

Proposal Code Name	Samwell	Sansa	Brienne	Podrick
Does your proposal include rules for commercial whale watching license-holders for the viewing of SRKW? Please describe, and differentiate rules specific to motorized vs. kayak operators.	Yes. A >0 vessel limit with vessels caught moving from point to point for transit purposes exempt from this count. This limit would only be around SRKW.	1. Proposed Commercial Whale Watch Vessel License Conditions: A. Closed areas - the following SRKW critical foraging areas will be closed to commercial whale watching activities until such time that it is determined by WDFW that whale watch activities are having no impact on SRKW foraging success. Commercial whale watch vessels are prohibited from viewing marine mammals or transiting closed areas except for safety reasons or to access port facilities or docks. 1. From April 1 to September 30, the west side of San Juan Island, extending 1000 yards offshore, from Mitchell Bay to Cattle Point is closed. 2. Other areas/times may be closed to whale watching through public notice by WDFW. B. Commercial whale watch restrictions in inland waters of Washington in 2021 and 2022 1. Commercial whale watch vessels are prohibited from viewing SRKW within 1000 yards of a SRKW unless a Soundwatch vessel is present and collecting data within that same 1000 yard area. 2. No more than two commercial whale watch vessels may be within 1000 yards of SRKW. C. An automatic identification system (AIS) must be fitted aboard all commercial whale watch vessels. The AIS must be capable of providing information about the vessel (including the vessel's identity, type, position, course, speed, and navigational status) to state and federal authorities automatically. Vessels fitted with AIS shall maintain the AIS in operation at all times.	My proposal includes limits on numbers of boats and amount of time spent with a group of Southern Resident orcas ('group' still need to be defined). This is just for vessels. Limits on numbers of kayaks with Southern Residents could also be discussed but would be a separate conversation as they are typically viewing Southern Residents opportunistically and can't easily change their speed or direction to avoid being in the vicinity of the whales.	1.No motorized commercial whale-watching boats in the vicinity of SRKWs (within 1 km/0.62 miles) until indicators of population status improve and trigger science-based adaptive management. (RCW 77.65.620 1 (j)) 2.If a license-holder comes across SRKWs incidentally, without seeking them out, they may view them for 15 minutes, with a maximum of 1 motorized boat in the vicinity (within 1 km/0.62 miles). They must notify other whale-watch operators so that they avoid the area and focus on viewing other species. 3. Under adaptive management (see below), when science-based indicators of population status improve, indicating increased resilience to stressors such as vessel noise and disturbance, the number of motorized commercial whale-watching boats may increase to 1 or 2 between the hours of 9 am and 5 pm and under appropriate conditions for good visibility. If the indicators of population status improve to a greater extent, the number of motorized commercial whale-watching boats may increase to more than 2 (based on science and thresholds for disturbance). 4. When a license holder encounters SRKW, they are required to immediately notify WDFW and Soundwatch of their location. 5. License holders with motorized vessels of all sizes are required to use Automatic Identification System (A or B) in order to foster effective monitoring and compliance. 6. Commercial kayak operators launching tours from the west side of San Juan Island may not launch while SRKWs are visible in the vicinity, especially if the SRKWs are heading in the direction of the launch site. Kayakers can enjoy shore-based viewing and must wait until the SRKWs are 1 km away and traveling away from the kayakers' location before putting kayaks in the water. This builds on a standard in the K.E.L.P. Code of Conduct. 7. If SRKWs are approaching to within 300 yards of shore, inshore kayakers with commercial operators must move in as close to shore as possible (ideally in help beds), secure themselves, raft up and stop paddling until the whales have passed by. This would codify a key standard from the K.E.L.P. Code of Conduct (updated from 200 to 300 yards to reflect the latest vessel regulations).
How is this (CWW viewing of SRKW) aspect of your proposal designed to reduce the daily and cumulative impacts on SRKW? Where possible, cite science or data that supports your idea.	I don't have the science to determine what the acceptable number would be. I will say that if 0 was an acceptable number we wouldn't be engaged in this process.	Closing SRKW critical foraging areas will enhance SRKW's ability to detect and capture salmon. Although a precautionary approach would call for no SRKW whale watching, allowing a few commercial whale watch vessels to view SRKW only when Soundwatch vessels are present will reduce vessel impacts while allowing for continued data collection (to foster adaptive management). Closing critical SRKW foraging areas in Puget Sound will have indirect effect of encouraging other vessels to avoid areas necessary for the survival of SRKW and hopefully foster federal/state actions to restrict other vessels from entering the critical areas. Requiring AIS on all commercial whale watch vessels will provide data on locations of commercial whale watch vessels relative to locations of SRKW (determined by sonabuoys, researchers and shore-based sighting reports) and provide necessary 'tool' for enforcement of distance provisions and closed areas. Much/most of the scientific literature in recent years on vessel effects on SRKW support reducing/eliminating noise and disturbances that negatively affect SRKW foraging behavior.	It is designed to reduce sound received by Southern Resident orcas, maximize foraging ability, and decrease stress levels, however it is difficult to quantify any of these at this time as the best available science was conducted before current regulations went into effect. There are some older studies that could provide a starting point. Williams et al 2009, which used data from 2003 to 2005 and determined that number and proximity of boats affects path directedness, respiration rate and surface behaviors in SRKW. Ayres et al 2012 found that when both boat numbers and salmon abundance peak, stress hormones are at their lowest but that when prey is limited, vessels could compound nutritional stress. And Houghton et al 2015 found that numbers of vessels present at various speeds was not a factor in sound levels received by the whales and that vessel speed was the primary contributing factors. These studies would need to be examined under the lens of current regulations and changes in best practices by the whale watch industry in order to determine what additional changes, if any, would produce the desired effect.	These rules would apply every day, which is necessary to reduce the daily impacts on SRKW, and they would reduce noise as well as disturbance from boat presence. Science shows that the number of boats matters. Killer whales change their activity state (shifting avoidance strategies) with more than 3 boats within 1000 meters as seen in a study on NRRWs (Williams, R. and Ashe, E., 2007. Killer whale evasive tactics vary with boat number. Journal of Zoology, 272(4)) We unfortunately can't limit the number of recreational boats through these rules but we can reduce the total number by reducing the number of commercial whale-watching vessels. The Soundwatch 2019 report indicates that ecotour vessels are more than half of the boats seen accompanying the whales (Figure 24 and 25), and most of the vessels within one-half mile of the whales are these "whale-oriented" boats. Positive publicity around this commitment by the commercial whale-watching industry as conservation leaders could also raise awareness among the general public and encourage some recreational boaters to also give the SRKWs more space. It is not just about noise: the presence of vessels not under motor power, including kayaks, changes orca behavior, increasing the likelihood that orcas will switch to traveling and spend less time foraging (Williams, Ashe, Sandilands, and Lusseau, 2015). (NRKWs used for some studies because "opportunities to view SRKWs in the absence of boats, let alone to manipulate boat traffic near focal animals under controlled conditions, are rare.") While increased prey is most important, an increased noise and disturbance level on its own is also predicted to push the SRKW population into decline (Lacy et al. 2017). Regarding AIS: Because the largest CMW vessels are already required by US law to carry AIS A, it is already possible for WDFW to find/monitor their location by AIS. However, many of the smaller commercial whale-watching vessels are not required to use AIS, and when they are outside Haro Strait on the eastern side of the archipelago (where apparently the waters can be calmer and provide a more stable ride for passengers in smaller vessels), their locations are relatively less known which makes it more difficult to monitor and enforce the rules for license-holders that will be designed to reduce daily and cumulative impacts.
How might your proposal for CWW viewing of SRKW impact the economic viability of license holders? How did you consider the potential economic impact in your proposal?	I would think a reasonable vessel limit number with the boats working together to cycle through (as I understand they already do) would have minimal negative economic impact.	Commercial whale watch operators have stated that SRKW viewing has been a very small part of their whale watch operations in recent years. Thus, these restrictions should have minimal or no economic impact especially since the occurrence of humpback whales and transient killer whales (and availability for watching them) in inland waters has increased in recent years.	The goal is to not impact the economic viability of license holders by allowing them to continue viewing Southern Resident orcas and incorporating some regulations that they are already doing voluntarily.	I support a sustainable whale-watching industry, whale-watching and the education that goes with those experiences can increase public support for conservation and is important to our economy. Other, non-endangered species are commonly seen and provide solid (and exciting) viewing opportunities to support ongoing tours. It appears that recently, operators have already been focusing on species other than the SRKWs when possible, and that other species are much more prevalent and provide great viewing opportunities. Putting this on paper as a formalized commitment should be doable in a way that has little to no economic impact on license holders. There is even an opportunity for multi-stakeholder collaboration to celebrate this commitment and give the industry great positive publicity to drive more demand. NOAA's 2017 review found that the 2011 regulations did not have any negative economic impacts on the whale watch industry and did not decrease willingness to pay for whale watching. The Earth Economics report estimates projected losses of \$34 million in economic activity, \$2.2 million in state and local tax revenue, and 330 jobs if the SRKW population were to collapse, so protecting this endangered population will be beneficial not only for the whales themselves but also for the local economy and the economic viability of license holders in the long run. Regarding AIS: AIS B units are far less expensive than AIS A. AIS B units cost only a few hundred dollars. Use of AIS B will minimize the equipment cost to license-holders. Requiring the use of AIS also improves the range of tools available to enforcement, increases the efficiency of enforcement efforts, and lowers the potential fuel costs and fuel consumption of monitoring and enforcement operations.
What are some potential challenges or drawbacks of your proposal in Question 3? How would you mitigate for them? Are there key questions the Science Panel could answer to validate or improve your proposal?	Cooperation among the companies. I would say that if (and only if) there are more than the max number set forth in the vessel limit then a time limit might come into play.	We will need to ensure Soundwatch is collecting statistically reliable data that can be used to directly measure commercial and recreational vessel effects on SRKW. We should ask Science Panel to review Soundwatch's sampling approach/plans and data collection protocols to ensure data collected will be of value in assessing vessel impacts. The panel should also provide recommendations on research data that should be collected to evaluate the effectiveness of the proposed regulatory changes. The application of these restrictions to commercial kayak operators may be challenging and require further discussion with kayak operators and enforcement officials.	One challenge is that we don't have current science to tell us how recent regulations and voluntary changes by the whale watch industry have affected sound and stress levels received by Southern Resident orcas. We need to look at the best available science but incorporate new data and new information or it will be very difficult to determine the 'magic' number of boats or time to limit to. We also need to incorporate the most recent behaviors of the whales as they are generally quite spread out searching for salmon when they are here. So we will have to define what a 'group' of whales actually means. Another challenge is whether or how to apply limits to kayaks. As mentioned earlier, they are watching whales opportunistically and are not mobile enough to follow the same kinds of regulations. The biggest challenge/drawback is the fact that we can only have this apply to commercial whale watch boats while the majority of incidents are caused by recreational boaters. So if we limit the commercial boats but the recreational boaters are still traveling too fast and too close to the whales, we will have accomplished nothing. Therefore, I think it is our responsibility to include a recommendation that the state look at including additional regulations for recreational boaters.	There will need to be proactive communication/education of whale-watching passengers about the reasons for not seeking out SRKWs in order to avoid any negative reactions or publicity. NOAA's 2010 EA found that participants on commercial whale-watching vessels place great importance on responsible viewing and respect to the whales; clearly explaining the rationale behind the commitment to focus on other species can increase trust and appreciation for the industry's conservation efforts among guests and broader audiences. Regarding AIS: The requirement will add to the number of commercial whale-watching vessels visible to boaters who use AIS, and that could be used by recreational boaters to locate SRKWs and other whales. However, I heard a committee member say that few boaters currently use it that way, even though there are commercial whale-watching operators who already use AIS. I believe that the benefits of improved data, efficient enforcement, and full compliance with rules to reduce impacts will outweigh any marginal increase in a magnet effect. In addition, if nearly all of the time there are zero motorized whale-watching vessels around the SRKWs per this proposal, AIS will not serve to attract more boaters to the SRKWs but may help detour them to other species. An alternative enforcement approach, instead of requiring AIS, could be instituting an undercover enforcement program ("secret shopper" approach), but some of the drawbacks are that it would be more costly for WDFW and would not have the additional benefit of providing data for monitoring and research purposes.
What conditions would indicate that these rules need to be updated/revised (more, less stringent, or new rules all together)? How would you recommend changing them based on changes in the system?E.g. lots of new births in one year triggers... from X to Y	I don't think this has ever been done on a meaningful scale: enforcement. I believe that the evolution of rules around SRKW has been without compliance, without full picture analysis, and without accountability. It isn't that the old rules didn't work it's that they were never enforced. These new rules that we set forth will mean nothing without enforcement.	The "re-occurrence" of SRKW in critical foraging areas during Chinook salmon migrations in Puget Sound will be the key measure to evaluate effectiveness of the proposed license provisions.	The rules would need to be updated or revised if new science becomes available that indicates a change is warranted.	Recommend tying partial and full relaxation of the rules related to # of boats in the vicinity (between 9am-5pm) to: 1)noise and disturbance thresholds recommended by the science panel as indicating no adverse impact to the SRKWs given population status and prey availability 2)adaptive management triggers recommended by the science panel 3)significant progress towards or achievement of the Orca Task Force's short-term (10-year) goal of 84 SRKWs in the population. If the population status declines again, the allowable number of commercial whale-watching vessels is fully restricted once more. There could be adaptive management triggers based on the Orca Task Force's other indicators: consistently well-nourished whales, more live births, and the survival of several thriving young orcas. There could also be an adaptive management trigger: if there are two or more years of abundant salmon, since noise and disturbance are less of a threat if salmon are plentiful, any restrictions that are relaxed at that point would need to be put back in place if salmon abundance drops again. Potential unintended impacts on other species should be monitored over time. If there are adverse impacts on other species due to increased pressure, in future years DFW should create rules for license-holders related to viewing those other species.

<p>How would the rules you propose in Question 3 be enforced? How do you propose we measure and maximize compliance?</p>	<p>Patrols and ticketing. system of points for infractions similar to Drivers License points. were within a given year or multi year period a certain number of infractions could result in license suspension.</p>	<p>Defined area closures combined with vessel AIS should allow for adequate enforcement of closed area provisions. Limiting the number of commercial whale watch vessels within 1000 yards of SRKW could be challenging if/when multiple commercial whale watch vessels approach the 1000 yard limit concurrently and/or are moving in/out of the restricted area.</p>	<p>Admittedly this proposal is difficult to enforce because it doesn't apply to everyone. If the whale watching industry is part of the process and they have buy-in they can help to monitor themselves. I look at Laguna San Ignacio in Baja as a model of this. They have regulations on boat numbers and time limits and they self-regulate. There is a member of the community who monitors the numbers of boats and basically provides the red light and green light for new boats entering the area. But this could become challenging when you have several groups of whales spread out over long distances.</p>	<p>Requiring the use of AIS will assist in measuring and maximizing compliance by improving the efficiency of WDFW's monitoring and enforcement efforts. If license-holders notify WDFW when they come across SRKWs, WDFW can target its enforcement efforts there, and also look at AIS data to see if other license-holders are abiding by the rules in terms of their presence in the area. To enforce the use of AIS, there can be spot checks at docks and on water to validate that AIS is being used by licensees.</p>
<p>Does your proposal include recommendations to WDFW regarding the administration of the CWWLP? (e.g. requirements for license holders, including reporting, education/outreach, qualifications, etc.)What are your recommendations? How would these recommendations enhance your proposal and benefit SRKW? Are there any drawbacks?Note: These recommendations alone do not meet our legislated mandate and may require additional legislation.</p>	<p>I recommend that those with an already established history of operation >2+ years be granted permits. I also propose that permits cannot be denied to current license holders without cited infractions (the number of which also will need to be determined)</p>	<p>With AIS and Soundwatch vessel presence requirements, there should be no need for reporting or observer requirements on license holders.</p>	<p>I recommend that license holders are held to certain standards. This could include a number of years of previous experience, captain training, naturalist training, continuing education, or any combination thereof. This benefits Southern Resident orcas by having well trained, educated professionals on the water providing an educational experience for passengers on whale watching boats that will hopefully lead to public engagement in recovery efforts.</p>	<p>As alternative technologies for quieting small vessels are developed, studied, and available, explore discounted license fees for any operators that change the technology on their vessels (e.g., echo sounders, propulsion systems) to make them quieter/more wildlife-friendly and/or that participate in tests of new technologies to evaluate impact on noise. This would have broad benefits for marine wildlife that is sensitive to noise, including SRKWs when in the vicinity.</p>
<p>Does your proposal include any additional/broader recommendations outside the scope of our rulemaking under RCW 77.65.620?What are your recommendations? How would these recommendations enhance your proposal and benefit SRKW? Are there any drawbacks?</p>	<p>I feel that human powered vessels are technically incapable of "whale watch" even under the broad scope of "any marine mammal" I would move for there to be language that makes a clear distinction between human powered vessels in transit, and that the only language in the RCW that indicates that human powered vessels apply to this licensing is a fee structure. (ie there is language pointing at motor vessels yet other commercial motor vessels like the Victoria clipper will be exempt.) I believe that commercial human powered vessels are equivalent to commercial transit vessels as they travel predetermined paths that are not modified to maximize wildlife interaction and should have no greater requirement, licensing or restriction than that of any other commercial vessel providing transportation.</p>	<p>WDFW should encourage/request that NOAA include the closed area restrictions in federal whale watch guidelines or regulations so that the closure will apply to all whale watching (not just commercial whale watch vessels).</p>	<p>As stated earlier, there will have to be some additional regulations that apply to recreational boaters if this proposal is to benefit the Southern Resident orcas.</p>	<p>I recommend and would participate in collaborative publicity on new meaningful protections championed by commercial whale-watching industry, to boost positive publicity with support from the conservation community. Clear positive messaging about the new protections and the value of still viewing other species of marine mammals for education and conservation messaging. This would help the industry recover from COVID-19 impacts and help turn any economic impact of the new rules into a positive impact. It would be a win-win, with benefits to SRKW (by reducing noise and disturbance) and industry (by improving public perception and marketing for all of the other business). Drawbacks: We can't commit everyone to participating or accomplish this purely through the license-holder rules. But there are a number of organizations that would be providing a new and supportive voice that could sway public perception in a positive direction.</p>

Proposal Code Name	Jon	Arya	Gendry
Does your proposal include rules for commercial whale watching license-holders for the viewing of SRKW? Please describe, and differentiate rules specific to motorized vs. kayak operators:	Yes RCW 77.65.620 1 (a): Require CWW license holders to comply with the requirement that there are zero license holders viewing SRKW until measures indicate SRKW population health and numbers are recovering at which time adaptive management measures are triggered. Revisit progress at three years, five years, and seven year. RCW 77.65.620 1 (b): License holders are not allowed to operate in the vicinity of the known location of SRKW during extremely low visibility conditions (e.g., dawn,dusk, fog). Vicinity should be defined as .5 nautical miles, similar to the 7 knot speed limit within .5 nautical mile. RCW 77.65.620 1 (c): [duration spent with SRKW] N/A until adaptive management triggers are met. Permanently require that license holders' motorized vessel has some type of AIS on board. For commercial kayak license holders, require one AIS unit per kayak group). AIS must be turned on at all times when out on the water. This will enable effective monitoring and compliance with CWW license holder rules and current vessel distance regulations. It would also be in synch with the Canadian CWW operators who are required to have AIS. Recognizing that commercial kayak outfits operate in a different manner and intent but still have the ability and opportunity to view SRKW without purposefully seeking them out, the CWW licensing program needs to reflect that. It would make sense to codify the standards and best practices from the Kayak Education and Leadership Program's "code of conduct such as when launching from shore or from another vessel, rafting up when whales approach within 300 yards of shore, and move in as close to shore as possible.	I propose a limit of no more than 10 licensed vessels allowed to view a group of SRKWs at one time. A group of SRKWs would be defined as separated by at least 1 km, thus boats separated by 1 km would be determined as viewing different groups of SRKWs. In addition, I propose establishing a foraging zone on the west side of San Juan Island that extends 1/4 mile off shore from Eagle Point to Mitchell Point. License holders will not enter the foraging zone when SRKWs are present.	I propose that no commercial whale-watching vessels (excepting kayaks) be allowed in the vicinity of the SRKWs, until certain indicators of improvements in SRKW conservation status are documented by DFW. This rule can be implemented using provisions piloted in the 2019 agreement between Transport Canada and the PWWA and independent operators, barring operators from marketing or planning trips to watch on SRKW, and requiring that boats refrain from following SRKW and continue transiting when the whales are incidentally seen. Under this proposal, kayak operators and operators of motorized watercraft would be treated differently, given the lesser mobility of kayak operators, the nature of their whale-watching, and other factors. My recommendations for commercial kayak operators are as follows. (1) Off the west coast of San Juan Island, and in any other coastal area with relatively high current or historic occurrence of SRKWs, kayakers should be required to stay within a 20-meter corridor along the shore, except when they are transiting off island. This rule would complement the provisions adopted by Canada, for the 2020 season, for kayakers padding within designed sanctuary areas for SRKW. (2) Kayakers should be required to remain 300/400 meters away from all killer whales, unless they can demonstrate the capacity to distinguish among killer whale ecotypes, whereupon they would receive a special category of whale-watching license that would allow them to come closer to non-Southern Residents. (This allowance would be provisional on further discussion of whether distinguishing ecotypes is reasonably achievable at distance from the height of a typical kayaker.) (3) In keeping with the unplanned nature of whale-watching from kayaks, kayakers should not be allowed to market trips for SRKW viewing.
How is this (CWW viewing of SRKW) aspect of your proposal designed to reduce the daily and cumulative impacts on SRKW? Where possible, cite science or data that supports your idea.	Zero CWW viewing of SRKW would have a cumulative benefit for SRKW by reducing the daily and cumulative impacts and is based on the precautionary principle approach to achieve conservation and recovery of a federally listed endangered species. Under this option whales can effectively forage, rest, and socialize (in charter), allow for long-term sustainability and recovery of SRKW (in charter), is consistent with the best available science (as vetted through the science panel and in legislation), will apply adaptive management using the current and best available science (in legislation), and is implementable, enforceable, manageable for license holders and WDFW (in charter). Zero CWW viewing of SRKW enabled recovery efforts and monitoring and enforcement to address a lot of "uncertainties" that have been raised such as pods being more and more dispersed in smaller groups or individually, unanticipated orca behavior, low visibility conditions on the water, recreational boater presence, lack of law enforcement presence to enforce current vessel regulations and any future CWW SRKW viewing regulations, such as number of vessels, duration, areas, time of day. Regarding BAS, it is well documented that resident killer whales respond to vessels engaged in close proximity with short-term behavioral changes including faster swimming speeds, less directed swimming paths, less time foraging, additional energetic costs, increased call amplitude and call length to communicate and forage, and increased avoidance behavior. Please see supporting document with the citations as well as Todd Hass's science presentation to the Advisory committee on 2/27/2020.	Currently there is no rule limiting the number of professional whale watching vessels viewing SRKWs and no rule establishing areas where professional vessels will not view SRKWs. Both of these may reduce impacts beyond the current new rules of 300 yards and 7 knot slow speed zones.	This proposal rests upon the basic proposition that we must eliminate disturbance of SRKWs to the greatest possible extent given the dire conservation status of the population. Measures such as speed restrictions and vessel limits do not accomplish this purpose. Indeed, the best available science indicates that small vessels at 300/400 meters and beyond can disturb adversely affect foraging behavior in resident orcas (Ferrara et al. 2017). This conclusion is founded on both physical acoustics and direct observation of orca behavior in the presence of small boats. First, acoustic modeling demonstrates that small vessels at 400 meters and beyond can mask the echolocation signals that the SRKWs use for foraging, effectively reducing their ability to hunt and locate prey. In a 2008 study, Holt considered the acoustic output of three whale-watching vessels at typical cruising speeds (i.e., 17 or more knots), as reported by previous research in Haro Strait, and calculated that the same boats operating at 400 meters' distance would substantially restrict the range at which the whales could detect their own echolocation signals (Holt 2008). For example, noise from one vessel was estimated, at 400 meters, to reduce the whales' detection range by 75%, reducing their effective hunting distances from about 400 to about 40 meters. The sheer magnitude of these effects, which varied from 38% to 90% depending on the boat (Holt 2008), made it clear that they would persist at vessel distances well beyond 400 meters. Holt's findings are broadly consistent with more recent empirical measurements of small vessel noise. In a study sponsored by the Port of Vancouver's ECHO Program, Walichuk et al. (2018) measured source levels of 20 commercial whale-watching boats and other small vessels and found that boats operating at cruising speeds (above 15 knots) produce median source levels of about 155 to 162 dB re 1 µPa ₂ within the whales' echolocation band. Notably, vessels traveling at slow speeds of less than 7 knots—while generally quieter—still produced median source levels ranging from about 133 dB to 169 dB re 1 µPa ₂ within the same frequencies. These levels of sound greatly exceed typical ambient noise conditions in the Salish Sea (compare with Bassett et al. 2012 (reporting average third-octave sound pressure levels of 90-95 dB, at frequencies from about 15 to 20 kHz in noisy Admiralty Inlet). Given these measurements, some small boats—even ones moving at 7 knots—would be found to mask orca echolocation signals at distances well beyond 400 meters under any reasonable application of the sonar equation (the standard formula used to evaluate signal detection). Second, foraging impacts from small vessels have also been observed through direct study of SRKW behavior. According to the best available science, a three-year study of the effect of vessel distance on the whales' behavioral activity, the presence of boats between 100 and 400 meters' distance significantly reduced foraging time and increased traveling time in SRKWs (Lussieu et al. 2009). A smaller but similar effect was observed when boats occurred between 400 and 1000 meters of the whales, suggesting that loss in foraging time persisted even when boats were at some distance beyond 400 meters. (As the authors noted, the study was not able to establish statistical significance for these greater distances of 400 to 1000 meters because the near-constant presence of boats within 1000 meters left few "no-boat" data points for comparative analysis. The point estimates, however, suggest foraging effects of boat traffic at 400-1000 meters.) Notably, the study does not allow us to disentangle noise from vessel presence in understanding the cause of these adverse effects. But analogous behavioral shifts have been demonstrated in Northern Resident killer whales in the general presence of vessels and, indeed, in many other marine and terrestrial species exposed to human disturbance (Williams et al. 2006). The consequences of such behavioral shifts can be severe, particularly in food-stressed populations (e.g., Williams et al. 2006; Lacy et al. 2017). This is what the best available science tells us. Of course, the information we have is limited, as it is in virtually every environmental decision we face. But any recommendation we make must be predicated first and foremost on the conservation status of the species, and the dire condition of the population requires the elimination of vessel disturbance to the greatest possible extent until its status improves.
How might your proposal for CWW viewing of SRKW impact the economic viability of license holders? How did you consider the potential economic impact in your proposal?	It is difficult to quantify the exact economic impact or viability of this proposal until PWWA discloses annual economic data for the advisory committee to review and until the SBEIS is completed by WDFW. It would be beneficial to see what the annual economic data over the past 10 years related to gross revenue, passengers, etc., and compare it to the number days SRKW were in the Salish Sea. According to PWWA statements over the past few years, the percentage of time/trips spent viewing SRKW has been about 10-15%. PWWA acknowledged that in 2019, "three of the companies on the advisory committee combined saw SRKW on 7.4% of tours." (Jeff Friedman, PWWA). This low number is most likely attributable to the 19 days SRKW were in the Salish Sea that year. CWW operators will continue to view other marine mammals that are plentiful and healthy with or without SRKW present. According to a study from 2004 (Malcolm, 2004) that was cited in 2010 NOAA Environmental Assessment of the proposed vessel regs, it found that "participants were most satisfied with the respect their vessels gave the whales. The number of whales, whale behavior, and learning also received higher satisfaction than the distance from which whales were observed." Back in 2010, PWWA argued that vessel distance regulations (increase to 200 yards) would hurt the industry. A 2017 NOAA report looking at the effectiveness of the 2011 vessel distance regs as it pertains to impacts to the industry. It found that the number of commercial whale watch boats went up after 2010. Since 2011, the industry has experienced growth in the number of active companies, the total number of vessels in the fleet, and average ticket prices. Overall, IEC (2016) concludes that the regulations have not had any negative economic impacts on the whale watch industry and public's willingness to pay for whale watching has not decreased as a result of the 2011 regulations.	This proposal should not impact the economic viability of license holders.	No evidence has been presented that temporarily setting vessel numbers in the vicinity of SRKWs to zero will significantly impact the economic viability of license holders. The available information indicates that SRKWs constituted a small amount of commercial whale-watching effort (roughly 10%), a function of the increased availability of other marine mammals (particularly the transient KTs) for viewing as well as diminishing presence of the SKRWs. The industry has been substantially affected, however, by public concern about the SRKW and the sustainability of whale-watching, with members on the panel suggesting a 15-20% decrease in revenue or ticket sales over the last one or two seasons. For this reason, it is very possible that a zero-vessel rule, if properly announced and publicly supported by the environmental community, could have a net economic benefit for the industry.
What are some potential challenges or drawbacks of your proposal in Question 3? How would you mitigate for them? Are there key questions the Science Panel could answer to validate or improve your proposal?	A significant challenge for the advisory committee has been how to incorporate into the CWW licensing program mechanisms, if any, to help address and decrease the number of incidents by recreational boaters. We all recognize recreational boaters are a significant factor and problem that needs to be addressed. However, it is not in the purview of this legislation or this advisory committee to ask CWW operators to enforce the vessel distance regulations or to educate recreational boaters. The CWW licensing program with an adaptive management framework is an opportunity show case and promote the collective commitment to the recovery of the endangered SRKW while promoting other wildlife and whale viewing opportunities. CWW operators could be seen as and acknowledged as stewards of the marine environment and players in the recovery of the SRKW. Economic mitigation measures for the CWW industry and commercial kayak outfits to consider include grants for purchasing and installing AIS systems and waive licensing fees for the first few years (TBD).	The only drawbacks would be that the general public is not aware of the benefits to SRKWs from professional vessels. The public does not understand the benefits of the protective presence of professional whale watching vessels to alert recreational vessels, commercial shipping, military, and ferries. The public also does not widely understand the education, conservation and citizen science value. This can be mitigated by public education from WDFW and NGOs.	A potential drawback to the proposal is the lack of a sentinel contribution from whale-watching vessels. It is difficult to evaluate this drawback since sufficient analysis has not yet been done confirming or quantifying the effect of commercial boat presence in reducing private-vessel violations. But any drawback can be mitigated by increasing on-water presence of DFW vessels, which has been shown, from five years of SoundWatch data, to substantially reduce violations by private boaters; and by investing in boater education.

<p>What conditions would indicate that these rules need to be updated/revised (more, less stringent, or new rules all together)? How would you recommend changing them based on changes in the system? (E.g. lots of new births in one year triggers.... from X to Y)</p>	<p>The adaptive management framework needs to be tied to the health and recovery of the SRKW population. A recovery goal of 2.3% per year growth rate with an increase of SRKW pop to 84 whales by 2028, essentially 10 more whales in 10 year has been identified and should be adopted as the adaptive management trigger in concert with near-term criteria for recovery that includes evidence of (1) consistently well-nourished whales due to good salmon run years; (2) more live births; and (3) the survival of several thriving young orcas. With a CWW licensing program that initially requires license holders to comply with the requirement that there are zero license holders viewing SRKW, it allows for scientifically supported adaptive management triggers to be updated and revised. It is much easier to update, lift, or ease stringent rules based on their success versus strengthening the less stringent rules if they are not working. Furthermore, with the precarious number of reproductive individuals in the SRKW population, an immediate precautionary principle approach for a federally listed endangered species is essential. If adaptive management trigger is met then the following will be considered and must be based on BAS vetted by the Science Panel. RCW 77.65.620 1 (a): Number of CWW operators allowed to view SRKW at one time. -Number would be dependent on BAS that determines the appropriate number of vessels or viewing parameters that would not cause any impacts to SRKW and negatively impact population recovery goals. - RCW 77.65.620 1 (b): Number of days and hours. Still applicable: License holders are not allowed to operate in the vicinity of the known location of SRKW during low visibility conditions (e.g., dusk, fog). Vicinity is defined as 5 nautical miles, similar to the 7 knot speed limit within .5 nautical mile. -Number would be dependent on BAS that determines the appropriate number of vessels or viewing parameters that would not cause any impacts to SRKW and negatively impact population recovery goals. - RCW 77.65.620 1 (c): duration spent with SRKW -Duration and requirements would be dependent on BAS that determines the appropriate number of vessels or viewing parameters that would not cause any impacts to SRKW and negatively impact population recovery goals. - RCW 77.65.620 1 (d): Areas operators may operate. Considerations/Ideas: -Prohibit CWW vessels in key foraging areas that are both historical and currently used as determined by the science panel (i.e. Swifsure Bank, Salmon Bank, Cattle Point to Eagle Point) -Allow viewing of SRKW when they are traveling not when foraging, socializing, resting. Limits to consider include x number of boats, x transit per vessel based on distance in miles (easily monitored by AIS) and in x area only. Reason: The whales are far less tolerant of boats while feeding than when they are traveling from A to B and the most important thing is what the whale is doing before the boats arrive (Williams et al. 2006). SRKW spend 18-25% less time feeding in the presence of boats than in their absence (Williams, 2006; Lusseau 2009; Giles and Cendak 2010) AIS requirement still applies for all license holders.</p>	<p>The evaluation of the rules should not be tied to population numbers, as it is widely agreed upon in the science community that prey abundance is the primary driver of SRKW population. Perhaps evaluating Soundwatch monitoring data and PWWA sentinel roe documentation over time would be good metrics to evaluate.</p>	<p>Conditions for revision of the rules should be based on the conservation status of the SRKW population. A number of possible indicators are available, the most prominent of which are the growth rate standard in the NMFS Recovery Plan (2.3% per year for 28 years), which might be reduced to a shorter period than is necessary for full recovery and delisting; and the initial abundance target (84 orcas) established by the Washington State Task Force. I would recommend seeking the advice of the science panel in evaluating these and other options. I would strongly recommend against using a standard along the lines of the strawman suggested on the survey form ("lots of new births in one year..."), since high mortality occurs during the first two years of life, and since multiple years of growth are necessary to begin recovering the population.</p>
<p>How would the rules you propose in Question 3 be enforced? How do you propose we measure and maximize compliance?</p>	<p>Require that every license holders' motorized vessel has some type of AIS on board. For commercial kayak license holders, require one AIS unit per kayak group. AIS must be turned on at all times when on the water. This will enable effective monitoring and compliance of the license program rules and be in synch with the Canadian CWW operators who are required to have AIS. When adaptive management trigger is met to allow for SRKW viewing, the following should be required to ensure compliance by license holders: -Notify the location of their location and of the SRKW groups to SW and WDFW. -WDFW, NOAA or Coast Guard enforcement and/or SW patrols are present in the vicinity. -Fly the whale warning flag.</p>	<p>These rules would be easy to enforce and existing PWWA communications allow the professional vessels to cooperate to help self-enforce these measures.</p>	<p>As noted above, I recommend expanding the on-water presence of DFW enforcement vessels. Compliance should be measured not only in terms of violations recorded by DFW and SoundWatch, but in time spent by commercial vessels within the vicinity of the SKRW (0.5 miles) per hour of SoundWatch/DFW presence.</p>
<p>Does your proposal include recommendations to WDFW regarding the administration of the CWWLP? (e.g. requirements for license holders including reporting, education/outreach, qualifications, etc.) What are your recommendations? How would these recommendations enhance your proposal and benefit SRKW? Are there any drawbacks? Note: These recommendations alone do not meet our legislated mandate and may require additional legislation.</p>	<p>yes. License holders must be U.S. based commercial whale watch operator or commercial kayak outfit. When adaptive management trigger is met to allow for SRKW viewing: -Require CWW license holders to notify the location of their location and of the SRKW groups to SW and WDFW -Require WDFW, NOAA or Coast Guard enforcement and/or SW patrols to be present -Require license holders to be downwind of SRKW -Require license holders to fly the whale flag The benefits to SRKW from these would help vessel operators, both CCW and recreational boats, comply with current vessel regs and future license holder rules. For education and outreach, the CWW operators already provides this invaluable service and opportunity to their clients with onboard naturalists. And since this not in within the framework of the RCW it should not be required in the framework of the licensing program but highly encouraged.</p>	<p>One additional requirement for license holders is to require licensed vessels to alert WDFW and Soundwatch to the presence of SRKWs when first identified, if WDFW enforcement and Soundwatch are not present. License holders can also work with WDFW and Soundwatch to help prioritize presence in high traffic areas to best accomplish alerting and slowing other vessels in the area around SRKWs.</p>	
<p>Does your proposal include any additional/broader recommendations outside the scope of our rulemaking under RCW 77.65.620? What are your recommendations? How would these recommendations enhance your proposal and benefit SRKW? Are there any drawbacks?</p>	<p>License holders should be required to turn off echosounders when in the vicinity of SRKW except for emergency situations and for safety.</p>	<p>A broader proposal is to allow licensed professional vessels (not the general public) to view Bigg's killer whales from the global standard of 100 yards under certain conditions (number of vessels, etc). This would provide licensed professional whale watch vessels an incentive to view whales other than SRKWs, which can help reduce potential impacts on SRKWs. The original justification from NOAA for moving viewing Bigg's to 200 yard from 100 yards was that the general public cannot tell the difference between ecotype. Since the licensed professional vessels can tell the difference, and the Bigg's population is thriving, it makes sense to allow licensed vessels to view at the global standard. This also helps the economic viability of license holders as it removes the competitive advantage of whale watching in California and Alaska, where professional vessels view killer whales at 100 yards.</p>	

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Does your proposal include rules for commercial whale watching license-holders for the viewing of SRKW? Please describe, and differentiate rules specific to motorized vs. kayak operators:	Yes. RCW 77.65.620 1 (a): Require license holders to comply, temporarily (per adaptive management), with the requirement that there are zero license holders viewing SRKW. Vessels could still transit to a destination (other than the location of SRKW) in the vicinity of SRKW ("vicinity" defined as "within one-half nautical mile" which would be consistent with RCW 77.15.740 (1) (e)) as long as there is compliance with current distance requirements and vessel speeds.	I propose no new rules for commercial whale watching license holders other than the requirement that they obtain a commercial whale watching license. At this time, due to the lack of evaluation of the most recently imposed rules that resulted from the Orca Task Force, and the possibility that further restrictions would be harmful both economically for whale watch operators and physically to Southern Resident killer whales, further restrictions should not be created.	License holders are allotted an annual limited violations clause, much like direct takes on a research permit. Each license holder will receive X number of "warnings" for violating the rules outlined within the license and if they exceed this number then their license is revoked for the rest of the year. The authority and enforcement of this clause would be handed down to WDFW on-the-water enforcement, in that if they witness or record a violation by a license holder they will record the necessary information and if this exceeds the allotted number that license holder loses their privileges granted by the license.	A. I propose a limited licensing program which would limit licensing availability to CWW companies that have been in the business of CWW for the duration of 2018, 2019, and 2020. B. I propose that viewing of SRKW by CWW be limited to 1 hour within 400 yards.
How is this (CWW viewing of SRKW) aspect of your proposal designed to reduce the daily and cumulative impacts on SRKW? Where possible, cite science or data that supports your idea.	Zero CWW boats watching SRKW would eliminate the daily and cumulative impacts on SRKW from commercial whale watch license holders – assuming compliance. The BAS is definitive that vessel acoustics and presence adversely impact SRKW socializing and foraging effectiveness. This proposal is based on the precautionary principle approach. Given the critical status of the SRKW population and given that there is no BAS that definitively defines what vessel distance plus vessel noise would equal no impact to SRKW, the precautionary principle approach to the limitations included in this rulemaking should err on the side of benefit to SRKW. The proposal for no CWW viewing of SRKW would be temporary until such time that there is BAS that definitively defines viewing parameters that would cause no impacts to SRKW or until SRKW recovery indicators determine that potential CWW viewing impacts would not adversely affect recovery goals.	The proposal of imposing no new restrictions on top of the distance and speed regulations that already exist would reduce the daily and cumulative impacts on SRKW by ensuring the presence of responsible, trained professionals in the vicinity of whales. Soundwatch data show that when professional whale watch vessels are present, there are less recreational boat infractions, creating, according to experts such as Dr. David Bain of Orca Conservancy and Ken Balcomb of Center for Whale Research, a quieter and safer overall environment compared to what might occur if whale watching vessels were to be absent or further restricted. It is the presence of whale watchers and not the absence of whale watchers that lessen daily and cumulative effects.	This will give "teeth" to the licensing program and the regulations established within. Already we have seen guidelines put forward, but have data to show those guideline are not always followed. Currently, there is a weak system of oversight, consequences, and reporting for violations to guidelines. For direct violations against State laws WDFW on-the-water enforcement has shown effective, but yet the data still shows violations taking place, most likely when WDFW is not present.	Proposal A will reduce the overall number of CWW vessels by limiting the licensed vessels to those that are still in business in 2020 and will ensure that the number of vessels in operation does not grow going forward. 2020 will see a marked reduction in CWW businesses due to Covid-19 impacts. Additionally, it must be understood that whale watching is not like commercial fishing. CWW often have choices on where they can go and actively work towards having the fewest vessels for each group of whales in the region. Putting a cap on licenses overall will provide a mechanism that will reduce the average number of vessels with any group of whales in the region and will lessen the number of vessels engaged in viewing SRKW on any given day. Proposal B will help maintain the already low average number (approximately 3) of CWW vessels with SRKW and will help prevent the number of vessels engaged in viewing SRKW from increasing.
How might your proposal for CWW viewing of SRKW impact the economic viability of license holders? How did you consider the potential economic impact in your proposal?	This question cannot be answered given that this committee has not been provided with CWW economic data. If zero CWW viewing of SRKW would have an effect on the economic viability of license holders that operate in the inland waters of WA, the historical CWW businesses' economic data would correlate with data on SRKW presence in the inland waters of WA. It's also important to note that the ESA does not consider economic viability and is focused solely on saving the listed species.	The proposal of not implementing additional restrictions for experienced whale watch operators would prevent further economic harm to license holders beyond the impact of the creation of the license itself which is critical, especially in light of the devastating financial losses caused by COVID-19.	This rule could increase the cost of the license or doing business by the holder if they lose their license, but it highly increases the accountability of license holders. If the holder is operating in a positive manner by the rules stipulated within the license, then there should be no negative economic impact.	Limiting licenses to those operators that are already engaged in CWW will not have a negative effect on license holders. Limiting the time spent viewing SRKW to 1 hour is a reasonable amount of time for engaging and educating guests and would not negatively affect license holders.
What are some potential challenges or drawbacks of your proposal in Question 3? How would you mitigate for them? Are there key questions the Science Panel could answer to validate or improve your proposal?	It has been a challenge to discuss this proposal without having it labeled as a "moratorium" and a source of economic impact to the CWW operators. What is important is for the CWWLP to be communicated clearly to the public. It's imperative that there be no miscommunication (such as this rulemaking resulting in a "ban on whale watching"). Mitigations could include promotional materials that highlight all the wildlife and whales (other than SRKW) that can be seen from CWW vessels, and promotional materials about the CWW operators supporting SRKW recovery.	The drawback would be that some members of the public, unfamiliar with the stringent regulations that professional whale watching operators already follow or with the positive sentinel role that whale watch operators serve, might not understand that an absence of whale watchers could cause harm instead of benefit. This could be mitigated with WDFW's public support of professional whale watching and endorsement of the good work they do educating the public and protecting whales.	This rule could lead to an influx of reports from the public on violations against the license. This may increase reporting for violations against the State law, but there are some members of the public out there who might utilize this rule to submit frequent and unnecessary reports to WDFW about license holders. I think this could be mitigated by affording the enforcement and investigation of this rule and reports to WDFW enforcement, as they already do, but not extend these "enforcement" privileges to other organizations, such as Soundwatch, PWWA, etc.	The primary drawback to implementing any proposals is that we don't have an accurate picture of what impact the past regulation changes have had. I would ask the science panel to look at what positive impacts the many regulatory, and guideline, changes have had over the last 15 years.

<p>What conditions would indicate that these rules need to be updated/revise (more, less stringent, or new rules all together)? How would you recommend changing them based on changes in the system?E.g. lots of new births in one year triggers.... from X to Y</p>	<p>The adaptive management of this rulemaking should include the BAS for identifying the parameters for whale watching that would have no impact on SRKW. The rule could then be adjusted accordingly. SRKW population/health improvement indicators (e.g., population growth) should also be considered. The science panel should identify appropriate population health indicators.</p>	<p>If new, peer-reviewed science became available that was conducted under the current viewing distance (300 yards) and speed regulations, and was convincing in showing that additional regulations would benefit SRKW, another collaborative panel could be assembled and the idea of additional or new regulations visited at that time. At the moment, no scientific publications have investigated the current regulations implemented in 2019 (300 yards, 7 knot slowdown), and very little have even looked at the regulations that were put in place in 2011 (200 yards). Science being cited currently that was conducted assuming vessels viewing from 100 yards with no speed restrictions, is unrepresentative of modern whale watching in Washington state.</p>	<p>The number (X) of allotted "violations" could change as the licensing program moves forward. Maybe in the first year there are an increased number of allotted "violations" to holders to allow for changes in behavior and working out the kinks of the program, then as time moves on these allotted "violations" are reduced. Maybe if a holder loses their license one year the next their numbers are reduced further.</p>	<p>Unfortunately, the overall health of the SRKW population relies on a lot more than the issues surrounding CWW vessels, which have been largely mitigated already. The SRKW population is expected to continue its decline until the prey availability issue can be adequately addressed. A period of continued growth in SRKW population could prompt a reduction in restrictions, however, a further reduction in SRKW population does not necessarily mean vessel restrictions should be tightened. The many vessel restrictions that have been enacted in the last 15 years, unfortunately, does not seem to show a positive correlation in SRKW population. It is unlikely that more restrictions will have a different outcome. The best indicator regarding CWW vessels specifically is the average number of CWW vessels viewing SRKW. This can be easily tracked using Soundwatch data going forward.</p>
<p>How would the rules you propose in Question 3 be enforced? How do you propose we measure and maximize compliance?</p>	<p>To assist DFW with enforcement: Require AIS for all license holder's vessels (with an exception for kayaks: either no AIS requirement or require one AIS per kayak group). Require license holders to notify DFW (and, if appropriate, Soundwatch) of SRKW presence (in real time).</p>	<p>As no additional rules would be in place apart from the current state law regarding viewing distances and speed restrictions, WDFW officers would be responsible for enforcement as they are currently, without the need for extra resources.</p>	<p>WDFW Enforcement. It's all about compliance. We know from the data that commercial whale watch vessels violate the regulations and guidelines less than recreational vessels, but they still do violate these stipulations. The industry has been operating without any direct consequences to their guidelines for years which makes these guidelines negligible.</p>	<p>WDFW will be responsible for issuing licenses and can easily do the research to determine which companies are eligible to receive them. WDFW can monitor when CWW vessel arrive in the vicinity (400 yards) of SRKW and determine the amount of time each CWW vessel is there. Professional members of the PWWA have already shown an ability to abide by similar guidelines. WDFW would simply be a check, not a gate keeper.</p>
<p>Does your proposal include recommendations to WDFW regarding the administration of the CWWLP? (e.g. requirements for license holders, including reporting, education/outreach, qualifications, etc.)What are your recommendations? How would these recommendations enhance your proposal and benefit SRKW? Are there any drawbacks?Note: These recommendations alone do not meet our legislated mandate and may require additional legislation.</p>	<p>Yes. License holders should be required to notify DFW and, if possible/appropriate, Soundwatch, with information on SRKW presence in real time. SRKW presence data would assist DFW enforcement efforts (e.g., recreational vessel violations). License holders should be required to have all captains and/or naturalists (at least one employee per vessel) demonstrate their ability to differentiate SRKW from transient orcas. Education and outreach should not be required as that would be difficult to enforce and/or measure.</p>	<p>I recommend that, due to the catastrophic effects that COVID-19 has had on professional whale watching operators in Washington, creating extreme financial hardship from which some companies may not recover, the fees for the commercial whale watching license be suspended until at least November 30, 2022, the first date the law requires that the program be evaluated. At that time, WDFW can reexamine the program, fees, and the state of the whale watching fleet in Washington and determine appropriate action moving forward.</p>	<p>Yes.</p>	<p>Not at this time.</p>
<p>Does your proposal include any additional/broader recommendations outside the scope of our rulemaking under RCW 77.65.620?What are your recommendations? How would these recommendations enhance your proposal and benefit SRKW? Are there any drawbacks?</p>	<p>This is outside the rulemaking scope: To assist DFW with enforcement: Require license holders to notify DFW (and, if appropriate, Soundwatch) of SRKW presence (in real time).</p>		<p>Broader recommendations. They will direct benefit the SRKWs because any other rule outlined in this program will be enforceable and punishable.</p>	<p>It is abundantly clear that without addressing recreational vessels and shipping traffic, any regulations implemented will have a limited benefit in regards to potential vessel impacts.</p>