

bility for appointment of their Advisory Committees, determination of the organization, method of operation, staffs, and program of the Commission. Their primary responsibility will be to plan and implement programs of research which will develop the scientific information necessary to determine the conservation measures needed to achieve the maximum sustainable productivity of the Tortugas shrimp stocks of common concern to the United States and Cuba. Other Federal, State and University agencies now have under way in the Gulf area extensive programs, covering research and oceanography on shrimp and other species. Much of this work will contribute to the solution of the shrimp problem of the Tortugas. The Commission will be concerned primarily with work directed specifically to the Tortugas rather than Gulf-wide problems. It will be the responsibility of the Commission to determine how it should fit its organization and operations into this picture so as most expeditiously and effectively to achieve the specific objectives of the Tortugas Shrimp Convention.

## Fish and Feed in the Sixties

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IT IS AGAIN my pleasure and privilege to have your attention. My last appearance as a speaker before this distinguished group was on November 17th, 1952 and for the sake of continuity I want to repeat a statement and forecast I made at that time.

"In almost every field of science, engineering and industry, research and developmental activity is at a high pitch. As the findings of the various groups are made known to each other, the effects are going to be far reaching and they will be abrupt, because we have an economy that is conditioned for, and responsive to new products or methods. Because of this ferment in the scientific world, it is important that every manufacturer be kept alerted to the trends and that he be actively planning to adjust to their results."

"Competition from synthetics is very real and tends to lower the relative market prices of menhaden oil, meal and solubles. It is, therefore, highly important that this industry continue to increase its degree of quality control so its products will be less vulnerable to substitutes."

TABLE 1  
ESTIMATED U. S. A. BROILER CHICKEN PRODUCTION  
1951 — Versus 1958  
In Number of Birds

1951	1958	Increase	% of Increase
791,878,000	1,659,636,000	867,758,000	109.58%

My message today is along the same vein as I have been advising fishery feed products manufacturers for the past ten years. Raise the quality and lower the price.

The fish reduction industry has made substantial progress in cost cutting. The development of the power blocks, more complete solubles recovery and refrigerated raw boxes and vessels have made important contributions toward

increased efficiency but these have been borrowed techniques developed by other industries. The fish meal and solubles industry has not and is not spending enough time, talent and money on improved products. The top management of the industry has been about 90 per cent production minded and has neglected product development and marketing.

The following statistics will show the basis for these conclusions. It is realized that figures can conceal as well as reveal, and if the wrong conclusions have been drawn the author would be happy to know about it for these conclusions are somewhat alarming.

The broiler chicken industry is the largest user of fishery feed products in the U.S.A. Between 1951 and 1958 this industry more than doubled its production (Table 1). During the same time the consumption of fish meal and fish solubles in the U.S.A. was increased by only about 5 per cent (Tables 2-4).

TABLE 2  
U. S. A. TOTAL SUPPLIES  
1951 - 1958  
(tons 2,000 lbs.)  
FISH MEAL

Year	USA Production	Imports	Total Supply	Average Use Per Day
1951	209,756	128,479	338,235	927
1952	221,403	203,539	424,942	1164
1953	238,851	131,473	370,324	1015
1954	256,967	145,777	402,744	1103
1955	264,502	98,000	362,502	993
1956	295,793	91,400	387,193	1061
1957	262,463	81,200	343,663	942
1958	235,445	103,352*	338,797	928
<b>FISH SOLUBLES &amp; HOMOGENIZED CONDENSED FISH</b>				
1951	50,364	4,000*	54,364	149
1952	70,482	4,000*	74,482	204
1953	81,494	4,000*	85,494	234
1954	115,029	4,000*	119,029	326
1955	110,889	4,000*	114,889	315
1956	128,850	4,000*	132,850	364
1957	122,300	8,000*	130,300	357
1958	130,000*	10,000*	140,000	384

\*Estimated

These two facts have been interpreted to mean that the fishery feed fortifiers have not maintained their position in the market, and looking backward it is easy to understand why the marketing practices have undergone such violent changes. In view of the high esteem in which fish meal and fish solubles are held in nutritional circles, why should these products be losing favor? Apparently it is because of the displacement or sparing effects of such items as synthetic methionine, antibiotics, vitamin B12 supplements, fermentation products, 50 per cent protein soya bean meal, poultry meat meal and feather meal. One should not expect to obtain large increases in efficiency when adding fish meal or condensed fish solubles on top of all these ingredients. However the selling price of fish meal should be equal to the cost of making a complete ration using these

competing products. Undoubtedly, loss of sales from fish meal and condensed fish solubles are due to some nutritionists' belief that the substitutes are a more definite and dependable source of the nutrients under consideration than fish meal and condensed fish solubles. In the desperate competitive battle for broiler feed business, terrific pressure has been put on the nutritionist to bring down the cost of the feed, and where some compromise in feed performance is permissible, the fishery items seem to be the first to be reduced or taken out. The situation may be compared to one which has recently taken place in the automobile industry. Several years ago Detroit brought out models with engines of very high efficiency, providing they were fed premium priced fuels. For a brief period these engines were popular, but today, the trend is back toward engines that will burn the regular priced gasoline. Obviously the public has indicated that they will sacrifice a little performance and efficiency if it will permit them to use a fuel of lower cost.

TABLE 3  
COMBINED APPARENT DAILY USE OF ALL THREE PRODUCTS

Year	Tons Per Day
1951	1076
1952	1368
1953	1249
1954	1429
1955	1308
1956	1425
1957	1299
1958	1312

TABLE 4  
COMPARISON OF AVERAGE DAILY USE FOR THE TWO FOUR YEAR PERIODS

	1951-1954	1955-1958	% of change
Meal	1053	981	-7%
Solubles & H.C.F.	228	355	+55%
Combined Total	1281	1336	+4.3%

Looking back on the past ten years it is clearly obvious now that the fishery feed products have been under gradual but increasing pressure. As the impact of the replacement items commenced to take effect, markets were at times sluggish, the real causes were not generally understood and as the development was so gradual it was most difficult to impress the industry with the true seriousness of what was happening. The U. S. A. has historically needed to import about one fourth of its fish meal requirements and in the early stages of this market contraction the only apparent effect was a gradual reduction in the tonnage of imported fish meal. The market was still broad enough to absorb the domestic production at prices generally satisfactory to the producer. When the industry finally realized that something was wrong, many of them came to the quick conclusion that all they needed to do was change their marketing technique. They took the standpoint that there was nothing wrong with the product, and when they studied the economic outlook they were encouraged by the rapidly expanding broiler chicken industry. As a result there was a rush to set

up direct selling methods, build warehouses to permit year round delivery, and enter into contracts for year round delivery at a fixed price. The storage for round the clock delivery was an excellent and long over-due service, but the rest of the marketing technique only postponed the day of judgment. It did not even approach a solution to the economic problem. No amount of sales promotion or continuous propaganda of scarcity will create a market. If you don't believe so, go out and try to sell a car load of buggy whips. The golden age of the unidentified growth factor is over. We are going to have to come up with some new models.

Based on the assumption that there exists an eager and unlimited market, most fishery feed products manufacturers are today oriented about 90 per cent toward production. Production by itself is futile if the products cannot be sold at a profit. Remember the real customer is the man who uses the feed. The feed manufacturer is only your intermediary. Manufacturers of fishery feed fortifiers need more customer orientation. We must not let the romance of the sea make us forget that the end products must fit into the economy of the land. Customer orientation requires that management be closely in touch with the customer's viewpoint. Briefly he should try to get his entire organization oriented in the direction of better customer service and the production of improved products. Each manufacturer should conduct on his own or subscribe to market research that will give him a basis for estimating the kind and quantity of products that will be in demand. He needs this kind of information on a regional, national and international basis. He should have his 1962 model on the drawing board today and have a reasonably accurate idea of the product he expects to manufacture in 1965.

A broiler ration may contain as many as thirty ingredients. The feed manufacturer sets up quality standards on each ingredient. Working as a group the nutrition council of AFMA has developed a large number of standards. The important consideration, insofar as the feed buyer is concerned, is that manufacturers of ingredients cooperate in trying to produce feed ingredients of the quality required for efficient results. Failure to do so will certainly strongly favor the use of substitute products.

I have asked several leading nutritionists to describe the fish meal they would like to be working with five years from today and here are their answers.

1. "We would not expect anything spectacular to be accomplished but we are going to insist upon uniformity of protein level, a uniform fat level, the fat must be stabilized, the moisture level must be consistent and there must not be any scorched or burned particles. Briefly we want uniformity and we believe that economics will enforce these standards."
2. "I would like to be able to consistently obtain a fish meal of 65 per cent protein, 8 per cent fat and 8 per cent moisture. I think more attention should be paid to processing methods so as to reduce or eliminate protein damage due to over heating. I am not yet decided but believe that I will probably have a preference for a full meal. We want to increase feed efficiency if possible and obviously it would help if we would reduce the moisture in our products. This explains my attraction to a full meal. If it will give me the same boost as the wet solubles at a comparable cost, it will be an improvement."
3. "It would make very little difference to us whether the protein was 60 or 65 per cent. The most important thing we believe is uniformity. By this we mean uniformity of protein, fat and moisture. Uniform high biological

TABLE 5

ESTIMATED 1959 POTENTIAL U.S.A. MARKET FOR FISH MEAL—SOLUBLES  
& CONDENSED FISH IN POULTRY & SWINE FEEDS  
BASED ON RECOMMENDED LEVELS IN THE MOST ESSENTIAL RATIONS

Poultry	No. of Birds	Kind & Amount of* Feed Per Bird	Total Tons of Feed	Levels of Fish Products		Tons of Fish Product Needed	
				Meal	Sols	Meal	Solubles
Farm Chickens	457,900,000	Starter Ration	572,375	3%	2%	17,171	11,448
Broiler Chickens	1,863,000,000	Broiler Ration	7,731,450	5%	2%	386,572	154,629
Breeding Flock	27,000,000	Breeder Ration	999,000	5%	2%	49,950	19,980
Turkeys	82,000,000	Starter Ration	328,000	5%	2%	16,400	6,560
Turkeys	82,000,000	Growing Ration	861,000	2%	2%	17,220	17,220
Turkey Breeding Flock	3,565,000	Breeder Ration	83,777		3%	4,189	2,513
Other Poultry						800	400
						492,295	212,750
			Total potential for poultry				
Swine							
Pigs	102,129,000	Starter	3,063,740	3%	2%	91,912	61,274
Brood Sows	14,800,000	Supplement	333,000	2%	2%	6,660	6,660
			Total potential for swine			98,572	67,934
			Combined Poultry & Swine			590,874	280,684

\* Adjusted for mortality &amp; culling

1 Breeder ration only fed during hatching season

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.

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## **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-