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**Available Data from the 1986
King Mackerel Economic
Costs and Returns Study**

by:

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Robert Mosbacher, Secretary

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William E. Evans, Administrator

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Introduction

The purpose of this memorandum is to inform interested parties of the existence of cost and revenue data for vessels which operated in the Southeast coast of the United States (South Atlantic) king mackerel fishery in 1986. The data was collected by the Economic and Statistics Office (ESO) of the Southeast Fisheries Center, National Marine Fisheries Service (NMFS) and assembled and analyzed by the Economics Unit of the Southeast Regional Office, NMFS. This effort was in response to the Gulf of Mexico and South Atlantic Fishery Management Councils' need for pertinent economic information on the impact of fisheries management decisions on king mackerel fishermen.

Both the South Atlantic and the Gulf of Mexico king mackerel fisheries have been operating under a fishery management plan (FMP) for coastal pelagic resources which was approved in 1982 and implemented in February, 1983 under the direction of the Gulf of Mexico and South Atlantic fishery councils (GMFMC and SAFMC). The original plan, which treated king and Spanish mackerel as separate stocks, made both recreational and commercial allocations. Commercial allocations were further split between net and hook-and-line fishermen. The FMP has been amended twice. The first amendment recognized the existence of separate Gulf and Atlantic migratory groups and established fishing permits and bag limits for king mackerel while the second amendment required charterboats to obtain permits and prohibited the use of purse seines for the Gulf migratory group of king mackerel. A third amendment prohibiting the use of purse seines and run-around gill nets for the Atlantic migratory group and the use of drift gill nets for both groups is currently under review.

Data Acquisition and Assembly

Port agents of the NMFS located on the South Atlantic coast were given the task of enumerating the survey (Appendix 1) for the ESO. Only vessels that had applied for king mackerel permits in 1986 were included in the survey. The data were entered into a computer file by the Economics Unit of the Southeast Regional Office using RBase and were subsequently changed to a SAS file for assembly and analysis.

The available data set was assembled from forty-eight usable surveys. A usable survey was defined as one which 1) included landings of king mackerel in 1986, 2) included specific landings data for other species landed, i.e. if the vessel reported landing 10,000 pounds of king mackerel and reported this catch as fifteen percent of total catch without specifying the number or percentage catch of each other species, the survey was not included and 3) included a complete set of cost data. Data that were under scrutiny were verified to the extent possible, and if there were doubts concerning certain data, the survey was omitted from the final data set.

Of the forty-eight vessels, forty-one were considered to be commercial vessels and seven were considered to be primarily charter vessels. The survey yielded eighty

variables that reflected vessel characteristics, effort, catch, and cost. Thirty-four additional variables were created using SAS . These variables contain revenue information for the vessels identified as commercial and cost information on both a daily and trip basis for all vessels. Definitions and positions of all variables contained in the SAS data set appear in appendix 2.

All data are considered to be available for public use with the exception of vessel name and home port. Therefore, the variables VES_NAME and HOMEPORT will appear as a missing value for each observation. A sample analysis of the data for commercial gill net and hook-and-line fishermen may be found in appendix 3.

To obtain a copy of the data set, please send a letter requesting the 1986 port agent survey for king mackerel vessels and a two-sided high-density floppy disk to Myles Raizin, National Fisheries Marine Service, Duval Building, 9450 Koger Blvd., St. Petersburg, FL 33702. Please indicate the format in which you want the data set to be written. Available formats include ASCII, DIF, DBase, and SAS.

Appendix 1

You were granted a commercial king mackerel fishing permit for the vessel according to the application the length of the vessel is _____ feet and the hold capacity is _____ tons, is this information correct __ (Y/N)?

Do you own and operate this vessel __ (Y/N)?

Do you charter your vessel for recreational fishing__(Y/N)?

Vessel characteristics

The hull construction of the vessel is _____

The horsepower of the engine is _____

Vessel age ____ or Year built _____

How long (years) have you operated this vessel ____

Does the vessel have the standard equipment? _ (Y/N)
(standard equipment is Loran, VHF, fish finder and ice storage)

Other equipment _____, _____

Effort

List the ports that the vessel unload at and how many trips were made at each port during 1986 (Confirm the home port from permit)

Homeport _____ Trips ____

Other _____ Trips ____

Other _____ Trips ____

Other _____ Trips ____

Estimate the usual length (in fractions of days) of a commercial (i.e., non-charter) fishing trips

____. ____

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List the types and amount of gear used during 1986 (e.g., troll lines and number of lines, gill nets and size of net, surface longline and number of hooks, also include charters and number of lines, etc.)

Gear Type 1 _____ Amount ____

Gear Type 2 _____ Amount ____

Gear Type 3 _____ Amount ____

Gear Type 4 _____ Amount ____

Estimate the number of fishing trips made with each of the above gears?

Gear Type 1 ____; Gear Type 2 ____;

Gear Type 3 ____; Gear Type 4 ____;

Estimate the most common number of crew that were employed on the vessel during 1986? ____

Did this number vary with the type of gear you used? ____ (Y/N)

What were the number of crew for the different types of gear?

Gear Type 1 _____ crew ____

Gear Type 2 _____ crew ____

Gear Type 3 _____ crew ____

Gear Type 4 _____ crew ____

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Does trip length vary with different types of gear? (Y/N)

If it does, estimate differences by gear type:

Gear Type 1 _____ length _____

Gear Type 2 _____ length _____

Gear Type 3 _____ length _____

Gear Type 4 _____ length _____

Costs (annual estimates for calendar year 1986)

Insurance costs _____

License fees _____

Loan payments _____

Other fixed costs _____

Unloading costs _____

Fuel/oil costs _____

Gallons _____

Ice costs _____

Groceries _____

Bait costs _____

Crew wages _____

Vessel/gear repairs _____

Other operating costs _____

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Catch (pounds/revenue)

Estimate the commercial (non-charter) catch and value for the major species during 1986:

	Species	Est. pounds	total catch	Est. value
1.				
2.				
3.				
4.				
5.	Others			

If you could not fish for king or Spanish mackerel, would you increase your fishing effort for species that you already catch? _ (Y/N)

If no, what species would you begin to fish for? _____

Would this change require the purchase of new (different) gear? __ (Y/N)

If the vessel was chartered for recreational fishing trips, what percentage of the vessel's 1986 income came from charter fees?

___%

Before quotas were placed on king mackerel in 1984, what percentage of the vessel's annual catch (i.e., pounds) came from king and Spanish?

king __ % Spanish __ %

Appendix 2

CONTENTS PROCEDURE

#	Variable	Type	Len	Pos	Format	Label
1	VES_NAME	Char	20	4	20.	VESSEL NAME
2	VES_LENG	Num	8	24		VESSEL LENGTH
3	VES_TONS	Num	8	32		HOLDING CAPACITY IN TONS
4	OWN_OP	Char	20	40	20.	OWNER OPERATOR?(Y/N)
5	CHARTER	Char	20	60	20.	CHARTER VESSEL?(Y/N)
6	HULL_CON	Num	8	80		HULL MATERIAL
7	HORSES	Num	8	88		HORSEPOWER OF ENGINE(S)
8	TYPE	Char	20	96	20.	TYPE OF ENGINE(S)
9	VES_AGE	Num	8	116		VESSEL AGE
10	AGE_OW	Num	8	124		YEARS OWNED
11	STD_EQUI	Char	20	132	20.	EQUIPMENT (LORAN, VHF, FISHFINDER)? (Y/N)
12	OTH_EQUI	Char	20	152	20.	ADDITIONAL EQUIPMENT
13	OTH_EQ2	Char	20	172	20.	MORE EQUIPMENT
14	HOMEPORT	Num	8	192		HOMEPORT
15	HP_ST	Num	8	200		STATE HOMEPORT LOCATED
16	TRPS_HP	Num	8	208		NUMBER TRIPS FROM HOMEPORT
17	OTH_PORT	Num	8	216		OTHER PORT
18	OTH_ST1	Num	8	224		STATE OTHER PORT LOCATED
19	TRPS_OTH	Num	8	232		TRIPS FROM OTHER PORT
20	OTH_PRT2	Num	8	240		THIRD PORT
21	OTH_ST2	Num	8	248		THIRD STATE
22	TRPS_OT2	Num	8	256		TRIPS FROM THIRD PORT
23	OTH_PRT3	Num	8	264		FOURTH PORT
24	OTH_ST3	Num	8	272		FOURTH STATE
25	TRPS_OT3	Num	8	280		TRIPS FROM FOURTH PORT
26	TRPS_DAY	Num	8	288		LENGTH OF TRIP IN DAYS
27	GEAR1	Num	8	296		PRIMARY GEAR
28	AMT_GEAR	Num	8	304		AMOUNT OF PRIMARY GEAR
29	GEAR2	Num	8	312		SECONDARY GEAR
30	AMT_GR2	Num	8	320		AMOUNT OF SECONDARY GEAR
31	GEAR3	Num	8	328		TERTIARY GEAR
32	AMT_GR3	Num	8	336		AMOUNT OF TERTIARY GEAR
33	TRPS_GR	Num	8	344		TRIPS WITH PRIMARY GEAR
34	TRPS_GR2	Num	8	352		TRIPS WITH SECONDARY GEAR
35	TRPS_GR3	Num	8	360		TRIPS WITH TERTIARY GEAR
36	CREW	Num	8	368		NUMBER OF CREW
37	VARY_TRP	Char	20	376	20.	DOES TRIP LENGTH VARY WITH GEAR TYPE?
38	CREW_G1	Num	8	396		CREWSIZE WITH PRIMARY GEAR
39	CREW_G2	Num	8	404		CREWSIZE WITH SECONDARY GEAR
40	CREW_G3	Num	8	412		CREWSIZE WITH TERTIARY GEAR

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41	VARY_CRE	Char	20	420	20.	DOES CREWSIZE VARY WITH GEAR?
42	VARY_G1	Num	8	440		TRIP LENGTH WITH PRIMARY GEAR
43	VARY_G2	Num	8	448		TRIP LENGTH WITH SECONDARY GEAR
44	VARY_G3	Num	8	456		TRIP LENGTH WITH TERTIARY GEAR
45	INS	Num	8	464		ANNUAL COST OF INSURANCE
46	LICEN	Num	8	472		ANNUAL COST OF LICENSE
47	LOAN	Num	8	480		ANNUAL LOAN PAYMENTS
48	OTH_FIX	Num	8	488		OTHER ANNUAL FIXED COSTS
49	OTHCOM	Char	20	496	20.	TYPE OF OTHER FIXED COSTS
50	UNLOAD	Num	8	516		ANNUAL COST OF UNLOADING
51	LOADCOM	Char	20	524	20.	TYPE OF UNLOADING COSTS
52	FUEL_COS	Num	8	544		ANNUAL COST OF FUEL
53	FUEL_GAL	Num	8	552		ANNUAL QUANTITY OF FUEL
54	FUELCOM	Char	20	560	20.	TYPE OF FUEL
55	ICE	Num	8	580		ANNUAL COST OF ICE
56	GROC	Num	8	588		ANNUAL COST OF GROCERIES
57	BAIT	Num	8	596		ANNUAL COST OF BAIT
58	BAITCOM	Char	20	604	20.	TYPES OF BAIT
59	CREW_PER	Num	8	624		ANNUAL CREW WAGES
60	GEAR_REP	Num	8	632		COST OF GEAR REPLACEMENT
61	OTH_OP	Num	8	640		OTHER OPERATING EXPENSES
62	OTOPCOM	Char	20	648	20.	TYPES OF OTHER OPERATING EXPENSES
63	SP1	Num	8	668		PRIMARY SPECIES
64	SP1_LBS	Num	8	676		LANDINGS IN POUNDS OF PRIMARY SPECIES
65	SP2	Num	8	684		SECOND SPECIES
66	SP2_LBS	Num	8	692		LANDINGS IN POUNDS OF SECOND SPECIES
67	SP3	Num	8	700		THIRD SPECIES
68	SP3_LBS	Num	8	708		LANDINGS IN POUNDS OF THIRD SPECIES
69	SP4	Num	8	716		FOURTH SPECIES
70	SP4_LBS	Num	8	724		LANDINGS IN POUNDS OF FOURTH SPECIES
71	SP5	Num	8	732		FIFTH SPECIES
72	SP5_LBS	Num	8	740		LANDINGS IN POUNDS OF FIFTH SPECIES
73	OTH_SP	Char	20	748	20.	IF NO MACKEREL INCREASE OTHER SPECIES?
74	TYP_OTH	Num	8	768		OTHER SPECIES IF NO MACKEREL
75	GEAR_PUR	Char	20	776	20.	NEW GEAR FOR OTHER SPECIES IF NO MACK?
76	PER_CHAR	Num	8	796		PERCENT INCOME OF VESSEL FROM CHARTER
77	PER_KING	Num	8	804		PERCENT CATCH KING MACKEREL BEFORE 1984
78	PER_SPAN	Num	8	812		PERCENT CATCH SPANISH MACKEREL BEFORE 1984
79	COMMENTS	Char	20	820	20.	GENERAL COMMENTS

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80	LENGTH	Num	8	840	1=LESS OR EQ 30 FT.2=GREATER THAN 30 FT
81	FUEL_PER	Num	8	848	COST PER GALLON OF FUEL
82	TRIPS	Num	8	856	NUMBER OF TRIPS PER ANNUM
83	NET	Char	1	864	Y=NET N=HOOK AND LINE
84	REV1	Num	8	865	REVENUE FROM PRIMARY SPECIES
85	REV3	Num	8	873	REVENUE FROM THIRD SPECIES
86	REV2	Num	8	881	REVENUE FROM SECONDARY SPECIES
87	REV4	Num	8	889	REVENUE FROM FOURTH SPECIES
88	REV5	Num	8	897	REVENUE FROM FIFTH SPECIES
89	TR	Num	8	905	TOTAL REVENUE PER ANNUM
90	TFC	Num	8	913	TOTAL FIXED COST PER ANNUM
91	TVC	Num	8	921	TOTAL VARIABLE COST PER ANNUM
92	TC	Num	8	929	TOTAL COST PER ANNUM
93	NETREV	Num	8	937	TOTAL REVENUE MINUS TOTAL COST PER ANNUM
94	TCTRP	Num	8	945	TOTAL COST PER TRIP
95	TRTRP	Num	8	953	TOTAL REVENUE PER TRIP
96	REVTRP	Num	8	961	TOTAL REVENUE MINUS TOTAL COST PER TRIP
97	TRPFUEL	Num	8	969	FUEL COST PER TRIP
98	TRPICE	Num	8	977	ICE COST PER TRIP
99	TRPGROC	Num	8	985	GROCERY COST PER TRIP
100	TRPBAIT	Num	8	993	BAIT COST PER TRIP
101	TRPCREW	Num	8	1001	CREW COST PER TRIP
102	TRPGEAR	Num	8	1009	GEAR COST PER TRIP
103	TVCTRP	Num	8	1017	TOTAL VARIABLE COST PER TRIP
104	DFUEL	Num	8	1025	FUEL COST PER DAY
105	DICE	Num	8	1033	ICE COST PER DAY
106	DBAIT	Num	8	1041	BAIT COST PER DAY
107	DCREW	Num	8	1049	CREW COST PER DAY
108	DGROC	Num	8	1057	GROCERY COST PER DAY
109	DTVC	Num	8	1065	TOTAL VARIABLE COST PER DAY
110	DTC	Num	8	1073	TOTAL COST PER DAY
111	DTR	Num	8	1081	TOTAL REVENUE PER DAY
112	DREV	Num	8	1089	TOTAL REVENUE MINUS TOTAL COST PER DAY
113	DGEAR	Num	8	1097	GEAR COST PER DAY

Appendix 3

The following tables were produced to offer a comparison of costs and returns between hook-and-line vessels in the South Atlantic and gill net fishermen in North Carolina who fish for king mackerel on a seasonal basis. The net category does not include vessels from the drift gill net fishery located on the east coast of Florida. An asterisk (*) indicates that the means are significantly different at 90 percent confidence level.

Vessel Characteristics (means)

	Hook-and-Line	Net	t-Value	F-value
Length	30.69 ft.	31.91 ft.	-0.51	2.33(29.10)
Carrying Capacity	2.49 tons	4.75 tons	-1.52	1.04(24.8)
Age	11.50 years	10.27 years	0.43	1.07(29.10)
Horsepower of Engine	219.60 hp	294.55 hp	-2.09*	3.67(29.10)

Annual Fixed Costs (means in 1988 dollars)

	Hook-and-Line	Net	t-Value	F-Value
Insurance	\$1,570.70	\$1,564.27	0.01	5.31(29.10)
Licenses	80.75	144.55	-1.11	4.39(29.10)
Loans	3,693.30	4,118.18	-0.21	2.15(29.10)
Other	392.83	627.27	-0.51	8.03(29.10)
Total Fixed Costs	5,737.58	6,454.27	-0.26	2.09(29.10)

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Variable Costs per Trip (means in 1986 dollars)

	Hook-and-Line	Net	t-Value	F-Value
Fuel	\$115.48	32.08	2.96*	106.68(29.10)
Ice	22.88	0.82	2.94*	409.86(29.10)
Groceries	60.79	4.40	2.59*	1,125.03(29.10)
Bait	78.45	1.55	2.46*	7,572.84(29.10)
Crew Wages	205.42	55.31	2.04*	26.07(29.10)
Gear repair and replacement	218.21	18.90	2.16*	723.13(29.10)
Total Variable Costs per Trip	701.28	129.97	2.45*	170.91(29.10)

Trip Characteristics (means)

	Hook-and-Line	Net	t-Value	F-Value
Trips	65.77 days	125.73 days	-2.37*	2.31(29.10)
Length of Trips	2.82 days	0.53 days	2.82*	241.84(28.10)

Revenue per Trip (means in 1986 dollars)

	Hook-and-Line	Net	t-Value	F-Value
King Mackerel				
Pounds	214 lbs.	128 lbs.	1.75*	3.48(28.10)
Value	226.89	135.82	1.75*	3.48(28.10)
Total Revenue	\$1,040.60	\$316.86	2.22*	68.40(29.10)
Total Cost	899.20	191.74	2.34*	103.34(29.10)
Net Revenue	141.40	125.12	0.10	9.86(29.10)