

News and Commentary

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Risk and opportunity in Maine aquaculture

by Sebastian Bell

Aquaculture is currently the fastest growing segment of agriculture in the U.S. At the same time, seafood is a large part of our national trade deficit. Seafood demand has generally been increasing over the last twenty years and, although it has leveled off somewhat recently, the general consensus is that the demand will continue to increase. In large part, this growth in demand is due to the increased concern about health and healthy foods, increasing population and changing demographic characteristics. Rising numbers of U.S. residents come from cultures where seafood consumption is much higher than is traditional in the U.S. Recent studies by the National Marine Fisheries Service and the U.N.'s Food and Agriculture Organization indicate that the landings for wild fisheries will essentially be stable over the next ten years, and may in fact decline in some areas. Increasing demands and stable supply suggests that prices are going to rise. That is exactly what has happened to seafood prices over the last ten years. Anybody who shops for seafood at the local supermarket can clearly see that chicken is much cheaper than salmon or shrimp or scallops.

Given that context, I would like to examine, particularly in reference to the Northeast, the potential contribution that aquaculture can make. There are three points that I would like to emphasize. First, domestic aquaculture, if it continues to increase at current rates, can very significantly help our balance of payments. Second, aquaculture provides a consistently available, high quality product, which provides a tool to expand U.S. markets for seafood. Third, aquaculture through increasing supplies, has the potential to decrease prices to the consumer.

Aquaculture in the Northeast has been around for a relatively long time, but it has had a very low profile and relatively low production levels. Hard data on the northeast industry is pretty hard to come by. For at least some parts of Maine's aquaculture industry, the data is better. In 1991, the gross receipts for finfish culture in the state of Maine were in excess of \$35 million, which translates into more than \$100 million of economic activity. There were approximately 250 full-time positions and probably somewhat more than 200 part-time positions. In 1992, again in finfish, gross cash receipts of that industry are estimated at between \$43 million and \$50 million, which will translate into an economic activity of between \$160 and \$180 million. In shellfish, which is not my expertise, it appears that the cash receipts in 1992 were around \$1.75 million. The economic activity probably was approximately \$5 million, and they employed 25 full-time people and approximately 50 part-time people.

The company that I previously worked for in Eastport, Maine, Connors Aquaculture, Inc. (formerly Ocean Products) had employment that ranged from about 80 to about 135. Connors is

the largest taxpayer in the city of Eastport, and its payroll is the largest in the city of Eastport. For a small community like Eastport, the role of individual finfish companies is very significant. Finfish culture has resulted in, perhaps not a renaissance, but certainly a significant turnaround in that community. It has provided stable, long-term jobs for people. New banks and shopping centers are evidence of this renewal.

Over the last ten years, direct capital investment in aquaculture in Maine has been in excess of \$60 million. In terms of the support industries, the figures are less unclear. Over the last four years, the processing of aquacultured finfish has generated about \$220 million of economic activity. The processing side is a very substantial part of the aquaculture industry, primarily because it is relatively labor intensive.

What is the potential in the state of Maine? I think the potential is pretty significant. But there are a lot of ifs. Based on the existing lease sites and the current hatchery capacity, between 50 and 60 million pounds of finfish can be produced annually in Maine with something between \$150 and \$180 million in receipts. That is based on the existing capacity with no new expansion, and relatively conservative production strategies.

Let's talk for a moment about constraints. I tend to be fairly conservative, because aquaculture is a risky business and it does not pay to be overly optimistic. Prices can be a constraint to continued investment in aquaculture. Finfish prices, and especially the price of salmon, has been a significant constraint for new investment in the northeast. After a short-term strengthening in prices for the next six to twelve months, I think prices will go down again, with some additional instability in the market because of increased production from other areas of the world. In aquaculture, as production increases the product becomes a commodity due to market saturation.

Many people push "niche marketing" to investors and claim that they can get a better prices in some particular market niche. That argument is very deceiving, and in my view unethical, because niches become saturated very quickly by a good aquaculturalist. Efficient aquaculture can produce a lot of product and it takes a very big niche not to become saturated. So another constraint is that aquaculture must sell to world-wide commodity markets. The salmon industry, in particular over the last two to three years, has really seen the effects of being a world-wide commodity. Currently, the major competitor for the Northeast region would be either Chile or British Columbia. Chile, in my opinion, will become the low-cost producer (by a wide margin), if they are not already. Chile will challenge domestic sources of salmon very strongly in the market place. It is extremely dangerous to take a very regional or parochial view of a product that is being produced around the world.

Within the world-wide context, U.S. producers have some competitive disadvantages that are due to a number of factors. First, there is a relatively high level of regulation as compared to some other producing regions in the world. In Chile, until quite recently the local fish farmer could put virtually any kind of antibiotic into his feed. That is certainly not the case in the United States. That may eventually affect the Chileans from a marketing point of view, but right now it is an advantage. Another example would be the permitting process. In the state of Washington, it is estimated that it costs between \$150,000 to \$500,000 to acquire the permits for an aquaculture

lease site in that state. Very few investors are willing to put that kind of money up front just to get permission to invest.

There are also some significant legal uncertainties in the U.S. For example, if a salmon farm finds somebody on its lease site with a boat full of salmon, there is absolutely no legal recourse. It is extremely difficult to prove that that person has stolen the fish or to prosecute them under the current lease law. This will, hopefully, be resolved relatively quickly. Further, there are legal uncertainties about the durations of leases. Multiple use issues are addressed poorly for lease sites, although Maine has been much better about resolving some of those issues than other states in the Northeast. If an investor cannot be guaranteed ownership rights, investment is difficult to justify.

There is a substantial lack of infrastructure to support aquaculture in the U.S. Again, Maine is a little ahead of the other states in the Northeast but we are still behind. In other countries, such as Norway, Japan, Scotland, and Ireland, off-the-shelf technologies can be purchased, while aquaculturists in Maine often must build that equipment themselves or buy from those other countries. This is expensive and results in operational constraints. There is a relatively low-level of government support in the United States; aquaculture is not a priority for the U. S. government. As a former manager, I can say that one of the biggest problems in the Northeast is the relatively low level of experience by management. This is a very young group of people. They have, with one or two exceptions, no experience outside the state of Maine. That is a very dangerous for a company whose assets can approach \$50 to \$60 million. This inexperience has in the past and will in the future cost the industry.

There are some biological constraints. In particular, lower water temperatures result in growth rates for finfish and, to a lesser extent for shellfish, which are lower than other places in the world. From an investment point of view, the growth rate on the stock is equivalent to the compound interest rate on that investment. A very small change in that interest rate means a very substantial difference in the rate of return. The genetic strain of fish used in Maine is pretty well adapted to those water temperatures, and there may be some off-setting benefits. There are two other important constraints. One is a relatively low level of site availability. Fish and shellfish require very high water quality. Fish are extremely sensitive to water quality; in fact, the EPA uses fish as biological indicators of water quality. Extremely high quality water is becoming an increasingly difficult thing to find. The other issue is user conflicts, which may include fishermen and real estate development interests. Particularly in southern Maine, user conflicts are very important.

The Northeast does some advantages. The one that is probably most often cited, although I am perhaps less impressed about it than most, is proximity to market. Chile requires a minimum of 24-48 hours to get a fish to market. Maine can do it in eight hours, if we are very quick. We do it routinely in under 24 hours. But for a consumer who sees two fish at a counter that appear to be of the same quality, a price differential of fifty cents a pound is pretty persuasive. So proximity in market has been over-emphasized. Another advantage is the genetic strain of salmon being grown here, which is a native strain and is very well adapted to the conditions in Maine. Growth rates appear to be quite competitive. One of the biggest advantages (although I often get chuckles when I mention it) is Yankee ingenuity. I have farmed salmon in almost every major producing

area of the world. I can say unequivocally, that for people with very little technical expertise and very limited experience, the people in Maine have been amongst the most creative and aggressive and competitive group of people at problem solving. People in other parts of the world are very capable and very clever as well, but Yankee ingenuity should not be underestimated. I consider it one of the biggest advantages in Maine. Finally, the lease site characteristics that are available in Maine are very good. They have very high flushing rates. The colder water temperature can, in some cases, act as an advantage in knocking down disease.

I would like to comment on aquaculture as an investment. Most of my background has been operational, but a substantial part has been working with investor groups on technical investment analysis for aquaculture. Generally, people who invest in aquaculture know little about aquaculture, and a little knowledge is a very dangerous thing. Investors who become seduced by the intellectual attractiveness of investing in the "blue revolution" tend to let this attractiveness cloud their investment decisions. Aquaculture went through a period of being fashionable in the early 1960s. A number of very big projects were created, and most of those projects failed. Most failed because they were run either by biologists who knew nothing about business or by businessmen who knew nothing about biology. Aquaculture requires a very wide range of skills in order to be successful.

There are three major characteristics of an aquaculture investment. First, those investments are medium to long-term; they are not short-term investments. Nobody gets rich quick in aquaculture. In a typical aquaculture project, there is no cash flow for two to five years. Thus, return on investment is highly dependent on the financing structure. Second, in aquaculture investment, the largest asset is the stock. The investment is year-class dependent. A failure of one year-class of stock can destroy the investment stream for three to five years. And, third, aquaculture investments are high risk. They are extremely sensitive to the natural environment, which has inherently high variability. They are also impacted by the by political structures and the sociological issues discussed earlier. There can be significant swings in the political arenas that have a very significant impact on the investment.

These three characteristics mean that aquaculture is a fairly risky endeavor. A very high rate of return on investment is required to justify that risk. All this being said, substantial fortunes have been made in aquaculture. So it is possible to make money in aquaculture, but aquaculture is a highly technical field that, in a seeming contradiction, is still more art than science. Aquaculture is a relatively new field and it requires a fairly high level of technical competence. Yet there is a limited history of basic research, and managers must often act from intuitive than from technical knowledge. Success is based on realistic goals and systems that are developed by experienced players.

In summary, I would conclude that the aquaculture potential in Maine is fairly significant. The constraints are there, and they suggest a fairly high level of risks. But the track record of aquaculture in the state of Maine, among the states in the Northeast, is relatively good. There have been relatively few failures, and there have been a number of successes.

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