

value or amino acid content is most desirable but I have no suggestions as to how it could be achieved. Probably it would be worth while for the industry to develop more knowledge of improved drying methods. It would be interesting to learn the biological value of fish meal produced by a freeze dry method. I know it would be impractical and too expensive but it might reveal interesting information. Theoretically a full meal should be better than an ordinary fish meal but in actual practice it would depend upon the method by which it was produced."

If you asked a dozen more authorities the answer would probably be in the same orbit. Uniformity, higher protein, lower fat, no scorching, higher average biological values and maybe a full meal. Briefly those are the objectives that are being set up by the customer and we should be busily orienting ourselves to give him what he wants.

I do not want to leave you with the impression that I am pessimistic about the long range outlook for fishery feed products. Properly processed they are the most efficient products known for their purposes. By 1975 it is estimated that there will be 54 million more people living in the U. S. A. This points to the need for a one-third increase in livestock and poultry production in the next 15 years. We have a tremendous market potential. If all the poultry and swine rations in the U. S. A. were now fortified at the minimum recommended levels, the annual requirements would be about 590,000 tons of fish meal and 280,000 tons of fish solubles (Table 5). Annual consumption today is only about half of this amount; therefore we are a long way from saturating our market. Basically all we need to do is increase our efficiency and average biological values or, to put it another way, simply raise the quality and lower the price.

Sport Fisherman - Commercial Fisherman Relations

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ALTHOUGH THIS PAPER is listed in your program as "Sport Fisherman-Commercial Fisherman Relations," I think probably a more descriptive title would be "The New Look in Sportsmen-Commercial Fishermen Relations."

For more years than anyone cares to remember, the legislative halls of every coastal State and the Great Lakes have been shaken to the rafters with arguments designed to manage our fishery resources. Unfortunately, most of these arguments were slanted to whichever side was presenting them, and in every case conservation came in second best. Both sides won an occasional scrimmage, but time has proven that the conservation war was being lost.

Proof of this might easily be found if anyone took the time to check the laws of several states in regards to any one species. Being from New Jersey and, therefore, more familiar with its problems, I would like to describe how we managed the striped bass or rockfish.

This is a species of fish that ranges the Atlantic Coast from Florida to the St. Lawrence River. It is a beautiful game fish with wonderful fighting qualities. Also an excellent food fish, so naturally it is sought after by both sport and commercial interests.

Each year, prior to 1953, sportsmen descended upon the State House in Trenton with a host of bills designed to regulate the taking of these fish. Com-

mercial men countered with others, and dependant upon the pressure generated, and the mood of the legislators, anything could, and did happen. When netting was permitted, the butchers, the bakers, and the police and firemen turned commercial fishermen to get in on the gold rush. When netting was restricted, the real commercial fisherman had to sweat it out and continue the fight.

Most of the laws passed were the result of pressure groups with guess work as the principal argument, and while they were advanced as conservation measures, they were often the opposite. Here is an example. In the spring, striped bass in their northward migration occur in New Jersey coastal waters at the same time as shad. One regulation permitted the use of a staked gill net 25 fathoms long, with a minimum mesh of 5 inches stretched for the taking of striped bass only. Another regulation, at the same time, permitted the use of a staked gill net 30 fathoms long, and a minimum of 5 inches stretched mesh for the taking of shad only. These nets were fished at the same time, and in the same waters, and it is quite obvious that if a shad, by mistake, was caught in the wrong net he had to be returned to the water. Also, if a striped bass became gilled in a shad net he could not be retained.

The commercial men knew the law, and so did the sportsmen. The fish could not read, and so was blamed for all the trouble. However, all of this was finally corrected when in 1953, after years of wrangling, the striped bass was made a hook and line fish only. This solved two problems. It satisfied the crusader who fanatically fought for this type legislation, and it also solved a serious social and political problem. It also came very close to destroying the future of the fishery scientist and biologist in New Jersey because this law was passed against the advice and strenuous objections of the best fishery biologist in the country on this specie. It was felt by many that if you do not take the advice of the doctor, you are wasting his time, and yours too.

I at the time was so concerned, that I sponsored a resolution at the following meeting of the Atlantic States Marine Fisheries Commission in New York, urging the member States in the future to give more consideration to the advice of fishery scientists and biologists in managing their fisheries. This served notice that the managing of our fisheries had to be based on sound scientific fact if we were to practice real conservation.

Sportsmen whose questions could not be answered to their satisfaction in the past are now supporting research programs in the hope that they will lead to better utilization of the resources. Meetings have been held jointly with commercial fishermen, and instead of mortal combat, all were surprised to find areas of agreement, and many common interests. A very good example is the problem of the menhaden fisherman. The success of this fishery depends upon their being permitted to fish in close to shore. Many times during a season, the heaviest concentrations of these valuable fish are almost into the surf. The sight of this activity so close to shore has been the source of many complaints. The industry has been plagued over the years by well intentioned, but ill informed persons whose sincerity could not be questioned, but who had no knowledge whatever of the facts. The Cape May County Gazette, a weekly newspaper in Cape May County, New Jersey, reprinted in their "Auld Lang Syne" column on September 3, 1959, an article printed 75 years ago in 1874, and I quote, "Blue fishing has never been as poor as it has been in the past five years, and unless something is done to suppress the activity of the Menhaden Steamers, we can look for very little improvement." End quote. This same article could have been printed just a few years ago when it was still believed by many that menhaden

fishermen were catching large quantities of food fish, when in reality they do not catch enough to feed their crews. After many meetings with sportsmen's groups, municipal officials, and others interested in conservation, it is now known by the majority that menhaden fishing is not detrimental to recreational fishing.

When the program was announced of the proposed plan to study the estuarine area of our Atlantic and Gulf Coasts, the menhaden people were the first to favor this worthy cause. The marsh lands are of the greatest importance to the menhaden industry, because all menhaden spend a large part of their first year in this area. The future catches depend upon the successful rearing of the juveniles, and it is natural that menhaden producers are interested in the wet lands.

The wet lands have a multiple use. They are used as a nursery area for many species of food fish, shell fish, water fowl, and the hunter. Here then is a common area of mutual benefit to both sport and commercial interest. Save the wet lands. Many thousands of acres of marsh land adjacent to menhaden plant installations have been purchased by the plant owners, and recreational privileges are granted to water fowl hunters and fishermen. This is concrete evidence of a new look.

Since the Saltonstall-Kennedy program came into being, millions of dollars are being spent in research. Most of the states have expanded their programs, and are cooperating with the Bureau of Commercial Fisheries to avoid duplications of effort. More work is being done by fishery scientists today than at any time in the history of the industry. One thing has become crystal clear. We have not in the past properly managed our fishery resources. In the future we should not pass a law unless it is supported by sound scientific fact based on research. We should not press our researchers for premature statements based on limited research, but should wait until they are able to make suggestions that are scientifically sound.

It is a must that sportsmen follow the example expressed by Hal Lyman and Dick Stroud at the recent meeting of the Atlantic States Marine Fisheries Commission at the Governor Clinton Hotel in New York. They suggested, among other things, that both groups meet more often, and try to reconcile their differences. Further, to support a scientific research program that will assure proper exploitation of our fishery resources, and through proper management there will be enough for all.

Potential Markets for Products of the Industrial Fisheries

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THE INDUSTRIAL fisheries form a unique and romantic segment of the fishing industry. Time was, when the industrial fisheries sailed comfortably along with assured markets for each of its products. Today, technological improvements in competitive products such as soybean meal, synthesis of cheap vitamins and other nutrients, development of totally new products such as the water-based paints, all have contributed to a gradual wearing-away of these previously assured markets. Today, this multi-million dollar industry is largely reduced to dependence on single major outlets for its meal and its oil. The instability of even these markets is pointed up by the increasing use of fish meal as "nutritive insurance." The feed formulator includes fish meal in his rations not because