Apr 6th, 11:30 AM - 11:45 AM

Did the rules work? An assessment on the effectiveness of federal vessel regulations for Southern Resident killer whales

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Mongillo, Teresa; Ferrara, Grace; and Barre, Lynne, "Did the rules work? An assessment on the effectiveness of federal vessel regulations for Southern Resident killer whales" (2018). Salish Sea Ecosystem Conference. 537.
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Did the Rules Work?
An Assessment on the Effectiveness of Federal Vessel Regulations for Southern Resident Killer Whales

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2018 Salish Sea Ecosystem Conference
April 6, 2018
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INTRODUCTION

• SRKWs are target species for whale watching in the Salish Sea

• Since the 1990s, transboundary effort to develop voluntary guidelines: vessels remain 100 yards from whales

• Despite guidelines, concern remained about level of disturbance and harmful effects

C.K. Emmons 2009
In 2011, NOAA Fisheries issued federal vessel regulation to reduce disturbance from vessels to SRKWs:

- Prohibits vessels from approaching killer whales within 200 yards
- Prohibits vessels from parking in the path within 400 yards

NOAA committed to assessing effectiveness and impact
INTRODUCTION

Assessment Includes 5 Measures:

1. Education and Outreach
2. Enforcement
3. Vessel Compliance
4. Biological Impact
5. Economic Impacts

For each measure, we focused on 5 years prior (2006-2010) and 5 years post (2011-2015) and compared trends.

Photo: D. Noren, 2006
ENFORCEMENT

• Adequate enforcement is essential in promoting compliance
• Vessel incidents- inconsistent with regulations or guidelines

Boater behavior and compliance – strongly influenced by presence or absence of patrol vessel
Most frequent violators – recreational boaters, followed by CA commercial whale watching operators, then U.S. commercial
Results - higher rates of incident rates if risky behavior for most categories.
Short-term behavioral responses include:

- ↑ in swim speeds
- ↑ surface active behaviors
- ↑ time traveling
- ↑ vocal effort
- ↓ time foraging

Observed behavior

Energy requirements

Noren et al. (2012, 2013); Holt et al. 2015
BIOLOGICAL IMPACT

Short-term behavioral responses include:

- **↑** in swim speeds
- **↑** surface active behaviors
- **↑** time traveling
- **↑** vocal effort
- **↓** time foraging

It is unclear what the cost of reduced time foraging- but it is likely a higher cost
BIOLOGICAL IMPACT

- Holt et al. 2017 - measured received levels (RLs)
- Compared RLs before and after regulations
- However, RLs were not significantly different before and after....implementation of regulations doesn’t appear to have had an overall impact on RLs
- Speed was a predictor
ECONOMIC IMPACT

• Whale watch and tourism- experienced growth
• Regulations have not hindered growth
• Total number of whale watch boats increased

Industrial Economics, Inc. (2016)

Photo: NOAA Fisheries
CONCLUSIONS

• 5 measure provide some insight
• Some indicators suggest improved conditions, others indicate continued risk

• Evidence that shows there is value
• Support regulations, future consideration to additional measures
RECOMMENDATIONS

• Continued and expanded enforcement presence, and Soundwatch/Straitwatch

• Compare the behavioral and acoustic effects of different boat activity patterns to determine the vessel behaviors with the highest impact

• Improve estimates of the energetic cost of reduced foraging opportunities

• And we support Canada’s commitment to establish similar vessel regulations
ACKNOWLEDGMENTS

Soundwatch Boater Education Program
Washington Department of Fish and Wildlife
Industrial Economics, Incorporated (IEc)
NOAA Fisheries, Northwest Fisheries Science Center

All photos taken under NOAA Fisheries permit