A 2015 Comparison of Operational Performance: Washington State Ferries to Ferry Operators Worldwide

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A 2015 Comparison of Operational Performance: Washington State Ferries to Ferry Operators Worldwide

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16. ABSTRACT

This report provides an update to the 2010 report "A Comparison of Operational Performance: Washington State Ferries to Ferry Operators Worldwide," observing changes in Washington State Ferries, 23 other ferry systems, and the ferry industry as a whole. Research was conducted from June, 2014 through March, 2015, examining published data and surveying other ferry system operators. This report addresses major changes in Washington State Ferries and peer ferry system operators, and provides operational comparisons. The findings include comparisons of: 1) passenger and vehicle traffic, 2) route, terminal, and vessel attributes, 3) total sailings and fuel use, 4) trip reliability and timeliness, 5) passenger safety, and 6) cost efficiency. The findings indicate that Washington State Ferries is among the largest ferry systems in the world and has addressed concerns from the previous report by adding new vessels to its fleet and publishing strengthening its performance reporting system.

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Glossary of Terms and Acronyms

2010 Report	A Comparison of Operational Performance: Washington State Ferries to Ferry Operators Worldwide by Michael Dean Bennion
AMH	Alaska Marine Highway System
BC Ferries	British Columbia Ferries, Incorporated
CAD	Canadian Dollars
FY2009	The fiscal year ended in 2009, systems have different fiscal year end dates shown in Appendix D
FY2013	The fiscal year ended in 2013, systems have different fiscal years end dates shown in Appendix D
IDO	Istanbul Deniz Otobüsleri, a ferry system in Istanbul, Turkey
LNG	Liquefied Natural Gas, an emerging ferry system fuel
NC Ferries	North Carolina Ferries, a part of the North Carolina Department of Transportation
RCW 47.64.360	Washington State law passed in 2011 requiring Washington State Ferries to set targets and report performance
T & S	Transtejo and Soflusa, a ferry system in Lisbon, Portugal
TNSW	Transit for New South Wales
WSDOT	Washington State Department of Transportation
WSF	Washington State Ferries

Disclaimer

The contents of this report reflect the views of the author, who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of Washington State Ferries or the Washington Department of Transportation. This report does not constitute a standard, specification, or regulation.

Executive Summary

The 2010 Washington State Ferries (WSF) publication, A Comparison of Operational Performance: Washington State Ferries to Ferry Operators Worldwide (the 2010 Report), created a framework for observing ferry systems around the world to compare with WSF. In the 2010 Report, WSF extensively researched 23 other ferry systems around the world, recording data about each system's traffic, physical capital, routes, operations, and finances. [1] The purpose of this report is to update the information from the 2010 report and observe changes in the ferry industry. With updated information from Fiscal Year 2013 (FY2013), this report detects industry trends and renews the comparison between WSF and ferry systems worldwide.

Figure 1: Ferry System Headquarters Locations, Size of Spots Indicates FY2013 Passenger Ridership

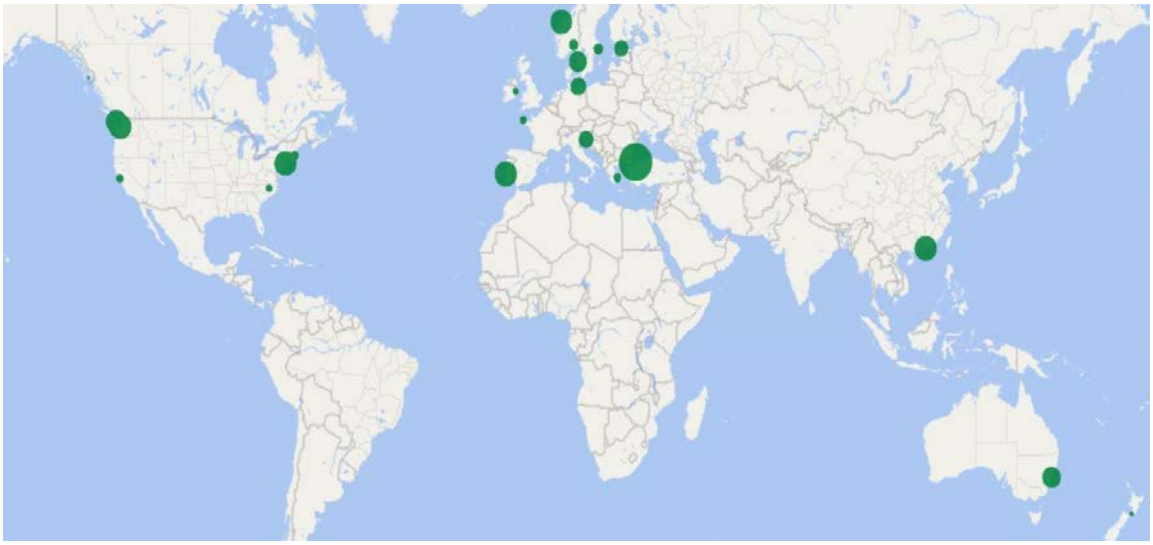

Figure 1 depicts a world map with spots denoting the headquarters locations of the ferry systems considered in this report, varying in size by the number of passengers carried in FY2013. Note that WSF and British Columbia Ferries Inc. (BC Ferries) have overlapping spots due to their proximity.

Privatization of Ferry Systems

Since the publication of the 2010 Report, IDO of Turkey, Sydney Ferries of Australia, and Fjord1 of Norway have become to different extents privatized. The largest ferry system in terms of passenger traffic in FY2009 and FY2013, IDO, was restructured in 2010, then sold at auction. IDO is now completely privately owned and operated. Sydney Ferries' controlling entity, Transport for New South Wales, solicited proposals and contracted a private company to operate Sydney Ferries beginning in 2012. Fjord1 remains independently operated, but transitioned from being wholly publically owned to 41 % of the company being owned privately in 2011.

Washington State Ferries Update

Between FY2009 and FY2013, WSF addressed many of the concerns from the 2010 report. For instance, In FY2009 WSF had the second largest average fleet age of any of the ferry systems compared, however by FY2013 it had introduced 3 new vessels as well as a fourth in 2014. WSF has plans to continue revitalizing its fleet, adding a new vessel in 2015, and another in 2017. This will allow WSF to retire the last of its Evergreen Class that were built in the 1950's.

WSF has also added new oversight measures with the 2011 passage of RCW 47.64.360 by the Washington State Legislature. The law requires WSF to provide information for the Office of Financial Management to publish performance reports. The reports include preservation, safety, mobility, and stewardship goals and actual performance grades.

With 5 separate fare increases between FY2009 and FY2013, WSF increased its farebox recovery ratio from 63.8 % to 69.7 %. Farebox recovery ratio is the portion of annual operating expense that a ferry system recovers through fare revenue.

Vehicle and Passenger Traffic

From FY2009 to FY2013, considering the 19 ferry systems in the report that carry vehicles, there was an aggregate 4.1 % increase in vehicle traffic. WSF experienced a 1.35 % increase in vehicle traffic, while the other US ferry systems experienced a 6.3 % decrease in vehicle traffic from FY2009 to FY2013.

Between FY2009 and FY2013, considering all 23 ferry systems besides Istanbul Deniz Otobusleri (IDO) due to its restructuring, there was a 0.85 % aggregate drop in passenger traffic. During the same time period, US ferry systems experienced a 2.8% increase in passenger traffic, with WSF decreasing by less than 0.1%. Vehicle and passenger traffic from FY2013 is shown in Table 1. The arrow and color of the rank cell indicates the ferry operator's change in ranking since FY2009. Green with an upward arrow indicates a rise in the rankings and red with a downward arrow indicates a fall. No color or arrow indicates no change in ranking. More detailed tables of passenger and vehicle traffic from both FY2009 and FY2013 are in section 2.1.1.

OPERATOR (n = 19)	2013 RANK	ANNUAL VEHICLES	OPERATOR (n = 24)	2013 RANK	ANNUAL PASSENGERS (2013)
Fjord1 (NOR)	1 ↑	10,500,000	IDO (TUR)	1	50,527,752
WSF (USA)	**2 ↓**	**10,045,000**	Transtejo & Soflusa (PRT)	2	23,033,166
IDO (TUR)	3 ↑	7,820,323	**WSF (USA)**	**3 ↑**	**22,395,000**
BC Ferries (CAN)	4 ↓	7,748,743	Star Ferries (HKG)	4 ↓	21,600,000
Scandlines (DEU)	5	3,227,759	Fjord1 (NOR)	5 ↑	21,500,000
Stena Lines (SWE)	6	3,000,000	Staten Island Ferries (USA)	6	21,399,000
Jadrolinija (HRV)	7	2,451,097	BC Ferries (CAN)	7 ↓	19,919,098
AS Tallink (EST)	8 ↑	1,119,889	Sydney Ferries (AUS)	8	14,943,173
Color Line (NOR)	9	974,249	Stena Lines (SWE)	9 ↑	14,600,000
Brittany Ferries (FRA)	10 ↓	911,396	Scandlines (DEU)	10 ↓	11,027,444
Other American Operators			Steamship Authority (USA)	16	2,846,691
NC Ferries (USA)	11 ↓	834,625	Golden Gate Ferries (USA)	18 ↑	2,324,874
Steamship Authority (USA)	12 ↑	614,434	NC Ferries (USA)	19	1,923,100
Cape May-Lewes (USA)	17 ↓	256,971	Cape May-Lewes (USA)	23	742,938
Alaska Marine Highway	18	108,797	Alaska Marine Highway	24	313,311

Table 1: Vehicle and Passenger Traffic FY2013

The largest increases in ferry traffic affected the ferry systems in Northern Europe, including Fjord1 AS (Fjord1) of Norway, Stena Lines of Sweden, and AS Tallink of Estonia. Alternatively the largest decreases in ferry traffic impacted the ferry systems of Southern Europe, including Transtejo and Soflusa of Portugal, and Anek lines and Hellenic Seaways of Greece. This drop in traffic coincided with the series of financial crises that affected Portugal and Greece between 2010 and 2013. [2]

Operational Comparison

As of FY 2013, WSF had the 9th most routes (10 routes) and vessels (22 vessels), and the 10th most terminals (10 terminals) of the ferry systems considered. Although WSF still had a high average fleet age of 34 years, it improved from the 2010 Report and will improve further with new vessels in 2014, 2015, and 2017. Of the 14 ferry systems that provided their number of sailings and total distance sailed, WSF ranked fourth with 158,858 sailings covering 1,458,037 KM (905,982 miles). Among 12 ferry systems that provided data for their fuel consumption, WSF consumed the fourth most fuel using 65,102,380 liters (17,198,226 gallons) of marine diesel.

Performance Comparison

Considering the 13 ferry systems that provided data about trip reliability, WSF ranked 6th in FY2014 by completing 99.4% of its scheduled trips. Eight of the 13 ferry systems included had FY2013 trip reliability of at least 99%. Several ferry systems also report the percentage of their trips that arrived or departed on time, however there is no industry standard for what is considered late. This makes it difficult to directly compare ferry systems' on-time performance. For example Sydney Ferries considers trips departing five minutes after scheduled to be late, compared with 10 minutes after scheduled departure for WSF. In FY2013, 95.7% of WSF's trips departed within ten minutes of schedule. It is similarly difficult to compare ferry systems'

passenger safety data because there is no standard injury definition of an injury. WSF counts passenger injuries by the National Transit Database definition and experienced 0.89 injuries per million passengers in FY2013. The National Transit Database definition for injuries require the passenger to need transportation to a medical facility, while some other operators consider all reported injuries.

To ensure meaningful comparison, only publically owned systems were considered for farebox recovery percentage, which is the percentage of operating expenses the ferry system received in fare revenue from the same fiscal year. Among the 12 systems considered, WSF had the 5th highest farebox recovery ratio of 69.7%. Only seven ferry systems provided enough information to compare cost per passenger-distance, which is the total operating expense divided by the total passenger-distance during the same fiscal year. WSF ranked fourth, costing $0.81 per passenger-KM. Ferry systems that operate in more urban areas and without vehicle carriage appear to have comparatively lower costs per passenger-distance. For the final comparison, 17 ferry systems provided their total operating expense and total labor expense, which allowed comparison of their labor portions of operating expense. WSF had the 7th highest, with a labor portion of operating expense of 50.4%. The 17 ferry systems were divided almost perfectly between publically owned and privately owned by their FY2013 labor portions of operating expense.

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1. Background

In June of 2010, Washington State Ferries (WSF) published A Comparison of Operational Performance: Washington State Ferries to Ferry Operators Worldwide, which will henceforth be referred to as the 2010 Report, to "identify specific measures of its performance in relation to that of its peers in the ferry industry." [1] Through an extensive survey of data available online and through responses to email and phone questionnaires, the 2010 Report compared WSF with 23 other ferry service providers around the world on a variety of operational, financial, and performance based metrics. Through the data discovery process, WSF hoped to create a dialogue between itself and other ferry operators, to identify best practices and to periodically update the comparisons. By keeping track of best practices within the ferry industry WSF hopes to create benchmarks for the metrics with which it compares itself to other ferry operators around the world. As a public agency it is WSF's goal to demonstrate its performance relative to its global peers and to create a bearing with which it can identify its strengths, weaknesses, and operational differences with other ferry operators.

1.1 The Benchmarking Process

The 2010 Report presented the benchmarking process as a method for WSF to establish accountability measures by comparing itself with other ferry operators for observation and comparison. The 11- step process for benchmarking described by Keehley et al. in the book entitled Benchmarking for Best Practices in the Public Sector is as follows:

1. Determine the purpose and scope of the project
2. Understand your own process

3. Research potential benchmarking partners
4. Choose performance measures
5. Collect internal data on performance measurements
6. Collect data from partner organizations
7. Conduct gap analysis
8. Import practices to close performance gaps
9. Monitor results
10. Recalibrate based on findings
11. Start the search anew [3]

This is the benchmarking process used in the 2010 Report. Because the 2010 report was the first iteration using this benchmarking process, it was only able to complete as far as step seven, the gap analysis. The conclusions from the first seven steps of the benchmarking process provided guidance regarding which practices the organization should implement to close the performance gaps.

1.2 Purpose of Research

The purpose of this report is to document the major changes in operational practices in the ferry industry and to monitor how the results of both individual service providers and of the ferry industry as a whole have changed to complete the benchmarking process. Additionally, this report will identify different peers for the gap analysis for WSF for each of the data comparisons to ensure that the two systems are functionally similar in terms of the metric of comparison. For example, when considering WSF and Stena Line of Sweden, it would not make sense to compare the farebox recovery ratio of the two lines because WSF operates publically as a part of the State's highway system, and Stena Line of Sweden, operates privately between a cruise line and a ferry operator and includes overnight accommodations on many of its ships. It would,

however, make sense to compare vehicle traffic between the two providers because their operations are more similar for that metric.

Because WSF now has data for ferry service providers from the fiscal year ended in 2009 (FY2009) and the fiscal year ended in 2013 (FY2013), it is also now possible to analyze the percentage change in metrics over roughly the same time period between providers along with or instead of gross numbers. Availability of this data will also enable WSF to more meaningfully compare its data to that of ferry service providers that are of different sizes, and that operate over greater distances, and against the ferry industry as a whole.

1.3 Consistency and Understanding of Information

To consider and compare the change in performance, operational, and financial data between report years it is crucial to use parallel data. If, for example, operating expenditures are interpreted differently from the same company in FY2009 and in FY2013, then it is possible to observe a trend that doesn't actually exist or miss a trend that does exist. Operating expenditures can be very easy to misinterpret. While WSF does not include capital expenditures nor depreciation and amortization in its operating expenses, many of the other ferry operators do. Most of the operators indicate which expenses are included in their financial statements, which makes it fairly easy to ensure that like data is compared. Due to this consideration, each of the financial statistics from the 2010 Report were reevaluated. As a result of the reevaluation, some data included in the 2010 report were changed to remove depreciation or to otherwise make the data sets more consistent both with WSF data and with their own data from FY2013 in this version of the report. In many instances, because the information included in the 2010 report came from email or phone interviews, or because the online information cited in that report is no longer available, it was necessary to make the assumption that the data from the

2010 Report was consistent. In these cases, the assumption is denoted in the tables in Appendices D through F.

Because the 2010 Report was written near the end of FY2009, data from FY2009 wasn't available for all of the ferry service providers, especially those that operate on a calendar year. In cases where the fiscal year ends on December 31st, FY2008 and FY2009 equally overlap with WSF's FY2009 (ended 6/30/2009). Despite this, because more ferry operator data has become available since the 2010 Report was published, it was possible to find and use more data from FY2009 for comparison. Where possible, this information was updated to be more consistent in a comparison and therefore in certain cases the information included in this report differs from the data provided in the 2010 Report. For example, the data used in the 2010 Report for Color Line of Norway was from 2005. For this report, that data was updated to include FY2009 data because that data is now available.

It is also crucial to observe and recognize the major structural changes that both WSF and peer operators underwent during the period between the reports to understand the factors and conditions that could result in changes for certain ferry service providers. These factors must be considered alongside the collected benchmark data to understand the meaning of differences in data between years and providers.

2. Washington State Ferries Update

Washington State Ferries (WSF) is an agency that has been operated by the state of Washington since 1951, and is among the largest ferry operators in the world by several measures. This section will provide a brief overview of the operational characteristics, funding structure, and internal performance monitoring of WSF. Since the original version of this report was published in June of 2010, the Washington State Legislature passed RCW 47.64.360, which required WSF to establish and present performance measures in the areas of safety, service effectiveness, cost containment, and maintenance and capital program effectiveness. Although WSF has been reporting performance measures for over a decade, it now also publishes an annual performance report that includes a broader array of measures that it can track over time. [4] The publication of the annual report by WSF aligns with the purpose of this report, to compare WSF in several of these measurable categories to ferry system operators around the world.

Figure 2: Map of all WSF Routes [8]

2.1 Operations

In FY2013 (from July 1st 2012 to June 30th 2013) WSF operated 22 vessels with service to 20 terminals along nine routes. The system carried 22,395,000 people and 10,045,000 vehicles making it the largest passenger and vehicle carrier in North America. The WSF route with the highest person and vehicle volume was the Seattle to Bainbridge Island route. That route carried 6.2 million people, comprising 27.7% of the system total, and over 1.9 million vehicles, comprising 19.5% of the system total. The Seattle to Bainbridge route has such high traffic because of daily commuters who live on Bainbridge Island and work in Downtown Seattle. Figure 2 illustrates the nine routes that WSF operates, including its international route between Anacortes, WA to Sidney British Columbia, Canada.

Table 2 provides information about the vessels WSF currently operates, including the 22 in operation during FY2013. Additionally listed is the Tokitae, which was new in FY2014. Since the period covered by the 2010 Report, WSF has added four new vessels including the Chetzemoka, the Salish, the Kennewick, and the Tokitae. The addition of the new vessels has helped to address concerns regarding WSF's aging fleet, which at the time of the 2010 Report had an average age of 36.3 years and was the second oldest fleet surveyed in the report. With the replacement of the Rhododendron, which was built in 1947, and the addition of two of the three

Table 2: WSF Fleet Information

Vessel Name	Year Built	Max Passengers	Max Vehicles
Tokitae*	2014	1,500	144
Kennewick	2012	750	64
Salish	2011	750	64
Chetzemoka	2010	750	64
Puyallup	1999	2,500	202
Wenatchee	1998	2,500	202
Tacoma	1997	2,500	202
Sealth	1982	1,200	90
Cathlamet	1981	1,200	124
Chelan	1981	1,090	124
Kitsap	1980	1,200	124
Kittitas	1980	1,200	124
Issaquah	1979	1,200	124
Walla Walla	1973	2,000	188
Spokane	1972	2,000	188
Elwha	1967	1,221	144
Yakima	1967	2,000	144
Kaleetan	1967	2,000	144
Hyak	1967	2,000	144
Hiyu	1967	200	34
Tillikum	1959	1,200	87
Klahowya	1958	800	87
Evergreen State	1954	983	87

***Tokitae not included in comparison report**

aforementioned vessels between the 2010 Report and this report, at the end of FY2013 the average age of WSF's fleet had improved to 33.95 years. With the planned addition of two more 144 car capacity ferries in the same class as the Tokitae in the summer of 2015 and early 2017, WSF continues to revitalize its fleet. These new ships will replace the Evergreen State Class vessels, which are the only vessels remaining in WSF's fleet that were built in the 1950's. [5]

In addition to adding new ferries to its fleet, WSF began talks with the US Coast Guard about retrofitting six of its existing ferries from the Issaquah Class with new engines that can operate with super cooled liquid natural gas (LNG). Although there are still regulatory hurdles to overcome before WSF can retrofit its ferries, including the review of public comments, legislative approval, and a request for proposal, LNG offers several notable advantages over the ultra-low sulfur diesel fuel that WSF currently uses. These include large reductions in particulate matter, nitrous oxide, carbon dioxide, and sulfur dioxide emissions from the over 17 million gallons of diesel fuel that WSF burns annually. [6]

2.2 Funding and Expenditures

The majority of WSF's operational funding comes from fare revenue, however like nearly all transit agencies, WSF also requires significant public funding to operate. The balance of WSF's operating funds comes from dedicated revenue sources such as vehicle titles and licensing, transfers and appropriations from non-dedicated sources, and other operational revenue from items such as concessions and parking. The Governor's proposed funding breakdown from the 2011-13 biennium is illustrated by the pie chart in Figure 3. [7]

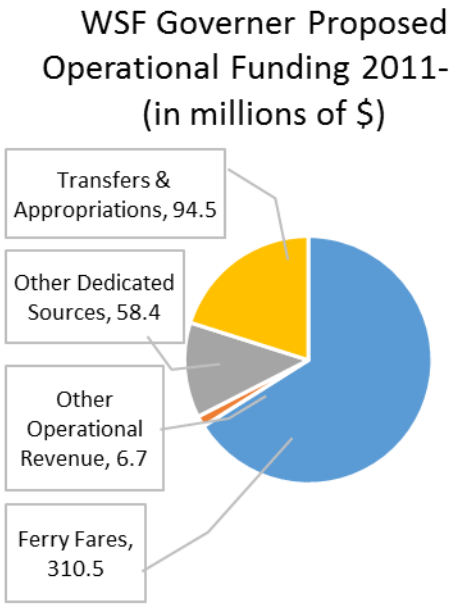

Figure 3: WSF Proposed Operational Budget [7]

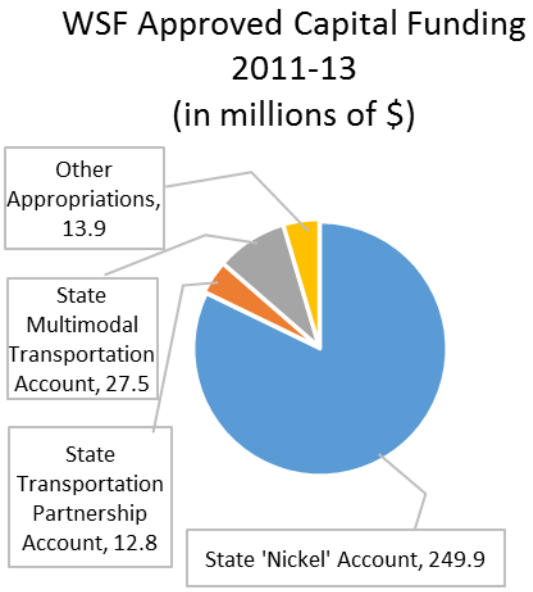

Figure 4: WSF Approved Capital Budget [8]

WSF's capital budget, with which it builds and maintains ships and terminals, is primarily funded by a portion of the state Nickel Account. The Washington State legislature created The Nickel Account in 2003 by raising the state gas tax by five cents and increasing truck weight fees by 15 percent to generate additional funds for transportation. Other capital funding sources include the State Transportation Partnership Account, the State Multimodal Transportation Account, and other transportation- dedicated funding that is generated from tolls and weight and gas taxes. [8]

Year	Fare Increase
2009 (October 1)	2.5%
2011 (January 1)	2.5% Included vehicle category change and $0.25 capital surcharge
2011 (October 1)	2.5%
2012 (May 1)	3.0%
2013* (October 1)	3.0% for vehicles 2.5% for passengers Youth fare discount increased from 20% to 50%
2014* (May 1)	2.5% for vehicles 2.0% for passengers
***enacted after the time period considered in this report**	

Table 3: WSF Fare Increases 2009-2014

Table 3 explains the fare increases WSF has enacted since 2009, including the 2013 and 2014 increases, both of which occurred after the end of FY2013. Figure 4 illustrates the system-wide totals of farebox recovery ratio (fare revenue/operating expenditures), superimposed over a bar plot of operating revenue and expenditures from FY2008 to FY2013. With the exception of FY2010, when the ferry system had much lower expenditures due to reduced fuel costs, FY2013 had the highest farebox recovery ratio of any of the six years displayed. This is correlated with the increase of nearly $6 million in fare revenue from FY2012, and a slight reduction in expenditures, which can be viewed in the route statement summary in Appendix B. The increase in fare revenue from FY2012 to FY2013 was caused by a rise in passenger and vehicle traffic and the 2012 fare increase that only applied to two months of FY2012, but all of FY2013.

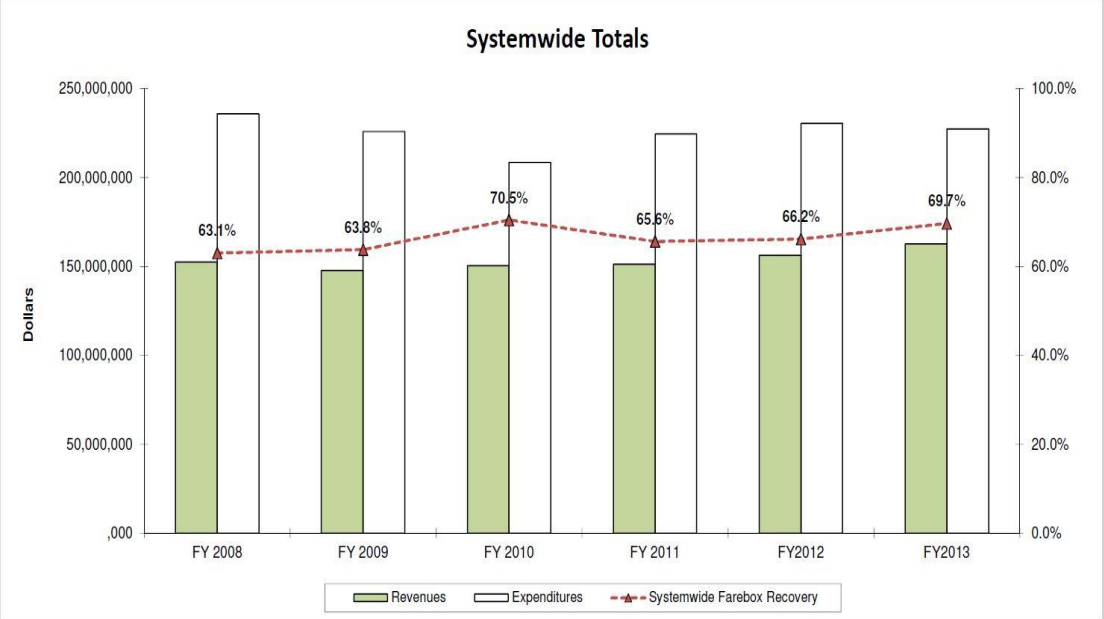

Figure 4: Systemwide Revenues, Expenses, and Farebox Recovery
(See Appendix B)

The operating expenditures of WSF can be broadly divided into four categories, including labor, fuel, vessel and terminal maintenance, and other. Operating expenditures from FY2013 are in the pie chart in figure 5. In FY2013, labor comprised 50.4 % of WSF's total operating expenditures.

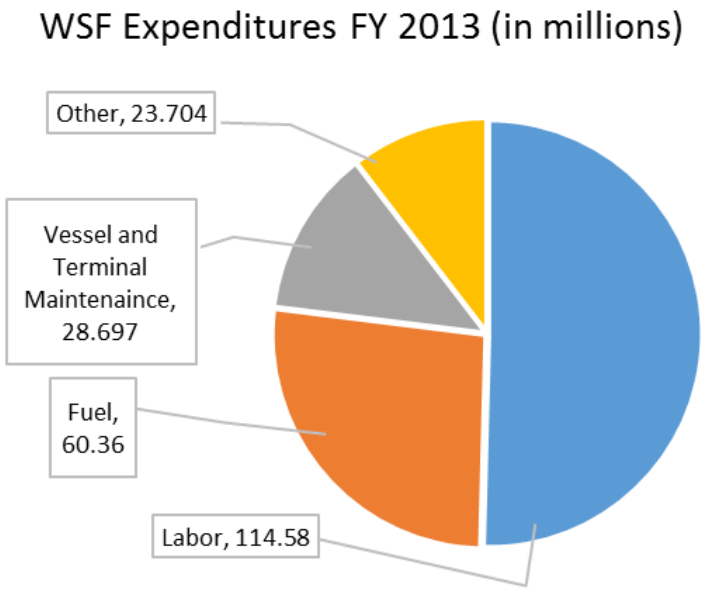

Figure 5: WSF Expenditures FY 2013
(See Appendix B)

2.3 Performance Measures

Through the 2011 passage of RCW 47.64.360, the Washington State Legislature required WSF to establish a committee to develop performance measures and goals for the purpose of monitoring the organization's safety, service effectiveness, cost containment, and maintenance and capital program. The committee consisted of members from the Legislative Transportation Committees, the Governor's office, legislative staff, and Washington State Department of Transportation (WSDOT) Staff. [4] These performance measures and summary results from FY2012 and FY2013 are included in Appendix A of this document and provide measurements to compare with ferry system operators around the world. This annual document creates a new level of accountability for WSF to Washington's residents to ensure their tax dollars are used as efficiently as possible.

3. Other Ferry Operators

To continue the benchmarking process and to validate comparisons over time, it is important to note major developments in the ferry industry. For the purposes of continuity and observing multi-year trends, the same 23 ferry system operators analyzed and compared to WSF in the 2010 Report were analyzed and compared to WSF in this report. This section will highlight major changes within the ferry industry since the 2010 Report and describe three peers within the ferry industry.

This analysis includes public agency ferry systems like WSF, but it also includes private systems and systems that are owned and operated by different manners of public-private partnerships. This structural aspect of each ferry system makes a considerable difference in determining the system's priorities and understanding its operational attributes. This report considers:

- Ten Privately owned systems, three of which are publically traded,
- Five systems owned and operated by public-private partnerships, and
- 11 publically owned and operated systems

3.1 Developments in the Industry

Since the 2010 Report was published, both Sydney Ferries of Australia and Istanbul Deniz Otobusleri (IDO) of Turkey have had their operations taken over by private firms. This is important because both are among the largest ferry system operators in the world along with Washington State Ferries. In the 2010 Report, Sydney Ferries was ranked eighth and IDO was ranked first in annual passengers carried, with IDO, at over 100 million passengers, carrying more passengers than the next four ferry operators combined. Fjord1 AS of Norway was also

partially sold to a private company in FY2011, however that sale did not transfer the controlling stake in the company and will be described in section 4.2.

3.1.1 Privatization of Istanbul Deniz Otobusleri (Turkey)

IDO was sold to a consortium of four companies including Tepe Insaat, Akfen Holding, Souter Investment, and Sera Gayrimenkul Yatirimin in 2011 for $861 million. In 2010, through a restructuring move prior to privatization, IDO transferred 34 of its passenger only vessels and 49 intra-city ports to the city of Istanbul to keep that part of the company public. This section of the company became completely separate of IDO at the time of the restructuring. Because of the transfer of much of the company, there were far fewer passengers on IDO vessels in 2013 than in 2009, although still more than the next two operators combined in the 2013 rankings. Additionally, because IDO transferred several passenger only vessels prior to privatization, it increased its number of vehicles carried from just under 7 million in 2009 to more than 7.8 million vehicles in 2013. [9] Under its new private ownership, IDO reduced its operating expenditures from over $230 million to less than $176 million while carrying more than 50 million fewer passengers. Despite these ridership and spending cutbacks, IDO increased its operating revenue by more than $10 million to over $265 million. No information was available online or through email requests regarding the operations of the ferries that remained with the public sector.

3.1.2 Privatization of Sydney Ferries (Australia)

Unlike IDO, Sydney Ferries was leased for a period of seven years and not sold outright. When Transport for New South Wales (TNSW) issued a request for proposals to operate Sydney Ferries in 2011, 28 parties initially expressed interest. [10] In May of 2012, TNSW selected Harbour City

Ferries, a consortium consisting of Veolia Transdev and Transfield services. Because it is a not-for-profit government entity, TNSW reportedly selected Harbour City Ferries for its operational plan, especially customer service, in addition to its financial offer. [11] To ensure that Harbour City Ferries upheld certain operational standards, TNSW created performance benchmarks that the company is required to meet or exceed as part of the lease. Additionally, Harbour City Ferries is required to maintain contracted routes, timetables and fares for the term of the contract. The performance benchmarks are similar to the benchmarks WSF measures that are listed in Appendix A, and include safety, on-time performance, and service reliability. In the two years since privatization, Harbour City Ferries has exceeded the contracted levels for these and each of its other benchmarks and TNSW has published its performance data. [12] Despite the availability of performance data, since its transition to private operation, meaningful Sydney Ferries financial information has been unavailable via the internet and email requests.

3.2 Profiles of Peers in the Industry

This section will provide an overview of three of WSF's closest peers in the ferry industry. The peers include British Columbia Ferries (BC Ferries) of Canada, Fjord1 Nordvestlandske of Norway, and Jadrolinija of Croatia. Like WSF, each of these operators is publically owned and carries a high volume of passengers and vehicles. In fact, these operators, along with WSF, represent 4 of the top 7 ferry systems in the world based on FY2013 vehicle traffic. Additionally, each operates with a farebox recovery percentage between 65% and 85%. Farebox recovery is the amount of revenue from fares divided by total operating expenditures. Farebox recovery demonstrates the level of public support the operator receives relative to its size. Although these systems do share similarities with WSF, they operate under different governance in different locales.

3.2.1 British Columbia Ferry Services Incorporated (Canada)

BC Ferries is in many ways WSF's closest peer. It operates 35 vessels on 25 routes between mainland British Columbia, Vancouver Island, and other islands off the coast. Additionally, BC Ferries offers one longer cruise-type passage between Port Hardy on Vancouver Island and Prince Rupert on the mainland. This passage takes 16 hours and is particularly popular for tourists. By connecting with the Alaska Marine Highway System in Prince Rupert, it enables passage throughout Coastal Alaska. [13] The BC Ferries route map is illustrated in figure 6. WSF also provides passage to Vancouver Island, and similar services to the islands of Puget Sound. Both ferry systems are among the largest in the world in passenger and vehicle traffic. BC Ferries and WSF also both provide ferry service around the major cities of Vancouver and Seattle respectively. BC Ferries, however does not operate any terminals in downtown Vancouver, and does not focus as heavily on weekday commuters. Its primary function is instead providing the only passenger and vehicle connection between Vancouver Island and the British Columbia mainland. This is an important service because of Vancouver Island's large population, including Victoria, the capital city of British Columbia. While both are publically owned, the most fundamental difference between WSF and BC Ferries is their governance. Since the Coastal Ferry Act of 2003 was passed, BC Ferries has been operated independently from the British Columbia government. BC Ferries is paid contracted rates to operate routes that are not profitable, and is required to keep fares and service standards within contracted guidelines.

The provincial government owns all of the preferred shares of the company, which is wholly controlled by the BC Ferry Authority. [14] The BC Ferry Authority was created by the provincial government in the Coastal Ferry Act of 2003 with the main purpose of appointing the board of directors and establishing executive compensation plans for BC Ferries. It holds the single voting

share of BC Ferries, while both companies are independent of the Provincial Government. [15] BC Ferries is regulated by the BC Ferries commission, which is also independent of the Provincial

Figure 6: BC Ferries System Map [31]

Government. The commission's main purpose is to regulate ferry fares and monitor BC Ferries' compliance with contracted service standards. The commission is meant to balance fares and services to benefit ferry users and tax payers, while maintaining sustainable revenue for BC Ferries. [16]

During FY2013, BC Ferries received $153.5 million CAD in ferry transportation fees from the Provincial Government, and $28.1 million CAD in Federal-Provincial subsidies. In FY2012 and FY2013, BC Ferries was allowed to add fuel surcharges to contracted ticket prices to help offset high fuel prices. During FY2013 BC Ferries was able to eliminate those charges because of a decline in fuel prices. [17] Although WSF carried more vehicles and passengers than BC Ferries in FY2013, BC Ferries' operating expenditures were more than $530 million USD, more than $300 million USD higher than those of WSF. BC Ferries' higher costs are a result of their longer average sailing with a large portion of their sailings crossing between Vancouver Island and Mainland British Columbia. Although in FY2013, BC Ferries had a farebox recovery ratio of 82.84 % compared with 69.68 % for WSF, the amount of subsidy needed to cover the operational deficit was significantly larger for BC Ferries.

3.2.2 Fjord1 AS (Norway)

Fjord1 AS (Fjord1) is a publically and privately owned ferry company, providing services along Norway's Western Coast. Because of Norway's rugged coast and fjords, travel is in many cases more difficult over land. Fjord1 carries passengers and vehicles to destinations across and around Norway's extensive fjords. Until 2011, Fjord1 was entirely publically owned, however in 2011 the county of Møre og Romsdal sold its 41% share to the private company, Havilafjord. The remaining 59% is still owned by another costal Norwegian county, Sogn og Fjordane. [18]

Fjord1 is a peer in the ferry industry to WSF because of its similar role in the transportation system, farebox recovery ratio, and traffic of both passengers and vehicles. Both WSF and Fjord1 operate as extensions of their regions' roadway systems, transporting high volumes of passengers and vehicles across bodies of water where bridges are impractical. The farebox recovery ratio for Fjord1 was 72.94% in FY2013, which is very near WSF's 69.68%. This

demonstrates relative to their size, that each system's government subsidizes them similarly. While WSF is directly tied to the WSDOT and is the automatic choice to run all state funded ferry service on Puget Sound, Fjord1 receives its government funding by bidding on unprofitable routes. The proposals for bids are based on government mandated service standards and subsidy size. Other privately owned ferry companies such as Color line are able to bid for the contracts against Fjord1, which requires Fjord1 to run efficiently. In FY2013, Fjord1 was the only ferry system to transport more vehicles than WSF, carrying 10.5 million vehicles. [19]

3.2.3 Jadrolinija (Croatia)

Jadrolinija is a publically owned and operated ferry service provider on the Croatian Coast of the Adriatic Sea. It operates 80 terminals on 37 routes, and is headquartered Rijeka. Like WSF, Jadrolinija provides commuter and tourist service, along with the only vehicle passage to certain islands on its coast. Jadrolinija has two Italian terminals in Ancona and Bari, which it accesses across the Adriatic Sea, but otherwise sails between Croatian terminals. [20]

Jadrolinija is considered a close peer with WSF because of its similarities in administration, size, and geographic setting. Both systems are publically owned and operated, maintaining FY2013 farebox recovery ratios that round to 69.7%. Although Jadrolinija carried only 9.8 million passengers and 2.5 million vehicles in FY2013, which are both far less than WSF, it is one of the largest public ferry systems in the world. This is especially the case among systems that carry a large number of vehicles and passengers. Additionally, Jadrolinija is similar to WSF in operating around a major metropolitan area while also servicing foreign ports and more rural islands. Because of these similarities, Jadrolinija is an ideal peer in the benchmarking process for WSF to observe operational strategies and help guide its own decisions.

4. Methodology

In the course of researching and producing this report, 24 of the largest ferry systems in the United States and the world were thoroughly examined and then contacted to gather as much data as possible. Information about each operator's terminals, vessels, routes, traffic, performance, revenue, and expenditures, was included in the search to develop a comprehensive picture of the worldwide ferry industry. To make the information suitable for comparison, currencies and units of measure were converted into standard units and financial statements were painstakingly examined to ensure uniformity. This section of the report details the research procedures used to collect and modify information to complete the spreadsheets in appendices D through F and to determine the findings in Section 5.

4.1 Research

The first step of the research process was to find and review FY2013 literature about each of the ferry system operators included in the 2010 Report. The goal was to collect as much information as possible and to identify primary sources within the operators to survey. After spending approximately two months researching and preparing, questionnaires were distributed to each of the ferry system operators with all of the information available, along with the same information about WSF. The surveys included 31 questions in the form of an excel document, and an example survey is included in Appendix I for reference. Ten of the operators returned information electronically, which was a great help in generating data for this report.

The author of this report assumed responsibility for the project at the end of October, 2014, and continued the research process. The process involved examining data from the 2010 Report and the data already collected for this report. To ensure the data is parallel, it was necessary to

review the new sources to compare with the sources of the 2010 data. To enable this process to proceed more efficiently in the next version of this report, all of the research from this report, along with the research that could be recovered for the 2010 Report was documented and saved. One of the advantages of completing this report well after the close of FY2013 is that it was possible to collect nearly all data from FY2013 instead of having to use some operators' data from FY2012 and before.

4.2 Data analysis and conversion

One of the issues with comparing information from 24 ferry operators from around the world is that their data is reported in different formats and therefore must be converted for comparison. In the case of financial information, the exchange rates are always changing and require a specific defined technique for conversion. Additionally, performance statistics such as on-time performance, passenger safety, and trip reliability are recorded differently by different operators and in some cases the differences cannot be reconciled and instead simply need to be noted.

4.2.1 Unit Conversions

For units of measure, as is the standard for WSDOT reports, all units were converted to metric, so distances are reported in kilometers and volumes of fuel are reported in liters. Monetary conversions were more complicated because they required different exchange rates for many of the carriers. Because the exchange rates from the 2010 Report were not all recorded, where possible the data sources were referenced for the 2010 data. From these sources the amounts were retrieved in their original currencies and converted to US dollars. For financial information from the 2010 Report (FY2009), the currencies were converted to US Dollars at the exchange rate on June 30th 2009. For monetary values for this version of the report, exchange rates were

used from June 29th, 2013, because June 30th was a Sunday and exchange rates are unavailable. June 30th was chosen as the date for conversion because it is both in the middle of the fiscal year for operators using the calendar year for their fiscal year and at the end of the fiscal year for operators such as WSF using the fiscal year ending on June 30th. All of the amounts used for currency and unit conversions are included in Appendix G as a reference.

4.2.2 Performance Data Interpretations

The most complicated comparisons to make are from the performance information data, especially data for on-time performance and for safety. There is no universal standard for the amount of time necessary for a vessel to be considered late – this metric differs by provider. The WSF definition of a late vessel is one that departs more than ten minutes after it is scheduled. Alternatively for Golden Gate Ferries a vessel is considered late if it is more than five minutes late during commute times, and more than ten minutes late at all other times. To compare these numbers without the lateness threshold only demonstrates part of the picture, so the lateness threshold is included with the data, and all available data is presented in the results. Additionally WSF is only ranked among other providers that use the same threshold time.

For the passenger safety statistic, it was possible to convert the information from all ferry operators into injuries per million passengers, however the comparison is not uniform. Operators have differing definitions of injuries that make this information difficult for compare. For example, WSF uses the National Transit Database definition for injuries, which only include incidents requiring immediate medical attention away from the scene. [21] Alternatively, BC Ferries considers all injuries that require first aid as passenger injures as indicated in their response to our operator survey. Not all carriers have responded as to their definition of

passenger injury, so this information is largely undefined, however where available it will be listed in the findings. Findings will note where the information is unavailable.

5. Findings

This section describes and analyzes findings from the research and data analysis described in Section 4, considering the 2010 Report and the developments within Washington State Ferries and the ferry industry as a whole since that report was issued. While much of the data collected is included, in the interest of brevity some data is not presented in this section of the report. The complete findings listed by ferry operator from the comparison project are detailed in the spreadsheets in Appendices D through F. The sources of the data within the spreadsheets are cited where publically available and are noted with any qualifying information.

5.1 Operational Comparison

The operational comparison section consists primarily of tables of data with related descriptive analysis. Each operational measure is listed along with the top-ten operators in each of the metrics and the American operators that were not among the top ten. The operational comparisons are broken down into traffic, route, and asset comparisons. Each of the systems included in this analysis exists in a unique setting demanding its own operational attributes. Those attributes are not meant to measure quality between systems, but rather to demonstrate their similarities and differences.

5.1.1 Traffic Analysis

WSF is among the top three ferry systems in the world both in terms of passenger and vehicle traffic. The following section provides description and analysis of ferry system traffic around the world. Tables 4 and 5 provide vehicle and passenger numbers and rankings for the top ten

systems from FY2013, and all other American ferry systems. Red highlighted FY2013 rankings indicate a drop in ranking from FY2009, and green highlighted rankings indicate a climb. The tables also contain the traffic figures and rankings from FY2009.

5.1.1.1 Vehicle Traffic

At the time of the 2010 Report, WSF carried the most vehicles of any ferry system in the world. Although WSF's vehicle traffic increased by over 100,000 vehicles between FY2009 and FY2013, Fjord1 of Norway passed WSF to become the system with the most vehicle traffic during this period. Considering the aggregate vehicle traffic of the 19 operators with FY2009 and FY2013 data available, there was an overall 4.1% increase in ferry vehicle traffic. Table 4 illustrates the growth in vehicle traffic for ferry systems between FY2009 and FY2013, with Fjord1 of Norway experiencing a 19% increase in vehicle traffic. Stena Line of Sweden and AS Tallink of Estonia also experienced a large growth in vehicle traffic of 20% and 30% respectively between FY2009 and FY2013. Stena Line's increase in vehicle traffic and Scandlines of Germany's 5% decrease in vehicle traffic is likely due to the sale of five formerly Scandlines routes to Stena Line in 2012. [22] Collectively, Scandlines and Stena Line experienced a 5.6% increase in vehicle traffic between reports. Ferry operators reviewed in the US experienced only a slight increase of .09% in vehicle traffic between FY2009 and FY2013, although this is heavily influenced by WSF's large volume of traffic compared with the other US ferry operators. Of the five US ferry systems surveyed which carry vehicles, WSF constituted 85% of the overall vehicle traffic. If WSF is excluded from consideration, the other US vehicle-carrying operators surveyed experienced a 7.1% decrease in vehicle traffic between FY2009 and FY2013.

While the purpose of this report is to examine ferry operators and not cruise lines or freight lines, in the European market these distinctions are not always clear. In this analysis, ferries carrying tucks with trailers were considered vehicle traffic even though by some considerations those ferries are operating as freight lines. WSF also provides this service as the only link for freight between the San Juan Islands and the rest of Washington. Some European operators included in this report such as Stena Line and Color Line operate more extensively in freight than WSF. Additionally, some European ferry operators carry vehicles and passengers between destinations over longer distances with overnight trips. These operators, along with Alaska Marine Highway also carry cruise-type passengers whose main draw is the passage. Because there is no uniform method for distinguishing these passengers and vehicles, they were also included in the analysis.

OPERATOR (n = 19)	2013 RANK	ANNUAL VEHICLES (2013)	2009 RANK	ANNUAL VEHICLES (2009)	% CHANGE
Fjord1 (NOR)	1 ↑	10,500,000	2	8,800,000	19%
Washington State Ferries (USA)	**2 ↓**	**10,045,000**	**1**	**9,911,000**	**1%**
Istanbul Deniz Otobüsleri (TUR)	3 ↑	7,820,323	4	6,954,718	12%
British Columbia Ferries (CAN)	4 ↓	7,748,743	3	8,130,356	-5%
Scandlines (DEU)	5	3,227,759	5	3,400,000	-5%
Stena Lines (SWE)	6	3,000,000	6	2,500,000	20%
Jadrolinija (HRV)	7	2,451,097	7	2,445,994	0%
AS Tallink (EST)	8 ↑	1,119,889	11	863,017	30%
Color Line (NOR)	9	974,249	9	984,695	-1%
Brittany Ferries (FRA)	10 ↓	911,396	8	1,055,000	-14%
Other American Operators					
NC Ferries (USA)	11 ↓	834,625	10	943,504	-12%
Steamship Authority (USA)	12 ↑	614,434	14	589,653	4%
Cape May-Lewes (USA)	17 ↓	256,971	16	295,240	-15%
Alaska Marine Highway (USA)	18	108,797	18	108,541	0%

Table 4: Top Ten Vehicle Traffic from FY2013 and FY2009

5.1.1.2 Passenger Traffic

Despite a slight reduction of passenger traffic between FY2009 and FY2013, WSF moved from fourth to third in total passengers carried. IDO of Turkey remained comfortably ahead of all of the other ferry operators despite a major business transition that cut its reported ridership nearly in half. The transition, which is described in Section 4.1, involved the formerly public company being divided. The short intra-city passenger-only routes remained private, while the other routes were sold to a private company. The passenger statistics included here reflect the newly privatized company only, as information from the public section was unavailable, despite extensive research and several attempts to contact the public section. The combined passenger traffic of the 23 systems not including IDO decreased by .85%.

OPERATOR (n = 24)	2013 RANK	ANNUAL PASSENGERS (2013)	2009 RANK	ANNUAL PASSENGERS (2009)	% CHANGE
Istanbul Deniz Otobüsleri (TUR)	1	50,527,752	1	100,575,370	-50%
Transtejo & Soflusa (PRT)	2	23,033,166	2	28,445,987	-19%
Washington State Ferries (USA)	**3 ↑**	**22,395,000**	**4**	**22,400,000**	**0%**
Star Ferries (HKG)	4 ↓	21,600,000	3	23,000,000	-6%
Fjord1 (NOR)	5 ↑	21,500,000	7	18,200,000	18%
Staten Island Ferries (USA)	6	21,399,000	6	20,118,000	6%
British Columbia Ferries (CAN)	7 ↓	19,919,098	5	20,727,493	-4%
Sydney Ferries (AUS)	8	14,943,173	8	14,310,000	4%
Stena Lines (SWE)	9 ↑	14,600,000	10	11,500,000	27%
Scandlines (DEU)	10 ↓	11,027,444	9	12,000,000	-8%
Other American Operators					
Steamship Authority (USA)	16	2,846,691	16	2,693,178	6%
Golden Gate Ferries (USA)	18 ↑	2,324,874	20	1,949,035	19%
NC Ferries (USA)	19	1,923,100	19	2,184,333	-12%
Cape May-Lewes (USA)	23	742,938	23	842,449	-12%
Alaska Marine Highway	24	313,311	24	317,891	-1%

Table 5: Top Ten Passenger Traffic from FY2013 and FY2009

The findings indicate that ferry systems in southern Europe, and especially those in the Mediterranean Region have experienced major declines in ridership. Although Anek Lines and

Hellenic Seaways of Greece are below the top ten in vehicles and passengers carried, they both experienced major business declines. The carriers' passenger volume fell by 40% and 39%, and their vehicle volume fell by 42% and 47% respectively between FY2009 and FY2013. Both operators cited the poor economy as the cause of their declines and have also cut services in response to the decreased demand. Among the top ten passenger carriers, not including IDO, Transtejo & Soflusa (T & S) of Portugal experienced the largest decrease in ridership. T & S' ridership fell by more than 5 million passengers (19%) between FY2009 and FY2013. This decline from both Greek operators and the lone Portuguese operator appears to reflect the series of financial crises affecting Southern Europe between 2010 and 2013 that particularly affected Portugal and Greece. [2]

Among the ferry operators in the top ten for ridership, Stena Line and Fjord1 experienced the largest growth, increasing by 27% and 18% respectively. This further demonstrates the trend of increased ferry ridership in Northern Europe. While Stena Line's growth may be partially due to its five new routes that it acquired from Scandlines, its ridership increased by 3.1 million between FY2009 and FY2013, while Scandlines' decreased by less than one million during the same time period.

Despite the decrease in ferry ridership globally, ridership among the seven US ferry service providers increased by 2.8% between FY2009 and FY2013. This growth may be related to the ongoing American recovery from the major recession that peaked in 2009. [23] Golden Gate Ferries experienced an increase of 19%, while Staten Island Ferries and Steamship Authority each experienced a 6% increase in ridership between reports. Alternatively, NC Ferries and Cape May-Lewes each experienced 12% decreases in ridership between FY2009 and FY2013.

5.1.2 Route Analysis

This section details the route attributes of the ferry systems during FY2013. The attributes include the total number of routes, terminals, and sailings as well as the total distance traveled, fuel usage, and fuel expenditures within the system. WSF is among the top-ten among each of the six route measurements that are analyzed in this report.

5.1.2.1 Routes and Terminals

Rank	Operator (n = 23)	# Routes		Rank	Operator (n = 23)	# Terminals
1	Alaska Marine Highway (USA)	137		1	Fjord1 (NOR)	93
2	Fjord1 (NOR)	46		2	Jadrolinija (HRV)	80
3	Jadrolinija (HRV)	37		3	British Columbia Ferries (CAN)	47
4	British Columbia Ferries (CAN)	25		4	Hellenic Seaways (GRE)	44
5	Stena Lines (SWE)	22		5	Sydney Ferries (AUS)	39
6	Istanbul Deniz Otobüsleri (TUR)	17		6	Istanbul Deniz Otobüsleri (TUR)	35
7	Brittany Ferries (FRA)	12		7	Alaska Marine Highway (USA)	33
8	Hellenic Seaways (GRE)	11		8	Anek Lines (GRC)	27
9	**Washington State Ferries (USA)**	**10**		9	Stena Lines (SWE)	26
10	Sydney Ferries (AUS)	8		**10**	**Washington State Ferries (USA)**	**20**
Other US Operators						
11	NC Ferries (USA)	7		11	NC Ferries (USA)	13
17	Steamship Authority (USA)	3		17	Steamship Authority (USA)	5
19	Golden Gate Ferries (USA)	2		19	Golden Gate Ferries (USA)	3
21	Cape May-Lewes (USA)	1		21	Staten Island Ferries (USA)	2
21	Staten Island Ferries (USA)	1		21	Cape May-Lewes (USA)	2

Table 6: Vessels and Average Vessel Age FY2013

In FY2013, WSF operated ten routes with service to 20 terminals. Table 6, which illustrates the top ten systems by routes and terminals, ranks WSF ninth for number of routes, and tenth for number of terminals. In FY2013, Alaska Marine Highway (AMH) operated nearly three times more routes than any other ferry service provider. The number of routes operated by AMH may be misleading, however as many are only used one to two times annually. [24] While AMH has the lowest ridership of any ferry system considered, it is significant in this comparison because it provides such unique services to such a large area.

Fjord1, Jadrolinija, and BC ferries operated the second through fourth most routes in FY2013. Each of these systems carries substantial vehicle and passenger traffic to a wide variety of destinations along their respective coastlines. The same 3 operators also operated the most terminals of the 23 ferry systems reviewed, with Fjord1 operating 80. Alternatively some ferry systems such as Staten Island Ferries of New York, USA and Interislander of New Zealand operate only one crossing with two terminals. Although WSF operates fewer terminals and routes than its closest peers, the parameters and conditions under which it operates do not require as many terminals or routes.

5.1.2.2 Vessels

Rank	Operator (n = 24)	# Vessels	Average Vessel Age (Years)
1	Fjord1 (NOR)	73	22.3
2	Istanbul Deniz Otobüsleri (TUR)	53	20.0
3	Jadrolinija (HRV)	49	26.2
4	Stena Lines (SWE)	40	16.4
5	British Columbia Ferries (CAN)	35	31.5
6	Transtejo & Soflusa (PRT)	32	20.0
7	Sydney Ferries (AUS)	28	24.5
8	Waxholms (SWE)	24	33.8
9	**Washington State Ferries (USA)**	**22**	**34.0**
9	NC Ferries (USA)	22	20.1
Other US Operators			
13	Alaska Marine Highway (USA)	11	34.0
17	Staten Island Ferries (USA)	8	25.0
19	Steamship Authority (USA)	8	28.9
20	Golden Gate Ferries (USA)	7	23.6
23	Cape May-Lewes (USA)	4	37.0

Table 7: Number of Vessels and Average Vessel Age

Table 7 ranks ferry systems by the number of vessels operated in FY2013. In discernible cases where systems leased vessels from one another, the vessels were included for the systems that operated them and not those that owned them. Many of the European systems lease vessels from one another to adapt to their demand and generate revenue from unused vessels. WSF

was ninth on the list for most vessels in FY2013 with a total of 22. Vessels operated by WSF have an average age of 34 years. WSF's average fleet age in FY2013 was higher than any other system listed in the top ten. WSF's new vessel acquisitions mentioned in Section 2 are a part of WSF's vessel replacement plan, through which it plans to supplant its oldest vessels to rejuvenate its fleet. Note that Fjord1 and IDO operated the most vessels with 73 and 53 respectively. Because both systems operate a large number of routes, they require many vessels to complete service.

5.1.2.3 Sailings and Total System Distance

Rank	Operator (n = 14)	# Sailings	Rank	Operator (n = 14)	Total KM	Total Miles
1	Istanbul Deniz Otobüsleri (TUR)	190,760	1	Stena Lines (SWE)	5,000,400	3,107,104
2	British Columbia Ferries (CAN)	183,800	2	Istanbul Deniz Otobüsleri (TUR)	3,029,626	1,882,522
3	Sydney Ferries (AUS)	174,302	3	Jadrolinija (HRV)	1,890,262	1,174,554
4	**Washington State Ferries (USA)**	**158,858**	**4**	**Washington State Ferries (USA)**	**1,458,037**	**905,982**
5	Transtejo & Soflusa (PRT)	133,281	5	Scandlines (DEU)	1,069,254	664,403
6	NC Ferries (USA)	64,644	6	Transtejo & Soflusa (PRT)	887,611	551,536
7	Scandlines (DEU)	63,316	7	Alaska Marine Highway (USA)	801,029	497,736
8	Staten Island Ferries (USA)	35,979	8	Irish Ferries (IRL)	637,088	395,868
9	Steamship Authority (USA)	22,050	9	Steamship Authority (USA)	605,545	376,268
10	Golden Gate Ferries (USA)	17,249	10	Interislander (NZL)	423,200	262,964
Other US Operators			11	Staten Island Ferries (USA)	301,094	
11	Cape May-Lewes (USA)	4,650	13	Golden Gate Ferries (USA)	177,000	109,983
14	Alaska Marine Highway (USA)	3,682	14	Cape May-Lewes (USA)	120,900	75,124

Table 8: Sailings and Distance Sailed FY2013

Table 8 lists the top-ten systems by number of sailings and total distance sailed in FY2013. Although Appendix E includes information on passenger distance travelled and total route length, total system distance was available for more of the providers, and thus allows a more complete comparison. WSF ranked fourth of the 14 ferry systems with information available in each category with 158,858 sailings for 1,458,037 kilometers sailed. IDO of Turkey completed the most sailings, followed closely by BC Ferries. Understandably, the top-ten list of sailings is dominated by ferry systems that operate over relatively short routes in urban areas. This makes

sense because of the constant demand for ferry services and the relatively large number of sailings each vessel can complete during a day. Systems that operate in less populated areas and over longer routes do not complete as many sailings because there is less constant demand and each sailing takes longer to complete. There is also a wide range in the number of sailings between operators in the top ten, with IDO completing more than ten times the 17,249 sailings of Golden Gate Ferries in FY2013. This probably is a result of only 14 systems providing data for each of these metrics and the wide array of characteristics.

5.1.2.4 Fuel Usage and Expenditure

Rank	Operator (n = 12)	Fuel Consumed (Liters)	Fuel Consumed (Gallons)	Total Fuel Expense (USD) FY2013	Total Fuel Expense (USD) FY2009
1	British Columbia Ferries (CAN)	116,727,925	30,836,249	$115,080,598	$105,723,597
2	Istanbul Deniz Otobüsleri (TUR)	85,725,451	22,646,264	$77,514,633	$48,373,646
3	Scandlines (DEU)	65,852,000	17,396,255	$41,409,768	Unavailable
4	**Washington State Ferries (USA)**	**65,102,380**	**17,198,226**	**$60,367,000**	**$41,932,000**
5	Jadrolinija (HRV)	41,305,764	10,911,826	$40,543,975	Unavailable
6	Alaska Marine Highway (USA)	40,803,249	10,779,076	$36,452,000	$28,123,957
7	Irish Ferries (IRL)	17,800,000	4,702,262	$46,586,314	$29,444,624
8	Transtejo & Soflusa (PRT)	10,935,000	2,888,721	$10,384,324	$8,096,567
9	Steamship Authority (USA)	10,599,155	2,800,000	$9,103,000	$5,511,000
10	NC Ferries (USA)	6,813,743	1,800,000	$5,907,996	$5,000,000
Other US Operators					
11	Golden Gate Ferries (USA)	6,508,105	1,719,259	$6,164,200	$3,821,200
12	Cape May-Lewes (USA)	3,608,183	953,181	$2,948,624	$1,733,983

Table 9: Fuel Consumption FY2013 and Expense FY2013 & FY2009

Table 9 provides information for each of the 12 operators providing information about their fuel consumption and fuel expenditures. Within this group, WSF ranked fourth, consuming 65,102,380 liters (17,198,226 gallons) of ultra-low sulfur marine grade diesel at a cost of $60,367,000. BC Ferries and IDO consumed the most fuel of all of the ferry systems, using 116,727,925 liters (30,836,249 gallons) and 85,725,451 liters (22,646,264 gallons) of fuel

respectively. This makes sense considering that those two systems also completed the most sailings.

Fuel cost and fuel cost hedging are major concerns within the ferry industry and create major uncertainty in the cost of providing ferry service. Fuel cost is the second largest operating expense after labor for most of the ferry systems. The aggregate fuel expenditure for operators supplying that information from FY2009 and FY2013 increased by 33%. Anek Lines and Hellenic Seaways were not included in this percentage because both underwent major service reductions during that time. WSF's total fuel cost increased between FY2009 and FY2013 by nearly 44%, and constituted 26.6% of operating expenses in FY2013. Each of the providers listed currently uses diesel fuel to operate their fleets, however there is movement in the ferry industry toward fueling ships with liquefied natural gas to both reduce fuel costs and reduce emissions. WSF's plan for adopting LNG is detailed in Section 3 of this report.

5.2 Performance Comparison

The performance comparison section uses operational and financial performance metrics to compare ferry systems. Each of the items compared within this section is not directly linked to system size, and instead uses measurements of rates. This type of measurement enables comparison between systems with operational differences that make them difficult to compare. The performance comparison categories include:

Operational Performance

- Trip reliability
- On-time performance
- Passenger safety

Financial Performance

- Farebox recovery ratio
- Labor portion of operating expense
- Cost per passenger-kilometer

5.2.1 Operational Performance Metrics

Where available, the complete operational performance information is listed on the spreadsheet in Appendix E. The analysis in this section includes only some of the operators to provide a picture of the ferry industry as a whole. Because on-time performance and passenger safety are measured differently throughout the ferry industry, descriptions of the measurements are included where needed.

5.2.1.1 Reliability

Trip reliability is the proportion of scheduled trips that are actually completed. It describes how well ferry service operators maintain a planned schedule. Trips can be cancelled because of weather, mechanical failure, or a variety of other reasons. For customers to rely on a ferry service in planning travel, it is important to complete scheduled trips. All of the 13 operators that reported trip reliability completed at least 94% of their scheduled trips, and eight of them completed more than 99%. Washington State Ferries completed 99.4% of its scheduled trips during FY2013.

Rank	Operator	Trip Reliability (% scheduled trips completed)
1	Golden Gate Ferries (USA)	99.9%
2	Transtejo & Soflusa (PRT)	99.8%
3	British Columbia Ferries (CAN)	99.8%
4	Sydney Ferries (AUS)	99.6%
5	Cape May-Lewes (USA)	99.5%
6	**Washington State Ferries (USA)**	**99.4%**
7	Star Ferries (HKG)	99.2%
8	Istanbul Deniz Otobüsleri (TUR)	99.0%
9	Scandlines (DEU)	98.2%
10	NC Ferries (USA)	97.3%
11	Steamship Authority (USA)	96.4%
12	Alaska Marine Highway (USA)	96.0%
13	Irish Ferries (IRL)	94.0%

Table 10: Trip Reliability

5.2.1.2 On-time Performance

On-time performance is the portion of scheduled trips that either arrive or depart at or near the scheduled time. This measure has different meanings for each ferry systems, with different late thresholds for the each operator. For example, WSF defines trips departing within 10 minutes of schedule as on time while Sydney Ferries considers only trips departing within five minutes of schedule to be on time. On-time performance is especially important for operators that carry commuter traffic because it affects the range of travel time for daily passengers and affect their connections with other modes of transportation. If there is significant variability in departure time, then commuters need to build that into their schedule and require more of a window for uncertainty in their travel. The following are on-time performance measures and their qualifications.

<u>On-time Performance</u>

- Sydney Ferries- 99.1% of trips departed within 5 minutes of schedule
- Golden Gate Ferries- 96% of trips departed on time, <5 minutes during commute hours, <10 minutes during non-commute hours
- **WSF**- 95.7% of trips departed within 10 minutes of schedule
- BC Ferries- 92.3% of trips departed within 10 minutes of schedule
- Steamship Authority- 90% of trips departed within 10 minutes of schedule

5.2.1.3 Passenger Safety

Ferry systems track passenger safety to ensure they provide a safe environment for passengers. Although 10 of the ferry systems provided data for passenger injuries, they did not all provide information detailing what constitutes an injury. Some systems include all injuries that require any first aid an injury, others including WSF consider events injuries if injured party needs to be

transported to a medical facility. For this report, passenger safety is measured in injuries per million passengers to allow comparison between systems of different sizes. In FY2013, WSF experienced a total of 20 passenger injuries by the National Transit Database definition. This meant 0.89 injuries per million passengers. Alternatively, BC Ferries reported 13.28 injuries per million passengers in the survey for this report. BC ferries considers all injuries that require first aid, so these numbers are not comparable.

5.2.2 Financial Performance

Appendix F provides detailed financial information from FY2009 and FY2013 for each of the ferry systems included in this analysis. In this financial performance section, three financial performance indicators are incorporated and analyzed. These include farebox recovery, cost per passenger-kilometer, and labor portion of operating expenditures. Each of these metrics is a rate that enables comparisons between systems with differing operational attributes. Although described as performance comparisons, these metrics do not necessarily indicate differential quality between systems. All of the systems with enough information available are included in the tables in this section.

5.2.2.1 Farebox Recovery

Farebox recovery is the percentage of the total operating expenditures covered by fare revenue. It is a measure of efficiency with which ferry systems collect revenue for the service they provide. Farebox recovery should be considered separately for privately and publically owned ferry systems due to their different purposes. While privately owned systems' main purpose is to generate revenue, publically owned systems also operate as a public good as part of the transportation network. Because of these differing goals, only publicly owned ferry systems are

included in Table 11 for this analysis. Even between public ferry systems, the farebox recovery ratio differs for reasons other than efficiency. For example, Staten Island Ferries operates purely as a public good, and does not charge fares. This farebox recovery ratio of zero percent does not reflect poor service, but instead is an indication of the philosophy under which it operates. Where available, farebox recovery figures for each of the ferry service providers are listed in Appendices D through F.

FY2013 Rank	Operator (n=12)	Farebox Recovery % FY2013	Farebox Recovery % FY2009
1	Steamship Authority (USA)	92.8%	94.5%
2	British Columbia Ferries (CAN)	82.8%	80.8%
3	Fjord1 (NOR)	72.9%	66.9%
4	Jadrolinija (HRV)	69.7%	Unavailable
5	**Washington State Ferries (USA)**	**69.7%**	**63.8%**
6	Cape May-Lewes (USA)	57.7%	66.9%
7	Golden Gate Ferries (USA)	55.4%	41.0%
8	Transtejo & Soflusa (PRT)	39.0%	32.8%
9	Waxholms (SWE)	34.4%	37.0%
10	Alaska Marine Highway (USA)	24.6%	26.4%
11	NC Ferries (USA)	5.6%	5.8%
12	Staten Island Ferries (USA)	0%	0%

Table 11: Farebox Recovery % FY2013 & FY2009

In FY2013, WSF had a farebox recovery ratio of 69.7%, which is an improvement of nearly six percent from FY2009. This is due to the significant increase in fare revenue from FY2009 to FY2013, with only a slight increase in operating expenses. Steamship Authority of Massachusetts had the highest farebox recovery of 92.8%. Steamship Authority provides passage to the vacation destinations on Nantucket and Martha's Vineyard from the Massachusetts Coast, serving a wealthy clientele. Because of the nature of the services provided and clientele served, Steamship Authority collects higher fares and doesn't receive any subsidies. BC Ferries also had a high farebox recovery ratio of 82.8%, which is two percent improvement from FY2009. Although very similar to WSF, BC Ferries provides longer typical passages with many of its

routes. Such longer routes are more expensive to operate and probably require BC Ferries to recover more of the costs with fares. The difference between WSF's operating costs and farebox revenue in FY2013 was $68.9 million, compared with more than $120 million for BC Ferries. On the low end of farebox recovery, NC Ferries had a farebox recovery ratio of just 5.6% in FY2013. Like Staten Island Ferries, NC Ferries does not collect fares for some of its routes and the low farebox recovery ratio is reflective of the fact that system is not reliant on fare revenues to operate.

5.2.2.2 Cost per Passenger-Kilometer

Although information about the cost per passenger kilometer in FY2013 was only available for seven of the ferry systems, it allows an interesting comparison between very different operations. Establishing a rate that is normalized across passenger count and sailing distance enables a cost comparison between diverse ferry systems. Cost per passenger kilometer is measured by dividing total operating cost by the total passenger distance. Passenger distance is the passenger volume from each sailing multiplied by the distance of the sailing.

Rank	Operator (n = 7)	Cost Per Passenger KM	Cost Per Passenger Mile	Passenger Distance (KM)	Passenger Distance (Miles)	FY2013 Operating Expenditures
1	Transtejo & Soflusa (PRT) *	$0.32	$0.51	154,587,000	96,055,879	$49,296,909
2	Staten Island Ferries (USA) *	$0.64	$1.03	179,079,487	111,274,800	$115,126,620
3	Golden Gate Ferries (USA) *	$0.67	$1.08	41,101,049	25,539,000	$27,461,000
4	**Washington State Ferries (USA)**	**$0.81**	**$1.30**	**280,669,680**	**174,400,000**	**$227,349,000**
5	Cape May-Lewes (USA)	$1.16	$1.87	19,316,388	12,002,647	$22,358,231
6	NC Ferries (USA)	$1.90	$3.06	19,499,423	12,116,376	$37,104,016
7	Alaska Marine Highway (USA)	$2.02	$3.25	85,501,274	53,128,012	$172,527,000

Table 12: Cost per Passenger-Distance FY2013
* Denotes systems that do not carry vehicles

As illustrated in Table 12, WSF had a total operating cost of $0.81 per passenger kilometer, ranking fourth among the seven systems with this information available. Transtejo and Soflusa (T & S) of Portugal had the lowest FY2013 cost per passenger kilometer of $.032. The financial

information reported for T & S includes depreciation of working capital without any specific amount listed. Because none of the other systems' expenses include depreciation, T & S' costs are actually lower than listed. NC Ferries and AMH had the highest cost per passenger kilometer listed, at $1.90 and $2.02 respectively. Among the carriers included, cost per passenger kilometer seems to be clustered by the population density of the areas served. T & S, Staten Island Ferries, and Golden Gate Ferries operate only high-volume routes in densely populated urban areas and have the 3 lowest costs per passenger kilometer. WSF operates around Seattle, but also provides service to more rural destinations on the Puget Sound and falls in the middle of this ranking. NC Ferries and AMH have the highest costs per passenger km and do not serve any large urban areas. Despite normalizing cost across ridership and distance, smaller and more rural systems seem to be more expensive, which may be a result of fewer passengers to distribute the fixed business costs between.

5.2.2.3 Labor portion of operating expense

Labor portion of operating expense is the total amount spent on labor divided by total operating expenditures. For this document, operating expenditures do not include depreciation or amortization when it was possible to exclude those amounts. Also where possible, labor expenses include all payroll, benefits, and training. Labor portion of operating expenditure is included in this document to better explain ferry system expenses, considering that labor is the largest expense for most systems.

Table 13 provides information for each of the ferry systems for which this information is available, ranked by labor portion of operating expense. WSF ranks seventh with a 50.4% labor portion of operating expense, which is a reduction from 50.9% in FY2009. [1] In FY2013 NC

Ferries had the highest labor portion of operating expense with 78.6%, while IDO had the lowest portion with 24.1%.

Rank	Operator (n=17)	Labor Portion of Operating Expense	# Employees	Total Labor Expense (FY2013)	Total Operating Expense (FY2013)
1	NC Ferries (USA) Public	78.6%	600	$29,154,724	$37,104,016
2	Cape May-Lewes (USA) Public	67.0%	311	$14,969,113	$22,358,231
3	Alaska Marine Highway (USA) Public	61.2%	1012	$105,608,948	$172,527,000
4	Star Ferries (HKG)	56.2%	unavailable	$5,904,433	$10,510,894
5	Golden Gate Ferries (USA) Public	52.6%	73	$14,435,300	$27,461,000
6	Steamship Authority (USA) Public	52.2%	625	$44,883,000	$85,964,000
7	**Washington State Ferries (USA) Public**	**50.4%**	**1829**	**$114,580,000**	**$227,349,000**
8	Fjord1 (NOR) Public/Private	50.2%	1279	$161,013,090	$320,606,189
9	British Columbia Ferries (CAN) Public	46.5%	4637	$250,133,862	$538,198,669
10	Transtejo & Soflusa (PRT) Public	34.1%	501	$16,821,824	$49,296,909
11	Jadrolinija (HRV) Public	33.2%	unavailable	$42,460,346	$127,750,710
12	AS Tallink (EST)	32.0%	6319	$285,617,050	$893,695,981
13	Hellenic Seaways (GRE)	30.3%	374	$37,093,377	$122,334,621
14	Anek Lines (GRC)	27.5%	730	$55,105,884	$200,313,344
15	Scandlines (DEU)	26.0%	1772	$112,833,875	$434,390,055
16	Irish Ferries (IRL)	25.0%	211	$44,504,245	$178,016,978
17	Istanbul Deniz Otobüsleri (TUR)	24.1%	1001	$42,257,041	$175,301,450

Table 13 Labor Information FY2013
Public Denotes wholly publically owned systems, Public/Private Denotes systems owned publically and privately

Observing the results in Table 13, with the exception of Star Ferries, the systems are clustered between public and private ownership. All public systems listed have a labor portion of operating expense higher than 33%, while that of all private systems, besides Star Ferries, is lower than 33%. This may be caused by private systems operating their labor more efficiently or having more diverse business models that include less labor intensive segments. Other operating expenses, the largest of which is fuel cost, also factor into the labor percentage of operating expenses. Fuel costs and other operating costs are also listed where available in appendices D through F.

6. Conclusion

The purpose of this report is to observe and document the operation and performance of ferry systems around the world to document changes, compare with WSF, and to continue the benchmarking process from the 2010 Report. Additionally this report describes changes between individual ferry systems and the ferry industry as a whole between FY2009 and FY2013. WSF remains among the largest ferry systems in the world by all measures, and has made significant changes addressing concerns found in the 2010 Report.

Since the 2010 Report, there has been a trend of privatization within the ferry industry. Sydney Ferries of Australia leased its operation to a private corporation, and Istanbul Deniz Otobüsleri of Turkey was sold outright at auction to become fully privately owned. Additionally, 41% of Fjord1 AS was sold to the private sector.

The ferry systems of Northern Europe, in Norway, Sweden, Germany, and Estonia had the largest increases in vehicle and passenger ridership between FY2009 and FY2013. Alternatively, the ferry systems of Southern Europe, particularly in Greece and Portugal had the largest drops in vehicle and passenger ridership, ostensibly because of their major financial crises between 2011 and 2013.

Among the largest concerns in the 2010 Report was the average age of WSF's fleet. At the time it was the second oldest of any of the systems included in the comparison, however WSF has taken action to rejuvenate its fleet. As of March, 2015 it has added four new vessels since the 2010 Report, and plans to introduce one new ship in 2015 and another in 2017. With these additions, WSF will no longer operate any vessels built in the 1950's. [5]

Additionally the 2010 Report suggested WSF should set more operational targets known to the public to increase accountability. Since the Washington State Legislature passed RCW 47.64.360 in 2011, WSF has published performance reports that include preservation, safety, mobility, and stewardship goals and actual performance grades. [4] This report from FY2014, which includes the data from FY2013 is shown in Appendix A. WSF performance reports are now published online annually by Washington's Office of Financial Management to provide a higher level of accountability to Washington's citizens.

As a whole, between FY2009 and FY2013, the ferry industry experienced a 4.1 % increase in vehicle traffic and a .85 % decrease in passenger traffic, when including all operators where year to year comparison was reasonable. During the same period, WSF experienced nearly no change in passenger traffic and a 1 % increase in vehicle traffic. As a result of 5 fare increases from 2009 to 2012, WSF recovered 69.7 % of its operating expenditures from fares in FY2013 compared with 63.8 % in FY2009.

While comparisons between ferry systems provide a useful benchmarking tool, no two systems are alike. Each has its own physical setting, goals, population, and administration that make them unique. While it is important for WSF to look outward and observe trends in the ferry industry, each operational strategy will affect ferry systems differently.

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FY2014 Washington State Ferries

	PERFORMANCE MEASURES	FY2013	FY2014	Goal (FY2014)	Goal met ?	Comments
PRESERVATION						
1	Percent of terminal projects completed on time[1]	86%	100%	90%	✓	All terminal projects were completed on time.
2	Percent of terminal projects completed on budget[1]	93%	100%	90%	✓	All terminal projects were completed at or below budget.
3a	Percent of projects completed on time: • Existing Vessels[2]	100%	93%	75%	✓	Exceeded the goal for delivering vessel projects on time.
3b	• New Vessels	N/A	0%	100%	-	New vessel delivered 2 ½ months late.
4a	Percent of projects completed on budget: • Existing Vessels[2]	92%	67%	75%	-	5 of 14 projects were over budget.
4b	• New Vessels	N/A	100%	100%	✓	Exceeded the goal for delivering on budget.
14	Preliminary engineering costs: • As a percent of terminal capital project costs	18%	13%	15%	✓	Terminal and vessel capital projects exceeded the preliminary engineering cost goal.
	• As a percent of vessel capital project costs	9%	8%	17%	✓	
15	Average vessel out of service time	7.5 weeks	8.1 weeks	8 weeks	-	Missed the goal due to vessel breakdowns.
SAFETY						
5	Passenger injuries per million miles	0.115	0.067	Less than 0.098	✓	Passenger injury rate was below the three-year moving average, and met the goal.
6	OSHA recordable crew injuries per 10,000 revenue service hours	6.2	7.5	Less than 8.5	✓	The crew injury rate was below the industry standard, and met the goal.
MOBILITY						
10	Annual operating cost estimate per passenger mile compared to budgeted cost	-3.44%	-3.53%	Within 5% of budget	✓	Exceeded the goal.
11	Annual operating cost estimate per revenue service mile compared to budgeted cost	-2.5%	-1.0%	Within 5% of budget	✓	Exceeded the goal.
12	Overtime hours as a percentage of straight time hours compared to budgeted overtime hours	+0.56%	+1.00%	Within 1% of budget	✓	Met the goal.
13	Gallons of fuel consumed per revenue service mile compared to budgeted fuel consumption	-1.69%	-3.29%	Within 5% of budget	✓	Exceeded the goal.
STEWARDSHIP						
7	Passenger satisfaction with WSF Staff customer service	95%	95%	90%	✓	Exceeded the goal.
8	Passenger satisfaction with cleanliness and comfort of WSF terminals, facilities and vessels	90%	89%	90%	-	Dissatisfaction with the cleanliness of terminal bathrooms caused the goal to be missed.
9	Passenger satisfaction with service requests made via telephone or WSF website	74%	91%	90%	✓	Exceeded the goal.
16	On-time performance level (percent of trips departing at scheduled time).	95.7%	95.5%	95%	✓	Exceeded on-time performance goal.
17	Service reliability level (percent of scheduled trips completed).	99.4%	99.5%	99%	✓	Met service reliability level goal.

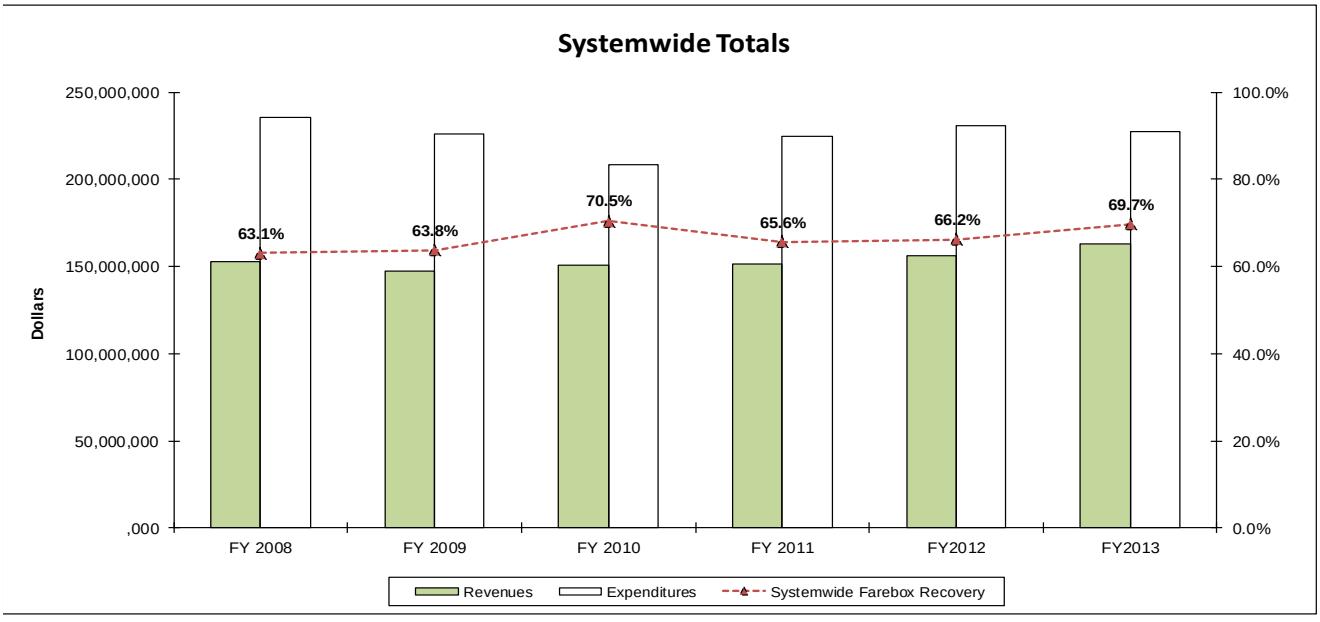
1. Includes completed preservation and improvement projects.
2. Includes completed preservation and improvement projects with the exception of new

Appendix B

ROUTE STATEMENT SUMMARY
FISCAL YEAR 2008 - 2013
Summary - All Routes

Includes Seattle-Vashon Passenger Only FY2008

	FY 2008	FY 2009	FY 2010	FY 2011	FY2012	FY2013
TRAFFIC						
Passenger	12,926,000	12,489,000	12,480,000	12,246,000	12,236,000	12,350,000
Vehicle	10,392,000	9,911,000	10,134,000	9,970,000	9,983,000	10,045,000
TOTAL RIDERS	**23,319,000**	**22,400,000**	**22,614,000**	**22,215,000**	**22,219,000**	**22,395,000**
REVENUE						
Fares	148,690,000	144,030,000	147,010,000	147,448,000	152,540,000	158,421,000
Miscellaneous	3,910,000	3,646,000	3,495,000	3,839,000	3,762,000	4,295,000
TOTAL REVENUE	**152,600,000**	**147,676,000**	**150,505,000**	**151,287,000**	**156,302,000**	**162,716,000**
DIRECT VESSEL OPERATING EXPENSE						
Labor	81,613,000	81,679,000	83,771,000	82,555,000	81,143,000	80,644,000
Fuel	52,447,000	41,932,000	40,400,000	53,561,000	63,401,000	60,367,000
Non-Labor	14,404,000	13,033,000	9,682,000	7,427,000	8,013,000	8,737,000
Total	148,464,000	136,645,000	133,853,000	143,542,000	152,557,000	149,748,000
DIRECT TERMINAL OPERATING EXPENSE						
Labor	21,616,000	21,596,000	21,807,000	22,054,000	22,373,000	22,090,000
Non-Labor	5,577,000	5,683,000	5,394,000	5,461,000	5,792,000	6,162,000
Total	27,192,000	27,278,000	27,201,000	27,515,000	28,165,000	28,252,000
DIRECT MAINTENANCE EXPENSE						
Vessel Maintenance	15,455,000	13,596,000	15,048,000	19,751,000	21,017,000	19,007,000
Terminal Maintenance	8,643,000	8,651,000	9,243,000	9,198,000	8,997,000	9,691,000
Total	24,098,000	22,247,000	24,291,000	28,948,000	30,014,000	28,697,000
MANAGEMENT AND SUPPORT EXPENSE						
Labor	12,605,000	11,730,000	12,008,000	12,320,000	11,858,000	11,846,000
Non-Labor	14,276,000	15,911,000	11,231,000	12,328,000	7,960,000	8,805,000
Other State Support	9,175,000	12,003,000				
Total	36,056,000	39,643,000	23,240,000	24,648,000	19,818,000	20,651,000
TOTAL EXPENSES	**235,811,000**	**225,813,000**	**208,584,000**	**224,653,000**	**230,553,000**	**227,349,000**
NET REVENUE/(EXPENSE)	**(83,211,000)**	**(78,137,000)**	**(58,080,000)**	**(73,366,000)**	**(74,251,000)**	**(64,633,000)**
FAREBOX RECOVERY RATIO	**63.1%**	**63.8%**	**70.5%**	**65.6%**	**66.2%**	**69.7%**
TOTAL REVENUE RECOVERY RATIO	**64.7%**	**65.4%**	**72.2%**	**67.3%**	**67.8%**	**71.6%**



Appendix C: Overview of Findings

Service Quality Measures	Cost Efficiency Measures
Cost per Passenger Km (operating expenses / passenger km travelled) **WSF:** $0.81 **Peers:** AMH ($2.02), NC Ferries ($1.90), **Aggregate Across All (n=7):** $1.20 **Discussion:** Passenger distance was not a common statistic, but this provides a measure that adjusts for systems that travel over larger distances. Cost per passenger KM was generally lower for the systems in urban areas and higher for those in more remote areas.	**Cost per Passenger** (operating expenses/number of passengers transported) **WSF:** $10.15 **Peers:** BC Ferries ($27.02), Jadrolinija ($13.00), Fjord1 ($14.91), AMH ($550.66), NC Ferries ($19.29) **System Median (n= 20):** $23.16 **Aggregate Across All (n= 20):** $20.81 **Discussion:** Predictably, systems that transport fewer passengers over longer distances tend to have higher costs per passenger. WSF operates with large volumes over relatively short distances.
On-time Departure (departures within # minutes of on-time/ total trips) **WSF:** 95.7 % **Peers:** BC Ferries (92.3%), AMH (92%), Sydney Ferries (99.08%), Golden Gate Ferries (96%) **Discussion:** WSF was above goal of 95%, Across ferry systems there are different thresholds for being "on time". WSF considers departing within 10 minutes of schedule to be on-time, whereas Golden Gate Ferries considers 5 minutes late during commute hours, and 10 minutes otherwise.	**Trip Reliability** (# trips completed / # scheduled trips) **WSF:** 99.4 % **Peers:** BC Ferries (99.75%), NC Ferries (97.3%), AMH (96%) **System Average (n= 13):** 98.32% **Discussion:** WSF compares strongly with other ferry systems in trip reliability, cancelling 938 of its 162,742 scheduled trips without replacement.
Passenger Safety (passenger injuries / 1,000,000 passenger trips) **WSF:** 0.89 **Peers:** BC Ferries (13.28), Steamship Authority (4.57), Sydney Ferries (0.13), Golden Gate Ferries (1.29) **Discussion:** WSF was above goal with 20 passenger injuries total, although the goal rate is determined by 3 year average. Different meanings of injury across ferry systems, and not all report actual meaning. WSF only considers injuries needing emergency transportation, BC Ferries includes all reported injuries.	**Farebox recovery** (fare revenue/operating expenses) **WSF:** 69.68% **Peers:** BC Ferries (80.79%), Jadrolinija (69.74%), Fjord1 (72.94%) **System Average (n= 18):** 67.99% **Discussion:** Largely based on type of service, some public operators collect very little in fares and operate more as a public good. WSF increased its Farebox Recovery from 63.78% in FY2009.
Average Fleet Age (Average of 2014-(year ship was built) over all ships) **WSF:** 34 years **Peers:** BC Ferries (33 Years), Jadrolinija (26 years), Fjord1 (22 years), AMH (34 Years) **System Average (n=22):** 26 years **Discussion:** WSF still among oldest in average vessel age, however with aggressive vessel replacement plan in place. Since FY2009, WSF has added four new vessels with plans for two more.	**Labor Portion of Operating Expense** (Labor Expenditures/Total Operational Expenditures) **WSF:** 50.4% **Peers:** BC Ferries (46.5%), Fjord1 (50.2%), Jadrolinija (33.2%), AMH (61.2%), IDO (24.1%) **System Median (n=17):** 46.5% **Aggregate Across All (n=17**): 38.02% **Discussion:** Ranges from 24.1% to 78.6% across ferry systems, private systems generally spend less on labor than public systems, WSF reduced slightly from 50.9% in FY2009.

Appendix D: Ferry Systems, Terminals, and Vessels Table

*	Information used from Wikipedia, which is not a primary or necessarily credible source
**	Data taken from the 2010 Report for FY 2009 data without knowledge of the primary source
***	Depreciation included in expenditures
U	Unavailable
NA	Not Applicable

	SYSTEM INFORMATION					TERMINAL AND VESSEL CHARACTERISTICS									
Operators	AREAS SERVED	YEAR SERVICE BEGAN	STRUCTURE	FY MEANING	# EMPLOYEES	# TERMINALS	# VESSELS	# PASSENGER & VEHICLE VESSELS	VESSEL PASSENGER CAPACITY RANGE (LOW)	VESSEL PASSENGER CAPACITY RANGE (HIGH)	VESSEL VEHICLE CAPACITY RANGE (LOW)	VESSEL VEHICLE CAPACITY RANGE (HIGH)	FLEET PASSENGER CAPACITY	FLEET VEHICLE CAPACITY	AVG AGE OF FLEET (YEARS)
Washington State Ferries (USA) [1], [4], [7], [8], [26]	Washington and Vancouver Island	1951	Public Agency	July 1, 2012 - June 30 2013	1,829	20	22	22	200	2,500	34	202	31,244	2,755	34.0
N. AMERICAN OPERATORS															
Alaska Marine Highway (USA) [24], [26], [27], [28], [29]	SE & SW Alaska, BC, and WA	1963	Public Agency	July 1, 2012 - June 30 2013	1,012	33	11	11	149	600	18	134	3,837	653	34.0
BC Ferries (Canada) [13], [14], [15], [16], [17], [30], [31]	British Columbia Coast	1960	Public/private partnership	April 1, 2012 - March 31, 2013	4,637	47	35	36	95	2,100	16	410	25,870	5,338	31.5
Cape May-Lewes (USA) [32], [33], [34]	New Jersey & Delaware	1964	Public Agency	January 1 - December 31, 2013	311	2	4	4	598	898	100	100	2,954	400	37.0
Golden Gate Ferries (USA) [35], [36], [37]	San Francisco Bay	1970	Public Agency	July 1, 2012 - June 30 2013	73	3	7	0	400	750	NA	NA	3,760	NA	23.6
North Carolina Ferries (USA) [38], [39]	Eastern North Carolina	1947	Public Agency	July 1, 2012 - June 30 2013	600	13	22	22	149 *	300 *	20 *	50 *	5,092	848	20.1
Staten Island Ferries (USA) [40], [41]	New York City	1905	Public Agency	July 1, 2012 - June 30 2013	U	2	8	0	1,107	5,200	NA	NA	28,950	NA	25.0
Steamship Authority (USA) [42],[43]	Martha's Vinyard and Nantucket	1960	Public Agency	January 1 - December 31, 2013	625	5	8	8	143	1,375	0	76	5,335	399	28.9
OPERATORS ELSEWHERE															
Anek Lines (Greece) [44], [45], [46]	Greece & Italy, Aegean & Adriatic Seas	1967	Publically Traded	January 1 - December 31, 2013	730	27 *	11 *	11 *	500	2,500	310	1,200	18849 *	7195 *	33.1 *
Brittany Ferries (France) [47], [48]	Western Europe	1973	Privately Owned	October 1, 2012 - September 30, 2013	2,855	11	9	9	213	900	120	830	14,039	4,602	14.4
Color Line (Norway) [87], [88]	Scandanavia & Germany	1990	Privately Owned	January 1 - December 31, 2013	2,413	7	6	6	1,165	2,700	230	764	12,529	3,408	17.2
Fjord1 (Norway) [18], [19], [49], [50]	Norway	2001	Public/private partnership	January 1 - December 31, 2013	1,279	93	73	65	48	589	0	242	19,648	5,191	22.3
Hellenic Seaways (Greece) [51], [52], [53], [54], [55]	Greece	1999	Publically Traded	January 1 - December 31, 2013	374	44 *	19	11	141	1,600	0	750	21299 *	3763 *	19.9 *
AS Tallink Grupp (Estonia) [56], [57], [58], [59]	Sweden, Finland, Latvia, and Estonia	1990	Privately Owned	January 1 - December 31, 2013	6,319	9	13	13	80	2,852	251	564	26,507	4,156	14.9
Interislander (New Zealand) [60], [61], [62], [63]	The Cook Straight in New Zealand	1962	Public Agency	July 1, 2012 - June 30 2013	600	2	3	3	550	1,650	125	670	2,800	1,025	22.0
Irish Ferries (Ireland) [64], [65]	France, Irelend, and the UK	1973	Publically Traded	January 1 - December 31, 2013	211	6	5	5	500	2,200	200	1,342	6,833	2,982	21.8
IDO (Turkey) [9], [66]	Turkey (Istandbul area)	1987	Privately Owned	January 1 - December 31, 2013	1,001	35	53	28	350	1,200	0	1,200	36,801	2,623	20.0
Jadrolinija (Croatia) [20], [67], [68]	Croatia	1947	Publically Owned	January 1 - December 31, 2013	U	80	49	38	150	1,300	0	300	27,841	4,193	26.2 *
Scandlines (Germany) [22], [69], [70], [71]	Denmark, Germany, Sweden	1998	Privately Owned	January 1 - December 31, 2013	1,772	5	9	8	12	1,250	0	364	9,694	2,420	22.7
Star Ferries (Hong Kong) [72]	Hong Kong	1888	Privately Owned	January 1 - December 31, 2013	U	3	8	0	576 *	762 *	NA	NA	4,123	NA	51.0
Stena Lines (Sweden) [73], [74], [75], [76], [77], [78]	Scandanavia, Baltics, & Western Europe	1962	Privately Owned	January 1 - December 31, 2013	5,759	26	40	32	12	2,274	0	660	33,425	10,093	16.4
Sydney Ferries (Australia) [11], [12], [79], [80], [81], [82]	Sydney Australia	1861	Public/private partnership	July 1, 2012 - June 30 2013	656	39	28	0	150	1,100	NA	NA	12,541	NA	24.5
Transtejo & Soflusa (Portugal)	Lisbon, Portugal	1975	Publically Owned	January 1 - December 31, 2013	501	9	32	4	0	30	146	996	16,304	98	20.0
Waxholms Angfartygs (Sweden) [83], [84]	Stockholm, Sweden	1869	Publically Owned	January 1 - December 31, 2013	30	U	24	24	180	350	NA	NA	7,269	NA	33.8

Appendix E: Route, Traffic, and Performance Table

*	Information used from Wikipedia, which is not a primary or necessarily credible source
**	Data taken from the 2010 Report for FY 2009 data without knowledge of the primary source
***	Depreciation included in expenditures
U	Unavailable
NA	Not Applicable

	ROUTE DATA						TRAFFIC DATA						PERFORMANCE DATA		
Operators	TOTAL ROUTE LENGTH (KM & MILES)	# OF ROUTES	TOTAL ANNUAL Distance (KM & MILES)	TOTAL PASSENGER DISTANCE (KM & MILES)	ANNUAL SAILINGS	FUEL CONSUMED (2013) (LITERS & GALLONS)	ANNUAL PASSENGERS (2013)	ANNUAL PASSENGERS (2009)	% CHANGE	ANNUAL VEHICLES (2013)	ANNUAL VEHICLES (2009)	% CHANGE2	ON TIME DEPARTURE	TRIP RELIABILITY	SAFETY (INJURIES PER MILLION PASSENGERS)
Washington State Ferries (USA) [1], [4], [7], [8], [26]	142 KM 88 miles	10	1,458,037 KM 905,982 miles	280,669,680 KM 174,400,000 miles	158,858	65,102,380 liters 17,7981226 gallons	22,395,000	22,400,000	-0.02%	10,045,000	9,911,000	1.35%	95.7% (10 minutes)	99.4%	0.89
N. AMERICAN OPERATORS															
Alaska Marine Highway (USA) [24], [26], [27], [28], [29]	14,217 KM 8,834 miles	137	801,029 KM 497,736 miles	85,501,274 KM 53,128,012 miles	3,682	40,803,249 liters 10,779,076 gallons	313,311	317,891	-1.44%	108,797	108,541	0.24%	92.0%	96.0%	U
BC Ferries (Canada) [13], [14], [15], [16], [17], [30], [31]	U	25	U	U	183,800	116,727,925 liters 30,836,249 gallons	19,919,098	20,727,493	-3.90%	7,748,743	8,130,356	-4.69%	92.3% (10 minutes)	99.8%	13.28
Cape May-Lewes (USA) [32], [33], [34]	27 KM 17 miles	1	120,900 KM 75,124 miles	19,316,388 KM 12,002,647 miles	4,650	3,608,183 liters 953,181 gallons	742,938	842,449	-12.09%	256,971	295,240	-13.18%	81% (7 minutes)	99.5%	33.64
Golden Gate Ferries (USA) [35], [36], [37]	31 KM 19 miles	2	284,854 KM 177,000 miles	41,101,049 KM 25,539,000 miles	17,249	6,508,105 liters 1,719,259 gallons	2,324,874	1,949,035	19.28%	NA	NA	NA	96% (5 & 10 minutes)	99.9%	1.29
North Carolina Ferries (USA) [38], [39]	121 KM 75 miles	7	U	19,499,423 KM 12,116,376 miles	64,644	6,813,743 liters 1,800,000 gallons	1,923,100	2,184,333	-11.96%	834,625	943,504	-11.54%	U	97.3%	U
Staten Island Ferries (USA) [40], [41]	8 KM 5 miles	1	301,094 KM 187,090 miles	179,079,487 KM 111,274,800 miles	35,979	U	21,399,000	20,118,000	6.37%	NA	NA	NA	88.6%	U	U
Steamship Authority (USA) [42],[43]	85 KM 53 miles	3	605,545 KM 376,268 miles	U	22,050	10,599,155 liters 2,800,000 gallons	2,846,691	2,693,178	5.70%	614,434	589,653	4.20%	90% (10 minutes)	96.4%	4.57
OPERATORS ELSEWHERE															
Anek Lines (Greece) [44], [45], [46]	U	6 *	U	U	U	U	1,500,000	2,500,000 **	-40.00%	390,000	677,000 **	-42.39%	U	U	U
Brittany Ferries (France) [47], [48]	U	12	U	U	U	U	2,378,119	2,571,000	-7.50%	911,396	1,055,000	-13.61%	U	U	U
Color Line (Norway) [87], [88]	U	4	U	U	U	U	4,018,082	4,212,974	-4.63%	974,249	984,695	-1.06%	U	U	U
Fjord1 (Norway) [18], [19], [49], [50]	U	46	U	U	U	U	21,500,000	18,900,000	13.76%	10,500,000	8,800,000	19.32%	U	U	U
Hellenic Seaways (Greece) [51], [52], [53], [54], [55]	U	11 *	U	U	U	U	2,867,135	4,726,192	-39.34%	324,360	616,304	-47.37%	U	U	U
AS Tallink Grupp (Estonia) [56], [57], [58], [59]	U	6	U	U	U	U	9,110,000	8,124,561	12.13%	1,421,549	1,115,043	27.49%	U	U	U
Interislander (New Zealand) [60], [61], [62], [63]	92 KM 57 miles	1	423,200 KM 262,964 miles	68,882,608 KM 42,801,655 miles	4,600	U	748,724	859,000	-12.84%	285,000	279,000	2.15%	82% (15 minutes)	U	58.77
Irish Ferries (Ireland) [64], [65]	U	5	637,088 KM 395,868 miles	U	4,381	17,800,000 liters 4,702,262 gallons	1,568,000	1,430,000	9.65%	556,200	572,000	-2.76%	U	94.0%	U
IDO (Turkey) [9], [66]	U	17	3,029,626 KM 1,882,522 miles	U	190,760	85,725,451 liters 22,646,264 gallons	50,527,752	100,575,370	-49.76%	7,820,323	6,954,718	12.45%	99.5%	99.0%	0.5
Jadrolinija (Croatia) [20], [67], [68]	U	37	1,890,262 KM 1,174,554 miles	U	U	41,305,764 liters 10,911,826 gallons	9,823,683	9,572,933	2.62%	2,451,097	2,445,994	0.21%	U	U	U
Scandlines (Germany) [22], [69], [70], [71]	U	3	1,069,254 KM 664,403 miles	U	63,316	65,852,000 liters 17,396,255 gallons	11,027,444	12,000,000	-8.10%	3,227,759	3,400,000	-5.07%	U	98.2%	U
Star Ferries (Hong Kong) [72]	U	2	257,219 KM 159,828 miles	U	U	U	21,600,000	23,000,000 **	-6.09%	NA	NA	NA	U	99.2%	0.32
Stena Lines (Sweden) [73], [74], [75], [76], [77], [78]	U	22	5,000,400 KM 3,107,104 miles	U	U	U	14,600,000	11,500,000	26.96%	3,000,000	2,500,000	20.00%	U	U	U
Sydney Ferries (Australia) [11], [12], [79], [80], [81], [82]	U	8	U	U	174,302	U	14,943,173	14,310,000	4.42%	NA	NA	NA	99.08% (5 minutes)	99.6%	0.13
Transtejo & Soflusa (Portugal)	39 KM 24 miles	6	887,611 KM 551,535 miles	154,587,000 KM 96,055,879 miles	133,281	10,935,000 liters 2,888,721 gallons	23,033,166	28,445,987	-19.03%	26,894	46,000	-41.53%	U	99.8%	0.00
Waxholms Angfartygs (Sweden) [83], [84]	U	U	U	U	U	U	4,057,000	3,798,000 **	6.82%	NA	NA	NA	93.0%	U	U

Appendix F: Revenue and Expenditures Table

*	Information used from Wikipedia, which is not a primary or necessarily credible source
**	Data taken from the 2010 Report for FY 2009 data without knowledge of the primary source
***	Depreciation included in expenditures
U	Unavailable
NA	Not Applicable

	REVENUE							EXPENDITURES								
Operators	**CURRENCY**	**ANNUAL OPERATING REVENUE USD (2013)**	**ANNUAL OPERATING REVENUE USD (2009)**	**FARE REVENUE (2013) USD**	**FARE REVENUE USD (2009)**	**NON-FARE OPERATIONAL REVENUE USD (2013)**	**NON-FARE OPERATIONAL REVENUE USD (2009)**	**ANNUAL OPERATING EXPENDITURES USD (2013)**	**FAREBOX RECOVERY (2013)**	**ANNUAL OPERATING EXPENDITURES USD (2009)**	**FAREBOX RECOVERY (2009)**	**LABOR EXPENSES USD (2013)**	**LABOR EXPENSES USD (2009)**	**FUEL EXPENSES USD (2013)**	**FUEL EXPENSES USD (2009)**	**OTHER OPERATING EXPENSES USD (2013)**	**CAPITAL EXPENDITURES USD (2013)**
Washington State Ferries (USA) [1], [4], [7], [8], [26]	USD	$162,716,000	$147,676,000	$158,421,000	$144,030,000	$4,295,000	$3,646,000	$227,349,000	69.68%	$225,813,000	63.78%	$114,580,000	$115,005,000	$60,367,000	$41,932,000	$52,402,000	$150,714,299
N. AMERICAN OPERATORS																	
Alaska Marine Highway (USA) [24], [26], [27], [28], [29]	USD	$54,281,000	$47,905,000	$42,417,000	$37,378,000	$10,717,000	$8,803,000	$172,527,000	24.59%	$141,561,000	26.40%	$105,608,948	$87,955,927	$36,452,000	$28,123,957	$30,466,052	$15,124,000
BC Ferries (Canada) [13], [14], [15], [16], [17], [30], [31]	CAN	$548,007,150	$459,047,018	$445,846,965	$370,908,289	$102,160,185	$88,138,729	$538,198,669	82.84%	$459,076,410	80.79%	$250,133,862	U	$115,080,598	$105,723,597	$172,984,209	$91,874,263
Cape May-Lewes (USA) [32], [33], [34]	USD	$13,477,723	$14,280,659	$12,906,570	$14,060,198	$571,153	$220,461	$22,358,231	57.73%	$21,005,793	66.93%	$14,969,113	$14,933,754	$2,948,624	$1,733,983	$3,088,056	$7,248,833
Golden Gate Ferries (USA) [35], [36], [37]	USD	$15,708,000	$10,629,000	$15,227,000	$10,067,000	$481,000	$562,000	$27,461,000	55.45%	$24,583,000	40.95%	$14,435,300	$13,110,200	$6,164,200	$3,821,200	$3,983,500	$3,436,000
North Carolina Ferries (USA) [38], [39]	USD	$2,165,452	$2,272,000	$2,061,172	$2,100,000	$104,280	$166,000	$37,104,016	5.56%	$36,390,000	5.77%	$29,154,724	$25,000,000	$5,907,996	$5,000,000	$2,041,296	$2,000,528
Staten Island Ferries (USA) [40], [41]	USD	U	U	$0	$0	U	U	$115,126,620	0.00%	$103,808,880	0.00%	U	U	U	U	U	U
Steamship Authority (USA) [42],[43]	USD	$90,123,000	$79,780,000	$79,733,000	$70,617,000	$10,390,000	$9,163,000	$85,964,000	92.75%	$74,764,000	94.45%	$44,883,000	$41,307,000	$9,103,000	$5,511,000	$31,978,000	$7,498,000
OPERATORS ELSEWHERE																	
Anek Lines (Greece) [44], [45], [46]	Euro	$202,224,945	$358,295,988	$184,274,900	$317,510,253	$17,950,045	$40,785,735	$200,313,344	91.99%	$325,685,715	97.49%	$55,105,884	$95,258,289	$85,040,845	$128,412,371	$60,166,616	$5,453,722
Brittany Ferries (France) [47], [48]	Euro	$487,074,232	$467,732,778 **	$297,085,352	U	$189,988,880	U	U	U	$475,622,247 **	U	U	U	U	U	U	U
Color Line (Norway) [87], [88]	NOK	$749,860,433	$718,207,977	U	U	U	U	U	U	U	U	$214,810,634	$189,388,321	U	U	U	U
Fjord1 (Norway) [18], [19], [49], [50]	NOK	$243,578,291	$301,720,108	$233,853,992	$287,283,191	$9,724,299	$14,436,917	$320,606,189	72.94%	$429,269,785 **	66.92%	$161,013,090	$193,631,993 **	U	$58,034,327 **	U	$7,462,528
Hellenic Seaways (Greece) [51], [52], [53], [54], [55]	Euro	$119,958,458	$222,647,847	$112,593,136	$208,822,962	$7,365,322	$13,824,885	$122,334,621	92.04%	$194,008,314	107.64%	$37,093,377	$60,805,261	$51,281,382	$57,388,840	$33,959,862	$659,756
AS Tallink Grupp (Estonia) [56], [57], [58], [59]	Euro	$1,202,404,488	$1,101,705,111	$324,295,403	$283,484,102	$878,109,085	$818,221,009	$893,695,981	36.29%	$797,547,784	35.54%	$285,617,050	$231,112,119	$168,907,922	$127,606,518	$439,171,008	$50,302,809
Interislander (New Zealand) [60], [61], [62], [63]	NZD	$96,256,229	$63,578,272	U	$45,828,550 **	U	$17,749,722	U	U	$83,672,806 **	54.77%	U	$30,379,266 **	U	$17,396,673 **	U	U
Irish Ferries (Ireland) [64], [65]	Euro	$210,419,191	$209,916,217	$204,303,111	$199,490,848	$6,116,080	$10,425,369	$178,016,978	114.77%	$184,416,327	108.17%	$44,504,245	$46,068,861	$46,586,314	$29,444,624	$86,926,419	$10,410,350
IDO (Turkey) [9], [66]	USD	$265,471,237	$253,679,581	$259,217,155	$188,719,764	$6,254,082	$64,959,817	$175,301,450	147.87%	$230,233,571	81.97%	$42,257,041	$80,171,880	$77,514,633	$48,373,646	$55,529,776	$14,609,620
Jadrolinija (Croatia) [20], [67], [68]	HRK	$94,759,691	$134,899,574 **	$89,088,074	U	$5,671,617	U	$127,750,710	69.74%	$125,587,477 **	U	$42,460,346	$48,760,156	$40,543,975	U	$44,746,389	$976,594
Scandlines (Germany) [22], [69], [70], [71]	Euro	$657,335,461	$711,359,567	$482,917,032	U	$174,418,429	U	$434,390,055	111.17%	$572,868,399	U	$112,833,875	$166,240,964	$41,409,768	U	$280,146,412	$32,499,810
Star Ferries (Hong Kong) [72]	HKD	$13,011,438	$9,152,307 **	$7,204,210	$5,372,430 **	$5,807,227	$3,779,877	$10,510,894	68.54%	$9,860,252 **	54.49%	$5,904,433	$5,787,312 **	U	U	U	$1,343,739
Stena Lines (Sweden) [73], [74], [75], [76], [77], [78]	SEK	$1,665,674,706	$1,249,862,138	U	U	U	U	$1,271,188,507	U	$915,749,601	U	U	U	U	U	U	$51,324,982
Sydney Ferries (Australia) [11], [12], [79], [80], [81], [82]	AUD	U	$54,632,525	U	$53,480,944	U	$1,151,581	U	U	$101,642,846	52.62%	U	$59,855,894	U	U	U	$14,087,341
Transtejo & Soflusa (Portugal)	Euro	$25,108,462	$27,456,759	$19,224,012	$19,967,400	$5,884,450	$7,489,360	$49,296,909 ***	39.00%	$60,848,935 ***	32.81%	$16,821,824	$19,784,251	$10,384,324	$8,096,567	$22,090,762	$646,743
Waxholms Angfartygs (Sweden) [83], [84]	SEK	$19,694,470	U	$16,262,858	$14,598,319 **	$3,431,612	U	$47,296,568	34.38%	$39,454,915 **	37.00%	$2,834,810	U	U	U	U	$6,415,623

Appendix G: Exchange Rates Used in Analysis

Ferry System	Currency	6/29/2013 Multiplier to USD	6/30/2009 Multiplier to USD
Anek Lines (GRC)	Euro (EUR)	1.301	1.409
British Columbia Ferries (CAN)	Canadian Dollar (CAD)	0.951	0.864
Brittany Ferries (FRA)	Euro (EUR)	1.301	1.409
Color Line (NOR)	Norwegian Kroner (NOK)	0.165	0.156
Fjord1 (NOR)	Norwegian Kroner (NOK)	0.165	0.156
Hellenic Seaways (GRE)	Euro (EUR)	1.301	1.409
AS Tallink (EST)	Euro (EUR)	1.301	1.409
Irish Ferries (IRL)	Euro (EUR)	1.301	1.409
Istanbul Deniz Otobüsleri (TUR)	Amounts listed in USD	1	1
Interislander (NZL)	New Zealand Dollar (NZD)	0.774	0.649
Jadrolinija (HRV)	Croatian Kuna (HRK)	0.175	0.194
Scandlines (DEU)	Euro (EUR)	1.301	1.409
Star Ferries (HKG)	Hong Kong Dollar (HKD)	0.129	0.129
Stena Lines (SWE)	Swedish Krona (SEK)	0.149	0.130
Sydney Ferries (AUS)	Australian Dollar (AUD)	0.914	0.878
Transtejo & Soflusa (PRT)	Euro (EUR)	1.301	1.409
Waxholms (SWE)	Swedish Krona (SEK)	0.149	0.130

Note: Currency translation figures are from the Microsoft Excel add-on application, Exchange Rates by Upslide. The figures listed are from the historical exchange rates from 6/29/2013 and 6/30/2009. June 29th was used instead of June 30th in 2013 because the 30th fell on a Sunday. [25]

Appendix H: Ferry System Contacts

Ferry System Operator	Contact Person	Title
Alaska Marine Highway (USA)	Captain John Falvey	Deputy Director
	Matt Mclaren	Business development and enterprise manager
British Columbia Ferries (CAN)	Mike Corrigan	Executive Vice President and Chief Executive Officer
	Joanne Carpendale	Director of Corporate Planning
Cape May-Lewes (USA)	Heath Gehrke	Director of Operations
	Dominique Fisher	Lewes Terminal Manager
Golden Gate Ferries (USA)	Ron Downing	Director of Planning
	Joanne Leone	Principal Planner
NC Ferries (USA)	Mary P willis	Business Officer
Steamship Authority (USA)	Wayne Lamson	General Manager
	Robert B. Davis	Comptroller
Irish Ferries (IRE)	Gary O'Dea	Group Finance director
	Derek Tighe	Group Financial Accountant
Istanbul Deniz Otobüsleri (TUR)	Ufuk Tugcu	Vice General Manager
Scandlines (DEU)	Per Johannesen Madsen	Member of the board of directors
Transtejo & Soflusa (PRT)	Joao Antonio da Silva Pintassilgo	Administrative Counsel President
	Marisa Fatela	Commercial management, technical support
	Cristina Ramos	Communications, image, and marketing

Appendix I: Sample Ferry System Questionnaire

Data in blue text was found using online sources.

Is this data accurate?	**Yes**		**No**	
If the data is inaccurate, please provide updated information.				

	Terminals and Vessels	**Golden Gate Ferries Data FY2009**	**Golden Gate Ferries Data FY[2013]**	**WSF Data FY2009**	**WSF Data FY2013**
1.	How many ferry terminals do you operate?	3		20	20
2a.	Total number of vessels in fleet?	7	7	20	22*
2b.	Of those, how many are passenger & vehicle (car) vessels?	0	0	20	22
3.	On average, how long have your vessels been in operation?	21 years	25.3 years (approx)	36.3 years	34 years
4.	What is your **total fleet passenger capacity**?	3,890	3,760	30,881	31,244
5.	What is your **total fleet vehicle/car capacity**?	n/a	n/a	2,623	2,755
	Traffic				
6.	How many total number of routes do you operate?	3	2	10	10
7.	How many total **nautical miles were traveled**?	16.75 nm	**	85.5	85.5
8.	What are the total annual trips (sailings)?	17,812	**	167,355	161,804
9a.	What were the total annual passengers?	1,949,035	2,324,874	22,400,000	22,395,000
9b.	How has that changed from the 2010 comparison report?	(08') -1.6%	19.3%	-3.90%	-0.02%
10a.	What were the total annual vehicles?	n/a	n/a	9,911,000	10,045,000
10b.	How has that changed from the 2010 comparison report?	n/a	n/a	-4.60%	1.4%
11.	What percentage of departures were made on-time?	94%	**	93.00%	95.70%
12.	What percentage of scheduled trips were completed?	99.90%	**	92.20%	99.40%
13.	How many injuries were reported per million passengers?	**	**	5.02	0.115

***Two WSF vessels commissioned and one vessel decommissioned since 2010 Comparison Report. As of June, 2014, the number of WSF vessels increased to 23.**

	Counting Capabilities	
14a.	Do you have the ability to count passengers, vehicle passengers, and vehicles per sailing?	
14b.	If so, when did this capabilty begin and what software/hardware do you use? Who may we contact for more information?	

	Reservations (WSF is in process of expanding reservations.)	
15a.	Do you have a reservations system?	
15b.	Who may we contact for more information?	

	Revenue	**Golden Gate Ferries Data FY2009 (USD)**	**Golden Gate Ferries Data FY[2013] (USD)**	**WSF Data FY2009 (USD)**	**WSF Data FY2013 (USD)**
1.	What is your Fiscal year?	**	Jul 1 - Jun 30	July 1 - June 30	July 1 - June 30
2.	What were the total **operating** revenues?	$13,236,328	$15,227,000	$147,676,000	$162,716,000
3.	Of that total, how much came from fares?	$10,066,831	**	$144,030,000	$158,421,000
4a.	Of that total, how much came from non-fare revenue?	$561,570	**	$3,646,000	$4,295,000
4b.	What does non-fare revenue include?	**	**	Concessions, Parking, Services	Concessions, Parking, Services
	Expenditures				
5.	What were the total **operating** expenses?	$24,178,325	$27,461,000	$225,813,000	$227,349,000
6a.	Of that total, how much came from labor (salary, benefits)?	$14,849,842	**	$115,005,000	$114,580,000
6b.	Total number of employees?	79	**	1768 (winter)	1800 approx (summer)
7a.	How much of the total operating expenses came from fuel?	$4,187,341	**	$41,932,000	$60,367,000
7b.	How many gallons/liters were used?	1,614,539 gal	**	17m gal	17m gal
8.	What were the total **capital** expenditures?	$9,334,800.00	**	$93,393,000	$150,714,000

**** Data not supplied or could not be found online.**

Note: WSF employee numbers increase during summer season due to increased service from mid-June to mid-September.

J