

# Aquaculture Outlook

Economic Research Service  
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## **Domestic Production, Imports, and Exports Expected Higher in 2000**

The forecast for a strong domestic economy and the continued recovery of a number of Asian economies (especially Japan) are expected to help aquaculture production and trade opportunities expand in 2000. A strong domestic economy is expected to boost sales in the restaurant and foodservice sectors. Higher away-from-home food sales are especially beneficial to seafood and aquaculture demand, as a high percentage of total seafood sales are made in this sector. While higher restaurant sales are expected to boost sales of domestic aquaculture production, they also are expected to increase the demand for imported aquaculture products, such as shrimp, salmon, tilapia, and various mollusks. Exports of U.S. aquaculture products are expected to be aided by growth in Asian economies. Aside from Canada, Asian countries are the largest markets for U.S. aquaculture products. If the Japanese and Korean economies strengthen, their markets will become more attractive to U.S. exporters. While most indications are for strong sales during 2000, aquaculture producers will again be faced with strong competition from the livestock and poultry industries. U.S. production of red meat, while down from 1999, are still expected to be at relatively high levels, and poultry production is expected to be substantially higher.

## **Census of Aquaculture Yields Clearer Picture of U.S. Industry**

The recently released 1998 Census of Aquaculture report provides a wealth of data about the U.S. aquaculture industry, a small amount of which will be reviewed in this report. The full text and set of tables reported in the Census of Aquaculture can be found at the National Agricultural Statistics Service (NASS) web site - [www.usda.gov/nass/](http://www.usda.gov/nass/).

The first aspect of U.S. aquaculture to be reviewed is the number of farms in the industry and the value of their sales in 1998. The census showed slightly over 4,000 farms in the domestic aquaculture industry. These farms had total sales of \$978 million in 1998. Not unexpectedly, the majority of the farms and the bulk of the sales were located in the southern region. The farms responding to the census were divided into five regional groupings based on the States served by the five regional aquaculture research centers. The 13-State southern region had over two-thirds of the reporting farms and accounted for just about the same percentage of total sales. The western region had the second highest sales total, followed by the eastern region, the north-central region, and the tropical and subtropical region (Hawaii).

The census responses were also grouped according to the type of product produced. By far the largest sector of the industry were food fish producers. This group, with 54 percent of the farms, accounted for 71 percent of the total sales. To a large extent, the results of the census were influenced by the impact of the catfish industry, which dominates the U.S. aquaculture industry. Mississippi is the center of the catfish industry and reported by far the largest sales, accounting for almost a third of the total. In all, the four major catfish producing States of Mississippi, Arkansas, Alabama, and Louisiana accounted for four

of the top seven highest States in sales. While Mississippi was the top State in sales at \$290 million, Arkansas was second, at \$84 million, chiefly through its combination of catfish and baitfish sales. Sales of ornamental fish, mollusks (clams and oysters), and other product (alligators) placed Florida in third, at \$77 million. Maine was the fourth largest at \$67 million due to sales of Atlantic salmon. Alabama was the fifth highest at \$59 million, almost exclusively through catfish sales. The next five highest States in sales value were Washington, Louisiana, California, Idaho, and Virginia.

One of the observations that stands out from the Census of Aquaculture is the level of concentration in production. Slightly over 4,000 farms responded to the Census of Aquaculture. Of those 4,000 farms, 208 farms reported sales of \$1 million or more in 1998. This is only 5 percent of the farms, yet their combined sales were \$612 million, or over 60 percent of total U.S. aquaculture sales. This type of concentration is repeated in the many of the various segments of the industry. For example, catfish farms reporting sales over \$1 million represented less than 10 percent of total catfish farms, but they had 59 percent of total sales. It is not much different in the trout industry where the largest 4 percent of farms accounted for 45 percent of total sales.

The impact of large operations can also be seen in the State-level data. In Maine, 65 farms responded to the Census of Aquaculture, however, 20 of these farms were food fish farms reporting total sales of \$64.6 million. These are assumed to be Atlantic salmon farms and their average sales were slightly over \$3 million. No other State can boast of aquaculture farms with this type of average sales. Even the largest catfish farms, those with sales of over \$1 million, only averaged \$2.6 million per farm.

While currently somewhat of an anomaly in the aquaculture industry, the census responses seem to suggest that the aquaculture industry is headed toward becoming a highly concentrated industry with the majority of production coming from a small number of farms. If the aquaculture industry follows this path, it will be duplicating the type of production concentration that has occurred in the other livestock industries.

### **Catfish Sales Expected To Grow in 2000**

Sales of catfish by growers to processors are expected to expand again in 2000 and reach between 625 million and 630 million pounds, 5 to 7 percent higher than in 1999. Based on the size of grower inventories reported at the beginning of January, grower sales are expected to show modest increases during first-half 2000 compared with the previous year. Sales in the second half of the year will be influenced by the performance of the general economy and the still-large supplies of red meat and rising poultry production. Farm prices for catfish are expected to increase into the mid- to-upper 70 cents a pound range during the first 4 months of 2000, but then return to the low 70 cents per pound range for the rest of the year. The yearly average for 2000 is expected to be slightly below 1999's 73.6 cents per pound.

Over the last several years, low prices for both corn and soybeans have benefited most catfish farmers by reducing average feed prices. Lower feed costs have been especially beneficial, as the average farm prices for catfish have been between 70.9 and 78.6 cents per pound for the last 7 years. A combination of lower feed costs, stable farm prices, and relatively low interest costs have provided incentives for catfish producers to expand through the production of new ponds. The latest forecasts indicate that soybean meal prices may have bottomed out in 1999, but the increases in 2000 are expected to be relatively small, and corn prices may actually be lower than in 1999. So, while overall feed prices may not change much from their 1999 levels, they are expected to be considerably lower than the long-term averages.

### **Catfish Production Forecast Up in 2000**

Catfish growers indicated that at the start of 2000 their stocks of broodfish, most classes of foodsize fish, stockers, and fingerlings were all higher than the previous year. The January 1 survey is the only one that reports data from States other than the four largest producing States, although these four

States account for the vast majority of catfish production. This is the second year in a row that inventory levels of most classes of catfish have increased, with increases in 2000 for the most part much larger than in 1999.

As of January 1, 2000, the total number of foodsize fish in growers' inventories was estimated at 289 million, 13 percent more than a year earlier. The inventory increases for small and medium foodsize fish more than offset a small inventory decline for large foodsize fish. The number of small foodsize fish jumped 14 percent, and the number of medium foodsize fish was up 18 percent. For small foodsize fish, higher numbers in Arkansas and Mississippi accounted for most of the gain. For medium foodsize fish, inventories increased in all of the top producing States. The inventory levels of foodsize fish at the beginning of January are an indication of the supply of fish available for processing plants through the first 3 or 4 months of the year. Due to the cooler water temperatures in the first several months of the year, catfish are growing less and putting on less weight. Therefore, the inventory of fish that already had achieved market size by the beginning of the year are a good indication of marketable supplies for at least the first quarter of the year. Even with the higher inventories of foodsize fish, the strong domestic economy is expected to produce enough demand to support prices through the Easter period.

The January 1, 2000, inventory report indicated a 17-percent increase from the previous year in the number of stockers held by growers. The number of fingerlings in inventory rose to 1.1 billion at the start of 2000, an increase of 12 percent from the previous year. The number of stockers and fingerlings held in inventory at the beginning of the year are an indication of the number of fish that will be available for processing primarily in the second through the fourth quarters. These higher inventories of stockers and fingerlings combined with the foodsize fish already in growers' inventories indicate that, barring any adverse weather conditions, off-flavor, or disease problems, there is expected to be a good supply of fish for processing in the second through the fourth quarters of 2000. The large supply of fish is expected to pressure prices downward after the Easter season, but the extent of the decline will depend on domestic economic conditions and the prices of competing products.

### **Farm Prices Expected Stable in 2000**

In 2000, the average farm price for catfish is expected to decline slightly from 1999's average of 73.6 cents per pound. Barring any extended harvesting or feeding disruptions, farm prices are expected to average in the mid-70 cents a pound range over the first 6 months of 2000. Higher farm production is expected to be offset by increased demand from the foodservice sector. The foodservice sector is the primary purchaser of processed catfish products and is expected to enjoy continued increasing sales as a strong economy and low unemployment boost away-from-home food consumption. The grocery industry is also expected to increase their demand for catfish as higher disposable incomes allow consumers to make more frequent purchases of relatively high cost protein products.

In 2000, processors are expected to face stable prices for most inputs, with the exception of energy costs. These combined with stable prices for live catfish and continued growth in output are expected to help processors to maintain their sales margins even while wholesale prices are expected to show little growth.

During 1999, farm sales to processors totaled 597 million pounds with an average price of 73.6 cents a pound. This implies gross sales of \$439 million for catfish growers, up 5 percent from a year ago. Including sales of broodfish, stockers, and fingerlings to other producers, catfish growers reported that their total sales were \$488 million in 1999, up 3 percent from 1998. For 2000, with the expected increase in sales and relatively flat farm prices, grower sales of catfish to processing plants are expected to generate between \$450 million and \$460 million.

### **Acreage Continues Upward**

Favorable conditions for catfish growers over the past year have led to growth in pond acreage. This pattern is expected to continue in 2000. The January grower survey reported that pond acreage was 5

percent higher at 189,000 acres. In addition, the growers indicated they expected to add 3,800 acres of new ponds which would be constructed in first-half 2000. Most of the increase in pond acreage from 1999 to 2000 was the result of expansions in Arkansas and Mississippi. These two States reported that they would have a combined 9,000 additional acres in production in first-half 2000 compared with the previous year. The breakout for the acreage estimated to be in production in first-half 2000 is 152,480 acres for foodsize fish, 24,450 acres for fingerlings, and 6,265 for broodfish production.

### **Processor Revenues Increase**

Over the course of 1999, catfish processors sold 293 million pounds of product, up 4 percent from a year earlier. For 1999, catfish products averaged \$2.34 a pound, 2 percent above 1998. This is the second year that the average processor price has increased after falling in both 1996 and 1997. Much of the increase in the average price is due to stronger sales for filleted products. With both increased sales volume and higher average prices, gross processor revenues from catfish products reached \$686 million in 1999, 6 percent higher than in 1998. With the expectations of higher sales levels and relatively stable prices, processor revenues are forecast to reach between \$705 million and \$720 million in 2000.

During 1999, processor sales were strong in most categories. Sales during January and February 1999 ran below the previous year, but starting in March sales strengthened and remained above the previous year for the rest of 1999. Overall sales of fresh and frozen catfish were higher than in 1998, but sales of some product types fell. As in many recent years, sales of filleted products have been the major growth area for catfish processors. Fresh filleted sales were up 7 percent, and this is the fifth consecutive year they have risen. Frozen filleted sales, the largest component of catfish sales, rose by 6 percent. Together, filleted sales accounted for 61 percent of all catfish product sales in 1999. The faster growth in filleted sales has meant a steady upward movement in weighted average prices, as filleted products are normally among the most expensive product.

### **Trout Sales at \$77 Million in 1999**

Through 1998, NASS surveyed the domestic trout industry once a year. The reporting period for these surveys was from September 1 of the previous year through August 31 of the reporting year. The results of these surveys were normally released in the beginning of October of each year. Starting in February 2000, the annual survey of trout growers was changed to a calendar year and the data were released in a combined report with the annual survey of catfish growers. While both reports show sales data by type of product, the trout report does not include any grower estimates of inventories, so that estimates of future production are more speculative. Other changes to the trout report were the inclusion of a number of additional States and in operations distributing trout. This report included 264 operations that distributed trout. This included operations that distribute trout for restoration or conservation purposes, many of them State or Federal hatcheries. The value of the fish distributed for these purposes was estimated at \$63.4 million and is separate from the figure for the value of trout sold.

In the first release of the trout growers survey in the new format, growers reported sales in 1999 of \$76.9 million, up 4 percent from 1998. Most of the increase came from higher sales in Idaho, the largest trout producer. These sales figures included sales of foodsize fish, fish for stocking, fingerlings, and egg sales. In terms of overall sales, foodsize fish accounted for 84 percent, stockers 7 percent, fingerlings 2 percent, and eggs 6 percent.

Idaho is the dominant State for sales of foodsize fish, accounting for 57 percent of total sales. Other major States for foodsize fish sales are California, Colorado, North Carolina, and Pennsylvania. Because of its large production and its dependence on sales through larger wholesalers and major grocery chains, the average price for sales of foodsize trout in Idaho are much lower than in other States. In 1999, growers in Idaho reported that the average price for foodsize fish was 81 cents a pound, up a nickel from the previous year (the next lowest was North Carolina at \$1.32 a pound).

The data for sales of stockers and fingerlings are harder to analyse, as the data for many States have been included in the "other" category due to disclosure restrictions. The data for egg sales are combined into regional totals for this report. Over 90 percent of all egg sales are from the western region. In 1999, egg sales were worth \$4.9 million for 311.4 million eggs or \$15.80 per 1,000 eggs.

### **Tilapia Imports Shoot Higher**

The growth of the U.S. market for imported tilapia could be used in business schools as an example of a successful introduction of a new food product. While tilapia has been a well-established food fish in many areas of the world for a considerable period of time, its production growth over the last decade has focused on production for foreign trade rather than its traditional use as a product for local consumption or consumption by the growers themselves. Tilapia imports in the early 1990's were so small that until 1992 there was no need for it to be tracked individually. In 1993, the first full year of import data, only 18 million pounds of tilapia were imported. By 1999, imports had grown by 354 percent.

In 1999, imports of tilapia and tilapia fillets reached 82.8 million pounds. This is over 21 million pounds (55 percent) higher than in 1998. Imports of tilapia were higher in all the categories, with imports of whole fish up 27 percent, fresh fillets up 48 percent, and imports of frozen fillets up 84 percent. Frozen whole tilapia continues to dominate imports and accounted for 73 percent of imports on a quantity basis, but imports of filleted products have been growing at a rapid rate and on a value basis accounted for 59 percent of all tilapia imports. The actual poundage of tilapia products imported understates the size of the industry supported by the U.S. market. To supply the U.S. market in 1999 required the production of 135 million pounds of live fish.

Taiwan's tilapia industry has always been the major supplier of products to the U. S. market and in 1999 accounted for 66 percent of all tilapia imported. The Taiwanese industry is especially dominant in the frozen whole fish segment of the industry, where over 81 percent of the imports were from Taiwan. However, this segment of the import industry may become more competitive over the next several years. China has entered the market and in only 2 years has captured 18 percent of frozen whole imports. In 1997, shipments of whole fish from China totaled less than 65,000 pounds. By 1999 that had increased to 6.3 million pounds.

Changes are also occurring in the fresh and frozen fillet markets. Up until 1999, Costa Rica had been the dominant supplier of fresh fillets, accounting for over half of U.S. imports. Honduras, Jamaica, and Ecuador had been secondary suppliers. In 1999, imports from Ecuador increased by 180 percent to almost 4 million pounds. Ecuador, with its large farmed shrimp industry, is looking to diversify their aquacultural production, and if tilapia prices continue to remain strong, it is expected to continue to increase production, possibly converting some shrimp ponds to tilapia production.

In the frozen fillet segment of the tilapia import market, the countries that have shown the most growth have been Taiwan and China. Imports from Taiwan in 1999 more than doubled those of the previous year and accounted for 55 percent of all frozen fillet imports. Shipments from China have gone from zero in 1997 to 1.7 million pounds in 1999. Imports from both Taiwan and China are expected to continue to grow in 2000 as they vie for a larger proportion of this rapidly growing segment of U.S. fish imports. While the market for frozen whole fish continues to increase, producers in Taiwan and China are looking to capture a larger segment of the potentially larger market for filleted products. Moving to the filleted product market also allows them to sell a value-added product with a much higher unit value.

The value of tilapia imports rose 55 percent in 1999 to \$81.9 million. The average price for frozen whole tilapia, fresh fillets, and frozen fillets all increased, with the average unit value for all tilapia imports rising by 14 cents to 99 cents a pound. Most of the increase in the average unit value is the result of the more rapid growth in the filleted segment. With fillets accounting for a larger portion of all imports, the average price is expected to continue to gradually rise. Tilapia imports are now steady throughout the year, imports for 2000 are expected to reach 92 million to 95 million pounds on a product-weight basis

and 155 million to 165 million pounds on a live-weight basis. The value of imports is expected to reach between \$95 and \$100 million in 2000. Average import values are expected to increase slightly as imports of fillets continue to grow, but prices in the different categories are not expected to show much increase, and they should be pressured by rising imports from Taiwan and China. This may be especially true if the relatively large supplies of red meat and poultry products combine to push down prices, making them relatively less expensive.

### **1999 Marks Continued Growth in U.S. Salmon Imports**

U.S. imports of Atlantic salmon in 1999 totaled 242 million pounds and \$629 million. These are increases of 16 percent in quantity and 24 percent in value. All three Atlantic salmon import categories (fresh whole fish, frozen whole fish, and fresh and frozen fillets) showed increased quantities, and the average unit values for both fresh and filleted products rose in 1999. Unit values for frozen products fell slightly, but the total value of frozen Atlantic salmon imports was up 22 percent. Imports of filleted products continue to be the fastest growing segment of Atlantic salmon imports. In 1999, imports of filleted products grew 25 percent to 118 million pounds. Imports of Atlantic salmon fillets have risen rapidly over the last several years, and have doubled between 1997 and 1999. This rapid growth has changed imports of filleted products into the largest of the three product categories, surpassing imports of fresh products. The value of filleted products reached \$334 million in 1999, topping those of fresh whole fish and accounting for 53 percent of all Atlantic salmon imports.

The biggest change in the Atlantic salmon market in 1999 was that the growth in imports came primarily from countries besides Canada or Chile. These two countries are still the largest suppliers of Atlantic salmon products to the United States and in 1999 accounted for 78 percent all Atlantic salmon exports to the United States. However, in 1999, most of the growth in imports has come from European producers, mostly those in Norway and the United Kingdom, but also from Iceland and the Faroe Islands. Imports from these countries all more than doubled in 1999. Canadian imports increased by 8 percent to 98 million pounds, but imports from Chile were down by 7 million pounds.

With strong economic growth in the United States forecast for another year, imports of Atlantic salmon are expected to continue to expand in 2000. Shipments are expected to approach 275 million pounds and \$700 million in value. While a strong domestic economy is expected to increase the demand for salmon, especially from the restaurant industry, where it has become a featured seafood product for many businesses, a strong dollar versus many major currencies is expected to make Atlantic salmon imports from most producing countries relatively less expensive.

While imports of Atlantic salmon have been increasing, exports of U.S. salmon products have been declining. While the decline in exports had effected all types of salmon products, the bulk of the impact had come from falling exports for frozen salmon products. The large majority of frozen salmon products exported from the United States had been going to Japan. The U.S. wild harvest salmon industry had been faced with two changes in the Japanese market over the last several years. First, the slowdown in the Japanese economy lowered the total demand for salmon and especially for frozen sockeye salmon which had been the chief U.S. export. Secondly, with rising production, Atlantic salmon producers in Europe and the Americas had targeted Japan as a growth market for their products.

As the Japanese economy has strengthened somewhat, exports of U.S. wild salmon in 1999 increased. While exports are up considerably from the previous years, (49 percent higher for the quantity of frozen Pacific salmon) shipments are only about even with those in 1997 and well below the exports of 1996.

In 2000 the salmon markets are expected to remain very competitive as European producers try and capture market share in the United States from growers in Canada and Chile. If the economy in Japan continues to improve, then salmon farmers will have a third major market (besides Europe and the United States) to target. Another factor is changes in the strength of the dollar versus the Canadian dollar and the Japanese yen. For most of 1999 the U.S. dollar was very strong versus the Canadian

dollar, increasing the competitiveness of products from that country. If the dollar is strong versus the Yen, then U.S. wild harvest products are expected to be less competitive compared with farmed products from other countries in the Japanese market. This would force more U.S. wild harvest product into the domestic market where it would compete primarily with imported frozen products, either whole or filleted.

### **Shrimp Imports Up 5 Percent**

After declining in first-half 1999, shrimp imports were very strong in the second half of the year and finished 1999 at 731 million pounds, up 5 percent from 1998. The increase in overall value did not keep pace with the quantity increase, as falling average unit values held the increase in value to less than 1 percent at \$3.14 billion.

While most Asian countries increased their exports to the United States, these higher shipments were partially countered by falling exports from Ecuador to the United States. Ecuador is the second largest exporter of shrimp to the United States. In 1999, exports from Ecuador declined by 22 percent to 111 million pounds. The El Nino weather phenomenon has had a large impact on the farmed shrimp industry along the west coast of South America. This industry depends to a large extent on the availability of wild egg carrying female shrimp to supply their shrimp hatcheries. The El Nino phenomenon greatly lessens the upwelling of cold water that supplies the nutrients utilized by both fish and crustaceans. Mexican imports were down slightly, but due to increases in shipments of large shrimp, the value of shrimp imports from Mexico rose by 2 percent.

With the exception of Bangladesh, most Asian countries increased their exports to the United States. Thailand continues to increase its total market share. In 1997, Thailand's share of total U.S. shrimp imports was 25 percent, by 1999 that had increased to 35 percent. While the total value of shrimp imported from Thailand has not grown as rapidly as the quantity, at \$1.2 billion it now ranks Thailand as one of the largest fishery suppliers to the United States. Despite continued social unrest in Indonesia, exports from that country to the U.S. market were higher in 1999 on a quantity basis, although the devaluation of their currency caused the export value to decline. After having problems with diseases earlier in the 1990's, the Chinese shrimp industry seems to be on the upturn. Shipments, while still modest compared with other major exporters, grew strongly in 1998 and 1999.

Imports of shrimp in 2000 are expected to decline somewhat from the record levels seen in 1999. A strong domestic economy is expected to keep the demand for shrimp high in the restaurant market, and overall imports are expected to remain at a very high level. However, imports of shrimp in 2000 are not expected to get the sort of boost in demand that was seen in 1999. This was probably due to the combination of the end of a very strong year economically and millennium celebrations. For 2000, import quantities are expected to be between 710 and 720 million pounds, with a value of around \$3.1 billion.

### **Oyster and Mussel Exports Increase in 1999**

During 1999 exports of oysters and mussels increased in both volume and value. After not showing much growth over the last 2 years, mollusk exports responded to better economic conditions in Asia. For oysters and mussels, slightly higher prices also pushed up the value of exports. Oyster exports were up 9 percent to 2.7 million pounds, but this is still below the exports of 1997. The increase in volume plus an increase in price yielded a 10-percent gain in value to \$6.6 million. The economic conditions in Asia are critical to mollusks exports as the majority go to either Japan, Korea, or Hong Kong/China. Mussel exports fared even better, rising 38 percent to 1.9 million pounds. The value of mollusk exports rose 43 percent to \$2.2 million. Mussel exports had been lower in the two previous years as a result of lower demand in Asian markets and a rapidly growing domestic market for mussels. Clam exports fell 3 percent and their export value was also down 3 percent.

### **Imports Rise for All Mollusks**

Boosted by a strong economy that has increased restaurant sales, a strong U.S. dollar, and stable or declining U.S. wild harvest landings, imports of oysters, clams, and mussels all rose in 1999. These same conditions are forecast for 2000, and mollusk imports are expected to again increase, with the majority of imports going to the foodservice sector.

Mussels imports continue to be the largest segment of mollusk imports on a quantity basis. In addition, with its growth in quantity, mussels imports are starting to challenge oysters as the most valuable of mollusk imports. Mussel imports were 35 million pounds in 1999, up only 3 percent from the previous year, but up 65 percent from 1996. Most of the imports are farm-raised, coming either from Canada or New Zealand.

After not showing any growth between 1996 and 1998, clam imports rose by 15 percent in 1999. Most U.S. clam imports are from Canada. If the U.S. dollar continues to be strong versus the Canadian dollar, then clam imports should be expected to rise again in 2000.

### **Ornamental Fish Exports Rise**

The 1998 Census of Aquaculture reported that there were 345 ornamental fish growers in the United States and that they had \$69 million in total sales. Florida dominated the domestic ornamental fish industry, accounting for 171 growers and \$56 million or 81 percent of total U.S. sales. The ornamental fish industry is one of two major non-food fish production sectors. The other is the baitfish industry. While the baitfish industry has more producers distributed throughout the country, the largest growers are located in Arkansas. The Census of Aquaculture report showed Arkansas having 62 growers with total sales of \$23 million. This would account for only 22 percent of all the growers but over 60 percent of total U.S. sales.

After declining over the last several years, U.S. exports of ornamental fish managed to show a small increase to \$10.8 million in 1999. Canada continues to be the largest market for U.S. ornamental fish. Shipments to Canada in 1999 were down 5 percent from the previous year to \$2.2 million. With the price of U.S. ornamental fish being made higher by the relative weakness of the Canadian dollar versus the U.S. dollar, exports to Canada are expected to be down again in 2000.

Exports to many countries had been down over the last several years due to a combination of economic uncertainties in a number of the major Asian export markets (Singapore, Japan, Hong Kong) and with a strong U.S. dollar making exports less competitive to such markets as Mexico and Canada. With the economic situations looking better for many Asian countries, exports of ornamental fish are expected to show some growth, although probably only a slight amount, in 2000.

The value of ornamental fish imports was \$38.5 million in 1999, down 15 percent from a year earlier. Shipments to the United States were down from virtually every major exporting country. Imports have been declining over the last several years, and it is unclear whether the import demand for ornamental fish has been falling or if domestic growers have been increasing production to meet more of the demand.

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**Catfish: Supply, sales, prices, and inventory**

Item	1999	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	2000
	Jan.												Jan.
<b>Supply</b>													
	1,000 lbs.												
Grower sales 1/	48,723	48,891	56,310	46,830	47,703	48,445	50,074	50,372	50,414	52,407	48,118	48,341	50,552
Processor sales	23,107	25,780	28,544	23,488	23,964	23,720	25,069	24,618	24,430	25,229	22,344	22,372	25,412
Fresh	9,474	10,601	11,977	9,509	9,637	9,213	9,622	9,768	9,487	10,048	8,679	8,682	9,611
Whole	3,650	3,957	4,467	3,459	3,492	3,380	3,471	3,271	3,583	3,561	3,209	3,313	3,496
Fillet	4,581	5,030	5,768	4,897	4,918	4,707	4,846	5,002	4,550	4,811	4,171	4,142	4,686
Other	1,243	1,614	1,724	1,153	1,227	1,126	1,305	1,495	1,354	1,676	1,299	1,227	1,429
Frozen	13,633	15,179	16,567	13,979	14,327	14,507	15,447	14,850	14,943	15,181	13,665	13,690	15,801
Whole	1,139	1,323	1,320	1,227	1,171	1,114	1,267	1,144	1,051	1,025	1,043	972	1,231
Fillet	9,188	10,135	11,467	9,873	9,891	10,012	10,579	9,445	10,160	10,634	9,414	9,125	10,654
Other	3,306	3,721	3,780	2,879	3,265	3,381	3,601	4,261	3,732	3,522	3,208	3,593	3,916
Processor inventory 2/	11,716	10,103	9,015	8,079	7,515	7,764	7,586	7,515	8,504	9,713	10,894	12,551	12,862
Fresh	745	708	657	577	634	667	651	740	796	749	660	660	799
Whole	208	184	180	136	196	194	163	210	177	192	159	169	234
Fillet	451	420	393	348	336	385	391	413	494	437	392	397	460
Other	86	104	84	93	102	88	97	117	125	120	109	94	105
Frozen	10,971	9,395	8,358	7,502	6,881	7,097	6,935	6,775	7,708	8,964	10,234	11,891	12,063
Whole	921	895	969	960	844	861	737	611	644	719	729	1,078	1,403
Fillet	7,024	6,059	4,940	3,964	3,435	3,253	3,486	4,000	4,599	5,667	6,515	7,448	7,640
Other	3,026	2,441	2,449	2,578	2,602	2,983	2,712	2,164	2,465	2,578	2,990	3,365	3,020
<b>Prices</b>													
	Dollars per pound												
Farm price 3/	0.70	0.71	0.73	0.76	0.78	0.78	0.77	0.74	0.73	0.72	0.71	0.72	0.74
Processor prices	2.26	2.26	2.32	2.36	2.40	2.40	2.39	2.35	2.37	2.36	2.35	2.31	0.00
Fresh	2.12	2.10	2.15	2.20	2.26	2.26	2.24	2.25	2.21	2.19	2.20	2.18	2.22
Whole	1.54	1.55	1.57	1.59	1.63	1.60	1.59	1.63	1.61	1.63	1.59	1.57	1.63
Fillet	2.73	2.71	2.76	2.75	2.84	2.86	2.86	2.85	2.85	2.83	2.84	2.83	2.82
Other	1.61	1.55	1.59	1.70	1.74	1.76	1.66	1.62	1.66	1.57	1.65	1.66	1.66
Frozen	2.35	2.37	2.44	2.47	2.49	2.48	2.49	2.41	2.47	2.47	2.45	2.39	2.43
Whole	1.94	1.95	1.95	1.98	2.01	2.01	2.01	2.01	2.01	2.00	2.02	2.01	2.02
Fillet	2.62	2.66	2.71	2.74	2.78	2.81	2.82	2.82	2.81	2.78	2.77	2.77	2.81
Other	1.73	1.75	1.80	1.76	1.76	1.68	1.71	1.60	1.67	1.66	1.67	1.52	1.55

1/ Total live weight of fish delivered for processing. 2/ Inventory at end of reporting period. 3/ Live weight.

Source: NASS, USDA

**Catfish: Inventory as of January 1, in thousands**

State	Broodfish				Fingerlings/fry				Stockers			
	1997	1998	1999	2000	1997	1998	1999	2000	1997	1998	1999	2000
Alabama	138	142	120	138	36,802	30,287	41,220	54,170	49,153	44,071	53,470	55,440
Arkansas	150	180	180	330	130,575	175,500	185,000	180,000	124,285	102,600	128,000	128,500
California	15	25	21	25	6,800	4,530	1/	5,910	1,860	5,880	1/	2,880
Florida	7	12	1/	2	1,000	2,235	1,340	1,200	1/	1/	1/	410
Kentucky	1/	1/	1/	1/	1/	1/	1/	180	1/	1/	1/	1/
Louisiana	100	33	82	1/	34,000	59,360	68,180	36,600	99,800	37,080	33,960	32,400
Mississippi	641	661	650	780	631,382	664,878	653,720	805,000	466,641	406,635	450,470	561,500
Missouri 3/	8	9	5	1/	10,402	10,718	13,180	1/	2,137	1,674	2,990	1/
North Carolina	10	54	12	8	6,172	5,480	1,760	1,820	1,438	3,017	1/	3,700
Oklahoma	39	14	13	3/	1,770	3,485	1/	3/	375	774	700	1/
South Carolina	14	20	1/	10	4,085	2,266	1,730	1/	5,071	1,055	1,060	1/
Tennessee	1/	1/	12	3/	1/	1/	1/	3/	1/	1/	587	1/
Texas	25	15	9	16	6,668	6,168	6,150	750	610	902	730	320
Other 2/	16	22	51	48	3,801	10,635	14,088	16,570	3,446	4,190	6,715	7,393
Total	1,163	1,187	1,155	1,357	873,457	975,542	986,368	1,102,200	754,816	607,878	678,682	792,543

State	Small food-size				Medium food-size				Large food-size			
	1997	1998	1999	2000	1997	1998	1999	2000	1997	1998	1999	2000
Alabama	27,239	28,732	27,170	26,010	11,698	10,655	9,970	12,600	1,106	1,135	920	510
Arkansas	21,150	21,400	26,000	45,500	18,355	9,700	14,000	19,500	1,225	1,360	1,700	1,900
California	1,570	1,450	1,020	870	820	1,250	1/	840	170	100	1/	340
Florida	1/	1/	400	400	28	10	200	200	1/	1/	1/	3
Kentucky	26	1/	91	132	47	38	78	75	19	12	21	2
Louisiana	16,300	11,860	11,520	11,000	9,500	7,470	6,660	7,600	1,560	1,485	1,060	670
Mississippi	108,569	111,358	112,740	120,500	41,853	31,090	29,720	31,760	3,324	2,898	4,710	1,830
Missouri	716	749	630	1,150	788	482	490	590	1/	1/	85	130
North Carolina	1,071	1,246	960	1,150	474	417	630	600	48	55	300	98
Oklahoma	79	91	57	3/	79	78	1/	3/	11	4	1/	3/
South Carolina	983	596	590	1/	708	571	150	330	82	61	46	1/
Tennessee	114	87	20	3/	73	72	61	3/	14	32	1/	3/
Texas	354	464	410	340	201	244	200	75	62	75	63	50
Other 2/	277	478	643	1,370	101	63	890	319	189	78	361	342
Total	178,448	178,511	182,251	208,422	84,725	62,140	63,049	74,489	7,810	7,295	9,266	5,875

1/ Data not published separately to avoid disclosing individual operations. 2/ Includes Georgia and Kansas.

3/ In 1997, Missouri inventory of small stockers included in other.

Source: Catfish Growers Survey, NASS, USDA.

**U.S. trout sales, weight, and value of foodsize fish 1/**

State	Total pounds sold		Total value of sales	
	1998	1999	1998	1999
	-- 1,000 --		-- \$1,000 --	
California	2,020	2,310	3,919	4,574
Colorado	960	774	2,371	2,020
Connecticut	25	20	85	115
Georgia	143	317	420	542
Idaho	44,420	46,000	33,759	37,260
Maine	2/	2/	2/	2/
Massachusetts	60	86	209	342
Michigan	350	352	777	859
Missouri	480	2/	960	2/
New York	123	93	458	374
North Carolina	4,160	4,510	5,491	5,953
Oregon	268	219	504	394
Pennsylvania	1,440	1,510	3,571	3,941
Tennessee	2/	166	2/	359
Utah	465	656	1,353	1,220
Virginia	863	883	1,778	1,810
Washington	677	872	1,320	1,718
West Virginia	362	395	648	679
Wisconsin	531	368	1,481	1,251
Other 3/	548	752	1,169	1,543
<b>Total</b>	<b>57,895</b>	<b>60,283</b>	<b>60,273</b>	<b>64,954</b>

**U.S. trout sales, weight, and value of stockers 4/**

State	Total pounds sold		Total value of sales	
	1998	1999	1998	1999
	-- 1,000 --		-- \$1,000 --	
California	170	163	333	328
Colorado	419	180	985	558
Connecticut	2/	2/	2/	2/
Georgia	2/	2/	2/	2/
Idaho	240	2/	269	2/
Maine	2/	10	2/	85
Massachusetts	38	42	135	148
Michigan	109	65	302	174
Missouri	2/	2/	2/	2/
New York	99	63	415	293
North Carolina	415	98	589	141
Oregon	92	40	247	134
Pennsylvania	560	372	1,742	1,246
Tennessee	2/	2/	2/	2/
Utah	310	250	505	450
Virginia	2/	69	2/	161
Washington	2/	278	2/	678
West Virginia	6	4	10	8
Wisconsin	67	164	189	399
Other 3/	794	433	1,902	823
<b>Total</b>	<b>3,319</b>	<b>2,231</b>	<b>7,623</b>	<b>5,626</b>

**U.S. trout sales, weight, and value of fingerlings 5/**

State	Total pounds sold		Total value of sales	
	1998	1999	1998	1999
	-- 1,000 --		-- \$1,000 --	
California	8	10	94	181
Colorado	8	8	23	64
Connecticut	2/	2/	2/	2/
Georgia	2/	2/	2/	2/
Idaho	2/	2/	2/	2/
Maine	2/	4	2/	74
Massachusetts	2/	3	2/	19
Michigan	17	10	72	80
Missouri	2/	2/	2/	2/
New York	6	3	48	29
North Carolina	73	71	240	261
Oregon	2	2	35	33
Pennsylvania	9	15	134	198
Tennessee	2/	2/	2/	2/
Utah	5	7	13	27
Virginia	2/	2	2/	28
Washington	2/	9	2/	70
West Virginia	1	2	5	8
Wisconsin	3	13	17	39
Other 3/	30	98	209	301
<b>Total</b>	<b>162</b>	<b>257</b>	<b>890</b>	<b>1,412</b>

**U.S. trout sales, number and value of eggs 6/**

Region 7/	Number of eggs		Total value of sales	
	1998	1999	1998	1999
	-- 1,000 --		-- \$1,000 --	
Northeast	1,160	1,190	25	25
South and Central	245	604	5	12
West	341,754	309,620	5,162	4,893
<b>Total</b>	<b>343,159</b>	<b>311,414</b>	<b>5,192</b>	<b>4,930</b>

1/ Foodsize refers to fish 12 inches or greater.

2/ Included in "Other" to avoid disclosure of individual firms.

3/ Includes Arkansas.

4/ Fish between 6 and 12 inches long.

5/ Fish between 1 and 6 inches long.

6/ Data published at a regional level to avoid disclosure of individual operations.

7/ Regions: Northeast - CT, MA, ME, NY, PA, WV. South - AR, GA, NC, TN, VA. Central - MI, MO, WI.

West - CA, CO, ID, OR, UT, WA

Source: Catfish and Trout Production report, NASS, USDA.

**Quantity and value of U.S. exports of selected seafood products**

<b>Commodity</b>	1996	1997	1998	1999	1996	1997	1998	1999
<b>Exports</b>	<b>\$1,000</b>				<b>1,000 lb</b>			
Ornamental fish	15,460	14,540	10,532	10,834	0	0	0	0
Trout, live	1,098	872	365	340	0	0	0	0
Trout, fresh & frozen	3,011	2,516	2,165	2,855	1,867	1,709	1,453	1,697
Atlantic salmon, fresh	18,363	18,310	18,993	23,557	7,280	7,504	7,978	10,717
Pacific salmon, fresh 1/	45,879	29,127	44,186	47,989	42,999	25,529	34,645	40,683
Atlantic salmon, frozen	654	771	432	458	322	322	243	182
Pacific salmon, frozen 1/	398,093	251,812	183,874	296,391	223,346	152,516	105,869	157,278
Canned & pre. salmon 2/	154,283	136,187	143,712	198,518	94,842	81,407	77,201	113,556
Shrimp, frozen	43,317	46,826	45,179	60,794	11,180	11,967	11,323	13,607
Shrimp, fresh & pre. 3/	60,005	52,967	48,127	44,444	17,665	14,826	13,882	13,153
Oysters 4/	5,710	6,128	5,941	6,563	2,097	2,890	2,496	2,727
Mussels 5/	2,585	1,401	1,559	2,228	1,603	1,157	1,347	1,861
Clams 6/	8,850	8,909	8,383	8,169	5,126	4,916	5,375	5,240
<b>Imports</b>	<b>\$1,000</b>				<b>1,000 lb</b>			
Ornamental fish	53,027	49,311	45,097	38,462	0	0	0	0
Trout, live	65	84	81	109	0	0	0	0
Trout, fresh & frozen	6,954	7,545	9,022	8,504	4,552	5,403	5,670	5,259
Atlantic salmon, fresh	261,918	359,410	461,738	567,977	116,606	150,135	190,131	217,948
Pacific salmon, fresh 1/	91,043	82,143	70,234	51,556	43,962	38,999	38,486	26,467
Atlantic salmon, frozen	25,214	34,926	46,437	60,883	10,752	14,956	19,092	24,222
Pacific salmon, frozen 1/	13,315	27,067	20,355	22,590	8,514	25,662	17,134	16,596
Canned & pre. salmon 2/	18,785	18,615	16,243	23,582	4,182	3,675	3,430	5,627
Shrimp, frozen	2,136,372	2,558,061	2,727,977	2,612,811	507,823	572,111	599,466	617,089
Shrimp, fresh & pre. 3/	321,128	395,530	474,462	524,566	74,648	76,213	95,942	114,191
Oysters 4/	38,343	36,616	35,723	38,350	14,222	14,531	18,049	18,325
Mussels 5/	21,274	24,170	31,413	33,629	21,241	26,903	34,099	34,969
Clams 6/	7,073	5,768	5,705	6,167	6,596	5,703	6,541	7,537
Tilapia 7/	43,019	49,465	52,738	81,897	41,949	53,890	61,336	82,837

1/ Also contains salmon with no specific species noted. 2/Includes smoked and cured salmon. 3/ Shrimp, canned, breaded, or prepared. 4/ Oysters, fresh or prepared. 5/ Mussels, fresh or prepared. 6/ Clams, fresh or prepared. 7/ Tilapia, frozen whole fish plus fresh and frozen fillets.

Source: Bureau of the Census, U.S. Department of Commerce.

**Quantity of U.S. tilapia imports by country, in pounds**

Country	Whole, frozen		Fillets, fresh		Fillets, frozen		Total	
	1998	1999	1998	1999	1998	1999	1998	1999
Belize	0	0	0	0	0	0	0	0
Honduras	53,038	0	960,317	1,700,842	102,569	44,246	1,115,924	1,745,089
Nicaragua	701	0	14,522	25,554	48,312	11,720	63,534	37,273
Costa Rica	7,412	0	4,863,987	5,092,941	0	0	4,871,399	5,092,941
Jamaica	0	0	401,202	387,130	218,846	105,102	620,048	492,232
Colombia	0	0	0	6,678	0	0	0	6,678
Ecuador	68,883	329,312	1,423,843	3,981,492	175,821	123,852	1,668,547	4,434,657
Thailand	77,679	104,172	0	0	303,505	253,359	381,184	357,531
Indonesia	0	0	0	0	1,951,724	2,527,201	1,951,724	2,527,201
China	959,572	10,891,374	0	83,889	84,000	1,652,103	1,043,572	12,627,367
Taiwan	46,286,287	48,622,707	187,089	341,186	2,941,834	6,076,171	49,415,210	55,040,063
Other	21,263	223,593	62,897	86,059	117,490	166,141	201,650	475,792
<b>Total</b>	<b>47,474,835</b>	<b>60,171,158</b>	<b>7,913,857</b>	<b>11,705,771</b>	<b>5,944,100</b>	<b>10,959,896</b>	<b>61,332,792</b>	<b>82,836,824</b>

**Value of U.S. tilapia imports by country**

Country	Whole, frozen		Fillets, fresh		Fillets, frozen		Total	
	1998	1999	1998	1999	1998	1999	1998	1999
Belize	0	0	0	0	0	0	0	0
Honduras	132,566	0	2,501,822	3,971,944	259,439	57,639	2,893,827	4,029,583
Nicaragua	1,875	0	40,398	68,216	94,786	19,508	137,059	87,724
Costa Rica	5,579	0	10,265,503	10,654,438	0	0	10,271,082	10,654,438
Jamaica	0	0	1,212,093	1,122,091	356,876	186,590	1,568,969	1,308,681
Colombia	0	0	0	8,831	0	0	0	8,831
Ecuador	90,716	538,637	2,512,811	9,291,048	274,212	272,007	2,877,739	10,101,692
Thailand	48,489	60,047	0	0	873,409	552,560	921,898	612,607
Indonesia	0	0	0	0	4,258,091	5,551,407	4,258,091	5,551,407
China	437,364	6,342,190	0	55,590	217,510	3,026,096	654,874	9,423,876
Taiwan	23,002,925	26,808,791	449,110	437,747	5,447,635	12,324,971	28,899,670	39,571,509
Other	9,548	117,190	69,405	231,349	177,854	198,082	256,807	546,621
<b>Total</b>	<b>23,729,062</b>	<b>33,866,855</b>	<b>17,051,142</b>	<b>25,841,254</b>	<b>11,959,812</b>	<b>22,188,860</b>	<b>52,740,016</b>	<b>81,896,969</b>

Source: Bureau of the Census, U.S. Department of Commerce.

**Quantity of U.S. Shrimp imports by country, in 1,000 pounds**

Country	Frozen		Fresh		Other		Total	
	1998	1999	1998	1999	1998	1999	1998	1999
Mexico	77,474	76,632	609	606	36	24	78,120	77,263
Ecuador	141,805	110,956	7	0	490	185	142,302	111,141
India	38,058	43,039	673	207	5,695	4,863	44,425	48,109
Bangladesh	35,912	19,224	5	0	2	66	35,919	19,291
Thailand	136,102	164,870	516	412	66,788	87,151	203,407	252,433
Indonesia	31,116	33,636	215	17	2,366	1,682	33,697	35,336
Philippines	3,300	2,874	35	29	580	712	3,916	3,614
China	14,457	17,974	153	604	813	924	15,422	19,502
Others	121,249	147,884	4,585	1,474	12,382	15,234	138,216	164,592
<b>Total</b>	<b>599,473</b>	<b>617,089</b>	<b>6,800</b>	<b>3,349</b>	<b>89,151</b>	<b>110,842</b>	<b>695,424</b>	<b>731,280</b>

**Value of U.S. Shrimp imports by country, in \$1,000**

Country	Frozen		Fresh		Other		Total	
	1998	1999	1998	1999	1998	1999	1998	1999
Mexico	380,181	383,689	2,142	2,265	195	150	382,517	386,104
Ecuador	570,296	402,342	33	0	1,718	589	572,047	402,932
India	124,396	148,230	9,730	2,285	16,721	10,242	150,847	160,758
Bangladesh	90,829	111,927	7	0	12	301	90,847	112,228
Thailand	715,029	768,197	2,961	4,323	370,072	424,453	1,088,062	1,196,972
Indonesia	174,037	159,062	1,367	120	13,335	8,146	188,739	167,327
Philippines	19,441	16,599	20	17	612	719	20,073	17,335
China	33,489	45,123	677	3,250	1,770	899	35,936	49,272
Others	530,255	577,642	5,879	3,367	47,210	64,510	583,343	645,519
<b>Total</b>	<b>2,637,952</b>	<b>2,612,811</b>	<b>22,816</b>	<b>15,627</b>	<b>451,644</b>	<b>510,008</b>	<b>3,112,411</b>	<b>3,138,447</b>

Source: Bureau of the Census, U.S. Department of Commerce.

**Quantity of U.S. Atlantic salmon imports by country, in pounds**

Country	Fresh		Frozen		Fillets 1/		Total	
	1998	1999	1998	1999	1998	1999	1998	1999
Canada	81,871,366	85,931,490	8,552	13,234	8,735,436	12,203,133	90,615,354	98,147,857
Chile	16,643,831	6,363,208	1,831,635	1,776,356	81,134,937	84,200,352	99,610,402	92,339,916
Iceland	2,839,935	7,151,972	0	0	186,408	874,613	3,026,343	8,026,585
Norway	150,795	979,857	3,538,090	4,932,949	3,071,923	14,912,320	6,760,807	20,825,126
Faroe Islands	0	2,136,390	840,722	1,541,181	9,195	164,190	849,917	3,841,760
United Kingdom	5,585,039	11,763,419	48,234	82,864	1,069,090	4,850,717	6,702,363	16,697,001
Other	209,971	289,080	1,177,283	1,345,216	265,828	657,209	1,653,082	2,291,505
<b>Total</b>	<b>107,300,935</b>	<b>114,615,415</b>	<b>7,444,515</b>	<b>9,691,801</b>	<b>94,472,818</b>	<b>117,862,535</b>	<b>209,218,268</b>	<b>242,169,750</b>

**Value of U.S. Atlantic salmon imports by country**

Country	Fresh		Frozen		Fillets 1/		Total	
	1998	1999	1998	1999	1998	1999	1998	1999
Canada	199,571,723	221,139,393	35,374	81,479	30,948,682	46,272,636	230,555,779	267,493,508
Chile	30,659,592	12,869,576	4,623,855	4,450,614	202,636,829	224,719,311	237,920,276	242,039,501
Iceland	4,948,331	12,445,344	0	0	619,675	2,023,767	5,568,006	14,469,111
Norway	277,193	1,808,768	7,207,670	9,185,791	9,709,929	45,452,333	17,194,792	56,446,892
Faroe Islands	0	3,637,128	1,493,023	2,571,301	37,504	576,067	1,530,527	6,784,496
United Kingdom	9,739,904	23,471,879	150,578	141,626	2,409,490	13,040,236	12,299,972	36,653,741
Other	528,987	595,891	2,162,424	2,722,994	380,182	1,654,398	3,071,593	4,973,283
<b>Total</b>	<b>245,725,730</b>	<b>275,967,979</b>	<b>15,672,924</b>	<b>19,153,805</b>	<b>246,742,291</b>	<b>333,738,748</b>	<b>508,140,945</b>	<b>628,860,532</b>

1/ Includes both fresh and frozen fillets.

Source: Bureau of the Census, U.S. Department of Commerce.