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Research Needs and Priorities Relating to
Marketing Aquacultural Products Domestically and Internationally

Symposium Paper presented at the
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Title of Symposium:

"Aquaculture Economics in the Eighties:
What are the Research Needs and Priorities?"

Richard S. Johnston^{*/}

In this brief discussion paper I address three issues:

(1) As economists supported by public funds should our marketing research be concerned with (a) how to market (sell) aquaculture products or (b) improved understanding of how the markets for aquaculture products operate?

(2) Is there enough unique about aquaculture products to merit special attention by economists? That is, are the marketing research issues for rainbow trout, oysters, catfish, etc. any different than those for other food products?

(3) Whatever the answer to (2), what appear to be the interesting research issues pertaining to the marketing of aquaculture products?

With respect to (1), my vote goes to (b). If we devote resources to expanding the demand for aquaculture products we run several risks, including doing the job less efficiently than the private sector can, adversely affecting the markets for sellers of competing goods, and becoming the servants of commercial aquaculture interests. Debates over this issue with respect to marketing research for agricultural products have raged for years, often ending with agreement that the distinction between "improved marketing" and "understanding markets" is not always clear-cut. Nonetheless, I feel it is important to be sensitive to the issue. My personal biases lead me to argue that, as social scientists, we should be doing research which has the potential to generate insights, to create an awareness and to arouse curiosity. To lend legitimacy to this point of view some argue that our research must have public policy implications. To me this is a convenient subterfuge, although I'm as guilty of using it as anyone else.

^{*/}Department of Agricultural and Resource Economics, Oregon State University. Many of the ideas advanced in this paper stem from research funded by the Oregon State University Sea Grant College Program. I would like to thank John A. Edwards and Frederick J. Smith, who provided helpful comments on an earlier draft of this paper.

Given this perspective, what kinds of insights can be generated by looking at markets for aquaculture products (Issue #2)? To me, there are several, including the following:

(a) Because of technological developments (example: closing the life cycles of various species, new fish diets, new energy sources) opportunities have arisen to move from hunting to farming activities. We do not understand the relationships between the strength of property rights and market variables (prices, market structure), although some interesting research in this area has begun (Acheson; Agnello and Donnelly). The movement from the open-access fishery to aquaculture (and the co-existence of both activities) affords the economist with a unique laboratory in which to study property rights/markets relationships. Perhaps hypotheses about their nature can be (1) generated from our experience when agriculture went through a similar transition and (2) tested using data from markets for aquaculture products.

(b) Some have argued that the ocean has a finite carrying capacity and, therefore, that there exist few opportunities for expanded production of fishery products from the oceans. If "seafoods" can be produced through aquaculture, such biological/oceanographic constraints are relaxed and, thus, seafoods may become important competitors for the more "traditional" agriculture products. The nature of the substitutional relationships among seafoods and between seafoods and agricultural products are not well understood. To achieve such an understanding may require an examination of theories of the effects of "new products" on markets for "established" products.

(c) Aquaculture has developed at different rates around the world. Except for a few species, it is relatively "underdeveloped" in the United States (the Joint Subcommittee on Aquaculture). Furthermore it is characterized by a variety of market structures, from the small-scale operations in Southeast Asia (Lockwood and Ruddle) through the larger firms which dominate the trout industry in Idaho, to the multinationals involved in prawn culture and salmon ranching around the world. Are these differences associated with different conditions in factor markets (especially capital requirements, but also supply conditions for land and labor), with uncertainties surrounding tenure and demand conditions, with different perceptions of profit opportunities? Whatever the reasons we do not have generally-accepted models of price-formation under diverse market structure conditions, from domestic oligopolistic markets to international markets characterized by multinationals, although substantial progress has been made (Dixit; Batra and Ramachandran). While other goods are also traded under a variety of market conditions, new developments are unfolding in both fisheries and aquaculture and, thus, hypothesized cause and effect relationships may be easier to generate here. These developments may also provide us with an opportunity to investigate the reasons that different market structures form.

(d) Products produced aquaculturally are often, from a biological point of view, similar to those produced through fishing activities.

Nonetheless, different market channels often evolve for what appear to be similar products. Under what conditions does this occur and for what reasons?

(e) To a greater degree than is the case for other products, aquaculture is characterized by production in both the public and private sectors. In the U.S., for example, public trout and salmon hatcheries have a longer history than do their private counterparts. Can we use aquaculture to improve our understanding of how markets with both public and private components operate? Do public decision-makers make different decisions with respect to, say, species raised and product form, than do commercial enterprises? If so, why: if not, why not?

(f) The output of one sector of aquaculture is a recreational experience. This has long been the case for public aquaculture in the U.S. but, recently, at least, has also been true for private aquaculture. In 1977, for example, there were over seventy licensed trout farms in Washington state alone, many of which were fee-fishing operations (Anderson, et al.). How well do we understand markets for recreational activities? Perhaps some of the difficulties of placing a "value" on recreational experiences because of their "non-market" nature could be made more tractable by examining them first in a market environment.

(g) The form in which seafood is consumed has changed recently, with an increased percentage moving through the away-from-home food market, especially commercial restaurants and fast-food outlets. This market generally calls for a uniform product which can be supplied on a regular basis, the hallmark of aquaculture. I am amazed at how little we know about the away-from-home food markets. Perhaps aquaculture provides an opportunity to examine the nature of these markets, both here and abroad.

Whether or not one agrees that the research questions identified above are peculiar to aquaculture, he or she can still evaluate the list in terms of personal preferences regarding research needs and priorities. As indicated above, my own criteria include increased understanding of how markets operate. To the above list, then, I would add some interesting (to me) research questions which could be examined in connection with a variety of products but which, in my judgment, have received only scant attention from economists doing research on markets for aquaculture products.

(h) In economic feasibility studies we often forget Friedman's argument that what is "held constant" in our analyses, such as input and output prices, should depend on the level of aggregation (Friedman, Chapter 5). If an aquaculture venture appears attractive to one enterprise, it probably also looks attractive to others. Failure to recognize this may lead the analyst to miscalculate the viability of an industry based on aquaculture.^{1/} A question which may merit exploration, then, is:

^{1/}Pan-size salmon, once believed to have a rosy future, has, at least in the West Coast, been unable to compete with rainbow trout. Feasibility studies failed to reveal this. See Queirolo and Johnston, 1979.

what is the difference between the derived demand facing an aquaculture firm and that facing an aquaculture industry?

(i) What are the characteristics of markets for aquaculture products around the world? Some markets are local; others, international. What are the roles of transportation costs, interest rates, exchange rates, trade policies, price-determining institutions (auctions, central wholesale markets, for example), uncertainty, consumer incomes, and legal arrangements in these markets? If aquaculture expands, will specialization occur, spawning new industries? This set of questions may appear somewhat "catch-all" in nature but I feel it is important to draw upon the rich body of literature already available for agricultural products in understanding aquaculture's markets: both input and output.

(j) What is the difference between what the producer produces and the consumer consumes? My colleague, John A. Edwards, points out that our failure to distinguish between products and commodities (a failure which I have maintained in the present discussion) has led to a lack of understanding of the nature of markets characterized by heterogeneous goods. This, in turn, may mean that our understanding of advertising and product differentiation is incomplete (although some interesting research has begun here. See Smith and Batie; Flacco. Rausser and others at Berkeley are proposing research on the role of nutrition in consumer demand for food). The question of how information on "what the consumer wants" is relayed to producers and implications for market structure was debated twenty years ago (Collins, Gray, Hillman). It remains an interesting question today, one whose answer may help us understand how aquaculture has developed and will develop.

One final note. I have argued for research which leads to improved understanding of markets. But economists have been trying to do that for decades. In moving from theory to empirical research we ought not be frustrated by failure to have all of our theories borne out by the data. Indeed low R^2 statistics and t-values should arouse our curiosity and cause us to ask "why?" After all, isn't that what research is all about?

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