State of Washington
DEPARTMENT OF FISH AND WILDLIFE
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November 30, 2022

The Honorable Christine Rolfes
Chair, Senate Ways and Means
303 John A. Cherberg Building
Post Office Box 40466
Olympia, WA 98504-0466

The Honorable Timm Ormsby
Chair, House Appropriations
315 John L. O'Brien Building
Post Office Box 40600
Olympia, WA 98504-0600

The Honorable Kevin Van De Wege
Chair, Senate Agriculture, Water
Natural Resources, and Parks
212 John A. Cherberg Building
Post Office Box 40424
Olympia, WA 98504

The Honorable Mike Chapman
Chair, House Rural Development,
Natural Resources, and Parks
132B Legislative Building
Post Office Box 40600
Olympia, WA 98504

Dear Chairs Rolfes, Ormsby, Van De Wege, and Chapman,

I am writing to provide you with the Washington Department of Fish and Wildlife's report to the legislature regarding state vessel regulations aimed at protecting Southern Resident killer whales (SRKW) from the effects of vessel noise and disturbance. The statute requires a report to the relevant committees of the legislature per language in RCW 77.65.620, which reads as follows:

> The department shall complete an analysis and report to the governor and the legislature on the effectiveness of and any recommendations for changes to the whale watching rules, license fee structure, and approach distance rules by November 30, 2022, and every two years thereafter until 2026. This report must be in compliance with RCW 43.01.036.

This is the first of the three adaptive management reports specified in the statute. It includes an assessment of updates to the best available science, a review of science submitted to the agency for consideration, an analysis of compliance with the commercial whale watching rules (WAC 220-460), and the results of a public and stakeholder engagement process. The report includes adaptive management recommendations to update the vessel approach distance buffer to 1000 yards around SRKW for all non-exempted vessels.

The Department also recommends maintaining the definition and licensing of commercial whale watching, but recommends changes aimed at reducing the perceived financial and administrative burden of the license and rules, simplifying where possible, and further distinguishing between motorized commercial whale watching and non-motorized, guided paddle tours.

This report is presented in executive summary format, with the more detailed analyses included as appendices. The appendices also include drafted amendments to the RCW that would implement the recommendations contained in the report. Specific modifications to the Department's rules for commercial whale watching (WAC 220-460) are not included but would be implemented via a Department rulemaking process.

If you have any questions or concerns about this report, please feel free to contact Tom McBride, WDFW's Legislative Director, at (360) 480-1472.

Sincerely,

Kelly Susewind
Director

Southern Resident Killer Whale Vessel Adaptive Management Legislative Report

Washington Department of Fish and Wildlife (WDFW)

Washington Department of FISH and WILDLIFE

November 2022

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Acronyms and Abbreviations

AIS	automatic identification system
AM	adaptive management
BAS	best available science
CWW	commercial whale watching
Department	Washington Department of Fish and Wildlife
Legislature	Washington State Legislature
SRKW	Southern Resident killer whale (Note: The terms “orca” and “killer whale” are used interchangeably in this report.)
NGO	non-governmental organization
nm	nautical mile
WDFW	Washington Department of Fish and Wildlife

About This Report

This legislative report fulfills Washington State Department of Fish and Wildlife's (WDFW, or the Department) requirement to analyze the effectiveness of and any recommendations for changes to the state's commercial whale watching rules, license fee structure, and approach distance rules (as outlined in RCW 77.65.620, subsection 5); it is prepared by WDFW for the Washington State Governor and Legislature.

The report is organized into four chapters:

1. Introduction and Background
2. Data Considered in the Department's Adaptive Management Process
    - Summary of Relevant Updates to Best Available Science
    - Feedback on Statutory Restrictions for Vessels Operating Near SRKW
    - Commercial Whale Watching Compliance, Reporting, and Enforcement Analysis
    - Feedback on Commercial Whale Watching License Program
    - Feedback on Commercial Whale Watching Rules
3. WDFW Recommendations

Chapter 1 includes an overview of the Department's 2022 adaptive management (AM) process and a brief background of the state's current vessel approach distance statutory restrictions and commercial whale watching (CWW) license program and rules.

Chapter 2 provides more detail on the materials the Department considered during the 2022 AM process. It is divided into five sections: The *Summary of Relevant Updates to Best Available Science* section summarizes relevant updates to the best available science (BAS) based on studies and science reviewed by the Department; the *Feedback on Statutory Restrictions for Vessels Operating Near SRKW*, *Feedback on Commercial Whale Watching License Program, and Feedback on Commercial Whale Watching Rules* sections each include summaries of feedback the Department received via an online survey and a series of stakeholder focus groups. The *Commercial Whale Watching Compliance, Reporting, and Enforcement Analysis* presents highlights of an additional analysis the Department conducted.

Chapter 3 presents the Department's recommendations and describes its suggested revisions to the Revised Code of Washington (RCW) and Washington's Administrative Code (WAC), including next steps in 2023-24 for its AM process.

The report has seven appendices. Appendices A, B, and C include the Department's suggested revisions to RCWs 77.15.740, 77.65.615, and 77.15.815, respectively. Appendices D, E, F and G provide additional detail on the content WDFW considered during its AM process (Chapter 2): Appendix D is the review of submitted science addressing the sentinel and magnet effect hypotheses; Appendix E is the complete Compliance Analysis; Appendix F is the complete Feedback Analysis; and Appendix G lists questions asked in the AM feedback survey.

1. Introduction and Background

The Washington Department of Fish and Wildlife (WDFW, or Department) has a mission to preserve, protect and perpetuate fish, wildlife and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities, and this body of work intersects with the effort to recover the critically endangered Southern Resident killer whale (SRKW[1]) population. Relative to this report, the Department has been specifically tasked with the management of commercial whale watching licensing and adaptive management of measures aimed to reduce the impact of recreational and commercial whale watching vessels on the SRKW's ability to successfully forage for their preferred food, communicate, and rest.

Governor Inslee established the Southern Resident Orca Task Force in March of 2018 to address the urgent threat threats to SRKW recovery: prey availability, contaminants, and vessel noise and disturbance. The Task Force was made up of nearly 50 appointed representatives from diverse sectors and Tribes. In its 2019 final report, the Task Force published 49 recommendations including a suite of measures addressing all the major threats, with the addition of recommendations focused on decreasing pressures from climate change and human population growth, leading to four major pieces of legislation in the 2019 State legislative session.

The 2019 Senate Bill 5577 modified the State's requirements for operating a vessel in the vicinity of SRKW by changing the approach distance from 200 yards to the sides and 400 yards in front of SRKW to 300 yards to each side and 400 yards to the front and back. Additionally, the bill directed the Department to adopt a license program for commercial whale watching (CWW), administer the program, and develop rules for commercial viewing of SRKW. WDFW accomplished this in 2020. The final rules were filed on December 23, 2020 and went into effect January 23, 2021.[2]

In spring 2021, the Washington State Legislature passed and the Governor signed Engrossed Senate Bill 5330 to modify the license structure and fees and waive the fees in 2021 and 2022. WDFW modified the commercial whale watching license application to align with the new law and worked with applicants to adjust to the updated application process. WDFW Enforcement began checking for licenses in the field in June of 2021. At present, annual CWW licenses are required for all CWW businesses, vessel operators, and kayak guides, and all rules related to CWW and viewing of SRKW are in effect.

To learn more about the rulemaking process, rules, and licensing program, visit the following links for more information: for the rulemaking process, visit WDFW's CWW rulemaking website; SRKW approach restrictions for vessels, visit RCW 77.15.740; for the Legislature's direction to WDFW, visit RCW 77.65.620; the CWW license program, visit RCW 77.65.615; and the CWW rules, visit WAC Chapter 220-460.

[1] The terms Southern Residents and SRKW are used interchangeably in this report, as are killer whale and orca.
[2] The exceptions were WAC section 020, which describes the license application process and requires a license to operate, and WAC 220-460-140, which specifies compliance, training, and reporting requirements; these sections went into effect May 1, 2021.

Adaptive Management

Beyond the charge to enforce the boating restrictions, administer the licensing program, and to develop and implement rules for commercial viewing of SRKW, the Department was tasked in RCW 77.65.620(5) to analyze and report back on the new laws. WDFW completed this analysis in 2022 through an adaptive management (AM) process, which included the following activities:

- Analyzing the effectiveness of approach distance and CWW restrictions by reviewing studies examining vessel and SRKW behavior, the best available science (BAS) regarding underwater noise, disturbance, and marine mammals, as well as assessing the level of compliance with the restrictions.
- Assessing opportunities for improvement to the CWW licensing program and fee structure with activities such as engaging in discussions with license holders, conducting an analysis of data from the licensing system, and dialogue with WDFW Enforcement.
- Assessing nexuses and opportunities for transboundary alignment by tracking local, state, federal, and Canadian regulatory frameworks, including ongoing and new vessel-related measures related to SRKW recovery.
- Inviting input from industry and the broader community by providing opportunities for interested parties to share their observations, considerations, and opinions.

This report summarizes the findings from these activities and outlines the Department's recommended changes.

Ongoing Efforts Related to SRKW Recovery and Vessel Disturbance

The Department's adaptive management process is occurring in the context of many ongoing initiatives related to the recovery of SRKW, which place it in an evolving, transboundary context. Some key parallel efforts are listed below, but they reflect only a sample of the ongoing work to address vessel noise and disturbance impacts on SRKW, which is just one component of the overall SRKW recovery effort. To learn more about the SRKW recovery effort in Washington State, including efforts to increase salmon abundance and prey availability for SRKW, to decrease contaminants that impact SRKW and their food, and to address pressures from climate change and human population growth, please visit the orca.wa.gov website.

Relevant efforts to address the impact of underwater noise and disturbance on SRKW include:

- **Washingtons Governor's Salmon Recovery Office** is focused on implementing salmon recovery statewide. SRKW largely depend on salmon as a food source, and as such their recoveries are closely linked. The Salmon Recovery Office instituted a Statewide Orca Recovery Coordinator in 2021 who is working to coordinate and advance the Governor's Orca Task Force recommendations.
- **The Canadian national government** annually adopts a suite of vessel-related protective measures for SRKW Canadian waters. These efforts include a 400-meter buffer around orcas in SRKW habitat, Interim Sanctuary Zones aimed to reduce acoustic and physical disturbance from vessels in foraging areas, an annual Sustainable Whale Watch Agreement with commercial operators who agree not to pursue viewing SRKW and are permitted to approach Transient orcas closer than 400 meters, and in 2022 included Seasonal Slowdown Areas where all vessels are required to slow down to a maximum of 10 knots.

- **Quiet Sound,** a collaborative program parallel to the ECHO Program in Canada, was launched in Washington State in 2021 to reduce noise impacts to SRKW from large commercial vessels. The Quiet Sound program is making progress on expanding data inputs and application of the Whale Report Alert System in Washington waters, and it implemented a trial voluntary ship slowdown in Admiralty Inlet and North Puget Sound, both in critical habitat for SRKW, that runs from October 24-December 22 of 2022.
- **National Oceanic and Atmospheric Administration (NOAA) Fisheries** implemented vessel restrictions in Washington State for the protection of SRKW in 2011. This rule prohibits vessels from approaching killer whales within 200 yards. In 2019, NOAA Fisheries initiated a process to update these vessel restrictions, and the Department anticipates a draft rule will be shared sometime in 2023.
- **The San Juan County Marine Resources Committee** authored a report in 2022 that recommended place-based management options to complement the current whale-focused vessel restrictions.
- **The WA Department of Ecology** in conjunction with the Governor's Salmon Recovery Office and the Puget Sound Partnership launched a process in 2022 to create a voluntary checklist for project proponents to assess the vessel noise and disturbance impacts of projects on SRKW during the permitting process.

Each of these ongoing efforts, and collaboration among them, is critical for cumulative and effective protection of SRKW from vessel impacts. WDFW meets regularly with various intergovernmental partners working on the reduction of vessel impacts on SRKW, and the Department participates in many of the processes and efforts described above. The Department is striving for a holistic, synergistic transboundary SRKW recovery effort that transcends the challenges of varied jurisdictions, legal/political contexts, and mandates.

Adaptive Management Data Collection and Analysis

The Department's AM process involved several concurrent data collection and analysis processes, including a review of recent scientific studies and an assessment of their implications; an analysis of compliance, enforcement, and reporting information; and an analysis of feedback from stakeholders and the public on the vessel restrictions, CWW rules, and CWW licensing program.

Review of Best Available Science

- The Department regularly reviews available scientific literature examining vessel and SRKW behavior and consults with experts to understand the BAS, including social science, regarding underwater noise, disturbance, and marine mammals.
- The Department additionally supports studies designed to answer specific questions relevant to management decisions.
- The Department hosted an online science survey that was designed to allow people to submit studies and science for it to consider during its AM process. The survey was open to the public from September 1–20, 2022. Eight individuals submitted science and/or comment for consideration. Three peer-reviewed journal articles, three unpublished reports, and unanalyzed data were submitted.

Commercial Whale Watching Compliance, Enforcement, and Reporting Data Analysis

The Department conducted a third-party review of available data on program performance and outcomes to better understand compliance, enforcement, and reporting for the CWW rules and licensing program and to inform the AM process. The analysis relied on six key data sources collected and maintained by WDFW, Soundwatch (a program of The Whale Museum), the B.C. Cetacean Sightings Network, and the United States Coast Guard. These data sources are: WDFW enforcement data, WDFW license data, WDFW reporting data, Soundwatch incident data, Whale Report Alert System (WRAS) data, and United States Coast Guard Automatic Identification System (AIS) data.

Public and Stakeholder Feedback

WDFW collected public and stakeholder feedback through a combination of an online survey and a series of focus group meetings.

- WDFW hosted an online survey to collect feedback on different aspects of the CWW license program and rules, as well as the general vessel restrictions. The survey was open from September 1 – 30, 2022 and included both closed- and open-ended questions, meaning sometimes participants were asked to select specific answer choices and sometimes they had the opportunity to provide short answers/comments. Although the survey was open to the public, the reader should note that the feedback themes presented in this report do not represent the full spectrum of public opinion, as most survey respondents were likely closely invested in issues related to SRKW and tracking them closely. Overall, 852 individuals responded to the survey. Of the 751 respondents who provided their affiliation, 333 identified as a recreational boater, 15 identified as a motorized CWW owner/operator, and 8 identified as a sea kayak/ paddle tour owner/guide.
- Five 90-minute stakeholder focus group meetings were conducted in October 2022 to collect more in-depth and targeted feedback on the license program, CWW rules, and general vessel restrictions. Focus group participants were determined by the Department based upon the participants' interest and involvement with previous WDFW CWW rulemaking efforts; the groups themselves loosely grouped participants based on their interests and affiliations (so participants in a group generally had somewhat similar viewpoints). The meetings had 3-8 participants each and were facilitated in a semi-structured format to prompt the participants on specific topics. The stakeholder groups were:
    - Motorized CWW business and operator license holders
    - Nonmotorized CWW business and sea kayak guide license holders
    - NGO representatives (two focus groups)
    - Recreational boater representatives
- WDFW also met with government partners, including the Inter-governmental Coordination Group, which includes representatives from Washington State agencies, county, federal, and tribal government partners, and Canadian government entities, to share program updates and consider opportunities to better align processes.

The data and findings from WDFW's reviews in these areas are summarized in Chapter 2.

2. Data Considered in the Vessel Adaptive Management Process

Chapter 2 describes the data WDFW analyzed during its 2022 AM process. It is organized in five sections:

- *Summary of Relevant Updates to Best Available Science* summarizes new published studies and other information examining the potential for vessel impacts on SRKW.
- *Feedback on Statutory Restrictions for Vessels Operating near SRKW* presents findings from feedback related to the SRKW approach rules for vessels.
- *Commercial Whale Watching Compliance, Reporting, and Enforcement Analysis* presents high-level takeaways from an analysis on CWW business and operator compliance with the license program and CWW rules, including reporting requirements.
- *Feedback on Commercial Whale Watching License Program* presents findings from feedback related to the CWW License Program.
- *Feedback on Commercial Whale Watching Rules* presents findings from feedback related to the CWW rules.

Summary of Relevant Updates to Best Available Science

In 2020, the Washington State Academy of Sciences (WSAS) assembled an expert panel to produce a review of the effects of underwater noise and vessel disturbance.[3] This review summarized the best available science regarding the impacts of vessels and noise on Southern Resident killer whales (SRKW) and highlights several key takeaways. Close approaches by vessels, even at slow speeds, can have negative effects on SRKW communication and foraging. Behavioral responses to vessels, in addition to impeding activities, can increase energy expenditure, and cumulative impacts can result in population-level effects. Prey abundance likely has a greater effect than vessels, but the adverse impacts are interactive, i.e., reduced prey abundance is compounded by disturbance and makes finding the available prey more difficult. The Department used the information in this review when developing rules for the commercial viewing of SRKW.

Several recent papers have been published related to SRKW recovery, and the Department reviews and weighs that information as it becomes available. For this report, we focused on science related specifically to vessel effects on SRKW health or behavior. For new information submitted through the public science survey, the Department conducted an internal review to evaluate scientific credibility and inference, according to established guidance.

Vessel disturbance of whale behavior

Three studies published in 2021 documented SRKW behavior and foraging success relative to nearby vessel activity, producing several relevant findings. SRKW reduced their foraging effort

[3] Washington State Academy of Sciences. 2020. Summary of Key Research Findings about Underwater Noise and Vessel Disturbance. Seattle, WA. 25p.

when vessels were closer, faster, and using echosounders.[4] Whales made fewer dives involving prey capture and spent less time in those dives when vessels averaged closer than 400 yards than when vessels were farther than 400 yards.[5] Females made fewer deep-feeding dives and were generally less successful at prey capture than males, which could have population-level implications. Vessels traveling within 1.5 km (1640 yards), even those operating at just 1-2 knots, decreased foraging success relative to stationary vessels.[6] Finally, whales dove more steeply when vessels were closer[7], consistent with avoidance behavior, and they increased energetically costly surface behaviors with more whale watching vessels nearby.[8] In sum, this recent work asserts that vessel disturbance increases energetic output and decreases energetic input for SRKW. These studies add additional specificity, support, and emphasis to a growing body of scientific work showing that disturbance by vessels – even when complying with current distance and speed restrictions – has negative impacts on SRKW.

Sentinel and magnet effects

Generally, the hypothesis of a sentinel effect states that the presence or actions of commercial vessels and operators have a positive impact on the behavior of recreational vessel operators and/or their compliance with the rules, decreasing overall disturbance to SRKW. The hypothesis of a magnet effect states that the presence of commercial vessels draws recreational boaters toward the whales, increasing vessel disturbance. These hypotheses received a great deal of focus during the development of the CWW rules, and ultimately, the WSAS cited inadequate scientific information to support altering management approaches based on either idea. However, as the Department adopted rules for commercial viewing of SRKW, it committed to further exploring the sentinel/magnet hypotheses.

Studies aimed at better understanding or assessing these hypotheses were submitted to the department, and a brief description of the methods, results, limitations, and opportunities for each submission is available in Appendix D. The Department concluded that these two effects are not mutually exclusive and can co-occur. Unfortunately, both effects are difficult to measure and have potentially contradictory consequences for the whales, such that they would ideally be weighed against one another to determine the overall effect. Six lines of evidence that address commercial vessels' potential impacts on recreational vessels were evaluated. One published article[9] and an industry report[10] attempted to quantify only the sentinel effect; two consecutive annual reports[11,12] attempted to quantitatively test both the sentinel and magnet effects hypotheses individually; one

[4] Holt, M.M., J.B. Tennessen, M.B. Hanson, C.K. Emmons, D.A. Giles, J.T. Hogan, and M.J. Ford. 2021b. Vessels and their sounds reduce prey capture effort by endangered killer whales (*Orcinus orca*). Marine Environmental Research 170:105429.
[5] Holt M.M., J.B. Tennessen, E.J. Ward, M.B. Hanson, C.K. Emmons, D.A. Giles, and J.T. Hogan. 2021a. Effects of Vessel Distance and Sex on the Behavior of Endangered Killer Whales. Front. Mar. Sci. 7:582182.
[6] Holt, M.M., J.B. Tennessen, M.B. Hanson, C.K. Emmons, D.A. Giles, J.T. Hogan, and M.J. Ford. 2021b. Vessels and their sounds reduce prey capture effort by endangered killer whales (*Orcinus orca*). Marine Environmental Research 170:105429.
[7] Holt, M.M., J.B. Tennessen, M.B. Hanson, C.K. Emmons, D.A. Giles, J.T. Hogan, and M.J. Ford. 2021b. Vessels and their sounds reduce prey capture effort by endangered killer whales (*Orcinus orca*). Marine Environmental Research 170:105429.
[8] Bubac, C., A.C. Johnson, and R. Otis. 2021. Surface behaviors correlate with prey abundance and vessels in an endangered killer whale (*Orcinus orca*) population. Marine Ecology 42:31262.
[9] Shields, M.W. 2022. Commercial whale-watching reduces vessel incidents in the vicinity of killer whales in Washington State. Marine Policy 145:105290.
[10] Pacific Whale Watch Association. 2022. 2021 sightings and sentinel actions. Industry report. 29p.
[11] Williams, R., C. Lo, S. Reiss, K. Nielsen, and E. Ashe. 2021. Assessing the impacts of licensing and whale-watching rules on Southern Resident killer whales: Year 1. Contract report to WDFW. 48 p.
[12] Williams, R., M.S. Collins, K. Nielsen, S. Reiss, K. Wold, C. Lo and E. Ashe. 2022. Assessing the impacts of licensing and whale-watching rules on Southern Resident killer whales: Year 2. Contract report to WDFW. 46 p.

report[13] semi-quantitatively addressed both effects individually; and no study attempted to measure the overall impact of combined effects. Authors claimed evidence supporting and refuting sentinel effects[14,15,16,17] and supporting a magnet effect.[18,19] Based on guidance offered by WDFW regarding the assessment of scientific evidence, none of these efforts measured either effect while adequately mitigating flaws in design and analysis.

In sum, the Department's assessment of recent attempts to quantify the sentinel and magnet effects concluded that these studies, while providing some interesting anecdotal evidence, do not qualify as definitive proof of either effect. Likely, there is some truth to both hypotheses, but two bigger questions remain unanswered even if we presume both effects exist:

1) Is the weight of the positive sentinel effect of improving boater compliance with distance and speed restrictions greater than the detrimental impact of more boats drawn to the vicinity of SRKW via the magnet effect?
2) When the overwhelming body of science shows that any boats in the vicinity of SRKW negatively impact the whales' behavior and foraging success, is there any level of sentinel effect that could outweigh—or provide a greater value than—keeping all boats at a greater distance?

The Department's insight, after examining the results of several initial attempts to quantify sentinel and magnet effects, is that these bigger questions are very challenging to answer; yet, answering them would be critical in order to change the statute or regulations based on either effect.

However, mirroring the science establishing that vessel impacts are greater at closer distances, the importance of precise answers to these questions is also most important at closer approach distances. At 300 yards, drawing more boats to the scene would have a much more significant detrimental impact than drawing more boats to the scene at, for example, 1000 yards. Similarly, at 1000 yards, one can presume a potential sentinel effect of CWW vessels without the same level of risk or concern that the benefits will be outweighed by presumed drawbacks.

Vulnerable individuals

To address the component of the CWW rules that alludes to whales "designated as sick or vulnerable by emergency rule" from WDFW (WAC 220-460-110), WDFW contracted Sealife Response, Rehabilitation, and Research (SR^3) to conduct health assessments based on quantifiable metrics. Individual SRKW determined likely to be in the last third of pregnancy were deemed

[13] Frayne, A. 2022. 2021 Soundwatch Program Annual Contract Report: Soundwatch Public Outreach/Boater Education Project. 79 p.
[14] Shields, M.W. 2022. Commercial whale-watching reduces vessel incidents in the vicinity of killer whales in Washington State. Marine Policy 145:105290.
[15] Pacific Whale Watch Association. 2022. 2021 sightings and sentinel actions. Industry report. 29p.
[16] Williams, R., C. Lo, S. Reiss, K. Nielsen, and E. Ashe. 2021. Assessing the impacts of licensing and whale-watching rules on Southern Resident killer whales: Year 1. Contract report to WDFW. 48 p.
[17] Williams, R., M.S. Collins, K. Nielsen, S. Reiss, K. Wold, C. Lo and E. Ashe. 2022. Assessing the impacts of licensing and whale-watching rules on Southern Resident killer whales: Year 2. Contract report to WDFW. 46 p.
[18] Williams, R., C. Lo, S. Reiss, K. Nielsen, and E. Ashe. 2021. Assessing the impacts of licensing and whale-watching rules on Southern Resident killer whales: Year 1. Contract report to WDFW. 48 p.
[19] Frayne, A. 2022. 2021 Soundwatch Program Annual Contract Report: Soundwatch Public Outreach/Boater Education Project. 79 p.

vulnerable, based on increased food requirements and higher risk of mortality.[20] Whales with poor body condition (e.g., thin) were also declared vulnerable, as whales in the lowest 20% of measured body condition have been scientifically demonstrated to have an elevated probability of mortality in the near future relative to healthier individuals of the same sex and age class.[21] In 2021, SR3 communicated concerns about two whales in particularly poor health and three late-stage pregnancies, and WDFW issued emergency rules declaring the five whales vulnerable as the information became available. The contracted spring assessments began in 2022, in which twelve SRKW were determined to be in the lowest body condition. Those individuals, along with one whale in late-stage pregnancy, were declared vulnerable in June 2022. The current list of vulnerable whales is available on the Department's CWW website.

Feedback on Statutory Restrictions for Vessels Operating near SRKW

Under RCW 77.15.740, WDFW enforces the approach distance and speed of vessels operating near SRKW. Key take aways from feedback on vessel restrictions are below. As noted in Chapter 1, the feedback themes presented in this report do not represent the full spectrum of public opinion; they reflect data collected from the stakeholder focus groups and survey responses (which were likely provided by people who track SRKW issues closely). The complete feedback summary is in Appendix F.

> **The current statutory restrictions on vessel operation when in the vicinity of SRKW are seen as confusing.**

- The recreational boater focus group and survey participants who identified as recreational boaters suggest that the State clarify statutes and rules which are "official" versus guidelines developed by other interest groups, as conflicting guidance can be a source of confusion for recreational boaters.
- Some NGO participants note that the restrictions would be more simple and easier to communicate if all vessels are required to maintain a minimum one-half nm distance in all directions, i.e., a circle instead of the current oval, from all orca whales (as suggested in the CWW Rules section above).

> **Focus group and survey participants overwhelmingly note the difficulty a typical recreational boater might have in identifying killer whale ecotypes (i.e., SKRW versus transient, or Bigg's, killer whales), especially at one-half nm or more.**

- The feedback survey asked why boaters might violate the vessel RCW. The majority of respondents said violations were likely because boaters are not aware of SRKW presence.
- Survey respondents thought that additional communications or trainings on identifying SRKW would be beneficial for both increasing recreational boater awareness of the vessel rules and to help with compliance on the water.

[20] Raverty, S., J. St. Leger, D.P. Noren, K. Burek Huntington, D.S. Rotstein, F.M.D. Gulland, J.K.B. Ford, M.B. Hanson, D.M. Lambourn, J. Huggins, M.A. Delaney, L. Spaven, T. Rowles, L. Barre, P. Cottrell, G. Ellis, T. Goldstein, K. Terio, D. Duffield, J. Rice, J.K. Gaydos. 2020. Pathology findings and correlation with body condition index in stranded killer whales (*Orcinus orca*) in the northeastern Pacific and Hawaii from 2004 to 2013. PLoS ONE 15(12): e0242505.
[21] Stewart, J.D., J.W. Durban, H. Fearnbach, L.G. Barrett-Lennard, P.K. Casler, E.J. Ward, and D.R. Dapp. 2021. Survival of the fattest: linking body condition to prey availability and survivorship of killer whales. Ecosphere 12(8):e03660.

Commercial Whale Watching Compliance, Reporting, and Enforcement Analysis

WDFW conducted an analysis of compliance with the CWW rules, evaluating available data on program performance and outcomes, to identify potential adaptive management opportunities. Key findings from the analysis are as follows. The complete compliance analysis is in Appendix E.

This analysis focused on a limited number of rule elements for which sufficient data were available to support an evaluation and discussion of compliance and enforcement activities. A comprehensive understanding of rule compliance rates is limited by several factors. First, data regarding compliance with certain rule elements, particularly related to those pertaining to commercial kayaks, are not comprehensively collected. Second, identified levels of compliance with certain restrictions cannot be directly attributed to the commercial whale watch program. In particular, the level of vessel activity, which is closely tied to levels of compliance, has been substantially affected by factors unrelated to the regulations, including the pandemic. Finally, the very limited amount of time that has passed since rule implementation (only 18 months for certain rule elements) is not sufficient to identify trends in activities and compliance.

> **Overall, the analysis finds that for elements of the regulations that can be evaluated with available data, license holders are generally operating in compliance with those regulations.**

- The majority of businesses and operators engaging in CWW in regulated waters are licensed.
- Data indicates it is likely that license holders are typically reporting encounters with SRKW to WDFW as well as to the WhaleReport app.
- Soundwatch has not identified any violations of area closures (or "no-go zones"), and very few violations of the seasonal and hours-of-day limitations on SRKW viewing.

> **The exception to general compliance is with training requirements and installation of AIS.**

- Four vessels identified under business licenses in 2021 and/or 2022 are confirmed to not have AIS installed, and the AIS status of nine others is unknown.
- In 2022, only 77% of licensed commercial whale watch operators completed the required training.

> **Compliance with several regulatory requirements, and particularly for those pertaining to commercial kayak operations, cannot be evaluated with available data.**

- The Soundwatch Programs' monitoring protocol does include tracking compliance with the pre-existing prohibition on launching kayaks when whales are present in the area. However, difficulties in definitively identifying kayaks as commercial versus recreational, inconsistencies in how commercial kayaks are identified in the data across years, and the relatively opportunistic nature of kayak monitoring and prioritization of monitoring commercial motorized vessels for several reasons prevent Soundwatch's incident data from being used to evaluate compliance of kayak-related regulations.

Feedback on Commercial Whale Watching License Program

Under the authority of RCW 77.65.615, WDFW requires CWW business licenses for CWW businesses, operator licenses for CWW operators of motorized or sailing vessels, and kayak guide licenses. The 2021-22 CWW license information is in Table 1 below.

Table 1: Commercial Whale Watching Business and Operator License by Year

Year	Unique Kayak Businesses	Unique Motorized Businesses	Unique Motorized and Kayak Businesses	Total Number of Businesses	Total Number of Licensed Operators & Guides
2021	6	27	2	35	131
2022	4	31	2	37	181

This section summarizes high-level findings from feedback shared via stakeholder focus groups and an online survey on the CWW license program. As noted in Chapter 1, the feedback findings presented in this report do not represent the full spectrum of public opinion; they reflect data collected from the stakeholder focus groups and survey responses (which were likely provided by people who track SRKW issues closely). The complete analysis of feedback on the CWW license program and rules is in Appendix F. The online survey questions are in Appendix G.

CWW license holders and some NGO focus group participants identified a need for the CWW license program to accommodate CWW companies or entities that do not seek SRKW or take clients to view them within one-half nm (e.g., provide reduced fee options).

- CWW license holders feel that using the term *marine mammals* instead of *SRKW* in the current definition of "commercial whale watching" unnecessarily expands the license program to entities that do not interact with SRKW (aside from incidental encounters). This was echoed by some NGO focus group participants, who recommended that educational organizations and nonprofits that take students or passengers on the water to observe marine mammals should not be subject to the license fees.
- Several CWW companies say they do not view SRKW within one-half nm for one or more reasons, such as they perceive the rules as too complex, SRKW are rarely present in the areas they operate, and/or SRKW sightings are incidental to their operations (this last reason is particularly true for kayak companies but could also apply to motorized CWW companies).

CWW business license holders say the current license program creates a significant administrative burden for their companies.

- While the license application process is not perceived to be complicated, it is seen as resource-intensive, especially for smaller companies; license holders feel overwhelmed by state and federal business requirements in general and are frustrated by the license program requirements (this extends to reporting requirements in the CWW rules).
- Although the application is open in January, licensed kayak company owners said that guide staff are typically not hired until very close to the busy season (summer) and acquiring licenses for each guide during that busy period is challenging.

Feedback on Commercial Whale Watching Rules

Under the CWW rules (WAC Chapter 220-460), WDFW regulates CWW to reduce impacts of vessel noise and disturbance on SRKW. These rules include limits on the months and time of day CWW of SRKW may occur, the number of motorized CWW vessels that may be in the vicinity of SRKW, a "no go" zone for motorized CWW on the West side of San Juan Island, automatic identification system (AIS) for motorized CWW vessels, kayak tour protocols, and training and reporting requirements.

This section summarizes high-level findings from feedback shared via stakeholder focus groups and an online survey on the CWW rules. As noted in Chapter 1, the feedback findings presented in this report do not represent the full spectrum of public opinion; they reflect data collected from the stakeholder focus groups and survey responses (which were likely provided by people who track SRKW issues closely). The complete analysis of feedback on the CWW license program and rules is in Appendix F. The online survey questions are listed in Appendix G.

> **Focus group and survey participants universally value SRKW protection and overwhelmingly indicated that the current CWW viewing rules do not support SRKW recovery as much as they could. Furthermore, participants generally agree that the SRKW viewing rules for CWW vessels should not be more restrictive than rules for other types of vessels. Opinions on how to change the CWW viewing rules to better protect SRKW are mixed:**

- Some NGO participants suggest that all vessels (including CWW vessels) should be required to maintain a minimum one-half nm distance (in all directions) from SRKW. They note that an increased and more consistent distance rule would (1) be easier to communicate to all boaters, (2) eliminate the need for the vulnerable whale emergency rule and reduced vessel speeds in SRKW vicinity, thus simplifying the CWW viewing rules and general vessel restrictions, and (3) reflect the latest science such as that from Holt et al., 2021. These NGOs also said that adaptive management decisions about the level of SRKW viewing should be more clearly guided by the best available science and the population's recovery status.
- Motorized CWW license holders suggest eliminating the current time-of-day SRKW viewing limits in July, August, and September and allowing one motorized CWW vessel in SRKW vicinity during all other months of the year (but keep the three motorized vessel limit during July, August, and September). They observed that limiting CWW vessels in SRKW vicinity reduces their ability to fill a sentinel role, which is based on the idea that CWW vessel presence protects SRKW by influencing recreational boater behavior.
- Some CWW license holders feel that the CWW rules (and the overall license program) are misguided in that they do not direct State resources to address more significant threats to SRKW (e.g., prey availability).
- All focus groups agreed on-the-water WDFW Enforcement presence should increase to better regulate any vessel in the vicinity of SRKW.

CWW license holders and some NGO focus group participants believe that a system in which average boaters have more SRKW-viewing privilege than licensed vessel operators and sea kayak guides is "backwards."

- License holders cited examples of ecotourism licenses in other states and countries, including Mexico's gray whale license program, in which all vessels are required to maintain a certain distance from whales (240m), but license holders are allowed to get closer (60m – 80m depending on vessel size).

CWW license holders suggest simplifying the current reporting requirements (WAC 220-460-140).

- CWW vessel operators and kayak guides are concerned that complying with current on-the-water reporting requirements conflicts with their commitment to client safety and experiences; they worry about being unfairly penalized when they cannot report in a timely manner due to these conflicting priorities or technical issues.
- Kayak guides say they rarely (if ever) encounter SRKW on tours. Because sightings are so infrequent, less frequent reporting for their companies (e.g., seasonal or annual reporting instead of monthly during the summer) would be appropriate.
- Some CWW license holders suggested eliminating WDFW's current log requirement, which documents instances a CWW vessel is within one-half nm of SRKW, and only require reports to the WhaleReport app because the information is redundant.
- Some CWW license holders said the WhaleReport app reporting is difficult and unreliable due to intermittent cellular service, which both inhibit reporting. Both NGO focus groups observed that reporting to WhaleReport may not be as widespread as it should be due to these reasons and the fact reporting is only required when a CWW vessel is within one-half nm of SRKW, not when SRKW are observed at a further distance.

Focus group and survey participants generally agree that all SRKW should be considered "vulnerable;" that identifying a vulnerable SRKW from one-half nm is challenging; and that WDFW's vulnerable whale emergency rule and designation process could be refined. Opinions on how to refine the vulnerable whale process are mixed:

- CWW license holders and several NGO focus group participants said the vulnerable whale listing process needs to be more transparent and frequent. Suggestions included: expanding the identification/listing process from SeaLife Response + Rehab + Research (SR^3) and WDFW by engaging a panel of experts; increasing the frequency of list updates; and establishing clear criteria for a whale to be removed from the list.
- Some NGO focus group participants said that, while the emergency rule is not perfect, WDFW should wait to adjust its process to better assess its effectiveness and, if it is changed, it should stay as simple as possible for communication purposes. The same participants noted that the rule would be unnecessary if SRKW approach distances were increased to one-half nm.
- CWW license holders noted that the vulnerable whale emergency rule essentially eliminates the opportunity for license holders to view SRKW, when it is combined with the current definition of a "group of SRKW" (one or more SRKW within 1 nm of another SRKW) and the time-of-day and monthly viewing restrictions.

3. WDFW Recommendations

The Legislature tasked the Department with completing "an analysis and report to the governor and the legislature on the effectiveness of and any recommendations for changes to the whale watching rules, license fee structure, and approach distance rules…" and specified that, "The Department must… continue to adaptively manage the program using the most current and best available science." While the changes to the general vessel speed and approach distance were implemented in 2019, the CWW program and rules for commercial viewing of SRKW were implemented at the start of 2021. Thus, we have only a window of a few short seasons—seasons which varied substantially as the COVID-19 pandemic evolved, as whale presence and status varied, and as the statute continued to evolve—from which to glean insight on effectiveness and changes in science. Nonetheless, a few key advancements in the science have been published, and the variability over a couple years of implementation has allowed some unique insights into program effectiveness and opportunities for improvement.

Most notably, the two 2021 Holt studies shed light on the impact of vessels traveling in the vicinity of SRKW, even at slow speeds. These studies illuminate a finding that boats operating at slow speeds—below our current 7 knot speed limit—traveling even at distances of 400 yards or more from SRKW—beyond our current approach distance restrictions— are linked with substantial negative impacts on SRKW foraging. Female orcas are particularly sensitive to the presence of vessels, a finding intensified both by the increased nutritional needs of female SRKW surrounding pregnancy, birth, nursing, and prey sharing with calves and by the critical importance of breeding females to the future trajectory of the population.

- There is a low survival rate among calves, and in 2022, we noted two births and thus, two nursing mothers with increased nutritional needs, in the population.
- Another female was assessed in early 2022 to be in late-stage pregnancy, which is another time when nutritional needs are high.
- At least two female SRKW assessed to be in late-stage pregnancy in September of 2021 were not pregnant or with calf when measured again in winter of 2022, and three others in late-stage pregnancy in 2022 also have not presented with calf, although the loss of those pregnancies has not been confirmed at the time of this report.

Finally, in 2022, twelve SRKW were designated vulnerable after researchers demonstrated they were in the lowest body condition state—the bottom 20% for the whale's age and sex—which is associated with a 2-3 times higher rate of mortality.

In addition to our broader work on increasing prey availability, increasing foraging success remains critical. The most recent advancements in science suggest that our statutes, if modified to provide increased protections of SRKW from vessel impacts, could afford increased foraging and foraging success at a critical juncture in the population's recovery trajectory. As such, the Department recommends that the legislature increase the vessel buffer around SRKW to 1000 yards (approximately one-half nm) for all vessels.[22]

[22] Unless exempted for safety or other specified reasons.

CWW vessels already stay at one-half nm from SRKW at least 9 months of the year, and functionally stayed at one-half nm year-round in 2022. Thus, this change would not represent a large shift from the existing viewing opportunities for commercial operators, and in turn it would enable the Department to reduce complexity and lower the expected administrative and financial burden on CWW license-holders. For recreational vessels, a 1000-yard circular buffer would replace the existing ovular 300-yard to the side, 400-yard front and back approach distance, increasing simplicity and parity.

While this recommendation for adaptive management of the statute stems from the most current and best available science, it also addresses many key challenges and opportunities discussed in the survey and focus group conversations, including:

- Addressing the complexity of the current approach distance statutory restriction as well as the complexity of the rules for commercial viewing of SRKW. This would drastically simplify both and provide a much simpler message to communicate, which we anticipate would enable better understanding of and compliance with the statute and regulations, particularly among recreational boaters.
- Addressing the critique that for most of the time, general recreational boaters are legally permitted to approach SRKW closer than licensed commercial whale watchers, and it is the CWW operators who are generally better at identifying killer whale ecotypes and assessing distance on the water.
- Leaning into the potential benefits of a "sentinel" effect of motorized CWW by enabling these operators to set a positive example for other boaters to align with their behavior.
- Avoiding the potential downside of a "magnet" effect of motorized CWW by keeping any boats drawn to the scene of orcas at a distance that will not decrease foraging behavior or success.
- Enabling improved enforcement of the regulations by reducing requirements that officers can identify specific individual whales and by simplifying the variables they must track on-scene during their patrols.
- Removing the need for a "vulnerable whales" process that attempted to parse out the most vulnerable among the critically endangered population.
- Underscoring feedback that opportunities to commercially and recreationally view marine mammals in Washington waters remain high, and feedback from members of the CWW industry that viewing Southern Residents even at greater distances can provide CWW customers with opportunities to fall in love with the iconic SRKW population.

Changing the buffer for vessels around SRKW would precipitate several other changes in the RCW and the WAC —removing some sections and streamlining others—particularly in relation to the CWW license statute and the rules for commercial viewing of SRKW. The Department recommends preserving both the current definition of CWW to be inclusive of viewing any marine mammals and the overarching CWW licensing program, as both have value for monitoring, accountability, and continuing to build a collaborative relationship between industry and the broader SRKW recovery effort. However, the Department recommends some opportunities for simplification to ease the perceived administrative and financial burden on companies and operators. These suggestions, along with a recommendation to further distinguish between businesses offering sea paddle tours versus motorized whale watching tours, are outlined below.

Additional details about the Department's recommendations for modifications to the RCW and WAC are below, and draft revisions to the RCW are attached in Appendices A, B, and C.[23]

General restrictions for vessels operating around SRKW (RCW 77.15.740)

- 1000-yard buffer around SRKW
- *See Appendix A for specific modifications to RCW 77.15.740*

Commercial Whale Watching License (RCW 77.65.615 and RCW 77.15.815)

- Distinguishing sea paddle tour licensing from motorized CWW licensing
- Simplification & general reduction of fees
- Improvements to the enforcement mechanisms
- *See Appendix B for specific modifications to RCW 77.65.615 and Appendix C for specific modifications to RCW 77.15.815*
- *Note: If the legislature pursues changes to the CWWLP, determining the phasing and/or effective date will be important to enable the Department to make the required adjustments.*

Commercial Whale Watching Rules (WAC 220-460)

- The Department proposes simplifying the rules and requirements in WAC 220-460 to align with changes to the RCW via a Department rulemaking process. These changes could include:
    - Modifying the reporting structure and process to simplify where possible and increase effectiveness, efficiency, and compliance
    - Simplifying or removing several sections that would not be applicable, including approach distance windows and limits on number of boats within one-half nm of SRKW, if all vessels are held to a 1000-yard vessel approach distance

Please note that the Department is not recommending a 1000-yard buffer around all killer whales. This 1000-yard restriction would apply only around the Southern Resident killer whale population. For other killer whales encountered in the inland waters of Washington, such as Bigg's transient killer whales, boaters and commercial whale watching operators would continue to follow current federal law specifying vessels must remain at least 200 yards away.

Next Steps

The Department is directed to report back to the Governor and Legislature with additional information about effectiveness and recommended changes in November of 2024. If the Legislature proceeds with the recommendations herein and modifies the current statutes, there will likely be a large push in 2023 to expeditiously update the WAC via a Department rulemaking process and to engage in an intense period of outreach and education about the changes prior to the summer 2023 boating season.[24] Then, the remainder of 2023 and 2024 will provide some additional insight about

[23] If the Legislature wishes to pursue revisions to the vessel or commercial whale watching statutes that differ from those described, consultation with Department staff is invited and encouraged in order to ensure consistency and alignment between the various components of the recreational and commercial whale watching vessel regulatory regime.
[24] Key intergovernmental partners, the Be Whale Wise partnership, the Recreational Boating Association of Washington, and the Northwest Marine Trade Association will remain instrumental in helping educate boaters about how to boat safely and legally in waters inhabited by marine mammals.

the experiences of boaters, the CWW and paddle tour industries, and enforcement with the updated statute and regulations. In addition, the Department forecasts a few other key areas we would like to explore more over the next reporting period:

- **Geographic vessel restrictions such as slow-down or restricted activity zones:** We would like to engage with key partners such as San Juan County, the U.S. Coast Guard, the Quiet Sound program, and others to explore potential benefits, risks, and opportunities associated with geospatial approaches to providing vessel-related protections for SRKW.
- **Regulatory harmonization across jurisdictions:** We expect to see continued evolution of the federal and Canadian vessel regulations, and the Department hopes to continue working in partnership with our intergovernmental partners to identify regulatory regimes that best support a holistic approach to SRKW recovery including a comprehensive approach to addressing vessel noise and disturbance.
- **Regulatory harmonization across orca ecotypes:** Identifying ecotypes will remain an impediment to compliance with the SRKW vessel statutory restrictions by general boaters, and having the same regulatory regime, e.g., the same distance and/or speed requirements, for Transient and Resident orcas would likely improve compliance. However, some individuals, for example, licensed CWW operators, likely can demonstrate their ability to distinguish ecotypes and maintain appropriate distances accordingly. The Department would like to further explore this nexus, including both a universal buffer around all orcas and potential permitting options to afford permissions to those who are trained in identification and responsible boating near orcas to view transient killer whales more closely than a uniform buffer would allow.
- **Compliance and penalties:** The Department heard feedback, including from boaters and from industry, that clear and meaningful penalties could better incentivize compliance. WDFW Enforcement tends to focus initially on education and outreach when the statutory restrictions and regulations shift, but eventually transitions into more direct enforcement action. Perhaps compliance will increase as WDFW Enforcement begins issuing more penalties for violators, or perhaps stronger, more nimble enforcement mechanisms would be needed. The Department expects to expand on this topic more in the 2024 report.

Appendix A: Suggested Revisions to RCW 77.15.740

RCW 77.15.740

Protection of southern resident orca whales—Unlawful activities—Penalty.

(1) Except as provided in subsection (2) of this section, it is unlawful for a person to:

(a) Cause a vessel or other object to approach, in any manner, within ~~three hundred~~ one thousand yards of a southern resident orca whale;

(b) Position a vessel to be in the path of a southern resident orca whale at any point located within ~~four hundred~~ one thousand yards of the whale. This includes intercepting a southern resident orca whale by positioning a vessel so that the prevailing wind or water current carries the vessel into the path of the whale at any point located within ~~four hundred~~ one thousand yards of the whale;

~~(c) Position a vessel behind a southern resident orca whale at any point located within four hundred yards;~~

(~~d~~c) Fail to disengage the transmission of a vessel that is within ~~three~~ four hundred yards of a southern resident orca whale;

(~~e~~d) Cause a vessel or other object to exceed a speed greater than seven knots over ground at any point located within ~~one-half nautical mile (~~one thousand ~~thirteen~~ yards~~)~~ of a southern resident orca whale; or

(~~f~~e) Feed a southern resident orca whale.

(2) An operator of a vessel that has entered within one thousand yards of a southern resident killer whale must immediately safely reposition the vessel to be one thousand yards or farther from any southern resident killer whale(s).

(~~2~~3) A person is exempt from subsection (1) of this section if that person is:

(a) Operating a federal government vessel in the course of official duties, or operating a state, tribal, or local government vessel when engaged in official duties involving law enforcement, search and rescue, or public safety;

(b) Operating a vessel in conjunction with a vessel traffic service established under 33 C.F.R. and following a traffic separation scheme, or complying with a vessel traffic service

measure of direction. This also includes support vessels escorting ships in the traffic lanes, such as tug boats;

(c) Engaging in an activity, including scientific research, pursuant to the conditions of a permit or other authorization from the national marine fisheries service ~~and~~ or the department;

(d) Lawfully engaging in a treaty Indian or commercial fishery that is actively setting, retrieving, or closely tending fishing gear. Commercial fishing vessels in transit are not exempt from subsection (1) of this section;

(e) Conducting vessel operations necessary to avoid an imminent and serious threat to a person, vessel, or the environment, including when necessary for overall safety of navigation and to comply with state and federal navigation requirements; or

(f) Engaging in rescue or clean-up efforts of a beached southern resident orca whale overseen, coordinated, or authorized by a volunteer stranding network.

(~~3~~4) For the purpose of this section, "vessel" includes aircraft while on the surface of the water, and every description of watercraft on the water that is used or capable of being used as a means of transportation on the water. However, "vessel" does not include inner tubes, air mattresses, sailboards, and small rafts, or flotation devices or toys customarily used by swimmers.

(~~4~~5)(a) A violation of this section is a natural resource infraction punishable under chapter **7.84** RCW and carries a fine of five hundred dollars, not including statutory assessments added pursuant to RCW **3.62.090**.

(b) A person who qualifies for an exemption under subsection (2) of this section may offer that exemption as an affirmative defense, which that person must prove by a preponderance of the evidence.

~~(5) The enforcement actions required of the department from this section are subject to the availability of amounts appropriated for this specific purpose.~~

Appendix B: Suggested Revisions to RCW 77.65.615

RCW 77.65.615

Commercial whale watching business license—Commercial whale watching operator license—Commercial ~~whale watching kayak~~ paddle tour business license— Guide license—Fees—Definitions.

(1) A commercial whale watching business license is required for commercial whale watching businesses. The annual fee for a commercial whale watching business license is two hundred dollars in addition to the annual application fee of seventy ~~five~~ dollars.

(2) The annual fees for a commercial whale watching business license as described in subsection (1) of this section must include a fee~~s~~ of two hundred dollars for each motorized or sailing vessel or vessels. ~~as follows:~~

~~(a) One to twenty-four passengers, three hundred twenty-five dollars;~~

~~(b) Twenty-five to fifty passengers, five hundred twenty-five dollars;~~

~~(c) Fifty-one to one hundred passengers, eight hundred twenty-five dollars;~~

~~(d) One hundred one to one hundred fifty passengers, one thousand eight hundred twenty-five dollars; and~~

~~(e) One hundred fifty-one passengers or greater, two thousand dollars.~~

(3) The holder of a commercial whale watching business license for motorized or sailing vessels required under subsection (2) of this section may ~~substitute the vessel~~ designat~~ed~~ an additional vessel on the license~~, or designate a vessel if none has previously been designated,~~ if the license holder:

~~(a) Surrenders the previously issued license to the department;~~

(~~b~~a) Submits to the department an application that identifies ~~the currently designated vessel,~~ the vessel proposed to be designated~~,~~ and any other information required by the department; and

(~~c~~b) Pays to the department a fee of ~~thirty-five~~ one hundred thirty dollars and an application fee of ~~one hundred~~ seventy dollars.

~~(4) Unless the business license holder owns all vessels identified on the application described in subsection (3)(b) of this section, the department may not change the vessel designation on the license more than once per calendar year.~~

(~~5~~4) A commercial whale watching operator license is required for commercial whale watching operators. A person may operate a motorized or sailing commercial whale watching vessel designated on a commercial whale watching business license only if:

(a) The person holds a commercial whale watching operator license issued by the director; and

(b) The person is designated as an operator on the underlying commercial whale watching business license.

(~~6~~5) No individual may hold more than one commercial whale watching operator license. An individual who holds an operator license may be designated as an operator on an unlimited number of commercial whale watching business licenses.

(~~7~~6) The annual fee for a commercial whale watching operator license is one hundred dollars in addition to an annual application fee of ~~seventy~~ twenty-five dollars.

(7) A paddle tour business license is required for businesses conducting paddle tours in waters of Washington State inhabited by marine mammals. The annual fee for a paddle tour business license is two hundred dollars in addition to the annual application fee of seventy dollars.

(8) A person may conduct ~~commercial whale watching via~~ guided ~~kayak~~ paddle tours in waters inhabited by marine mammals only if:

(a) The person holds a ~~kayak~~ paddle guide license issued by the director; and

(b) The person is designated as a ~~kayak~~ guide on the underlying ~~commercial whale watching~~ paddle tour business license.

(9) No individual may hold more than one ~~kayak~~ paddle guide license. An individual who holds a ~~kayak~~ guide license may be designated on an unlimited number of ~~commercial whale watching~~ paddle tour business licenses.

(10) The annual fee for a ~~kayak~~ paddle guide license is ~~$25~~ twenty-five dollars in addition to an annual application fee of ~~$25~~ twenty-five dollars.

(11) The definitions in this subsection apply throughout this section unless the context clearly requires otherwise.

(a) "Commercial whale watching" means the act of taking, or offering to take, passengers aboard a motorized or sailing vessel ~~or guided kayak tour~~ in order to view marine mammals in their natural habitat for a fee.

(b) "Commercial whale watching business" means a business that engages in the activity of commercial whale watching.

(c) "Commercial whale watching business license" means a department-issued license to operate a commercial whale watching business.

(d) "Commercial whale watching license" means a commercial whale watching business license~~,~~ or a commercial whale watching operator license~~, or a kayak guide license~~ as defined in this section.

(e) "Commercial whale watching operator" means a person who operates a motorized or sailing vessel engaged in the business of whale watching.

(f) "Commercial whale watching operator license" means a department-issued license to operate a commercial motorized or sailing vessel on behalf of a commercial whale watching business.

(g) "Commercial whale watching vessel" means any vessel that is being used as a means of transportation for individuals to engage in commercial whale watching.

(h) "~~Kayak~~ Paddle guide" means a person who conducts guided ~~kayak~~ tours on behalf of a ~~commercial whale watching~~ paddle tour business.

(i) "~~Kayak g~~Guide license" means a department-issued license to conduct commercial guided ~~kayak~~ paddle tours on behalf of a ~~commercial whale watching~~ paddle tour business.

(j) “Paddle tour business” means a business that conducts paddle tours.

(k) “Paddle tour” means the act of guiding or offering to take people aboard non-motorized or human-powered vessels such as kayaks or paddle boards on a trip, tour, or guided lesson in waters inhabited by marine mammals for a fee.

(12) The residency and business requirements of RCW **77.65.040** (2) and (3) do not apply to Canadian individuals or corporations applying for and holding Washington commercial whale watching licenses defined in this section.

(13) The license and application fees in this section ~~are waived for calendar years 2021 and 2022.~~ may be waived for organizations whose relevant commercial whale watching or marine paddle tour activities are solely for bona fide non-profit educational purposes.

Appendix C: Suggested Revisions to RCW 77.15.815

RCW 77.15.815

Unlawfully engaging in commercial whale watching— Unlawfully engaging in paddle tours—Penalty.

(1) A person is guilty of unlawfully engaging in commercial whale watching in the second degree if the person:

(a) Does not have and possess all licenses and permits required under this title; or

(b) Violates any department rule regarding ~~the operation of a~~ commercial whale watching ~~vessel near a southern resident orca whale~~.

(2) A person is guilty of engaging in commercial whale watching in the first degree if the person commits the act described in subsection (1) of this section and the violation occurs within ~~one~~ five years of ~~the date of a prior conviction under this section.~~ any of the following:

(a) the date of a prior conviction under this section, or

(b) the date of a finding of guilt or plea of guilty pursuant to an amended information, criminal complaint or citation, or infraction for any violation that was originally charged as a violation of RCW 77.15.815, regardless of whether the imposition of sentence is deferred or the penalty is suspended; or

(c) the date of any disposition of a case arising from an act originally charged as a violation of RCW 77.15.815, whereby the offender enters into a disposition that continues or defers the case for dismissal upon the successful completion of specific terms or conditions.

(3)(a) Unlawful commercial whale watching in the second degree is a misdemeanor.

(b) Unlawful commercial whale watching in the first degree is a gross misdemeanor. ~~Upon conviction~~ In addition to appropriate criminal penalties, the director shall revoke any operator and/or business license and order a suspension of the person's privilege to engage in commercial whale watching for two years. ~~deny applications submitted by the person for a commercial whale watching license or alternate operator license for two years from the date of conviction.~~

(4) A person is guilty of unlawfully engaging in a paddle tour in the second degree if the person:

(a) Does not have and possess all licenses and permits required under this title; or

(b) Violates any department rule regarding the operation of paddle tours in marine waters.

(5) A person is guilty of unlawfully engaging in a paddle tour in the first degree if the person commits act described in subsection (1) of this section and the violation occurs within five years of the date of any of the following:

(a) the date of a prior conviction under this section, or

(b) the date of a finding of guilt or plea of guilty pursuant to an amended information, criminal complaint or citation, or infraction for any violation that was originally charged as a violation of RCW 77.15.815, regardless of whether the imposition of sentence is deferred or the penalty is suspended; or

(c) the date of any disposition of a case arising from an act originally charged as a violation of RCW 77.15.815, whereby the offender enters into a disposition that continues or defers the case for dismissal upon the successful completion of specific terms or conditions.

(6)(a) Unlawful engagement in a paddle tour in the second degree is a misdemeanor.

(b) Unlawful engagement in a paddle tour in the first degree is a gross misdemeanor. In addition to appropriate criminal penalties, the director shall revoke any paddle guide and/or business license and order a suspension of the person's privilege to conduct paddle tours in marine waters for two years.

Appendix D: Review of Submitted Science Addressing the Sentinel and Magnet Effects

This review summarizes evidence supporting and refuting the sentinel and magnet hypotheses. Generally, the hypothesis of a sentinel effect is that the presence or actions of commercial vessels and operators have a positive impact on the behavior of recreational vessel operators and/or their compliance with the rules, thus improving protection for Southern Resident killer whales (SRKW). The hypothesis of a magnet effect is that the presence of commercial vessels draws recreational boaters toward the whales, increasing vessel disturbance.

Overall, the science is far from definitive regarding the influence of commercial whale-watching vessels (CWW) on recreational vessel behavior. WDFW is considering options for requesting and reanalyzing data internally to better understand these phenomena.

Shields, M.W. 2022. Commercial whale-watching reduces vessel incidents in the vicinity of killer whales in Washington State. Marine Policy 145:105290.

Methods: This study conducted counts of vessels around SRKW and transient killer whales, both from commercial vessels and shore, documenting violations of the state's SRKW-related vessel restrictions. The stated objective was to test the hypothesis that commercial whale-watching vessels reduced the presence of recreational vessel incidents in the vicinity of killer whales.

Results: The mean incident count by recreational vessels drops from 6.60 per hour in the absence of CWW (95 % CI 4.18–10.40) to 2.65 in the presence of CWW (95 % CI 1.61–4.36).

Concerns:

- The potential bias of the CWW operators' knowing that the study was being conducted was not satisfactorily addressed or mitigated. Operators were told that observers were studying the effectiveness of the CWW regulations; even not knowing the specifics of the study would likely influence operator behavior (the response variable) toward confirmation of the stated hypothesis.
- Decisions around data included/excluded and modeling choices were alluded to but not transparent. Modelling could have accommodated some of the excluded data and should have involved model selection instead of predetermined removal of potentially informative variables. Additionally, given the exclusions, the sample sizes of analyzed data are unclear.
- The absolute number of vessels by CWW presence is not accounted for, such that a lower mean number of infractions could reflect a lower mean number of vessels.
- Observations included repeated measures of the same vessels, with no accounting for that dependency in the analysis.

- This study did not assess the possible magnet effect or overall number of boats on scene, but instead looked solely at the number of rule infractions occurring in the vicinity of killer whales.
- Examining the sentinel effect without simultaneously looking at the magnet effect is somewhat problematic, as the sentinel effect may be more prominent if CWW draw recreational vessels to the scene.

Opportunities: A study of this type, with an unidentified observer and a robust analysis, could lead to improved inference about both sentinel and magnet hypotheses, possibly in a combined analysis.

Williams, R., C. Lo, S. Reiss, K. Nielsen, and E. Ashe. 2021. Assessing the impacts of licensing and whale-watching rules on Southern Resident killer whales: Year 1. Contract report to WDFW. 48 p.

Methods: Theodolite tracking and behavioral scan sampling of killer whales and tracking of vessels within 1000m of the whales.

Results:

- Our models show that the influence of the CWW fleet's presence on private boater behavior is complex and appears to have both a magnet and a sentinel effect.
- Modeled private vessel speeds decreased from ~8 knots to ~6 knots when CWW vessels were present.
- The number of private boaters around SRKWs increased from an average of 0.39 boats to 0.72 boats within 1000m when CWW were present compared to when they were absent.
- There was no statistically significant difference in the number of private vessel speed or distance infractions recorded between treatment and control periods.

Concerns:

- SRKW presence was very limited in 2021, such that sample sizes for analyses are small.
- Sentinel and magnet effects are treated separately – no way to account for interplay or compare/weigh the effects.
- In some cases, the sampling unit is unclear, and there is likely a dependency in sampling unit that is ignored in the analysis. If true, this is problematic for inference: the modeling frameworks and model selection approaches would not be appropriate.
- There is the possibility that behavior of vessels off the west side of San Juan Island (study area) is not representative, as that area is heavily monitored, both on the water and from land.

Opportunities: This study examines multiple potential interpretations of sentinel and magnet hypotheses.

Williams, R., M.S. Collins, K. Nielsen, S. Reiss, K. Wold, C. Lo and E. Ashe. 2022. Assessing the impacts of licensing and whale-watching rules on Southern Resident killer whales: Year 2. Contract report to WDFW. 46 p.

Methods: Theodolite tracking and behavioral scan sampling of killer whales and tracking of vessels within 1000m of the whales.

Results:

- When CWW were in the vicinity of SRKWs, they tended to be low in number (mean = 1.75), and followed the rules regarding both approach distance (mean = 390 m) and speed (mean = 5.3 knots).
- No significant difference in the number of private vessels within 1000m of the focal SRKW between CWW presence and absence.
- Private boaters were much more likely to be within 1000m of whales.

Concerns:

- Sample size of CWW presence around SRKW is very low.
- Sentinel and magnet effects are treated separately – no way to account for interplay or compare/weigh the effects.
- In some cases, the sampling unit is unclear, and there is likely a dependency in sampling unit that is ignored in the analysis. If true, this is problematic for inference: the modeling frameworks and model selection approaches would not be appropriate.
- There is the possibility that behavior of vessels off the west side of San Juan Island (study area) is not representative, as that area is heavily monitored, both on the water and from land.

Opportunities: This study examines multiple potential interpretations of sentinel and magnet hypotheses.

Frayne, A., C. Lozano, and J. Newly. 2022. 2021 Soundwatch Program Annual Contract Report: Soundwatch Public Outreach/Boater Education Project. 79 p.

Methods: On-the-water documentation of counts of vessels within one half-mile of whales by type, location and activity; whale behavior data; vessel contact information; and CWW and private recreational vessel compliance with voluntary guidelines and/or restrictions.

Results:

- Anecdotally, Soundwatch has observed commercial whale watch vessels engaged in actively signaling and contacting other boaters via VHF to alert them to the presence of whales in their vicinity and the corresponding statutory restrictions.
- Of vessels contacted, "*39%* were actively engaged or intended to engage in whale watching activities," however, based on apparent activity of those same vessels, that seems to be an underestimate.

- Responses to "How did you find the whales" included following whale watch vessels to the present location (46% of respondents), monitoring CWW vessels on AIS, spotting groups of CWW vessels not making way.

Concerns:

- The survey of boaters was not designed to be scientifically robust, focusing instead on encouraging some level of response.
- Both CWW and recreational operators may behave differently in the presence of the Soundwatch vessel.

Opportunities: This result examines the magnet effect hypothesis by surveying recreational operators, independent of CWW input.

Pacific Whale Watch Association. 2022. 2021 sightings and sentinel actions. Industry report. 29 p.

Methods: Data collected through the PWWA app: whale observations (multiple species); SRKW presence (availability); law enforcement presence; and self-reported sentinel actions.

Results:

- 753 sentinel actions involved CWW operators contacting other vessels, including 545 recreational vessel contacts. For the 753 sentinel actions involving interactions with other vessels, PWWA members were successful in achieving a positive change in behavior in 70% of all encounters.

Concerns:

- The data were collected opportunistically by commercial whale watch employees. This is not a study, but rather a report of the activities carried out by that group, thus data collection methods were not tailored to address the specific questions/conclusions discussed.
- The discussion section does get into some perceived implications of the sentinel actions, and these should be interpreted with extreme caution as they are not discussing the results of a study and represent information reported by people who have a vested interest in the interpretation that sentinel actions are numerous and beneficial.
- Given the bias inherent in the data collection regarding the sentinel effect, this report offers limited scientific value on that front. It indicates that the PWWA operators think of themselves as sentinels on the water.

Opportunities: There may be management value in having experienced PWWA operators, who are a) knowledgeable about the whales, b) practiced at estimating distance, and c) acutely aware of the rules, encouraged to set good examples for recreational operators.

Appendix E: Analysis of Available Data

Objectives

This analysis evaluates available data on program performance and outcomes in order to identify potential adaptive management opportunities for WDFW. Specifically, the analysis addresses the following questions:

- Are all known Commercial Whale Watch operators licensed?
- Are licensed operators adhering to the new regulations for Commercial Whale Watch License holders?
- How has the behavior of commercial whale watch vessels and other vessel types changed with respect to compliance with other pre-existing vessel traffic restrictions since implementation of the new restrictions around both SRKW and transient killer whales?
- How has enforcement effort related to monitoring compliance with restrictions designed to protect SRKW changed since implementation of the commercial whale watch regulations?

Data Sources

The analysis that follows relied primarily on the following six key data sources collected and maintained by WDFW, Soundwatch (a program of the Whale Museum), and the B.C. Cetacean Sightings Network.

WDFW Enforcement Data[25]

The WDFW Enforcement Program reports and maintains data identifying the occurrence of each patrol, as well as key outcomes and events from each patrol. To support this analysis, WDFW Enforcement provided all reporting data pertaining to patrols identified as Joint Enforcement Agreement (JEA) Type "Execution Priority 3: Southern Resident Killer Whale" between January 1, 2019 and August 31, 2022 (WDFW 2022a). The range of these data includes two years of data prior to implementation of the Commercial Whale Watch License Program regulations, and one full year and one partial year post-regulation. These data include the following metrics of relevance to this analysis:

- Number of commercial whale watch and recreational whale watch vessels contacted;
- Violations of existing approach and speed restrictions and license requirements; and
- Other, unspecified instances of non-compliance or other violations.

These patrols are focused specifically on SRKW, and identified violations are associated with SRKW.

[25] WDFW provided enforcement data to IEc on October 11, 2022.

WDFW License Data[26]

Since the establishment of the Commercial Whale Watch License Program in 2021, WDFW has maintained data identifying all business license holders, operator/guide license holders, and records of completion of the training required by WAC 220-46-140(2).

WDFW Reporting Data[27]

WAC 220-460-140(3) stipulates that "all commercial whale watching license holders shall maintain accurate logs on each instance a vessel operating under a license enters within one-half nautical mile vicinity of southern resident killer whales and submit copies of the logs to the department." The Department maintains records of each log entry made by commercial whale watch license holders, including the date and time of the report, whether the encounter occurred within or outside of the permitted viewing window, and whether the report was also made in the WhaleReport application.

Soundwatch Incident Data

The Whale Museum's Soundwatch Boater Education Program aims to reduce vessel disturbance to marine wildlife, specifically killer whales, by monitoring vessel traffic levels, recording instances of violations with existing restrictions and guidelines (referred to by Soundwatch as "incidents"), and educating boaters on rules and best practices in the Salish Sea Region (The Whale Museum 2021). The program specifically focuses on SRKW, although other killer whale ecotypes and whale species are regularly included in the recorded data. Soundwatch's Vessel Incident Data identifies instances in which Soundwatch observed a vessel breaking vessel traffic or other related restrictions or guidelines. Key information provided in this dataset include the date, time, and location of the incident, the type of restriction or guideline the vessel failed to follow, and the species/ecotype of whale involved in the incident. In addition to tracking the state and federal vessel traffic guidelines applicable to all vessel types, beginning in 2021, Soundwatch began tracking violations of the new Commercial Whale Watch regulations dictating daily and seasonal viewing windows (email communication with Soundwatch program staff on October 19, 2022). In addition to the publicly available Annual Reports summarizing the findings of this monitoring, to support this and other analyses associated with SRKW conservation, Soundwatch provided raw vessel count and incident data from 2018 through the partially completed 2022 season (Soundwatch 2020, 2021, 2022).

Whale Report Alert System

The Whale Report Alert System (WRAS) collects user-provided information on reported whale sightings for broadcast to large commercial vessels (B.C. Cetacean Sightings Network 2022a). Commercial Whale Watch License holder regulations require that motorized commercial whale watch license holders provide sighting information to WRAS through the WhaleReport application when encountering an SRKW within one-half nautical mile (nm) (WAC 220-460-140). Data provided to the Department for purposes of this analysis include all reported instances of SRKW encounters by commercial whale watch vessels between January 1, 2021 and September 30, 2022 (B.C. Cetacean Sightings Network 2022b).

[26] WDFW provided the license data to IEc on October 6, 2022.
[27] WDFW provided the reporting data to IEc on October 4, 2022.

United States Coast Guard Automatic Identification System Data[28]

The United States Coast Guard (USCG) maintains an inventory of the status of licensed commercial whale watch vessels with respect to AIS. USCG provided WDFW with this inventory of vessels identifying the status of each vessel as confirmed to have, confirmed to not have, or unknown whether the vessel has AIS. The Department was not able to obtain AIS location data for each licensed vessel over the two license years, and identified some challenges—even if the data were available—in using AIS data retrospectively to assess compliance elements such as the number of licensed CWW vessels around SRKW at one time. Data availability, expense, and the lack of precise whale locations will remain a limiting factor for this type of analysis.

Presence of SRKW in Regulated Waters

While the new regulations include certain measures that are relevant and required for vessels to comply at all times (e.g., licensing, training, carriage of AIS), others are relevant and applicable only when in the vicinity of SRKW. As such, the descriptions of regulatory compliance and vessel behaviors are important to consider in the context of the frequency and duration of SRKW and transient killer whale presence within the regulated waters, and areas monitored by Soundwatch. In particular, an understanding of the presence of SRKW and transient killer whales during each of the years considered in the analysis provides important context for understanding the numbers and rates of non-compliance over time.

The Whale Museum's (2022a) annual SRKW sightings report to NOAA also provides information as to the presence of SRKW within the regulated waters through 2021 (the first year of the regulations). Figures D1 and D2 depict the number of days per month SRKW were detected in Puget Sound and the Central Salish Sea (including the San Juan Islands), respectively, in 2020 and 2021. As shown in Figure D1, SRKW were sighted in Puget Sound on 49 days, with sightings primarily occurring between July and November, and peaking in November (The Whale Museum 2022a). In 2021, there were only 28 SRKW sighting days in Puget Sound, distributed primarily between September and December, and again peaking in November. Within the Central Salish Sea, there were substantially more SRKW sightings days in both years compared to Puget Sound. During 2020, SRKW sightings days was relatively consistent between five and 11 days across the year, with peaks of 23 sightings days in both July and September. Sighting days were lower in 2021, with a total of 85 sighting days peaking in September through October.

[28] WDFW provided the USCG AIS data to IEc on October 20, 2022.

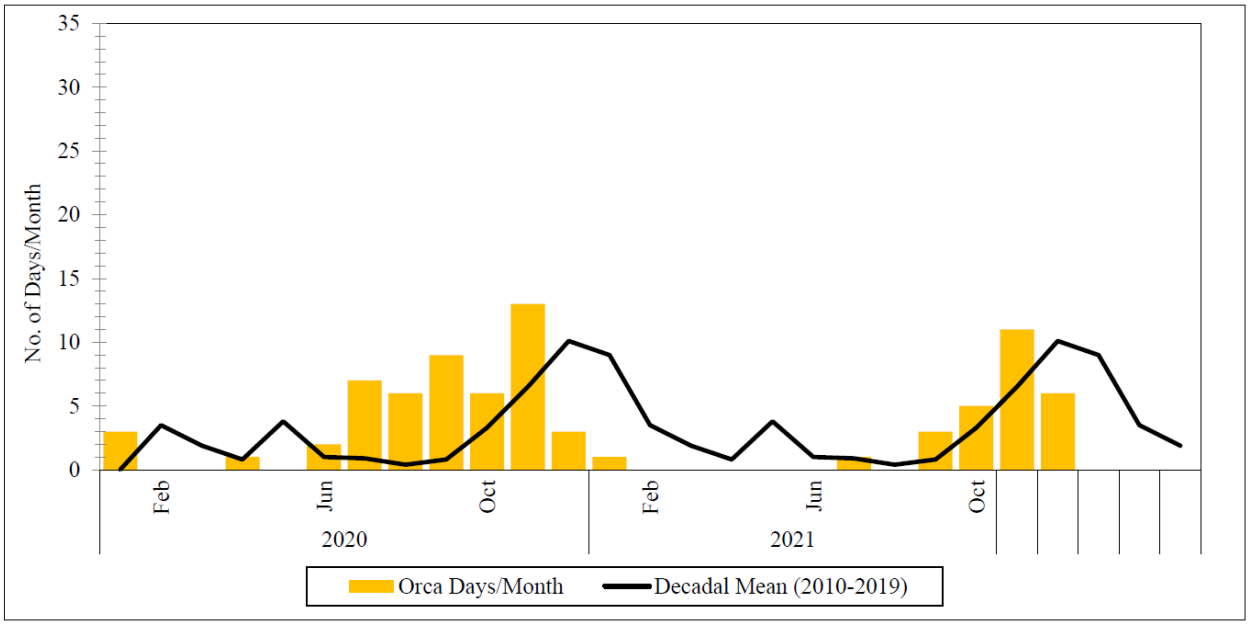

Figure D1. Days/Month SRKW Detected in Puget Sound

Source: Graph excerpted from the Whale Museum (2022a)

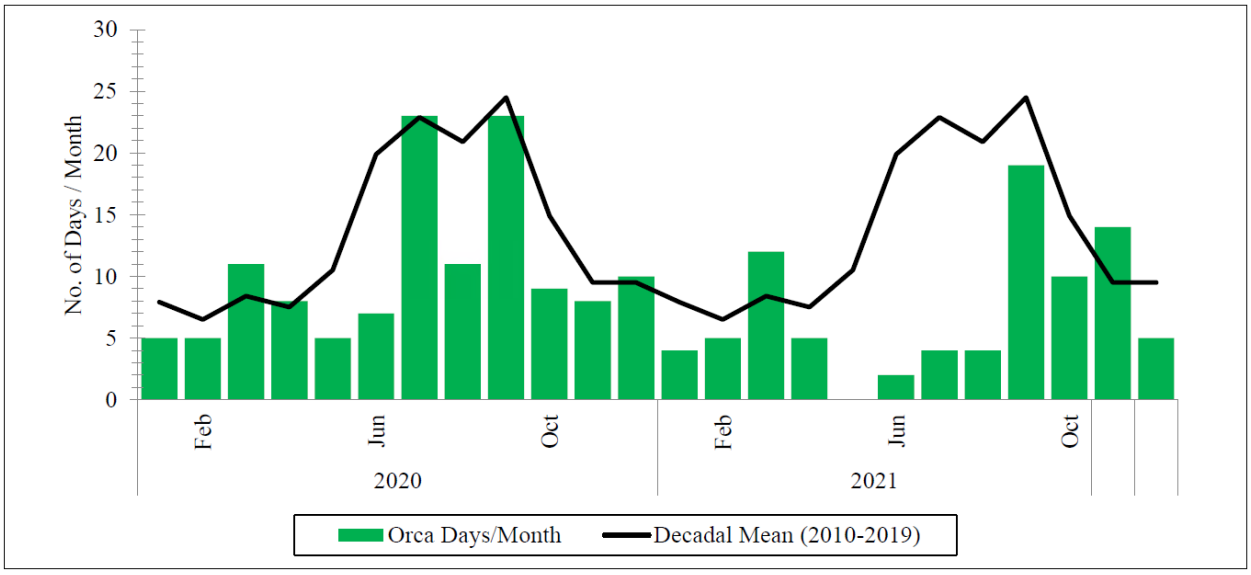

Figure D2. Days/Month SRKW Detected in Central Salish Sea

Source: Graph excerpted from the Whale Museum (2022a)

Figure D3 identifies the location and relative number of sightings of SRKW with the regulated waters. Areas on the west side of San Juan Island experienced the greatest number of SRKW sightings; this is as expected given that efforts to view SRKW are concentrated in that area.

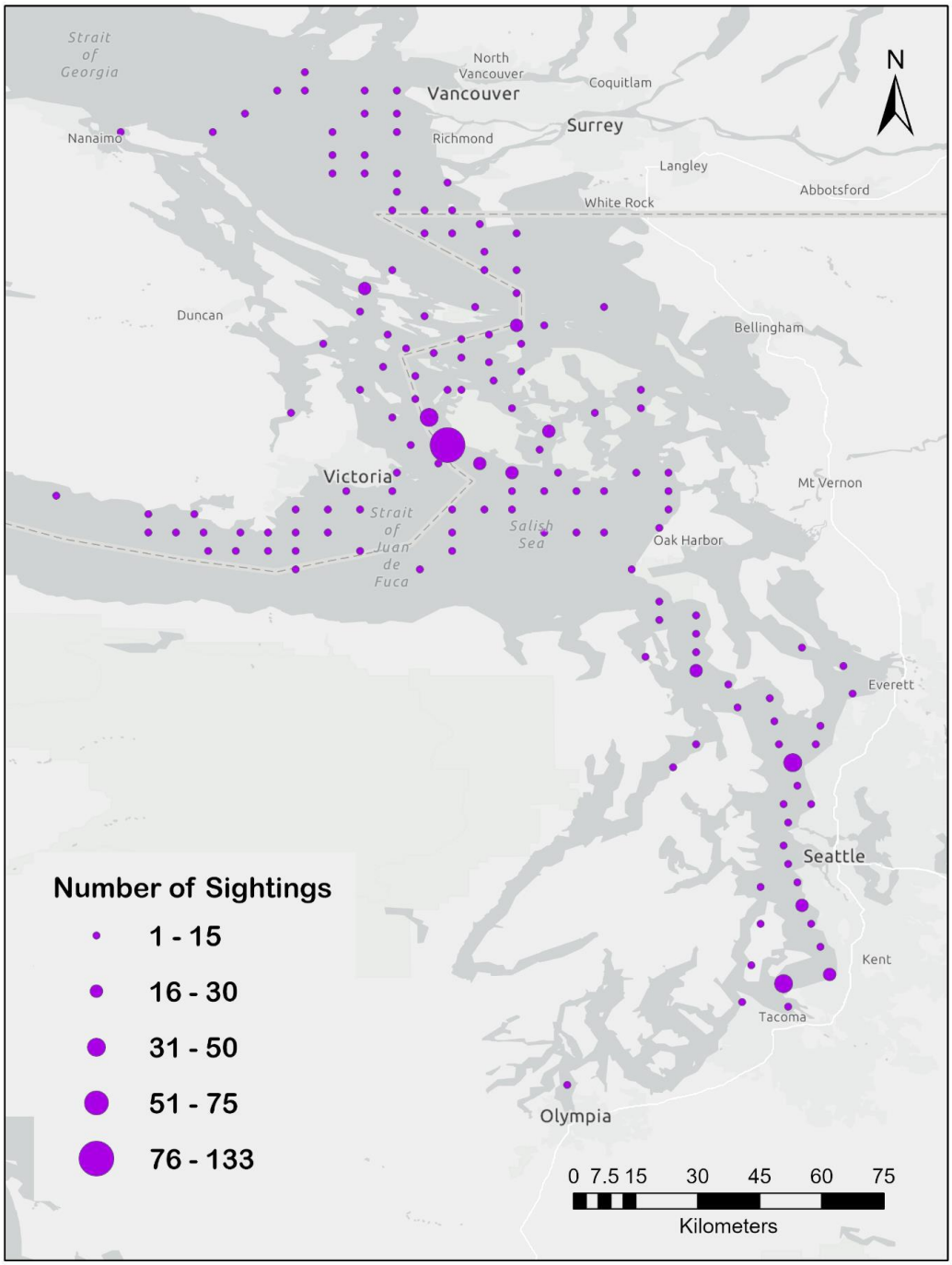

Figure D3. Map depicting the number of SRKW sightings reported by quadrant in 2021.

Source: The Whale Museum (2022a)

Soundwatch's Annual Monitoring Reports also track the number of monitoring days on which they observed either SRKW or transient killer whales. Soundwatch generally conducts monitoring between six and seven days a week during their active monitoring period (generally May/June to September/October). The number of days during which Soundwatch conducts monitoring is not

driven by whale presence, and monitoring occurs regardless of whether whales are in the vicinity.[29] Because the number of days Soundwatch observed either ecotype of whale is partially a function of the frequency with which Soundwatch was conducting monitoring, we consider these data as a rate of ecotype presence per monitoring day.

According to Soundwatch Annual Reports, the number of days for which SRKW and/or transient killer whales were present during seasonal monitoring has fluctuated over the last four years as well as in the relative presence of the two ecotypes (Table D1). Of the four years of data reviewed, SRKW presence was highest in 2018 (0.39 days of presence/day monitored) and lowest in 2021 (0.13 days of presence/day monitored). Differences in identified sightings days by the Soundwatch Program (The Whale Museum 2022b) versus the Whale Museum's sightings data compilation (The Whale Museum 2022a) may be accounted for in part by the fact that the peak SRKW presence identified in the sightings compilation occurred outside of Soundwatch's monitoring season. Transient presence was highest in 2019 (0.96 days of presence/day monitored) and lowest in 2020 (0.25 days of presence/day monitored). Data for 2022 are not yet available. In 2018 and 2020 the number of days of SRKW and transient presence were comparable; however, in 2019 and 2021, transients were substantially more frequently present than SRKW.

Table D1. Days of SRKW and Transient Killer Whale Presence During Soundwatch Monitoring

Year	Days of Monitoring	Days of SRKW Presence	Days of SRKW Presence/ Monitoring Day	Days of Transient Presence	Days of Transient Presence/ Monitoring Day
2018	87	34	0.39	31	0.36
2019	74	15	0.20	51	0.69
2020	118	24	0.20	30	0.25
2021	99	13	0.13	48	0.48
2022	Not Available	Not Available		Not Available	

Source: The Whale Museum 2019, 2020, 2021, 2022b

The Pacific Whale Watch Association (PWWA), the industry organization representing most of the CWW companies, reports comparable SRKW sightings in 2021 with a rate of 0.18 SRKW sighting /day on the water during the viewing season of 2021 (July through September). According to PWWA's assessment, SRKW were present in Washington waters during at least one of two permitted viewing periods of the day in 17 days of the 2021 viewing season, allowing for a total of approximately 60 hours of SRKW viewing during the permitting viewing periods. Of the days SRKW were present in allowed viewing periods in 2021, SRKW were present for one day each in July and August and 15 days in September. SRKW were present in both viewing periods of the days in all the days, apart from four days in September when they present in only one of the two allowed viewing periods of the day (PWWA 2022).

According to the assessment, SRKW were present in Washington waters for at least one of the two allowed viewing periods during the day in 22 days of the 2022 viewing season. In July, August, and

[29] Email communication from Soundwatch Program staff to IEc on October 24, 2022.

September SRKW were present during 10 days, 6 days, and 7 days respectively in 2022. In all the days SRKW were present during the WDFW-approved viewing period, SRKW were present in both viewing periods of the day, apart from two days in September when they were present only in one of the two viewing periods of the day (PWWA 2022).

Data Analysis

This section addresses the previously identified questions to understand compliance with respect to the new commercial whale watch regulations, and changes in vessel behavior and enforcement following implementation of the regulations. This analysis focused on a limited number of rule elements for which sufficient data were available to support an evaluation and discussion of compliance and enforcement activities.

Importantly, the limited time over which commercial whale watch license program has been in place, paired with fluctuations in vessel activity due to factors unrelated to the regulations, make it difficult to draw conclusions regarding comparative rates of compliance with and without regulations. A comprehensive understanding of rule compliance rates is limited by several factors. First, data regarding compliance with certain rule elements, particularly related to those pertaining to commercial kayaks, are not comprehensively collected. Second, identified levels of compliance with certain regulations cannot be directly attributed to the commercial whale watch program. In particular, the level of vessel activity, which is closely tied to levels of compliance, has been substantially affected by factors unrelated to the regulations, including the pandemic. Finally, the very limited amount of time that has passed since rule implementation (only 18 months for certain rule elements) is not sufficient to identify trends in activities and compliance. Additionally, the number of identified violations of regulations is dependent upon both the level of effort dedicated to monitoring for non-compliance, as well as the relative level of vessel activity. Data describing WDFW enforcement and Soundwatch monitoring effort allow for calculating violations per hour of monitoring effort over time. However, a finding of fewer violations per enforcement or monitoring hour may be due to increased compliance or due to less vessel activity on the water. A screening-level analysis of Soundwatch vessel count data confirms that vessel activity has likely changed over the analysis timeframe. In 2019, Soundwatch identified an average of eight recreational and commercial whale watch vessels per hour of monitoring (5.3 per hour for commercial whale watch vessels and 2.7 per hour for recreational vessels). This figure dropped to 3.4 vessels per monitoring hour in 2020 (1.7 per hour for both commercial whale watch vessels and recreational vessels, respectively) and has remained at between three and four vessels per monitoring hour since that time (2021 – 2.5 per hour for commercial whale watch vessels and 1.5 per hour for recreational vessels, and 2022 - 1.6 per hour for commercial whale watch vessels and 1.8 per hour for recreational vessels (Soundwatch 2018-2022).

Are all known Commercial Whale Watch businesses and operators licensed?

Available data indicate that commercial whale watch businesses and operators are generally complying with the requirement to obtain a license, with some limited exceptions.

Business Licenses

WDFW Enforcement data provide a key source of information regarding whether all businesses engaged in CWW are properly licensed. Between January 2021 and September 3, 2022, WFDW

contacted a total of 85 commercial whale watch vessels during 197 enforcement patrols. Where commercial whale watch vessels were observed in violation of regulations, WDFW Enforcement would generally specifically request to see proof of the vessel's business license. Compliance with business license requirements was otherwise based on visual inspection of the displayed license, or through review and confirmation with a list of licensed businesses. WDFW did not cite any instances of CWW business or operator license violations during these patrols.

Commercial Whale Watch License Program license data indicate that a total of 34 businesses obtained business licenses in 2021, and 37 businesses obtained licenses in 2022 (Table D2) (WDFW 2022b). During the 2021 whale watch season, Soundwatch observed a total of 29 unique businesses engaged in CWW (The Whale Museum 2022b). Soundwatch data from previous seasons indicate 31 active commercial whale watch businesses in 2019 and 35 businesses in 2020 (The Whale Museum 2020, 2021). The similarity between the number of licensed businesses and the number of businesses observed engaging in CWW suggest that it is unlikely that substantial numbers of operating businesses are not properly licensed. However, the data do not allow us to determine conclusively whether all businesses engaged in CWW have obtained the necessary license. The Department's review of license data for 2022 identified at least one instance of a business that had not obtained a business license, but that appeared to have several licensed operators, suggesting the business may have been operating during the 2022 season without a business license. It is unclear from current data whether the company operated in Washington waters during this time. This highlights important context that whale watching companies operating from Canadian ports only need the Washington license if they conduct CWW activities, e.g., take passengers to view marine mammals, in Washington waters. While many companies operating near the border take advantage of transboundary viewing opportunities, other companies may elect to remain within domestic waters.

Table D2. Commercial Whale Watching Business License by Year

Year	Unique Kayak Businesses	Unique Motorized Businesses	Unique Motorized and Kayak Businesses	Total Number of Businesses
2021	6	27	2	35
2022	4	31	2	37

Source: WDFW 2022b

The regulations require that business license holders "designate all commercial whale watching vessels to be used while engaging in commercial whale watching" (WAC 220-460-020 (6)). WDFW license data identify a total of 81 designated and licensed motorized commercial whale watch vessels in 2021, and 94 in 2022 (WDFW 2022b). During 2021, Soundwatch identified a total of 64 unique vessels observed watching whales either frequently/actively, occasionally, or rarely (The Whale Museum 2022b). That there are significantly more vessels licensed to be used in CWW than were observed engaged in whale watching suggests that it is likely that vessels participating in this activity are generally properly designated and licensed. Table D3 provides the total count of unique vessels observed engaged in CWW by Soundwatch in 2019-2021.

Table D3. Soundwatch Commercial Whale Watch Unique Vessel Inventory

Year	Active Vessels	Occasional Vessels	Rare Vessels	Total Vessels
2019	100	18	20	138
2020	49	5	14	68
2021	29	17	18	64

Source: The Whale Museum (2020, 2021, 2022b)

Operator Licenses

WDFW Enforcement data do not provide specific insight into whether individual whale watch vessel operators were properly licensed, for reasons described here. Protocols specify that where commercial whale watch vessels are observed in violation of regulations, WDFW Enforcement would generally specifically request to see proof of the operator's license. Between January 2021 and September 3, 2022, WFDW contacted a total of 85 commercial whale watch vessels during 197 enforcement patrols and did not cite any instances of CWW license violations (business or operator) during these patrols. However, because there were no recorded regulatory violations by commercial whale watch vessels identified by WDFW Enforcement during this period, we assume WDFW did not conduct any checks for operator licenses.

WDFW's review of 2022 training and license data identified several instances of individuals that had completed training but not acquired an operator's license, or businesses with business licenses but no licensed operators, suggesting that some small number of commercial whale watch operators were not properly licensed. That training was completed and there was no fee associated with obtaining an operator license suggests the failure to obtain operator's licenses were more likely related to clerical errors or confusion over the requirements than an intent to avoid licensing.

Are licensed businesses and operators adhering to the new regulations for Commercial Whale Watch License Holders?

This section addresses each of the individual requirements for commercial whale watch license holders and considers the data available to evaluate compliance with these requirements. Table D4 provides an inventory of the regulatory requirements for commercial whale watch license holders, the date on which the requirement went into effect, and identifies whether available data are sufficient to evaluate compliance with the requirement. For requirements where data allowed for further analysis, the sections that follow describe those findings.

Table D4. Commercial Whale Watch Program Regulatory Requirements and Data Availability

Regulatory Requirement for Commercial Operations	Date of Implementation	Data Available to Evaluate Compliance
Licensing (WAC 220-460-020)	5/1/21	Yes
Training (WAC 220-460-140(2))	5/1/21	Yes
Encounter reporting to WDFW (WAC 220-460-140(3))	5/1/21	Yes
Encounter reporting via WhaleReport (WAC 220-460-140(4))	5/1/21	Yes
AIS (WAC 220-460-140(1))	5/1/21; enforced as of 1/1/22	Partial
Area closures (WCA 220-460-100)	1/23/21	Yes
Seasonal viewing limits (WAC 220-460-120(2))	1/1/21	Yes
Daily viewing limits (overall) (WAC 220-460-120(2))	1/23/21	Yes
Daily viewing limits (per business) (WAC 220-460-120(3))[30]	1/23/21	No
Limits on number of vessels accompanying SRKW, including of groups containing a calf under one year of age or an individual designated as sick or vulnerable by emergency rule (WAC 220-460-110)[31,32]	1/23/21	No
Kayaks stay within 100 yards of shore in closed area (WAC 220-460-100)[33]	1/23/21	No
Prohibition on launching when SRKW are w/in one-half nm (WAC 220-460-130(a))[34]	1/23/21	No
Prohibition on being in path of SRKW (WAC 220-460-130(b))[35]	1/23/21	No
Move to shore or raft up if SRKW are encountered WAC 220-460-130(c))[36]	1/23/21	No

[30] Beginning in 2021, Soundwatch added an incident code to their monitoring protocols to specifically track incidents of non-compliance with specific license program regulations including violations of the limits on the dates and times during which CWW of SRKW is permitted (violations of no-go zone regulations were already being tracked relative to the voluntary no go zones already in place). Soundwatch monitoring protocols do not currently include tracking of incidents related to daily viewing limits per business, or limits in the number of vessels that may accompany SRKW (email communication with Soundwatch program staff on October 19, 2022.
[31] Ibid.
[32] 2A 2021 report from Oceans Initiative contains some limited information on violations of an emergency rule that restricted viewing of SRKW with an identified vulnerable individual (Oceans Initiative 2021). Oceans Initiative was not able to examine infractions of the emergency rule in 2022 due to low data resolution (Oceans Initiative 2022).
[33] The Soundwatch Programs' monitoring protocol does include tracking compliance with the pre-existing prohibition on launching kayaks when whales are present in the area. However, difficulties in definitively identifying kayaks as commercial versus recreational, inconsistencies in how commercial kayaks are identified in the data across years, and the relatively opportunistic nature of kayak monitoring and prioritization of monitoring commercial motorized vessels for several reasons prevent Soundwatch's incident data from being used to evaluate compliance with this regulation.
[34] Ibid.
[35] Ibid.
[36] Ibid.

Training

Training rates for license holders during the first year of the program were moderate for kayak guides (78%), and high, though not complete (94%) for motorized vessel license holders. In 2022, compliance with training requirements fell to 74% for kayak guides and 79% for motorized vessel operators. Additionally, not all commercial whale watch operators who completed the training went on to obtain the proper license.

Under the new regulations, all CWW license holders (including vessel operators and kayak guides) must complete an annual training from WDFW (WAC 220-460-140(2)).” Based on WDFW license and training data, in 2021, training completion rates for kayak guides, motorized vessel operators, and combination kayak guide/motorized vessel operators were 78%, 94%, and 75%, respectively. In 2022, the% of licensed operators and guides that had completed training decreased to 74% for kayak guides and 79% for motorized vessel operators. Table 5 identifies the total number of license holders in each category and associated rate of training completion for 2021 and 2022.

Table D5. Commercial Whale Watch License Holder Training Rates

Year	Total Licensed Kayak Guides	Percent Licensed Kayak Guides w/ Training	Total Licensed Motorized Vessel Operators	Percent Licensed Motorized Vessel Operators with Training	Total People Licensed as both Kayak Guide & Motorized Vessel Operator	Percent Kayak & Motorized Vessel Operators with Training
2021	58	78%	86	94%	8	75%
2022	47	74%	122	79%	12	75%

Source: WDFW 2022(b)

The regulations encouraged naturalists and others working on commercial whale watch vessels to participate in the annual training (WAC 220-460-140(2)). In addition to training completed by license holders, the data report that many other individuals, mostly affiliated with the licensed commercial whale watch businesses, took advantage of WDFW’s training opportunity. In 2021, 89 individuals not identified as commercial whale watch license holders completed the WDFW training, while 31 did in 2022 (WDFW 2022b). However, WDFW review of 2022 license data in August of 2022 identified that in several cases, training was completed by commercial whale watch operators that should have been licensed. Department staff reached out to 42 individuals who had completed the training but had not applied for an operator or kayak guide license as of August 18, 2022, and 18 individuals subsequently applied for a 2022 license. Altogether, these data may identify some individuals whose training should have been, but was not, paired with obtaining an operator’s license, and that most non-license holders (e.g., naturalists or others invited but not required to take the training) that completed the training in 2021 chose not to do so again in 2022.

These discrepancies where individuals completed one requirement (the license application or the training) but not both point, most likely, to confusion among operators and guides about the process for getting into compliance with the training and licensing requirements. Originally, WDFW intended to sell licenses and deliver the required training via the WILD system, where people would complete both requirements in the same place, and whereby WDFW’s Licensing staff would be able to easily validate that applicants had met both requirements (successfully completing the

training and the license application) before issuing a license. However, when SB 5330 passed in spring of 2021, the WILD system's configuration was no longer in alignment with the statute, and thus, it could not be used for license sales. Instead, staff stood up an online DocuSign application process, and a separate online quiz and training. Additionally, SB 5330 more clearly distinguished that CWW businesses needed a business license and operators needed an operator license, which differed from the initial bill (2SSB 5577) that included one operator under the business license. Finally, anecdotal reports suggest that some individuals made erroneous assumptions that either the license or the training were one-time rather than annual requirements. Likely, confusion related to the newness of the program and the changes in the license structure in 2021 led some operators and guides to believe they were in compliance when they were not.

Reporting to WDFW

Available data indicate that license holders are encountering SRKW both within and outside of the allowable viewing window, and submitting complete reports. However, it is not possible to determine whether license holders are reporting all encounters.

The regulations require that all commercial license holders maintain logs that they submit to WDFW each time a vessel comes within one-half nm of an SRKW (WAC 220-460-140(3)). Figure D4 presents the total number of SRKW encounters by month reported by license holders. In 2021, license holders reported a total of 50 encounters, 90% of which occurred between July and September, during the season when commercial viewing of SRKW at closer than one-half nautical mile is permitted ("viewing season"). Of those encounters, 35 (70%) were in September. In 2022, license holders reported a total of 21 encounters, 52 percent of which were during the allowed viewing season (WDFW 20222c). However, 2022 represents only a partial viewing season and does not include data from October through December. Nonetheless, encounters during earlier months of 2022 (when data are complete) outpace encounters during that same time period in 2021. Data are not available to confirm that commercial whale watch license holders that came within one-half nm of an SRKW filed a report with WDFW for each encounter.

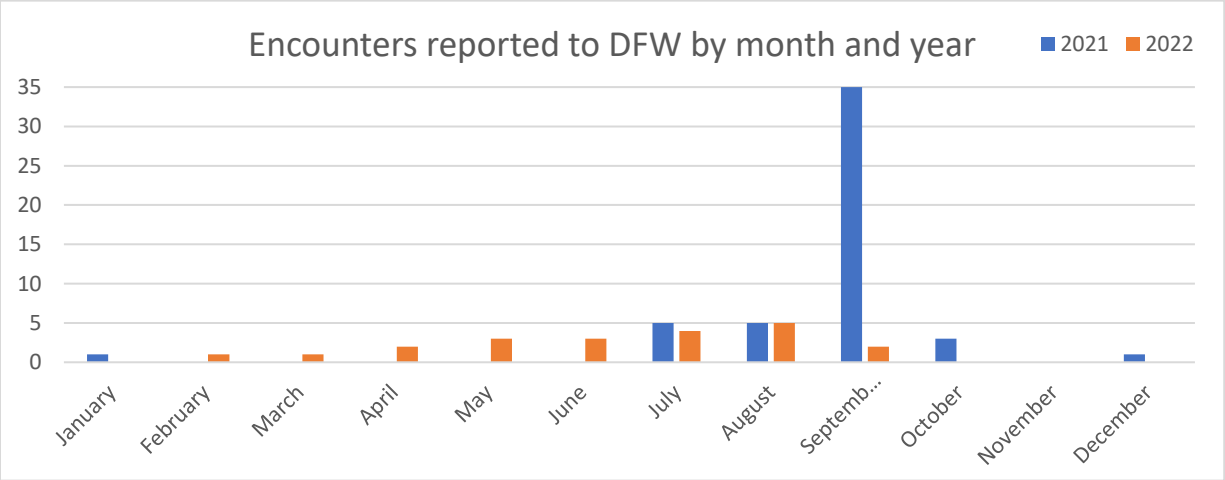

Figure D4. Encounters with SRKW by Commercial Whale Watch License Holders Reported to WDFW

Source: (WDFW 2022c)
Note: ** 2022 data are only available through 9/30/22.

License holders filing encounter reports identify whether their encounter with an SRKW occurred within an allowable viewing period (either seasonal or daily), or outside of that period. In 2021, 78% of encounters occurred were reported as being within an allowable window, while 20% are reported as having occurred outside of one (Table D6) (WDFW 2022c). In 2022, where there were relatively few encounters reported through the end of August, only 24% of them occurred within an allowed viewing window.

For incidental encounters occurring outside of allowed viewing windows, as specified in WAC 220-460, operators must reposition their vessel beyond one-half nm from the SRKW and report the encounter immediately to WhaleReport and within 24 hours to WDFW. In 2021, 10 encounters occurred outside the allowed viewing seasons and times. Eight of the 10 encounters were reported to WDFW by the next calendar day, while two (20%) were reported further out. In 2022, 15 encounters occurred outside the allowed viewing season and times. Of these 15 reports, 14 were made by the next calendar day, and one (7%) was reported more than 24 hours after the encounter occurred.

Table D6. Encounters Within and Outside of Allowable Viewing Periods

Year	Number Within Viewing Period	Number Outside of Viewing Period	Total Encounters	Percent Within Viewing Period[37]	Percent Outside of Viewing Period[38]
2021[39]	39	10	50	78%	20%
2022	6	15	21	29%	71%

Source: WDFW 2022c

Reporting to WhaleReport

Given available data, it appears that license holders are most likely reporting SRKW encounters in the WhaleReport application, or indicating through WDFW reports when they are not. Available data do not allow us to determine whether license holders are reporting encounters outside of permitted viewing windows immediately, as required. Future collection of data within the WDFW reports identifying license holders reasoning for not making corollary reports to WhaleReport may help identify ways to increase WhaleReport reporting to 100%.

Each time a motorized licensed vessel comes within one-half nm of an SRKW they must also log sighting information through the WhaleReport application (WAC 220-460-140(4)). Reports made to WDFW must include an indication of whether the encounter being logged was also reported to WhaleReport. In 2021, 14% (7 of the 50) of the encounter records logged with WDFW indicate that they were not also reported to WhaleReport. In 2022 (January 1-September 3), 24% (five of 21) of the logged encounters identify that they were not reported to WhaleReport (WDFW 2022a).

Beginning in July 2022, WDFW began requesting an explanation from license holders when indicating they had not reported an encounter to WhaleReport . Since this additional field has been in place, individuals report technical difficulties and the need for engagement and communication

[37] Total does not sum to 100% due to records that do not indicate the relative timing of the encounter.
[38] Total does not sum to 100% due to records that do not indicate the relative timing of the encounter.
[39] 2022 WDFW reporting data represent a partial year, from January 1 through September 30.

with their passengers as reasons for not reporting to WhaleReport (WDFW 2022a). In the future, this information may be useful to identify what type of challenges (e.g., logistical, technical) are inhibiting reporting to the WhaleReport system for consideration in future adaptive management actions.

The B.C. Cetacean Sightings Network provided WDFW with data identifying SRKW sightings reported between January 1, 2021 and September 30, 2022 (B.C. Cetacean Sightings Network 2022b). The associated documentation suggests the data are limited to "licensed operators," so this analysis assumes all sightings reports included are from vessels licensed under the CWW licensing program.[40] However, the B.C. Cetacean Sightings Network information likely captures sightings beyond those that are required by WDFW regulations to be reported. The purpose of this analysis, and review of the WhaleReport data, is to confirm that encounters reported to WDFW are also being reported to WhaleReport, consistent with WAC 220-460-140(4).

Figure D5 presents the total number of SRKW encounters by month reported to WhaleReport. In 2021, there were reported a total of 74 encounters, while 48 were reported in 2022 (B.C. Cetacean Sightings Network 2022b). Sightings in 2021 were predominantly in September, while 2022 sightings were more evenly distributed across the year, with higher sightings numbers in July and September.

Because the geographic scope of encounters reported in WhaleReport is broader than the regulated waters, and reports are not limited to those required by WDFW regulation, it is expected that a greater number of encounter reports would be made in WhaleReport compared to WDFW's reporting system for a given time period. If WDFW data include more encounter records than WhaleReport, that might suggest that license holders reporting to WDFW's system are not making the required corresponding reports to WhaleReport. Table D7 presents the total number of reports made to WhaleReport and WDFW's reporting system for each month in 2021 and 2022. With a single exception in January 2021, WhaleReport consistently includes a greater number of reported SRKW encounters than the WDFW reporting system. These data support the assumption that license holders are most likely reporting SRKW encounters in WhaleReport.

[40] Review of company name information and cross checking with license data provided by WDFW (2022b) confirms this as a reasonable assumption.

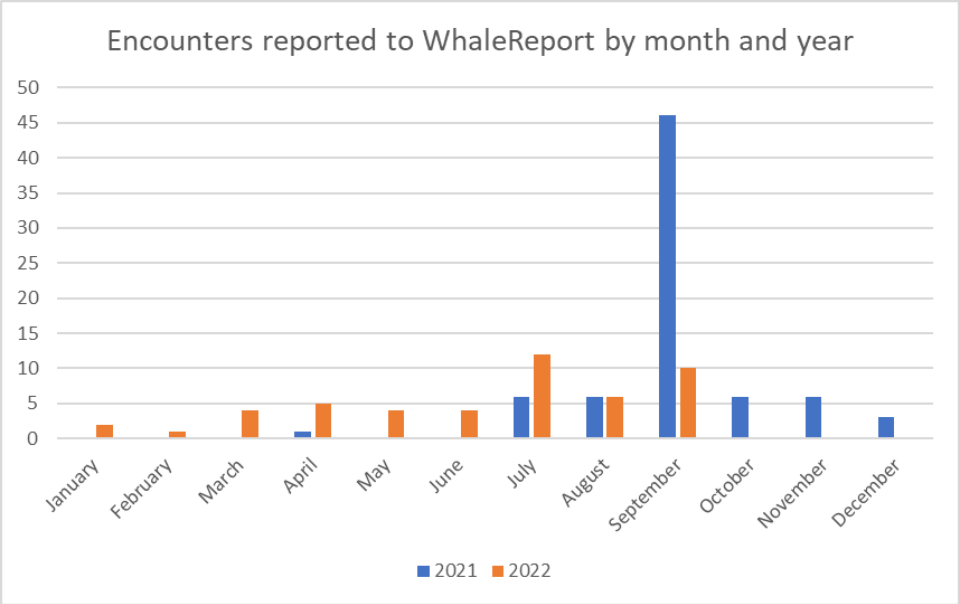

Figure D5. SRKW Encounters Reported by Commercial Whale Watch License Holders to WhaleReport

Source: B.C. Cetacean Sightings Network (2022b)

Table D7. Monthly CWW SRKW encounters reported by reporting system, 2021 and 2022

	WhaleReport 2021	Log submitted to WDFW 2021	WhaleReport 2022	Log submitted to WDFW 2022
January	0	1	2	0
February	0	0	1	1
March	0	0	4	1
April	1	0	5	2
May	0	0	4	3
June	0	0	4	3
July	6	5	12	4
August	6	5	6	5
September	46	35	10	2
October	6	3	0	0
November	6	0	0	0
December	3	1	0	0
Total encounters	74	50	48	21

Source: B.C. Cetacean Sightings Network (2022b); WDFW (2022c)

Limitations on Seasons and Hours When SRKW can be Viewed

Violations of seasonal limits and limits on the hours during which SRKW can be viewed are infrequent, though the extent of incidents occurring outside of Soundwatch's monitoring season is unknown.

The regulations place seasonal and daily limitations on when SRKW may be viewed. Commercial viewing of SRKW is allowed from July 1 through September 30, between the hours of 10:00 AM and 12:00 PM, and again between the hours of 3:00 PM and 5:00 PM (WAC 220-460-120(1-2)). Beginning in 2021, Soundwatch began tracking violations of these viewing windows as incidents in their monitoring scheme (email communication with Soundwatch program staff on October 19, 2022). In 2021, Soundwatch identified three instances of violations of the daily time window in which SRKW may be viewed, during 587 hours of on-the-water monitoring (0.005 incidents per hour of monitoring) (Soundwatch 2021). In 2022, Soundwatch recorded 10 of these incidents during 645 observation hours (0.016 incidents per hour) (email communication with Soundwatch staff on October 20, 2022). Thus, although the frequency of identification of instances of non-compliance did increase somewhat between 2021 and 2022, it does not appear that frequent violations of these viewing windows are occurring. It is important to note, however, that Soundwatch operates seasonally (generally from May through September), and only during certain hours of the day and days of the week (The Whale Museum 2022). Thus, the incident counts may not capture all violations of these viewing windows, particularly violations of restrictions in viewing SRKW from October 1 through April 30.

Areas Closed to Commercial Whale Watching

Licensed commercial whale watch operators appear to be in compliance with the area closures, and have not been observed violating these closures. Again, the potential for violations to be occurring outside of Soundwatch's monitoring window is unknown.

The regulations establish two areas permanently closed to CWW vessels year-round, regardless of SRKW presence ("no-go" zones). CWW is prohibited within the following areas:

- One-quarter nautical mile from shore from Mitchell Point to Cattle Point on the west side of San Juan Island; and
- One-half nautical mile of Lime Kiln Point State Park.

In both 2021 and 2022, there were no instances of CWW operations operating within the established closed areas (Soundwatch 2020, 2021)

AIS

The majority of motorized commercial whale watch vessels are confirmed to be outfitted with AIS. However, the AIS status of nine vessels is not known, and four vessels are confirmed to not be carrying AIS.

The regulations require that an AIS be installed on all motorized commercial whale watch vessels (WAC 220-460-140(1)). Implementation of this requirement was initially deferred until May 1, 2021, and enforcement of the regulation did not begin until January 1, 2022.

USCG provided WDFW with data identifying the AIS carriage status of all licensed commercial whale watch vessels (USCG 2022). Of the 98 licensed vessels identified in the dataset, 87% had confirmed AIS systems, while the status of 9% of the vessels was unknown. Four vessels are identified as confirmed to not have AIS.

No other data were available that would allow for confirmation that all licensed commercial whale watch vessels are carrying AIS.

Available data do not provide specific insights as to why some vessels have not come into compliance with this regulation. Prior to this regulation being enforced, WDFW, through NOAA's Section 6 grant program, offered funding support to any commercial operators who needed to install AIS due to WDFW's new regulations. Specifically, businesses were offered up to $1,000 per AIS unit installed on a vessel upon confirmation it was installed and functional. WDFW issued grants to support installation of AIS to eleven companies, for nineteen units and a total of $16,456.13. Despite this opportunity being offered to all license holders, at least four vessels that were included on commercial whale watch business licenses in 2021 and/or 2022 did not have AIS installed.

Has the compliance of commercial whale watch vessels or other vessels with pre-existing vessel traffic statutory restrictions changed since implementation of the commercial whale watch regulations?

The previous section considered compliance of commercial whale watch operations with the recently implemented Commercial Whale Watch Regulations specific to license holders. This section considers more broadly whether the behavior of the commercial whale watch fleet has changed with respect to existing general vessel (e.g., approach and speed) statutes aimed at protecting SRKW from the impact of vessels, or whether compliance with those statutory restrictions around SRKW compared to transient killer whales has changed following the license program regulations. It additionally considers whether there has been a notable change in compliance of recreational vessels with existing vessel traffic restrictions since license program implementation.

As previously noted, while an indicator of the extent of compliance with the regulations, the number of identified violations per hour of monitoring and enforcement is not a rate of non-compliance. Understanding the rate of non-compliance would require more information and analysis of the level of vessel activity associated with the identified violations. For example, two violations is more than one violation but two violations for 100 trips is a better compliance rate than one violation per 10 trips.

WDFW Enforcement Data

A review of WDFW enforcement data provides limited insight into how vessel behavior with respect to pre-existing vessel traffic restrictions has changed since the license program was implemented. In particular, despite being on patrol near-daily, particularly during the primary season for boating and whale watching, WDFW is not able to monitor the entirety of the regulated waters at all times. Additionally, the presence of WDFW Enforcement likely influences decisions made by vessel operators, such that vessel behavior while WDFW Enforcement is present may not

be indicative of behavior generally. As a result, the enforcement data do not provide a basis for characterizing the behavior of the commercial whale watch license holders broadly.

Nonetheless, it is worth considering trends in the number of recorded violations over time. Between January 25, 2019, and September 3, 2022, WDFW Enforcement conducted 403 individual enforcement trips for a total of 2,937.8 patrol hours. From 2019 to September 2022, WDFW Enforcement has not identified any violation of the existing approach restriction (Table D9).[41] In 2019 and 2020, WDFW Enforcement did not record any approach violations for recreational whale watch vessels, but recorded seven in 2021 (0.02 per enforcement hour) and 9 in 2022 (0.01 per enforcement hours (WDFW 2022a).[42] Although these recreational violations represent a marginal increase in the frequency with which violations are identified since implementation of the license program, they do not necessarily indicate that the license program has had a meaningful influence on the behavior of recreational vessels.

No other vessel type, including commercial fishing, recreational fishing, guided /unguided kayak, and "other violation", had any instance of approach violations in the time-period.[43]

Table D9. Approach violations by vessel type each year

Year	CWW	Rec. Whale Watch[44]	Rec. Violations/ Patrol Hour	Comm. Fishing	Rec. Fishing	Guided/ Unguided Kayak	Other Violation
2019[45]	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0
2021	0	7	0.02	0	0	0	0
2022[46]	0	9	0.01	0	0	0	0

Source: WDFW 2022a

WDFW Enforcement also tracks violations of the seven nm per hour speed limit around SRKW (RCW 77.15.740(1e)). Between 2019 and September 2022, WDFW Enforcement has not recorded any violations of the speed limit by commercial whale watch vessels (Table D10) (WDFW 2022a). Enforcement similarly recorded no violations for recreational vessels engaged in whale watching until 2022, when it recorded nine. Again, there is not sufficient information to draw inferences or suggest changes in vessel behavior following implementation of the license program from these data.

[41] 300 yards on the side of and 400 yards in the path of an SRKW (RCW 77.15.740(1)).
[42] Again, these violations may not necessarily be associated with SRKW.
[43] Field is identified as specifically noting instances of approach violations, but identifies "other violation" where corresponding fields identify the vessel type (e.g., Commercial Fishing).
[44] "Rec." = Recreational
[45] 2019 enforcement data is recorded only from January 25 onwards
[46] 2022 enforcement data represent a partial year, from January 1 through September 3.

No other vessel type, including commercial fishing, recreational fishing, guided /unguided kayak, and "other violation", had any instance of speed violations in the time-period.[47]

Table D10. Speed violations by vessel type each year

Year	CWW	Rec. Vessel Whale Watching	Comm. Fishing	Rec. Fishing	Guided/ Unguided Kayak	Other Violation
2019[48]	0	0	0	0	0	0
2020	0	0	0	0	0	0
2021	0	0	0	0	0	0
2022[49]	0	**9**	0	0	0	0

Source: WDFW 2022a

Soundwatch Data

Soundwatch monitoring data allow for consideration of trends in vessel behaviors over time relative to compliance with restrictions ("incident data"). This section considers patterns in incidents across different vessel types over time to consider how behavior may have changed since implementation of the license program, as well as how behavior may have changed in the vicinity of SRKW versus transient killer whales. Importantly, it was not until 2020 that Soundwatch began to clearly and consistently identify the species and ecotype in a format that allows for ready analysis. As a result, comparisons of vessel behavior in proximity to SRKW versus transient killer whales is done only for more recent years (i.e., 2020, 2021, and 2022).

Soundwatch identifies instances of violations of existing restrictions and guidelines as "incidents" within their data (Soundwatch 2018, 2019, 2020, 2021, and 2022). Each incident may include more than one violation (e.g., a vessel that is speeding at a distance closer than 300 yards on the side of an SRKW is violating two statutory restrictions but is counted as a single incident). Tables D11, D12, and D13 summarize the number of incidents in proximity to SRKW, transient killer whales, and all whales between either 2020 and 2022, or 2019 and 2022. Importantly, changes in the number of incidents over time is to some extent a function of the level of monitoring effort, which changes from year to year. For this reason, incident figures for "ecotour" (the terminology used by Soundwatch to identify commercial whale watch vessels) and recreational vessels are also reported in terms of incidents per hour of Soundwatch monitoring hours, to allow for normalized comparison across years. As described previously, the number of incidents is also dependent upon the level of vessel activity on the water, which as previously described, has fluctuated over time.

Incidents around SRKW

The license program and regulations are intended to reduce pressure on SRKW. Relative to SRKW, Ecotour vessels committed relatively few violations in 2020 and 2021 (6 and 4 violations,

[47] Field is identified as specifically noting instances of approach violations, but identifies "other violation" where corresponding fields identify the vessel type (e.g., Commercial Fishing).
[48] 2019 enforcement data is recorded only from January 25 onwards.
[49] 2022 enforcement data represent a partial year, from January 1 through September 3.

respectively, which corresponds to 0.009 and 0.007 incidents per observation hour) (Table D11).[50] However, incidents increased somewhat markedly in 2022, with 27 incidents recorded, corresponding to a rate of 0.042 incidents per hour (a four-fold increase in the number of incidents identified per hour). This increase does not appear to reflect an increase in vessel activity in 2022, as Soundwatch vessel count data suggest a decrease in the number of commercial whale watch vessels counted per hour from 2.5 in 2021 to 1.6 in 2022 (Soundwatch 2019-2022). It may instead indicate an increased vigilance in monitoring compliance around SRKW. Despite this increase in incidents in 2022, violations identified for ecotour vessels have remained relatively low compared to recreational vessels (0.042 incidents per hour and 0.375 incidents per hour, respectively). In 2020, recreational vessels recorded 95 incidents (0.142 incidents per observation hour), which dropped to 35 in 2021 (0.060 incidents per hour) but rose sharply in 2022 to 242 incidents (0.375 incidents per hour). As previously described, the limited number of years of data and confounding effects of the pandemic make it difficult to draw any inferences as to the reason for this change over time.

Incidents around Transients

Restrictions on viewing of SRKW may result in an increased focus on, and potentially incidents within proximity to, transient killer whales. Ecotours committed very few (2) incidents around transient killer whales in 2020 prior to implementation of the license program (0.003 incidents identified per observation hour) (Table D12). This may reflect substantially reduced activity of the fleet due to the pandemic, which is supported by Soundwatch vessel count data. Reported incidents by ecotours increased in 2021 to 40 incidents (0.068 incidents per hour), compared to 4 incidents for SRKW (0.007 incidents per hour). This may be a result of the much greater presence of transients compare to SRKW that season (Table 1). Ecotour incidents around transients dropped slightly to 30 in 2022 (0.047 incidents per hour), which was comparable to the 27 incidents against SRKW (0.042 incidents per hour).

Recreational vessels showed a similar pattern of incidents around transients of increasing from 2020 to 2021 (0.087 incidents per hour to 0.213 incidents per hour) and then dropping off slightly (to 0.169 incidents per hour). Notably, in 2022, the number of incidents committed by recreational boaters around SRKW (0.375 incidents per hour) far exceeded those committed in proximity to transients (0.169). Data are not yet available to evaluate whether relative presence of the two ecotypes may be factors in this outcome.

[50] Soundwatch uses the term "ecotour" to refer to vessels offering paid excursions to view whales, and distinguishes between US-based ecotours, Canada-based ecotours, and kayak ecotours. Although the identified ecotour group is not definitively representative of the universe of commercial whale watch license holders, as described in section 3.4.1, the number of businesses and vessels identified by Soundwatch as ecotours is relatively similar to the number of commercial whale watch companies, such that we assume the category "ecotour" in the Soundwatch incident and vessel count data is representative of commercial whale watch license holders.

Table D11. Incidents in Proximity to SRKW[51]

Year[52]	Ecotour US	Ecotour Canada	Ecotour Kayak	Ecotour Total	Ecotour Incident/ Obs. Hour	Private Motor	Private Sail	Private Kayak	Rec. Total	Rec. Incident/ Obs. Hour
2020	4	2	0	6	0.009	89	5	1	95	0.142
2021	3	1	0	4	0.007	29	6	0	35	0.060
2022	14	9	4	27	0.042	222	14	6	242	0.375

Sources: Soundwatch 2020, 2021, 2022 and email communication with Soundwatch program staff on October 20, 2022.

Table D12. Incidents in Proximity to Transient Killer Whales[53]

Year[54]	Ecotour US	Ecotour Canada	Ecotour Kayak	Ecotour Total	Ecotour Incident/ Obs. Hour	Private Motor	Private Sail	Private Kayak	Rec. Total	Rec. Incident/ Obs. Hour
2020	2	0	0	2	0.003	53	4	1	58	0.087
2021	24	16	0	40	0.068	107	12	6	125	0.213
2022	19	11	0	30	0.047	103	4	2	109	0.169

Sources: Soundwatch 2020, 2021, 2022 and email communication with Soundwatch program staff on October 20, 2022.

[51] Total number of observation hours were 669 in 2020, 587 in 2021, and 645 in 2022.
[52] 2018 and 2019 data do not allow for rapid identification of incident definitively associated with SRKW and are omitted from the table as a result.
[53] Total number of observation hours were 669 in 2020, 587 in 2021, and 645 in 2022.
[54] 2018 and 2019 data do not allow for rapid identification of incident definitively associated with transient killer whales and are omitted from the table as a result.

Table D13. Incidents in Proximity to All Whales[55,56]

Year	Eoctour US	Ecotour Canada	Ecotour Kayak	Ecotour Total	Ecotour Incident/ Obs. Hour	Private Motor	Private Sail	Private Kayak	Rec. Total	Rec. Incident/ Obs. Hour
2018	18	30	7	55	0.101	274	10	4	288	0.526
2019	35	37	35	107	0.139	402	47	30	479	0.621
2020	6	2	0	8	0.012	154	9	3	166	0.248
2021	30	17	0	47	0.080	146	19	6	171	0.291
2022	38	25	5	68	0.105	376	19	8	403	0.625

Sources: Soundwatch 2018, 2019, 2020, 2021, 2022 and email communication with Soundwatch program staff on October 20, 2022.

Vessel Behavior Overall

Increased attention to the impacts of vessel traffic on SRKW and corresponding restrictions may result in greater compliance with laws that protect marine mammals more generally. Evaluating the data collectively across all ecotypes and species allows for consideration of changes in patterns of vessel behavior across a longer time horizon.

Figure 6 displays the rate of incidents identified per Soundwatch observation hour for ecotour vessels and recreational vessels between 2018 and 2022 (Tabular data are provided in Table 13). These data do not indicate any particular trend. Although the number of incidents for both vessel types decreased between 2019 and 2020, the reduced vessel activity associated with the pandemic, which continued into 2021, likely contributed to this result. This assumption is supported by Soundwatch vessel count data (Soundwatch 2019-2022). Data available for 2022 suggest the rate of incidents observed for both vessel types was close to pre-pandemic levels, though the level of vessel activity was lower.

[55] Totals reported in each cell may not represent sum of corresponding cells in Tables 11 and 12 due to presence of other species (e.g., humpback whales, minke whales) in this dataset.
[56] Total number of observation hours were as follows: 547 in 2018; 771 in 2019; 669 in 2020; 587 in 2021; 645 in 2022

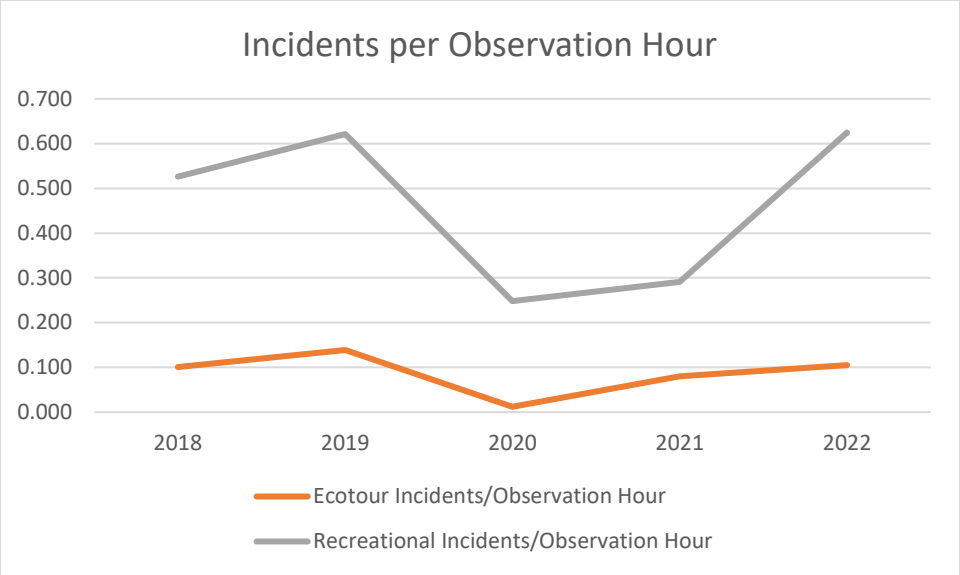

Figure D6. Incidents per Soundwatch observation hour by vessel category, 2018-2022 (partial year)

Source: Soundwatch 2018, 2019, 2020, 2021, 2022

Has enforcement effort related to monitoring compliance with statutes designed to protect SRKW increased since implementation of the commercial whale watch regulations?

The total number of hours dedicated to enforcement of SRKW protection restrictions decreased during the first year of the license program (2021) compared to 2019 and 2020. However, 2022 is on track to exceed 2019 enforcement levels (the year with the greatest number of enforcement hours within the available data range). Enforcement has increasingly shifted its focus toward commercial whale watch vessel compliance relative to recreational vessel compliance.

In 2021, WDFW conducted a total of 119 patrols totaling 363.8 hours focused on Execution Priority 3: Southern Resident Killer Whales. This represents a decrease in overall effort dedicated to this priority by approximately half compared to 2020, and over three times less effort than was conducted in 2019 (Table 14). Because 2022 data represent only a partial year of data, a direct comparison to enforcement effort to 2021 is not possible. However, even with 2022 representing only a partial year of data, the hours of enforcement implemented in 2022 by September 3 were already more than double the hours implemented in 2021. The average number of enforcement hours per month in 2021 was 30, compared to 94 in 2022 (WDFW 2022a). Overall, the total enforcement effort dedicated to Execution Priority 3: Southern Resident Killer Whales at the outset of the license program was substantially less than in the two years prior (2019 and 2020), enforcement effort in 2022 is on track to approach 2019 levels.

WDFW enforcement data also report the total number of vessels of each type contacted during a given patrol. Since 2019, 93% of all vessels contacted were recreational vessels (Table 14). However, looking over time, there has been an upward trend in the relative proportion of vessel contacts made with commercial vessels. In 2019, 100% of the vessels contacted were recreational and none were commercial. In 2021, commercial vessels comprised 11% of the vessels contacted

during patrols, while in 2022, they made up 18% of vessels contacted (WDFW 2022a). This indicates an increased focus on commercial vessels since the license program was implemented.

Table D14. Number of Patrols and Vessel Contacts by Year

Year	Number of Patrols	Number of Hours	Number of Rec. Vessels Contacted	Number of CWW Contacted	Total Vessels Contacted	% Rec. Vessels	% Comm. Vessels
2019[57]	121	1,157.5	302	0	302	100%	0%
2020	85	664.3	514	12	526	98%	2%
2021	119	363.8	309	38	347	89%	11%
2022[58]	78	752.2	213	47	260	82%	18%
Total	**403**	**2,937.8**	**1338**	**97**	**1435**	**93%**	**7%**

Source: WDFW 2022a

Summary of Findings

Overall, this analysis finds that commercial whale watch license holders are generally operating in compliance with respect to licensing, reporting, and vessel activity-related components of the regulations. Available data identify the majority of businesses and operators engaging in CWW in regulated waters are licensed and that it is likely that license holders are generally reporting encounters with SRKW to WDFW as well as to WhaleReport. Soundwatch did not identify any violations of area closures during 2021 and 2022, and documented very few violations of the seasonal and hours-of-day limitations on SRKW viewing. The exceptions to apparent compliance in the previously described areas is with training requirements, and installation of AIS. In 2022, only 140 of the 181 license holders (77%) completed the required training. Regarding installation of AIS, four vessels are confirmed to not have AIS installed, and the AIS status of nine others is unknown. Additionally, compliance with several regulatory requirements, and particularly for those pertaining to commercial kayak operations, cannot be evaluated with available data.

Recommendations regarding potential adaptive management measures related to compliance rates and factors that affect compliance include the following:

- Consider coordinating licensing and training tracking systems to issues licenses only when training has been completed.
- Collect information from individuals participating in training regarding whether they are or intend to become a licensed operator, to allow for tracking of other individuals outside of licensed operators participating in training.
- Work with USCG, WDFW Enforcement, or through outreach to individual license holders to confirm that AIS is currently installed on all licensed motorized vessels, and understand whether there are barriers to installation on certain vessels.

[57] 2019 enforcement data is recorded only from January 25 onwards.
[58] 2022 enforcement data represent a partial year, from January 1 through September 3.

- Collect information to better understand reasoning when SRKW encounters reported to WDFW are not reported to WhaleReport.[59]
- Request future data retrieved from WhaleReport identify the date and time of the report, in addition to the date and time of the sighting.
- Continue to coordinate and communicate closely with the commercial whale watch industry to understand challenges with regulatory compliance, factors affecting compliance, and potential options to alleviate factors that are inhibiting compliance.
- Work with Soundwatch and WDFW Enforcement to identify whether other commercial whale watch regulations could be added to their monitoring protocols to provide a basis for understanding compliance with the following requirements of the regulations:
    - Daily viewing limits (per vessel) (WAC 220-460-120(3)))
    - Limits on number of vessels accompanying SRKW (WAC 220-460-110)
    - Kayaks stay within 100 yards of shore in closed area
    - Prohibition on launching kayaks when SRKW are w/in one-half nm
    - Prohibition on kayaks being in path of SRKW
    - Move to shore or raft up kayaks if SRKW are encountered
    - Confirmation of installed and functioning AIS[60]

[59] This recommendation is already underway through the WDFW reporting form.
[60] Compliance check could potentially be done by WDFW Enforcement when they make contact with CWW vessels due to an identified violation.

References

B.C. Cetacean Sightings Network. 2022a. What is WRAS? Viewed at https://wildwhales.org/wras/ on October 14, 2022.

B.C. Cetacean Sightings Network. 2022b. Excel workbook of Southern Resident Killer Whale (SRKW) sightings reported by licensed operators from January 1, 2021, to September 30, 2022. Provided by email to WDFW on October 13, 2022.

IEc (Industrial Economics, Inc.). 2020. Final Analysis of the Economic Viability of Commercial Whale Watching License Holders. August. Accessed at https://wdfw.wa.gov/sites/default/files/2020-09/finalviabilityanalysis082020.pdf, October 19. 2022.

Oceans Initiative. 2022. Assessing the Impacts of Licensing and Whale-Watching Rules on Southern Resident Killer Whales: Year 2 Report: Effects of Licensing and Whale-Watching Rules on Southern Resident Killer Whale Behavior. October.

Oceans Initiative. 2021. Assessing the Impacts of Licensing and Whale-Watching Rules on Southern Resident Killer Whales: Year 1 Report: Effects of Licensing Program on Private Boater Behavior. November.

Soundwatch. 2022. Vessel Count and Incident Reporting Data from the 2022 Monitoring Season.

Soundwatch. 2021. Vessel Count and Incident Reporting Data from the 2021 Monitoring Season.

Soundwatch. 2020. Vessel Count and Incident Reporting Data from the 2020 Monitoring Season.

Soundwatch. 2019. Vessel Count and Incident Reporting Data from the 2020 Monitoring Season.

Soundwatch. 2018. Vessel Count and Incident Reporting Data from the 2020 Monitoring Season.

Pacific Whale Watch Association (PWWA). 2022. Washington SRKW Viewing 2021-2022. Provided by email to WDFW on October 3, 2022.

USCG (United States Coast Guard). 2022. Commercial Whale Watch License Holders AIS Status. Provided by WFW via a secure Box site on October 20, 2022.

Washington Department of Fish and Wildlife. 2022a. WDFW Enforcement Reporting Data pertaining to patrols identified as "JEA Type" "Execution Priority 3: Southern Resident Killer Whale" between January 1, 2019 and August 31, 2022. Provided by WDFW via email on October 11, 2022.

Washington Department of Fish and Wildlife. 2022b. Commercial Whale Watch License Data. Provided by WDFW via a secure Box site on October 6, 2022.

Washington Department of Fish and Wildlife. 2022c. Commercial Whale Watch Reporting Data. Provided by WDFW via a secure Box site on October 6, 2022.

The Whale Museum. 2022a. FINAL PROGRAM REPORT: SRKW Sightings Compilation 18th Edition. Report under contract #1305M318DNFFP0011. June. Provided by NMFS on October 13, 2022.

The Whale Museum. 2022b. Soundwatch Public Outreach/Boater Education Project. 2021 Soundwatch Program Annual Contract Report.

The Whale Museum. 2021. Soundwatch Public Outreach/Boater Education Project. 2020 Soundwatch Program Annual Contract Report.

The Whale Museum. 2020. Soundwatch Public Outreach/Boater Education Project. 2019 Soundwatch Program Annual Contract Report.

Appendix F: Analysis of Feedback on the CWW Rules and Licensing Program

This Appendix summarizes feedback on the CWW rules, vessel rules, and licensing program collected through an online survey and a series of focus group meetings. It describes the methodology for data collection and analysis, and summarizes themes from the feedback.

Methodology

Washington Department of Fish and Wildlife (Department or WDFW) collected public and stakeholder feedback to inform its vessel adaptive management process through two primary means: an online survey and a series of focus group meetings.

Online Survey

The Department hosted an online survey to collect feedback on rules for recreational and CWW vessels operating near Southern Resident killer whales (SRKW) to inform its adaptive management (AM) process. This survey was publicized in a press release on WDFW's website and social media on September 1, 2022, and it remained open from September 1–30, 2022.[61] It included both closed- and open-ended questions, meaning sometimes participants were asked to select specific answer choices and sometimes they had the opportunity to provide short answer comments. Unless otherwise specified, "survey" and "survey respondents" in this Appendix refer to this feedback survey, not the separate science survey the Department conducted to solicit information on scientific studies and research to consider as part of the adaptive management process.

Overall, 852 individuals responded to the survey, 751 of whom indicated their affiliation by selecting discrete response options from a list of potential affiliations for select questions in the survey. Of the respondents who provided their affiliation, 333 identified as a recreational boater, 15 identified as a motorized CWW owner/operator, and 8 identified as a sea kayak/ paddle tour owner/guide; other respondents did not identify themselves by CWW or recreational boater role but provided their feedback to inform the Department's adaptive management process.

Open-ended survey comments were coded based upon the themes that were brought up within the comment by a single individual to maintain consistency. The codes used to categorize the comments are as follows:

- Administrative Burden
- Compliance
- Communication
- Consistency of Laws and Regulations

[61] The Department shared the press release and survey with various stakeholder groups who distributed it among their constituencies. Media outlets also publicized the opportunity for the public to engage in the survey.

- Costs
- Enforcement
- Rule Complexity
- Sentinel Effect
- Training/Education
- Vulnerable Whale
- Vessel Rules
- Zoning

It is important to note that the survey does not provide a representative sample of overall public opinions on the CWW rules and licensing program effectiveness, but rather provides insights into perspectives of the range of engaged stakeholders.[62] Likely, this sample is biased towards those familiar with the CWW licensing program and SRKW recovery issues, including constituencies of advocacy NGOs and people affiliated with boating and/or the whale watching industry.

Focus Groups

Five 90-minute stakeholder focus groups were conducted in October 2022 to collect more in-depth and targeted feedback on the license program, CWW rules, and vessel approach restrictions. These sessions had 3-8 participants each, and were facilitated in a semi-structured format to prompt the participants on specific topics. The stakeholder groups were:

- Motorized CWW business and operator license holders
- Nonmotorized CWW business and sea kayak guide license holders
- NGO representatives (two groups)
- Recreational boater representatives

Each focus group was provided an opportunity to review and comment on a written summary of the observations they shared.

Analysis of Feedback

Feedback from the survey respondents and focus group participants was organized and analyzed according to major categories of the vessel rules, CWW rules, and CWW license program developed to protect SRKW. This involved coding open-ended survey responses by a single individual to identify and categorize the comments based on common topics, comments that contained multiple topic areas were given multiple codes. Since there was some overlap between the focus group participants and survey respondents (that is, some people attended a focus group after completing the survey), the survey and focus group data should be considered complementary and related data sources.

A combined summary of this feedback is below, organized into four categories:

- Feedback on Statutory Restrictions for Vessels Operating Near SRKW (RCW 77.15.740)
- Feedback on the CWW Rules (WAC Chapter 220-460)

[62] In order to assert that the results of a survey represent a broader group (e.g., all of Washington), one would need to use a sampling method that limits survey responses to a randomized group representative of the broader population. This survey was open to anyone, and the people who elected to participate could not be considered random or representative.

- Feedback on the CWW Licensing Program (RCW 77.65.615)
- Other Feedback

Each section contains individual findings from the analysis, followed by relevant feedback from the focus group discussions and vessel adaptive management survey. Sections labeled "additional related feedback" are not included in the main body of the legislative report.

Feedback on Statutory Restrictions for Vessels Operating Near SRKW (RCW 77.15.740)

The current rules on vessel operation when in the vicinity of SRKW are seen as confusing.

Summary of Relevant Feedback

- The recreational boater focus group and survey participants who identified as recreational boaters suggest that the state clarify which rules are official versus those that are guidelines developed by other interest groups, as conflicting guidance can be a source of confusion for recreational boaters.
- Some NGO focus groups noted that the rules would be simpler and easier to communicate if all vessels are required to maintain a minimum one-half nm distance in all directions, i.e., a circle instead of the current oval, from all killer whales (as suggested in the CWW Rules section below).

Additional Related Feedback

- Survey respondents indicated their support for SRKW protection as part of their rationale for following vessel rules. Overall, respondents ranked helping endangered orcas as the top reason for following vessel distance and speed rules around SRKW, followed by portraying good behavior for other boaters and supporting boater safety.

Survey Responses to the question, "What most motivates *you* to continue to follow speed and approach distance rules?" (Participants ranked the following options from most to least motivating to themselves; aggregated responses from 245 respondents are shown.)

Motivation	Rank (1 is most motivating)
I want to help endangered orcas	1.26
I want to portray responsible behavior for other boaters	2.35
I want to support boating safety	3.26
I'm a rule follower	3.71
Other	3.78
I want to avoid a fine	3.85
I don't want to be embarrassed on the water by people flagging me down or yelling at me	5.12

- Survey respondents who responded to the above question as well as the question, "When the state considers its rules for boating around SRKW, what are the most important factors

it should consider?", provided a range of specific recommendations for improvement of the state's rules for operating vessels in the vicinity of SRKW. The main themes for the suggestions were focused on vessel distance rules, no-go/slow-go zones, rule complexity, and increasing penalties for violations. Example suggestions include:

- "Apply to ALL vessels, not just commercial whale watching boats. Additional enforcement on the water. Make sure all rules are clear and transparent, and that the consequences are clear and enforced."
- "Add "no-go" and "go-slow" zones to electronic mapping information. Keep boats 1000 yards away from orcas and the paths they are traveling. Increase consequences for noncompliance with protective rules, both for whale-watching boats and for fishing and recreational boats. Honor tribal treaty rights."
- "Make it mandatory to read and comply the be wise whale watching rules when getting boat tabs. Have them sign that they have read it before, a signature that they understand the rules. That way they cannot claim ignorance and can be fined by the state for infractions. Blast the airwaves with a commercial giving *all* the be whale wise rules. Be way more visible and definitely back up the consequences. Large fines, and better enforcement for ALL cetaceans."

Focus group and survey participants overwhelmingly note the difficulty a typical recreational boater might have in identifying killer whale ecotypes (i.e., SKRW versus transient, or Bigg's, killer whales), especially at one-half nm or more.

Summary of Relevant Feedback

- In response to the scenario question, which asked survey respondents "Imagine a scenario where someone ends up (intentionally or unintentionally) in violation of the rules for boating around orcas. What factors do you think were most likely at play?", the majority (64%) of the respondents thought that one of the factors that contributed to this type of incidental viewing was that the boaters were not aware that the SRKW were present. Some respondents thought that this type of incident was due to the boaters not being aware of the rules, or from a belief that the CWW rules don't apply to them as recreational boaters.
- Survey respondents thought that additional communications or trainings on identifying SRKW would be beneficial for both increasing recreational boater awareness of the vessel rules and to help with compliance on the water.

Additional Related Feedback

- Examples of survey comments highlighting the challenges of recreational boaters identifying whale ecotypes and whales at a distance include the following:
  - "Same rules should apply to Southern Residents and transients since most boaters can't tell the difference. Recreational boats should stay the same distance away as commercial tours. This will help everyone determine where the limit is. All vessels should stay one half mile away from orcas."
  - "Don't have rules that are more restrictive for different user groups than others. Design the rules to follow the science which shows that vessel speed (and thus, noise) is far more impactful than proximity, and don't set rules that assume the average boater can tell the difference between a SRKW and a Biggs orca."

- "Provide each registered boater with the visual stickers to put on their boat that shows if the whales is bigger than this you're too close, because people can't judge distance. Keep the same stickers and flags available at marinas so when boaters check in they're further informed. Also, huge fines and communicating those with media outlets, so they can help disseminate the information. You've got people who can't judge distance and people who don't care and just want pictures. So help the people who can't judge distance and give a strong deterrent to the narcissists. Clearly we need no-go zones that apply to everyone, all foraging areas. This will help more than just Orcas."

Feedback on the CWW Rules (WAC Chapter 220-460)

Focus group and survey participants universally value SRKW protection and overwhelmingly indicated that the current CWW viewing rules do not support SRKW recovery as much as they could. Furthermore, participants generally agree that the SRKW viewing rules for CWW vessels should not be more restrictive than rules for other types of vessels.

Summary of Relevant Feedback

- Some NGO participants suggest that all vessels (including CWW vessels) should be required to maintain a minimum one-half nm distance (in all directions) from SRKW. They note that an increased and more consistent distance rule would (1) be easier to communicate to all boaters, (2) eliminate the need for the vulnerable whale emergency rule and reduced vessel speeds in SRKW vicinity, thus simplifying the CWW viewing rules and general vessel restrictions, and (3) reflect the latest science such as that from Holt et al., 2021. These NGOs also said that adaptive management decisions about the level of SRKW viewing should be more clearly guided by the best available science and the population's recovery status.
- Motorized CWW license holders suggest eliminating the current time-of-day SRKW viewing limits in July, August, and September and allowing one motorized CWW vessel in SRKW vicinity during all other months of the year (but keep the three motorized vessel limit during July, August, and September). They observed that limiting CWW vessels in SRKW vicinity reduces their ability to fill a sentinel role, which is based on the idea that CWW vessel presence protects SRKW because recreational boaters are more likely to operate their vessels responsibly (as demonstrated by the CWW vessels).
- Some CWW license holders feel that the CWW rules (and the overall license program) are misguided in that they do not direct state resources to address more significant threats to SRKW (e.g., prey availability).
- All focus groups agreed on-the-water WDFW Enforcement presence should increase to better regulate any vessel in the vicinity of SRKW.

Additional Related Feedback

- As with focus group participants, survey respondents had varying views on how to improve the CWW rules and licensing program. Based on an analysis of open-ended survey responses, the majority of respondents (58%) thought either additional enforcement vessels and/or higher fines would increase boater compliance, while smaller proportions

thought that increased training (27% of respondents) and communication of the rules (13% of respondents) would be most effective in improving compliance.

- Examples of specific suggested changes to the CWW rules included:
    - "Too many non-local boats are part of the problem. Please consider (a) limiting tour boat RANGE based on point of origin, and (b) limiting number of tour boats that can operate from a point of origin. (example, SJI area has local boats operating from Friday Harbor, but also LARGE, LOUD, FAST boats from Seattle, Port Townsend, Canada, Bellingham, Anacortes). I routinely see 11-22 boats around whales at one time."
    - "I would like to see more areas set aside as wildlife sanctuaries where motorized vessels of all kinds are restricted. We need to continue to set limits for whale watching companies, but also extend those to all vessels."
    - "The whales need space from kayaks too but the limitations don't need to be as severe as for larger, noisier craft."
    - "Please include more education for private recreational kayak and paddle board users in regards to viewing whales."

CWW license holders and some NGO group focus group participants believe that a system in which average boaters have more SRKW-viewing privilege than licensed vessel operators and sea kayak guides is "backwards."

Summary of Relevant Feedback

- License holders cited examples of ecotourism licenses in other states and countries, including Mexico's gray whale license program, in which all vessels are required to maintain a certain distance from whales (240m) but license holders are allowed to get closer (60m – 80m depending on vessel size).

Additional Related Feedback

- Many survey respondents echoed the sentiment about recreational boaters not having more SRKW viewing access than CWW license holders. Comments highlighted that rules should apply to every motorized vessel on the water or that rules that apply to CWW boats should also apply to recreational boats.

CWW license holders suggest simplifying the reporting requirements (WAC 220-460-140).

Summary of Relevant Feedback

- CWW vessel operators and kayak guides are concerned that complying with current on-the-water reporting requirements conflicts with their commitment to client safety and experiences; they worry about being unfairly penalized when they cannot report in a timely manner due to these conflicting priorities or technical issues.
- Kayak guides say they rarely (if ever) encounter SRKW on tours. Because sightings are so infrequent, less frequent reporting for their companies (e.g., seasonal or annual reporting instead of monthly during the summer) would be appropriate.

- Some CWW license holders suggested eliminating WDFW's current log requirement, which documents instances a CWW vessel is within one-half nm of SRKW, and only require reports to the Whale Report Alert System (WRAS) app because the information is redundant.
- Some CWW license holders said the WRAS app is convoluted and unreliable due to intermittent cellular service, which both inhibit reporting. Both NGO focus groups observed that reporting to WRAS may not be as widespread as it should be due to the reasons identified by license holders and the fact reporting is only required when a CWW vessel is within one-half nm of SRKW, not when SRKW are observed at a further distance.

Additional Related Feedback

- NGO focus group participants suggested the Department consider streamlining on-the-water reporting requirements by bridging PWWA app data with the WRAS app (by building an application programming interface, or API) to address the possibility that PWWA app use is more widespread.
- Motorized CWW operators had divergent opinions of what the easiest and most challenging aspects of the CWW license process and rules were in 2021-22, with some aspects, including not viewing SRKW within ½ nm outside of July-September and staying ½ nm from vulnerable whales, identified as *both* the easiest and most challenging in the survey (see Table below). Possible reasons for these results include different interpretations of the question, such as whether it was technically easy or hard to comply or whether it was more or less challenging in the sense of business impacts. The lack of SRKW also may have influenced people's responses (e.g., when there are no whales, it is easy to stay away).

Survey Responses to the questions, "What parts of the licensing process and rules were easiest for you in 2021 and 2022? (Participants selected up to 5 options; 16 self-identified motorized CWW operators responded, *Left*) & "What parts of the licensing process and rules were most difficult for you in 2021 and 2022? (Participants selected up to 5 options; 22 self-identified motorized CWW operators responded, *Right*)

Easiest Aspects of the Licensing and Rules Process (16 CWW Operators)	Hardest Aspects of the Licensing and Rules Process (22 CWW Operators)
1. Not viewing SRKW at closer than one-half nautical mile outside of July-September (7/22 respondents)	1. Staying one-half nautical mile from groups of SRKW with vulnerable individual whales present (6/16 respondents)
2. Ensuring the commercial whale watching vessel stayed outside of the no-go zone on the west side of San Juan Island regardless of whether SRKW were present (6/22 respondents)	2. Not viewing SRKW at closer than one-half nautical mile outside of July-September (5/16 respondents)
3. Staying one-half nautical mile from groups of SRKW with a calf under the age of 1 year old present (5/22 respondents)	2. Not viewing SRKW at closer than one-half nautical mile outside 10 a.m. - 12 p.m. or 3 p.m. - 5 p.m. during July-September (5/16 respondents)

3. Staying one-half nautical mile from groups of SRKW with vulnerable individual whales present (5/22 respondents)	2. Real-time reporting to WhaleReport upon encountering SRKW (5/16 respondents)
3. Not viewing SRKW at closer than one-half nautical mile between 3-5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. -12 p.m. timeframe that day (5/22 respondents)	3. The process for inadvertent encounters of SRKW groups that contain calves under 1 or vulnerable individuals or SRKW encounters outside viewing days/hours (4/16 respondents)
3. Keeping logs of SRKW encounters (5/22 respondents)	3. Not viewing SRKW at closer than one-half nautical mile between 3 - 5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. - 12 p.m. timeframe that day (4/16 respondents)
3. Viewing the training and passing the quiz (5/22 respondents)	4. Staying one-half nautical mile from groups of SRKW with a calf under the age of 1 year old present (3/16 respondents)
3. Ensuring an Automatic Identification System (AIS) unit was on and functioning when operating (5/22 respondents)	4. Keeping logs of SRKW encounters (3/16 respondents)
4. Applying for an operator license (4/22 respondents)	4. Anticipating payment of fees (starting in 2023) (3/16 respondents)
4. Other (4/22 respondents)	5. Submitting logs to WDFW within the time required (24 hours for inadvertent encounters, by the 15th of the following month for encounters during viewing hours in July-September) (2/16 respondents)
5. Not viewing SRKW at closer than one-half nautical mile outside 10 a.m. - 12 p.m. or 3 p.m. -5 p.m. during July-September (3/22 respondents)	5. Viewing the training and passing the quiz (2/16 respondents)
5. Making sure there were not more than three motorized vessels with commercial whale watching licenses in the vicinity of SRKW at one time (3/22 respondents)	5. Ensuring an Automatic Identification System (AIS) unit was on and functioning when operating (2/16 respondents)
5. Meeting eligibility requirements to get an operator license (3/22 respondents)	6. Making sure there were not more than three motorized vessels with commercial whale watching licenses in the vicinity of SRKW at one time (1/16 respondents)
6. Ensuring both the business license for the vessel (PDF) and your operator license (PDF) were present when operating (2/22 respondents)	6. Ensuring both the business license for the vessel (PDF) and your operator license (PDF) were present when operating (1/16 respondents)
6. Real-time reporting to WhaleReport upon encountering SRKW (2/22 respondents)	6. Meeting eligibility requirements to get an operator license (1/16 respondents)

6. Anticipating payment of fees (starting in 2023) (2/22 respondents)	6. Other (1/16 respondents)
7. Submitting logs to WDFW within the time required (24 hours for inadvertent encounters, by the 15th of the following month for encounters during viewing hours in July-September) (1/22 respondents)	7. Applying for an operator license (0/16 respondents)
7. Communication with WDFW (1/22 respondents)	7. Ensuring the commercial whale watching vessel stayed outside of the no-go zone on the west side of San Juan Island regardless of whether SRKW were present (0/16 respondents)
8. The process for inadvertent encounters of SRKW groups that contain calves under 1 or vulnerable individuals or SRKW encounters outside viewing days/hours (0/22 respondents)	7. Communication with WDFW (0/16 respondents)

- Several, but not all, motorized CWW operators highlighted challenges with reporting requirements as part of their survey responses.
    - Thirty-one percent of motorized CWW operator survey respondents identified real-time reporting to Whale Report as one of the most difficult parts of the CWW licensing process and rules during 2021-22. This was similar to the difficulty of not viewing SRKW at closer to one-half nm outside of July-September and not viewing SRKW outside of the time-of-day requirements during July-September (both 31% of respondents) and second only to staying one-half nm from groups of SRKW with vulnerable whales (38% of respondents).

Survey Responses to the question, "Looking forward to the next few years (2023-2026), what do you expect will be the most and least challenging aspects of the commercial whale watching operator licensing process and rules? (Participants ranked the following options from most to least challenging aspects of the CWW licensing process and rules; 13 self-identified motorized CWW operators responded.)

Aspect	Rank (1 is most challenging)
Limits on viewing SRKW closer than one-half nautical mile to certain times of day (10 a.m. - 12 p.m. and 3 p.m. - 5 p.m.)	3.50
Limits on vessels approaching within one-half nautical mile of whales declared vulnerable by the Department	4.10
Limits on vessels approaching within one-half nautical mile of whales declared vulnerable by the Department	4.40
Limits on viewing SRKW at closer than one-half nm to July-September	4.44
Reporting requirements	4.56
Limits on number of vessels in the vicinity of SRKW at once	5.08
Areas closed to motorized commercial whale watching vessels	5.18

Licensing fees	6.13
Licensing process	6.60
Annual training requirement	7.78
Automatic Identification System (AIS) unit requirement	8.78

- Overall, motorized CWW operator survey respondents ranked reporting requirements near the middle of the most difficult aspects of the licensing process and rules for 2023-2036.
- Motorized CWW owners also had mixed views on the difficulty of the AIS requirements, with 3 of 8 selecting it among the easiest and 3 (presumably different) respondents selecting it among most difficult aspects of the licensing process and rules over the last two years. One potential reason for this difference in perception of AIS difficulty could be whether the CWW owners already had AIS installed on their CWW vessels.

Focus group and survey participants generally agree that all SRKW should be considered "vulnerable;" that identifying a vulnerable SRKW from one-half nm is challenging; and that WDFW's vulnerable whale emergency rule and listing process could be refined.

Summary of Relevant Feedback

- CWW license holders and several NGO focus group participants said the vulnerable whale listing process needs to be more transparent and frequent. Suggestions included: expanding the identification/listing process from SeaLife Response + Rehab + Research (SR^3) and WDFW by engaging a panel of experts; increasing the frequency of list updates; and establishing clear criteria for a whale to be de-listed.
- Some NGO focus group participants say that, while the emergency rule is not perfect, WDFW should wait longer to adjust its process to better assess its effectiveness and, if it is changed, it should stay as simple as possible for communication purposes. The same participants noted that the rule would be unnecessary if all SRKW approach distances were increased to one-half nm.
- CWW license holders noted that the vulnerable whale emergency rule essentially eliminates the opportunity for license holders to view SRKW, when it is combined with the current definition of a "group of SRKW" (one or more SRKW within 1 nm of another SRKW) and the time-of-day and monthly viewing restrictions.

Additional Related Feedback

Survey responses related to the vulnerable whale emergency rule included suggestions to increase transparency and involvement of researchers in the listing process, to communicate the rule to recreational boaters, and make the rule consistent for all vessels.

Feedback on the CWW License Program (RCW 77.65.615)

CWW license holders and some NGO focus group participants identified a need for the CWW license program to accommodate CWW companies or entities that do not seek SRKW or take clients to view them within one-half nm (e.g., provide reduced fee options).

Summary of Relevant Feedback

- CWW license holders feel that using the term *marine mammals* instead of *SRKW* in the current definition of "commercial whale watching" unnecessarily expands the license program to entities that do not interact with SRKW (aside from incidental encounters). This was echoed by some NGO focus group participants, who recommended that educational organizations and nonprofits that take students or passengers on the water to observe marine mammals should not be subject to the license fees.
- Several CWW companies say they do not view SRKW within one-half nm for one or more reasons, such as they perceive the rules as too complex, SRKW are rarely present in the areas they operate, and/or SRKW sightings are incidental to their operations (this last reason is particularly true for kayak companies but could also apply to motorized CWW companies).

Additional Related Feedback

- Examples of specific survey responses indicating reasons why CWW companies or operators may choose not to view SRKW include:
    - "It's easy to not watch the SRKWs at all in order to follow all of the guidelines. Because there are so many restrictions, we tend to not watch SRKWs. If only SRKWs are present within our range, we may view at one-half nm for a short time, but that has only been a few encounters."
    - "As a captain I and the other captains have stayed totally away from SRKWs and concentrated on Biggs and Humpbacks."
    - "The company I work for chose not to view SRKW in WA waters at all, because the viewing regs were so convoluted it was easiest to not attempt viewing them."

CWW business license holders say the current license program creates a significant administrative burden for their companies.

Summary of Relevant Feedback

- While the license application process is not perceived to be complicated, it is seen as resource-intensive, especially for smaller companies; license holders feel overwhelmed by state and federal business requirements in general and are frustrated by the license program requirements (this extends to reporting requirements in the CWW rules).
- Although the application is open in January, licensed kayak company owners said that guide staff are typically not hired until very close to the busy season (summer) and acquiring licenses for each guide during that busy period is challenging.

Additional Related Feedback

- Motorized CWW owners who completed the survey thought that paying annual fees would be the most challenging aspect of the CWW business license process and rules (all 8 respondents) in the next few years, followed by completing the annual business license application (6 of 8 respondents), ensuring the list of operators is up to date (5 respondents), and paying staff operator license fees (5 respondents). In the last two years, when fees were waived, updating the operator list was viewed as most difficult (5 of 8 responses) and completing the application was not perceived as difficult (only 2 identified it as most challenging).

Survey Responses to the questions, "What parts of the licensing process and rules were easiest for you in 2021 and 2022? (Participants selected up to 5 options; 11 self-identified motorized CWW owners responded, *Left*) & "What parts of the licensing process and rules were most for you in 2021 and 2022? (Participants selected up to 5 options; 8 self-identified motorized CWW owners responded, *Right*)

Easiest Aspects of the Licensing and Rules Process (11 Owners)	Hardest Aspects of the Licensing and Rules Process (8 Owners)
1. Completing the application process (5/11 respondents)	1. Updating your operator list (5/8 respondents)
2. Viewing the training and passing the quiz (4/11 respondents)	2. Ensuring operators are meeting reporting requirements (3/8 respondents)
2. Listing operators affiliated with your company (4/11 respondents)	2. Ensuring operators are licensed before they begin work for your company (3/8 respondents)
3. Meeting the Automatic Identification System (AIS) unit requirement for commercial whale watching vessels (3/11 respondents)	2. Meeting the Automatic Identification System (AIS) unit requirement for commercial whale watching vessels (3/8 respondents)
4. Updating your operator list (2/11 respondents)	3. Completing the application process (2/8 respondents)
4. Ensuring operators are licensed before they begin work for your company (2/11 respondents)	3. Listing operators affiliated with your company (2/8 respondents)
4. Communication with WDFW (2/11 respondents)	3. Ensuring vessels from your company were not viewing SRKW at closer than ½ nautical mile between 3-5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. -12 p.m. timeframe that day (2/8 respondents)
4. Anticipating payment of fees (starting in 2023) (2/11 respondents)	3. Communication with WDFW (2/8 respondents)
4. Vessel substitutions (2/11 respondents)	3. Anticipating payment of fees (starting in 2023) (2/8 respondents)

5. Ensuring vessels from your company were not viewing SRKW at closer than ½ nautical mile between 3-5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. - 12 p.m. timeframe that day (1/11 respondents)	3. Other (2/8 respondents)
5. Ensuring operators are following on-water rules for commercial whale watching (1/11 respondents)	4. Vessel substitutions (1/8 respondents)
5. Ensuring operators are meeting reporting requirements (1/11 respondents)	4. Ensuring operators are following on-water rules for commercial whale watching (2/8 respondents)
5. Other (1/11 respondents)	5. Viewing the training and passing the quiz (0/8 respondents)

Survey Responses to the question, "Looking forward to the next few years (2023-2026), what do you expect will be the most and least challenging aspects of the commercial whale watching operator licensing process and rules? (Participants ranked the following options from most to least challenging aspects of the CWW licensing process and rules; 8 self-identified motorized CWW owners responded.)

Aspect	Rank (1 is most challenging)
Completing the annual business license application	2.33
Paying the annual fee for your business license including the per vessel fees	2.75
Ensuring your list of operators is up to date with the Department	3.80
Voluntarily paying your staff's operator license fees	5.00
Communicating with customers about CWW opportunities and restrictions	5.17
Completing the annual training requirement	5.40
AIS requirement	6.00
Ensuring your operators comply with the seasons, rules, and reporting requirements for viewing SRKW	6.00
Managing vessel substitutions on your license	6.25
Ensuring your operators all have valid annual operator licenses	7.00

- Only four self-identified kayak CWW owners responded to the survey questions that asked about their perspectives on how the CWW license program applies to their businesses. Based on this very limited sample, kayak CWW owners thought that voluntarily paying their staff's kayak guide fees and ensuring that guides all have valid annual guide licenses would be the most challenging aspects of the CWW business license process and rules in the next few years (all 4 respondents).

Other Feedback

Focus groups and survey respondents provided feedback that did not necessarily neatly fit into the categories outlined above, including perspectives on program administration and cross-cutting themes. The additional context that the focus groups were able to provide was integral in developing themes for the previous sections and those that follow. This section summarizes that feedback.

Education, Outreach, and Communications – Public and Stakeholder Feedback

- NGO, kayak, and recreational boater focus groups, as well as many survey respondents, highlighted that education, outreach, and communications are critical components in successfully managing boater behavior and protecting SRKW. Specific improvement suggestions include the following:
    - Add specific whale watching questions or SRKW information to the WA State Parks Boater Education Online Training Course
    - Provide additional training for recreational boaters
    - Add educational signage at slips and docks
    - Increase awareness of the Whale Warning Flag among the general public
    - Conduct additional outreach and education on the current voluntary no-go zone
    - The Department should maintain a neutral position in its communications to the public (e.g., press releases)
    - Conduct additional social media outreach
    - Include SRKW information with registration renewal
    - Transmit recorded messages periodically on Channel 16, or a notice to switch to a different channel, to regularly communicate updated SRKW viewing rules
    - Consider adding the whale watching/boating restrictions into popular boating apps, such as Boater's Guide and Navionics, to increase their reach.
    - Provide links to the current whale watching restrictions in the tab reminder emails that get sent out to all boaters
- Some NGO focus groups suggested that WDFW maintain more direct and transparent communication channels with stakeholders during the AM process

Sentinel Role of CWW Vessels – Public and Stakeholder Feedback

- Recreational boaters, CWW license holders, and some, but not all, NGO representatives in focus groups and many survey respondents expressed the view that CWW vessels provide a sentinel role for recreational vessels, by modeling how vessels should operate in the vicinity of SRKW.
    - Many survey respondents commented that recreational boaters take their cues from CWW boats. Many of these responses believe that the rules should be consistently applied to all vessel types. Some example comments are as follows:
    - "Commercial boats support the future of these whales by sharing them and educating more people to get involved. They also provide sentinel actions to prevent recreational boaters from speeding through the whales. 400 yards viewing would be sufficient."
    - "I think the whale watching boats and operators follow the rules and are very respectful and careful. My issue is with the private boats that coming roaring out at

first sight of the whale watching boats and aren't always careful and respectful. The occasional seaplane as well…"

- "If the vessels are keeping their distance and respecting the rules, they can be a vital partner in helping keep private boaters in line. We will better be able to know where the pods are located, which animals are present, and private boaters will be more aware."

WDFW Enforcement - Public and Stakeholder Feedback

- Beyond the overall support for an increased on-the-water WDFW Enforcement presence to regulate vessels in the vicinity of SRKW, focus groups and survey respondents shared differing suggestions for how to improve enforcement. Examples of specific suggestions include:
  - Use AIS data more effectively (e.g., crosswalk AIS signal data with known whale locations/times to identify violators).
  - Emphasize enforcement of existing state and federal laws (such as the Marine Mammal Protection Act) before imposing new restrictions.
  - Consider more enforcement on who has and who needs the license (or who's regulated). For example, participants in one focus group indicated there are non-CWW commercial entities that take passengers to view whales that regularly violate vessel regulations.
  - Impose higher fines and reduce the use of warnings to increase compliance, as suggested in several survey responses.

Appendix G: Adaptive Management Survey

This Appendix is a collection of the questions asked of Adaptive Management Survey Respondents in PublicInput. In total, 852 participants responded to the Adaptive Management Survey, providing 13,341 responses to both open-ended and multiple-choice/ranking questions, and 1,682 comments through answers to open-ended questions.

1. Please select your affiliation. (751 respondents)

- Academia
- Business/Private sector
- Nonprofit Organization
- Retired
- Other/Others

2. Would you like to give feedback on commercial whale watching, or skip straight to the questions about the broader regulations regarding boating (including recreational boating) around SRKW? (509 respondents)

- I want to give feedback on the Commercial Whale Watching Licensing Program/rules for commercial viewing of SRKW.
- I want to skip ahead to the questions about the broader regulations aimed at reducing impacts of vessels (including recreational boats) on SRKW.

3. Please select one: (338 respondents)

- I'm involved in the motorized Commercial Whale Watching industry as an *operator*
- I am not involved in the motorized CWW industry, but I want to give feedback on motorized commercial whale watching.
- Others

4. Are you an owner of a motorized commercial whale watching business that operates in Washington waters? (323 respondents, those who identified as a motorized CWW operator or chose to provide feedback on the motorized CWW industry in Question 3)

- Yes
- No

5. What parts of the licensing process and rules for commercial whale watching were easiest for you in 2021 and/or 2022? (Pick up to 5) (11 respondents, those who identified as a motorized CWW operator in Question 3, and answered 'Yes' to Question 4)

- Anticipating payment of fees (starting in 2023)
- Communication with WDFW
- Completing the application process

- Ensuring operators are following on-water rules for commercial whale watching
- Ensuring operators are licensed before they begin work for your company
- Ensuring operators are meeting reporting requirements
- Ensuring vessels from your company were not viewing SRKW at closer than one-half nautical mile between 3-5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. -12 p.m. timeframe that day
- Listing operators affiliated with your company
- Meeting the Automatic Identification System (AIS) unit requirement for commercial whale watching vessels
- Updating your operator list
- Vessel substitutions
- Viewing the training and passing the quiz
- Other

6. What parts of the licensing process and rules for commercial whale watching were most difficult for you in 2021 and/or 2022? (Pick up to 5) (8 respondents, those who identified as a motorized CWW operator and answered 'Yes' to Question 4)

- Anticipating payment of fees (starting in 2023)
- Communication with WDFW
- Completing the application process
- Ensuring operators are following on-water rules for commercial whale watching
- Ensuring operators are licensed before they begin work for your company
- Ensuring operators are meeting reporting requirements
- Ensuring vessels from your company were not viewing SRKW at closer than one-half nautical mile between 3-5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. -12 p.m. timeframe that day
- Listing operators affiliated with your company
- Meeting the Automatic Identification System (AIS) unit requirement for commercial whale watching vessels
- Updating your operator list
- Vessel substitutions
- Viewing the training and passing the quiz
- Other

7. Looking forward to the next few years (2023-2026), what do you expect will be the most and least challenging aspects of the commercial whale watching operator licensing process and rules? Please rank the following from most challenging (top) to least challenging (bottom). (8 respondents, those who identified as a motorized CWW operator in Question 3, and answered 'Yes' to Question 4)

- AIS requirement
- Communicating with customers about CWW opportunities and restrictions
- Completing the annual business license application
- Completing the annual training requirement
- Ensuring your list of operators is up to date with the Department

- Ensuring your operators all have valid annual operator licenses
- Ensuring your operators comply with the seasons, rules, and reporting requirements for viewing SRKW
- Managing vessel substitutions on your license
- Paying the annual fee for your business license including the per vessel fees
- Voluntarily paying your staff's operator license fees

8. Do you operate motorized commercial whale watching vessels? (314 respondents, those who identified as a motorized CWW operator or chose to provide feedback on the motorized CWW industry in Question 3, and answered 'No' to Question 4)

- Yes
- No, but I want to give feedback on motorized commercial whale watching.
- No, and I don't want to give feedback on motorized commercial whale watching.

9. What parts of the licensing process and rules for commercial whale watching of SRKW were easiest for you in 2021 and/or 2022? (Pick up to 5) (22 respondents, those who identified as a motorized CWW operator, and answered 'Yes' to Question 8)

- Anticipating payment of fees (starting in 2023)
- Applying for an operator license
- Communication with WDFW
- Ensuring an Automatic Identification System (AIS) unit was on and functioning when operating
- Ensuring both the business license for the vessel (PDF) and your operator license (PDF) were present when operating
- Ensuring the commercial whale watching vessel stayed outside of the no-go zone on the west side of San Juan Island regardless of whether SRKW were present
- Keeping logs of SRKW encounters
- Making sure there were not more than three motorized vessels with commercial whale watching licenses in the vicinity of SRKW at one time
- Meeting eligibility requirements to get an operator license
- Not viewing SRKW at closer than one-half nautical mile between 3 - 5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. - 12 p.m. timeframe that day
- Not viewing SRKW at closer than one-half nautical mile outside 10 a.m. - 12 p.m. or 3 p.m. - 5 p.m. during July-September
- Not viewing SRKW at closer than one-half nautical mile outside of July-September
- Real-time reporting to WhaleReport upon encountering SRKW
- Staying one-half nautical mile from groups of SRKW with a calf under the age of 1 year old present
- Staying one-half nautical mile from groups of SRKW with vulnerable individual whales present
- Submitting logs to WDFW within the time required (24 hours for inadvertent encounters, by the 15th of the following month for encounters during viewing hours in July-September)

- The process for inadvertent encounters of SRKW groups that contain calves under 1 or vulnerable individuals or SRKW encounters outside viewing days/hours
- Viewing the training and passing the quiz
- Other

10. What parts of the licensing process and rules for commercial whale watching of SRKW were most difficult for you in 2021 and/or 2022? (Pick up to 5) (16 respondents, those who identified as a motorized CWW operator, and answered 'Yes' to Question 8)

- Anticipating payment of fees (starting in 2023)
- Applying for an operator license
- Communication with WDFW
- Ensuring an Automatic Identification System (AIS) unit was on and functioning when operating
- Ensuring both the business license for the vessel (PDF) and your operator license (PDF) were present when operating
- Ensuring the commercial whale watching vessel stayed outside of the no-go zone on the west side of San Juan Island regardless of whether SRKW were present
- Keeping logs of SRKW encounters
- Making sure there were not more than three motorized vessels with commercial whale watching licenses in the vicinity of SRKW at one time
- Meeting eligibility requirements to get an operator license
- Not viewing SRKW at closer than one-half nautical mile between 3 - 5 p.m. in July-September if any vessel operating for the same company viewed SRKW in the 10 a.m. - 12 p.m. timeframe that day
- Not viewing SRKW at closer than one-half nautical mile outside 10 a.m. - 12 p.m. or 3 p.m. - 5 p.m. during July-September
- Not viewing SRKW at closer than one-half nautical mile outside of July-September
- Real-time reporting to WhaleReport upon encountering SRKW
- Staying one-half nautical mile from groups of SRKW with a calf under the age of 1 year old present
- Staying one-half nautical mile from groups of SRKW with vulnerable individual whales present
- Submitting logs to WDFW within the time required (24 hours for inadvertent encounters, by the 15th of the following month for encounters during viewing hours in July-September)
- The process for inadvertent encounters of SRKW groups that contain calves under 1 or vulnerable individuals or SRKW encounters outside viewing days/hours
- Viewing the training and passing the quiz
- Other

11. Looking forward to the next few years (2023-2026), what do you expect will be the most and least challenging aspects of the commercial whale watching operator licensing process and rules? Please rank the following from most challenging (top) to least challenging (bottom). (13 respondents, those who identified as a motorized CWW operator, and answered 'Yes' to Question 8)

- Annual training requirement
- Areas closed to motorized commercial whale watching vessels
- Automatic Identification System (AIS) unit requirement
- Licensing fees
- Licensing process
- Limits on number of vessels in the vicinity of SRKW at once
- Limits on vessels approaching within one-half nautical mile of calves under the age of 1
- Limits on vessels approaching within one-half nautical mile of whales declared vulnerable by the Department
- Limits on viewing SRKW at closer than one-half nm to July-September
- Limits on viewing SRKW closer than one-half nautical mile to certain times of day (10 a.m. - 12 p.m. and 3 p.m. - 5 p.m.)
- Reporting requirements

12. Please share any suggestions for improvement to the operator license and fee structure. (limit 1000 characters) (9 respondents, those who identified as a motorized CWW operator, and answered 'Yes' to Question 8)

13. Please rank the following aspects of Washington's rules for motorized commercial whale watching based on your perception of its importance to support SRKW recovery from most important (top) to least important (bottom). (282 respondents, those who identified as a motorized CWW operator or chose to provide feedback on the motorized CWW industry in Question 3, and answered 'No' to Questions 4 & 8)

- Annual training requirement
- Areas closed to motorized commercial whale watching vessels
- Automatic Identification System (AIS) unit requirement
- License requirement
- Licensing fees
- Limits on number of vessels in the vicinity of SRKW at once
- Limits on vessels approaching within one-half nautical mile of calves under the age of 1
- Limits on vessels approaching within one-half nautical mile of whales declared vulnerable by the Department
- Limits on viewing SRKW at closer than one-half nautical mile to July-September
- Limits on viewing SRKW closer than one-half nautical mile to certain times of day
- Reporting requirements (to the Department and WhaleReport)

14. Overall, do you think the licensing and rules for motorized commercial whale watching are? Respondents were asked to place their perceptions of the licensing and rules for motorized CWW on a spectrum from 'Way too permissive' to 'Way too restrictive' (282 respondents those who identified as a motorized CWW operator or chose to provide feedback on the motorized CWW industry in Question 3, and answered 'No' to Questions 4 & 8)

15. Overall, do you think the licensing and rules for motorized commercial whale watching are? Respondents were asked to place their perceptions of the licensing and rules for

motorized CWW on a spectrum from 'Very simple' – 'Very complex' (282 respondents, those who identified as a motorized CWW operator or chose to provide feedback on the motorized CWW industry in Question 3, and answered 'No' to Questions 4 & 8)

16. Please share any suggestions for improvement to the rules for motorized commercial whale watching and viewing of SRKW. (limit 1000 characters) (185 respondents, those who identified as a motorized CWW operator or chose to provide feedback on the motorized CWW industry in Question 3, and answered 'No' to Questions 4 & 8)

17. Please share any feedback on or suggestions to improve WDFW's process for creating and communicating additional protections for vulnerable individual whales. (limit 1000 characters) (117 respondents, those who identified as a motorized CWW operator or chose to provide feedback on the motorized CWW industry in Question 3, and answered 'No' to Questions 4 & 8)

18. Please select one: (236 respondents)

- I am not involved in the sea kayak/paddle tour industry, but I want to give feedback on sea kayak/paddle tours.
- I want to skip ahead to questions about the broader rules to reduce vessel impacts on Southern Resident killer whales.
- Others

19. Are you an owner of a sea kayak/paddle tour company that operates in Washington waters? (204 respondents)

- Yes
- No

20. What parts of the licensing process and rules for sea kayak companies were easiest for you in 2021 and/or 2022? (Pick up to 5) (4 respondents, those who responded 'Yes' to question 19)

- Anticipating payment of fees (starting in 2023)
- Communication with WDFW
- Completing the application process
- Ensuring guides are following rules for operating tours in the vicinity of SRKW
- Ensuring guides are licensed before they begin work for your company
- Ensuring guides are meeting reporting requirements
- Listing guides affiliated with your sea kayak/paddle tour company
- Reviewing the training and passing the quiz
- Updating your guide list
- Other

21. What parts of the licensing process and rules for sea kayak companies were most difficult for you in 2021 and/or 2022? (Pick up to 5) (5 respondents, those who responded 'Yes' to question 19)

- Anticipating payment of fees (starting in 2023)

- Communication with WDFW
- Completing the application process
- Ensuring guides are following rules for operating tours in the vicinity of SRKW
- Ensuring guides are licensed before they begin work for your company
- Ensuring guides are meeting reporting requirements
- Listing guides affiliated with your sea kayak/paddle tour company
- Reviewing the training and passing the quiz
- Updating your guide list
- Other

22. Looking forward to the next few years (2023-2026), what do you expect will be the most and least challenging aspects of the business licensing process and rules relative to sea kayak/paddle tour companies? Please rank the following from most challenging (top) to least challenging (bottom). (4 respondents, those who responded 'Yes' to question 19)

- Communicating with customers about sea kayak tour opportunities and restrictions
- Completing the annual business license application
- Completing the annual training requirement
- Ensuring your guides all have valid annual kayak guide licenses
- Ensuring your guides comply rules for operating tours in the vicinity of SRKW
- Ensuring your list of guides is up to date with the Department
- Paying the annual fee for your business license
- Voluntarily paying your staff's kayak guide license fees

23. Please share any suggestions for improvement to the business license and fee structure. (limit 1000 characters) (2 respondents, those who responded 'Yes' to question 19)

24. Are you a sea kayak/paddle tour guide that operates in Washington waters? (195 respondents)

- Yes
- No, but I want to give feedback on the rules for kayak/paddle tours.
- No, and I don't want to give feedback on the rules for kayak/paddle tours.

25. What parts of the licensing process and rules for sea kayak guides were easiest for you in 2021 and/or 2022? (Pick up to 5) (8 respondents, those who responded 'Yes' to question 25)

- Anticipating payment of fees (starting in 2023)
- Communication with WDFW
- Completing the application process
- Ensuring all paddlers in a tour stayed within 100 yards of shore in the no-go zone on the West side of San Juan Island regardless of whether SRKW were present
- Ensuring all vessels in the tour move out of the path of oncoming SRKW
- Ensuring your kayak guide license was on you when operating tours
- Meeting eligibility requirements to get a kayak guide license
- Preventing all vessels in the tour from paddling, positioning, or waiting in the path of SRKW

- Rafting up vessels close to shore or in a kelp bed and ceasing paddling if SRKW are encountered until all SRKW have moved at least 400 yards from all vessels
- Reviewing the training and passing the quiz
- Submitting logs of SRKW encounters to WDFW within the time required (by the 15th of the following month for encounters in July-September, within one week for encounters in October-June)
- Waiting to launch from shore if SRKW are within one-half nautical mile of the launch location
- Other

26. What parts of the licensing process and rules for sea kayak guides were most difficult for you in 2021 and/or 2022? (Pick up to 5) (6 respondents, those who responded 'Yes' to question 25)

- Anticipating payment of fees (starting in 2023)
- Communication with WDFW
- Completing the application process
- Ensuring all paddlers in a tour stayed within 100 yards of shore in the no-go zone on the West side of San Juan Island regardless of whether SRKW were present
- Ensuring all vessels in the tour move out of the path of oncoming SRKW
- Ensuring your kayak guide license was on you when operating tours
- Meeting eligibility requirements to get a kayak guide license
- Preventing all vessels in the tour from paddling, positioning, or waiting in the path of SRKW
- Rafting up vessels close to shore or in a kelp bed and ceasing paddling if SRKW are encountered until all SRKW have moved at least 400 yards from all vessels
- Reviewing the training and passing the quiz
- Submitting logs of SRKW encounters to WDFW within the time required (by the 15th of the following month for encounters in July-September, within one week for encounters in October-June)
- Waiting to launch from shore if SRKW are within one-half nautical mile of the launch location
- Other

27. Looking forward to the next few years (2023-2026), what do you expect will be the most and least challenging aspects of the kayak guide licensing process and rules? Please rank the following from most challenging (top) to least challenging (bottom). (4 respondents, those who responded 'Yes' to question 25)

- Annual training requirement
- Licensing fees
- Licensing process
- Reporting requirements
- Requirement if SRKW are encountered to raft up near shore or in a kelp bed and cease paddling until all SRKW have moved at least 400 yards away
- Requirement to move tour vessels out of the path of SRKW
- Restriction on launching if SRKW are within one-half nautical mile from the launch location

- Restriction on tour vessels paddling, positioning, or waiting in the path of SRKW
- The requirement to stay within 100 yards from shore on the West Side of San Juan Island

28. Overall, do you think the licensing and rules for sea kayak/paddle tours are? Respondents were asked to place their perceptions of the licensing and rules for motorized CWW on a spectrum from 'Way too permissive' to 'Way too restrictive' (282 respondents, those who answered 'I am not involved in the sea kayak/paddle tour industry, but I want to give feedback on sea kayak/paddle tours' to question 24)

29. Overall, do you think the licensing and rules for sea kayak/paddle tours are? Respondents were asked to place their perceptions of the licensing and rules for motorized CWW on a spectrum from 'Very simple' to 'Very complex' (282 respondents, those who answered 'I am not involved in the sea kayak/paddle tour industry, but I want to give feedback on sea kayak/paddle tours' to question 24)

30. Overall, do you think the licensing and rules for sea kayak/paddle tours are? Respondents were asked to place their perceptions of the licensing and rules for motorized CWW on a spectrum from 'Not burdensome at all' to 'Way too burdensome' (282 respondents, those who answered 'I am not involved in the sea kayak/paddle tour industry, but I want to give feedback on sea kayak/paddle tours' to question 24)

31. Please share any suggestions for improvement to the rules for sea kayak tours. (limit 1000 characters) (51 respondents, those who answered 'I am not involved in the sea kayak/paddle tour industry, but I want to give feedback on sea kayak/paddle tours' to question 24)

32. Do you boat recreationally in Washington waters? (556 respondents)

- Yes
- No, but I want to give feedback on the general vessel rules for boating around SRKW.
- No, and I don't want to give feedback on the general vessel rules for boating around SRKW.

33. What types of boating rules do you find are easiest to follow? Check all that apply. (324 respondents, those who identified as a recreational boater and those who wanted to provide feedback on the general vessel rules for boating around SRKW in question 32)

- Avoiding certain areas
- Licensing requirements
- Reducing speed within a zone around anima
- Requirements for use of certain equipment (like fish finders)
- Speed limits in certain areas
- Staying a certain distance from animals
- The requirement to carry something on board
- Training requirements
- Other

34. Imagine a scenario where someone ends up (intentionally or unintentionally) in violation of the rules for boating around orcas. What factors do you think were most likely at

play? (325 respondents, those who identified as a recreational boater and those who wanted to provide feedback on the general vessel rules for boating around SRKW in question 32)

- The whales approached them
- There was poor weather/poor sea conditions
- They didn't realize how close they were
- They didn't realize their speed
- They didn't realize whales were present
- They drifted into the whales' path
- They lined up with other boats that were too close
- They thought the whales were transient orcas and not Southern Residents
- They were distracted by other vessels
- They were distracted by some other activity or socializing
- They were in a hurry
- They were trying to avoid talking to Enforcement or Soundwatch
- They were trying to get good photos
- Other

35. What most motivates you to continue to follow speed and approach distance rules? Please rank these as most motivating to you (top) to least motivating to you (bottom). (245 respondents, those who identified as a recreational boater and those who wanted to provide feedback on the general vessel rules for boating around SRKW in question 32)

- I don't want to be embarrassed on the water by people flagging me down or yelling at me
- I want to avoid a fine
- I want to help endangered orcas
- I want to portray responsible behavior for other boaters
- I want to support boating safety
- I'm a rule-follower
- Other

36. Please rank the following aspects of boating around SRKW based on your perception of its importance to support SRKW recovery from *most important (top)* to *least important (bottom).* Note: Some of these are existing regulations or measures for all boaters (*) and others are not. (337 respondents, those who identified as a recreational boater and those who wanted to provide feedback on the general vessel rules for boating around SRKW in question 32)

- Avoiding approaching within 300 yards to the sides of SRKW*
- Avoiding approaching within 400 yards of SRKW on all sides
- Avoiding approaching within a greater distance bubble (e.g, one-half nautical mile or 1000 yards) of SRKW
- Avoiding positioning a vessel so that the prevailing wind or water current carries the vessel into the path of the whale within 400 yards*
- Disengage transmission within 300 yards of SRKW*
- Mandatory no-go or restricted activity zones in SRKW foraging hotspots

- Slow speed zones in SRKW foraging hotspots
- Slowing down to 7 knots or less within one-half nautical mile of SRKW*
- Slowing down to a speed limit lower than 7 knots (e.g., 5 knots or 3 knots) within one-half nautical mile of SRKW
- Staying 400 yards out of the path of SRKW (front and back)*
- Staying a greater distance from whales designated vulnerable by the Department (e.g., due to late stage pregnancy or poor condition)
- Voluntary no-go zones* in SRKW foraging hotspots
- Other

37. When the state considers its rules for boating around SRKW, what are the most important factors it should consider? (Choose up to 3.) (441 respondents, those who identified as a recreational boater and those who wanted to provide feedback on the general vessel rules for boating around SRKW in question 32)

- Appropriateness- making sure the rules are tailored to the level of impact and the group's ability to comply
- Bang for the buck- prioritizing the measures that have the greatest potential impact on whales with the least complexity/restrictiveness for boaters
- Boater's ability to consistently comply with the rules (e.g., practical, doable)
- Boater's ability to understand and remember the rules (e.g., low complexity)
- Consequences
- Consistency between rules in U.S. and Canada
- Consistency between state and federal regulations
- Enforceability
- Equality- not giving one group more restrictions or permissions than another
- Precautionary rules to avoid as much impact on SRKW as possible
- Rules that do what the science says will help the SRKW
- Other

38. What is the top thing the state could do that you think would increase boater compliance with the rules? (limit 280 characters) (306 respondents, those who identified as a recreational boater and those who wanted to provide feedback on the general vessel rules for boating around SRKW in question 32)

39. Please share any specific recommendations for improvement of the state's rules for operating vessels in the vicinity of Southern Resident killer whales. (limit 1000 characters) (177 respondents, those who identified as a recreational boater and those who wanted to provide feedback on the general vessel rules for boating around SRKW in question 32)

40. Please share your contact information if you'd like the Department to be able to follow up with you. You may skip this question if you would prefer to remain anonymous.

41. Optional: If you boat commercially or recreationally on the Salish Sea, what is your most frequent port of departure or launch point? Please add up to three pins [on the map shown] to indicate your most frequent ports of departure or launch points. You can also add additional information about the location in the comment box. (111 respondents)