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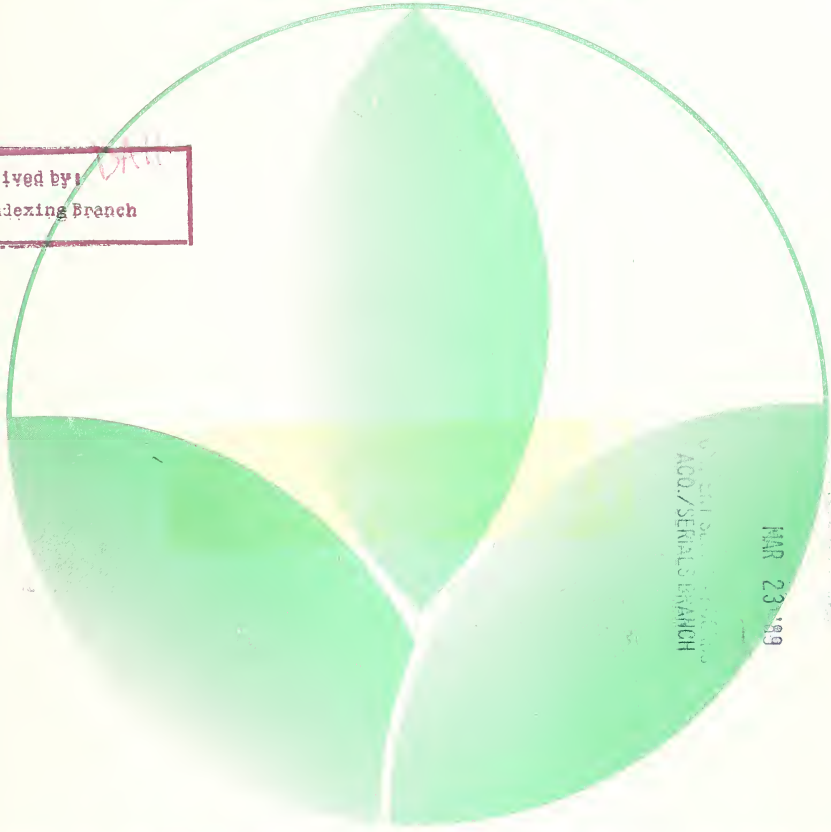
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OUTLOOK FOR AQUACULTURE PRODUCTS IN THE U.S. MARKETPLACE //

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By virtually every measure the outlook for aquaculture products in the U.S. marketplace is positive. Production is up, more species are being farmed, technology is improving, and consumers are eating more seafood than ever before. However, while all of the trends are up, significant hurdles remain before the industry reaches its full potential.

Neither the market positioning nor operational requirements of a successful aquaculture operation are well understood by those familiar with this country's traditional commercial fisheries. Fish and shellfish farming are still quite new to consumers, retailers and restaurateurs, distributors, and regulatory agencies, including the Departments of Commerce and Agriculture. To many American food experts, aquaculture remains as amorphous as say, farming Belgian endive.

However it is an industry that, internationally, has become quite significant. One-eighth of the world's seafood now comes from aquaculture and by the end of the next decade, aquaculture will produce one out of every five pounds of seafood. It is time that we, in the United States, recognize the importance of aquaculture in fulfilling our present and future food consumption needs.

Aquaculture shares numerous problems with the production of other farmed foods: feed conversion, nutrition, disease prevention and treatment, adverse weather, predators and dealing with regulatory agencies to name a few. However, it differs in that it

operates in a environment foreign to man where the tolerance for error is much lower.

Salmon farming is a fairly typical example of what is required for profitable saltwater aquaculture. It is about raising market size fish in less than three years for under \$1.75 per pound. As a point of comparison, it takes a salmon in the wild 4 to 5 years to grow to market size.

While my slides show Ocean Products' operations in Maine, the technology, facilities and the farms are similar throughout the world.

We begin with brood fish that are carefully chosen for their genetic superiority. In late fall, their eggs are stripped and then transferred to fresh water hatcheries where they grow for about six months. The young fish, then known as fry, are moved to fresh water grow-out tanks for one year, where they are fed a special diet and grow into smolts.

In April and May of each year, the smolts are moved to ocean cage systems which will be their home for the next eighteen months. This is also a stage where the salmon encounter potential predator problems from comorants and seals. The salmon are fed, weighed, counted and ultimately harvested.

This is basically the technology of salmon aquaculture. It is a process of vigilant, dally husbandry practices that has much to gain from government assistance.

Consider the range in market potential for aquaculture products in the U.S. for 1990 and beyond:

We can expect demand, in terms of live weight, in 1990 to range from a conservative projection of 1.3 billion pounds to a more aggressive estimate of 3.1 billion pounds. To put that in perspective, the range is from 70% over 1986 actual demand to 200% over 1986 demand.

In making these projections, I am assuming that per capita seafood consumption in 1990 will be 5 to 30 percent higher than the 1987 level of 15.4 lbs. That means a 30 percent increase is needed to reach the industry's 1990 target of 20 lbs. per capita.

If we generously assume that the wild catch available to the U.S. marketplace can increase 4% annually, we will be left with a gap between wild supply and consumer demand of 1.3 to 3.1 billion pounds live weight. At an average wholesale value of \$3 per pound, this production challenge represents 4 to 9 billion dollars. That accounts for the obvious appeal of aquaculture among private and public investors.

Now, what do we have to do to achieve this potential?

Certainly, sophisticated marketing techniques will be required, but that will be determined by individual producers and forces of the marketplace. We can expect most aquaculture products to follow the scenario of catfish from limited production to regional acceptance, increased competition, stable prices, national distribution, high-profile marketing and finally to widespread consumer buying.

Production growth, on the other hand, requires improvements in the technology of fish and shellfish farming, and this is where a partnership between government and industry can payoff.

Paralleling technical advances in American agriculture, development is needed in genetics, nutrition, feed conversion and disease prevention, diagnosis and treatment. But unlike the difficult times faced by agriculture, the return on federal and state investment in aquaculture is quite high, whether in the form of grants, low interest loans, tax relief, or research assistance.

An example of this success is Ocean Product's upcoming partnership with Eastern Maine's Penobscot Indian tribe. We offer raw product and efficient technology. The Indians provide a labor force and government financing of a fish processing plant. Together, we'll produce a profitable product and good jobs where traditionally there have been few. This partnership and Ocean Products' existing operations are an economic boon to rural Washington County, a region which claims the lowest per capita income in Maine.

The potential exists for this success story to repeat itself over and over again. However, state and federal regulatory agencies must do a better job of coordinating their activities to support

this developing industry. The aquaculture industry operates in an international market. If in the U.S. too many obstacles are thrown in its way, the industry will move to other parts of the world where more support exists.

Aquaculture development in Scandinavia, Latin America and the Far East already exceeds that in the U.S. The advantage we have is that they're all producing for the American market. We're already here and should therefore be more efficient producers. Government must help.

From the market's standpoint there are distinct benefits to aquaculture products: They set a high standard for seafood quality because they can be held in the water until orders are placed. They can be delivered on a year-round basis and fit neatly into long-term purchasing strategies. Shrimp and catfish are both good examples of consistency in pricing. And products that are generally uniform in size can be harvested making consumer-ready cuts easier to deliver.

On the marketing side, there are tremendous opportunities to brand seafood, particularly at the retail level which now provides less than one-third of the seafood consumed in this country. Value added products will open up new market segments at both retail and foodservice just as they have for poultry and beef. The result will be a rapid increase in seafood demand.

What must not be allowed to enter the equation is negative advertising. As USDA develops programs to support aquaculture development, the potential for non-productive rivalries exists with the U.S. Department of Commerce as it goes about its daily activities in support of the traditional commercial fishing industry. Both agencies must recognize the potential for conflict and take measures to assure that aquaculture development does not occur at the expense of traditional fisheries.

There is, clearly, a great deal of work to be done. But who can turn these ideas into action?

First, there are the producers themselves. There are *thousands* of companies in the United States involved in aquaculture. These companies, along with a growing list of support industries, should meet on a regular basis to exchange ideas, solve problems and speak to our constituencies with one voice. Conferences such as the one

held in Vancouver in September go along way toward developing industry unity. We need to do the same in the U.S.

All aquaculture producers should be supporting the National Fisheries Institute for that organization provides a valuable forum where we can meet and work out our problems with the processors of seafood caught in the wild. We share their concerns over issues such as quality control and inspection, and we should be speaking to legislators through the same body.

The media should communicate to the public how aquaculture products are raised. There has been ample media coverage of seafood harvested in polluted waters. However unfair or narrowly reported those of us in the seafood industry believe those stories are, they have had an enormous impact and unfair or not, have dampened the public's enthusiasm for eating seafood. While these stories are sorted out, the press should note that not all seafood is suspect. Consumers can rely on aquaculture products raised in clean waters and on wild products caught in safe waters.

Finally, as I pointed out previously, there is much that government can do to assist us. Aquaculture innovation centers, for example, have already been set up in Maine and are being administered at the state level. The USDA can foster more focused research and technology transfer to private industry from its regional aquaculture centers across the U.S. These are just a two areas where additional government assistance is needed.

To return to my original premise, the trends for aquaculture are up in virtually every respect. And the potential return to consumers, industry and government are great indeed. However, where we end up in the production range of 1.3 to 3.1 billion pounds will be determined by how successful we are at forging a constructive and mutually beneficial partnership between government and industry.