

Integrated through Free Trade: A Case Study of the U.S. and Canadian Lobster Industries

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**Amelia Shister, John Fry,
and Alexander Melton**

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Abstract

This paper is the first in a series of papers focused on the North American industry catching, processing and trading American lobster. In this paper, the authors describe the competitiveness of the U.S. and Canadian industries, emphasizing their similarities, differences, and finally how they complement each other through free trade across a common border. The interconnectivity of the U.S. and Canadian industries, enhanced by their free trade status, creates a unique scenario for both countries to develop competitive advantages. This paper contributes to the literature by analyzing how free trade enables both countries to succeed in this distinctive competitiveness situation.

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Introduction

Since the establishment of the North American Free Trade Agreement (NAFTA) and the more recent U.S.-Mexico-Canada Trade Agreement (USMCA), there has been disagreement about the impact of free trade agreements on the U.S. economy. Some experts believe that these trade agreements, and duty-free treatment more broadly, have a positive impact. Arguments in favor of free trade note it promotes efficiencies through comparative advantages, encourages innovation, provides consumers with more choices at lower prices, and increases overall economic welfare. Trade liberalization, some argue, also promotes the trade of ideas and values as the trade partners become more integrated.¹ Other voices note that free trade has negative impacts on the United States, citing uneven distribution of benefits and job losses.² One common element of free trade is zero or reduced duties. Analysis of the U.S. and Canadian lobster industries provides a noteworthy case study on how the duty-free treatment resulting from trade agreements has impacted the competitiveness of each country's industry, both positively and negatively. Furthermore, the integration resulting from decades of duty-free treatment for lobster products creates a distinctive environment that enables both countries to develop competitive advantages and use a North American platform to establish global competitiveness.

In value terms, lobster is one of the most important products in international seafood trade. While several types of lobster are traded, a single species—the cold water lobster *Homarus americanus* (commonly referred to as “American lobster”)—accounts for most global trade. In 2020, \$2.02 billion of *Homarus americanus* was exported from the only two countries where it is harvested, the United States (\$459.2 million) and Canada (\$1.57 billion).³ Much of the global lobster trade is in live animals, an unusual practice in seafood trade. Live lobster prices are largely determined by (1) shell type, with new shell lobster priced less per pound than hard shell, and (2) size, with 3- to 4-pound lobsters priced more per pound than 1- to 1¼-pound lobsters.

American lobsters are harvested off the Northeast coast of North America, primarily in the waters off Massachusetts, New Hampshire, Maine, Nova Scotia, New Brunswick, Prince Edward Island, and Quebec. The lobster fishery overlaps a common U.S.-Canadian sea border. Harvesting the same

¹ See generally: Debating Europe, “Arguments For and Against Free Trade,” accessed October 1, 2021; Scudder, “Do Free Trade Agreements Encourage Economic Development in the U.S.?” *National Customs Brokers & Forwarders Association of America, Inc.* (blog), accessed October 1, 2021; Walker, “Is Free Trade Good or Bad?,” January 18, 2017, sec. Business; Boudreaux and Ghei, “The Benefits of Free Trade,” 2017; Lincicome, “The Case for Free Trade,” May 2, 2019; Perry, “The Case for Free Trade and the Case against Protectionism, Redux,” *American Enterprise Institute - AEI* (blog), May 4, 2019.

² See generally: Debating Europe, “Arguments For and Against Free Trade,” accessed October 1, 2021; Gomory, “Why Americans Are Right to Rethink Free Trade,” August 14, 2017; Walker, “Is Free Trade Good or Bad?,” January 18, 2017, sec. Business; Nader, *The Case Against Free Trade*; Blinder, “The Free-Trade Paradox,” January 29, 2019; Bello, “Why Free Trade Is Bad for You (or Most of You at Any Rate),” *Foreign Policy In Focus* (blog), March 11, 2019.

³ Throughout the paper, “dollars” refers to U.S. dollars. USITC DataWeb/Census, HS numbers 0306.12, 0306.22, 0306.32, 0306.92, and 1605.30, accessed September 16, 2020; IHS Markit, Global Trade Atlas, HS 0306.11, 0306.12, 0306.15, 0306.22, 0306.32, 0306.34, 0306.91, 0306.92, 0306.94, 1605.30, accessed May 21, 2021. These data refer to articles whose description includes “lobster” in the Harmonized Commodity Description and Coding System (HS) of tariffs maintained by the World Customs Organization. American, European, and Norwegian lobster are members of the family *Nephropidae*, while spiny or rock lobster is not. Both species of *Homarus* are classified together; however, there is no known harvesting or processing of European lobster in the United States or Canada.

population of American lobster, the U.S. and Canadian industries share many similarities and are highly integrated. In both countries, harvesting is primarily done by owner-operated boats using baited traps to catch lobsters from the ocean floor. Harvesters typically sell their catch when they return to shore, the first of several steps in the supply chain before the product reaches consumers. Most importantly, both industries target a large, wealthy, local customer base -- U.S. consumers. Canadians also eat lobster in large quantities, but their relatively small population, approximately 11 percent that of the United States, limits total consumption. Internationally, both industries target two major markets: China and Europe.

This paper will introduce the U.S. and Canadian lobster industries, describing the structure and operations in both countries. It will first discuss fishing operations, including catch levels and factors limiting production. Next, the paper will describe the supply chains, channels of distribution, and pricing, emphasizing how these industries overlap. Finally, this paper will analyze the factors affecting competitiveness of both industries individually and of the North American platform as a whole.

U.S. and Canadian Catch Levels and Limits

Landings of Live Lobster

The United States' American lobster fishery is the most valuable fishery in the country. In 2019, the latest year for which data are available for both countries, 127 million pounds of lobster were landed in the United States, valued at approximately \$637 million "ex-vessel"—i.e., at point of landing (table 1). Landings in 2019 decreased 14 percent by weight but increased 1 percent by value from the year before. This increase is part of a trend of long-term growth in the U.S. American lobster catch dating back to the mid-1970s, despite a slight decrease in 2019 and 2020.⁴ Canada, however, is the larger producer, with landings totaling 229 million pounds in 2019, or 64 percent of combined U.S.-Canadian lobster landings by live weight.⁵

In the United States, Maine and Massachusetts account for about 94 percent of lobster landings. Maine lobster fishers typically land more than 80 percent of the U.S. lobster catch (roughly 81 percent in 2020). Massachusetts ranks second, responsible for about 13 percent of the U.S. lobster harvest in 2018. The other U.S. Atlantic coastal states landed the remaining 6 percent.⁶ The data show that U.S. lobster landings are highly seasonal, with most landings—roughly 82 percent in 2015–19—occurring between July and November. Monthly landing data are not available for Canada, but most of the Canadian catch

⁴ Between 1950 and 1975, landings averaged about 30 million pounds. From 1976 to 2008 the average coastwide landings tripled, reaching 92 million pounds in 2006. Since then, landings have continued to increase, reaching 117 million pounds in 2010 and peaking at 159 million pounds in 2016. ASMFC, "American Lobster," accessed November 17, 2020.

⁵ Government of Canada, "2018 Volume of Atlantic Landings," March 3, 2020.

⁶ NOAA Fisheries, "Commercial Fisheries Landings," August 22, 2019.

does not overlap with the July–November peak in the United States due to regulations on fishing seasons.⁷

Table 1 Annual US and Canadian lobster landings and value, 2015–20

	2015	2016	2017	2018	2019	2020 ^a
Landings	Pounds (millions)					
United States	147.0	159.4	137.0	147.9	127.2	118.7
Canada	200.3	199.8	214.8	214.7	229.1	(^a)
Total US/Canada	347.1	359.0	351.8	362.7	356.3	N/A
	USD (millions)					
United States	622.1	670.4	567.4	631.6	636.5	519.7
Canada	922.4	978.1	1,126.0	1,095.3	1203.2	(^a)
Total US/Canada	1,542.5	1,647.7	1,693.4	1,727.2	1839.8	N/A

Source: NOAA Fisheries, “Commercial Fisheries Landings,” August 22, 2019; and Government of Canada, Department of Fisheries and Oceans, Statistics Program (accessed June 9, 2020).

^a Landing data for Canada is not available in 2020.

Limits on Lobster Fishing

In both Canada and the United States, the lobster fisheries are managed by “input control.” This means that lobster fishers’ behavior is regulated via rules such as short harvest seasons, a limited number of licenses, and a limited number of lobster traps per license (Canada), or by trap limits per license plus geographic restrictions set at the state level (United States). One of the biggest regulatory differences between the two countries is that U.S. commercial lobster fishing is permitted year-round (though typically is concentrated in summer months), while Canada has seasonal restrictions.⁸ Unlike many other fisheries, lobster volumes harvested (“output”) are not typically controlled through catch quotas.⁹

Canada

The federal Canadian agency, Fisheries and Oceans Canada, works with the domestic lobster fishing industry to develop plans for each of the 45 Lobster Fishing Areas (LFAs) (figure 1). In each LFA, a limited number of licenses are issued, with further limits on the number of traps per license. Each LFA is also time restricted, with nearly all lobster fishing prohibited between July and the end of September to protect summer molts.¹⁰ The vast majority of lobster landings are “inshore” (less than three miles from shore) as opposed to offshore.¹¹ Canada also strictly regulates lobster fishing more than three miles from

⁷ The Canadian lobster fishing areas in the southern gulf of St. Lawrence (LFA 23, LFA 24, LFA 26A, and LFA 26B) opened for harvesting on May 15 and closed June 30, 2020. The fishery in LFA 25 opened August 9 and closed on October 10, 2020. Each year, an LFA season is subject to ice and weather conditions. Government of Canada, “2020 - Southern Gulf of St. Lawrence Lobster Fishery Conservation Harvesting Plan (CHP) for Lobster Fishing Areas (LFAs) 23, 24, 25, 26A and 26B,” May 7, 2020.

⁸ As noted, Canada’s offshore lobster fishery—Licensed Fishing Area 41 (LFA 41)—operates year-round, but it has a total allowable catch of only 720 metric tons and is the only LFA with a catch limit.

⁹ Canada’s single offshore lobster fishery—Lobster Fishing Area (LFA) 41—operates year-round, but it has a total allowable catch of only 720 metric tons and is the only LFA with a catch limit. USITC, hearing transcript, October 1, 2020, 50 (testimony of Geoff Irvine, Lobster Council of Canada).

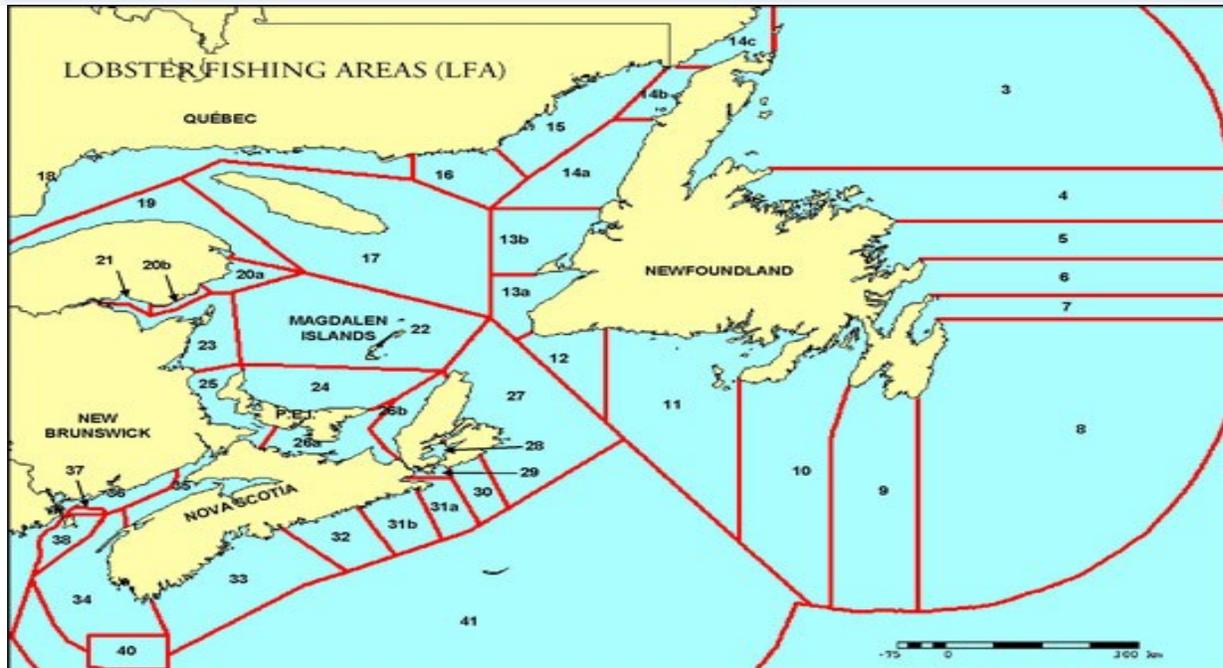
¹⁰ Molting is a biological process that involves the lobster shedding its shell to allow for further growth. After the old shell is shed, a new shell grows and begins to harden over time. The process repeats over the lifespan of the lobster as it grows.

¹¹ USITC, hearing transcript, October 1, 2020, 137 (testimony of Geoff Irvine, Lobster Council of Canada).

shore, and the permitted catch offshore (that is, in LFA 41) is quite small—720 metric tons.¹² All Canadian LFAs:

- protect egg-bearing females;
- set minimum lobster size limits;
- restrict fishing of lobsters over maximum size limits to protect large lobsters, which proportionally produce more eggs; and
- require trap designs that allow undersized lobsters to escape.¹³

Figure 1 Map of Canadian lobster fishing areas



Source: Fisheries and Oceans Canada, “Lobster” (accessed December 4, 2020).

United States

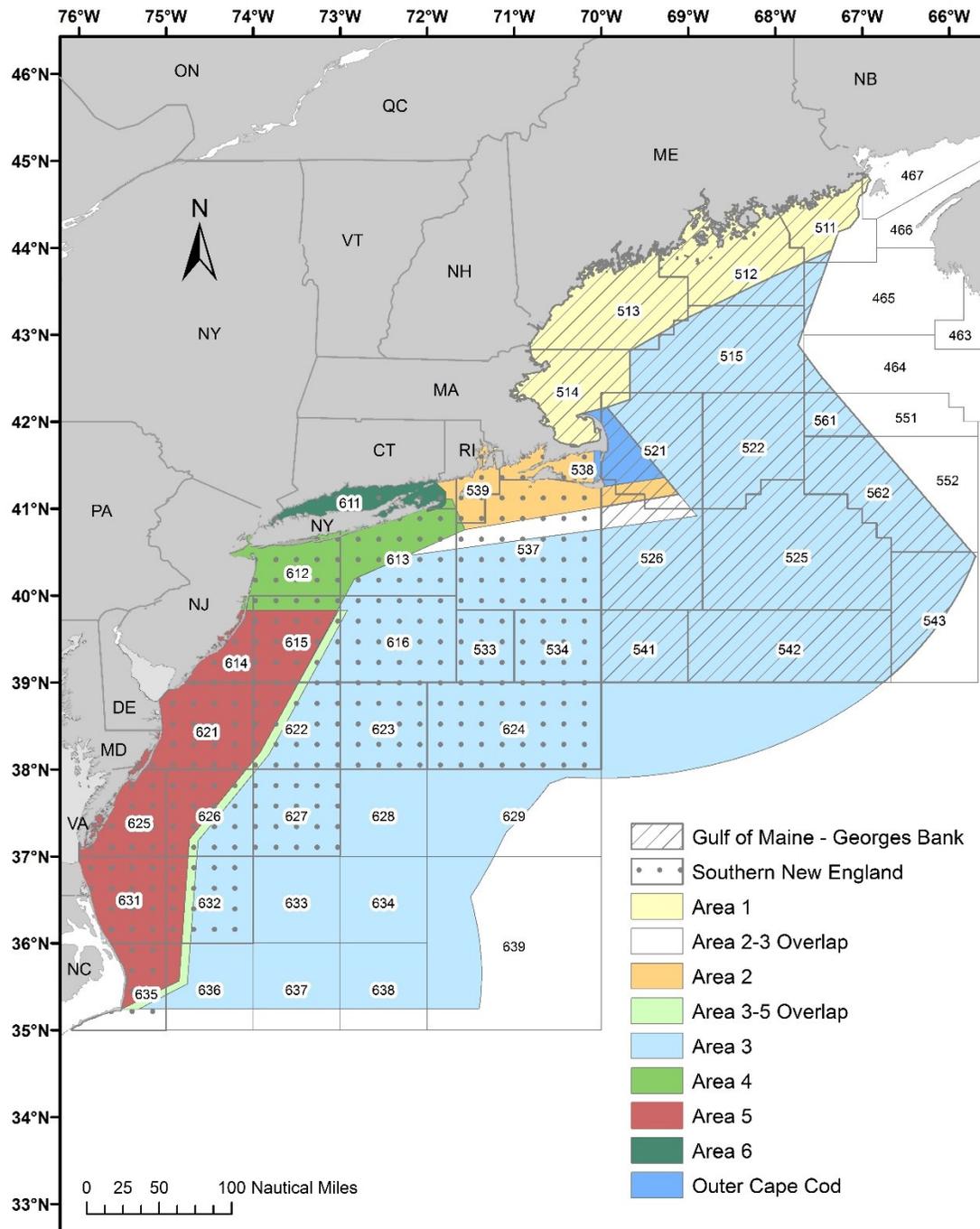
In the United States, the American lobster fishery runs from Maine to Cape Hatteras, North Carolina. The fishery is cooperatively managed by the states through an interstate compact called the Atlantic States Marine Fisheries Commission. This commission works with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NOAA Fisheries), an office of the National Oceanic and Atmospheric Administration (NOAA). Under the Atlantic States Marine Fisheries Commission, there are seven Lobster Conservation Management Areas—Areas 1 through 6 and the Outer Cape Cod Area (figure 2). Area 1, the most productive, includes Maine, New Hampshire, and Massachusetts.¹⁴

¹² USITC, hearing transcript, October 1, 2020, 50 (testimony of Geoff Irvine, Lobster Council of Canada).

¹³ Lobster Council of Canada, “Sustainability,” accessed November 16, 2020. The offshore lobster fishery in Area 41 has many of the same conservation measures in place as other LFAs, as well as an annual limit on the number of lobsters that may be caught, referred to as total allowable catch.

¹⁴ NOAA Fisheries, “American Lobster,” November 3, 2020.

Figure 2 Map of U.S. lobster fishing areas



Source: NOAA Fisheries, Lobster Management Areas, accessed November 10, 2020.

States such as Maine and Massachusetts have jurisdiction for implementing measures in state waters (known as “inshore,” within 3 miles of shore), while NOAA Fisheries implements complementary regulations for the American lobster fishery in offshore federal waters (3 to 200 miles from shore). Of Maine’s roughly 4,500 lobster fishers who hold in-shore harvesting licenses, 1,000 also hold federal

permits to fish offshore.¹⁵ Massachusetts sets aside 3,071 square miles in Cape Cod Bay for three months each year to protect the feeding grounds for right whales.¹⁶ According to Maine and Massachusetts industry representatives, current licensing limits and fishing area restrictions properly conserve the fishery for future generations.¹⁷

Like the LFAs in Canada, each U.S. area has regulations controlling the inputs for lobster fishing (such as equipment) but not the volume of the output harvested. In the words of NOAA Fisheries, these regulations include:

- Limits on the minimum and maximum size of lobster than can be harvested;
- Trap limits control to fishing efforts;¹⁸
- Measures to protect egg-bearing females;
- Prohibitions on possession of lobster meat and lobster parts;
- Gear restrictions, trap configuration requirements, and prohibition on using spears to fish for lobsters;
- Restrictions on the amount of lobsters that can be harvested with non-trap gear.¹⁹

Limited Overlap between the U.S. and Canadian Catch Seasons

Although the same American lobster species is harvested on both sides of the U.S.-Canada border, Canada's lobster industry focuses on catching hard shell lobsters, while the U.S. industry catches more new shell lobsters. Canada achieves this goal by restricting lobster harvest seasons in its LFAs to between two and eight months, with the timing and length determined each year by biological, economic, and climatic factors. The seasons in all but one LFA (LFA 25) are timed to avoid the molting and growth periods, which results in lobster fishing being generally prohibited in Canada between July and the end of September. As a result, more hard-shell lobsters and jumbo lobsters are found in Canada's catch for export markets.²⁰

While lobster fishing in the United States is permitted year-round, catches typically coincide with the high season for tourists in the U.S. Northeast, yielding a harvest peak from roughly July to October. This results in more new shell lobsters in the U.S. catch. Regulatory differences in how the respective lobster

¹⁵ USITC, hearing transcript, October 1, 2020, 132 (testimony of Annie Tselikis, Maine Lobster Dealers Association). By comparison, Massachusetts has a far smaller fleet, with about 1,100 inshore harvester licenses and nearly 300 offshore licenses. Commonwealth of Massachusetts. Division of Marine Fisheries, *2019 Annual Report*, October 14, 2020.

¹⁶ USITC, hearing transcript, October 1, 2020, 123 (testimony of Annie Tselikis, Maine Lobster Dealers Association). The issue of right whale habitat and the sustainability certification of the U.S. lobster fisheries is discussed in greater detail below under "Factors Affecting Competitiveness."

¹⁷ USITC, hearing transcript, October 1, 2020, 72 (testimony of Annie Tselikis, Maine Lobster Dealers Association); USITC, hearing transcript, October 1, 2020, 107 (testimony of Beth Casoni, Massachusetts Lobstermen's Association).

¹⁸ According to NOAA Fisheries, a series of annual trap reductions are underway in Lobster Management Areas 2 and 3 to reduce the Southern New England lobster fishery to the size of the available lobster stock.

¹⁹ NOAA Fisheries, "American Lobster," November 3, 2020.

²⁰ USITC, hearing transcript, October 1, 2020, 50 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

fisheries are managed creates at least some differentiation in the two countries' product mix. During the peak U.S. harvest season, lobster supply greatly exceeds demand, causing cyclical prices to decline to an annual low point. These low prices make it attractive for Canadian processors to import lobsters from Maine, which explains in large measure why a majority of U.S. landings are exported to Canada for processing.²¹

U.S. and Canadian Supply Chains and Channels of Distribution

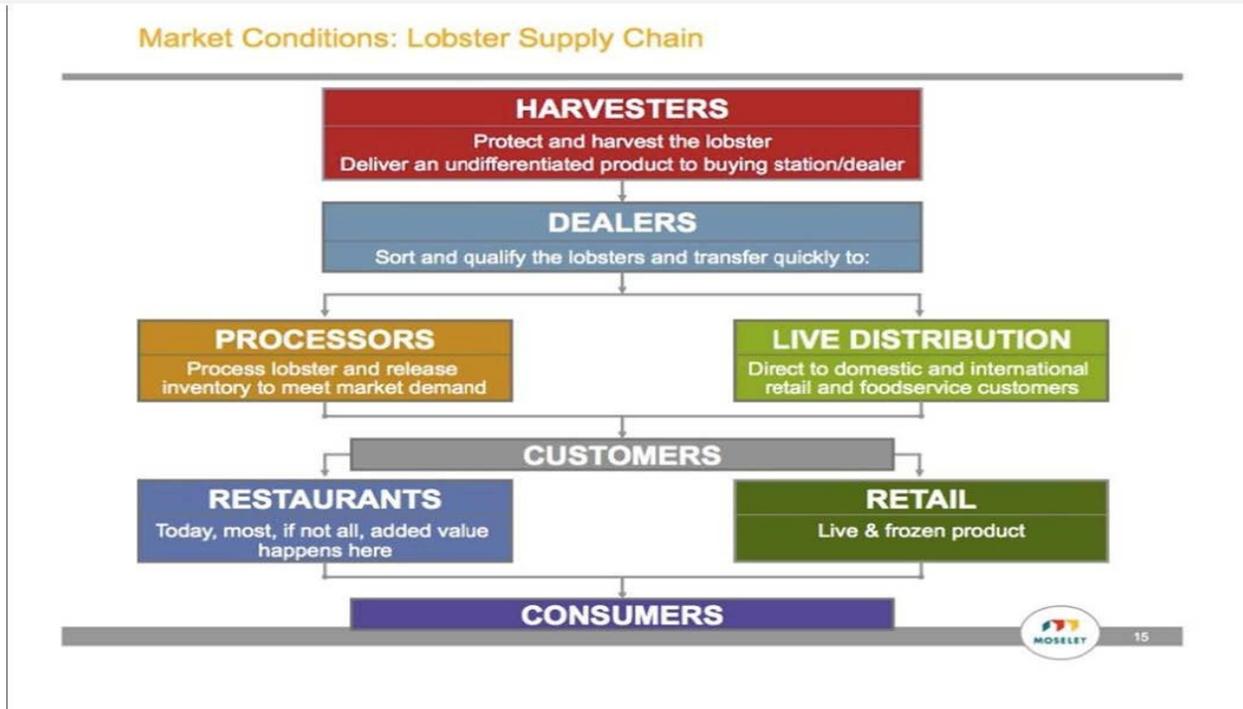
The U.S. and Canadian lobster industries share similar supply chains from ocean to table. Once harvested, lobsters are sorted and moved through multiple arm's-length transactions, with the lobsters either live or having undergone one or more stages of processing. Processing often involves cross-border shipment between the United States and Canada. End-use consumers purchase lobsters or lobster parts at several points along the supply chain, including live distribution, restaurants, and retail.

Maine's lobster industry produces 80–85 percent of the American lobsters sold in the United States, depending on the year, and Massachusetts produces another 10–12 percent. The Maritimes region of Canada (Nova Scotia, New Brunswick, and Prince Edward Island) is the single largest lobster harvesting region in Canada: over 90 percent of Canadian lobsters are landed there. In both countries, the wholesale distribution supply chains moving lobsters out of these states and provinces are mostly invisible to the consumer. They include dockside buyers—dealers making the initial purchase from harvesters at the wharf—as well as other dealers and distributors moving lobsters closer to final consumers.²² To illustrate the scale of the industry in Maine, there were 305 licensed lobster dealers in Maine in 2017. Whether they are wholesalers, retailers, or processors, dealers in the United States are required to hold one or more licenses, normally granted by the state (e.g., Maine or Massachusetts). The lobster supply chain, presented in figure 3, stretches from harvesters through dealers and processors to retail customers.

²¹ Industry representative, interview by USITC staff, September 9, 2020.

²² In industry parlance, handlers at any stage of distribution can be and often are referred to as “dealers,” whether they are dockside buyers, live wholesalers and distributors, or processors.

Figure 3 Supply chain for U.S. and Canadian lobsters



Source: Mosely Group, cited in Tselikis and McCarron, *Trade Adjustment Assistance Lobster Market Overview*, 2009, 24.

Harvesters

Harvesters are the first step in both the U.S. and Canadian lobster supply chains. The term “harvester” refers to the fishers who catch the lobsters in fisheries and sell in bulk at the wharf to dockside buyers, who come either from privately held companies or from co-operatives owned by the harvesters. In the United States and Canada, licensing and permitting for commercial lobster fishing are required at the federal and state or provincial levels, depending on the fishing area. These licenses and permits grant fishing access to a specified zone or area.²³ The Maine lobster industry employs approximately 9,000 harvesters and in Massachusetts, harvesting employs about 2,200 workers.²⁴ Canada has 9,000 lobster fishing license holders and employs an estimated 30,000 people harvesting, distributing, and processing lobsters.²⁵ Because Canada’s harvest seasons are strictly controlled and the U.S. states permit year-

²³ Gulf of Maine Research Institute, *Understanding Opportunities and Barriers*, 2014, 23.

²⁴ Barker, “Commentary: Lobstering Restrictions,” August 11, 2020. Maine has roughly 4,500 state-licensed lobster fishers. Each licensed lobster fisher typically employs one sternman, who sets and hauls out the lobster traps. Some license holders fish alone, and others have two sternmen, but these scenarios are not as common. Assuming an average of one sternman per boat, the estimated harvesting employment in Maine is approximately 9,000. Using the same methodology as for Maine, with approximately 1,100 harvester licenses in Massachusetts, harvesting employment in the Commonwealth is about 2,200 on the water.

²⁵ Industry representative, interview by USITC staff, September 9, 2020; Lobster Council of Canada, prehearing submission to USITC, September 28, 2020, 2. Note that detailed methodologies for the estimates of U.S. and Canadian employment were not available, but likely differ. Since different methodologies can produce different results, comparisons between the two countries’ employment estimates should be made with caution.

round lobster fishing, the number of licenses in each country cannot be used as a proxy for comparing lobster harvesting capacity between them.

Wholesale Distribution

After purchasing the undifferentiated product from the harvesters, dealers sort and grade the lobsters for further sale based on product quality and the logistics of delivery to buyers. These dealers typically sell to the processing channel through primary processors or the live market channel, with limited direct sales to consumers or restaurants.²⁶

Live Dealers and Live Distribution

Within the wholesale distribution network, higher-quality lobsters are often sold into the live market. These lobsters are typically hard shell, which have higher meat yields and can survive the longer periods required to transport them to most export markets. The per-pound value of these live lobsters is significantly higher than that of lobsters channeled into the processing market. Live lobster dealers often work with distributors or foreign purchasers to get the live product to foreign markets and domestic retail customers. As with dockside buyers and harvesters, live dealers also occasionally sell directly to consumers.²⁷ In some cases, dealers will place live lobsters in a tidal pound or a land-based storage facility to smooth year-round supply or await a rise in prices.²⁸

Lobster Processing Sector and Processing Market Distribution

Lower-quality lobsters within the wholesale channels are usually sold into the processing market channel. Processing, where Canada has a capacity advantage over the United States, comes in at two different stages of the supply chain. Primary processors produce whole frozen lobsters, lobster tails, and other lobster parts that are then sold for further processing to distributors, or directly to wholesale customers such as grocery stores or large restaurants. Value-added processors purchase product from primary processors and conduct further processing, such as cooking, removing tails, or extracting meat and freezing or packaging in dry ice. These processors often move product to distributors for sale to restaurants, grocery chains, cruise ships, and food manufacturers.²⁹

Canada's lobster processing capacity is the result of investments in facilities and infrastructure made as far back as the 1980s.³⁰ The emphasis on processing reflects how Canada's fisheries are managed—that is, short, highly productive seasons generate spikes in supply greater than can be sold live, encouraging

²⁶ Gulf of Maine Research Institute, *Understanding Opportunities and Barriers*, 2014, 24.

²⁷ Gulf of Maine Research Institute, *Understanding Opportunities and Barriers*, 2014, 25.

²⁸ Woods Harbour Lobster Co, "Our Facilities," accessed November 16, 2020.

²⁹ Gulf of Maine Research Institute, *Understanding Opportunities and Barriers*, 2014, 26. Reportedly one restaurant chain, Red Lobster, and two cruise ship lines, Carnival and Norwegian, combined, bought about 25–33 percent of Maine's lobster catch before the COVID-19 epidemic. Industry representative, interview by USITC staff, August 28, 2020.

³⁰ Lobster Institute, *Economic Brochure and Report*, 2004.

the handling and marketing lobsters beyond sales of live product.³¹ The U.S. processing sector has historically been limited by regulatory restrictions in Maine and Massachusetts, discussed in more detail below. Now that those restrictions have eased, the absence of significant federal or state economic development funds like those offered in Canada is seen as hindering the growth and development of the U.S. lobster processors.³²

Canadian Processing Sector

The Canadian processing sector is made up of about 35 companies owning, in some cases, multiple processing plants. The processors are located in towns that line the Gulf of St. Lawrence, with operations throughout the four Atlantic Canada provinces (New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador) and in Quebec. The live shipping sector, comprising approximately 50 companies, is found primarily in Nova Scotia, with operations within reach of airports in Halifax and New England.³³

In 2011, according to the latest data available from the Canadian government, 240 licensed lobster processing plants were located in the Canadian provinces of Nova Scotia (180), New Brunswick (41) and Prince Edward Island (19).³⁴ In 2015, there were about 18 buyers and/or processors of lobster in Quebec, which lands about 6 percent of Canadian lobsters annually. These 18 buyers/producers employed 1,500 persons, of whom about 190 did lobster processing or handling work. Since 2008, the percentage of total lobster sales in Canada represented by processed lobster (as opposed to live) has increased significantly. In fact, it grew from a mere 8.3 percent of sales from plants on the Gaspé Peninsula (the lobster harvest area in Quebec) in 2007 to just over 60 percent of lobster sales from those plants in 2015.³⁵ Canadian lobster processors rely on temporary foreign workers to make up staffing gaps; in some Canadian plants, temporary foreign workers currently make up more than half of the workforce. As a result, training and visa requirements for temporary foreign workers are large costs for processors, who must also face the continual risk of changes to Canada's immigration policies.³⁶

U.S. Processing Sector

At the end of 2018, 15 lobster processors were operating in Maine. Six of those, including Maine Fair Trade in Prospect Harbor and Shucks Maine Lobster in Richmond, are considered large-volume processors at 6–8 million lbs. of live lobsters processed per year. The largest of Maine's lobster processors are reportedly smaller than some competitors on the Canadian side of the border, although U.S. and Canadian plants often process multiple species of seafood and precise data are unavailable. The lack of skilled labor generally prohibits expansion in the United States and Canada, because both speed and skill are needed to extract the full volume of meat from each lobster.³⁷ Until mid-2019, Massachusetts laws prohibited lobster fishers and vendors from selling, processing, or transporting

³¹ Government of Canada, "Government of Canada and Province of New Brunswick Support Lobster Research," August 26, 2019.

³² USITC, hearing transcript, October 1, 2020, 81 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

³³ Lobster Council of Canada, prehearing submission to the USITC, September 15, 2020, 2.

³⁴ Government of Canada, "Lobster in the Southern Gulf of St. Lawrence," January 21, 2015.

³⁵ Government of Canada, "Lobster Fishery – Areas 19, 20 and 21," June 6, 2018.

³⁶ USITC, hearing transcript, October 1, 2020, 89–90 (testimony of Geoff Irvine, Lobster Council of Canada).

³⁷ Abel, "The Grueling and Messy Work of Lobster Processing," December 11, 2018.

other forms of lobster for in-state processing. In 2019, Massachusetts liberalized its regulations permitting lobster processing, and a processing plant owned by East Coast Seafood Group was opened in April 2020 in New Bedford, Massachusetts. East Coast received permits for the processing plant in April and began processing fresh lobster meat immediately. In May they added frozen processing at the facility.³⁸ The Maine lobster industry employs the largest share of workers in the U.S. industry, estimated at 35,000 onshore jobs (i.e., dealers, processors, and distributors) and in Massachusetts, the processing sector has very low employment levels as a vestige of the state's strict regulation of processing until 2019.³⁹

Much of the lobster harvested in Maine is brought to a processing plant in Maine or Canada. Often it is cooked first, and then the meat is picked from the shell and packaged. Maine processors focus on a few key products, including cooked lobster tails, picked meat, and frozen raw tails. Picked meat is usually marketed as CK (claw and knuckle), CKL (claw, knuckle, and leg) or CKT (claw, knuckle, and tail). Cooked products can be shipped frozen or fresh, depending on the time of year.⁴⁰ Processing plants typically open up in May and run until December.

Wholesalers build large inventories of frozen product and ship it over the winter months to maintain available volumes and stable prices. Frozen raw tails usually go to restaurants, where chefs will want to use the entire tail and serve lobster in the shell, or to grocery chains selling to home cooks, who often grill them. CKT meat tends to ship to restaurants making lobster dishes such as lobster rolls, soups and stews, or lobster mac and cheese.⁴¹

Companies working to expand the U.S. lobster processing sector rely on state-of-the-art efficiency to compete with competitors in Canada. In particular, separating lobster meat fully from the shell has traditionally been a labor-intensive business.⁴² However, high-pressure processing (HPP) machines, installed in both Maine and Canada over the last 15 years, extract raw meat from the shell in a 6- to 10-minute process that entails much less handling than traditional methods.⁴³ HPP machines and similar devices are encouraging the U.S. industry's transition into higher volumes of processed lobster meat as U.S. consumer tastes expand beyond eating whole lobsters or tails. The advantages of HPP are quick (e.g., six-second) slaughtering of lobsters and automated shucking of raw meat from the shell.⁴⁴ With

³⁸ SeafoodNews, "East Coast Opens New Lobster Facility in New Bedford Prior to the Opening of the Maine Season," accessed November 16, 2020.

³⁹ Barker, "Commentary: Lobstering Restrictions," August 11, 2020.

⁴⁰ Maine Lobster Marketing Collaborative, "Processing Fundamentals," accessed November 16, 2020.

⁴¹ Maine Lobster Marketing Collaborative, "Processing Fundamentals," accessed November 16, 2020.

⁴² Maine Lobster Marketing Collaborative, "Lobster Processing Innovations Lead to New Customers and Markets," November 7, 2019. Lower overall labor costs for Canadian processors relative to those in the United States, driven by lower healthcare costs owing to Canada's national healthcare system, are reportedly a key competitive advantage encouraging processing capacity in Canada. USITC, hearing transcript, October 1, 2020, 78 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

⁴³ Gidney Fisheries, "HPP Frozen Lobster," accessed November 16, 2020. HPP machines have a high-pressure cylinder filled with pressurized water up to 87,000 pounds per square inch. Live lobsters are placed into an HPP chamber for a 6- to 10-minute operating cycle, and the pressure compresses the meat within the lobster shell, breaking the bonds of meat to the external shell. The resulting lobster meat is still raw and can be extracted from the shell almost completely intact.

⁴⁴ Abel, "The Grueling and Messy Work of Lobster Processing," December 11, 2018.

more lobster harvested in recent years than the live market could absorb, better and more automated processing is expanding the market for consumers.

Other new technologies involve the freezing process. In Maine specifically, but likely elsewhere in the United States and Canada, the freezing and processing of lobster tails allow local businesses to break into new distribution channels. One of the latest technologies freezes lobster using liquid nitrogen, as opposed to brine or blast freezing. Nitrogen freezing freezes tails and meat in 18 minutes as opposed to 24–36 hours for blast freezing, and it reportedly better maintains the flavor and texture of a fresh-caught lobster.⁴⁵

Pricing

The wholesale lobster supply chain is complex and involves multiple transactions before it reaches the retail consumer. Two price series are published—ex-vessel prices, which cover only live products, and wholesale distributor prices for both live and processed products.⁴⁶ Unfortunately for our analysis, pricing for sales beyond the first level of trade (ex-vessel) are not separated by country.

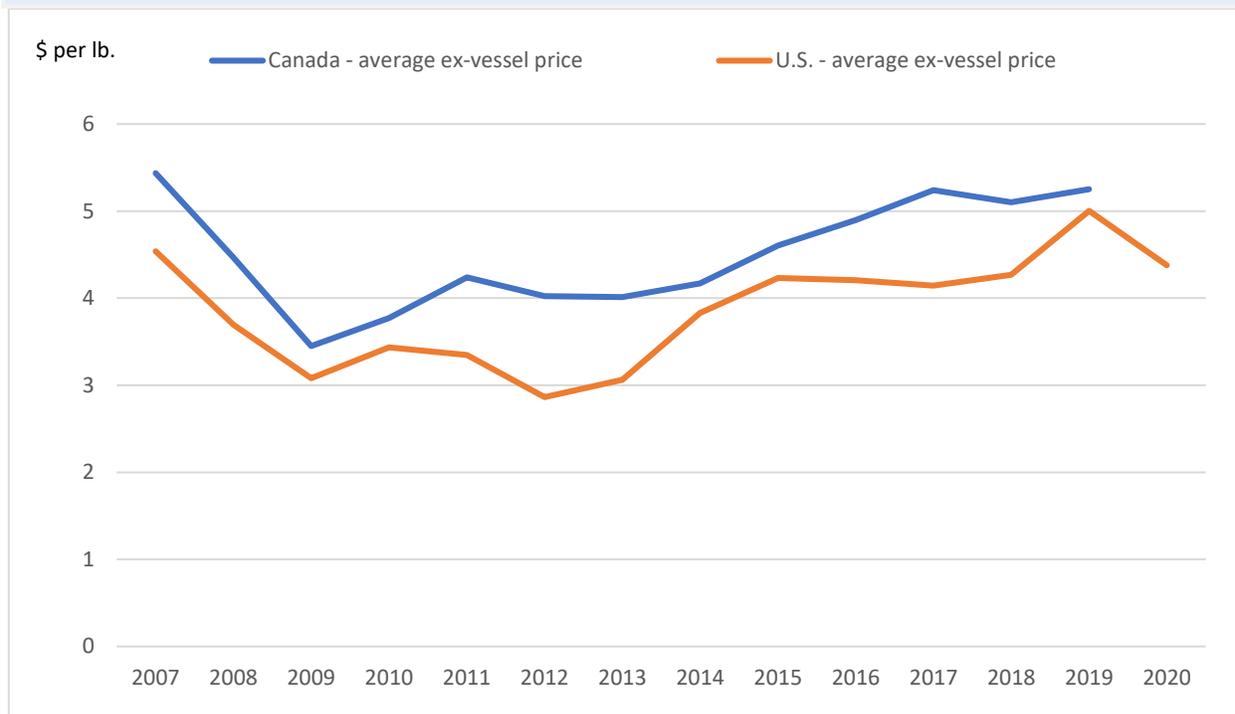
Harvester (Ex-vessel) Prices

The ex-vessel price, also referred to as the boat price or shore price, is the amount paid directly to the harvester at the dock. The data show average ex-vessel prices trending upward over much of the last 10 years in both countries (figure 4). Average prices grew even as the quantity of lobster landings increased, suggesting that the price growth was demand driven. Over the entire period shown, Canadian prices exceeded U.S. prices. The price differential likely reflects seasonal factors and the higher share of hard shell lobsters caught in Canada relative to the United States. The price gap in figure 4 is fairly consistent over the entire period from 2007-19, long before import tariffs in the EU and China were changed in 2017 and 2018, respectively. Most notable is that ex-vessel prices in the United States moved up in 2017 and 2018 even as EU and Chinese tariffs were increasing the cost of U.S. lobsters for export. Clearly other factors were driving the overall market trend. Ex-vessel prices reportedly fluctuate daily and have seasonal variations not captured in annual data.⁴⁷

⁴⁵ Maine Lobster Marketing Collaborative, “Lobster Processing Innovations Lead to New Customers and Markets,” November 7, 2019.

⁴⁶ Wholesale price data from Urner Barry represents distributor prices at the end of the wholesale supply chain before it reaches the customer (e.g., grocery stores, restaurants).

⁴⁷ USITC, hearing transcript, October 1, 2020, 77 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

Figure 4 Annual U.S. and Canadian average ex-vessel prices, annual, 2007–2020

Source NOAA Fisheries, “Commercial Fisheries Landings,” August 22, 2019; and Government of Canada, Department of Fisheries and Oceans, Statistics Program, accessed June 7, 2021.

Note: Canadian landings data are available only through 2018. Underlying data can be found in appendix table G.5.

Live Distributor and Processed Prices

Due to the highly integrated nature of the U.S. and Canadian lobster industries, it is often difficult to differentiate product by country of origin once a lobster has entered the supply chain. However, U.S. lobster is typically new shell and Canadian lobster is typically hard shell. Figure 5 displays monthly average per-pound prices for key sizes and types (new shell vs. hard shell) of live lobster. Given that a live lobster is sold whole, the size or other characteristics of the lobster heavily influence the per-pound value. A common size in the live market is a 1¼-pound lobster, often referred to as a quarter. The difference in value between hard and new shell lobsters is apparent when comparing the two 1¼-pound prices. Depending on the season, new shell quarters typically sell at between 65 and 80 percent of the hard-shell price per pound. Three- to four-pound lobsters, known as selects, are predominantly sold to the growing Asian market and sell at a premium. Live prices are strongly associated with the U.S. and Canadian lobster fishing seasons, with prices peaking in the early spring months when supply is lowest.

Prices for 1¼-pound live lobsters, a common benchmark in the live market, fell in early 2020 as a result of COVID-19, linked in part to declines in indoor dining and sharply reduced demand from cruise ships and casinos. They rose again after a few months, leading into the autumn at closer to historical levels. Prices for larger three- to four-pound live lobsters that are typically sold to Asian markets like China declined less. The lower prices of live lobster in 2019 reportedly reflect U.S. dealers selling more product

domestically and to Canada rather than supplying the higher-valued Asian market, due in part to China's tariffs on U.S. lobsters.⁴⁸

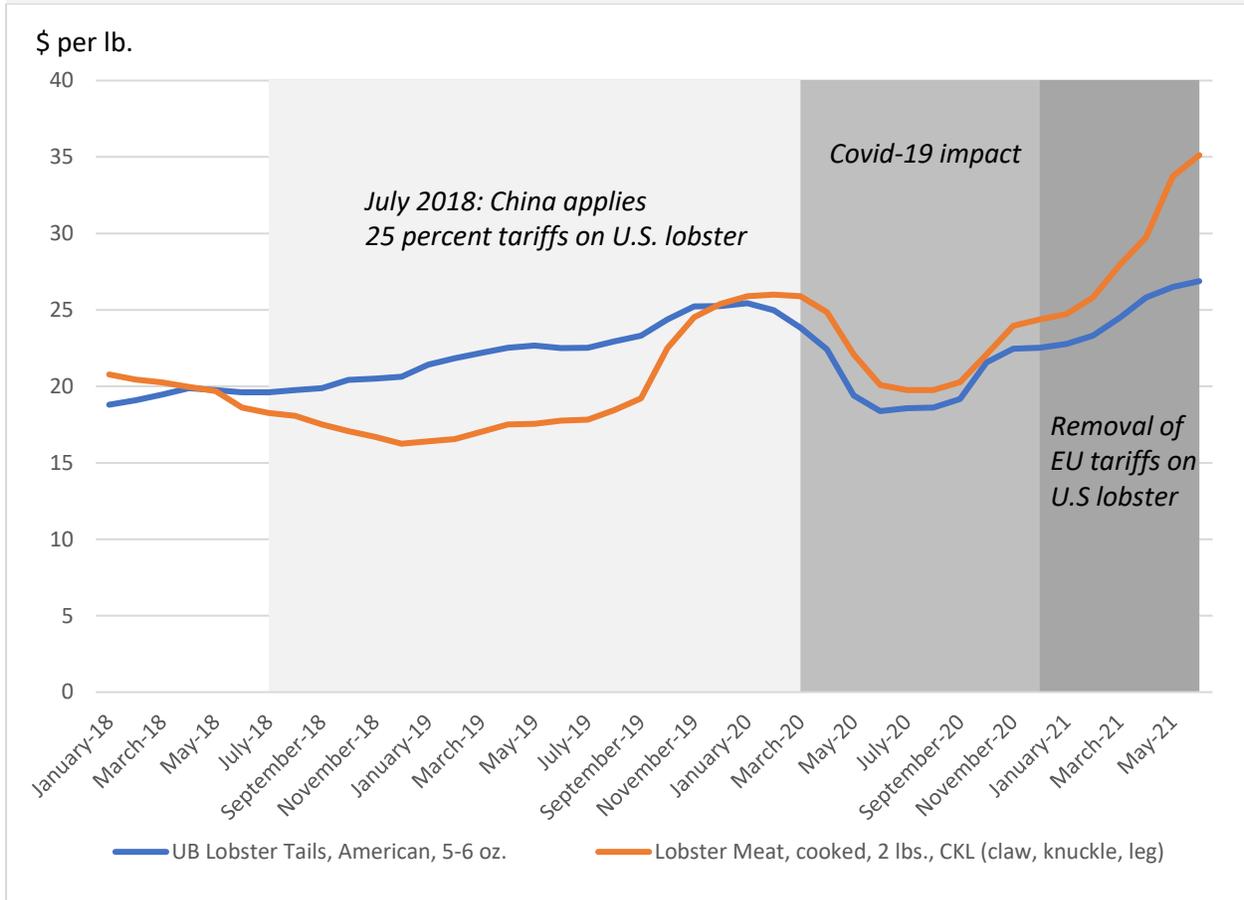
The price per pound of processed lobster is two to three times higher than the price of live lobster. However, processed lobster makes up a smaller portion of the lobster trade, equating to 42.7 percent of global exports by value and 28.3 percent of global exports by volume.⁴⁹ This is due, in part, to the higher costs associated with further processing lobster as well as volume loss associated with breaking down lobsters and extracting meat. Cruise ships and casinos reportedly are a core market for processed products like frozen lobster tails.⁵⁰ As the COVID-19 pandemic took hold in early 2020, processed prices quickly fell again but have since recovered following the easing of COVID-19 related restrictions and the removal of EU tariffs.

⁴⁸ USITC, hearing transcript, October 1, 2020, 101 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

⁴⁹ IHS Markit, Global Trade Atlas database, HS numbers 0306.12, 0306.22, 0306.32, 0306.92, and 1605.30, accessed June 18, 2021.

⁵⁰ USITC, hearing transcript, October 1, 2020, 161 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

Figure 5 Processed lobster prices, monthly, tails versus meat, 2015–present



Source: Urner Barry, Comtell lobster price data, accessed June 7, 2021.

Factors Affecting Competitiveness

In markets around the world, agricultural competitiveness is measured by comparing costs, product characteristics, and supplier reliability for goods produced in one country against those produced in another country, both in the domestic market and in third-country markets. Some factors that affect producer costs include production and transportation costs, tariffs, and exchange rates. Factors that affect product differentiation include safety or quality, brand identity, and product specifications. Factors that affect supplier reliability include product availability, transportation infrastructure, and seasonality.

Specific factors that affect the competitiveness of the U.S. and Canadian, individually and together, lobster industries are the focus of this section. Because both countries fish the same biological species straddling a common border with well-integrated logistical hubs and infrastructure, the primary factors affecting competitiveness between the two countries are federal and state or provincial government actions, regulations, and policies. They include fisheries management (i.e., licensing and seasonal fishing restrictions), discussed earlier in the chapter; regulations affecting lobster processing; government programs (e.g., payments); and differential tariffs to export markets. The major factors affecting

competitiveness of the region as a whole is reliability of supply resulting from the integration of the two industries.

Regulatory restrictions on processing lobsters in Massachusetts and Maine limited industry growth impacting product differentiation.

Historically, state regulations in both Maine and Massachusetts hampered the development of local lobster processing capacity. By the time U.S. state regulations changed to permit extracting lobster meat from the shell, Canada's processing sector was large and well established.

Maine had restrictions prohibiting many types of lobster processing, such as splitting lobster tails or selling claws separately from their bodies, until 2010.⁵¹ Massachusetts laws prohibited lobster fishers and vendors from selling, processing, or transporting other forms of lobster for in-state processing until mid-2019, forcing the industry to ship as much as 80 percent of its live lobster or lobster parts to processors in Maine and Canada. Massachusetts allowed only the sale of live, cooked, and canned lobster, as well as the processing and sale of frozen and cooked lobster tails. On August 1, 2019, Massachusetts revised its lobster processing regulations, permitting lobster processors to begin in-state transport and processing of raw, shell-on lobster parts. In addition, wholesale seafood dealers licensed by the Massachusetts Department of Public Health can process raw lobsters and import raw, shell-on lobster parts and tails from Canada and other states. The new rules also provide for the retail sale of already-frozen raw, in-shell tails.⁵² As noted above, both Maine and Massachusetts have received recent investments in their own processing sectors.

U.S. and Canadian government programs targeting the lobster industry lowers delivered costs.

Both the United States and Canada have programs to support their respective lobster industries. Like all government payments to industry, these programs decrease the cost of production for lobster harvesters, dealers, or other businesses targeted by each program. However, U.S. programs primarily target lobster harvesting; by contrast, Canadian programs apply to all sections of the supply chain, including harvesters, dealers, processors, and distributors. Since Canada's aid payments assist the lobster industry in their Atlantic provinces, the payments are considered rural or regional development.⁵³

Another major difference between U.S. and Canadian programs and payments is that the Canadian federal and provincial governments have permanent, longstanding programs aiding the lobster industry that are not linked to the COVID-19 pandemic. Relative to the United States, these programs are said to

⁵¹ USITC, hearing transcript, October 1, 2020, 81 (testimony of Annie Tselikis, Maine Lobster Dealers Association); Salsberg, "Changes In Lobster Processing Rules On Legislature's Plate," May 4, 2019.

⁵² USITC, hearing transcript, October 1, 2020, 78 (testimony of Annie Tselikis, Maine Lobster Dealers Association); industry representative, interview by USITC staff, September 28, 2020.

⁵³ Industry representative, interview by USITC staff, September 9, 2020.

have larger funding streams, with multiyear appropriations.⁵⁴ With the exception of marketing funds from the USDA and the U.S. Small Business Administration, and standard unemployment insurance programs funded by businesses and administered at the state level, nearly all U.S. payments and programs have been funded through economic stimulus bills targeting COVID-19 relief.

Canadian Government Programs and Payments

As noted above, Canada has long viewed assistance to the lobster industry in its Atlantic provinces as rural or regional development, so the aid is often part of programs targeting broad sectors of the Canadian economy.⁵⁵ The Atlantic Fisheries Fund (AFF) is a Canadian federal government program spending about \$300 million (C\$400 million) over seven years to promote innovative and sustainable growing methods, new automation technologies, and world-class applied research in the fishing and aquaculture industry on Canada's Atlantic seaboard. The federal government provides 70 percent of the funding and the Atlantic provinces the other 30 percent. Business interests in the Canadian lobster industry must provide part of the funding for AFF grants to be approved.⁵⁶ AFF funds are also earmarked to boost marketing of Canadian businesses, including those of the lobster industry.⁵⁷

A recent AFF project targeting lobsters was \$1.5 million (C\$2 million) for Homarus Inc. to fund a marine laboratory for lobster fishery industry awareness, education, and research. An additional \$1.5 million (C\$2 million) funding in this project was paid from the Innovative Communities Fund of the federal Atlantic Canada Opportunities Agency. This fund focuses on investments that lead to long-term employment and economic capacity building in Atlantic Canadian communities.⁵⁸ Another permanent Canadian program is a special employment insurance (EI) provision permitting lobster harvesters to make additional claims on EI because the harvest seasons in many LFAs are only 6–10 weeks long.⁵⁹

In 2020, the government of Canada approved several programs to assist the lobster industry and industry workers in the wake of the COVID pandemic and a partial shutdown of the local economy. Data on the total amounts spent are unavailable. Like Canada's aid payments to the lobster industry in their more permanent programs, they are spread across all segments of the supply chain, encompassing harvesters, workers in the processing facilities, additional lending windows for business loans, and dealer storage capacity.⁶⁰

U.S. Government Programs and Payments

Most U.S. Federal programs assisting the seafood industry, including the lobster industry, were started in 2020 and are considered temporary because their funding streams are not designed to be replenished in annual appropriations. Notable exceptions are USDA's Market Access Promotion (MAP) funds and the U.S. Small Business Administration's State Trade Expansion Program (STEP). MAP is a permanent

⁵⁴ Industry representative, interview by USITC staff, September 9, 2020.

⁵⁵ Industry representative, interview by USITC staff, September 9, 2020.

⁵⁶ USITC, hearing transcript, October 1, 2020, 76 (testimony of Geoff Irvine, Lobster Council of Canada).

⁵⁷ USITC, hearing transcript, October 1, 2020, 76 (testimony of Geoff Irvine, Lobster Council of Canada).

⁵⁸ Government of Canada, "Government of Canada and Province of New Brunswick Support Lobster Research," August 26, 2019.

⁵⁹ Industry representative, interview by USITC staff, September 9, 2020.

⁶⁰ Government of Canada, "Canada's COVID-19 Economic Response Plan," September 14, 2020.

program centered on agriculture and seafood products that currently promotes U.S. lobsters through the nonprofit organization Food Export—Northeast, while STEP provides block grants to states to promote small business exports.

In Maine's case, STEP funds are typically granted to the Maine International Trade Center to support export growth for small businesses, including in the lobster industry. In 2019 the center administered funding for all small businesses totaling \$344,500, a sum considered by Maine lobster dealers to be quite small relative to Canadian export marketing programs.⁶¹ The state of Maine also funds a U.S. domestic marketing promotion for lobster totaling \$2.8 million using surcharges on harvester licenses, and Massachusetts's Seafood Marketing Program operates a similar program through the Division of Marine Fisheries.⁶²

On September 9, 2020, USDA announced that approximately \$530 million in Federal government support would be offered to the U.S. fishers, including those harvesting lobsters, who were impacted by retaliatory tariffs from foreign governments. Funding was provided through the Seafood Trade Relief Program (STRP) by way of the Commodity Credit Corporation. Applications from lobster fishers were accepted from September 14, 2020 through January 15, 2021, and payments were made to lobster fishers at \$0.50 per lb. for 2019 landings, with a maximum payment of \$250,000 per harvester for all seafood commodities granted relief.⁶³

Like their Canadian counterparts, many firms and workers in the U.S. lobster industry were eligible to receive benefits under federal government programs related to the COVID-19 pandemic. These included the Paycheck Protection Program, the U.S. Small Business Administration Economic Injury Disaster Loan program, and funds earmarked for the seafood industry under the Coronavirus Aid, Relief, and Economic Security (CARES) Act. Although the total amount appropriated for the seafood industry is publicly available, the amounts received by firms and workers in the U.S. lobster industry are not.

In addition to CARES Act funds, the Trump administration announced that lobster fishers would be included in USDA's Coronavirus Food Assistance Program 2 (CFAP 2) for aquaculture producers. This multibillion-dollar program was originally established for farmers and ranchers in April 2020 in response to the COVID-19 pandemic. USDA announced that it would accept CFAP 2 applications from September 21, 2020, through December 11, 2020.⁶⁴

Sustainability certifications allow for product differentiation.

The Marine Stewardship Council (MSC) is an international nonprofit organization that assesses, certifies, and labels seafood products to reward sustainable fishing practices and supply chains by issuing sustainability certifications. Some U.S. and Canadian lobster fisheries have obtained this certification to

⁶¹ Anderson, "SBA Awards Grant to Maine International Trade Center," September 27, 2018.

⁶² Industry representative, interview by USITC staff, August 28, 2020; USITC, hearing transcript, October 1, 2020, 97–98 (testimony of Annie Tselikis, Maine Lobster Dealers Association); Anderson, "SBA Awards Grant to Maine International Trade Center," September 27, 2018.

⁶³ USDA, "Seafood Trade Relief Program," accessed May 20, 2021.

⁶⁴ USDA, "Coronavirus Food Assistance Program 2 for Aquaculture Producers | Farmers.Gov," accessed November 17, 2020.

differentiate their products, often in response to consumer demand. To keep the certification, fisheries are required to satisfy conditions related to species used for bait, bycatch monitoring, and harvest control rules.⁶⁵ In 2015, almost all of Canada’s lobster stock not already MSC certified was declared sustainable—specifically, the stock in the Bay of Fundy, Scotian Shelf and Southern Gulf of St. Lawrence lobster trap fishery.⁶⁶ In total, 97 percent of Canada’s lobster fisheries are currently MSC certified.⁶⁷

Effective August 1, 2020, MSC certification for the Maine lobster fishery was suspended due to a recent decision in a federal court (the U.S. District Court for the District of Columbia) involving the lobster industry’s impact on right whales. Right whales are an endangered species with about 400 remaining whales feeding in lobster-harvesting areas throughout New England and in Canadian waters.⁶⁸ The decision, in *Center for Biological Diversity v. Ross*, is described in the following section, as it relates to lobster harvesting off the coast of Massachusetts.

The overall economic impact of this loss of certification is uncertain. A recent Canadian government publication states that some purchasers in the European Union regard MSC sustainability certification as a “must-have” for making lobster purchases asserting that MSC certification is required.⁶⁹ However, it is not clear how important MSC certification is for other major destinations including the U.S. domestic market and China. While the Maine lobster fishery has other environmental and sustainability certifications, such as the Monterey Bay Aquarium Seafood Watch Program, the industry is concerned that the loss of the MSC certification will impact the state’s ability to supply certain market channels, particularly in the EU.⁷⁰ It is true that the Massachusetts lobster fishery does not hold MSC certification, and dealers reportedly export to EU purchasers not requiring it, particularly restaurants and food service but Maine’s lobster fishery is far larger than the one in Massachusetts.⁷¹ While a corrective action plan for the Maine lobster fishery has been developed and accepted, an industry representative indicated it will take at least a year for the state’s fishery to re-establish certification.⁷²

Tariff treatment differences impact delivered costs.

Differential import tariffs facing U.S. and Canadian lobster exporters in foreign markets will be discussed in greater detail in the next paper of this series. They are a key factor of competitiveness differentiating lobster exported from Canada from that exported from the United States. In general, import tariffs

⁶⁵ For a detailed description of the certification requirements and rating score that a fishery must attain and maintain, see MSC, “Fishery Certification Guide,” accessed December 8, 2020. To become certified, a fishery must, among other things, obtain an average score of 80 across all performance indicators under each of three MSC principles.

⁶⁶ Kearns, “Canada Inshore Lobster Fishery Earns MSC Approval,” *Seafood Source* (blog), May 27, 2015.

⁶⁷ The exception is Newfoundland and Labrador. USITC, hearing transcript, October 1, 2020, 163 (testimony of Geoff Irvine, Lobster Council of Canada).

⁶⁸ Chase, “MSC Suspends Maine Lobster Fishery Certification,” *Seafood Source* (blog), August 4, 2020.

⁶⁹ Canadian government guidance documents for Canadian businesses exporting fish and seafood to the EU note that European retailers consider the MSC certification to be a “must-have” for selling in that market. Government of Canada, “Exporting Fish and Seafood to the European Union,” August 31, 2021.

⁷⁰ Industry representative, interview by USITC staff, September 9, 2020.

⁷¹ USITC, hearing transcript, October 1, 2020, 124 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

⁷² Industry representative, interview by USITC staff, August 28, 2020. It takes an estimated 12 to 18 months for a fishery to obtain certification. The suspension will be lifted following a successful expedited audit. MSC, “Fishery Certification Guide,” accessed December 8, 2020.

increase the delivered cost of any goods to which they are applied, and differential tariffs applied to U.S. and Canadian goods in a given market impact the relative cost of those goods. In the integrated North American supply chain for lobsters, differential tariffs to major export markets such as the EU and China can increase costs for all dealers handling live lobsters and processed lobster meat. Lobsters harvested in U.S. and Canadian waters must be tracked and separated to ensure the correct tariffs are applied to each.

U.S. exports of lobsters faced four tariff developments between 2015 and 2020 that affected delivered costs of U.S. lobsters relative to those caught or processed in Canada for specific foreign markets. The first development relates to a reduction in EU duties on imports of Canadian lobsters (but not U.S. lobsters) into the EU under the Comprehensive Economic and Trade Agreement (CETA), a trade agreement between the EU and Canada provisionally implemented on September 21, 2017. Under CETA, the EU eliminated import duties of either 8 or 12 percent ad valorem,⁷³ depending on the imported product. This reduced the delivered cost of live Canadian lobsters in the EU relative to live U.S. lobsters.⁷⁴

The second development involved the imposition by China of additional duties of 25 to 35 percent on imports of U.S. lobsters in 2018, in retaliation for higher duties that the United States imposed on certain Chinese goods. The higher duties imposed by China on imports of U.S. lobsters increased the delivered costs of U.S. lobsters relative to Canadian lobsters in the Chinese market.

The third development involved an agreement under the Phase One trade agreement between China and the United States to make imports of U.S. lobsters eligible for tariff waivers. These are sometimes called “market-based exclusions” because Chinese importers can apply to receive them based on market conditions. When granted, these waivers reduce delivered costs for U.S. exporters shipping lobsters to China. The full extent of the economic impact is unclear because the government of China has not released data on what volume of U.S. lobster products have received a waiver or even which Chinese importers have requested one.⁷⁵

The final tariff-related development was an agreement reached in August 2020 between the United States and the EU under which the EU agreed to reduce its duty on imports of U.S. live and frozen lobster to “free” (and the United States agreed to reduce its duties on certain products largely imported from the EU). These duty reductions, ranging between 6 percent and 20 percent ad valorem depending on the imported product, will decrease delivered costs, putting U.S. lobsters on a level playing field relative to Canadian lobsters shipped to the EU. The European Parliament approved the trade deal on November 26, 2020, eliminating EU’s tariffs on U.S. lobsters for the next five years.⁷⁶

⁷³ Ad valorem is a rate of duty expressed as a percentage of the appraised customs value of the imported good. The actual tariff may be levied in other terms, such as dollars per ton.

⁷⁴ More detailed information on tariff schedules for CETA, listed according to the codes of the international Harmonized System (HS) for tariff classifications will be presented in the second paper of this working paper series.

⁷⁵ U.S. Trade Representative (USTR) official, interview by USITC staff, October 30, 2020.

⁷⁶ European Parliament, “Deal on Lobsters Gets Go-Ahead from Parliament,” November 26, 2020.

Supply Chain Disruptions

Because the U.S. and Canadian lobster industries are so integrated, changes in tariff treatment of products from the two countries also leads to shifts in the supply chain as trade trends shifted following the tariff changes. As described above, historically lobster were caught and shipped to the European and Chinese markets from both the United States and Canada. However, following the change in tariff treatment, the U.S. and Canadian lobster supply chain was disrupted when U.S. lobster became relatively more expensive. As a result, demand for Canadian lobster relative to U.S. lobster increased and the supply chain adjusted accordingly. In Canada, cargo flights to China increased as shipments of live and fresh lobster to China nearly doubled.⁷⁷ Likewise, lobster buyers in the European market appeared to shift to Canada following the reduction of duties on lobsters from Canada with the implementation of CETA.⁷⁸ Furthermore, COVID-19 related lockdowns curtailed flights, further disrupting the lobster supply chain.⁷⁹ According to industry representatives, the U.S. lobster industry attempted to mitigate the disruption by shifting the focus to the U.S. domestic market and the Canadian processing sector.⁸⁰

Cross-country integration allows for reliability of supply and opportunities for regional competitive advantages.

While the U.S. and Canadian industries compete, their long history of integration presented industry on both sides of the border with unique opportunities to specialize. The integration of both industries effectively creates a single, highly competitive, North American lobster industry. The combined North American industry features a highly reliable supply of both live and processed lobster, as well as a highly differentiated product, as the only source of American lobster.

As outlined above, lobster harvesting in both the United States and Canada is complementary, matching the natural migrations of the American lobster population. Harvesting of American lobster in the United States is concentrated in the summer months, while harvesting in Canada is concentrated in the winter months.⁸¹ As a result, the North American lobster industry enjoys a year-round supply of live lobster. Furthermore, there is a strong pattern of internal consumption, insulating the North American industry.

⁷⁷ DiNapoli, Lampert, and Hroncich, "U.S.-China Trade War Triggers Seafood Supply Chain Shake-Up," September 28, 2018, sec. Commodities; Skerritt, "Virus Makes Lobsters So Cheap That Sellers Face a Fatal Blow," March 5, 2020; Withers, Paul, "Canada Poised to Lose Lobster Edge in China," February 27, 2020; Whittle, Patrick, "US Exports to Lobster-Loving China Go off Cliff amid Tariffs," August 26, 2019.

⁷⁸ MaximumVenture, "CETA Could Give Canadians Fisherman an Advantage," *MaximumVenture Canadian Business News* (blog), April 29, 2021.

⁷⁹ Skerritt, "Virus Makes Lobsters So Cheap That Sellers Face a Fatal Blow," March 5, 2020; Withers, Paul, "Canada Poised to Lose Lobster Edge in China," February 27, 2020.

⁸⁰ USITC, hearing transcript, October 1, 2020, 91 (testimony of Beth Casoni, Massachusetts Lobsterman's Association); USITC, hearing transcript, October 1, 2020, 90 (testimony of Annie Tselikis, Maine Lobster Dealers Association); Industry representative, interview by USITC staff, August 28, 2020; Industry representative, interview by USITC staff, September 9, 2020.

⁸¹ USITC, hearing transcript, October 1, 2020, 50 (testimony of Annie Tselikis, Maine Lobster Dealers Association); Industry representative, interview by USITC staff, September 9, 2020.

Canada has developed a robust processing industry and allows duty free entry of live lobster from the United States providing a consistent destination for live lobster.⁸² Additionally, the United States is the largest global market for processed lobster.⁸³ This enables the lobster industry on both sides of the border to continue to operate even when demand in outside markets wanes.

Firms in both the United States and Canada have identified the competitive advantage of having a robust integrated North American lobster industry, as evidenced by the presence of several seafood companies operating on both sides of the U.S.-Canada border. U.S.-owned firms like the Mozzetta Company and Chicken of the Sea own processing operations in Prince Edward Island and New Brunswick. Similarly, Canadian-owned firms like Cape Bald Packers and Premium Brands have investments and ownership stakes in live distribution and processing operations in Maine.⁸⁴ Industry representatives indicate that the trend of cross-border consolidation will continue in the coming years, further solidifying a cohesive North American lobster industry.⁸⁵

Furthermore, distribution to markets outside North America is integrated between the United States and Canada. Often, U.S. harvested lobsters ship out of Toronto and Halifax in Canada. Likewise, many Canadian harvested lobsters ship out of Boston and New York.⁸⁶ So many lobsters, from both countries, ship out of Boston that in China the product is marketed as “Boston Lobster,” regardless of the official country of origin.⁸⁷ Beyond the duty-free treatment of lobster between the United States and Canada, the full integration of the North American industry is dependent upon identical tariff treatment by major destination markets. As discussed above, differences in tariff treatment of lobster in China and Europe can quickly eliminate the parity between the United States and Canada, dismantling the foundation of a cohesive North American industry. However, vertical integration and internal consumption within North America maintains the potential for some degree of insulation from major tariff changes.⁸⁸

Conclusion

The concept of North America as a cohesive integrated economy is not new. The establishment of NAFTA in 1994 promoted the development of industries and firms that work across North America, increasing the economic competitiveness of the North American commercial platform.⁸⁹ The USMCA agreement further intensified the potential benefits of integration by encouraging more cohesion across

⁸² Industry representative, interview by USITC staff, September 9, 2020.

⁸³ IHS Markit, Global Trade Atlas, HS 0306.11, 0306.12, 0306.15, 0306.22, 0306.32, 0306.34, 0306.91, 0306.92, 0306.94, 1605.30, accessed May 21, 2021.

⁸⁴ USITC, hearing transcript, October 1, 2020, 54-55 (testimony of Geoff Irvine, Lobster Council of Canada).

⁸⁵ Industry representative, interview by USITC staff, December 10, 2021; Sackton, “Lobster Industry Consolidation Bigger Story than High Opening Prices This Winter,” *The Winding Glass* (blog), November 30, 2021.

⁸⁶ USITC, hearing transcript, October 1, 2020, 55 (testimony of Geoff Irvine, Lobster Council of Canada).

⁸⁷ USITC, hearing transcript, October 1, 2020, 133 (testimony of Annie Tselikis, Maine Lobster Dealers Association).

⁸⁸ Trade trends describing shifts resulting from tariff changes are discussed in the second paper of this working paper series.

⁸⁹ ITA, “North American Commercial Platform,” 2016; ITA, “North American Success Stories,” February 2015; Connect2Canada, “20 Facts about the North American Economy,” *Connect2Canada* (blog), August 13, 2019; Parilla and Berube, “The New North American Trade Map,” *The Avenue* (blog), November 7, 2013; McLarty and Cunningham, “North America Is the Strongest Economy in the World. Let’s Keep It That Way.,” June 29, 2016, sec. Opinions.

countries in a number of sectors, including agriculture.⁹⁰ Well-known USMCA examples of industry integration due to duty-free treatment are typically concentrated in manufactured goods.⁹¹ For example, parts of an automobile produced in North America cross the U.S. and Canadian border an average of seven times before completion.⁹² However, the integration of the U.S. and Canadian lobster industries, and the competitive advantages stemming from the development of a North American lobster platform, is an example of how tariff-free treatment can benefit industries beyond manufacturing. The two industries are complementary and interdependent, with an integrated supply chain and global freight, using a North American platform to establish global competitiveness. Considering the COVID-19 pandemic, as well as changing regulations and tariff treatments, it is possible the near future the U.S. and Canadian industries will both become more integrated and interdependent.⁹³

⁹⁰ USTR, “UNITED STATES–MEXICO–CANADA TRADE FACT SHEET Modernizing NAFTA,” accessed January 4, 2022; USTR, “USMCA Issue-Specific Fact Sheets,” accessed January 4, 2022.

⁹¹ Parilla and Berube, “The New North American Trade Map,” *The Avenue* (blog), November 7, 2013; ITA, “North American Success Stories,” February 2015.

⁹² McLarty and Cunningham, “North America Is the Strongest Economy in the World. Let’s Keep It That Way.,” June 29, 2016, sec. Opinions.

⁹³ These topics are addressed in the second paper of this working series: Khachaturian, Scott, et al, “An American Lobster Tale: Trade, Tariffs, and a Pandemic,” 2022, *forthcoming*.

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