

Worldwide resource

Tunas are worldwide in distribution. They support one of our most valuable fisheries. Some species make long migrations, and some are capable of supporting much larger catches. On the other hand, some tunas are restricted in distribution and movements; some are already producing the maximum possible yield or are overfished; and some fluctuate widely in distribution and abundance.

Research on the living resource provides a basis for forecasting. Sometimes it is difficult for the layman to understand how a particular piece of research can be useful for forecasting or prediction, especially when it is described in the jargon of the scientists. But prediction is essentially the goal of all our scientific programs on the living resources. To reduce to a minimum the cost of catching fish and to maintain the resource of its maximum productive capacity it is essential that we learn how to say in advance where, when, and in what numbers the fish will be and how many can safely be caught. I will show you how we propose to answer these questions for tuna, and this will give you a general idea how we can accomplish the same objectives for salmon in the Pacific Northwest and Alaska, sardines and anchovies off California, fresh water fisheries in our lakes and streams, a variety of fishery resources in the Atlantic and Gulf of Mexico, and sport fisheries generally.

It is said that our tuna fisheries in the Pacific Ocean began in 1903 because the run of sardines off southern California failed that year. The following quarter century saw a gradual increase in the size of the fleet, the size of vessels, and the extent of the fishing grounds. By 1930, the day of the large bait boat, or tuna clipper, as it is commonly called, had arrived. Vessels from southern California were fishing as far south as the Equator, and when brine refrigeration was developed in the late 1930's the working time and range of the fleet were further increased. When World War II broke out a number of large tuna vessels were under construction and many new vessels were entering the fleet. The U.S. Navy took these and sent them with crews intact to the South Pacific where they provided invaluable logistic support.

For several years after World War II the economic climate was favorable for expansion of the U.S. tuna fleet. Imports were not yet available. Profits were good and were used to build new vessels. Later, however, competition from foreign fishing fleets, especially the developing Japanese high-seas tuna fleet, cut into the profits of the U.S. fishermen. United States fishermen have remained competitive by increasing their efficiency through assistance from Federal and State Governments and by their own ingenuity.

The Pacific coast fleet is composed of approximately 140 large vessels capable of extended voyages at sea. Most of these operate from southern California ports. About 1,000 small coastal vessels fish for albacore seasonally along the U.S. Pacific coast. Over the past two decades, landings of Pacific-caught tuna by U.S. fishermen have consistently been among the most valuable catches of the United States, along with shrimp and salmon. The tuna fisheries are worth about \$50 million annually to U.S. fishermen, about \$150 million at retail value.

The fisherman's dilemma

One of the most difficult problems facing a sport or commercial fisherman is to decide where and when to go to make the best catch. Consider the decisions that a purse seine captain from southern California has to make. He must decide whether to fish off Washington and Oregon for albacore, off Baja California for bluefin, off Mexico or South America or perhaps the Marquesas Islands for yellowfin or skipjack, in the Hawaiian Islands region for skipjack, in the Atlantic off our eastern seaboard for skipjack or bluefin, or off the west coast of Africa. A modern purse seiner may cost \$1.5 million and requires a crew of about 15 to operate it. Investment is high and risks are great in the highly competitive world of high-seas tuna fishing. The uncertainty of supply of raw materials also creates serious problems for processors. They cannot be certain from one month to the next how much fish will be available.