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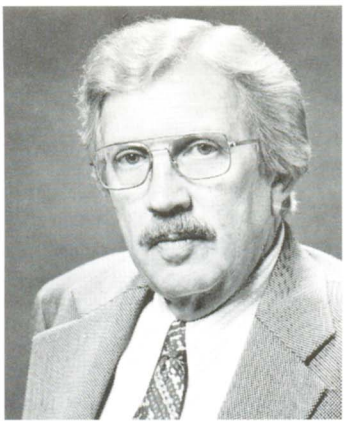

Fish farming in California

The American people, in total, are not noted for their consumption of fish and seafood products. Current consumption of such products averages only about 15 pounds per person per year—less than one-tenth as much as our average annual consumption of meat.

Our national preference for meat may explain in part why the tremendous potential of aquaculture as a source of food remains largely untapped in this country, particularly when compared to Japan or Russia, or China, where "fish farming" has been practiced for 5000 years.

Aquaculture in California and elsewhere in the United States—catfish and trout farms and salmon hatcheries, for example—is often designed for recreational purposes, and does not contribute substantially to our food supply. The industry in the United States remains in a relatively primitive stage of development, limited essentially to hunting and trapping wild species from the sea.

If aquaculture is to advance beyond that stage and fulfill its promise as a source of high-quality protein, research will have to play a major role. The University of California has made a strong commitment to the attainment of that goal and to the development of a productive aquacultural industry in this state.

The program itself is not unique—there are aquaculture units at a number of major universities across the country—but the nature and extent of the California effort is noteworthy. Supported in part by the California Sea Grant program, our aquacultural research focuses on both salt water and fresh water species. The program, directed within our Agricultural Experiment Station unit on the Davis Campus by Dr. Wally Clark, brings together the expertise of a diversified selection of scientists and disciplines that crosses campus and departmental lines: marine biologists, agricultural and civil engineers, economists, food and nutritional scientists, environmental specialists, and researchers in land, air, and water resources. The program also includes an extension aquaculture specialist.

We believe that in this group of top-rank scientists we have formed a strong nucleus for the comprehensive type of program that is necessary to make commercial aquaculture a reality.

Current research projects are directed primarily at helping potential aquaculturists engineer and operate fish farms—to determine adequate water and waste disposal systems, to establish the nutritional requirements of aquatic species, and to control the diseases of the wild animals the aquaculturists intend to raise. A start has been made in genetic research to develop aquatic organisms specifically for culturing in artificial situations to replace the wild species on which the industry must now rely. Also under way are studies in reproductive biology, designed to enable aquaculturists to market their products throughout the year by manipulating the breeding cycles of the animals they raise.

Much of this research is being conducted at our new Aquaculture Laboratory at the Bodega Bay marine facility, which we believe to be one of the finest in the world. Other work is being done in inland waterways and on various campuses, and will investigate the use of aquatic organisms not only for food, but also as a means to revitalize and recycle natural resources such as agricultural waste water, or as biological control agents.

The potential of aquaculture is unlimited, the need is urgent, and the opportunity apparent. We may never see the orchards and vineyards of the central valley of California replaced by fish farms, but it is entirely conceivable that aquaculture will one day utilize areas of our state which are not suitable for conventional crop farming.