

U.S. Trout Aquaculture: *A Market Overview*



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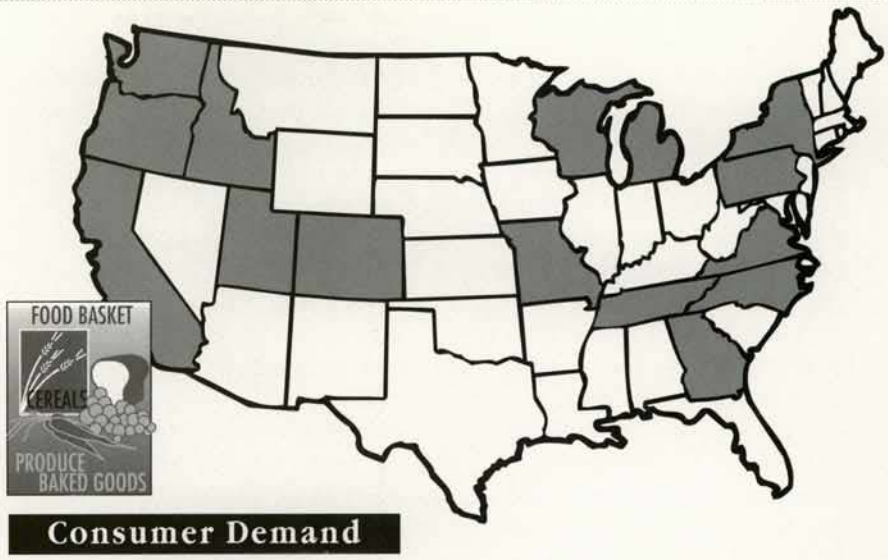
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U.S. Trout Aquaculture: A Market Overview

Americans have been eating trout for thousands of years, long before Europeans arrived in the new world. As wild trout stocks became less abundant, people began to produce farm-raised trout to meet consumer demand. The trout farming business is now scattered across the United States.

The demand for fish and shellfish in general is increasing because many consumers view these products as healthy. Within the fish and shellfish market, competition is intense. The demand for some products, such as farm-raised catfish, has grown, while trout demand has not.

The trout industry markets its products in an everchanging marketplace. The purpose of this publication is to discuss trends and market research that describe the current market.



The Food Basket

Food consumption has changed during the past 20 years. Per capita consumption of all food by Americans increased about 10 percent from 1970 to 1992. Americans are eating more food and the combination of food on the plate is changing as we become more concerned about health and diet issues. Consumption of breakfast cereals, bakery goods, pasta entrees, salad entrees, Mexican dishes, and stir-fry meat and vegetable dishes has increased.

Meat is becoming less common as a main entree, and is often used in mixtures with other foods. Vegetables, fruits, nuts, and grains are all gaining importance in the daily diet. Crop products enjoyed a 16 percent increase in consumption while animal products consumption gained only 1 percent from 1970 to 1992. Consumption of canned vegetables, dry beans, and coffee decreased (Putnam and Allshouse 1993).

Crop Consumption

Consumption of crop-based foods has increased 16 percent since the early 1970s. More than half of the increase between 1970 and 1992 occurred after 1984. By 1992, fruit consumption had risen 25 percent, fresh vegetable consumption 23

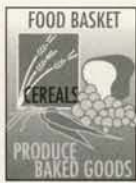
percent, grain consumption 37 percent, but refined sugar consumption decreased 55 percent.

Increases in two-income and single heads of households have created a need for healthy yet convenient foods. Nearly 60 percent of women work outside the home and nearly 25 percent of households are headed by singles. This trend has favored fresh fruits, vegetables, and bakery goods consumption.

A 1986 survey by the Benjamin Company published in *Supermarket Business* asked consumers which foods they expected to buy more often during the next 3 or 4 years. The leading response was fresh vegetables (60 percent), followed by salads (59 percent), and fresh fruit (58 percent).

A Food Marketing Institute survey indicated that the produce department is the number one factor consumers consider when selecting a grocery store (California Vegetable Review 1985).

Typical produce departments handled 65 items in 1975; they now handle more than 220 items. Consumers have shown through their purchases they want greater variety and are willing to pay for more diversity and quality. Larger ethnic populations and imports during the northern hemisphere's off-season also have played a role.



Meat Consumption

Animal product consumption was stable from 1970 to 1992 (USDA Statistical Bulletin 825). Although total consumption was the same, consumers made some important changes in selection. Foods considered higher in fat or cholesterol, like red meats, whole milk, eggs, and butter, lost sales. Foods such as poultry, fish, and low-fat dairy products, increased in sales (fig. 1).

Health concerns and population demographics contributed to the changes in meat consumption patterns. The population of the United States has aged and minorities have increased as a share of total population; both of these groups tend to eat more fish and shellfish.

Beef consumption declined 16.8 pounds per capita between 1970 and 1992 to its lowest level since the early 1960s. Pork consumption, called "the other white meat" by advertisers, held steady at about 47 pounds per capita for the period although it exhibited several cyclic swings. Poultry consumption increased steadily; per capita consumption nearly doubled from 1970 to 1992, rising from 34 pounds to 60 pounds.

Fish Consumption and Production

Fish and shellfish consumption in the United States peaked in 1987 at 16.1 pounds per person (Putnam 1991). The 14.7 pounds consumed in 1992, however, was still 21 percent higher than in the early 1970s. Finfish consumption was 6.0 pounds per capita in 1992. Fish consumption increased even though prices for fish and shellfish rose considerably faster than prices for most other food commodities, including red meat and poultry.

Most of the growth in fish consumption occurred in the fresh and frozen fish and shellfish segments of the market. Canned seafood product consumption also rose slightly (4 percent) but the demand for cured fish products dropped 25 percent. Canned tuna consumption rose 46 percent from 24 pounds in the early 1970s to 35 pounds in 1992. Health concerns played an important role in higher consumer demand for fish and shellfish products.

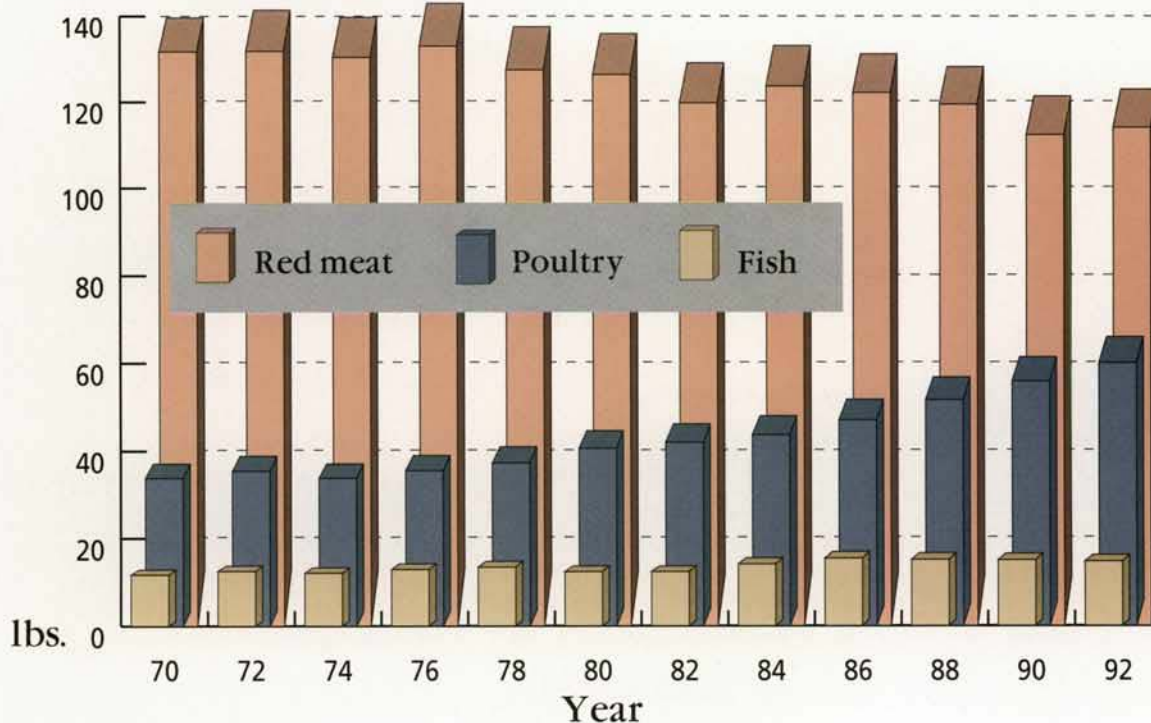
The fish and shellfish industries have relatively little data on production and consumption of individual species. Since fish and shellfish consumption has been small compared to dominant meats

like beef and poultry, collecting fish data may be a lower priority with the U.S. Department of Agriculture. Comparisons between domestically farmed fish (e.g., trout, catfish) and commercially caught fish (e.g., salmon, tuna, halibut) are difficult with regards to market share or substitutability. More data would help determine the relative importance of the fish and shellfish market as a whole and by individual species.

Aquaculture and the Catfish Industry

The U.S. aquaculture industry encompasses production of a wide variety of species, including finfish such as tilapia, catfish, trout, and salmon, but also includes mollusks (e.g., oysters, clams), crawfish, and even alligators. Although the sectors of the aquaculture industry have basic differences, the trout industry may benefit from studying other aquaculture industries. The catfish industry is of special interest not only because of its rapid expansion in the 1980s but because production and sales data are available from the USDA. The catfish industry has grown in both production and markets. As with other aquaculture sectors, profitability and the

Fig. 1. U.S. per capita consumption: Red meat, poultry, and fish.



Source: Food Consumption, Prices, and Expenditures, Statistical Bulletin 867.



industry's future depend on balancing expanding production with new markets.

In 1992, catfish growers sold more than 450 million pounds of catfish to processors. This was an increase of 17 percent and followed an 8 percent increase in 1991. Sales to processors grew nearly 1,000 percent between 1980 and 1992 (USDA Aquaculture Situation and Outlook Report 1992).

The fillets segment of the catfish market has shown the greatest growth in recent years. From 1989 to 1992, frozen and fresh catfish fillets sales grew 39 percent by volume. In 1992, fresh and frozen fillet sales were 40,425,000 and 71,536,000 pounds respectively. Fillets constituted 40 percent of sales by volume and 54 percent of processor revenues.

The whole fish share of the catfish market has decreased. In 1987, whole fish sales were 44 percent of total volume; that percentage fell to 31 in 1992. The volume of frozen whole catfish sold increased but was offset by the relatively poor sales of fresh whole fish. Revenues from whole catfish were 22 percent of the total in 1991.

The sales volume of other catfish products increased more than 50 percent from 1987 to 1992. In 1992, frozen products were about 75 percent of other sales.

The frozen share of the catfish market increased slightly from 1987 to 1992, growing from 52 percent to 57 percent. Frozen catfish revenues were \$279 million in 1992 compared to \$184 million for fresh catfish. One reason frozen catfish have an increased market share may be because frozen fish are easier to handle and retain quality longer. Both attributes are important concerns, especially for the food service sector.

Trends and Concerns

Demand

Although the annual consumption of fish and shellfish slowed from 1987 to 1992, the 9 percent drop (1.4 pounds) (Putnam and Allshouse 1993) probably reflected

the high prices compared to poultry and some concern over tighter budgets in a sluggish economy. The U.S. population is generally continuing to spend more on food away from home, although recessions may temporarily reduce that spending. Fish and shellfish are still popular items when dining out.

Convenience will continue being important to consumers and fresh and fresh-frozen fish products will gain market shares. Whole fish, however, will be displaced by more highly processed items that can be easily prepared by busy consumers, and will be combined with other foods in many dishes. As meat is used less as the main entree and more as a component of the main dish, demand for fish should increase.

Fish are low in fat and cholesterol yet still represent a good protein source. Some seafood items are good sources of omega-3 fatty acids, thought to lower cholesterol levels. These attributes reinforce consumers' favorable impression of seafood.

Greater demand for fresh fruits, fresh vegetables, fish, and shellfish will likely continue as North Americans become more health conscious. Ethnic groups are an increasingly important market segment with a desire for diverse produce items. Health and diet issues are of concern to all age and ethnic groups. As the baby boomers age, they will continue the food consumption trends established in the mid-1970s. Healthy, more easily prepared fresh foods that are considered low in fat and cholesterol will increase in popularity.

Food Safety

North Americans are more concerned about food safety than people in most other nations. The inspection system that helps assure quality food from crops and animal products does not exist for the fish and shellfish industry. Inspection is voluntary; it is not consistent across all players in the industry. Federal legislation may change this practice within a few years.

A 1992 study by the Consumers Union showing high levels of contamination in fish and shellfish may hasten mandatory inspection. Although trout was not included, the study involved several finfish as well as shellfish. Bacterial contamination, PCBs, mercury, and other highly toxic chemicals were found at extreme levels in many cases. For example, 90 percent of the swordfish tested had mercury contamination (Consumer Reports 1992).

One problem resulting from these findings and other such studies is that consumers do not distinguish between types of fish to the same extent that they do with other products, such as beef and poultry. Trout may be far less likely to suffer from the types of contamination detected in the study but could wind up being tarred with the same brush.

The Trout Industry

Trout have been farmed in the United States since the late 1800s. Rainbow trout, the most widely produced species, have been raised commercially since the early 1900s. Initially, farmed trout were used primarily to restock trout streams. Today, the majority of farm-raised trout is processed and marketed to both retail and restaurant markets.

The production side of trout farming has received most of the industry's time and resources over the years. Both public and private researchers have introduced great improvements to trout production technology. Disease and predators, however, continue to plague the industry.



Marketing aspects of the trout industry have received less attention. Over time, production increased with little planning given to marketing the increased output. Marketing may have seemed to take care of itself, a characteristic similar to other traditional agriculture industries. With increased competition, however, marketing becomes more vital.

Presenting information on trout industry growth over time is difficult due primarily to a lack of accurate data. Only recently did state and federal governments begin collecting data on the trout industry. The USDA has published an annual Trout Production survey since 1988. A similar industry survey was performed in 1981, but the data collection methods were different. Therefore, caution should be used in making direct comparisons between the 1981 survey and those taken in recent years. Even recent surveys

vary slightly in the data and the states presented.

Industry characteristics and structure also make gathering data difficult. Competition within the industry has not been conducive to openness or sharing production information. In addition, the wide geographic distribution of industry members, their varying interests, and the lack of a strong marketing organization add to the problem.

The industry's trade organization, the United States Trout Farmers Association (USTFA), has not maintained a well-focused marketing program. The association organized a promotion council in the 1980s with the purpose of promoting trout consumption in the United States. Promotion was originally funded through contributions from feed manufacturers and later through a checkoff (production-based assessment) plan. The programs

were voluntary and promotional budgets were too small to effectively carry out the council's goals. The main objective of the USTFA and the council today is to represent the trout industry in legislative and regulatory issues.

Production and Sales

Farm-raised trout are produced in 45 of the 50 states. The largest concentration of trout operations is in North Carolina. Of the states included in the USDA survey, there appears to be a trend towards fewer trout operations. Table 1 shows the changes in the number of operations in the surveyed states from 1988 through 1993.

In the USDA surveys, farmed trout fall into four categories based on fish size and stages of growth: foodsize, stockers, fingerlings, and eggs. Foodsize trout sales accounted for the greatest share of sales in 1993 with 79 percent. Stockers followed with 10 percent, eggs with 9 percent, and fingerlings with 1 percent of total sales.

Idaho trout production was estimated at 40 million pounds in 1991. Growers in a small area in southern Idaho produce a majority of the trout farmed in the United States, dominating foodsize production. Idaho producers account for 73 percent of foodsize trout by weight and accounted for 52 percent of foodsize sales. Table 2 shows the number of pounds and the value of foodsize sales in 1992 and 1993, according to USDA figures. After Idaho, other major foodsize trout producers are California, North Carolina, Pennsylvania, and Utah.

Pennsylvania, Colorado, and Washington are the major producers of stocker trout. Figures show Colorado, Michigan, North Carolina, and Washington with the highest trout fingerlings sales.

Marketing Channels

The marketing chain begins with growers. They vary from small independent producers to large integrated firms that also carry out other marketing functions. Following harvest, trout are

Table 1. Number of trout operations by state, 1988-1993.

State	Year					
	1988	1989	1990	1991	1992	1993
California	31	24	25	a	23	27
Colorado	34	33	28	26	33	30
Georgia	11	9	8	a	a	a
Idaho	38	24	25	25	30	33
Michigan	43	43	46	41	54	49
Missouri	10	12	13	12	14	12
New York	37	41	41	36	37	39
North Carolina	82	75	75	68	68	71
Oregon	27	33	32	31	26	25
Pennsylvania	46	39	38	43	45	39
Tennessee	15	14	12	11	13	a
Utah	9	10	8	7	a	9
Virginia	25	27	23	26	26	27
Washington	32	34	37	34	32	30
Wisconsin	78	51	50	61	48	48
Other				33	12	18
Total	518	469	461	454	461	457

^a Included with *other*.

Source: Trout Production, National Agricultural Statistics Service, USDA.

processed into an expanding variety of products ranging from traditional whole dressed fish to boneless fillet to smoked trout and pates.

Wholesalers and distributors, with varying degrees of specialization, are the next step in the marketing chain. As with other perishable products, how wholesalers and distributors handle processed trout is critical to product quality when it reaches the consumer. Processors sometimes work with brokers who find buyers and then phone orders to the processor. Other processors think brokers are too expensive to use.

Processors can sell directly to wholesalers and distributors or to individual restaurants and retailers. They may choose to work with a combination of buyers; processed trout may pass through the hands of several wholesalers and distributors before reaching the final retailer or food service establishment.

Trout accounts for only a small share of business for most middlemen. Large processors may strive for greater control over quality and timeliness by owning cold storage in important marketing regions and by supplying transportation.

Using brands is a common way to differentiate one company's products from another company. Processors may incorporate company brands in their packaging, but it is common for wholesalers and distributors to repackage trout to meet buyer needs, eliminating the name of the original processor. At the retail level, fish counters rarely display brand names. Building brand recognition or consumer loyalty in these circumstances is difficult.

The USDA 1993 Trout Production survey shows processors, fee and recreation fishing, and the restaurant and retail trade as the major outlets for foodsize trout (table 3).

Fee and recreation fishing includes sports clubs and pay lakes where club members or the general public catch their own trout. Restaurant and retail outlets offer a

Table 2. Foodsize trout: Sales, number, weight, and value; September 1, 1992–August 31, 1993.

State	Number of fish (thousands)		Total pounds sold (thousands)		Total value of sales (1,000s of dollars)		Average value per pound (dollars)	
	1992	1993	1992	1993	1992	1993	1992	1993
CA	2,450	2,756	2,270	2,955	4,053	5,408	1.79	1.83
CO	305	397	310	349	740	790	2.39	2.26
GA	a	a	a	a	a	a	a	a
ID	50,000	47,000	41,500	40,000	27,805	28,000	0.67	0.70
MI	680	610	600	570	1,550	1,370	2.58	2.40
MO	581	715	578	613	1,054	1,267	1.82	2.07
NY	130	126	106	114	423	443	3.99	3.89
NC	3,343	3,421	3,894	4,244	5,027	5,523	1.29	1.30
OR	420	365	400	335	740	650	1.85	1.94
PA	1,501	1,424	1,445	1,417	2,933	3,404	2.03	2.40
TN	336	a	316	a	644	a	2.04	2.04
UT	a	1,680	a	1,869	a	2,739	a	a
VA	1,042	1,086	969	951	1,834	1,849	1.89	1.47
WA	246	342	222	277	437	524	1.97	1.94
WI	428	586	374	509	1,008	1,418	2.70	2.79
Other	3,000	418	2,255	439	2,710	924	1.20	2.10
Total	64,462	60,926	55,239	54,642	50,958	54,309	0.92	0.99

^a Included with *other*.

Source: Trout Production, National Agricultural Statistics Service, USDA, September 1992 and October 1993.

Table 3. Foodsize trout: Percent sold by outlet type; September 1, 1992–August 31, 1993.

State	Live haulers	Fee/rec. fishing	Other producers	Govt.	Direct to consumer	Pro-cessors	Rest. & retail	Other
	%	%	%	%	%	%	%	%
CA	12	85	1	0	1	0	1	0
CO	9	83	1	1	3	0	3	0
GA	a	a	a	a	a	a	a	a
ID	0	1	0	0	0	98	1	0
MI	31	35	4	0	2	15	13	0
MO	2	54	14	4	2	9	15	0
NY	0	31	3	2	31	0	32	1
NC	3	0	5	0	2	70	20	0
OR	13	13	2	0	0	44	28	0
PA	2	50	a	0	6	a	2	0
TN	a	a	a	a	a	a	a	a
UT	4	12	6	0	3	7	45	23
VA	6	32	13	0	7	32	10	0
WA	28	34	12	2	1	18	3	2
WI	3	22	5	0	2	13	55	0
Other	8	12	9	0	1	29	41	0
Wt. avg.	3	19	3	0	2	63	9	1

^a Included with *other*.



Marketing fish and shell fish directly



Small trout operation



Clear Springs trout runs

way to market trout directly, bypassing distributors and wholesalers. Other outlets in the survey include live-haulers, other producers, the government, and directly to consumers.

Market Characteristics

The trout industry has developed around regional advantages, such as natural resources. There are basic differences in the way trout is processed and marketed in Idaho as compared to other regions of the United States. Idaho has the water resources necessary for trout production but is distant from major population centers. The Idaho trout industry has an advantage in terms of volume and efficiencies of scale; one key to its success is having a large volume of fish available to customers throughout the year. Buyers prefer a stable supply and a known quality. These circumstances have favored the development and the need for markets throughout the country, sometimes affecting other regions.

About 25 percent of Idaho trout are raised by independent growers with small operations. These

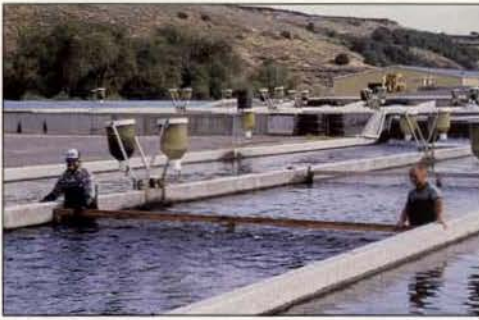
growers contract with a processor that usually supplies them with fingerlings and feed. Growers are responsible for the facilities, water, and labor. Some processors choose to produce all or most of the trout they handle themselves.

The most striking characteristic of the industry in Idaho is its level of concentration and integration; three firms account for about 80 percent of Idaho trout processing. The industry leader, Clear Springs of Buhl, Idaho, has integrated all aspects of production, processing, and marketing ranging from inputs, such as eggs and feed, to transporting the final product to market. Other processors do not have the same level of integration; however, they also produce, process, and market their own trout.

The Idaho industry serves markets throughout the country. Nearly all market promotion is done by the large processors. Clear Springs has the most comprehensive promotional program in the industry. This firm promotes trout at all levels of the marketing chain with information about product styles, handling, and preparation.

Processing is an important market aspect in other regions as well; however, other regions have access to market outlets that the Idaho industry has difficulty accessing. In 1991, 98 percent of Idaho production went to processors. North Carolina and Washington were the only other states with more than half of foodsize trout production sold to processors (72 percent and 66 percent respectively). In some states, growers didn't use processors at all. Colorado growers sold heavily to fee and recreational fishing outlets (83 percent) while direct sales to the restaurant and retail trade were important to growers in Wisconsin and Utah. Neither state was as dependent on one outlet type as Idaho. It should be noted that the percentage of Idaho production going to processors was very consistent throughout the survey period. Most other states surveyed show much more variability in the outlets used.

Other regions generally do not have the quantity or quality of natural resources to compete with Idaho on a nationwide basis in the processed market. Growers formed



Sizing trout



Family fun while fishing



A meal away from home

cooperatives in some regions to help market their products. However, most of these cooperatives have not been able to establish effective marketing programs. Trout producers in most of the country focus on customer service in their markets. These trout producers also offer new, value-added products that compete against other fish products, such as smoked salmon and smoked trout.

Interregional differences have led to large price differences between regions and states. Average trout values vary a great deal by state. Table 2 shows the average value per pound of foodsize trout based on the USDA survey.

The Idaho industry has a great deal of market power and markets a high volume of trout, but the prices growers receive are much lower than in other regions. The average price received for foodsize trout in Idaho was \$0.67 per pound in 1993 compared with \$3.99 in New York. The same is true for the other size categories. This price differential is an important factor when considering trout production costs.

Marketing Research

Substantial public and private research supported trout production technology. Studies evaluated disease control, predator control, fertility, growth enhancement and timing, effluent measurement, water conditions, and a variety of other factors involved in efficiently producing healthy, attractive, quality trout. Minimal research has analyzed market conditions affecting the sale and purchase of trout, such as the perceptions and needs of consumers and channel intermediaries.

The lack of market research is likely related to the nature of the U.S. trout industry. The industry has historically consisted of small, family-owned businesses located throughout the United States. For most of these individual companies, the cost of substantive marketing research is beyond their financial means, while the marketing analysis conducted by the few larger organizations is proprietary information.

The USDA has sponsored two market-related research studies in

cooperation with state agencies and the trout industry. One surveyed household consumers to study who eats trout, how frequently, under what circumstances, and their overall opinion of trout (Block 1984). The second study surveyed distributors and retailers to determine their perceptions of consumer attitudes and their evaluation of marketing practices supporting trout sales (McCain and Guenther 1993).

Consumer Research

The consumer study by Block (1984) analyzed data from a telephone survey consisting of 1,000 interviews. Two hundred people each were interviewed in Cleveland, Denver, Los Angeles, New York, and St. Louis. Surveyors interviewed only those respondents who said they eat trout, focusing on increasing the existing market rather than depleting limited funds evaluating nonusers.



Frequency The survey found that approximately two-thirds of people who eat trout had eaten it within the past year. They most frequently ate trout once or twice a year, except in the Denver area where nearly 20 percent ate trout five to 10 times a year. In the other cities, about 6 percent said they had eaten trout more than 10 times in the previous year.

Age/gender People younger than 25 were the least frequent consumers. The highest frequency was in the 25 to 35 and over 65 age groups. Women generally had a more positive image of trout and were more frequent trout eaters than men.

Population Generally, trout was perceived as being easy to prepare. More highly educated consumers had a greater tendency to dislike the preparation process than did less educated consumers. Women disliked the way trout is served more than men. They indicated they do not like the head, bones, eyes, and skin still on the fish. Although men were about twice as likely to want the head on their trout, the majority of both men and women preferred trout with the head removed.

Fee fishing About 20 percent of those who eat trout have caught fish at a fee-fishing pond. More than 25 percent of respondents fee fished within 6 months, 15 percent more than 6 months but within the year, and less than 60 percent had not fee fished in more than a year. Sixty-six percent had fished in fee ponds five or fewer times, and 33 percent had done so more than five times.

Education level Consumers with more than a high school education were more often attracted to trout because of its nutritional attributes than those consumers with less education. The less educated were most likely to see trout as a change-of-pace food.

At-home consumption Only 41 percent of these trout eaters said they had ever purchased and served trout in their household. They listed the following reasons for not buying trout: "out of the household eating pattern," "too expensive," "unappealing appearance," "prefer other fish species," "don't know where it's available," "have trout given to me" or "catch it myself" (most notably in Denver).

Future growth When respondents were asked what could encourage them to purchase and eat trout more often, about 25 percent said "nothing would help," and another 20 percent said they "didn't know." The specific suggestions mentioned most included: reduce price, increase availability, and have fresh trout available. Although price was mentioned, a majority of consumers interviewed said they did not know the approximate price of trout in the grocery store. One out of five did not know where to buy trout locally.

Perceptions Almost 80 percent of the respondents had a favorable perception of trout. Nearly half rated trout as "very appealing as a food" and 30 percent said trout is "appealing, but not any more than most other fish." Positive responses outnumbered negative responses by 9 to 1 when respondents were asked for initial thoughts about eating trout.

Income The study found the lowest consumption rate in households with the lowest incomes (less than \$15,000 annually). Beyond that threshold, household income did not appear to be an important factor in consumption.

Fee Fishing

Fee fishing was more prevalent in larger families with high school educations or less and who ate trout less frequently. The fishing experience was valued more than the eating experience. Nearly 86 percent said their most recent fee fishing experience was enjoyable. Factors that contributed to the enjoyment were: outdoor setting, fishing challenge, fun-oriented environment, and relaxation. Specific aspects that were reported as the most enjoyable included the assurance of a catch and the outdoor facilities. A few negative comments suggested that the lack of a true sporting experience and high fees detracted from the enjoyment. Specific aspects reported as liked the least included too many people, fees paid without catching fish, and the lack of a challenge. The sense of challenge obviously differs among fee fishers.

Lack of convenient accessibility and awareness of facility locations limit more frequent fee fishing. Nearly 37 percent of the survey's respondents said it was at least somewhat likely they would fee fish in the next year if a stocked fishing area were located within an hour's drive of their home.

Retailer Research

The study reported by McCain and Guenther (1993) consisted of two concurrent parts. The first one analyzed nationwide responses from 43 retailers that sold trout at least some of the time. Retailers included specialty fish markets, seafood departments in groceries, and grocery meat departments that carry fish as part of their produce line. Less than 41 percent of the retailers who handle fresh water, farm-raised rainbow trout indicate that they always sell trout, 26 percent sell trout frequently, and 33 percent sell trout infrequently.

Retailers were asked whether their seafood suppliers provided consumer research information, and if they conducted consumer surveys themselves. Responses suggest retailers and wholesalers perform

little research. Overall, consumer research activity is relatively low and most retailers are not well informed about their markets. The retail research conducted includes their entire product line.

Almost 43 percent of retailers said they frequently or always work with seafood and fish processors to develop promotions. Nearly 90 percent have suppliers who initiate specific product promotions and help prepare advertising specials. Retailers want posters, pamphlets, and recipes promoting the products they sell. These initiatives may not have much support from the trout industry.

Retailers were asked questions regarding their perceptions of marketing conditions and practices in the trout industry. Retail demand experience varied, with 33 percent of the retailers reporting substantial growth in trout sales. There was general agreement that the trout supply is stable during the year, and half of the sampled retailers order about the same amount each month. Nearly two-thirds also believed the price is stable throughout the year. A minority stated that trout is high priced. Most retailers did not anticipate growth in trout sales; however, more expected sales to grow than to decline.

A strong majority of retailers agreed that trout has a unique flavor, has consistently high quality, and maintains its freshness well through distribution. Retailers preferred fresh to frozen and believed trout is attractive in both full and self-service cases. They did not perceive a taste advantage for trout. Less than 10 percent of retailers agreed that consumers generally prefer the flavor of trout to other fish while 33 percent disagreed.

Trout retailers reported finding a difference among suppliers in the quality of product and service they provide. Only 35 percent use more than one supplier for trout.

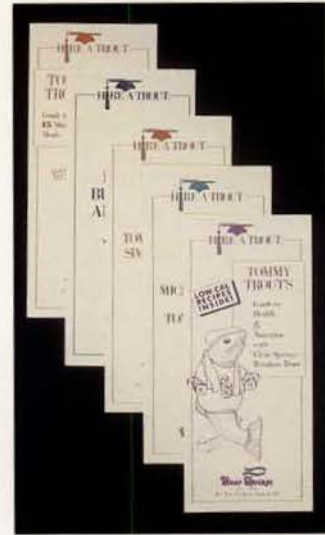
Retailers were generally critical of the advertising support they receive from the trout industry. Sixty percent disagreed with the

statement, "The trout industry provides good advertising support." They agreed that fewer deals are offered to support trout sales than for other seafood and fish species. They did not believe that most trout suppliers provide useful sales support materials, such as pamphlets or recipes. Retailers also indicated they want more point-of-sale materials from trout suppliers.

Although most retailers did not believe consumers are reluctant to buy fish they can catch locally, 33 percent of retailers surveyed believed this is a problem. Fifteen percent believed that trout is harder to prepare than other fish. They believed most consumers prefer trout boned and with the head removed; however, since about 24 percent did not believe the head needs to be removed, both preferences are worth noting. Pin bone removal was considered an important product option.



Supermarket meat selection



Brochures

Distributor Research

The second part of McCain and Guenther's study (1993) analyzed nationwide responses from 74 distributors that sold trout at least some of the time. Distributor institutions included brokers, distributors, and wholesalers. Of those who handle fresh water, farm-raised rainbow trout, 56 percent indicated they always sell trout, 22 percent sell trout frequently, and 22 percent sell trout infrequently.

The level of research support that distributors provide indicates how well informed the market is about a product line. Consumer research activity is relatively low, and most retailers are not well informed about their customers. The retail research conducted includes the entire product line, despite its diversity and continuous expansion. Current distributor involvement in research is very low. Fewer than 10 percent provide regular (frequent or always) research help to retailers and only 11 percent to restaurants. The vast majority of distributors never provide market research assistance. When this is combined with the lack of research at the retail level, it can be concluded that any information reaching retail buyers about consumer preferences for trout or trout uses does not likely come from distributors and retailers.

Few seafood distributors regularly conduct demonstrations for retailers; more than 50 percent reported they never do. Approximately 25 percent regularly assist retailers in preparing advertising for

specials, but more than 50 percent never provide such help. More distributors initiate specific product promotions to assist their customers in reaching consumers, but only one-third (33 percent) do it regularly. Cooperative support from suppliers is one incentive for each distribution level to provide promotional services to customers. Few distributors receive support from trout processors to develop promotions on a regular basis. Seventy-two percent of trout-selling distributors indicated trout processors never provide such cooperative support. This may be comparable to the experience these same distributors have with their other suppliers. More distributors (32 percent) receive help developing promotions from other suppliers, while only 38 percent never receive help. Distributors believe the trout processing industry is substantially less supportive of promotional activities than other seafood suppliers.

Distributors appear to have divergent experiences with trout sales. One-third of the distributors agreed they experienced substantial growth in trout sales; the rest reported a lack of substantial growth. Distributors generally agreed that supply and prices are stable and that trout is not high priced. Two-thirds order approximately the same amount of trout monthly. About half do not anticipate demand from restaurants and retail stores to change in the future. Of those who foresee

change, more expect growth than decline.

As with retailers, the majority of distributors agreed trout has a unique flavor, maintains its freshness well through distribution, and that processors provide a consistently high level of quality. Only 15 percent buy whole trout and perform additional value-added processing in their own facilities.

Trout distributors found a difference among suppliers in the quality of product and service provided. Unlike retailers' tendency towards single supplier purchasing, more than 55 percent of distributors use more than one supplier for trout.

Distributors were generally critical of trout industry advertising support, but were slightly less critical than retailers. They agreed that fewer deals are offered to support trout sales than for other seafood and fish species. Distributors did not believe most trout suppliers provide useful sales support materials, eg, pamphlets and recipes, and stated they want more point-of-sale materials from trout suppliers.

Distributors thought trout is an attractive offering for both retailers and restaurants. Only 4 percent felt trout is harder to prepare than other fish in restaurants, and 13 percent believed it is harder for retail consumers to prepare than other



Various fillets available

fish. They believed that both retailers and restaurants prefer fresh trout to frozen trout.

Distributors stated that retail consumers are more reluctant to buy fish that can be caught locally than restaurant customers. They believed retail customers want the fish's head removed more than restaurant customers do. In addition, they strongly believed both restaurant and retail consumers preferred boned trout. Fifteen percent agreed that consumers generally prefer the flavor of trout to other fish, but 27 percent disagreed; distributors perceived no obvious taste advantage for trout.

Conclusions and Recommendations

The U.S. trout industry operates in a competitive, changing food market. As in all markets, the consumer is king. Consumers drive the system by making daily food purchase decisions in grocery stores and restaurants.

U.S. consumers are changing what they eat. They are increasing consumption of plant products, but not changing animal product consumption. They are, however, changing the types of animal products they eat. Products considered high in fat or cholesterol are losing sales to those products considered more healthful. Consumers have been shifting from whole milk to low-fat dairy products, from butter to margarine, and from red meat to poultry and fish.

This preference for fish and shellfish is good news for the trout industry; the total market for trout industry products is growing. The

bad news is that the competition within the fish and shellfish market is stiff. Demand for another farm-raised product, catfish, grew rapidly while trout demand was stable. Apparently the catfish industry is outcompeting the trout industry.

The trout industry is scattered across the United States. For growers in Idaho, Washington, and North Carolina, the primary market channel is through processors. In Colorado, fee fishing is the dominant market. Wisconsin and Utah growers' biggest market is directly to restaurant and retail outlets. Other market outlets include government, directly to consumer, other producers, and live haulers.

In spite of their diversity, trout growers share some concerns, including disease control, feed efficiency, government regulation, and, of course, marketing. A common goal for all types of trout producers is maintaining or increasing the demand for trout. Market research is needed to accomplish this goal.

Several recent trout marketing research projects have concluded that consumers have a positive image of trout. Retailers and wholesalers find it an attractive product to sell; they like the stable supply, quality, and price. Those qualities, however, do not create an image of superiority to other fish in the minds of those who sell trout; to them, trout is just another fish in the product line. Consumers are not adequately aware of trout prices and availability. The distributors who sell trout consider advertising and on-site promotional support, which are the primary methods of creating awareness, inadequate. Competitive species are considered

equally good products and may receive greater support from their processors than trout. The trout industry will have to initiate any effort to improve the trout sales with respect to other fish species.

Continuous market research, in greater depth and breadth, is needed for the trout industry to develop strategies to improve its market position. Research should be designed to answer such questions as:

- *Which specific attributes of trout do consumers prefer?*
- *Which consumer segments prefer trout, and why?*
- *What causes people to try trout or to eat it more often?*
- *Which factors inhibit trout consumption?*
- *What information do distributors need to encourage them to carry trout if they do not do so currently?*
- *What marketing support efforts are needed to encourage sellers to push trout through the marketing channel?*

Until such questions are answered, the trout industry will likely lag behind producers of other fish species with greater market knowledge.



In addition to market research, the trout industry should do two other things to maintain or increase demand: (1) control quality, and (2) promote the product. The two must develop together. Promotion is not effective if a high-quality product is not delivered to consumers. It may be advantageous to adopt industry-wide standards and guidelines like those used by the British Trout Association to address quality issues from husbandry through distribution. Promotional efforts should take advantage of four consumer trends: health, convenience, meals away from home, and food safety.

✓ *Health*

The low-fat, low-cholesterol, high-protein content of trout offers a good marketing approach to consumers interested in eating healthier foods. To get more clout from advertising money, promotional efforts with other healthier foods might be an option. Since consumers are eating more fruits and vegetables, a joint promotion with produce groups might be beneficial.

✓ *Convenience*

With today's hectic lifestyles, consumers increasingly look for foods that are convenient to prepare. For many consumers that means boneless fillets rather than whole trout. It also means the trout industry should provide micro-wavable products and recipes. In the mid-1970s, less than 10 percent of U.S. households owned microwave ovens. By the early 1990s, more than 80 percent had them.

✓ *Meals Away from Home*

U.S. consumers are eating more meals away from home. Soon more than half the money spent on food will be for meals outside the home. The trout industry should

encourage restaurant and fast food chains to include trout on their menus. The catfish industry has already entered the market with selected fast food chains and institutions. Such a strategy may require greater cooperation among trout industry members.

✓ *Food Safety*

U.S. consumers are becoming quite concerned about food safety. Some of this concern has been directed at fish and shellfish. The trout industry can channel this concern toward increasing demand for their product. Promotion could focus on the idea that trout raised on farms in controlled environments may not be susceptible to contaminants from those who use oceans, lakes, and rivers as dumping grounds.

Industry-wide research, quality control, and promotion programs could increase demand for trout. Producers of other foods, such as potatoes, apples, orange juice, and catfish consider their programs effective.

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