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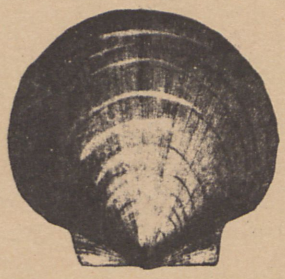
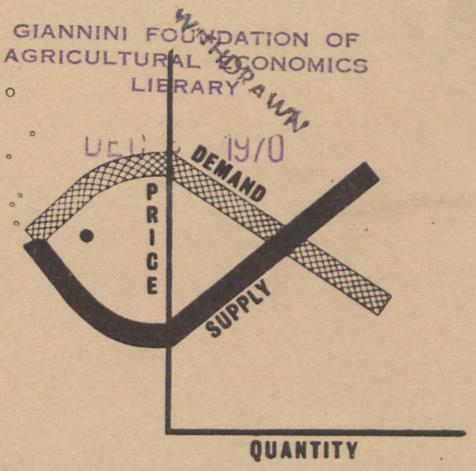





# BASIC ECONOMIC INDICATORS

# SEA SCALLOPS

## (Master Plan Fishery 50 10 15)

Working Paper No. 54
April 1970

LUS BUREAU OF COMMERCIAL FISHERIES
DIVISION OF ECONOMIC RESEARCH

## Foreward

The purpose of "Basic Economic Indicators" is to bring together pertinent economic, technological and biological data for each Master Plan fishery. The Division of Economic Research of the Bureau of Commercial Fisheries has consolidated the basic variables which reflect the economic behavior of a fishery. Having this basic data set under one cover will materially aid research and development currently being conducted on each fishery and will serve as a helpful guide to policy decisions. In addition, Basic Economic Indicators reflect a major shift in thinking away from the separate discipline approach and to an interdisciplinary approach to solving many of the problems faced by the U.S. fishing industry. Hopefully, these data will be of great value in furthering quantitative analyses of the nation's fisheries.

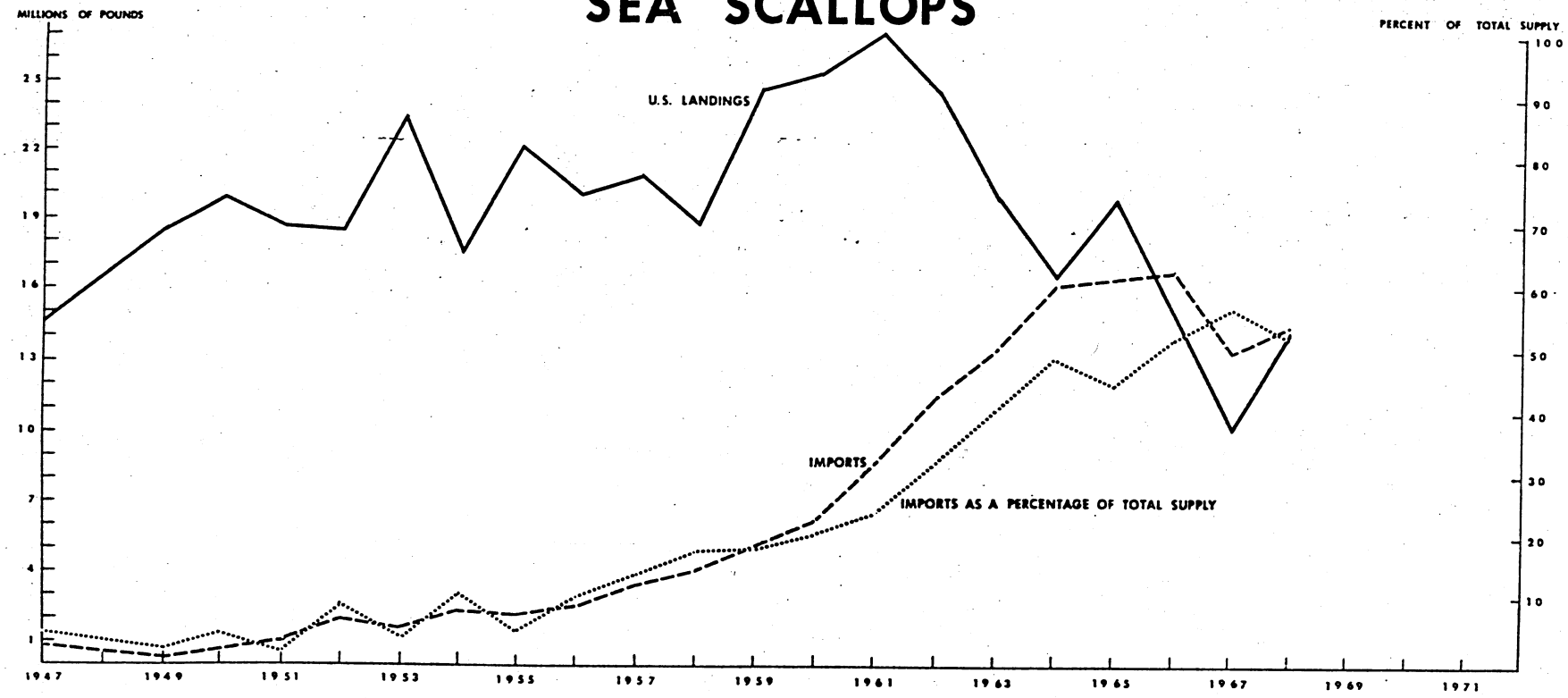
It should be noted that data for 1967 and 1968 are preliminary. Some figures are approximations and are subject to revision. Comments and suggestions may be directed to the Division of Economic Research, 7338 Baltimore Avenue, College Park, Maryland 20740.

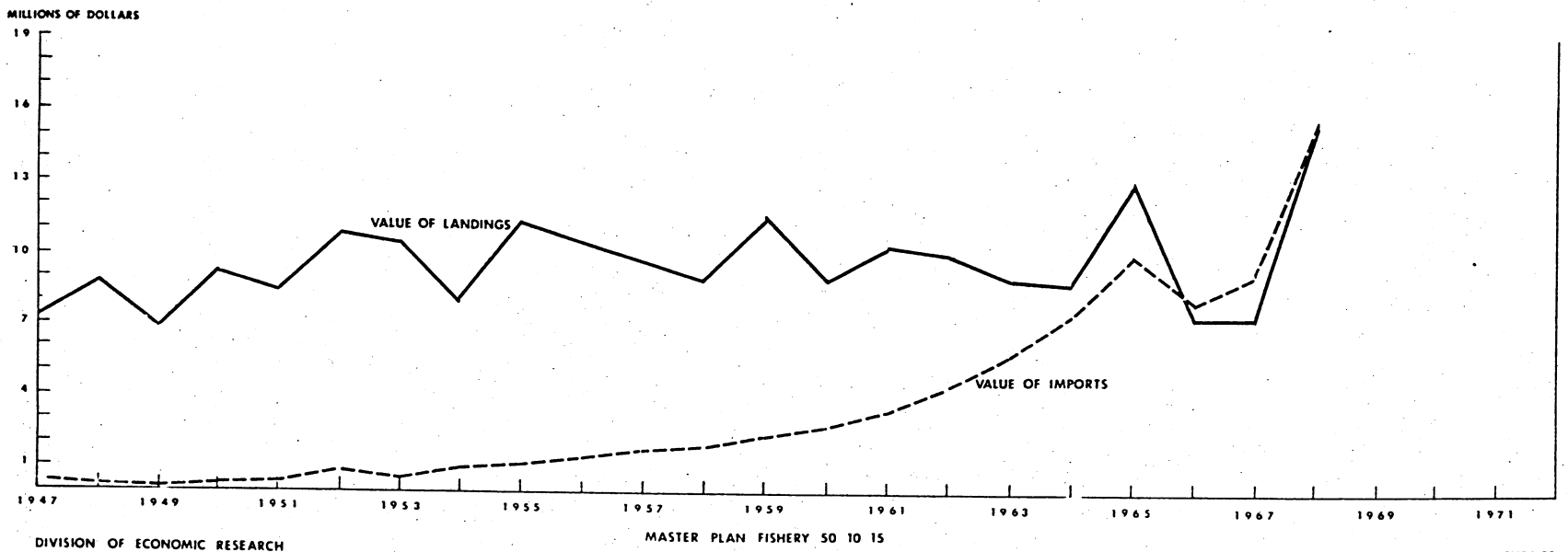
The "Basic Economic Indicators" were compiled and reviewed by the staff of the Division of Economic Research under the supervision of Richard K. Kinoshita with major contributions from Bruno G. Noetzel and Kenneth E. Koller.

Frederick W. Bell

Frederick W. Bell, Chief
Division of Economic Research

# SEA SCALLOPS

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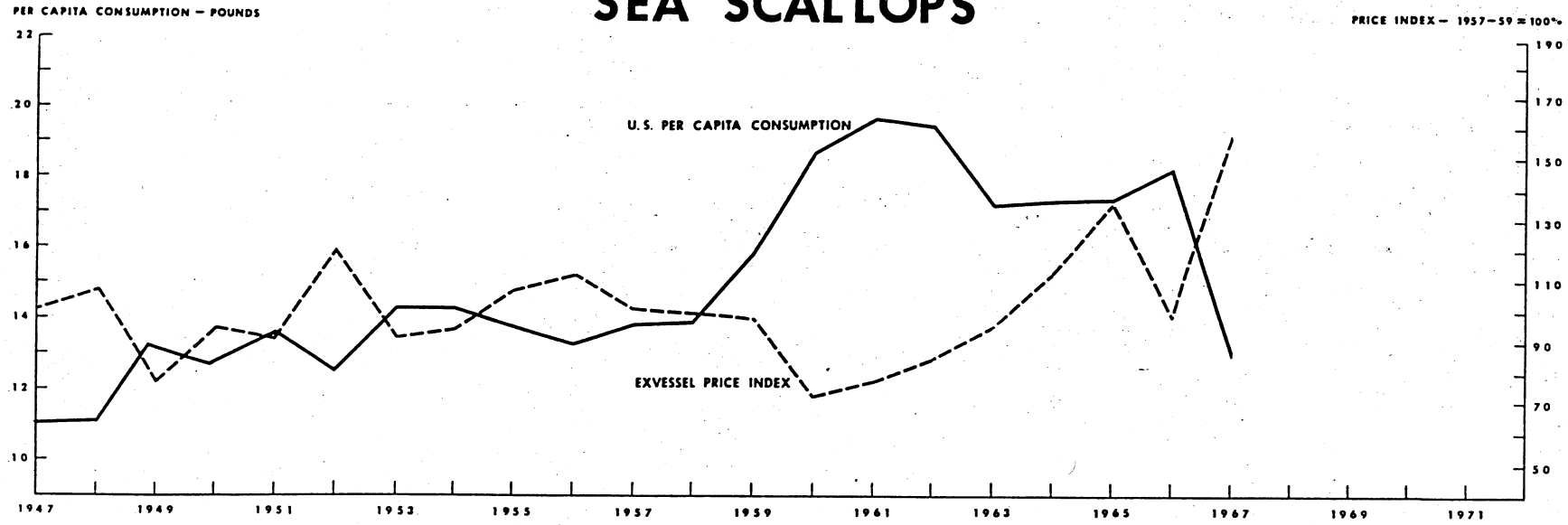
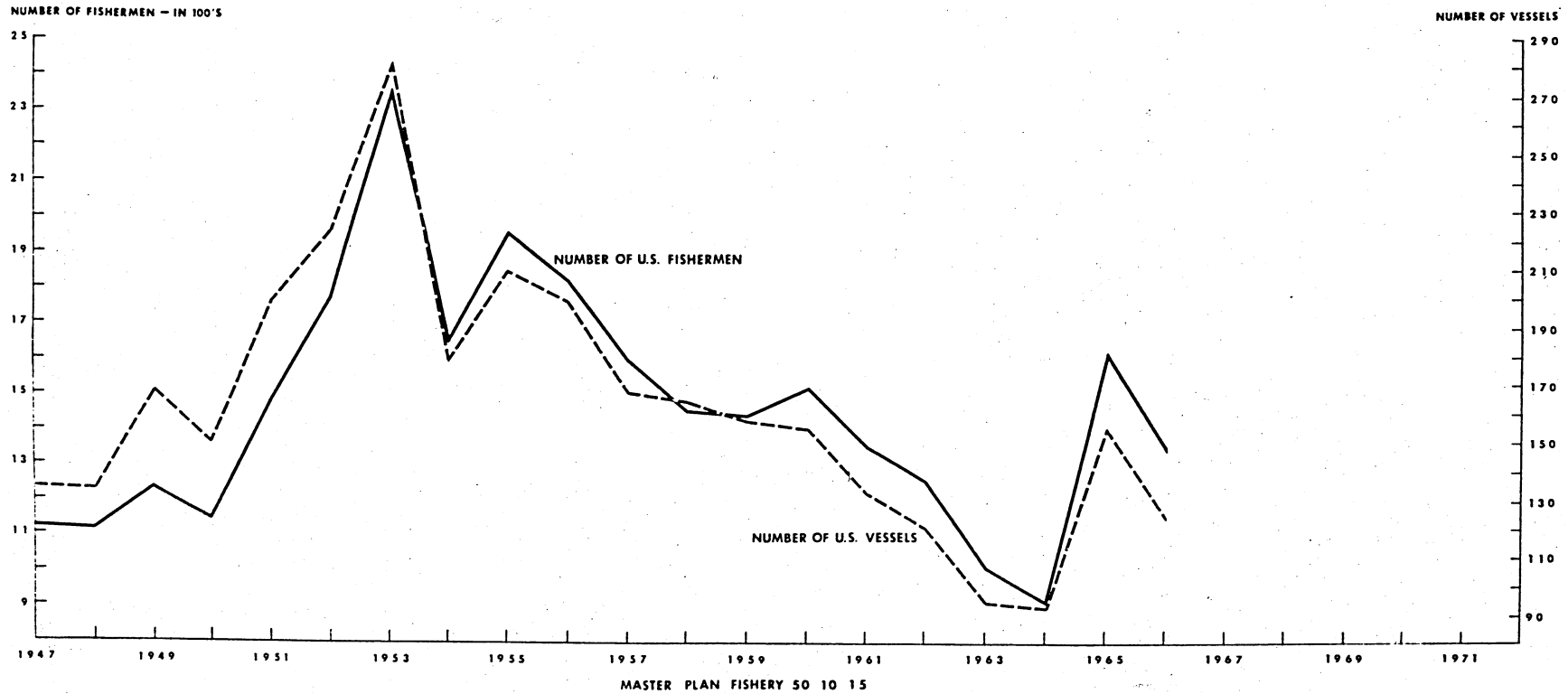
# SEA SCALLOPS




MASTER PLAN FISHERY 50 10 15

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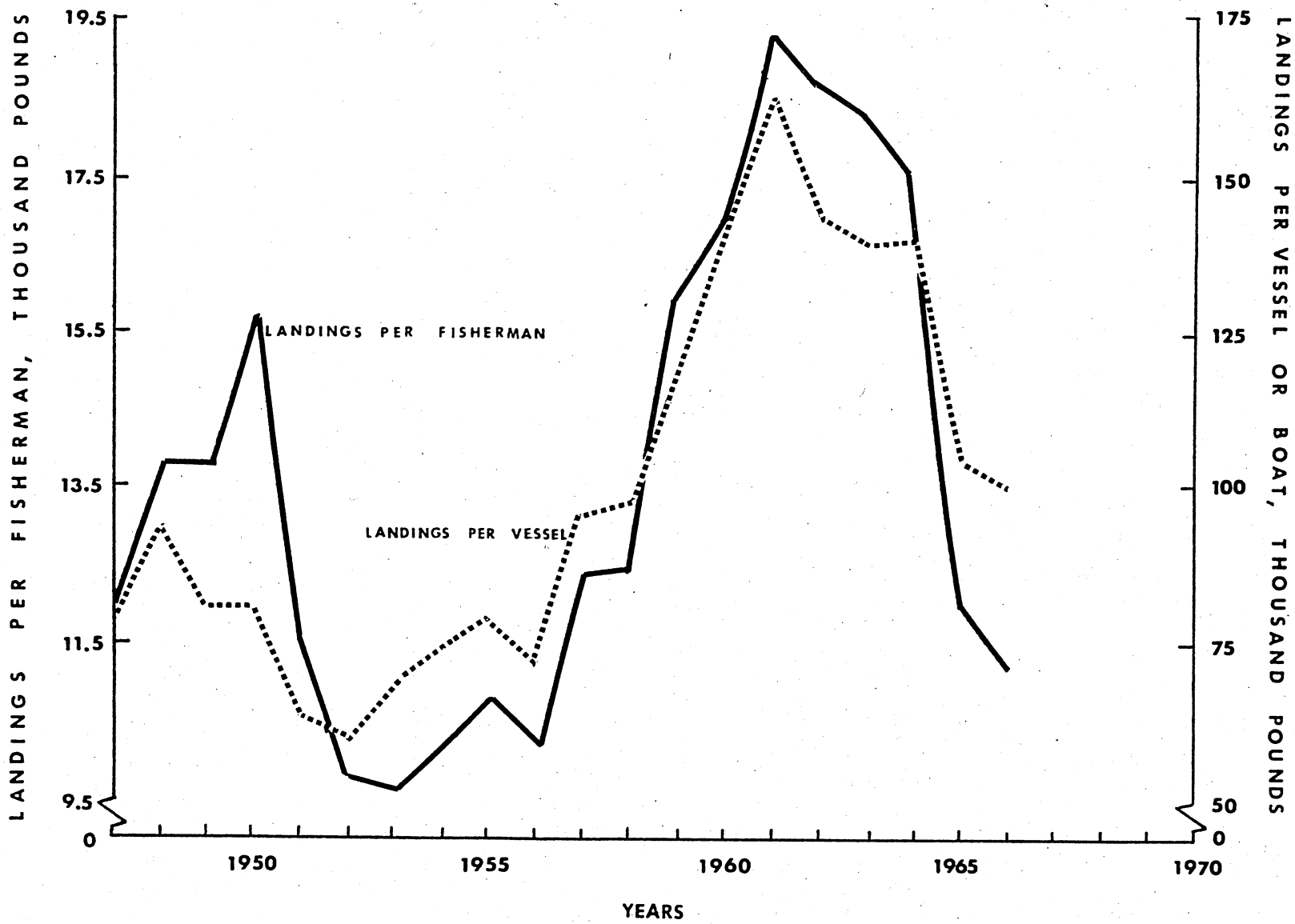
## PRODUCTIVITY OF SEA SCALLOP FISHERMEN AND VESSELS AND BOATS



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# I INDUSTRY PERFORMANCE INDICATORS

- Cost and earnings of vessels
- Earnings of fishermen
- Productivity
  - Vessels
  - Fishermen
  - Fishing effort
- Costs per pound of fish landed
- Historical growth rates
  - landings
  - fishermen
  - vessels

Table I - 1 -- Cost and Earnings of Vessels, Selected New Bedford Scallop Vessels, 1956-60 and 1967-68.

| Item | 1956 | 1957 | 1958 | 1959 | 1960 |
|---|---|---|---|---|---|
| No. of vessels | 7 | 10 | 10 | 10 | 12 |
| Av. length of vessels | | | | | |
| No. of trips | 23 | 25 | 26 | 27 | 28 |
| Av. length of trip(days) | 9.1 | 9.0 | 9.0 | 8.6 | 8.1 |
| Crew size | 10.9 | 11.0 | 11.0 | 11.1 | 11.2 |
| Man days at sea | 2,297 | 2,471 | 2,588 | 2,606 | 2,582 |
| | | | -per vessel- | | |
| Landings (pounds) | 235,900 | 285,800 | 279,700 | 314,400 | 325,900 |
| Av. price | 52.50 | 46.75 | 48.10 | 46.85 | 37.18 |
| Gross receipts | $123,837 | $133,589 | $134,519 | $147,314 | $121,169 |
| Trip expenditure | | | | | |
| Food | 6609 | 7344 | 7813 | 7481 | 7041 |
| Fuel & lube | 9381 | 10,401 | 9827 | 7956 | 7802 |
| Ice & icing | 2283 | 2732 | 2779 | 2721 | 3033 |
| Other | 2829 | 3249 | 4094 | 4688 | 4581 |
| Subtotal | 21,102 | 23,726 | 24,513 | 22,846 | 22,457 |
| Repair & maintenance | | | | | |
| Gear | 5824 | 6004 | 6693 | 6502 | 3498 |
| Hull & engine | 12,263 | 11,070 | 10,437 | 10,900 | 9394 |
| Subtotal | 18,087 | 17,074 | 17,130 | 17,402 | 12,892 |
| Fixed charges | | | | | |
| Interest | 1034 | 1136 | 915 | 801 | 1221 |
| Insurance | 6996 | 7122 | 7802 | 7840 | 8024 |
| Taxes (employee) | 1816 | 2348 | 2598 | 2940 | 2963 |
| Administrative | 1107 | 1430 | 1152 | 1082 | 2906 |
| Subtotal | 10,953 | 12,036 | 12,467 | 12,663 | 15,114 |
| TOTAL CASH EXPENDITURES | 50,142 | 52,836 | 54,110 | 52,911 | 50,463 |
| Share to labor & capital | | | | | |
| Wages | 61,372 | 66,366 | 66,174 | 77,327 | 60,313 |
| Captain's commission | 4489 | 4743 | 4651 | 5065 | 4451 |
| Owner's share | 7834 | 9644 | 9584 | 12,937 | 5942 |
| TOTAL SHARE EXPENDITURES | 73,695 | 80,753 | 80,409 | 95,329 | 70,706 |
| Depreciation | 4736 | 6707 | 6573 | 5176 | 7457 |
| Net return before taxes | 3098 | 2937 | 3011 | 7761 | (1515) |

Table I - 1 -- Cost and Earnings of Vessels, Selected New Bedford Scallop Vessels, 1956-60 and 1967-68. (continued)

| Item | 1967 | 1968 |
|---|---|---|
| No. of vessels | 12 | 11 |
| Av. length of vessels | 80.71 | 80.17 |
| No. of trips | 21.36 | 24.36 |
| Av. length of trip(days) | 9.00* | 9.00* |
| Crew size | 11.00 | 11.00 |
| Man days at sea | 2115* | 2412* |
| | ---per vessel--- | |
| Landings (pounds) | 208,393* | 222,109 |
| Av. price | 77.29 | 111.91 |
| Gross receipts | 161,067 | 248,562 |
| Trip expenditure | | |
| Food | | |
| Fuel & lube | | |
| Ice & icing | | |
| Other | | |
| Subtotal | 25,893 | 31,689 |
| Repair & maintenance | | |
| Gear | 9,049 | 11,971 |
| Hull & engine | 13,349 | 19,329 |
| Subtotal | 22,398 | 31,300 |
| Fixed charges | | |
| Interest | 3,080 | 3,799 |
| Insurance | 8,219 | 11,589 |
| Taxes (employee) | 6,399 | 8,153 |
| Administrative | 1464 | 1,380 |
| Subtotal | 19,162 | 24,921 |
| TOTAL CASH EXPENDITURES | 67,453 | 87,910 |
| Share to labor & capital | | |
| Wages | 81,713 | 134,197 |
| Captain's commission | 6,116 | 9,266 |
| Owner's share | 5,784 | 17,189 |
| TOTAL SHARE EXPENDITURES | 93,613 | 160,652 |
| Depreciation | 6,425 | 8,634 |
| Net return before taxes | (640) | 8,555 |

Source: 1956-60. Economic study of Sea Scallop Production in the U. S. and Canada, by Doherty, Draheim, White and Vaugh, FIR. vol.2, no.3. 1967-68, New Bedford vessel owners.

* - estimated

Table I - 2 -- Earnings of Scallop Fishermen

| Item | 1956 | 1957 | 1958 | 1959 | 1960 |
|---|---|---|---|---|---|
| No. of vessels | 7 | 10 | 10 | 10 | 12 |
| Ave. crew size | 10.9 | 11.0 | 11.0 | 11.1 | 11.2 |
| Gross receipts Per vessel | $123,837 | $133,589 | $134,519 | $147,314 | $121,169 |
| Share to labor Per vessel | 61,372 | 66,366 | 66,174 | 77,327 | 60,313 |
| Ave. share per man | 5,630 | 6,033 | 6,016 | 6,966 | 5,385 |
| Food expenditures per man | 606 | 668 | 710 | 674 | 629 |
| Ave. share per man including food | 6,236 | 6,701 | 6,726 | 7,640 | 6,014 |
| Real share 1/ | 6,585 | 6,838 | 6,679 | 7,527 | 5,833 |
| Wage in U.S. Manufacturing | 4,097 | 4,243 | 4,301 | 4,590 | 4,665 |
| Real wage in U.S. Manufacturing. 1/ | 4,326 | 4,329 | 4,271 | 4,522 | 4,526 |

Source: Table I-1

1/ Deflated by CPI.

Table I - 2 -- Earnings of Scallop Fishermen (continued)

| Item | 1967 | 1968 |
|---|---|---|
| No. of vessels | 12 | 11 |
| Ave. crew size | 11.0 | 11.0 |
| Gross receipts Per vessel | $161,067 | $248,562 |
| Share to labor Per vessel | 81,713 | 134,197 |
| Ave. share per man | 7,428 | 12,200 |
| Food expenditures per man | 815 | 960 |
| Ave. share per man including food | 8,243 | 13,160 |
| Real share 1/ | 7,088 | 10,894 |
| Wage in U.S Manufacturing | 5,975 | 6,371 |
| Real wage in U.S. Manufacturing 1/ | 5,137 | 5,274 |

Source: Table I-1

1/ Deflated by CPI.

Table I-3 -- Productivity of Scallop Fisherman and Vessels: Landings Per Fisherman, Vessel and Days at Sea

| | Landings per fisherman | Landings per vessel and/or boats | Landings per day at sea 1/ |
|---|---|---|---|
| | Pounds | | |
| 1947 | 12,070 | 79,641 | 1,078 |
| 1948 | 13,840 | 93,988 | 839 |
| 1949 | 13,839 | 82,045 | 1,015 |
| 1950 | 15,707 | 81,885 | 1,143 |
| 1951 | 11,607 | 64,641 | 1,143 |
| 1952 | 9,800 | 59,521 | 1,088 |
| 1953 | 9,620 | 67,288 | 1,040 |
| 1954 | 10,092 | 74,708 | 1,089 |
| 1955 | 10,740 | 79,301 | 994 |
| 1956 | 10,211 | 72,180 | 992 |
| 1957 | 12,364 | 96,303 | 1,146 |
| 1958 | 12,379 | 97,318 | 1,118 |
| 1959 | 16,170 | 117,914 | 1,467 |
| 1960 | 16,931 | 140,735 | 1,814 |
| 1961 | 19,489 | 163,458 | 1,855 |
| 1962 | 18,633 | 144,058 | 1,704 |
| 1963 | 18,292 | 139,434 | 1,627 |
| 1964 | 17,509 | 139,785 | 1,495 |
| 1965 | 11,933 | 104,167 | 1,503 |
| 1966 | 11,289 | 100,472 | 1,547 |
| 1967 | | | 1,162 |
| 1968 | | | |
| 1969 | | | |
| 1970 | | | |
| 1971 | | | |
| 1972 | | | |

Source: Fishery Statistics of the U. S., 1947-1966 and Massachusetts landings, 1967

1/ For vessels landing scallops in Massachusetts ports, only.

Table I-4 -- Costs per Pound of Fish Landed, New Bedford Scallops, 1956-60, and 1967-68

| Item | 1956 | 1957 | 1958 | 1959 | 1960 | 1967 | 1968 |
|---|---|---|---|---|---|---|---|
| Landings (lbs.) | 235,900 | 285,800 | 279,700 | 314,400 | 325,900 | 208,393 | 221,109 |
| Gross receipts | $123,837 | $133,589 | $134,519 | $147,314 | $121,169 | $161,067 | $248,562 |
| Av. price (cents/lb.) | 52.50 | 46.75 | 48.10 | 46.85 | 37.18 | 77.29 | 111.92 |
| Total expenditures | $120,739 | $130,652 | $131,508 | $140,479 | $122,684 | $161,707 | $240,007 |
| | - - - - - - - - - - - - cents per pound - - - - - - - - - - - - | | | | | | |
| Trip expenditures | 8.94 | 8.30 | 8.76 | 7.27 | 6.89 | 12.43 | 14.27 |
| Repair & maintenance | 7.67 | 5.97 | 6.12 | 5.53 | 3.96 | 10.75 | 14.09 |
| Fixed charges | 4.64 | 4.21 | 4.46 | 4.02 | 4.63 | 9.19 | 11.22 |
| Share to labor | 27.92 | 24.88 | 25.33 | 26.20 | 19.87 | 42.15 | 64.59 |
| Depreciation | 2.01 | 2.35 | 2.35 | 1.65 | 2.29 | 3.08 | 3.89 |
| Cost per unit of output | 51.18 | 45.71 | 47.02 | 44.68 | 37.64 | 77.60 | 108.06 |

Source: Table I-1

Table I-5.--Historical growth rate of sea scallops, landings, fishermen and vessels

| | 1950-66 |
|---|---|
| Landings 1/ | + .83 percent per year |
| Fishermen 2/ | - .52 percent per year |
| Vessels 3/ | -2.98 percent per year |

| | | |
|---|---|---|
| 1/ Log of landings (thousand lbs.) | = | 4.2602 + .0039 time (1.42) |
| 2/ Log of number of fishermen (1,000's) | = | 3.2059 - .0026 time (0.66) |
| 3/ Log of number of vessels (1,000's) | = | 2.4416 - .0114 time (2.96) |

Table I-6.--Estimated market value of a scallop vessel, based on present value of future returns

Mean returns to vessel[1/]: $14,926

| Discount rate [2/] | Expected useful life - Years | | | |
|---|---|---|---|---|
| | 5 | 10 | 15 | 20 |
| Percent: | Market value in dollars: | | | |
| 12 | 53,800 | 84,300 | 101,700 | 111,500 |
| 18 | 46,700 | 67,100 | 76,700 | 79,900 |
| 24 | 41,000 | 55,000 | 59,700 | 61,300 |

1/ Based on data from Table I-1: Net return before taxes, plus depreciation, plus interest paid; average value for 1967-68.

2/ Arbitrarily chosen.

# II DEMAND INDICATORS

- Consumption
  - Aggregate
  - Per capita
  - Socio-economic characteristics
- Prices
  - Exvessel
  - Wholesale
  - Retail
- Value
  - Landings
  - Wholesale
  - Retail
- Relative prices
- Seasonal demand
- Price and income elasticities

SEA SCALLOPS

Table II-1 -- U.S. Consumption: Aggregate and Per Capita

(Edible Weight)

| | Aggregate (Million pounds) | Per Capita (pounds) |
|---|---|---|
| 1947 | 15.6 | .110 |
| 1948 | 16.2 | .111 |
| 1949 | 19.5 | .132 |
| 1950 | 19.6 | .129 |
| 1951 | 20.6 | .134 |
| 1952 | 19.7 | .126 |
| 1953 | 22.8 | .143 |
| 1954 | 23.1 | .143 |
| 1955 | 22.7 | .138 |
| 1956 | 22.4 | .133 |
| 1957 | 23.8 | .139 |
| 1958 | 24.3 | .140 |
| 1959 | 28.2 | .159 |
| 1960 | 33.9 | .188 |
| 1961 | 36.3 | .198 |
| 1962 | 36.5 | .196 |
| 1963 | 32.7 | .173 |
| 1964 | 33.3 | .174 |
| 1965 | 33.8 | .174 |
| 1966 | 35.9 | .183 |
| 1967 | 25.7 | .130 |
| 1968 | 26.2 | .131 |
| 1969 | | |
| 1970 | | |
| 1971 | | |
| 1972 | | |

Source: Shellfish Situation & Outlook March 1969, Division of Current Economic Analysis, BCF

Table II-2.--U.S. scallop consumption by socio-economic characteristics, 1969 1/

(Retail Weight)

| Socio-Economic Characteristics | 1969 | | | | |
|---|---|---|---|---|---|
| | 1st Qtr. | 2nd Qtr. | 3rd Qtr. | 4th Qtr. | Total |
| | -------Pounds per capita---------- | | | | |
| RACE | | | | | |
| Negro | .016 | .041 | .000 | .004 | .061 |
| White | .029 | .019 | .019 | .019 | .086 |
| Other | .083 | .000 | .317 | .000 | .400 |
| Not specified | .060 | .040 | .061 | .000 | .161 |
| RELIGION | | | | | |
| Catholic | .054 | .019 | .020 | .032 | .125 |
| Jewish | .067 | .073 | .053 | .045 | .238 |
| Protestant | .020 | .017 | .018 | .014 | .069 |
| Other | .040 | .087 | .026 | .000 | .153 |
| Not specified | - | .000 | .000 | .000 | .000 |
| INCOME PER CAPITA | | | | | |
| Under 1,000 | .012 | .006 | .009 | .003 | .030 |
| 1,000-1,999 | .028 | .021 | .019 | .017 | .085 |
| 2,000-2,499 | .027 | .014 | .011 | .012 | .064 |
| 2,500-2,999 | .040 | .016 | .009 | .010 | .075 |
| 3,000-3,499 | .018 | .008 | .021 | .021 | .068 |
| 3,500 & over | .048 | .033 | .030 | .031 | .142 |
| OCCUPATION | | | | | |
| Prof. & semiprofessional | .026 | .018 | .013 | .012 | .069 |
| Proprietors, managerial | .015 | .012 | .000 | .021 | .048 |
| Clerical & sales | .043 | .027 | .007 | .022 | .099 |
| Craftsmen, foremen | .037 | .016 | .001 | .029 | .083 |
| Head operative | .005 | .017 | .000 | .005 | .027 |
| Service workers, & laborers | .050 | .030 | .001 | .016 | .097 |
| EDUCATION | | | | | |
| Less than 4 yr. high school | .015 | .015 | .001 | .011 | .042 |
| Less than 4 yr. college | .041 | .025 | .006 | .027 | .099 |
| College grad. | .012 | .017 | .000 | .011 | .040 |
| Head, not spec. | - | .000 | .000 | .000 | .000 |
| REGION | | | | | |
| New England | .068 | .084 | .000 | .036 | .188 |
| Middle Atlantic | .061 | .022 | .000 | .029 | .112 |
| E. North Cent. | .016 | .017 | .006 | .021 | .060 |
| W. North Cent. | - | .009 | .000 | .000 | .009 |
| South Atlantic | .032 | .011 | .003 | .005 | .051 |
| E. South Cent. | - | .000 | .000 | .000 | .000 |
| W. South Cent. | .013 | .002 | .000 | .000 | .015 |
| Mountain | .049 | .037 | .000 | .077 | .163 |
| Pacific | .023 | .025 | .001 | .009 | .058 |

Source: Division of Economic Research, Bureau of Commercial Fisheries

1/ Purchases by households for home use.

Table II-3 -- Prices: Ex-Vessel, Wholesale and Retail

Sea Scallops

| | Ex-Vessel [1] | Wholesale [2] | Retail [3] |
|---|---|---|---|
| | Cents per pound | | |
| 1947 | 49.26 | n.a. | n.a. |
| 1948 | 52.42 | n.a. | n.a. |
| 1949 | 36.98 | n.a. | n.a. |
| 1950 | 46.07 | n.a. | 79 |
| 1951 | 44.41 | n.a. | 78 |
| 1952 | 58.14 | n.a. | 88 |
| 1953 | 44.36 | 56.0 | 82 |
| 1954 | 45.24 | 49.0 | 69 |
| 1955 | 51.75 | 59.5 | 80 |
| 1956 | 53.93 | 60.7 | 83 |
| 1957 | 48.49 | 56.3 | 83 |
| 1958 | 48.16 | 52.7 | 80 |
| 1959 | 47.90 | 53.8 | 79 |
| 1960 | 34.84 | 39.2 | 65 |
| 1961 | 37.89 | 41.8 | 64 |
| 1962 | 40.69 | 45.1 | 64 |
| 1963 | 46.43 | 50.0 | 68 |
| 1964 | 54.65 | 58.9 | 80 |
| 1965 | 65.50 | 73.8 | 94 |
| 1966 | 47.73 | 54.8 | 77 |
| 1967 | 75.83 | 87.6 | 99 |
| 1968 | 111.35 | 126.1 | 174 |
| 1969 | | | |
| 1970 | | | |
| 1971 | | | |
| 1972 | | | |

1/ Fishery Statistics of the U. S., 1947-66

2/ 5-lb. box, raw at Boston, Massachusetts, Boston Market News Service

3/ Weekly Retail Report, Maryland State Board of Agriculture, Baltimore, Maryland

Table II-4. -- Value of Scallops Landings, Wholesale and Retail

| | Value of Landings | Value at Wholesale | Value at Retail |
|---|---|---|---|
| | | Million Dollars | |
| 1947 | 7.2 | n.a. | n.a. |
| 1948 | 8.7 | n.a. | n.a. |
| 1949 | 6.8 | n.a. | n.a. |
| 1950 | 9.2 | n.a. | 15.5 |
| 1951 | 8.3 | n.a. | 16.1 |
| 1952 | 10.8 | n.a. | 17.3 |
| 1953 | 10.5 | 12.8 | 18.7 |
| 1954 | 8.0 | 11.3 | 15.9 |
| 1955 | 11.4 | 13.5 | 18.2 |
| 1956 | 10.8 | 13.6 | 18.6 |
| 1957 | 10.2 | 13.4 | 19.8 |
| 1958 | 9.1 | 12.8 | 19.4 |
| 1959 | 11.8 | 15.2 | 22.3 |
| 1960 | 9.3 | 13.3 | 22.0 |
| 1961 | 10.4 | 15.2 | 23.2 |
| 1962 | 10.0 | 16.5 | 23.4 |
| 1963 | 9.3 | 16.4 | 22.2 |
| 1964 | 9.2 | 19.6 | 26.6 |
| 1965 | 13.1 | 24.9 | 31.8 |
| 1966 | 7.6 | 19.7 | 27.6 |
| 1967 | 7.8 | 22.5 | 25.4 |
| 1968 | 15.7 | 33.0 | 45.6 |
| 1969 | | | |
| 1970 | | | |
| 1971 | | | |
| 1972 | | | |

Source: Tables II-1 and II-3

Table II-5. --Retail price of sea scallops relative to the consumer price index and the consumer price index for meat, poultry and fish

| | Retail | Retail/CPI[1/] | Retail/$CPI_{mpf}$[2/] |
|---|---|---|---|
| | Cents per pound | | |
| 1947 | n.a. | n.a. | n.a. |
| 1948 | n.a. | n.a. | n.a. |
| 1949 | n.a. | n.a. | n.a. |
| 1950 | 79 | 94.3 | 83.0 |
| 1951 | 78 | 86.2 | 73.4 |
| 1952 | 88 | 95.1 | 83.6 |
| 1953 | 82 | 88.0 | 82.3 |
| 1954 | 69 | 73.7 | 70.7 |
| 1955 | 80 | 85.7 | 86.7 |
| 1956 | 83 | 87.6 | 94.3 |
| 1957 | 83 | 84.7 | 87.0 |
| 1958 | 80 | 79.4 | 76.6 |
| 1959 | 79 | 77.5 | 78.7 |
| 1960 | 65 | 63.0 | 65.6 |
| 1961 | 64 | 61.4 | 64.4 |
| 1962 | 64 | 60.7 | 62.9 |
| 1963 | 68 | 63.7 | 67.9 |
| 1964 | 80 | 74.0 | 81.1 |
| 1965 | 94 | 85.5 | 89.4 |
| 1966 | 77 | 68.1 | 67.5 |
| 1967 | 99 | 85.1 | 89.0 |
| 1968 | 174 | 144.0 | 153.0 |
| 1969 | | | |
| 1970 | | | |
| 1971 | | | |
| 1972 | | | |

Source: BCF and U.S. Department of Labor, BLS

1/ Consumer Price Index, 1957-59 = 100
2/ Consumer Price Index for meat, poultry and fish 1957-59 = 100

Table II-6 -- Index of Seasonal Demand by Market Area *

Sea Scallops

| Month | New Bedford | Fulton Fish Market |
|---|---|---|
| January | 100.7 | 108.0 |
| February | 99.6 | 105.5 |
| March | 98.8 | 101.6 |
| April | 98.1 | 97.3 |
| May | 98.0 | 94.7 |
| June | 98.4 | 92.0 |
| July | 99.3 | 92.4 |
| August | 100.4 | 93.7 |
| September | 101.4 | 98.1 |
| October | 102.0 | 102.3 |
| November | 102.2 | 106.1 |
| December | 101.6 | 108.7 |

* 100 equals average monthly demand

Source: Frederick V. Waugh and Virgil J. Norton, Some Analyses of Fish Prices, Working Paper No. 22, Division of Economic Research, Bureau of Commercial Fisheries

Table II-7.--Price and income elasticities for sea scallops

---

Price elasticity = -0.6337

Income elasticity = 0.4285

Demand Equation for United States

$$C/N = -0.7736 - 0.6337 \text{ Log } \left[\frac{P}{CPI}\right] + 0.4285 \text{ Log } \left[\frac{Y/CPI}{N}\right]$$

C/N = Sea scallops consumption per capita

P/CPI = Price of sea scallops divided by Consumer Price Index (CPI)

$\frac{Y/CPI}{N}$ = Per capita income deflated by CPI.

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Source: Division of Economic Research, Bureau of Commercial Fisheries.

# III DEMAND PROJECTIONS

- U.S. Consumption
  - Aggregate
  - Per capita

Table III-1.--Demand projections for scallops, U.S. and world, to the year 2000[1/]

| Year | U.S. per cap. consumption | U.S. population | U.S. aggregate consumption | World aggregate consumption |
|---|---|---|---|---|
| | Pounds[2/] | Millions | Million pounds[2/] | |
| 1967 (actual) | 1.08 | 197.9 | 214 | 340[3/] |
| 1970 | 1.48 | 206.0 | 304 | 420 |
| 1975 | 1.54 | 219.4 | 337 | 490 |
| 1980 | 1.59 | 235.2 | 374 | 560 |
| 1985 | 1.63 | 252.9 | 411 | 630 |
| 1990 | 1.65 | 270.8 | 446 | 700 |
| 2000 | 1.67 | 307.8 | 515 | 805 |

Assumptions:

(1) Declining income elasticity over time;

(2) A Schaefer biological yield curve;

(3) Fishery management instituted when world fishery reaches maximum sustainable yield;

(4) Relative prices of fishery product variable over time (i.e., cost of production derived from (2) allowed to interact with demand);

(5) Projected per capita income and population given by U.S. Department of Agriculture by country;

(6) Constant technology; and

(7) Input prices to fisheries rise at approximately same rate as all consumer prices.

Source: For a fuller description of above assumptions and alternative projections see Working Paper No. 71, "Economic Projections of U.S. and World Demand for Major Fishery Projects," by F. Bell, D. Nash, F. Waugh, and E. Carlson.

1/ For annual projection between five year intervals the reader may interpolate.

2/ Round weight

3/ Average of 1966-67

# IV DOMESTIC PRODUCTION

—Landings

—Value

SEA SCALLOPS

Table IV-1 -- U.S. Landings and Value

(Meat Weight)

| | Landings | Value |
|---|---|---|
| | Thou. pounds | Thou. dollars |
| 1947 | 14,654 | 7,218 |
| 1948 | 16,636 | 8,720 |
| 1949 | 18,296 | 6,765 |
| 1950 | 19,980 | 9,204 |
| 1951 | 18,746 | 8,324 |
| 1952 | 18,630 | 10,832 |
| 1953 | 23,618 | 10,476 |
| 1954 | 17,631 | 7,976 |
| 1955 | 22,125 | 11,449 |
| 1956 | 20,066 | 10,822 |
| 1957 | 20,994 | 10,180 |
| 1958 | 18,977 | 9,140 |
| 1959 | 24,644 | 11,805 |
| 1960 | 26,599 | 9,266 |
| 1961 | 27,461 | 10,404 |
| 1962 | 24,634 | 10,024 |
| 1963 | 19,939 | 9,257 |
| 1964 | 16,914 | 9,244 |
| 1965 | 20,000 | 13,100 |
| 1966 | 15,975 | 7,625 |
| 1967 | 10,243 | 7,767 |
| 1968 | 14,100 | 15,700 |
| 1969 | | |
| 1970 | | |
| 1971 | | |
| 1972 | | |

Source: Fishery Statistics of the U. S., 1947-1966

Table IV-2. -- Supplies and Utilization of Sea Scallops 1947-68

(Meat Weight)

| | Beginning Stocks | Landings | Imports | Total | Ending Stocks | Apparent Consumption | |
|---|---|---|---|---|---|---|---|
| | | | | | | Total | Per Capita |
| | Million pounds | | | | | | pounds |
| 1947 | 2.2 | 14.7 | .8 | 17.7 | 2.1 | 15.6 | .110 |
| 1948 | 2.1 | 16.6 | .5 | 19.3 | 3.1 | 16.2 | .111 |
| 1949 | 3.1 | 18.3 | .4 | 21.8 | 2.3 | 19.5 | .132 |
| 1950 | 2.3 | 20.0 | .7 | 23.0 | 3.4 | 19.6 | .129 |
| 1951 | 3.4 | 18.7 | .7 | 22.8 | 2.2 | 20.6 | .134 |
| 1952 | 2.2 | 18.6 | 1.6 | 22.4 | 2.7 | 19.7 | .126 |
| 1953 | 2.7 | 23.6 | 1.4 | 27.7 | 4.9 | 22.8 | .143 |
| 1954 | 4.9 | 17.6 | 2.0 | 24.5 | 1.4 | 23.1 | .143 |
| 1955 | 1.4 | 22.1 | 1.9 | 25.4 | 2.7 | 22.7 | .138 |
| 1956 | 2.7 | 20.1 | 2.4 | 25.2 | 2.8 | 22.4 | .133 |
| 1957 | 2.8 | 21.0 | 3.4 | 27.2 | 3.4 | 23.8 | .139 |
| 1958 | 3.4 | 19.0 | 3.9 | 26.3 | 2.0 | 24.3 | .140 |
| 1959 | 2.0 | 24.6 | 5.1 | 31.7 | 3.5 | 28.2 | .159 |
| 1960 | 3.5 | 26.6 | 6.9 | 37.0 | 3.1 | 33.9 | .188 |
| 1961 | 3.1 | 27.5 | 8.7 | 39.3 | 3.0 | 36.3 | .198 |
| 1962 | 3.0 | 24.6 | 11.6 | 39.2 | 2.7 | 36.5 | .196 |
| 1963 | 2.7 | 19.9 | 13.4 | 36.0 | 3.3 | 32.7 | .173 |
| 1964 | 3.3 | 16.9 | 16.2 | 36.4 | 3.1 | 33.3 | .174 |
| 1965 | 3.1 | 20.1 | 16.5 | 39.7 | 5.9 | 33.8 | .174 |
| 1966 | 5.9 | 16.7 | 16.7 | 39.3 | 3.4 | 35.9 | .183 |
| 1967 | 3.4 | 10.1 | 13.5 | 27.0 | 1.3 | 25.7 | .130 |
| 1968 | 1.3 | 13.5 | 14.6 | 29.4 | 3.2 | 26.2 | .131 |

Source: Division of Current Economic Analysis, BCF

# V DOMESTIC EMPLOYMENT, VESSELS AND EFFORT

- Fishermen
- Vessels
- Trips
- Days at sea
- Days fishing

Table V-1 -- Number of Fishermen, and Vessels
Scallops

| | Fishermen | Vessels |
|---|---|---|
| | Number | Number |
| 1947 | 1214 | 184 |
| 1948 | 1202 | 177 |
| 1949 | 1322 | 223 |
| 1950 | 1272 | 244 |
| 1951 | 1615 | 290 |
| 1952 | 1901 | 313 |
| 1953 | 2455 | 351 |
| 1954 | 1747 | 236 |
| 1955 | 2060 | 279 |
| 1956 | 1965 | 278 |
| 1957 | 1698 | 218 |
| 1958 | 1533 | 195 |
| 1959 | 1524 | 209 |
| 1960 | 1571 | 189 |
| 1961 | 1409 | 168 |
| 1962 | 1322 | 171 |
| 1963 | 1090 | 143 |
| 1964 | 966 | 121 |
| 1965 | 1676 | 192 |
| 1966 | 1415 | 159 |
| 1967 | | |
| 1968 | | |
| 1969 | | |
| 1970 | | |
| 1971 | | |
| 1972 | | |

Source: Fishery Statistics of the U. S., 1947-1966

Table V-2 -- Vessels, Trips and Fishing Effort 1/
Sea Scallops

| | Vessels Fishing | Trips | Days at Sea | Days Fishing | Landings |
|---|---|---|---|---|---|
| | | Number | | | Thousand pounds |
| 1947 | 209 | 1,873 | 11,556 | n.a. | 12,457 |
| 1948 | 223 | 2,988 | 13,855 | " | 11,621 |
| 1949 | 185 | 2,441 | 12,955 | " | 13,147 |
| 1950 | 199 | 1,973 | 11,499 | " | 1,3140 |
| 1951 | 167 | 1,838 | 11,830 | " | 13,524 |
| 1952 | 243 | 2,365 | 12,416 | " | 13,511 |
| 1953 | 181 | 2,912 | 17,271 | " | 17,957 |
| 1954 | 125 | 2,039 | 13,532 | " | 14,734 |
| 1955 | 119 | 2,481 | 15,568 | " | 15,472 |
| 1956 | 132 | 2,381 | 15,859 | " | 15,727 |
| 1957 | 110 | 2,157 | 15,656 | " | 17,945 |
| 1958 | 95 | 2,064 | 14,260 | " | 15,946 |
| 1959 | 93 | 2,130 | 12,988 | 9,036 | 19,051 |
| 1960 | 84 | 1,747 | 11,343 | 7,734 | 20,572 |
| 1961 | 81 | 1,639 | 11,336 | 7,841 | 21,032 |
| 1962 | 72 | 1,386 | 11,458 | 8,360 | 19,530 |
| 1963 | 66 | 1,238 | 10,209 | 7,553 | 16,607 |
| 1964 | 64 | 1,291 | 9,099 | 6,905 | 13,604 |
| 1965 | 53 | 1,058 | 7,893 | 5,999 | 11,866 |
| 1966 | 48 | 836 | 6,990 | 5,325 | 10,813 |
| 1967 | 39 | 721 | 5,867 | 4,547 | 6,819 |
| 1968 | | | | | |
| 1969 | | | | | |
| 1970 | | | | | |
| 1971 | | | | | |
| 1972 | | | | | |

Source: Fishery Statistics of the U. S., 1947-66 and Massachusetts landings, 1967

1/ Vessels, effort and landings are for vessels landing sea scallops in Massachusetts ports, only.

Table V.3--Fishermen in the Atlantic Sea Scallop Dredge Fishery

| Year | Fishermen On Vessels | | | |
|---|---|---|---|---|
| | New England | Middle Atlantic | Chesapeake | Total[1/] |
| | Number | | | |
| 1930 | 89 | 193 | - | 282 |
| 1931 | 86 | 124 | - | 210 |
| 1932 | 130 | 192 | - | 322 |
| 1933 | 167 | 161 | 4 | 332 |
| 1934 | n.a. | n.a. | n.a. | n.a. |
| 1935 | 117 | 258 | - | 375 |
| 1936 | n.a. | n.a. | - | n.a. |
| 1937 | 309 | 231 | 4 | 544 |
| 1938 | 295 | n.a. | - | n.a. |
| 1939 | 361 | 105 | - | 466 |
| 1940 | 395 | 114 | - | 509 |
| 1941 | n.a. | n.a. | - | n.a. |
| 1942 | 637 | 71 | - | 708 |
| 1943 | 469 | 45 | - | 514 |
| 1944 | n.a. | 46 | - | n.a. |
| 1945 | 366 | 99 | - | 465 |
| 1946 | n.a. | n.a. | - | n.a. |
| 1947 | 960 | 165 | - | 1,125 |
| 1948 | 947 | 173 | - | 1,120 |
| 1949 | 921 | 317 | - | 1,238 |
| 1950 | 842 | 309 | - | 1,151 |
| 1951 | 1,022 | 463 | - | 1,485 |
| 1952 | 1,300 | 461 | 14 | 1,775 |
| 1953 | 1,740 | 601 | 6 | 2,347 |
| 1954 | 1,322 | 330 | - | 1,652 |
| 1955 | 1,236 | 702 | 23 | 1,961 |
| 1956 | 1,250 | 570 | 7 | 1,827 |
| 1957 | 1,154 | 396 | 50 | 1,600 |
| 1958 | 972 | 385 | 109 | 1,466 |
| 1959 | 922 | 369 | 156 | 1,447 |
| 1960 | 918 | 470 | 123 | 1,511 |
| 1961 | 927 | 348 | 86 | 1,361 |
| 1962 | 908 | 310 | 40 | 1,258 |
| 1963 | 775 | 213 | 31 | 1,019 |
| 1964 | 714 | 188 | 20 | 922 |
| 1965 | 610 | 725 | 285 | 1,620 |
| 1966 | 471 | 605 | 280 | 1,356 |

1/ May include some duplication

Source: Fishery Statistics of the U.S.

Table V.4--Fishermen in boats and shore in the Atlantic Sea Scallop Dredge Fishery

| Year | Fishermen on Boats and Shore: New England (Maine): Regular | Fishermen on Boats and Shore: New England (Maine): Casual | Total Fishermen 1/ 2/ on Vessels and Boats |
|---|---|---|---|
| | ------Number---------- | | |
| 1930 | 109 | - | 391 |
| 1931 | 73 | -- | 283 |
| 1932 | 105 | 17 | 444 |
| 1933 | 230 | 2 | 564 |
| 1934 | n.a. | n.a. | n.a. |
| 1935 | 106 | 83 | 564 |
| 1936 | n.a. | n.a. | n.a. |
| 1937 | 105 | 59 | 708 |
| 1938 | 95 | 36 | n.a. |
| 1939 | 126 | 48 | 640 |
| 1940 | 86 | 40 | 635 |
| 1941 | n.a. | n.a. | n.a. |
| 1942 | 116 | - | 824 |
| 1943 | 258 | - | 772 |
| 1944 | 82 | 7 | n.a. |
| 1945 | 55 | 5 | 525 |
| 1946 | 64 | 3 | n.a. |
| 1947 | 82 | 7 | 1,214 |
| 1948 | 73 | 9 | 1,202 |
| 1949 | 77 | 7 | 1,322 |
| 1950 | 107 | 14 | 1,272 |
| 1951 | 108 | 22 | 1,615 |
| 1952 | 98 | 28 | 1,901 |
| 1953 | 77 | 31 | 2,455 |
| 1954 | 59 | 36 | 1,747 |
| 1955 | 60 | 39 | 2,060 |
| 1956 | 81 | 57 | 1,965 |
| 1957 | 49 | 49 | 1,698 |
| 1958 | 36 | 31 | 1,533 |
| 1959 | 50 | 27 | 1,524 |
| 1960 | 34 | 26 | 1,571 |
| 1961 | 38 | 10 | 1,409 |
| 1962 | 55 | 9 | 1,322 |
| 1963 | 57 | 14 | 1,090 |
| 1964 | 36 | 8 | 966 |
| 1965 | 41 | 15 | 1,676 |
| 1966 | 40 | 19 | 1,415 |

1/ May include some duplication

2/ Does not include fishermen on boats and shore in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey.

Source: Fishery Statistics of the U.S.

Table V-5. --Vessels and Boats in the Atlantic Sea Scallop Dredge Fishery

| Year | Vessels | | | |
|---|---|---|---|---|
| | New England | Middle Atlantic | Chesapeake | Total 1/ |
| | Number | | | |
| 1930 | 23 | 47 | - | 70 |
| 1931 | 20 | 32 | - | 52 |
| 1932 | 29 | 35 | - | 64 |
| 1933 | 26 | 30 | 1 | 57 |
| 1934 | n.a. | n.a. | n.a. | n.a. |
| 1935 | 17 | 43 | - | 60 |
| 1936 | n.a. | n.a. | - | n.a. |
| 1937 | 44 | 39 | 1 | 84 |
| 1938 | 42 | 28 | - | 70 |
| 1939 | 50 | 21 | - | 71 |
| 1940 | 49 | 21 | - | 70 |
| 1941 | n.a. | n.a. | - | n.a. |
| 1942 | 92 | 11 | - | 103 |
| 1943 | 48 | 7 | - | 55 |
| 1944 | n.a. | 7 | - | n.a. |
| 1945 | 38 | 14 | - | 52 |
| 1946 | n.a. | n.a. | - | n.a. |
| 1947 | 111 | 25 | - | 136 |
| 1948 | 111 | 25 | - | 136 |
| 1949 | 117 | 52 | - | 169 |
| 1950 | 103 | 50 | - | 153 |
| 1951 | 129 | 70 | - | 199 |
| 1952 | 150 | 71 | 3 | 224 |
| 1953 | 200 | 80 | 1 | 281 |
| 1954 | 141 | 39 | - | 180 |
| 1955 | 137 | 78 | 4 | 219 |
| 1956 | 141 | 57 | 1 | 199 |
| 1957 | 120 | 41 | 8 | 169 |
| 1958 | 108 | 40 | 16 | 164 |
| 1959 | 101 | 37 | 22 | 160 |
| 1960 | 92 | 44 | 19 | 155 |
| 1961 | 91 | 34 | 8 | 133 |
| 1962 | 85 | 32 | 4 | 121 |
| 1963 | 72 | 20 | 3 | 95 |
| 1964 | 71 | 20 | 2 | 93 |
| 1965 | 61 | 68 | 26 | 155 |
| 1966 | 42 | 56 | 25 | 123 |

1/ May include some duplication

Source: Fishery Statistics of the U.S.

Table V-5. --Vessels and Boats in the Atlantic Sea Scallop Dredge Fishery (Continued)

| Year | Boats | | | Total Vessels and 1/ 2/ Boats |
|---|---|---|---|---|
| | Motor | Other | | |
| | New England (Maine) | New England (Maine) | Total Boats 2/ | |
| | Number | | | |
| 1930 | 94 | 7 | 101 | 171 |
| 1931 | 67 | - | 67 | 119 |
| 1932 | 78 | - | 78 | 142 |
| 1933 | 140 | - | 140 | 197 |
| 1934 | n.a. | n.a. | n.a. | n.a. |
| 1935 | 146 | - | 146 | 206 |
| 1936 | n.a. | n.a. | n.a. | n.a. |
| 1937 | 105 | - | 105 | 189 |
| 1938 | 89 | - | 89 | 159 |
| 1939 | 102 | - | 102 | 173 |
| 1940 | 78 | - | 78 | 148 |
| 1941 | n.a. | n.a. | n.a. | n.a. |
| 1942 | 91 | - | 91 | 194 |
| 1943 | 109 | - | 109 | 164 |
| 1944 | 62 | - | 62 | n.a. |
| 1945 | 31 | - | 31 | 83 |
| 1946 | 30 | - | 30 | n.a. |
| 1947 | 48 | - | 48 | 184 |
| 1948 | 41 | - | 41 | 177 |
| 1949 | 54 | - | 54 | 223 |
| 1950 | 91 | - | 91 | 244 |
| 1951 | 91 | - | 91 | 290 |
| 1952 | 89 | - | 89 | 313 |
| 1953 | 70 | - | 70 | 351 |
| 1954 | 56 | - | 56 | 236 |
| 1955 | 60 | - | 60 | 279 |
| 1956 | 79 | - | 79 | 278 |
| 1957 | 49 | - | 49 | 218 |
| 1958 | 31 | - | 31 | 195 |
| 1959 | 49 | - | 49 | 209 |
| 1960 | 34 | - | 34 | 189 |
| 1961 | 35 | - | 35 | 168 |
| 1962 | 50 | - | 50 | 171 |
| 1963 | 48 | - | 48 | 143 |
| 1964 | 28 | - | 28 | 121 |
| 1965 | 37 | - | 37 | 192 |
| 1966 | 36 | - | 36 | 159 |

1/ May include some duplication
2/ Does not include boats in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey.

Source: Fishery Statistics of the U.S.

Table V-6.--Gear in the Atlantic Sea Scallop Dredge Fishery

| Year | Sea Scallop Dredges | | | |
|---|---|---|---|---|
| | New England[2] | Middle Atlantic[2] | Chesapeake | North Atlantic[1] [2] |
| | Number | | | |
| 1930 | 145 | 94 | - | 239 |
| 1931 | 105 | 64 | - | 169 |
| 1932 | 147 | 70 | - | 217 |
| 1933 | 195 | 60 | 2 | 257 |
| 1934 | n.a. | n.a. | n.a. | n.a. |
| 1935 | 182 | 85 | - | 267 |
| 1936 | n.a. | n.a. | - | n.a. |
| 1937 | 208 | 78 | 2 | 288 |
| 1938 | 214 | 56 | - | 270 |
| 1939 | 260 | 42 | - | 302 |
| 1940 | 217 | 42 | - | 259 |
| 1941 | n.a. | n.a. | - | n.a. |
| 1942 | 272 | 22 | - | 294 |
| 1943 | 203 | 14 | - | 217 |
| 1944 | n.a. | 14 | - | n.a. |
| 1945 | 106 | 28 | - | 134 |
| 1946 | n.a. | n.a. | - | n.a. |
| 1947 | 267 | 50 | - | 317 |
| 1948 | 262 | 48 | - | 310 |
| 1949 | 285 | 104 | - | 389 |
| 1950 | 297 | 98 | - | 395 |
| 1951 | 350 | 140 | - | 490 |
| 1952 | 388 | 142 | 6 | 536 |
| 1953 | 465 | 160 | 2 | 627 |
| 1954 | 335 | 78 | - | 413 |
| 1955 | 333 | 155 | 8 | 496 |
| 1956 | 354 | 114 | 2 | 470 |
| 1957 | 284 | 82 | 15 | 381 |
| 1958 | 234 | 80 | 32 | 346 |
| 1959 | 246 | 74 | 44 | 364 |
| 1960 | 211 | 88 | 38 | 337 |
| 1961 | 213 | 68 | 16 | 297 |
| 1962 | 217 | 64 | 8 | 289 |
| 1963 | 188 | 40 | 6 | 234 |
| 1964 | 167 | 40 | 4 | 211 |
| 1965 | 158 | 136 | 52 | 346 |
| 1966 | 114 | 91 | 50 | 255 |

1/ May include some duplication.
2/ Does not include gear on boats in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey.

Source: Fishery Statistics of the U.S.

# VI BIOLOGICAL STOCK ASSESSMENT

Table VI-1
Estimates of Maximum Sustainable
Yield from World Stocks
of Scallops

| Regions | Sustainable Yield ('000's of tons) |
|---|---|
| 1. Atlantic Ocean | |
| (a) Northeast Atlantic | |
| Coquille St. Jacque (Pecten maximus) | 15.0 |
| Queen Scallops (Chlamys opercularis) and Variegated Scallop (Chlamys varius) | 20.0 |
| Total | 35.0 |

Source: FAO Indicative World Plan for Agricultural Development, Area Reviews of Living Resources of the World's Ocean: Simpson, A. C., "Molluscan Resources"

Simpson states, "...known stocks of the larger species in the North Atlantic, Australian and Japanese areas are fairly heavily exploited, but the discovery in recent years of extensive populations of the large Platinopecten carinus off Alaska indicates that substantial unknown populations may also exist in other parts of the world. The larger species tend to be cool water species and it would seem probable that there are large undiscovered or unexploited stocks in the southern hemisphere especially off Argentina, Chile and New Zealand. ...The present production of 175,000 tons comes from three limited areas; if all stocks of large species were exploited production might reach 500,000 tons and with the utilization of the smaller species a further 250,000 tons might be anticipated, making a total of 750,000 tons." (Molluscan Resource report, p. 35).

Simpson, however, does not mention the recent discovery of the calico scallop beds off of the east coast of Florida. The following is taken from an article discussing that find ("Billion-Dollar Scallop Find"):

> From an analysis of its catches, the Oregon's crew found that in this particular area, the yield of meat ran about 10 percent of the weight of the live scallops. ..."

Table VI-1 (Continued)

"...Bullis estimated that the east Florida bed could produce at least 326,700,000 pounds of scallop meat per year. He admits this is a scaled down estimate somewhat on the conservative side. It is based on scallop production from only 10 percent of the 1,200 square miles in the bed. A much higher yield, he freely admits, is more likely than not..."

Calico scallop MSY, then, is equal to:

326,700,000 pounds x 10 or
3,267,000,000 pounds (live weight) or
1,633,500 short tons or
1,481.9 (thousand metric tons)

| | MSY ('000's tons) |
|---|---|
| Simpson estimate | 750.0 |
| Calico scallops | 1,481.9 |
| Total | 2,231.9 |

Landings as report by FAO for 1966 were 175,000 tons.

| Regions | Sustainable Yield ('000's of tons) |
|---|---|
| 1. Atlantic Ocean (continued) | |
| (b) Northwest and West Central Atlantic | |
| Sea Scallop (Placeopecten magellanicus) | 150.0 |
| Bay Scallop (Aequipecten irradians) | 10.0 |
| Calico Scallop (Pecten gibbus) | [1] |
| Total | 170.5 |
| (c) Caribbean | unknown |
| (d) Central and Southeast Atlantic | unknown[2] |
| (e) Southwest Atlantic | .5[3] |

[1] See Source

[2] "No commercial species of scallop are recorded but it is probable that they will exist in the cooler waters of southwest Africa and exploration for them would be worth undertaking."

[3] This figure represents a compromise between the high in production in 1964 of 800 tons, and the 1966 level of 200 tons. The reason for the decline is unknown.

Table VI-1 (Continued)

| Regions | Sustainable Yield ('000's of tons) |
|---|---|
| 2. Mediterranean and Black Sea | negligible |
| 3. Indian Ocean | unknown |
| 4. Pacific | |
| (a) Northeast Pacific | unknown |
| (b) Northwest and West Central Pacific | |
| Common Scallop (Pecten yessoensis) | |
| (1) Japan | 12.4[4] |
| (2) Russia | 4.0[5] |
| Total | 16.4 |
| (c) Southeast Pacific | unknown |
| Ostion (Chlamys (Argopecten) purpurata) | |
| Commercial fishing prohibited between Africa and Valparaiso since 1958 because of over-exploitation. | |

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[4] This figure represents a compromise between the production of 1958 (19,000 tons) and that of 1965 (5,700 tons). The reason for decline, according to Simpson, is not known but he states that variation in year-class strength may be a factor. The estimate given above is probably a conservative one.

[5] This represents nothing more than a guess. The author says nothing about possible increases here, so the production figure of 3,500 tons was increased to 4,000. This may be a conservative estimate.

Table VI-1 (Continued)

| Regions | Sustainable Yield ('000's of tons) |
|---|---|
| (d) Australia and New Zealand | |
| (1) Tasmania | |
| Doughboy (Mimachlamys asperrimus) | |
| Commercial (Notovola meridionalis) | 2.0 |
| Queen (Equichlamys bifrons) | |
| (2) Victoria | |
| Pecten alba | 10.0[6] |
| (3) Queensland | |
| Amusium ballotti | unknown |
| (4) New Zealand | 7.7[7] |
| Regional Breakdown (from Simpson) | 260.1 |
| Total World Potential (from Simpson) | 750.0 |
| Add Recent Discovery of Calico Scallops (See Source Footnote) | 1,481.9 |
| Adjusted World Potential | 2,231.9 |

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[6] While yields have increased to as much as 12,500 tons, Simpson estimates 10,000 as the maximum yield on a sustainable basis.

[7] The figure used is the production figure for oysters in New Zealand. "...Tunbridge (1962) reported that in the past scallops were as common as oysters in Tasman Bay." Thus, this estimate is but a rough approximation, probably on the conservative side.

Table VI-2.--Estimate of maximum sustainable yield for scallops in waters fished by U.S. fishermen

| Region | MSY |
|---|---|
| | Thous. metric tons |
| I. Northeast and West Central Pacific | 900.9 |
| Total | 900.9 |

Source: Bureau of Commercial Fisheries, Division of Economic Research. Simpson, A. C. "Molluscan Resources," Area Reviews on Living Resources of the World's Oceans, FAO Indicative World Plan for Agricultural Development, Fisheries Laboratory, Burnham-on-Crounch, 1969.

# VII INTERNATIONAL TRADE

- Imports
  - Quantity
  - Value
  - Price

Table VII-1 -- Quantity, Value and Price of Imports of scallops to the United States[1/]

| | Quantity | Value | Average price[2/] |
|---|---|---|---|
| | Thou. pounds | Thou. dollars | cents/pound |
| 1947 | 846 | 445 | 52.60 |
| 1948 | 504 | 295 | 58.53 |
| 1949 | 400 | 204 | 51.00 |
| 1950 | 692 | 282 | 40.75 |
| 1951 | 748 | 304 | 40.64 |
| 1952 | 1,610 | 790 | 49.07 |
| 1953 | 1,361 | 646 | 47.47 |
| 1954 | 2,017 | 842 | 41.75 |
| 1955 | 1,946 | 907 | 46.61 |
| 1956 | 2,350 | 1,139 | 48.47 |
| 1957 | 3,368 | 1,628 | 48.34 |
| 1958 | 3,903 | 1,791 | 45.89 |
| 1959 | 5,108 | 2,430 | 47.57 |
| 1960 | 6,873 | 2,754 | 40.07 |
| 1961 | 8,652 | 3,418 | 39.51 |
| 1962 | 11,563 | 4,993 | 43.18 |
| 1963 | 13,342 | 6,306 | 47.26 |
| 1964 | 16,108 | 8,491 | 52.71 |
| 1965 | 16,495 | 10,643 | 64.52 |
| 1966 | 16,712 | 8,375 | 50.11 |
| 1967 | 13,461 | 9,314 | 69.20 |
| 1968 | 14,581 | 15,709 | 107.74 |
| 1969 | | | |
| 1970 | | | |
| 1971 | | | |
| 1972 | | | |

Source: Fishery Statistics of the U. S., 1947-1966

1/ Includes all species of scallops
2/ Quantity divided into value

Table VII-2 -- Imports of scallops to the United States, by country of origin, 1949-68

(Product Weight)

| | Canada | Japan | Other | Total |
|---|---|---|---|---|
| | ----------Thousand pounds---------- | | | |
| 1947 | n.a. | n.a. | n.a. | n.a. |
| 1948 | n.a. | n.a. | n.a. | n.a. |
| 1949 | 115 | 283 | 2 | 400 |
| 1950 | 183 | 505 | 4 | 692 |
| 1951 | 274 | 467 | 7 | 748 |
| 1952 | 444 | 1,164 | 2 | 1,610 |
| 1953 | 729 | 625 | 7 | 1,361 |
| 1954 | 1,229 | 784 | 4 | 2,017 |
| 1955 | 807 | 1,102 | 37 | 1,946 |
| 1956 | 1,339 | 994 | 17 | 2,350 |
| 1957 | 2,532 | 694 | 142 | 3,368 |
| 1958 | 2,464 | 1,423 | 16 | 3,903 |
| 1959 | 3,265 | 1,828 | 15 | 5,108 |
| 1960 | 6,341 | 517 | 15 | 6,873 |
| 1961 | 8,555 | 95 | 2 | 8,652 |
| 1962 | 11,370 | 83 | 110 | 11,563 |
| 1963 | 13,233 | 37 | 72 | 13,342 |
| 1964 | 15,459 | 70 | 579 | 16,108 |
| 1965 | 15,527 | 31 | 937 | 16,495 |
| 1966 | 16,590 | 51 | 71 | 16,712 |
| 1967 | 13,129 | 130 | 202 | 13,461 |
| 1968 | 13,179 | 76 | 1,326 | 14,581 |
| 1969 | | | | |

Source: U.S. Department of Commerce, Bureau of the Census

# VIII FOREIGN PRODUCTION

—Landings

Table VIII-1 -- World scallop landings by country

| Year | Canada | U.S. | Japan | France | Australia | Other | Total |
|---|---|---|---|---|---|---|---|
| | million pounds | | | | | | |
| 1947 | 6.4 | 124.4 | N.A. | 12.4 | N.A. | 1.3 | 144.4 |
| 1948 | 7.0 | 149.3 | N.A. | 6.8 | N.A. | 1.8 | 164.9 |
| 1949 | 3.5 | 158.5 | N.A. | 5.7 | N.A. | 0.7 | 168.5 |
| 1950 | 6.2 | 72.9 | N.A. | 6.0 | N.A. | 1.1 | 186.1 |
| 1951 | 4.6 | 164.5 | N.A. | 6.0 | N.A. | 0.9 | 176.0 |
| 1952 | 8.8 | 163.8 | 26.7 | 5.3 | 0.7 | 0.9 | 206.2 |
| 1953 | 14.3 | 211.9 | 30.0 | 9.0 | 0.7 | 0.4 | 266.4 |
| 1954 | 14.3 | 156.3 | 40.4 | 4.0 | 3.8 | 0.7 | 219.4 |
| 1955 | 13.5 | 194.0 | 36.4 | 8.2 | 5.5 | 1.1 | 258.6 |
| 1956 | 21.0 | 175.3 | 32.2 | 8.9 | 5.7 | 0.2 | 243.2 |
| 1957 | 26.7 | 192.1 | 33.3 | 6.4 | 7.0 | 0.4 | 265.9 |
| 1958 | 26.7 | 175.3 | 43.2 | 8.0 | 4.2 | 0.2 | 257.5 |
| 1959 | 39.2 | 210.4 | 47.4 | 8.4 | 4.8 | 2.0 | 312.2 |
| 1960 | 56.2 | 240.1 | 30.6 | 13.0 | 6.2 | 0.2 | 351.7 |
| 1961 | 112.1 | 241.7 | 23.6 | 13.7 | 6.8 | 1.3 | 408.4 |
| 1962 | 110.8 | 229.1 | 22.3 | 15.2 | 5.1 | 1.5 | 381.2 |
| 1963 | 129.9 | 189.6 | 19.9 | 15.6 | 6.4 | 3.5 | 364.9 |
| 1964 | 133.6 | 155.2 | 15.3 | 18.1 | 15.4 | 8.6 | 346.2 |
| 1965 | 157.9 | 180.6 | 12.6 | 16.5 | 24.7 | 9.3 | 418.9 |
| 1966 | 146.2 | 177.3 | 16.3 | 15.2 | 29.6 | 7.9 | 392.5 |
| 1967 | 106.7 | 111.4 | 15.4 | 16.3 | 30.0 | 9.0 | 288.8 |
| 1968 | | | | | | | |
| 1969 | | | | | | | |
| 1970 | | | | | | | |
| 1971 | | | | | | | |
| 1972 | | | | | | | |

Source: Canada; Canadian Fisherman: U.S.; Fishery Statistics of the U.S.; and others from FAO Yearbook of Fishery Statistics

# IX FOREIGN CONSUMPTION

—Consumption
  Aggregate
  Per capita

—Prices

Table IX-1 -- Consumption of Scallops by Selected Countries, Aggregate and Per Capita

(Round Weight)

| | U.S. | | Japan | |
|---|---|---|---|---|
| | Aggregate | Per Capita | Aggregate | Per Capita |
| | Mil. lbs. | Lbs. | Mil. lbs. | Lbs. |
| 1947 | 137.6 | 0.966 | n.a. | n.a. |
| 1948 | 150.3 | 1.032 | n.a. | n.a. |
| 1949 | 173.8 | 1.174 | n.a. | n.a. |
| 1950 | 175.6 | 1.166 | n.a. | n.a. |
| 1951 | 186.2 | 1.216 | n.a. | n.a. |
| 1952 | 179.1 | 1.149 | 26.6 | 0.311 |
| 1953 | 212.4 | 1.341 | 29.9 | 0.345 |
| 1954 | 202.6 | 1.257 | 40.3 | 0.458 |
| 1955 | 202.2 | 1.232 | 36.3 | 0.408 |
| 1956 | 194.5 | 1.166 | 32.1 | 0.357 |
| 1957 | 215.0 | 1.266 | 33.3 | 0.366 |
| 1958 | 220.1 | 1.274 | 43.1 | 0.471 |
| 1959 | 243.0 | 1.382 | 47.3 | 0.512 |
| 1960 | 301.0 | 1.666 | 30.6 | 0.328 |
| 1961 | 316.9 | 1.724 | 32.5 | 0.250 |
| 1962 | 295.5 | 1.582 | 22.2 | 0.234 |
| 1963 | 287.1 | 1.516 | 19.8 | 0.206 |
| 1964 | 294.4 | 1.532 | 15.2 | 0.157 |
| 1965 | 280.4 | 1.441 | 12.5 | 0.128 |
| 1966 | 308.4 | 1.566 | 16.3 | 0.165 |
| 1967 | 210.6 | 1.057 | 15.4 | 0.154 |
| 1968 | 230.7 | 1.091 | | |
| 1969 | | | | |
| 1970 | | | | |
| 1971 | | | | |
| 1972 | | | | |

Table IX-1 -- Consumption of Scallops by Selected Countries, Aggregate and Per Capital (continued)

(Round Weight)

| | France | | Australia | |
|---|---|---|---|---|
| | Aggregate | Per Capita | Aggregate | Per Capita |
| | Mil. lbs. | Lbs. | Mil. lbs. | Lbs. |
| 1947 | n.a. | n.a. | n.a. | n.a. |
| 1948 | 6.8 | 0.165 | n.a. | n.a. |
| 1949 | 5.7 | 0.138 | n.a. | n.a. |
| 1950 | 5.9 | 0.142 | n.a. | n.a. |
| 1951 | 5.9 | 0.141 | n.a. | n.a. |
| 1952 | 5.3 | 0.124 | 0.7 | 0.076 |
| 1953 | 9.0 | 0.211 | 0.7 | 0.075 |
| 1954 | 4.0 | 0.092 | 3.7 | 0.416 |
| 1955 | 8.1 | 0.187 | 5.5 | 0.598 |
| 1956 | 8.8 | 0.201 | 5.7 | 0.607 |
| 1957 | 6.4 | 0.144 | 7.0 | 0.730 |
| 1958 | 7.9 | 0.177 | 4.2 | 0.425 |
| 1959 | 8.4 | 0.185 | 4.8 | 0.481 |
| 1960 | 13.0 | 0.284 | 6.2 | 0.600 |
| 1961 | 13.6 | 0.295 | 6.8 | 0.649 |
| 1962 | 15.2 | 0.323 | 5.1 | 0.473 |
| 1963 | 15.6 | 0.326 | 6.4 | 0.584 |
| 1964 | 18.1 | 0.373 | 15.4 | 1.383 |
| 1965 | 16.5 | 0.337 | 24.6 | 2.169 |
| 1966 | 15.2 | 0.307 | 29.5 | 2.554 |
| 1967 | 16.3 | 0.326 | 29.9 | 2.533 |
| 1968 | | | | |
| 1969 | | | | |
| 1970 | | | | |
| 1971 | | | | |
| 1972 | | | | |

Source: Original data from FAO Yearbook of Fishery Statistics, and Fishery Statistics of the U. S.

Table IX-2 -- World prices of scallops by country

| | Canada[1/] | U.S.[2/] | Japan[3/] | France[3/] |
|---|---|---|---|---|
| | cents per pound | | | |
| 1947 | n.a. | 49.3 | n.a. | n.a. |
| 1948 | 44.0 | 52.4 | n.a. | n.a. |
| 1949 | 36.0 | 37.0 | n.a. | n.a. |
| 1950 | 43.7 | 46.1 | n.a. | n.a. |
| 1951 | 36.9 | 44.4 | n.a. | n.a. |
| 1952 | 44.5 | 58.1 | n.a. | n.a. |
| 1953 | 36.2 | 44.4 | n.a. | n.a. |
| 1954 | 34.4 | 45.2 | n.a. | n.a. |
| 1955 | 40.1 | 51.8 | 0.72 | n.a. |
| 1956 | 39.8 | 53.9 | .83 | n.a. |
| 1957 | 36.8 | 48.5 | .44 | n.a. |
| 1958 | 35.9 | 48.2 | .40 | n.a. |
| 1959 | 36.4 | 47.9 | .67 | 1.07 |
| 1960 | 25.0 | 34.8 | 1.07 | 1.65 |
| 1961 | 18.1 | 37.9 | .75 | |
| 1962 | 28.7 | 40.7 | .85 | 1.61 |
| 1963 | 32.7 | 46.4 | 1.00 | 1.32 |
| 1964 | 37.0 | 54.6 | 1.35 | 1.62 |
| 1965 | 46.6 | 65.5 | 1.66 | 1.76 |
| 1966 | 34.6 | 47.3 | 1.50 | 1.68 |
| 1967 | 43.9 | 75.8 | | 1.64 |
| 1968 | | 111.4 | | |
| 1969 | | | | |
| 1970 | | | | |
| 1971 | | | | |
| 1972 | | | | |

Source: 1/ Canadian Fisherman (meat weight)
2/ Fishery Statistics of the U.S. (meat weight)
3/ FAO Yearbook (round weight)

# X U.S. TRADE BARRIERS

Table X-1 -- Present U. S. Tariff Structure for Scallops

| Product Description | Rates of Duty | | | U.S. Imports - 1968 | |
|---|---|---|---|---|---|
| | June 30, 1967 | Jan. 1, 1969 | K-R Concession (Jan. 1, 1972) | Quantity | Value |
| Item 114.45 Stat. Suffix 37 | | | | | |
| Shellfish, fresh, chilled, frozen, prepared or preserved (including pastes and sauces): | | | | | |
| Other shellfish | Free | Free | Free | 14,581,029 | 15,709,080 |
| Scallops | | | | | |

Table X-2--Historical Synopsis of Trade Investigations for Scallops 1/

1. Section 9(b) of the Fish and Wildlife Act of 1956

None

2. Escape Clause under Executive Orders and the T.E.A. of 1951, as amended (T.C.)

None

3. Section 301 of the T.E.A. of 1962 (T.C.)

None

4. Section 332 of the T.E.A. of 1930 (Investigations by the Tariff Commission)

None

5. Antidumping under Antidumping Act of 1921 (Customs Bureau)

None

6. Counterveiling (Section 303 of T.E.A. of 1930 Customs Bureau)

None

1/ Antidumping information checked since 1954; for Section 332 and counterveiling no summary lists available and an inquiry into a number of cases has not been completed.

# XI GOVERNMENT PROGRAMS

—Subsidies

—Mortgage insurance

—Loans

—EDA projects

—BCF expenditures

—Federal aid to states

Table XI-1.--Bureau of Commercial Fisheries programs and expenditures on sea scallops, fiscal years 1960-69

| Bureau of Commercial Fisheries Program: | 1960 | 1961 | 1962 | 1963 | 1964 |
|---|---|---|---|---|---|
| 1960 and 1964 Fishing Fleet Improvement Act | | | | | |
| a) Number of Vessels Constructed | - | - | - | - | - |
| b) Total Government Subsidies to Vessels Constructed (dollars) | - | - | -- | - | - |
| Mortgage Insurance Program | | | | | |
| a) Number of Vessels | - | - | - | 2 | - |
| b) Value of Mortgages (dollars) | - | - | - | 165,750 | - |
| Fisheries Loan Fund | | | | | |
| a) Number of Vessels Receiving Loans | 1 | 1 | 1 | - | 1 |
| b) Total value of Loans (dollars) | 47,500 | 70,000 | 98,400 | - | 30,000 |
| Other BCF Programs 1/ | n.a. | n.a. | n.a. | n.a. | n.a. |

Table XI.1 --Bureau of Commercial Fisheries programs and expenditures on sea scallops, fiscal years 1960-69 (Continued)

| Bureau of Commercial Fisheries Program | 1965 | 1966 | 1967 | 1968 | 1969 |
|---|---|---|---|---|---|
| 1960 and 1964 Fishing Fleet Improvement Act | | | | | |
| a) Number of Vessels Constructed | 1 | 5 | 3 | - | - |
| b) Total Government Subsidies to Vessels Constructed (dollars) | 154,847 | 835,713 | 536,161 | - | - |
| Mortgage Insurance Program | | | | | |
| a) Number of Vessels | - | 2 | 3 | - | - |
| b) Value of Mortgages (dollars) | - | 332,250 | 409,500 | - | - |
| Fisheries Loan Fund | | | | | |
| a) Number of Vessels Receiving Loans | - | - | - | 1 | 3 |
| b) Total Value of Loans (dollars) | - | - | - | 105,850 | 184,863 |
| Other BCF Programs 1/ | n.a. | n.a. | 1,100,000 | 200,000 | 200,000 |

Source: Division of Financial Assistance, Bureau of Commercial Fisheries.

1/ 1971 Program Memorandum, U.S. Department of the Interior, Living Aquatic Resources.

Table XI.2 -- Estimated Economic Development Administration Expenditures, by Program, May 1961 - May 1969 1/
Sea Scallops

| Program/Project | Amount |
|---|---|
| Public Works Grants and Loans: | |
| New Bedford, Massachusetts Harbor facilities, etc. | $778,000 |
| New Bedford, Massachusetts, Improvement for freezer plant | 100,000 |
| Total Public Works | $878,000 |
| Business Loans: | --- |
| Technical Assistance Grants: | |
| Dukes County, Massachusetts Shellfish Study | $ 30,000 |
| New Bedford, Massachusetts Scallop and Flounder Study | 50,000 |
| Total Technical Assistance | $ 80,000 |
| Grand Total | $958,000 |

1/ Includes available information on expenditures under the predecessor agency, the Area Redevelopment Administration. Estimates represent an attempt to prorate the total amount of EDA funding applicable to the fishing industry in multi-industry projects and to a particular fishery in multi-fishery projects.

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50. A Survey of Fish Purchases by Socio-Economic Characteristics - Annual Report by Darrel A. Nash.

51. Basic Economic Indicators-Atlantic Groundfish.

52. Basic Economic Indicators-Halibut.

53. Basic Economic Indicators-Northern Lobsters.

54. Basic Economic Indicators-Sea Scallops.

55. Basic Economic Indicators-Clams.

56. Basic Economic Indicators-Oysters.

57. Basic Economic Indicators-Shrimp.

58. Basic Economic Indicators-Blue Crabs.

59. Basic Economic Indicators-King and Dungeness Crabs.

60. Basic Economic Indicators-Menhaden.

61. Basic Economic Indicators-Tuna.

62. Basic Economic Indicators-Salmon.

The goal of the Division of Economic Research is to engage in economic studies which will provide industry and government with costs, production and earnings analyses; furnish projections and forecasts of food fish and industrial fish needs for the U. S.; develop an overall plan to develop each U. S. fishery to its maximum economic potential and serve as an advisory service in evaluating alternative programs within the Bureau of Commercial Fisheries.

In the process of working towards these goals an array of written materials has been generated representing items ranging from interim discussion papers to contract reports. These items are available to interested professionals in limited quantities of offset reproduction. These "Working Papers" are not to be construed as official BCF publications and the analytical techniques used and conclusions reached in no way represent a final policy determination endorsed by the U. S. Bureau of Commercial Fisheries.