Special Report



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2014 Highlights of Ferry Operations in the United States

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Based on information provided by operators who responded to the 2014 National Census of Ferry Operators (NCFO), the Bureau of Transportation Statistics (BTS) conservatively estimates that ferries in the United States carried just over 115 million passengers and over 30 million vehicles¹ in 2013.

The Fixing America's Surface Transportation Act (FAST Act) (Public Law 114-94, section 1112)² set aside \$80 million for each fiscal year from 2016 to 2020 for the maintenance and improvement of the Nation's ferry system. It also required the Federal Highway Administration (FHWA) to use BTS' NCFO data as input for the formula for allocating Federal ferry funds. This report highlights the findings of the 2014 NCFO, which collected the operational characteristics of ferry operations in calendar year 2013. Data collection for the 2016 NCFO began in April.

Ferry Passenger and Vehicle Traffic Volume

Given the information provided by ferry operators participating in the 2014 NCFO and additional imputations, it is estimated that U.S. ferries carried over 115 million passengers and just over 30 million vehicles in calendar year 2013 (table 1). The West region³ had the highest passenger

and vehicle traffic volumes (45.8 million and 14.9 million, respectively). The West was followed by the Northeast in passenger boardings (30.9 million), and the South in vehicle boardings (9.1 million). In the South there were 26.4 million passenger boardings followed by the Midwest with approximately 10.4 million passenger boardings.

U.S. Ferry Operations

There were a total of 128 ferry operators⁴ who responded to the NCFO for calendar year 2013: 124 across 38 states, 2 in U.S. territories, and 2 between U.S. and non-U.S. locations.⁵ A breakdown of these operations by U.S. census regions can be seen in table 2.

Table 2: Operators by Census Region^a (2013)

Census region	Operators	Percent
Northeast	35	27.3
Midwest	22	17.2
South	36	28.1
West	31	24.2
U.S. territory	2	1.6
Non-U.S. location	2	1.6
Total	128	100.0

^aA Map of U.S. Census Regions can be seen in Appendix B.

Table 1: Passenger and Vehicle Boarding Estimates by Census Region (2013)

Census region	Passengers	Std error ^a	Vehicles	Std error ^a
Northeast	30,851,596	385,155	3,455,760	84,796
Midwest	10,406,371	280,267	2,377,010	60,384
South	26,441,653	181,200	9,121,240	17,326
West	45,846,310	436,575	14,864,231	135,173
U.S. territory ^b	582,991	63,743	206,626	29,219
Non-U.S. location	965,783	91,895	264,245	35,855
Total	115,094,704	513,104	30,289,112	236,622

^a Std Error: The standard error is the standard deviation of the distribution of estimates from the multiple imputations. It is a measurement of the error associated with each estimate due to imputation.

¹ Passenger and vehicle estimates were based on data provided by operators that participated in the 2014 NCFO and multiple imputations for missing data. See state-by-state estimates in Appendix A. See explanation of estimates in methodology. Due to nonresponse from some ferry operators, these estimates are likely to underestimate the actual number of passenger and vehicle boardings that occurred in 2013.

² https://www.congress.gov/114/bills/hr22/BILLS-114hr22enr.pdf

 $^{^{\}rm 3}\,{\rm A}$ map of the U.S. Census regions by state can be seen in Appendix B.

⁴ The total number of operators in 2013 is actually larger than depicted in this report. This number represents those who responded to the census.

⁵ Non-U.S. ferry operations that served U.S. terminals are included in the NCFO.

^b U.S. territories include Puerto Rico, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands.

Table 3: Percent of Revenue from Funding Source^a (2013)

Source	ource Ticket sales		Public		Private		State	
Percent of revenue	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Less than 25 percent	25	21.2	111	97.4	113	96.6	99	86.1
25 to 50 percent	9	7.6	1	0.9	1	0.9	1	0.9
50 to 75 percent	7	5.9	0	0.0	1	0.9	5	4.3
75 percent or more	77	65.3	2	1.8	2	1.7	10	8.7
Total	118	100.0	114	100.0	117	100.0	115	100.0

^a Percentages are based on those ferry operators responding to the 2014 NCFO. A total of 119 ferry operators provided information on revenue sources although not all responded to each funding source item.

NOTE: Percentages may not add to 100 due to rounding.

Operators indicated that just over half of their route fares were regulated by a public agency (53.7 percent – Appendix C). The majority of reporting operators' revenue came from ticket sales, as seen in table 3. Nearly two-thirds of operators reported that 75 percent or more of their revenue resulted from ticket sales. Ten operators (8.7 percent) reported that State Grant Funding provided 75 percent or more of their revenue. This contrasts with Public Funding (e.g., contracts held with public entities, such as states or localities) and Private Funding sources that provided the vast majority of operators with less than 25 percent of their revenue (97.4 and 96.6 percent, respectively).

The U.S. Ferry Fleet

Ferry operators who responded to the 2014 NCFO reported a ferry fleet of 499 vessels, 476 of which were in active service in calendar year 2013. California had the largest fleet (53 vessels), followed by Massachusetts (49), Washington State (46), New York (45), New Jersey (39), and North Carolina (30) – see Appendix D. The largest concentration of ferry vessels was reported in the Northeast, followed by the West and South regions as seen in table 4.

Of these vessels, 42.8 percent were privately owned and operated, while 39.4 percent were publicly owned and operated (table 5). Some of the vessels were reported as either publicly or privately owned, but it was unknown how they were operated (2.0 and 7.0 percent respectively). A relatively small number were publicly owned and privately operated (4.4 percent), while fewer were privately owned and publicly operated (1.4 percent).

Table 4: Vessels by Census Region (2013)

			In	
Census region	Vessels	Percent	service	Percent
Northeast	183	36.7	181	38.0
Midwest	65	13.0	63	13.2
South	122	24.4	108	22.7
West	123	24.6	120	25.2
U.S. territory	3	0.6	2	0.4
Non-U.S. location	3	0.6	2	0.4
Total	499	100.0	476	100.0

NOTE: Percentages may not add to 100 due to rounding.

Nearly all of the vessels in the ferry fleet carry passengers (95.0 percent), while just under half (47.1 percent) carry vehicles, and less than a quarter carry freight (22.2 percent – Appendix C). The average passenger capacity of the passenger carrying fleet was 291, with a median capacity of 149 and maximum of 5,200 people (table 6). The average vehicle capacity of the vehicle carrying fleet was 51, with a median capacity of 30 and a maximum of 395 vehicles. The average operating speed of the fleet was 15 knots, and the average age of the fleet was 28 years—the oldest vessel being 101 years old.

Almost all of the vessels in the fleet for which information was reported (463) were self-propelled (94.6 percent) with 25 vessels (5.4 percent) using some other form of propulsion (Appendix C). Of those vessels that were self-propelled, the majority were propelled by diesel engines (94.4 percent), followed by gasoline engines (3.2 percent). The fleet also contained three vessels powered by electricity and eight by some other unspecified fuel source.

Table 5: Vessel Ownership by Operation (2013)

	Operation									
Ownership	Public	Percent	Private	Percent	Both	Percent	Unknown	Percent	Total	
Public	196	39.4	22	4.4	1	-0.2	10	2.0	229	
Private	7	1.4	213	42.8	0	0.0	35	7.0	255	
Both	0	0.0	0	0.0	1	-0.2	0	0.0	1	
Unknown	0	0.0	0	0.0	0	0.0	13	2.6	13	
Total	203	40.8	235	47.2	2	-0.4	58	11.6	498	

Table 6: Vessel Characteristics (2013)

Characteristic (vessels)	Mean ^a	Median ^a	Minimum ^c	Maximum
Passenger capacity (432) ^b	291	149	2	5,200
Vehicle capacity (229) ^b	51	30	0	395
Typical speed (440)	15	12	1	72
Vessel age (487)	28	25	1	101

^a The mean is simply the average value. The Median represents the middle most value when all numbers are listed in order. The median is a more accurate measure of the central tendency when a distribution of numbers is highly skewed.

The U.S. Ferry System

The U.S. Ferry system consists of all of the ferry terminals and route segments serviced in a given census year. Operators participating in the 2014 NCFO reported that there were 441 terminals in the U.S. ferry system in calendar year 2013. These terminals were spread fairly evenly across the regions, with 29.3 percent of terminals in the West and 29.0 percent in the Northeast, followed by the South (26.1 percent) and the Midwest (13.2 percent) as shown in table 7. The top five states with regard to the number of ferry terminals were New York (51), California (42), Washington (39), and Alaska (37) (Appendix D). Of those terminals for which data was provided (441 - Appendix C), nearly two-thirds had parking on site or nearby (65.8 percent), whereas nearly one-third (30.8 percent) had local bus service. Additionally, only 10.9 percent had intercity bus service near the terminal, while a smaller percentage had rail service nearby (local rail = 7.9 percent; intercity rail = 4.5 percent).

Table 7: Terminals by Census Region (2013)

Census region	Terminals	Percent
Northeast	128	29.0
Midwest	58	13.2
South	115	26.1
West	129	29.3
U.S. territory	5	1.1
Non-U.S. location	6	1.4
Total	441	100.0

Operators only indicated whether 318 of these terminals were publicly or privately owned or operated. Of these, the majority were reported to be publicly owned and operated

(61.6 percent – table 8), while an additional 23.0 percent were privately owned and operated, and 13.8 percent were publicly owned and privately operated.

These 441 terminals were linked in various combinations to form a total of 741 route segments, ⁶ where route segments are defined as the direct travel between two terminals with no intermediate stops. The majority of these route segments (42.2 percent) were in the West, followed by the Northeast (25.9 percent), and then the South (16.5 percent) and the Midwest (13.4 percent) as seen in table 9. The top five states with regard to the number of route segments were: Alaska (126), California (96), New York (84), Washington (79), and Michigan (55) (Appendix D).

These 741 route segments served a combined total of 21,301 nautical miles⁷, with an average distance of almost 31 nautical miles per route segment. By far the greatest number of route miles served was in the West region (17,042)

Table 9: Route Segments by Census Region (2013)

Census region	Segments	Percent
Northeast	192	25.9
Midwest	99	13.4
South	123	16.5
West	312	42.2
U.S. territory	6	0.8
Non-U.S. location	9	1.2
Total	741	100.0

⁶ This count of route segments may be low due to under reporting. Under reporting may have occurred in some cases where ferry operators who serviced a complex array of route segments, provided a preprinted schedule in lieu of completing the census form.

Table 8: Terminal Ownership by Operation (2013)

					Operation	on			
Ownership	Public	Percent	Private	Percent	Both	Percent	Unknown	Percent	Total
Public	196	61.6	44	13.8	0	0.0	0	0.0	240
Private	5	1.6	73	23.0	0	0.0	0	0.0	78
Both	0	0.0	0	0.0	0	0.0	0	0.0	0
Unknown	0	0.0	0	0.0	0	0.0	0	0.0	0
Total	201	63.2	117	36.8	0	0.0	0	0.0	318

^b Does not include vessels that do not carry passengers or vehicles. Car ferries often do not track or report passenger boarding counts.

^c The minimum value of zero for vehicle capacity is due to the reporting a Tug/Barge combination or reporting error.

⁷ 1 nautical mile = 1.15078 statute miles (i.e., highway miles).

Table 10: Route Miles by Census Region (2013)

Census region	Mean	Median	Minimum	Maximum	Total
Northeast	10.6	5.3	0.1	180.0	1,996.9
Midwest	14.0	5.0	0.0	72.0	1,047.2
South	3.6	8.0	0.1	26.4	370.2
West	54.6	20.0	0.1	595.0	17,042.2
U.S. territory	11.0	12.0	3.0	18.0	66.0
Non-U.S. location	97.3	27.4	1.0	518.0	778.6
Total	30.7	7.2	0.0	595.0	21,301.0

Table 11: Segment Type and National Park Service by Census Region (2013)

Census region	Intra	state	Interstate ^a		International		National Park	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Northeast	142	74.0	49	25.5	1	0.5	12	6.3
Midwest	90	90.9	7	7.1	2	2.0	10	10.1
South	115	93.5	8	6.5	0	0.0	6	4.9
West	305	97.8	3	1.0	4	1.3	7	2.2
U.S. territory	4	66.7	0	0.0	2	33.3	0	0.0
Non-U.S. location	3	33.3	2	22.2	4	44.4	0	0.0
Total	659	88.9	69	9.3	13	1.8	35	4.7

^a Interstate Segments are assigned to the State of departure.

nautical miles), with the longest of these route segments being 595 miles long. The next greatest number of route miles served was in the Northeast (1,997 nautical miles), followed by the Midwest and the South (1,047 and 370 nautical miles, respectively) as seen in table 10.

The majority of all route segments, regardless of region, were intrastate (88.9 percent), meaning that both terminals were located in the same state. A greater percentage of interstate segments were in the Northeast (25.5 percent) than in any other regions as seen in table 11. There were 13 international segments between U.S. territories or non-U.S. ports to U.S. ports. Less than 5 percent (4.7 percent) of route segments served a National Park.

Methodology

The 2014 NCFO was a census of all known ferry boat operations within the United States and its territories, encompassing the 50 States, Puerto Rico, and the U.S. Virgin Islands. In addition to ferry operations providing domestic service within the United States and its territories, operations providing services to or from at least one U.S. terminal were also included. Ferry operations included within the scope of the NCFO were those providing itinerant, fixed route, and common carrier passenger and/or vehicle ferry service. Railroad car float operations are also included within the scope of the NCFO.

Not included within the scope of the ferry census were operations that were exclusively nonitinerant, such as excursion services (e.g., whale watches, casino boats, day cruises, dinner cruises, etc.); passenger-only water taxi services not operating on a fixed route, LoLo (Lift-on/Lift-off) freight/auto carrier services; and/or long-distance, passenger-only cruise ship services. Efforts to enumerate ferry operations within the United States for the 2014 census resulted in a frame of 253 active ferry operations for calendar year 2013.

All known ferry operations were encouraged to participate in the NCFO via an advance letter sent out in May 2014. The Bureau of Transportation Statistics then sent an initial mailing in June 2014 to each operator inviting them to take part in the NCFO. Nonrespondents were then contacted by phone from June through October 2014 to ensure that they received their questionnaire and to determine if they needed any assistance in completing the form

Additional clarification of data entries and data cleaning was conducted based on information gathered from the ferry operator websites (e.g., vessels, terminals, etc.), as well as the U.S. Army Corps of Engineers and U.S. Coast Guard vessel databases. Of the 253 ferry operators who were sent a census questionnaire, 36 were determined to be out of scope (i.e., they either did not qualify or they were no longer in operation), and two more were determined to

be reported on by a state transportation agency. A total of 128 ferry operators from the remaining list of 215 providing service in 2013 returned the NCFO questionnaire for a response rate of 59.5 percent. (Response rates were calculated using a simple ratio of the number of completed questionnaires over the number of possible active operators).

A number of operators either: 1) did not provide passenger and/or vehicle boarding data, or 2) asked that the data they did provide not be made public. Passenger and vehicle boarding estimates were developed using the publicly available NCFO data, whereby missing values were estimated using a multiple imputation process. The imputation model for these estimates utilized the characteristics of the vessel most commonly used to service a given route segment to predict the missing values. The estimates in the tables represent the average of these imputed totals across all sets of imputations. The corresponding standard errors repre-

sent the statistical level of uncertainty associated with each statistic. Even with these imputations, it is expected that the passenger counts may be slightly under estimated due to car ferries that simply count vehicle boardings and not the vehicle's occupants. There were a number of car ferries that did not report any passenger boardings even though there had to be at least one driver onboard.

Finally, great caution should be taken when comparing NCFO statistics from census-to-census year due to differences in reporting and methodology. Not all ferry operators report in the census during each enumeration, and therefore differences in estimates between years could be attributable to the differences in responding operators. In addition, data collection methods often fluctuate from census to census due to new information needs and updated data collection requirements. Thus census-to-census year comparisons are not encouraged.

Appendix A – Passengers, Vehicles and Route Miles by State (2013)

	Pass	engers ^a	Vehicles ^a		Route miles ^a
State	Mean	Standard error	Mean	Standard error	Nautical
AL	278,604	0	101,430	0	11.6
AK	8,474,174	345,996	3,342,917	131,166	13,385.5
AR	51,456	0	30,808	0	1.5
CA	10,125,777	134,579	338,656	0	1,169.7
CT	724,801	0	88,263	0	76.0
DE	680,585	46,598	186,750	0	14.2
FL	653,226	0	218,376	0	6.1
GA	1,724,627	91,788	0	0	12.3
HI	194,071	0	0	0	32.0
IA	17,022	0	6,335	0	1.0
IL	3,091,417	51,616	740,462	0	11.5
KY	237,369	0	148,070	0	1.4
LA	8,090,998	0	4,203,352	0	1.4
MA	4,864,642	121,681	681,639	17,012	433.0
MD	321,547	40,890	116,065	23,569	0.2
MI	5,131,156	224,722	937,174	35,170	796.8
MN	134,699	33,505	0	0	20.0
MO	171,990	36,138	59,329	0	1.3
MT	2,823	0	1,610	0	0.2
NC	4,148,403	94,273	850,321	0	165.2
NH	144,811	26,356	0	0	-
NJ	4,399,597	18,652	132,221	0	371.9
NY	13,382,134	185,233	1,495,672	48,645	612.0
ОН	450,599	0	11,134	0	118.1
OK	8,741	0	0	0	13.0
OR	1,047,179	78,278	446,190	23,372	2.5
PA	1,771,035	207,175	456,273	61,211	4.8
RI	804,114	87,570	0	0	56.6
SC	922,126	39,987	90	0	40.2
TN	77,380	0	58,400	0	1.7
TX	6,122,312	0	2,137,306	0	7.3
UT	6,970	0	4,370	0	9.9
VT	1,009,633	113,525	343,370	55,460	12.1
WA	25,995,317	100,122	10,730,487	23,843	2,442.6
WI	1,409,488	94,524	622,576	64,981	98.4
WV	27,568	0	11,027	0	0.1
Other ^b	6,847,571	-	1,317,568	_	524.4
U.S. territory	582,991	63,743	206,626	29,219	66.0
Non-U.S. location	965,783	91,895	264,245	35,855	778.6
Total	115,094,704	513,104	30,289,112	236,622	21,301.0

^a Estimates were developed from multiple imputations computed at the operator segment level. The mean and standard error of these estimates were then computed for the total boardings and then aggregated by state. Missing values denoted by (-).

b Not all states could be shown individually due to potential disclosure issues for passenger and vehicle data designated as business confidential.

Thus, other refers to collapsed states (Maine and Virginia) that had to be combined for data protection purposes.

Appendix B – State Groupings by Census Region

Throughout this report, data tables are displayed by Census Regions (i.e., Pacific, Northeast, South, Midwest, and West). Figure 1 shows how the states are grouped within these regions. For data displayed at the state level, please refer to appendices A and D.



SOURCE: http://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf.

Appendix C – Route, Fleet, and Terminal Characteristics (2013)

Route (sample size)	Count	Percent
Fares regulated (758)	407	53.7

Fleet

Parameter (sample size)	Count	Percent
Carry passengers (499)	474	95.0
Carry vehicles (499)	235	47.1
Carry freight (499)	111	22.2
Self-propelled (463)	438	94.6
Other propulsion (463)	25	5.4
Diesel (467)	441	94.4
Gas (467)	15	3.2
Compressed natural gas (467)	0	0.0
Electric (467)	3	0.6
Other (467)	8	1.7

Terminal

Parameter (sample size)	Count	Percent
Parking (441)	290	65.8
Local bus (441)	136	30.8
Intercity bus (441)	48	10.9
Local rail (441)	35	7.9
Intercity rail (441)	20	4.5

Appendix D - Operators, Vessels, Terminals and Segments by State (2013)

State	Operators ^a	Vessels ^a	Terminals ^a	Segments ^a
AL	1	3	4	4
AK	3	15	37	126
AR	1	4	2	2
CA	11	53	42	96
CT	3	12	6	7
DE	1	1	3	3
FL	4	7	10	10
GA	2	6	5	8
HI	1	4	2	2
IL	4	21	10	16
IA	-	-	1	1
KY	1	3	3	3
LA	2	21	19	20
MA	8	49	12	21
MD	3	3	2	2
ME	5	20	26	37
MI	9	20	29	55
MN	1	2	1	5
MO	2	4	4	4
MS	1	3	-	-
MT	1	1	2	2
NH	1	1	2	2
NJ	3	39	14	24
NY	10	45	51	84
NC	4	30	29	32
ОН	1	4	5	10
OK	1	3	3	4
OR	2	3	5	5
PA	3	3	7	7
RI	1	2	7	7
SC	5	9	11	10
TN	1	7	4	4
TX	4	11	6	6
UT	1	1	2	2
VA	4	9	13	14
VT	1	12	3	3
WA	12	46	39	79
WI	5	14	8	8
WV	1	2	1	1
U.S. territory	2	3	5	6
Non-U.S. location	2	3	6	9
Total	128	499	441	741

^a Missing values denoted by (-). Route segments were defined as the direct travel from one terminal to another.