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DOCKET TP-25____
2025 PSP GENERAL RATE CASE
WITNESS: CAPTAIN IVAN CARLSON

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND PILOTS,** **Respondent.**	**Docket TP-25____**

NINTH EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

CAPTAIN IVAN CARLSON

ON BEHALF OF PUGET SOUND PILOTS

JULY 29, 2025

Washington State Pilotage
Final Report and Recommendations

Washington State Joint Transportation Committee

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Prepared for:

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Prepared by:

cai community attributes inc

GLEASON & ASSOCIATES

Community Attributes Inc. tells data-rich stories about communities that are important to decision makers.

President and CEO:
Chris Mefford

Project Manager:
Spencer Cohen, PhD
spencer@communityattributes.com
206.523.6683

Analysts:
Kristina Gallant
Michaela Jellicoe
Bryan Lobel
Marlo Sandler

Mark Gleason, President
Gleason & Associates, Inc.
markhgleason@gmail.com
831.419.6993

Community Attributes Inc.
1411 Fourth Avenue, Suite 1401
Seattle, Washington 98101

www.communityattributes.com

Beth Redfield
JTC Project Manager
Beth.Redfield@leg.wa.gov
360.786.7327

EXECUTIVE SUMMARY

Report Background and Purpose

The Washington State Joint Transportation Committee commissioned Community Attributes Inc. and Gleason & Associates to conduct an assessment of pilotage practices in Washington state; to identify best practices in other pilotage districts and industries; to compare these best practices with Washington state; and to provide recommendations for how to implement those best practices in Washington (Washington State Legislature Joint Transportation Committee, 2017).

This analysis focuses on the following three areas within Washington state marine pilotage:

- **Addressing lack of diversity within marine pilotage**. This section addresses efforts to broaden recruitment of applicants qualified to sit for the pilotage exam as well as to minimize the potential for bias in the examination, training, selection, and licensing of pilots. And finally, there is also a discussion of the broader maritime "pipeline" that feeds into pilotage.
- **Analytically driven tariff and fee rate-setting**. This section focuses on the process of tariff and fee rate-setting.
- **Effective oversight of maritime pilotage activities**. This section addresses Board of Pilotage Commissioners ("Board" or "BPC") composition and overall governance.

The first phase of this analysis is a review of existing practices in Washington state. Analytics drew from several sources, including existing documentation and reports, Revised Code of Washington (RCW), Washington Administrative Code (WAC), data gathered from the Board of Pilotage Commissioners, and stakeholder interviews. Best practices were then identified in other states and compared with practices in Washington state across each focus area. Lastly, this report provides a set of recommendations to improve pilotage in Washington state across each focus area.

Methods and Identification of Best Practices

Analysis in this study leveraged a range of sources. The consulting team conducted interviews with local stakeholders and industry leaders in Washington state as well as their counterparts in other states. The consulting team also conducted extensive research on practices outside Washington state using archival materials, statutory documents, reports, and stakeholder interviews.

Our methodology for identifying best practices began with a distillation of key issues, challenges, and problems in the current pilotage system in Washington state. We then conducted a review of existing practices in other states to determine how they addressed the aforementioned key issues, challenges, and problems. Best practices in other states were identified as those practices that exemplified both: 1) applicability to Washington state; and 2) provided evidence that the outcomes of those practices represented a potential improvement over Washington's current system.

In several instances, practices described in statute did not accurately reflect actual, real world practices or were otherwise less than optimal. To further assess whether a "best practice" was in fact as it seemed according to statute, we conducted additional research, including interviews with stakeholders and regulatory agencies.

While most of our focus was specifically on agencies responsible for the regulation of marine pilotage, we also spent a great deal of time trying to better understand the role stakeholders play within the regulatory process and/or addressing issues of concern. For example, our research revealed that few regulatory agencies have initiated efforts to increase the diversity of the pilotage pool; the various pilot associations largely fill this void. As such, it emerged that efforts already underway through the BPC to address diversity, while not necessarily a best practice, clearly exceed those of other commissions.

Background on Marine Pilotage

Marine pilots' primary objective is to facilitate the safe movement of vessels into and out of ports situated in coastal and inland water bodies. These water bodies present a wide range of unique navigational challenges, requiring specialized local knowledge. Pilots represent one of the highest echelons of mariners, requiring years of training and rigorous selection process. Today there are 24 coastal states that regulate compulsory pilotage through a state licensing program.

Pilotage in Washington State

There are two pilotage districts in Washington state, Puget Sound and Grays Harbor. The Puget Sound District is defined as including "*all the waters of the state of Washington inside the international boundary line between the state of Washington, the United States and the province of British Columbia, Canada and east of one hundred twenty-three degrees twenty-four minutes west longitude* (Washington State RCW 88.16.050, 1935)." This District covers more than 7,000 square miles, 12 ports, and over two dozen anchorages.

The Grays Harbor District is defined to include *"all inland waters, channels, waterways, and navigable tributaries within Grays Harbor and Willapa Harbor. The boundary line between Grays Harbor and Willapa Harbor and the high seas shall be defined by the board* (ibid)*."* The Grays Harbor District covers approximately 280 square miles.

The Puget Sound Pilots Association ("PSP") represents the 52 independent contractors who provide pilotage services in Puget Sound. The PSP maintains a pilot station and two pilot boats in Port Angeles. They also maintain a dispatch operation and an administrative office in Seattle. There are two Grays Harbor pilots, both of whom are Port of Grays Harbor employees.

Marine pilotage in Washington state is regulated by the Washington State Board of Pilotage Commissioners ("Board" or "BPC"). The BPC's authority is established in the Washington State Pilotage Act and includes the following:

- Regulatory oversight of pilotage;
- Propose legislation to ensure safe and compulsory pilotage;
- Adopt rules and enforce adherence to the Pilotage Act, which includes discipline and/or prosecution of violators;
- Train and license marine pilots;
- Set annual pilotage tariffs;
- Report and investigate incidents, develop lessons learned, and strive for continuous improvement; and
- Grant vessel exemptions from pilotage.

Pilotage revenues are generated through a district-specific tariff and associated fees. In the Puget Sound, revenues accrue to the Puget Sound Pilots Association; in Grays Harbor, revenues accrue to the Port. These charges are compulsory and cannot diverge from BPC-set rates. In 2016, the Puget Sound Pilotage District generated more than $34 million in tariff and fee revenues. The tariff includes charges based length (length overall, or "LOA"), size of vessel (measured by gross tonnage), and distance travelled per ship movement (as described in the LOA Rate Schedule). The Grays Harbor Pilotage District tariff is primarily based on tonnage and draft;

however, there are other factors, such as boarding charge and harbor shifts, that also determine fees.

Key Findings and Challenges within Marine Pilotage in Washington State

This report highlights the following key findings on current practices in pilotage in Washington state.

Addressing Lack of Diversity in Marine Pilotage

Pilots are at the pinnacle of the mariner profession. Becoming a pilot is lengthy, exacting, and highly selective; it can take on average 25 years to become a pilot. However, many of the channels to becoming a pilot lack workforce diversity.

The following are observations addressing the lack of diversity in marine pilotage in Washington state:

- **The lack of formal data collection on gender and ethnicity complicates efforts to evaluate performance on meeting diversity goals in pilotage**. What little information exists is anecdotal at best. This is both a local and national problem. Without reasonable and adequate data collection on the diversity of applicants and trainees, the Board of Pilotage Commissioners will be ill equipped to: 1) establish a baseline; and 2) track progress on improving diversity.
- **Subjectivity and bias in training and evaluation is a potential challenge to overcome.** Past allegations of subjectivity and bias in the selection and training process have led to increased awareness of the need to be more inclusive and welcoming of women and minorities.
    - Efforts underway include establishment of the Joint Diversity Committee between the BPC and Puget Sound Pilots, the "Train the Trainer" program, and hiring of outside experts to review the exam and training program.
    - In a related effort to increase the number of applicants, the BPC has eliminated the pre-qualification requirement for Coast Guard pilotage endorsements. Such pilotage endorsements can now be obtained during the pilot training program. This means a candidate does not have to seek rides from current pilots in order to qualify to sit for the exam.
- **Lack of diversity is endemic in the maritime industry**. The lack of diversity in pilotage is directly related to the lack of diversity in the broader maritime industry.
    - The pool of qualified pilotage applicants directly comes from the maritime industry, which continues to struggle with diversity across all sectors. There are many reasons why the industry

struggles with diversity issues. These include (but are not limited to) traditional avenues of recruitment, nepotism in certain sectors, the challenging workplace environment, and perceptions and stereotypes about gender and ethnicity in many maritime professions.

- The challenge of increasing diversity in the maritime sector extends beyond the scope and capabilities of any one agency or organization. There is need for a more holistic approach, leveraging the resources and expertise of government and the private sector.

Observations outside Washington state

- **Diversity is a problem across all pilotage districts in the U.S.** Based on anecdotal information provided by the American Pilots' Association, of the more than 1,200 state-licensed pilots, less than 3% of the workforce is female. There is very little evidence regarding ethnicity. What evidence that does exist is also very anecdotal.
- **The majority of efforts to address diversity are conducted by the pilotage associations, in some cases with limited support from state pilotage licensing entities**. These efforts include scholarships, internships, mentoring, and targeted youth outreach to increase awareness about maritime broadly and also specifically about pilotage as a career option. Often these efforts involve partners in the broader maritime community.

Analytically Driven Tariff and Fee Rate-Setting

Tariff and fee rate-setting is often contentious, lacks methodological structure, and distracts from other important matters. All parties, including the BPC staff, Pacific Merchant Shipping Association ("PMSA"), PSP, and the ports have noted that it is challenging to address other important issues related to pilotage when the tariff adjustment process is unclear and when the methodologies for determining the tariff rate are in dispute.

The following are observations and findings on tariff and fee rate-setting in Washington state:

- **Annual tariff and fee rate-setting is unnecessary**. The Washington State Pilotage Act requires the BPC to "*annually fix the pilotage tariffs for pilotage services*," but provides no rationale for this annual requirement and very little additional guidance. The annual requirement incentivizes stakeholders to continuously advocate, either explicitly or implicitly, for adjustments. This ongoing advocacy for rate adjustments serves as a distraction and limits discussion on other important items under BPC jurisdiction, such as safety. Research on other states shows that tariff and fee rate-setting on an annual basis

is rare. Rather, many states review rates on a "as needed" basis. Moreover, in many states the minimum duration for a rate adjustment is 18 months, two years, or longer.

- **No clearly defined methodology for the tariff and fee rate-setting process currently exists**. The BPC makes decisions on tariff adjustments without the benefit of an established and agreed upon methodology, or even consistent variables for consideration. There is disagreement among parties over whether and/or how the tariff should cover issues such as pilot compensation, retirement benefits, operating expenses, individual pilot business expenses, and capital expenditures. There is additional disagreement as to the appropriate metrics to track, such as revenue per assignment and average net compensation, as a means to track tariff performance. Moreover, there is lack of staff capacity to provide objective analysis, resulting in stakeholders often providing data interpretation.
- **Data submission is not aligned with the tariff and fee rate-setting process**. There is a lack of consistency, clarity, and timeliness in the submission of data necessary to make informed rate adjustment decisions. Along with this, there is not an established and enforceable timeline for data submissions.
- **Significant uncertainty exists regarding capital expense financing**. There is no defined, rigorous, and enforceable process for evaluating pilotage capital expenses (e.g., replacement of a pilot boat, personal pilotage units). There is no timely submission of key data, funding plans, and other relevant information needed by the BPC to make informed decisions on financing requirements. This also inhibits the BPC's ability to track tariff and/or fee performance in financing these expenses.

Observations in tariff and fee rate-setting outside Washington state

- **The public utility commission model is an effective process for rate-setting for other jurisdictions**. Oregon, Maryland, and Virginia use a public utility commission ("PUC") process for setting rates. This has led to fewer rate hearings and an incentive among all parties to arrive at an agreement outside and in advance of a hearing. The benefits of a PUC model include a clearly defined, transparent, rigorous, and enforceable timeline and process.
- **Expertise on rate-setting is an asset**. Florida requires the participation of a CPA in rate-setting process. Financial and/or economic expertise helps establish a clear and robust approach to rate-setting.

Effective Oversight of Marine Pilotage in Washington

Many of the issues related to oversight have been identified in the aforementioned two areas. Research has not pointed to issues of concern related to other responsibilities of the BPC, such as safety. However, board composition may present a challenge, specifically with respect to tariff and fee rate-setting.

- **Board composition may be suboptimal with respect to tariff and fee rate-setting**. Pilots and industry have equal representation on the BPC. Predictably, they often vote in their own self-interest, leaving the remaining Commissioners to cast deciding votes. With the potential for abstention of agency representatives, the remaining Commissioners actually often cast deciding votes. These Commissioners represent the public interest and environmental considerations, but may not have relevant financial expertise.

Recommendations to the Legislature to Improve Washington State Pilotage Practices

The following recommendations are organized by key findings on issues that need to be addressed in Washington, and are informed by research on best practices in other states. Each recommendation includes a statement of finding, recommended action(s) to be taken, by whom, resource requirements, and expected outcomes if the recommended action is executed.

Addressing Lack of Diversity in Marine Pilotage

Finding #1: The lack of formal data collection on gender and ethnicity complicates efforts to evaluate performance on meeting diversity goals in pilotage.

- **Recommendation #1**: Develop a voluntary data collection protocol to track gender and ethnicity among pilotage exam applicants, trainees, and licensed pilots.
    - *Who*: BPC.
    - *Resource requirements*: Low-cost, voluntary electronic survey. Can include modification of existing application to allow for self-identification.
    - *Expected outcomes*: Ability to evaluate progress and impact of subsequent efforts to improve diversity among applicants, trainees, and licensed pilots.

Finding #2: There is a need to address potential subjectivity and bias in training and evaluation

- **Recommendation #2**: Expand and continue to improve upon efforts to minimize subjectivity and eliminate bias in the application, training, and licensing process.
    - *Who*: BPC.
    - *Resource requirements*: Resources to support the Joint Diversity Committee; further expansion of the "Train-the-Trainer" Program; and continued support for an outside expert for review and consultation.
    - *Expected outcomes*: Efforts will minimize the risk that otherwise qualified candidates are not licensed due to explicit or inadvertent discrimination and/or bias in the application, training, and selection process.

Finding #3: Lack of diversity is endemic in the maritime industry.

- **Recommendation #3**: Establish a statewide Task Force on Maritime Sector Workforce Development, to be led by the Governor's Maritime Sector Lead and the Legislature, with a specific focus on increasing diversity. The Task Force should develop a timeline and deliverables upon convening and coordinate with existing efforts already underway. The Task Force is not intended to replace the BPC's Joint Diversity Committee. As part of this effort, consider opportunities to collaborate with the Governor's Maritime Blue 2050 initiative.
    - The Task Force should include:
        - **State agencies and individuals**: Department of Commerce; Department of Transportation/Washington State Ferries; State Workforce Training and Education Coordinating Board; OFM Assistant Director for Human Resources.
        - **Industry**: Pilots, ports and terminal operators, shipyards, tug and barge operators, shipping companies, recreational and commercial fishing, seafood processing, recreational boating, organized labor, marine transportation, research and technology, education, training providers, and youth programs.
    - *Who*: Legislature, in coordination with Governor's Maritime Sector Lead.
    - *Resource requirements*: State agency staff to support Task Force work.
    - *Expected Outcomes*: A statewide strategy for a more inclusive maritime workforce, resulting in a more diverse pool of potential pilots.

Analytically Driven Tariff and Fee Rate-Setting

Finding #4: the current tariff and fee rate-setting process does not have the benefit of a well-defined methodology, data submission and review, and rate-setting expertise.

Two options are presented below for improving the tariff and fee rate-setting process in Washington state. The preferred option (A) recommends the transfer of rate-setting authority from the BPC to the Washington State Utility & Transportation Commission (UTC). This is based on findings from states that use a public utility commission model for pilotage tariff and fee rate-setting.

However, a second set of recommendations is presented for improving rate-setting if the Legislature elects to keep this authority within the BPC.

Recommendation #4 (Preferred option): Transfer rate-setting authority to the Washington Utilities & Transportation Commission (UTC)

- *This is the single most effective action the Legislature can take to improve rate-setting in Washington state, but will require legislative changes to Washington State Pilotage Act.*
- The UTC process provides the structure, rules, expertise, and rigor necessary to achieve an analytically driven rate-setting process.
- Moreover, commissioners do not have direct material interest in the outcome of rate cases, unlike the current composition of the BPC that includes both industry and pilot representatives voting on rate adjustments.
- *Who*: Legislature, to revise Washington State Pilotage Act.
- *Required resources*: UTC assessment on pilots will cover costs and is recoverable in the tariff.
- *Expected outcomes*: All parties will benefit from a process that is rules-based, enforceable, predictable, rigorous, and transparent.

Alternative Recommendations (#5 through #8): Improving a tariff and fee rate-setting authority that remains within the BPC

If the Legislature elects to retain tariff and fee rate-setting responsibilities within the BPC, the following recommendations are proposed to improve the current process.

Finding #5: Annual tariff and fee rate-setting is unnecessary.

- **Recommendation #5:** Revise the RCW such that tariff and fee rate-setting reviews ***occur only at the request of stakeholders***.
    - As part of this, define (in WAC) "fair, just, reasonable, and sufficient," establish an evidentiary, petition-based process for tariff and fee rate-setting adjustment that includes (at a minimum) a notice to file a petition, petition filing, and a timeline for data submission.
    - *Who*: Legislature (statutory changes) and BPC (administrative rule changes).
    - *Resource requirements*: Existing BPC staff time.
    - *Expected outcomes*: Rate hearings will reflect economic necessity rather than arbitrary timelines. Stakeholders are incentivized to arrive at a mutually beneficial solution outside the hearing process.

Finding #6: No clearly defined methodology for the tariff and fee rate-setting process currently exists.

- **Recommendation #6**: Hire a staff analyst or consulting economist to develop and administer an evidentiary-based process that would include data analysis.
    - Consider use of an automatic adjuster or formulaic approach to rate-setting, as used in states and in Washington prior to 2006. Automatic adjusters contribute to greater predictability for stakeholders.
    - *Who:* Legislature and BPC.
    - *Resource requirements:* Additional resources to support full-time or part-time staff or consulting economist.
    - *Expected outcomes:* More predictable and transparent tariff and fee rate-setting process based on defined methodology and independent, objective analysis.

Finding #7: Data submission is not aligned with tariff and fee rate-setting process.

- **Recommendation #7**: Include language in WAC requiring individual Pilots or their Associations to submit: a) quarterly, assignment-level data on revenues generated by tariff and fee charge AND vessel type; and b) current year budget and future budget projections. Establish enforceability such that no rate adjustment may be considered if the timeline and submission requirements are not met. Include a vetting process to validate data submissions.
    - *Who*: BPC.
    - *Resource requirements*: Electronic password-protected database of invoices may be one option for gathering and inventorying this information, and could be paid for through a surcharge.
    - *Expected outcomes*: Better alignment between data submission and decision-making on tariff and fee rate adjustment petitions.

Finding #8: Significant uncertainty exists regarding capital expense financing. Capital expenses, like other expenses, are not subject to a defined methodology.

- **Recommendation #8:** As part of a petition-based adjustment process, Pilots must submit a funding plan, including capital projections.
    - Establish a Transportation Oversight Committee within the BPC that reviews submitted requests for tariff and fee-based financing of capital expenses and provides approval or denial recommendation to BPC. The committee should include both maritime and financial subject matter expertise.
    - Consider using a one-time or defined-period surcharge rather than a general tariff increase.
    - Include binding the funding plan with an expiration date for temporary adjustment
    - *Who*: Legislature and BPC.
    - *Required resources*: Existing staff.
    - *Expected outcomes*: Transparency and predictability regarding capital expense financing.

Effective Oversight of Marine Pilotage Activities in Washington State

Finding #9: BPC composition may be sub-optimal with respect to tariff and fee rate-setting.

As discussed above, the preferred alternative is to transfer tariff and fee rate-setting authority to the UTC. However, if the Legislature decides to retain rate-setting authority within the BPC, we believe implementation of the recommendations discussed above will partially compensate for the limitations of board composition with respect to tariff setting, resulting in:

- Evidentiary, petition-based process;
- Clearly defined methodology and timeline; and
- Increased staff capacity sufficient to provide unbiased, objective analysis.

No specific recommendations are proposed outside those already provided related to addressing diversity and tariff and fee rate-setting.

CONTENTS

Executive Summary i
Report Background and Purpose i
Methods and Identification of Best Practices ii
Background on Marine Pilotage ii
Pilotage in Washington State iii
Key Findings and Challenges within Marine Pilotage in Washington State iv
Recommendations to the Legislature to Improve Washington State Pilotage Practices vii
I. Introduction 1
Methods and Identification of Best Practices 2
Terms and Key Concepts Used in This Report 2
Outline of Report 4
II. Background on Pilotage in Washington State 5
Washington State Pilotage and Pilotage Districts 6
Washington State Board of Pilotage Commissioners 8
Number of Pilots 9
Type of Work Performed 9
III. The Pilotage Pipeline 13
Stages of the Pilotage Pipeline 13
Challenges to Increasing Diversity in Pilotage 16
Lack of Diversity is a National Challenge 16
IV. Review of Current Practices in Pilotage in Washington State 19
The Process for Setting Pilotage Tariffs and Fees 19
Pilotage Tariffs and Fees and Analysis of Pilot Benefits, Including Retirement 24
The Relationships Between Tariffs, Fees, and Pilot District Expenditures 29
The Factors Used in Determining the Total Number of Pilots, and Pilot Workload Distribution 32
Reporting to Comply with Statutory Requirements 33
Pilot Recruitment, Training and Review 35
Pilot Selection and Licensing 42
Implementation of the Board's Diversity Action Plan 44
Oversight, Administration, and Governance 45

V. Key Findings and Challenges in Washington State 47
Increasing Diversity in Marine Pilotage 47
Analytically Driven Tariff and Fee Rate-Setting..... 47
Effective Oversight of Marine Pilotage Activities in Washington State 49
VI. Key Findings on Best Practices Outside Washington State..... 50
Increasing Diversity in Marine Pilotage 51
Analytically Driven Tariff and Fee Rate-Setting..... 51
Effective Oversight of Marine Pilotage Activities..... 60
VII. Efforts Underway to Address Lack of Diversity Outside of Washington State 61
Efforts to Address Lack of Diversity Among State Pilotage Commissions and State Governments..... 61
Efforts by Pilot Associations, Ports, and Other Stakeholders to Address Lack of Diversity in the Maritime Industry and Marine Pilotage..... 62
VIII. Recommendations to Improve Pilotage in Washington State..... 66
Increasing Diversity in Pilotage..... 66
Analytically Driven Tariff and Fee Rate-Setting..... 68
Effective Oversight of Marine Pilotage Activities in Washington State 73
Bibliography..... 75
Appendix 80
Appendix A. Tariff-Setting Formula in 2001 MOU Between Puget Sound Pilots, Puget Sound Steamship Operators Association, and Polar Tankers Inc..... 80
Appendix B. Recent Agendas of the Joint Diversity Committee..... 82
Appendix C. Interviews..... 83
Appendix D. Public Utility Commissions that Set Pilotage Rates 84
Appendix E. Profiles of Separate Pilotage Rate Review Entities..... 93
Appendix F. State Pilotage Tariff and Fee Rate-Setting model..... 97
Appendix G. Washington State Public Utility and Transportation Commission 103

I. INTRODUCTION

The Washington State Joint Transportation Committee commissioned Community Attributes Inc. and Gleason & Associates to conduct an assessment of pilotage practices in Washington state; to identify best practices in other pilotage districts and industries; to compare these best practices with Washington state; and to provide recommendations for how to implement those best practices in Washington (Washington State Legislature Joint Transportation Committee, 2017).

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- **Addressing lack of diversity within marine pilotage**. Efforts to broaden recruitment of applicants qualified to sit for the pilotage exam as well as to minimize the potential for bias in the examination, training, selection, and licensing of pilots.
- **Analytically driven tariff and fee rate-setting**. This area of research focuses on the process of tariff and fee rate-setting.
- **Effective oversight of maritime pilotage activities**. This component of analysis addresses Board of Pilotage Commissioners ("Board" or "BPC") composition and overall governance.

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Methods and Identification of Best Practices

Analysis in this study leveraged a range of sources. The consulting team conducted interviews with local stakeholders and industry leaders in Washington state as well as their counterparts in other states. The consulting team also conducted extensive research on practices outside Washington state using archival materials, statutory documents, and reports.

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Research also focused on the role stakeholders play within the regulatory process and/or addressing issues of concern. For example, our research revealed that few regulatory agencies have initiated efforts to increase the diversity of the pilotage pool; the various pilot associations largely fill this void. As such, it emerged that efforts already underway through the BPC to address diversity, while not necessarily a best practice, exceed those of other state pilotage commissions.

Terms and Key Concepts Used in This Report

- **Assignment**. A billable event relating to pilotage services, including cancellations and ship movements.[1]
- **"Blue Water" Pilotage Pipeline**. This refers to mariners who come to the pilotage profession via ocean-going "blue water" vessels such as container ships, bulk carriers, or cruise ships. These mariners have often attended one of the nation's four-year maritime academies or the United States Merchant Marine Academy before going to sea for years, working their way up from an entry-level third officer to chief mate or captain. This may also include mariners who have attended the US Naval Academy or the US Coast Guard Academy and wish to become pilots after they have fulfilled their military obligation.
- **Board of Pilotage Commissioners (BPC)**. The government body that regulates pilotage in Washington state, under the authority of the

Washington State Pilot Act of 1935. Duties include regulating of licensing, rate-setting, and training. The BPC is a small, non-appropriated state agency housed within the Washington State Department of Transportation Ferries Division (WSF). General counsel is provided by the Washington State Attorney General's office.

- **"Brown Water" or "Hawse pipe" Pilotage Pipeline**. This refers to mariners who have not attended a maritime academy or similar four-year institution. Many of these mariners may have received some specific maritime education via community colleges, vocational schools, or other training providers. They are often employed on "brown water" vessels such as tug boats, developing their knowledge of the local waterways for years before achieving the requisite credentials necessary to qualify to sit for the pilotage exam.
- **Cancellation**. A billable event involving the termination by a carrier (or agent) of a pilotage service request after a pilot has been assigned and before an outbound ship is moved or, in the case of an inbound vessel, the vessel is delayed by more than 6 hours if it occurs within 12 hours of the scheduled arrival time.
- **Gross tonnage**. A measure of cargo carrying capacity and therefore a common basis for pilotage fees on commercial vessels.
- **Length Overall (LOA)**. The maximum length of a vessel's hull measured parallel to the waterline. Gross tonnage and LOA are important factors in calculating the cost of pilotage service for a vessel in the Puget Sound Pilotage District. In the Grays Harbor Pilotage District, vessel draft (and not LOA) is an important factor.
- **LOA rate schedule**. A rate schedule based upon distances furnished by National Oceanic and Atmospheric Administration, computed to the nearest half-mile. There are six LOA zones included in the schedule for the Puget Sound Pilotage District, ranging from intra-harbor transits to voyages greater than 101 miles.
- **Marine pilot in Washington state**. A highly skilled mariner licensed as a pilot to "conn" (i.e., control a ship's movement,) a foreign flagged vessel (cargo or passenger) moving within either of the two Washington State Pilotage Districts (Puget Sound and Grays Harbor). Washington State-licensed pilots also hold a federal pilotage endorsement issued by the U.S. Coast Guard. Under the Washington State Pilotage Act, all foreign flagged vessels must employ a state-licensed pilot when operating within these established pilotage districts. Federal law exempts certain U.S. flagged vessels from compulsory state pilotage requirements. Exempt vessels may opt to employ a state-licensed pilot for safety or insurance liability reasons.
- **Pacific Merchant Shipping Association**. The industry association representing shipping interests across the West Coast. Members include ocean carriers, agents, and terminal operators, as well as tug and fuel operations. In 2004, PSSOA members transitioned to PMSA.

PMSA assumed the responsibility for representing industry positions in Washington State Board of Pilotage Commissioners deliberations.

- **Puget Sound Pilots Association (PSP)**. The private, not-for-profit pilotage association of state-licensed independent contractor pilots who provide compulsory pilotage service in the Puget Sound Pilotage District.
- **Puget Sound Steamship Operators Association**. Prior to 2004, the association that represented shipping interests in Washington State Board of Commissioners deliberations.
- **Ship movement**. An assignment resulting in a transit or a reposition of a vessel.

Outline of Report

The remainder of this report is organized as follows:

- **Background on pilotage in Washington state**, including description of pilotage districts, nature of work, number of pilots, and the Washington State Board of Pilotage Commissioners.
- **Pilotage pipeline**. A discussion of the various avenues from which mariners become credentialed and qualified to become a state-licensed pilot in Washington state and the challenges to increasing pilot diversity.
- **Review of current practices in pilotage in Washington state**. Discussion of the many aspects to pilotage in Washington state, including the tariff and fee rate-setting process; pilot recruitment, training, and licensing' regulatory oversight; and other relevant matters.
- **Key findings and challenges in Washington state**. A summary of key issues in the current state pilotage system uncovered through extensive research, including interviews with stakeholders.
- **Key findings on best practices outside Washington state**. For each finding delineated in our review of Washington's current pilotage system, we present a set of best practices that show promise for application in Washington state.
- **Efforts underway to address the lack of diversity of pilotage in other states**. The lack of diversity in pilotage is a maritime industrywide problem. This section presents examples of promising programs and initiatives that could be embraced in Washington.
- **Recommendations**. A set of actions that, if adopted, will improve Washington's pilotage system across each of the findings identified in this report.

II. Background on Pilotage in Washington State

The Washington State Pilotage Act (RCW 88.16) regulates pilotage in Washington State. The intent of the law is to "*prevent the loss of human lives, loss of property and vessels, and to protect the marine environment of the state of Washington through the sound application of compulsory pilotage provisions in certain of the state waters*" (RCW 88.16.005). All foreign-flagged vessels (cargo and passenger) must employ a state-licensed pilot when operating within either of the Pilotage Districts. The Board must achieve these goals while also maintaining and developing Washington state's competitive position for waterborne commerce, in relation to other ports, nationally and internationally.

Washington is one of 24 coastal states[2] that have chosen to establish statewide regulation of pilotage, including licensing requirements for pilots operating within Pilotage Districts. In contrast, California only exercises this authority in the bays of San Francisco, San Pablo, and Suisun and the Sacramento and San Joaquin rivers. California does not require state-licensed pilotage in other state waters, including at the ports of Los Angeles and Long Beach.[3] The U.S. Coast Guard regulates pilotage within the Great Lakes.

The Board of Pilotage Commissioners (BPC) is the governing state body for regulating pilotage (discussed in further detail below). The Washington State Pilotage Act defines two pilotage districts—those of Puget Sound and Grays Harbor.

Washington State requires a federal master's license and experience as a master to apply to be a Washington state pilot trainee. A trainee must also hold or obtain a federal pilotage endorsement for the waters of the relevant district in order to be granted a Washington state license.[4]

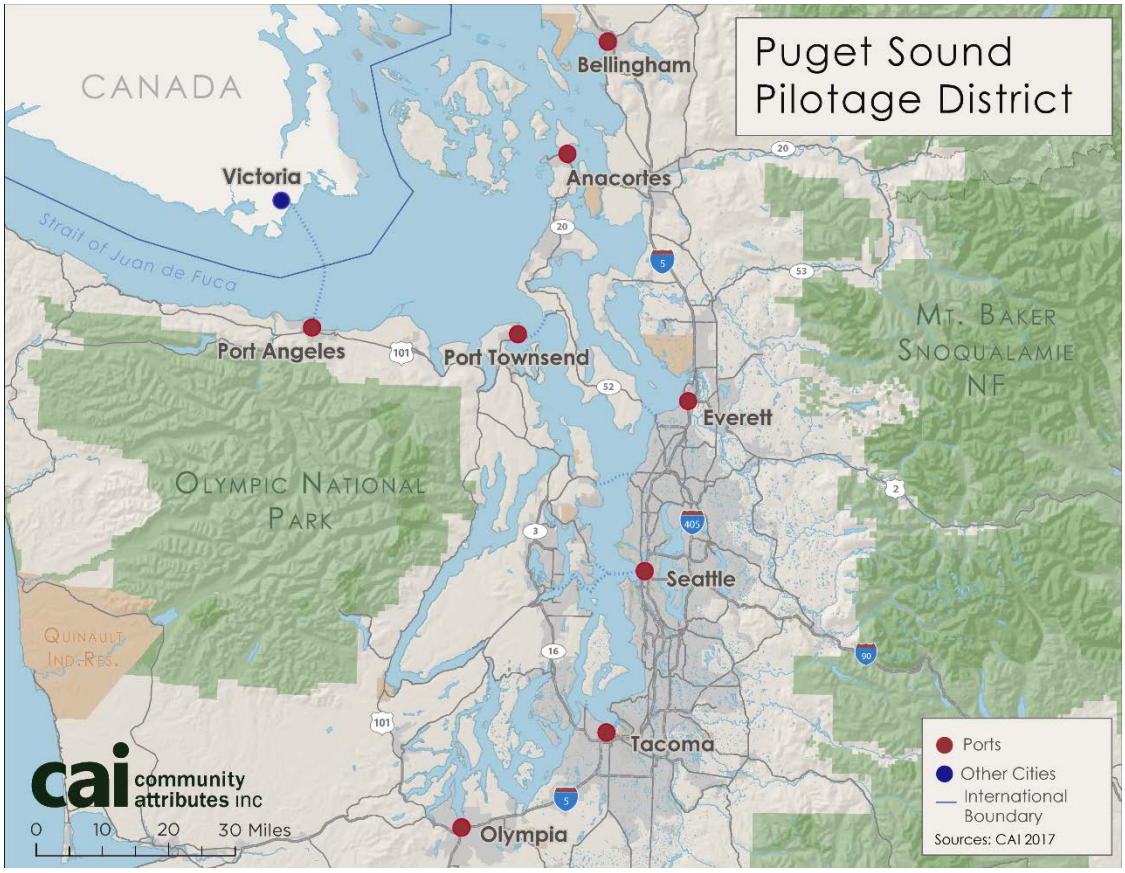
Marine pilots' primary objective is to facilitate the safe movement of vessels into and out of ports situated in coastal and inland water bodies. Pilots have operated in Puget Sound and Grays Harbor since the 19th century. They represent the pinnacle of the mariner profession and are specially trained mariners, licensed by a competent pilotage authority. Pilots are not members of a vessel's crew but come aboard to control, or "conn," the vessel when moving in ports, waterways, and coastal areas within compulsory Pilotage Districts.

Washington State Pilotage and Pilotage Districts

There are two pilotage districts in Washington state: Puget Sound and Grays Harbor.

The Puget Sound Pilotage District is defined as including "*all the waters of the state of Washington inside the international boundary line between the state of Washington, the United States and the province of British Columbia, Canada and east of one hundred twenty-three degrees twenty-four minutes west longitude* (RCW 88.16.050, 2017)." The Puget Sound Pilotage District covers more than 7,000 square miles, twelve ports, and over two dozen anchorages (see **Exhibit 1**).

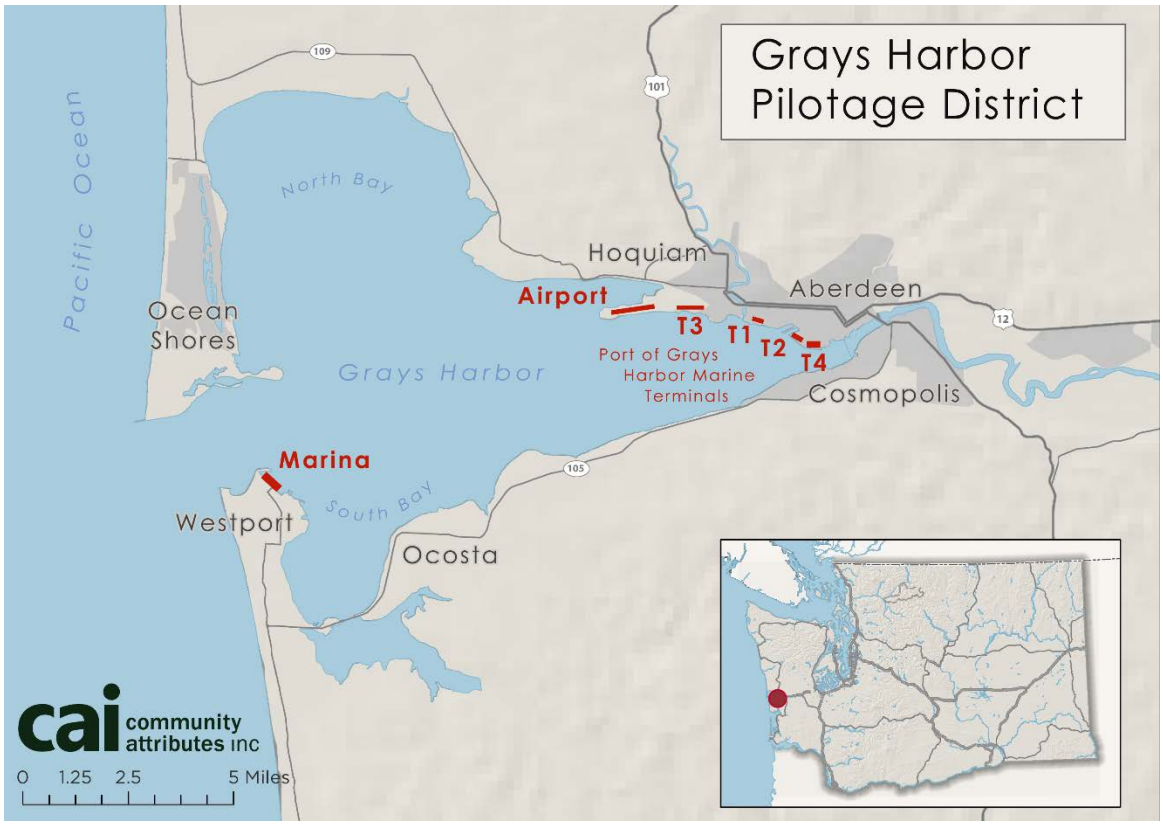
Exhibit 1. Puget Sound Pilotage District



Note: the Puget Sound Pilotage District extends further norther to the Canadian border.
Source: Washington State Board of Pilotage Commissioners (2017).

The Grays Harbor Pilotage District is defined as including "*all inland waters, channels, waterways, and navigable tributaries within Grays Harbor and Willapa Harbor. The boundary line between Grays Harbor and Willapa Harbor and the high seas shall be defined by the board (ibid).*" The Grays Harbor Pilotage District covers approximately 280 square miles (**Exhibit 2**).

Exhibit 2. Grays Harbor Pilotage District



Source: Washington State Board of Pilotage Commissioners (2017).

The Puget Sound Pilots Association ("PSP") represents the 52 independent contractors who provide pilotage services in Puget Sound. The PSP maintains a pilot station and two pilot boats in Port Angeles. These vessels convey pilots to and from vessels employing a pilot. They also maintain a dispatch operation and an administrative office in Seattle. In total, PSP employs nine people in Port Angeles and six people in the Seattle office.

Grays Harbor pilots were once similarly structured as an association of independent pilots. However, after the decline in the timber industry in the 1980s and 1990s, the two remaining pilots threatened to leave the district due to insufficient vessel traffic. This would have resulted in Grays Harbor being the only deep-water port on the Pacific Coast without pilots. To remedy this situation, the Washington State Legislature authorized port districts to

provide these services in Grays Harbor; pilots in Grays Harbor thus became Port employees. (Senate Bill Report ESB 6194, 2001).

Pilotage services for the Columbia River Bar and Columbia River are governed and regulated by the State of Oregon.

Washington State Board of Pilotage Commissioners

The Washington State Board of Pilotage Commissioners was created in 1888 to prevent the loss of human lives, loss of property and vessels, and to protect the marine environment. The Pilotage Act of 1935 (Chapter 88.16 RCW) currently governs pilotage in Washington state. Board duties include:

- Regulatory oversight of pilotage;
- Propose legislation to ensure safe and compulsory pilotage;
- Adopt rules and enforce adherence to the Pilotage Act, which includes discipline and/or prosecution of violators;
- Train and license marine pilots;
- Set annual pilotage tariffs;
- Report and investigate incidents, develop lessons learned, and strive for continuous improvement; and
- Grant vessel exemptions from pilotage.

The Board is currently comprised of nine members, including:

- A Chairperson who is either the Washington State Department of Transportation Assistant Secretary of Marine Operations or designee;
- Director of the Washington State Department of Ecology or designee;
- Seven members appointed by the Governor and confirmed by the Senate, including:
    - Two licensed, active pilots;
    - Two shipping representatives—one American and one foreign-flagged shipper;
    - Two representatives of the public at large with broad maritime industry experience; and
    - One representative from a recognized environmental organization concerned with marine waters.[5]

The Board meets approximately monthly throughout the year, with additional special meetings sometimes called. In 2016, it met 14 times—11 monthly meetings, three special meetings, and one cancelled monthly meeting.

Since 1977, the Board of Pilotage of Commissioners has been administratively supported by and housed with the Washington State Department of Transportation Ferries Division. The Board is currently supported by three full time staff—an Executive Director, Program Specialist, and Administrative Coordinator. The Washington State Office of the Attorney

General provides legal advice. The Board is entirely funded by pilot license fees, vessel exemption fees, and vessel surcharges. Its funds are generally not subject to appropriation. However, the Governor must approve the Board's budget allotments. In addition, the Board received an appropriation of $1.1 million in 2017 to provide an initial payment related to the settlement of a sexual discrimination lawsuit.

Total Board expenses were $ 1,098,840 in 2016, of which roughly 30% were in the form of trainee stipends. The trainee stipend is paid through a training surcharge multiplied by the total number of trainees in the system and is charged to vessel owners/operator in addition to the pilotage tariffs.

Number of Pilots

The Board determines the number of pilots from time to time based on criteria established in WAC 363-116-065. This is more thoroughly described in a subsequent section of this report. Since 2006 the number of pilots in the Puget Sound District has fluctuated from a low of 51.9 pilots in 2012 to a high of 55.6 pilots in 2009. In 2016 the number of pilots stood at 52. There were two pilots serving the Grays Harbor District as of the end of 2016 (Washington State Board of Pilot Commissioners, 2017).

Type of Work Performed

A vessel that is required to utilize pilotage services or otherwise elects to utilize pilotage services in the Puget Sound Pilotage District must initiate the process by ordering a pilot, via telephone, directly from the PSP dispatch office in Seattle. The dispatch office will only accept such orders between 0800 and 1700 hours. The order must include sufficient "lead time" to enable an assigned pilot to travel to the port of embarkation. Puget Sound Pilots define sufficient lead-time according to the requested port. For example, a request for a pilot at the ports of Anacortes, March Point, Bellingham, Ferndale, or Cherry Point must be made at least six hours prior to the pilot being required aboard. When requesting a pilot, the following information must be provided:

- The name of the individual and the name of the agency requesting a pilot;
- The complete name of the vessel requiring a pilot, as well as the vessel's Lloyds/International Maritime Organization IMO number, type, flag, international gross tonnage, deadweight tonnage, service speed, length overall (in meters), extreme breadth (in meters), and maximum draft (in meters);
- The former name of the vessel, if applicable;
- The vessel's ETA (estimated time of arrival) or ETD (estimated time of departure), date and time, and if order is tentative or firm;

- The place, including port, dock, berth, and side-to of the vessel, where the pilot is to board;
- The exact place of destination, including port, anchorage area or terminal, berth, and side-to the pier, if appropriate;
- The number of tugs which have been ordered and the name of the tug company;
- If the vessel is a tanker, whether or not petroleum cargo is on board;
- If the pilot order is for sea trials, the start and finish time of the trials;
- Purchase Order Number if required by customer;
- The vessel's deep draft (in meters). If the vessel is down by the head, both forward and aft drafts are required;
- The vessel's air draft (in meters), when required to move in a waterway;
- Any special information or instructions concerning the movement of the vessel; and
- In the case of a vessel moving to or from an anchorage, the name of the launch service and the point of pick-up or drop-off.

Once assigned, a pilot travels to the port of embarkation. For outbound vessels, this includes all ports within the Puget Sound Pilotage District. For inbound vessels, pilots are required to travel to Port Angeles. Port Angeles is the designated pilot station for all vessels regardless of whether they are inbound or outbound. Pilots who have completed an assignment on an outbound vessel will disembark from the vessel at the pilot station. Pilots who will be piloting an inbound vessel will board the assigned vessel at the pilot station. The pilot station is roughly one mile Northwest of Ediz Hook in the Strait of Juan de Fuca.

Puget Sound Pilots own and operate two vessels (each is 22 meters in length). These specialized vessels transport pilots to and from their assigned vessels. There are very specific boarding requirements the vessel requesting a pilot must fulfill. These include deployment of a pilot ladder to assist in boarding the vessel as well as maintaining a steady course and speed of between six and eight knots when the pilot comes aboard. In addition, the vessel requesting a pilot must maintain radio communication with the pilot vessel (Puget Sound Pilots, 2017e).

The process for ordering a pilot in the Grays Harbor Pilotage District is similar. The vessel master or vessels agent must place the pilot order, via telephone, directly to the Port of Grays Harbor. The order must provide at least 24 hours advanced notice. Grays Harbor Pilots maintain a single pilot boat (65 feet in length). Pilots board vessels either at the dock or at sea roughly one mile northwest of the Grays Harbor buoy. Grays Harbor Pilots also require the use of a pilot ladder to assist in boarding. In addition, they request the vessel maintain a specific course speed and heading as well as maintain radio communications with the pilot boat. There is also a provision

whereby pilots may board an inbound vessel via helicopter. This service is arranged out of Astoria, Oregon and is atypical. (Port of Grays Harbor, 2014)

Once aboard, pilots work with the captain on the ship's navigating bridge to direct vessels into and out of harbors, straits, rivers, and bays. Pilots utilize specialized local knowledge of weather, tides, currents, and the handling characteristics of a vessel operating in this environment (Puget Sound Pilots, 2017e).

WAC 363-116-120(1) provides the following job description, noting that:

> /A] Washington state licensed marine pilot, under the authority of the master, directs ships into and out of harbors, estuaries, straits, sounds, rivers, lakes, and bays using specialized knowledge of local conditions including winds, weather, tides, and current; orders officers and helmsman by giving course and speed changes and navigates ship to avoid conflicting marine traffic, congested fishing fleets, reefs, outlying shoals and other hazards to shipping; utilizes aids to navigation, such as lighthouses and buoys; utilizes ship's bridge equipment, including radar, fathometer, speed log, gyro, magnetic compass, whistle or horn and other navigational equipment as need; required to use ship's radio equipment in contacting United States Coast Guard vessel traffic system and other ships while ship is in transit; and directs ship's officers, crewmen, and tug boat captains as necessary, when ships are transiting bridges, narrow waterways, anchoring, docking, and undocking (Washington State WAC 363-116-065, 2017).

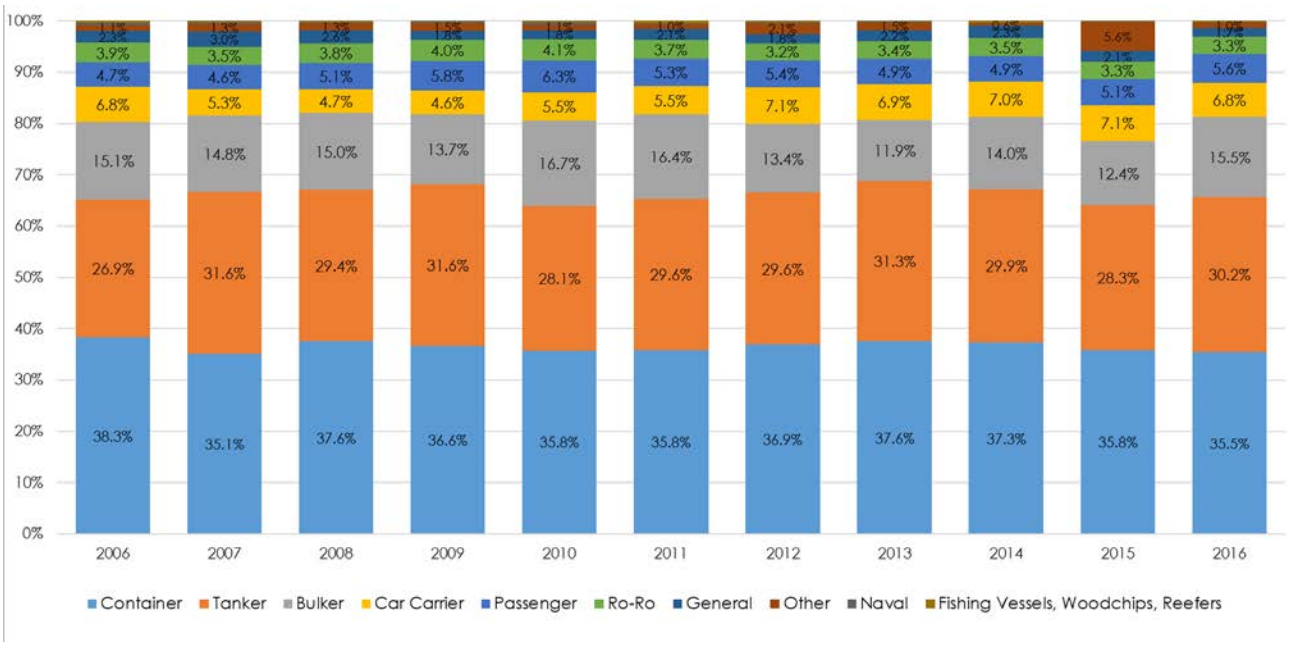
The WAC further notes that the pilot "*must perform duties day or night in all weather conditions, including high winds, fog, mist, rainfall, falling snow, and other adverse conditions, as encountered.*" The RCW describes the health requirements necessary to perform such duties and provides for a physical examination to verify these health requirements are met.

Pilotage Activity

Puget Sound pilots performed 7,525 vessel moves in 2016. This is a decrease from the 2013 peak of 7,702 but does represent an increase from both 2014 and 2015. In the Grays Harbor Pilotage District there were 229 pilotage assignments in 2016. This was up from 200 in 2015 but down from 246 and 277 in 2013 and 2014 (Washington State Board of Pilot Commissioners, 2017).

Puget Sound District pilots are employed on a wide range of vessels. Over the years, dating as far back as 2006, more than a third of pilot ship movements have been for container ships (35.5% in 2016), followed by tankers (30.2% in 2016) and bulkers (between 11.9% and 16.7%, and 15.5% in 2016). Passenger vessels, primarily cruise ships, represented 5.6% of all ship movements in 2016 (**Exhibit 3**).

Exhibit 3. Ship Movements by Vessel Type, Puget Sound Pilots, 2006-2016



Source: Washington State Board of Pilotage Commissioners, 2017.

III. The Pilotage Pipeline

The pool of potential pilots comes directly from the broader maritime industry. The lack of ethnic and gender diversity is an issue that is endemic to the maritime industry across all sectors. This lack of diversity is an issue at the state, national, and international level. A number of efforts are underway across the country to increase the diversity of pilot recruitment. These efforts range from student mentorship, to maritime industry high schools and programs, to maritime academy scholarships, and state-mandated diversity in pilot recruitment policies.

Once an individual has made the decision to become a mariner, there are various pathways and pipelines to pilotage. From high school graduation to pilot eligibility can take 20 years or more. The 20-year estimate is based on graduation from a four-year maritime academy with a 3rd mate license. The process is longer if a young mariner is educated on the job and works their way up through the "hawse pipe."

This pipeline can look quite different depending upon what track individual mariners ultimately follow. For instance, pilots who emerged out of "blue-water" or cruise ship vessel pathways have often attended one of the nation's four-year maritime academies or the United States Merchant Marine Academy at Kings Point in New York before going to sea for years, working their way up from an entry-level third officer to chief mate or captain. The United States Naval Academy and the U.S. Coast Guard Academy may also provide potential pilots after these individuals have completed their military obligation. "Brown-water" (e.g., tug and barge) pilots often have not attended college and instead work as tugboat or barge captains, developing their knowledge of the local waterways for years before applying for training or positions as ship pilots.

Stages of the Pilotage Pipeline

Three general stages in the pilotage pipeline are useful for examining diversity in recruitment practices, discussed below.

- At the highest level are programs and policies aimed at increasing diversity directly at the pilot recruitment—this stage may be described as **Direct Feeders into Pilotage**. A key focus of this study, strategies include state-mandated diversity in pilot hiring requirements and formal pilotage commission internship or mentoring programs.
- One step down from this involves interventions with high schoolers, aimed at **Feeders into the Feeders**. Such programs are focused on increasing diversity in U.S. maritime academy enrollment, and include strategies such as offering scholarships to maritime academies.

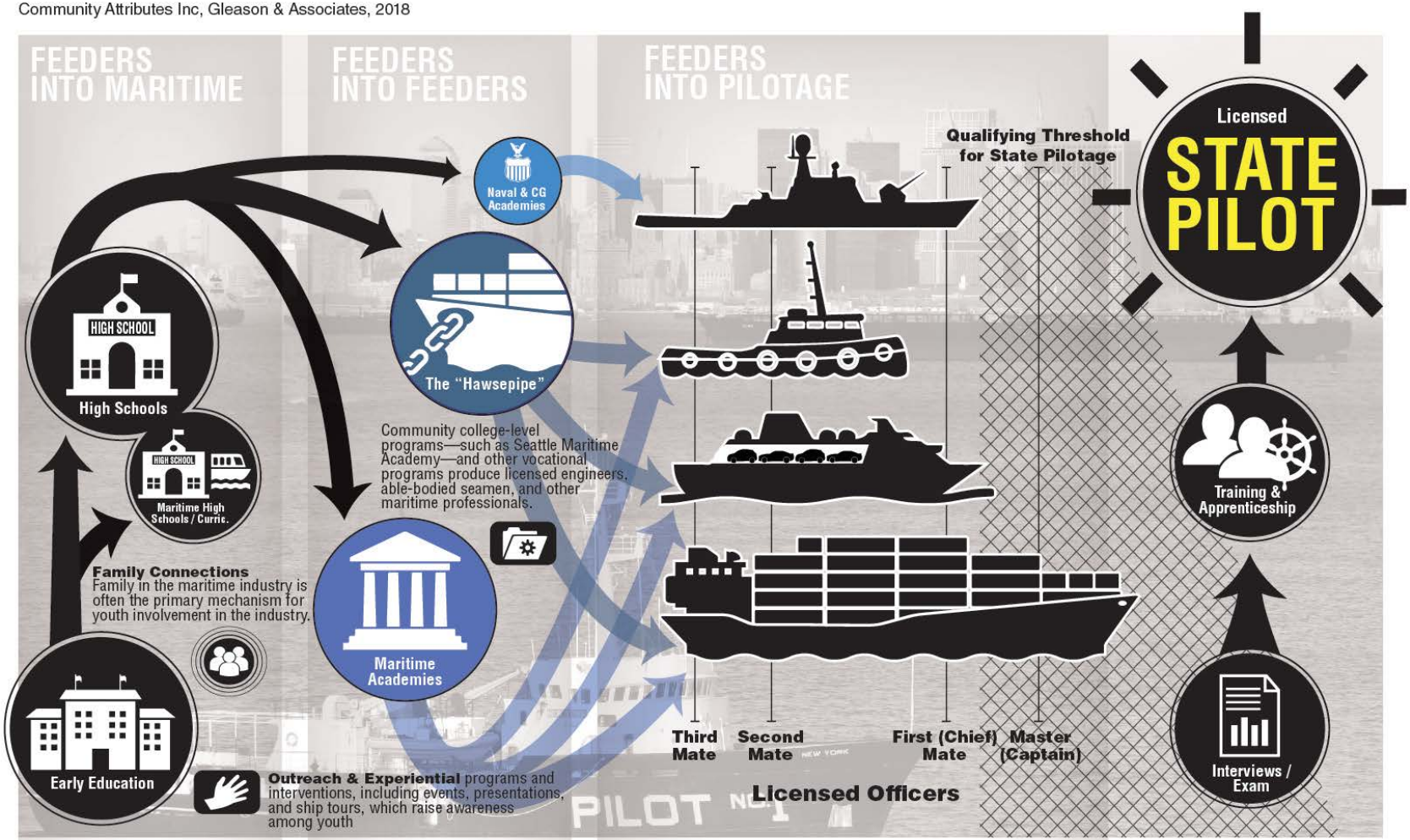
- At the earliest stage are **Feeders into the Maritime Industry**. Activities at this stage are broadly focused on young people, and seek to increase the diversity of participation and interest in maritime industries in general. Strategies include offering scholarships to maritime high schools, mentoring middle and high school students, and providing outreach and mentorship to students and young people potentially interested in maritime careers.

Exhibit 4 below illustrates the multiple pathways to becoming a state-licensed marine pilot. The pipeline to becoming a pilot is long, taking on average 25 years from high school graduation to placement, assuming the individual pursues their maritime career continuously. Candidates for the pilotage exam typically come from careers in either the military (Coast Guard and Navy), the ferry system, "blue water" maritime operations (i.e., deep sea ocean liners), or near-shore "brown water" tugs and barges.

The path to becoming a pilot begins with a young adult entering the mariner profession, either through a maritime academy, the Naval or Coast Guard academies—entering the profession as a licensed third mater—or through the "hawse pipe" as an initially unlicensed engineer or able-bodied seaman. Often times a young person is first exposed to the maritime industry through a relative and/or by living in a community with close ties to the maritime sector.

Exhibit 4. The State Pilotage Pipeline

Community Attributes Inc, Gleason & Associates, 2018



Challenges to Increasing Diversity in Pilotage

Increasing diversity is a maritime-wide challenge and not limited to the pilotage profession. While there are specific actions the BPC can take to address the lack of diversity at the stage in a mariners' career where he or she has achieved the qualifications necessary to sit for the exam, the issue extends across the entire pilotage career pipeline. Research on diversity, including interviews with local and national stakeholders, has highlighted the following:

- **Limited pool of potentially qualified female mariners for state pilotage**. According to data collected by the U.S. Coast Guard and analyzed and presented by the U.S. Maritime Administration, as of 2017, there were 200,900 credentialed mariners in the United States. Roughly 10% of these mariners are female. By comparison, only 2% of mariners internationally are female (Kumar, 2017). This suggests the United States is doing better than the rest of the world in recruiting women into the mariner industry. However, this figure represents all credentialed merchant mariners, including both officers and able-bodied seamen on commercial vessels; it does not reflect the much smaller pool of mariners qualified to sit for the Washington State Pilotage Exam.
- **Lack of familiarity of the maritime industry and maritime professions, particularly among women and minorities**. Awareness of maritime professions is often limited to individuals with family members already employed in the maritime sector and/or those living within close proximity to working waterfronts.
- **Recent changes in maritime licensing requirements**. Recently enacted changes to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), as implemented by the U.S. Coast Guard in licensing U.S. mariners, may make it more difficult for mariners to become pilots through the hawse pipe. *This would further elevate the importance of maritime academies as a source of future pilots*.
- **Diversity at maritime academies remains low**. Nationwide, female enrollment at state maritime academies is consistently between 5% and 10%. Female enrollment at the U.S. Merchant Marine Academy at King's Point is approximately 18% (Kumar, 2017).
- **The issue of maritime diversity is beyond any single organization, public or private.**

Lack of Diversity is a National Challenge

Pilotage has long been a profession predominately comprised of Caucasian males. In recent years, states, pilotage associations, maritime educational institutions, and other stakeholders have recognized the need to increase

diversity in the pilotage profession. While individual pilot associations may collect and maintain information on the gender and ethnicity of their members, there is no national, coordinated effort to track such data. *This makes it difficult to understand the overall composition of the U.S. pilotage corps and confounds efforts to make comparisons between states.*

In 2017, there were an estimated 37 female state-licensed pilots or female trainees in the U.S. (**Exhibit 5**). This data is based on anecdotal information provided by Paul Kirchner, Executive Director and General Counsel for the American Pilots' Association (APA). The American Pilots' Association does not officially collect or maintain information from their member pilot groups on the gender, race, ethnic background, or other aspects of their pilots that might be considered in assessing the diversity of a group. These numbers are thus based on personal knowledge or on informal discussions with group representatives.

In addition, the definition of "pilot" may vary by group, e.g., some may or may not count deputy pilots, trainees, selectees, or apprentices as "pilots." When asked about the number of female pilots, these groups were requested to provide the total number of individuals who are either fully licensed or currently in a training program and with some type of status recognized by the state. One or two groups, however, by tradition don't consider anyone to be a "pilot" until he or she holds a full branch license or at least a deputy license. Reponses from each pilotage group thus may vary depending on the group's view of where an individual should be on the license track in order to be recognized as a pilot or pilot trainee.

Exhibit 5. Female State-Licensed or Trainee Pilots by State, 2017

State	Number of female pilots	Total Number of Pilots	Share of Pilots
Alabama	0	14	0%
Alaska	7 (3 licensed, 4 training)	65	11%
California (San Francisco only)	0	59	0%
Connecticut	0	3	0%
Delaware/ Pennsylvania	5 (licensed)	67	7%
Florida	2 (licensed)	99	2%
Georgia	0	27	0%
Hawaii	0	8	0%
Louisiana	5 (licensed)	288	2%
Maine	0	6	0%
Maryland	3 (licensed)	68	5%
Mississippi	0	7	0%
Massachusetts	0	9	0%
North Carolina	0	9	0%
New Hampshire	0	3	0%
New Jersey/ New York	5 (4 licensed, 1 training)	81	6%
Oregon	2 (licensed)	61	3%
Rhode Island	0	3	0%
South Carolina	0	19	0%
Texas	6 (licensed)	168	4%
Virginia	1 (licensed)	45	2%
Washington	1 (training)	53	2%
Great Lakes District 1	0	17	0%
Great Lakes District 2	0	13	0%
Great Lakes District 3	0	13	0%
Total	**37**	**1,205**	**3%**

Source: Paul Kirchner, Executive Director and General Counsel, American Pilots' Association, 2017.[6]

IV. Review of Current Practices in Pilotage in Washington State

The Process for Setting Pilotage Tariffs and Fees

The process for developing and setting pilotage tariffs and fees is complex and underwent significant changes between 1995 and 2017. The Pilotage Act requires the Board of Pilotage Commissioners "*annually fix the pilotage tariffs for pilotage services provided under this chapter*" (RCW 88.16.035 (1)(e)).

There is a currently no clearly defined methodology for determining tariff and fee rate adjustments. Voting members of the BPC do not provide documentation outlining how they arrived at their decision whether to approve or not approve a proposed rate change.

Regarding process, there are specific reporting requirements, detailed in a subsequent section of this report ("Reporting to Comply with Statutory Requirements"). However, it is unclear, due to lack of statutory guidance, how or if the required data needs to be used. In the absence of specific statutory guidance, the BPC has developed internal policies and procedures over time. For example, Commission staff provides updates each month using data submitted by the pilots. This provides a current update as well as trends in revenues and the type, mix, and number of assignments as well as the number of pilots and individual workloads.

Licensed pilots, ship operators, and interested members of the public may jointly or separately present tariff proposals to the board for its consideration. The parties may prepare joint or separate tariff proposals for board consideration and may appear before the board to support or oppose any such proposal.

Neither the tariff and fee rate-setting process nor its methodology is specific in statute. Washington law does not provide policy goals or specific guidance.

The law allows the Board to fix extra compensation for special circumstances including but not limited to extra services to vessels in distress. Additionally, the Board may *consider* pilot retirement expenses as an element of the Puget Sound pilotage district tariff. Finally, tariff proposals must provide that the tariff funds the training program and the number of pilots licensed by the board.

While the law may not specify the methodology for determining rates, the practice prior to 2006 was guided by an MOU between the pilots and shippers that was formula-based and specified the elements of rate-adjustment decisions.

The specifics of the formula varied, but the basics of the method for determining the revenue requirement for pilotage involved the following steps by the Board:

- Set target income for individual pilots;
- Adjust the target income with an inflation factor to reflect cost of living or recruitment goals;
- Determine the number of needed pilots;
- Multiply number of pilots by adjusted target income to get base revenue;
- Add pilot expenses to be recovered in the tariff to get gross revenue requirement; and
- Determine the needed revenue increase and how it is allocated among tariff and fee rates.

The current Board issues its decision in the form of a memo that only provides the new set of tariffs and fees. Little or no information is provided as to how they came to their decision, either in supporting documents or meeting minutes.

Current Process

Given the differences between the two Pilotage Districts in Washington, the BPC considers tariff and fee rate setting adjustments independently. The process for such consideration will be described in the sections to follow.

Puget Sound Pilotage District

The Puget Sound Pilotage District follows a schedule beginning in August and concluding in November. The BPC requests that PSP submit the best available year-to-date data monthly between August and November as well as audited financial statements. This information is subsequently reviewed at Board meetings.

Formal tariff proposals are due in October. During this meeting stakeholders may make short presentations to the BPC regarding their respective positions. The public is also invited to submit written comment through November. Once stakeholders have had the opportunity to provide input, there is a formal public hearing and Board meeting to consider any requested adjustments to the tariff or fees. The new tariff and fees, once adopted, are effective January 1 of the following year (Washington State Board of Pilotage Commissioners, 2016b). No documentation is provided on how voting members arrive at their respective decisions on rate adjustments, such as variables and formulaic approaches that informed these decisions. However, even though the tariff and fee rate-setting process takes place from August to November, the topic often comes up in board meeting discussions throughout

the year. BPC decisions on the tariff adjustment are reported in its meeting minutes.

Grays Harbor Pilotage District

The schedule and requirements for tariff and fee rate-setting in the Grays Harbor Pilotage District follow a different process. A notable difference between Grays Harbor and Puget Sound districts is that pilots in Grays Harbor are employees of the Port. The Port directly negotiates compensation, including wages and benefits with the two pilot employees. The Port considers this information, as well as other factors, in developing in their tariff proposal. In developing this tariff proposal, the Port of Grays Harbor will also consult with PMSA. The Port tariff proposal must also be considered and approved by the Port of Grays Harbor Commission prior to it submission to the BPC.

In September, the Port submits their formal tariff proposal to the BPC. This includes their 5-year capital spending plan, the audited financial statement from the prior year, and the best available financial data for the current year to the BPC. The Board sets aside time for review and Q&A at the September meeting, and makes a final determination at the October meeting. The new tariff rate for the upcoming year becomes effective on January 1. (Washington State Board of Pilotage Commissioners, 2016a)

Calendar Year Versus Fiscal Year

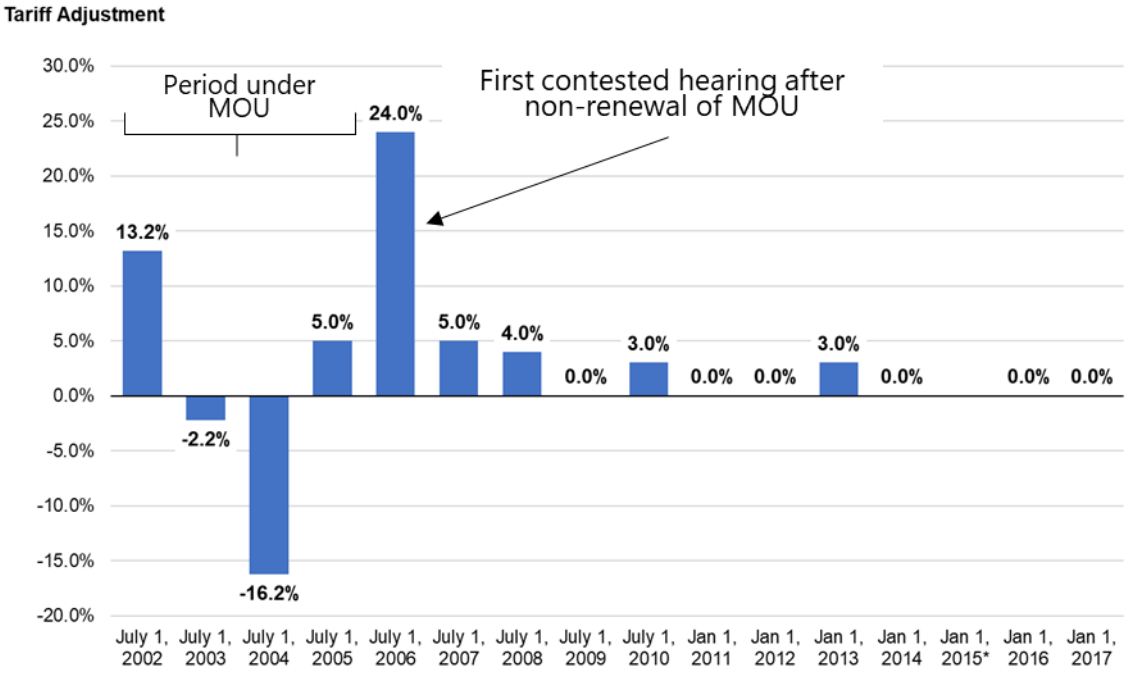
It is important to note that currently the tariff is set on a calendar year basis. In the past the tariff cycle followed a fiscal year, running from July 1 to June 30—see **Exhibit 6** for how the tariff cycle has fluctuated over time. In the process of tariff adjustments, PSP is required to submit audited financial statements, as well as its best available year-to-date financial data. When the tariff is set on a calendar-year cycle, PSP does not yet have complete year-to-date data in time for the audit, while they would have this data available were the tariff set on a fiscal year cycle.

PSP has noted that data availability presents a challenge for them when the tariff cycle follows the calendar year. However, when the tariff cycle follows the fiscal year rather than the calendar year, the Board only has six months of audited financial data from which to make their decision. The complexities in data availability to determine the tariff cycle have led to fluctuations in the tariff cycle. Additionally, the data used in tariff submissions from all stakeholders is inconsistent: sometimes presented as calendar year data and sometimes presented as fiscal year data or twelve-month trailing data. The data primarily comes from the pilots and is summarized by BPC staff. And finally, data submissions do not have an enforceable timeline associated with them.

Historic Processes

Exhibit 6 below illustrates the timeline for tariff adjustments and period of the latest MOU-based annual rate adjustment process. Since 2006, the annual tariff hearings have been highly contested, with the exception of two hearings where joint proposals were made.[7] Additionally, the Board has had to decide tariff adjustments without the benefit of an established and agreed upon methodology based on validated key metrics. All parties, including the Board, PMSA, PSP, and the Ports have noted that it is challenging to address other important issues related to pilotage when the tariff adjustment process is in continuous dispute. Rates across the country also increased substantially in 2006, due in part to a large increase in pilotage compensation in California (bays of San Francisco, San Pablo, and Suisun and the Sacramento and San Joaquin rivers).

Exhibit 6. Tariff Cycle and Adjustments, Puget Sound District, 2002-2017[8]



Source: Washington State Board of Pilotage Commissioners (2017).
** In 2015, changes were made to zone-based fees in January and a $500 minimum tonnage charge was added in July.*
Note: This table does not include special rates and surcharges, such as the adjustment in training surcharge or transportation allowance or British Columbia direct service.

Pre-1996

Prior to 1996, the Board of Pilotage Commissioners employed an established methodology when setting the annual tariff adjustment. This method employed defined variables and calculations, which generally prevented the highly contentious tariff process seen currently.

The basis for the Board-established methodology included a variable called Target Net Income ("TNI"). TNI was defined as the target net income goal per pilot, excluding benefits and individual pilot expenses. These expenses included mobile phones, transportation, and insurance, among others.

In addition to TNI, other factors considered in making tariff adjustments included individual line item expenses, such as individual pilot expenses, number of assignments, the number of funded pilots, and the average annual workload of assignments per pilot. At the annual meeting, the Board would either accept or reject line item expenses and set acceptable levels for each factor. They would use this information in the calculations necessary to determine the percentage increase or decrease for the tariff. See, for instance, minutes from the May 1993 tariff hearing and expense calculations from the 1995 tariff hearing (Washington State Board Pilotage Commission, 1993; 1995).

The steps in calculating the tariff adjustment were:

- Multiply TNI by the number of pilots expected. This determines the revenue necessary to fund pilot TNI.
- Add to the total revenue requirement for TNI, association and individual expenses approved for recovery through the tariff. The result is the total overall revenue goal.
- Apply the expected vessel traffic numbers to determine tariff adjustment. (Washington State Pilotage Commission, 1995)

1996-2001 and 2001-2006 Memoranda of Understanding

In 1996, the Puget Sound Pilots, the Puget Sound Steamship Operators Association (PSSOA), and ARCO Marine worked together to negotiate a five-year Memorandum of Understanding (MOU). This MOU described the agreed-upon methodology for presenting a joint tariff recommendation to the Board. This joint proposal allowed the Board and all stakeholders to avoid contested tariff hearings and represented some level of compromise on the part of each stakeholder. (Polar Tankers, Inc., Puget Sound Pilots, Puget Sound Steamship Operators Association, Inc., 2001)

The MOU established a formula, known as the "self-correcting formula," for calculating the tariff adjustment, similar to the methods historically used by the Board. Together the stakeholders negotiated a starting level for TNI, forming the basis of the calculations. In 2001 the MOU was renegotiated to include a one-percent annual automatic increase to the TNI. This updated MOU also included an increase in retirement benefits and an update to the individual pilot expenses included in the calculations. This MOU was in place until 2006.

Stakeholder interviews have highlighted advantages and disadvantages to this approach. The formula as outlined in the 1996 and 2001 MOU's supported a generally clear and transparent calculation of the tariff rate, drawing on past performance, and included a self-adjustment.[9] For a detailed discussion of the formula used for determining the tariff before 2006, see **Appendix A**. (Polar Tankers, Inc., Puget Sound Pilots, Puget Sound Steamship Operators Association, Inc., 2001)

As the 2001-2006 MOU neared its expiration date and the parties were considering a new agreement, it was purported that the TNI calculation at the time yielded a sizable gap between Puget Sound pilot earnings and compensation in other districts (in particular San Francisco). This contributed to the large 24% increase shown on page 22, **Exhibit 6**. There are differing opinions regarding the factors contributing to this disparity. Regardless, the parties were not able to agree on a new TNI and the MOU was not renewed.

Pilotage Tariffs and Fees and Analysis of Pilot Benefits, Including Retirement

Pilotage Tariffs and Fees

Once the overall revenue requirement is determined for pilotage services, the changes must be translated into specific adjustments to the tariffs and fees paid by shippers.

The primary factors driving pilotage fees in both districts are size of vessel—measured by gross tonnage and length—and distance travelled. The tariff and fees pilots must charge to ship operators and other vessels for which they provide services are described in WAC 363-116-300 (Puget Sound Pilotage District) and WAC 363-116-185 (Grays Harbor Pilotage District).

In the Puget Sound Pilotage District, charges are determined by a set of factors, including: 1) vessel gross tonnage; 2) vessel length overall, or "LOA"; 3) the length of pilotage, measured in miles, and grouped by category as zones I-VI; 4) bridge underpasses and movements through select transit routes; 5) pilot boat fees for the conveyance of a pilot to or from a vessel; and 6) other miscellaneous charges, such as a delayed arrival of a scheduled vessel, fee for accompanying trainee, and slow down charges.

Gross tonnage charges are three-tiered: (1) $0.0084 a gross ton for vessels of less than 20,000 gross tons; (2) $0.0814 a gross ton for vessels below 50,000 gross tons; and (3) $0.0974 a gross ton for vessels greater than 50,000 gross tons. Additional calculations are based on a rate schedule of length overall (LOA) and zone, the latter a set of distance categories furnished by the National Oceanic and Atmospheric Administration.[10] There is also, as of July

1, 2015, a minimum gross tonnage charge of $500 per vessel. In 2016, the gross tonnage charge generated $19.3 million in revenue, followed in magnitude by the LOA and zone charge ($9.8 million) and pilot boat fee ($1.9 million).

These categories are summarized in **Exhibit 7** below.

Exhibit 7. Tariff and Fee Charge Revenues by Category in Puget Sound Pilotage District, 2016

Category	Description	Amount	Share of PSP Charges
Transportation Charge	Equivalent to one-way taxi fare from Seattle to port of embarkation/debarkation.	$1,097,109	3.2%
Cancellation or Delay	Hourly charge for delayed arrival, departure, or slowdown due to vessel operator. Cancellation fees assessed based on zone of vessel.	$740,421	2.2%
Pilot Commission Charge	Includes training surcharge of $15 stipend for each trainee on vessel.	$105,248	0.3%
Tonnage	Charges by gross tonnage of vessel, broken into three tiers with escalating rate. $0.0084 per gross ton for first 20,000 gross tons, $0.0814 per gross ton for next 20,000-50,000 gross tons, and $0.0974 per gross ton for tonnage above 50,000. There is a minimum of $500 per vessel.	$19,345,357	56.6%
LOA and Zone Charge	Rate schedule incrementally adjusted by vessel length and distance (zones I through VI).	$9,765,678	28.6%
Pilot Boat	$348 charge.	$1,922,352	5.6%
Bridges and Waterways	For specified locations based on vessel size ($266 for up to a 90' beam, $361 for larger vessels).	$784,411	2.3%
British Columbia Charge	Charge for pilot boarding or de-boarding a vessel at a British Columbia port.	$389,795	1.1%
Compass Adjustment	$359.00 per adjustment.	$5,744	0.0%
Sea Trials	PSP charges, at $169/hour, for when a pilot needs to be on-board during any sea trials.	$16,224	0.0%
Other	Salmon Bay/Lake Union	$8,578	0.0%
	Miscellaneous charges.	$2,378	0.0%
Total		**$34,183,295**	**100%**

Source: Washington State Legislature, WAC 363-116-300; Washington State Board of Pilotage Commissioners, 2017.[11]

Note: data is based on latest available sources broken out by charge type from the Washington State Board of Pilotage Commissioners. The sum of these charges diverges slightly to the final audited totals reported by the BPC and PSP, though the distribution of charge revenues is approximately the same.

The method used for the Grays Harbor Pilotage District involves fewer factors in calculating the tariff and fees. The Port of Grays Harbor also sets a budget for pilotage within the overall port budget. As described in WAC 363-116-185, charges are based on the following rate categories: 1) vessel draft and net tonnage; 2) a boarding charge; 3) harbor shifts; 4) if two pilots are required for an assignment; 5) a pension charge; 6) travel allowance; 7) bridge transit; and 8) miscellaneous charges. Unlike the Puget Sound Pilotage District, there is no LOA rate schedule used in calculating the tariff.

Some vessels may apply for an exemption from the requirement to have a licensed pilot while operating exclusively in Washington state waters or lower British Columbia, under RCW 88.16.070. Vessels eligible to apply for an exemption must meet the following criteria: 1) be a small passenger vessel that is not more than 1,300 gross tons (international); 2) not exceed 200 feet in length overall; and 3) be manned by U.S.-licensed deck and engine officers "as appropriate to the size of the vessel with merchant mariner credentials";[12] or be a yacht of the same size and gross tonnage (Substitute Senate Bill 5262: Pilotage Act -- Vessel Exemption Requirements, 2017, pp. 1-2).[13]

Pilot Earnings and Benefits

Pilot earnings are frequently cited as a factor in competing for new pilots. Earnings (actuals) are distinct from TNI, which is no longer set by the BPC as part of determining rates. Each time the pilotage tariff rate is adjusted, actual earnings will still be more or less than a forecasted target depending on shipping activity.

The average earnings distributed per pilot in the Puget Sound Pilotage District, was $453,498 in 2016. The average compensation per pilot in the Grays Harbor Pilotage District was $423,486 in 2016. However, it was worth noting, as previously mentioned, that Puget Sound pilots are independent contractors, while pilots in Grays Harbor are employees of the port. Making direct comparisons between the two is not entirely accurate.

For Puget Sound District pilots, net earnings distributed per pilot were based on each pilot's share of the pooled tariff revenue ($393,282 per pilot), individual business expense ($9,981), transportation allowances ($21,098), and individual pilot medical insurance ($29,137), plus undistributed other income (See **Exhibits 8 and 9** for details on both districts). The revenue for distribution is based on tariff revenue paid by the shippers who utilize pilotage services.

Exhibit 8. Annual Earnings of Individual Pilots Puget Sound Pilots, 2015 and 2016[14]

Disposition of Net Earnings	2015	2016
Earnings Distributed from Pooled Tariff Revenue	$357,363	$393,282
Individual Business Expense Allowance	$9,979	$9,981
Transportation Allowances and Reimbursements	$21,041	$21,098
Invidual Pilot Medical Insurance	$30,158	$29,137
Average revenue pool for distribution	**$418,541**	**$453,498**

Source: Washington State Board of Pilotage Commissioners (2017).

Exhibit 9. Annual Earnings of Individual Grays Harbor Pilots, 2015 and 2016

Disposition of Net Earnings	2015	2016
Pilot Wages	$279,551	$266,015
Incremental Duty Pay	$39,000	$21,517
Employer-Provided Benefits*	$109,446	$84,008
Gain Sharing**	$0	$40,816
Travel Allowance	$11,273	$11,130
Total Compensation to Pilots	**$439,270**	**$423,486**

**Employer Provided Benefits include health, life, medical, and disability insurance, federal and state taxes, and retirement funding.*
*** A salary premium is paid by the employer when upon various thresholds being met creating a positive net income for the Port. The final net income is shared between the Port and the pilots who, in turn, share equally in the salary premium when this occurs.*

Source: Washington State Board of Pilotage Commissioners (2017).

Compensation to Grays Harbor District pilots, as Port employees, is based on pilot wages ($266,015), incremental duty pay, and employer-provided benefits ($84,008). This totaled an average compensation of $423,486 in 2016.

Retirement

The two Districts have different retirement plans as described below.

Puget Sound Pilotage District

In the Puget Sound Pilotage District, the retirement program is a PSP-controlled, unfunded, defined benefit liability. In other words, today's active pilots pay directly, and in full, the retirement benefits of retired pilots. The retirement program is currently considered an association expense and is not subject to BPC oversight. State law allows the retirement program to be paid

for by tariff revenue; however, state revenues may not be obligated for pilot retirement costs.

As independent contractors, many pilots may also contribute to a retirement savings plan under their direct control.

Under the current methodology employed by PSP, individual pilot retirement benefits are based on a 1.5% per year incremental accumulation, multiplied by the average net earnings over the past three years of pilotage service.[15] For example, if an individual served as a pilot for 21 years, and earned, on average, $400,000 per year over the last three years of service, they would receive an annual retirement benefit of 21 years * 1.5% * $400,000 = $126,000/year.

Between 1987 and 2005, the average income over a pilot's last three years of service (based on a PSP calculation) was based on a target net income set by the Board of Pilotage Commissioners (Puget Sound Pilots, 2006). The Board stopped setting TNI in 2006 with the first contested rate hearing in many years. Subsequent retirement benefits have been based on three-years' average actual net earnings, not TNI. Retirement benefits are fixed at the time of retirement and are not annually adjusted for inflation using the consumer price index (Puget Sound Pilots, 2017c, p. 9).

Widows of retired pilots receive an annual disbursement equal to 50 percent of what was received by the spouse prior to passing away (Puget Sound Pilots, 2006, pp. 14-15). In 2016, 57 retired pilots and widows received retirement benefits totaling $4,206,583 (Puget Sound Pilots, 2017d).[16]

Grays Harbor Pilotage District

Similarly, prior to 2001, the retirement plan for Grays Harbor pilots was an unfunded, defined benefit plan, whereby current revenues covered retiree benefits. Beginning in 2001, Grays Harbor pilots become Port employees (Senate Bill Report ESB 6194 (2001)). However, after the transition, the Port of Grays Harbor did not have sufficient resources to pay for existing retirees receiving benefits. Moreover, some Grays Harbor Pilots Association pilots had previously served in the Puget Sound Pilotage District, and thus could receive part of their retirement benefit from through PSP.

To remedy this situation, the BPC decided to establish a new pension charge line item in the Grays Harbor Pilotage District tariff. This was set at $101 per pilotage assignment. In addition, there was an additional charge in the Puget Sound Pilotage District tariff for the Grays Harbor pilot pension liability phase out. As part of the arrangement, an $8.00 increase in the rate for each length overall (LOA) category, for each zone, was added to the Puget Sound Pilotage District tariff. This revenue, along with the Grays Harbor

pension charge, was remitted to Puget Sound Pilots, which then disbursed pension benefits to Grays Harbor retirees (Puget Sound Pilots, 2017c, p. 10; 2017b).[17,18] The two former Grays Harbor pilots who became Puget Sound pilots are now retired and PSP pays retirements benefits to these two pilots based on years of accrual in both districts.

All subsequent retirement benefits for Grays Harbor Pilotage District pilots since 2001 have been based on the public retirement system (Public Employee Retirement System (PERS) Plan 2) available to all Port employees. Under the current system, the two active Grays Harbor pilots accrue 2% per year of service, applied to their salary as Port employees at the time of retirement, up to a maximum benefit of $215,000 per year (Washington State Department of Retirement Services, 2017, p. 14). Currently, there is one active Grays Harbor pilot who has accrued years of services as a Grays Harbor pilot. These years of service will need to be covered by Puget Sound Pilots, while all subsequent years will be covered through the Public Employee Retirement System (PERS) Plan 2.

The Relationships Between Tariffs, Fees, and Pilot District Expenditures

As described earlier in this report, the methodology for setting the tariff includes a calculation of the revenue requirement which includes most operating expenses of the pilots. Because the current BPC does not publish a record of its method for determining rate increases, the relationship between specific expenses and the tariffs is not always clear. Past examples of expenses which were not covered by tariff included union dues, lobbying expenses, and American Pilots Association dues.

Tariffs and fees support a range of pilot and association expenses, including ongoing training, group healthcare, pilot pooled revenue, and capital expenditures. For the Puget Sound Pilotage District, pilotage direct expenditures include costs for the main office and stations in Seattle and Port Angeles (including staff payroll), pilot compensation, pensions, training, and capital expenditures. In 2016, the Puget Sound District generated tariff revenues of $34.7 million. Of this amount, the largest expenditures were pooled pilot revenue distribution (59% of revenues) and Seattle Office Operations (28.2%). Approximately 72% of Seattle Office expenses are for allowances and benefits, including retirement benefits (44%, including Grays Harbor pilot retirement benefits of $109,739).

Within expenditures managed by the Seattle office, the largest single expense was the retirement plan, which totaled more than $4.2 million, or 12% of total revenues. Medical insurance for Puget Sound Pilots totaled $1.5 million (**Exhibit 10**).[19]

Capital expenses are often funded through the tariff. However, the current process is not well-defined and lacks several key elements, including oversight in the use of the tariff for capital expenses, specificity on what part of the tariff is used for capital expenses (e.g., line item or charge), and a mechanism to remove that expense from the tariff after it's been paid for. For example, in November 2012 the BPC approved a 3% across-the-board increase[20] in the tariff to pay for the replacement of pilot personal units (PPUs). In the meeting minutes from the November 15, 2012 BPC meeting, the motion to increase the tariff 3% was based on the "expectation the PPUs would be purchased." However, according to interviews with the BPC, these devices were ultimately leased instead (Washington State Boad of Pilotage Commissioners, 2012).

Exhibit 10. Examples of Major Expenditures, Puget Sound District, 2016 Calendar Year[21]

Station/Office	Expense	Amount ($)	As % of Pilotage Revenue
Seattle Office	Puget Sound retirement	$4,206,583	12.3%
	Medical insurance -- pilots	$1,515,117	4.4%
	Employee salaries	$830,582	2.4%
	Taxes on revenue	$562,762	1.6%
	Depreciation and amortization	$379,135	1.1%
	License fees -- commission	$338,000	1.0%
	Pilot training	$303,640	0.9%
	Employee benefits	$190,681	0.6%
	Insurance	$183,676	0.5%
	Dues	$162,884	0.5%
	Computer maintenance	$161,841	0.5%
	Rent and parking	$117,845	0.3%
	Grays Harbor retirement	$109,739	0.3%
	All other expenses	$726,737	2.1%
	Subtotal	*$9,789,222*	*28.6%*
Boat Operations	Employee salaries	$751,901	2.2%
	Maintenance and repair of "Puget Sound"	$394,394	1.2%
	Employee benefits	$235,524	0.7%
	Fuel of "Juan de Fuca"	$129,025	0.4%
	Fuel of "Puget Sound"	$102,487	0.3%
	Insurance	$93,080	0.3%
	Maintenance and repair of "Juan de Fuca"	$59,447	0.2%
	All other expenses	*$62,786*	0.2%
	Subtotal	*$1,828,644*	5.3%
Port Angeles Station	Reposition pilots	$220,376	0.6%
	Food	$84,766	0.2%
	Depreciation	$48,609	0.1%
	All other expenses	*$144,877*	*0.4%*
	Subtotal	*$498,628*	*1.5%*
Pilot Pooled Shared Revenue		$20,450,685	*59.8%*
Other Expenses		*$1,616,115*	*4.7%*
Total		**$34,183,294**	**100.0%**

Source: Puget Sound Pilots (2017a).

The Factors Used in Determining the Total Number of Pilots, and Pilot Workload Distribution

The number of pilots (and by extension their workload) feeds multiple functions of the BPC. These include the obligation to provide sufficient pilots for safe passage of vessels, planning for recruitment of new applicants and trainees, and calculation of how much revenue is needed to be recovered by tariffs.

Total Number of Pilots

Pursuant to RCW 88.16.035(d), it is the responsibility of the Board of Pilotage Commission to "*determine from time to time the number of pilots necessary to be licensed in each district of the state to optimize the operation of a safe, fully regulated, efficient, and competent pilotage service in each district*." WAC 363-116-065(2)(a-j) describes the process and factors the Commission must utilize to make such a determination. These factors include but are not limited to:

- Existing state policy regarding the safety of persons, vessels, property, and the environment;
- The importance of the maritime industry to the State relative to potential hazards of the vessels requiring pilots;
- Lead time necessary to select and train new pilots;
- Regional economic outlook including trends, fluctuations in the number of calls, types of assignments, size of vessels, volume of vessel traffic, and the need to minimize shipping delays;
- Workload, assignment preparation, and rest needs;
- Trends in size of piloted vessels;
- Time lost to injury and illness;
- Anticipated retirements;
- Continuing education and training requirements, and;
- Surface transportation and travel time constraints related to pilotage assignments

In considering the factors above, as well as issues related to fatigue and the need to have well-rested pilots, the Board was guided by the concept of Safe Assignment Level from 1995 to 2010 (Washington State Board of Pilotage Commissioners, 2010) and Target Assignment Level (TAL). Target Assignment Level is defined as "*a numerical benchmark set by the Board of Pilotage Commissioners calculated by dividing the annual number of Assignments by the number of pilots*."

In making this calculation, the Board does not include the President of Puget Sound Pilots, as the President does not generally move ships during his/her tenure. The TAL is currently set at 145 assignments per pilot per year.

Pilot Workload Distribution

The Puget Sound Pilots service delivery model is predicated on the concept of "board on arrival,"[22] with a particular focus on safety and efficiency. This concept means that when a vessel orders a pilot and provides the requisite information within a specific time period, there will be a pilot on-site and available to complete the assignment regardless of weather conditions, date, or time of day.

Workload distribution is managed internally by PSP dispatch system. The dispatcher maintains both an "on-duty" and an "off-duty" roster. This roster system is based on a schedule of 15 days "on" followed by 13 days "off." Pilots included in the on-duty roster must be available to work 24 hours per day. The dispatcher assigns vessel moves to pilots included in the on-duty roster according to a strictly maintained chronological rotation. WAC 363-116-081 requires that on-duty pilots observe a rest period. Per RCW 88.16.103(1), this rest period is defined as seven hours for an assignment or assignments which are seven hours or longer in duration. While the rest period is prescribed in the aforementioned RCW, in actual practice Puget Sound pilots observe an eight-hour rest period between an assignment or assignments which are seven hours or longer in duration.

However, in the event a sufficiently rested pilot currently included in the on-duty roster is not available at a given time or in a given location, the dispatcher will assign an off-duty pilot to move the vessel. The off-duty pilot is compensated for this work not with actual pay for that assignment, but rather by being given a compensatory day. This compensatory day or "comp day" system is intended to ensure both safety and efficiency, while also allowing pilots to use these comp days for future time off. Additionally, pilots may accrue comp days throughout their career up to a certain cap of 60 days, but pilots that had accrued more than the 60-day limit prior to this decision have been grandfathered in at a higher level. The policy surround comp day usage is subject solely to an agreement between the members of PSP and is not directly regulated by the Board.

In the past, the number of compensatory days was part of the tariff calculation, as it effectively increases the number of pilots required to provide service.

Reporting to Comply with Statutory Requirements

There are significant reporting requirements applicable both to the Board of Pilotage Commission and to the pilots themselves. This section of the report will describe these separately. Please note this section only describes reporting requirements under Washington State law and, with few exceptions, does not touch upon federal law.

Reporting Requirements Specific to Individual Pilots

RCW 88.16.110(1) requires pilots to make quarterly reports outlining monies received, describing ships piloted and noting any incidents that occurred. Each pilot provides the following monthly financial and operating information to the Board to enable the Board to make its annual report and set tariff rates.

- An account of all monies received for pilotage;
- Name, port of registry, and deadweight tonnage of each vessel piloted;
- Amount charged to and/or collected from each vessel and whether this amount is in full payment;
- Whether the vessel was inward or outward bound; and
- Other information as the Board shall prescribe by rule.

The pilots must also report the following safety information to the relevant authorities:

- Groundings, collisions, "near miss incidents," or other major marine casualties that occurred while the pilot was on duty;
- Dangers to navigation that may come to their knowledge while providing pilotage services;
- Reports of masters, mates, or pilots who deviate from state, federal, or international law and may be endangering the safety of the vessel or its crew;
- Condition and legal status of the vessels piloted; and,
- Information regarding their physical health and their ability to perform the duties of the job.

Reporting Requirements Specific to the Board of Pilotage Commission

RCW 88.16.035(1)(f) requires the board submit an annual report to the Governor and the Chairs of the House and Senate Transportation Committees. This report must include, at a minimum, the following information:

- Number, names, ages, pilot license number, training license number, and years of service any person licensed as a Washington State pilot or trainee of pilots;
- Names, employment, and other information for each member of the Board;
- Total number of pilotage assignments by pilotage district, including the various types and sizes of vessels including annual tonnage;
- Annual earnings or stipends of individual pilots and trainees (before and after expense deduction);

- Annual expenses or private pilot associations, including personnel and capital expenditures;
- Status of pilotage tariffs, extra compensation, and travel;
- Retirement contributions paid to pilots;
- The number of groundings, marine occurrences, or other incidents reported to and investigated by the Board
    - Including the vessel name, location of incident, pilot or trainees name, and the disposition of the case;
- The names, qualifications, time scheduled for examinations, and the district of persons desiring to apply for a Washington State pilots license;
- Summaries of dispatch records;
- Quarterly reports as provided by pilot associations;
- Bylaws and operating rules of pilotage associations;
- Various information regarding tug boats for any and all oil tankers subject to the provisions of RCW 88.16.190;
- The expenses of the Board; and
- Any other information which the Board deems appropriate to include.

In addition to this annual report, the Board of Pilotage Commission must also keep accurate records of the minutes of all meetings, records of pilots' earnings, mileage piloted, accident reports, licenses, applications for licenses, examinations for licenses, and any other records the Board considers necessary to carry out its duties.

Pilot Recruitment, Training and Review

Recruitment

Between 2006 and 2015, 34 new pilots were licensed by the BPC. During this same period 31 licensed pilots retired, (Washington State Board of Pilotage Commissioners, 2015, p. 40). Common sources for applicants have included ocean carriers, smaller shipping lines, ferries, military, other pilotage districts (e.g., from Alaska), and tugs. The pilotage pipeline is described in a previous section of this report.

In order to qualify to take the state pilotage exam, potential candidates must be a U.S. citizen, have a U.S. Coast Guard Master's License with endorsement for vessels of at least 1,600 gross tons, and have one to two years sea time experience serving as master, or captain, on an ocean-going, near-coastal, or inland vessel, with duration required depending on vessel type (**Exhibit 11**).[23]

Exhibit 11. Minimum Qualified Experience for Taking Board of Pilotage Commissioners Exam

Vessel Type	Minimum Size	Waters	Minimum Time
Cargo or tank	5,000 GRT or 10,000 GT (ITC)	Ocean or near coastal	1 year
Cargo or tank	700 GRT or 1,400 GT (ITC)	Ocean or near coastal	2 years
Cargo or tank	1,600 GRT or 3,000 GT (ITC)	Inland	2 years
Passenger or ferry	1,600 GRT or 3,000 GT (ITC)	Ocean, near coastal, or inland	2 years
Towing	150 GRT or 300 GT (ITC)	Ocean, near coastal, or inland	2 years

GT = gross register tonnage (domestic).
GTC (ITC) = gross tonnage measured in accordance with the requirements of the 1969 International Convention on Tonnage Measurement of Ships.
Source: WAC 363-116-0751, "Qualifications for pilot applicants" *(WAC 363-116-0751, 2017)*.

As of 2008, a federal pilotage endorsement for the area (i.e., Puget Sound Pilotage District and Grays Harbor Pilotage District), is no longer a requirement to sit for the exam, though trainees need to obtain this endorsement prior to becoming a licensed pilot. This endorsement can be obtained concurrently while in the training program.[24]

According to Puget Sound Pilots and interviews with stakeholders (2017c, pp. 16-19; Commissioners, 2017), recruitment has several dynamics, including:

- Narrow pool of qualified candidates as the qualification to sit for the exam requires more than 20 years of service;
- Competition from other pilotage districts;
- Declining number of U.S. ships and corresponding decline in qualified U.S. citizen licensed masters who are then eligible to apply to become pilots;
- Financial hurdles, such as the $5,000 examination fee, and for some a reduction in earnings during the training period (during which trainees may receive a stipend of $6,000 per month), which averages 18 months but can last much longer and requires resignation from prior employment if training full-time to qualify for the stipend; and
- The intensive nature of the pilotage examination. Candidates often find that the time required to adequately study for the exam does not leave time for full-time employment. As such, the loss of predictable income is very challenging.

- Some potential pilot applicants make mentorship arrangements with active pilots. This option is not available on an across-the-board basis.

Examination and Training Process

Becoming a pilot is an arduous, highly competitive, and challenging endeavor. Pilots are some of the most skilled and experienced mariners, able to exercise an extremely high level of situational awareness given the many variables and unpredictable circumstances that may arise in coastal and harbor marine environments.

The Board of Pilotage Commissioners is responsible for the development and administration of the exam. The Board is charged with: 1) issuing training licenses and pilot licenses; 2) establishing a training program to *"assist in the training and evaluation of pilot applicants before final licensing*"; and 3) establishing additional training requirements to maintain pilotage service competence, such as continuing education programs in consultation with pilotage organizations.[25]

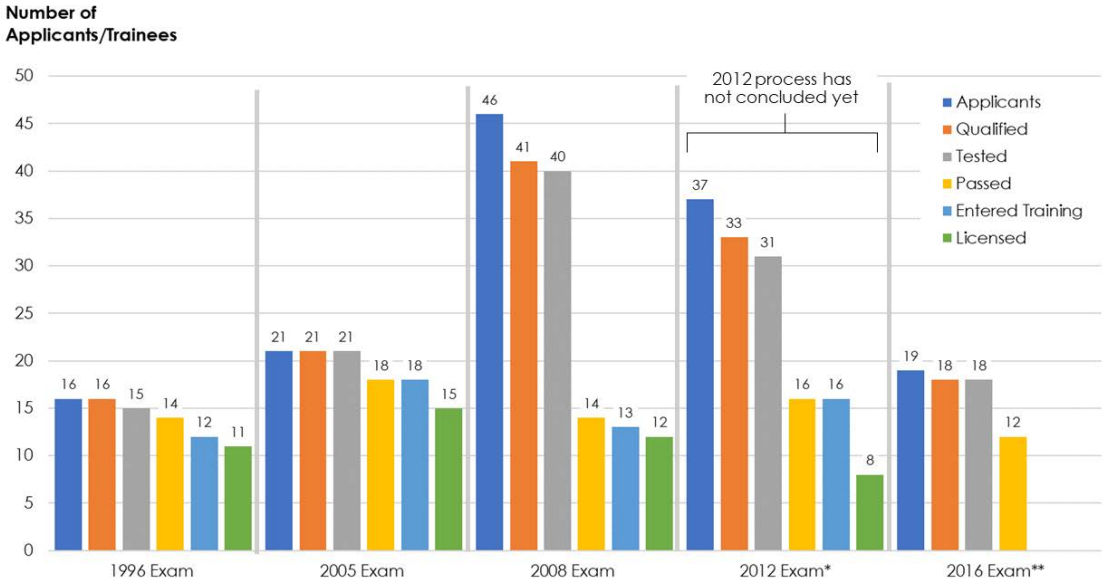
Pilotage Examination

Once a candidate has met the minimum qualifications/prerequisites, he or she then takes the state pilotage exam (per WAC 363-116-076). This involves a 150-question written test and a simulator examination (per WAC 363-116-077). The written exam covers a wide range of general, seamanship-related topics that are non-local in nature, focusing on such as areas as Rules of the Road and general ship-handling. Progeny Systems, an outside consultant, also reviews the examination for potential bias.

Each time the written and simulator exams are administered cut-off scores are determined using a psychometric formula.[26] Several active Washington state pilots are asked to take the exam to help determine a cut-off score. Those candidates whose scores fall below this threshold are not able to continue in the examination process.[27] The past three examinations (both the written and simulator portions) used by the Board of Pilotage Commissioners have been developed and administered by an outside consultant.[28]

The examination must be held every four years, but is often held more frequently depending on projected retirements and open pilotage positions. The last five examinations were offered in 1996, 2005, 2008, 2012, and 2016. The top-ranked candidate for the 2016 exam began her training in the spring of 2017. The number of exam takers also varies, from a recent peak of 40 in 2008 to 18 in 2016 (**Exhibit 12**).[29]

Exhibit 12. Board of Pilotage Exams, Applicant Success, 1996-2016



**Trainees from this class are still working through their training program.*
*** The first trainee from this class began her program in late Spring 2017.*
Source: Washington State Board of Pilotage Commissioners (2017b).

Pilot exam applicants come with a range sea service experiences. In 2016, seven of the 19 applicants came from towing vessels, while five applicants came from cargo or tanker vessels (**Exhibit 13**). *Please note a previous section of this report describes in greater detail typical "feeders" into pilotage.*

Exhibit 13. Sea Service Experience of Pilot Exam Applicants, 2008, 2012, and 2016

Sea Services Category	2008	2012	2016
Cargo or tanker vessels	14	11	5
Organized pilot association or government employed pilot	7	4	0
Passenger or ferry vessels	8	7	3
Special purpose (e.g., fishing and research vessels)	1	2	2
Towing vessels	14	12	7
U.S. flagged government vessels or military	2	1	2
Total	**46**	**37**	**19**

Source: Washington State Board of Pilotage Commissioners, 2017.

For those who successfully pass the written examination, a simulator exam is then administered at the Pacific Maritime Institute (PMI) in downtown Seattle. The simulator examination evaluates a candidate's ship handling and bridge management skills in a simulator that exposes him or her to a variety of real world hazards and challenges. Candidates are evaluated based on how well they handle these unforeseen events (Progeny Systems Corporation, 2017, p. 3). The exam includes 41 measurements, across seven subject matter areas including fundamental piloting and ship handing, communication skills from the bridge, rules of the road, and responsiveness in emergency and non-routine situations (p. 8). As with the written exam, a cut-off score is used as a base threshold for passage.

Challenges observed among stakeholders

Conversations with both PSP and Board of Pilotage Commissioners have highlighted important observations on the examination process (Washington State Board of Pilotage Commissioners, 2017). One item discussed has been the cost of the examination, which, including both the written and simulation portions, was $5,000 in 2016. This included the $400 application fee, the $2,000 written exam fee, and the $2,600 simulator fee. For some candidates, this is a significant financial barrier and is much higher than many other state pilotage exams.[30]

In addition, the amount of time needed to study and prepare for the exam often conflicts with full-time maritime employment. In some cases, candidates are out at sea and find it very difficult to set aside sufficient time to prepare for the exam.

Training Program

Candidates are ranked based on performance on both the written and simulation examinations, with those who score below the cut score for either examination dropped from the application process. Trainees are then called up to begin training based on their ranked order on both exams and the forecasted need for new pilots. The training program is a full-time activity, requiring trainees to resign from their current positions. Trainees are provided with a stipend of up to $6,000/month to partially offset lost income. For those taking the stipend, a minimum of 18 assignments per month must be completed. Prior to and throughout the training program, trainees will be asked to present and engage in discussions before the Trainee Evaluation Committee ("TEC") on progress.

The Puget Sound District is quite large in comparison to many other districts across the U.S. Candidates must draw 24 charts to qualify for federal pilotage. This, along with the local knowledge requirements, can be completed while in the training program.

The training program is designed by the Board of Pilotage Commissioners in consultation with the TEC. The training is provided by active pilots on a volunteer basis. The TEC is appointed by the Board, and includes, at a minimum, three active licensed Washington state pilots, one U.S. Coast Guard master's licensed marine industry representative, and one other member of the Board who is not a pilot. The TEC is responsible for developing the training program in consultation with the BPC, assigning initial routes, reviewing trainee performance and making the final recommendation to issue or deny a new license or recommend additional training (WAC 363-116-078(11), 2013).

Criteria developed by the Board to make this decision include, but are not limited to:

- Performance in the training program;
- Piloting, ship handling, and general seamanship skills;
- Local knowledge and successful completion of conning and local examinations;
- Bridge presence and communication skills; and
- Ability to function independently and safely without interventions.

The training program is divided into three distinct phases to be discussed below.

Observation Phase

The first phase of the training program is observation. The purpose of this phase is to provide the trainee with "*familiarization with [sic] different locations, piloting styles, and types of vessels*" (Washington State Board of Pilotage Commissioners, 2017b).

The trainee will join a licensed pilot on 122 assignments and observe him or her conning a vessel (*i.e.*, conducting a ship's movements while at sea). At the end of each observation, the trainee is asked to complete a "One Minute Paper" designed to help the trainee make note of observations, learnings, and comments. The paper is not collected by the TEC, but is intended to help the trainee synthesize his or her own thoughts.

The trainee is required to complete the requisite number of observations for each section of the Training Program Requirements and pass the conning quizzes for each route or port in each section before advancing to the next phase of training.

Training Phase

After completing the observation phase, the trainee is given the opportunity to conn a piloted vessel under the supervision of a pilot with more than six months of piloting experience who has also completed the specialized "Train the Trainer" course, to be discussed in a subsequent section of this report. The trainee will be given opportunities to pilot vessels between ports, make approaches to and from waterways, and dock and undock vessels under the oversight and supervision of the trainer. The trainee must complete 124 mandatory training trips. Trainers, as part of their supervision of the trainee, provide advice, feedback, direction, and information on local knowledge. Performance during this period will be recorded by the trainer or supervising pilot using the Training Program Trip Report (TPTR) forms.[31]

Evaluation and Review

After completing the observation and training phases and all associated requirements,[32] the trainee then enters the evaluation phase. The evaluation phase is considered the final exam. During the evaluation, the trainee is expected to conn a vessel independently without guidance or support from the supervising pilot, including completing all maneuvers, interaction with the vessel's captain and crew, approaches, and all other actions commensurate with holding a state pilotage license. The trainee is evaluated over 93 assignments.

If the observing trainer needs to take control of the vessel to prevent a potential incident while a trainee is conning during the evaluation phase, this is called an intervention. This intervention is noted and recorded in the trainee's TPTR.[33] After four such interventions, the trainee is dismissed from the program (Washington State Board of Pilotage Commissioners, 2016c, p. 5).

After completion of the training program, the TEC will review the trainer evaluations of the trainee and make a recommendation to the Board of Pilotage Commissioners on whether or not to license the trainee or recommend additional training.

Pilot Selection and Licensing

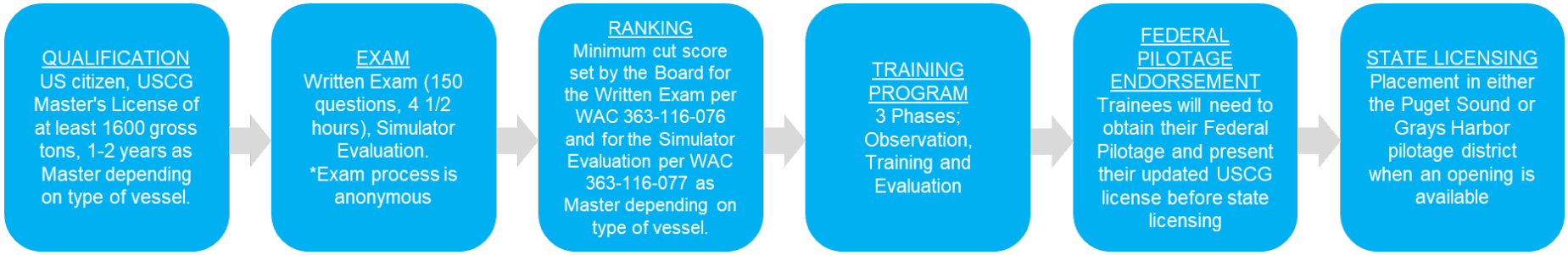
Prior to being licensed in Washington state, aspiring pilots must meet and be able to document the following requirements:

- Pre-licensing criteria described at RCW 88.16.090;
- Completion of additional sea service as described at WAC 363-116-0751;
- Passage of the written examination as described in WAC 363-116-076 with a score among the top twenty of those taking the examination;
- Passage of the simulator evaluation described at WAC 363-116-077;
- Completion of the training program described at WAC 363-116-078;
- Obtaining (if not already in possession) a first class United States endorsement without restrictions on the U.S. government license for the pilotage district in which the applicant aspires to be licensed, as described in RCW 88.16.090(b). The two pilotage districts in Washington state are described in RCW 88.16.050;
- Passage of a physical examination, as described in WAC 363-116-080(1)(d);
- Tendering of the license fee required under WAC 363-116-070; and
- Receipt of a favorable recommendation from the Training Evaluation Committee (TEC) to the Board of Pilotage Commission, as described in WAC 363-116-080(5). The TEC may also recommend additional training as a condition for a favorable recommendation.

Upon successful completion and documentation of having met these requirements, the Board of Pilotage Commissioners may, at its discretion, take one of three actions, as described in WAC 363-116-080(5):

- Issue the license if there is a need for a pilot in the relevant Pilotage District;
- Delay the issuance of the license if there is no need for a pilot in the relevant pilotage district at that time;
- Require the applicant to undergo additional training pursuant to such recommendation by the TEC (**Exhibit 14**).

Exhibit 14. Overview of Marine Pilot Exam, Training, and Licensing in Washington State



Source: Washington State Board of Pilotage Commissioners (2017b)

The duration of a pilot license is five years, as noted in RCW 88.16.090(7). Both WAC 363-116-082 and RCW 88.16.105 describes limitations placed on newly licenses pilots during their first five years of service. WAC 363-116-082 also describes the process for license upgrades during the initial five-year period and notes under WAC 363-116-082(8) that all limitations on a pilot's license shall be lifted at the beginning of the sixth year of service provided that all conditions have been met and adequately documented to the Board of Pilotage Commission. Once licensed, pilots are subject to the statutory reporting requirements as described in a previous section of this report.

Implementation of the Board's Diversity Action Plan

The licensing of pilots is a function of the BPC. However, in order to assist the BPC in its efforts to increase the diversity of the pilot corps and eliminate bias and subjectivity in the selection, training, and licensing process, PSP has made efforts both internally and participated directly with the BPC in this area.

In 1992, the Puget Sound Pilots Board of Directors initiated an effort to identify and assist in encouraging qualified women and minorities to become pilots. This effort reported that most maritime companies employed very few, or no qualified or near-qualified, women or minorities. Given the lengthy career path required of experienced mariners, the PSP concluded that it will take some time before qualified women and minorities would reach the point in their maritime careers to become eligible to become pilots. (Puget Sound Pilots, 2017c, p. 23)

The PSP continued with efforts to encourage women and minorities to explore the marine pilot career. The Piloting Opportunities in Puget Sound Committee was formed in 2011 to educate women and minorities about marine piloting and to promote career opportunities in the Puget Sound. Since this time and over two pilot exam cycles, three of out 47 test takers were women (Puget Sound Pilots, 2017c, p. 24). PSP has also regularly given scholarships to students at the California Maritime Academy, with an emphasis on women and minorities. The PSP has hosted these recipients with summer internships to increase awareness of the career path to becoming a pilot.

Recent Diversity Efforts

In 2016, Puget Sound Pilots and the Board of Pilotage Commissioners formed a Joint Diversity Committee (JDC). The JDC is committed to finding ways to both increase the applicant pool and make systemic changes that enable the inclusion of women and minorities, without jeopardizing the safety record and performance standards needed to consistently provide safe pilotage (Puget Sound Pilots, 2017c, p. 24).

The Committee has met seven times since 2016 to advance the BPC's commitment to increased diversity and to develop specific action plans. A summary of discussion items and key milestones is reported in **Appendix B**.

The major challenge to developing a diverse pool of pilot applicants is that the traditional pipelines for recruiting pilots also continue to struggle with diversity issues. Rectifying this will require a much longer-term and industry-wide strategy that engages potential pilots early in the pipeline.

Oversight, Administration, and Governance

The Board of Pilotage Commissioners is the governing body for pilotage across the two pilotage districts in Washington. The Board was founded in 1935 as part of the original Pilotage Act enabling legislation (RCW 88.16); its rules are described in WAC 363-116.

The primary responsibilities of the Board are to:

- Issue training licenses and pilot licenses to qualified candidates;
- Establish a comprehensive training program to assist in the training and evaluation of pilot applicants before final licensing;
- Establish additional training requirements, e.g., continuing education;
- Maintain a register of pilots, records of pilot accidents, and other history pertinent to pilotage;
- Determine the number of pilots (from time to time) "to optimize the operation of a safe, fully regulated, efficient, and competent pilotage service in each district";
- Annually set pilotage tariffs;
- Report on pilotage, including information on licensed pilots, incidents, and trainees, to the Governor and chairs of the Senate and House Transportation Committee;
- Appoint advisory committees and employ marine experts necessary to carry out the Board's mission and duties;
- Investigate incidents, accidents, and other instances of pilot licensee misconduct, and to subsequently enforce licensee requirements; and lastly
- "[P]rovide for the maintenance of efficient and competent pilotage service" on all waters covered by the Pilotage Act and actions that are "reasonable, necessary, and expedient to insure proper and safe pilotage" in these waters (RCW 88.16.050, 2017).

Budgeting and Appropriations

The Board is a non-appropriated regulatory body; it receives no state or federal revenues for its day to day operations. The Board has three full-time personnel—an Executive Director, Program Specialist, and Administrative Coordination. All expenses are covered by pilot license fees,[34] vessel

exemption fees, and vessel surcharges.[35] Office space is provided by the Washington State Ferries (WSF), and the WSDOT IT Division provides technology support. Personnel practices and salary schedules are based on those for the WSF (WAC 363-116-060).

Membership and Administration

The Board is comprised of nine voluntary, part-time members, including two currently serving pilots, one American and one foreign-flagged ship operator or agent, a representative from the Washington State Department of Ecology; two representatives of the public at large with maritime experience; a representative for marine, water, and the environment; and a chairperson who is either the Washington State Department of Transportation Assistant Secretary for Ferries or designee. Other than the two obligatory government officials, the remaining members are appointed by the Governor and confirmed by the Senate. Appointed terms are for four years (RCW 88.16.010).

The Board meets approximately ten times a year on the second Thursday of the month (WAC 363-116-010), though this number can vary by year (e.g., in 2016, the Board held eleven monthly meetings plus three special meetings). Meetings take place in Seattle at the offices of Washington State Ferries unless otherwise determined (e.g., the August 2017 meeting was held in Grays Harbor). Agendas cover a range of topics, including training, tariff and fee rate-setting, and pilot recruitment.

Insurance Liability Coverage

Washington state law clarifies that pilot and trainee liability (for damage and accidents related to piloting) may not exceed $5,000 per year.[36]

Moreover, when a pilot or pilot trainee boards a vessel to provide pilotage services, that pilot or pilot trainee, for liability purposes, "*becomes a servant of the vessel and its owner and operator*." Any damage or loss occasioned by that vessel is thus under the liability of the vessel, its owner, or its operation, and not the pilot.[37]

V. Key Findings and Challenges in Washington State

Increasing Diversity in Marine Pilotage

Review of Key Findings and Challenges in Washington State

- **The lack of formal data collection on gender and ethnicity complicates efforts to evaluate performance on meeting diversity goals in pilotage**. What little information exists is anecdotal at best. This is both a local and national problem. Without reasonable and adequate data collection on the diversity of applicants and trainees, the Board of Pilotage Commissioners will be ill equipped to: 1) establish a baseline; and 2) track progress on improving diversity.
- **There is potential subjectivity and bias in training and evaluation**. Past allegations of subjectivity and bias have led to increased awareness of the need to be more inclusive and welcoming of women and minorities. Efforts underway include establishment of the Joint Diversity Committee, the "Train the Trainer" program, and hiring of outside experts to review the exam and training program.
- **BPC is making efforts to increase pool of qualified candidates**. In an effort to increase the number of applicants, the Board of Pilotage Commissioners (BPC) has eliminated the pre-qualification requirement for Coast Guard pilotage endorsements. Such pilotage endorsements can now be obtained during the pilot training program. This means a candidate does not have to seek rides from current pilots before taking an exam to get on the candidate list.
- **A lack of diversity is endemic in the maritime industry**. The issue of pilot diversity is deeply tied to the overall diversity of the maritime industry and maritime professions.

Analytically Driven Tariff and Fee Rate-Setting

Review of Key Findings & Challenges in Washington State

- **Annual tariff and fee rate-setting is unnecessary**. The Washington State Pilotage Act requires the BPC to "annually fix the pilotage tariffs for pilotage services," but provides no rationale for this annual requirement and very little additional guidance. The annual requirement incentivizes stakeholders to continuously advocate, either explicitly or implicitly, for adjustments. This ongoing advocacy for rate adjustments serves as a distraction and limits discussion on other important items under BPC jurisdiction, such as safety. Research on other states shows that tariff and fee rate-setting on an annual basis is rare. Rather, many states review rates on an "as needed" basis. Moreover, in many states the minimum duration for a rate adjustment is 18 months, two years, or longer.

- **No clearly defined methodology for the tariff and fee rate-setting process currently exists**. The BPC makes decisions on tariff adjustments without the benefit of an established and agreed upon methodology, or even consistent variables for consideration. There is disagreement among parties over whether and/or how the tariff should cover issues such as pilot compensation, retirement benefits, operating expenses, individual pilot business expenses, and capital expenditures. There is additional disagreement as to the appropriate metrics to track, such as revenue per assignment and average net compensation, as a means to track tariff performance. Moreover, there is a lack of staff capacity to provide objective analysis, resulting in the stakeholders often providing data interpretation.
- **Data submission is not aligned with the tariff and fee rate-setting process**. There is a lack of consistency, clarity, and timeliness in the submission of data necessary to make informed rate adjustment decisions. Along with this, there is not an established and enforceable timeline for data submissions.
- **Significant uncertainty exists regarding capital expense financing**. There is no defined, rigorous, and enforceable process for evaluating pilotage capital expenses (e.g., replacement of a pilot boat, personal pilotage units). There is no timely submission of key data, funding plans, and other relevant information needed by the BPC to make informed decisions on financing requirements. This also inhibits the BPC's ability to track tariff and/or fee performance in financing these expenses.
- **Tariff and fee rate-setting distracts from other important matters**. All parties, including the BPC staff, PMSA, PSP, and the ports have noted that it is challenging to address other important issues related to pilotage when the tariff adjustment process is unclear and when the methodologies for determining the tariff rate are in dispute.

Effective Oversight of Marine Pilotage Activities in Washington State

Review of Key Findings & Challenges in Washington State

- **The current BPC composition may be not be optimal with respect to tariff and fee rate-setting due to the direct material interests of pilots and shippers.** Pilots and industry have equal representation on the BPC. Predictably, these commissioners often vote in their own material self-interest on matters of tariff and fee rate-setting, leaving the remaining Commissioners to cast deciding votes. There is a risk state agency representatives may elect to abstain from rate-setting votes, leaving the three remaining Commissioners to cast deciding votes. These Commissioners represent the public interest and environmental considerations, but may not have relevant financial expertise.

VI. Key Findings on Best Practices Outside Washington State

In this section we define a "best practice" is an action that: 1) addresses a defined problem; 2) includes a defined outcome; and 3) allows for tracking of performance towards achieved a defined outcome. We also provide examples both within and outside of Washington state where we believe these best practices are most effectively employed.

Exhibit 15 summarizes key findings on Washington's pilotage system and desired attributes of a "best practice" corresponding to each finding.

Exhibit 15. Summary of Key Findings and Potential Best Practices

Finding	"Best Practice" Attributes
1. Lack of formal data collection on gender and ethnicity complicates efforts to evaluate performance on meeting diversity goals in pilotage.	• Data collection protocols • Use of data to track progress in diversity.
2. Evidence of potential subjectivity and bias in training and evaluation.	• Practices that reduce potential subjectivity through standardization, training, and outside expertise
3. Lack of diversity is endemic in the maritime industry.	*Measures that:* • Raise awareness of maritime as a career choice among youth. • Result in an increase in the pool of qualified candidates of diverse backgrounds.
4. The current tariff and fee rate-setting process does not have the benefit of a well-defined methodology, data submission and review, and rate-setting expertise.	• Using a state public utility commission as the forum for setting pilotage rates.
5. Annual tariff and fee rate-setting review is unnecessary,	• Policies that hold tariff and fee rate reviews when necessary, based on established and clear criteria.
6. No clearly defined methodology for the tariff and fee rate-setting process.	• Clarity on methods and indicators to be considered and data interpretation by experts.
7. Data submission not aligned with tariff and fee rate-setting process.	• A clear process for data submissions, review, and enforceable timeline.
8. Significant uncertainty regarding capital expense financing.	• A clear process for reviewing capital expenses and finding plans if tariff revenues are used to finance these expenses.
9. BPC composition may not be optimal with respect to tariff and fee rate-setting.	• A commission with no direct material interest in the outcome of a rate hearing.

Increasing Diversity in Marine Pilotage

- **Marine pilotage representatives have no identified best practices**. We conducted multiple phone interviews with representatives of state pilotage boards or commissions. We found very little evidence these entities are addressing the lack of diversity in marine pilotage. Many representatives noted that as state employees they are subject to state mandates regarding sexual harassment/sexual assault and anti-discrimination policies. In several instances the commissioners are also subject to these state policies when in service. However, beyond adherence to state mandates, the individual commissions and/or boards are doing very little to address this issue. Many representatives are aware of the discrimination lawsuit in Washington state and noted that if a similar suit were to be brought in their state the situation may change. However, at this time the Washington Board of Pilotage Commissioners appears to be the only state board/commission taking a proactive approach to this issue. We would encourage the BPC to continue and expand upon existing efforts.
- **Most efforts to address lack of diversity are conducted by the pilotage associations and other maritime stakeholders, in most cases with limited or no support from state pilotage licensing entities**. These efforts include scholarships, internships, mentoring, and targeted youth outreach to increase awareness about maritime broadly and also specifically about pilotage as a career option. Often these efforts involve partners in the broader maritime community.
- **The industry has only recently begun to prioritize diversity. Efforts are fragmented and not well coordinated.** Most efforts are part of a larger interest in addressing the current wave of retiring pilots by reaching out to a broad cross-section of younger people who may be considering the marine professions. In most cases it is very difficult to determine the effectiveness of those few efforts that are underway.

Analytically Driven Tariff and Fee Rate-Setting

- **The public utility commission model is an effective process for rate-setting**. Oregon, Maryland, and Virginia use a public utility commission (PUC) process for setting rates. This has led to fewer rate hearings and an incentive among parties to arrive at a mutually acceptable solution in lieu of a formal rate hearing. The benefits of a PUC model include a clearly defined, transparent, rigorous, enforceable timeline and process, and staff with expertise on rate-setting.
- **Expertise on rate-setting is an asset in the fee rate-setting process**. Florida has a statutory requirement that a licensed CPA serve on its Board. This CPA is also required to serve on the subcommittee with

jurisdiction over the rate-setting process. Financial and/or economic expertise helps establish a clear and robust approach to rate-setting.

- **Inclusion of automatic adjusters provides transparency and predictability to the process**. Formulaic methods for annual rate adjustments, in lieu of a formal tariff and fee rate hearing, may provide transparency, predictability, and stability to the rate-setting process. Automatic adjusters can include, for example, a multi-year moving average cost-of-living adjuster, such as the consumer price index, or another indicator per agreement among all parties. Automatic adjusters are currently in use in Maryland and Oregon, among other states. While no longer in use, the self-correcting tariff formula established in the 1996 and 2001 MOUs in Washington state provides another example of a formulaic, predictable approach to rate-setting.

Exhibit 16 summarizes tariff and fee rate-setting practices among select states and in comparison with Washington state. The process followed by the BPC is by far the most common, but there are several alternative approaches. For example, some states require the state legislature to approve rate changes; see California, Massachusetts, New York/New Jersey, Delaware, and Pennsylvania. A public utility commission is followed in Maryland, Virginia, and Oregon. Still in others—Florida and Louisiana—a separate entity, either as a subset of the state board (Florida) or a separate board (Louisiana), sets rates.

Washington is an outlier in requiring annual rate setting. Having established criteria for rate-setting written into statute and the use of automatic adjusters—the two bottom practices shown in **Exhibit 16**—while imperfect, do provide greater predictability and transparency into the rate-setting decision-making process.

Exhibit 16. Summary of Tariff and Fee Rate-Setting Practices Among Select States and Comparison with Washington State

	West Coast, Alaska & Hawaii						Northeast					Mid Atlantic					South Atlantic			Gulf Coast					Great Lakes‡
	WA	OR	AK	HI	CA*	CA (Other)†	ME	NH	MA	RI	CT	NY/NJ	DE	PA	MD	VA	NC	SC	GA	FL	AL	MS	LA	TX	
Rate Setting Entity																									
Federal Government																									✓
State Legislature									✓				✓	✓											
State Legislature (w/Board Recommendation)					✓							✓													
State Pilotage Board(s)/Commission(s)	✓		✓				✓			✓							✓	✓	✓		✓	✓		✓	
State Pilotage Commission Subcommittee																				✓			✓		
Public Utilities Commission or Similar		✓													✓	✓									
Other State Agency/Entity				✓				✓			✓			✓											
Private Contractual Agreement			✓			✓																			
Duration of Tariff/Frequency of Hearings or Review																									
Annual	✓																								✓
Between 1-5 Years		✓											✓							✓					✓
Greater Than 5 Years																									
As Needed		✓	✓	✓	✓										✓					✓					
Criteria for Consideration Described in Statute																									
Yes		✓	✓	✓	✓								✓		✓										✓
Automatic Adjustments/Multipliers Permitted																									
Yes		✓		✓	✓										✓										✓

** California only exercises this authority in the bays of San Francisco, San Pablo, and Suisun and the Sacramento and San Joaquin rivers; California does not require state-licensed pilotage in other state waters, including at the ports of Los Angeles and Long Beach.*
† All other pilot-served ports in California, including Ports of LA and Long Beach.
‡ Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin.

Best Practice: Public Utility Commission Model for Rate-Setting

The public utility commission (PUC) model for rate-setting is employed in three states with state compulsory pilotage programs: Maryland, Virginia, and Oregon. The benefits of the public utility commission model are summarized in **Exhibit 17** below.

Exhibit 17. Summary of Best Practices in the Public Utility Commission Model for Pilotage Tariff and Fee Rate-Setting

Washington State Pilotage System Finding	PUC Model Best Practice
Annual tariff and fee rate-setting is unnecessary	• Rate reviews occur on the initiative of stakeholders, following a structured process that includes a timeline and sequence, such as filing a petition and submission of evidence. • Evidentiary-based process, including operational definition of "fair, just, reasonable, and sufficient." • Rules on the minimum duration of a new rate, e.g., 18 months or 24 months.
There is no clearly defined methodology for the tariff and fee rate-setting process	• PUC staff and commissioners with expertise on rate-setting. • Evidentiary-based process that clearly delineates information required in considering a rate adjustment. • In Maryland, process has encouraged stakeholders to develop stipulation allowing for automatic adjuster (e.g., 5-year trailing average CPI) in lieu of full-scale rate hearing.
Data submission is not aligned with the tariff and fee rate-setting process	• PUC model follows a strict, enforceable timeline. • In Oregon, timeline is written into administrative code so that all parties are informed of process.
Tariff and fee rate-setting distracts from other important matters	• PUC model removes the tariff and fee rate-setting discussion from the state pilotage commission, allowing the latter to exclusively focus on safety, training, licensing, and other important matters.

Example: Maryland

In Maryland, the Maryland Public Service Commission (PSC) is charged with establishing pilotage fees.[38] The Maryland Board of Pilots is similar to the Washington State Board of Pilotage Commissioners in that it is charged with general oversight of pilotage in the state; selection, training, licensing, and continuing education of pilots; collection of licensing fees; safety; incident investigation; approving work rules; and taking disciplinary action against licensed pilots when necessary. However, unlike the vast majority of states with state-regulated, compulsory pilotage, Maryland separates the function of rate setting from these other functions.

Best practice: A board that votes on rate adjustments should have financial or some other described expertise and no conflict of interest

As previously mentioned, the Maryland Public Service Commission (PSC) establishes pilotage fees.[39] This Commission consists of the Chairman and four Commissioners, each appointed by the Governor with the advice and consent of the Senate (Public Service Commission of Maryland, 2017).

Best practice: There should be a defined, transparent process for pilotage tariff and fee rate-setting

The Maryland Legislature provides specific statutory guidance on pilotage fees and charges for pilotage services. These include, for example:

- The requirement that pilotage fees to be set at a "*just and reasonable rate.*"
- To "*give notice and hold a public hearing on each rate proposal.*"[40]
- The Commission is tasked with considering the following when determining a just and reasonable rate:
    - Draft, dimensions, and tonnage of the vessel piloted;
    - Difficulty and inconvenience of the particular service and the time and skill required to render the service;
    - Time required to render pilotage service at other United States ports and the fees and charges for the service;
    - Public interest in maintaining efficient and reliable pilotage service; and
    - Other factors relevant to the determination of a just and reasonable rate.

Best Practice: The tariff and fee setting process should include automatic adjusters, which help avoid the need for annual reviews

One of the "other factors" the Commission must consider is the Consumer Price Index. By Order No. 77555, issued January 16, 2002 (Association of Maryland Pilots, 2002), the Commission accepted a Stipulation & Agreement settlement that provides an annual adjustment to pilotage rates in Maryland

based on the most recent five-year preceding moving average change in the rate of general price inflation as measured by the Consumer Price Index (CPI-U) issued by the U.S. Department of Labor.

All pilotage fees and charges "*shall remain in effect until changed by the Commission*."[41] In recent years the only changes have been the aforementioned CPI-based annual adjustment.

Example: Oregon

The Oregon Board of Maritime Pilots[42] operates administratively under the state's *Public Utility Commission*.[43] The Board has authority to set rates for pilotage; however, when voting on rate increases, the voting threshold for a quorum increases from five to seven members (Fong, 2014).

Best practice: Set rates through a public utility commission process

The Oregon Board of Maritime Pilots (OBMP) is instructed by statute to "*fix, at reasonable and just rates, pilotage fees, extra fees for vessels in distress, fees for extraordinary pilotage services, fees for a licensee or trainee being carried to sea unwillingly and reimbursement for the return to station or for the detention of a licensee or trainee, except that pilotage fees shall not be less inbound or outbound on vessels, propelled in whole or in part by their own power*" (ORS 776.115 Powers and duties of board; rules; fees, 2015).

When rate hearings do occur, Oregon state statute instructs the OBMP to contract with the Public Utility Commission of Oregon for the use of an administrative law judge to conduct rate hearings (ORS 776.129, 2015). According to statute, "*the administrative law judge [ALJ] and the board may receive and consider recommendations made by the Oregon Business Development Department and the Port of Portland*" (ibid).

Hearings can last between 1-2 days to 9-10 days. A hearing is typically initiated by a pilotage group, with those opposing a proposed rate increase representing shippers and on occasion one or more ports. The hearing follows the same procedure as a utility rate hearing. There is a period of discovery when relevant documents, such as financial information, are requested. Testimony is primarily submitted in written form, though some witnesses are requested to supplement their written statements during the hearing.

The party petitioning for a rate change "*has the burden of proving by a preponderance of the evidence the legal sufficiency of the proposed changes*," per Oregon Revised Statute 183.450(2) and (5). For example, in a 2010 rate increase hearing the Columbia River Pilots (COLRIP) sought an increase in the tariff rate. As part of this petition they submitted affidavits or declarations from ten witnesses and 102 supporting exhibits. In his opinion, the administrative law judge "addressed each of the criteria set forth in the

statutes and regulations relative to the ratemaking process" and provided an opinion as to whether COLRIP had met its burden of proof (Oregon Board of Maritime Pilots, 2010, p. 4). Other affected stakeholders are also given the opportunity to provide a rebuttal during the hearing.

Best practice: Rate changes should not be required to occur annually

Any rate change must be in effect a minimum of two years. These rate changes may include, per statutory language, automatic adjusters to reflect changing economic conditions (ibid.). Since 1993, the consumer price index has been accepted as an appropriate cost of living adjustment factor.

Best practice: There should be well-established criteria for a rate adjustment

A decade ago the Oregon Board of Maritime Pilots shifted its process for determining pilotage rates for all three Oregon pilotage tariffs to a system of "*regular, formula-driven rate adjustments, thus making contested rate cases quite infrequent*" (Oregon Board of Maritime Pilots, 2017). According to the OBMP, this shift resulted in "*beneficial rate predictability and stability*" for both shippers and pilots. In 2016, the Oregon State Department of Justice advised the OBMP to renew period reviews of the tariff's performance (this review had been discontinued with the enacting of a formula-based rate adjustment and infrequent event of a contested rate hearing).

Best Practice: There should be automatic and non-contested tariff rate and fee adjustments

Oregon uses target net income (TNI) and target gross income (TGI) as factors in considering rate changes. Both terms are defined in statute. Ratemaking in Oregon includes automatic adjusters; in most cases these adjustments obviate the need for a formal rate hearing. Since the 1990s, the OBMP has used the consumer price index for the Portland-Vancouver metropolitan area as a cost-of-living adjustment (COLA) to automatically adjust the tariff. Moreover, in the case with the Columbia River Bar Pilots, the board uses changes in fuel prices to adjust the fuel surcharge for transport to and from vessels on a *quarterly basis*.

The OBMP is authorized to require maritime pilots undergo continuing education each year. Each September, pilot associations report the amounts spent on continuing education to the Board, which then adjusts and education-specific surcharge to allow for cost recovery the following year for each association.

Best Practice: Subject Matter Expertise on Rate-Setting

Subject matter expertise is critical (though not sufficient) to establishing the appropriate methodology and data requirements and submissions as part of a

rate-setting process. Examples of rate-setting expertise include the above-mentioned PUC model, where PUC staff and commissioners have experience in rate-setting in other industries and can extend methodologies, protocol, and process to pilotage tariff and fee rate-setting. These staff and commissioners may lack specific expertise and knowledge on maritime and pilotage matters, but this knowledge can be acquired.

Outside the PUC model the Florida Rate Review Committee requires the direct participation of a certified public accountant. This individual thus brings to the rate review process experience and expertise on financial matters directly relevant to a rate adjustment consideration.[44]

Best Practices: Clear and Transparent Process for Capital Expenses and Planning

Set-aside Fund for Future Capital Expenses: Maryland Maintenance & Replacement Fund

Maryland has established a Maintenance & Replacement Fund. A portion of the revenue generated by the tariff is used to capitalize and maintain a minimum balance in the Fund. This Fund is to only be used for the replacement and repair of the major equipment of the Association of Maryland Pilots. While "major equipment" is not defined in statute, the collection and expenditure of funds is subject to oversight by the Board of Pilots. The Board also determines the percentage of pilot fees collected by the Association that must be deposited in the Fund. While the Association does have some discretion in terms of how the Fund is actually managed, there are requirements related to the minimum fund balance. In addition, the Association must obtain written approval from the Board for any expenditure of funds.

Oversight of Major Capital Expenses: Oregon Transportation Oversight Committee

Nearly half of tariff revenues each year in the Columbia River Bar pilotage grounds are used to cover fixed expenses tied to their transportation equipment to and from vessels, including pilot boats and helicopters.[45]

A Transportation Oversight Committee—including pilots, industry, and representatives of the public at large[46]—reviews historic transportation costs and projections for the coming year with the intent to arrive at a consensus on an updated annual surcharge; in all but one year consensus has been reached.[47] When no agreement can be achieved, both sides are required to submit statements of their positions to the OBMP, which then decides the appropriate charge amount during the July meeting. The advent of this committee, according to one interviewee, significantly reduces the need for a full hearing.[48]

Example of Rate-Setting Best Practice in Other Industries: Washington State Utility and Transportation Commission

The Washington State Utility and Transportation Commission (UTC) is a quasi-judicial commission that provides economic regulations, consumer protection services, and some public safety responsibilities for railroad and intrastate pipeline infrastructure (Washington Utilities and Transportation Commission, 2016). The role of the UTC is to allow the utility industry to benefit from the efficiencies of monopolies, while providing economic oversight and substituting for market competition by providing "reasonable and just rates." (Washington Utilities and Transportation Commission, 2017).

Expertise and objectivity in rate-setting

Members of the Commission are technical experts rather than stakeholders in the rate-setting process. This combined with other features of the process ensure transparency and that the decisions made are not political.

The UTC is composed of three commissioners appointed by the Governor and confirmed by the Washington State Senate. The UTC is supported by 170 full-time equivalent (FTE) staff including accountants, economists, engineers, investigators, safety inspectors, attorneys, administrative law judges, consumer specialists, and administrative staff (Washington Utilities and Transportation Commission, 2016).

UTC staff ensures that each rate case receives a thorough review by an independent party outside of the stakeholder group requesting the rate change. Staff review each rate case and provide the Commission with recommendations on how to proceed. However, this process allows the petitioner for a rate change to also provide an argument for their rate case within the limitations of the rules and regulations of the process.

Rate-setting that follows a well-defined process

The set of rules and regulations set for the in the RCW and WAC, as well as UTC's internal policies provide clear direction to all parties for how the rate-setting process works. Each party knows their role and responsibilities and what content can and cannot be considered during the rate-setting process.

Any tariff filing that includes a request with more than a three percent change in the rate breaches the threshold for open meetings or formulaic rates and requires a general rate case proceeding. The general rate case proceeding is an intensive adjudicative process as outlined in the WAC and RCW, culminating with the Commission either approving or disapproving a rate change.

UTC rate-setting formulas

In addition to the adjudicative processes outlined in the RCW and WAC, the UTC has developed formulas to determine rates, and defines what elements can be included within the calculations of each rate. The basis for the rate is the revenue requirement of the company. Established formulas ensure that all parties understand and are required to submit specific information by which decisions will be made.

Effective Oversight of Marine Pilotage Activities

- Research did not identify a best practice with respect to oversight. The majority of state boards/commissions have similar membership with the interests of pilots, industry, and the public given ample consideration.
- The majority of state boards/commissions have similar mandates including safety; establishing licensing and training requirements; overall regulation of pilots; ensuring efficient and competitive movement of cargo; incident investigation; establishing workload and the number of pilots necessary within a specific region; and, in many instances establishment of tariffs and fees.
- The majority of state boards/commissions are nested within a specific state agency or otherwise receive in kind or other support from existing state agencies.

VII. Efforts Underway to Address Lack of Diversity Outside of Washington State

Unlike our tariff and fee rate-setting analysis, our research found no evidence of best practices in the area of increasing pilot diversity. That said, we believe there are many examples of initiatives to promote diversity in the pilotage pipeline, beginning as far back as early education and high school with a focus on raising awareness and interest in maritime as a career.

As such, this section presents notable examples of these initiatives. None of these practices meet our criteria of "best practices," but do present potential directions for the BPC and/or Legislature to pursue as part of a larger effort to promote increased diversity in the maritime industry.

This section begins with a review of the very limited initiatives underway by state pilotage commissions and state governments. Our purpose is to illustrate the very limited breadth of state initiatives in this area. We then discuss initiatives by *outside organizations*—including pilot associations, ports, and local school districts—throughout the pilotage pipeline to raise awareness and interest in the maritime industry and lower barriers to entry, including scholarship programs.

Efforts to Address Lack of Diversity Among State Pilotage Commissions and State Governments

State Board/Commission Initiatives

Our research indicates that few, if any state boards/commissions outside of Washington state are taking a proactive approach to the issue of lack of diversity. Most, if not all, states have anti-discrimination and sexual assault/sexual harassment policies in place. However, in most instances adherence to these policies represents the full extent of state board/commission attention to this issue. Having said that, several states, most notably Florida, have taken up the issue at the state level through the creation of mentoring and internship programs as well as through preferential hiring practices.

State Government Initiatives

The State of Florida created the **Minority Mentorship Program** to increase the diversity of pilot recruitment in the state. State law requires "*the pilot or pilots in a port shall establish a competency-based mentor program by which minority persons… may acquire the skills for the professional preparation and education competency requirements of a licensed state pilot or certificated deputy pilot.*"

State law further requires the eleven individual pilots' associations operating in the state to report annually on their diversity recruitment efforts. The Florida Harbor Pilots Association is the umbrella organization for the state's regionally based pilot associations. They note in their July 2017 Annual Report that of the 96 pilots (including at least five deputies) who currently serve the state's 14 deep-water ports, six pilots are minority persons as defined by statute. Three are female, and three are Hispanic American. By contrast, the number of former pilots that have left or retired in the last ten years included only one minority person.

State Policies on Preferential Hiring

The Florida Department of Business and Professional Regulation (DBPR) is the parent agency of the Board of Pilot Commissioners. Florida statute requires the Department to "*give consideration of minority and female status of applicants when qualifying deputy pilots, in the interest of ensuring diversification within the state piloting profession*."[49] This mandate to consider minority and female status appears to have had some success in raising the level of diversity amongst licensed state pilots in the state.

Efforts by Pilot Associations, Ports, and Other Stakeholders to Address Lack of Diversity in the Maritime Industry and Marine Pilotage

The initiatives below represent efforts by organizations other than state pilotage commissions. However, these programs point to opportunities for the BPC and related organizations to pursue in support of increased diversity within the pilotage pipeline.

Maritime Academy Scholarships by Pilotage Associations

Several pilot associations have established scholarships aimed at furthering minority attendance at one of the nation's seven maritime academies. San Francisco Bar Pilots (SFBP) provides financial support for California Maritime Academy students from underrepresented populations. The SFBP Pioneer Scholarship Program offers two $5,000 scholarships to students who show an "adventurous, ambitious and leading-edge approach to their studies". SFBP has also recently formalized an annual internship program for women and minority California State University (CSU) Maritime Academy cadets. SFBP includes information about these and other efforts in its annual report to the California Board of Pilot Commissioners

All four regional pilot associations under the Louisiana River Pilots Association have scholarship programs aimed at increasing educational opportunities for under-represented populations. These programs annually award a total of ten scholarships of $16,000 each, per student, for a total

annual expenditure of $160,000. Recipients of the most recent round of scholarships are attending maritime academies across the country. The program has resulted in an increase in diversity amongst Louisiana River pilots, who now count among their membership African-American and women pilots and apprentices.

Maritime Academy Scholarships by Non-Pilotage Organizations

The California State University Cal Grant program provides up to $5,472 per year to low- and middle-income students to help offset an average cost of attendance at the California State University Maritime Academy. It is very difficult to assess the impact of this program however. The Academy offers both "license track" and "non-license track" options to its students. Cadets who graduate from the license track majors often go on to maritime careers and may be included in future pilotage pools while those in the non-license track will most often go on to non-maritime careers. Information regarding the number of Cal Grant recipients in each of these respective tracks is not readily available.

Maritime Academy Diversity Programs

In addition to the Cal Grant program, CSU Maritime Academy also maintains a number of programs aimed at helping women or cadets of color succeed during and after their time at the Academy. Clubs such as the Asian Pacific Islander Club, Black Student Union (BSU), and the Caribbean Student Maritime Connection promote a diverse campus environment. The annual Women in Maritime Leadership Conference, active since 2012, focuses on supporting women in maritime, transportation, and related industries with STEM programming, career development opportunities, and leadership and networking opportunities. The Academy has also formed a Unity Council to help improve recruitment of diverse students and faculty, and to make the campus more welcoming for women and students of color.

High Schools and High School Programs

Nationally, several innovative high schools have emerged with a focus on maritime industry training and preparation. While pilotage is just one of many possible career tracks, these schools tend to expose a far more diverse pool of young people to maritime careers then have traditionally gravitated to the field.

The Urban Assembly New York Harbor School was founded in 2003 to provide a focused maritime education to students to prepare them for maritime careers. The Harbor School connects students with internships and prepares those students for attendance at one of the nation's maritime

academies. Nearly 500 students currently attend the school, with 63% qualifying for free or reduced lunches. The diversity level at Harbor School is high, with 52% of students identifying as Hispanic/Latino, 39% African-American, and only 7% white. Many Harbor School students continue on to the State University of New York (SUNY) Maritime College.

The Indy 7—a former U.S. Navy launch and utility boat for the USS Independence (CV-62) aircraft carrier—was the Harbor School's first vessel and is used to train students in boat handling, docking, navigation, and engine maintenance.

The Maryland Maritime Industries Academy (MIA) provided inner city Baltimore students with a maritime curriculum developed in consultation with the International Maritime Organization and many other maritime stakeholders. The program thrived initially, with over 400 students attending from 2012 to 2014. Over 97% were African-American. Unfortunately, the Baltimore City School Board closed the school in 2016. Students enrolled at the time we able to complete their maritime education. One stakeholder who was involved with the school noted that a Foundation has been created in an attempt to raise the necessary funds to reinvigorate the program. While these efforts are ongoing the outlook is not promising.

In other parts of the country, efforts are underway to establish maritime education programs and curriculums within existing high schools. In Florida, the Propeller Club of Port Canaveral is working closely with a local high school in Rockledge, Brevard County, to implement a formalized Maritime Studies Program. Rockledge has a diverse student body with, in 2016, minority enrollment of 43%.

The Port of Houston partnered with local stakeholders in the maritime industry, academia, chambers of commerce, and economic alliances in 2009 to form the Port of Houston Partners in Maritime Education Program

(PHPMEP). The program is focused on creating maritime academy programs in area high schools. According to the PHPMEP, six high schools in four school districts adjacent to the Houston Ship Channel now offer students curriculum focused on maritime careers and skills (including piloting and deck operations). The instructors have all previously worked at the Port. Private sector maritime employers have supported the program, providing funds, speakers, and field trips to maritime workplaces. Diversity at the six high schools is high—within the Houston Independent School District, the Jack Yates High School enrollment was 91% African-American in 2015, and 9% Hispanic / Latino; the Stephen F. Austin School for Maritime Studies in the same district had a 95% Hispanic / Latino enrollment, and 4% African-American in 2015.

Early Education Events and Outreach

The Port of Seattle has partnered with the Seattle Maritime Academy (SMA), Goodwill, and other stakeholders to create the Youth Maritime Collaborative to raise awareness of the accessibility of living wage jobs with upward mobility in the maritime industry. They offer events and activities to get area high school students involved in the Port of Seattle's internship programs. These aim to broaden the pipeline from high schools, through the SMA, and into the maritime industry using lessons learned from the aviation and technology industries.

In Brevard County, Florida, the Port Canaveral Authority created the J.U.M.P. (Jackson's Ultimate Mentoring Program) six years ago to provide area middle school students with one-on-one mentorship opportunities with Port staff and contractors. The Port also hosts an annual career day for area schools.

VIII. Recommendations to Improve Pilotage in Washington State

In this section we review our findings and provide specific recommendations designed to address these findings and improve pilotage in Washington state.

Increasing Diversity in Pilotage

Finding #1: Lack of data on gender and ethnicity

The lack of formal data collection on gender and ethnicity complicates efforts to evaluate performance on meeting diversity goals in pilotage. What little information exists is anecdotal at best. This is both a local and national problem. Without reasonable and adequate data collection on the diversity of applicants and trainees, the Board of Pilotage Commissioners will be ill equipped to: 1) establish a baseline; and 2) track progress on improving diversity.

Recommendation #1

Develop voluntary data collection protocol to track gender and ethnicity among pilotage exam applicants, trainees, and licensed pilots.

Who

- BPC

Resource Requirements

- Could include modification of existing application to allow for self-identification.
- Low-cost, voluntary electronic survey.

Expected Outcomes

Ability to evaluate progress and impact of subsequent efforts to improve diversity among applicants, trainees, and licensed pilots

Finding #2: Evidence of potential subjectivity and bias in training and evaluation

Past allegations of subjectivity and bias have led to increased awareness of the need to be more inclusive and welcoming of women and minorities. Efforts underway include the establishment of the Joint Diversity Committee, the "Train the Trainer" program, and hiring of outside experts to review the exam and training program.

Recommendation #2

- Expand and continue to improve upon efforts to minimize subjectivity and eliminate bias in the application, training, and licensing process.

Who

- BPC

Resource Requirements

- Resources to support Joint Diversity Committee.
- Further expansion of the "Train-the-Trainer" Program.
- Continued support for outside expert for review and consultation.

Expected Outcomes

Efforts will minimize the risk that otherwise qualified candidates are not licensed due to explicit or inadvertent discrimination and/or bias in the application, training, and selection process.

Finding #3: Lack of diversity endemic to the Maritime industry

The pool of qualified pilotage applicants directly comes from the maritime industry, which itself struggles with diversity across all sectors. Multiple factors contribute to this lack of diversity across the industry, including:

- Traditional avenues of recruitment
- Nepotism in some areas
- Challenging workplace environment
- Perceptions and stereotypes about gender and ethnicity

Organizations and federal agencies such as the U.S. Maritime Administration have also highlighted the lack of awareness among women and minority youth of the many opportunities within the maritime industry and a major challenge.

This challenge is beyond the scope and capabilities of any one agency or organization. Instead, there is need for a more holistic approach leveraging resources and expertise, including both the private sector and government.

Recommendation #3

Establish a statewide Task Force on Maritime Sector Workforce Development, with a specific focus on increasing diversity. The Task Force should include, at a minimum:

- Dept. of Commerce, Dept. of Transportation/WSF, State Workforce Board, OFM Asst. Director for HR.

- Pilots, ports & terminal operators, shipyards, tug & barge, shipping companies, recreational & commercial fishing, recreational boating, organized labor, marine transportation, research & technology, education, training providers, and youth programs.

The Task Force should develop timeline and deliverables upon convening, and can coordinate with existing efforts already underway. The Task Force not intended to replace Joint Diversity Committee.

Who

Legislature, in coordination with Governor's Maritime Sector Lead.

Resource requirements

Staff to support Task Force

Expected Outcomes

A statewide strategy for a more inclusive maritime workforce, resulting in a more diverse pool of potential pilots.

Analytically Driven Tariff and Fee Rate-Setting

Finding #4: the current tariff and fee rate-setting process does not have the benefit of a well-defined methodology, data submission and review, and rate-setting expertise.

Two options are presented below for improving the tariff and fee rate-setting process in Washington state. The preferred option (A) recommends the transfer of rate-setting authority from the BPC to the Washington State Utility & Transportation Commission (UTC). This is based on findings from states that use a public utility commission model for pilotage tariff and fee rate-setting.

However, a second set of recommendations is presented for improving rate-setting if the Legislature elects to keep this authority within the BPC.

Recommendation #4 (Preferred option)

Transfer rate-setting authority to the Washington Utilities & Transportation Commission (UTC)

- This is the most effective action Legislature can take to improve the tariff and fee rate-setting process in Washington state. However, this recommendation will require legislative changes to Pilotage Act.

- Each of our findings with respect to rate-setting (to be discussed in detail under "Option B") can be addressed through the structure, rules, expertise, and rigor of the UTC process.

Extensive research on similar models (Maryland, Oregon, and Virginia) point to the benefits of the public utility model. These benefits include:

- Commissioners do not have direct material interest in rate cases with the UTC model
- UTC assessment on Pilots to cover costs, recoverable in tariff
- All parties will benefit from a process that is rules-based, enforceable, predictable, rigorous, and transparent

However, if rate-setting authority remains within the BPC, there are a number of challenges that must be addressed in order to achieve an outcome that is satisfactory to stakeholders and is in the best interest of the citizens of Washington state. We describe these challenges and proposed solutions in the sections to follow.

Alternative Recommendations (#5 through #8): Improving a tariff and fee rate-setting authority that remains within the BPC

If the Legislature elects to retain tariff and fee rate-setting responsibilities within the BPC, the following recommendations are proposed to improve the current process.

Finding #5: Annual tariff and fee rate-setting unnecessary

The Washington State Pilotage Act requires the BPC to "annually fix the pilotage tariffs for pilotage services." This annual requirement incentivizes stakeholders to continuously advocate, either explicitly or implicitly, for an adjustment. Rate adjustment advocacy throughout the year in turn serves as a distraction and limits discussion on other important items under BPC jurisdiction, such as safety. Research indicates annual tariff and fee rate-setting is rare. Many states set rates on an "as needed" basis, and the duration of new rates of two or more years is also common. Stakeholders representing both shippers and pilots both agree an annual process is too frequent.

Recommendation #5

Revise the RCW such that tariff and fee rate-setting reviews occur only at the request of stakeholders. As part of this, define (in WAC) "economic and financial hardship" and establish an evidentiary, petition-based process for tariff and fee rate-setting adjustments. This process should include, at a minimum:

- Notice to file a petition
- Petition filing and timeline for data submission

Who

- Legislature (statutory changes) and BPC (administrative rule changes)

Resource Requirements

- Existing staff time

Expected Outcomes

Rate hearings will reflect economic necessity rather than arbitrary timelines. Stakeholders will be incentivized to arrive at a mutually beneficial solution outside the hearing process.

Finding #6: No clearly defined methodology for tariff and fee-rate setting process

The Board makes decisions on tariff adjustments without the benefit of an established and agreed upon methodology nor consistent indicators and variables to be considered. Such indicators and variables could include: pilot compensation; retirement benefits; operating expenses; and capital expenditures.

Lack of staff capacity to provide objective analysis results in stakeholders often providing data interpretation.

Recommendation $6

- Hire a staff analyst or consulting economist to develop and administer an evidentiary-based process and include data analysis.
- Consider the use of an automatic adjuster, which in several states contributes to greater predictability for stakeholders.

Who

- Legislature and BPC

Resource Requirements

- Additional resources to support full- or part-time staff or consulting economist.

Expected outcomes

A more predictable and transparent tariff and fee rate-setting process based on defined methodology and independent and objective analysis.

Finding #7: Data submission not aligned with tariff and fee rate-setting process

There is a lack of consistency, clarity, and timeliness in the submission of data necessary to make informed rate adjustment decisions. There is also no established enforceability of a timeline for data submissions.

Recommendation #7

Include language in WAC requiring Pilots and/or Associations to submit:

- Quarterly assignment-level data on revenues generated by tariff and fee charge AND vessel type; and
- Current year budget and future budget projections.

No rate adjustment may be considered if the timeline and submission requirements are not met

Who

- BPC

Resource Requirements

Electronic password-protected database of invoices may be one option for gathering and inventorying this information, and could be paid for through a surcharge.

Expected Outcomes

Adopting a fixed, enforceable timeline will result in better alignment between data submission and decision-making on tariff and fee rate adjustment petitions.

Finding #8: Significant uncertainty regarding capital expense financing

The BPC currently does not benefit from a defined, rigorous, and enforceable process for evaluating pilotage capital expenses (e.g., replacement of a pilot boat, personal pilotage units). As part of this, there is no timely submission of key data, funding plans, and other relevant information needed to make informed decisions on financing requirements. It is thus difficult for the BPC to track tariff and/or fee performance necessary to finance these expenses.

Recommendation #8

- As part of petition-based adjustment process, Pilots must submit a funding plan, including capital projections
- Establish a Transportation Oversight Committee within the BPC

- The Transportation Oversight Committee would review submitted requests for tariff and fee-based financing of capital expenses
    - Provides approval or denial recommendation to the BPC
    - Committee should include both maritime and financial subject matter expertise
- Consider using a one-time or defined-period surcharge rather than a general tariff increase
    - Include binding funding plan with an expiration date for temporary adjustment

Who

- Legislature and BPC

Resource Requirements

- Existing staff

Expected Outcomes

Transparency and predictability regarding capital expense financing.

Effective Oversight of Marine Pilotage Activities in Washington State

Finding #9: BPC Composition may be not be optimal with respect to tariff and fee rate-setting

The current BPC composition may not be optimal with respect to tariff and fee rate-setting due to the direct material interests of pilots and shippers. Pilots and industry have equal representation on the BPC. Predictably, these commissioners often vote in their own material self-interest on matters of tariff and fee rate-setting, leaving the remaining Commissioners to cast deciding votes. There is a risk state agency representatives may elect to abstain from rate-setting votes, leaving the three remaining Commissioners to cast deciding votes. These Commissioners represent the public interest and environmental considerations, but may not have relevant financial expertise.

Recommendation #9

As previously noted, the preferred alternative is to transfer tariff and fee rate-setting authority to the UTC. However, if the Legislature decides to retain rate-setting authority within the BPC, we believe the following recommendations will mitigate against this sub-optimality:

- Evidentiary, petition-based process
- Clearly defined methodology and timeline;

- Increased staff capacity sufficient to provide unbiased, objective analysis.

We do not provide any specific, additional recommendations outside those already provided related to addressing diversity and tariff and fee rate-setting.

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APPENDIX

Appendix A. Tariff-Setting Formula in 2001 MOU Between Puget Sound Pilots, Puget Sound Steamship Operators Association, and Polar Tankers Inc.

The formulas and variables used in the calculation of the joint tariff proposal, as described in the Joint Proposal for Tariff Adjustments Puget Sound Pilotage District, May 10, 2001, included:

- **Vessel Traffic Formula.** This formula determined the projections for vessel traffic, and was used as an input into calculating the number of pilots required to be funded by the tariff.

$$\begin{matrix}\textit{Actual Pilot}\\ \textit{Assignments}\\ \textit{Prior Year}\end{matrix} + \left(50\% \times \left(\begin{matrix}\textit{Projected Pilot}\\ \textit{Assignments}\\ \textit{Prior Year}\end{matrix} - \begin{matrix}\textit{Actual Pilot}\\ \textit{Assignments}\\ \textit{Prior Year}\end{matrix}\right)\right) = \begin{matrix}\textit{Projected Pilot}\\ \textit{Assignments}\\ \textit{Current Year}\end{matrix}$$

- **Maximum Safe Assignment Level.** This is set in consideration of state and federal regulations as well as safety factors. In 2001, the agreed upon maximum safe assignment level was 149 assignments per pilot. This variable is used in the calculation of the minimum number of pilots required together with the vessel traffic formula.
- **Minimum Number of Pilots Required.** This factor is determined by dividing the Projected Pilot Assignments for the Current Year by the Maximum Safe Assignment Level, plus one additional pilot for the PSP Presidency position. The MOU also outlined that if the resulting minimum number of pilots was less than the current number of pilots, then the tariff would fund the current number of pilots, assuming that the number would correct over time through attrition.

$$\left(\begin{matrix}\textit{Projected Pilot}\\ \textit{Assignments}\\ \textit{Current year}\end{matrix} \div \begin{matrix}\textit{Maximum Safe}\\ \textit{Assignment}\\ \textit{Level}\end{matrix}\right) + \begin{matrix}\textit{PSP}\\ \textit{President}\end{matrix} = \begin{matrix}\textit{Minimum Number of}\\ \textit{Pilots Required}\end{matrix}$$

- **Target Net Income (TNI)**. TNI for the initial year of the MOU was set through negotiations. Each subsequent year the TNI was adjusted to allow for calculations and benchmarking. TNI for subsequent years was adjusted by the Seattle-Tacoma-Bremerton Area Consumer Price Index (CPI), and after 2001, a one percent increase was also added. The result was TNI for the current year.

$$\begin{matrix}\textit{TNI}\\ \textit{Prior Year}\end{matrix} \times \left(1 + (\textit{CPI} + 1.00\%)\right) = \begin{matrix}\textit{TNI}\\ \textit{Current Year}\end{matrix}$$

- **Tariff Change Calculation.** This formula brings together the above calculations as well as data tracked through the prior year. Variables are:
  - **A** = TNI for prior year.
  - **B** = Total Pilotage Revenue, from PSP audited financial statements for the prior year.
  - **C** = Operating Expense, from PSP audited financial statements for the prior year.
  - **D** = Other Expense, from PSP audited financial statements for the prior year. The elements of other expense are expressly set by the MOU and include individual out-of-pocket allowances and transportation expense.
  - **E** = Excluded Expenses, from PSP audited financial statements or details provided by accountants. Excluded expenses were negotiated through the MOU and include American Pilots' Association dues; Master, Mates and Pilots dues; and lobbyist expenses.
  - **F** = Recapture Amounts of Previously Approved Tariff Expense, from PSP audited financial statements or details provided by accountants. These recapture amounts were negotiated through the MOU and include expenses previously approved by the Board for funding through the tariff. As part of the negotiation, PSP is required to submit a report on these expenses through an independent accountant. The independent accountant report from 2001 indicates that this expense is a line item credit for a new pilot boat; however, the tariff calculation for 2001 indicates that the line item for recapture is zero.
  - **G** = The projected increase or decrease in State fees and/or taxes. The MOU uses the CPI for an adjustment to cover for any projected increases or decreases in State fees and/or taxes.
  - **H** = The first-year costs of any major capital or other extraordinary expenses.
  - **Net Pilotage Revenue.** Net pilotage revenue is a component of the tariff change calculation.

$$B - (C + D) + E - (F + G + H) = \frac{Net\ Pilotage}{Revenue}$$

  - **I** = Minimum Number of Pilots Required or the number of active pilots, whichever is greater.
  - **J** = Compensatory Duty Days, expressed as a decimal of a pilot, or the number of Compensatory Duty Days accrued by pilots at the time of their retirement divided by 365 days.
  - **K** = CPI for the prior year.

- **L** = Added TNI adjustment of 1.00%, applicable for the years 2001, 2002, 2003, 2004 and 2005.

$$\frac{A - \left(\frac{Net\ Pilotage\ Revenue}{(I + J)}\right)}{A} + K + L = Tariff\ Change$$

Appendix B. Recent Agendas of the Joint Diversity Committee

August 2016: Review of Committee Goals

- Support trainees in Washington pilotage program.
- Identify potential candidates for the next pilotage exam likely given in 2019.
- Look at possible barriers to entry to pilotage.
- Discuss the training program and ways of making it more accessible.
- Monitor and learn from diversity activities in other pilotage districts.
- Consider strategies necessary to build a diverse pool of interested candidates.
- Encourage youth and young adults to consider maritime careers.

January 2017: Committee Progress

- BPC working on the BPC Pilot Training Program, including enhancing the objectivity of the trainee evaluation form.
- Ideas for recruitment: initiating vessel rides and presentations for minorities, internships, and conference outreach to women.
- BPC to augment existing policies on Anti-Discrimination and Sexual Harassment to cover trainees (BPC PSP Joint Diversity Committee, 2017).

June 2017: Committee Progress

- Continued work on BPC training program improvements, including a training handbook with updated Anti-Discrimination and Anti-Harassment policies, and a new grievance process added into the BPC agreement with the trainee.
- Exploration of the mariner career pathway to becoming a pilot, to broaden recruitment practices and diversity – internships and mentorships to be established, with outreach starting in high schools, trade schools, and maritime academies.
- Discussion of methods to increase awareness and dedicated funding for PSP BPC Joint Diversity Committee activities, including whether BPC funds can be used for scholarships, and how to attract other sources of private funds (BPC PSP Joint Diversity Committee, 2017).

Appendix C. Interviews

In preparing this report, the authors spoke with nearly 40 individuals representing the following organizations:

- Alaska Board of Marine Pilots
- American Pilots Association
- Association of Maryland Pilots
- Board of Pilot Commissioners for the Bays of San Francisco, San Pablo, and Suisun
- Board of Pilot Commissioners of the State of New York
- Charleston Branch Pilots Association
- Columbia River Bar Pilots
- Cruise Lines International Association – North West & Canada
- Florida Harbor Pilots Association
- Grays Harbor Pilot Former BPC Commissioner
- Hawaii Pilots Association
- Holland America
- International Organization of Masters, Mates & Pilots
- Marine Institute of Technology Graduate Studies/Pacific Maritime Institute (MITAGS-PMI)
- Maryland Board of Pilots
- Maryland Maritime Association
- Massachusetts Maritime Academy
- Northwest Seaport Alliance
- Oregon Board of Maritime Pilots
- Organization of Black Maritime Graduates
- Pacific Merchant Shipping Association
- Port of Houston Partners in Maritime Education
- Puget Sound Pilots Association
- San Francisco Bar Pilots
- Seattle Maritime Academy
- U.S. Maritime Administration
- Virginia Board for Branch Pilots
- Washington State Board of Pilotage Commissioners
- Washington State Department of Commerce
- Washington State Department of Transportation Ferries Division

Appendix D. Public Utility Commissions that Set Pilotage Rates

Maryland

Rate Setting & Distribution of Fees Collected

The Maryland Board of Pilots is similar to the Washington State Board of Pilotage Commissioners in that it is charged with general oversight of pilotage in the state; selection, training, licensing, and continuing education of pilots; collection of licensing fees; safety; incident investigation; approving work rules; and taking disciplinary action against licensed pilots when necessary. However, unlike the vast majority of states with state-regulated, compulsory pilotage, Maryland separates the function of rate setting from these other functions.

The Maryland Public Service Commission (PSC) is charged with establishing pilotage fees. Vessels employing a pilot (even if voluntarily) must pay the full pilotage fee. In the event that full payment is not received, there is a provision whereby the licensed pilot who has provided pilotage fees shall have a lien on the vessel and its tackle, apparel, and furniture for the amount of unpaid pilotage fees due, enforceable in a court of competent jurisdiction. In the event that a vessel subject to compulsory pilotage fails to employ a licensed pilot to provide pilotage services, the law holds "*the vessel and its master, owner, charter, and agent jointly and severally liable for payment of the full pilotage fee as if a licensed pilot had been employed*." And finally, all pilotage fees shall be paid to the Association of Maryland Pilots as the collection agent for its members.

As collection agent of pilotage fees, the Association of Maryland Pilots has several financial (and other) obligations described in the statute. These obligations may be broadly categorized as follows and will be described in a subsequent section:

- Obligation to inactive pilots;
- Obligation to pay Association expenses;
- Obligation to replace and repair major equipment of the Association;
- Obligation to active pilots; and
- Obligation to the Maryland Board of Pilots and the Maryland Public Service Commission.

Obligation to Inactive Pilots

The Association must maintain a list of its members who have chosen to be included on the list of inactive pilots, presumably these are mostly retired and disabled pilots. Criteria for inclusion on this list are described in §11-504(a) and (b). Inactive pilots may be entitled to full or reduced payment depending on the length of membership in the Association and other factors.

To be eligible for full payments as an inactive pilot the pilot must have been, for at least 25 years, a member in good standing of the Association of Maryland Pilots and licensed by the Board to provide pilotage for vessels of unlimited draft. To be eligible for reduced payments as an inactive pilot the pilot must have been, for at least 20 years, a member in good standing of the Association of Maryland Pilots and licensed by the Board to provide pilotage for vessels of unlimited draft.

There are also provisions in this section of the statute that address pilots who may qualify for payment as inactive pilots due to disability. And finally, there are provisions that address pilots who were previously licensed as docking masters on or before September 30, 2004. This is in reference to the period of time when docking masters were regulated separately from Bay pilots.

The methodology for calculating such payments are described in §11-505(b) and (c). To briefly summarize, each inactive pilot is entitled to a specific percentage of what an active, licensed pilot would make within a given month. On a monthly basis the Association must account to the Board the amount of payment due to eligible inactive pilots as well as provide for the distribution of said funds on behalf of the Board. The remaining pilotage fees collected in that month shall be used to fulfill the remaining financial obligations of the Association in the order described below.

Obligation to Pay Association Expenses

Association expenses are not defined in statute, however §11-505(a)(2)(i) does require these expenses to be paid after payment to inactive pilots.

Obligation to Replace and Repair Major Equipment

Per §11-505(a)(2)(ii), the Association then must set aside funds to the Maintenance & Replacement Fund established under §11-506(a). This Fund is to only be used for the replacement and repair of the major equipment of the Association. While "major equipment" is not defined in statute, the collection and expenditure of funds is subject to oversight by the Board of Pilots. The Board determines the percentage of pilot fees collected by the Association that must be deposited in the Fund, as described in §11-506(b). While the Association does have some discretion in terms of how the Fund is actually managed as described in §11-506(f), there are requirements related to the minimum fund balance described in §11-506(d). In addition, the Association must obtain written approval from the Board for any expenditure of funds as noted in §11-506(b).

Obligation to Active Pilots

After fulfilling the aforementioned obligations as defined in statute, the Association may then distribute any remaining funds to its members in accordance with the bylaws of the Association, as noted in §11-505(a)(2)(iii).

Obligation to the Board of Pilots & the Public Service Commission

As previously mentioned the Association must account to the Board, on a monthly basis, the amount of funds available for distribution to inactive pilots. The Association must also distribute such funds to eligible inactive pilots. The Association must also submit an annual audited financial statement of payment to pilots and an annual financial audit of the Maintenance and Replacement Fund, as required by §11-508(a)(1) and (s), respectively. And finally, §4-303(e) provides that the Maryland Public Service Commission shall impose an assessment on the Association of Maryland Pilots based on assessment guidelines contained in §2-110. This assessment is necessary to recover the costs related to the work of the Commission and the Office of People's Counsel.

As previously noted, the Maryland Public Service Commission (PSC) establishes pilotage fees, per §11-502(a) and §4-303(a). This Commission consists of the Chairman and four Commissioners, each appointed by the Governor with the advice and consent of the Senate (Public Service Commission of Maryland, 2017). The Maryland General Assembly established the Commission in 1910 to regulate public utilities and for-hire transportation companies doing business in Maryland.

Within its statutory authority the Commission is empowered to hear and decide matters related to, among other things, rate adjustments (ibid.). With respect to pilotage fees and charges for pilotage services, Maryland provides specific statutory guidance. §4-303(a) requires pilotage fees to be set at a "*just and reasonable rate*" defined, in §4-101. The Commission is further directed under, §4-303(b), to "*give notice and hold a public hearing on each rate proposal*." And finally, under §4-303(c) the Commission is tasked with considering the following when determining a just and reasonable rate:

- draft, dimensions, and tonnage of the vessel piloted;
- difficulty and inconvenience of the particular service and the time and skill required to render the service;
- the time required to render pilotage service at other United States ports and the fees and charges for the service;
- the public interest in maintaining efficient and reliable pilotage service; and
- other factors relevant to the determination of a just and reasonable rate.

It is worth noting that one of the "other factors" the Commission must consider is the Consumer Price Index. By Order No. 77555, issued January 16, 2002 (Association of Maryland Pilots, 2002), the Commission accepted a Stipulation & Agreement settlement that provides an annual adjustment to pilotage rates in Maryland based on the most recent five-year preceding moving average change in the rate of general price inflation as measured by the Consumer Price Index (CPI-U) issued by the U.S. Department of Labor. It is also worth noting the process for setting pilotage rates in Maryland does not appear to be as contentious as in other states. The Association of Maryland Pilots notes on its website *"since 1984 the Association of Maryland Pilots and the maritime industry have agreed upon pilotage rates. Those agreed rates were approved by the PSC"* (Association of Maryland Pilots, 2017).

And finally, §4-303(f) notes that all pilotage fees and charges "*shall remain in effect until changed by the Commission*." In recent years the only changes have been the aforementioned CPI-based annual adjustment.

Important Takeaways

- Interviews with the Maryland Board of Pilots, Association of Maryland Pilots, and Maryland Maritime Association (representing shippers) all expressed satisfaction with the current rate-setting system.
- By using a public utility commission model for rate-setting, the administrative and legal costs borne by stakeholders create an incentive to arrive at an agreement outside a formal hearing process.

Virginia

Pilotage activities are primarily regulated by the Board of Branch Pilots ("Board"), as described in Chapter 9 of Title 54.1 of the Virginia Code. The Board is responsible for the many of the same duties as those established in Washington state statute, such as a pilot examination, the licensing of pilots, and pilot suspensions. However, unlike many of the states, the setting and enforcing of rates and other charges related to pilotage is under the authority of the State Corporation Commission, a separate government agency.

The role of the State Corporation Commission with respect to pilotage rates if described in §54.1-918. The State Corporation Commission administers and enforces a wide range of rules and regulations relating to businesses in Virginia; these include, in addition to pilotage and public utility rate setting, business licensing, and the administration of laws for the regulation of corporations.

In ruling on pilotage rates, the Commission is given access to the two immediate preceding years of financial data from individual pilots who "have

no organized association, and of any association of pilots who have an organized association whose rates are to be fixed by the Commission."

Oregon

There are four pilotage grounds established in statute under the jurisdiction of the Oregon Board of Maritime Pilots (ORS 776.025, 2015). These include: 1) the Columbia River Bar; 2) Columbia River and Willamette Rivers; 3) Coos Bay; and 4) Yaquina Bay.[50] Coos Bay and Yaquina operate under the same tariff and licensing requirements.

Structure

Unlike Washington state, the Oregon Board of Maritime Pilots operates administratively under the state's *Public Utility Commission*. The Oregon Board of Maritime Pilots (OBMP) is a nine-member board appointed by the Governor and approved by the Senate. Three of the members must be public members, one of which must be the chairperson. Three members must be pilots from the various pilotage groups in Oregon, one from Columbia river, one from Columbia river bar, and one from either Coos Bay or Yaquina Bay. The final three members must operate or represent commercial oceangoing vessels. The Board has authority to set rates for pilotage; however, when voting on rate increases, the voting threshold for a quorum increases from five to seven members (Fong, 2014).

Rate-setting process

The Oregon Board of Maritime Pilots is instructed by statute to "[f]ix, at reasonable and just rates, pilotage fees, extra fees for vessels in distress, fees for extraordinary pilotage services, fees for a licensee or trainee being carried to sea unwillingly and reimbursement for the return to station or for the detention of a licensee or trainee, except that pilotage fees shall not be less inbound or outbound on vessels, propelled in whole or in part by their own power" (ORS 776.115 Powers and duties of board; rules; fees, 2015).

The considerations in determining a rate change are similar to those outlined in Washington state. These considerations include: 1) length and net tonnage of the vessels to be piloted; 2) the difficulty and inconvenience of the particular service and the skill required to render it; 3) the supply of and demand for pilotage services; 4) the public interest in maintaining efficient, economical and reliable pilotage service; and 5) other factors relevant to the determination of reasonable and just rates (ibid).

Period of rate enforcement and adjustment. Unlike in Washington state, however, any rate change must be in effect a minimum of two years; this contrasts with Washington state law directing the BPC to review tariff and fee rates on an annual basis. These rate changes may include, per statutory

language, automatic adjusters to reflect changing economic conditions (ibid.). Since 1993, consumer price index has been accepted as an appropriate cost of living adjustment factor.

Criteria for rate adjustment. A decade ago the Oregon Board of Maritime Pilots shifted its process for determining pilotage rates for all three Oregon pilotage tariffs to a system of "regular, formula-driven rate adjustments, thus making contested rate cases quite infrequent" (Oregon Board of Maritime Pilots, 2017). According to the OBMP, this shift resulted in "beneficial rate predictability and stability" for both shippers and pilots. In 2016, the Oregon State Department of Justice advised the OBMP to renew period reviews of the tariff's performance (this review had been discontinued with the enacting of a formula-based rate adjustment and infrequent event of a contested rate hearing).

Oregon Administrative Rules (856-030-0000 Ratemaking -- Substantive Elements, 2017) detail the appropriate factors for consideration by the OBMP in determining a rate change. These include:

- Number of pilot positions needed and fair compensation for services and expenses.[51]
- Evidence of the compensation of pilots in pilotage associations serving Puget Sound and San Francisco.
- In determining compensation for expenses, the Board shall consider evidence of appropriate expenses related to the provision of pilotage services as shown by records of the pilots' group, and verified by an independent audit.
- In receiving evidence on any financial or economic issue, the Board or its hearings officer may require parties to submit independently audited or other financial records in order to hold all parties to a comparable standard of proof.

Oregon Administrative Rules details the schedule for submitting a petition for a rate change. This includes:

- **Notice of intent to petition must be filed at least 90 days prior to petitioning the OBMP**. A copy must be served on each pilot association, any association representing the interests of vessel owners or operators and any other party that participated in the most recent past rate proceedings. *The notice shall contain an explanation of the proposed change, including a description of each new cost item not previously approved by the Board in a rate proceeding, any increase in a cost item previously approved by the Board where the increase is greater than five (5) percent over the amount expended during the prior calendar year, and any requested change in pilot compensation and benefits*.

- **Response to notice from any intended opposition within 20 days after receipt of the first-filed notice of intent to petition**. Opposition may include other pilot associations, associations representing the interests of vessel owners or operators, and other parties that participated in the most recent past rate proceedings. These individuals or groups shall file their response to the notice, including a description of any intended opposition, or notice of intent to petition for a change on another pilotage ground.
- **Formation of a rate subcommittee**. Upon receipt of a notice of intent to petition, the Board's members representing the public shall be formed as a rate subcommittee.
- **Rate subcommittee meeting within 45 days of first filing of notice of intent to petition with all respondents**. The purpose of the meeting is to clarify the issues and begin exploration of possible means of narrowing and simplifying the issues. The rate subcommittee shall encourage the interested parties to utilize mediation or other alternative dispute resolution processes to narrow and simplify issues as much as possible.
- Prior to filing of a petition, the rate subcommittee may convene or participate in such additional meetings with interested parties as it deems in the best interests of the Board and the public. The rate subcommittee may, if requested by the interested parties, participate in any mediation or other alternative dispute resolution process that is arranged by the interested parties.
- The Board may, in its discretion, waive any or all of the provisions of this rule.

Automatic and non-contested tariff rates and fees

Oregon uses target net income (TNI) and target gross income (TGI) as factors in considering rate changes; both terms and their meaning are written into statute. Ratemaking in Oregon includes automatic adjusters; in most cases these adjustments obviate the need for a formal rate hearing. Since the 1990s, the OBMP has used the consumer price index for the Portland-Vancouver metropolitan area as a cost-of-living adjustment (COLA) to automatically adjust the tariff. Moreover, in the case with the Columbia River Bar Pilots, the board uses changes in fuel prices to adjust the fuel surcharge for transport to and from vessels on a *quarterly basis*.

The OBMP is authorized to require maritime pilots undergo continuing education each year. Each September, pilot associations report the amounts spent on continuing education to the Board, which then adjusts and education-specific surcharge to allow for cost recovery the following year for each association.

Capital costs. Nearly half of tariff revenues each year in the Columbia River Bar pilotage grounds are used to cover fixed expenses tied to their transportation equipment to and from vessels, including pilot boats and helicopters.[52] A transportation oversight committee, including pilots, industry, and representatives of the public at large,[53] reviews historic transportation costs and projections for the coming year with the intent to arrive at a consensus on an updated annual surcharge; in all but one year consensus has been reached.[54] When no agreement can be achieved, the both sides are required to submit statements of their positions to the OBMP, which then decides the appropriate charge amount during the July meeting. The advent of this committee, according to one interviewee, significantly reduces the need for a full hearing.[55]

Retirement

Oregon's system is not based on a defined benefit pension, unlike most other pilotage services in the U.S. Each year, a share of each pilots' TGI includes a retirement amount generated by the tariff; pilots may then manager their own retirement savings independently or through an association. The Board sets aside an amount each year generated from the tariff to account for retirees and those who accrued retirement benefits prior to the switch away from a defined benefit pension system.

Use of administrative law judge

When rate hearings do occur, Oregon state statute instructs the OBMP to contract with the Public Utility Commission of Oregon for the use of an administrative law judge to conduct rate hearings (ORS 776.129, 2015). According to statute, "the administrative law judge and the board may receive and consider recommendations made by the Oregon Business Development Department and the Port of Portland" (ibid).

Any party petitioning for a rate change "has the burden of proving by a preponderance of the evidence the legal sufficiency of the proposed changes," per Oregon Revised Statute 183.450(2) and (5). For example, in a 2010 rate increase hearing the Columbia River Pilots (COLRIP), as the petitioning party seeking an increase in the tariff rate, submitted affidavits or declarations from ten witnesses and 102 supporting exhibits. In his opinion, the administrative law judge "addressed each of the criteria set forth by in the statutes and regulations relative to the ratemaking process" and provided an opinion as to whether COLRIP had met its burden of proof (Oregon Board of Maritime Pilots, 2010, p. 4). Other affected stakeholders are also given the opportunity to provide a rebuttal during the hearing.

Hearings can last between 1-2 days to 9-10 days, as was the case in 1999. A hearing is typically initiated by a pilotage group, with those opposing a proposing rate increase representing shippers and on occasion one or more

ports. The hearing follows the same procedure as a utility rate hearing. There is a period of discovery when relevant documents, such as financial information, is requested. Testimony is primarily submitted in written form, though some witnesses are requested to supplement their written statements during the hearing.

After reviewing evidence and exhibits, the ALJ will prepare a proposed order, typically after 2-3 weeks. The proposed order is submitted to the OBMP, which may then hear comments from lawyers all sides and consider any changes to the proposed order. A final order is then issues by the Board, typically with only small changes to the proposed version, with an exhibit detailing how rates will change and when effective.[56]

Key Takeaways

- Contested ratemaking hearings in Oregon are not common, due to several procedural and institutional mechanisms such as automatic adjusters and a separate committee for transportation equipment costs in the case of the Columbia River Bar pilotage grounds.
- Target net income (TNI) and target gross income (TGI) are written into statute as key factors in determining the tariff.
- *Automatic adjusters*. Each year, a cost-of-living adjustment (COLA) is used to automatically adjust TNI and TGI. In the case of the Columbia River Bar Pilots, quarterly adjustments to the fuel surcharge are made, either up or down, to reflect changes in fuel prices.
- *Adjustments for capital costs*. For the Columbia River Bar, a transportation oversight committee reviews capital costs outside regular Board hearings, and in most cases arrives at a consensus on the surcharge for transportation equipment maintenance and investment each year. The committee include two pilots, two representatives from industry, and two members of the public at large.
- *Retirement*. Several years back Oregon switched away from a defined benefit pension program. Today, each pilot's TGI includes an amount each year for retirement savings. An amount generated from the tariff each year is used to pay for current retirees and active pilots who accrued benefits under the old system; these payments decline each year due to fewer retirees under the previous system.
- Oregon statute and rules do not prohibit the inclusion of retirement benefits in tariff and fee rate-setting procedures. Retirement expenses are presented to the OBMP as part of their evidence for increases in operating expenses requiring a rate increase.
- Administrative rules explicitly require all rate change petitions to be submitted according to a prescribed, defined schedule—not rules adopted by the board, but codified in administrative rules.

- Rate reviews occur only when a petition is submitted—there is no annual hearing. However, there are periodic reviews of the tariff's performance.
- Among other considerations, target net and gross income (TNI and TGI) are written into state administrative rules as criteria in considering a rate change.
- Rate changes must take effect for a *minimum of two years*.
- When hearings do occur, they are presided over by an administrative law judge who reviews evidence and prepares a proposed order that is then considered by the Board.
- As a mini agency nested within the state's public utility commission, the OBMP has access to many of the same resources as the larger commission, including an administrative law judge who will preside over rate hearings. The hearing process follows the same procedures as a utility rate change hearing.

Appendix E. Profiles of Separate Pilotage Rate Review Entities

Florida

The State of Florida regulates pilotage under Title XXII ("*Ports and Harbors*") of the 2017 Florida State code. Chapter 310 provides specific language governing Pilots, Piloting, and Pilotage.

Statutory authorizing language notes that piloting *"is an essential service of such paramount importance that its continued existence must be secured by the state and may not be left open to market forces."* Rate-setting is governed by the state and will "*seek to provide pilots with reasonable revenues, taking into consideration the normal uncertainties of vessel traffic and port usage, sufficient to maintain reliable, stable piloting operations.*" And finally, the law explicitly states that, *"pilots may not unilaterally determine the pilotage rates they charge. Such pilotage rates shall instead be determined by the Pilotage Rate Review Committee."*

The Board of Pilot Commissioners is established within the Florida Department of Business & Professional Regulation. The Board has broad authority including (but not limited to) training and licensing of pilots, incident investigation, taking disciplinary action (if necessary), and rate setting. Its membership includes ten (10) members:

- Five (5) active, state-licensed pilots
- Two (2) members actively involved in a professional or business capacity in the maritime industry, marine shipping industry, or commercial passenger cruise industry
- One (1) member shall be a Certified Public Accountant with a minimum of 5 years' experience in financial management

    - Shall not be involved in or have any financial interest in the piloting profession, the maritime industry, marine shipping industry, or the commercial passenger cruise industry
- Two (2) members shall be citizens of the state
    - Shall not be involved in or have any financial interest in the piloting profession, the maritime industry, marine shipping industry, or the commercial passenger cruise industry
- The Pilotage Rate Review Committee is a subset of the Board of Pilot Commissioners, seven of the ten members of the Board, excluding 3 of the active pilots from rate-setting activities

The sole function of the Pilotage Rate Review Committee is to consider rate change requests. The Committee may not consider a rate change request for any port that has had a rate change within the preceding 18 months. And finally, "*any pilot, group of pilots, or other person or group of persons whose substantial interests are directly affected by the rates established by the Committee may apply to the Committee for a change in rates*."

When submitting a rate change request there is a certain amount of documentation that must accompany the request. The requirements vary by requestor. In the case of a request brought by a pilot or group of pilots, the application must include the following:

- Consolidated financial statement
- Statement of profit or loss
- Balance sheet prepared by the CPA for the pilot or group of pilots
- All relevant information (fiscal and otherwise) on the piloting activities within the affected port area.

The Committee must investigate and determine whether the requested rate change "*will result in fair, just, and reasonable rates*." and "*give primary consideration to the public interest*." This section also directs the Committee to consider the following:

- Determination of average net income of pilots in the port, including the value of all benefits derived from service as a pilot. Net income refers to total pilotage fees collected in the port, minus reasonable operating expenses, divided by the number of licensed and active state pilots within the ports
- Reasonable operating expenses of pilots
- Pilotage rates in other ports
- Amount of time each pilot spends on actual piloting duty and the amount of time spent on other essential support services
- Prevailing compensation available to individuals in other maritime services of comparable professional skill and standing understanding

that overall compensation accorded pilots should be equal to or greater than that available in comparable maritime employment
- The impact a rate change may have on individual pilot compensation and whether the change will lead to a shortage of licensed state pilots, certificated deputy pilots, or qualified pilot applicants
- Projected changes in vessel traffic
- Cost of retirement and medical plans
- Physical risks inherent in piloting
- Special characteristics, dangers, and risks of a particular port
- Any other factors the Committee deems relevant
- The Committee may take into consideration the consumer price index (or any other comparable economic indicator). However, this section prohibits reliance on CPI (or comparable) as the sole factor in fixing pilotage rates

Louisiana

The *Louisiana Pilotage Fee Commission* (LPFC) was created as an act of the State Legislature in 2004 to establish rates and fees charged by licensed river pilots on the Mississippi and Calcasieu rivers. This move by the State Legislature was in response to sharp criticism from shippers following a decade that saw pilot fees triple while commerce on the river was falling. (Louisiana River Pilots' Association, 2017)

Commission membership consists of four representatives nominated by industry associations, four representatives of the Louisiana River Pilots' Association (LRPA), and three at-large appointees. Commission members serve terms consistent with that of the governor appointing them.

The LPFC consists of four river pilot associations: The Associated Branch Pilots of the Port of New Orleans; the Crescent River Pilots; the New Orleans and Baton Rouge Port Pilots; and the Lake Charles Pilots.

Three at-large members sign and maintain a statement of neutrality and shall not be a family member of, nor have a financial or business relationship with, a member or with any entity represented on the Commission or on the Board of Louisiana River Pilot Review and Oversight. (L.A. R.S. Title 34 Section 1121)

Rate Setting

Louisiana law establishes that the Commission has *"exclusive authority to fix and establish reasonable and just fees and rates"* and Subsection B(1) states that these fees and rates shall provide for a detailed list of expense categories *and fair average annual compensation for a ship pilot, in comparison to regulated ship pilotage in other United States ports."*

Regarding pilot pensions, the Commission has established a Pension Surcharge based on deadweight tonnage. This surcharge is adjusted quarterly, based upon actual and projected pension costs plus the work to administer the pension surcharge funds, divided by the total forecasted DWTs for the vessels to be piloted in the next quarter. (Associated Branch Pilots of the Port of New Orleans, 2017)

While Subsection B(1) establishes all costs and expenses to be covered by pilotage rates and fees, Subsection C(1) of Louisiana Revised Statute Title 34 Section 1122 directs the Commission to consider the following when determining rates and fees:

- The length, draft, dimensions, and tonnage of the vessels to be piloted
- The difficulty and inconvenience of the particular service and the skill and additional expertise required to render it
- The public interest in maintaining safe, efficient, and reliable pilotage service
- The piloting time required; the distance traveled of the vessels to be services; the travel time required and distance traveled to and from vessels; the method of travel and travel cost required to and from the vessels; the time devoted by pilots to making themselves available when needed; the time required to be on station or on call while both on and off the station; the length of time duty requires the pilot's absence away from home; the difficulty of the particular service including working conditions; risk factors of the route; inconvenience and living conditions; the skill and additional experience required to render the particular service; the length of the training; experience, or apprenticeship program; and the number of trips the pilot is required to ride light.

Subsection D of Louisiana Revised Statute Title 34 Section 1122 describes the process for requests made to change pilotage fees and rates. Any requests to the Commission for action shall be filed and publicly noticed, and a hearing will be held at which interested parties may present arguments and evidence. Subsection D(9) states that while the Commission may approve a proposed increase in fees and rate by a majority vote, if the Commission *"does not permit the proposed increase to be put into effect prior to its decision, the proposed increase shall nevertheless go into effect, and shall remain in effect unless and until it reaches a full and final decision disallowing the increase."*

Recent Lawsuits and Disputes

In October 2015, Louisiana's chemical industry filed suit to block raises for pilots that would boost their average annual pay more than $50,000 over four years, to reach $473,692 by 2019. The chemical association's stance puts it at

odds with the Louisiana Maritime Association, which negotiated the agreements with the pilot groups in an effort to end cost-of-living increases, equalize base pay, create predictability and require reports on pilots and their work time (Griggs, 2016).

In this latest dispute, the chemical association alleges the Commission violated "a multitude" of state laws when it approved the latest fees, including the absence of a public hearing, which the association requested. The Louisiana Maritime Association's membership represents 90 percent of the companies that pay the pilots' fees.

The maritime group had argued that annual cost-of-living increases were unnecessary because river pilots were already making well above their base pay. From 2009 to 2014, the Crescent River Pilots made anywhere from $21,000 to $108,000 more than their target salary. From 2011 to 2014, the Bar Pilots made $25,000 to $44,000 more than their base pay, the association said. Legal proceedings on this matter continue to be protracted and a May 2017 public hearing—scheduled to be held before a three-member panel appointed by the Louisiana Pilotage Fee Commission—has been delayed (Keefe, 2017).

Appendix F. State Pilotage Tariff and Fee Rate-Setting model

New York

History and Structure

The Board of Commissioners of Pilots (the "Board") is a public agency, created by the New York State Legislature, Chapter 467, Laws of 1853, as amended to provide for the competitive selection, training, licensing and regulation of State pilots who navigate oceangoing vessels which operate on New York State waters and waters of concurrent jurisdiction in Connecticut and New Jersey.

The Board currently issues three types of legislatively authorized State pilot licenses, each covering a separate portion of New York state navigable waters. Jurisdiction, originally as to Sandy Hook Pilots at the Port of New York in 1853, was extended to Hell Gate pilots by Chapter 283, Laws of 1928; extended to Hudson River pilots by Chapter 676, Laws of 1959; and extended to Long Island Sound-Block Island Sound pilots by Chapter 942, Laws of 1971.

The New York State Pilotage Districts under the responsibility of this Board are:

- The Port of New York/New Jersey District

- The Hudson River District (Port facilities from Yonkers to Albany-Rensselaer)
- Long Island and Block Island Sound District

Additionally, the Board maintains regular contact and cooperative working relationships with:

- New Jersey Marine Pilot and Docking Pilot Commission
- The Connecticut Department of Transportation
- The Connecticut Pilot Commission
- New York State Division of Military and Naval Affairs/New York Naval Militia.
- U. S. Coast Guard Sector New York, Captain of the Port of New York and Captain of the Port Sector Long Island Sound
- USCG Marine Safety Operations Divisions
- The Port Authority of NY/NJ. (Board of Commissioners of Pilots of the State of New York, 2017)

The Board consists of six members. The governor, the temporary president of the state Senate, and the Speaker of the Assembly each appoint one commissioner; two members are elected by representatives of marine insurance companies on the board of underwriters of New York City; and the sixth member is appointed by the governor from among members of the staff of the Albany port district commission. At least four the six commissioners must have been licensed ship officers, and the remaining two must have a minimum of five years of experience in the maritime industry. No member may be a pilot or a past pilot, and all commissioners serve a two- year term. (Kircher, 2017)

The Board holds weekly public meetings to maintain close oversight of the State pilotage system and operations. Board members attend additional meetings, hearings, seminars, and conferences on pilotage and navigational safety related subjects with maritime industry, state and federal agency representatives.

In 2016, there were 76 active Sandy Hook pilots serving the Port of New York/New Jersey, with two assigned to the Hudson River. The Hudson River Pilots Association has three Full Branch and two Deputy Pilots working on the Hudson River. Northeast Marine Pilots has seven Full Branch Pilots licensed to work the waters of the Long Island Sound and Block Island Sound. Five Sandy Hook Pilots are also licensed in the Long Island Sound/Block Island Sound as part of the Joint Pilot Rotation System implemented between the states of New York and Connecticut. (Board of Commissioners of Pilots of the State of New York, 2017, p. 9)

Rate Setting

The Board's authority to recommend pilotage rates to the Legislature for vessels arriving at or departing from the Port of New York/New Jersey as contained in Section 87, Paragraph 6 of the Navigation Law, expired in 1995. The Board retains authority to establish intermediate for other services, as well as to review and establish surcharges for:

- Sandy Hook Capital Construction Fund (reviewed annually) and Sandy Hook Pension Fund (reviewed quarterly)
- Hudson River Pilot Station and Communications Fee (reviewed annually) and Hudson River Pension Surcharge
- Long Island/Block Island Sound pilot boat fuel surcharge (reviewed quarterly)

Pilotage Fees are established by the State Legislature under authority of the New York State Navigation Law. In 1999, the Legislature enacted variable rate surcharges which provide for the cost recovery of certain operating cost expenditures for pilot boats, pilot stations and communications equipment on the Hudson River. In 2000, the Legislature began to authorize multi-year general tariff increases for vessels bound to and from sea in the Port of New York/New Jersey and the Hudson River. In 2012, legislation for a five-year adjustment was introduced for the Port of New York/New Jersey and was passed during that year's legislative session and signed by the Governor, becoming effective on January 1, 2013.[57]

Pursuant to N.J.S.A. 12:8-24.1, the rates charged by the New Jersey licensed Maritime Pilots are to be the same as those charged by New York licensed Maritime Pilots. These rates are first passed by New York Legislature and then subject to approval of the New Jersey Maritime Pilot and Docking Pilot Commission. (The New Jersey Maritime Pilot and Docking Pilot Commission, 2015, p. 4)

Pension Funds

In 2015, the New York Navigation Law was amended in order to establish a pension fund for Hudson River Pilots. The amendment created the Hudson River Pilots Surcharge Board, which determines the rate of the surcharge necessary to fund retirement benefits for active Hudson River pilots. The rate for the first sixty months was set by legislation.[58] (Board of Commissioners of Pilots of the State of New York, 2017)

This Surcharge Board consists of four members—the President of the Board of Commissioners of Pilots of the State of New York; the President of the United New York Sandy Hook Pilots; the President of the Board of Commissioners of Pilots of the State of New Jersey; and the President of the United New Jersey Sandy Hook Pilots. If there is a deadlocked vote, a fifth

member shall be appointed by the other four members, from a list submitted by the American Arbitration Association. In cases when the Surcharge Board handles matters of the capital expense fund, an additional member, appointed by the Governor to represent the interests of the shipping industry, shall serve on the Board. (American Pilots' Association, 2017, p. 12)

California (Bays of San Francisco, San Pablo, and Suisun)

The Board of Pilot Commissioners for the Bays of San Francisco, San Pablo, and Suisun (Board or BOPC), licenses and regulates up to 60 pilots who guide ships of 750 gross tons or greater in the Bays of San Francisco, Monterey and tributaries to ports in Stockton and Sacramento. The Pilots are organized for business operational purposes as the "San Francisco Bar Pilots."

History and Structure

The Board was created by the first legislative session of the new state of California in 1850 and has been serving continuously ever since. While the Board originally existed as a state commission without inclusion in the Governor's cabinet structure, in 2009 it became housed as a department of the California Transportation Agency. The Agency Secretary, a cabinet member of the Governor, exercises general oversight and supervision over the Board. The Board's expenses are paid for by industry via surcharges on pilotage fees and not by state or local taxes.

The Board consists of seven members appointed by the Governor and one ex-officio member as follows:

- Two Board-licensed pilots
- Two industry representatives, one from the tanker industry and one from the dry cargo industry
- Three members of the public at-large, who are neither pilots nor work for companies that use pilots
- The Secretary of the California Transportation Agency, serving as an ex officio, non-voting member

All members except the Agency Secretary are appointed subject to confirmation by the Senate. Board members serve four-year terms and may be reappointed for one additional term. The public members come from a variety of backgrounds, usually with some expertise in business, finance or government.

The Board does much of its work through committees that often include non-Board members. These committees are advisory and hold public meetings to gather evidence, develop consensus, and make recommendations to the Board. The Board retains ultimate authority to decide matters that come

before it. The Board meets monthly in San Francisco, and all meetings are noticed and open to the public. (Board of Pilot Commissioners for the Bays of San Francisco, 2015).

Rate Setting

Charges for pilotage services are set by the California Legislature, upon recommendation of the Board. Unlike Washington state, all rates must be approved by the Legislature as an additional step following a Board decision. Pilotage rates are set by statute codified at Chapter 5 of Division 5 of the Harbors and Navigation Code, beginning with Section 1190. Factors to be considered by the Board in preparing its recommendation to the Legislature on pilotage rates include, but are not limited to, the following:

- *Costs of Providing Pilot Services*;
- *Net Return to Pilots Sufficient to Attract and Hold Qualified Pilots.* In determining this issue, the Board may consider the level of qualifications and number of applicants meeting minimum qualifications for its pilot trainee training program, the number and circumstances of pilots resigning before their eligibility for statutory retirement benefits;
- *Cost of Living Index.* In assessing the adequacy of the net return to pilots, the Board will consider, as one factor, the change in the annual average, seasonally unadjusted consumer price indices between the last rate hearing and the most recent 12-month period for which such data is available from the U. S. Department of Commerce, Bureau of Labor Statistics;
- *Rates Charged for Comparable Services in Other Ports*. "Comparable services" means pilotage from sea to dock in ports with generally similar geographic and hydrographic parameters, vessel traffic in density and in size and type of vessels, number of vessel movements, length of transit, number of pilots, pilot work load and relative difficulty of pilotage and hazards encountered;
- *Income Paid for Comparable Services*. Evidence of pilot income and expenses in other ports shall be accompanied by the cost of living differential between those ports and the San Francisco Bay Area for the period for which the pilot income and expense data applies if such differential information is available in the public record;
- Methods of Determining Rates in Other Ports;
- Economic Factors Affecting Local Shipping;
- Volume of Shipping Traffic;
- Number of Pilots Available;
- Risk to Pilots; and
- Changes in Navigational and Safety Equipment/Pilot Support Activities.

The Board recognizes that, in recent years, there have been substantial changes in training requirements placed on pilots, in regulations which pilots must implement, and in the complexity and size of vessels which increases the professional demands on pilots. The Board also recognizes that pilots have provided services beyond the navigation of vessels. Such services are referred to as "pilot support activities." Changes in those pilot support activities that are necessary to providing pilot service may be considered in determining the appropriate pilotage rate. (Chapter 5 of Division 5 of the Harbors and Navigation Code, Section 1190, 2001)

Current Bar Pilotage Rates

As of April 1, 2017, the following rates are in effect for the San Francisco Bar Pilots Association:

- *Basic Bar Pilotage rate* (also known as *mill rate*) per high gross registered ton is 92.43 mills ($.09243), and $10.26 per draft foot of the vessel's deepest draft and fractions of a foot pro rata, pursuant to Section 1190(a)(1). The minimum charge for bar pilotage will be $662 for each vessel piloted plus the following additional charges.
- *Pilot Pension Plan Surcharge*, authorized by Section 1165, is 24.96 mills ($.02496) per high gross registered ton for each vessel piloted. This portion of the total mil rate is calculated quarterly for the adjustment of tonnage and any changes in the number of pensioners.
- *Pilot Boat Surcharge*, authorized by Section 1190(a)(1)(B), is 2.62 mills ($.00262) per high gross registered ton for each vessel subject to the bar pilotage fee described above.
- *Board Operations Surcharge*, authorized by Section 1159.1 is 3 percent of all pilotage fees as per the direction of the State Board of Pilot Commissioners.
- *Pilot Continuing Education Surcharge*, authorized by Section 1196, is $5.00 per move per the State Board of Pilot Commissioners.
- *Pilot Trainee Surcharge*, authorized by Section 1195, is $20.00 per move per the State Board of Pilot Commissioners. (Long, 2017)

Criteria for Rate Adjustment

If either the ship owners or the pilots want to change the pilotage rates, the Board of Pilot Commissioners for the Bays of San Francisco, San Pablo, and Suisun holds public hearings on the matter. Based on the information gathered in those hearings, the Commission makes a pilotage fee rate recommendation to the Legislature. That recommendation is considered along with other evidence when either the pilots or a ship owner finds a legislator willing to sponsor a bill containing changes to the pilotage rates.

The most recent attempt to increase pilotage rates was denied by California lawmakers in September 2015. The bill, AB 1432, had asked the legislature

for a 10 percent pay increase, because the group performs a "critical public service." However, the California State Senate refused to vote on the issue and moved it to the Senate Inactive file. The Pacific Merchant Shipping Association (PMSA) offered several compromise proposals to the Bar Pilots during the legislative process but was rebuffed. This was the third time in the last five years that the San Francisco Bar Pilots had tried and failed to have rate increases passed by the Legislature. (San Francisco Business Times, 2015)

Appendix G. Washington State Public Utility and Transportation Commission

Public utilities in Washington are regulated by the Washington Utilities and Transportation Commission, as created by RCW 80.01.010. The UTC is a quasi-judicial commission that provides economic regulations, consumer protection services and some public safety responsibilities for railroad and intrastate pipeline infrastructure (Washington Utilities and Transportation Commission, 2016). The role of the UTC is to allow the utility industry to benefit from the efficiencies of monopolies, while providing economic oversight and substituting for market competition by providing "reasonable and just rates." (Washington Utilities and Transportation Commission, 2017).

Composition of the Public Utility and Transportation Commission

Washington state law requires that the UTC be composed of three commissioners, who are appointed by the governor and confirmed by the senate. Commissioners are appointed for a term of six-years. The chair of the commission is appointed by the governor. RCW 80.01.010 requires that the commission be politically balanced, "not more than two members of said commission shall belong to the same political party." The UTC is supported by a dedicated staff of 170 full-time equivalents, which are composed of accountants, economists, engineers, investigators, safety inspectors, attorneys, administrative law judges, consumer specialists and support staff (Washington Utilities and Transportation Commission, 2016).

Rules and Regulations

This commission is quasi-judicial, in that it conducts its rate-setting responsibilities through an adjudicative process. RCW 80.01.040 gives the UTC ratemaking responsibilities for regulating "the rates, services, facilities, and practices of all persons engaging within this state in the business of supplying any utility service or commodity to the public for compensation." Each rate filing is assessed for its level of impact and the exact procedure each case must follow, as outlined in the rules and codes of WAC 480. Major

cases, according to the RCW, must be done in conformance with RCW 34.05, the Administrative Procedure Act. This process involves formal evidentiary hearings, discovery, limitations on ex-parte contact and judicial review (Washington Utilities and Transportation Commission, 2017). The specific codes that determine how different processes are outlined in Washington Administrative Code 480, in particular WAC 480-07, which includes procedural rules, and 480-80, which has rules for tariffs and contracts.

The rules and regulations that outline how the UTC conducts its regulatory responsibilities are designed to ensure that the process is fair, transparent, and follows the rules of due process. Additionally, due to the judicial aspect of the UTC's proceedings precedence informs how the law is interpreted. For example, the PSE General Rate Case, Docket UE-090704, Final Order 11 helps define the "fair, just, reasonable and sufficient" requirement in RCW 80.28.010 for UTC established rates. The requirement means "fair to the customer and to the company's owners, just in the sense of being based solely on the record developed in the proceeding following principles of due process of law; reasonable in light of the range of possible outcomes supported by the evidence; and sufficient to meet the needs of the company to cover its expenses and attract necessary capital on reasonable terms."

Rate-Setting Process

In order to comply with the rules of rate-setting the UTC and staff conduct a variety of different processes, depending on specific circumstances. Staff at the UTC have several avenues by which to set rates: general rate cases, which are reserved for major proceedings like rate requests by Puget Sound Energy; open meetings which cover smaller and less impactful requests; formulaic rates; and tariffs which cover an entire industry.

Any tariff filing that includes a request with more than a three percent change in the rate breaches the threshold for open meetings or formulaic rates and requires a general rate case proceeding. The general rate case proceeding is an intensive adjudicative process as outlined in the WAC and RCW. UTC regulatory staff review in detail the filings for the general rate cases, at which time they are separated from the Commission and UTC policy staff by an ex-parte wall. The regulatory staff then litigate against the company in the general rate case. These general rate cases can take more than a year to complete, culminating with the Commission either approving or disapproving the rate.

Rate cases that are determined to be less impactful and do not meet general rate case thresholds can go to an open meeting. Twice each month the UTC has an open meeting process, where tariff findings are presented to the Commission for approval. There are three options for action, no action where the finding can move forward without action, concurrence which requires an

order by the Commission, or they appear on the regular agenda which involve presentations by the company, presentations and recommendations by staff. Regular agenda items can either be approved or disapproved by the Commission.

UTC Rate-Setting Formulas

In addition to the adjudicative processes outlined in the RCW and WAC, the UTC has developed formulas to determine rates, and defines what elements can be included within the calculations of each rate. The basis for the rate is the revenue requirement of the company. The revenue requirement is equal to the expenses plus the "rate base" plus federal income taxes. The "rate base" is defined as the rate of return multiplied by the difference of the company's original cost and accumulated depreciation. Within the "rate base" certain additions and deductions are allowable, such as deferred assets like storm damage; working capital; deferred liabilities such as decommission costs and deferred taxes; and advances for construction. The revenue requirement is then allocated across each customer class served by the company proportionate to the projected load requirement for each class. This revenue requirement by class is divided by the estimated kWh load for the class, to determine a per kWh cost. The rates are then designed from the cost per kWh, with a basic charge and a volumetric charge. (Washington Utilities and Transportation Commission, 2017)

Pros and Cons of the UTC Process

According to UTC staff the processes set forth in the RCW and WAC have both benefits and drawbacks. Some of the proceedings can be very time and resource intensive, as they follow the strict rules of the Administrative Procedure Act. However, these proceedings are highly transparent, all discussion of the facts are part of the public record and are conducted in a public setting. The ex-parte wall that restricts contact between participants of the proceeding can be a burden; however, it is essential to the transparency that all parties count on for the procedure to function. Additionally, the make-up of the Commission means that the UTC are technical advisors rather than stakeholders themselves.

Key Takeaways

The UTC has several features that could be translated into a pilotage rate-setting process, delineated below:

- Members of the commission are technical experts rather than stakeholders in the rate-setting process. This combined with other features of the process ensure transparency and that the decisions made are not political.

- The set of rules and regulations set for the in the RCW and WAC, as well as UTC's internal policies provide clear direction to all parties for how the rate-setting process works. Each party knows their role and responsibilities and what content can and cannot be considered during the rate-setting process.
- Dedicated staff at the UTC ensure that each rate case receives a thorough review by an independent party, outside of the stakeholder group requesting the rate change. These staff review each rate case and provides the commission with recommendations on how to proceed with each case. However, this process allows for the rate-seeker to also provide an argument for their rate case within the limitations of the rules and regulations of the process.
- An emphasis on transparency throughout the UTC process means that all recommendations and arguments are publicly available. There is an *ex-parte* wall that separates UTC staff from the commission, ensuring that the proceedings before the commission are fully transparent to the public.
- Following a formal set of rules, regulations and procedures, particularly relating to evidence and what can and cannot be included within the rate-setting process ensures that all parties have the same set of information and follow the same rules. Additionally, established formulas ensure that all parties understand and are required to submit specific information by which decisions will be made.

[1] According to the Washington State Board of Pilotage Commissioners, "[f]or the purposes of work allocation, an assignment is considered to commence when a pilot is assigned a vessel and concludes upon the pilot's arrival at the pilot station on an outbound assignment or upon completion of travel for an inbound vessel (or upon Cancellation)." (Washington State Board of Pilotage Commissioners, 2015)
[2] Excluding some of the Great Lakes states. States with pilotage commissions include: Alabama, Alaska, California (bays of San Francisco, San Pablo, and Suisun and the Sacramento and San Joaquin rivers), Connecticut, Delaware, Florida, Georgia, Hawaii, Louisiana, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, and Washington.
[3] These pilots have Coast Guard master licenses with federal endorsements, but are not state licensed.
[4] The federal pilot endorsement does not certify a person's competence to perform marine pilot services. The U.S. Coast Guard's view of the role the federal pilot endorsement is intended to play was perhaps best summed up in comments by Rear Admiral Henry Bell, then Chief of the Coast Guard's Office of Merchant Marine Safety, at a 1979 conference. "This is precisely the philosophy behind the federal license. It is not intended to guarantee, in any way, that the holder can walk aboard, and perform like a first-class pilot. It does not guarantee that he is capable of doing anything at all.…[a]ll the license does is get a man in the door. It allows him to say, 'Yes, I have met the minimum standards.'" Admiral Bell went on to say, "To date, it has never been the government's intention to try to make the license reflect competence…. The federal licensing program is not intended to achieve the ends that many of the state pilots' associations are designed to achieve for their own people in their own area" (The National Research Council, Marine Transportation Board, 1979, pp. 113-114).
[5] The Board's authority is described in Chapter 88.16 RCW, and rules are contained in WAC 363-116. Criteria for selection of commissioners is described in RCW 88.16.10, while time and place of meetings and supporting personnel are described in WAC 363-116-110 and WAC 363-116-060.
[6] Notes on the data presented in **Exhibit 5**: 1) There may be some additional females at too early a stage in the licensing program to be counted by the state or group as a pilot or pilot trainee; and 2) in addition to the current pilots listed above, there have been 3 female pilots who have recently retired after a long career and with full pension benefits—1 in Oregon (Columbia River Bar Pilots), 1 in California (San Francisco Bar Pilots), and 1 in Texas (Sabine Pilots). One other female pilot, in Portland, Maine, died of cancer while an active pilot.
[7] These two were regarding the boat fee coupled with tonnage rate reduction, and the minimum tonnage charge approach to avoid further increases in high tonnage vessel pilotage costs.
[8] The large increase in the tariff in 2006 can at least in part be associated with a large increase in compensation among California (bays of San Francisco, San Pablo, and Suisun and the Sacramento and San Joaquin rivers) pilots, which created upward pressure on other pilotage districts to raise rates and resulting compensation.
[9] Based on the tariff rate formula, if TNI was greater than actual net income per pilot in the prior year, the percentage difference would be added to the proposed tariff rate change. Conversely, if TNI was below actuals, this would result in a negative adjustment to the current year tariff rate. See Appendix A for a detailed discussion.

[10] "Zone" in this context refers to a category of distance, not an actual physical region. For example, "Zone III" refers to all vessel movements of between 31 and 50 miles. See Appendix B for a complete list of zones, LOAs, and corresponding rates.
[11] Data provided via email from the Washington State Board of Pilotage Commissioners.
[12] "[I]ssued by the United States coast guard or Canadian deck and engine officers with Canadian-issued certificates of competency appropriate to the size of the vessel."
[13] The maximum gross tonnage for exemption was previously 500 gross tons.
[14] Notes: according to PSP by-laws, amounts necessary for payment of benefits under the Puget Sound Pilots Trust Contract of 1952, the Puget Sound Pilots Retirement Agreement of 1978 and the Amended Retirement Program of Puget Sound Pilots are deducted and paid to the designated beneficiaries prior to distribution of income to current pilots. Individual Business Expense (IBE) includes the provision paid pilots for disability insurance, annual physical exam, Anacortes subsistence and lodging, and business communications.
[15] An earlier version of this plan called for a 1.25% benefit for each year of service, adopted at the December 1987 Board of Pilotage Commissioners tariff hearing. This was later changed to 1.5% based on an agreement between the PSP, ARCO, and the Puget Sound Steamship Operators Association in 2001 (Washington State Board of Pilotage Commissioners, 2001).
[16] PSP Retirement Program benefits are controlled exclusively by private agreement amongst the PSP membership and may be changed only by a vote of active pilots to manage the terms of that private agreement. Neither industry, nor the Board has any control of how benefits are set by PSP membership, how liabilities are paid by PSP membership, or how private benefits are funded or to what degree they are funded by PSP membership.
[17] See also minutes from August 9, 2001 Board of Pilotage Commissioners meeting (BPC PSP Joint Diversity Committee, 2016).
[18] Grays Harbor now has enough vessel traffic to pay this liability without the $8 increase (modified by general tariff changes) in Puget Sound. Industry agreed to this charge as a unique one-time only effort to assist Grays Harbor through the liabilities and legal challenges associated with the transition to port employee pilots and in recognition that as a port authority they could address a wide range of port call costs in addition to pilotage costs to meet their needs. This is different than the Puget Sound District.
[19] Pilots belong to a group plan that is modeled on a similar pilotage plan offered through the Masters, Mates, and Pilots Union (though the latter plan is slightly cheaper). In some cases, pilots may qualify for medical coverage through prior employment or through their spouse. However, the pilots elected to enter the group plan, in part to be transparent on medical coverage, moving this expense from individual business expenses per pilot to an association expense taken out prior to individual distributions.
[20] With the exception of the transportation charges and training surcharge categories.
[21] Prior to 2006, the annual tariff was determined using a formula as agreed upon in an MOU between the Puget Sound Pilots, Puget Sound Steamship Operators Association, and Polar Tankers Inc. (see "Process for Developing and Seeing Pilotage Tariffs and Fees" section above for detailed description). However, this system expired with the non-renewal of this MOU, leading to contested tariff and fee rate-setting in subsequent years.
[22] Personal Communication. Eric Von Brandenfels. President, Puget Sound Pilots.

[23] Per WAC 363-116-0751, qualifying candidates may substitute for minimum service requirements either: "(a) Three years of service as an active member of an organized professional pilot association or as a government employed pilot during which periods the pilot applicant was actively engaged in piloting and docking vessels while holding a minimum license as a master of steam or motor vessels of not more than 1600 GRT or 3000 GT (ITC) upon oceans, near coastal waters or inland waters. For purposes of this section, piloting shall refer to piloting vessels in the capacity of the pilot in charge of navigation with no other responsibilities (either when piloting or not piloting) as a member of the ship's crew; (b) Two years of service as a commanding officer or master of U.S. flag government vessels of not less than 3000 displacement tons. The pilot applicant must hold at the time of application a minimum license as master of steam or motor vessels of not more than 1600 GRT or 3000 GT (ITC) upon oceans, near coastal waters or inland waters; or (c) Two years of service as master of special purpose vessels of not less than 1600 GRT or 3000 GT (ITC) while holding a minimum license as master of steam or motor vessels of not more than 1600 GRT or 3000 GT (ITC), provided that the sea time making up the sea service was spent in charge of a vessel that can be documented to have been underway and to have required the type of ship-handling, navigation and leadership skills that the board finds necessary to provide the experience needed to become a pilot."

[24] For the federal endorsement for the Puget Sound Pilotage district, a trainee must successfully draw 25 charts representing each of the sub-regions within the district.

[25] From RCW 88.16.035: "(i) Issue training licenses and pilot licenses to pilot applicants meeting the qualifications provided for in RCW 88.16.090 and such additional qualifications as may be determined by the board;
(ii) Establish a comprehensive training program to assist in the training and evaluation of pilot applicants before final licensing; and
(iii) Establish additional training requirements, including a program of continuing education developed after consultation with pilot organizations, including those located within the state of Washington, as required to maintain a competent pilotage service" (Washington State Legislature, 2017).

[26] No endnote here?

[27] A detailed discussion of how the cut-off score is developed can be found in Progeny System Corporation's report to the Board of Pilotage Commissioners (2017), pp.40-44. Discussion includes the cut-off score methodologies for both the written exam and the simulation test.

[28] The past three exams were developed by Progeny with the help of pilots who serve as subject matter experts. All questions are supported through references from published books on the field. Progeny is experienced in preparing licensing examinations, and has done so for other pilotage districts.

[29] The increase in applicants in 2008 may be attributed to the change in requirement of having completed all federal pilotage requirements before taking the examination.

[30] This cost is based on cost recovery for designing and offering the exam.

[31] A TPTR form includes evaluation categories for preparation, master/pilot/bridge tea interface, navigation, general ship handling, anchoring, tug escort procedures, and additional comments. Each question includes a list performance scores, ranging from "I" (Ineffective), "M" (Marginal), "S" (Effective performance, but with self-introduced difficulty), "E" (Effective), to "V" (Very effective).

[32] Before a pilot is evaluated by the Training and Evaluation Committee (TEC) WAC 363-116-080 stipulates that he or she must possess: 1) a U.S. master license with first class U.S. pilotage endorsement, without tonnage or other restrictions, for all water of the pilotage district they are training for; 2) endorsement as a radar

observer (unlimited); and 3) certificate representing competency in automatic radar plotting aids.

[33] An intervention is defined by the Washington State Board of Pilotage Commissioners as "when a pilot has to interject (such as providing verbal advise or suggestions, or taking control of the vessel from the trainee) during a pilot trainees Evaluation Phase trip (i) in order to avoid, in the sole opinion of the pilot, an incident, including an actual or apparent collision, allision (the running of one ship upon another ship that is stationary), or grounding, (ii) in order avoid, in the sole opinion of the pilot, a navigational or marine safety occurrence which may result in actual or apparent personal injury or property damage or environmental damage as defined in WAC 363-116-200 (Washington State Board of Pilotage Commissioners, 2016c, p. 6)."

[34] $6,500 per year for active pilots.

[35] Other than the recent change to address the lawsuit settlement.

[36] According to RCW 88.16.118, "A pilot licensed to act as such by the state of Washington, and any countywide port district located partly or entirely within the Grays Harbor pilotage district as defined by RCW 88.16.050(2) authorized to provide pilotage services with pilots employed by or under contract with the port district, shall not be liable for damages in excess of the amount of five thousand dollars for damages or loss occasioned by a pilot's or pilot trainee's errors, omissions, fault, or neglect in the performance of pilotage or pilot training services, except as may arise by reason of the willful misconduct or gross negligence of the pilot."

[37] According to RCW 88.16.118 (2), "[n]othing in this section exempts the vessel, its owner, or its operator from liability for damage or loss occasioned by that ship to a person or property on the ground that (a) the ship was piloted by a Washington state licensed pilot or pilot trainee, or (b) the damage or loss was occasioned by the error, omission, fault, or neglect of a Washington state licensed pilot or pilot trainee."

[38] The Maryland General Assembly established the Commission in 1910 to regulate public utilities and for-hire transportation companies doing business in Maryland.

[39] Per §11-502(a) and §4-303(a).

[40] §4-303(b).

[41] §4-303(f).

[42] There are four pilotage grounds established in statute under the jurisdiction of the Oregon Board of Maritime Pilots (ORS 776.025, 2015).

[43] The Oregon Board of Maritime Pilots (OBMP) is a nine-member board appointed by the Governor and approved by the Senate. Three of the members must be public members, one of which must be the chairperson. Three members must be pilots from the various pilotage groups in Oregon, one from Columbia river, one from Columbia river bar, and one from either Coos Bay or Yaquina Bay. The final three members must operate or represent commercial oceangoing vessels.

[44] Despite the benefits of having this individual on the Florida Rate Review Committee, subsequent findings from research and interviews has pointed to flaws in the Florida model overall that preclude the inclusion of this model in whole as a best practice.

[45] Costs listed in Oregon administrative rules include: helicopter service; repairs and maintenance infrastructure; repairs and maintenance; insurance; boat operator expense; employee wages; employee benefits; transportation launch expense; food vessel expense; taxes and licenses; and administrative/accounting (856-030-0040 Transportation Oversight Committee, 2015).

[46] The committee is composed of one public member of the Oregon Board of Maritime Pilots (Board), two members of the Columbia River Bar Pilots (CRBP), a representative of the Columbia River Steamship Operators Association and a

representative of a port located on the Columbia River. The public member of the Transportation Oversight Committee acts as chair.

[47] The surcharge is on a per ship basis.

[48] Interview with Michael Haglund, Legal Counsel for the Columbia River Bar Pilots, October 23, 2017.

[49] Per Florida Statute 310:081.

[50] These grounds are described in detail as the following:
(1) The Columbia River bar pilotage ground extends from a line across the Columbia River along 123° 44" 00' west longitude, then downstream to the open ocean at the entrance to the Columbia River, and includes the navigable waters encompassed by the following boundaries: Beginning at the ocean shore at a point that is 46° 19" 06' north latitude, 124° 04" 06' west longitude; then proceeding due west a distance of five miles to a point that is 46° 19" 06' north latitude, 124° 11" 42' west longitude; then proceeding on an arc in a southerly and southeasterly direction that is two miles west of and parallel to the Three Nautical Mile Line, as determined by the National Oceanic and Atmospheric Administration's Office of Coast Survey, to a southernmost point that is 46° 09" 06' north latitude, 124° 05" 36' west longitude; then due east to shore.
(2) The Columbia and Willamette River pilotage ground extends from the head of navigation on the Columbia and Willamette Rivers and their tributaries; then downstream to the line across the Columbia River 123° 55" 00' west longitude.
(3) The Coos Bay bar pilotage ground extends from the head of navigation on Coos Bay and its tributaries; then downstream to the open ocean at the entrance to Coos Bay and includes the navigable ocean area encompassed by the following boundaries: Beginning at the ocean shore; then west along the line of latitude 43° 24" 00' north to the intersection with the line of longitude 124° 22" 00' west; then southwest on a line to the point that is 43° 22" 00' north latitude, 124° 24" 00' west longitude; then southeast on a line to the point that is 43° 20" 00' north latitude, 124° 22" 00' west longitude.
(4) The Yaquina Bay bar pilotage ground extends from the head of navigation on Yaquina Bay and its tributaries; then downstream to the open ocean at the entrance to Yaquina Bay and includes the navigable ocean area encompassed by the following boundaries: Beginning at the ocean shore; then west along the line of latitude 44° 39" 00' north to the intersection with the line of longitude 124° 08" 00' west; then south along the line of longitude 124° 08" 00' west to the intersection with the line of latitude 44° 35" 00' north; then east along the line of latitude 44° 35" 00' north to the ocean shore. [1957 c.448 §2; 1993 c.741 §112b; 1993 c.796 §1a; 2011 c.157 §1]

[51] Oregon administrative code, section 856-030-0000 (Ratemaking — Substantive Elements) delineates the following required factors in considering the number of pilots: a) amount of activity, including number of vessels, number of pilot assignments, size of vessels by gross registered tonnage (GRT), length, and draft; b) any change in the amount of activity since the last rate order; c) the public interest in prompt and efficient service; d) the professional skills and experience required of a pilot and the difficulty and inconvenience of providing the service, including time necessary to perform the service; e) evidence of compensation for comparable maritime professions, including other state regulated pilotage associations; f) evidence of the economic and market conditions existing both locally and within the region of any pilotage association used for the purpose of comparison; g) total gross and net income for the pilots' group since the last rate order, or as directed by the Board, including sources of income by tariff category; and h) individual amounts paid to pilots since the last rate order, or as directed by the Board, which may be shown as both gross and adjusted gross income, as reported for tax purposes.

[52] Costs listed in Oregon administrative rules include: helicopter service; repairs and maintenance infrastructure; repairs and maintenance; insurance; boat operator expense; employee wages; employee benefits; transportation launch expense; food vessel expense; taxes and licenses; and administrative/accounting (Oregon Administrative Rules, 2017).
[53] The committee is composed of one public member of the Oregon Board of Maritime Pilots (Board), two members of the Columbia River Bar Pilots (CRBP), a representative of the Columbia River Steamship Operators Association and a representative of a port located on the Columbia River. The public member of the Transportation Oversight Committee acts as chair.
[54] The surcharge is on a per ship basis.
[55] Interview with Michael Haglund, Legal Counsel for the Columbia River Bar Pilots, October 23, 2017.
[56] Large substantive changes to the ALJ's proposed order on maritime pilot rate hearings are rare. According to Oregon Revised Statute 183.650(s) and OAH Rule 137-003-0665(3), "[I]f an agency makes a substantial modification to a proposed order prepared by an ALJ assigned from the OAH, the agency must provide an explanation of the reasons for the modification…A substantial modification is any modification that changes the outcome or the basis for the order or a finding of fact."
[57] A summary of these rate authorizations are as follows: 2013: 3% pilotage rate adjustment; 2014: 2% pilotage rate adjustment; 2015: 3% pilotage rate adjustment; 2016: 2% pilotage rate adjustment; and in 2017: 2% pilotage rate adjustment.
[58] 2016: 8% pension surcharge; 2017: 3.5% pension surcharge; 2018: 2.5% pension surcharge; 2019: 2% pension surcharge; 2020: 1.5% pension surcharge.