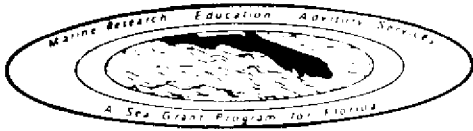


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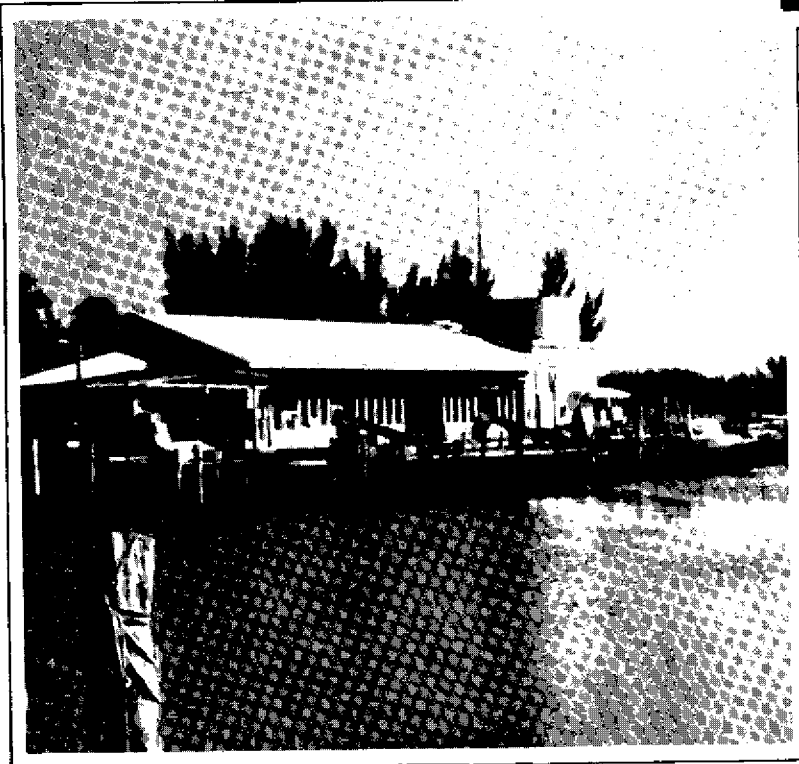
Marine Advisory Program

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An Economic Analysis of King Mackerel Production by Hook-and-Line on the Florida Atlantic Coast



by

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HOOK-AND-LINE ON THE FLORIDA ATLANTIC COAST

Fred J. Prochaska,
R. Allen Morris
and
James C. Cato

INTRODUCTION

An economic survey of 10 king mackerel hook-and-line fishermen was conducted during February 1977 to determine production practices and costs and returns. Respondents were selected from a representative cross-section of the industry provided by fish house records, and written questionnaires were obtained through personal interviews with captains located on the Florida East Coast. Preliminary results were presented at a mackerel workshop attended by industry members to insure that the study represented the industry.

The objectives of this bulletin are to (1) provide individual fishing firms basic economic information with which they can compare their own operations, and (2) provide economic information to support industries,

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such as credit institutions, for the king mackerel fishery. To accomplish these objectives, production practices and costs and returns were analyzed on an industry average basis. The estimates are representative of the South Atlantic king mackerel fishery. Ranges in individual estimates are presented in addition to the industry averages. Individual fishermen can compare their operations to the average and range for specific cost and returns items to determine where changes in their own practices may be profitable.

PRODUCTION CHARACTERISTICS

Captain

The average age of the captain was 49 years (Table 1) with a range of from 30 to 70 years in age of individual captains. The captains averaged nearly 21 years of fishing experience. Sixty-eight percent of their incomes were derived from fishing. Sixty percent of the fishermen interviewed earned 100 percent of their income by fishing.

Boat and Engine

The average boat was 29.9 feet in length and had a beam of 10.5 feet with a fish-carrying capacity of approximately 4,000 pounds (Table 1). Individual boat lengths ranged from 24 to 36 feet. Eighty percent of these boats were fiberglass construction with the remaining 20 percent having wooden hulls. Horsepower rating ranged from 210 to 365 with an average of 264. One-half of the engines were diesel. Average age of the engine was 3.7 years. The oldest engine was 8 years old.

Table 1. Production and financial characteristics of Florida Atlantic king mackerel hook-and-line fishing boats, 1976^a

Item	Average	Range in data	
		Low	High
Captain:			
Age (years)	49.0	33	70
Experience (years fishing)	20.9	7	35
Income from fishing (percent)	67.7	10	100
Boat:			
Length (feet)	29.9	24	36
Width (feet)	10.5	8	14
Hull fabrication:			
Fiberglass (percent)	80.0		
Wood (percent)	20.0		
Carrying capacity (lbs. of fish)	4,070.0	1,400	9,000
Age (years)	8.3	.5	20
Engine:			
Horsepower	264.0	210	365
Fuel type:			
Diesel (percent)	50.0		
Gasoline (percent)	50.0		
Age (years)	3.7	.5	8
Fishing characteristics:			
Number of trips	181.5	100	270
Average one-way distance (miles)	17.5	7	25
Average hours per trip	11.1	8	14
Production inputs:			
Fuel (gallons) ^b	5,093.7	1,062	12,000
Oil (quarts)	126.0	24	600
Ice (pounds)	49,246.7	10,000	100,000
Electric reels (number)	2.9	1	4
Jerk lines (number)	2.6	1	3
Investments (present value):			
Engine (dollars)	5,710.0	800	12,500
Hull (dollars)	9,650.0	1,500	36,000
Electronic equipment (dollars)	2,010.0	450	2,550
Electric reels (dollars)	494.0	100	1,200
Other equipment and gear (dollars)	75.0	0	3,000
Percent with loans	30		
Percent with insurance	40		

^aBased on a survey of 10 hook-and-line king mackerel boat captains taken on the Florida Atlantic Coast during February 1977.

^bAverage gasoline consumption was 4,087 gallons. Average diesel consumption was 6,100 gallons.

Fishing Characteristics

The number of fishing trips ranged from 100 to 270 averaging approximately 182 trips per boat in 1976 (Table 1). Fishing time on each of these trips averaged 11.1 hours. Thus the average hook-and-line fisherman spent 2,020 hours at sea in 1976 which is probably slightly less than a normal year because of high seas during the fall of 1976. Additional time is spent on shore for gear and vessel maintenance. Most of the time at sea was spent actually fishing since travel time was relatively short. The average one-way distance traveled was 17.5 miles with a range of 7 to 25 miles. Each boat used an average of nearly three electric reels and 2.6 jerk lines.

Investments

Present value of hull and engine totaled \$15,360 at current market values (Table 1). Average hull investment of \$9,650 accounted for 63 percent of the total. The range in present value of investment was wide for both engines and hulls. Present value of individual boat hulls ranged from \$1,500 to \$36,000 while the range for engines was from \$800 to \$12,500. In addition, the average boat had electronic equipment presently valued at \$2,010 per boat with another \$494 invested in electric reels.

Only 30 percent of the captains interviewed had loans outstanding on their equipment. This relatively small indebtedness in addition to the relatively high cost of insurance may explain why these fishermen carry their own risk. Only 40 percent reported having insurance.

COSTS AND EARNINGS

Average Catch and Revenues

The king mackerel fishermen represented in the study landed an average of 36,113 pounds of king mackerel per boat (Table 2). Landings of king mackerel per boat ranged from 16,000 to 70,000 pounds. The average king mackerel catch was sold at dockside for \$17,460 in 1976.

King mackerel account for 70 percent of total landings and 71 percent of value of landings for these boats. Other fish landings averaged 15,216 pounds valued at \$7,255. Total pounds landed averaged 51,329 pounds valued at \$24,515 in 1976. The range in value of landings was from a low of \$8,430 to \$44,750 annually.

Costs

Fuel was the most important single cost item in 1976. The average vessel consumed 5,094 gallons (Table 1) at a cost of \$2,713 (Table 3). The range in fuel cost for the 10 sample boats was \$1,500 to \$5,280. Oil (other than oil change) accounted for an additional \$105 in 1976.

Fishing gear consisting of paravanes, wire, hooks, spoons, swivels, snaps and other gear totaled \$629 per boat in 1976 (Table 3). Wire was the most costly individual item ranging from \$50 to \$375 per boat with the average boat at \$152. In addition, electric reel cost for depreciation plus repair and maintenance averaged \$213.84 per year.

Repair and maintenance on hull, engine and electronic equipment averaged \$1,511 annually in 1976 (Table 3). Repair and maintenance on hull and propeller was the most important item ranging from \$317 to \$1,400 with an average of \$646. Repair of radios (C.B. and VHF), Loran

Table 2. Average catch and revenues for Florida Atlantic king mackerel hook-and-line boats, 1976^a

Item	Average	Range in data ^b	
		Low	High
King mackerel			
Pounds	36,112.70	16,000	70,000
Dollars	\$17,459.84	\$ 7,680	\$35,000
Other fish			
Pounds	15,216.30	2,000	50,000
Dollars	\$ 7,055.33	\$ 900	\$20,000
Total			
Pounds	51,329.00	21,000	105,000
Dollars	\$24,515.17	\$ 8,430	\$44,750

^aBased on surveys taken from 10 hook-and-line boat operators on the Florida Atlantic Coast during February 1977.

^bRange data do not total individual species reported in the table because highs and lows were recorded for individual operations which were not necessarily the same for species.

and depth recorders averaged \$277.

Depreciation for engine, hull, electronic equipment and electronic reels totaled \$2,607 for the average boat in 1976 (Table 3). Hull depreciation was the most important depreciation item. Depreciation on hull and engine accounted for approximately two-thirds of total fixed cost.

Total variable cost averaged \$6,293. Total fixed cost was approximately one half of variable cost at \$3,354. Total costs were \$9,647.

Net Returns

Comparing total cost of \$9,647 with total revenue of \$24,515 gives a net return of \$14,867 per boat in 1976 (Table 3). The management, labor and capital inputs provided by the captain must be considered to fully evaluate net returns (or profits). Hours of labor provided by the cap-

Table 3. Average costs and net returns for Florida Atlantic king mackerel hook-and-line boats, 1976^a

Item	Average	Range in data ^b	
		Low	High
-----dollars-----			
COSTS:			
Variable costs:			
Ice	\$ 517.55	\$ 100	\$ 1,000
Bait	460.55	100	1,000
Fuel	2,713.45	1,500	5,280
Oil	104.92	18	375
Fishing gear:			
Paravanes	48.80	0	100
Wire	151.80	50	375
Hooks and spoons	98.20	36	250
Swivels and snaps	30.10	2	50
Other gear	300.00	0	1,625
Raincoats and boots	40.10	0	78
Gloves	206.60	30	504
Repairs and maintenance:			
Hull and propeller	645.80	317	1,400
Engine (and oil change)	588.20	82	1,500
Electronic equipment	277.10	0	907
Electric reels	99.60	10	400
Other gear	10.00	--	100
Total variable costs	<u>\$ 6,292.77</u>		
Fixed costs:			
Depreciation:			
Engine	931.75	466	1,472
Hull	1,015.04	400	3,600
Electronic equipment	542.75	187	884
Electronic reels	117.24	24	240
Boat registration	28.65	11	38
Insurance	215.00	0	650
Interest on loans	188.25	0	1,200
Bookkeeping costs	44.50	0	150
Dockage fee	270.80	0	540
Total fixed costs	<u>\$ 3,353.98</u>		
Total costs	<u>\$ 9,646.75</u>		
Net returns	\$14,868.42		

^aBased on surveys taken from 10 hook-and-line boat operators on the Florida Atlantic Coast during February 1977.

^bRange data do not total individual reports in this table because highs and lows were recorded for individual operations which were not necessarily the same for all cost items.

tain is conservatively estimated at 2,014 hours when only actual fishing time is considered. At \$5.00 per hour (currently earned in other fisheries) labor income should be at least \$10,070. Present value of investment averaged \$17,939 per firm. At a 7.5 percent rate of interest, returns to capital investments are estimated to be \$1,345. Total returns to the captain's labor while fishing and capital investments total to \$11,415. This leaves \$3,453 as a return to the captain's management functions and other labor activities while on shore.

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