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## **Economic Aspects of Markets for Middle Atlantic Oysters**

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AN HISTORICAL ANALYSIS of oyster production and consumption in the United States shows that within the past 25 years two anomalous supply-demand situations have existed. Perhaps the most striking anomaly has occurred during the 15 postwar years when the domestic production of oysters, unlike the domestic production of most consumer goods, failed to respond to increased demand as a consequence of the sharp increase in population and per capita income. Preceding World War II, oyster production increased by about 34 per cent in the years from 1933 through 1937, at a time when general economic conditions were not conducive to such expansion. This expansion, however, was dissipated by a decrease in production which began in 1941. The fact now appears, that despite the brief 4-year expansion, oyster production nationally has remained fairly steady since 1933, without responding as would be expected to supply-demand imbalances.

The consumption of oysters in the United States is involved in the foregoing supply-demand situation. For many years the national per-capita consumption of oysters has been skidding downward. Although the unprecedented population and income growth of the postwar years created an expanding market, it did not halt the downward slide of per-capita consumption which began in 1937. Consumption was a little over three-fourths of a pound per person in 1937, and last year reached a low of 0.36 pounds per person. This figure does not include imported oysters. Imported oysters, largely canned, have had only nominal effect in bringing the per-capita consumption to 0.40 of a pound per person. The downward trend, particularly in the postwar years, appears to be a consequence of static production and rapid population growth. Some of the downward trend may be attributable to changing tastes.

Generally speaking, static production, rapid population growth together with an expanding national market, and increasing per-capita income have created a condition in the postwar years wherein the demand for oysters has exceeded the supply. The level of national consumption has been established and limited by the available supply of oysters on the market. This is particularly true in the case of fresh and frozen oysters to which the studies reported herein were directed.

It is self-evident, under supply-demand conditions which have existed, that the price of oysters would increase. An index of prices received for oysters by

producers, calculated by six producing areas in the United States, shows substantial increases following World War II. Price indexes in the South Atlantic and Gulf coast areas showed no increase. The view that prices respond to supply is further confirmed, in part at least, by a special statistical analysis of factors that influence price of oysters, and the characteristics of demand for Chesapeake Bay oysters conducted by Rutgers University for the Bureau of Commercial Fisheries. Supply is the most important factor determining price, according to the study. It was found that for every 1,000,000 pound increase in the quantity of oysters marketed the price will decrease by about 2 cents per pound. The next most important factor is the amount of disposable income that consumers have available. Disposable income is that income which is available to the consumer after taxes have been paid from his earnings. The United States per-capita disposable income increased about 1.75 times between 1946 and 1960.

In explaining the price in a particular area, another factor is the supply from near-by or competing areas. The effect of oyster supplies from the five state area consisting of Delaware, New Jersey, New York, Connecticut, and Massachusetts was analyzed in the Rutgers study. These five states also represent a principal market for Chesapeake Bay oysters. The two areas act as competitors, but because of the dominance of the supply from the Chesapeake Bay area little weight can be given to the competition from the five states as an influence on prices in the Chesapeake Bay area.

The Rutgers study analyzed and calculated the response of consumers, or, in other words, the character of demand for oysters as influenced by price and disposable income. The demand for oysters is highly elastic. This means that a small change in price results in a large change in the amount that can be sold. There is another type of demand which is called inelastic demand. It means that a change in price has only a small effect on the amount that can be sold—as with cigarettes. The effect of spendable income on both types of demand is the same as that of price. If the commodity has an inelastic demand with respect to price, the effect of spendable income is usually slight. If it has an elastic demand with respect to price, the income effect will be substantial. The fact that oysters have a highly elastic demand is not surprising, because they are not usually considered a staple in the diet. In most instances, non-staple items have an elastic demand.

The character of the demand is very important to producers of oysters. A small change in price or in spendable income brings about substantial changes in consumption of oysters. The significant fact is that with oysters, or any other product having an elastic demand, a lowering of price will bring about an increase in gross income up to a point. Hence, from the economic point of view, oyster production in the United States can be expanded from its current level, and in the face of possible reduction in prices the industry can expect gross income to increase.

The ratio of prices paid by producers for equipment and supplies to prices received for oysters by producers has been highly favorable to the Chesapeake Bay producers in the postwar years. The prices received index increased by 135.2 points from a level of 169.6 in 1946 to 304.8 in 1958, the last year for which it has been possible to make a calculation. On the other hand, the prices paid index increased only 66.4 points from a level of 117.5 in 1946 to 183.9 in 1958. The base year is 1942 with an index of 100.

The ratio of prices paid to prices received by producers, otherwise known as parity ratio, was 144.3 in 1946 and rose to 165.7 in 1958. In brief, this means that the economic conditions to make money in the oyster business were very good in 1946, and far better in 1958. Whether or not money was made depends also upon other things, the most important being the quantity and variability in size and condition of oysters put on the market.

Two oyster producing areas, the Gulf coast and the South Atlantic, have almost continuously experienced unfavorable price indexes since the War. One of these areas, the Gulf coast, has had prices of less than the base index of 100 in every year since the War except two. Elsewhere the price index has shown a substantial increase.

The parity ratio has generally shown a favorable increase in all areas but two; the South Atlantic and Gulf coast. It should be noted that production in these two areas consists predominantly of canned oysters. Prices of canned oysters tend to be more stable. In both areas the index of prices received for oysters failed to increase at the same rate as the index of prices paid, resulting in a downward trend in the parity ratio. The parity ratio for the Pacific Coast area turned downward in 1956, but since 1957 has remained at 100. Production of canned oysters is also relatively important in the Pacific coast area.

In the foregoing discussion it has been shown that:

- (1) An imbalance has existed in the national supply-demand situation of oysters during the postwar years.
- (2) Production of oysters has not met demand, hence per capita consumption has gone down.
- (3) Generally the price of oysters has moved steadily upward.
- (4) The supply of oysters has set the limit on national consumption.
- (5) Favorable parity ratios demonstrate that generally the oyster business has experienced prosperous conditions.
- (6) The demand for oysters being elastic, the market can absorb a greater production.

Despite highly favorable opportunities the domestic oyster industry has not closed the supply gap, so to speak. Numerous conditions have served to limit expansion. Foremost among these are the following:

- (1) Loss of oyster producing areas.
- (2) Damage by predators.
- (3) Set-backs from time to time brought on by oyster diseases.

The area of productive oyster beds has been steadily decreasing as a consequence of encroachment brought on by the pressure of an expanding population. The shift in land use in the peripheral land-water environment is almost too frequently destructive for oyster growers. Such use probably explains the major loss of productive beds through siltation, construction, spoilment, and pollution by commercial and domestic sewage and industrial waste. An upper hand has not yet been obtained in the control of oyster predators and diseases.

There is a way for the American oyster producer to meet this market demand, and that is to test, modify, and implement methods which have been proven elsewhere. Included among these are the production of oysters on private or leased oyster grounds as contrasted with natural production on public grounds, and the use of raft and pond cultural methods.

It is a fact that foreign producers have designs to meet the long-standing shortages of the American market. Reports from Japan indicate that Japanese producers, and some Americans who have invested in Japanese oyster enterprises, are gearing for the American market. In at least one instance, a mass processing plant has been constructed to conform in operation to our standards of sanitation. A new technique for packaging and preserving frozen oysters for the American market has been developed. Once foreign oysters have entered the domestic market in quantity and obtained a competitive foothold, the domestic producer will be faced with another serious handicap.

Within the light of these circumstances, it is incumbent on oyster producers, utilizing findings from biological and technological research, to immediately and aggressively undertake to improve production and marketing methods, and increase production to meet market demands and competition from imported oysters.

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## **The Future of the United States Oyster Industry From a Biologist's Viewpoint**

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OYSTERS ARE ONE OF OUR GREAT NATURAL RESOURCES and the oyster industry is one of the oldest in the United States. It is a variable industry, ranging from a wild fishery upon natural stocks of oysters to highly specialized farming carried out on private lands.

Many adversities face the oyster industry and cause speculation about the future of the resource and those individuals and companies engaged in it. The following discussion is an attempt to consider the biological aspects of the oyster industry; leaving to others the problems of processing, marketing, sociology, politics, and economics.

How can we predict the future of this sprawling industry which is spread over every coastal State, which uses many different methods, and has various local problems with little in common except the final product? Logically, we should examine the past to indicate trends. We should look closely at the present for today's problems are the best known, but with care lest we over-emphasize their importance. Finally, we should look to the future in the light of our experience in the past, the present status and the hopes and problems which we can foresee.

### **The Past**

Production trends on the Atlantic coast have been downward from peaks which were reached many years ago; yet in other places the reverse is true. For example, the Pacific oyster industry, which began less than 30 years ago, now has a stabilized production of over 10 million pounds of oyster meats per year. Production in the Gulf States has varied from year to year but this area continues to produce a substantial share of the nation's oysters.