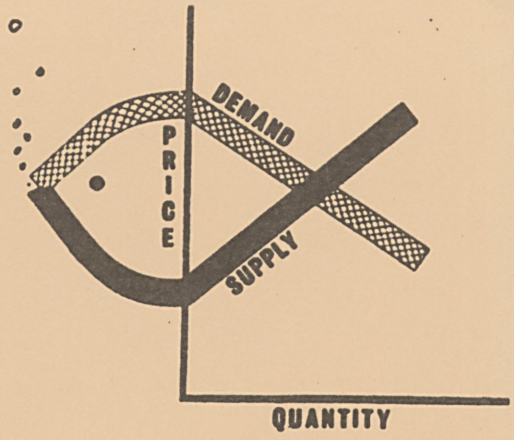

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HISTORICAL ANALYSIS OF THE U.S. OYSTER MARKET WITH EMPHASIS ON THE ROLE OF IMPORTS

By

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ABSTRACT

The U.S. oyster supply has experienced a substantial change in its composition. Since 1950 total oyster imports have more than tripled, with most of this increase coming from Japan. Imports now account for 23 percent of total U.S. supply. The Pacific Coast receives nearly 60 percent of all U.S. imports and the Atlantic and Gulf Coasts receive approximately 18 percent each.

The U.S. oyster industry has been beset by a number of problems. These problems include an antiquated regulatory structure, competition for the resource base, pollution, MSX disease, stagnant technology, declining consumption and imports. As a result the trend in annual harvests has shown a considerable decrease since 1950, particularly in middle Atlantic States where it decreased from 18 to 2 million pounds in only 19 years. Harvesting techniques and ownership patterns are also examined and decreased use of dredges and private oyster grounds are noted.

All of these problems affecting the oyster industry have affected profits. To fully understand the role of imports in their effect on profits other determinants of profitability must also be measured.

Independent of these other problems, however, imports are shown to have had a measurable impact in some instances in the Gulf and the Pacific region.

Historical Analysis of the U.S. Oyster Market with Emphasis on the Role of Imports

A.A. Sokoloski*

As the U.S. has become the major consumer of fishery products in the world many segments of our domestic industry have experienced a substantial change in the mix of domestic versus imported fishery products in the market place. Oysters have been no exception.

In some instances it has been suggested that elements of our U.S. oyster industry have been experiencing certain hardships because of the new role played by imports. At the request of industry I have initiated a preliminary investigation into this situation. What follows are my initial observations concerning (a) the role of imports in the oyster industry, (b) other factors which are interrelated with imports in determining levels of profitability and productivity. Whenever feasible these observations will relate to regional and/or product differences.

The Role of Imports:

Since 1950 total imports to the U. S. of all oyster products have increased from 5.8 million pounds worth $ .5 million to 19.3 million pounds worth $7.1 million.The most significant components of this increase are canned smoked and canned prepared or preserved oysters. Fresh and frozen oysters have also appeared as imports in recent years. Oyster juice, although still a minor item, has been increasing. Oyster seeds have been a stable item throughout this period.

The vast majority of these imports have come from Japan. Imports now comprise approximately 23 percent of the total domestic supply, with imports from Japan alone accounting for 20 percent

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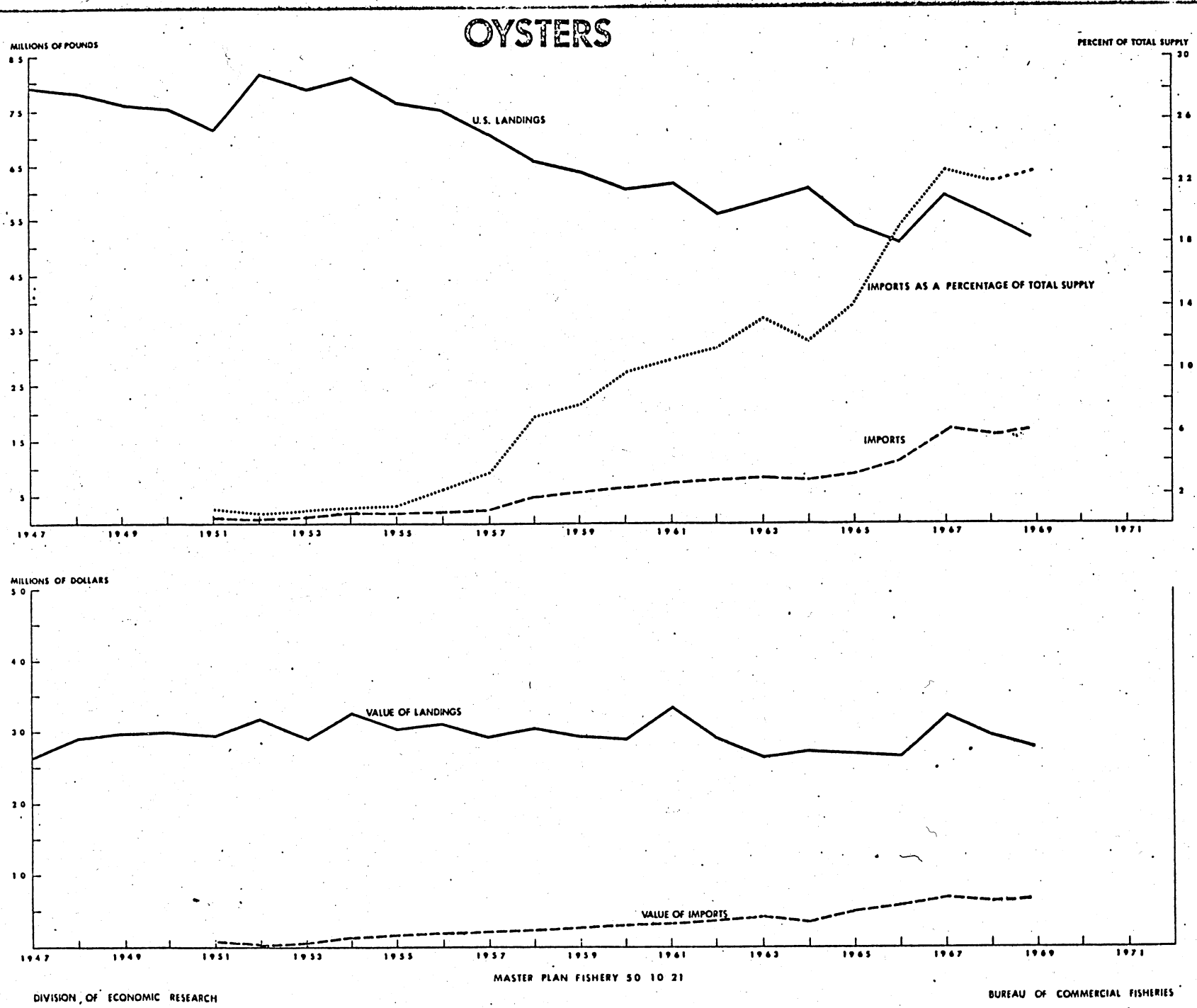
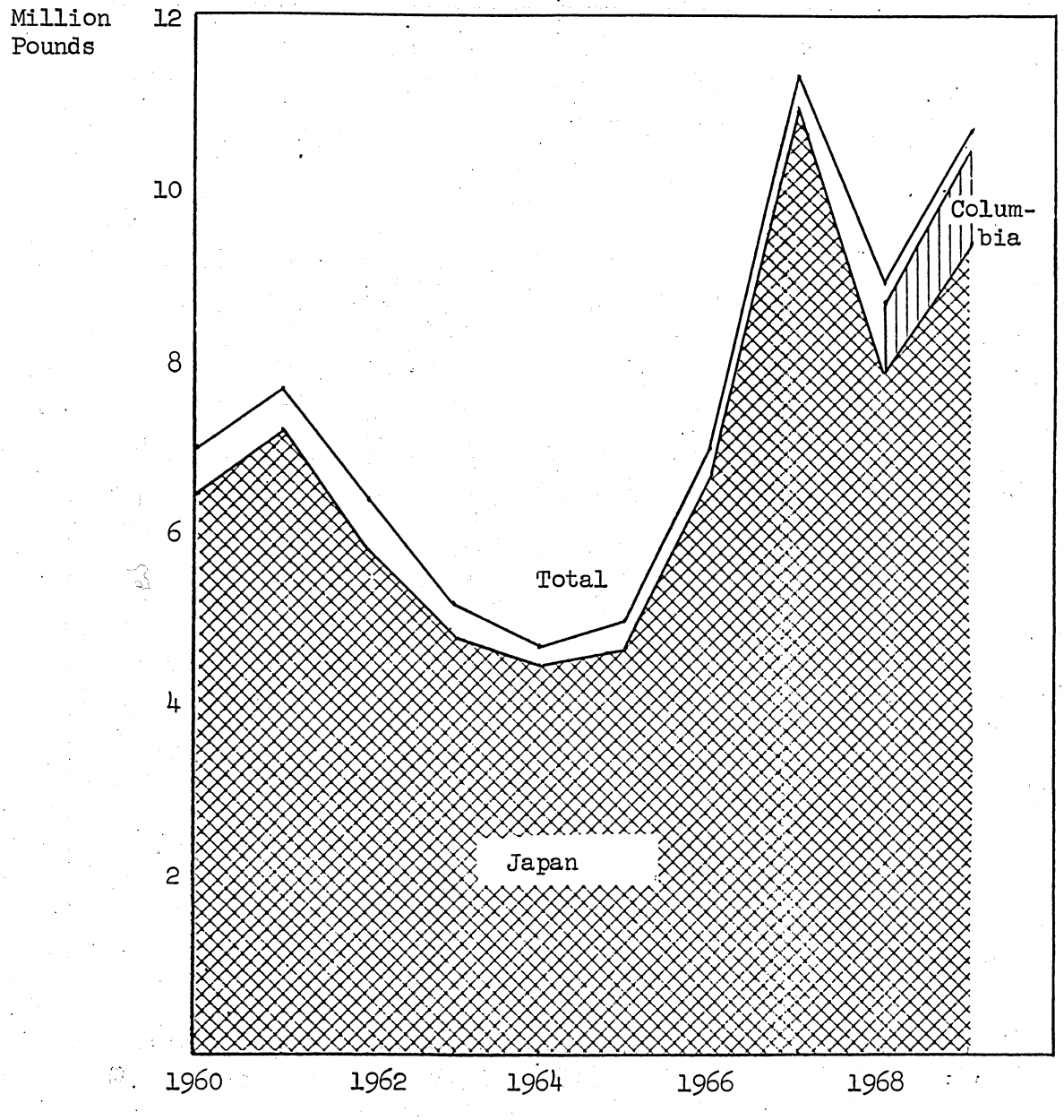


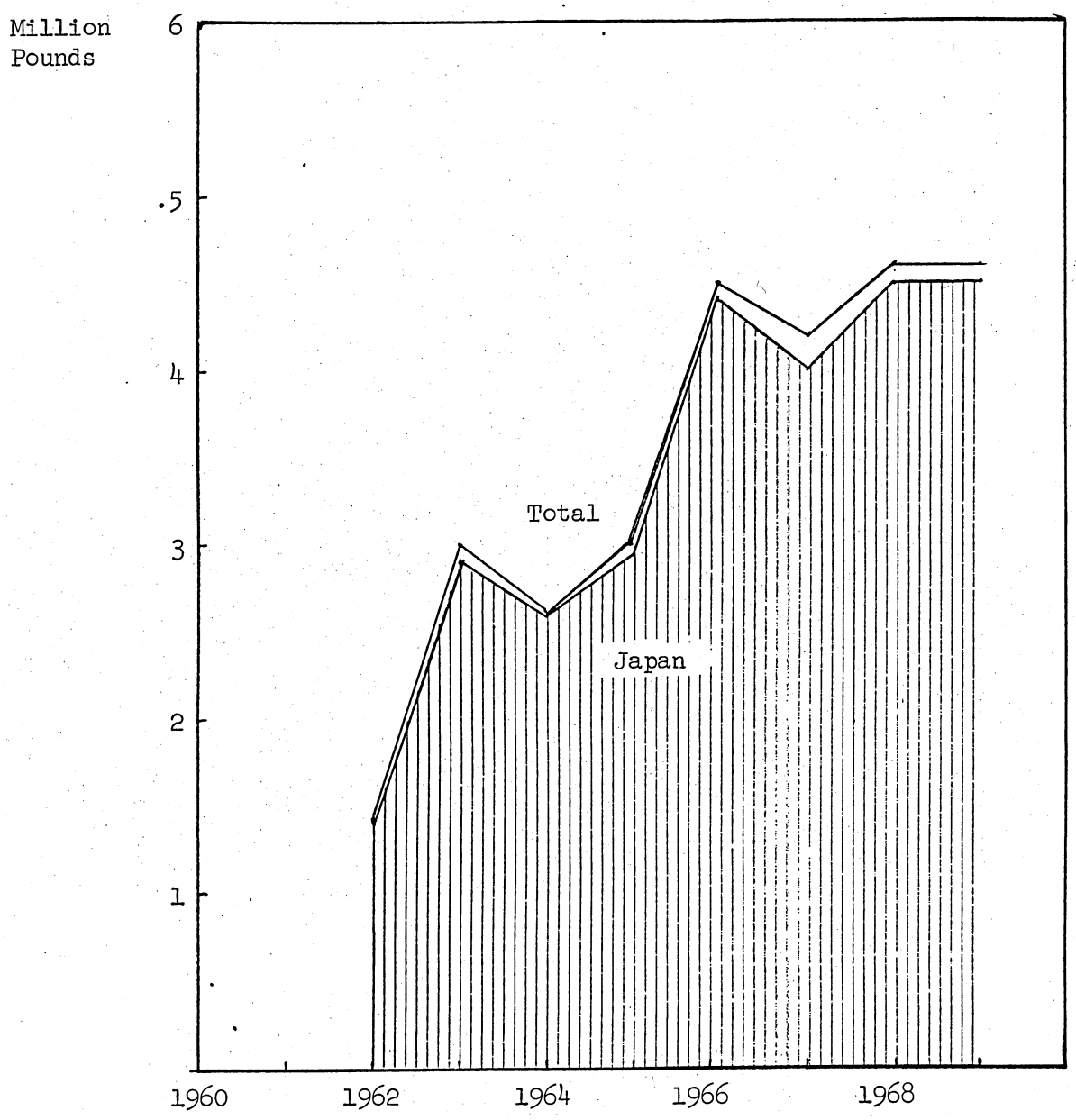
Figure 1.-- U.S. oyster landings and oyster imports 1947-1969

Figure 2



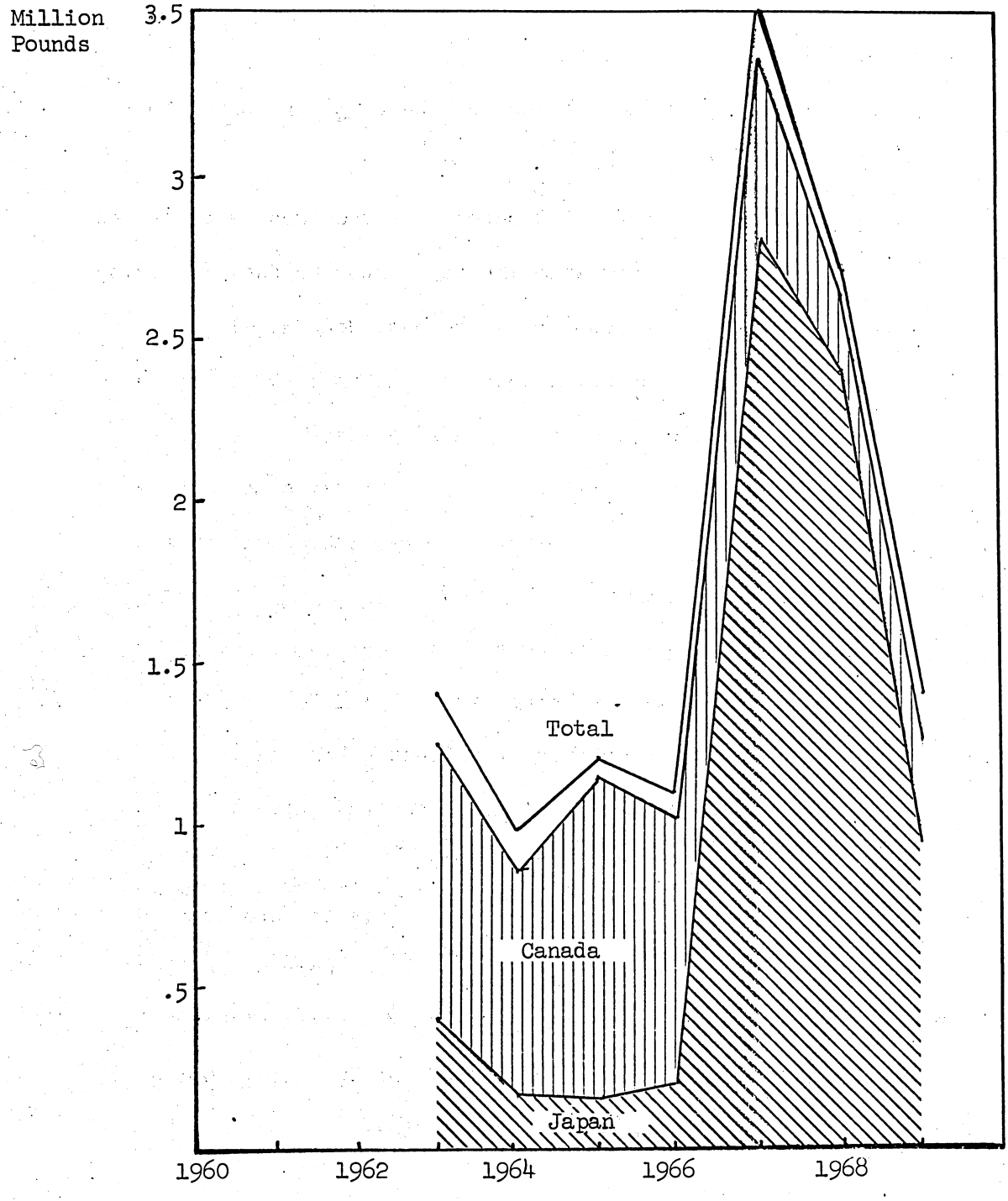
U. S. Imports of Canned Oysters by Country

Figure 3



U. S. Imports of Canned Smoked Oysters by Country

Figure 4



U. S. Imports of Fresh and Frozen Oysters by Country

of total U. S. supply in 1968.

Oysters are imported into regions of the U. S. in the following pattern:

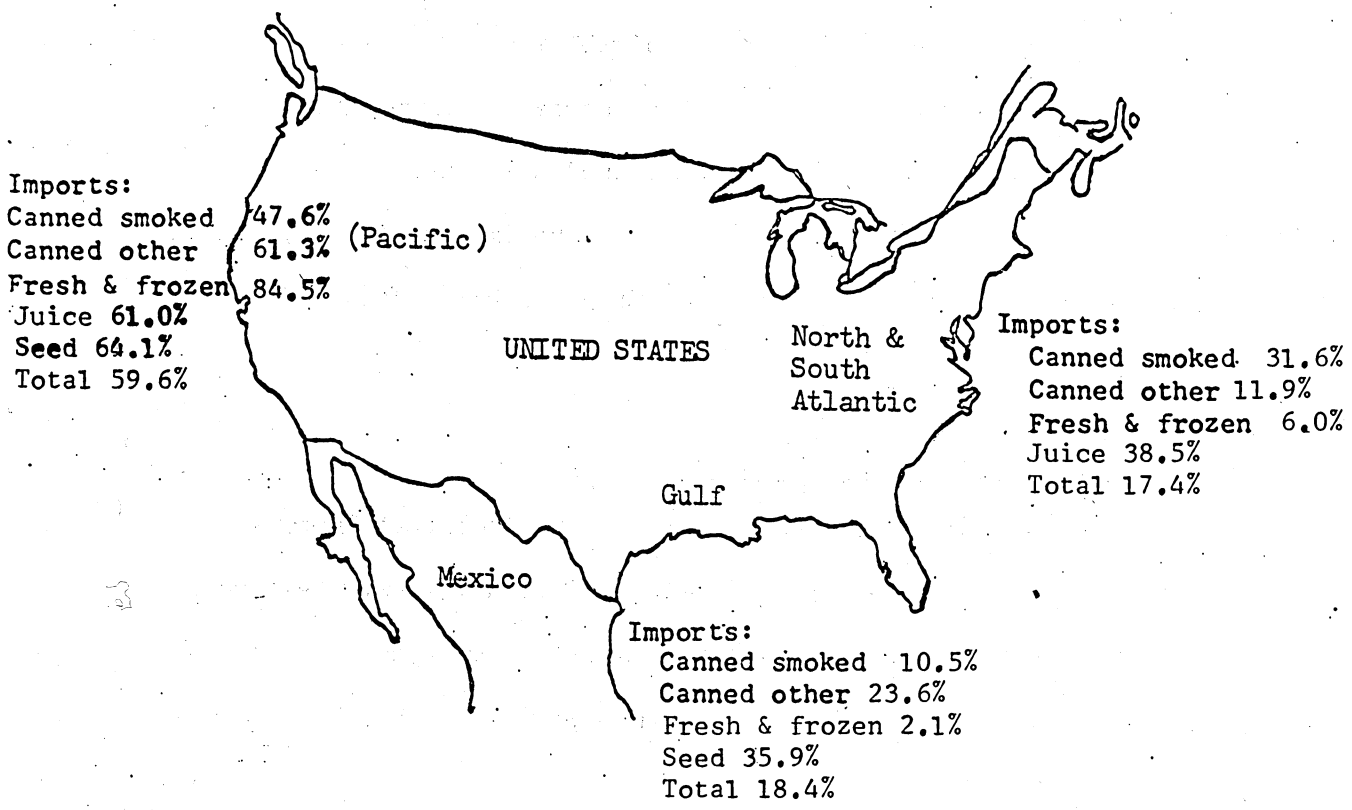
Canned Oysters: In 1969, 61.3 percent of the imports of canned prepared or preserved oysters were imported into the Pacific region. This represents a slight increase over the past decade. The second flow of imports was into the Gulf, 23.6 percent in 1969, an increase from 17.8 percent in 1960. The remaining 15 percent are equally divided between the remaining regions. It is significant to note that imports into the Middle Atlantic have decreased from 14.6 percent in 1960 to 3.5 percent in 1969.

Smoked Oysters: The Pacific Coast also receives the major share of smoked oysters, 47.6 percent with the Middle Atlantic receiving 21.4 percent. The Gulf and the Great Lakes and inland areas each receive 10.0 percent. All of these flows have followed this distribution pattern during the 1960's.

Fresh and Frozen: The majority of these oysters are imported into the Pacific area; 84.5 percent in 1969 (96.2 percent in 1968). There has been little sustained change in this pattern although in 1962 the Middle Atlantic (18.1 percent) and the Gulf (16.1 percent) had unusually high import levels for these areas.

Figure 5

Percent Distribution of
United States Oyster Imports 1969



The imports of oysters into the U. S. may be simply characterized by one statement: "Of the total U. S. imports, 65.0 percent is imported via the Pacific Coast." The majority of this flow is from Japan. This flow comprises 15.0 percent of the total domestic supply. Of these imports the predominant items are fresh and frozen, where 96.2 percent of all imports entered via the Pacific Coast in 1968, 59.6 percent of canned prepared or preserved and 41.1 percent of canned smoked. The only other regional import flow of this magnitude is the impact of 33.5 percent of all imported canned smoked oysters into the North Atlantic (N. E., M. A., Ches.).

Import Flows: An Analysis of Impacts

On the surface it appears from these comments that impacts would be confined to the Pacific States. This would only be true if:

(1) Harvesting, processing, and inventory management in each region was independent of corresponding activities in the other regions;

(2) The distribution and consumption of oyster products in a region were the result of only the production of and importation of oyster products directly within that region.

Our knowledge of these interregional relationships is not sufficient now to include these precisely in an analysis of the

impact of imports. This is another area in which we will need your assistance in the future. In the interim certain analysis beyond the above observations can be made.

It has been suggested that low-priced imported fresh and frozen oysters from Japan have substituted for domestic oysters in the production of oyster stew. This began in March of 1967. Our analysis confirms that there is some relationship between the price of oyster stew and the price of imported fresh and frozen oysters. A rough conversion of the import price so that it may compare to a domestic wholesale price for fresh and frozen oyster shows that the import price is roughly half the domestic price, or 28 cents/pound as compared to 64 cents/pound for 1967.

Subsequently (1968) the diverted domestic supply was utilized for a new product form, frozen breaded oyster. It has been suggested that imported oysters are now substituting here also. This relationship has also been confirmed by our analysis, with the import price being a significant determinant of production.

An additional suggestion is that the increased importation of canned smoked oysters has virtually eliminated the production of canned smoked oysters in the Pacific area. Figures from 1962 indicate an increase from 616,000 pounds that year to 2,076,400 in 1966 and three years of stable imports to a decrease to 1,901,400 pounds in 1968 and a rise to over 2,000,000 pounds again in 1969. Our

Table 1.--Production and importation of canned smoked oysters

Year	Pacific Production	Total U.S. Imports	Pacific Imports
		----pounds----	
1950	101,760	none	none
1951	91,776	"	"
1952	75,552	"	"
1953	98,352	"	"
1954	73,344	"	"
1955	89,760	"	"
1956	81,024	"	"
1957	90,864	"	"
1958	55,392	"	"
1959	74,592	"	"
1960	67,872	"	"
1961	44,448	"	"
1962	52,704	1,402,155	615,800
1963	42,864	3,013,936	1,340,900
1964	14,736	2,669,679	1,392,200
1965	20,448	3,069,810	1,435,500
1966	26,160	4,524,314	2,076,400
1967	23,616	4,198,873	2,013,200
1968	28,896	4,626,594	1,901,400
1969	13,968	4,642,259	1,920,300 1/

1/ 11 month total

Source: Fishery Statistics of the U. S., 1950-67.
"Canned Fishery Products, 1968-69."
U. S. Imports for Consumption, FT 145, 1962-69.

analysis records that increase in imports has been associated with a decrease in the U. S. wholesale price for smoked oysters, thus putting greater competitive pressure on U. S. producers.

In another example from the Gulf, imports of canned oysters have supposedly caused a backlog in cold storage holdings. Our analysis, reveals that this interrelationship does exist. Cold storage holdings have been growing with the increase in imports.

These observations suggest some ways in which imports play a role in the domestic industry. Certain hardships are suggested. However, an analysis of the industry must not stop here to satisfy the traditional requirements of an import investigation.

If declining profits and diminishing market shares exist all possible causes must be examined to fully isolate the impact of imports.[1/]

In actuality, this industry has been beset by a number of problems, with the ultimate effect being on the productivity and the profitability of the firms in the industry. Paramount among these is the accumulated regulatory structure that has evolved at the harvesting level. There are now only isolated instances where a man may fully exercise his technical and managerial skill in developing and utilizing the latest technology to maximize his physical productivity. Even the occasional opportunity to lease private beds has not increased sufficiently to allow for significant impact upon resource productivity.

1/ In its import investigations the U. S. Tariff Commission insists that all these other causes must be separated from the role of imports.

Table 2.-- Problem areas in the U.S. oyster industry *

1. Regulatory Structure
2. Competition for Resource
3. Pollution
4. MSX
5. Technology
6. Comsumption Patterns
7. Imports

*Some of these are merely suggested problem areas. I have made no attempt to confirm or deny their existence in this presentation.

Problems are further complicated at the harvesting level by increased competition for use of the resource (recreation, sports fishing, shipping, land fill, etc.), pollution (2,000,000 plus acres removed from production), and a long struggle with MSX disease.

As we move beyond harvesting to processing, packaging, and distribution the industry is characterized by its inability to develop new products, new containers, and new marketing techniques and channels through which to move its products. With only slight exception these products are now marketed only in traditional oyster consuming areas, in the same forms as have been prevalent for decades. The industry has actually experienced a contraction in its base of oyster consumers.

On top of all this the industry has in recent years been transformed from one based on domestic production to one now dominated by imports. To many, this is the equivalent of rubbing salt into old wounds. The development of oyster industries in those countries which do not have problems with regulations, stagnant technology, pollution, MSX, competing uses, and the ability of these countries to rapidly develop processing and distribution skills is in sharp contrast to domestic patterns. All this is in addition to certain

advantages due to low labor costs in this labor intensive industry.

My purpose for this extended introduction can be simply stated. There is no support for the claim that all problems in the domestic industry are solely the result of increased imports. Rather than being a cause, these imports may actually be the inevitable result of some of the interacting forces described above. Those that are exclusively associated with imports must be isolated.

With this much said I will now proceed to elaborate further on certain trends within the oyster industry. As this analysis proceeds I will attempt to delineate the ways in which imports begin to play an increasingly important role. Whenever possible, I will isolate those market developments which appear to be related to changes in import flows. Historical patterns of technological change, resource productivity, public versus private ownership, regional changes in harvesting, processing and distribution, income changes and population changes will also be examined with an eye both toward the role each of these play in the industry as a whole and how they relate to changing import flows.

The Economy - Recent Trends:

Trends in income levels and population growth during recent decades have had a significant impact upon the consumption of food products. This is not to say that people are necessarily eating more because they are wealthier. Though some increases have been

due to rising income levels, population growth has also contributed to increasing consumption. Table 3 indicates the magnitude of these changes over time.

In addition to rising per capita incomes the extent of the growth in the consumption of certain commodity groups is also relevant to this investigation. By looking at the consumption pattern for fish and meat and for processed as compared to unprocessed foods we should be able to anticipate the form of changes in the consumption pattern for oysters.

For example, note some of the trends in food consumption as shown in Table 4. As can be seen, the basic trends in meat and poultry consumption show a continuous increase with substantial increases coming in the 1969 stage. The same pattern appears for fish and shellfish with a greater increase in fresh and frozen consumption in 1969. Canned fish and shellfish consumption has doubled since 1930, while fresh and frozen has fallen short of the mark which has kept the fisheries from catching up to meat consumption on a percentage basis. When these trends are compared to oyster consumption, it can be seen that the role of oysters in total consumption has been decreasing at an increasing rate. Perhaps the slight gain in 1969 will reverse this trend.

Table 3.--Growth in U. S. Population and Per Capita Income
1930 - 2000

Year	Population (millions)	Per Capita Disposable Personal Income
1930	123.1	1,040
1940	132.6	1,174
1950	152.3	1,628
1960	180.7	1,879
1970*	206.0	2,642
1980*	235.2	3,555
1990*	270.8	4,574
2000*	307.8	6,091

*Projected

Table 4.--Consumption of Meat, Poultry and Fishery Products in the United States 1/

	Meat	Poultry	Fish and Shellfish			
			Total	Fresh & Frozen	Canned	Oysters
	Million Pounds					
1930	15,175.4	2,203.1	1,255.4	713.8	418.5	86.9
1940	17,956.3	2,312.3	1,453.4	753.1	607.8	88.3
1950	20,914.6	3,784.8	1,779.3	950.0	738.9	76.3
1960	26,135.0	6,146.3	1,835.0	1,015.5	712.6	65.9
1969	32,077.0	9,409.8	2,212.9	1,275.9	837.3	67.9

1/ Based on civilian population and per capita consumption.

Source: Food, Consumption, Prices, Expenditures, USDA Report No. 138, July 1968, January 1970.

Fisheries of the U. S., USDI Report C. F. S. 5300, 1969.

The changing regional distribution of population and income (Table 5) has been of interest. Relevant here is whether the regional consumption patterns for oysters have changed accordingly or whether oysters have not found their way into these recently developing markets. From the table we can see that the population has increased steadily in the Middle Atlantic, South Atlantic, and South Central regions with a slower growth in New England and a vast increase in the Pacific region. The income pattern, however, has shown a different tendency in all regions but the Pacific. The New England area with the lowest population growth has the third highest per capita income, and the South Atlantic, which has almost doubled its population, is the second lowest in per capita income. Some remarks can be made here about the regional distribution of imported oysters. On the Pacific Coast, where population and income have increased the fastest, so has the percentage of imports. Also, where income is relatively high on the Atlantic Coast, the percentage of imports is high. In the Gulf area where income is relatively low and population has only moderately increased, the percentage of imports is the lowest for the country.

Table 5. -- U. S. Population by Major Fishery Regions

(Thousands)

Year	New England	Middle Atlantic	South Atlantic	South Central	Pacific
1930	8,166.3	26,260.7	15,793.6	22,064.0	8,194.4
1940	8,437.3	27,539.5	17,823.2	23,842.7	9,733.3
1950	9,314.5	30,163.5	21,182.3	25,984.8	14,486.5
1960	10,527.0	34,287.0	26,095.0	29,106.0	21,359.0
1969	11,512.0	37,271.0	30,484.0	32,601.0	25,953.0

U. S. Per Capita Personal Income by Major Fishery Regions

(Dollars)

Year	New England	Middle Atlantic	South Atlantic	South Central 1/	Pacific
1929	876	979	462	396	911
1940	757	783	459	343	784
1950	1,601	1,751	1,211	1,066	1,806
1960	2,425	2,573	1,832	1,650	2,613
1968	3,746	3,860	2,974	2,669	3,902

1/ South Central is a weighted average of East and West South Central.

Source: Statistical Abstract of the U. S. 1959, 1955, and 1969, 1965.

Oysters - Harvesting Trends:

Oyster production has been slowly declining in recent years, from 76.4 million pounds in 1950 to 52 million pounds in 1969. During this same period ex vessel prices have risen from 38.7¢/pound to 54.3¢/pound with the result being that the total value of the harvest has remained quite stable at approximately $29 million. From the accompanying table you can see, however, that regional patterns exhibit a much greater degree of variation. Production in New England has declined from 4.7 million pounds in 1950 to 323 thousand pounds in 1967 and even with significant price increases the value has declined from $1.7 to $ .7 million.

In the Middle Atlantic production has also declined, from 18.2 million pounds to 1.2 million pounds while value decreased from $9.6 million to 1.2 million. In both these regions production and value have stabilized at the reduced levels for the past 10 years.

In the Chesapeake and South Atlantic production has been somewhat more stable. Production ranged from 18 (1963) to 41.6 (1954) million pounds during the period 1950 to 1969 with high periods of production during the second half of the 50's and lower levels (averaging 23 million pounds) during the 1960's. Values of harvests have been relatively stable in both areas for the past 10 years, averaging $17.0 million in the Chesapeake and $1.6 million in the South Atlantic.

Table 6- U.S. oyster landings by region (millions of pounds and millions of dollars, meat weight)

	New England		Middle Atlantic		Chesapeake		South Atlantic		Gulf		Pacific	
	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
1950	4.7	1.7	18.2	9.6	30.0	11.1	3.0	1.0	12.3	4.0	8.2	2.2
1951	2.0	1.0	17.4	9.7	29.6	12.0	3.8	1.2	11.6	3.2	8.7	2.0
1952	2.2	1.0	16.8	9.1	34.4	14.9	4.1	1.2	14.6	4.0	10.1	2.0
1953	1.0	.6	14.5	7.3	36.9	14.7	4.0	1.0	12.8	3.6	10.4	1.8
1954	.7	.5	13.4	7.5	41.6	18.9	3.8	1.0	11.4	3.1	11.0	1.9
1955	.6	.5	9.8	5.3	39.2	17.8	2.3	.7	13.9	3.7	11.7	2.5
1956	.5	.4	8.5	4.8	37.1	18.7	3.7	1.0	13.5	3.1	11.9	2.8
1957	.4	.4	8.0	5.0	34.2	17.2	3.1	.9	14.3	3.7	11.7	2.2
1958	.3	.3	4.3	3.4	37.5	20.8	2.7	.8	10.4	3.0	11.2	2.2
1959	.4	.5	1.4	1.3	33.3	20.6	3.5	1.0	13.7	3.8	12.4	2.3
1960	.5	.6	1.2	1.2	27.1	19.3	4.1	1.6	16.1	4.3	11.0	2.3
1961	.5	.5	1.9	2.0	27.5	21.7	4.0	1.8	18.2	5.1	10.2	2.0
1962	.3	.4	2.4	2.6	19.9	16.0	3.8	1.7	18.8	5.9	10.8	2.6
1963	.5	.5	1.0	1.2	18.3	13.7	4.8	2.0	24.1	7.2	9.8	2.5
1964	.2	.3	1.4	1.4	22.1	15.8	3.5	1.5	23.4	6.3	10.0	2.6
1965	.3	.7	.8	1.1	21.2	16.7	4.1	1.5	19.2	5.7	9.2	2.2
1966	.4	.8	.9	1.2	21.2	14.5	3.7	1.6	17.2	6.5	7.8	2.7
1967	.3	.7	1.2	1.2	25.4	17.1	3.2	1.4	21.2	8.0	8.8	3.9
1968	.3	N.A.	1.5	N.A.	22.2	14.9	3.0	1.5	23.9	N.A.	6.8	N.A.

Source: Fishery Statistics of the U. S. 1950-67, State Landings Bulletins, 1968.

The Gulf is the only area where harvests have increased, moving from 12.3 million pounds in 1950 to 21.2 in 1967; the value went from $4.0 million in 1950 to 8.0 in 1967. Production has leveled off since 1963 with values continuing to rise slightly due to slight price increases.

In the Pacific Coast area harvests had remained stable in the 10-12 million pound range until declining recently to 8.8 million pounds in 1967. Value has averaged $2.3 million since 1950 with recent increases to $3.9 million in 1967.

These trends may be summarized by observing that production has increased in only one area, the Gulf. Substantial declines have been witnessed in the New England and the Middle Atlantic States while the Chesapeake, South Atlantic and Pacific areas have experienced relatively stable production. In those areas with decreasing or stable production, rising prices have helped to keep the value of total U. S. harvests at a constant level.

An additional facet of oyster production since 1950 is the product forms. Some have suggested that oyster products do not fit the needs of the modern consumer. To examine this a relevant issue would be the appearance or disappearance of product forms over time, especially if these changes may relate to changes in the harvesting sector or in import flows.

Looking at Eastern oysters, we see that the most significant trend has been the decrease in shucked, fresh and frozen, from 54.9 million pounds in 1950 to 33.6 in 1967. Recently, some of this decline has been taken up by production of frozen, breaded and specialties from a negligible amount in 1950 to 4.1 million pounds in 1967. It must be noted that the apparent increase in canned specialties, as shown in Figure 6, actually represents a change in statistical procedures whereby beginning in 1965, Eastern and Pacific canned specialties were combined into one series.

In this regard, the production of most product forms of Pacific oysters has remained relatively stable since 1950. Shucked fresh and frozen peaked at 10.4 million pounds in 1962 and has declined to 6.6 in 1967, which is equivalent to the pre-1962 levels. Canned natural has ranged between 1.0 and 1.8 million pounds for most of this period with declines beginning in 1964. Canned smoked has been a minor item throughout and breaded raw, frozen oysters have been produced only in minor quantities in recent years. Canned specialties (mostly stew) have varied from 5.0 million pounds to 9.3 million pounds since 1954.

Total production has gone from 60.2 million pounds to 44.8 million pounds for Eastern and 7.2 million pounds to 16.6 million pounds for Pacific for the 1950-1967 period. Total U. S. production has gone from 67.3 million pounds to 57.6 million pounds in 1968. The bulk of this decrease is in Eastern shucked fresh and frozen oysters.

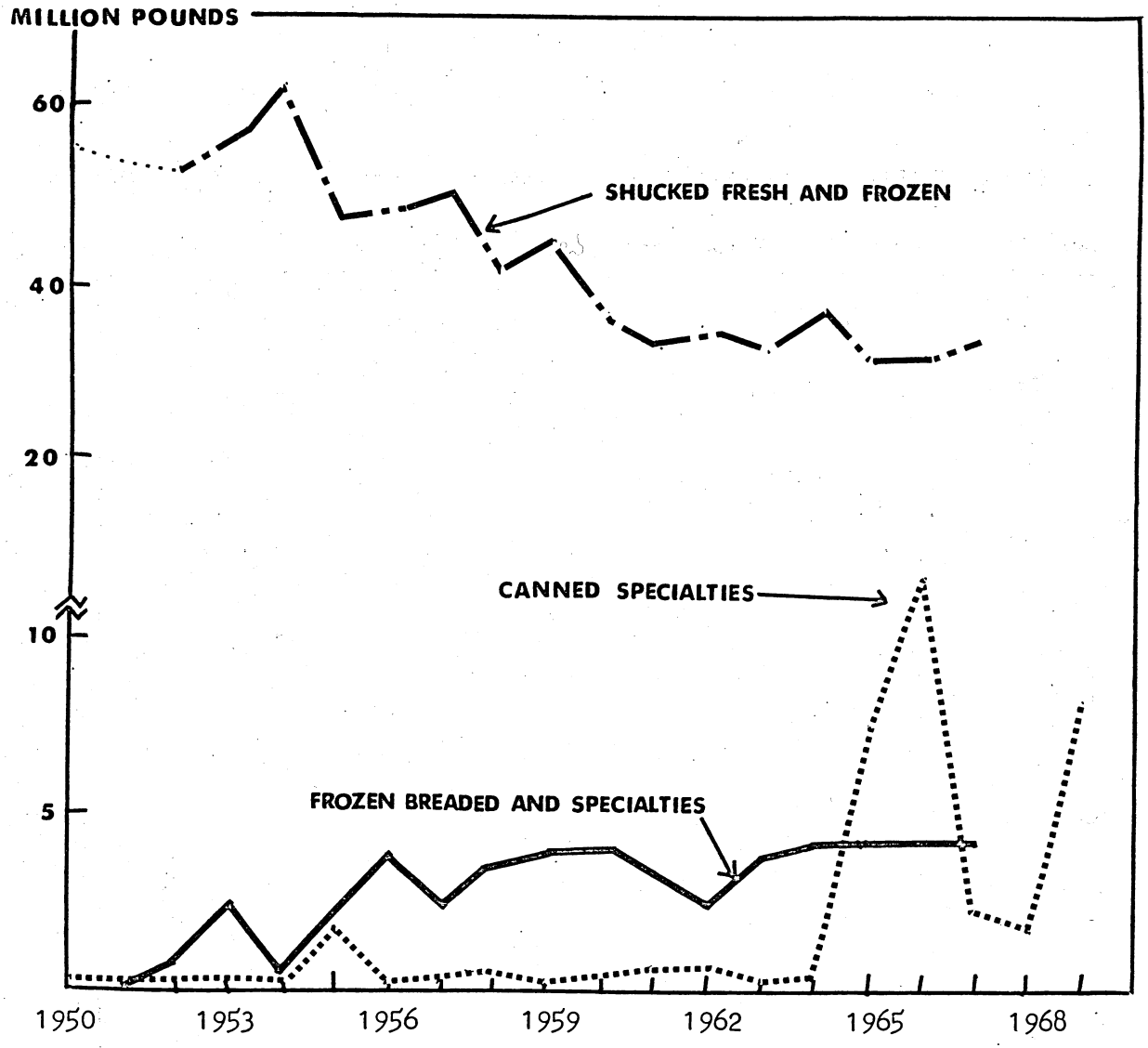


FIGURE 6. TRENDS IN MANUFACTURED EASTERN OYSTER PRODUCTS. 1950–1969

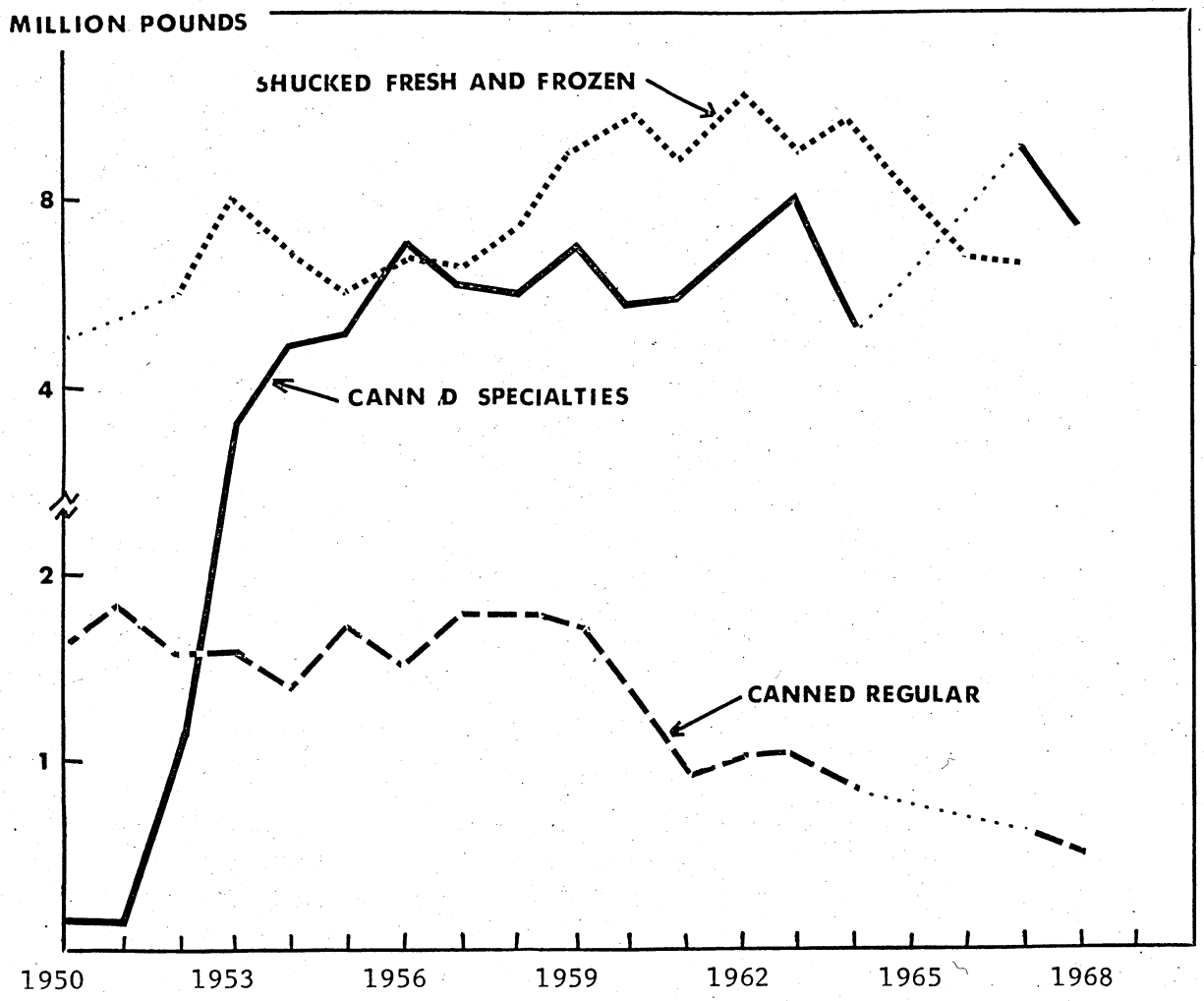


FIGURE 7. TRENDS IN MANUFACTURED PACIFIC OYSTER PRODUCTS. 1950 – 1968

Harvesting Techniques and Ownership Patterns:

Having looked at regional trends in harvesting patterns and production by product form, it is possible to obtain a cursory view of what has happened in the industry during the past 20 years. Additional information about the industry can be obtained by looking at the utilization of selected harvesting techniques and the development of ownership patterns. Both these facets reflect the progress of technology in the oyster industry.

Since 1950, the percentage catch by dredges has decreased in all areas but the Gulf; where, with slight exception, the percent has ranged between 60-80 percent. The relationship between this trend and the fact that only in the Gulf has productivity increased is striking. In other areas there have been moderate decreases such as 95.6 percent to 80.5 in New England, 98.6 to 95.8 percent in the Middle Atlantic and 99.5 to 84.4 percent in the Pacific. The South Atlantic has experienced a substantial decrease from 34 to 6 percent. The total percent caught by dredges in the U. S. has decreased from 68 to 52 percent.

Examining the ratio caught by dredges does not indicate whether the total catch by dredges has increased or decreased. Examination of these two sets of data reveal that increases or

Figure 8.--PRODUCTIVITY OF OYSTER (All) FISHERMEN AND VESSELS AND BOATS

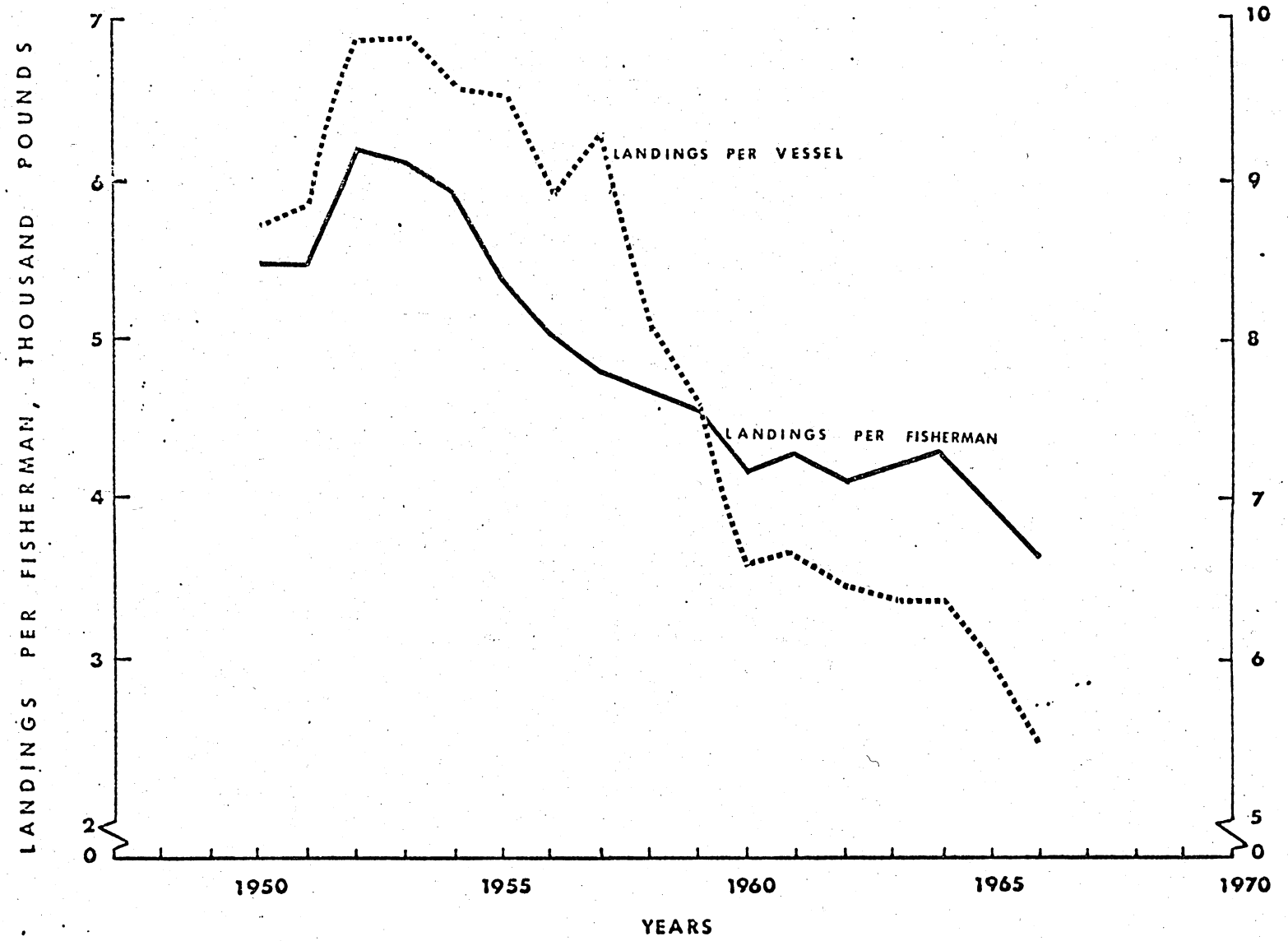
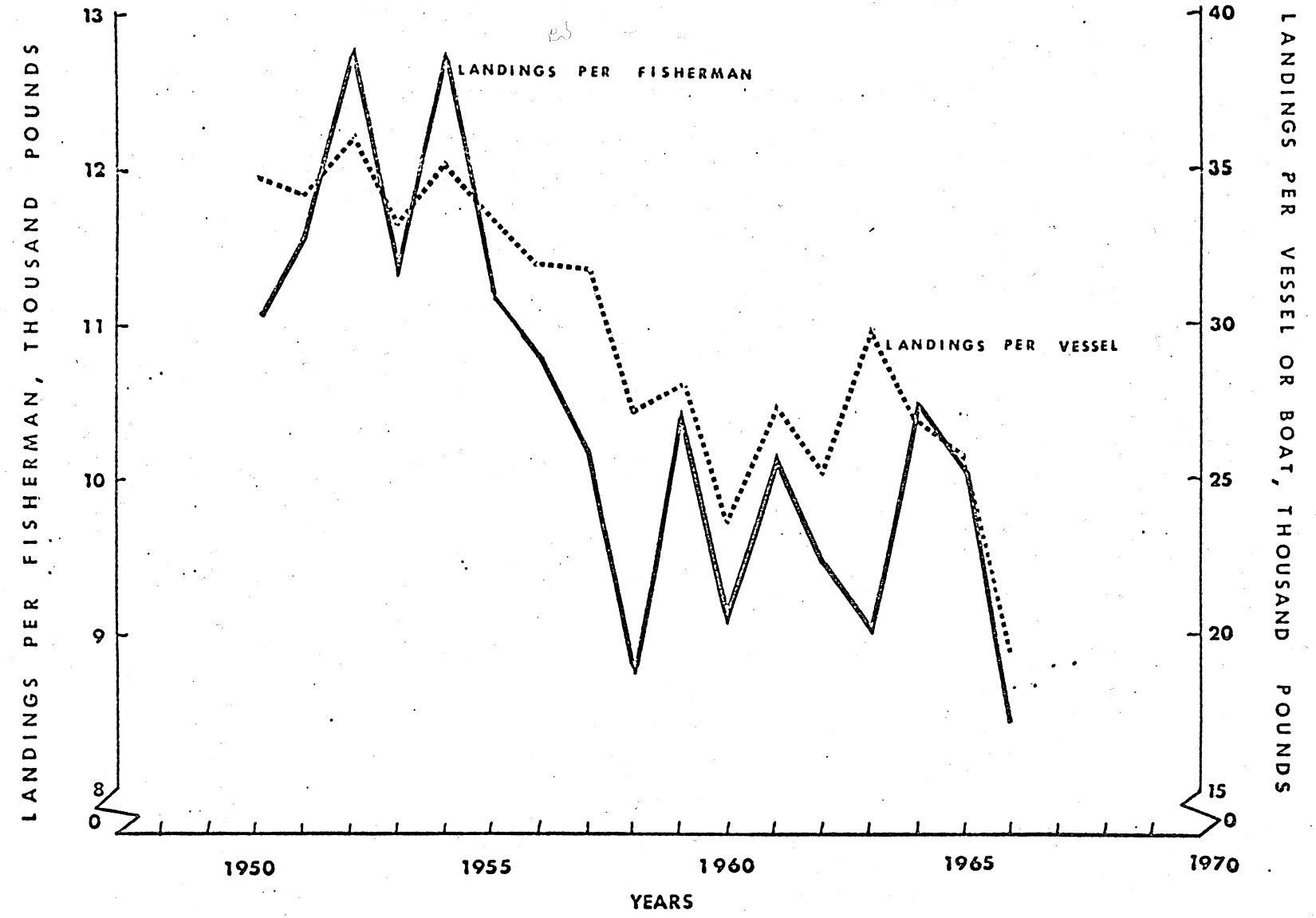


Figure 9.--**PRODUCTIVITY OF OYSTER DREDGE FISHERMEN AND VESSELS AND BOATS**



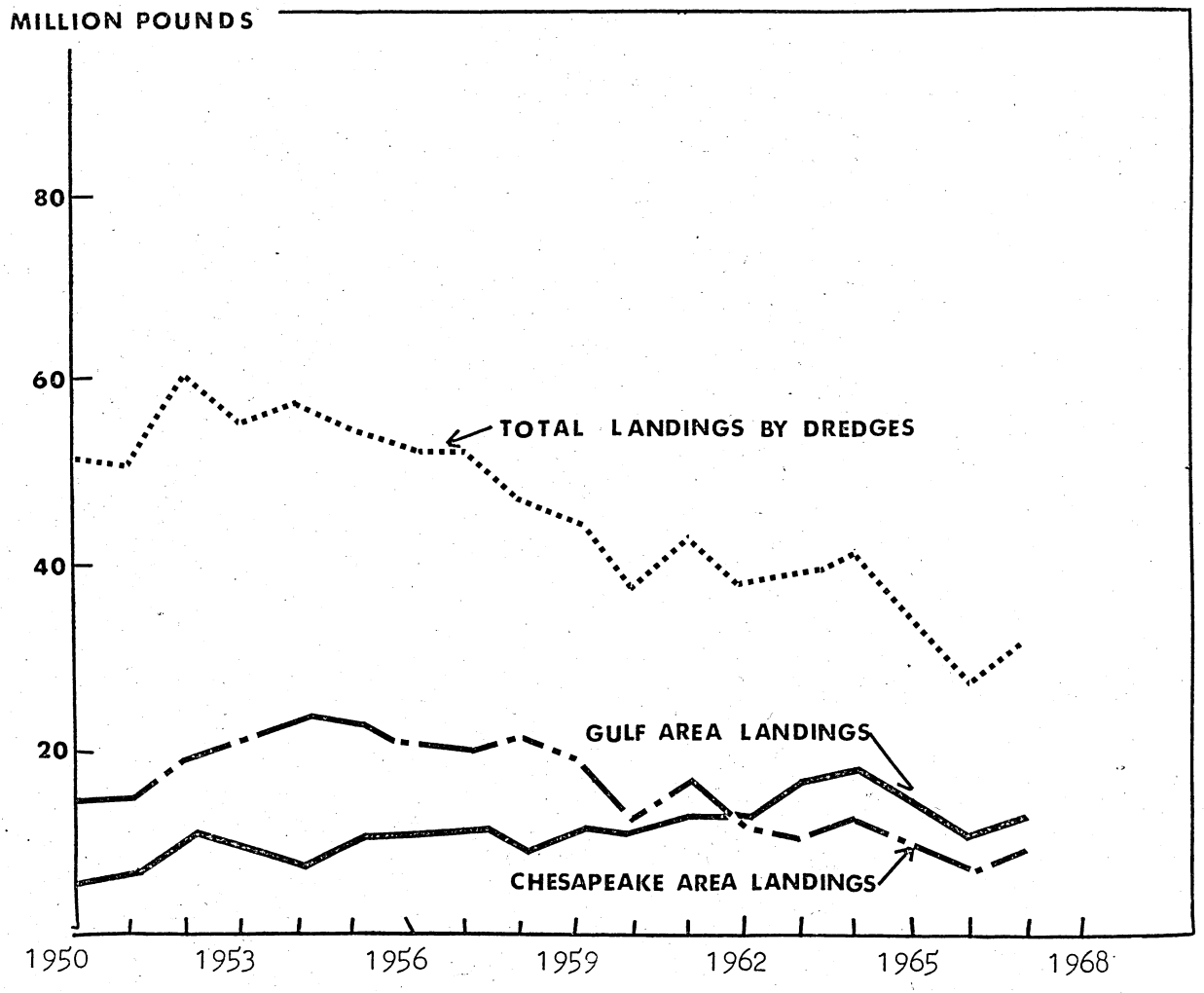


FIGURE 10. TOTAL OYSTER LANDINGS BY REDGES FOR THE U. S., GULF, AND CHESAPEAKE AREAS.

decreases in the percent caught by dredge are correlated with total catch by dredge, i.e. there does not appear to be a counteracting rise in catch/dredge to offset the decreased percent caught by dredges. Also, total production figures for dredges and other techniques reveal that only in selected instances (and then only slightly) does increased production by other methods counteract the declining productivity of dredges.

Simply stated this suggests that decreased use of dredges in a region can be associated with decreased total productivity in these regions as other harvesting techniques fail to take up the slack. As dredges represent an advanced form of technology, their decreased use results in the lower production to be expected from using a lower level of technology. Further study will be needed to fully explain the reasons for existing levels of utilization.

Another facet in this trend is the distribution in the use of public versus private beds for production. Dredging is usually confined to private beds. If the percent harvested on private beds decreases this means a decreased use of dredging and this must be designated a negative step in terms of technological progress.

As we look across the U. S. we note that for the Eastern oyster the public oyster grounds catch as a percentage of total eastern oyster catch has gone from 35.6% in 1950 to 64.6% in 1967.

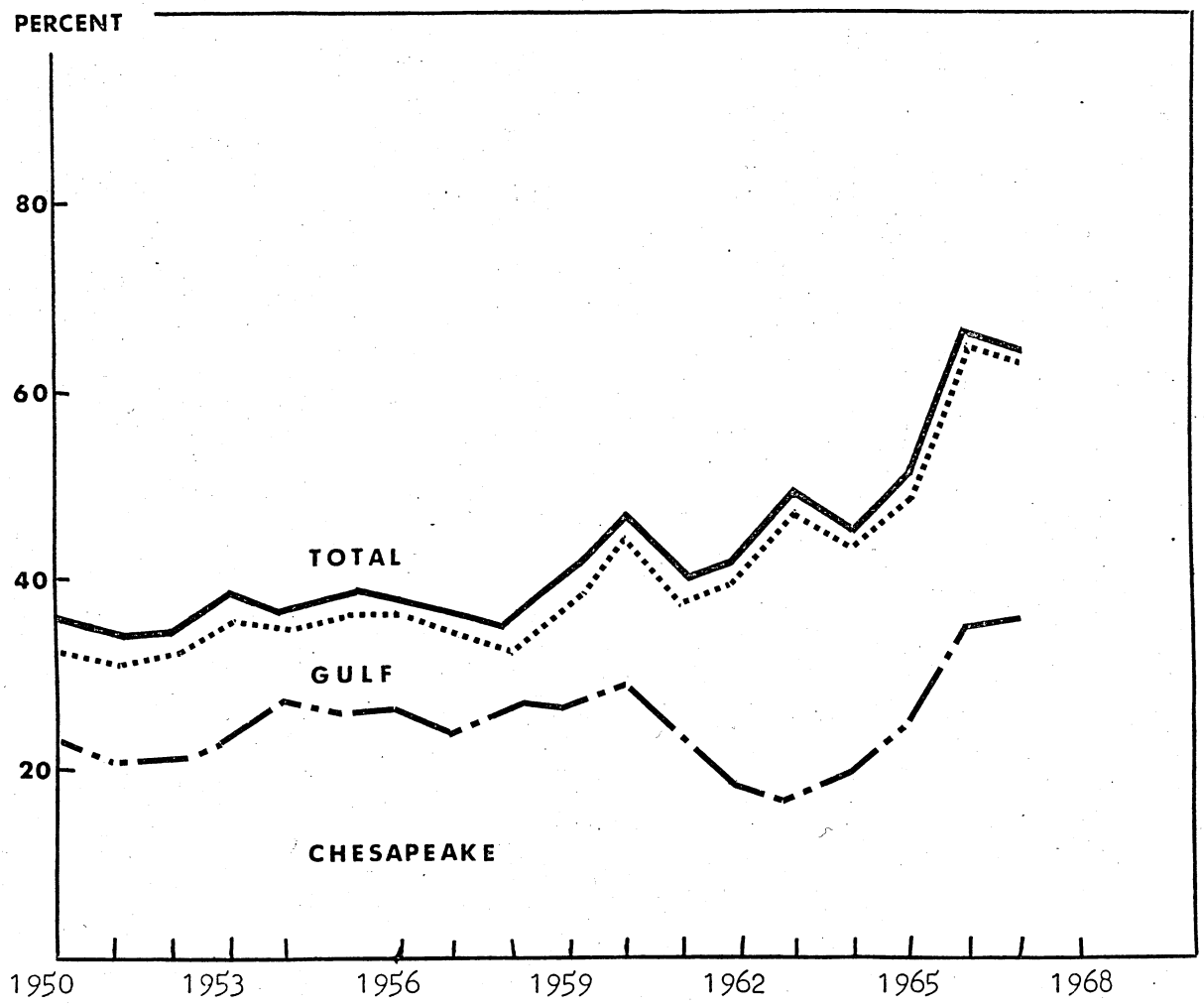


FIGURE 11. PERCENT LANDINGS OF EASTERN OYSTERS ON PUBLIC OYSTER GROUNDS.

This trend was affected principally by some significant recent increases in percent of public catch in the Chesapeake and the Gulf. It is interesting to note that in these preliminary figures there is no clear cut evidence regarding the role of public versus private ownership as this affects harvesting levels and the use of dredges. In the Middle Atlantic and New England, where catch has declined drastically, neither ownership patterns or the use of dredges seem to have played a significant role throughout this period. In the Chesapeake the decreases of the past few years have been primarily from private beds. Associated with these decreases have been catch by dredges and increased catch by tongs. In the Gulf there has been a relatively even growth in catch in public and private areas and by tongs and dredges. The exception has been 1966 and 1967 where the percent caught by tongs and the percent caught on public grounds both increased. The catch of Pacific oysters has decreased only slightly with dredges accounting for almost all of the catch throughout the period since 1950.

Conclusions

This is the appropriate time to recognize a major research need. If we are to fully understand the role that imports play in affecting profits in the oyster industry certain other crucial determinants of profitability must be measured. With respect to the observation I have just made these other items would be:

(1) The degree to which inability to use dredges raises costs and cuts into profits;

(2) The degree to which the opportunity for private ownership affects the competitive position of U.S. industry and

(3) The degree to which the State-by-State regulatory structure allows the legitimate utilization of private initiative in developing modern competitive practices

(4) The role of disease and pollution

(5) The need for new management initiatives

We are beginning this year to do some work on the last question. I hope to begin to work on the other two during the coming year. I am counting on many of you here in the audience for cooperation and assistance in this work. Perhaps we can begin during the panel discussion to follow these papers this morning.

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