



STATE OF WASHINGTON  
**BOARD OF PILOTAGE COMMISSIONERS**

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**Summary of December 7, 2017 presentation by Charles A. Czeisler, PhD, MD regarding  
*Best Practices for Fatigue Management***

**Critique of Agency's Current Rest Rules**

Current rule excludes travel time in hours of service, potentially allowing unsafe, extended duration work shifts

- Bridge time is an inadequate proxy for required duty time
- Duty hours should explicitly include travel time, as pilots are required to service vessels traveling to, from and within 12 ports covering 7,000 square miles of territory within the Puget Sound Pilotage District
- Current rule is not compliant with the NTSB recommendation that “local pilot oversight organizations ... implement fatigue mitigation and prevention programs that promulgate hours of service rules that prevent fatigue resulting from ... extended hours of service....”

Current rule does not limit duration of work shifts, and therefore allows unsafe, extended duration work shifts

- As written, a 6.9-hour pilotage assignment could be followed by an assignment of 22 or more hours, resulting in a 29-hour work shift, including travel time
- Current rule is not compliant with the NTSB recommendation that “local pilot oversight organizations ... implement fatigue mitigation and prevention programs that promulgate hours of service rules that prevent fatigue resulting from ... extended hours of service....”

Current rule provides inadequate time for rest between work shifts, creating an unsafe condition

- Seven (7) hours of off-duty time is inadequate for pilots to fulfill their daily sleep need, inducing sleep deficiency that causes fatigue;
- 11 hours of off-duty time is required each day to ensure that pilots can obtain an adequate amount of sleep
- Current rule is not compliant with the NTSB recommendation that “local pilot oversight organizations ... implement fatigue mitigation and prevention programs that promulgate hours of service rules that prevent fatigue resulting from ... insufficient rest within a 24-hour period....”

Current rule fails to ensure that pilots are provided with 34 consecutive hours of uninterrupted rest, including two nights between midnight and 6 am, within every running 7-day interval

- Pilots currently work for 14 consecutive days and are allowed to trade assignments
- Allowing pilots to work for 14, 28 or 42 consecutive days and nights can induce chronic sleep deficiency and fatigue

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| <ul style="list-style-type: none"> <li>– Current rule is not compliant with the NTSB recommendation that “local pilot oversight organizations implement fatigue mitigation and prevention programs that promulgate hours of service rules that prevent fatigue....”</li> </ul>  |
| <p>Current rule requires pilots who refuse a pilotage assignment because of physical or mental fatigue to submit a written explanation to the Board within 48 hours, and that if the Board finds the pilot’s explanation to be “without merit,” the pilot may be subject to Pilot License revocation or suspension, reprimand, fine or other disciplinary actions</p> <ul style="list-style-type: none"> <li>– NTSB recommends pilots be required to decline pilotage assignments when they are impaired by fatigue without fearing disciplinary action</li> <li>– Pilots who have slept less than 5 hours in the prior 24 hours should be required to refuse a pilotage assignment</li> </ul>      |
| <p>Current rule provides the State of Washington Board of Pilotage Commissioners with the authority to enhance the guidance that the legislature has provided. “The board may prescribe rules for rest periods pursuant to chapter 34.05 RCW.”</p> <ul style="list-style-type: none"> <li>– Given the limited scope of the current rest rules mandated by the legislature, the advances in sleep and circadian science that have been made since the legislation was enacted, and the NTSB Recommendations that were issued by the NTSB, the Commission has the responsibility to use the authority granted to the Commission by the legislature to provide further regulatory guidance.</li> </ul> |

**Critique of Puget Sound Pilot’s Current Rest Rules**

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| <p>Inclusion of travel time in work hours is a great improvement over the Agency rule</p>   |
| <p>Voluntary inclusion of travel time in work hours restrictions by the Puget Sound Pilots is not sufficient to substitute for regulatory action by the Commission</p>  |
| <p>Current rules do not limit duration of work shifts, and therefore allows unsafe, extended duration work shifts</p> <ul style="list-style-type: none"> <li>– Current rules are not compliant with the NTSB recommendation that “local pilot oversight organizations ... implement fatigue mitigation and prevention programs that promulgate hours of service rules that prevent fatigue resulting from ... extended hours of service....”</li> </ul>   |
| <p>Current rule provides inadequate time for rest between work shifts, creating an unsafe condition</p> <ul style="list-style-type: none"> <li>– Eight (8) hours of off-duty time is inadequate for pilots to fulfill their daily sleep need, inducing sleep deficiency that causes fatigue;</li> <li>– 11 hours of off-duty time is required each day to ensure that pilots can obtain an adequate amount of sleep</li> <li>– Current rule is not compliant with the NTSB recommendation that “local pilot oversight organizations ... implement fatigue mitigation and prevention programs that promulgate hours of service rules that prevent fatigue resulting from ... insufficient rest within a 24-hour period....”</li> </ul> |
| <p>Current rules fail to ensure that pilots are provided with 34 consecutive hours of uninterrupted rest, including two nights between midnight and 6 am, within every running 7-day interval</p> <ul style="list-style-type: none"> <li>– Pilots currently work for 14 consecutive days and are allowed to trade assignments</li> <li>– Allowing pilots to work for 14, 28 or 42 consecutive days and nights can induce chronic sleep deficiency and fatigue</li> <li>– Current rule is not compliant with the NTSB recommendation that “local pilot oversight organizations implement fatigue mitigation and prevention programs that promulgate hours of service rules that prevent fatigue....”</li> </ul>                        |

**Policy Recommendations:**

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| 1(a)    | Personal Responsibility  | Work-rest requirements should include a provision requiring pilots to take personal responsibility for coming to work rested and fit for duty. If a pilot were to report that he or she is fatigued and unfit for duty, the pilot must be removed from the assignment immediately, without penalty for reporting that he or she is fatigued and unfit for duty.   |
| 1(b)    | Promoting and fostering a safety culture that recognizes fatigue as a primary safety concern | The Commission should be responsible to provide an annual mandatory education program on sleep, health and safety, with annual certification testing, to train all Puget Sound Pilots, pilot managers and pilot dispatchers on the principles of sleep and circadian science, highlighting the hazards of fatigue and effective strategies to prevent fatigue.  |
| 2       | Maximum consecutive work hours   | Each work episode of a Puget Sound Pilot should be limited to no more than 12 consecutive hours during the daytime (all work hours between 6 am to midnight) [maximum extended day work duration] and should be limited to no more than 8 consecutive hours if more than one of the work hours occurs between midnight to 6 am [maximum night work duration] before a mandatory rest break is started.  |
| 2(cont) | Exceptions   | <ul style="list-style-type: none"> <li>- Each work episode of a Puget Sound Pilot should be limited to no more than 13 consecutive hours during the daytime, if all work hours occur between 8 am to 10 pm) [maximum day work duration] and should be limited to no more than 9 consecutive hours if more than one but less than 3 of the work hours occurs between midnight to 6 am [maximum night work duration] before a mandatory rest break is started.</li> <li>- Each work episode should, by definition, begin from the time that a pilot is ordered by and assigned to a vessel and will include preparation time, transit time to and from the vessel, time between pilotage assignments and any other compensated work performed by the pilot, whether or not it is related to pilotage, until such time as a mandatory rest break is begun.</li> <li>- No pilot should begin a pilotage assignment or board a vessel if the expected time of completion of the assignment, including return travel, would cause the pilot's work episode to exceed the maximum allowed work durations.</li> <li>- If a pilot's work episode duration has exceeded the maximum work durations due to unforeseen adverse weather conditions, traffic conditions or unplanned detention aboard a vessel, then: (1) the reason, duration and time of day of the work-hour exception should be recorded by the Puget Sound Pilots; and (2) all such work-hour</li> </ul> |

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|   |   | <p>exceptions should be compiled by the Puget Sound Pilots.</p> <p>- The Puget Sound Pilots should report all such scheduling exceptions to the State of Washington Board of Pilotage Commissioners. In case of emergency, a waiver to allow a pilot to exceed the Maximum Work Durations could be issued; the reason, duration and time of day of all such waivers should be reported by a representative of the State of Washington Board of Pilotage Commissioners.</p>  |
| 3 | <p>Minimum consecutive hours between shifts</p> | <p>- A mandatory off-duty rest break of a minimum of 12 consecutive hours, when the pilot is not on duty or available to accept pilotage assignments, and is free from transportation to or from a vessel, and is not performing any other compensated work, whether or not it is related to pilotage, should be taken before a pilot can be assigned to a vessel.</p> <ul style="list-style-type: none"> <li>- Free of all paid work and required travel time</li> <li>- Free of administrative pilotage work</li> </ul> <p>- The mandatory rest break may be shortened to a minimum of 11 hours if the rest break includes six consecutive hours between 2200 and 0800. All 11-hour rest breaks should include a pilot-chosen, eight consecutive hour interval, excluding travel time, that is free from calls from dispatch.</p> <p>[Consistent with European Working Time Directive]</p> <p>- In case of emergency, a waiver to allow a pilot to accept a pilotage assignment with fewer than 11 or 12 consecutive hours of off-duty time between work episodes may be issued; the reason, duration and time of day of all such waivers should be reported to the Washington Board of Pilotage Commissioners.</p> |
| 4 | <p>Weekly work limit</p>                        | <p>The maximum cumulative duration of all of the pilotage work episodes and all other compensated work performed by each pilot within any running 7-day interval should not exceed 60 hours. In case of emergency, a waiver to allow a pilot to accept a pilotage assignment that would result in the cumulative duration of the work episodes of that pilot to exceed 60 hours within a 7-day interval may be issued; the reason, duration and time of day of all such waivers should be reported to the State of Washington Board of Pilotage Commissioners.</p>  |
| 5 | <p>Consecutive night shifts</p>                 | <p>The maximum number of consecutive night shifts (defined as involving more than one work hour</p>   |

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|   |                                | between midnight and 6 am) worked by Puget Sound Pilots should not exceed three (3). In case of emergency, a waiver to allow a pilot to accept a pilotage assignment that would result in the pilot working up to four (4) consecutive night shifts, but no more, may be issued; the reason, duration and time of day of all such waivers should be reported to the State of Washington Board of Pilotage Commissioners.  |
| 6 | Weekly rest                    | A mandatory off-duty rest break of a minimum of 24 consecutive hours should be obtained within every running 7-day interval by each Puget Sound Pilot. This Policy Recommendation should not be eligible for waiver. For each pilot working more than 7 consecutive days: a mandatory off-duty rest break of a minimum of 34 consecutive hours, including 2 nights between midnight and 0600, should be obtained within every running 7-day interval. This Policy Recommendation should not be eligible for waiver.     |
| 7 | Maximum number of days on duty | The maximum number of scheduled days on the board should not exceed 15. As stated in Recommendation 6, a minimum of 34 consecutive hours, including 2 nights between midnight and 0600, should be obtained within every running 7-day interval of these 15 scheduled days on the board, such that no pilot will work more than 6 consecutive days. This Policy Recommendation should not be eligible for waiver.  |
| 8 | Monthly rest                   | A mandatory off-duty rest break of a minimum of 60 consecutive hours, including three (3) nights between midnight and 0600, should be obtained within every running 30-day interval by each Puget Sound Pilot. In case of emergency, a waiver to allow a pilot to reduce the duration of this mandatory monthly off-duty break from 60 to 36 hours, but no shorter may be issued; the reason, duration and time of day of all such waivers will be reported to the State of Washington Board of Pilotage Commissioners. |
| 9 | Schedule design                | The Puget Sound Pilots should move to stabilize work hours to minimize uncertainty and maximize consistency, particular during the vulnerable nighttime hours (0000-0600). Every effort should be made to increase the regularity and predictability of scheduled work times.<br>- "A schedule that <b>alternates daytime work with nighttime work in the same week is detrimental to optimum performance</b> in that it is difficult for someone to compensate for the   |

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|  |  | <p>sleep deprivation that has resulted from working at a time when one is typically sleeping.”<br/><i>National Transportation Safety Board. 2009. Allision of Hong Kong-Registered Containership M/V Cosco Busan with the Delta Tower of the San Francisco–Oakland Bay Bridge, San Francisco, California, November 7, 2007. Marine Accident Report NTSB/MAR-09/01. Washington, DC.</i></p> <p>- Pilots consistently rate <b>irregular night work schedule</b> as most difficult aspect of schedule</p> |
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