

Marine Cargo and Waterborne Commerce in Hawai‘i’s Economy

Trends and Patterns in Hawai‘i Marine Cargo 2001 – 2021

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This report was produced by the Research and Economic Analysis Division (READ) of the Department of Business, Economic Development & Tourism (DBEDT) under the direction of the Dr. Eugene Tian, Economic Research Administrator. This report was prepared by Karl Ekroth and Joseph Roos.

EXECUTIVE SUMMARY

The Maritime Cargo Sector is an essential component of Hawai‘i’s economy. Virtually all aspects of Hawai‘i’s economy are tied to the Maritime Cargo Sector including interstate commerce, global trade, and energy supply. This report analyzes Hawai‘i’s inbound and outbound maritime cargo shipments for the period of 2001 to 2021.

At the state level, inbound and outbound maritime cargo data includes domestic interstate and international sources but not domestic intrastate (interisland). During the 2001 to 2021 period, an annual average of 12.4 million tons of maritime cargo was shipped into the state, and an annual average of 1.6 million tons was shipped out of state. By weight, the average inbound cargo tonnage comprised 88.4 percent of the total, with the remaining 11.6 percent being outbound cargo.

For the state's inbound maritime cargo, an annual average of 4.6 million tons (37.3 percent) was shipped into the state from other states and U.S. territories, and 7.8 million tons (62.7 percent) was shipped into the state from foreign countries (2001 to 2021). Most of the inbound maritime cargo weight imported from foreign countries was crude oil, while most of the inbound maritime cargo weight from other states and U.S. territories was Manufactured Equipment, Machinery, and Products.

For the state's outbound maritime cargo, shipments to other U.S. states and U.S. territories averaged 925.0 thousand tons (56.8 percent) per year, and exports to foreign counties averaged 704.0 thousand tons (43.2 percent) per year for the 2001 to 2021 period.

In 2021, the Maritime Cargo Sector had a total of 2,683 jobs. During the 2001 to 2021 period, Hawai‘i’s jobs in this sector increased 24.3 percent, which was above the state’s overall job growth (12.6 percent) but below the nation’s job growth in the Maritime Cargo Sector (44.5 percent). Within Hawai‘i's Maritime Cargo Sector, the Marine Cargo Handling category had the most jobs at 1,139 jobs in 2021; this was followed by Freight Transportation Arrangement (710 jobs), Coastal Freight Transportation (641 jobs), Support Activities for Water Transportation (140 jobs), and Deep Sea Freight Transportation (53 jobs).

At the county and island level, inbound and outbound maritime cargo data includes domestic interstate, domestic intrastate, and international sources. In 2021, Honolulu County had 13.5 million tons of inbound maritime cargo and 8.3 million tons of outbound maritime cargo.

For domestic shipments, Honolulu County had 7.8 million tons of inbound maritime cargo and 7.9 million tons of outbound maritime cargo. The largest category was the Manufactured Equipment, Machinery, and Products category (5.8 million tons inbound, 5.8 million tons outbound). This was followed by Crude Petroleum (779 thousand tons inbound) and Food and Farm Products (684.2 thousand tons inbound, 437.6 thousand tons outbound).

For international shipments, Honolulu County had 5.6 million tons of inbound maritime cargo (imports) and 434.8 thousand tons of outbound maritime cargo (exports). The largest category was Crude Petroleum (2.9 million tons inbound). This reflected the trade pattern of importing crude oil from global sources to supply Hawai‘i's refineries. This was followed by Petroleum

Products (other than crude; 1.3 million tons inbound, 71.1 thousand tons outbound); Coal (604.6 thousand tons inbound); Primary Manufactured Goods (368.6 thousand tons inbound, 3.1 thousand tons outbound); Crude Materials (271.4 thousand tons inbound, 271.3 thousand tons outbound); and Manufactured Equipment, Machinery, and Products (108.1 thousand tons inbound, 28.6 thousand tons outbound).

Following Honolulu County, Hawai‘i County was second in shipping tonnage, with 3.0 million tons of inbound and 1.8 million tons of outbound maritime cargo in 2021. The largest category was Manufactured Equipment, Machinery, and Products (2.3 million domestic tons inbound, 1.7 million domestic tons outbound). This was followed by Petroleum Products (other than crude; 478.6 thousand domestic tons inbound, 32.1 thousand international tons inbound), reflecting the demand for energy and fuel products sourced from Oahu. The Food and Farm Products category ranked third (131.2 thousand domestic tons inbound, 42.4 thousand domestic tons outbound, 12.9 thousand international tons inbound).

The island of Maui had 2.6 million tons of inbound and 1.3 million tons of outbound maritime cargo in 2021. The largest category was Manufactured Equipment, Machinery, and Products (1.8 million domestic tons inbound, 1.3 million domestic tons outbound). This was followed by Petroleum Products (other than crude; 563.2 thousand domestic tons inbound, 201 domestic tons outbound, 33.6 thousand international tons inbound); Food and Farm Products (117.0 thousand domestic tons inbound, 7.6 thousand domestic tons outbound); and Primary Manufactured Goods (35.6 thousand domestic tons inbound, 3.8 thousand domestic tons outbound).

The island of Molokai had 62.3 thousand tons of inbound and 26.4 thousand tons of outbound maritime cargo in 2021. The largest category was Manufactured Equipment, Machinery, and Products (48.4 thousand domestic tons inbound, 23.8 thousand domestic tons outbound). This was followed by Petroleum Products (other than crude; 9.5 thousand domestic tons inbound); Food and Farm Products (3.7 thousand domestic tons inbound, 1.4 thousand domestic tons outbound); and Primary Manufactured Goods (550 domestic tons inbound, 1.2 thousand domestic tons outbound).

The island of Lanai had 108.4 thousand tons of inbound and 65.3 thousand tons of outbound maritime cargo in 2021. The largest category was Manufactured Equipment, Machinery, and Products (105.8 thousand domestic tons inbound, 64.4 thousand domestic tons outbound), which was listed as comprising mostly Empty Containers (82.2 thousand domestic tons inbound, 55.3 thousand domestic tons outbound). The remaining tonnage was Food and Farm Products (2.0 thousand domestic tons inbound, 20 domestic tons outbound); Primary Manufactured Goods (535 domestic tons inbound, 892 domestic tons outbound); and Crude Materials (102 domestic tons inbound).

Kaua‘i County had 1.4 million tons of inbound and 749.2 thousand tons of outbound maritime cargo in 2021. The largest category was Manufactured Equipment, Machinery, and Products (1.2 million domestic tons inbound, 738.3 thousand domestic tons outbound). This was followed by Petroleum Products (other than crude; 171.5 thousand domestic tons inbound, 8.2 thousand international tons inbound); Food and Farm Products (30.5 thousand domestic tons inbound, 2.9

thousand domestic tons outbound); and Primary Manufactured Goods (18.2 thousand domestic tons inbound, 2.3 thousand domestic tons outbound).

The jobs category includes wage and salary jobs, self-employed, and proprietors; payments in this report are termed “earnings.” Average annual growth rates in this report were calculated using the compound annual growth rate formula.

I. Introduction

The Maritime Cargo Sector is an essential component of Hawai‘i’s economy. It provides the infrastructure that allows supply chains to flow in and out of the state. Virtually all aspects of Hawai‘i’s economy are tied to the Maritime Cargo Sector including energy supply, interstate commerce, and global trade.

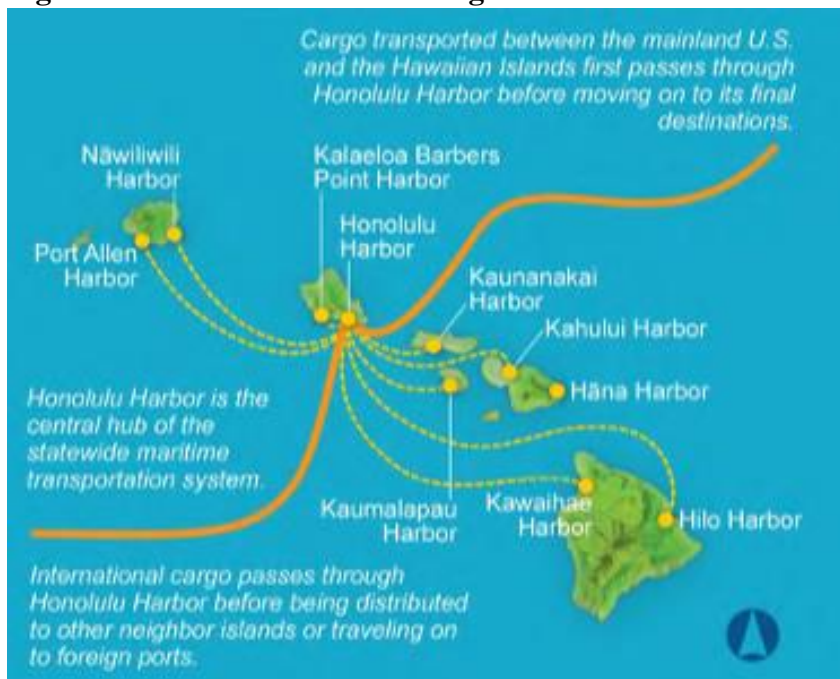
Maritime cargo is a highly regulated sector. For much of the twentieth century, the sector operated as a highly regulated cartel through conference agreements (Buderi, 1986). Generally, this environment continued until the 1980’s era of deregulation. In 1984, The Shipping Act was enacted to improve the efficiency of maritime transportation through an increased reliance on market forces (Federal Maritime Commission, 1989). The industry was further deregulated under The Ocean Shipping Reform Act of 1998, which increased rate competition for maritime freight (Federal Maritime Commission, 2001). Hawai‘i along with Alaska and Puerto Rico is impacted by the Jones Act (Merchant Maritime Act of 1920), which requires vessels transporting cargo between U.S. ports to be U.S. flagged, a majority U.S. built, owned, and crewed (Congressional Research Service, 2019).

On a global scale, the Maritime Cargo Sector is much larger than the air cargo industry when measured by the volume of goods transported. In 2021, it was estimated that the world Maritime Cargo Sector shipped approximately 11.1 billion metric tons of freight (Boeing, 2022). In contrast, the air cargo industry shipped 60.9 million metric tons, or approximately 0.5 percent of global maritime cargo weight. Most of the maritime cargo was bulk commodities, including oil, metal ores, and grains, that were low value and non-time-sensitive. By shipping capacity, 43 percent was bulk carriers, 28.6 percent was oil tankers, and 13 percent was container ships (United Nations, 2022).

While this report looks at Hawai‘i’s maritime freight, a previous report analyzed Hawai‘i’s air freight industry (DBEDT, 2020). The analysis showed that the top commodities for inbound air freight by value were electronics, fashion, jewelry and accessories, instruments and machinery, and vehicles and transport equipment. In 2021, Hawai‘i’s interisland air freight shipments totaled 100,773 tons (U.S. Department of Transportation, 2023). Not including interisland shipments, Hawai‘i’s domestic inbound air freight was 369,690 tons and outbound was 133,454 tons.

As shown in Figure 1, the hub of Hawai‘i’s maritime cargo distribution is Honolulu Harbor, which is the largest in the state. Cargo from outside of the state arrives at Honolulu Harbor and either remains on Oahu or is shipped out to the neighbor islands. Most of the cargo between Honolulu and the mainland is transported via two major shipping companies. Most of the cargo between Honolulu and the neighbor islands is shipped via a third shipping company. A recent development that will assist the flow of goods is the development of the Kapalama Container Terminal (KCT, 2023). This is expected to be completed by 2025 and will expand capacity with an 84-acre cargo yard and 1800 linear feet of berthing space along piers 41,42, and 43.

Figure 1. Hawai‘i’s Maritime Cargo Distribution Routes



Source: Hawai‘i State Department of Transportation, 2018.

In looking toward the future, this sector will continue to evolve. Integration of modern technologies such as artificial intelligence, cloud computing, and digital ledgers will increase efficiencies across maritime supply chains (Saxon, 2017). One challenge will be the decarbonization of fleets and port infrastructure; it is estimated that maritime shipping accounts for 2.2 to 3.0 percent of global carbon dioxide emissions (Gross, 2020). Increasingly, shipping companies are shifting towards alternative fuels including liquid natural gas, battery/hybrid, methanol, and hydrogen. One area especially important for Hawai‘i is improving biosecurity measures to prevent the transport of invasive species and pests. The state continues to collaborate with public and private organizations to monitor Hawai‘i’s ports for high-risk pests (HISC, 2022).

II. Hawai‘i’s Maritime Cargo Shipment Flows and Patterns

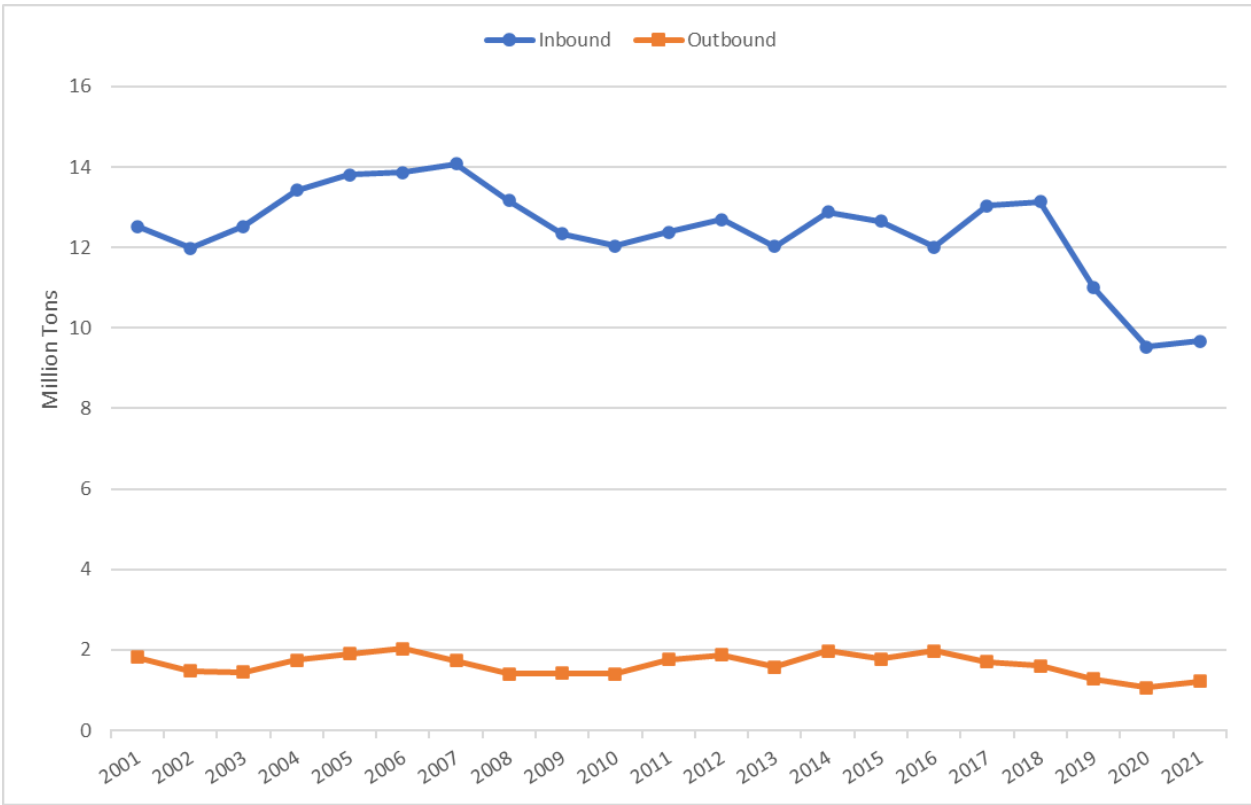
A. Hawai‘i’s Inbound and Outbound Maritime Cargo Shipments

This report analyzes maritime cargo shipments from 2001 to 2021 by the weight of inbound and outbound cargo. It is important to note that the unit of analysis is short tons (tons), rather than dollar value. This is a salient point for interpreting the results because large swings in the data do not necessarily reflect large swings in the value of the cargo. On the one hand, electronics are high-value-added items that, generally, are lightweight. On the other hand, construction materials such as steel girders, cement, and lumber are extremely heavy but of relatively low value compared to other items. Therefore, data based on weight is more sensitive to industries that use heavy materials, such as construction materials and crude oil, as opposed to lightweight consumer products that have a high value such as electronics.

Figure 2 shows inbound and outbound maritime cargo to and from the state, excluding intrastate (interisland) shipments. In looking at the 2001 to 2021 period, the average inbound maritime cargo tonnage was 12.4 million tons per year, with a maximum value of 14.1 million tons in 2007. As the recession took hold in 2008 inbound maritime cargo gradually declined, reaching a post-recession low of 12.0 million tons in 2013. While cargo tonnage grew slightly in 2014, it again declined to the previous low of 11.0 million tons in 2019. This can partially be explained by the closure of one of Hawai‘i’s oil refineries in 2018, which reduced the tonnage of imported crude petroleum by 39.5 percent in 2019. The COVID-19 pandemic pushed inbound maritime cargo to a period low of 9.5 million tons.

The average annual weight for outbound maritime cargo was 1.6 million tons for the 2001 to 2021 period. During the 2001 to 2021 period, the weight of outbound cargo reached a peak of 2.0 million tons in 2006 and then declined from 2007 to a low of 1.4 million tons in 2010 as shipments slowed with the recession. The tonnage recovered for 2011 and 2012, declined in 2013, hovered around 1.9 million tons from 2014 through 2016, declined to 1.1 million tons during the COVID-19 pandemic, and slowly rose to 1.2 million tons in 2021 as the economy recovered.

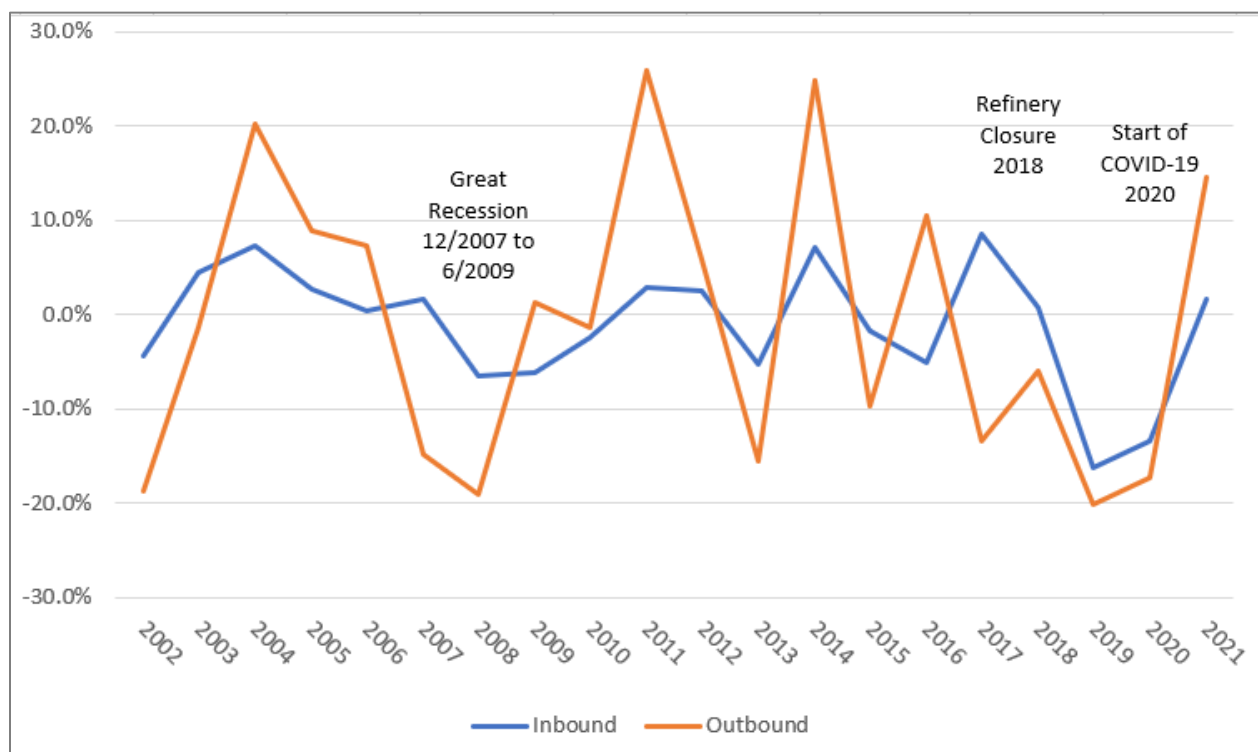
Figure 2. Hawai‘i’s Total Maritime Cargo Flows: Inbound and Outbound, 2001 – 2021*



* Does not include domestic intrastate (interisland) shipments.
Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Figure 3 shows the annual percent change of inbound and outbound maritime cargo tonnage in relationship to economic events. During the economic downturns of the Great Recession and the COVID-19 pandemic, maritime cargo volumes declined sharply. As the Great Recession took hold in 2008, outbound cargo volumes declined 19.0 percent and inbound cargo volumes declined 6.5 percent. The closure of one of Hawai‘i’s oil refineries reduced shipping tonnage in 2019 and, as the pandemic took hold in 2020, volumes declined further. Outbound maritime cargo shipments declined 17.3 percent and inbound declined 13.5 percent in 2020. While both outbound and inbound maritime cargo tonnage increased in 2021 by 14.6 percent and 1.6 percent respectively, the tonnage remains below the pre-pandemic 2019 level.

Figure 3. Hawai‘i’s Maritime Cargo Annual Percent Change: Inbound and Outbound, 2002 – 2021*



* Does not include domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Table 1 compares the average tonnage for cargo that enters and leaves the State of Hawai‘i; it does not include domestic intrastate shipments between islands which will be examined later in the report. During the 2001 to 2021 period, an annual average of 12.4 million tons was shipped into the state, and an annual average of 1.6 million tons was shipped out of state. The average inbound cargo tonnage was 88.4 percent of the total shipping tonnage, with the remainder of 11.6 percent being outbound cargo. As noted earlier, this partially reflects the trade pattern of inbound commodities being relatively heavier items such as crude oil, construction materials, machinery, and vehicles. Outbound shipments during the 2001 to 2021 period declined at an average annual

rate of 1.98 percent. For inbound maritime cargo, shipments reached their highest level in 2007, reflecting firm economic growth. Hawai‘i’s petroleum consumption also peaked in 2007 at 53 million barrels and stabilized at approximately 44.7 million barrels between 2008 and 2020 (DBEDT, 2023). Overall, Hawai‘i’s inbound maritime cargo shipments declined at an average annual rate of 1.28 percent during the 2001 to 2021 period.

Table 1. Average Annual Tons of Hawai‘i’s Inbound and Outbound Maritime Cargo Shipments, 2001 – 2021*

	Inbound Shipments	Outbound Shipments	Total Shipments
Average Annual Tons	12,418,364	1,628,885	14,047,249
Percent of Total	88.4%	11.6%	100%
Average Annual Percent Change (2001-2021)	-1.28%	1.98%	-1.37%

* Does not include domestic intrastate (interisland) shipments.

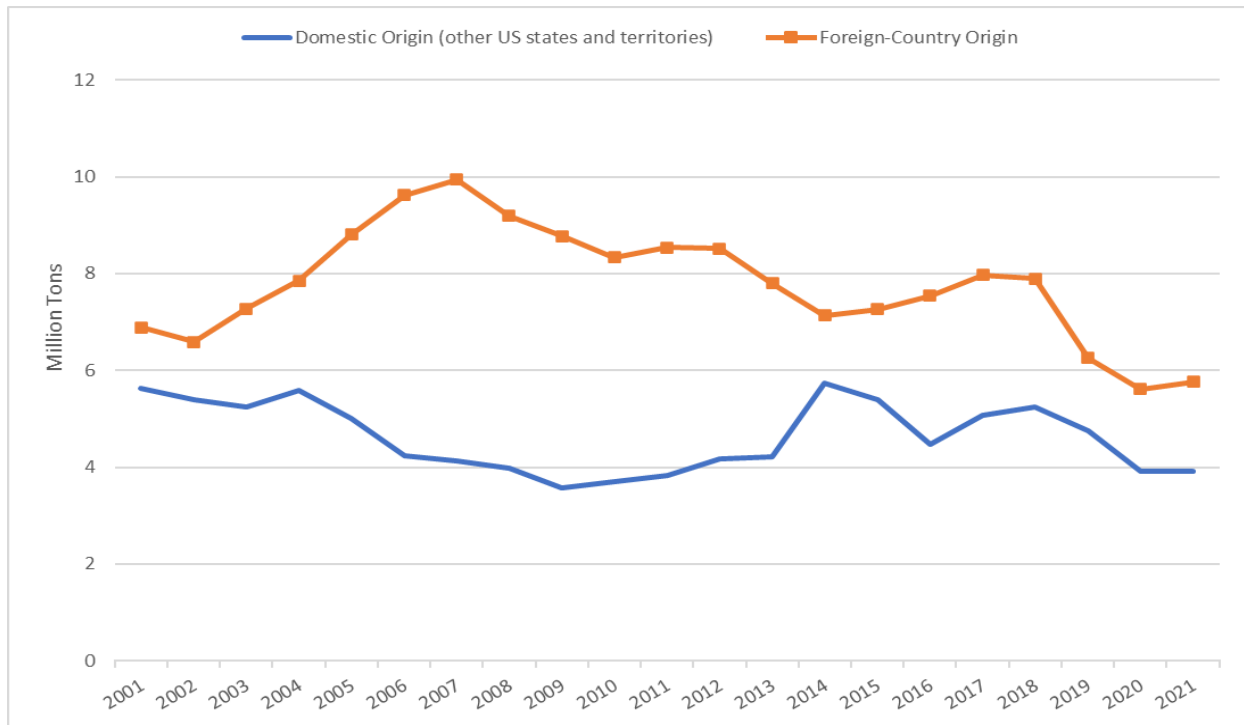
Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

B. Hawai‘i’s Inbound Maritime Cargo Shipments from Domestic Interstate and International Origins

By weight, most of the inbound maritime cargo originating in foreign countries was crude oil. Therefore, inbound shipments from foreign countries were closely correlated with crude oil demand. As depicted in Figure 4, during the 2001 to 2021 period, inbound shipments to Hawai‘i from abroad peaked in 2007 at 9.9 million tons. As the recession took hold, tonnage fell to 8.3 million tons in 2010 before stabilizing in 2011 and 2012, with both years’ imports hovering around 8.5 million tons. In 2013 and 2014, tonnage declined and then recovered slightly by 2017. Imports fell significantly during the COVID-19 pandemic to a period low of 5.9 million tons in 2020. The 2021 tonnage of 5.8 million was 42.0 percent below the 2007 pre-recession figure of 9.9 million tons. Looking forward, Hawai‘i’s imports by tonnage will probably remain below historical levels as Hawai‘i shifts from imported petroleum to renewable energy sources.

In looking at the trend for inbound domestic interstate cargo from 2001 to 2021, the pre-recession peak amount was 5.6 million tons in 2001 and hovered around this level through 2004. The tonnage for interstate inbound declined from 2005 through 2009 and then gradually increased from 2010 before reaching a post-recession peak of 5.7 million tons in 2014. However, after 2015, tonnage from interstate origins reversed and entered a decline through 2021. This partially reflects a substitution of inbound crude oil between foreign and interstate sources. For 2021, inbound maritime cargo for interstate and foreign sources were both below pre-recession peak levels.

Figure 4. Hawai‘i’s Inbound Maritime Cargo Shipments from Domestic Interstate and International Origins, 2001 – 2021*



* Does not include domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Table 2 compares inbound cargo by average annual tonnage brought in from domestic interstate and foreign sources. During the 2001 to 2021 period, an annual average of 4.6 million tons (37.3 percent) was shipped into the state from interstate sources and 7.8 million tons (62.7 percent) was shipped into the state from foreign countries. In examining the average annual growth rate for the 2001 to 2021 period, inbound tonnage from interstate sources declined at a rate of 1.80 percent, while tonnage from international sources declined at a rate of 0.89 percent. As noted above, this can partially be explained by the substitution of crude oil between foreign and interstate sources. Overall, Hawai‘i’s inbound maritime cargo shipping activity over the period declined at an average annual rate of 1.28 percent.

Table 2. Average Annual Tons of Inbound Maritime Cargo Shipments to Hawai‘i, 2001 – 2021*

	Domestic Shipments (from other U.S. states & territories)	International Shipments (from foreign-countries)	Total Inbound Shipments
Average Annual Tons	4,628,534	7,789,830	12,418,364
Percent of Total	37.3%	62.7%	100%
Average Annual Percent Change (2001-2021)	-1.80%	-0.89%	-1.28%

* Does not include domestic intrastate (interisland) shipments.

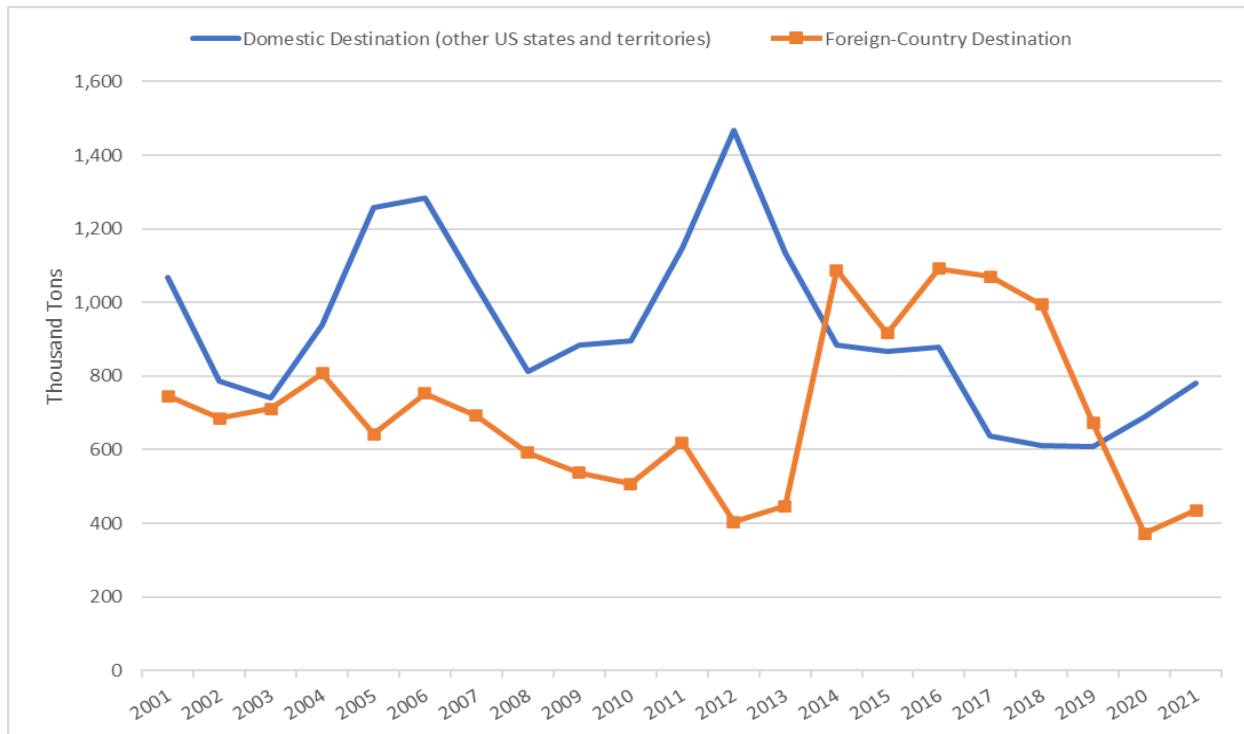
Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

C. Hawai‘i’s Outbound Maritime Cargo Shipments to Domestic Interstate and International Destinations

Figure 5 compares outbound maritime cargo to domestic interstate and foreign-country destinations. It is important to note that the amounts do not include intrastate shipments between islands, which will be examined separately. For the period of 2001 to 2021, maritime cargo tonnage shipped from Hawai‘i to interstate destinations had been fairly volatile. From 2001 to 2003, the amount shipped declined from 1.1 million tons to a low of 741.1 thousand tons. Maritime shipping volumes then recovered and increased to a pre-recession peak of 1.3 million tons in 2006. However, as the recession took hold, tonnage declined to 813.5 thousand tons in 2008. During the recovery period, a new peak was reached in 2012 at 1.5 million tons before eventually declining to 609.4 thousand tons in 2019. Outbound cargo increased during the COVID-19 pandemic to 780.4 thousand tons in 2021, an increase of 28.1 percent from the 2019 pre-pandemic level.

For Hawai‘i exports to foreign countries, outbound maritime cargo volumes hovered around 700 thousand tons between 2001 and 2006. As exports slowed with the recession, outbound tonnage to foreign countries declined from 752.9 thousand tons in 2006 to 506.4 thousand tons in 2010; volumes bounced back in 2011 to 618.6 thousand tons and then declined to 403.4 thousand tons in 2012. In 2014, outbound maritime cargo to foreign countries surged to 1.1 million tons, surpassing cargo to interstate destinations. The levels remained high in 2016 at 1.1 million tons, 45.0 percent above the pre-recession peak level. The levels then declined 38.4 percent from 2016 to 2019 with another decline of 35.4 percent from 2019 through the COVID-19 pandemic, landing at 434.8 thousand tons in 2021. The lowest annual tonnage over the period, at 372.4 thousand tons, occurred at the height of the COVID-19 pandemic in 2020.

Figure 5. Outbound Maritime Cargo Shipments from Hawai‘i to Domestic Interstate and International Destinations, 2001 – 2021*



* Does not include domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Table 3 shows Hawai‘i’s outbound annual average tonnage for cargo shipped to domestic interstate and international destinations. Outbound maritime cargo shipments to other U.S. states averaged 924.9 thousand tons per year, which was significantly higher than the 703.9 thousand tons average for outbound shipments to international destinations. Interstate destinations comprised most outbound shipments, accounting for 56.8 percent of the total with the remaining 43.2 percent being exports to foreign countries. During the 2001 to 2021 period, Hawai‘i’s interstate outbound shipments decreased at an average annual rate of 1.55 percent, while international outbound shipments decreased at an average annual rate of 2.66 percent. Overall, Hawai‘i’s outbound maritime cargo decreased at an average annual rate of 1.98 percent during the 2001 to 2021 period.

Table 3. Average Annual Tons of Outbound Maritime Cargo Shipments from Hawai‘i, 2001 – 2021*

	Domestic Interstate Shipments (to other U.S. states)	International Shipments (to other countries)	Total Outbound Shipments
Average Annual Tons	924,948	703,936	1,628,885
Percent of Total	56.8%	43.2%	100%
Average Annual Percent Change (2001-2021)	-1.55%	-2.66%	-1.98%

* Does not include domestic intrastate (interisland) shipments.

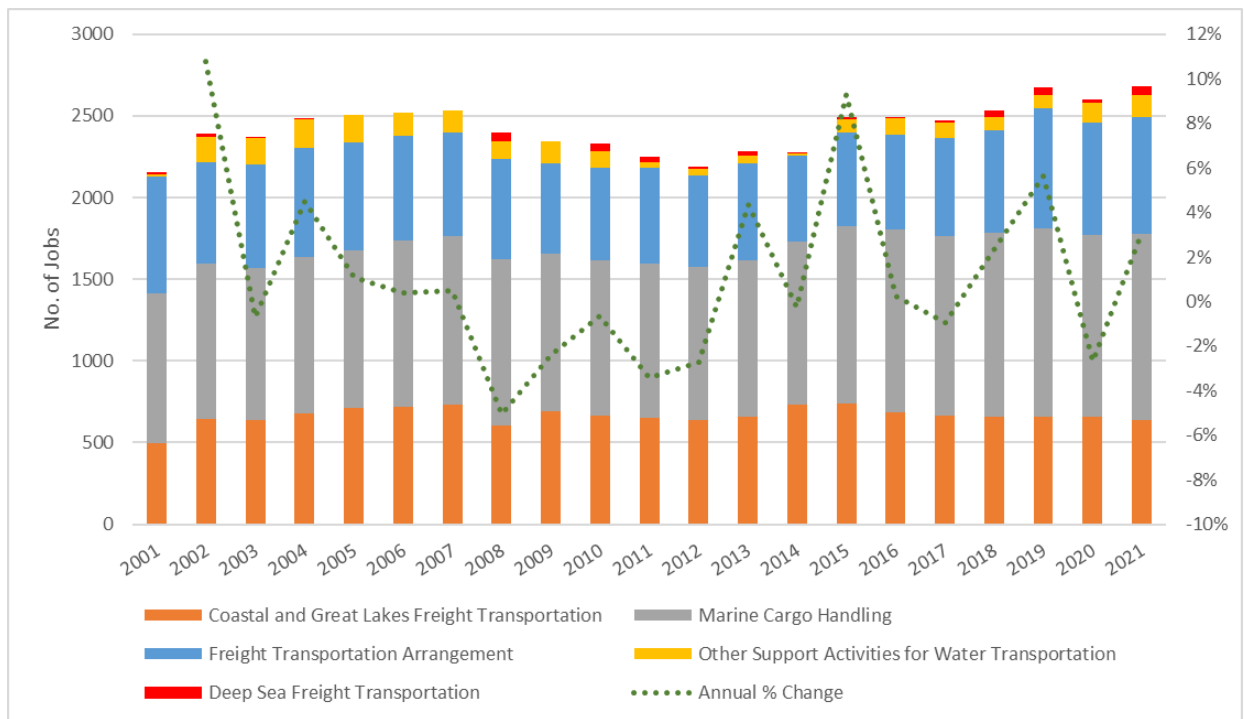
Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

III. Hawai‘i’s Maritime Cargo Sector Jobs

Five industries were related to the Maritime Cargo Sector: Marine Cargo Handling (488320), Coastal Freight Transportation (483113), Deep Sea Freight Transportation (483111), Freight Transportation Arrangement (488510), and Other Support Activities for Water Transportation (488390). The definitions of these industries by NAICS code are included in the appendix. The jobs category includes wage and salary jobs, self-employed, and proprietors; payments in this report are termed “earnings.” Average annual growth rates in this report were calculated using the compound annual growth rate formula.

Generally, the trend of total jobs in the Maritime Cargo Sector followed the business cycle of the economy. During the pre-recession period from 2001 to 2007, jobs peaked in 2006 at 2,518 jobs. In the post-recession period, jobs hit a low of 2,189 in 2012 and then increased to 2,673 jobs in 2019. With the onset of COVID-19, maritime cargo jobs declined 2.7 percent in 2020 to 2,601 jobs. However, jobs quickly recovered and surpassed pre-pandemic levels in 2021 with 2,683 maritime cargo jobs, as volumes returned.

Figure 6. Annual Maritime Cargo Sector Jobs by Industry, 2001 – 2021



Source: Lightcast™ (2023.4) and DBEDT Calculation.

As shown in Table 4, Hawai‘i’s Maritime Cargo Sector had a total of 2,683 jobs in 2021. During the 2001 to 2021 period, Hawai‘i jobs in this sector increased 24.3 percent. While the growth was strong, it was lower than the 44.5 percent growth for the nation’s comparable sector. In 2021, the weighted average annual earnings for Hawai‘i workers in this sector were \$140,860, which was above the nation’s comparable sector average of \$90,452. In 2021 for Hawai‘i, this sector had an average of 22 jobs per establishment, which was higher than the average of 17 jobs for the nation’s comparable sector.

Table 4. Maritime Cargo Sector Jobs, Job Growth and Earnings, Hawai‘i and the U.S., 2001 – 2021

	HI Jobs (2021)	Job Growth (2001-2021)		Average Jobs per Establishment (2021)		Average Annual Earnings (2021)	
	HI	HI	U.S.	HI	U.S.	HI	U.S.
Marine Cargo Handling	1,139	23.7%	60.8%	104	82	\$170,698	\$111,700
Freight Transportation Arrangement	710	0.1%	52.4%	9	15	\$76,281	\$82,986
Coastal Freight Transportation	641	29.3%	16.5%	37	22	\$176,732	\$116,410
Other Support Activities for Water Transportation	140	826.9%	-25.5%	12	12	\$51,690	\$85,345
Deep Sea Freight Transportation	53	197.5%	-23.8%	23	21	\$167,277	\$150,314
Total	2,683	24.3%	44.5%	22	17	\$140,860	\$90,452

* Weighted average.

Source: Lightcast™ (2023.4) and DBEDT Calculation.

Of all the industries within the Maritime Cargo Sector, the Marine Cargo Handling industry had the highest job count for Hawai‘i in 2021, with 1,139 jobs or 42.4 percent of the sector’s total. Hawai‘i’s Marine Cargo Handling had annual earnings at \$170,698 in 2021, which was 52.8 percent higher than the nation’s comparable industry average of \$111,700. During the 2001 to 2021 period, the Marine Cargo Handling job count in Hawai‘i grew 23.7 percent, which was lower than the 60.8 percent growth for the nation’s comparable industry. In 2021, this industry averaged 104 jobs per establishment for Hawai‘i, which was higher than the nation’s comparable industry average of 82 jobs.

Marine Cargo Handling was followed by the Freight Transportation Arrangement industry, with 710 Hawai‘i jobs or 26.5 percent of the total sector in 2021. Hawai‘i’s 2021 annual earnings for this industry averaged \$76,281, which was approximately 8.1 percent below the nation’s comparable industry average of \$82,986. Hawai‘i jobs in this category grew 0.1 percent, while the nation’s comparable industry increased 52.4 percent for the 2001 to 2021 period. One reason for Hawai‘i’s slow job growth in this industry could be an increase in outsourcing to employment agencies, which would show up as a different industry code. In 2021, the Freight Transportation Arrangement industry averaged nine jobs per establishment for Hawai‘i and 15 jobs per establishment for the nation’s comparable industry.

The third largest industry was the Coastal Freight Transportation industry with 641 jobs or 23.9 percent of the sector total. Hawai‘i’s Coastal Freight Transportation had the highest annual earnings at \$176,732 in 2021, which was 51.8 percent higher than the nation’s average of \$116,410. For the 2001 to 2021 period, the Hawai‘i job count in this industry grew 29.3 percent versus 16.5 percent for the U.S. overall. In 2021, this industry averaged 37 jobs per establishment for Hawai‘i and 22 jobs per establishment for the nation’s comparable industry.

The fourth largest category was Other Support Activities for Water Transportation, with 140 Hawai‘i jobs in 2021 or 5.2 percent of the total sector. During the 2001 to 2021 period, jobs increased 826.9 percent in Hawai‘i, while they declined 25.5 percent for the nation’s comparable

industry. While Hawai'i's percentage increase was significant, the total number of jobs remains relatively small. The 2021 annual average for Hawai'i's earnings was \$51,690, which was below the for the nation's comparable industry average of \$85,345. In 2021, this industry averaged 12 jobs per establishment for Hawai'i and 12 jobs per establishment for the nation's comparable industry.

The last category was Deep Sea Freight Transportation, with an estimated 53 Hawai'i jobs in 2021 or 2.0 percent of the total sector. During the 2001 to 2021 period, U.S. jobs in this industry declined 23.8 percent whereas Hawai'i jobs grew 197.5%. For this industry in 2021, the U.S. had an average annual earnings of \$150,314 and Hawai'i had an average of \$167,277. In 2021, this industry averaged 23 jobs per establishment for Hawai'i and 21 jobs per establishment for the nation's comparable industry. Due to the small number of jobs in Hawai'i (53 jobs), discretion should be used when comparing Hawai'i to the nation.

IV. Hawai‘i’s Maritime Cargo Shipments by Commodity

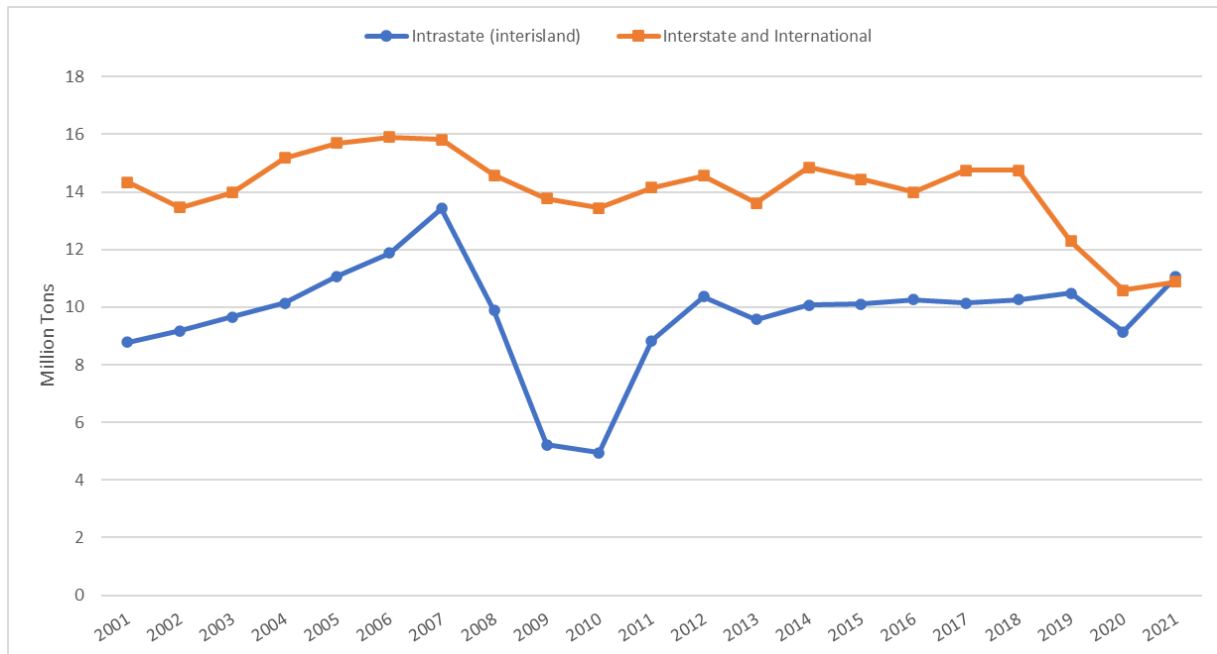
This section examines Hawai‘i’s maritime cargo shipments by commodity, including intrastate (interisland) shipments. Generally, the trade pattern for inbound freight is for the freight to arrive on Oahu (Honolulu or Barbers Point) and then either remain on Oahu or be transshipped to the neighbor islands. For outbound freight, the goods are shipped from the neighbor islands to Oahu, consolidated with Oahu freight, and then shipped to out-of-state destinations.

Figure 7 compares interstate/international and intrastate (interisland) shipments, with inbound and outbound tonnage combined. Generally, interstate/international, and intrastate shipments followed the same general trend; shipments peaked before the recession, declined through 2010, entered the recovery phase, and then leveled off with minor fluctuations between 2013 and 2019 before declining during the COVID-19 pandemic.

However, the recession had a greater impact on maritime cargo tonnage for intrastate shipments between islands than it did for interstate/international shipments. Intrastate shipments had a 63.2 percent drop from the peak of 13.4 million tons in 2007 to a trough of 4.9 million tons in 2010. In contrast, interstate shipments only declined 15.0 percent during the same period. In looking at the data, one reason appears to be a decline in the neighbor island construction activity relative to Oahu. From 2006 to 2011, building permits declined substantially in neighbor counties with the Maui County down 75.1 percent, Hawai‘i County down 69.5 percent, and Kaua‘i County down 75.1 percent (DBEDT Datawarehouse, 2023). During the same period, Honolulu County had a decline of only 21.7 percent. Other industries that appear to have reduced their intrastate shipments between islands because of the recession were accommodation and food service, retail, and manufacturing.

As noted in Table 2, two events had significant impacts on maritime shipping between 2018 and 2021: the closure of one of Oahu’s oil refineries in 2018 which reduced crude petroleum imports, and the start of the COVID-19 pandemic which dramatically decreased economic activity.

Figure 7. Hawai‘i’s Intrastate versus Interstate and International Maritime Cargo Shipments by Weight, 2001 – 2021



Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Table 5 shows inbound and outbound domestic interstate maritime cargo by commodity for 2021. It is important to note that most of the tonnage falls into the Unknown or Not Elsewhere Classified category. Generally, Waterborne Commerce data is classified in this category if the commodity classification is unknown and/or if there is a need to protect proprietary company information. The categories impacted by this were outbound Chemicals and Related Products; Petroleum Products (other than crude); Crude Petroleum; Coal, Lignite & Coal Coke; Primary Manufactured Goods; Crude Materials, Inedible Except Fuels; Manufactured Equipment, Machinery and Products; and Food and Farm Products. However, there is more commodity shipment detail in the following county sections.

Other than the Unknown or Not Elsewhere Classified category, the largest category for Hawai‘i’s interstate inbound maritime cargo was Chemicals and Related Products, with 90.9 thousand tons of inbound cargo and the outbound tons either zero or being included in the Unknown or Not Elsewhere Classified category.

The next largest category for interstate cargo was Petroleum Products (other than crude). Crude oil is usually included in this category, which Hawai‘i ships into the state, processes into finished petroleum products (gasoline, jet fuel, and other), and then distributes these finished petroleum products within Oahu locations and the neighbor islands. There is usually a small amount that is sent out of state. However, for 2021 there was no Crude Petroleum recorded for inbound or outbound.

Table 5. Hawai‘i’s Domestic Interstate Maritime Cargo Shipments, 2021*

Commodity Classification	Inbound Tons (imports)	Outbound Tons (exports)
Unknown or Not Elsewhere Classified, includes: Crude Petroleum Coal, Lignite & Coal Coke Primary Manufactured Good Crude Materials, Inedible Except Fuels Manufactured Equipment, Machinery and Products Food and Farm Products Waste Material (garbage, sewage, sludge, etc.)	3,776,674	765,972
Chemicals and Related Products	90,900	N/A
Petroleum Products (other than crude)	44,672	14,464
Total	3,912,246	780,436

* Does not include domestic intrastate (interisland) shipments. N/A denotes not available due to being classified within the unknown or not elsewhere classified category.

Source: Waterborne Commerce of the United States, State to State Data. Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Table 6 shows inbound and outbound cargo to and from international locations (imports and exports) for 2021. It is important to note that the international cargo data included more detail because shippers are mandated to declare the shipment commodity and weight, thus reducing the amount of Unknown or Not Elsewhere Classified shipments. Crude Petroleum was the largest import category, with 2.9 million tons of inbound cargo. Most of the inbound tonnage was comprised of crude oil, imported from sources including South America and Africa to supply Hawai‘i’s oil refineries (EIA, 2023). The next largest category was Petroleum Products (other than crude) with 1.4 million tons inbound and 71.0 thousand tons outbound. The following categories were Coal (604.6 thousand tons inbound), Primary Manufactured Goods (368.6 thousand tons inbound, 3.1 thousand tons outbound), Crude Materials, Inedible Except Fuels (281.3 thousand tons inbound, 271.2 thousand tons outbound), Manufactured Equipment, Machinery and Products (108.1 thousand tons inbound, 28.6 thousand tons outbound), Food and Farm Products (78.5 thousand tons inbound, 39.2 thousand tons outbound), Chemicals and Related Products (27.3 thousand tons inbound, 8.8 thousand tons outbound), Unknown or Not Elsewhere Classified (7.2 thousand tons inbound, 12.7 thousand tons outbound), and Waste Material (0 inbound, 0 outbound). In comparing inbound versus outbound for international shipments, Hawai‘i imported approximately thirteen times more tonnage than it exported in 2021.

Table 6. Hawai‘i’s International Maritime Cargo Shipments, 2021

Commodity Classification	Inbound Tons (imports)	Outbound Tons (exports)
Crude Petroleum	2,915,160	N/A
Petroleum Products (other than crude)	1,370,278	71,077
Coal, Lignite & Coal Coke	604,585	N/A
Primary Manufactured Goods	368,554	3,102
Crude Materials, Inedible Except Fuels	281,315	271,253
Manufactured Equipment, Machinery and Products	108,100	28,557
Food and Farm Products	78,455	39,239
Chemicals and Related Products	27,265	8,824
Unknown or Not Elsewhere Classified	7,231	12,730
Waste Material (garbage, sewage, sludge, etc.)*	0	0
Total	5,760,943	434,782

* International totals for intrastate show 0. Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Source: Waterborne Commerce of the United States, State to State Data. Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Table 7 shows 2021 domestic intrastate maritime cargo shipments by commodity. Due to shipments being intrastate between islands, inbound and outbound cargo are reported as one figure (inbound=outbound). As previously mentioned, certain categories are denoted as “N/A” due to being included within the Unknown or Not Elsewhere Classified Products category. Excluding the Unknown or Not Elsewhere Classified category, Petroleum Products (other than crude) was the largest category for intrastate shipments. The next largest category was Primary Manufactured Goods, which includes paper products, construction materials, and wood products, followed by the Chemicals and Related Products category. The largest category was Unknown or Not Elsewhere Classified for intrastate shipments which included Crude Petroleum; Coal, Lignite & Coal Coke; Crude Materials, Inedible Except Fuels; Manufactured Equipment, Machinery and Products; Food and Farm Products; and Waste Material.

Table 7. Hawai‘i’s Intrastate Maritime Cargo Shipments, 2021

Commodity Classification	Total Tons
Unknown or Not Elsewhere Classified, includes: Crude Petroleum Coal, Lignite & Coal Coke Crude Materials, Inedible Except Fuels Manufactured Equipment, Machinery and Products Food and Farm Products Waste Material (garbage, sewage, sludge, etc.)	9,656,024
Petroleum Products (other than crude)	1,244,512
Primary Manufactured Goods	97,372
Chemicals and Related Products	46,712
Total	11,044,620

Source: Waterborne Commerce of the United States, State to State Data. Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

V. Hawai‘i’s Maritime Cargo Shipments by County or Island

This section explores maritime cargo by county and commodity. The data is compiled from port-level data and then aggregated by county. As noted earlier, the county totals do not sum up to the state totals due to intrastate shipments between islands being counted multiple times. For example, a shipment arriving at Honolulu County and then transshipped to Kaua‘i County would be counted as inbound for Honolulu, outbound for Honolulu County, and inbound for Kaua‘i County. Domestic data at the county and island level include domestic interstate and domestic intrastate. In contrast, the state totals shown in Figures 2, 3, and 4 only include interstate shipments.

Honolulu County

The following table for Honolulu County comprises the ports of Honolulu, Pearl Harbor, Kailua, and Barbers Point on the Island of Oahu. As noted above, the figures for Honolulu County maritime cargo include neighbor island transshipments; therefore, Honolulu County totals include both the cargo that is used or consumed within the county, as well as the freight that passes through Honolulu County to and from the neighbor islands. With this caveat, Table 8 lists the maritime cargo tonnage shipped inbound to Honolulu County from domestic origins (7.8 million tons) and international origins (5.6 million tons); maritime cargo tonnage shipped outbound from Honolulu County to domestic destinations (7.9 million tons) and international destinations (434.8 thousand tons); and total maritime cargo tonnage shipped inbound to Honolulu County (13.4 million tons) and outbound from Honolulu County (8.3 million tons).

Manufactured Equipment, Machinery, and Products was the largest cargo category, with 5.83 million tons inbound and 5.76 million tons outbound (including neighbor islands). This category includes both durable and nondurable goods for consumers and businesses.

The second largest domestic category for inbound was Crude Petroleum (778.5 thousand tons inbound), which arrived at Oahu’s Barbers Point and was refined into finished petroleum products including gasoline, jet fuel, kerosene, and other petroleum products. The finished petroleum products from Oahu refineries were distributed within Oahu and to neighbor islands and out-of-state locations; this is listed under outbound for Petroleum Products (other than crude), with 67.7 thousand tons inbound and 1.5 million tons outbound.

The third largest category for inbound was Food and Farm Products, with 684.2 thousand tons inbound and 437.6 thousand tons outbound.

The remaining categories included Crude Materials (180.0 thousand tons inbound, 65.0 thousand tons outbound), Primary Manufactured Goods (173.2 thousand tons inbound, 111.4 thousand tons outbound), Chemicals and Related Products (121.4 thousand tons inbound, 63.0 thousand tons outbound), and Waste Materials (21 tons inbound, 1.2 thousand tons outbound).

Table 8. Honolulu County's Maritime Cargo Shipments, Domestic and International, 2021*

Commodity Classification	Inbound Tons (from HI ports or other states)	Outbound Tons (to HI ports or other states)
<i>Domestic</i>		
Manufactured Equipment, Machinery and Products	5,832,251	5,764,926
Crude Petroleum	778,539	0
Food and Farm Products	684,213	437,598
Crude Materials, Inedible Except Fuels	179,519	65,041
Primary Manufactured Goods	173,282	111,383
Chemicals and Related Products	121,434	62,972
Petroleum Products (other than crude)	67,651	1,470,168
Waste Material (garbage, sewage, sludge, etc.)	21	1,242
Coal, Lignite & Coal Coke	0	0
Unknown or Not Elsewhere Classified	0	0
Sub-Total	7,836,910	7,913,330
<i>International</i>		
Crude Petroleum	2,912,018	0
Petroleum Products (other than crude)	1,296,361	71,077
Coal, Lignite & Coal Coke	604,585	0
Primary Manufactured Goods	368,554	3,102
Crude Materials, Inedible Except Fuels	271,394	271,253
Manufactured Equipment, Machinery and Products	108,097	28,557
Food and Farm Products	65,559	39,239
Chemicals and Related Products	14,484	8,824
Unknown or Not Elsewhere Classified	2,457	12,730
Waste Material (garbage, sewage, sludge, etc.)	0	0
Sub-Total	5,643,509	434,782
<i>Domestic and International Combined</i>		
Total	13,480,419	8,348,112

* Includes domestic interstate and domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Honolulu County's total international maritime cargo shipments were 5.6 million tons for inbound and 434.8 thousand tons for outbound in 2021. The largest category for imports from abroad was Crude Petroleum at 2.9 million tons. As noted earlier, crude oil is imported from sources including South America and Africa to supply Oahu's oil refineries.

The next largest category was Petroleum Products (other than crude) with 1.3 million tons for inbound from foreign origins and 71.1 thousand tons for outbound to foreign destinations. While Hawai'i refines crude oil into petroleum products, the data shows that the state also imports petroleum products from abroad. Conversely, some of the refined petroleum products produced on Oahu are exported to foreign countries. Another imported energy-related product was coal, with 604.6 thousand tons imported into Honolulu County in 2021.

The remaining categories for Honolulu County's international shipments included Primary Manufactured Goods (369.0 thousand tons inbound, 3.1 thousand tons outbound), Crude Materials (271.4 thousand tons inbound, 271.2 thousand tons outbound), Manufactured Equipment, Machinery, and Products (108.1 thousand tons inbound, 28.6 thousand tons outbound), Food and Farm Products (65.6 thousand tons inbound, 39.2 thousand tons outbound), Chemicals and Related Products (14.5 thousand tons inbound, 8.8 thousand tons outbound), and Unknown or Not Elsewhere Classified (2.5 thousand tons inbound, 12.7 thousand tons outbound).

Hawai'i County

Hawai'i County's Maritime Cargo Sector relies on ports in Hilo and Kawaihae. In 2021, as shown in Table 9, Hawai'i County's total maritime cargo shipments were 3.0 million tons for inbound and 1.8 million tons for outbound. The largest domestic cargo category was Manufactured Equipment, Machinery, and Products (2.3 million tons inbound, 1.7 million tons outbound). This was followed by Petroleum Products (other than crude; 478.6 thousand tons inbound), reflecting the demand for energy and fuel products sourced from Oahu. The Food and Farm Products category ranked third (131.2 thousand tons inbound, 42.4 thousand tons outbound).

The remaining categories for Hawai'i County's domestic shipments included Primary Manufactured Goods (50.0 thousand tons inbound, 2.9 thousand tons outbound), Chemicals (36.5 thousand tons inbound, 264 tons outbound), and Crude Materials (29.0 thousand tons inbound, 21.4 thousand tons outbound).

For international shipments in 2021, Hawai'i County imported 32.1 thousand tons of Petroleum Products (other than crude), 12.9 thousand tons of Food and Farm Products, 12.8 thousand tons of Chemicals, and 3.8 thousand tons of Unknown or Not Elsewhere Classified. It is important to note that a majority of Hawai'i County's international shipments (inbound and outbound) were routed through ports within Honolulu County, and these would show up in the data as domestic shipments for Hawai'i County, rather than international shipments.

Table 9. Hawai‘i County’s Maritime Cargo Shipments, Domestic and International, 2021*

Commodity Classification	Inbound Tons (from HI ports or other states)	Outbound Tons (to HI ports or other states)
<i>Domestic</i>		
Manufactured Equipment, Machinery and Products	2,260,511	1,685,682
Petroleum Products (other than crude)	478,625	0
Food and Farm Products	131,183	42,360
Primary Manufactured Goods	50,049	2,886
Chemicals and Related Products	36,503	264
Crude Materials, Inedible Except Fuels	28,994	21,369
Unknown or Not Elsewhere Classified	0	0
Crude Petroleum	0	0
Coal, Lignite & Coal Coke	0	0
Waste Material (garbage, sewage, sludge, etc.)	0	0
Sub-Total	2,985,865	1,752,561
<i>International</i>		
Petroleum Products (other than crude)	32,077	0
Food and Farm Products	12,896	0
Chemicals and Related Products	12,781	0
Unknown or Not Elsewhere Classified	3,757	0
Sub-Total	61,511	0
<i>Domestic and International Combined</i>		
Total	3,047,376	1,752,561

* Includes domestic interstate and domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

For Molokai, Lanai, and Maui, each island is listed separately instead of using Maui County as a whole. This allows for inbound and outbound cargo to and from these islands to be analyzed separately, rather than part of Maui County as a whole.

The Island of Maui

Most of the maritime cargo for the island of Maui is routed through the port at Kahului. The other ports are Hana Harbor and Lahaina. In 2021, as shown in Table 10, the island’s total maritime cargo shipments were 2.6 million tons for inbound and 1.3 million tons for outbound. The largest domestic cargo category was Manufactured Equipment, Machinery, and Products (1.8 million tons inbound, 1.3 million tons outbound). This was followed by Petroleum Products (other than crude; 563.2 thousand tons inbound, 201 tons outbound); a majority of which originated from Oahu’s refineries. The next largest category was Food and Farm Products which ranked third (117.0 thousand tons inbound, 7.6 thousand tons outbound). In 2016, the island had the largest amount of outgoing Food and Farm Products of all counties. However, the closing of the island’s sugar mill in 2016 greatly affected outbound tons and in 2021 was only 7.6 thousand tons.

The remaining categories for domestic shipments in 2021 were Primary Manufactured Goods (36.0 thousand tons inbound, 3.8 thousand tons outbound), Chemicals (13.5 thousand tons inbound, 337 tons outbound), and Crude Materials (12.0 thousand tons inbound, 10.5 thousand tons outbound).

For international shipments in 2021, the island of Maui imported 33.6 thousand tons of Petroleum Products (other than crude), 9.9 thousand tons of Crude Materials, 3.1 thousand tons of Crude Petroleum, 1.0 thousand tons of Unknown or Not Elsewhere Classified, and 3 tons of Manufactured Equipment, Machinery, and Products. The island had no direct outbound shipments to international locations. However, most imports and exports are routed through Honolulu ports and, therefore, are included in the domestic data.

Table 10. Maui's Maritime Cargo Shipments, Domestic and International, 2021*

Commodity Classification	Inbound Tons (from HI ports or other states)	Outbound Tons (to HI ports or other states)
<i>Domestic</i>		
Manufactured Equipment, Machinery and Products	1,781,796	1,273,832
Petroleum Products (other than crude)	563,198	201
Food and Farm Products	116,951	7,630
Primary Manufactured Goods	35,591	3,771
Chemicals and Related Products	13,481	337
Crude Materials, Inedible Except Fuels	11,956	10,484
Crude Petroleum	0	0
Coal, Lignite & Coal Coke	0	0
Waste Material (garbage, sewage, sludge, etc.)	0	0
Unknown or Not Elsewhere Classified	0	0
Sub-Total	2,522,973	1,296,255
<i>International</i>		
Petroleum Products (other than crude)	33,606	0
Crude Materials, Inedible Except Fuels	9,921	0
Crude Petroleum	3,142	0
Unknown or Not Elsewhere Classified	1,017	0
Manufactured Equipment, Machinery and Products	3	0
Sub-Total	47,689	0
<i>Domestic and International Combined</i>		
Total	2,570,662	1,296,255

* Includes domestic interstate and domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

The Island of Molokai

Maritime cargo for the island of Molokai is routed through the port at Kaunakakai. In 2021, as shown in Table 11, the island's total maritime cargo shipments were 62.3 thousand tons for inbound and 26.4 thousand tons for outbound. The largest domestic cargo category was Manufactured Equipment, Machinery, and Products (48.4 thousand tons inbound, 23.8 thousand tons outbound). This was followed by Petroleum Products (other than crude; 9.5 thousand tons inbound), a majority of which originated from Oahu's refineries. The next largest category was Food and Farm Products which ranked third (3.7 thousand tons inbound, 1.4 thousand tons outbound).

The remaining categories for domestic shipments were Primary Manufactured Goods (550 tons inbound, 1.2 thousand tons outbound) and Crude Materials (88 tons inbound).

For international shipments in 2021, the island of Molokai had no direct inbound or outbound shipments. However, most of the island's exports are routed through ports within the state and, therefore, are included in the domestic data.

Table 11. Molokai's Maritime Cargo Shipments, Domestic and International, 2021*

Commodity Classification	Inbound Tons (from HI ports or other states)	Outbound Tons (to HI ports or other states)
<i>Domestic</i>		
Manufactured Equipment, Machinery and Products	48,415	23,836
Petroleum Products (other than crude)	9,530	0
Food and Farm Products	3,728	1,387
Primary Manufactured Goods	550	1,211
Crude Materials, Inedible Except Fuels	88	0
Crude Petroleum	0	0
Coal, Lignite & Coal Coke	0	0
Chemicals and Related Products	0	0
Waste Material (garbage, sewage, sludge, etc.)	0	0
Unknown or Not Elsewhere Classified	0	0
<i>International</i>		
All Commodities	0	0
<i>Domestic and International Combined</i>		
Total	62,311	26,434

* Includes domestic interstate and domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

The Island of Lanai

Maritime cargo for the island of Lanai is routed through the port at Kaunapali. In 2021, as shown in Table 12, the island's total maritime cargo shipments were 108.4 thousand tons for inbound and 65.3 thousand tons for outbound. The largest domestic cargo category was Manufactured Equipment, Machinery, and Products (105.8 thousand tons inbound, 64.4 thousand tons outbound), the majority of which was listed as Empty Containers (82.2 thousand tons inbound, 55.3 thousand tons outbound). This was followed by Food and Farm Products (2.0 thousand tons inbound, 20 tons outbound), Primary Manufactured Goods (535 tons inbound, 892 tons outbound), and Crude Materials (102 tons inbound).

For international shipments in 2021, the island of Lanai had no direct inbound or outbound shipments. However, most of the island's imports and exports are routed through other ports and, therefore, are included in the domestic data.

Table 12. Lanai's Maritime Cargo Shipments, Domestic and International, 2021*

Commodity Classification	Inbound Tons (from HI ports or other states)	Outbound Tons (to HI ports or other states)
<i>Domestic</i>		
Manufactured Equipment, Machinery and Products (including Empty Containers)	105,827	64,431
Empty Containers	82,187	55,286
Food and Farm Products	1,951	20
Primary Manufactured Goods	535	892
Crude Materials, Inedible Except Fuels	102	0
Crude Petroleum	0	0
Coal, Lignite & Coal Coke	0	0
Petroleum Products (other than crude)	0	0
Chemicals and Related Products	0	0
Waste Material (garbage, sewage, sludge, etc.)	0	0
Unknown or Not Elsewhere Classified	0	0
<i>International</i>		
All Commodities	0	0
<i>Domestic and International Combined</i>		
Total	108,415	65,343

* Includes domestic interstate and domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

Kaua‘i County

Kaua‘i’s maritime cargo moves through Nawiliwili Harbor. Some cargo moved through Port Allen in the past but shows no data for any commodity since 2016. In 2021, as shown in Table 13, Kaua‘i County’s total maritime cargo shipments were 1.4 million tons for inbound and 749.2 thousand tons for outbound. The largest domestic cargo category was Manufactured Equipment, Machinery, and Products (1.2 million tons inbound, 738.3 thousand tons outbound). This was followed by Petroleum Products (other than crude; 171.5 thousand tons inbound) for energy and fuel needs.

The remaining categories for Kaua‘i County’s domestic maritime cargo included Food and Farm Products (30.5 thousand tons inbound, 2.9 thousand tons outbound), Primary Manufactured Goods (18.2 thousand tons inbound, 2.3 thousand tons outbound), Chemicals (11.6 thousand tons inbound, 451 tons outbound), and Crude Materials (9.5 thousand tons inbound, 5.3 thousand tons outbound).

For international maritime cargo, Kaua‘i County imported 8.2 thousand tons of Petroleum Products (other than crude) directly in 2021 through the port at Nawiliwili. As with the other counties, a large portion of the international shipments (outbound and inbound) were routed through Honolulu and, therefore, are listed in the data as domestic.

Table 13. Kaua‘i County’s Maritime Cargo Shipments, Domestic and International, 2021*

Commodity Classification	Inbound Tons (from HI ports or other states)	Outbound Tons (to HI ports or other states)
<i>Domestic</i>		
Manufactured Equipment, Machinery and Products	1,157,792	738,298
Petroleum Products (other than crude)	171,457	0
Food and Farm Products	30,487	2,881
Primary Manufactured Goods	18,209	2,287
Chemicals and Related Products	11,591	451
Crude Materials, Inedible Except Fuels	9,488	5,252
Crude Petroleum	0	0
Coal, Lignite & Coal Coke	0	0
Waste Material (garbage, sewage, sludge, etc.)	0	0
Unknown or Not Elsewhere Classified	0	0
<i>International</i>		
Petroleum Products (other than crude)	8,234	0
<i>Domestic and International Combined</i>		
Total	1,407,258	749,169

* Includes domestic interstate and domestic intrastate (interisland) shipments.

Source: Waterborne Commerce of the United States, Department of the Army Corps of Engineers, Institute for Water Resources, 2023.

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Appendix

Definition of Industries by NAICS Code

This report used the following for maritime freight transportation and related services:

4830 Water Transportation

Industries in the Water Transportation subsector provide water transportation of passengers and cargo using watercraft, such as ships, barges, and boats. At the detailed level, two industries were used related to water transportation:

483111 Deep Sea Freight Transportation

This U.S. industry comprises establishments primarily engaged in providing deep-sea transportation of cargo to or from foreign ports.

483113 Coastal and Great Lakes Freight Transportation

This U.S. industry comprises establishments primarily engaged in providing water transportation of cargo in coastal waters, on the Great Lakes System, or deep seas between ports of the United States, Puerto Rico, and United States island possessions or protectorates. Maritime transportation establishments using the facilities of the St. Lawrence Seaway Authority Commission are considered to be using the Great Lakes Water Transportation System. Establishments primarily engaged in providing coastal and/or Great Lakes barge transportation services are included in this industry.

4883 Support Activities for Water Transportation

This industry group comprises establishments primarily engaged in one of the following: (1) operating ports, harbors (including docking and pier facilities), or canals; (2) providing stevedoring and other marine cargo handling services (except warehousing); (3) providing navigational services to shipping; or (4) providing other services to water transportation. At the detailed level, industries were used related to support activities for water transportation:

488320 Marine Cargo Handling

This industry comprises establishments primarily engaged in providing stevedoring and other marine cargo handling services (except warehousing).

488390 Other Support Activities for Water Transportation

This industry comprises establishments primarily engaged in providing services to water transportation (except port and harbor operations; marine cargo handling services; and navigational services to shipping).

488510 Freight Transportation Arrangement

This industry comprises establishments primarily engaged in arranging transportation of freight between shippers and carriers. These establishments are usually known as freight forwarders, maritime shipping agents, or customs brokers and offer a combination of services spanning transportation modes.