



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

Teresa Mongillo

NOAA Fisheries, United States, teresa.mongillo@noaa.gov

Grace Ferrara

NOAA Fisheries, United States, Grace.Ferrara@noaa.gov

Lynne Barre

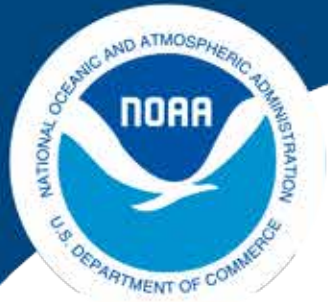
NOAA Fisheries, United States, Lynne.Barre@noaa.gov

Follow this and additional works at: <https://cedar.wvu.edu/ssec>

 Part of the [Fresh Water Studies Commons](#), [Marine Biology Commons](#), [Natural Resources and Conservation Commons](#), and the [Terrestrial and Aquatic Ecology Commons](#)

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.
<https://cedar.wvu.edu/ssec/2018ssec/allsessions/537>

This Event is brought to you for free and open access by the Conferences and Events at Western CEDAR. It has been accepted for inclusion in Salish Sea Ecosystem Conference by an authorized administrator of Western CEDAR. For more information, please contact westerncedar@wwu.edu.



NOAA
FISHERIES

West Coast
Region

Did the Rules Work?

An Assessment on the Effectiveness of Federal Vessel Regulations for Southern Resident Killer Whales

Grace Ferrara, Teresa Mongillo*, Lynne Barre
2018 Salish Sea Ecosystem Conference

April 6, 2018

*presenter

INTRODUCTION

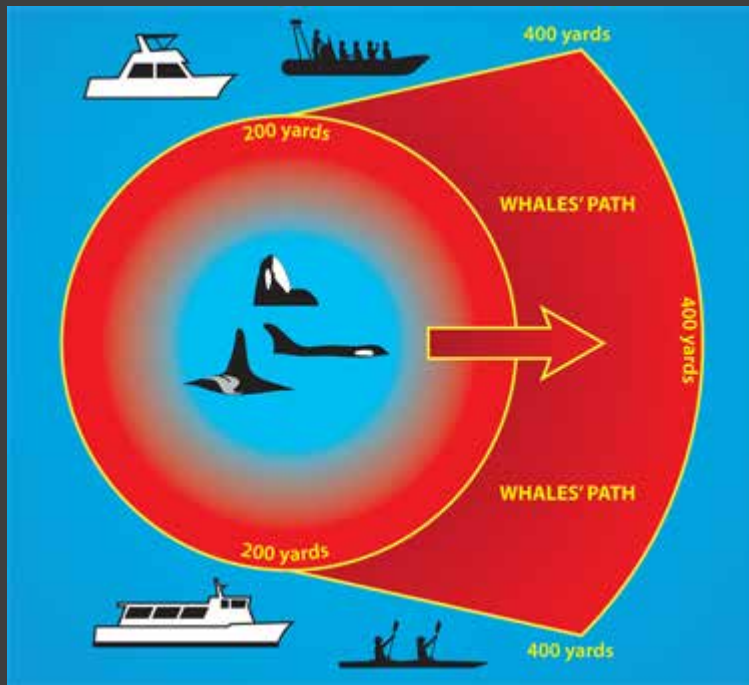
- SRKWs are target species for whale watching in the Salish Sea
- Since the 1990s, transboundary effort to develop voluntary guidelines: vessels remain 100 yards from whales



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

INTRODUCTION

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

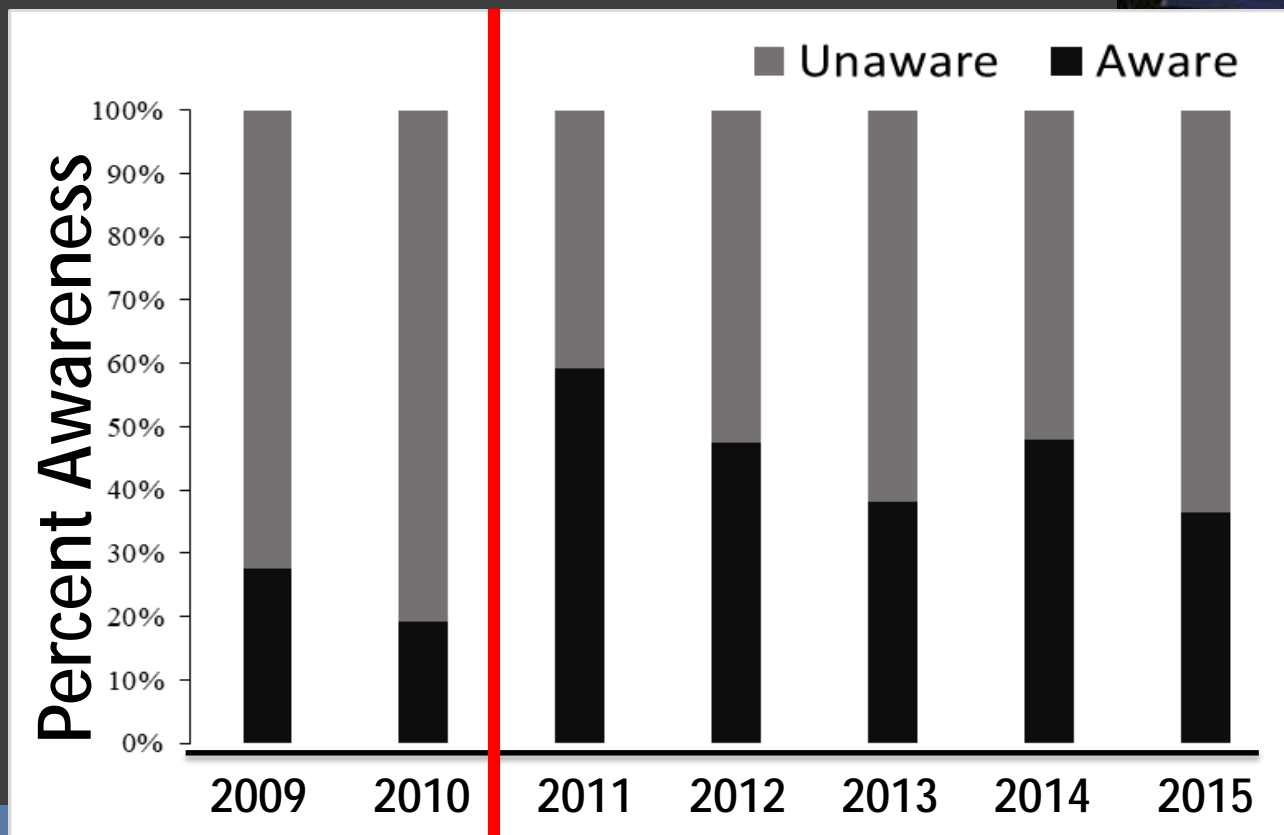
Assessment Includes 5 Measures:

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



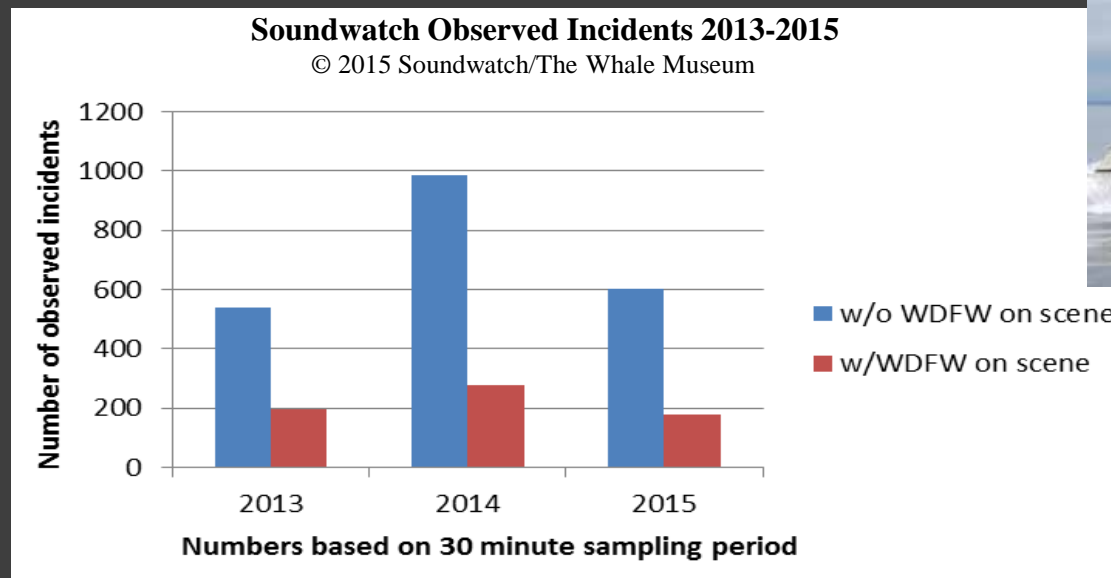
For each measure, we focused on 5 years prior (2006-2010) and 5 years post (2011-2015) and compared trends.

EDUCATION AND OUTREACH



ENFORCEMENT

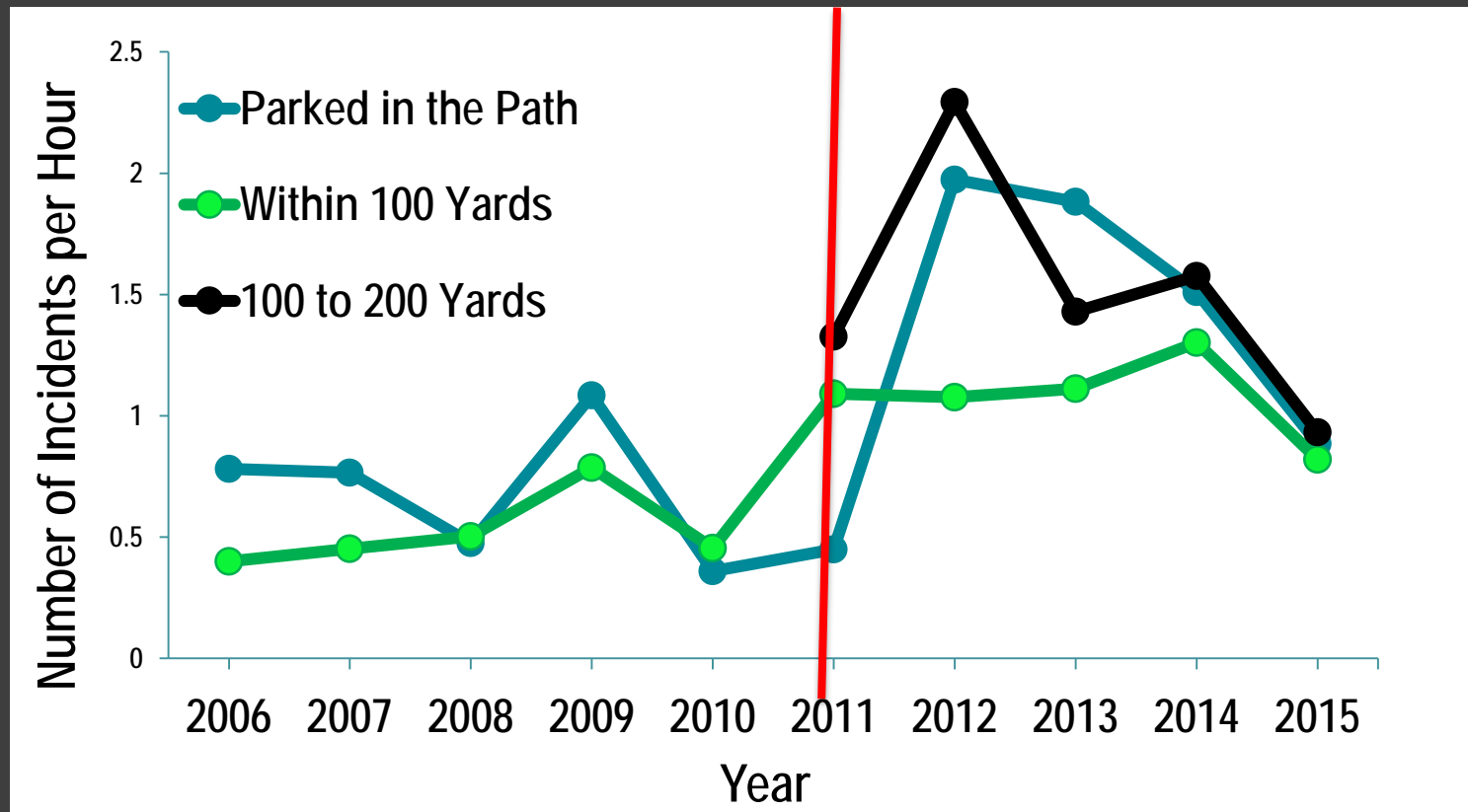
- Adequate enforcement is essential in promoting compliance
- Vessel incidents- inconsistent with regulations or guidelines



Boater behavior and compliance – strongly influenced by presence or absence of patrol vessel

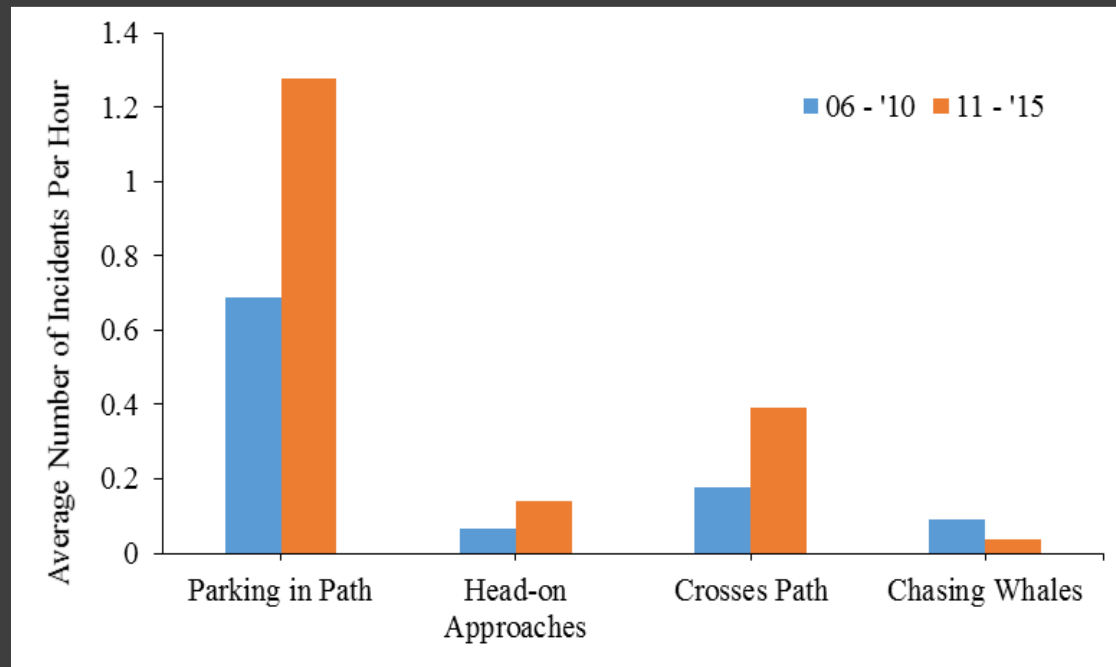
VESSEL COMPLIANCE

Most frequent violators – recreational boaters, followed by CA commercial whale watching operators, then U.S. commercial



VESSEL COMPLIANCE

Rate of Risky Behaviors Over Time



Results- higher rates of incident rates if risky behavior for most categories.

BIOLOGICAL IMPACT

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

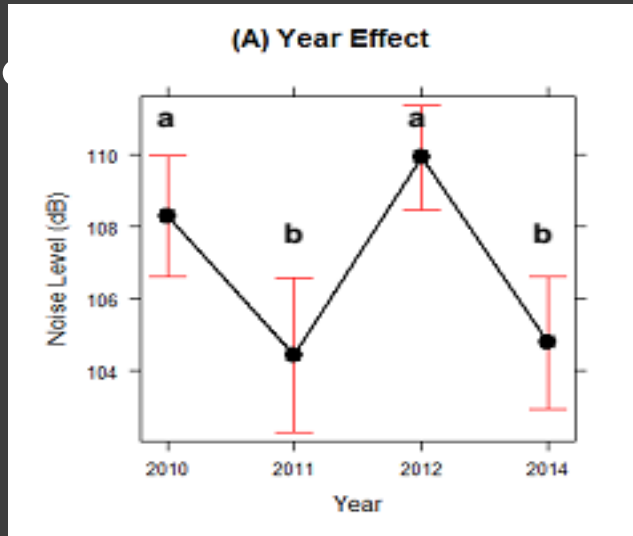


Photo: NOAA Fisheries



- 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