



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

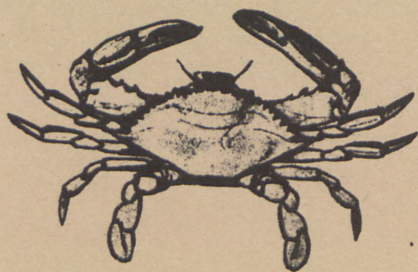
Help ensure our sustainability.

Give to AgEcon Search

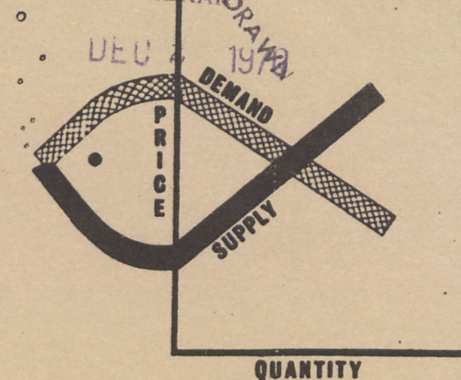
AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Annual Shelf



GIANNINI FOUNDATION OF
AGRICULTURAL ECONOMICS
LIBRARY



BASIC ECONOMIC INDICATORS

BLUE CRABS

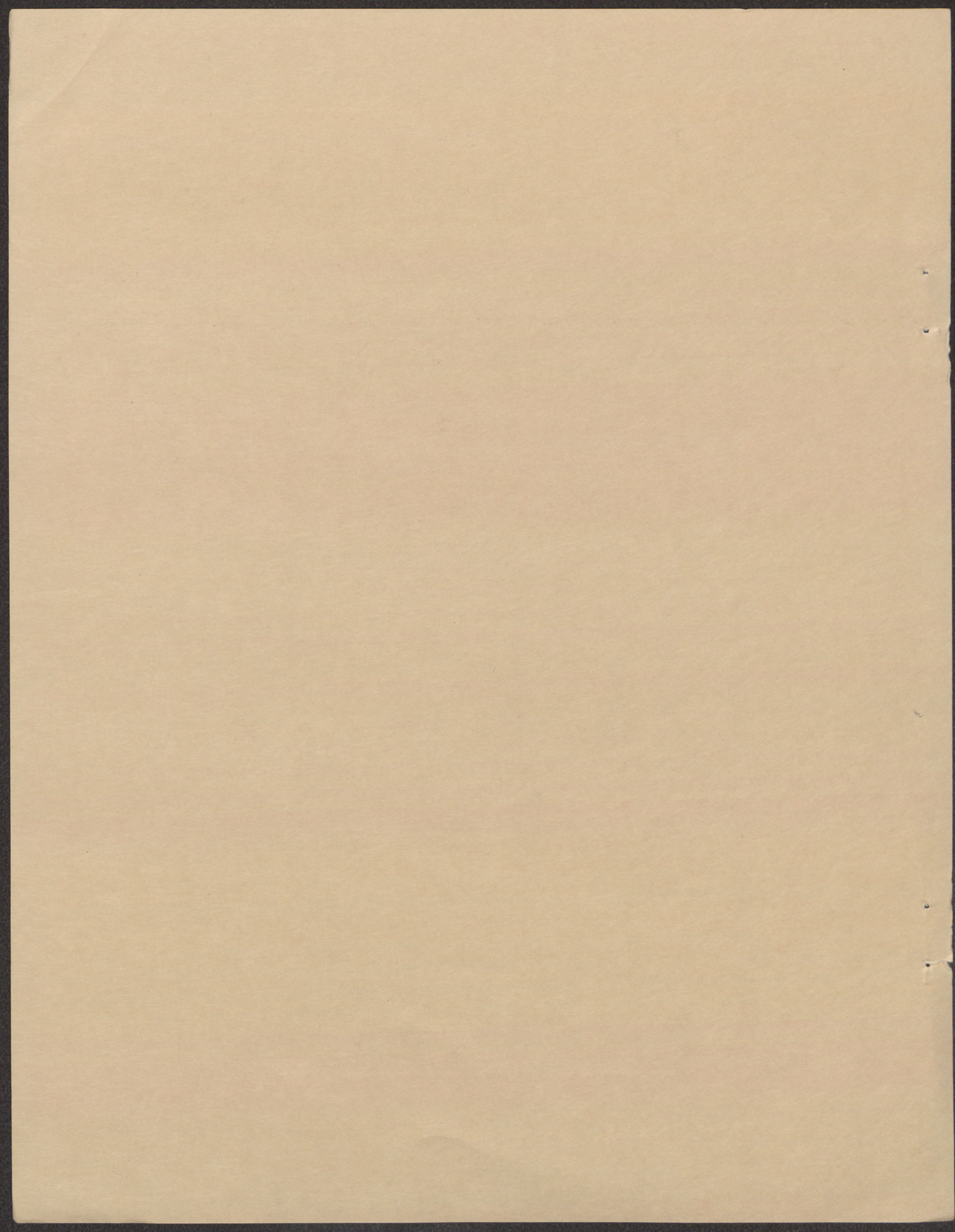
Master Plan Fishery 50 10 30

Working Paper No. 58

May 1970

205

BUREAU OF COMMERCIAL FISHERIES
DIVISION OF ECONOMIC RESEARCH

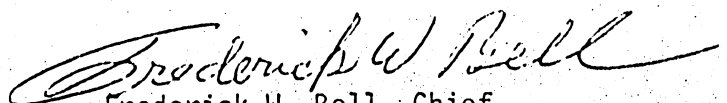


Foreward

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, Chief

Division of Economic Research

CRABS

MILLIONS OF POUNDS

420
380
340
300
260
220
180
140
100
60
20

PERCENT OF TOTAL SUPPLY

100
90
80
70
60
50
40
30
20
10

U.S. LANDINGS

IMPORTS AS A PERCENTAGE OF TOTAL SUPPLY

IMPORTS

1947 1949 1951 1953 1955 1957 1959 1961 1963 1965 1967 1969 1971

MILLIONS OF DOLLARS

55
45
35
25
15
5

VALUE OF LANDINGS

VALUE OF IMPORTS

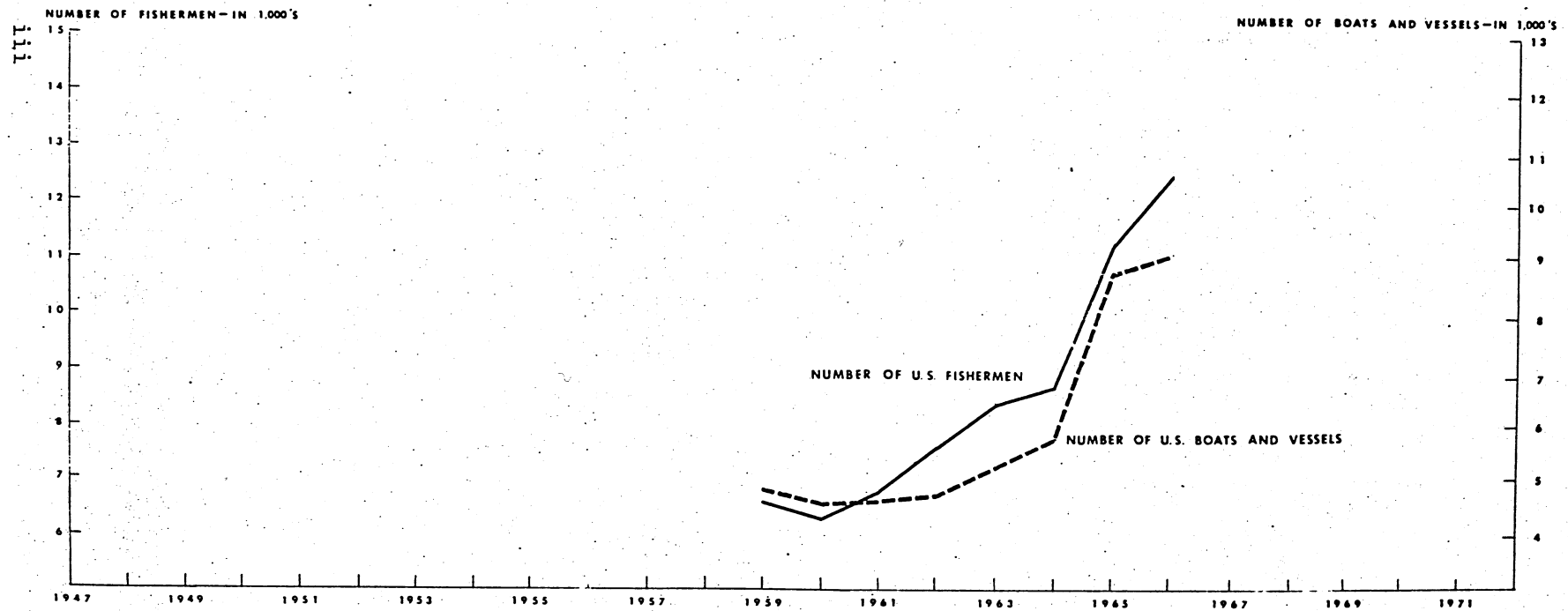
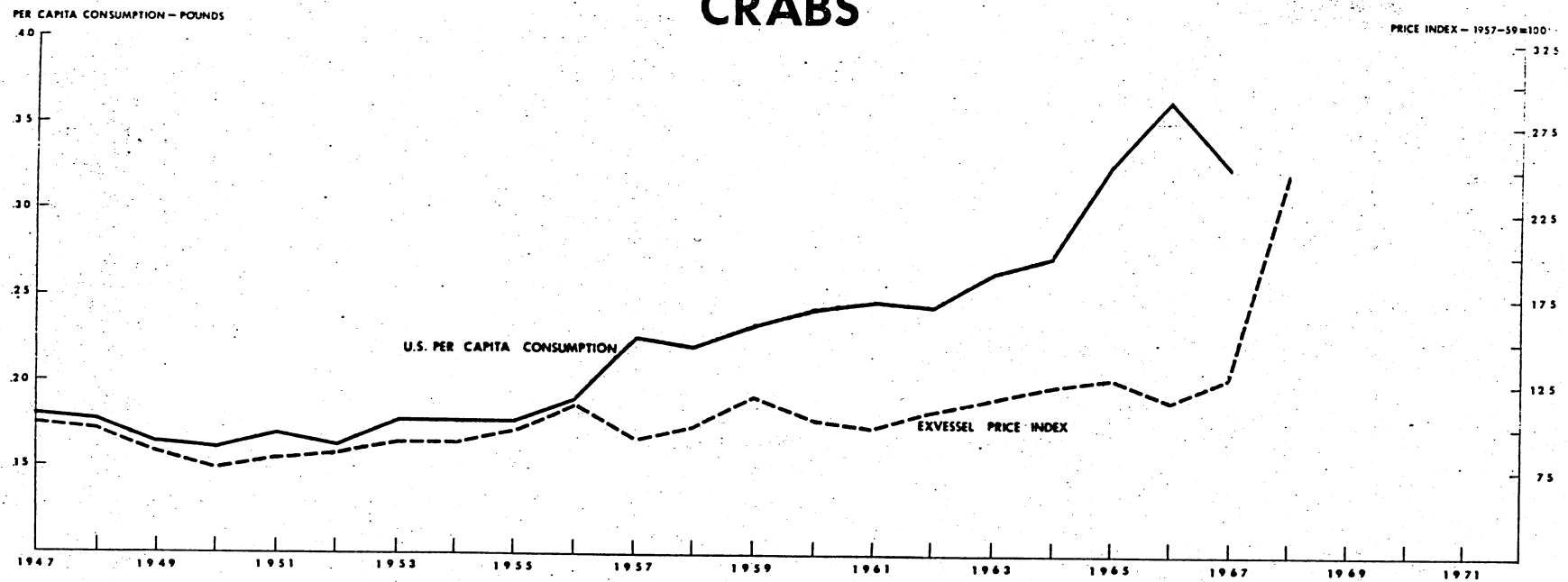
1947 1949 1951 1953 1955 1957 1959 1961 1963 1965 1967 1969 1971

MASTER PLAN FISHERY 50 10 30 AND 50 10 33

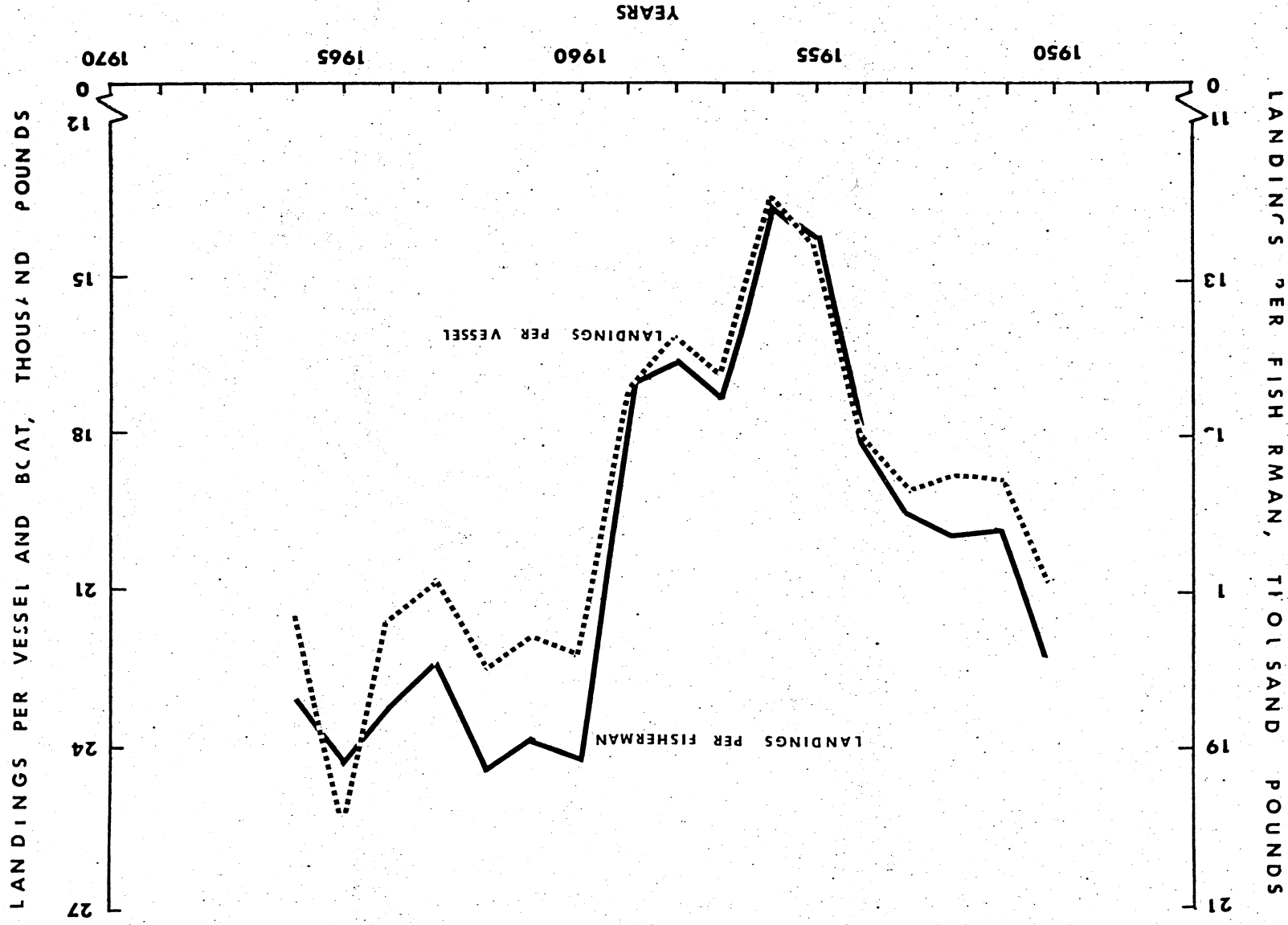
DIVISION OF ECONOMIC RESEARCH

BUREAU OF COMMERCIAL FISHERIES

CRABS



PRODUCTIVITY OF BLUE CRAB FISHERMEN AND VESSELS AND BOATS



List of Tables

I Industry Performance Indicators

- Table I-1: Average cost and earnings of blue crab vessels
- Table I-2: Earnings of blue crab fishermen
- Table I-3: Productivity of blue crab fishermen and vessels
- Table I-4: Costs per pound of blue crab
- Table I-5: Historical growth rate of blue crab landings, fishermen and vessels

II Demand Indicators

- Table II-1: U.S. aggregate and per capita consumption of blue crabs, 1947-68
- Table II-2: U.S. consumption of crabs (all forms, fresh and frozen) by socio-economic characteristics, 1969
- Table II-3: Blue crab prices: Exvessel, wholesale and retail
- Table II-4: Value of blue crab landings, wholesale and retail
- Table II-5: Retail blue crab prices relative to the consumer price index and the consumer price index of meat, poultry, and fish, 1947-68
- Table II-6: Index of seasonal demand for hard crabs by market area
- Table II-7: Price and income elasticities for crabs (all forms)

III Demand Projections

- Table III-1: Demand projections for crabs, U.S. and world, to the year 2000

IV Domestic Production

- Table IV-1: Landings and value of Atlantic and Gulf blue crabs
- Table IV-2: Landings of Atlantic and Gulf blue crabs by region
- Table IV-3: Supply and disposition of crabs (all forms) in the U.S.

V Domestic Employment, Vessels and Effort

- Table V-1: Number of fishermen and vessels for blue crabs
- Table V-2: Vessels and boats in U.S. blue crab fisheries
- Table V-3: Fishermen in U.S. blue crab fisheries

VI Biological Stock Assessments

- Table VI-1: Estimates of maximum sustainable yield from world stocks of blue crabs
- Table VI-2: Estimate of maximum sustainable yield for blue crabs in waters fished by U.S. fishermen

VII International Trade

- Table VII-1: Quantity and value of imports of blue crabs to the U.S.

VIII Foreign Production

- Table VIII-1: World landings of crabs by country
- Table VIII-2: World landings, international trade and consumption of crabs, 1967

IX Foreign Consumption

- Table IX-1: World aggregate consumption of crabs by major consuming countries
- Table IX-2: World per capita consumption of crabs by major consuming countries

Table IX-3: World crab prices by country and species

X U.S. Trade Barriers

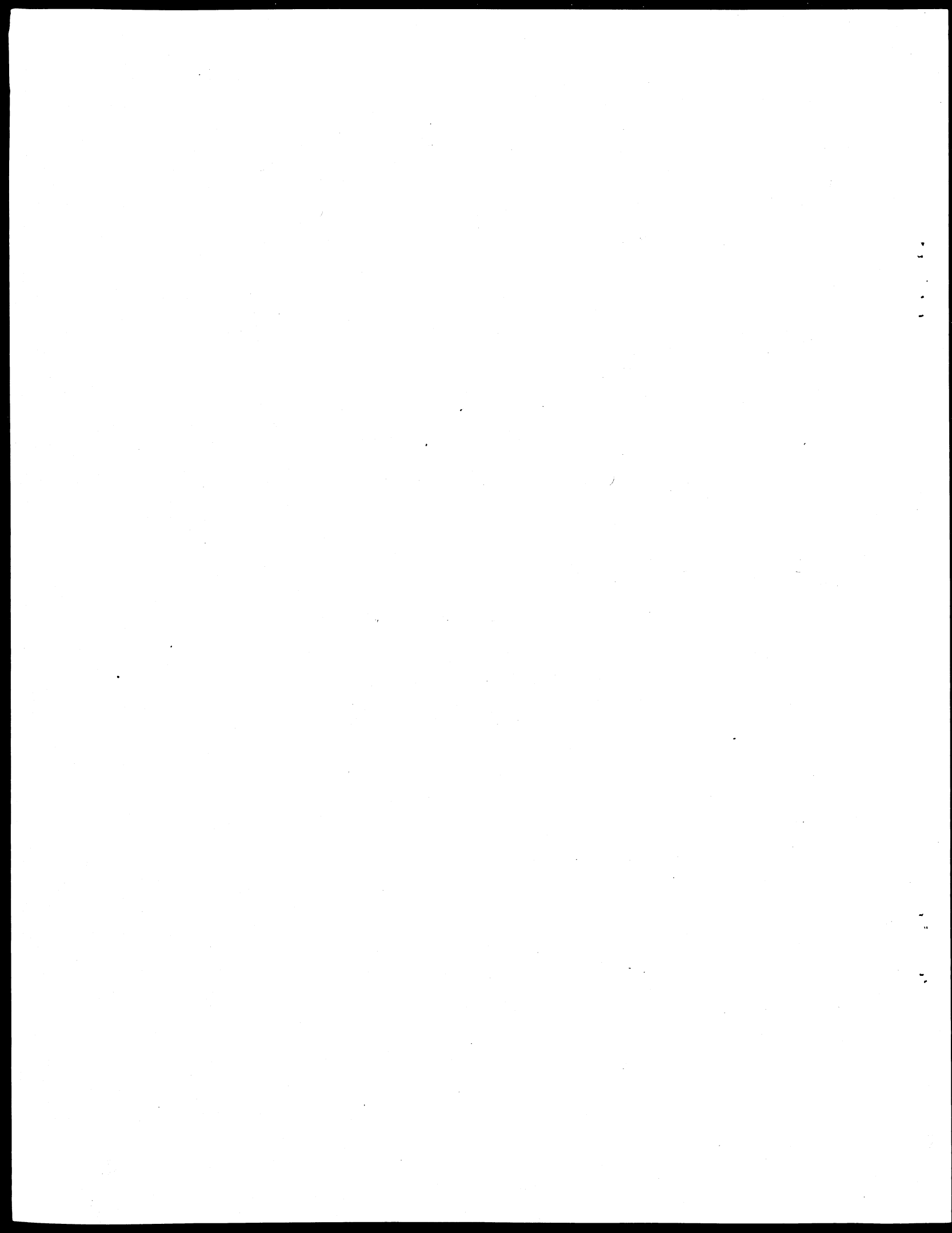
Table X-1: Present U.S. tariff structure for crabs

Table X-2: Historical synopsis of trade investigations for
crabs

XI Government Programs

Table XI-1: Bureau of Commercial Fisheries programs and expenditures
on blue crabs, fiscal years 1965-69

Table XI-2: Estimated Economic Development Administration
expenditures for blue crab by program, May 1961-
May 1969



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.--Average cost and earnings of blue crab vessels

NO DATA AVAILABLE

Table I-2.--Earnings of blue crab fishermen

NO DATA AVAILABLE

Table I-3.--Productivity of blue crab fishermen and vessels.

	Landings per fisherman	Landings per vessel and boat
	Pounds <u>1/</u>	Pounds <u>1/</u>
1947	n.a.	n.a.
1948	n.a.	n.a.
1949	n.a.	n.a.
1950	17,016	20,719
1951	16,198	18,996
1952	16,267	18,873
1953	15,823	19,311
1954	15,054	18,016
1955	12,517	14,636
1956	12,039	13,633
1957	14,558	16,854
1958	14,033	16,216
1959	14,256	17,412
1960	19,184	22,294
1961	18,952	21,964
1962	19,378	22,388
1963	17,884	20,825
1964	18,510	21,440
1965	19,276	21,943
1966	18,400	21,552
1967		
1968		
1969		
1970		
1971		
1972		

Source: Fishery Statistics of the U.S.

1/ Figures are on round weight basis.

Table I-4.--Cost per pound of blue crab

NO DATA AVAILABLE

Table I-5--Historical growth rate of blue crab landings,
fisherman and vessels

Landings <u>1</u> / (1950-1966)	+ 3.10 Percent per year
Fisherman <u>2</u> / (1950-1966)	+ 1.61 Percent per year
Vessels <u>3</u> / (1950-1966)	+ 1.42 Percent per year

1/ Log of landings (thou. lbs.) = $4.9818 + 0.0136 \text{ time}$
(5.24)*

2/ Log of number of fishermen = $3.8250 + 0.0074 \text{ time}$
(6.77)*

3/ Log of number of vessels = $3.7622 + 0.0068 \text{ time}$
(5.07)*

* Indicates T value

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

Table II-1.--U.S. aggregate and per capita consumption of blue crabs,
1947-68

(Meat Weight)		
	Aggregate ^{1/} Thousand pounds ^{2/}	Per Capita Pounds
1947	n.a.	n.a.
1948	n.a.	n.a.
1949	n.a.	n.a.
1950	19,226	.127
1951	17,439	.113
1952	15,896	.102
1953	16,857	.106
1954	15,485	.096
1955	15,448	.094
1956	14,996	.089
1957	17,344	.101
1958	16,917	.097
1959	17,764	.100
1960	23,591	.131
1961	23,296	.127
1962	23,671	.127
1963	22,152	.117
1964	23,957	.125
1965	26,119	.135
1966	25,925	.132
1967	22,117	.112
1968	16,699	.084
1969		
1970		
1971		
1972		

Source: Fishery Statistics of the U.S.

^{1/} Based on landing figures only. There is no reported international trade in blue crabs; the U.S. is the only country which reports landings. Yearly changes in U.S. stocks are not available for blue crabs and are not reflected in the above consumption figures.

^{2/} Conversion factor for meat weight to round weight is .1525.

Table II-2 -- U.S. consumption of crabs (all forms, fresh and frozen) by socio-economic characteristics, 1969^{1/}
(Retail Weight)

Socio-Economic Characteristics	1969				Total
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
	-----Pounds, per capita-----				-
<u>RACE</u>					
Negro	.047	.141	.087	.013	.288
White	.046	.032	.033	.039	.150
Other	.075	.000	.150	.663	.858
Not specified	.080	.000	.000	.029	.109
<u>RELIGION</u>					
Catholic	.046	.027	.047	.028	.148
Jewish	.048	.033	.000	.116	.197
Protestant	.046	.041	.030	.038	.155
Other	.050	.000	.307	.062	.419
Not specified	.042	.000	.000	.000	.042
<u>INCOME PER CAPITA</u>					
Under 1,000	.018	.003	.002	.005	.028
1,000-1,999	.040	.027	.034	.042	.143
2,000-2,499	.020	.046	.014	.017	.097
2,500-2,999	.079	.070	.031	.046	.226
3,000-3,499	.030	.020	.023	.018	.091
3,500 & over	.093	.056	.067	.068	.284
<u>OCCUPATION</u>					
Prof. & semiprofessional	.026	.023	.026	.055	.130
Proprietors, managerial	.052	.046	.030	.039	.167
Clerical & sales	.062	.032	.031	.048	.173
Craftsmen, foremen	.038	.027	.028	.050	.143
Head operative	.034	.028	.035	.007	.104
Service workers, & laborers	.066	.062	.061	.025	.214
<u>EDUCATION</u>					
Less than 4 yr. high school	.045	.033	.034	.042	.154
Less than 4 yr college	.046	.045	.033	.041	.165
College grad.	.052	.029	.042	.061	.184
Head, not spec.	.000	.000	.030	.018	.048
<u>REGION</u>					
New England	.045	.087	.017	.009	.158
Middle Atlantic	.042	.009	.045	.031	.127
E. North Cent.	.002	.004	.006	.005	.017
W. North Cent.	.004	.000	.001	.000	.005
South Atlantic	.062	.059	.055	.039	.215
E. South Cent.	.083	.036	.063	.024	.206
W. South Cent.	.014	.073	.008	.003	.098
Mountain	.046	.006	.024	.078	.154
Pacific	.152	.103	.100	.176	.531

Source: Division of Economic Research, Bureau of Commercial Fisheries

^{1/} Purchases by households for home use.

Table II-3.--Blue crab prices: Exvessel, wholesale, and retail

	(Round Weight)		
	Exvessel ^{1/}	Wholesale ^{2/}	Retail ^{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	4.7	15.7	22.4
1951	4.9	16.3	23.3
1952	4.9	16.3	23.3
1953	5.2	17.3	24.8
1954	5.0	16.7	23.8
1955	5.9	19.7	28.1
1956	6.8	22.7	32.4
1957	6.6	22.0	31.4
1958	6.1	20.3	29.0
1959	6.9	23.0	32.9
1960	5.9	19.7	28.1
1961	5.3	17.7	25.2
1962	5.8	19.3	27.6
1963	6.2	20.7	29.5
1964	7.1	23.7	33.8
1965	7.5	25.0	35.7
1966	6.6	22.0	31.4
1967	5.9	19.9	27.7
1968	9.9	33.0	47.1
1969			
1970			
1971			
1972			

Source: Fishery Statistics of the U.S., BCF, DER.

^{1/} Weighted average price derived by dividing value of landings into landings.

^{2/} Estimated by applying marketing margins in 1967 to the exvessel price

Table II-4.--Value of blue crab landings, wholesale, and retail

	Exvessel	Wholesale ^{1/}	Retail ^{1/}
	-----Thousand dollars-----		
1947	n.a.	n.a.	n.a.
1948	n.a.	n.a.	n.a.
1949	n.a.	n.a.	n.a.
1950	5,881	19,603	28,005
1951	5,703	19,010	27,157
1952	5,092	16,973	24,248
1953	5,744	19,147	27,352
1954	5,027	16,757	23,938
1955	5,967	19,890	28,414
1956	6,660	22,200	31,714
1957	7,483	24,943	35,633
1958	6,813	22,710	32,443
1959	8,047	26,823	38,319
1960	9,176	30,587	43,695
1961	8,149	27,163	38,805
1962	8,993	29,977	42,824
1963	9,014	30,047	42,924
1964	11,153	38,433	53,110
1965	12,848	42,827	61,180
1966	11,208	37,360	53,371
1967	8,603	28,677	40,966
1968	10,800	36,000	51,428
1969			
1970			
1971			
1972			

Source: Fishery Statistics of the U.S.

^{1/} Estimated by applying marketing margins in 1967 to the exvessel price.

Table II-5.--Retail blue crab prices relative to the consumer price index and the consumer price index of meat, poultry and fish, 1947-68

(Round Weight)			
	Retail ^{1/}	Retail/CPI ^{2/}	Retail/CPImp ^{3/}
	-----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	22 4	26.7	23.6
1951	23.3	25.7	21.9
1952	23.3	25.2	22.1
1953	24.8	26.6	24.9
1954	23.8	25.4	24.3
1955	28.1	30.1	30.5
1956	32.4	34.2	36.8
1957	31.4	32.0	32.9
1958	29.0	28.8	27.8
1959	32.9	32.4	32.8
1960	28.1	27.3	28.4
1961	25.2	24 2	25.4
1962	27.6	26.2	27.1
1963	29.5	27.6	29.4
1964	33.8	31.3	34.3
1965	35.7	32.5	34.0
1966	31.4	27.8	27.5
1967	27.7	23.8	24.9
1968	47.1	38 9	41.4
1969			
1970			
1971			
1972			

Source: Division of Economic Research, BCF

^{1/} Estimated (See Table II-3)

^{2/} Consumer Price Index, 1957-59=100

^{3/} Consumer Price Index for meat, poultry, and fish, 1957-59=100

Table II-6.--Index of seasonal demand for hard crabs by
market area 1/

Month	Fulton Fish Market
January	88.2
February	89.0
March	92.6
April	98.2
May	104.5
June	109.9
July	112.4
August	111.4
September	107.1
October	101.0
November	95.0
December	90.4

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

1/ 100 equals average monthly demand.

Table II-7.--Price and income elasticities for crabs (all forms)

Price elasticity = -0.1487

Income elasticity = 1.8789

Demand Equation for United States

$$C/N = -5.9941 - 0.1487 \log \left[\frac{P}{CPI} \right] \\ + 1.8789 \log \left[\frac{Y/CPI}{N} \right]$$

C/N = Crabs consumption per capita

P/CPI = Price of crabs divided by Consumer

Price Index (CPI)

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

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

III DEMAND PROJECTIONS

-U.S. Consumption
Aggregate
Per capita

Table III-1.--Demand projections for crabs,
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
	<u>Pounds^{2/}</u>	<u>Millions</u>	<u>-----Million pounds^{2/}-----</u>	
1966 (actual)	1.60	195.9	313	750
1970	2.01	206.0	413	930
1975	2.36	219.4	518	1,110
1980	2.63	235.2	618	1,262 *
1985	2.66	252.9	672	1,262
1990	2.57	270.8	695	1,262
2000	2.43	307.8	747	1,262

- 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

* Reaches MSY

IV DOMESTIC PRODUCTION

—Landings

—Value

Table IV-1.--Landings and value of Atlantic and Gulf blue crabs^{1/}

(Round Weight)		
	Landings	Value
	<u>Thousand pounds</u>	<u>Thousand dollars</u>
1947	n.a.	n.a.
1948	n.a.	n.a.
1949	n.a.	n.a.
1950	126,073	5,881
1951	114,356	5,703
1952	104,236	5,092
1953	110,540	5,744
1954	101,541	5,027
1955	101,297	5,967
1956	98,337	6,660
1957	113,728	7,483
1958	110,934	6,813
1959	116,488	8,047
1960	154,697	9,176
1961	152,758	8,149
1962	155,218	8,993
1963	145,257	9,014
1964	157,092	11,153
1965	171,269	12,848
1966	169,999	11,208
1967	145,027	8,603
1968	109,500	10,800
1969		
1970		
1971		
1972		

Source: Compiled from data published in Fishery Statistics of the U.S.

^{1/} Includes hard, soft, and peeler crabs.

Table IV-2.--Landings of Atlantic and Gulf blue crabs,^{1/}
by region

	New England states	Middle Atlantic states	Chesapeake states	South Atlantic states
	-----Thousand pounds, round weight-----			
1947	4	1,882	65,355	n.a.
1948	4	2,145	67,947	n.a.
1949	3	4,297	67,626	n.a.
1950	1	6,575	80,046	20,271
1951	2	5,715	70,777	23,704
1952	4	2,386	64,831	24,500
1953	6	2,408	63,184	30,236
1954	32	3,838	54,743	29,878
1955	2	3,503	45,128	32,578
1956	4	4,290	50,598	26,809
1957	3	6,151	58,351	30,721
1958	3	3,346	49,462	35,620
1959	2	2,635	45,549	38,930
1960	3	3,700	70,716	44,877
1961	4	1,517	74,894	40,451
1962	2	3,571	86,571	38,829
1963	2/	1,419	66,129	50,852
1964	2/	894	78,608	52,083
1965	2/	1,496	86,334	46,214
1966	-	1,259	97,016	40,643
1967	-	757	79,699	37,423
1968				
1969				
1970				
1971				
1972				

Table IV-2.--Landings of Atlantic and Gulf blue crabs,^{1/}
by region (Continued)

	Total Atlantic states	Gulf states	Total U.S.
	-----Thousand pounds, round weight-----		
1947	n.a.	n.a.	n.a.
1948	n.a.	n.a.	n.a.
1949	n.a.	27,050	n.a.
1950	106,893	19,180	126,073
1951	100,198	14,158	114,356
1952	91,721	12,515	104,236
1953	95,834	14,706	110,540
1954	88,491	13,050	101,541
1			
1955	81,211	20,086	101,297
1956	81,701	16,636	98,337
1957	95,226	18,502	113,728
1958	88,431	22,503	110,934
1959	87,116	29,372	116,488
1960	119,296	35,401	154,697
1961	116,866	35,892	152,758
1962	128,973	26,245	155,218
1963	118,400	26,857	145,257
1964	131,585	25,507	157,092
1965	134,044	37,225	171,269
1966	138,918	31,081	169,999
1967	117,879	27,148	145,027
1968			109,500
1969			
1970			
1971			
1972			

Source: Fishery Statistics of the U.S.

^{1/} Blue crabs include hard, and soft and peeler crabs

^{2/} Less than 500 pounds

Table IV-3.--Supply and disposition of crabs (all forms) in the U.S.^{1/}

Year	Beginning ^{2/} stocks	Landings ^{3/}	Imports ^{4/}	Total	Ending ^{2/} stocks	Exports ^{5/}	Apparent total consumption
-----Million pounds, meat weight-----							
1947	.4	n.a.	0.5	n.a.	.4	.2	n.a.
1948	.4	n.a.	1.4	n.a.	.4	.1	n.a.
1949	.4	n.a.	2.3	n.a.	.5	.1	n.a.
1950	.5	20.1	4.1	24.7	.4	-	24.3
1951	.4	25.2	2.0	27.6	.5	-	27.1
1952	.5	23.0	2.2	25.7	.3	-	25.4
1953	.3	24.5	4.3	29.1	.7	-	28.4
1954	.7	24.3	3.3	28.3	.7	-	27.6
1955	.7	23.2	5.6	29.5	1.2	-	28.3
1956	1.2	25.3	5.9	32.4	1.6	-	30.8
1957	1.6	30.5	6.3	38.4	1.7	-	36.7
1958	1.7	29.6	6.0	37.3	1.4	-	35.9
1959	1.4	30.7	7.5	39.6	.8	-	38.8
1960	.8	38.3	5.1	44.2	1.2	-	43.0
1961	1.2	40.2	4.7	46.1	1.7	-	44.4
1962	1.7	40.3	4.0	46.0	1.8	-	44.2
1963	1.8	44.4	5.8	52.0	4.0	-	48.0
1964	4.0	47.3	5.0	56.3	6.6	-	49.7
1965	6.6	59.9	4.5	71.0	7.0	-	64.0
1966	7.0	67.8	2.4	77.2	6.1	-	71.1
1967	6.1	58.9	2.5	67.5	2.3	-	65.2
1968	2.3	44.4	6.7	53.4	6.7	-	46.7
1969							
1970							
1971							
1972							

Source: Division of Current Economic Analysis, BCF.

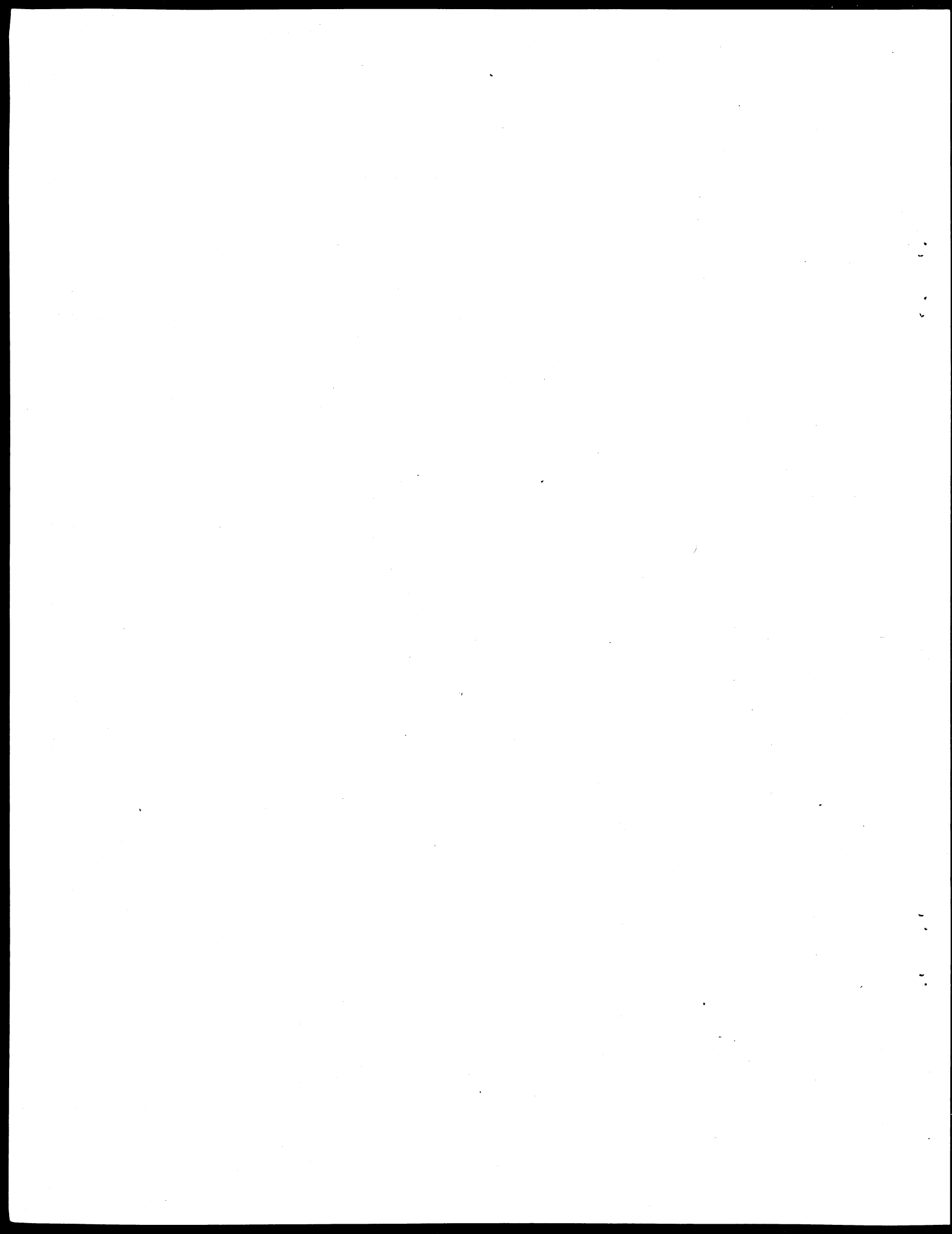
^{1/} This table includes figures for all types of crabs since separate data for international trade and changes in stocks is not available for blue crabs.

^{2/} Frozen stocks only. Reported frozen stocks estimated to be 80 percent meat weight.

^{3/} Landings converted to meat weights.

^{4/} Those figures are lower than reported import weights as fresh and frozen crabs were converted to meat weights.

^{5/} Included with miscellaneous shellfish exports after 1949.



V DOMESTIC EMPLOYMENT, VESSELS AND EFFORT

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

Table V-1.--Number of fishermen and vessels for blue crabs 1/

	Fishermen	Vessels <u>2/</u>
	-----Number-----	
1947	n.a.	n.a.
1948	n.a.	n.a.
1949	n.a.	n.a.
1950	7,409	6,085
1951	7,060	6,020
1952	6,408	5,523
1953	6,986	5,724
1954	6,745	5,636
1955	8,093	6,921
1956	8,168	7,213
1957	7,812	6,748
1958	7,905	6,841
1959	8,171	6,990
1960	8,064	6,939
1961	8,060	6,955
1962	8,010	6,933
1963	8,122	6,975
1964	8,487	7,327
1965	8,885	7,805
1966	9,239	7,888
1967		
1968		
1969		
1970		
1971		
1972		

Source: Fishery Statistics of the U.S.

1/ Includes fishermen and vessels in blue crab line fishery, pot fishery, otter trawl fishery, and dredge fishery.

2/ Includes all boats and vessels.

Table V-2.--Vessels and boats in U.S. blue crab fisheries 1/

	VESSELS				
	Line	Pot	Otter trawl	Dredge	Total
	fishery	fishery	fishery	fishery	Vessels
	-----Number-----				
1947	n.a.	n.a.	n.a.	n.a.	n.a.
1948	n.a.	n.a.	n.a.	n.a.	n.a.
1949	n.a.	n.a.	n.a.	n.a.	n.a.
1950	4	4	9	121	138
1951	3	3	11	127	144
1952	-	1	48	143	192
1953	5	1	77	142	225
1954	8	-	31	140	179
1955	8	96	18	138	260
1956	7	99	49	138	293
1957	21	82	53	167	323
1958	78	122	56	187	443
1959	77	220	110	193	600
1960	54	225	58	196	533
1961	76	297	41	210	624
1962	85	297	69	184	635
1963	75	351	90	194	710
1964	85	321	113	163	682
1965	97	378	112	151	738
1966	92	396	178	164	830
1967					
1968					
1969					
1970					
1971					
1972					

1/ These four fisheries account for more than 90 percent of the total catch.

Table V-2.--Vessels and boats in U.S. blue crab fisheries (Continued)

	BOATS				Total boats	Total boats & vessels
	Line fishery	Pot fishery	Otter trawl fishery	Dredge fishery		
	Numbers					
1947	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1948	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1949	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1950	3,707	1,999	175	66	5,947	6,085
1951	3,498	2,173	118	87	5,876	6,020
1952	3,268	1,886	79	98	5,331	5,523
1953	3,119	2,207	83	90	5,499	5,724
1954	2,863	2,340	138	116	5,457	5,636
1955	3,974	2,420	125	142	6,661	6,921
1956	4,161	2,492	109	158	6,920	7,213
1957	3,707	2,486	122	110	6,425	6,748
1958	3,848	2,282	162	106	6,398	6,841
1959	3,662	2,475	178	75	6,390	6,990
1960	3,412	2,692	196	106	6,406	6,939
1961	3,572	2,469	214	76	6,331	6,955
1962	3,381	2,631	211	75	6,298	6,933
1963	3,306	2,663	236	60	6,265	6,975
1964	3,266	3,039	284	57	6,646	7,327
1965	3,534	3,216	261	56	7,067	7,805
1966	3,480	3,317	248	13	7,058	7,888
1967						
1968						
1969						
1970						
1971						
1972						

Source: Fishery Statistics of the U.S.

Table V-3.--Fishermen in U.S. blue crab fisheries

Year	<u>Line fishery</u>		<u>Pot fishery</u>		<u>Otter trawl fishery</u>	
	On boats		On boats		On boats	
	On vessels	& shore	On vessels	& shore	On vessels	& shore
-----Number-----						
1947	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1948	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1949	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1950	8	4,215	9	2,338	26	313
1951	6	3,794	7	2,454	29	201
1952	-	3,460	2	2,098	96	158
1953	10	3,574	3	2,469	164	166
1954	16	3,086	-	2,664	62	276
1955	12	4,203	181	2,742	36	250
1956	8	4,251	188	2,735	100	189
1957	24	3,775	152	2,841	106	216
1958	83	3,922	221	2,575	112	264
1959	79	3,789	348	2,768	218	325
1960	56	3,563	355	2,970	118	328
1961	82	3,744	438	2,737	82	291
1962	89	3,565	402	2,898	138	304
1963	80	3,494	477	2,926	180	347
1964	89	3,410	512	3,301	226	413
1965	100	3,684	608	3,393	226	390
1966	95	3,743	590	3,670	348	328
1967						
1968						
1969						
1970						
1971						
1972						

Table V-3.--Fishermen in U.S. blue crab fisheries (Continued)

Year	Dredge fishery		Total		Total Fishermen
	On vessels	On boats & shore	On vessels	On boats & shore	
	Number				
1947	n.a.	n.a.	n.a.	n.a.	n.a.
1948	n.a.	n.a.	n.a.	n.a.	n.a.
1949	n.a.	n.a.	n.a.	n.a.	n.a.
1950	373	127	416	6,993	7,409
1951	426	143	468	6,592	7,060
1952	440	154	538	5,870	6,408
1953	419	181	596	6,390	6,986
1954	411	230	489	6,256	6,745
1955	395	274	624	7,469	8,093
1956	391	306	687	7,481	8,168
1957	496	212	778	7,034	7,812
1958	538	190	954	6,951	7,905
1959	511	133	1,156	7,015	8,171
1960	531	143	1,060	7,004	8,064
1961	569	117	1,171	6,889	8,060
1962	494	120	1,123	6,887	8,010
1963	514	104	1,251	6,871	8,122
1964	438	98	1,265	7,222	8,487
1965	406	78	1,340	7,545	8,885
1966	446	19	1,479	7,760	9,239
1967					
1968					
1969					
1970					
1971					
1972					

Source: Fishery Statistics of the U.S.

VI BIOLOGICAL STOCK ASSESSMENT

Table VI-1.--Estimates of maximum sustainable yield from world stock of blue crabs

Region	MSY Thou. metric tons
1. Atlantic West-Central Blue crab (<u>Callinectes</u> <u>sapidus</u>) (Longhurst, p. 35)	76.0 ^{1/}
2. Atlantic East-Central Blue crab (<u>Neptunus</u> <u>validus</u>) (Longhurst, p. 38)	10.0 ^{2/}
3. Pacific West-Central Blue crab (Portunid Swimming Crabs) (Longhurst, p. 57)	150.0 ^{2/}
4. Pacific East-Central Blue crab (Portunid Swimming Crabs) (Longhurst, p. 62)	7.5 ^{2/}
5. Atlantic Southwest Blue crab (Portunid Swimming crabs) (Longhurst, p. 67)	21.0
Total	264.5

Source: Longhurst, Alan R. "Survey of Crustacean Resources," Area Reviews on Living Resources of the Ocean, FAO Indicative World Plan for Agricultural Development, Bureau of Commercial Fisheries, La Jolla, California, 1969.

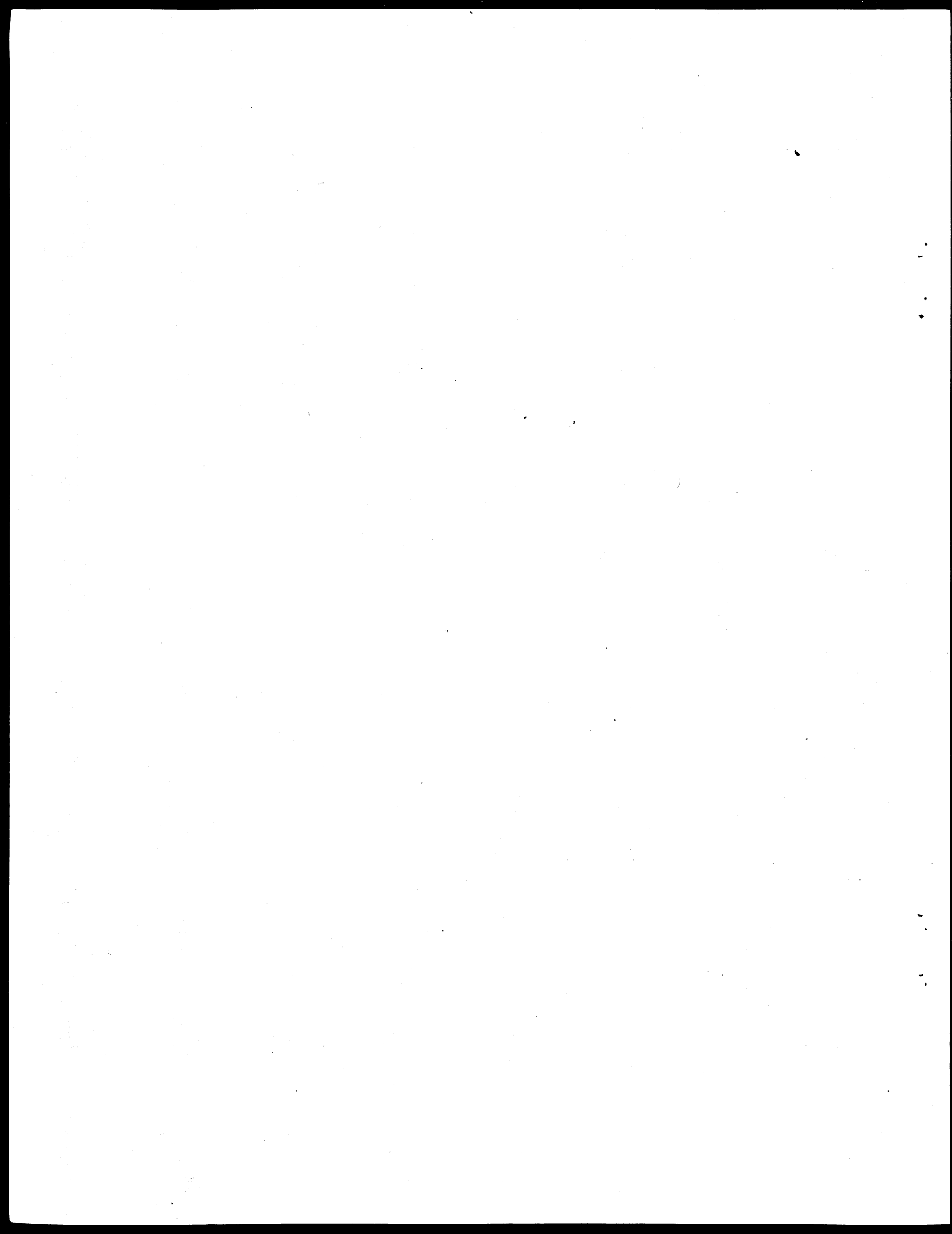
1/ The Callinectes sapidus, caught off the east coast of the U.S., is the only specie which has been significantly commercially exploited. It is also the only species reported by the FAO in the blue crab fishery.

2/ These species are the homologue to the Callinectes sapidus of the blue crab fishery in the western Atlantic. Their commercial catch to the present has been negligible and their MSY's are derived by analogy to the Callinectes on the eastern seaboard of the U.S.

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

Region	MSY <u>Thou. metric tons</u>
I. Atlantic west-central	<u>80.0</u>
Total	80.0

Source: Bureau of Commercial Fisheries, Division of Economic Research
Longhurst, Alan R., "Survey of Crustacean Resources," Area Review
on Living Resources of the World's Oceans, FAO Indicative World
Plan for Agricultural Development, Bureau of Commercial Fisheries,
La Jolla, California, 1969.



VII INTERNATIONAL TRADE

— Imports
Quantity
Value
Price

Table VII-1.--Quantity and value of imports of blue crabs to the U.S.

There is no reported international trade in the blue crab fishery. The only reported landings are off the East Coast and Gulf regions of the United States. The U.S. does not report its exports of blue crabs separately.

Homologous species are reported to be found in the East-Central Atlantic, the Southwest Atlantic, the West-Central Pacific, and the East-Central Pacific. These species, however, are not commercially exploited to any significant degree at the present time.

Source: Division of Economic Research, BCF

VIII FOREIGN PRODUCTION

—Landings

Table VIII-1. --World landings of crabs by country 1/

Year	U.S.	Japan	USSR	Brazil	Thailand	Other	Total
-----Million Pounds, round weight-----							
1947	162.3	50.1	n.a.	n.a.	n.a.	n.a.	n.a.
1948	169.3	59.1	33.3	n.a.	5.5	12.8	280.0
1949	119.7	n.a.	n.a.	n.a.	5.1	104.5	229.3
1950	132.9	n.a.	n.a.	n.a.	6.0	82.6	220.5
1951	118.4	n.a.	n.a.	n.a.	5.5	89.8	213.8
1952	137.1	57.5	n.a.	n.a.	5.1	23.0	308.6
1953	144.4	59.5	n.a.	n.a.	5.7	99.0	308.6
1954	140.9	107.8	81.6	n.a.	7.1	35.2	372.6
1955	136.6	152.3	82.6	n.a.	6.4	47.7	425.5
1956	143.7	141.7	79.6	n.a.	6.2	41.7	412.3
1957	179.2	130.7	65.7	n.a.	6.4	30.3	410.1
1958	170.8	130.2	68.1	4.9	n.a.	6.8	434.3
1959	166.0	127.0	71.0	9.0	n.a.	67.9	440.9
1960	221.8	141.3	80.9	7.3	n.a.	58.0	509.3
1961	231.7	139.3	85.1	16.1	n.a.	66.3	537.9
1962	233.0	151.2	91.3	14.1	n.a.	72.6	562.2
1963	252.6	157.0	93.7	17.9	20.1	58.3	599.6
1964	276.2	184.5	101.9	19.2	20.3	32.8	634.9
1965	334.9	140.2	97.9	22.7	24.3	63.4	683.4
1966	372.3	158.1	101.4	39.0	30.4	66.0	767.2
1967	326.3	190.0	93.2	32.8	30.4	70.7	751.8
1968	243.6	260.1	89.1	n.a.	n.a.	187.6	780.4
1969							
1970							
1971							
1972							

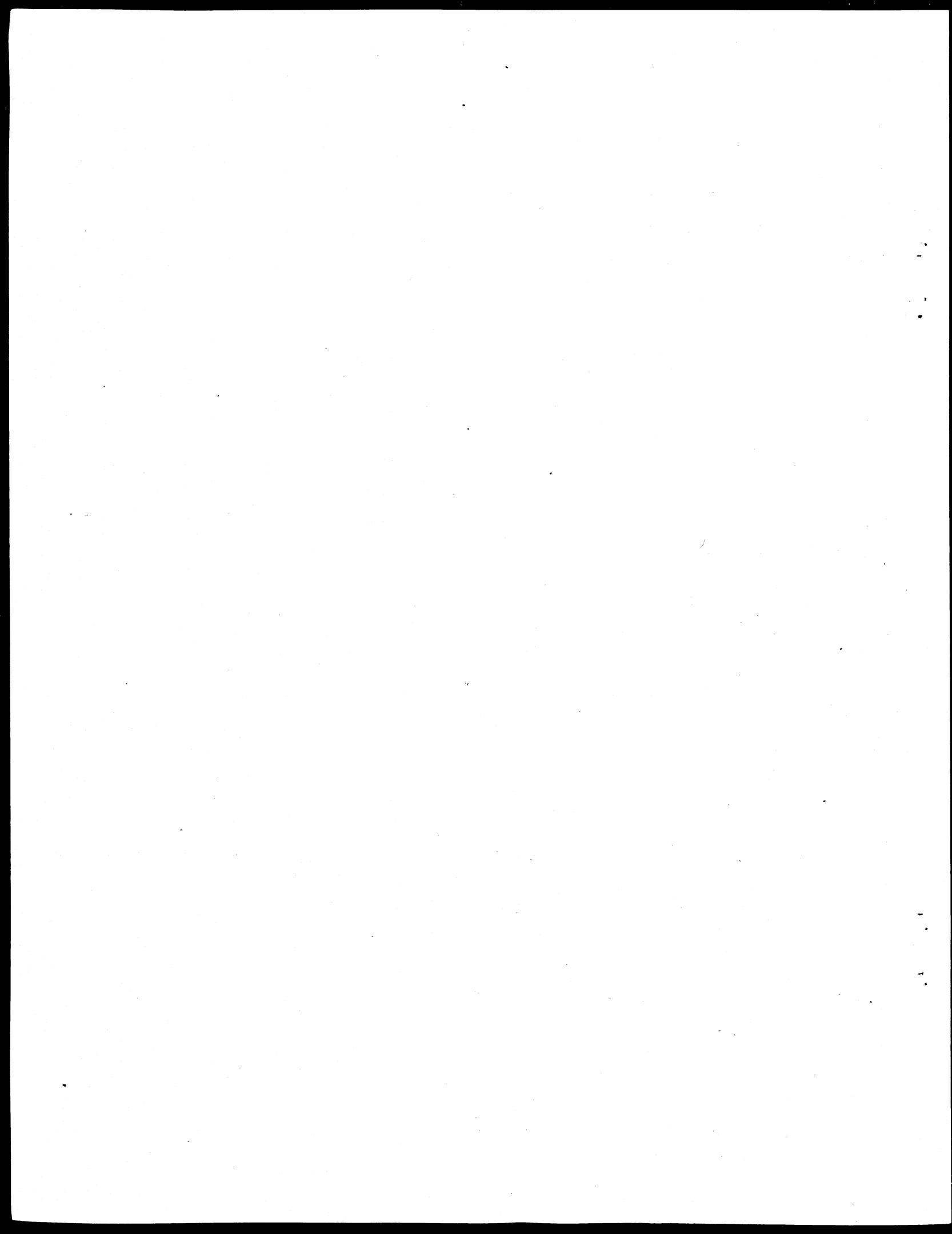
Source: FAO Yearbook of Fishery Statistics

1/ King, blue, dungeness, Zuwai, houseshoe, rock and all edible crab.

Table VIII-2. --World landings, international trade and consumption of crabs, 1967

Country	Landings	Exports	Imports	Consumption
	-----Million pounds round weight-----			
U.S.	315.2	--	12.5	327.7
Japan	187.3	30.6	--	156.7
USSR	93.3	58.6	--	34.6
U.K.	9.9	--	24.7	34.6
France	--	--	23.5	23.5
Other	146.1	4.7	33.2	174.7
Total	751.8	93.9	93.9	751.8

Source: Fishery Statistics of the United States and
FAO Yearbook of Fishery Statistics



IX FOREIGN CONSUMPTION

—Consumption
Aggregate
Per capita

—Prices

Table IX-1.--World aggregate consumption of crabs by major consuming countries

Year	United States	Japan	USSR	United Kingdom	France	Other	Total
	<u>Million pounds, round weight</u>						
1947	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1948	n.a.	30.9	n.a.	n.a.	n.a.	249.1	280.0
1949	n.a.	19.2	n.a.	n.a.	n.a.	210.1	229.3
1950	176.3	26.9	n.a.	n.a.	n.a.	17.3	220.5
1951	155.6	30.0	n.a.	n.a.	n.a.	28.2	213.8
1952	144.4	22.9	n.a.	n.a.	n.a.	55.4	222.7
1953	163.8	43.2	n.a.	n.a.	n.a.	101.6	308.6
1954	156.5	73.6	n.a.	n.a.	n.a.	142.5	372.6
1955	163.1	103.0	n.a.	n.a.	15.3	144.1	425.5
1956	171.6	76.1	12.6	70.9	10.6	70.5	412.3
1957	201.2	61.7	21.0	50.6	16.5	59.1	410.1
1958	194.7	58.6	19.9	60.0	15.3	81.4	429.9
1959	210.4	47.2	22.8	60.1	16.5	83.9	440.9
1960	245.6	103.6	37.4	46.3	15.3	61.1	509.3
1961	254.4	100.5	41.8	36.4	18.8	86.0	537.9
1962	252.1	116.0	56.0	39.0	14.1	85.0	562.2
1963	278.5	119.3	35.0	36.8	25.8	104.2	599.6
1964	292.5	114.2	39.6	44.4	29.4	114.8	634.9
1965	355.3	95.6	40.3	33.0	24.7	135.5	683.4
1966	381.3	121.7	45.0	33.9	23.5	161.8	767.2
1967	327.7	156.7	34.6	34.6	23.5	174.7	751.8
1968	272.3	212.5	33.8	23.9	20.0	217.9	780.4
1969							
1970							
1971							
1972							

Source: Original data from Fishery Statistics of the United States and FAO Yearbook of Fishery Statistics

Table IX-2. --World per capita consumption of crabs by
major consuming countries

Year	United States	Japan	USSR	United Kingdom	France
-----Pounds, round weight-----					
1947	n.a.	n.a.	n.a.	n.a.	n.a.
1948	n.a.	.384	n.a.	n.a.	n.a.
1949	n.a.	.234	n.a.	n.a.	n.a.
1950	1.161	.324	n.a.	n.a.	n.a.
1951	1.106	.355	n.a.	n.a.	n.a.
1952	.924	.269	n.a.	n.a.	n.a.
1953	1.031	.498	n.a.	n.a.	n.a.
1954	.967	.838	n.a.	n.a.	n.a.
1955	.988	1.158	n.a.	n.a.	.352
1956	1.021	.847	.063	1.380	.241
1957	1.176	.838	.103	.983	.372
1958	1.118	.642	.096	1.157	.341
1959	1.188	.512	.109	1.152	.364
1960	1.365	1.111	.175	.880	.334
1961	1.390	1.069	.192	.687	.407
1962	1.356	1.222	.253	.730	.300
1963	1.476	1.244	.156	.684	.540
1964	1.528	1.180	.174	.818	.607
1965	1.833	.975	.175	.604	.504
1966	1.946	1.230	.193	.617	.476
1967	1.656	1.560	.146	.625	.471
1968	1.362				
1969					
1970					
1971					
1972					

Source: Original data from Fishery Statistics of the United States and FAO Yearbook of Fishery Statistics.

Table IX-3. --World crab prices by country and species

Year	United States			Japan		USSR
	Blue	Dungeness	King	King	Zuwai	King
-----Cents per pound-----						
1947	n.a.	9.8	4.2	n.a.	n.a.	n.a.
1948	n.a.	10.4	4.5	n.a.	n.a.	n.a.
1949	n.a.	11.1	6.0	n.a.	n.a.	n.a.
1950	4.7	11.1	6.0	n.a.	n.a.	n.a.
1951	4.9	12.5	11.4	n.a.	n.a.	n.a.
1952	4.9	13.0	14.0	n.a.	n.a.	n.a.
1953	5.2	13.9	11.9	n.a.	n.a.	n.a.
1954	5.0	12.7	9.9	n.a.	n.a.	n.a.
1955	5.9	12.7	9.9	13.1	10.6	n.a.
1956	6.8	11.7	9.8	9.4	6.5	n.a.
1957	6.6	8.2	8.0	7.2	7.2	n.a.
1958	6.1	10.6	8.0	8.6	7.2	n.a.
1959	6.9	13.6	7.8	7.6	7.6	n.a.
1960	5.9	14.8	8.0	7.3	7.9	n.a.
1961	5.3	15.2	9.0	11.3	10.5	n.a.
1962	5.8	17.4	10.0	17.8	12.2	n.a.
1963	6.2	17.3	9.7	19.6	12.7	n.a.
1964	7.1	17.3	9.4	22.7	13.6	n.a.
1965	7.5	16.2	9.7	23.5	16.5	n.a.
1966	6.6	14.0	9.8	26.2	16.8	n.a.
1967	5.9	15.7	11.7	28.4	15.4	n.a.
1968	9.9	18.6	30.0			
1969						
1970						
1971						
1972						

Source: Original data from Fishery Statistics of the United States and FAO Yearbook of Fishery Statistics

X U.S. TRADE BARRIERS

Table X-1.--Present U.S. tariff structure for crabs^{1/}

Item	Stat. Suf.- fix	Product Description	Rates of Duty			U.S. Imports-1968	
			June 30, 1967	Jan. 1, 1969	K-R Concession (Jan. 1, 1972)	Quantity	Value
Crabs:							
Crabmeat:							
114.15	00	Fresh, chilled or frozen	15% ad. val.	12% ad. val.	7.5% ad. val.	1,483,983	2,085,656
Prepared or preserved (inc. pastes and sauces):							
114.20	00	Canned	22.5% ad. val.	18% ad. val.	11% ad. val.	4,635,055	5,272,502
114.25	00	Other	15% ad. val.	12% ad. val.	7.5% ad. val.	84,895	100,376
Other (whole or live)			Free	Free	Free		

Source: Division of Economic Research

^{1/} All forms

Table X-2.--Historical synopsis of trade investigations for crabs^{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)

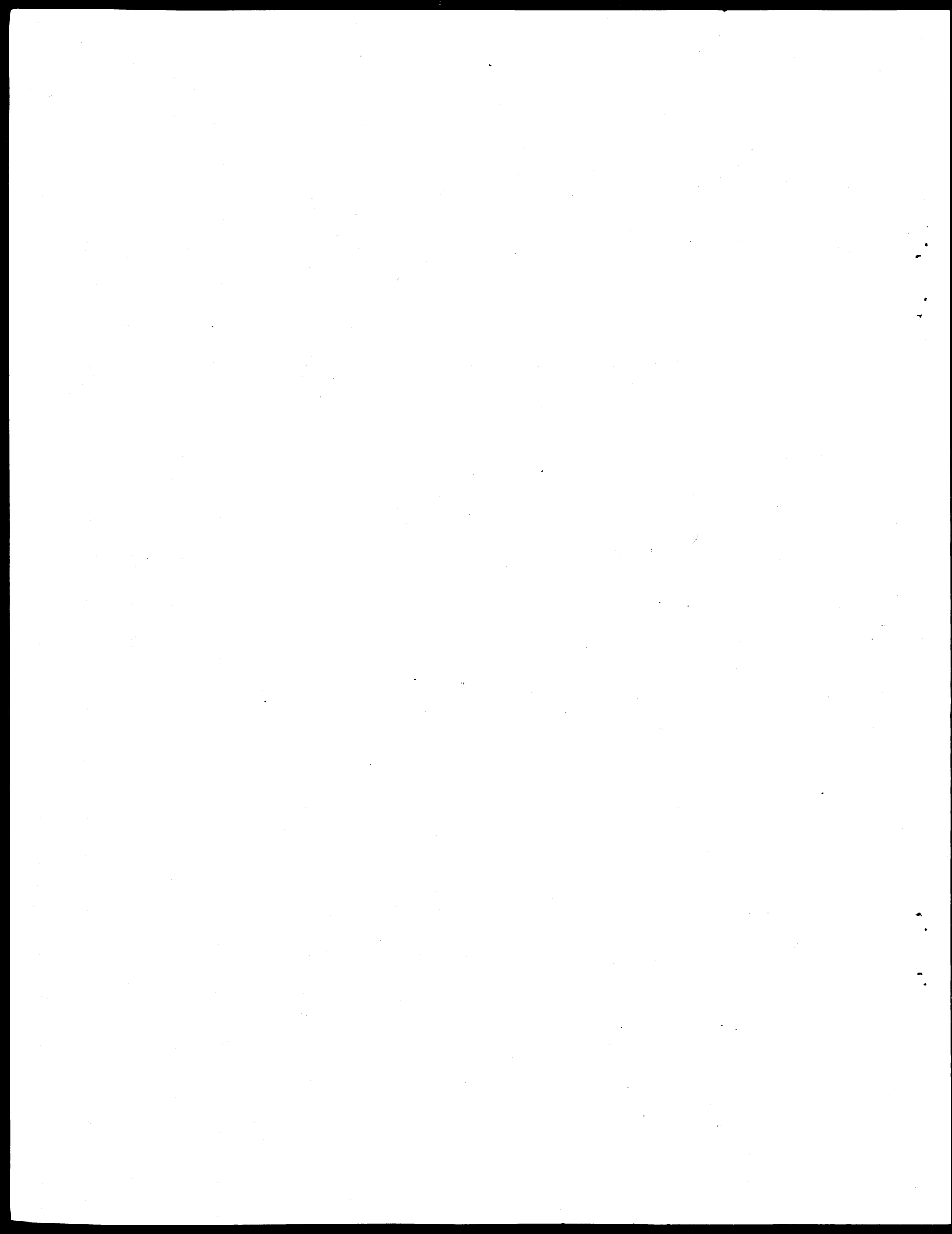
None

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

None

Source: Division of Economic Research

^{1/} Antidumping information echeck since 1954; for Section 332 and countervailing 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 blue crabs fiscal years 1965-69.

Bureau of Commercial Fisheries programs	1965	1966	1967	1968	1969
<u>1960 and 1964 Fishing Fleet Improvement Act</u>					
a) Number of Vessels Constructed	-	-	-	-	-
b) Total Government Subsidies to Vessels Constructed (dollars)	-	-	-	-	-
<u>Mortgage Insurance Program</u>					
a) Number of Vessels	-	-	-	-	-
b) Value of Mortgages (dollars)	-	-	-	-	-
<u>Fisheries Loan Fund</u>					
a) Number of Vessels Receiving Loans	-	-	-	-	-
b) Total Value of Loans (dollars)	-	-	-	-	-
Other BCF Programs <u>1/</u> (dollars)	n.a.	n.a.	400,000	100,000	100,000

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
for blue crab by program, May 1961-May 1969 ^{1/}

Program/Project	Amount
Public Works Grants & Loans:	0
Business Loans:	0
Technical Assistance Grants:	
Carteret County, N.C. Seafood study	<u>\$27,000</u>
Grand Total	\$27,000

^{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.

WORKING PAPER SERIES

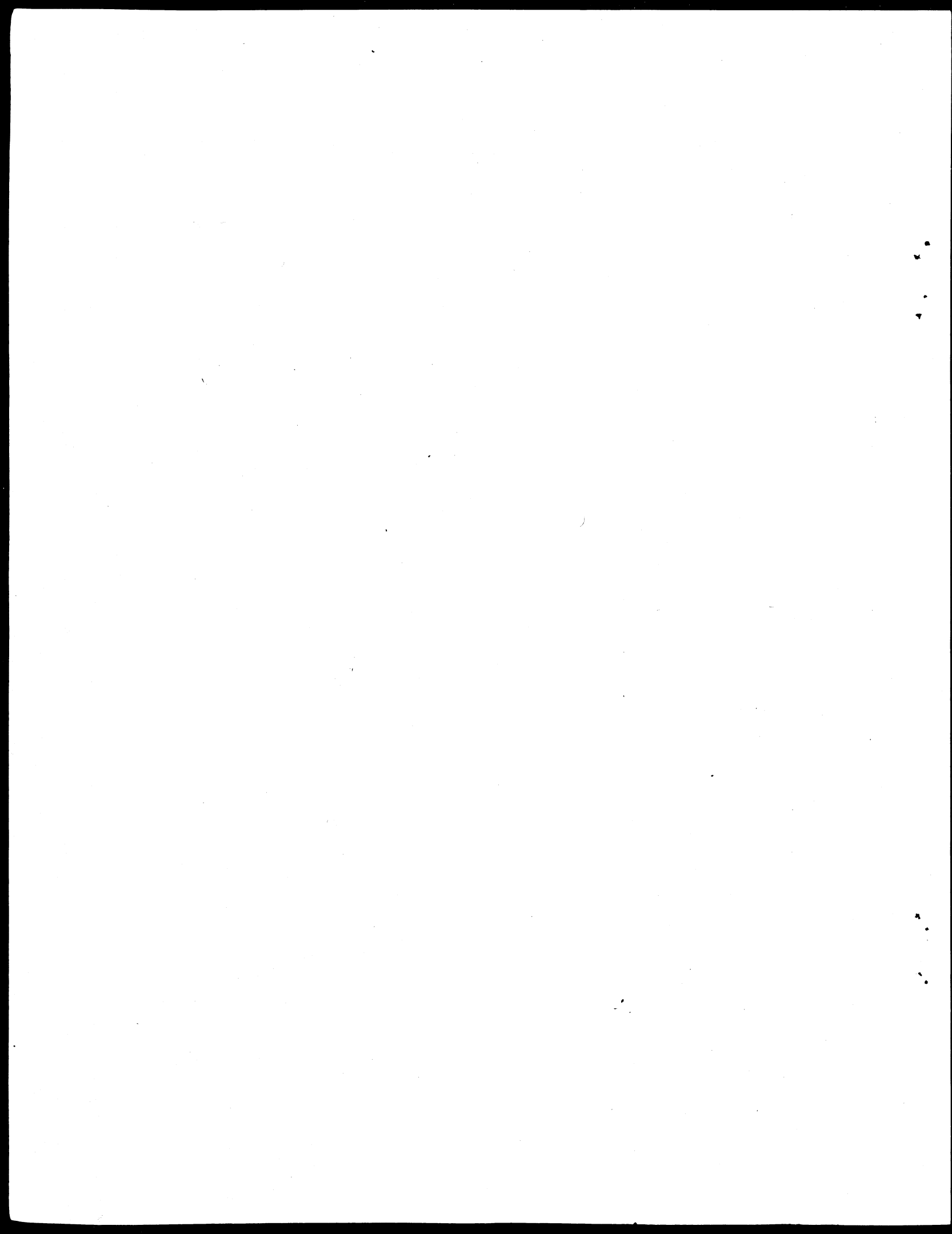
Division of Economic Research
Bureau of Commercial Fisheries

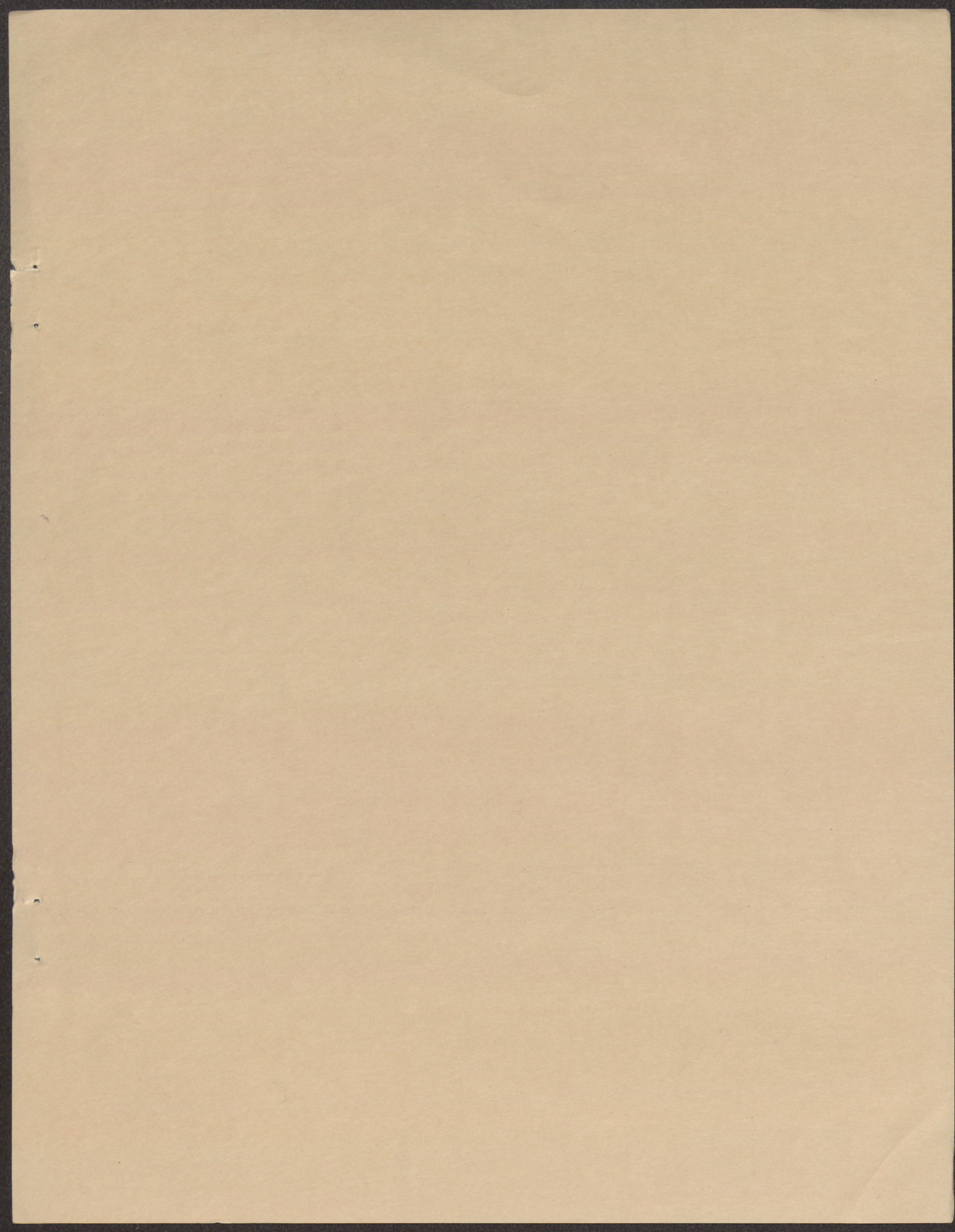
1. An Application of an Investment Model to Channel Catfish Farming by R. Thompson and F. Mange.
2. The Development of Catfish as a Farm Crop and an Estimation of Its Economic Adaptability to Radiation Processing by D. Nash and M. Miller
3. Design Study: An Optimum Fishing Vessel for Georges Bank Groundfish Fishery by A. Sokoloski (Project Monitor)
4. The Relation between Vessel Subsidy Percentages and the Rate of Return on Investment for Various Technologies and Scale Levels: The Haddock Fishery by D. Nash, A. Sokoloski and F. Bell (Project Monitors)
5. An Economic Justification for Recommended Legislative Changes in the 1964 Fishing Fleet Improvement Act by F. Bell, E. Carlson, D. Nash and A. Sokoloski.
6. The Economic Impact of Current Fisheries Management Policy on the Commercial Fishing Industry of the Upper Great Lakes by D. Clearly.
7. Cost and Earnings in the Boston Large Trawler Fleet by B. Noetzel and V. Norton.
8. Some Elements of An Evaluation of the Effects of Legal Factors on the Utilization of Fishery Resources by A. Sokoloski.
9. A Report on the Economics of Polish Factory Trawlers and Freezer Trawlers, by B. Noetzel.
10. An Inventory of Demand Equations for Fishery Products by D. Nash and F. Bell.
11. Industry Analysis of West Coast Flounder and Sole Products and an Estimation of Its Economic Adaptability to Radiation Processing by D. Nash and M. Miller.
12. Bio-Economic Model of a Fishery (Primarily Demersal) by E. Carlson.
13. The Factors behind the Different Growth Rates of U. S. Fisheries by F. Bell.

14. A Price Incentive Plan For Distressed Fisheries by A. Sokoloski and E. Carlson.
15. Demand and Prices for Shrimp by D. Cleary.
16. Industry Analysis of Gulf Area Frozen Processed Shrimp and an Estimation of Its Economic Adaptability to Radiation Processing by D. Nash and M. Miller.
17. An Economic Evaluation of Columbia River Anadromous Fish Programs by J. Richards.
18. Economic Projections of the World Demand and Supply of Tuna, 1970-90 by F. Bell.
19. Economic Feasibility of a Seafood Processing Operation in the Inner City of Milwaukee by D. Cleary.
20. The 1969 Fishing Fleet Improvement Act: Some Advantages of its Passage by the Division of Economic Research.
21. An Economic Analysis of Policy Alternatives for Managing the Georges Bank Haddock Fishery by L. Van Meir.
22. Some Analyses of Fish Prices by F. Waugh and V. Norton.
23. Some Economic Characteristics of Pond-Raised Catfish Enterprises by J. Greenfield.
24. Elements Crucial to the Future of Alaskan Commercial Fisheries by D. Nash, A. Sokoloski, and D. Cleary.
25. Effects on the Shrimp Processing Industry of Meeting the Requirements of Wholesome Fishery Products Legislation by D. Nash and M. Miller.
26. Benefit Cost Analysis of a Proposed Trawl Systems Program by M. Miller
27. An Economic Analysis of Future Problems in Developing the World Tuna Resource: Recommendations for the Future Direction of the BCF Tuna Program by F. Bell.
28. Economic Efficiency in Common Property Natural Resource Use: A Case Study of the Ocean Fishery by D. Bromley.

29. Costs, Earnings and Borrowing Capacity for Selected U. S. Fisheries by A. Sokoloski, E. Carlson, and B. Noetzel.
30. Fish Cycles: A Harmonic Analysis by F. Waugh and M. Miller.
31. Benefit-Cost Analysis as Applied to Commercial Fisheries Programs by F. Bell.
32. Economic Study of San Pedro Wetfish Boats by W. F. Perrin and B. Noetzel.
33. A Survey of Fish Purchases by Socio-Economic Characteristics - First Quarterly Report - February, March, April, 1969 by D. Nash.
34. A Survey of Fish Purchases by Socio-Economic Characteristics - Second Quarterly Report - May, June, July, 1969 by D. Nash.
35. A Guide to Benefit-Cost Analysis for BCF Programs by F. Bell.
36. Estimation of the Economic Benefits to Fishermen, Vessels, and Society from Limited Entry: A Generalized Model Applied to the Northern Lobster Fishery by F. Bell.
37. Major Economic Trends in Selected U.S. Master Plan Fisheries: A Graphical Survey by R. Kinoshita and F. Bell.
38. Market Potential for the San Pedro Wetfish Fishery by D. Nash.
39. Pertinent U.S. Trade Barrier Information by "Master Plan" Fisheries by J. Micuta.
40. An Analysis to Determine Optimum Shrimp Fishing Effort by Area by V. Arnold.
41. A Survey of Fish Purchases by Socio-Economic Characteristics, Third Quarterly Report - August, September, October, 1969 by D. Nash.
42. Investigation of Fish Landing Patterns at Stonington, Connecticut with a View to Development of New Markets by D. Nash.
43. A Survey of Maximum Sustainable Yield Estimates on a World Basis for Selected Fisheries by R. Fullenbaum.
44. Methods for Calculating Civilian Per Capita Consumption of Fresh and Frozen Shellfish by S. Erickson.

45. The Organization of the California Tuna Industry: An Economic Analysis of the Relations Between Performance and Conservation in the Fisheries by R. Marasco.
46. Who Buys Fresh and Frozen Seafoods in the United States-A Quantitative Survey of Fish Buying Patterns by Darrel A. Nash.
47. Projections of Certain Fishery Products of Commercial Importance in Louisiana by D. Nash.
48. The Productivity of the Sea and Malthusian Scarcity by F. Bell and E. Carlson.
49. A Survey of Fish Purchases by Socio-Economic Characteristics - Fourth Quarterly Report - November, December 1969, and January 1970 by Darrel A. Nash.
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.