LET'S EAT SHARK

Pablo T. Tamesis

A sure-fire formula to spark an argument among Filipino fishermen is to insist that one spot is better than others for catching fish. For the islands form an integral part of the East Indies, with its wonderful coral reefs, its vast shoreline of every imaginable character, its lagoons and great marine abysses — the habitat of the greatest variety of fishes in the whole wide world.

The Philippines occupies a strategic position in the geographic distribution of fishes. The largest fish in the world, the whale shark, as well as the smallest fish, the goby of Lake Buhi, are found in this country.

Why, in spite of these fishery resources, we lag in fish production could best be explained by the meager developmental efforts of the fisheries by the government, and the apathy and inaction of individual fishermen to improve their economic status thru self-selp.

Poor People, Rich Country

No less than two million people are dependent on fishing and the ancillary industries for their livelihood. The deplorable economic conditions that plague fishery workers are an eye-opener to the national situation today

of a poor people in a rich country. The Philippines has vast waters and is proximate to the world's best fishing grounds.

By-products from the sea go to waste because the majority lack the knowledge of its utilization. Converted into fertilizers, leather, livestock fodder, fish meal, *vetsin*, liver oils, etc., these by-products from marine sources will generate new industries, create job opportunities to absorb a growing labor force, augment the per capita income, besides contributing immeasurably to the health and productivity of fisherfolk.

The nutritional deficiency of 28-million fish-eaters is a matter of grave concern. Fish and fishery imports in 1960 to cover the production deficiency of 36.3%, to the tune of ₱44 (M), is a heavy drain on dwindling dollar reserves. Far-reaching solutions other than stop-gap measures are vitally needed to meet squarely the increasing demand for cheap protein food by a snowballing population.

We have to shop somewhere for cheap but high-food value protein materials to ensure economic growth and the people's well-being. Malnutrition is rampant among the rural population because of protein deficiency in their diet. Such sources of animal protein as milk, cheese, beef, poultry and pork are luxury items to low-income groups.

Probably inspired by lessons from the Biblical times when manna sustained men, food technologists after years of intensive research and experimentation, have evolved a highly nutritious fish flour. The daily fare of average-income Filipino families which is often deficient in protein and minerals can now be enriched with fish flour manufactured from trash fish like sharks, anchovies, etc.

The problem of food insufficiency makes it compellingly urgent that we become shark-eaters to tap a potential resource of protein-rich food, and also rid our seas of this under-water menace.

Commercial Possibilities

Our shark fishery is virtually untapped. The first commercial utilization of shark before the war was 172.61 tons of shark fins valued at ₱85,-000 and exported mainly to China and Malaya. After the war, in 1947, a production of only 9,699 kilograms was recorded. The slump was due to the stoppage of exports to Red China which used to be our heaviest importer. Chinese epicures in Hongkong,

Singapore, Bangkok, Djakarta and Manila are responsible for the brisk trade in shark fin.

Exploratory surveys undertaken pursuant to the Philippine Rehabilitation Act of 1946 revealed a good shark catch by means of long line in most fishing grounds. Dr. A.W. Herre recorded 52 species of sharks found in Philippine seas.

The shark menagerie includes hammerheads, whale, dogfish, cow sharks, and tiger sharks, man-eaters and plankton-feeders. Their habitat are the rivers, lakes, shores or the deep sea. Tiger sharks are the most abundant species, constituting approximately 84%. The composition of tiger sharks is hide, 10%; liver, 22%; meat, including backbone, suitable for fish meal manufacture, 59%; fins, 4%; blood and miscellaneous matter, 5%. They extend well over 30 feet while the white sharks grow to as much as over a ton in weight.

Jellied Shark Meat — A Gourmet's Delight

Many of our people shun tuna, a prize seafood of Americans who dub it "the chicken of the sea." Local fish-eaters may find the thought of eating shark meat repulsive. But well-prepared dishes of shark meat are a gourmet's delight. Of course, the alchemy has long ceased to be a culinary secret. It may take some time, though, to educate the palate of many who still have unfavorable, pre-conceived notions against sharks, sawfish, and stingrays.

Sharks have no bones; instead they contain cartilages which form the base for shark fin soup — a Chinese delicacy. The Japanese have evolved a fish jelly, something like meat loaf or bologna without casing, utilizing fish meat instead of beef or pork. Generally called "kamabobo", the fish jelly product is mainly shark meat. It is preferred all over Japan because of its strong elasticity, very essential in fish jelly production. From the fish paste called *surimi*, various types of jelly products are formed. *Kamabobo* is semicircular, *Hmpaen* square-shaped, *chikuwa* tube-form. The fish sausage which recently gained wide acceptance is a jelly product stuffed in rubber hydrochloride or vinylidene chloride casing.

For the table, *kamabobo* is steamed, *chikuwa* is broiled and *satsumaage* is fried. Fish jelly products are an excellent food being rich in animal protein. To make the perfect victual from the nutritional point of view, fish jelly pro-

ducts may be enriched with vitamins and minerals.

Edible Fish Meal

The exorbitant cost of ice precludes the economical storage of low-grade fish. Sharks caught in large quantities in the many coastal regions are often discarded for lack of suitable markets, coupled with the dearth of refrigeration facilities. Similar species will enable reduction plants established in strategic areas to operate profitably. Consequently, the importation of fish meal for the fast-developing poultry and livestock industries will be drastically curtailed.

The most important and immediate local utilization of sharks, however, should be human food and livestock fodder because we are critically short of these commodities. Consider further that meat is the largest component of shark. Today, large quantities of sharks landed by fishermen are not bought because of popular prejudice. Enterprising fisherfolk could cash on these unsalable fish by converting it to fish meal. We may use fish meal as animal feed until it has gained popular acceptance as an item of diet.

Important considerations in the manufacture of fish meal for human consumption are freshness of raw material, excellent manufacturing and hygienic storage conditions. If not properly processed as, for instance, when exposed to prolonged heating at high temperature, severe damage to amino acids and vitamins occur and life-giving elements are destroyed.

Dehydrated Shark Meat

The manufacture of dehydrated shark meat is a significant step in the optimum utilization of the less commercial species that abound in our marine waters. Having practically no commercial value in this country, shark meat converted into the *vetsin* would be a boon to the protein-starved millions in the rural areas. We must stop reckoning starvation in terms of rice alone because we can also starve from lack of fish.

Fish *vetsin* is prepared from the fish muscles of sharks and other cheap species. Its protein content is relatively high and would indefinitely keep at ordinary temperature. The method involved in its preparation is simple and practical, requiring no expensive equipment. It is done by precooking the fish flesh, mixing with sugar and condiments, then dried and smoked.

The cheapest source of protein, it is very rich in dietary

essential amino acids, the builders of the human body. Its protein content and carbohydrates are much higher percentage-wise than other animal food like dried beef, broiled lamb, smoked bacon and ham, veal chops, broiled chicken or duck.

Its important uses are as main ingredient for cheap, nutritious soup; digestible food for convalescents; and sandwich spread. Like an *aperitif*, it enhances the taste and food value of, and whets appetite for, native vegetable preparations.

Cod Liver Oil Substitute

Oil extracted from liver of sharks is purified and blended with peanut oil to a uniform Vitamin A content of 3,000 i.u./g. This oil has a ready market as substitute for cod liver oil because the demand is greater than the supply. The oversized liver of sharks, approximately 20% of the total weight, besides being rich in Vitamin A is suitable for soap manufacture, in tanning hides for leather, and in making paint. When properly refined, it has medicinal uses. Thus, the development of a shark fishery and the installation of more liver-oil plants will be successive steps to cope with the increasing requirements of the nation's diversified industries.

Shark Skin to Leather

The pelt of animals has varied uses to man, but practically little or no importance is given to the manufacture and use of skins from aquatic sources. In the hands of a skilled craftsman, skins of aquatic animals become attractive belts, hand-bags, shoes, briefcases, wallets, watch fobs, key holders, etc. Sharks and other large fishes are good sources of these raw materials.

This unusual leather not only excels in beauty but has a tensile strength and durability three times that of cattle hide. The different species of sharks caught locally have a special kind of complexion that gives the hide a peculiar and attractive grain. Their colors range from dark brown to a soft, warm gray.

Because our marine waters teem with them, an attempt should now be made to utilize dark skins on commercial scale. This industry should be encouraged, developed and maintained at peak production levels considering the pecuniary and employment benefits that could be derived from it.

Three weeks after the hides are tanned, the pieces are ready to be fashioned into handsome, long-wearing articles. Shark skins are easily

tooled into numerous articles of merchandise. In Taiwan, enterprising businessmen using shark skin as raw material turn out $700,000 worth of articles annually.

Scales of sharks are different from those of fishes. They are closely-set bony projections with enamel, just as teeth are. This hard-skin covering is called *shagreen* which furniture-makers still use as abrasives even after the invention of sand-paper.

Benefits Unlimited

Maximum utilization of products and by-products from the shark fishery will create vast job opportunities as well as myriad products for local consumption and export.

Fishermen use shark blood to preserve fishing nets in place of coal tar. Shark teeth have decorative uses in some places. When dried and ground, the offal and viscera serve as poultry feed and first class fertilizer. The entire skeletal structure of the shark can be charred and reduced to supplementary feeds. Practically all components of the shark are useful if we know how.

We have shown how every portion of the detested fish is utilized for cheap protein food, animal fodder, agricultural fertilizer, industrial raw materials and other export commodities.

The production of fish flour, dehydrated fish meat, fish sausage will make available an inexhaustible supply of cheap protein food to our rapidly-increasing population. People repelled by its nauseating scent are in for another surprise. Dehydrated shark meat, fish flour and fish jelly products do not have the expected fishy smell. Many may not know it yet but deodorized fish flour containing 87% protein, 3% calcium and 2.4% phosphorous, is the basic ingredient for fish-enriched bakery products like *galletas, biscocho, apa, polvoron,* and even ice cream!

With these advantages, who can resist the lure of shark fishing?

THOUGHTS ON THE . . .

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view, they are capable of exploiting indiscriminately our natural resources in utter disregard of the disastrous effects which such thoughtless acts could bring upon the country. They go to the extent of serving at times alien interests of the kind which are exclusively concerned with the promotion of their own

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