FCZ range is complicated by the equity implications of one region's landings being able to expand only by reductions in landings elsewhere. The initial premise of this approach to closed fishing days by region is the proposition that expansion of one region and the necessary contraction of other regions should be determined by competitive free market forces. Closed fishing days should restrain only total fishing effort and landings, while permitting complete freedom of competition between regions.

Calculation of closed standard and calendar days:

Total reported landings by area by month for the domestic and foreign catches are shown in Appendix C-1. These landings were then grouped into the zones indicated in Table 1 of this text, and represent the percent of landings in each area by month for the domestic fishery. The percent of landings by area and month for the foreign incidental fishery are presented in Table 2. Figures 1-8 (Appendix C-2) are graphical presentations of Tables 1 and 2.

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\*See Section 9.0.

Standard fishing days for the domestic fishery are shown in Table 3. The number of standard days in each month (for each region) is the percent of that region's annual catch in that month (Table 1) times the number of days in a calendar year (364). The interpretation of standard fishing days is that they are days for comparing the relative importance of a given month to a given region.

At the bottom of Table 3 is the number of calendar days associated with a percent reduction in available days in the year. For example, five percent of 364 days is 18 days. If five percent of total fishing days for all regions (18 days) had to be closed to swordfishing to maintain landings at their 1980 level, then this would be accomplished by removing 18 standard days from each region. The number of calendar days a region would have to close depends on when the closure occurs during the year. For example, closing 18 standard days in Florida in September would require closing four tenths of the month, which is 12 calendar days (See Table 3):

$$\frac{18 \text{ standard days closed in FL}}{44 \text{ standard days available in Florida in September}} = 0.41$$

$$(0.41)(30 \text{ September calendar days}) = 12 \text{ calendar days}$$

For the Gulf of Mexico, the closure would be for the entire month of September (30 calendar days, see Table 3). However, 18 standard days for the Gulf of Mexico in April would be only 10 calendar days:

$$\frac{18 \text{ standard days closed in GM}}{55 \text{ standard days available in GM in April}} = 0.33$$

$$(0.33)(30 \text{ April calendar days}) = 10 \text{ calendar days}$$

The number of calendar days that must be closed in each area to achieve a given percentage reduction in total effort were calculated and are shown in Appendix C-3.

#### Free choice of closed days:

Each region can choose to close whatever days during the year they desire. They could decide what is to their advantage based on the seasonal patterns of their own boats as well as the expected mobility of vessels into

or out of their region. The only constraint for practical purposes is that if and when additional closed days are required in the future, that the additional closed days are contiguous with the already existing closed days.

Iterative adjustments of closed calendar days for all regions (annually):

If estimates of total (all regions) effort and landings have increased in a previous year over the estimated 1980 level, then a larger percent of calendar days for all areas will be removed. This could occur because (1) existing boats intensified their fishing during the open season in a region to compensate for the closed days, (2) the number of boats swordfishing continue to increase, or (3) technological innovations increase effective effort even with fewer available fishing days. These occurrences are nothing new with techniques to control fishing effort by closed seasons. What's important is that while any of these three factors may dampen the effort reducing effectiveness of closed days, unless (1), (2), and (3) change dramatically, effort can be effectively restrained with closed days.\*

For example, moving from five percent to ten percent is from 18 to 36 calendar days (bottom of Table 3). Then each region would be required to remove 36 standard days from their fishing season by closing whatever calendar days correspond to 36 standard days. As an example, 36 standard days in New England could be 19 calendar days in July (Calculate from Table 3 or see appropriate table in Appendix C-3):

$$\frac{36 \text{ standard days closed in New Eng}}{58 \text{ standard days available in New Eng in July}} = 0.62$$

$$(0.62)(30 \text{ July calendar days}) = 19 \text{ calendar days}$$

\*The arithmetic of the situation illustrates the point. Fishing effort (E) is a composite index of the multiplicative factors of the number of boats (B) times the number of days they fish (D) times their fishing power or harvesting technology (T):

$$E = BDT$$

Therefore, percent change in effort (E) is always equal to the percent change in number of boats (B), plus the percent change in number of fishing days (D), plus the percent change in technology (T). That means that if the number of boats increases by 10 percent, then a 10 percent reduction in available fishing days (D) will stabilize effort (offset increase in B). While we cannot precisely anticipate increases in the number of boats or technology we do not expect them to exhibit percentage increases that cannot be compensated for by reasonable decreases in the number of fishing days (e.g. 20-50 percent).

Opinion of the inter-council advisory panel:

On November 9-10, 1981, in Atlanta, the Inter-Council AP reviewed the proposed management measure to phase-out the Japanese incidental catch of swordfish according to the formula in the American Fisheries Promotion Act and cap domestic fishing effort and landings at the 1980 level.

The phase-out was wholly agreeable to the AP. They recommended the fastest possible phase-out and that during the phase-out, the Japanese be allowed to keep the number of swordfish that are permitted by the phase-out formula but they strongly emphasized that 100 percent observer coverage would be necessary to accomplish the phase-out.

The AP also approved the variable season closure (VSC) method as presented. They believe that all area closures should have overlapping closed days to minimize the relative advantages to larger mobile vs. smaller fixed port vessels. The initial choice was to begin all region closures in November. This would mean that the number of calendar days closed in the northern and central areas would be greater than the number of calendar days closed in the southern and Gulf areas to achieve comparable reductions. The northern closures would not affect the harpoon fishery.

Another recommendation suggested that all region closures begin in August, but there was concern over the effect on the northern harpoon fishery which has a very short season. Staff (Austin/Waugh) is calculating variable season closure tables only for the northern harpoon fishery which will specify their closures which will differ from the northern longline figures. It was also suggested that since the northern harpoon fishery represents such a small portion of total landings and the season and area is so limited that the closed days only apply to longline gear.

Table 1. Monthly landings index\* by area expressed as a percentage of annual landings using 1980 monthly data as a base year. (GM = Gulf of Mexico; FL-EC = Florida East Coast; S-ATL = NC, SC & GA; MID-ATL = NY, NJ, MD, VA; NEW ENG = RI, MA, ME).

	GM	FL-EC	S-ATL	MID-ATL	NEW ENG	S-ATL MID-ATL NEW ENG
JANUARY	10.27	4.81	0.00	0.00	0.00	0.00
FEBRUARY	19.26	4.47	0.00	0.00	0.00	0.00
MARCH	15.83	7.89	0.00	0.00	0.00	0.00
APRIL	15.22	7.15	0.19	0.00	0.60	0.57
MAY	3.71	11.71	5.06	0.00	0.72	0.89
JUNE	2.80	7.19	14.26	2.86	7.44	7.62
JULY	2.76	16.06	17.22	30.83	16.02	16.38
AUGUST	2.55	13.21	25.67	26.10	25.07	25.12
SEPTEMBER	5.01	12.15	25.33	8.79	24.01	23.75
OCTOBER	4.72	7.27	8.99	20.35	16.58	16.35
NOVEMBER	5.93	4.70	3.27	11.07	4.84	4.91
DECEMBER	11.94	3.40	0.00	0.00	4.72	4.43

\*Monthly Landings Index (MLI) =  $\frac{\text{Landings in a month}}{\text{Annual Landings}}$

Table 2. Monthly landings index\* by area expressed as a percentage of total swordfish incidental catch extrapolated from 1980 observer data and 1980 data reported by the Japanese. (Source: NMFS Observer Program, unpublished data)

	GULF		SATL/MATL/NEW ENG	
	OBSERVER DATA	JAPANESE DATA	OBSERVER DATA	JAPANESE DATA
JANUARY	2.29	3.87	0.00	5.45
FEBRUARY	24.76	27.13	3.80	3.83
MARCH	71.64	67.31		
APRIL	1.31	1.69	0.11	0.25
MAY				
JUNE			0.22	0.28
JULY			4.07	4.75
AUGUST			4.07	2.99
SEPTEMBER			14.56	15.09
OCTOBER			26.37	21.21
NOVEMBER			22.71	18.75
DECEMBER			24.10	27.40

\*Monthly Landings Index (MLI) =  $\frac{\text{Landings in a month}}{\text{Annual Landings}}$

Table 3. Standard fishing day (measure of importance of that month to that region) by month and area.

	GM	FL-EC	S-ATL	MID-ATL	NEW ENG	S-ATL MID-ATL NEW ENG
JANUARY	37	18	-	-	-	-
FEBRUARY	70	16	-	-	-	-
MARCH	58	29	-	-	-	-
APRIL	55	26	1	-	2	2
MAY	14	43	18	-	3	3
JUNE	10	26	52	10	27	28
JULY	10	59	63	112	58	60
AUGUST	9	48	93	95	91	91
SEPTEMBER	18	44	92	32	87	87
OCTOBER	17	27	33	74	60	60
NOVEMBER	22	17	12	40	18	18
DECEMBER	44	12	-	-	17	16
TOTALS	364	365	364	363	363	365

<u>PERCENT REDUCTION IN EFFORT</u>	<u>NUMBER OF CALENDAR DAYS</u>
5	18
10	36
15	55
20	73
25	91
30	109

**APPENDIX C-1**

**MONTHLY CATCH DATA FOR THE DOMESTIC FISHERY  
FOR THE YEARS 1977-1980(81) AND 1980 MONTHLY FOREIGN CATCH  
DATA BOTH AS REPORTED BY THE JAPANESE AND  
EXTRAPOLATED FROM OBSERVER DATA**

Table 1. Monthly swordfish landings data for Texas. (Source: Ormon Farley, NMFS; pers. comm.)

	1977	1978	1979*	1980 <sup>+</sup>	1981
JANUARY			44,300	95,200	103,200
FEBRUARY			26,600	206,500	179,700
MARCH			86,100	191,300	102,700
APRIL			23,700	215,700	39,000
MAY				43,100	-
JUNE				6,800	300
JULY				5,500	
AUGUST				-	
SEPTEMBER				7,700	
OCTOBER				6,100	
NOVEMBER				21,500	
DECEMBER				<u>166,100</u>	
TOTAL			<u>180,700</u>	965,500	

\*During 1979, 4 out-of-state longline boats fished four months; no Texas vessels fished.

+During 1980, 42 converted shrimp trawlers fished for swordfish.

Table 2. Monthly swordfish landings data for Florida West Coast.  
(Source: Ernie Snell, NMFS; pers. comm.)

	1977	1978	1979	1980
JANUARY	-	-	4,025	82,092
FEBRUARY	-	198	3,949	125,916
MARCH	-	75	3,033	81,911
APRIL	-	3,868	18,539	47,044
MAY	99	22,613	74,871	20,858
JUNE	1,358	4,681	28,676	41,451
JULY	864	1,662	28,181	42,174
AUGUST	-	276	36,518	44,078
SEPTEMBER	-	2,649	14,730	78,740
OCTOBER	-	72	30,248	75,308
NOVEMBER	-	12,534	75,166	80,887
DECEMBER	-	<u>4,080</u>	<u>116,376</u>	<u>40,016</u>
TOTALS	2,321	52,708	434,312	760,475

Table 3. Monthly swordfish landings data for Florida East Coast.  
(Source: Ernie Snell, NMFS; pers. comm.)

	1977	1978	1979	1980
JANUARY	-	-	14,353	111,006
FEBRUARY	-	-	29,473	103,068
MARCH	-	21,420	120,064	182,202
APRIL	7,957	66,685	226,434	165,033
MAY	29,737	94,419	305,241	270,276
JUNE	16,600	137,539	307,559	165,854
JULY	26,570	75,510	235,155	370,593
AUGUST	16,823	44,012	121,475	304,972
SEPTEMBER	12,685	58,526	55,148	280,344
OCTOBER	2,046	23,095	162,564	167,736
NOVEMBER	967	8,756	141,169	108,386
DECEMBER	-	<u>6,331</u>	<u>135,303</u>	<u>78,572</u>
TOTALS	113,385	536,293	1,853,938	2,308,042

Table 4. Monthly swordfish landings data for North and South Carolina. (Source: Ken Harris, NMFS; pers. comm.)

	1977	1978	1979	1980
JANUARY		124	121	-
FEBRUARY		-	-	-
MARCH		-	-	-
APRIL		-	18,879	2,245
MAY		283,153	235,567	58,832
JUNE		161,226	149,128	165,705
JULY		89,700	185,324	200,043
AUGUST		122,816	310,116	298,195
SEPTEMBER		134,468	69,939	294,236
OCTOBER		192,591	17,713	104,432
NOVEMBER		18,718	6,360	37,986
DECEMBER		18,052	-	-
TOTALS		1,020,848	993,147	1,161,673

Table 5. Monthly swordfish landings data for Georgia. (Source: Ken Harris, NMFS; pers. comm.)

	1977	1978	1979	1980
JANUARY		-		
FEBRUARY		-		
MARCH		-		
APRIL		-		
MAY		-		
JUNE		2,622*		
JULY		-		
AUGUST		-		
SEPTEMBER		-		
OCTOBER		-		
NOVEMBER		-		
DECEMBER		-		
TOTAL		2,622		

\*Worth \$5,244.

Table 6. Monthly swordfish landings data for New York, New Jersey, Maryland and Virginia. (Source: Bill Kelly, NMFS; pers. comm.)

	1977	1978	1979	1980
JANUARY	-	-	-	-
FEBRUARY	-	-	7,400	-
MARCH	-	-	-	-
APRIL	-	-	-	-
MAY	-	11,972	7,741	-
JUNE	-	7,327	21,182	16,840
JULY	22,092	56,248	127,585	181,661
AUGUST	-	150,140	72,376	153,831
SEPTEMBER	64,750	72,275	82,920	51,819
OCTOBER	134,305	182,496	8,212	119,943
NOVEMBER	486	29,343	-	65,219
DECEMBER	<u>645</u>	<u>230</u>	<u>16,138</u>	<u>-</u>
TOTALS	222,278	510,031	343,554	589,313

Table 7. Monthly swordfish landings data for Rhode Island\*. (Source: Ronnie Schultz, NMFS; pers. comm.)

	1977	1978	1979	1980
JANUARY	-	-	-	-
FEBRUARY	-	-	-	-
MARCH	-	-	-	-
APRIL	-	-	-	-
MAY	23,000	-	-	2,000
JUNE	6,000	50,000	17,000	42,000
JULY	9,000	264,000	195,000	136,000
AUGUST	10,000	239,000	124,000	162,000
SEPTEMBER	33,000	80,000	175,000	38,000
OCTOBER	-	15,000	-	74,000
NOVEMBER	-	20,000	-	-
DECEMBER	-	-	-	-
TOTALS	81,000	668,000	511,000	454,000

\*Landings data reported rounded to thousand pounds live weight.

Table 8. Monthly swordfish landings data for Massachusetts.\* (Source: Ronnie Schultz, NMFS, pers. comm.)

	1977	1978	1979	1980
JANUARY	-	-	-	-
FEBRUARY	-	-	-	-
MARCH	-	-	-	-
APRIL	-	-	100,000	16,000
MAY	-	28,000	177,000	18,000
JUNE	34,000	389,000	409,000	94,000
JULY	267,000	900,000	843,000	241,000
AUGUST	275,000	1,138,000	912,000	225,000
SEPTEMBER	196,000	797,000	669,000	598,000
OCTOBER	73,000	409,000	388,000	174,000
NOVEMBER	-	324,000	11,000	96,000
DECEMBER	-	-	-	125,000
TOTALS	845,000	3,985,000	3,509,000	1,587,000

\*Landings data reported rounded to thousand pounds live weight.

Table 9. Monthly swordfish landings data for Maine\*. (Source: Ronnie Schultz, NMFS; pers. comm.)

	1977	1978	1979	1980
JANUARY	-	-	-	-
FEBRUARY	-	-	-	-
MARCH	-	-	-	-
APRIL	-	-	-	-
MAY	-	9,000	-	-
JUNE	7,000	14,000	27,000	61,000
JULY	111,000	124,000	82,000	47,000
AUGUST	154,000	70,000	66,000	277,000
SEPTEMBER	40,000	118,000	115,000	-
OCTOBER	68,000	13,000	102,000	192,000
NOVEMBER	-	21,000	-	33,000
DECEMBER	-	-	-	-
TOTALS	380,000	369,000	392,000	610,000

\*Landings data reported rounded to thousand pounds live weight.

Table 10. Estimated monthly Japanese swordfish catch extrapolated from 1980 observer data and 1980 data reported by the Japanese. (Source: NMFS Observer Program, unpublished data)

	GULF		SATL/MATL/NEW ENG	
	OBSERVER <u>DATA</u>	JAPANESE <u>DATA</u>	OBSERVER <u>DATA</u>	JAPANESE <u>DATA</u>
JANUARY	101	80	-	155
FEBRUARY	1,093	561	139	109
MARCH	3,163	1,392	-	-
APRIL	58	35	4	7
MAY	-	-	-	-
JUNE	-	-	8	8
JULY	-	-	149	135
AUGUST	-	-	149	85
SEPTEMBER	-	-	533	80
OCTOBER	-	-	965	603
NOVEMBER	-	-	831	533
DECEMBER	-	-	882	779
TOTALS	4,415	2,068	3,660	2,494

APPENDIX C-2

GRAPHIC ILLUSTRATIONS OF SEASONAL LANDINGS INDEX  
FOR THE DOMESTIC AND FOREIGN SWORDFISH 1980 CATCH DATA

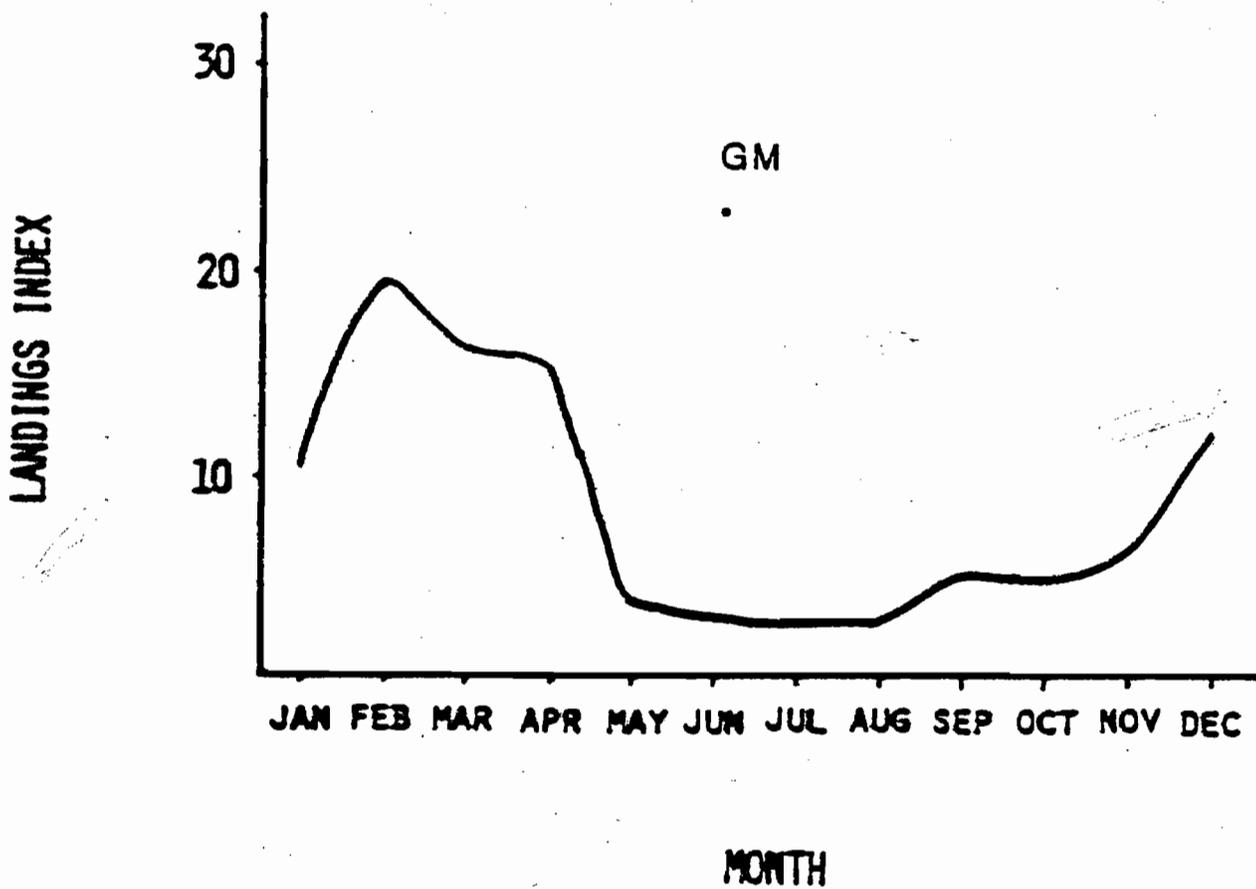


Figure 1. Seasonal domestic 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the Gulf of Mexico (GM) area.

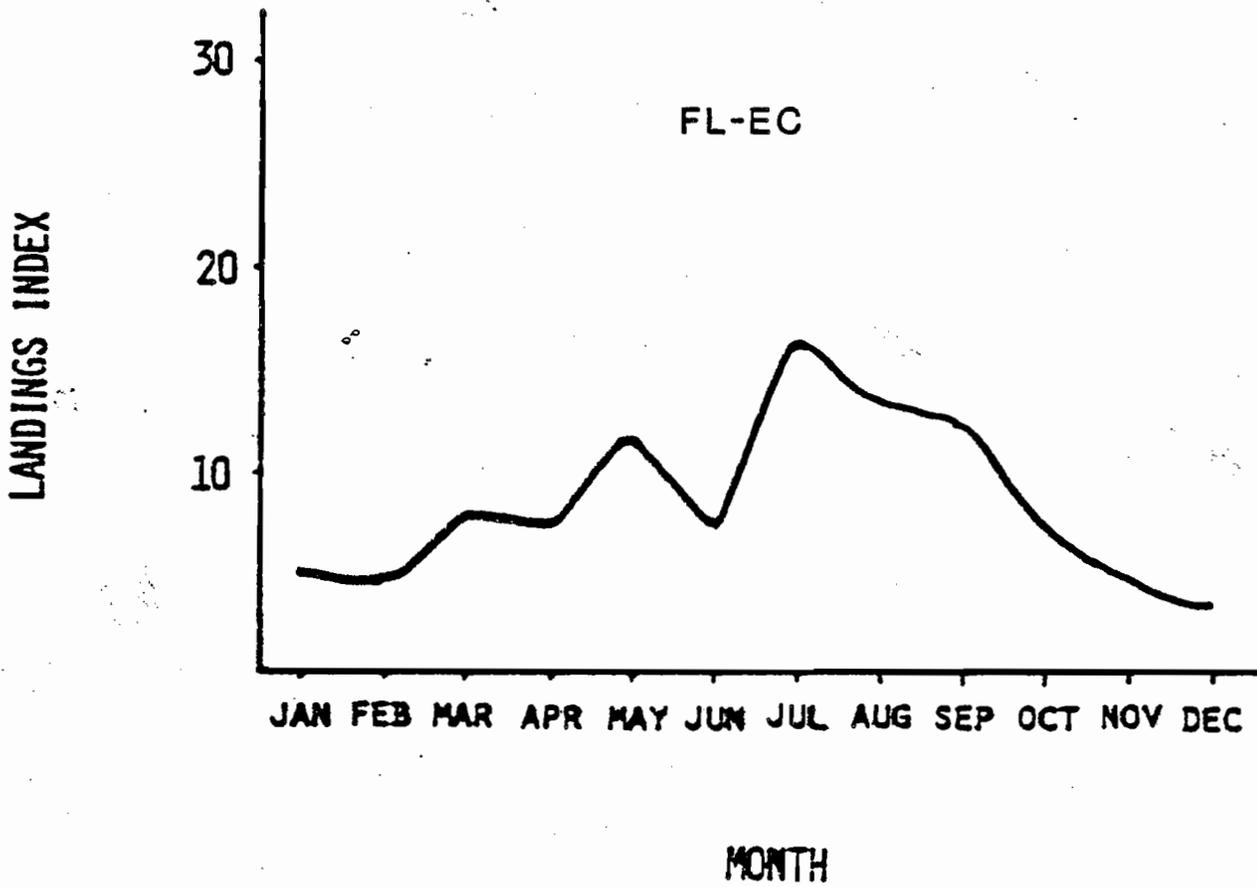


Figure 2. Seasonal domestic 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the Florida East Coast (FL-EC) area.

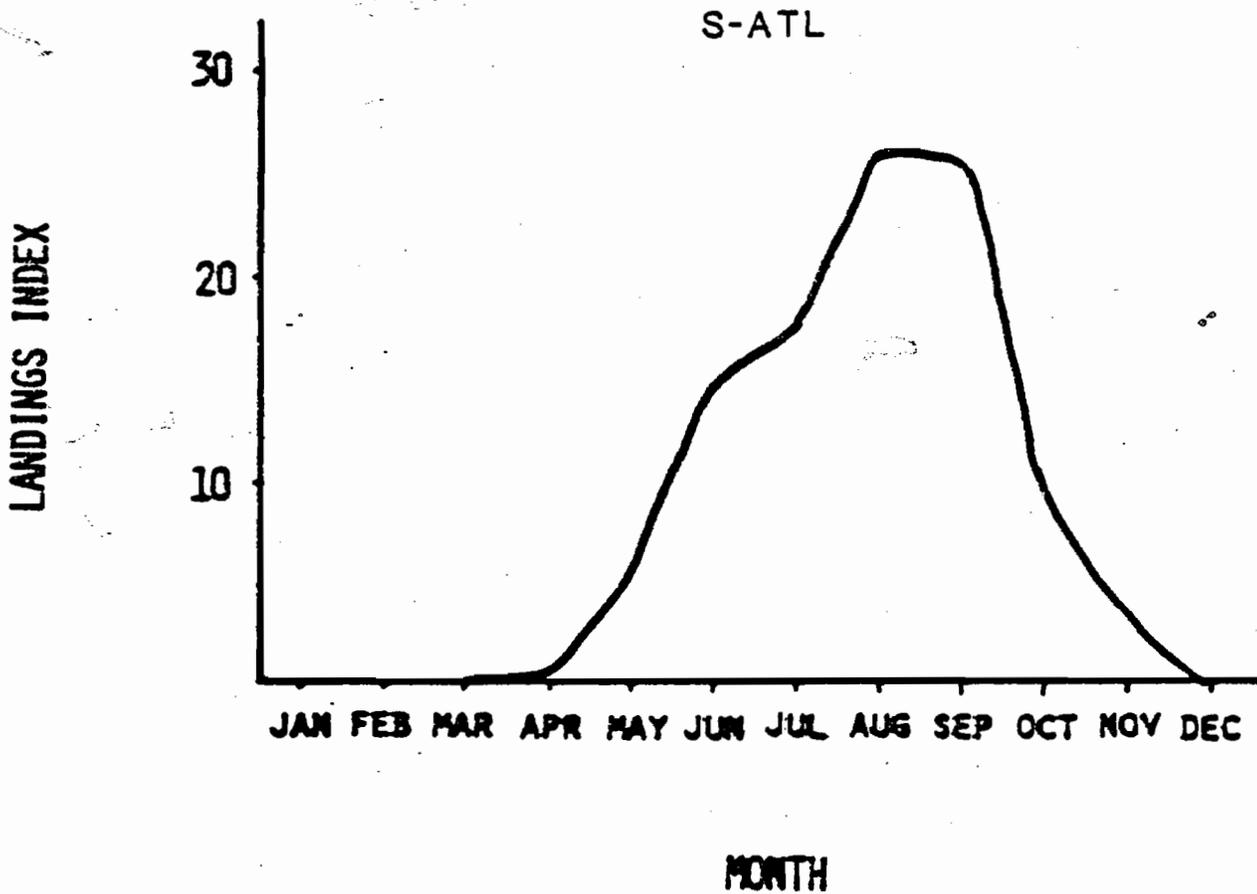


Figure 3. Seasonal domestic 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the South Atlantic (S-ATL) area.

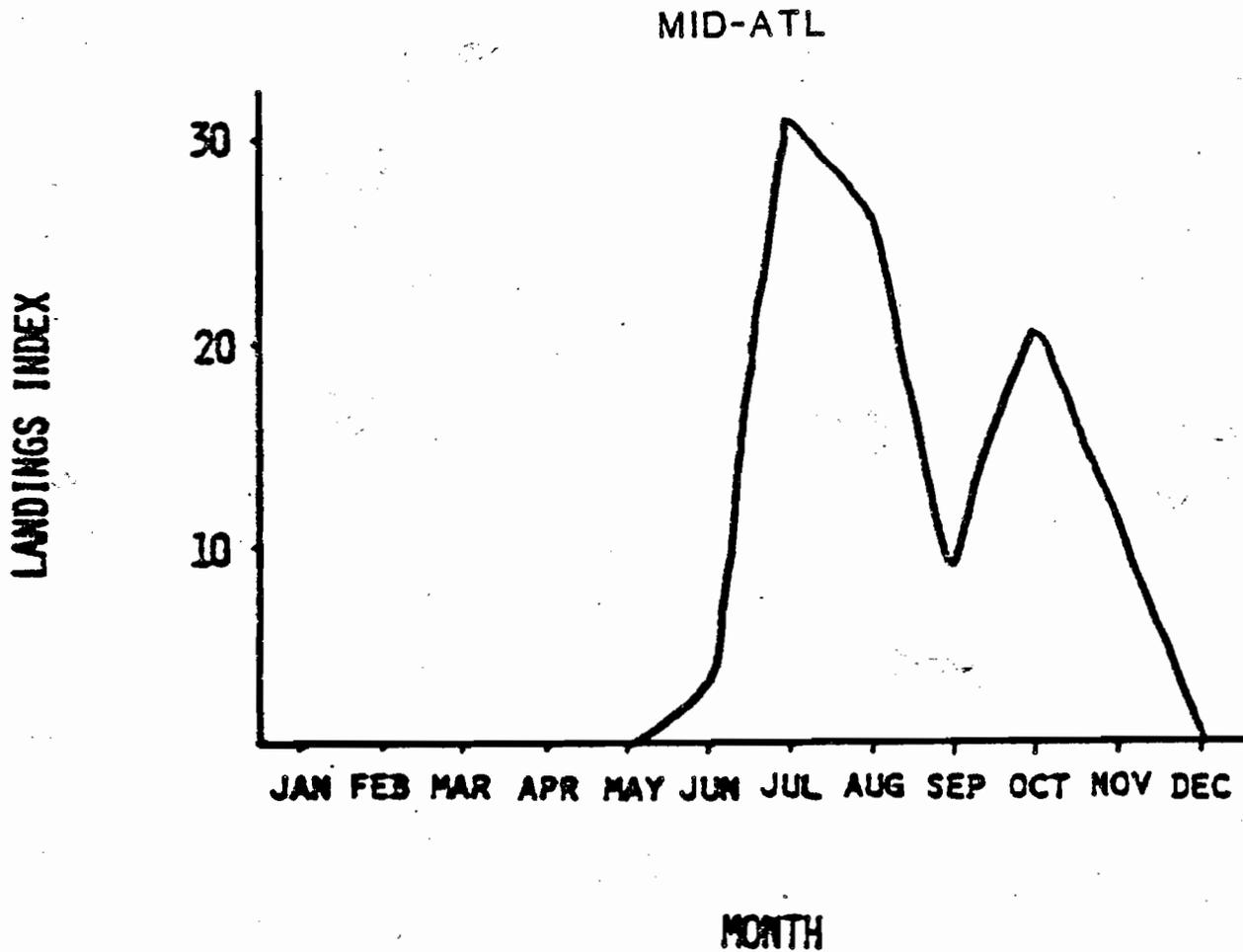


Figure 4. Seasonal domestic 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the Mid-Atlantic (MID-ATL) area.

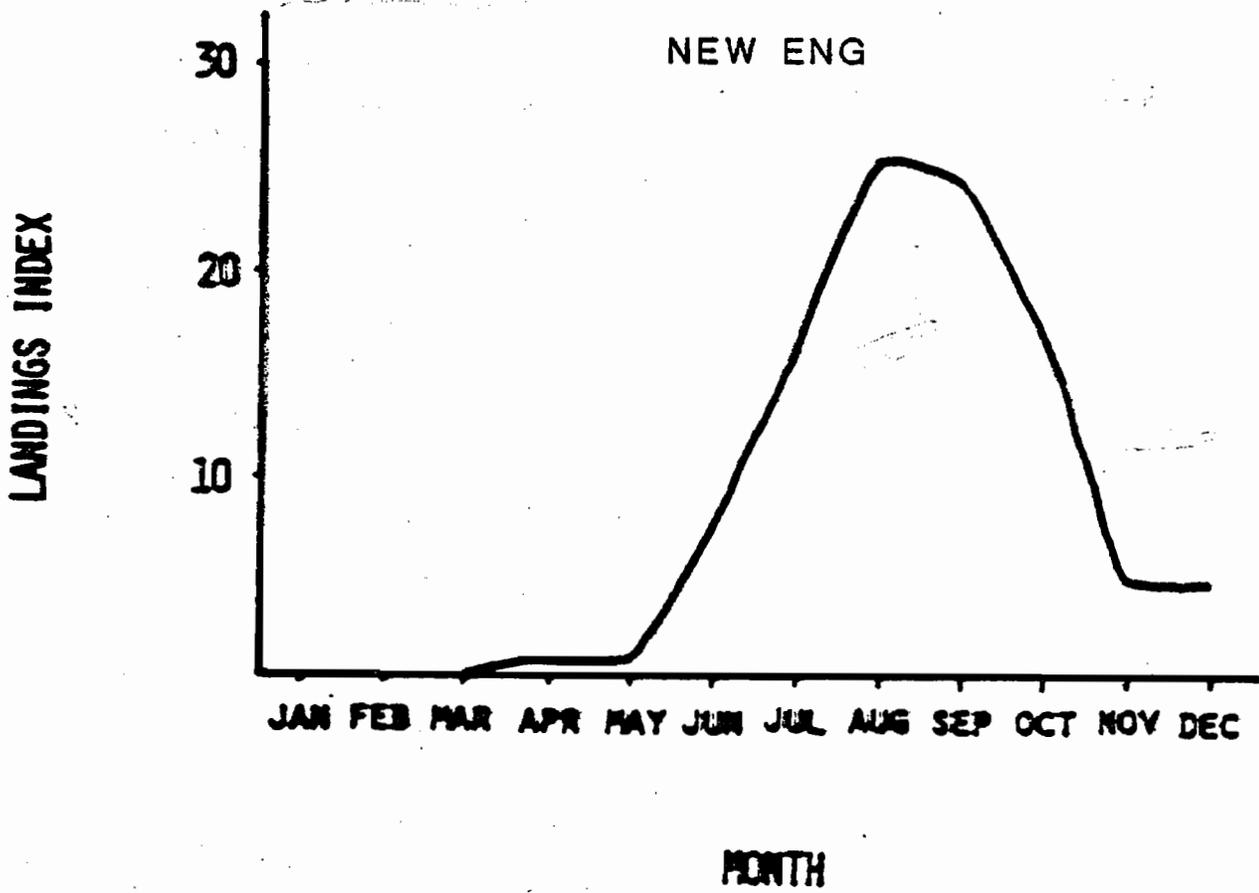


Figure 5. Seasonal domestic 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the New England (NEW ENG) area.

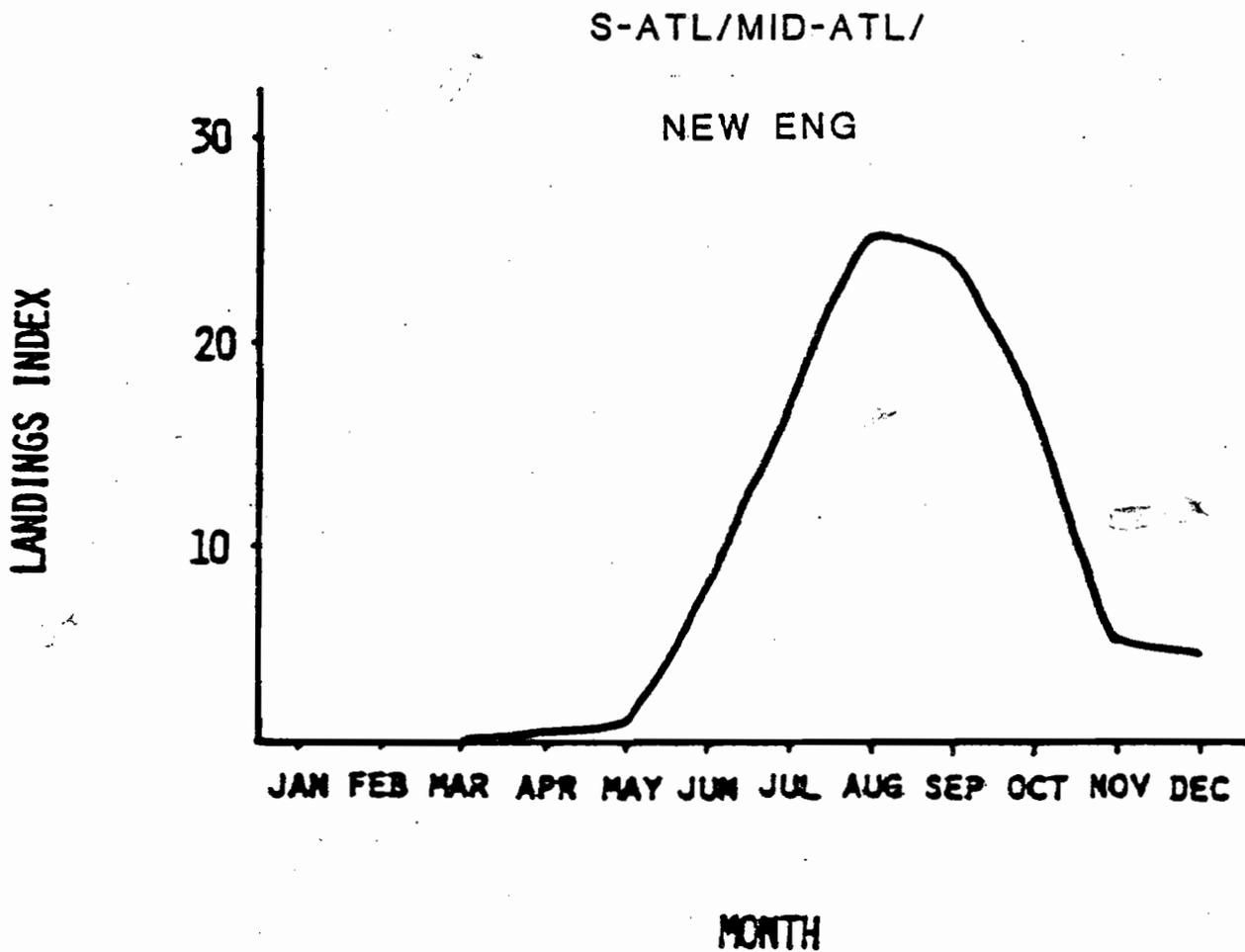


Figure 6. Seasonal domestic 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the South Atlantic/Mid-Atlantic/New England (S-ATL/MID-ATL/NEW ENG) area.

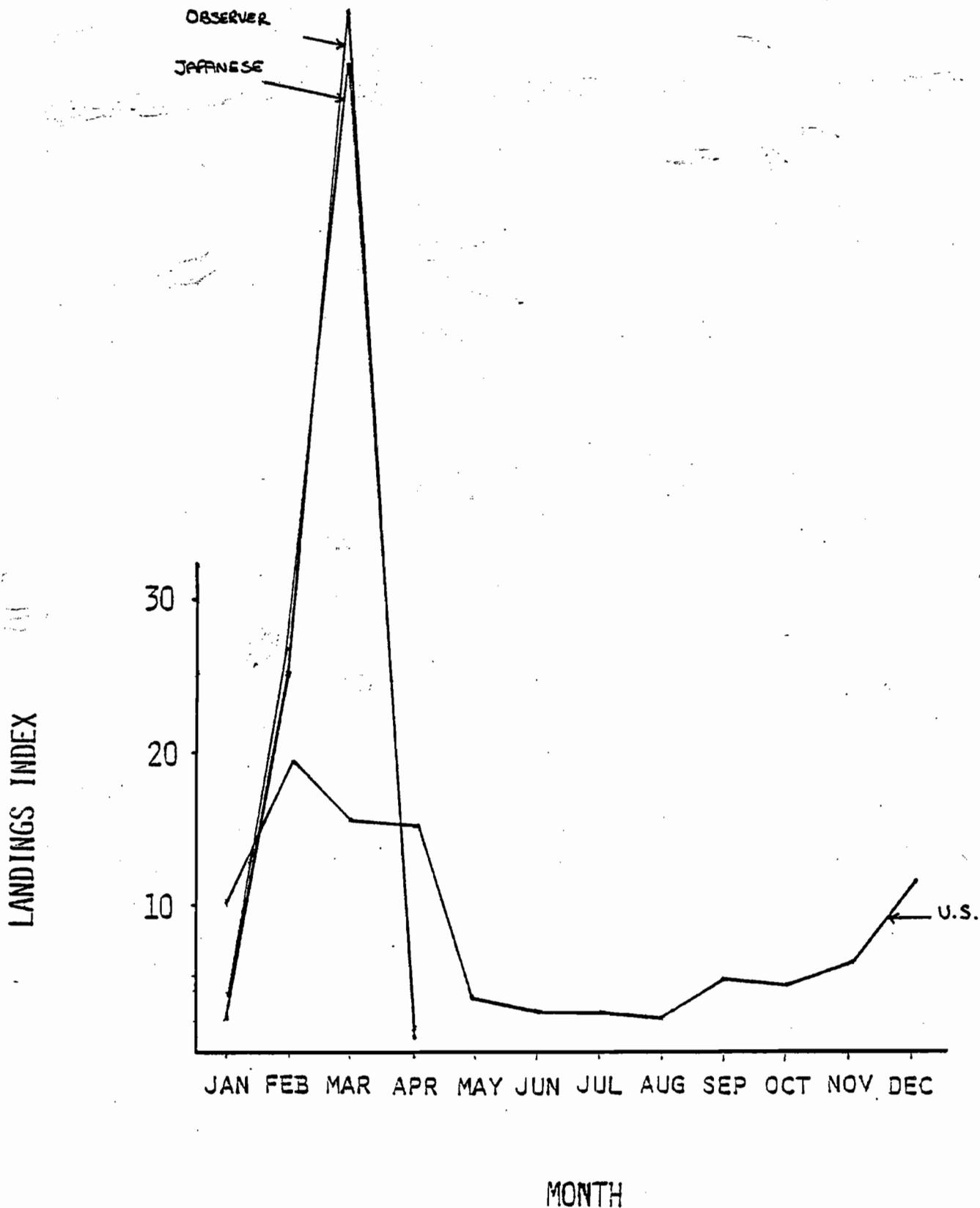


Figure 7. Seasonal 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the Gulf of Mexico showing U.S. domestic catch distribution, Japanese reported catch distribution and the Japanese catch distribution as extrapolated from observer data.

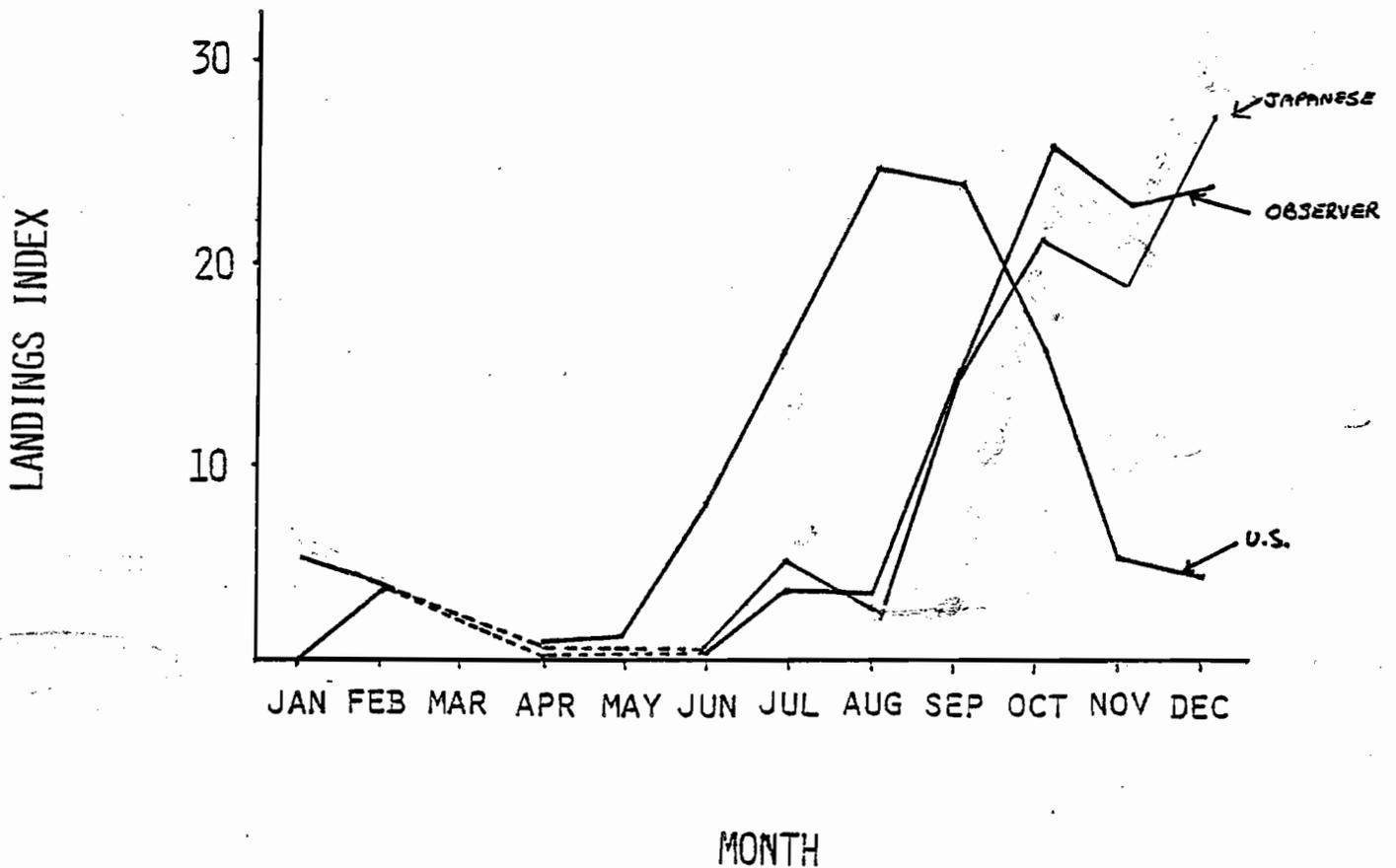


Figure 8. Seasonal 1980 landings index (percent of landings in each area by month; measures importance of that month to that area) for the S-ATL/MID-ATL/NEW ENG area showing the U.S. domestic catch distribution, Japanese reported catch distribution and the Japanese catch distribution as extrapolated from observer data.

**APPENDIX C-3**

**NUMBER OF DAYS THAT MUST BE CLOSED IN EACH AREA  
(GM, FL-EC, S-ATL, MID-ATL, NEW ENG) TO ACHIEVE SPECIFIED  
REDUCTIONS IN FISHING EFFORT (5%, 10%, 15%, 20%, 25%)**





















## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = SOUTH ATLANTIC

% REDUCTION = 5%

MONTH BEGIN	<u>MONTHS AND/OR DAYS CLOSED</u>											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	29							
FEB		28	31	30	29							
MAR			31	30	29							
APR				30	29							
MAY					31							
JUN						10						
JUL							9					
AUG								6				
SEP									6			
OCT										17		
NOV	31	28	31	30	9						30	31
DEC	31	28	31	30	29							31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = SOUTH ATLANTIC

% REDUCTION = 10%

MONTH BEGIN	<u>MONTHS AND/OR DAYS CLOSED</u>											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	10						
FEB		28	31	30	31	10						
MAR			31	30	31	10						
APR				30	31	10						
MAY					31	10						
JUN						21						
JUL							18					
AUG								12				
SEP									12			
OCT										31	8	
NOV	31	28	31	30	31	3					30	31
DEC	31	28	31	30	31	10						31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = SOUTH ATLANTIC

% REDUCTION = 15%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	21						
FEB		28	31	30	31	21						
MAR			31	30	31	21						
APR				30	31	21						
MAY					31	21						
JUN						30	2					
JUL							27					
AUG								18				
SEP									18			
OCT	31	28	31	30	16					31	30	31
NOV	31	28	31	30	31	14					30	31
DEC	31	28	31	30	31	21						31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = SOUTH ATLANTIC

% REDUCTION = 20%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	1					
FEB		28	31	30	31	30	1					
MAR			31	30	31	30	1					
APR				30	31	30	1					
MAY					31	30	2					
JUN						30	10					
JUL							31	3				
AUG								24				
SEP									24			
OCT	31	28	31	30	31	5				31	30	31
NOV	31	28	31	30	31	24					30	31
DEC	31	28	31	30	31	30	1					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = SOUTH ATLANTIC

% REDUCTION = 25%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	10					
FEB		28	31	30	31	30	10					
MAR			31	30	31	30	10					
APR				30	31	30	10					
MAY					31	30	10					
JUN						30	19					
JUL							31	9				
AUG								30				
SEP									30			
OCT	31	28	31	30	31	16				31	30	31
NOV	31	28	31	30	31	30	4				30	31
DEC	31	28	31	30	31	30	10					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = MID-ATLANTIC

% REDUCTION = 5%

MONTH BEGIN	<u>MONTHS AND/OR DAYS CLOSED</u>											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	2					
FEB		28	31	30	31	30	2					
MAR			31	30	31	30	2					
APR				30	31	30	2					
MAY					31	30	2					
JUN						30	2					
JUL							5					
AUG								6				
SEP									17			
OCT										8		
NOV											14	
DEC	31	28	31	30	31	30	2					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = MID-ATLANTIC

% REDUCTION = 10%

MONTH BEGIN	<u>MONTHS AND/OR DAYS CLOSED</u>											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	7					
FEB		28	31	30	31	30	7					
MAR			31	30	31	30	7					
APR				30	31	30	7					
MAY					31	30	7					
JUN						30	7					
JUL							10					
AUG								12				
SEP									30	2		
OCT										15		
NOV											27	
DEC	31	28	31	30	31	30	7					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = MID-ATLANTIC

% REDUCTION = 15%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	13					
FEB		28	31	30	31	30	13					
MAR			31	30	31	30	13					
APR				30	31	30	13					
MAY					31	30	13					
JUN						30	13					
°JUL							15					
AUG								18				
SEP									30	10		
OCT										23		
NOV	31	28	31	30	31	30	1				30	31
DEC	31	28	31	30	31	30	13					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = MID-ATLANTIC

% REDUCTION = 20%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	17					
FEB		28	31	30	31	30	17					
MAR			31	30	31	30	17					
APR				30	31	30	17					
MAY					31	30	17					
JUN						30	17					
JUL							20					
AUG								24				
SEP									30	17		
OCT										31		
NOV	31	28	31	30	31	30	6				30	31
DEC	31	28	31	30	31	30	17					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = MID-ATLANTIC

% REDUCTION = 25%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	22					
FEB		28	31	30	31	30	22					
MAR			31	30	31	30	22					
APR				30	31	30	22					
MAY					31	30	22					
JUN						30	22					
JUL							25					
AUG								30				
SEP									30	25		
OCT										31	13	
NOV	31	28	31	30	31	30	11				30	31
DEC	31	28	31	30	31	30	22					31



## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = NEW ENGLAND

% REDUCTION = 10%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	2					
FEB		28	31	30	31	30	2					
MAR			31	30	31	30	2					
APR				30	31	30	2					
MAY					31	30	3					
JUN						30	5					
JUL							19					
AUG								12				
SEP									12			
OCT										19		
NOV	31	28	31	15							30	31
DEC	31	28	31	30	31	16						31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = NEW ENGLAND

% REDUCTION = 15%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	12					
FEB		28	31	30	31	30	12					
MAR			31	30	31	30	12					
APR				30	31	30	12					
MAY					31	30	13					
JUN						30	15					
JUL							29					
AUG								19				
SEP									19			
OCT										28		
NOV	31	28	31	30	31	17				30	31	
DEC	31	28	31	30	31	30	3					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = NEW ENGLAND

% REDUCTION = 20%

MONTH BEGIN	<u>MONTHS AND/OR DAYS CLOSED</u>											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	22					
FEB		28	31	30	31	30	22					
MAR			31	30	31	30	22					
APR				30	31	30	22					
MAY					31	30	23					
JUN						30	25					
JUL							31	5				
AUG								25				
SEP									25			
OCT										31	22	
NOV	31	28	31	30	31	30	3			30	31	
DEC	31	28	31	30	31	30	13					31

## CLOSED FISHING DAYS BY REGION GIVEN % REDUCTION

AREA = NEW ENGLAND

% REDUCTION = 25%

MONTH BEGIN	MONTHS AND/OR DAYS CLOSED											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
JAN	31	28	31	30	31	30	31					
FEB		28	31	30	31	30	31					
MAR			31	30	31	30	31					
APR				30	31	30	31					
MAY					31	30	31	1				
JUN						30	31	2				
JUL							31	11				
AUG								31				
SEP									30	2		
OCT										31	30	24
NOV	31	28	31	30	31	30	13				30	31
DEC	31	28	31	30	31	30	23					31