

THE SPONGE INDUSTRY FROM AN ECONOMIC POINT OF VIEW

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No matter from what angle we view the sponge industry---biological or economic---we should first recognize that we are dealing with a natural renewable resource. Natural, i.e., produced by nature in contrast with a product of manufacture; renewable, i.e., capable of re-establishment or restoration of supply. Man has never been able to produce by manufacture a product equal to the natural sponge for many uses. By setting up a proper system of management of this natural resource, man can aid nature in building up the supply of sponges in any area by adopting such a system and thus stabilize production at a reasonably high level. It has also been demonstrated that it is practicable for man to engage in the cultivation of sponges thus augmenting the supply from natural beds. These are factors that should be taken into account by the economist as well as the biologist interested in meeting the needs of our people for an adequate supply of sponges.

Sponges are a highly important article in branches of the arts and industries. In fact, in normal times our people used at least one million pounds of sponges yearly, equivalent to about 50% of world production, to meet our requirements. But during the last decade there has been an alarming shrinkage in production as the following figures will reveal:

Year	World Production	Domestic Production lbs. (000 omitted)	Imports for Consumption	U.S. Market Supply	% World Production
1935	2,613	655	613	1,268	48-1/2%
1938	2,102	606	428	1,034	49-%
1941	----	201	223	424	----
1944	----	186	123	309	----
1947	----	158	209	367	----

In simple language, our supply of sponges (domestic production and imports) in 1944 was only 24% of the 1935 total. In 1947, domestic production was still declining, but imports from the Mediterranean had picked up some, with the result that the total supply of sponges available to domestic users was still only 29% of our 1935 supply. Obviously, an industry which now gets only a fourth of the supply available to it twelve years ago is on the defensive, has to face the loss of its entire business if satisfactory substitutes can be produced. In fact, cellulose sponges have already replaced genuine sponges for many uses, and would have crowded these out of the market except for the fact that in certain fields no satisfactory substitute to the genuine sponge has been perfected. As this is only part of the story, let us review in greater detail the situation in some of the important production areas.

United States - Production appears to have reached its peak in 1936 with a total of over 600,000 pounds, for which the fishermen received over \$1,035,000, equivalent to \$1.65 per

pound. Ten years later (1946) production had declined to about 157,000 pounds, netting the fishermen nearly \$2,946,00, equivalent to \$18.70 per pound, or eleven times the 1936 unit price. Production fell to 1/4 its former level, while prices increased to eleven times their former level.

Among the factors causing the decline in production were the blight of 1939 which practically wiped out stocks in the Key West area, and severely depleted the stocks in the deeper water areas coastwise; the taking of large quantities of undersized sponges; and greater intensity of fishing effort resulting from mounting prices, making it highly profitable to operate in spite of the rapid falling off in the catch. The catch has now fallen to a level that makes sponge fishing unprofitable, with the result that most of the sponge fleet has converted to fin fishing, or is tied up at the docks. The extent of the decline is revealed by the following figures:

Sales of Sponges on the Tarpon Springs Exchange to Aug. 1, 1948 - \$	422,685
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In other words, sales for seven months in 1946 were 4.7 times sales during same period in 1948. This presents a rather dismal picture for the future of our sponge industry centering in Tarpon Springs, Florida.

Bahamas - Prior to the destruction of the sponge blight late in 1939, the sponge fisheries represented one of the Islands' most important industries, with an estimated employment of about 6,000 persons. An idea of the magnitude of this fishery can be gained from 1939 exports which totaled 833,269 pounds, of which about 350,000 pounds were exported to the United States. In late 1939 the sponges were struck by a blight which wiped out some species completely and left such a small supply of others that shipments of sponges from that area have practically ceased, and only in the last year or two have the beds been opened to restricted operations. One of the most unfortunate features of this destruction was the fact that the cultivation of sponges in that area was just beginning to attract world attention to the possibilities of this venture.

Cuba - Cuban sponge production decreased from a high of 1,111,577 dozen sponges in 1930 to 725,426 dozen in 1937 and 16,226 dozen in 1947. In other words, Cuban production in 1930 was seventy times that of 1947, and 1937 production was forty-four times that of 1947. This decline has been so great that it is difficult for one to grasp its significance. The average value per dozen rose from an average of 58¢ per dozen during the 1935-39 period to \$10.04 in 1946, declining to \$8.14 in 1947. Stated in another way, 1946 values were seventeen times that of the average for the 1935-39 period. As recently as 1945, the Cuban industry employed over 1,300 persons. In 1930 Cuba exported 1,257,000 pounds of sponges, valued at \$956,000. Of this amount, 570,981 pounds, valued at \$618,463 were exported to the United States. In 1947 exports had declined to 43,891 pounds, valued at \$307,086. Of this amount, 34,703 pounds, valued at \$252,313, or 80% of the total in each case, were exported to the United States. Decline in production can be attributed primarily to the blight of 1939, lack of observance of fishing regulations, and damage wrought by the hurricane of October, 1944. Soaring prices, resulting from increased wartime demands, with increases in value to eight or nine times prewar values, also contributed to over-fishing. The situation has become so acute that there is talk of stopping entirely sponge fishing for a five-year period.

Mediterranean Sponge Production - The sponge fisheries of the Mediterranean countries-- Greece, Italy, Egypt, Turkey, Libya, and Syria Lebanon--are so interwoven that for the purpose of this article it will be simpler to treat of them as a unit. While complete production figures are not available, in general it can be stated that prior to World War II, the Mediterranean grounds were fished to capacity, that during the War sponge fishing practically ceased, affording the beds a chance to recuperate. With the resumption of fishing after the War, there was a marked increase in production. For example, during the four-year period, 1936-1939, Greek production averaged 100,000 pounds annually.

In 1946 this had increased to 175,000 pounds, in 1947, to 331,000 pounds. With the shortage of stocks from our domestic fishery and in the West Indies, and the impoverished condition of European countries, our importers were quick to take advantage of this situation and purchase large quantities of Mediterranean sponges. This honeymoon is about over. With European buyers reentering the market, and with the exhaustion of the surpluses on the beds which had accumulated during the War, production may be expected to fall to prewar levels, and with growing competition from European buyers, the quantities imported into this country may be expected to decline to prewar levels or lower because of over-fishing resulting from high prices. Thus domestic consumers may expect stocks to be much lower than for the past two or three years.

Parenthetically, we might add that Tarponites, who have felt that Mediterranean stocks were ruining their market, will have less grounds for fear in the years ahead.

Other Production Areas - Other sources of supply of sponges are too small to affect the overall economic situation, so need not be discussed in this paper. Neither have I dealt with the relative importance of the different species of sponges. Under the present extremely high scale of prices, differences in quality tend to merge, the cheaper kinds serving as replacement for better grades wherever substitution is possible.

If sponges were a non-renewable natural resource, like coal and oil, I would be compelled to advise people in the business to seek some other source of livelihood. Fortunately, for all of us, as I stated in the beginning, sponges are a renewable natural resource, and as such it is our job to take steps to restore production to levels necessary to meet demand, supplemented by other means, such as sponge cultivation.

While Dr. Smith will discuss the biological aspects of the subject, I hope he will pardon me for discussing some aspects of the problem in support of the need of immediate action.

Sponges are a highly important article of trade with a great variety of uses, some of which are indispensable in that no satisfactory substitute is available. They are used by artists, bricklayers, decorators, hatters, jewelers, lithographers, painters, photographers, pottery glazers, silversmiths, for automobile and window washing, in bathing, in dressing leather, and for many other purposes. Obviously, a product with such a variety of important uses should command the interest of our people in aiding the biologist to restore production to much higher levels and stabilize production at such levels. Americans are noted for their ingenuity in solving difficult problems. We should back the biologists in their work to rebuild the sponge supply.

Florida has a big stake in this industry--an industry which, at its height, had about 150 boats manned by some 500 men--a fishery whose products sold on the Exchange for nearly three million dollars. Thus the life blood of Tarpon Springs has been its sponge industry. I wish to congratulate Supervisor Hurst for his recent success in having released \$45,000 for the prosecution of researches on sponges and other fishery items. Any economist knows full well the need for knowing all the facts in a given situation as a basis for planning for the future. Our first duty in planning for the future is to ascertain the extent of the damage resulting from the blight in all production areas. The recent survey seems to indicate that the deep-water areas are devoid of sponges. We need to know whether this is true of all such areas.

Dr. M. W. de Laubenfels, a sponge taxonomist of note, who recently visited the Bahamas, Tortugas, and Tarpon Springs, in a communication received since the foregoing was written, summarizes the situation in these words:

"I was able to make a study of the sponge situation in the Bahamas; collected commercial ones readily. All I could find personally were REEF sponges, but they were excellent quality of reef sponges go. I have dependable reports of the comeback also of wool sponges there, but it appears that the velvet sponge is extinct. I visited at Tarpon Springs. As you doubtless know, the situation

there is tragic - business practically wiped out; as of the middle of July, no boats out for sponge AT ALL. I chartered an airplane, and made a reconnaissance of the Tortugas area. The superintendent of Fort Jefferson helped me with an outboard motor boat. In that vicinity the reduction in sponge species is simply terrible - so many kinds are utterly absent that were abundant during my studies there between 1927 and 1936. I judge that the sponge blight devastated many non-commercial species as well as Spongia and Hippiospongia."

Every man handling sponges, whether fisherman, packer, distributor, or retailer, has a stake in this business. One of the evils of the trade has been the bootlegging of undersized sponges. Every member of the trade should do his part in stamping out such sales. Undersized sheepswool sponges, which may sell for as little as 10 or 15¢ a piece, if left to maturity, may command as much as \$20 per pound. In particular, divers should be educated to use as much discretion as is humanly possible to avoid pulling these undersized sponges. In addition, the fishermen should exercise greater care in cleaning the sponges and thus maintain the superiority of natural sponges over the synthetic varieties.

The practicability of cultivating sponges has been demonstrated in the Bahamas, the cultivated product proving far superior to similar sponges from the natural beds. Years ago it was demonstrated that sponges could be cultivated at points on the coast of Florida. These experiments should be continued to the point where private enterprise could take over.

The low estate into which the sponge industry has fallen because of reduced supply is a challenge to American brains---biologists, members of the trade, state and federal authorities. Production can be restored. Let all of us put our shoulder to the wheel to see that this objective is achieved.