Industry & Trade Summary

Fresh or Frozen Fish

USITC Publication 3463
October 2001

OFFICE OF INDUSTRIES
U.S. International Trade Commission
Washington, DC 20436

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Fresh or Frozen Fish

PREFACE

In 1991 the United States International Trade Commission initiated its current *Industry and Trade Summary* series of informational reports on the thousands of products imported into and exported from the United States. Each summary addresses a different commodity/industry area and contains information on product uses, U.S. and foreign producers, and customs treatment. Also included is an analysis of the basic factors affecting trends in consumption, production, and trade of the commodity, as well as those bearing on the competitiveness of U.S. industries in domestic and foreign markets.[1]

This report on fresh or frozen fish generally covers the period 1995-99 and represents one of several individual reports produced in this series in recent years. Listed below are the individual summary reports published to date on the agriculture and forest products sectors.

USITC publication number	*Publication date*	*Title*
2459	November 1991	Live Sheep and Meat of Sheep
2462	November 1991	Cigarettes
2477	January 1992	Dairy Produce
2478	January 1992	Oilseeds
2511	March 1992	Live Swine and Fresh, Chilled, or Frozen Pork
2520	June 1992	Poultry
2544	August 1992	Fresh or Frozen Fish
2545	November 1992	Natural Sweeteners
2551	November 1992	Newsprint
2612	March 1993	Wood Pulp and Waste Paper
2615	March 1993	Citrus Fruit
2625	April 1993	Live Cattle and Fresh, Chilled, or Frozen Beef and Veal
2631	May 1993	Animal and Vegetable Fats and Oils
2635	June 1993	Cocoa, Chocolate, and Confectionery
2636	May 1993	Olives
2639	June 1993	Wine and Certain Fermented Beverages
2693	October 1993	Printing and Writing Paper
2702	November 1993	Fur Goods
2726	January 1994	Furskins
2737	March 1994	Cut Flowers
2749	March 1994	Paper Boxes and Bags
2762	April 1994	Coffee and Tea

[1] The information and analysis provided in this report are for the purpose of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under statutory authority covering the same or similar subject matter.

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PREFACE—*Continued*

USITC publication number	*Publication date*	*Title*
2859	May 1995	Seeds
2865	April 1995	Malt Beverages
2875	May 1995	Certain Fresh Deciduous Fruits
2898	June 1995	Certain Miscellaneous Vegetable Substances and Products
2917	October 1995	Lumber, Flooring, and Siding
2918	August 1995	Printed Matter
2928	November 1995	Processed Vegetables
3015	February 1997	Hides, Skins, and Leather
3020	March 1997	Nonalcoholic Beverages
3022	April 1997	Industrial Papers and Paperboards
3080	January 1998	Dairy Products
3083	February 1998	Canned Fish, Except Shellfish
3095	March 1998	Milled Grains, Malts, and Starches
3096	April 1998	Millwork
3145	December 1998	Wool and Related Animal Hair
3148	December 1998	Poultry
3171	March 1999	Dried Fruits Other Than Tropical
3268	December 1999	Eggs
3275	January 2000	Animal Feeds
3350	September 2000	Grain (Cereals)
3352	September 2000	Edible Nuts
3355	September 2000	Newsprint
3373	November 2000	Distilled Spirits

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ABSTRACT

This Summary addresses market, industry and trade conditions for the fresh or frozen fish industry (excluding shellfish) for the period 1996-2000.

- The fresh or frozen fish industry produces a wide variety of seafoods, some of the most popular of which are fresh cod and flounder fillets, frozen blocks from which fish sticks and portions are cut, and swordfish and halibut steaks. The industry discussed here includes the fleets of vessels that harvest the fish processed into these products. The U.S. finfish harvest in 2000 totaled 3.6 million metric tons, valued at $2.1 billion. This harvest represented a 8 percent drop in quantity and 6 percent in value from the 1996 harvest of 3.9 million metric tons, valued at $2.3 billion. During the same period, U.S. production of fresh or frozen finfish fillets and steaks, the industry's principal product group, declined by 13 percent in quantity and 8 percent in value: 2000 production reached 167,500 metric tons, valued at $830 million, compared with 1996 production of 192,000 metric tons, valued at $904 million.

- The U.S. trade deficit in fresh or frozen fish rose from $409 million in 1996 to $1.4 billion in 2000. U.S. imports of fresh or frozen fish, including frozen groundfish fillets and fresh Atlantic salmon, rose from $2.2 billion in 1996 to $3.1 billion in 2000. The principal sources of U.S. imports during 1996-00 were Canada (23 percent), Chile (12 percent), and China (7 percent). U.S. exports of fresh or frozen fish, such as surimi and frozen salmon, fell from $1.8 billion in 1996 to $1.3 billion in 1998, before partially recovering to $1.7 billion in 2000. The main markets for U.S. exports during 1996-00 were Japan (59 percent), Canada (13 percent), and the European Union (10 percent).

- Global production of fresh or frozen fish products reached 17.1 million metric tons (mmt) in 1999, up slightly from the average of 17.0 mmt produced annually during 1996-98. The largest producers are China, Japan, the United States, and Norway, with a combined share of 42 percent of world production in 1999. From 1996 to 1999, world exports rose from 11.2 mmt to 11.8 mmt in quantity and from $20.3 billion to $22.4 billion in value. As a share of production volume, world exports rose from 65 percent in 1996 to 69 percent in 1999.

- Declining resource abundance is the greatest problem facing the U.S. and many foreign industries, both in terms of domestic supply of harvested fish and the volume of fish available worldwide for import. Increasingly, the world's most valuable fisheries are becoming depleted through a combination of overfishing and industrial (i.e., coastline) development. Aquaculture will play a growing role in offsetting the declining availability of fish harvested from the seas.

INTRODUCTION

Background and Summary

This Industry and Trade Summary covers fresh or frozen fish, except shellfish.[1] Information is provided on the structure of the U.S. industry, importers and exporters, and consumers. Additional information is provided on certain foreign industries, domestic and foreign tariff and nontariff trade measures, and the performance of the U.S. industry in domestic and foreign markets. Fresh or frozen fish falls under Standard Industrial Classification (SIC) Code 2092, Fresh and Frozen Processed Fish and Seafood, and under North American Industry Classification System (NAICS) Code 311712, Fresh and Frozen Seafood Processing (both include shellfish). Imports and exports of fresh or frozen finfish are recorded under headings 0302-0304 of the *Harmonized Tariff Schedule of the United States (HTS)*. This report generally covers the period 1996 through 2000, providing earlier historical data when necessary, to show longer term trends. Appendix A contains an explanation of tariff and trade agreement terms.

Finfish are limbless, vertebrate animals that live in salt- and freshwater bodies in every region of the world. Taxonomists have divided the more than 20,000 known species into three classes: *Agnatha* are the most primitive fishes, and include lampreys and other jawless fish; *Chondrichthyes* include sharks, stingrays, and other lungless fishes with cartilage instead of bones; and *Osteichthyes*, the most developed, are bony fishes with lungs.[2] Most fishes have scales and are cold-blooded; however, some, such as trout and catfish, have no scales, and some, such as tuna, are warm-blooded. Fish range in size from the smallest, the half-inch Philippine goby, to the largest, the 50-foot whale shark. The bluefin tuna, weighing in at more than 1,000 pounds, is the largest bony fish. Most fish species yield edible meat, but only a few are commercially important. Seafood is an important source of protein and in some island nations (such as Japan and Iceland) it is the principal type of meat consumed.

The U.S. fresh or frozen fish industry consists of four largely distinct sectors: fishing (harvesting), aquaculture, onshore processing, and offshore processing (factory ships). Harvesting and onshore processing are, by far, the largest sectors and they form the traditional base of the industry. Aquaculture and factory ships are relatively new developments in the U.S. industry (but are well developed and common in foreign industries) and have only a small place in the U.S. market to date. However, the future potential, especially for aquaculture, is significant.

Within the harvesting and processing sectors, there are further, equally important divisions based on geographic location and species of fish. The salmon fishermen and processors of

[1] Shellfish, canned fish, and cured or otherwise prepared fish are covered in other Industry and Trade Summaries.

[2] *A List of Common and Scientific Names of Fishes From the United States and Canada*, 4th ed., American Fisheries Society Special Publication No. 12, 1980.

Alaska, for example, can be seen in some respects as a distinct industry; they are influenced only remotely by events in the fishery or market for cod in New England, flounder in the Gulf of Mexico, or tuna in the so-called "distant-water" U.S. fisheries of the South Pacific. Similarly, trout farmers in Idaho are neither directly affected by the supply of mackerel in the Gulf nor severely threatened by the farming of shrimp anywhere.

In the United States, the largest markets for fresh or frozen fish are supermarkets, fishmongers, restaurants, and other retail links in the marketing chain between harvesters and households. The growth of chains of fast-food and seafood restaurants has been especially responsible for the growth in U.S. consumption of frozen fish and, indirectly, of fresh fish. They have introduced seafood to many consumers, who are then more likely to buy fish at stores for home consumption. Other markets for fresh or frozen fish include the export market, which is of declining importance to the U.S. industry (see below), and canneries and curing facilities, which are discussed in more detail in other Industry and Trade Summaries.

The world harvest of freshwater and saltwater fish (excluding shellfish) totaled 78.6 million metric tons in 1999 (the latest available year), down only slightly from the record harvest of 80.9 million metric tons set in 1996.[3] The former USSR was for many years the largest harvester (in terms of volume), and Russia continues to rank in the top three harvesting nations. Japan has for many years challenged Russia's top spot with occasional success, and the United States has been catching up to them in recent years. Together, Russia, Japan and the United States account for about 15 percent of the world's commercial fish harvest.

In addition to the commercial harvest, aquaculture (or fish farming) supplied another 21.5 million metric tons in 1999 (a record), for a total world fish supply of over 100 million metric tons or more than 220 billion pounds, equal to more than 30 pounds of fish per person on the planet. China has long been the world's dominant aquaculturist, with extensive freshwater farms that in 1999 produced 14.2 million metric tons of fish, or two-thirds of the world's total. China's production has been steadily rising, and the 1999 supply was double that of just six years earlier.

Of the global supply of fish, more than half is marketed in fresh or frozen form. About three-fifths of this is in fresh form, compared with one-half in fresh form a decade earlier. Industry and academic sources suggest that the rise in the share of supply held by fresh fish is due to improved infrastructure (e.g., transportation) as well as incomes that enable consumers to demand higher-valued fresh fish products.

The largest exporter of fresh or frozen fish is Norway, with about 12 percent of the world total (by value) in recent years. The United States follows with eight percent (a share that is steadily declining, for reasons discussed later in this report). The largest exporting nations' global shares are shown in the following tabulation of FAO data based on the value of fresh or frozen fish exports:

[3] Data from Food and Agriculture Organization of the United Nations database. This database can be accessed at *www.fao.org/fi/statist/statist.asp.*

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Exporter	1996-99 share
	Percent
Norway	11.8
United States	7.7
Taiwan	6.5
Denmark	6.1
China	4.4
Chile	4.2
Canada	4.0

On the import side, the largest importer of fresh or frozen fish by far is Japan, whose 27-percent share is more than twice that of the second largest importer, the United States (12 percent). Those and other large importing nations' global shares are shown in the following tabulation of FAO data based on the value of fresh or frozen fish imports:

Importer	1996-99 share
	Percent
Japan	26.6
United States	12.2
Spain	6.1
France	6.0
Germany	5.6
Italy	4.2
Denmark	4.1

The Production Process

Harvesting Technology

Fish destined for the fresh or frozen markets (and indeed, for all other seafood markets) are either harvested in the wild or raised by aquaculturists in coastal or inland fish farms. Wild harvest is the traditional method of production in most regions, including North America. U.S. harvesters and those of other developed economies employ a variety of fish-harvesting techniques. The particular technique employed depends on the species targeted by the harvester and on the eventual market. For example, large bag-shaped nets (called purse seines) are best suited for skipjack tuna and herring, which are schooling fish and are destined for canneries that generally are unconcerned about the bruising and other damage

often done to fish by large nets. Bluefin tuna, on the other hand, are usually destined for the Japanese sushi market, so they often are caught by traditional hook-and-line methods that preserve the high quality of the freshly caught fish. Cod, haddock, and other species of groundfish dwell on the ocean bottom and are best harvested with large, bottom-dragging nets called otter trawls. Most harvesting methods require significant investment in labor and capital: a complement of 10 to 12 crewmembers on a harvesting vessel is not uncommon, and the cost of a vessel (including hull, gear, and electronic sonar and other equipment) can range anywhere from $50,000 for a small trawler to $20 million for a large tuna purse seiner.

Aquaculture Technology

Aquaculture is a recent development in the U.S. fish industry, although it has been practiced for centuries in other countries, particularly in Asia.[4] Its growing popularity in the United States is due primarily to the rising cost of harvesting fish from depleted wild stocks of certain commercially important fisheries. Aquaculture has thus been used mainly for relatively valuable species (such as salmon); it is a particularly important source of supply to the fresh or frozen fish markets, where fish usually command higher prices than for canning, curing, or other purposes.

Aquaculture technology is relatively straightforward. From eggs, fish larvae are raised in small containers (usually in hatcheries or other laboratories). Once the fry have reached a certain size (e.g., a few centimeters in length), they are released into large swimming pool-like tanks encased in concrete or fiberglass or into pens enclosed with netting that are suspended in a bay, estuary, or fjord whose circulation keeps the tanks or pens supplied with clean water. Once the fish reach marketable size they are harvested from the tanks or pens with nets and shipped to market. Labor requirements consist mainly of skilled hatchery technicians. Employment of family members is common in some aquaculture sectors. Capital investment can be quite substantial, in the hundreds of thousands of dollars, because of the high cost of sophisticated incubator tanks, grow-out tanks, and other specialized equipment. According to industry sources, apparent economies of scale can reduce unit costs in large aquaculture operations. Facilities that do not raise their own larvae must buy them from hatcheries, which can be more expensive than raising them oneself.

The main advantage to aquaculture is the reduction of the biological risk of supply fluctuations. That is, the aquaculturist can more effectively control the number, size, and quality of the harvested fish. The fisherman, in contrast, is at the mercy of weather, fish abundance, and other elements of "fishing luck." In essence, therefore, aquaculture is to traditional fishing what farming is to hunting and gathering.

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[4] The terms aquaculture and mariculture are often used interchangeably; however, mariculture – the raising of plants and animals in seawater – is a branch of the broader activity aquaculture. In the United States, freshwater aquaculture is important for some finfish (e.g., catfish and trout), while mariculture is used primarily for shellfish and seaplants, which are covered in other Industry and Trade Summaries. 6

Processing Technology

The principal market for both harvesters and aquaculturists is the processing sector. Fish processors are found both onshore and, less typically, offshore (on large factory ships). Onshore processors produce both fresh and frozen products, while factory ships generally produce frozen products (or other seafoods, such as canned fish). Fresh-fish processing is highly labor-intensive, mainly in the scaling, beheading, and filleting processes. These processes have been automated to some extent, but the success of filleting machines, for example, depends on high volume and consistent fish sizes, which the vagaries of fishing luck make difficult to control. Frozen-fish processing is more capital intensive, largely because of the additional investments in freezers, as well as the breaders, cookers, and other equipment used by makers of fish sticks and other frozen fish products.

Factory ships are less common in the U.S. industry than in foreign industries such as Japan and Russia, mainly because U.S. harvesters need not travel far from their coastline to find rich fishery resources; their proximity to the coastline enables them to deliver their catch to onshore processors. In contrast, the fishing fleets of Japan, Russia, and some other nations have relatively few undepleted resources near their own shores (or they have a limited continental shelf), so they must travel great distances to find fish. Factory ships of these nations follow the harvesting fleets (or are equipped to do their own harvesting) to reduce the spoilage of unprocessed fish.[5]

Products

The U.S. seafood industry produces numerous fresh or frozen fish products. The most important, in terms of the value and volume produced, are fillets and steaks.[6] U.S. production of fresh or frozen fillets and steaks peaked in 1998, when production reached 199,000 metric tons, valued at $1 billion, as shown in the following tabulation of data from the U.S. Department of Commerce:

[5] Through joint ventures, foreign factory ships also buy fish "over the side" from U.S. harvesters at sea. These joint ventures, authorized after application to the Departments of State and Commerce, provide an outlet for "surplus" fish that otherwise might not find a market because domestic demand is insufficient. Such fish are classified as U.S. exports if the transfer takes place in the U.S. Customs Territory (i.e., within the 12-nautical-mile U.S. territorial limit), but if the transfer takes place beyond 12 nautical miles (within the 200-nautical-mile Exclusive Economic Zone) they are usually classified as landings in a foreign port and may be included in the foreign country's import data. Source: Commission staff communication with National Marine Fisheries Service, Oct. 31, 2000.

[6] A fillet is a boneless (or nearly so) cut of meat from the side of the fish, cut along the body from just behind the gills to near the tail. A steak is a cross section cut, usually with part of the backbone and vertibrae intact.

Item	1996	1997	1998	1999	2000
All fillets and steaks:					
Value (million dollars) . . .	886	961	1,002	807	830
Quantity (1,000 mt)	181	186	199	164	168
Groundfish fillets:					
Value (million dollars) . . .	447	457	486	469	401
Quantity (1,000 mt)	126	114	129	111	119

Cod and Alaska pollock have traditionally been the principal species used to make fresh or frozen fillets. However, dwindling cod stocks in Atlantic waters have led to a recent decline in importance of this species, from 22 percent of all fillets in 1997 to 15 percent in 1999. Factors behind these dwindling stocks, and government efforts to limit fishing and restore the fish stocks, are discussed later in this report.

Most frozen fillets of groundfish (cod, haddock, pollock, etc.) are used in the production of frozen blocks, from which are cut sticks, squares, and other shapes to make breaded fish products for supermarkets, fast-food outlets, and other retailers. The bulk of the U.S. block supply, however, is imported.

Fish steaks are generally processed from larger fish, including halibut, swordfish, and tuna. Additional supplies come from shark and salmon. As with fillets, the supply of steaks is affected by resource abundance for these species, and government regulatory efforts (see below) that restrict U.S. harvests -- the principal supply of raw material for domestically produced steaks and fillets.

U.S. INDUSTRY PROFILE

Production Levels and Trends

U.S. fresh or frozen fish production comes from two sources, commercial fisheries and aquaculture. U.S. commercial fish landings (the harvest by commercial fishermen) totaled 3.6 million metric tons in 2000, down by 8 percent from the 1996 harvest of 3.9 million metric tons (table B-1).[7] The ex-vessel (or first-level) value of the harvest also declined, from $2.3 billion in 1996 to $2.1 billion in 2000, a drop of 6 percent. Chief in value among the many species harvested by U.S. fishermen is tuna, most of which is harvested for the cannery sector, much of which is located offshore in U.S. possessions such as American Samoa. The tuna harvest dropped sharply in 2000, after several years of stronger harvests, owing to several factors including the availability of tuna itself, which is affected by environmental conditions such as El Niño. The 2000 tuna harvest of $632 million accounted

[7] All statistical tables may be found in Appendix B.

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for 30 percent of the combined value of all U.S. fish harvests. In second place is salmon, which earned harvesters in the North Pacific and adjacent rivers $270 million in 2000, or 13 percent of total commercial landings. The value of the salmon catch has fallen sharply from levels during the early 1990s, a result of both lower catches and lower prices. The species accounting for the greatest landings volume is Alaska pollock, which reached almost 1.2 million metric tons in 2000 (33 percent of the U.S. total volume), but the total value of this low-priced species accounted for only 8 percent of the industry total (table B-1).

Aquaculture is a smaller sector than commercial fishing, but it is an increasingly important source of fish supply. U.S. aquaculture production reached $687 million in 1999 (the latest available year), an increase of 7.4 percent from the 1995 level of $605 million (table B-2). The 1999 output equaled about one-third and the value and one-tenth of the volume of the previously discussed commercial landings in that year. Much fewer species are cultivated than are commercially fished, but those species that are cultivated are relatively more valuable than the average and they provide a significant share of total supply. Of additional importance, the greater predictability of supply from aquaculture gives this sector a competitive edge over the commercial fishery sector, particularly in the institutional trade (e.g., restaurants). The most valuable cultivated fish by far is catfish: production reached 271,000 metric tons, valued at $439 million, in 1999, up by 26 percent in quantity and 20 percent in value from 1996. Other valuable types of cultivated fish include salmon and trout, accounting for 11 percent and 9 percent, respectively, of total aquaculture value in 1999. Tilapia, whose aquaculture is popular in other countries, accounted for an additional 4 percent of the value of U.S. aquaculture production during much of the 1996-99 period.

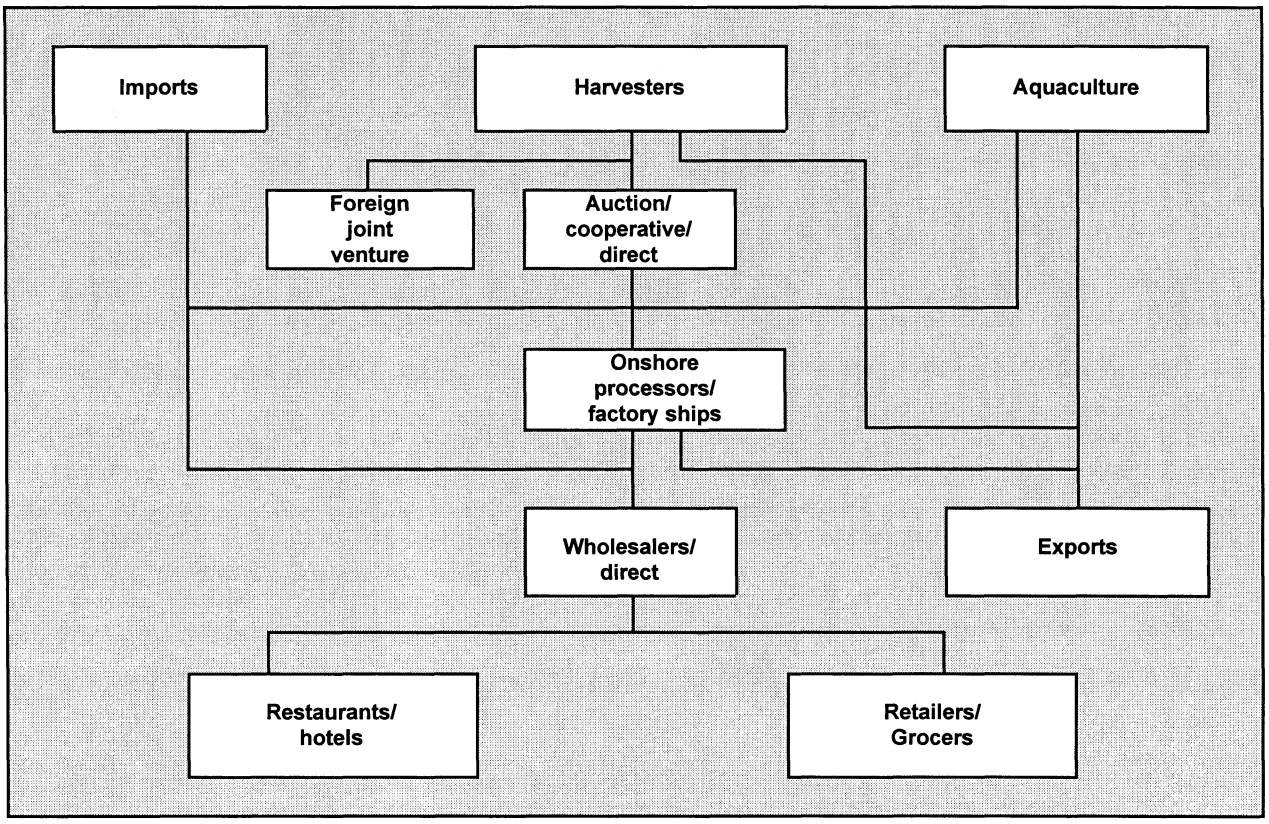
Number of Firms and Employment

Figure 1 presents a profile of the U.S. fresh or frozen fish industry. The largest segment of the industry in terms of number of firms, employment, and value added, is the harvesters. In 1998,the latest available year, there were 72,916 U.S. commercial fishing craft, of which two-thirds were "boats" (craft displacing less than 5 net registered tons) and one-third were "vessels" (craft 5 net registered tons and over).[8] Harvesting craft can range in size and scale from dories and other small boats that must be rowed, to "superseiners," hundreds of feet long, carrying their own helicopter and fleet of small speedboats (used to find and encircle schools of fish). As most harvesting craft have multiple uses, the fleet in any one fishery fluctuates considerably from year to year, and from season to season, depending on the fortunes to be had in the target fishery relative to alternative species or geographic regions.

The processing segment of the industry consists of numerous, mostly privately held firms that in virtually all cases produce multiple products (e.g., fillets of different species). The smallest firms tend to produce only fresh products (because of the high cost of freezing equipment), while the largest tend to produce only frozen products (which are often sold under nationally known brand names and are more differentiable by brand than fresh fillets). In 1998, the latest available year, there were 5,150 U.S. fish processing plants, employing an annual (as opposed to seasonal) average of 118,000 workers (table B-3).

[8] National Marine Fisheries Service, *Fisheries of the United States, 1998*, Current Fisheries Statistics Series No. 9800, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, July 1999; p. 96. Includes craft harvesting finfish and shellfish.

Figure 1
Fresh or frozen fish: Structure of the U.S. industry and market



The U.S. fresh or frozen fish industry is covered under Standard Industrial Classification (SIC) Code 2092, Fresh and Frozen Processed Fish and Seafood, and in the North American Industry Classification system under U.S. Industry 311712, Fresh and Frozen Seafood Processing. Both include shellfish.

Fresh or frozen fish is marketed mainly through retail outlets, such as grocery stores and fishmongers, and through the institutional trade (e.g., schools and hospitals). Consumption is largely a function of demographics, season, customs, and price. As with all seafoods, health concerns about fat and cholesterol probably also play a role in demand. The U.S. production of fresh or frozen fish, like other seafood production, is regulated on a voluntary basis at the Federal (Department of Commerce) level. Seafood inspection is a policy issue of concern to industry and consumers alike, and is discussed further later in this report.

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Input and Production Costs

Harvesting

The principal inputs into the harvesting of fish are the vessel (hull, nets, electronic equipment, etc.), fuel, and labor. In some regulated fisheries, license fees are additional and can be quite substantial.[9] Vessels can be acquired either new or used. If new, the craft is usually built to order. In some fisheries, especially depleted ones, harvesters may be losing money and such cases used vessels can be purchased less expensively. The following tabulation is a sample of recent asking prices for used U.S. fishing craft:[10]

Item	Asking price
14' wood skiff	$1,250
22' aluminum boat	18,500
26' "Downeast" style:	
With electronics	55,000
Without electronics	49,500
34' lobster/tuna boat	42,000
40' dragger	65,000
51' longliner	220,000
53' gillnetter, includes permits	250,000
55' steel dragger (no age given), full electronics and permits	245,000
68' tuna/swordfish longliner	165,000

An important component of the capital cost of harvesting is the interest rate charged on the loan for the craft's purchase (or, equivalently the interest foregone on the money invested in a craft owned free and clear). The following tabulation shows the trend in mortgage yields (as a proxy for the long-term loan required to finance most crafts):[11]

Year	New-home mortgage yield
1996	7.80
1997	7.71
1998	7.07
1999	7.04
2000	7.55

[9] The license fee can reflect, in part, the value or cost of another vital "input" into fish harvesting, the fish resource itself. In some cases, license fees are explicitly intended to siphon off the surplus value (or "rent") from this resource, while in others, the fee serves to restrict the number of harvesters and relieve fishing pressure from a depleted resource. Fee income at both the Federal and State levels frequently is earmarked for resource management and research.

[10] Sources: Classified ads in *Commercial Fisheries News*, June 2000, and *National Fisherman*, July 2000.

[11] Source: Council of Economic Advisors, *Economic Report of the President*, February 2001; table B-73.

By this measure, the annual cost of financing a harvesting vessel declined steadily, from $7.80 per $100 borrowed in 1996 to $7.04 per $100 borrowed in 1999, before rising to $7.55 in 2000.

The principal variable costs of harvesting are fuel and labor. The trend in the cost of fuel can be represented by the year-end producer price index for diesel fuel, as reported by the Bureau of Labor Statistics (index 1982 = 100):

Year	Number 2 diesel fuel
1996	75.7
1997	58.6
1998	38.8
1999	72.4
2000	xx.x

By this index, the producer-level price of diesel fuel moved erratically during 1996-00. There was an especially large change in the index in the last two years, from 38.8 in 1998 to xx.x in 2000, an annual increase of xx percent.

The cost of labor in fish harvesting is more difficult to evaluate. The crew on many if not most harvesting craft are paid on the "lay" system: they receive a share of the proceeds from the sale of the catch. In a typical case, the gross proceeds from the sale of the catch are split between the "crew share" and the "boat share" (the owner's share). Expenses for the fishing trip are split between the crew and boat: items such as food may be deducted from the crew share; expenses for fuel and boat maintenance may be deducted from the boat share. Different craft have different specific arrangements for such expenses. Further, of the overall crew share, different crew members get different shares: the captain, mate, and engineer usually get a greater share than a deckhand, and a seasoned deckhand gets a greater share than one with limited experience. A captain who owns the boat gets both the captain's and boat's shares.

Thus, there is no straightforward way to measure the labor cost of a day fished, nor a standard way to determine the labor cost of a ton of harvested fish. If no fish are harvested during a week's voyage, the labor cost is zero (disregarding expenses for crew food, etc.). If the sale price for a trip's catch is greater than the previous trip's catch, the labor cost rises (because the crew get a share of the sale) even though the tonnage of the catch may be the same. Employment on a commercial fishing craft is the riskiest job in the United States,[12] but it can be highly remunerative: industry sources report that the average annual income of a deckhand on an Alaskan crab or halibut harvesting craft can easily reach $100,000.

[12] "Fishing has consistently ranked as the most deadly occupation since 1992, when [the Bureau of Labor Sadistics] started publishing fatality rates by occupation." Dino Drudi, "Fishing for a living is dangerous work," *Compensation and Working Conditions* (U.S. Department of Labor), Summer 1998, p. 3.

Processing

Processing of fresh or frozen fish can be a cyclical business, with seasonal ups and downs depending upon the abundance of fish inputs. Some smaller plants are closed for part of the year for lack of alternative uses for fixed capital when the fishing season is over, while others do have other, unrelated uses for plant assets. Therefore, actual employment in fish processing also fluctuates, and there is a difference between seasonal and year-round equivalent employment. Table B-3 presents data on the number of firms and employment in the production of fresh or frozen fish in the United States.

Information on labor productivity in fish processing is provided in table B-4. Productivity has fluctuated a great deal in recent years. On an average employment basis, pounds produced per employee ranged from a low of 3,184 pounds (in 1996) to an estimated high of 3,718 pounds (in 1998).

Marketing

The marketing of fish at the dockside or ex-vessel level is uncomplicated. The three principal methods are direct sales from boat owners to wholesalers or processors; direct sales from fishermen-owned cooperatives to wholesalers or processors; and auctions. In all cases, price and quality are the key factors influencing buying decisions. Reliability of supply is desired but, especially at the dockside level of marketing, is governed by nature more than anything else. Fishermen's cooperatives help increase reliability because they pool the "luck" of many harvesters. They also give harvesters more influence over price and can improve quality by implementing grading programs and other quality-control mechanisms that are too costly for the individual harvester. Certain key locations set or influence prices for large surrounding regions. The best example of this is New York's Fulton Fish Market, the largest U.S. fish market, whose prices influence dockside and wholesale prices along much of the eastern seaboard and to lesser degrees, throughout much of the country. Daily and weekly ex-vessel and wholesale prices at Boston, New Bedford, New York, Pascagoula, Seattle, and other markets are published by the Department of Commerce.[13]

Although fish processors in the U.S. industry are sometimes vertically integrated upstream into harvesting, they generally do not own or operate downstream marketing operations past the wholesale stage. Rather, they rely on brokers and other distributors to market their product to retailers. Such distributors often handle a wide variety of food products in addition to fresh or frozen fish, which eases the marketing of such fish to large buyers such as supermarket chains.

Fresh or frozen fish often is sold as a bulk, unbranded commodity in a simple marketing process. This is especially true of fresh fish, which is often sold completely unbranded.

[13] Daily and weekly fresh or frozen fish prices are also available electronically from the Commerce Department at *www.st.nmfs.gov/st1/index.html.* These prices are in turn re-reported internationally, along with prices in other world markets, on Internet sites such as *http://www.pesca.ismea.it* and the Tokyo-based *http://www.fis.com.*

Frozen fish is usually sold under brand names. In some areas of the institutional trade, such as schools and hospitals, brand and processor reputation are not very important because the final consumer does not have a selection available and cannot make a choice between brands or nationalities. For other institutions, especially restaurants, consistent quality and supply are paramount and a reliable supplier can obtain premium prices for its fish. Here, aquaculture has been influential because it enables the consistent quality and supply that allows restaurants to put fish on the menu with the certainty that they will have it when the patron orders it.

The nature of competition between imported and domestically produced fish also depends on brands and on the marketing channel. For generic, bulk-marketed products, the imported product is indistinguishable from, and is marketed in direct competition with, the domestic product. The price is the same for either. For products where the label is important, however, there are consumers who prefer domestic over imported and vice versa. Some buyers, such as the Departments of Defense and Agriculture, are obligated to "buy American."

Resource Abundance

One of the most important determinants of the economic state of a nation's fish industry is the abundance of fishery resources available to it. Abundant resources yield greater harvests at lower unit costs than depleted ones. Although aquaculture supplies an increasing share of world seafood consumption, a larger share still comes from the fish harvest from natural stocks. But the principal resources traditionally fished by U.S. fishermen and most of their foreign competitors currently yield their maximum harvest, and indeed, many resources are depleted past the optimum point and yields are declining.

In the United States, many traditional and commercially important fisheries from all marine regions – the Atlantic, Gulf, Pacific and Alaska coasts – are being harvested at or beyond optimal levels.[14] In the Northeast region, the demersal (bottom-feeding) fishery is at 56 percent of its potential yield, due largely to overutilized cod, haddock, and flounder resources.[15] The pelagic (surface-feeding) fisheries of this region (e.g., mackerel and herring) also are well under their potential yield but this is because weak markets for their products induce under- rather than overutilization.[16] In the Southeast, Gulf and Caribbean

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[14] Information on the economic and biological state of U.S. saltwater fisheries is available from National Marine Fisheries Service, *Our Living Oceans*, U.S. Department of Commerce, NOAA Technical Memorandum NMFS-F/SPO-41 (1999), which may be found at *http://spo.nwr.noaa.gov/olo99.htm*.

[15] The Canadian industry, which shares the Northwest Atlantic resources, suffers similar low-abundance problems.

[16] The experiences of these two fisheries illustrates a classic dilemma in renewable-resource industries, particularly unregulated ones: high-valued resources become depleted and their yield declines, which raises the product price, which attracts further harvesting and further declines in yield. Low-valued fisheries, in contrast, exhibit "normal" upward-sloping supply behavior. This creates a backward-bending supply curve for the product(s) from unregulated or open-access fisheries. See, e.g., L. Anderson, *The Economics of Fisheries Management* (Baltimore: Johns 14
(continued...)

regions, reef fish are heavily overutilized, and sharks are becoming more so. On the West Coast, where Pacific salmon supports much of the industry, all five major salmon species are fully or overutilized, with a combined yield at 52 percent of its potential (i.e., if optimally managed). Alaskan salmon fisheries are in stronger shape and the salmon stocks are generally underutilized, as are the flatfish (e.g., halibut) stocks.

For the United States as a whole, 54 of the 160 fish stocks whose abundance status is known are overutilized, 75 are fully utilized, and 31 are underutilized. As indicated, market conditions are the key factor: without harvesting restrictions, fisheries with strong demand tend to be heavily utilized and abundance may decline to the point that yields actually fall, while those with weak demand remain abundant.

In other parts of the world, many fisheries are similarly overutilized.[17] The problems faced in the groundfish fisheries off the east coast of Canada and the United States are shared across the Atlantic in Europe, where EU regulations are in place to limit the decline of important fisheries such as cod and herring. This is no easy task, because of the competing claims by the fleets of the various EU member states to fishing grounds they have occupied for generations. In many regions of the world the problems of overutilization are worsened by the effects of periodic environmental phenomena, such as El Niño in the Pacific waters off Latin America, which alter ocean temperatures, coastal water salinity, and fish reproduction and migratory patterns.

These resource abundance problems can be resolved not only with restrictions on harvesting effort, but also with aquaculture. Aquaculture does not suffer from the backward-bending supply behavior observed in open-access fisheries; the supply of aquacultured fish moves directly with price and is constrained mainly by technology, rather than nature. More important for the fate of ocean fisheries, however, is the potential effect of aquaculture supplies on the prices received by harvesters of competing products. The supply of farmed salmon, for example, can put downward pressure on the prices of "wild" salmon, thereby reducing the incentive to harvest that resource. For overutilized fisheries, therefore, competition from aquaculture may, perversely, lead to increased yields in the long run.[18]

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[16] (...continued)
Hopkins, 1986). Regulatory efforts in commercial (and recreational) fisheries, discussed below, typically are intended and designed to restrict harvesting effort and raise long-run or sustainable yields.

[17] Food and Agriculture Organization, *Review of the State of World Fishery Resources: Marine Fisheries*, Fisheries Circular No. 920 FIRM/C920, Marine Resources Service, Fishery Resources Division, Fisheries Department (Rome: FAO, 1997).

[18] Anderson, J.L., "Market Interactions Between Aquaculture and the Common Property Commercial Fishery," Marine Resource Economics, Vol. 2, No. 1 (1985), pp. 1-24.

Government Regulations Affecting the U.S. Fresh or Frozen Fish Industry

Unlike other U.S. meat products for human consumption, domestically produced seafood is not subject to mandatory Federal inspection. There is, however, a voluntary inspection program carried out by the U.S. Department of Commerce (USDC). This Federal inspection service, unlike mandatory inspection programs for other meats, is a fee-for-service program. In addition to the inspection service, USDC operates a fee-for-service grading program which distinguishes between products of differing levels of quality (e.g., "Grade A" versus the less-restrictive "Lot Inspected").

Services provided by the inspection program include vessel and plant sanitation, product inspection and grading, label reviews, product specification reviews, laboratory analyses, training, education, and information. In addition, consultative services are provided in foreign countries, and inspection and certification services are provided for imported and exported products. The USDC inspection program also enforces the mandatory Food and Drug Administration (FDA) programs. In 1997, FDA implemented its Hazard Analysis Critical Control Point (HACCP) rule[19] regarding "Procedures for the Safe and Sanitary Processing and Importing of Fish and Fishery Products." All seafood firms must be in compliance with this rule, and the Commerce Department program provides HAACP training, implementation assistance, and verification service to ensure such compliance.[20] The number of establishments and volume of product (all seafood, including fresh or frozen fish) inspected by the Commerce Department in 1998 and 2000 are shown in table B-5.

FOREIGN INDUSTRY PROFILE

Overview

In 1999, world production of fresh or frozen fish products exceeded 17.1 million metric tons, slightly above the 1996-98 average of 17 million metric tons (table B-6).[21] More than 100 countries have reported production of fresh or frozen fish to the FAO in recent years. Nearly half of world production of fresh or frozen fish products in 1999 was concentrated in Asia, mainly along the Pacific Rim. Of particular importance are China (17 percent of the 1996-99 world total) and Japan (13 percent). Another 11 percent of world production comes from the European Union, mainly the Netherlands, Germany, Spain, and the United Kingdom (each with about 2 percent). The U.S. industry accounted for 6 percent of world

[19] 21 CFR Parts 123 and 1240.

[20] National Marine Fisheries Service, U.S. Department of Commerce, *Fisheries of the United States, 1998*, p. 98.

[21] FAO data discussed herein are for commodities provided for under HTS headings 0302 through 0304.

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production during 1996-99. The other NAFTA members, Canada and Mexico, each contributed about 1 percent of the world's output of fresh or frozen fish products.

The location of fish processing firms throughout the world, and the resulting patterns of international trade in processed products, vary by species because of the economic incentive to locate processing establishments near the raw material, raw fish. In addition, there are inherent differences between the various species, making the final product from one species distinct from another in the consumer's view, as discussed elsewhere in this report. The main products and species processed by the world's fresh or frozen fish industries are listed in table B-7. A basket category, "Frozen fillets," HTS subheading 0304.20, covers about 12 percent of world production. Another 11 percent of world production is covered by frozen tuna., HTS subheadings 0303.41-0303.49. Frozen mackerel, HTS subheading 0303.74, accounts for 6 percent.

Prices of fresh or frozen fish, as measured by average export prices on world markets, have exhibited mixed trends in recent years (table B-8). Notable shifts include declines in price for frozen sardines (-33 percent during 1996-99), frozen herring (-28 percent) and frozen mackerel (-24 percent). Large increases in prices include those for frozen Pacific salmon (26 percent), and frozen hake (19 percent). On average, export prices of fresh or frozen fish products rose from $1.82 per kilogram in 1996 to $1.89 per kilogram in 1999.

Of the major foreign industries, Canada and Japan are of greatest importance to the U.S. industry and market.

Canada

The Canadian fresh or frozen fish industry is of interest because of its direct competition with U.S. harvesters and processors. This competition is felt in two ways: on the fishing grounds, where many fish resources are shared by both nations' harvesters, and in the U.S. marketplace, which is the biggest market for both nations' industries. Indeed, one observer went so far as to suggest that the two nations' industries should be viewed as one, divided only by a political boundary.[22]

Considerable international competition is found on both the Atlantic and Pacific coasts. Harvesters from the Maritime Provinces face off against harvesters from New England for the groundfish resources[23] on Georges Bank (due east of Cape Cod and south of Nova Scotia) and the Gulf of Maine, two of the richest fishing grounds in the world.[24] On the

[22] Joel Garreau, The Nine Nations of North America (New York: Avon Books, 1981). Garreau suggested that, for many geographic regions in North America, such as the area consisting of the Atlantic Provinces and New England, regional social and economic interests outweigh the political boundary that the region overlaps.

[23] "Groundfish" is the common name for a group of demersal fish (fish that feed on the ocean bottom, as opposed to pelagic or surface-feeding fish). The main species are cod, cusk, hake, haddock, flounders and other flatfish, pollock, and ocean perch.

[24] Following extensions of fishery jurisdiction in 1977, both countries claimed parts of Georges
(continued...)

Pacific side, the fishermen of Alaska and the Pacific Northwest States compete with British Columbia harvesters for the rich salmon resources of the Northeast Pacific, fed by fish spawning in the Columbia, Frasier, and other rivers. After many years of sometimes violent confrontation, this competition led in 1999 to a final agreement on a bilateral treaty that lays out the rights (the amount of fish each nation may harvest) and responsibilities (relating to resource management) belonging to each nation.[25] As with the Atlantic groundfish dispute, it may take longer to resolve the economic aspects of the Pacific salmon dispute than the political aspects.[26]

As suggested by the two disputes above, considerable U.S.-Canadian conflict over fisheries centers on the different fishery management policies employed by the respective governments. In particular, industry interests on both sides of the border believe that Canada exercises more effective management control over its resources than does the United States. The problem arises because, when two nations separately manage a shared fishery, the effectiveness of one nation's management actions is influenced by the management actions (and industry behavior) of the other nation. For example, to the extent that one side overfishes its resource, the other side suffers reduced resource abundance and higher harvesting costs. The potential conflict is of particular concern to Canada because of the greater socioeconomic dependence of Atlantic Canada than New England on the fishery. To date, however, only on the Pacific side have the two nations even come close to agreement on a shared management scheme; no effective system of cooperative management of shared U.S.-Canadian Atlantic fisheries has yet been implemented.

There are about 40,000 registered fishing vessels in Canada, of which about 30,000 are found in the Atlantic Provinces and the remainder are in British Columbia or freshwater fisheries. These fleets are supported by a workforce of more than 100,000 full-time and part-time fishermen, most of whom are in the groundfish fisheries of the Maritimes and Newfoundland.[27]

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[24] (...continued)
Bank, which both nations had fished for generations. The resulting protracted dispute eventually was resolved by the International Court of Justice in 1986. The Court's decision to split the fishing grounds down the middle, which both nations' governments accepted, settled the political dispute. However, it did not end the two industries' conflict; to this day, the Canadian Coast Guard routinely tracks down and apprehends U.S. harvesters found illegally fishing in Canadian waters.

[25] For further information on the Pacific salmon dispute and agreement, see United States International Trade Commission, *The Year in Trade: Operation of the Trade Agreements Program During 1997*, USITC Publication 3103 (May 1998); and *The Year in Trade 1999: Operation of the Trade Agreements Program*, USITC Publication 3336 (Aug. 2000).

[26] One aspect of the Pacific dispute is rooted in history: there remains some disagreement over the proper delimitation of the maritime extension of the U.S.-Canada land boundary (the "54°40' or fight" parallel made famous by early 19th-century American extremists in the dispute with Great Britain over the Oregon territory and later used during the 1844 presidential campaign of James Polk).

[27] Full-time and part-time employment depends on how much of the year is spent fishing. However, in many parts of Newfoundland and Labrador, weather prevents fishermen from working more than a few months a year; but they have few or no other employment opportunities. Therefore, the extent of full-time fishing employment (in the sense of dependency on the fishery
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In 2000, the Canadian harvest of finfish totaled 292,000 metric tons, at an overall value of $85 million.[28] Of this total, the Atlantic Provinces (the Maritimes, Quebec, and Newfoundland-Labrador) accounted for 246,000 metric tons (or 84 percent of the total quantity), valued at $52 million (61 percent of the total value). Atlantic groundfish landings in 2000 totaled 151,000 metric tons, valued at $127 million.

Canadian production of fresh or frozen fish products totaled 134,000 metric tons in 1999, down from 147,000 metric tons in 1998.[29] This drop – the latest in an almost steady decline in production since the peak year (340,000 metric tons) of 1988 – reflects continued severe resource constraints, particularly in the heavily depleted Atlantic cod fisheries. The principal products from the Canadian industry are fresh or frozen groundfish fillets and frozen blocks (primarily Atlantic products), which accounted for more than half of the 1999 total. Production of fresh or frozen Pacific salmon plummeted from 16,500 metric tons in 1995 to 7,700 metric tons in 1999, or by more than 50 percent.

Canada's most important trading partner for fish products (and for trade generally) is the United States. Total Canadian exports of fresh or frozen fish products reached 246,000 metric tons, valued at $916 million in 1999, of which the U.S. market accounted for $705 million, or 77 percent. On the import side, Canadian imports of fresh or frozen fish products in 1999 totaled 147,000 metric tons, valued at $430 million, of which the United States supplied $235 million, or 55 percent.

Japan

The Japanese fish industry supplies the world's largest seafood market: Japan. However, it does so with a fleet of harvesters that spends most of its time in other nations' waters. This is because Japan has a limited continental shelf, which reduces the plant life and plankton that form the food chain on which larger, harvestable fish depend. Thus, Japan has traditionally operated "distant water" fleets of trawlers, seiners, and other vessels, which typically deliver to factory ships for further processing and/or to transport carriers that take the fish to onshore processors and marketers.

One of the ways Japan obtains fish from other nations' waters is through joint ventures, by which Japanese factory ships take fish "over the side" from local harvesters. This helps both nations: the harvesters have a ready buyer for their catch (without having to travel back to onshore processors), and Japan has another source of fish. Joint ventures with U.S. harvesters were popular in the North Pacific for many years, until the United States undertook an "Americanization" policy of promoting U.S. processing and consumption of the harvest from North Pacific fisheries.

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[27] (...continued)
for a livelihood) is probably understated by the reported statistics.

[28] Statistical Services Unit, Department of Fisheries and Oceans Canada, *Landings Information*, found at *http://www.dfo-mpo.gc.ca/communic/statistics/stat_e.htm*, retrieved Sept. 24, 2001. Value data expressed in U.S. dollars.

[29] Fisheries Department, Food and Agriculture Organization of the United Nations, Databases and Statistics, found at *http://www.fao.org/fi/statist/statist.asp*, retrieved Sept. 24, 2001.

In the 1970s many nations extended their offshore jurisdiction to 200 miles from the typical 12-mile territorial sea. The reduced access to foreign fishing grounds that began then set in motion a transformation of the Japanese industry that continues to this day. Imports are supplying a larger share of total seafood consumption. Much of the fleet of distant-water harvesters has been refitted as refrigerated transport vessels for joint-venture operations. The large fishing companies now do as much marketing as they do processing. Yet despite these changes, the Japanese industry remains one of the world's largest, with a fleet of modern, highly efficient trawlers, longliners, and factory ships that numbers in the thousands. Onshore, there is a complicated network of processing, wholesaling and retailing operations that is concentrated both nationally and at the local market level. The aquaculture sector also is making great strides as a means to replace lost ocean fisheries.

Japan is the major market for U.S. exports of fresh or frozen fish; such exports totaled $898 million in 2000, or 53 percent of total U.S. exports. The principal product exported by the United States to Japan is fresh or frozen Pacific salmon, which is prized for its flesh and roe. Japan is not a significant source of U.S. imports, primarily because the large domestic demand for seafood reduces the need to export. Overall, U.S. imports from Japan totaled $72 million in 2000, down from a peak of $93 million in 1997. By value, the main items imported from Japan are frozen albacore (for canning), and frozen fillets of freshwater and other fish.

U.S. TRADE MEASURES

Tariffs and Nontariff Measures

U.S. tariffs on fresh or frozen fish imports for 2001 are presented in table B-9. Such tariffs are affected by several trade agreements, including the North American Free Trade Agreement (NAFTA) and the Uruguay Round Agreement (URA) of the General Agreement on Tariffs and Trade, which established the World Trade Organization (WTO). NAFTA directly affects U.S. trade with Canada and Mexico, while U.S. obligations under the WTO affect trade with most other nations. In addition, current or future negotiations under the auspices of other bi- or multilateral associations, such as the Asia Pacific Economic Cooperation forum, may also affect future U.S. trade.

Under NAFTA, which incorporated the earlier U.S.-Canada Free Trade Agreement, the United States eliminated its duties on fresh or frozen fish imports from Canada. In addition, U.S. duties on fresh or frozen fish imports from Mexico are scheduled to be eliminated by the year 2003. The NAFTA provisions relating to Canada affected $969 million in two-way trade in 2000, while those with Mexico affected $58 million in two-way trade in 2000.

Under the Uruguay Round Agreements Act, the United States agreed to bind its duties on fresh or frozen fish against increases beyond certain specified levels (table B-9).

U.S. Government Trade-Related Investigations

The injurious effects of U.S. imports of fresh Atlantic salmon have twice been the focus of investigations by the USITC.[30] The investigation concerning Norway resulted from a petition brought by a coalition of salmon farmers in the States of Maine and Washington, alleging injury from imports of fresh whole Atlantic salmon from Norway, the production and export of which was alleged to be subsidized by the Norwegian Government and sold at less than fair value (i.e., dumped). The petition ultimately was successful and led to antidumping duties of 18.39 to 31.81 percent[31] and a countervailing duty of 2.27 percent.[32]

The investigation concerning Chile resulted from a petition brought by the same coalition of U.S. salmon farmers, alleging injury from imports of fresh whole and filleted Atlantic salmon from Chile, the production and export of which was alleged to be subsidized by the Chilean Government and sold at less than fair value. The allegations regarding subsidization were found by the Department of Commerce to be unsupported.[33] However, the effort to demonstrate dumping was successful and the investigations by Commerce and the Commission led to antidumping duties of 0.21 to 10.91 percent.[34]

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[30] United States International Trade Commission, *Fresh and Chilled Atlantic Salmon from Norway*, Investigations No. 701-TA-302 and 731-TA-454 (Final), USITC Publication 2371 (Apr. 1991); and *Fresh Atlantic Salmon from Chile*, Investigation No. 731-TA-768 (Final), USITC Publication 3116 (July 1998).

[31] The exact rate depends on the Norwegian exporting firm. The Norway-wide rate (applicable to exporters not specifically assessed a duty) is 23.80 percent.

[32] In a recent review, the Commission determined that revocation of the countervailing and antidumping duty orders would be likely to lead to continuation or recurrence of material injury to the U.S. industry. United States International Trade Commission, *Fresh and Chilled Atlantic Salmon from Norway*, Investigations No. 701-TA-302 (Review) and 731-TA-454 (Review), USITC Publication 3282 (Feb. 2000). The Department of Commerce, in their review, found both the level of subsidization and extent of dumping to be unchanged; thus, the duties were unchanged. *Federal Register*, Feb. 4, 2000, pp. 5584-5587; and Feb. 7, 2000, pp. 5854-5857.

[33] Department of Commerce, International Trade Administration, "Final Negative Countervailing Duty Determination: Fresh Atlantic Salmon from Chile," *Federal Register*, June 9, 1998, pp. 31437-47.

[34] The exact rate depends on the Chilean exporting firm. The Chile-wide rate (applicable to exporters not specifically assessed a duty) is 5.19 percent

FOREIGN TRADE MEASURES

Tariff Measures

Table B-10 presents tariff rates on fresh or frozen fish imports applied by selected large consuming nations. The lowest foreign tariffs are found in Canada, Australia, New Zealand, Iceland, and Norway, which have duty-free treatment of almost all fresh or frozen fish products (for Canada, see also the following discussion of NAFTA). Tariffs in the European Union are higher, reaching 15 percent on frozen sea bass and 23 percent on certain sardines. Tariffs in Japan range from 5 to 10 percent on almost every fresh or frozen seafood item.

In the Uruguay Round multilateral trade negotiations, an important result concerning fresh or frozen fish products was the agreement by major importing countries to bind their existing tariffs against future increase. These agreements are significant to U.S. exporters because earlier tariff reductions negotiated with foreign countries under previous rounds of negotiations under the GATT have thereby been locked into place under the WTO. Other significant results of the Uruguay Round for fish exporters concern nontariff barriers, which are discussed in the following section.

NAFTA governs trade between the United States, Canada, and Mexico. Prior to NAFTA's implementation, Mexico charged a straight 20-percent ad valorem duty on almost all imports of U.S. fresh or frozen fish products. Under NAFTA, Mexico agreed to either immediate (1994) elimination or staged elimination over 5 years of its duties on imports from Canada and the United States of all fresh or frozen fish.[35] Canada agreed to immediate elimination of its duties on all fresh or frozen fish imports from the United States.[36]

Nontariff Measures

Nontariff measures are government regulations and policies other than tariffs, which can either protect domestic producers from foreign competition or artificially increase exports of domestic products. Nontariff measures (and tariffs) in foreign countries can hinder U.S. exports to the markets where the policies are in place and, by depressing world prices, they can also reduce prices received by U.S. exporters in other markets. There are a variety of foreign sanitary and phytosanitary regulations, quotas, and other nontariff measures for food products generally; these may also hinder U.S. exports of fresh or frozen fish. Such trade policies are described in more detail in an annual review of foreign trade barriers published

[35] North American Free Trade Agreement, Annex 302.2, Tariff Schedule of Mexico (Washington, DC: Government Printing Office).

[36] North American Free Trade Agreement, Annex 302.2, Tariff Schedule of Canada (Washington, DC: Government Printing Office).

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by the U.S. Government.[37] Specifically for fresh or frozen fish, the most significant trade barriers are found in Japan, including quantitative restrictions on herring, cod, mackerel, and other products.[38]

U.S. laws that address foreign nontariff measures include section 301 of the Trade Act of 1974, which authorizes the President to retaliate against foreign nations that impose burdensome nontariff measures or violate trade agreements; such retaliation can and usually does take the forms of suspending previously granted trade concessions or imposing new restrictions or fees on trade of the offending nation. No recent section 301 investigations involving fresh or frozen fish products have been instituted.

In addition to section 301 and other unilateral actions, there are multilateral institutions that provide mechanisms for trade dispute resolution. The largest is the WTO, which directly addresses nontariff measures and other problem areas and provides means to eliminate or resolve disputes. To date, no complaints regarding fresh or frozen fish products have been filed with the WTO by the U.S. Government against another country.[39]

In addition to the WTO and NAFTA dispute settlement mechanisms, there are other institutions available for addressing problems in U.S. trade in fresh or frozen fish products. These include the Fisheries Committees of the Organization for Economic Cooperation and Development (OECD) and the Asian Pacific Economic Cooperation (APEC) forum. In addition, there are periodic (usually annual) bilateral consultations between the United States and Japan and between the United States and the European Union, and other bilateral consultations that occur as they are needed. An increasingly common phenomenon is environmental disputes that spill over into trade, including trade in fisheries products, where the restriction of such trade is a policy tool used to resolve the environmental disputes. Such problems may be resolved bilaterally or in multilateral fora such as the WTO, the Convention on International Trade in Endangered Species (CITES), NAFTA, and others.

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[37] United States Trade Representative, *2001 National Trade Estimate Report on Foreign Trade Barriers* (Washington, DC: Office of the United States Trade Representative, 2001). This report is available on the USTR website at *http://www.ustr.gov*.

[38] Ibid.

[39] The United States is a third party participant in a WTO dispute between Canada and Australia concerning Australia's import ban on fresh, chilled, or frozen salmon for alleged health-related reasons. This ban also affects U.S. salmon exporters. See the 1998, 1999, and 2000 National Trade Estimate Reports on Foreign Trade Barriers, found at *www.ustr.gov/reports/index.shtml*. Copies of relevant documents are also available on the WTO website at *www.wto.org*. In 1999, the WTO ruled that Australia's ban is unsupported by scientific evidence and is therefore inconsistent with Australia's WTO obligations. Following an import risk assessment, Australia partially relaxed its ban in July 1999. However, the dispute is continuing.

U.S. MARKET

Consumption

Information on U.S. consumption of fresh or frozen fish is shown in table B-11. Total consumption of whole or "round" (semiprocessed) fish during 1996-00 grew by 7.7 percent in value, from $1.4 billion in 1996 to $1.6 billion in 2000. Imports accounted for about 80 percent of the total value of consumption in 2000, up from 74 percent in 1996. Total consumption of fish fillets and steaks during 1996-00 grew by 37 percent in value, from $1.7 billion in 1996 to $2.3 billion in 2000. Imports of fillets and steaks accounted for about 82 percent of the total value of consumption of fillets and steaks in 2000, up from 70 percent in 1996.

In addition to the domestic market, U.S. production supplies foreign markets. U.S. exports of whole or round fish accounted for a significant, but declining share of U.S. production through 1998, before rising to 80 percent in 2000. For fillets and steaks, exports accounted for 41 to 56 percent of production during 1996-00.

Imports

Total U.S. imports of fresh or frozen fish products reached a record value of $3.1 billion in 2000, an increase of almost $900 million, or 39 percent, over the 1996 level of $2.2 million (table B-12). By quantity, imports totaled 788,000 metric tons in 2000, an increase of 9 percent over the 1996 import level of 724,000 metric tons. The greatest single source of U.S. imports is Canada, whose shipments of 161,000 metric tons, valued at $716 million, accounted for 20 percent of the volume and 23 percent of the value of total U.S. imports. On a value basis, Chile was the second largest source of imports, with 14 percent of total value, due mainly to imports of fresh farmed salmon. China ranked third, with 9 percent of total value, followed closely by Iceland, with 6 percent of total imports.

Table B-13 presents information on the principal fresh or frozen fish products imported into the United States. By far the largest non-basket category item is frozen fillets of groundfish (cod, cusk, haddock, etc.). Such imports in 2000 reached 92,000 metric tons, valued at $369 million, 12 percent of both the volume and the value of total fresh or frozen fish imports. Also important is fresh whole or round salmon, imports of which reached 61,000 metric tons, valued at $305 million, in 2000. Frozen blocks of groundfish have long been a significant import item: in 2000, block imports totaled 81,300 metric tons, valued at $190 million. Block supplies on world markets have tightened in recent years owing to the depleted state of many groundfish resources, particularly in the North Atlantic.

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FOREIGN MARKETS

Foreign Market Profile

Japan is by far the largest market for U.S. exports of fresh or frozen fish products and is a large fish consuming nation. However, total consumption in that country has declined in recent years, from 3,991 metric tons in 1996 to 3,721 metric tons in 1999, a decline of about 7 percent. The following tabulation presents FAO data on Japanese production, trade, and consumption of fresh or frozen fish products (in thousands of metric tons).

Year	Production	Net imports	Apparent consumption
1996	2,409	1,582	3,991
1997	2,459	1,485	3,944
1998	2,285	1,394	3,679
1999	2,050	1,671	3,721

On average, prices of fresh or frozen products in the Japanese market, evidenced by average annual import prices, have declined in recent years. On average, fresh or frozen fish prices fell almost continuously from $3.86 per kilogram in 1996 to $3.55 per kilogram in 1999, a drop of about 8 percent. Some specific products, however, have shown larger declines, and some have increased in price, as shown in the following tabulation of FAO data (in dollars per kilogram):

Product	1996	1999	Percent change
Fresh fillets	10.13	7.90	-22
Frozen trout	4.23	5.03	19
Frozen livers & roes	9.21	9.34	1
Frozen eels	46.00	31.00	-33
Frozen mackerel	1.33	1.16	-13

During 1996-99, some fresh or frozen fish items fell in price by as much as a third (in the case of frozen eels). Prices of other fresh or frozen seafoods rose: the price of frozen trout, for example, grew by 19 percent between 1996 and 1999. Additional data on production, trade and consumption of fresh or frozen fish products throughout Asia are presented in table B-14.

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Demographic, economic and political changes are playing a role in shaping Asian demand for seafood. In southern China, for example, economic growth and a greater proportion of younger people has boosted consumer demand for high-valued seafood and increased the emphasis on price and quality in seafood marketing.[40] Higher prices for seafood enable sellers to provide more fish products in fresh rather than the traditional cured forms.[41]

A large and increasing share of the supply of fish in Asia comes from aquaculture, or fish farming. This ancient method of raising fish enables fish sellers to provide a more dependable supply to fish processors and other consumers, and consequently, at a more stable price. This is an advantage less available to fish processors in the U.S. industry, where wild fisheries rather than aquaculture provide most fish (notable exceptions include catfish, trout, and Atlantic salmon).

Europe is another large fish consuming region and a large market for U.S. exports. Total European consumption of fresh or frozen fish reached 5,584 metric tons in 1999, up from 4,711 metric tons in 1996 (table B-15). The bulk of European consumption of fresh or frozen fish takes place in the European Union (EU). In recent years, EU consumption of fresh or frozen fish averaged 2.2 million metric tons annually, or about 55 to 60 percent of the total for Europe.

France is one of the largest EU markets for fresh or frozen fish; the following tabulation presents FAO data on French production, trade, and consumption (in 1,000 metric tons).[42]

Year	Production	Net imports	Apparent consumption
1996	186	173	359
1997	159	160	319
1998	148	205	353
1999	144	240	384

Groundfish accounts for about 60 percent of total French production reported by the FAO. Salmon makes up much of the remainder. An increasing share of France's reported production was exported during 1996-98, largely because, according to industry sources, quality improvements maintained export demand in the face of declining domestic production.

Prices in the European market for fresh or frozen fish, evidenced by average annual import prices, are shown in the following tabulation of FAO data (in dollars per kilogram).

[40] Sameer Dhargalkar, "Seafood Market Hong Kong/Guangdong," Consulate General of Canada, Hong Kong, Aug. 1996.

[41] Additional information on cured fish may be found in *Industry and Trade Summary: Cured Fish, Except Shellfish.*

[42] One possible explanation for the excess of exports over production is that the data do not account for re-exports, thus overstating both exports and imports.

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Product	1996	1997	1998	1999	Percent change
Fresh fillets	4.60	4.49	5.36	5.47	19
Frozen fillets	2.82	2.65	3.05	3.09	9
Fresh whole cod	1.64	1.73	2.34	2.47	50
Fresh herring	0.50	0.34	0.33	0.28	-44
Fresh sardines	0.82	0.72	0.45	0.50	-39
Fresh whole mackerel	0.72	0.78	0.84	0.44	-39
Frozen whole mackerel	0.82	0.72	0.74	0.60	-27
Frozen Pacific salmon	2.20	2.50	2.52	2.25	2

With a few exceptions, prices have declined somewhat in the European market. On average the price per kilogram of fresh or frozen fish declined by 2 percent, from $2.15 in 1996 to $2.09 in 1999. However, some prices fell much more dramatically, including those for fresh whole herring (down by 44 percent), fresh whole sardines (39 percent), and fresh whole mackerel (39 percent). The average price of fresh fillets (which tend to be made from species other than the above) increased by 19 percent during 1996-99. Additional data on production, trade and consumption in Europe are presented in table B-15.

U.S. Exports

Between 40 and 60 percent of U.S. production of fresh or frozen fish fillets and steaks, by value, has been exported in recent years. Tables B-16 and B-17 summarize U.S. exports by product form and destination, respectively. U.S. exports declined in the late 1990s, largely because of conditions in the Japanese market, which accounts for more than half of all U.S. exports of fresh or frozen fish products. These market conditions weakened on the demand side, where a general economic slowdown and a rise in the yen/dollar exchange rate likely reduced Japanese demand, and on the supply side, caused by a U.S. salmon harvest that fell short of expectations.

On a quantity basis, total fresh or frozen fish exports to Japan fell from 401,700 metric tons in 1996 to 261,000 metric tons in 1998, before recovering to 301,200 metric tons in 2000. Increased U.S. exports to Canada, the second largest market, partially offset this decline; such exports rose from 72,800 metric tons in 1996 to 82,300 metric tons in 2000.

U.S. Industry Performance in Foreign Markets

This section examines U.S. performance in major world markets for fresh or frozen fish. Performance is evaluated here by the share held by U.S. producers or exporters in domestic or foreign markets. This approach is commonly referred to as constant market share (CMS) analysis. An increase in the U.S. share of a particular market signifies an improvement in

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U.S. export performance vis-a-vis competing suppliers in that market, and vice versa.[43] Thus, even a decrease in the absolute level of U.S. exports to a particular declining market could be consistent with an improvement in U.S. export performance if the market itself is declining at a faster rate than U.S. exports.[44]

Table B-18 presents data on U.S. export performance in selected markets for fresh or frozen fish. In world markets for frozen whole Pacific salmon (HTS subheading 0303.10), the largest U.S. export, U.S. exporters have captured a diminishing share of world imports in recent years: as a share of world import value, U.S. exports fell from 46.1 percent in 1996 to 39.6 percent in 1999, equivalent to $48.2 million in decreased exports. The largest losses by far were registered in Japan, where decreased market shares caused U.S. exports to fall by nearly $63 million from 1996 to 1999.

In the world market for frozen fish fillets (HTS subheading 0304.20), the share held by U.S. exporters has traditionally been quite low. In recent years that share has risen somewhat, from 1.9 percent in 1996 to 2.1 percent in 1999. If U.S. exporters had maintained in 1999 the 1.9-percent share they had in 1996, the value of 1999 exports would have been $9.3 million lower — thus, exporters achieved a market-share gain of 11 percent of the actual 1999 export level of $84 million.

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[43] CMS analysis is described in detail in a paper, "Constant Market Share Analysis of Export Growth," presented in Edward E. Leamer and Robert M. Stern, *Quantitative International Economics* (Chicago: Allyn and Bacon, 1970), ch. 7.

[44] In this discussion, data on "world import markets" vis-a-vis U.S. exports exclude U.S. imports from the world total.

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APPENDIX A
EXPLANATION OF TARIFF AND TRADE AGREEMENT TERMS

TARIFF AND TRADE AGREEMENT TERMS

In the ***Harmonized Tariff Schedule of the United States*** (HTS), chapters 1 through 97 cover all goods in trade and incorporate in the tariff nomenclature the internationally adopted Harmonized Commodity Description and Coding System through the 6-digit level of product description. Subordinate 8-digit product subdivisions, either enacted by Congress or proclaimed by the President, allow more narrowly applicable duty rates; 10-digit administrative statistical reporting numbers provide data of national interest. Chapters 98 and 99 contain special U.S. classifications and temporary rate provisions, respectively. The HTS replaced the *Tariff Schedules of the United States* (TSUS) effective January 1, 1989.

Duty rates in the ***general*** subcolumn of HTS column 1 are normal trade relations rates, many of which have been eliminated or are being reduced as concessions resulting from the Uruguay Round of Multilateral Trade Negotiations. Column 1-general duty rates apply to all countries except those listed in HTS general note 3(b) (Afghanistan, Cuba, Laos, North Korea, and Vietnam) plus Serbia and Montenegro, which are subject to the statutory rates set forth in ***column 2***. Specified goods from designated general-rate countries may be eligible for reduced rates of duty or for duty-free entry under one or more preferential tariff programs. Such tariff treatment is set forth in the ***special*** subcolumn of HTS rate of duty column 1 or in the general notes. If eligibility for special tariff rates is not claimed or established, goods are dutiable at column 1-general rates. The HTS does not enumerate those countries as to which a total or partial embargo has been declared.

The ***Generalized System of Preferences*** (GSP) affords nonreciprocal tariff preferences to developing countries to aid their economic development and to diversify and expand their production and exports. The U.S. GSP, enacted in title V of the Trade Act of 1974 for 10 years and extended several times thereafter, applies to merchandise imported on or after January 1, 1976 and before the close of September 30, 2001. Indicated by the symbol "A", "A*", or "A+" in the special subcolumn, the GSP provides duty-free entry to eligible articles the product of and imported directly from designated beneficiary developing countries, as set forth in general note 4 to the HTS.

The ***Caribbean Basin Economic Recovery Act*** (CBERA) affords nonreciprocal tariff preferences to developing countries in the Caribbean Basin area to aid their economic development and to diversify and expand their production and exports. The CBERA, enacted in title II of Public Law 98-67, implemented by Presidential Proclamation 5133 of November 30, 1983, and amended by the Customs and Trade Act of 1990, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after January 1, 1984. Indicated by the symbol "E" or "E*" in the special subcolumn, the CBERA provides duty-free entry to eligible articles, and reduced-duty treatment to certain other articles, which are the product of and imported directly from designated countries, as set forth in general note 7 to the HTS.

Free rates of duty in the special subcolumn followed by the symbol "IL" are applicable to products of Israel under the ***United States-Israel Free Trade Area Implementation Act*** of 1985 (IFTA), as provided in general note 8 to the HTS.

Preferential nonreciprocal duty-free or reduced-duty treatment in the special subcolumn followed by the symbol "J" or "J*" in parentheses is afforded to eligible articles the product of designated beneficiary countries under the ***Andean Trade Preference Act*** (ATPA), enacted as title II of Public Law 102-182 and implemented by Presidential Proclamation 6455 of July 2, 1992 (effective July 22, 1992), as set forth in general note 11 to the HTS.

Preferential free rates of duty in the special subcolumn followed by the symbol "CA" are applicable to eligible goods of Canada, and rates followed by the symbol "MX" are applicable to eligible goods of Mexico, under the ***North American Free Trade Agreement***, as provided in general note 12 to the HTS and implemented effective January 1, 1994 by Presidential Proclamation 6641 of December 15, 1993. Goods must originate in the NAFTA region under rules set forth in general note 12(t) and meet other requirements of the note and applicable regulations.

Other special tariff treatment applies to particular ***products of insular possessions*** (general note 3(a)(iv)), ***products of the West Bank and Gaza Strip*** (general note 3(a)(v)), goods covered by the ***Automotive Products Trade Act*** (APTA) (general note 5) and the ***Agreement on Trade in Civil Aircraft*** (ATCA) (general note 6), ***articles imported from freely associated states*** (general note 10), ***pharmaceutical products*** (general note 13), and ***intermediate chemicals for dyes*** (general note 14).

The ***General Agreement on Tariffs and Trade 1994*** (GATT 1994), pursuant to the Agreement Establishing the World Trade Organization, is based upon the earlier GATT 1947 (61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786) as the primary multilateral system of disciplines and principles governing international trade. Signatories' obligations under both the 1994 and 1947 agreements focus upon most-favored-nation treatment, the maintenance of scheduled concession rates of duty, and national treatment for imported products; the GATT also provides the legal framework for customs valuation standards, "escape clause" (emergency) actions, antidumping and countervailing duties, dispute settlement, and other measures. The results of the Uruguay Round of multilateral tariff negotiations are set forth by way of separate schedules of concessions for each participating contracting party, with the U.S. schedule designated as Schedule XX. Pursuant to the **Agreement on Textiles and Clothing** (ATC) of the GATT 1994, member countries are phasing out restrictions on imports under the prior "Arrangement Regarding International Trade in Textiles" (known as the **Multifiber Arrangement** (MFA)). Under the MFA, which was a departure from GATT 1947 provisions, importing and exporting countries negotiated bilateral agreements limiting textile and apparel shipments, and importing countries could take unilateral action in the absence or violation of an agreement. Quantitative limits had been established on imported textiles and apparel of cotton, other vegetable fibers, wool, man-made fibers or silk blends in an effort to prevent or limit market disruption in the importing countries. The ATC establishes notification and safeguard procedures, along with other rules concerning the customs treatment of textile and apparel shipments, and calls for the eventual complete integration of this sector into the GATT 1994 over a ten-year period, or by Jan. 1, 2005.

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APPENDIX B
STATISTICAL TABLES

Table B-1
Fish: U.S. commercial landings, 1996-2000

Item	1996	1997	1998	1999	2000	Percent change, 1996-00[1]
	Million dollars					
Tuna[2]	589	605	532	713	632	7.3
Salmon	369	270	257	360	270	-26.8
Alaska pollock	238	243	190	163	161	-32.6
Halibut	83	117	104	125	144	73.3
Sablefish	109	109	92	97	101	-7.2
Flounder	154	131	97	90	110	-28.6
Atlantic groundfish, except flounder[3]	53	53	60	62	62	16.4
Swordfish	36	34	29	33	38	5.6
Other	638	655	523	542	614	–3.7
Total[3]	2,269	2,217	1,884	2,175	2,132	6.1
	Thousand metric tons					
Tuna[2]	207	207	217	218	153	-26.1
Salmon	398	257	292	370	285	-28.4
Alaska pollock	1,190	1,140	1,232	1,055	1,182	-0.6
Halibut	22	32	33	36	34	55.0
Sablefish	27	24	20	22	23	-16.7
Flounder	208	257	177	150	187	-10.0
Atlantic groundfish, except flounder[3]	39	39	39	39	37	-5.9
Swordfish	6	6	7	7	8	35.0
Other	1,823	2,017	1,739	1,840	1,709	-6.3
Total[3]	3,920	3,979	3,756	3,735	3,618	-7.7

[1] Calculated from unrounded data.
[2] Includes U.S.-harvested tuna landed in U.S. possessions.
[3] Includes cod, cusk, haddock, hake, ocean perch, and pollock.
[3] Totals may not add due to rounding.

Source: National Marine Fisheries Service, *Fisheries of the United States*, Current Fisheries Statistics Series No. 9800 (annual; various issues), National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

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Table B-2
Fish: U.S. aquaculture production, 1996-99

Item	1996	1997	1998	1999	Percent change, 1996-99[1]
	Million dollars				
Catfish	365	372	419	439	20.3
Salmon	61	65	63	77	25.9
Trout	57	60	60	65	14.0
Tilapia	24	30	27	27	11.3
Other	91	95	82	79	-12.4
Total[2]	597	623	650	687	14.9
	Thousand metric tons				
Catfish	214	238	256	271	26.4
Salmon	14	18	15	18	27.6
Trout	24	26	25	27	12.5
Tilapia	7	8	8	8	11.2
Other	13	13	12	12	-9.0
Total[2]	273	302	315	336	23.1

[1] Calculated from unrounded data.
[2] Totals may not add due to rounding.

Source: National Marine Fisheries Service, *Fisheries of the United States*, Current Fisheries Statistics Series No. 9800 (annual; various issues), National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Table B-3
Fresh or frozen fish: Number of U.S. firms and employment, 1995-98

Item	1995	1996	1997	1998
	Number			
Firms	5,100	5,250	5,130	5,150
Employment:				
Average	115,000	125,000	112,000	118,000
Seasonal	128,000	145,000	125,000	130,000

Source: Fisheries Statistics and Economics Division, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, Commission staff communication.

Table B-4
Fresh or frozen fish: Labor productivity in fillets & steaks production, 1995-98

Category	1995	1996	1997	1998
	Pounds produced per employee			
On an average employment basis	3,350	3,184	3,658	3,718
On a seasonal employment basis	3,010	2,745	3,277	3,375

Source: Fisheries Statistics and Economics Division, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, Commission staff communication.

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Table B-5
Seafood establishments and product inspections, 1998 and 2000[1]

Source	1998	2000
	Number	
Establishments:		
SIFE[2]	8	1
In-plant[3]	289	257
	— Million pounds —	
Quantity inspected:		
PUFI[4]	301.1	248.7
Grade A[4]	70.3	59.8
No mark[5]	189.6	117.4
Lot	319.6	399.0
Total	880.7	824.9

[1] All seafood, including fresh or frozen fish.
[2] Fish processing establishments approved for sanitation; products are not processed under inspection.
[3] Sanitarily inspected establishments approved for sanitation processing products under Commerce Department inspection.
[4] Products processed under Commerce Department inspection in inspected establishments and labeled with USDC inspection mark as "Processed Under Federal Inspection" (PUFI) and/or "U.S. Grade A."
[5] Products processed under inspection in inspected establishments but bearing no USDC inspection mark.
[6] Lot inspected products checked for quality and condition at the time of examination and located in processing plants, warehouses, cold storage facilities, or terminal markets anywhere in the United States.
Source: National Marine Fisheries Service, *Fisheries of the United States, 1998*, Current Fisheries Statistics Series No. 9800, National Oceanic and Atmospheric Administration, U.S. Department of Commerce (July 1999).

Table B-6
Fresh or frozen fish: World production, by largest producers, 1996-99

Source	1996	1997	1998	1999	Percent change, 1996-99[1]
	— Thousand metric tons—				
China	2,828	2,879	2,885	3,068	8.5
Japan	2,409	2,459	2,285	2,050	-14.9
United States	1,068	1,019	1,041	994	6.9
Norway	1,020	1,030	903	1,081	6.0
EU:					
Netherlands	274	358	305	353	28.9
Germany	321	282	295	324	1.2
Spain	323	319	301	316	-2.1
United Kingdom	262	249	252	270	3.0
Other EU	671	606	569	540	-19.4
Total EU[2]	1,850	1,814	1,722	1,804	-2.5
Canada	142	112	147	134	-5.8
Mexico	119	127	120	108	-9.5
Other	7,671	7,684	7,786	7,905	3.1
Total[2]	17,108	17,124	16,889	17,145	2.0

[1] Calculated from unrounded data.
[2] Totals may not add due to rounding.

Source: Food and Agriculture Organization of the United Nations.

Table B-7
Fresh or frozen fish: World production, by products, 1996-99

Heading and description	1996	1997	1998	1999	Percent change, 1995-99
	Thousand metric tons				
Frozen tunas	1,786	1,860	2,095	1,960	9.8
Frozen mackerel	1,350	1,290	1,133	1,045	-22.6
Frozen herring	599	671	441	480	-19.8
Frozen fillets	1,946	1,843	1,977	2,017	3.6
Frozen hake	241	341	266	251	4.0
Frozen sardines	377	309	241	331	-12.3
Frozen Pacific salmons	298	361	347	320	7.2
Other	10,511	10,449	10,389	10,742	2.2
Total	17,108	17,124	16,889	17,145	0.2

Source: Food and Agriculture Organization of the United Nations.

Table B-8
Fresh or frozen fish: Average export prices on world markets, 1996-99

Fish product	1996	1997	1998	1999	Percent change, 1996-99
	Dollars per kilogram				
Frozen tuna	1.97	2.01	1.76	1.88	-4.6
Frozen mackerel	0.93	1.00	0.86	0.71	-23.7
Frozen herring	0.61	0.53	0.50	0.44	-27.9
Fresh fillets	4.55	4.38	4.79	5.26	15.6
Frozen hake	1.29	1.23	1.31	1.54	19.4
Frozen sardines	0.60	0.46	0.38	0.40	-33.3
Frozen Pacific salmon	3.16	3.09	2.74	3.99	26.3
Other	1.88	1.81	1.86	2.00	6.4
Weighted average for all products	1.82	1.76	1.77	1.89	3.8

Source: Food and Agriculture Organization of the United Nations.

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Table B-9
Fresh or frozen fish: Harmonized Tariff Schedule subheading; description; U.S. column 1 rate of duty as of Jan. 1, 2001; U.S. exports, 2000; U.S. imports, 2000

HTS subheading	Description	Column 1 rate of duty as of 1/1/01	U.S. Trade in 2000	
		General	Exports	Imports
		Percent or $/kg	— Thousand dollars —	
0302	Fish, fresh or chilled, excluding fillets and other fish meat of heading 0304:			
	Salmonidea:			
0302.11.00	Trout	Free	1,930	5,976
0302.12.00	Pacific salmon, Atlantic salmon, and Danube salmon	Free	70,320	304,525
0302.19.00	Other salmonidae	Free	1,200	70
	Flatfish:			
0302.21.00	Halibut and Greenland turbot	Free	22,903	51,671
0302.22.00	Plaice	Free	3,165	270
0302.23.00	Sole	1.1¢/kg	339	6,038
0302.29.00	Other	Free	3,838	7,615
	Tunas, skipjack or stripe-bellied bonito:			
0302.31.00	Albacore or longfinned tunas	Free	784	6,424
0302.32.00	Yellowfin tunas	Free	1,126	70,274
0302.33.00	Skipjack or stripe-bellied bonito	Free	11	0
0302.39.00	Other	Free	14,612	44,028
0302.40.00	Herrings	Free	4,270	3,634
0302.50.00	Cod	Free	6,539	7,683
0302.61.00	Sardines, sardinella, brisling or sprats	Free	3,520	140
0302.62.00	Haddock	Free	162	17,771
0302.63.00	Atlantic pollock	Free	737	1,766
0302.64.00	Mackerel	Free	519	1,654
0305.65.00	Dogfish and other sharks	Free	8,515	2,559
0302.66.00	Eels	Free	60	391
	Other:			
0302.69.10	Scaled, in immediate containers weighing with their contents 6.8 kg or less	3%	(1)	1,818

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See footnotes at end of table.

Table B-9—*Continued*
Fresh or frozen fish: Harmonized Tariff Schedule subheading; description; U.S. column 1 rate of duty as of Jan. 1, 2001; U.S. exports, 2000; U.S. imports 2000

HTS subheading	Description	Column 1 rate of duty as of 1/1/01	U.S. trade in 2000	
		General	Exports	Imports
		Percent or $/kg	— Thousand dollars —	
	Other:			
0302.69.20	Smelts, cusk, hake, pollock, shad, sturgeon, swordfish and freshwater fish	Free	(1)	86,565
0302.69.40	Other	Free	55,243	181,414
0302.70	Livers and roes:			
0302.70.20	Sturgeon roe	15%	(2)	15
0302.70.40	Other	Free	25,770	844
0303	Fish, frozen, excluding fillets and other fish meat of heading 0304:			
0303.10.00	Pacific salmon, excluding livers and roes	Free	271,059	5,536
	Other salmonidae, excluding livers and roes:			
0303.21.00	Trout	Free	963	1,311
0303.22.00	Atlantic salmon and Danube salmon	Free	583	22,587
0303.29.00	Other	Free	2,212	342
	Flatfish, excluding livers and roes:			
0303.31.00	Halibut and Greenland turbot	Free	29,797	13,643
0303.32.00	Plaice	Free	528	998
0303.33.00	Sole	1.1¢/kg	631	4,632
0303.39.00	Other	1.1¢/kg	63,273	2,757
	Tunas:			
0303.41.00	Albacore or longfinned tunas	Free	6,047	127,332
0303.42.00	Yellowfin tunas	Free	765	18,731
0303.43.00	Skipjack or stripe-bellied bonito	Free	52	2,751
0303.49.00	Other	Free	997	4,919
0303.50.00	Herring	Free	19,771	2,949
0303.60.00	Cod	Free	124,979	2,798
0303.71.00	Sardines, sardinella, brisling and sprats	1.1¢/kg	25,845	2,737
0303.72.00	Haddock	Free	218	11,240
0303.73.00	Atlantic pollock	Free	22,556	533
0303.74.00	Mackerel	Free	7,188	11,878

See footnotes at end of table.

Table B-9—*Continued*
Fresh or frozen fish: Harmonized Tariff Schedule subheading; description; U.S. column 1 rate of duty as of Jan. 1, 2001; U.S. exports, 2000; U.S. imports 2000

HTS subheading	Description	Column 1 rate of duty as of 1/1/01	U.S. trade in 2000	
		General	Exports	Imports
		Percent or $/kg	— Thousand dollars —	
0303.75.00	Dogfish and other sharks	1.1¢/kg	7,981	631
0303.76.00	Eels	Free	2,516	6,453
0303.77.00	Sea bass	Free	599	6,087
0303.78.00	Whiting and hake	Free	8,125	2,204
0303.79.20	Smelts, cusk, pollock, shad, sturgeon, swordfish and freshwater fish	Free	(3)	62,962
0303.79.40	Other	Free	175,351	120,208
0303.80	Livers and roes:			
0303.80.20	Sturgeon roe	15%	(4)	0
0303.80.40	Other	Free	283,254	5,812
0304	Fish fillets and other fish meat, fresh, chilled or frozen:			
0304.10	Fresh or chilled:			
0304.10.10	Cod, cusk, haddock, pollock, and Atlantic ocean perch	Free	(5)	45,324
0304.10.30	Hake	Free	(5)	348
0304.10.40	Other	Free	21,749	548,853
0304.20	Frozen fillets:			
0304.20.20	Skinned, whether or not divided into pieces, and frozen into blocks each weighing over 4.5 kg	Free	N/A	189,817
0304.20.30	Cod, cusk, haddock, pollock and Atlantic ocean perch	Free	(6)	368,567
0304.20.50	Hake	Free	(6)	4,999
0304.20.60	Other	Free	76,517	679,815

See footnotes at end of table.

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Table B-9—*Continued*
Fresh or frozen fish: Harmonized Tariff Schedule subheading; description; U.S. column 1 rate of duty as of Jan. 1, 2001; U.S. exports, 2000; U.S. imports 2000

HTS subheading	Description	Column 1 rate of duty as of 1/1/01	U.S. trade in 2000	
		General	Exports	Imports
		Percent or $/kg	— Thousand dollars —	
0304.90	Other frozen:			
0304.90.10	In bulk or immediate containers weighing with their contents over 6.8 kg each	Free	([7])	18,615
0304.90.90	Other	6%	326,028	1,928

[1] Included in subheading 0302.69.40.
[2] Included in subheading 0302.70.40.
[3] Included in subheading 0303.79.40.
[4] Included in subheading 0303.80.40.
[5] Included in subheading 0304.10.40.
[6] Included in subheading 0304.20.60.
[7] Included in subheading 0304.90.90.

Source: Harmonized Tariff Schedule of the United States; data compiled from official statistics of the U.S. Department of Commerce.

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Table B-10
Fresh or frozen fish products: Applied MFN tariff rates in selected foreign countries[1]

HTS subheading	Description	European Union	Canada	Japan
		Percent (*ad valorem or ad valorem equivalent*)		
	Fresh whole:			
0302.12	Atlantic and Pacific salmon	2.0	0.0	5.0
0302.21	Halibut and Greenland turbot	8.0-15.0	0.0	5.0
	Frozen whole:			
0303.10	Pacific salmon	2.0	0.0	5.0
0303.50	Herring	0.0-15.0	0.0	10.0
0303.60	Cod	12.0-13.2	0.0	0.5
0303.71	Sardines, sardinella, brisling or sprats	0.0-23.0	0.0	10.0
0303.80	Frozen livers and roes	0.0-10.0	4.0	5.0-10.0
0304.10	Fresh fillets, steaks, and other fish meat	0.0-18.0	0.0	10.0
	Frozen fillets, steaks, and other fish meat:			
0304.20	Fillets	2.0-18.0	0.0	5.0-10.0
0304.90	Steaks and other meat	0.0-15.0	0.0	5.0-10.0

[1] Most Favored Nation rate, applicable to imports from the United States. The MFN policy in the United States is now known as Normal Trading Relations (NTR) status; other nations retain the MFN name. The duty reported for Canada is applicable to MFN countries other than the United States and Mexico, imports from which are duty free under the North American Free Trade Agreement.

Source: *The International Customs Journal*, International Customs Tariffs Bureau.

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Table B-11
Fresh or frozen fish: U.S. production, trade, and apparent consumption, by product form, 1996-2000

Item	1996	1997	1998	1999	2000	Percent change, 1996-00[1]
	Value (*million dollars*)					
Whole or "round" fish:[2]						
Production[3]	1,791	1,722	1,447	1,558	1,595	-11.0
Exports[4]	1,413	1,156	895	1,180	1,281	-9.3
Imports[4]	1,070	1,171	1,175	1,243	1,245	16.4
Apparent consumption[5]	1,448	1,737	1,727	1,621	1,559	7.7
	Percent					
Ratio of--						
Exports to production	79	67	62	76	80	na
Imports to consumption	74	67	68	77	80	na
	Value (*million dollars*)					
Fillets and steaks:						
Production	904	961	961	807	830	-8.2
Exports[6]	407	453	394	455	424	4.3
Imports[6]	1,159	1,300	1,466	1,701	1,858	60.3
Apparent consumption[5]	1,656	1,738	2,034	2,053	2,264	36.7
	Percent					
Ratio of--						
Exports to production	45	47	41	56	51	na
Imports to consumption	70	75	72	83	82	na

[1] Calculated from unrounded data.
[2] "Round" fish may be scaled, beheaded, and/or eviscerated.
[3] U.S. domestic commercial landings.
[4] HTS headings 0302 and 0303.
[5] Apparent consumption = production - exports + imports.
[6] HTS heading 0304.

Source: National Marine Fisheries Service, *Fisheries of the United States*, Current Fisheries Statistics Series No. 9800 (annual; various issues), National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Trade data are compiled from official statistics of the U.S. Department of Commerce.

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Table B-12
Fresh or frozen fish: U.S. imports, by principal source, 1996-2000

Source	1996	1997	1998	1999	2000	Percent change, 1996-00
			Million dollars			
Canada	509.3	585.0	627.8	704.5	715.7	40.5
Chile	240.7	276.5	329.0	331.6	449.0	86.5
China	128.2	137.1	165.4	214.4	280.4	118.7
Iceland	163.8	165.9	171.1	218.6	173.8	6.1
Taiwan	131.7	139.7	171.3	176.0	138.4	5.1
Russia	90.9	86.1	95.1	135.1	86.4	5.0
European Union:						
United Kingdom	15.1	13.4	22.2	50.0	37.2	146.4
Netherlands	20.4	24.0	23.5	21.3	18.6	-8.8
Denmark	11.1	14.6	23.1	19.4	15.8	42.3
Other	40.0	10.3	17.8	18.3	16.2	-59.5
Subtotal EU	86.6	62.3	86.7	109.0	87.8	1.4
Other	877.7	1,018.5	995.1	1,055.5	1,171.9	33.5
Total	2,228.9	2,471.1	2,641.5	2,944.7	3,103.4	39.2
			1,000 metric tons			
Canada	141.3	150.6	166.7	171.6	161.1	14.0
Chile	55.0	61.3	68.2	62.9	84.1	52.9
China	66.7	64.6	80.9	98.0	119.1	78.6
Iceland	38.0	35.3	33.0	38.1	29.8	-21.6
Taiwan	68.9	69.4	100.8	82.3	58.2	-15.5
Russia	50.8	46.0	35.6	42.4	31.8	-37.4
European Union:						
United Kingdom	4.6	3.3	5.1	10.5	8.9	93.5
Netherlands	3.2	3.7	3.1	2.8	2.8	-12.5
Denmark	3.0	3.8	4.8	3.9	3.4	13.3
Other	26.7	2.5	15.8	3.3	3.5	-86.9
Subtotal EU	37.4	13.2	19.2	20.5	18.6	-50.3
Other	265.7	297.4	291.8	273.4	284.9	7.2
Total	723.8	737.8	796.2	789.2	787.6	8.8

Source: Compiled from official statistics of the U.S. Department of Commerce.

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Table B-13
Fresh or frozen fish: U.S. imports, by product, 1996-2000

Product	1996	1997	1998	1999	2000	Percent change, 1996-00
	Million dollars					
Frozen fillets of cod, cusk, haddock, pollock, and Atlantic ocean perch	267.3	292.2	311.1	404.5	368.6	37.9
Fresh whole or round Pacific, Atlantic and Danube salmon	284.4	312.3	294.1	316.4	304.5	7.1
Frozen groundfish blocks	191.0	213.3	248.9	223.3	189.8	-0.6
Frozen whole or round albacore	137.4	136.5	122.5	139.5	127.3	-7.4
Fresh whole or round halibut and Greenland turbot	29.7	32.7	36.7	52.5	51.7	74.1
Fresh fillets and steaks of cod, cusk, haddock, pollock, and Atlantic ocean perch	38.0	40.8	42.5	46.7	45.3	19.2
Frozen whole or round yellowfin tuna	32.1	22.1	44.1	24.9	18.7	-41.7
Other	1,249.0	1,421.2	1,541.6	1,736.9	1,997.5	59.9
Total	2,228.9	2,471.1	2,641.5	2,944.7	3,103.4	39.2
	Thousand metric tons					
Frozen fillets of cod, cusk, haddock, pollock, and Atlantic ocean perch	71.6	71.4	76.2	92.0	92.0	28.5
Fresh whole or round Pacific, Atlantic and Danube salmon	59.2	61.5	61.6	62.3	61.0	3.0
Frozen groundfish blocks	94.7	97.7	93.3	84.7	81.3	-14.1
Frozen whole or round albacore	57.6	55.9	54.4	63.3	51.0	-11.5
Fresh whole or round halibut and Greenland turbot	4.2	4.7	6.8	7.6	6.5	54.8
Fresh fillets & steaks of cod, cusk, haddock, pollock, and Atlantic ocean perch	7.7	8.1	7.6	7.9	7.6	1.3
Frozen whole or round yellowfin tuna	21.5	12.0	28.0	9.4	3.3	-84.7
Other	407.3	426.5	468.3	462.0	484.9	19.1
Total	723.8	737.8	796.2	789.2	787.6	8.8

Source: Compiled from official statistics of the U.S. Department of Commerce.

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Table B-14
Fresh or frozen fish: Asian production, trade, and consumption, 1996-99

Year	Production	Exports[1]	Imports[1]	Apparent consumption[2]	Exports/ production	Imports/ consumption
	Thousand metric tons				*Percent*	
1996	9,801	3,506	4,723	11,018	36	43
1997	9,695	3,858	4,752	10,589	40	45
1998	9,760	4,132	4,591	10,219	42	45
1999	9,496	4,043	5,352	10,806	43	50
Percent change, 1996-99	-3.1	15.3	13.3	-1.9	na	na

[1] Includes intraregional trade.
[2] Apparent consumption = production - exports + imports.

Source: Food and Agriculture Organization of the United Nations.

Table B-15
Fresh or frozen fish: European production, trade, and consumption, 1996-99

Year	Production	Exports[1]	Imports[1]	Apparent consumption[2]	Exports/ production	Imports/ consumption
	Thousand metric tons				*Percent*	
1996	6,048	6,517	5,180	4,711	108	110
1997	6,116	6,829	5,541	4,828	112	115
1998	5,860	6,481	5,918	5,297	111	112
1999	6,441	6,713	5,856	5,584	104	105
Percent change, 1996-99	6.5	3.0	13.0	18.5	na	na

[1] Includes intraregional trade. One possible explanation for the excess of exports over production is that the data do not account for re-exports, thus overstating both exports and imports.
[2] Apparent consumption = production - exports + imports.

Source: Food and Agriculture Organization of the United Nations.

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Table B-16
Fresh or frozen fish: U.S. exports, by product, 1996-2000

Product	1996	1997	1998	1999	2000	Percent change, 1996-00
	Million dollars					
Frozen Alaska pollock surimi	217.7	204.7	167.2	216.1	255.3	17.3
Frozen Alaska pollock roe	154.6	162.4	84.6	109.5	157.4	1.8
Frozen whole sockeye salmon	310.3	183.0	116.4	189.1	145.9	-53.0
Frozen salmon roe	55.6	35.3	25.8	43.0	67.5	21.4
Frozen whole chum salmon	25.9	26.4	17.1	37.6	49.8	92.3
Frozen whole coho salmon	26.5	13.1	19.8	31.6	34.3	29.4
Frozen surimi (except Alaska pollock)	50.4	124.8	80.4	83.0	24.6	-51.2
Frozen cod fillets	20.8	13.9	32.3	36.3	22.6	8.7
Frozen whole herring	41.2	43.0	29.1	29.7	19.8	-51.9
Frozen herring roe	34.0	13.0	11.6	28.8	18.9	-44.4
Other	882.5	789.5	704.4	829.7	909.0	3.0
Total	1,819.5	1,609.1	1,288.7	1,634.4	1,705.1	–6.3
	Thousand metric tons					
Frozen Alaska pollock surimi	101.5	87.8	77.2	85.1	132.8	30.8
Frozen Alaska pollock roe	13.3	16.9	12.1	11.2	12.8	-3.8
Frozen whole sockeye salmon	70.2	45.6	23.6	37.6	32.9	-53.1
Frozen salmon roe	7.9	4.6	4.1	4.4	5.3	-32.9
Frozen whole chum salmon	11.1	10.5	7.1	12.8	18.5	66.7
Frozen whole coho salmon	7.7	3.6	5.1	7.9	7.0	-9.1
Frozen surimi (except Alaska pollock)	27.0	52.3	38.1	39.1	14.7	-45.6
Frozen cod fillets	8.4	5.6	15.1	13.0	7.8	-7.1
Frozen whole herring	23.0	35.3	21.1	19.5	14.2	-38.3
Frozen herring roe	10.1	7.4	4.7	5.7	9.3	-7.9
Other	408.5	387.7	350.6	375.2	412.4	1.0
Total	688.7	657.2	558.7	611.5	667.7	–3.0

Source: Compiled from official statistics of the U.S. Department of Commerce.

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Table B-17
Fresh or frozen fish: U.S. exports, by principal market, 1996-2000

Source	1996	1997	1998	1999	2000	Percent change, 1996-00
			Million dollars			
Japan	1,223.3	1,025.3	684.3	899.1	897.5	-26.6
Canada	198.0	170.1	187.6	235.3	253.1	27.8
European Union:						
France	52.1	57.2	47.1	42.6	39.4	-24.4
Germany	20.4	16.2	36.9	17.8	36.2	77.5
Spain	21.6	20.0	28.0	25.1	27.2	25.9
United Kingdom	8.8	10.6	13.3	14.5	14.9	69.3
Other	44.4	33.1	44.0	74.5	53.2	19.8
Subtotal EU	147.3	137.1	169.3	174.5	170.9	16.0
Korea	124.0	109.2	87.6	169.0	187.0	50.8
China	32.1	69.1	49.4	43.2	66.7	107.8
Taiwan	28.8	24.4	17.9	25.0	22.9	-20.5
Norway	6.3	9.7	22.3	16.1	22.3	254.0
Other	59.7	64.2	70.3	72.2	107.6	80.2
Total	1,819.5	1,609.1	1,288.7	1,634.4	1,705.1	-6.3
			Thousand metric tons			
Japan	401.7	360.0	261.4	285.3	301.2	-25.0
Canada	72.8	60.2	63.6	73.1	82.3	13.0
European Union:						
France	19.4	22.1	4.3	14.6	15.8	-18.6
Germany	6.1	5.5	14.5	5.9	15.2	149.2
Spain	8.5	6.9	11.5	10.4	11.9	40.0
United Kingdom	4.4	3.8	4.4	4.0	4.3	-2.3
Other	16.7	12.7	34.5	30.1	19.7	18.0
Subtotal EU	55.1	51.0	69.2	65.0	66.9	21.4
Korea	79.7	56.7	44.9	80.3	94.7	18.8
China	25.3	78.8	51.2	29.5	42.3	67.2
Taiwan	6.5	5.7	7.3	6.9	5.1	-21.5
Norway	3.5	5.9	11.2	6.7	9.4	168.6
Other	44.1	38.9	49.9	64.7	65.8	49.2
Total	688.7	657.2	558.7	611.5	667.7	–3.0

Source: Compiled from official statistics of the U.S. Department of Commerce.

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Table B-19
Fresh or frozen fish: U.S. export performance for selected products, 1996-99

Item	Market	U.S. exports		U.S. share (percent) of foreign import market[1]		U.S. export gain (loss) from rise (fall) in market share[1]	
		1996	1999	1996	1999	Value	As a share of 1999 exports
		1,000 dollars		*—Percent—*		*1,000 dollars*	*--Percent--*
0302.12; Fresh or chilled	World	62,773	70,849	4.1	4.0	-2,356	-3.3
Pacific, Atlantic, and Danube	Canada . . .	47,872	49,441	95.4	87.2	-4,649	-9.4
salmon, whole or dressed	Japan	12,460	16,582	8.4	11.1	3,951	23.8
0303.10; Frozen Pacific	World	396,574	293,896	46.1	39.6	-48,194	-16.4
salmon, whole or dressed	Japan	329,714	213,712	43.4	33.5	-62,994	-29.5
	Canada . . .	21,746	23,611	94.9	93.2	-419	-1.8
0303.60; Frozen cod,	World	71,000	99,897	24.1	22.8	-5,646	-6.0
whole or dressed	Norway . . .	3,718	9,616	7.5	7.2	-523	-5.4
	Portugal . .	891	19,429	1.4	17.9	17,963	92.5
0303.79; Frozen fish,	World	182,571	173,425	6.7	6.6	-3,184	-1.8
n.e.s.i., whole or dressed	Japan	133,681	99,596	14.3	13.1	-8,726	-8.8
	Korea	9,453	36,105	4.5	9.6	19,358	53.6
0303.80; Frozen fish livers	World	259,404	208,479	31.1	27.4	-27,512	-13.2
and roes	Japan	225,134	179,702	40.9	33.1	-42,223	-23.5
	Korea	11,454	12,559	9.4	8.7	-1,135	-9.0
0304.10; Fresh fish fillets	World	14,630	18,934	2.0	2.3	2,547	13.5
	EU-15	3,017	4,398	0.6	0.7	815	18.5
0304.20; Frozen fish fillets	World	68,357	84,241	1.9	2.1	9,344	11.1
	Japan	23,376	28,386	4.0	4.4	2,592	9.1
	Canada . . .	12,526	22,723	15.5	20.9	5,835	25.7
0304.90; Frozen fish meat,	World	323,780	351,537	29.3	34.9	56,349	16.0
except fillets and steaks	Japan	251,489	224,629	38.0	35.6	15,051	6.7
	Korea	33,975	85,320	33.6	88.3	52,825	61.9

[1] Calculated from unrounded data. "World" imports exclude U.S. imports.
[2] Less than 0.5 percent.

Source: Derived by Commission staff from official statistics of the U.S. Department of Commerce and the Food and Agriculture Organization of the United Nations.

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