2013 SOUNDWATCH PROGRAM ANNUAL CONTRACT REPORT

Project Title: Soundwatch Public Outreach/Boater Education Project.

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Contract Number: **RA-133F-12-CQ-0057 Tasks 6.2A & 6.3**

Contract Date: Second year of multi-year contract: January 1, 2014 through December 31, 2014

Abstract:

The goal of this project was to provide on-the-water stewardship, public outreach and boater education services by The Whale Museum's Soundwatch Boater Education Program during the 2013 killer whale watching season and to provide a data update to the **RA-133F-12-CQ-0057 2012** Soundwatch Public Outreach/Boater Education Project Final Project Report characterizing general trends in vessel based whale watching activities associated with Southern Resident Killer Whales in the Haro Strait Region of Washington State and Southern Vancouver Island, British Columbia.

Executive Summary:

The goal of the Soundwatch Public Outreach/Boater Education Project was to implement The Whale Museum's Soundwatch Boater Education Program during the 2013 whale watch season and present a data update to the 2012 report on whale watching trends in the Haro Strait region to inform future management strategies.

The objectives of this 2013 project were to: 1) provide boater education services through public outreach and on-the-water stewardship activities and to collect data on vessel activities during the 2013 whale watching season; and to 2) conduct analysis on present whale watching data to provide an update to the 2012 Soundwatch Public Outreach/Boater Education Project report. For the three seasons from 2010 to 2012, supplementary tasks were added to the contract to conduct additional outreach to commercial and recreational kayakers launching from the San Juan Island County Park and to conduct shore-based monitoring of kayaking activities with Southern Resident Killer Whales (SRKWs) within the voluntary no-go zone along the Westside of San Juan Island. For 2013, the shore-based monitoring was not funded within this contract. However, the kayak education component continued through cooperation between San Juan Island Kayak Association (SJIKA), San Juan County Parks, and The Whale Museum.

In May 2011, NOAA Fisheries implemented new vessel regulations around all killer whales in the inland waters of Washington State. The regulation included two elements: 1) a prohibition on approaching killer whales within 200 yards; and 2) a prohibition on positioning within 400 yards of the path of killer whales. In addition, Washington State updated the RCW on Southern Resident killer whales in 2012 to match the federal 200 yard & 400 yard in-the-path distances for inland waters (east of Bonilla-Tatoosh line). This report provides an evaluation of the effectiveness and/or compliance of the new regulations during the first three years of implementation.

Data used for this update reflects data that was collected during operation of the Soundwatch Boater Education Program in 2013, including new vessel incident definitions related to the new 2011 U.S. federal vessel regulations. This report depicts general trends in vessel based whale watching activities associated with Southern Resident killer whales in the Haro Strait Region of Washington State and British Columbia.

The goal of the Soundwatch Program is to reduce vessel disturbance to killer whales and other marine wildlife through educating boaters on guidelines/regulations as well as to provide systematic monitoring of vessel activities around cetaceans. Soundwatch promotes responsible marine stewardship through the development, distribution, implementation, annual evaluation, and adjustment of guidelines/regulations for marine wildlife viewing by residents, visitors and commercial users. Soundwatch educates boaters on the current guidelines/regulations before they leave the shore; reinforces the learning experience where disturbances take place; and provides a scientific platform to monitor vessel activities to evaluate the regulations and voluntary guidelines as well as the need to develop additional marine wildlife regulations and/or guidelines.

2013 data collection consisted of: 1) counts of vessels within ½ mile of any cetacean by type, location and activity; 2) cetacean identification, location, travel direction and behavior states; 3) vessel contact information; and 4) commercial and private vessel compliance with voluntary guidelines and/or regulations. Whale sightings and whale behaviors are not covered in this report. All Soundwatch data on cetacean identification, location, travel direction, and selected behaviors is incorporated into The Whale Museum's Whale long-term Sightings Network database. Soundwatch data specific to SRKWs is compiled with other sightings data into the Museum's annual Orca Master NOAA Contract Report. All Soundwatch killer whale

sightings data is available through The Whale Museum's annual Whale Sightings and Orca Master data sets or upon request.

Included as an additional appendix to this report are compact discs (CDs) of the Soundwatch Program 2013 data sets in MS Excel. This update report on disposition of funds from Contract Number **RA-133F-12-CQ-0057, Tasks 6.2A & 6.3.1**, entitled Soundwatch Public Outreach/Boater Education Project fulfills reporting requirements under the NOAA Administrative Terms and Conditions of the contract.

Project Goal:

The goal of the Soundwatch Public Outreach/Boater Education Project was to implement The Whale Museum's Soundwatch Boater Education Program during the 2013 whale watching season and provide data analysis updates to the 2012 report on whale watching trends in the Haro Strait region.

Project Objectives:

The objectives of this project were to:

1) Provide boater education services through public outreach and on-the-water stewardship activities during the 2013 whale watch season;
2) Collect data on vessel activities during the 2013 whale watch season, especially relative to the 2011 U.S. federal and 2012 Washington State vessel regulations;
3) Conduct analysis on current whale watch activities including continued evaluation of 2011 U.S. federal vessel regulations;
4) Provide 2013 data updates to the 2012 Soundwatch Public Outreach/Boater Education Project Report.

Project Results:

The contract listed several deliverables including:

Task 6.2A: Conduct estimated 50 days on-the-water Education and Monitoring Activities centered on May – September for calendar year 2013.

C.6.2A.1 Deliverables for Soundwatch Education and Monitoring Program.

Sub-Task 6.2.1.1: Summary of Soundwatch Activities, Patterns of Vessel Activities Around Whales, and Compliance with Regulations and Guidelines.

- 1) Whale Watching Trends in the Boundary Waters of Haro Strait May-September in numbers of visitors to Lime Kiln Point and number of active boats from US and Canada.
- 2) Growth of Commercial Whale Watching in the Boundary Waters of Haro Strait May-September in number of boats.
- 3) Commercial Whale Watch Platforms in the Boundary Waters of Haro Strait May-September in numbers of boats.
- 4) Average Number of Vessels with killer whales Per Month May-September in numbers of boats.

- 5) Annual Average Numbers of Vessels with killer whales at Different Times of Day, May-September in number of boats.
- 6) Annual Vessel Type Averages and Maximum Vessel Type Numbers of Vessels.
- 7) Mean Annual Daily Average of Number of Commercial and Private Boats with Whales in Haro Strait Region May-September with Standard Deviation in number of boats.
- 8) Annual Distribution of Vessels within ½ Mile Radius of Whales May-September in percentages.
- 9) Distribution of Commercial Whale Watch within ½ Mile Radius of Whales in percentages.
- 10) Distribution of Private Boats within ½ Mile Radius of Whales in percentages.
- 11) Total Vessel Incidents by percentage.
- 12) Annual Vessel Incident Summary by incident and vessel type.
- 13) Top 5 Vessel Incidents by vessel type.
- 14) Geographic distribution of Vessel Incidents.

Sub-Task 6.2.1.2: Summary Copy of Vessel Data in Electronic Form.

Task 6.3: Description of vessel activities around Southern Resident killer whales.

C.6.3.A Seasonal and Yearly Trends in Vessel Activities Around Whales.

C.6.3.1 Deliverables for Description of Vessel Activities around Southern Resident killer whales.

Sub-Task 6.3.1.1: Vessel Trends in Proximity to Southern Resident killer whales.

- 1) Whale Watching Trends in the Boundary Waters of Haro Strait May-September in numbers of visitors to Lime Kiln Point, and number of active boats from US and Canada.
- 2) Growth of Commercial Whale Watching in the Boundary Waters of Haro Strait May-September in number of boats.
- 3) Commercial Whale Watch Platforms in the Boundary Waters of Haro Strait by percentage of vessel type.
- 4) Average Number of Vessels Accompanying killer whales per Month May-September in number of boats.
- 5) Annual Average Numbers of Vessels with killer whales at Different Times of Day May-September in number of boats.
- 6) Annual Vessel Type Averages and Maximum Vessel Type Numbers of Vessels with killer whales in Boundary Waters of Haro Strait May-September in number of boats and by types of boats.
- 7) Mean Annual Daily Average of Number of Commercial and Private Boats with whales in Haro Strait Region May-September with Standard Deviation in number of boats.
- 8) Annual Distribution of Vessels within ½ Mile Radius of whales May-September in percentages by vessel type and activity type.
- 9) Distribution of Commercial Whale Watch within ½ Mile Radius of whales in percentages.
- 10) Distribution of Private Boats within ½ Mile Radius of whales in percentages.

Sub-Task 6.3.1.2: Shore-based kayak education and monitoring program (not funded in 2013).

Section I: Summary of Soundwatch Activities

The Soundwatch Program reduces vessel disturbance to killer whales and other marine wildlife through on-the-water educational and monitoring patrols. Soundwatch paid staff and volunteer crews educate boaters on the current guidelines and regulations on-the-water where wildlife disturbances are likely to take place. Soundwatch crews also monitor vessel activities near whales to characterize regional marine wildlife viewing trends in order to adjust or develop additional marine wildlife guidelines and/or regulations and to evaluate the effectiveness of newly implemented guidelines or regulations.

Soundwatch data collection follows a strict protocol. Paid staff drivers undergo rigorous training and standardization instruction, including comparison of simultaneous double-blind exercises. Drivers observe and dictate all data observations. Volunteers and interns record driver's observations. Range finding tools such as laser range finders are used to gauge distances. In all cases, drivers are very conservative in noting range encroachment. If an observed vessel's distance to a whale is questionable, the driver does not record it. We only record vessels inside of 100 or 200 yards or 400 yards in the path when we are absolutely certain they are within these distances. We typically spend 5% of our time on-the-water engaged in training activities (Figure 1).

Soundwatch data collected on vessel numbers, types and behaviors around Southern Resident killer whales since 1998 and has provided the basis for Soundwatch to characterize annual and long-term vessel-based viewing trends in the Haro Strait region. Soundwatch has provided these findings to the whale watch industry, the general public, and regional managers. Soundwatch vessel trend data has been used as the primary data source to inform Southern Resident killer whale recovery strategies in terms of vessel management decisions as well as aided in the creation and/or implementation of San Juan County, Washington State and U.S. and Canadian federal vessel regulations for killer whales. The annual and long-term data has also been a valuable tool for the training of Soundwatch staff, commercial vessel and kayak operators; planning for enforcement and monitoring program outreach and monitoring efforts; and has been invaluable for adjusting whale watch guidelines and the creation of vessel regulations designed to reduce the risk of vessel impact to whales.

During the summer months of 2013 (May-September), Soundwatch operated vessel patrols to educate and monitor boaters an average of over four days per week. Soundwatch staff and volunteer crews spent a total of 100 days on the water between April 30, 2013, and September 24, 2013, totaling over 500 hours. Whales were present on 72 of those days for 331 hours of monitoring (Figure 1). Over the summer seasons (May-September) since 1998, Soundwatch has totaled more than 9,445 observational and outreach hours with vessels and whales in the Haro Strait region (Figure 2).

Figure 1: Distribution of Soundwatch On-the-Water Activities 2013.

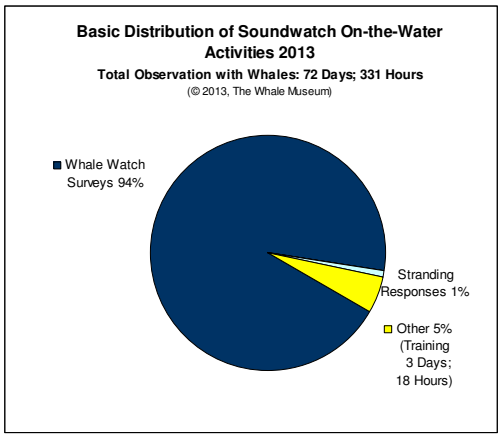
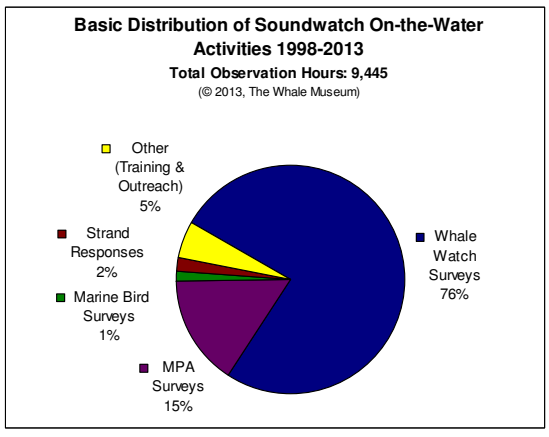


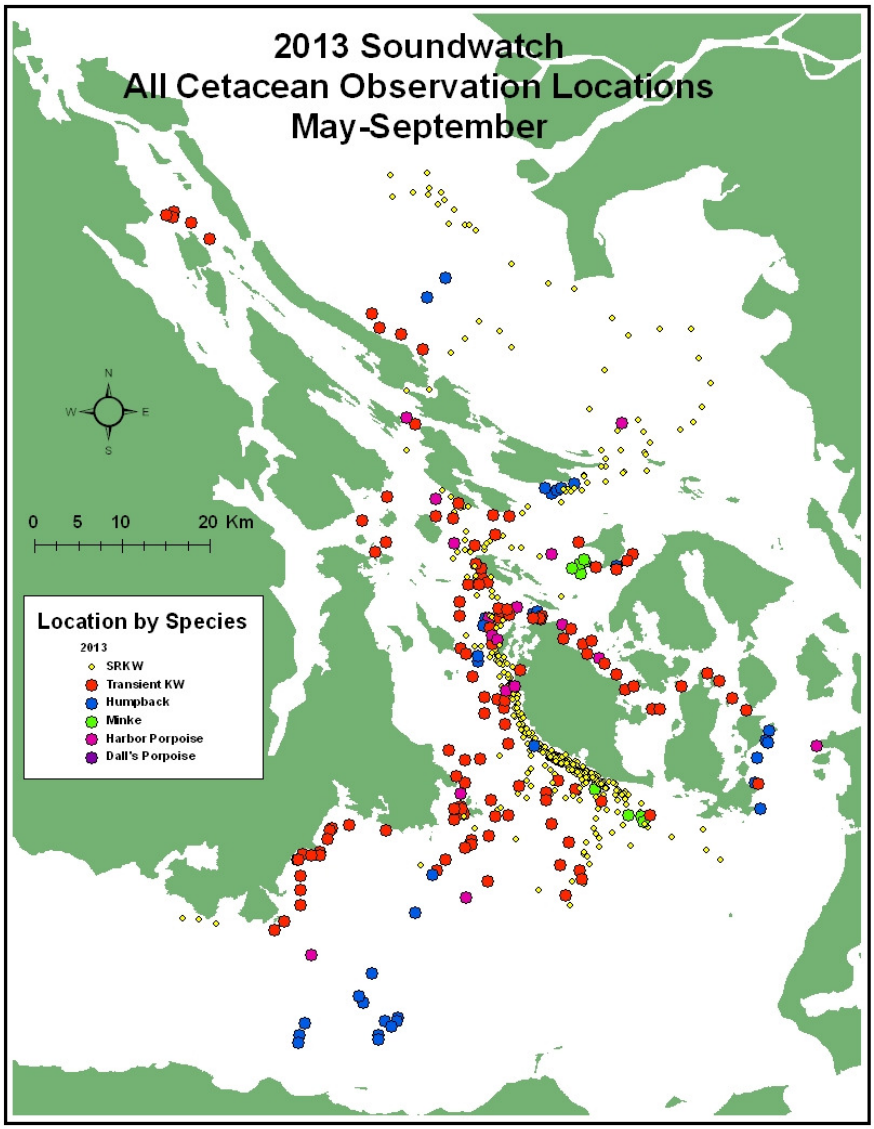
Figure 2: Distribution of Soundwatch On-the-Water Activities 1998-2013.



In addition to paid staff, the Soundwatch program relies on the work of a few dedicated interns and many volunteers. In 2013, more than 35 regular volunteers, including 3 academic interns, provided over 1,200 hours of volunteer time participating on Soundwatch vessel patrols, distributing educational materials and assisting with data entry and photo archiving. These volunteers assisted with 1,019 hours of vessel patrols and an additional 216 hours of data entry. Also in 2013, paid Soundwatch Program staffing included a half-time coordinator responsible for the implementation and administration of the program plus approximately half of the driver/educator duties (the other half-time coming from Research Curator position at The Whale Museum), along with one full-time seasonal vessel driver/educator and another part-time seasonal vessel driver/educator.

In 2013, 662 Vessel Count/Whale surveys were conducted with a variety of cetacean species, the majority being Southern Resident killer whales, in the Haro Strait Region of Washington State, U.S., and Southern Vancouver Island, British Columbia, Canada (Figure 3).

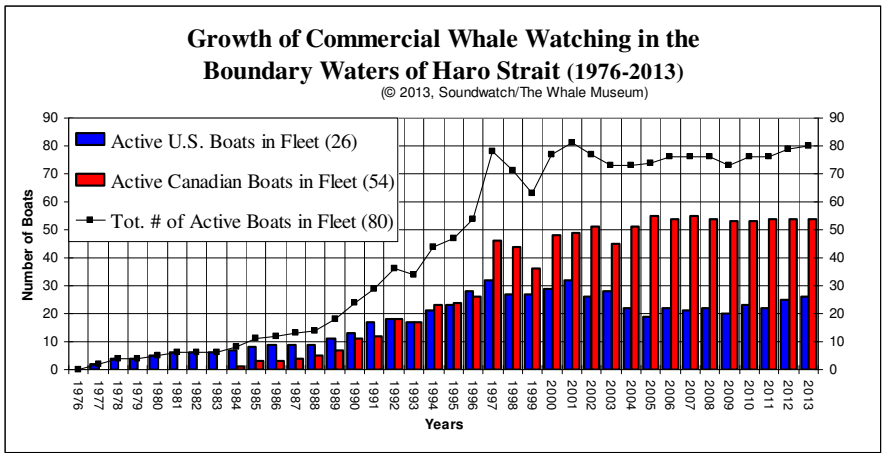
Figure 3: Soundwatch 2013, 662 Vessel Counts & Whale Surveys by Location and Species.



Whale Watching Trends

Since 2000, the annual number of commercial whale watch companies has remained nearly constant with the number of commercial vessels operating from both the U.S. and Canada growing slightly over the past few years (Figure 4). Recent anecdotal observations reflect an increase in the number of passengers on some of the larger vessels offering more whale watch directed trips in addition to regularly scheduled passenger ferry services, as well as an increase in shore-based whale watching opportunities in the greater area.

Figure 4: Growth of Commercial Whale Watching in the Boundary Waters of Haro Strait 1976-2013.



In 2013, there were 80 *active* (defined as on the water at least 1 day/week May-Sept) commercial whale watch vessels originating from 37 *active* commercial companies in U.S. and Canada in the Haro Strait region (Figures 28-31). The number of U.S. and Canadian companies remained nearly the same as in 2012, with 19 Canadian and 18 U.S. companies respectively. There continues to be more Canadian vessels, totaling 54 *active* vessels compared to 26 U.S. *active* vessels, (Figures 4-7). Canadian vessels continue to be mostly the smaller rigid hull inflatable (RHIB) style of vessels while the U.S. fleet is made up of mostly larger passenger style vessels. However, more Canadian companies have been acquiring larger passenger style vessels in addition to the small vessels in their fleets and the U.S. fleet is adding more small cruiser type vessels including one U.S. based RHIB. It is estimated that the number of passengers originating in the U.S. is nearly the same as the number originating in Canada as the smaller Canadian vessels make a greater number of trips per day, per vessel. The majority of both U.S. and Canadian commercial companies operating in the transboundary waters were members of the Pacific Whale Watch Association in 2013 (Figure 6).

Figure 5: 2013 Whale Watch Platforms in the Boundary Waters of Haro Strait.

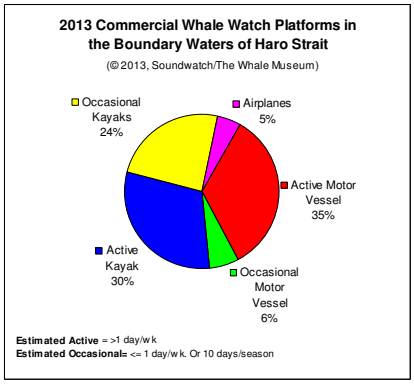
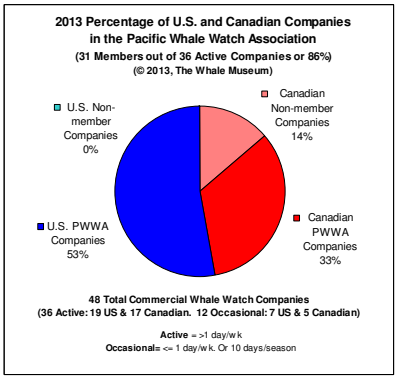
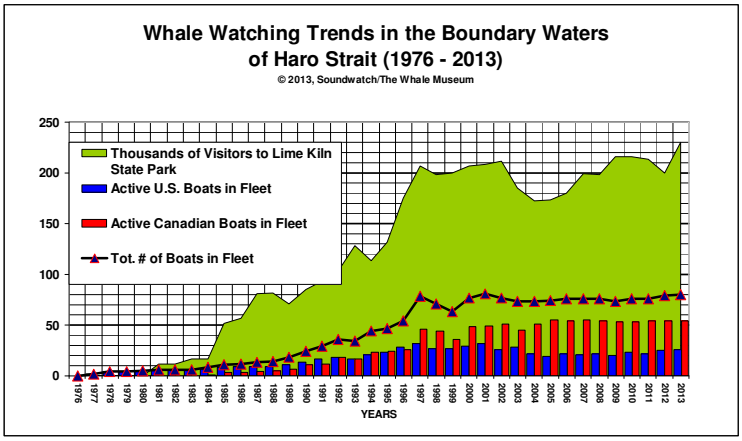


Figure 6: 2013 Percentage of U.S. and Canadian Companies in the Pacific Whale Watch Association.



Many shore-based whale watching areas have gained use in recent years due in part to the efforts of The Whale Trail. This partnership of non-profit and localized community groups is dedicated to promoting shore-based whale watch opportunities (http://www.thewhaletrail.org). San Juan County Park records use of its westside boat ramp facility by commercial ecotour users and attempts to employ a self-reporting sign-out sheet for recreational use. Funding for Washington State Parks to count the number of annual visitors has been cut, however Ranger Ted Schlund estimates that the total number of visitors to the park rose about 15% from 2012, to approximately 230,000 people (Figure 7). This number is the greatest ever estimated. Currently, commercial company members in the US-Canadian trans-boundary Pacific Whale Watch Association do not keep a record of whale watch passengers and individual companies do not readily share this information, thus total whale watch numbers are difficult to ascertain.

Figure 7: Whale Watching Trends in the Boundary Waters of Haro Strait 1976-2013.



Education & Outreach

When Soundwatch crews encounter vessels traveling in known whale or other wildlife areas, they politely contact the boater, provide marine wildlife viewing guidelines and regulations, and collect information on number of passengers. In 2013, Soundwatch distributed the *2011 updated Be Whale Wise Marine Wildlife Guidelines for Boaters, Paddlers and Viewers* (Appendix A & A1), and the *2011 U.S. Federal Vessel Regulations for Killer Whales* (Appendix B & B1). When Soundwatch encounters kayakers that are easily approached, our driver/educators communicate the special concerns for kayakers paddling around marine wildlife and additionally distribute the updated *2011 Kayakers Code of Conduct* brochure (Appendix C). During 2013, Soundwatch delivered *Be Whale Wise* and U.S. federal vessel regulations for killer whales to 575 vessels reaching 1,885 recreational boaters. Soundwatch contacted an average of 3.28 persons per vessel in 2013.

Through continuous Soundwatch monitoring, new vessels arriving on scene are observed and contacted, as are vessels that Soundwatch already contacted but require some kind of follow-up. Every time a vessel is contacted, specific contact information is recorded on a *Soundwatch Vessel Contact data sheet* (Appendix D). Soundwatch crews record the date, time, location, type of vessel contacted, the vessel activity, vessel registration, name, description, port of origin, and number of passengers on board. Soundwatch crews then determine a series of vessel operator attributes using standardized criteria while the Soundwatch driver informs them about the marine wildlife rules. Vessel operator attributes that Soundwatch records include: why the vessel was contacted; whether they took the information and, if not, why; were they aware of the information; what was their reaction to Soundwatch; whether this vessel been contacted by Soundwatch before. Additionally, Soundwatch crews record if Soundwatch re-contacted this same vessel again on the same day; if there was a

Soundwatch observed vessel incident recorded with this vessel before or after contact, if so the time of the incident is recorded; if there were photos of this vessel, and any other relevant comments.

In addition to the on-the-water outreach, over 1,000 of the 2011 *Be Whale Wise* brochures and 50 posters as well as 1,000 new Federal Rules rack cards and 50 posters were distributed in 2013 to regional federal, state, county and private parks; boating facilities; boating organizations, and at regional festivals. Brochures and posters were also made available at regional conferences and marine wildlife related workshops. The Whale Museum displayed *Be Whale Wise*, new Federal Rules for killer whales and Responsible Whale Watching exhibits and made all brochures available to over 30,000 museum visitors and education program participants. In addition, materials were given to over 2,500 Whale Museum members and adopters through The Whale Museum's Orca Adoption Program. Soundwatch Stewardship Trainings were conducted for new and returning Soundwatch volunteers and interns, and three times for San Juan Island commercial kayak guides as part of the KELP program.

The Soundwatch Kayak Education and Leadership Program (KELP) targets outreach to recreational and commercial kayakers. In 2010, Soundwatch was contracted to assist with planning and implementation of a new seasonal vessel launch permit, a Kayak Vessel Code of Conduct education program and to collect data on kayaker use trends at the San Juan Island County Park. In 2011, the San Juan County Park administered the permit system, implemented the outreach program and a self-reporting data collection system designed by Soundwatch based on KELP (Appendices E, F & G). In 2012, KELP again provided the content and materials for an updated Vessel Code of Conduct training, an updated Kayakers Code of Conduct brochure, posters and signage for the park and conducted guide trainings for commercial kayaker operators. In 2013, KELP continued guide training and the County Park provided a slideshow training for private boaters to view before launching. Data collection on vessel launching from the park was done through a boater self-reporting system and was administered by the San Jan County Park staff. All data was processed and analyzed by The Whale Museum's Soundwatch/KELP program staff.

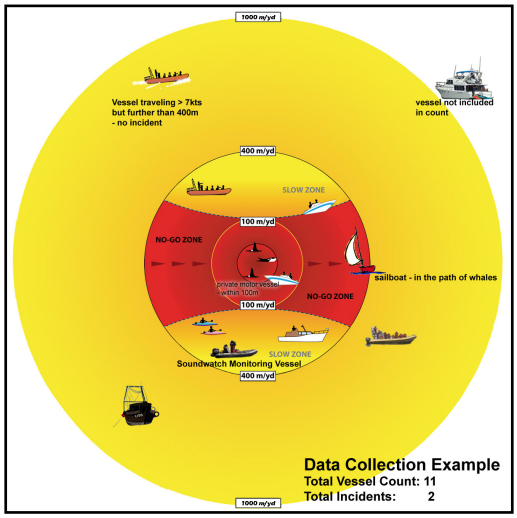
Soundwatch vessel monitoring is conducted continuously by rigorously trained driver/educators to determine vessel activities around whales including commercial and private vessel compliance to the voluntary guidelines and regulations. Volunteers and/or interns do not make observations, rather they record observations dictated by the driver/educator. Driver/educators are paid professionals and undergo substantial training to ensure uniform data collection protocols and minimize inter-observer bias. Descriptions of guidelines and regulations, along with the incident codes used in the database to record incidents of guideline and regulation violations can be found in Appendices H & H1. Incidents are recorded opportunistically as they are observed using a *Vessel Incident data sheet* (Appendix I). We are conservative in recording incidents, and err on the side of caution. If there is any doubt about an incident having occurred, we do not record it.

Vessel Monitoring

Surveys of whales and a count of vessels within one half-mile of whales are collected every half-hour using a *Soundwatch Vessel Count/Whale Survey data sheet* (Appendix J). Soundwatch staff and volunteer crews record whale and vessel data using a set of standardized vessel type and vessel activity definitions as well as whale attributes agreed upon by U.S. and Canadian cetacean researchers—as well as both the monitoring programs, Straitwatch of B.C., Canada, and Soundwatch (Appendix K). Vessels within one half-mile mile (880 yards) of all known whale activity are counted according to type and vessel activity (Figure 8). The area of known whale activity is variable and not limited to a half-mile, but rather represents the core of individual whales or groups of whales in the immediate area and can range upwards of one mile. Often the whales are more spread out than one mile. When visibility and conditions are good, a secondary count is made for the group of vessels and whales beyond one mile that the Soundwatch staff can reliably record beyond the primary

count, but that the Soundwatch vessel is not with. A count confidence level is determined by choosing it to be an 'A count' (highest confidence and usually the count the Soundwatch vessel is in) and a 'B count' still reliable enough to count, but with less confidence and usually the count that the Soundwatch vessel is not in.

Figure 8: Soundwatch Vessel Patrol Count and Vessel Incident Data Collection Diagram Example.
(Figure illustration courtesy of Doug Sandilands / Straitwatch)



Each observed vessel within the count range is categorized according to a vessel type and a specific best-fit vessel activity to describe what the vessel was engaged in (Appendix L). Vessel activity categories include *transiting* (moving through the area within one half mile)*; whale oriented* (moving or stationary whale watching); *fishing* (moving or stationary with poles or nets in the water)*; research* (engaged in any type of research, including cetology); *enforcement* (enforcement vessel in pursuit or engaged with a vessel at the time of the count)*; acoustic* (outside of the count range one half mile, but in acoustic/visual range); *or other* (which must be described, such as a rescued vessel in tow, etc.).

Soundwatch Vessel Count Trends

Plotting annual locations of Soundwatch effort through vessel counts can be used as an overall indicator of use patterns by Southern Resident killer whales, as well as other cetacean species, in the designated summer core habitat for SRKW (Figures 9 & 10). A more complete depiction of SRKW habitat use can be found through The Whale Museum's annual Sightings and long-term Orca Master data sets. There are obvious trends of overlap of whale use and boating activities within a half mile of whales, including whale watching, fishing, transiting as well as acoustic influence from large vessels transiting greater than a half mile from whales. The greatest density vessel areas observed by Soundwatch in 2013 tended to be within a half mile nearshore along the westside of San Juan Island (Zone 1- the NOAA proposed vessel restriction area), outside of a half mile along the westside of San Juan Island and north into Haro Strait (Zones 2, 3, and 5) (Figure 11).

Figure 9: 2013 Soundwatch Vessel Counts by Location Map.

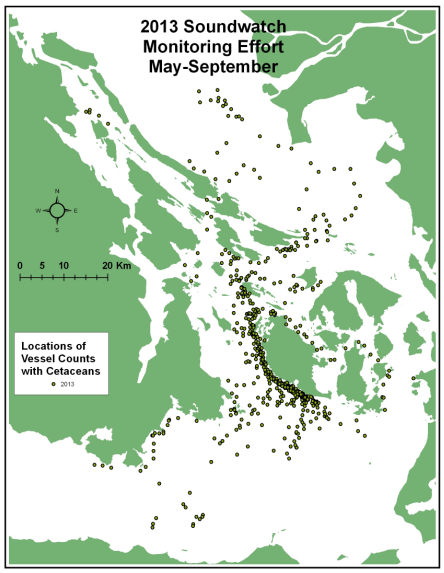


Figure 10: 2013 Soundwatch Vessel Count Density per Square Kilometer.

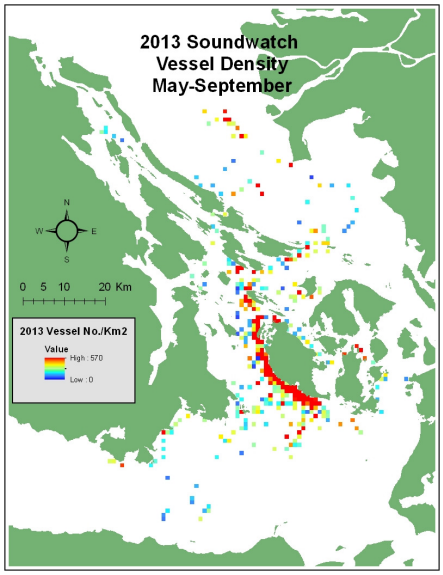
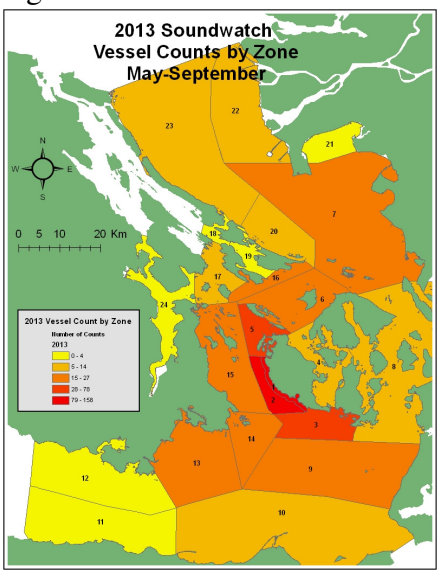


Figure 11: 2013 Soundwatch Vessel Count By Numbered Zone Map.



Section II: Patterns of Vessel Activities Around Whales

Southern Resident killer whales are the primary viewing target and have had an annual and monthly average of around 17 vessels of various types within a half-mile of their location from May through September between the hours of 9 a.m. and 6 p.m., from 1998-2013, as observed by Soundwatch. In addition, the usual bi-modal peaks around 11a.m and 3 p.m. are again evident in 2013 data (Figures 12-15). In 2013, during May-September, the average boat count was 15, which indicates the second year of increase after an eight-year trend in lower overall averages of vessels seen with whales (Figures 16-18). This recent increasing trend in average vessel counts is consistent with local marina vessel use data (San Juan County Marine Resources Committee, Roche Harbor and Friday Harbor on San Juan Island) which report monthly marina use as either steady or as increasing perhaps as the U.S. economy rebounds from the Great Recession. The previous 8-year downward trend in average boat count around whales observed by Soundwatch also likely reflected a successful effort

from the commercial whale watch industry to spend only 1/3 of their trip (+/- one hour) with a particular group of whales and to spend time viewing other whale groups and marine wildlife, thus spreading out the fleet (Pacific Whale Watch Association industry guidelines http://pacificwhalewatch.org/guidelines). Slight increases measured in 2012 and 2013 possibly reflect slight growth in the commercial fleet and/or increased density of private boaters as the economy rebounded.

Similar to 2012, in 2013 Soundwatch did not provide summary feedback reports to member companies of the Pacific Whale Watch Operators Association (PWWA) during the season as was done in 2011 (one Mid Season Summary from mid-May through mid-July and an End of Season Summary mid-May through the end of September). A copy of this 2013 final report will be presented to PWWA and posted on the web, as in previous years. In previous years (1996-2010) Soundwatch provided feedback reports (weekly, monthly and annual vessel incident summaries) detailing Soundwatch-observed specifically identified commercial company vessel incident information to the whale watch industry and generic (no vessel identification, vessel type included) summary to the regional law enforcement agencies. Changes were made to the Soundwatch feedback reporting process in 2011 based in part on feedback from the whale watch industry's concerns about how this potentially sensitive information may be used in a legal context relating to new vessel regulations and from concern expressed by the NOAA Northwest Regional Director that Soundwatch not take on the role of law enforcement. Consequently, beginning in 2011 Soundwatch incorporated new data collection protocols to not record specific vessel identification for any vessel (commercial or private) observed by Soundwatch staff to be committing a vessel incident.

Soundwatch was not on the water much in June of 2012, and since there are generally fewer boats around in June the mean number of boats seen with whales for the season was inflated. Straitwatch was on the water in June, but not in August or September. Since the writing of last year's report, Soundwatch and Straitwatch combined boat count data for all of 2012. This resulted in a more accurate mean value for number of boats with whales in for all of the 2012 season. We previously reported an average of 17 boats in the vicinity of whales and the corrected value is 14 boats (Figure 18).

The 2013 annual maximum number of vessels observed with whales was 69 total boats, which is greater than the maximums from the 3 previous years, but within the normal range of the past 16 years (Figure 19). Also, there is annual and monthly variability in the maximum and average number of boats with whales (Figures 16-23). The maximum number of commercial whale watch vessels was 23, recorded in July, and private vessels was 40 vessels recorded in August. The maximum number of kayaks (20) was recorded in July (Figure 21). Annual and monthly maximum vessel totals are often more than double the annual average vessel total, thus neither the average nor maximum number best describes the actual vessel conditions the whales regularly experience. The 2013 monthly average of commercial whale watch, private vessels, and kayakers remained mostly constant throughout the season, again with a peak seen in July and August (Figures 12, 20-23). In 2013, fishing conditions for pink salmon were excellent, which created a spike in September in numbers of commercial fishing vessels (a subset of the Maritime Industry vessel type) overlapping with whale locations (Figures 20 and 21). Vessel numbers observed with whales typically decline dramatically in October both because the whales are less predictably in the area and the main commercial and recreational boating season is over. Soundwatch did not collect vessel data in October of 2013.

It should be noted for interpretation of the data presented, that the average and maximum numbers of vessels depicted in the figures are discrete observations and are therefore not totals of each vessel type. For example, in 2013 the maximum number of all vessel types recorded within a half mile of whales was 69 (Figures 21-23), with the maximum of commercial vessels observed at 23, private recreational vessels at 40, and kayakers at 20, which if totaled together would equal 83, well above the recorded maximum number of 69 vessels. However, the maximum numbers of each vessel type were not all observed at the same time, on the

same day, and are therefore not totals of each other.

Figure 12: Average Number of Vessels Accompanying Orcas by Month, 1998-2013.

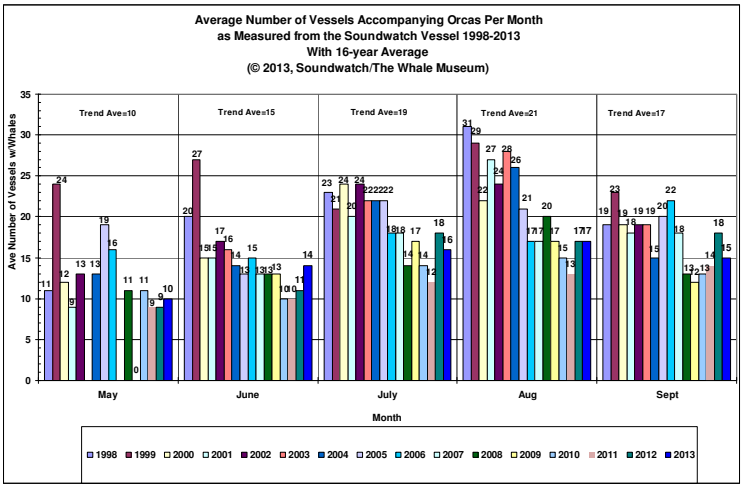


Figure 13: Annual Average Numbers of Vessels with Orcas by Time of Day, 1998-2013.

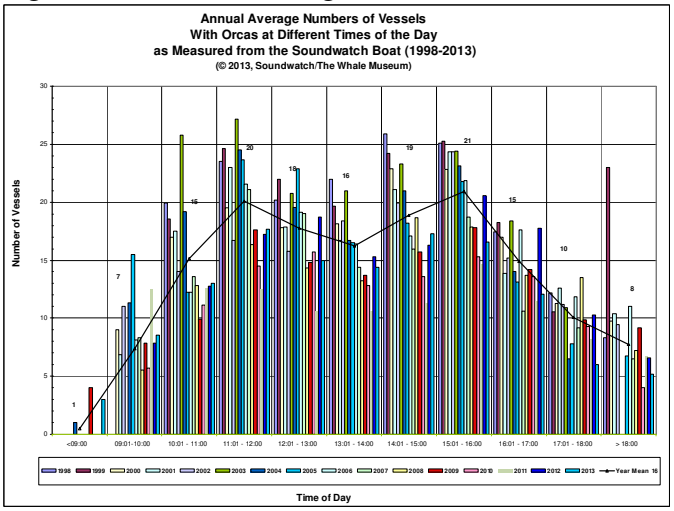


Figure 14: Monthly Number of Vessels with Whales by Time of Day, June-September 2013.

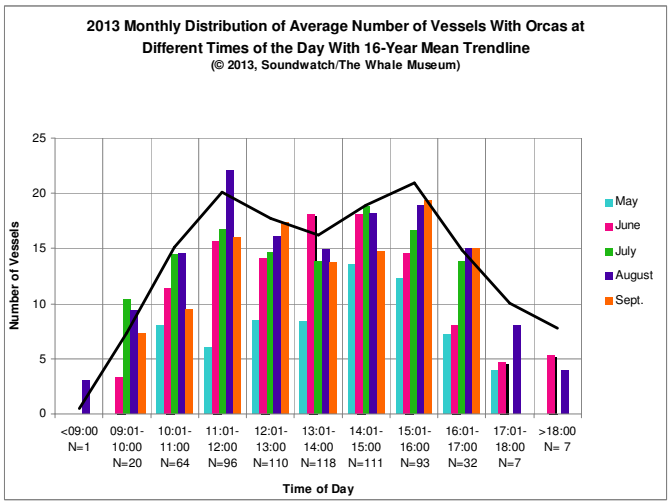


Figure 15: Average Number of Vessels with Whales by Time of Day, May-September 2013.

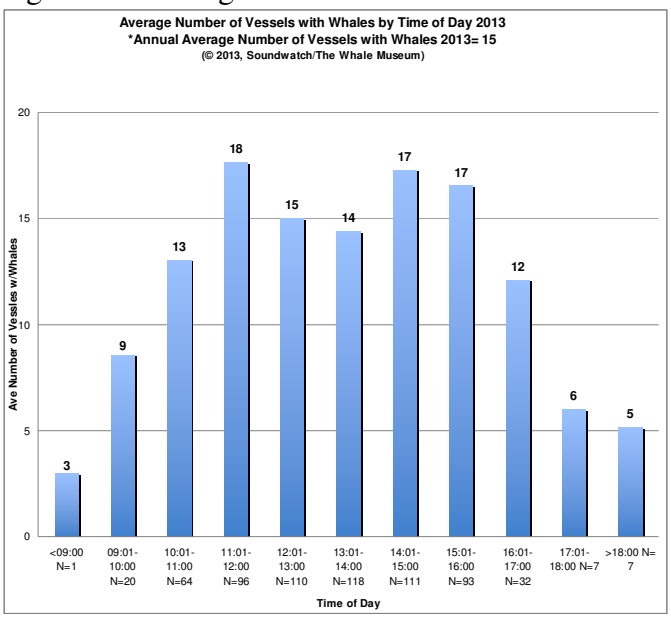


Figure 16: Annual Vessel Type Averages and Maximums Accompanying Orcas in Boundary Waters, May-September, 1998-2013.

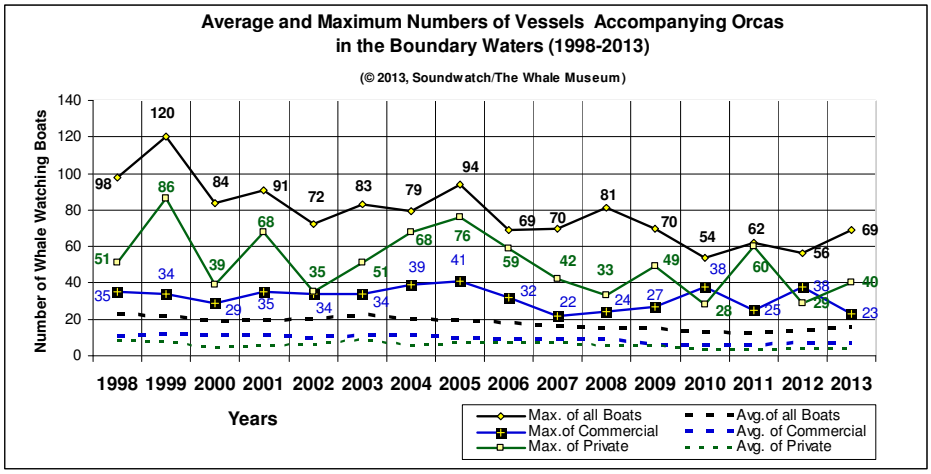


Figure 17: Annual Averages of Vessel Types Accompanying Orcas May-September, 1998-2013.

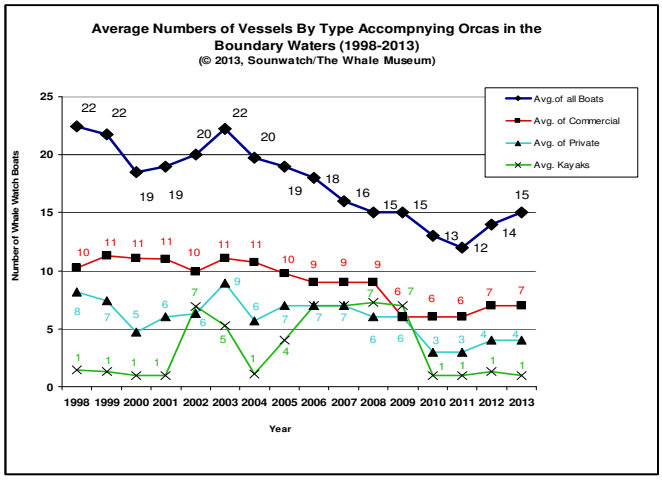


Figure 18: Mean Annual Daily Average of Number of Commercial and Private Boats with Whales in Haro Strait Region May-September 1998-2013 with Standard Deviation—2012 Data CORRECTED.

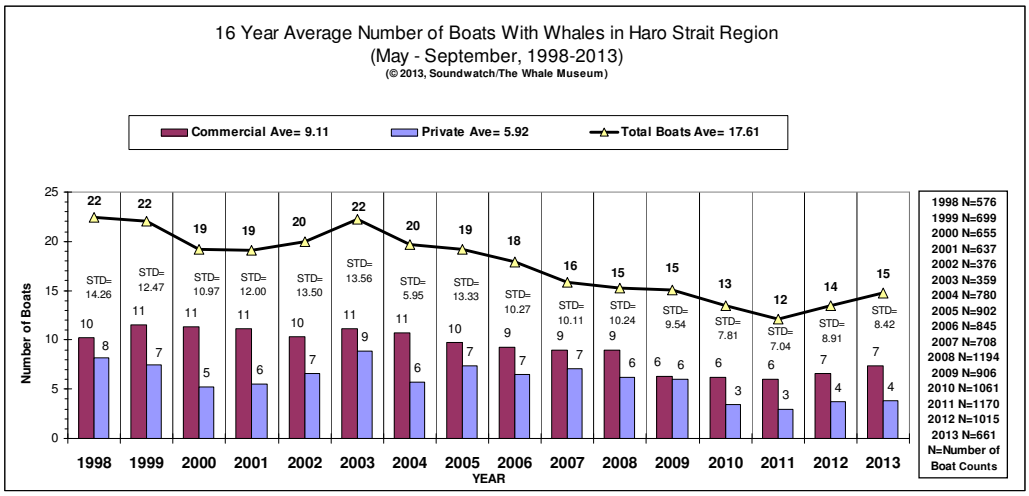


Figure 19: Annual Maximums of Vessel Types Accompanying Orcas May-September, 1998-2013.

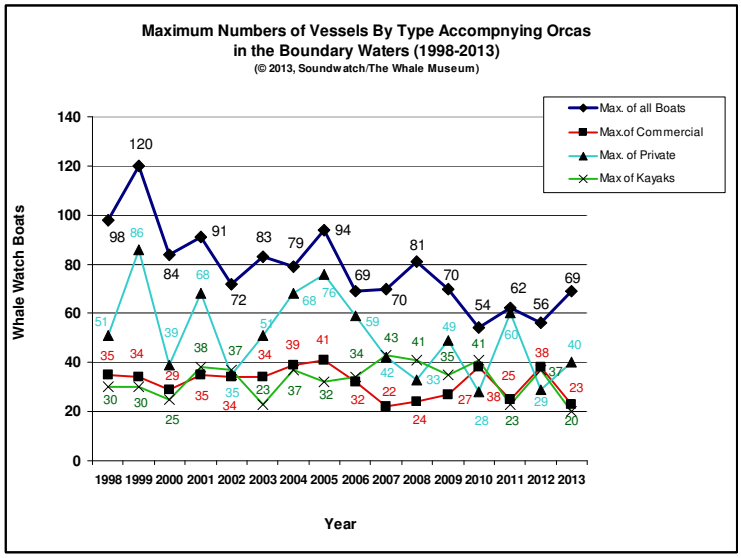


Figure 20: Monthly Average by Type of Vessels with Orcas, May-September 2013.

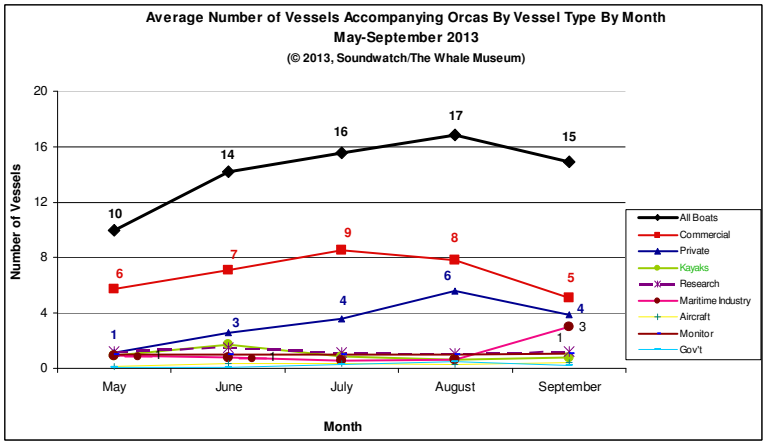


Figure 21: Monthly Maximum by Type of Vessels with Orcas, May-September 2013.

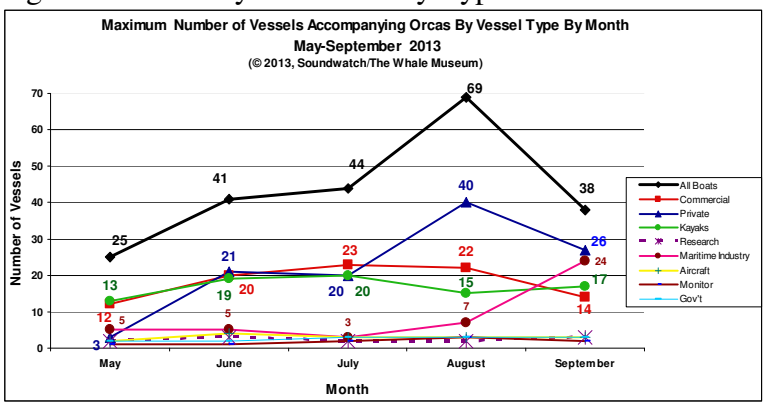


Figure 22: Average Number of Commercial Vessels with Whales by Commercial Vessel Type by Month, 2013.

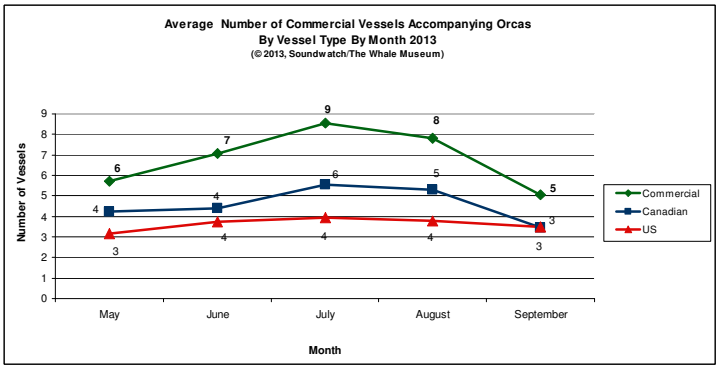
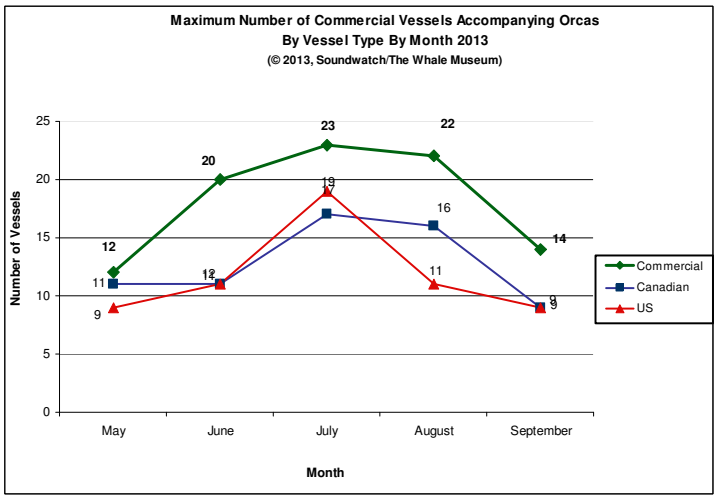


Figure 23: Maximum Number of Commercial Vessels with Whales by Commercial Vessel Type by Month, 2013.



There is a great variability in the number and types of vessels with whales (Figures 12-27). This wide variability is a factor not only of month and time of day, but also due to whale locations overlapping with vessels engaged in a variety of activities (Figures 24-27). Of the vessels seen on average with whales in 2013, 49% were commercial whale watch vessels (21% U.S. and 28% Canadian), 25% private vessels, 7% marine industry (shipping/cargo and commercial fishing), 6% monitoring vessels (Soundwatch), 6% kayaks, 3% research vessels, 2% airplanes, 2% government (enforcement and military). These numbers are similar to 2012. Throughout the season the majority (69%) of vessels observed within a half mile of whales were engaged in

whale-oriented activities (Figure 25). Recreational fishing activities increased in August, raising the percent of vessels recorded as engaged in fishing activities near whales (Figure 27). Other vessel activities recorded within a half mile of whales included transiting at 18%, and recreational and commercial fishing activities at 7%. Soundwatch records large maritime industry vessels such as marine cargo ships, tugs with tows, cruise ships, etc., that are outside of a half mile of whales but are within acoustic range of whales; if one of these large ships is within a half mile of whales it is recorded as transiting. In 2012, 6% of vessels recorded with whales were large ships within acoustic range of whales (Figures 24-26).

Figure 24: Distribution of Vessels by Vessel Type When Whales Present May-September 2013.

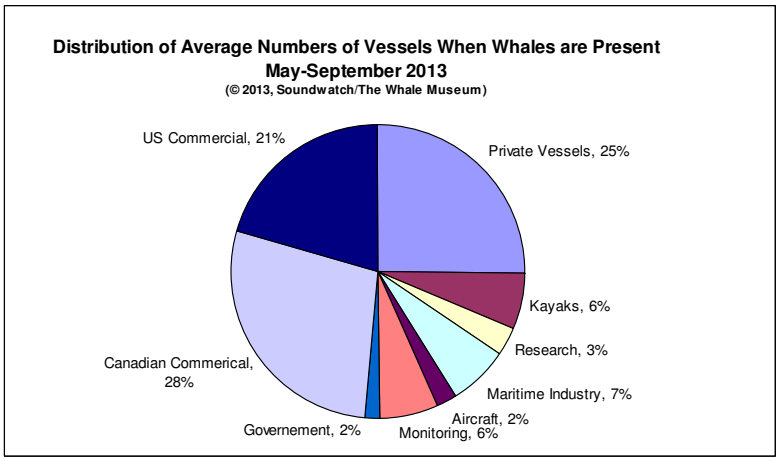


Figure 25: Distribution of Vessels by Vessel Activity When Whales Present May-September 2013.

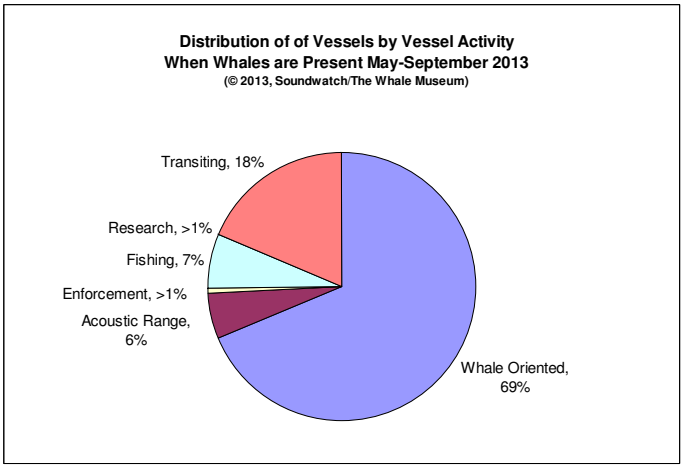


Figure 26: 2013 Monthly Average Numbers of Vessels with Whales by Vessel Activity.

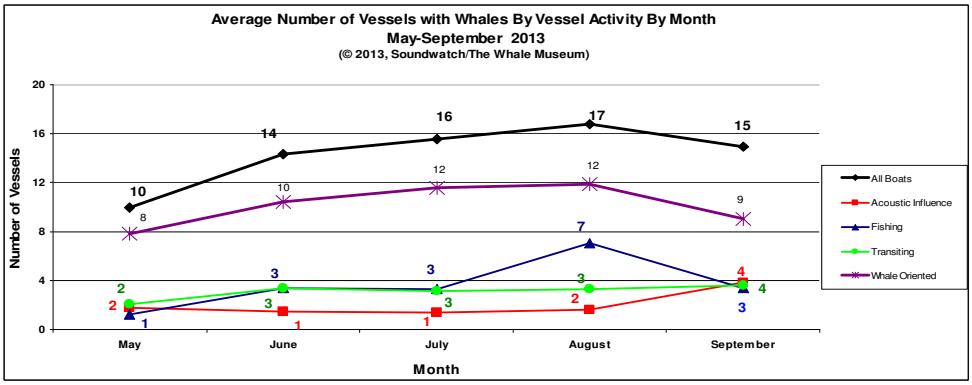
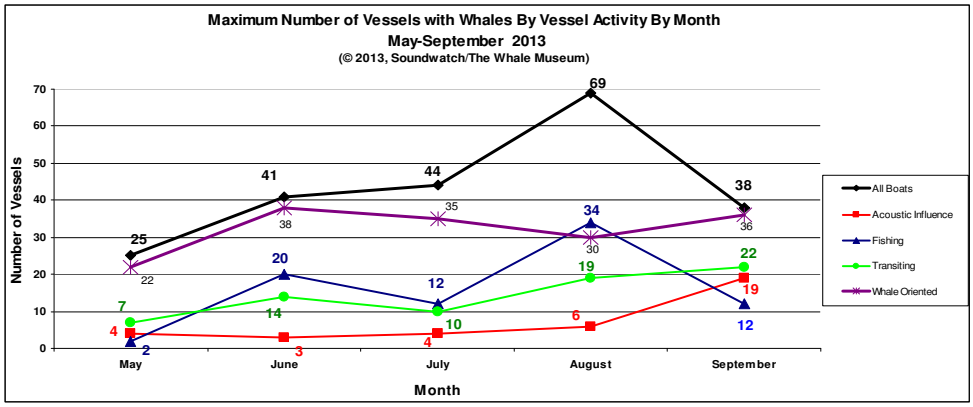


Figure 27: 2013 Monthly Maximum Numbers of Vessels with Whales by Vessel Activity.



Section III: Compliance with Regulations and Guidelines

Vessel incident data can be utilized to characterize types of vessels, types of vessel incidents and area locations where vessel incidents are most commonly observed and can be used to generate future strategies for commercial and recreational whale watching and targeted outreach efforts as well as vessel management strategies such as modifying existing guidelines and evaluating the need to establish new and/or additional vessel regulations. With U.S. federal vessel regulations being established in 2011, vessel incident observations can lay the foundation for evaluating the effectiveness of newly implemented vessel regulations.

Soundwatch monitors commercial whale watch operators, recreational boaters and other vessel operators and records behaviors that are inconsistent with current best practice guidelines and/or vessel regulations. Using a set of incident definitions and incident recording protocols agreed upon annually with commercial whale watch operators, marine mammal management agencies and monitoring groups, perceived contradictions of vessel operations around whales are recorded as *vessel incidents*. A *vessel incident* is specifically defined as a driver of a commercial whale watch vessel, private boat operator, kayaker or other vessel operating contrary to current voluntary *Be Whale Wise Guidelines*, Kayakers Code of Conduct, and/or federal and state vessel regulations. Only the paid and highly trained Soundwatch driver/educator makes the observation of vessel incidents. We do double-blind training exercises to assure uniform and unbiased data observation by driver/educators and always use conservative thresholds. If there is any doubt about whether an incident had occurred we do not record it.

A set of standardized *incident descriptions* was established in 2007 (Appendices H & H1). This standardization is being used by the U.S. and Canadian federal governments as well as the respective monitoring programs, Straitwatch of British Columbia, Canada, and Soundwatch of Washington State. In the same fashion that the *vessel type* and *vessel activity* categories for the *vessel counts* were designed to be multi-tiered, the *vessel incident categories* are tiered broad to specific and are recorded as *vessel incidents* at a fine scale. For analysis they are sometimes lumped into the broad incident categories, but also can be looked at more closely to better understand the incident type. Some older terms (i.e., common term: commercial whale watch; newer term: ecotour) are used in this report when discussing *vessel types* and *vessel incidents* because they are more commonly used outside of the monitoring programs.

Vessel Incident Trends

Soundwatch uses summary statistics to analyze annual vessel incident data. In 2013, there were a total of 2,234 vessel incidents observed and recorded by Soundwatch staff (Tables 1 and 2, Figures 28-30). Since new

incident categories were added in 2011 to reflect the new U.S. federal vessel regulations and existing guidelines, there are now more vessel incidents that a vessel operator can commit making it difficult to interpret the increase in the total number of vessel incidents in 2011-13, versus previous years (Table 1). There was only one new incident category added, starting in 2011: vessel within 100-200 yards of whales. Stopped 200-400 yards in the path was captured in a previous guideline "parked in the path" incident category. Compounding the difficulties in interpretation of the increase in vessel incidents is the fact that with the new laws and existing guidelines in place it is possible to record the same vessel when it is within 200 yards and then again when within 100 yards making it so that a vessel operator would be recorded as having 2 incidents recorded for a sequence of movements that previously would have only resulted in one incident being recorded. Thus while 2011-2013 incident vessel incident data are useful to reflect what occurred on the water with vessels and whales under the new regulations, it is essentially laying a foundation for future comparisons between multiple years with and without new regulations to evaluate the effectiveness of such measures.

To further complicate matters, it is difficult to measure effectiveness of new regulatory measures when they are not consistent on both sides of a U.S./Canadian border which the whales and vessels frequently travel back and forth across, and are not consistent with lesser guidelines in effect for other species. A further complication regarding trans-boundary comparisons is the fact that there is not consistent law enforcement presence on either side of the border.

Plotting annual locations of Soundwatch observed vessel incidents can be used as an overall indicator of vessel incident patterns and vessel density within a half mile of Southern Resident Killer Whales inside the designated summer core habitat (Figures 28-30). There are obvious overlap trends of whale use and boating activities within a half mile of whales, including whale watching, fishing, transiting and acoustic influence from large vessels greater than one half mile from whales. As in previous years, the areas with the most vessel incidents observed by Soundwatch in 2013 tended to be within a half mile near shore along the westside of San Juan Island (Zone 1- the 2009 NOAA proposed vessel restriction area) and outside of a half mile along the westside of San Juan Island and north into Haro Strait (Zones 2 and 5) (Figure 29). Not surprisingly, the areas with the highest numbers of vessels also tend to have the most vessel incidents occurring with the highest density of incidents (Figure 30).

Figure 28: 2013 Soundwatch All Observed Vessel Incidents by Incident Location Map.

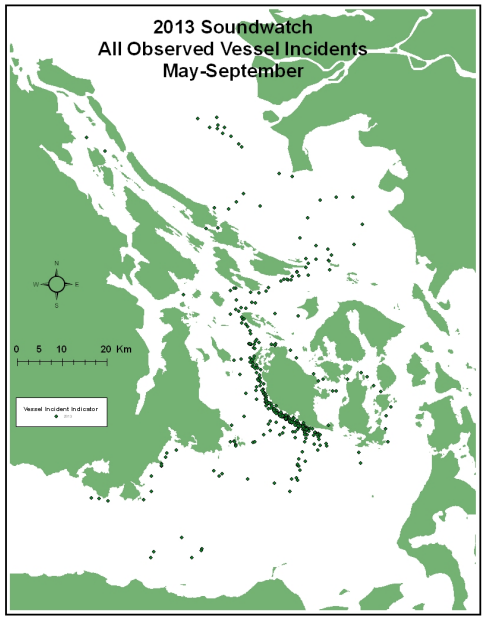


Figure 29: 2013 Soundwatch All Observed Vessel Incident Numbers by Zone Map.

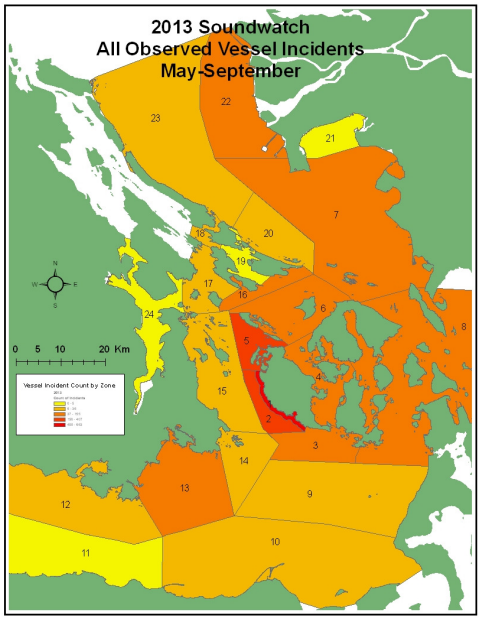
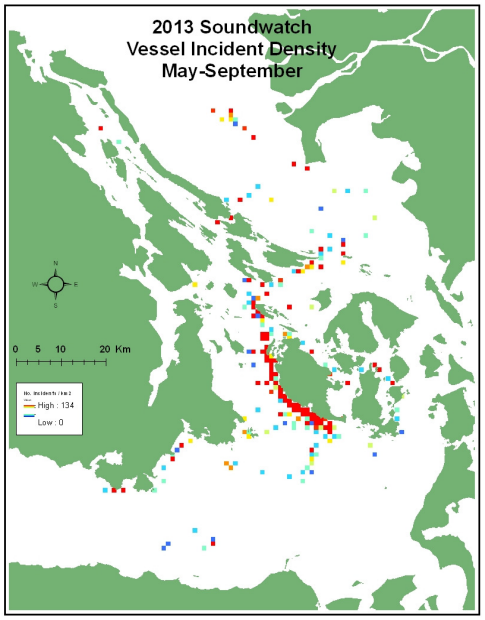


Figure 30: 2013 Soundwatch All Observed Vessel Incident Density per Square Kilometer.



In 2013, the top Soundwatch observed vessel incidents by percentage included: **1-** *Stopped within 200-yards of Whales* at 13% (which was broken up into two categories: *Stopped within 0-100-yards of Whales* (7%) and *Stopped within 100-200-yards of Whales* (6%) to be consistent with the new vessel law that only applies in U.S. waters, but not in Canada); **2-** *Vessels motoring within 200-yards of Whales* (Under power within 200-yards of Whales) 25% (which was also broken up into two categories: *Motoring within 0-100-yards of Whales* (10%) and *Motoring within 100-200-yards of Whales* (15%) to be consistent with the new vessel law that only applies in U.S. waters, but not in Canada); **3-** *Vessels motoring inshore of whales* (Inshore of whales) at 10% of all incidents; **4-** *Vessels In the Path of whales (200-400 yards)* at 28% of all incidents; and **5-** *Vessels motoring fast within 400 yards of whales* (Fast w/in ¼ mi Whales) at 9% and *Vessels within San Juan Island Voluntary No Motor Boat Zone* at 3% each of all incidents (Figure 31, Table 1).

Figure 31: 2013 Soundwatch Observed Vessel Incident Percentages.

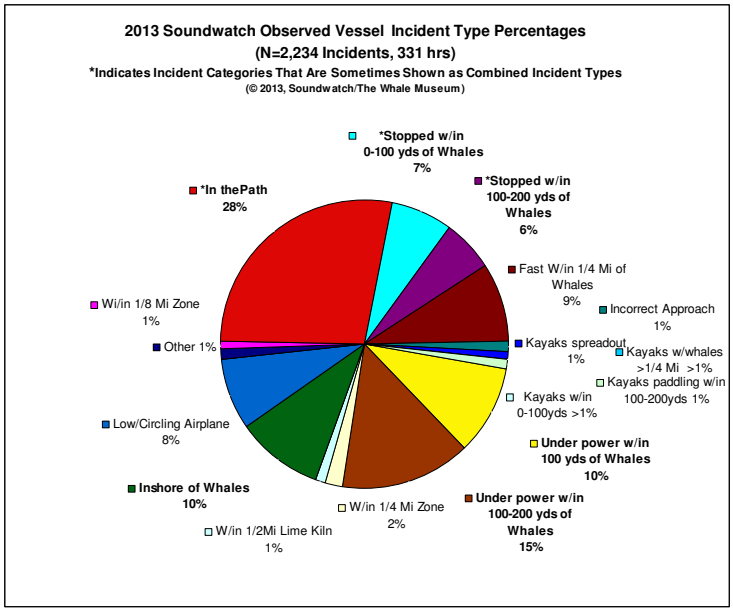


Table 1: Soundwatch 1998-2013 All Vessel, All Incident Type Percentages.

Soundwatch Observed All Vessel Behaviors Contrary to Guidelines and/or Regulations 1998-2013 (© 2013, Soundwatch/The Whale Museum)																
Behavior Category	**Yearly Incident Percentages**															
•Notes Categories Not Used During All Years	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
•Leapfrogging	37%	31%	23%	1%												
Under power within 0-100 yards of whales	6%	4%	5%	4%	5%	12%	9%	10%	12%	15%	12%	13%	12%	8%	4%	10%
•Stopped within 0-100 yards of whales														17%	8%	7%
•Under power within 100-200yards of whales														12%	10%	15%
•Stopped within 100-200yards of whales														18%	15%	6%
Within 440 yards of SJI No-Boat Zone	39%	26%	17%	17%	7%	13%	4%	8%	4%	5%	6%	8%	10%	6%	6%	2%
Within 880 yards of Lime Kiln	2%	2%	2%	1%	2%	5%	1%	2%	1%	3%	1%	3%	4%	1%	2%	1%
Crossing path of whales	4%	3%	5%	2%	4%	7%	6%	4%	5%	8%	4%	5%	5%	2%	7%	10%
Chasing/pursuing whales	3%	1%	3%	2%	<1%	4%	3%	1%	2%	3%	3%	3%	3%	1%	<1%	<1%
Inshore of whales	5%	29%	24%	25%	19%	16%	22%	18%	17%	16%	21%	24%	17%	13%	10%	10%
Airplane within 1000 feet	4%	2%	4%	7%	14%	6%	6%	4%	6%	8%	8%	6%	4%	3%	<1%	8%
Within 200 yards of National Wildlife Refuge	0%	1%	3%	1%	2%	2%	1%	0%	<1%	1%	1%	<1%	1%	<1%	1%	<1%
•Other		1%	3%	3%	14%	5%	15%	11%	10%	3%	2%	1%	1%	0%	1%	1%
•Within 220 yards of shore; whales present			4%	4%	2%	<1%	4%	1%	2%	2%	<1%	<1%	1%	1%	2%	1%
•Repositioning within 100 yards			7%	7%												
•In the Path (formerly Parked in the path of whales)				26%	24%	17%	19%	27%	26%	17%	25%	19%	23%	11%	16%	18%
•Fast within 1/4 mile					3%	4%	9%	10%	11%	16%	11%	13%	13%	6%	8%	9%
•1st Approach head on, behind, or on shore					4%	2%	1%	<1%	1%	2%	3%	2%	3%	1%	4%	1%
•Kayaks spread out					<1%	3%	0%	<1%	1%	1%	1%	1%	1%	<1%	2%	1%
•Kayaks with whales outside 1/4 SJI Zone					<1%	1%	0%	<1%	1%	<1%	1%	1%	1%	<1%	1%	<1%
•Kayaks paddling w/in 0-100 yds						3%	0%	<1%	1%	<1%	1%	<1%	1%	<1%	1%	<1%
•Kayaks paddling w/in 100-200 yds														1%	1%	1%
•Kayaks parked on headland															<1%	<1%
Total %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Observed Incidents	398	791	653	533	259	373	761	957	1,281	1,085	1,419	2,572	1,067	2,500	2,621	2,234
Estimated Annual Observation Hours	426hr	510hr	462hr	486hr	378hr	312hr	486hr	564hr	516hr	420hr	540hr	420hr	442hr	573hr	306hr	331hr

Overall in 2013, private vessel operators committed 46% of all incident types, followed by Canadian commercial operators with 19%, and U.S. commercial operators with 12% of all incidents (Figures 32 and 33). Percentage of incidents comprised of under power within 100yd/m has decreased since the implementation of the 2011 regulations. This type of trend is not as clear for in the path incidents. Private boaters were once again the number one vessel type committing the majority of top ranked vessel incident types, including *Vessels Stopped within 200 yards of whales vessels,* 0-100 yards 40% and 100-200 yards at 41%; *Vessels Motoring within 200 yards of whales*, 0-100 yards at 42% and 100-200 yards at 41%; *Vessels inshore of whales* at 71%; and *Vessels In the Path* at 49% (Table 2 and Figures 32 and 22). In 2013, Canadian commercial operators were responsible for *Vessels Stopped within 200 yards of whales,* 0-100 yards at 24% and 100-200 yards at 22%; *Vessels Motoring within 200 yards of whales*, also broken down by 0-100 yards at 30% and 100-200 yards at 27%; and *Vessels inshore of whales* at 13%; and *Vessels In the Path* at 23%; U.S. commercial operators were responsible for *Vessels Stopped within 200 yards of whales vessels,* 0-100 yards at 20% and 100-200 yards at 22%; *Vessels Motoring within 200 yards of whales*, also broken down by 0-100 yards at 14% and 100-200 yards at 17%; and *Vessels inshore of whales* at 8%; and *Vessels In the Path* at 14% (Table 2 and Figures 32 and 33). In 2013, research and monitoring vessels, including the Soundwatch monitoring vessel were responsible for *Vessels Stopped within 200 yards of whales vessels,* 0-100 yards at 13% and 100-200 yards at 12%; *Vessels Motoring within 200 yards of whales*, also broken down by 0-100 yards at 13% and 100-200 yards at 14%; and *Vessels inshore of whales* at 4%; and *Vessels In the Path* at 10% (Figure 33). In summary, 2013 presented a different picture than past years with increased ratio of commercial to private incidents across the board for all top categories except inshore of whales (Figure 33).

Figure 32: 2013 Soundwatch Observed Vessel Incidents Percentages by Vessel Type.

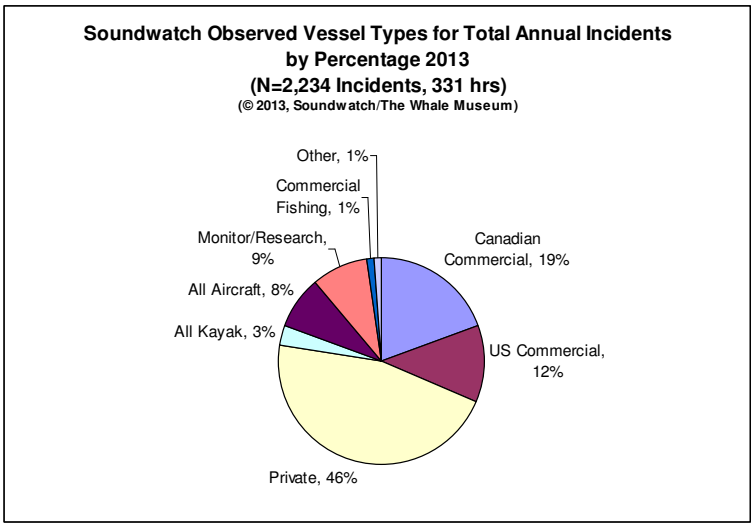
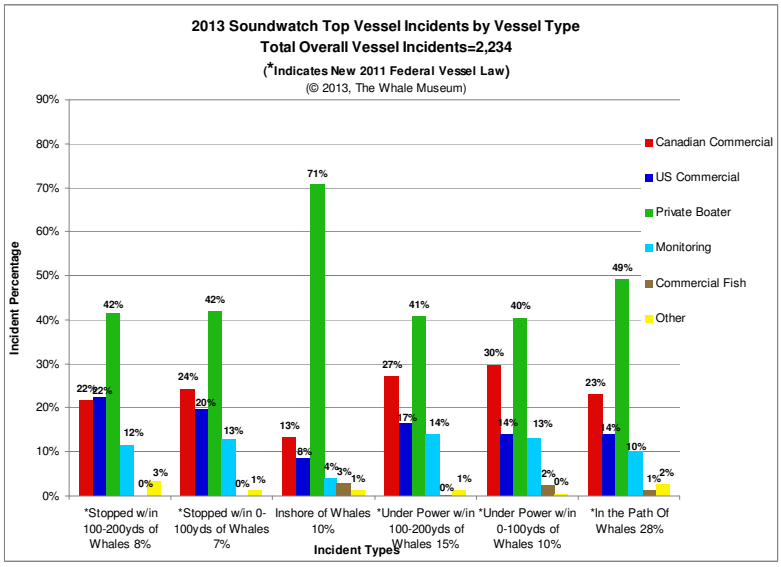


Figure 33: 2013 Soundwatch Observed Top Vessel Incidents by Vessel Type.



In the summer months and especially from late August into September, it is not unusual to have commercial fishing openings in areas that overlap with areas frequented by the whales. Commercial and sport fishing vessels as well as the whales are all targeting salmon in areas presumably with the highest concentrations of fish. In 2013, Soundwatch recorded commercial fishing vessels committing 27 incidents, or 1.2% of overall vessel incidents (Figure 34), which is a reduction from the 55 (5%) in 2010 when a record run of sockeye allowed for extended commercial fishing openings. The 1.2% observed commercial fishing vessel incidents were comprised of 22% *inshore of whales;* 19% *within 0-100 yards of whales*, 4% *within 100-200 yards of whales* which only included transiting activities; 26% *within one or more of the shoreline restricted zones;* and 29% *in the path of whales* (Table 2, Figure 34). Again, these data highlight a change in proportion of ecotour versus private incidents.

Table 2: 2013 Annual Summary of Vessel Incidents By Incident and Vessel Type.

Soundwatch Observed Vessel Incidents Summary April 30 - September 24, 2013 Observation Hours 331

	Eco Can	Eco US	Private Motor/Sail	Eco Kayak	Private Kayak	Other Type	Aircraft	SW & STW Monitor	Research	Govt	Marine Fishery	Marine Other	Total
Aircraft													
aircraft - low circling							54			6			60
aircraft - low flying							126			3			129
Aircraft							**180**			**9**			**189**
Approach													
non-compliant approach - head on	1		7										8
non-compliant approach from behind			8										8
Approach	**1**		**15**										**16**
Area Restriction													
area restriction - Lime Kiln	7	3	13					2	1		4		30
area restriction - NWR													
area restriction - SJIVNBZ (1/4mi)	2	7	20					2			3		34
area restriction - SJIVNBZ (1/8mi)	2	2	11					1					16
Area Restriction	**11**	**12**	**44**					**5**	**1**		**7**		**80**
In Path													
In path 200-400 yds	103	70	181	2	3			35		2			396
Parked in Path								1					1
vessel crossed the path of whales	41	17	126					26	1	3	8	4	226
In Path	**144**	**87**	**307**	**2**	**3**			**62**	**1**	**5**	**8**	**4**	**623**
Inshore													
vessel inshore of whales	30	19	162		1			9		2	6		229
Inshore	**30**	**19**	**162**		**1**			**9**		**2**	**6**		**229**
Kayak Specific													
kayak - 100m/yds					3								3
kayak - offshore 1/4mile				8	3								11
kayak - spread out when whales present				14	8								22
kayak - 200y/183m				3	9								12
kayak - parked on headland				6	2								7
Kayak Specific				**31**	**26**								**57**
Speed													
speed > 7knts w/in 400m	2	3	48					3					56
speed > 7knts w/in 400m (coming on scene)	11	1	69					4	1	1			87
speed > 7knts w/in 400m (departing scene)	6	2	48					1	1	2			60
Speed	**19**	**6**	**165**					**8**	**2**	**3**			**203**
Within 100 m/yds													
vessel within 100m - fishing	1	1	6										8
vessel within 100m - stopped	36	29	62	1				19				2	150
vessel within 100m - under power	63	30	81					28	1		5		207
Within 100 m/yds	**100**	**60**	**149**	**1**				**47**	**1**		**5**	**2**	**365**
Within 200m/yds													
200y/183m- fishing			5										5
200y/183m- stopped	28	29	54	1				15		1			128
200y/183m- under power	90	55	131					47	1	1	1	2	328
Within 200m/yds	**118**	**84**	**190**	**1**				**62**	**1**	**2**	**1**	**2**	**461**
Timelimit (longer than 1 hour)	9	2											11
	Eco Can	**Eco US**	**Private Motor/Sail**	**Eco Kayak**	**Private Kayak**	**Other Type**	**Aircraft**	**SW & STW Monitor**	**Research**	**Govt**	**Marine Fishery**	**Marine Other**	**Total**
Grand Total	**432**	**270**	**1032**	**35**	**30**	**0**	**180**	**193**	**6**	**21**	**27**	**8**	**2234**

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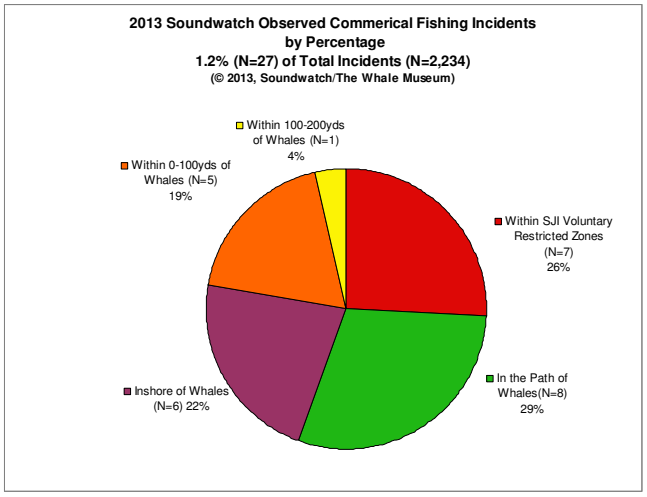
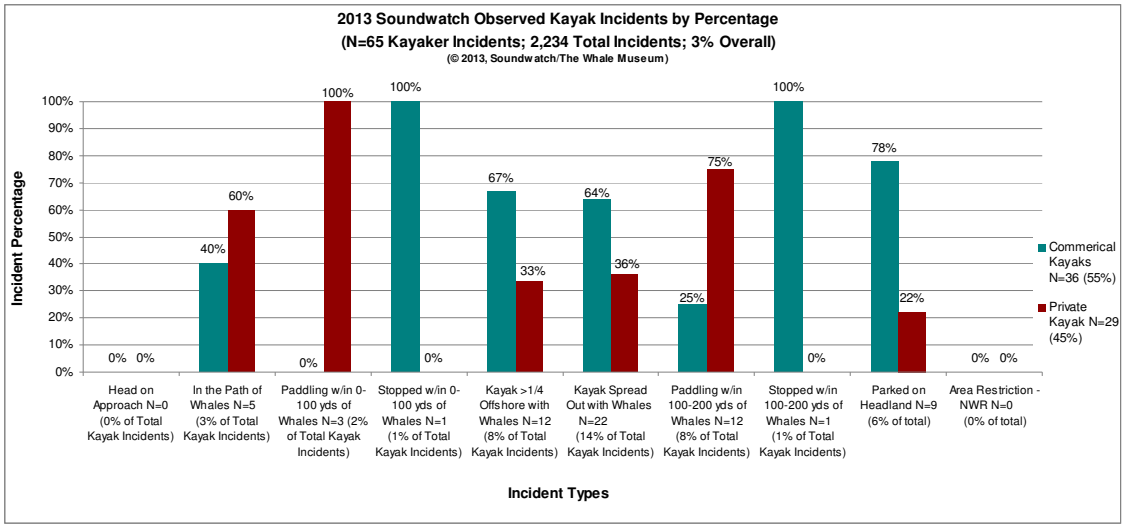
Figure 34: 2013 Soundwatch Observed Commercial Fishing Vessel Incident Percentages.



During the 2013 season, the vessel-based Soundwatch program observed kayakers making 3% of overall observed incidents (Figure 32). Private and commercial kayaker incident type percentages are shown separately in order to provide a more specific depiction of incidents occurring from kayaker types. The incident categories shown include both the kayaker specific incident categories which include incidents that are guidelines (Kayakers Code Appendix C): *kayaks spread out with whales present*, *kayakers paddling greater than ¼ mile offshore with whales*, *kayakers paddling within 100-200 yards of whales*, and *kayakers launching into the path of whales* along with other incident types, including *Be Whale Wise Guidelines* (Appendix A) and/or U.S. federal vessel regulations (Appendix B) not restricted to kayaks.

In 2013, the vessel-based Soundwatch program observed 2,234 vessel incidents, with all kayaker types committing 65 incidents, or 3%, of all incident types (Figure 35). Of the 65 incidents observed, the top incidents included **1-***Kayakers Paddling within 100-200 yards of Whales* with 35 incidents or 22%, with commercial kayakers making 46%, and private kayakers making 54% of incidents; **2-***Kayakers Not Rafted (or Spread) with Whales* with 47 incidents, or 29%, with commercial kayakers making 49%, and private kayakers making 51% of incidents; **3-** *Kayakers Paddling with 0-100 yards of Whales* with 18 incidents, or 11%, with commercial kayakers making 39%, and private kayakers making 61% of incidents; **4-** *Kayakers Offshore greater than ¼ Mile with Whales* with 29 incidents, or 18%, with commercial kayakers making 52%, and private kayakers making 48% of incidents and *Kayakers Stopped within 100-200 yards of Whales* with 8 incidents, or 5%, with commercial kayakers making 75% of incidents and privates 25%, **5-** *Kayakers Stopped within 0-100 yards of Whales* with 3 incidents, or 2%, with private kayakers making 100% of incidents and *Kayakers In the Path of Whales* with 6 incidents, or 4%, with commercial kayakers making 17%, and private kayakers making 83%; and 6-*Head-on Approach* with 7 incidents, or 4%, with private kayakers making 100% of incidents (Table 2, Figure 35).

Figure 35: 2013 Soundwatch Vessel-based Observed Commercial and Private Kayaker Incident Percentages.

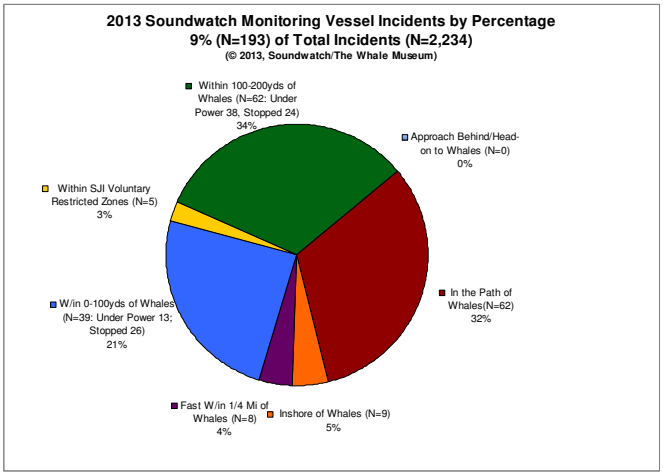


Soundwatch protocol is to be diligent about recording any time when the Soundwatch vessel itself is potentially not in compliance with any guidelines and/or laws. Soundwatch is operating under a NOAA research permit (Permit No. 16160) to conduct its education and monitoring tasks, however, the majority of the time the Soundwatch vessel is far from whales, well over 200-yards to the side or 400-yards ahead or behind. Occasionally the Soundwatch crew finds itself nearer to whales (within 200 or 400 yards in the path) and we record our vessel every time there is the slightest chance that we were out of compliance with laws or guidelines, and to use laser rangefinders to help verify the distances. It is therefore likely that this is an accurate count of the Soundwatch vessel's vessel incidents, in contrast to other vessel types' vessel incidents that are

likely underestimated as Soundwatch staff are often uncertain of the exact distances of other vessels and whales and/or cannot accurately record distances using a laser rangefinder; in these cases when it is not obvious that a vessel was out of compliance with guidelines or regulations, the incident is not recorded.

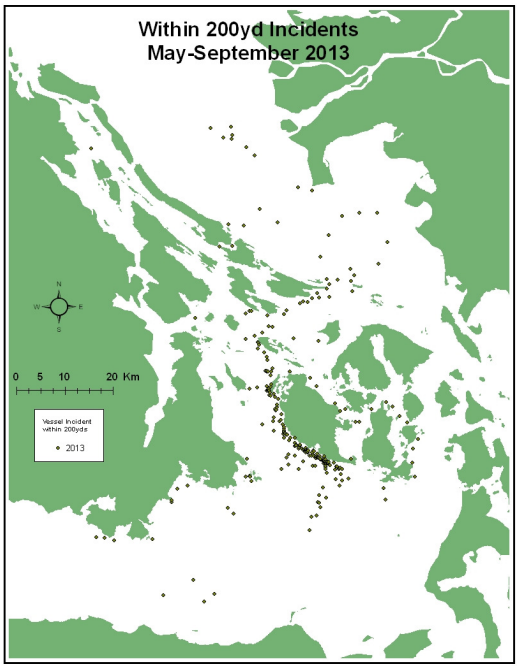
In 2013, Soundwatch recorded 193 Soundwatch Monitoring Vessel incidents making up 9% of overall vessel incidents (Figure 36). The breakdown of these incidents follows: *Within 100-200 yards of whales* with 62 incidents (underpower 38, stopped 24) or 34% *; Within 0-100 yards of whales* with 39 incidents (underpower 13, stopped 26) or 21%; *In the path of whales* with 62 incidents or 32%; *inshore of whales* with 9 incidents or 5%; *w/in the San Juan Islands ½ mile & ¼ Mile Voluntary No Go Zones* with 5 incidents or 3%; and *Motoring fast within 400 yards of whales* with 6 incidents or 4% (Table 2, Figure 36).

Figure 36: 2013 Soundwatch Monitoring Vessel Incident Percentages.



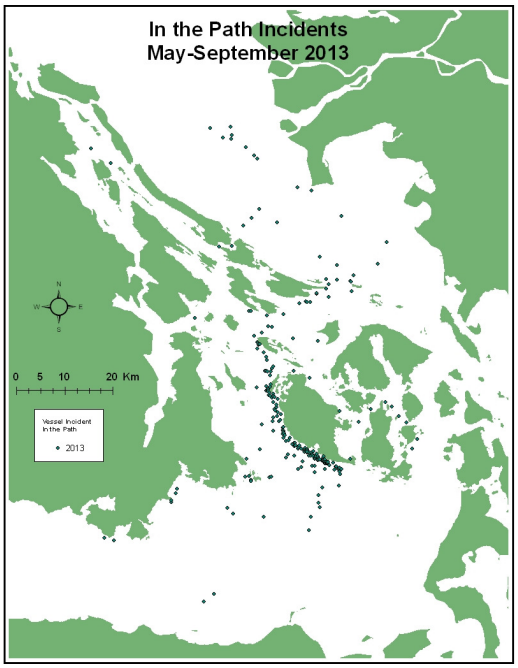
In light of new 2011 U.S. federal vessel regulations for killer whales, occurrences of vessels observed to be *Within 0-200 yards of killer whales* or *In the path of killer whales* were plotted (Figures 37 and 38). The only new incident categories since 2011 are stopped and underpower within 100-200 yards. As the U.S. federal regulations do not apply to vessel operators in Canadian waters, only guideline vessel incidents are shown in Canadian waters when vessels were either *Within 0-100 yards of killer whales* (Figure 37) or *In the path of killer whales* (Figure 38); in contrast, regulatory vessel incidents are shown in U.S. waters *Within 0-200 yards of killer whales* (Figure 37) or *In the path of killer whales* (Figure 38). There are obvious vessel incident location overlaps with the locations of overall killer whale habitat use and boating activities which are most often recorded in U.S. waters (Figures 3 & 32-34). Soundwatch did not record vessels that were *Within 100-200 yards from killer whales* while in Canadian waters for overall analysis. The areas with the most U.S. federal vessel regulation incidents observed by Soundwatch tended to be along the westside of San Juan Island (Figures 37 and 38).

Figure 37: 2013 Soundwatch Observed Vessels **Within 200-yards of Killer Whales* Incidents Location Map.



*US Vessel Laws restricting vessels Within 0-200 yards of a killer whale applies only in U.S. waters. Incidents shown occurring in Canadian waters are 0-100 yards Be Whale Wise Guideline incidents only.

Figure 38: 2013 Soundwatch Observed Vessels **In the Path of Killer Whales* Incidents Location Map.

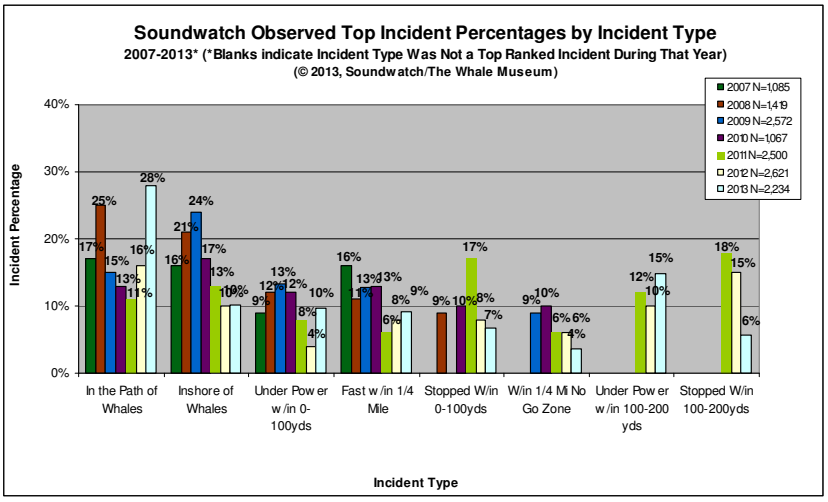


*US Vessel Laws restricting vessels In the Path 200-400 yards of a killer whale applies only in U.S. waters. Vessel incidents shown occurring in Canadian waters depict Be Whale Wise In the Path Guideline incidents only.

Vessel Incident Trends

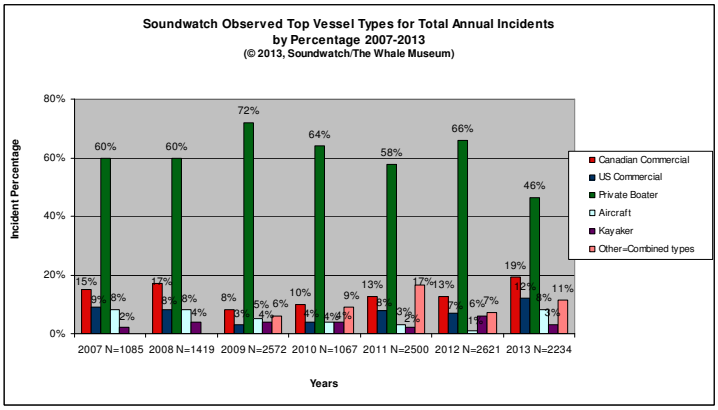
General trends in the most common incident types for 2007-2013 appear below (Figure 39). Soundwatch has consistently observed the same vessel incident types as the majority of the top five most frequent vessel incidents, which include *Vessels in the path of whales*; *Vessels motoring inshore of whales*; *Vessels motoring within 100 yards of whales; Vessels motoring fast within 400 yards of whales*; *Vessels motoring within the ¼ mile voluntary no go zone* and *Vessels stopped within 100 yards of whales*. In 2011, a new vessel incident type was introduced: *Vessels within 200 yards of whales,* this was divided into two main categories 1- *Stopped within 100-200 yards of Whales* and 2-*Motoring(under power)within 100-200-yards of Whales*. These are also among the most common incident types, giving seven most common incidents since 2011. In summary, 1) in the path incidents have increased, 2) inshore of whales has decreased and is mostly private vessels, and 3) stopped within 100y/m has decreased.

Figure 39: 2007-2013 Soundwatch Observed Top Vessel Incident Percentages by Incident Type.



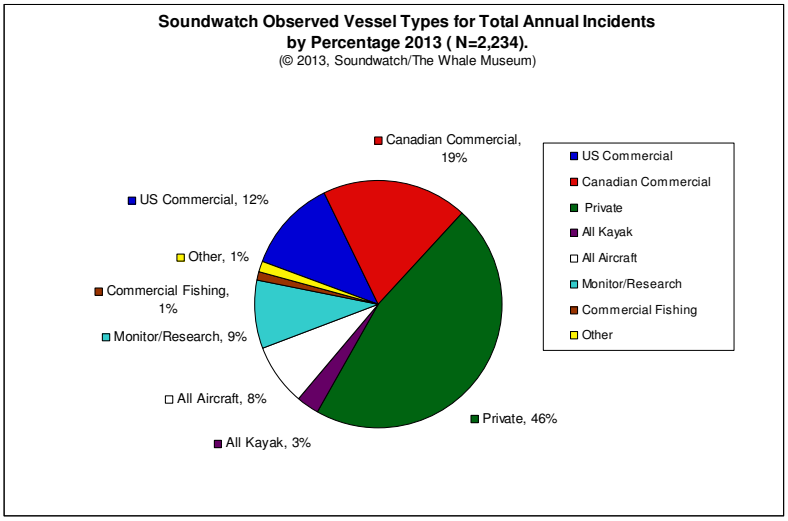
Overall trends from 2007-13 indicate that private vessel operators are still the most often observed vessel type committing the majority of all incident types (2007 - 60%, 2008 - 60%, 2009 - 72%, 2010 - 64%, 2011 - 58%, 2012 - 66%, 2013 - 46%) followed by a wide margin by Canadian commercial operators (2007 - 15%, 2008 - 17%, 2009 - 8%, 2010 - 10%, 2011 - 13%, 2012 - 13%, 2013 - 19%), and U.S. commercial operators (2007 - 9%, 2008 - 8%, 2009 - 3%, 2010 - 4%, 2011 - 8%, 2012 - 7%, 2013 - 12%) (Figure 40). In general, there has been a decrease in private percentages and increases in commercial percentages. The Soundwatch monitoring program has recorded itself making an increased number of incidents annually over the years 2007-2011 with a reduction in 2012, and then an increase in 2013—but not as large a percentage as in 2011. Since the Washington State vessel laws were put in place in 2008, and new U.S. federal regulations in 2011, Soundwatch staff has been more vigilant about recording every time that the Soundwatch vessel could have possibly been within 400-yards ahead or within 200-yards of whales. In addition, since the new vessel regulations, Soundwatch staff has also been making a more targeted effort to reach as many boaters as possible before those boaters find themselves motoring closer than 400 yards in the path or within 200 yards in any direction; this has sometime led to more times when the Soundwatch vessel is caught stopped with whales as they are talking with a private vessel. The Whale Museum began operating under its own Soundwatch specific NOAA Research permit in 2012. This allows for close approaches in some unavoidable circumstances and these are reported via permit conditions and annual reporting requirements. All Soundwatch drivers receive thorough training on safe boating in the vicinity of whales. As part of receiving a research permit, a full review of methods was completed and impacts of the activities fully analyzed under MMPA/ESA. The permit carries with it annual reporting obligations, which are illustrated above (Figure 39).

Figure 40: 2007-2013 Soundwatch Observed Vessel Incident Percentages by Top Vessel Type.



In 2013, Soundwatch committed 9% of incidents (Figure 41). We believe that the education and incident prevention value of Soundwatch's work outweighs the affect of these incidents on the whales. Note that the ratio of private to commercial incidents in 2013 decreased from the multi-year pattern of 3:1 to 3:2, because private incidents were down in 2013 and commercial incidents were up. Also, the increase in aircraft incidents influences this trend as well.

Figure 41: 2013 Percentage of Incidents by Vessel Type.



The annual installment of this report has used annual incident percentages as above for some time. However normalizing these data by dividing by the number of hours observed to give a rate of incidents per unit time is a better way to compare Soundwatch observations of individual vessel types from year to year. These metrics are provided below for 2 years before and 3 years after the 2011 U.S. regulation (Figures 42-44).

Figure 42: Regulation Incidents per hour by Vessel Type for 2009-2013.

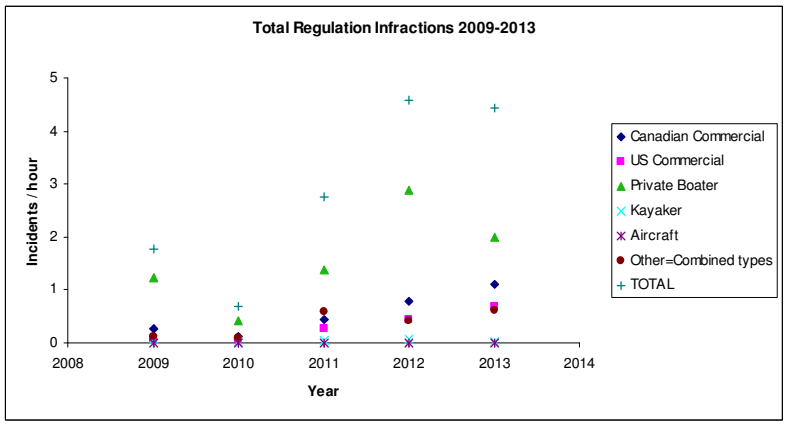


Figure 43: Guideline Incidents per hour by Vessel Type for 2009-2013.

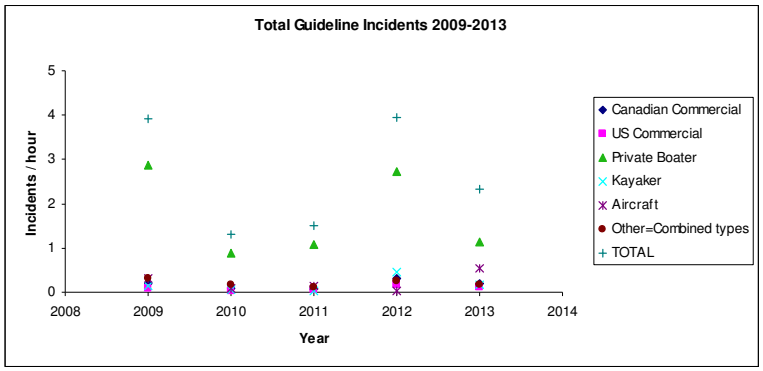


Figure 44: Total Incidents per hour by Vessel Type for 2009-2013.

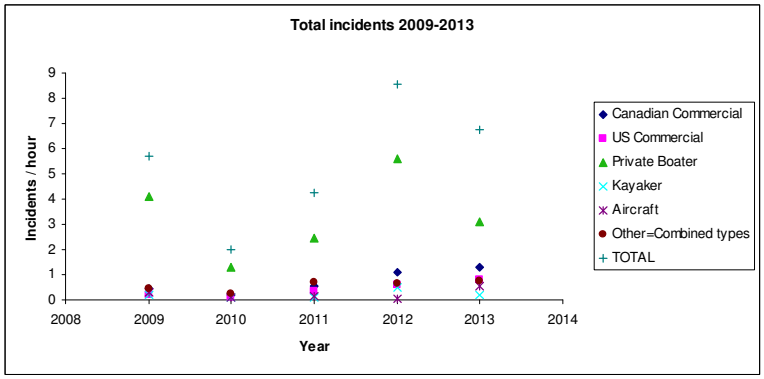
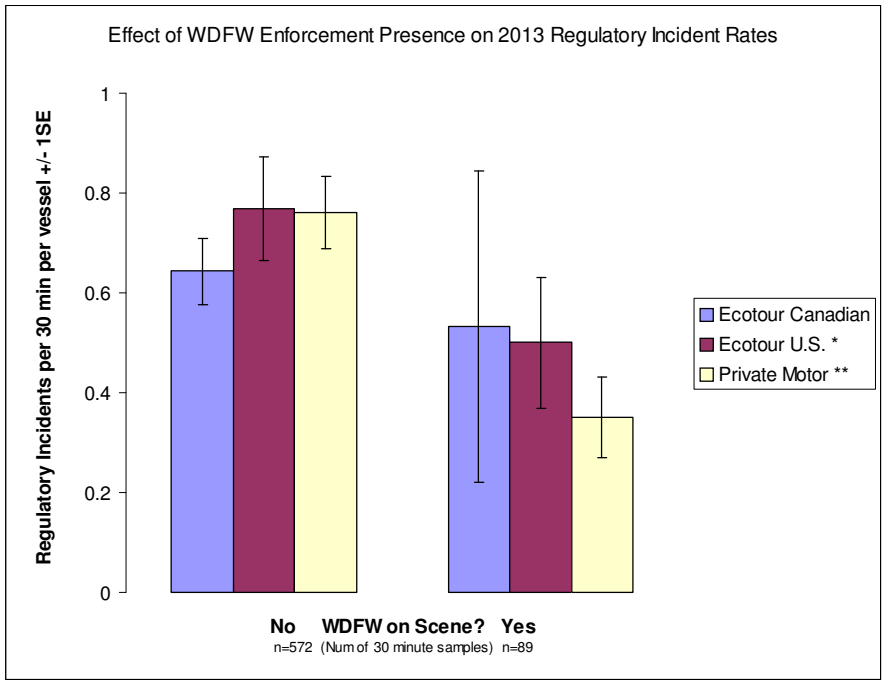


Figure 45: Effect of WDFW Enforcement Presence on 2013 Regulatory Incident Rates.



Summary of Soundwatch Data Trends:

Numbers of Vessels Observed With Whale Trends

- The numbers of vessels observed within ½ mile of whales (May-September) varies widely by time, date and location with maximum numbers over 4 times larger than average numbers (2013 Max. 69, Avg. 15).
- From 2003-2011, there was an 8-year trend of reduced annual averages and maximum numbers of vessels with whales. However since 2011, there have been increases in numbers of vessels with whales and at this point it is not clear why.
- Southern Resident killer whale group cohesion has changed slightly in recent years. The whales' appear to be travelling in smaller groups that are more spread out, and the various small groups are travelling apart from each other (The Whale Museum, Orca Master Data). This may partially account for the 8-year trend of declining numbers of vessels observed travelling within ½ mile of whales as vessels may not be as concentrated around single groups of whales.
- Commercial vessels tend to spread out with various groups of whales and are intentionally spending less time with any one group (as part of their voluntary guidelines), thereby reducing the overall commercial vessel average and maximum numbers observed within ½ mile of any one group of whales. This trend may also partially account for the 2003-2011, 8-year trend of declining numbers of vessels observed travelling within ½ mile of whales. However, this explanation would contradict increases observed since in 2012 and 2013.
- The highest average and maximum numbers of vessels observed within ½ mile of whales occur on weekends, holidays and boating events such as fishing derbies in the summer months.
- Commercial and recreational fishing activities occur in areas that often overlap with whales as well as other vessel transit corridors. In years with large recreational and commercial fishing opportunities (as seen in 2009-2011), vessels observed engaged in 'fishing activities' increase as do vessel incidents associated with recreational and commercial fishing vessels (2011: 15% of vessels observed with whales were commercial fishing vessels, and 23% of all vessels observed with whales were engaged in fishing activities). 2013 saw a strong pink salmon run and interactions with commercial fishing vessels increased in September.
- Peak times of the day (May-September) observed with the highest number of vessels within ½ mile whales usually occur between 11 a.m. and 4 p.m. during the observation hours of 9 a.m. to 6 p.m. with a dip around the 1 p.m. midday lull.
- Private vessels observed within ½ mile of whales have had higher maximum numbers than commercial vessels from 2003-2009, and again from 2011-2013 (Private Max. 60, Commercial Max. 25) with the commercial vessels having a higher max observed in 2010 (38 Max. commercial, 28 Max. private).
- Generally, private recreational boaters spend more time with whales being 'whale oriented' (watching whales) than engaged in 'fishing' or 'transiting'; commercial vessels are most often observed 'whale oriented' and less so 'transiting'.
- On average (2001-2013) Soundwatch contacted around 1,000 recreational vessels per year with an average of 3.3 people on board each vessel, for an overall average number of 3,300 people given educational materials on the water annually. In 2013 Soundwatch vessel contact numbers were down: 575 boat contacts with 1,885 people onboard; because WDFW Enforcement did many contacts as well
- The majority of boaters (60%) contacted by Soundwatch in 2013 were whale-oriented (as opposed to transiting or fishing, etc.) with the majority, 96%, being new Soundwatch contacts for the 2013 season. Of those contacted in 2013, 58% responded that they were not aware of the guidelines or laws.
- Soundwatch does not have consistent monitoring data on vessel trends before 9 a.m. and after 6 p.m., or during the shoulder season, October-April. This is related to changes in whale watch industry trends described below

Commercial Whale Watch Industry Trends

- Commercial whale watching occurs April – October with increasing numbers of U.S. & Canadian commercial whale watch vessels going out year-round and/or starting earlier and going later into the season.
- The bulk of commercial whale watching generally occurs between 9 a.m. and 6 p.m., May-September, with the maximum numbers of commercial vessels observed within ½ mile of whales occurring in July and between 11 a.m. to 1 p.m. and again from 3 p.m. to 4 p.m.; with a reduction in numbers between 12 p.m. and 1 p.m. during trip turn-around periods.

- Commercial whale watching occurs in the evenings with several U.S. & Canadian commercial trips going out again at 5 p.m.-sunset (8:30-9 p.m., July-September).
- Since 2000, there have been a similar number of 30-40 active Canadian and U.S. commercial companies (Avg. # of Companies: 38: Avg. # U.S. Companies 17, Avg. # Canadian Companies 21).
- Since 2000, there have been a similar number of 70-80 active commercial whale watch vessels (Avg. # of Commercial Vessels 2000-2013: 77: 51 Canadian, 26 U.S.; 2013: 80: 54 Canadian, 26 U.S.).
- Since 1997 there have consistently been more active Canadian commercial vessels than active U.S. commercial vessels (2013: 54 Canadian, 26 U.S.).
- Canadian commercial whale watch vessels continue to be mostly the smaller rigid hull inflatable (RHIB) style of vessels while the U.S. fleet is made up of mostly larger passenger style vessels, however recent additions to the fleet have some exceptions.
- The number of relative U.S. and Canadian commercial passengers is estimated to be nearly the same as the smaller Canadian vessels make a greater number of trips per day, per vessel.
- There is a recent trend of Canadian companies adding 1 or more larger, enclosed, passenger-style vessels to their fleet of, on average, 3 vessels per company (2013 vessel number range: 1-11 vessels/company).
- The majority of active Canadian and U.S. commercial companies are members of the transboundary Pacific Whale Watch Association (formerly the Whale Watch Operators Association Northwest). http://www.pacificwhalewatch.org/

Vessel Incident Trends

- A new vessel incident category of *Vessels within 200 yards of whales* was added in 2011 which likely increased the overall number of incidents where vessels are closer to whales than previously recorded. The incident category was divided into two main categories 1- Stopped within 200-yards of Whales and 2-Motoring/ fishing within 200-yards of Whales. There were 461 instances of these new incidents being recorded in 2013. Both of these categories were further broken down into sub-categories: Stopped within 0-100-yards of Whales and Stopped within 100-200-yards of Whales; and Motoring/ fishing within 0-100-yards of Whales and Motoring/ fishing within 100-200-yards of Whales to be consistent with the new U.S. vessel regulations that apply in U.S. waters, but not in Canadian waters.
- The old *Parked in the Path of Whales* incident was modified to *In the Path of Whales* which is defined as a vessel stopped 200-400 yards ahead of whales. Vessels moving *In the Path* are recorded as *Crossing the Path*.
- Soundwatch has observed similar top five vessel incident types (varying order each year) with the new vessel regulation of *being within 200 yards* replacing the previous *within 100 yard* distance guidelines as a top incident type. Top incidents include *vessels parking in the path of whales*; *vessels motoring inshore of whales*; *vessels motoring within 200 yards of whales; vessels motoring fast within 400 yards of whales*; and *vessels stopped within 200 yards of whales*.
- Private boaters are the vessel type most often observed committing most of all types of vessel incidents, including the annual top incidents (60% for both years 2007 and 2008, 72% in 2009, 64% in 2010, 58% in 2011, 66% in 2012, and 46% in 2013). Note the substantial drop in private percentage observed in 2013.
- Canadian and U.S. commercial operators are observed making fewer overall incidents than private boaters. However, in 2013 there was a substantial increase in commercial percentage observed.
- Canadian commercial vessel operators are more likely than U.S. commercial vessel operators to be observed committing incidents (Canadian 15% in 2007, 17% in 2008, 8% in 2009, 10% in 2010, 13% in 2011, 13% in 2012, and 19% in 2013; U.S. 9% in 2007, 8% in 2008, 3% in 2009, 4% in 2010, 8% in 2011, 7% in 2012, and 12% in 2013).
- The primary vessel incident type observed committed by commercial whale watch operators is being *In the Path (200-400 yards) of whales*, with the majority being committed by Canadian commercial whale watch operators.
- Annual commercial fishing incidents are similar to previous years (1.2% of all incidents in 2013).
- Annual commercial and private aircraft numbers and aircraft specific incidents were greater than in previous years (8% of all incidents in 2013).
- Annual commercial and private kayak numbers and kayak specific incidents, as well as other incidents committed by kayakers, are decreased from previous years. Commercial and private kayakers observed from the Soundwatch vessel, in all areas, accounted for 3% each of all incidents in 2013.

- Annual numbers of the Soundwatch vessel self-reported incidents are increasing (9% of overall incidents in 2013). Soundwatch was granted a NOAA Research and Enhancement Permit No. 16160 in 2012.
- In 2013, 1,449 *vessel incidents* (out of 2,234, or 65%) were observed that were possible violations of the U.S. federal vessel law for killer whales. Of these observations, 365 involved vessels either motoring or stopped within 0-100-yards of whales; 461 involved vessels motoring or stopped within 100-200-yards of whales; with an additional 623 observations of vessels in the path of whales. These are the primary vessel incident types thought to have the most potential to impact the whales (high speed, close proximity, being in the on-coming path) and have the potential to cause disturbance (behavior changes) that could result in reduced foraging opportunities and increased energy consumption.
- The presence of a WDFW enforcement vessel causes a decrease in incident rates for U.S. and Canadian commercial whale watch boats and guided ecotour kayaks.

Spatial Trends

- There are spatial trends indicating that the whales are seen more often along the westside of San Juan Island than other areas in the core summer range.
- There are spatial trends indicating that the highest concentrations of all vessel types are along the westside of San Juan Island.
- There are spatial trends indicating that the highest concentrations of vessels incident types are along the westside of San Juan Island.
- A large number of vessel types, engaged in a variety of vessel activities, routinely commit a large number and variety of incident types throughout the NOAA designated Summer Core Critical Habitat Areas for Southern Resident killer whales, especially along the nearshore corridor on the westside of San Juan Island.

Recommendations

Soundwatch observed vessel trends from 1998-2013 show continued boating pressures and noncompliance with best practice guidelines and vessel regulations for killer whales throughout the Salish Sea, the inland waters of Washington State and British Columbia. Long-term trends demonstrate the need for the continuation and expansion of shore- and water-based boater education and outreach efforts as well as a continued increase in enforcement patrols and enforcement action on the water. Sustainable funding mechanisms for both education and enforcement efforts are critical. In addition, the development and implementation of a collaborative U.S. and Canadian effort to manage both commercial and recreational whale watching as well as other vessel traffic near whales is needed to reduce potential threats to the whales from vessel presence, behavior and underwater noise.

During both the NOAA SRKW Recovery Plan and Proposed Vessel Regulations public input processes, overwhelming support for increased enforcement effort as well as the continuation and expansion of the Soundwatch program was expressed through written and verbal public comments. The Whale Museum and Soundwatch are chronically underfunded and strive continually to consistently collect and analyze this important annual monitoring data. The effort required to collect and analyze this data annually, as well as prevent countless disturbances to endangered whales, is under-valued and in many cases is the only data set available. Continued monitoring remains critical in order to assist in the evaluation of the effectiveness of the guidelines, regulations and enforcement efforts.

Finally, the 2013 ESA Section 6 funding provided enhanced WDFW Enforcement presence in the vicinity of killer whales around the San Juan Islands. This critical funding provides a new WDFW vessel and one additional FTE officer. A small part of this grant also supports Soundwatch with vessel upgrades, 40 additional days on the water and funding for data analysis. This funding is expected to continue in 2014.

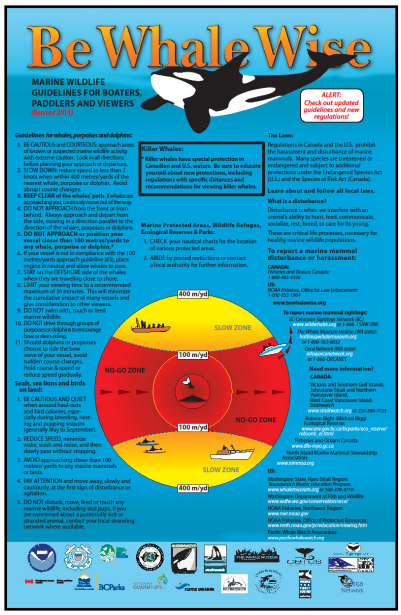
Individuals and/or Organizations that Collaborated with the Grantee and Performed the Work:

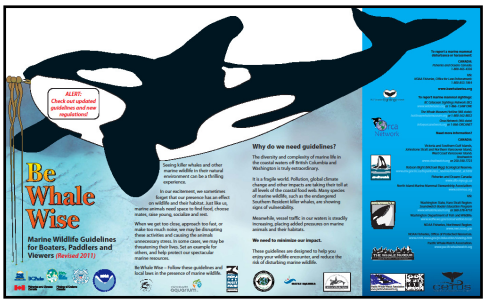
The Whale Museum staff (Executive Director Jenny Atkinson, Finance Manager Elli Gull, former Operations Manager Julie Hanks, and Research Curator & Soundwatch Coordinator Eric Eisenhardt) administered grant funds, including accounting and disbursement, from award RA-133F-12-CQ-0057. The Soundwatch Coordinator (Eric Eisenhardt) along with seasonal Soundwatch driver/educator staff (Katherine Peet and Robert Tison), academic interns (Tara Hartman, Kaylee Kautz and Katherine Pielmeier) and over 30 regular volunteers were responsible for the outreach, monitoring and data collection activities as well as data entry. Soundwatch staff undertook the bulk of data compilation, assessment and report compilation. Other individuals who made major contributions include Patrick Charapata (TWM's Database Specialist) who provided GIS mapping expertise. We could not begin to conduct such a successful program without the fantastic staff and Board of Directors of The Whale Museum, the vision of the former Soundwatch Program Directors, Rich Osborne and Kari Koski, and the help and dedication of the more than 600 past and present interns and volunteers who have collectively contributed more than 64,000 volunteer hours to Soundwatch activities since 1996! Special thanks also go the numerous Soundwatch supporters along with the following organizations that help support and collaborate with our efforts: NOAA Fisheries Northwest Region, Northwest Fisheries Science Center, Fisheries and Oceans Canada, Washington Department of Fish and Wildlife, San Juan County's Marine Resource Committee, San Juan County Parks, Straitwatch & Cetus Society, U.C. Davis, the Center for Whale Research, Orca Network, North Cove Technical Solutions (data-base support), Snug Harbor, Roche Harbor Marine, the Washington Department of Fish and Wildlife ALEA Fund, the Pacific the Whale Watch Association, the San Juan Kayakers Association and the numerous, generous contributions from regional foundations, business and individuals over the years.

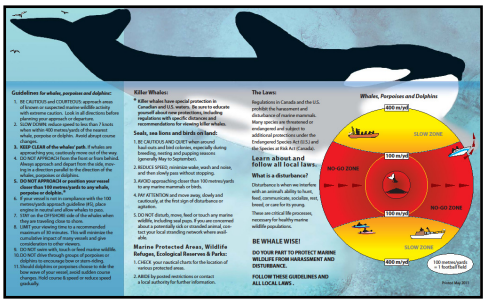
To all our partners and supporters,
THANK YOU!

***

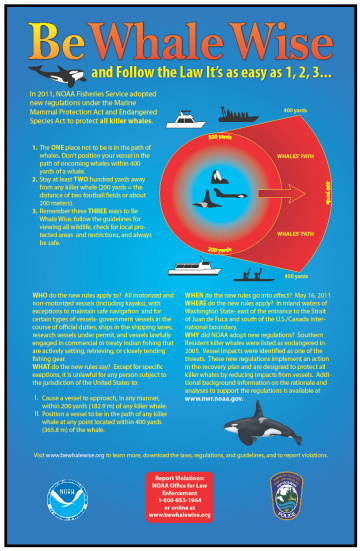
Appendix A & A1: Be Whale Wise Guidelines for Boaters, Paddlers and Viewers; Revised 2011, Poster & Double-sided Brochure Version (Available at http://www.bewhalewise.org)

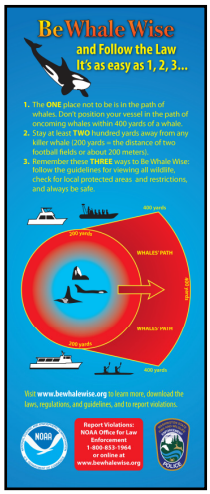


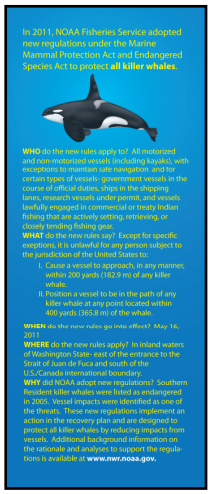




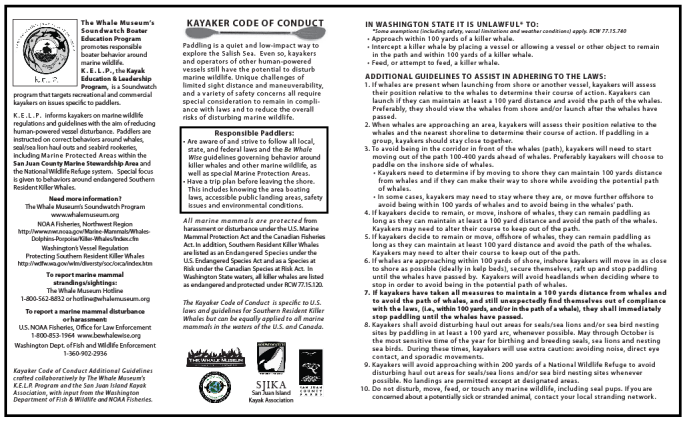
Appendix B& B1: New Federal Vessel Regulations for Killer Whales Poster & Double-sided Rack Card (Available at http://www.bewhalewise.org)







Appendix C: 2011 Kayaker Code of Conduct Brochure, Folded, Double-sided (Available at http://www.whalemuseum.org).



The Whale Museum's Soundwatch Boater Education Program promotes responsible boater behavior around marine wildlife. **K. E. L. P., the Kayak Education & Leadership Program,** is a Soundwatch program that targets recreational and commercial kayakers on issues specific to paddlers.

K. E. L. P. informs kayakers on marine wildlife regulations and guidelines with the aim of reducing human-powered vessel disturbance. Paddlers are instructed on correct behaviors around whales, seal/sea lion haul outs and seabird rookeries, including Marine Protected Areas within the **San Juan County Marine Stewardship Area** and the National Wildlife Refuge system. Special focus is given to behaviors around endangered Southern Resident Killer Whales.

Need more information?
The Whale Museum's Soundwatch Program
www.whalemuseum.org

NOAA Fisheries, Northwest Region
http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/index.cfm
Washington's Vessel Regulation Protecting Southern Resident Killer Whales
http://wdfw.wa.gov/wlm/diversity/soc/orca/index.htm

To report marine mammal strandings/sightings:
The Whale Museum Hotline
1-800-562-8832 or hotline@whalemuseum.org

To report a marine mammal disturbance or harassment:
U.S. NOAA Fisheries, Office for Law Enforcement
1-800-853-1964 www.bewhalewise.org
Washington Dept. of Fish and Wildlife Enforcement
1-360-902-2936

Kayaker Code of Conduct Additional Guidelines crafted collaboratively by The Whale Museum's K.E.L.P. Program and the San Juan Island Kayak Association, with input from the Washington Department of Fish & Wildlife and NOAA Fisheries.

KAYAKER CODE OF CONDUCT

Paddling is a quiet and low-impact way to explore the Salish Sea. Even so, kayakers and operators of other human-powered vessels still have the potential to disturb marine wildlife. Unique challenges of limited sight distance and maneuverability, and a variety of safety concerns all require special consideration to remain in compliance with laws and to reduce the overall risks of disturbing marine wildlife.

Responsible Paddlers:
- Are aware of and strive to follow all local, state, and federal laws and the *Be Whale Wise* guidelines governing behavior around killer whales and other marine wildlife, as well as special Marine Protection Areas.
- Have a trip plan before leaving the shore. This includes knowing the area boating laws, accessible public landing areas, safety issues and environmental conditions.

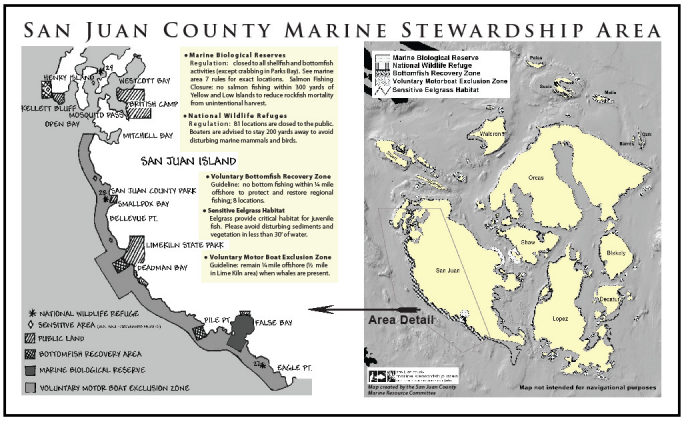
All marine mammals are protected from harassment or disturbance under the U.S. Marine Mammal Protection Act and the Canadian Fisheries Act. In addition, Southern Resident Killer Whales are listed as an Endangered Species under the U.S. Endangered Species Act and as a Species at Risk under the Canadian Species at Risk Act. In Washington State waters, all killer whales are listed as endangered and protected under RCW 77.15.120.

The Kayaker Code of Conduct is specific to U.S. laws and guidelines for Southern Resident Killer Whales but can be equally applied to all marine mammals in the waters of the U.S. and Canada.

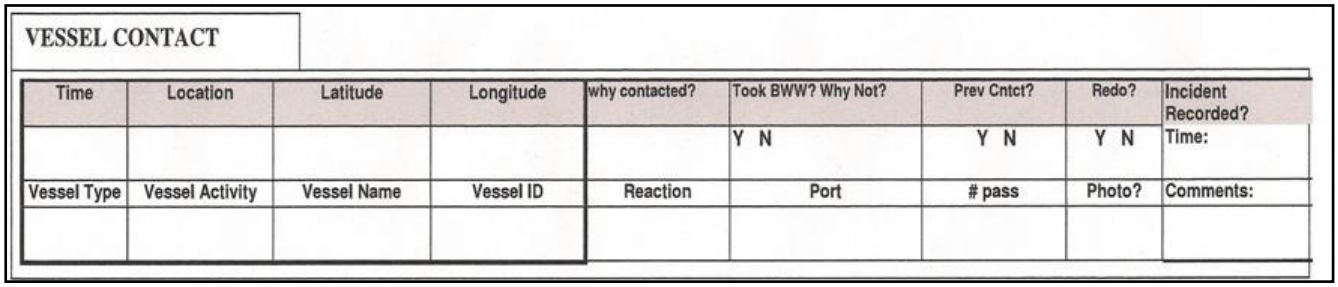
SJIKA San Juan Island Kayak Association

IN WASHINGTON STATE IT IS UNLAWFUL* TO:
*Some exemptions (including safety, vessel limitations and weather conditions) apply. RCW 77.15.740
- Approach within 100 yards of a killer whale.
- Intercept a killer whale by placing a vessel or allowing a vessel or other object to remain in the path and within 100 yards of a killer whale.
- Feed, or attempt to feed, a killer whale.

ADDITIONAL GUIDELINES TO ASSIST IN ADHERING TO THE LAWS:
1. If whales are present when launching from shore or another vessel, kayakers will assess their position relative to the whales to determine their course of action. Kayakers can launch if they can maintain at least a 100 yard distance and avoid the path of the whales. Preferably, they should view the whales from shore and/or launch after the whales have passed.
2. When whales are approaching an area, kayakers will assess their position relative to the whales and the nearest shoreline to determine their course of action. If paddling in a group, kayakers should stay close together.
3. To avoid being in the corridor in front of the whales (path), kayakers will need to start moving out of the path 100-400 yards ahead of whales. Preferably kayakers will choose to paddle on the inshore side of whales.
   - Kayakers need to determine if by moving to shore they can maintain 100 yards distance from whales and if they can make their way to shore while avoiding the potential path of whales.
   - In some cases, kayakers may need to stay where they are, or move further offshore to avoid being within 100 yards of whales and to avoid being in the whales' path.
4. If kayakers decide to remain, or move, inshore of whales, they can remain paddling as long as they can maintain at least a 100 yard distance and avoid the path of the whales. Kayakers may need to alter their course to keep out of the path.
5. If kayakers decide to remain or move, offshore of whales, they can remain paddling as long as they can maintain at least 100 yard distance and avoid the path of the whales. Kayakers may need to alter their course to keep out of the path.
6. If whales are approaching within 100 yards of shore, inshore kayakers will move in as close to shore as possible (ideally in kelp beds), secure themselves, raft up and stop paddling until the whales have passed by. Kayakers will avoid headlands when deciding where to stop in order to avoid being in the potential path of whales.
7. **If kayakers have taken all measures to maintain a 100 yards distance from whales and to avoid the path of whales, and still unexpectedly find themselves out of compliance with the laws, (i.e., within 100 yards, and/or in the path of a whale), they shall immediately stop paddling until the whales have passed.**
8. Kayakers shall avoid disturbing haul out areas for seals/sea lions and/or sea bird nesting sites by paddling in at least a 100 yard arc, whenever possible. May through October is the most sensitive time of the year for birthing and breeding seals, sea lions and nesting sea birds. During these times, kayakers will use extra caution: avoiding noise, direct eye contact, and sporadic movements.
9. Kayakers will avoid approaching within 200 yards of a National Wildlife Refuge to avoid disturbing haul out areas for seals/sea lions and/or sea bird nesting sites whenever possible. No landings are permitted except at designated areas.
10. Do not disturb, move, feed, or touch any marine wildlife, including seal pups. If you are concerned about a potentially sick or stranded animal, contact your local stranding network.



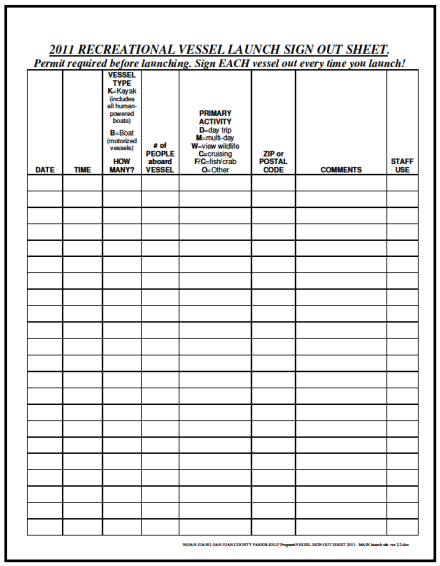
Appendix D: Soundwatch Data Sheet Vessel Contact.



VESSEL CONTACT

Time	Location	Latitude	Longitude	why contacted?	Took BWW? Why Not?	Prev Cntct?	Redo?	Incident Recorded?
					Y N	Y N	Y N	Time:
Vessel Type	**Vessel Activity**	**Vessel Name**	**Vessel ID**	**Reaction**	**Port**	**# pass**	**Photo?**	**Comments:**

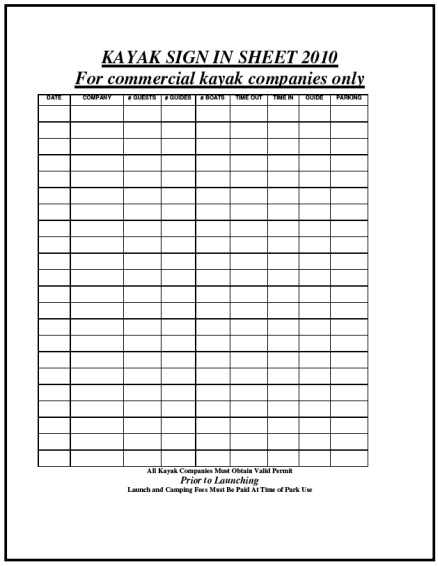
Appendix E: 2012 KELP Program Recreational Boater Launch Sign-out Form.



2011 RECREATIONAL VESSEL LAUNCH SIGN OUT SHEET.
Permit required before launching. Sign EACH vessel out every time you launch!

DATE	TIME	VESSEL TYPE K–Kayak (includes all human-powered boats) B–Boat (motorized vessels) HOW MANY?	# of PEOPLE aboard VESSEL	PRIMARY ACTIVITY D–day trip M–multi-day W–view wildlife C–cruising F/C–fish/crab O–Other	ZIP or POSTAL CODE	COMMENTS	STAFF USE

Appendix F: 2010-2012 San Juan County Park Commercial Kayaker Launch Sign-out Form.

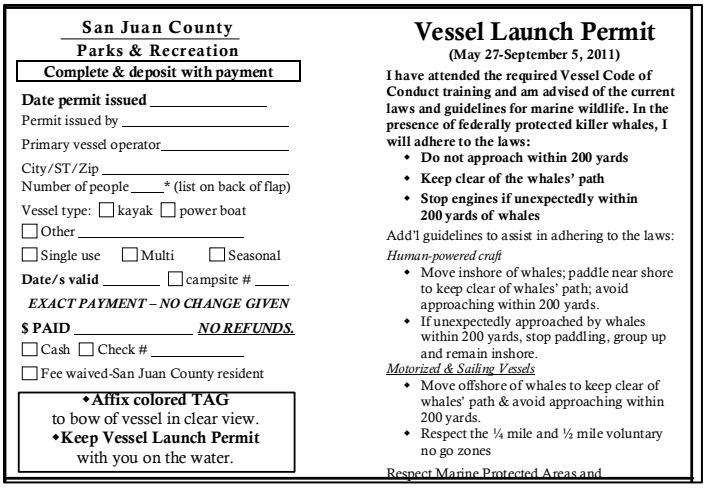


KAYAK SIGN IN SHEET 2010
For commercial kayak companies only

DATE	COMPANY	# GUESTS	# GUIDES	# BOATS	TIME OUT	TIME IN	GUIDE	PARKING

All Kayak Companies Must Obtain Valid Permit
Prior to Launching
Launch and Camping Fees Must Be Paid At Time of Park Use

Appendix G: 2012 San Juan County Park Recreational Boat Launch Permit Form.



San Juan County
Parks & Recreation
Complete & deposit with payment

Date permit issued _____
Permit issued by _____
Primary vessel operator_____
City/ST/Zip _____
Number of people____* (list on back of flap)
Vessel type: ☐ kayak ☐ power boat
☐ Other _____
☐ Single use ☐ Multi ☐ Seasonal
Date/s valid _____ ☐ campsite # ____
EXACT PAYMENT – NO CHANGE GIVEN
$ PAID _____ ***NO REFUNDS.***
☐ Cash ☐ Check # _____
☐ Fee waived-San Juan County resident

•Affix colored TAG
to bow of vessel in clear view.
•Keep Vessel Launch Permit
with you on the water.

Vessel Launch Permit

(May 27-September 5, 2011)

I have attended the required Vessel Code of Conduct training and am advised of the current laws and guidelines for marine wildlife. In the presence of federally protected killer whales, I will adhere to the laws:

- **Do not approach within 200 yards**
- **Keep clear of the whales' path**
- **Stop engines if unexpectedly within 200 yards of whales**

Add'l guidelines to assist in adhering to the laws:

Human-powered craft

- Move inshore of whales; paddle near shore to keep clear of whales' path; avoid approaching within 200 yards.
- If unexpectedly approached by whales within 200 yards, stop paddling, group up and remain inshore.

Motorized & Sailing Vessels

- Move offshore of whales to keep clear of whales' path & avoid approaching within 200 yards.
- Respect the ¼ mile and ½ mile voluntary no go zones

Respect Marine Protected Areas and

Appendix H: Soundwatch Marine Wildlife Guideline and Law Incident Codes for Vessel Incident Observations (Page 1).

	FAST/SPEED	
2.0	speed	vessel traveling over 7 knots w/in **400y**/366m of whales, fast w/in 1/4 mile (**440y**/402m)
2.1	speed - approaching scene	vessel traveling over 7 knots w/in **400y**/366m of whales, fast w/in 1/4 mile (**440y**/402m)
2.2	speed - departing scene	vessel traveling over 7 knots w/in **400y**/366m of whales, fast w/in 1/4 mile (**440y**/402m)
	IN PATH	**NEW 2011 LAWS**
3.1A	In path 200-400 yds	w/in **200y**/183m corridor path in front of whales between **200-400y**/183-366m ahead of whales
3.3	In path - cross	crossing path of whales, vessel traveling across expected path **(200-400yds)**whales predictable
	APPROACH	
4.1	approach - head on	vessel approaching a whale/group head on w/in **200-400y**/181-366m when whales are traveling in a relatively predictable pattern
4.2	approach - behind	vessel approaching/traveling behind a whale/group w/in **200-400y/181-366m** when whales are traveling in a relatively predictable pattern
	W/in 100 YARDS/M	
5.1	**100y/91m - stopped**	**vessel stopped w/in 100y/91m of whales**
5.2	**100y/91m - under power**	**vessel under power w/in 100y/91m of whales**
5.4	100y/91m - fishing	vessel fishing w/in **100y/91**m of whales (did not attempt to move out of path of whales)
	W/in 200 YARDS/M	**NEW 2011 LAWS**
6.1	**200y/183m - stopped**	**vessel stopped w/in 200y**/183m **of whales**
6.2	**200y/183m - under power**	**vessel under power w/in 200y**/183m **of whales**
6.4	200y/183m - fishing	vessel fishing w/in **200y**/183m of whales (did not attempt to move out of path of whales)
7.0	**INSHORE**	vessel on the inshore side of whales, when whales are traveling close to shore (within 1/2 mile)
	AREA RESTRICTION	** Placeholder for WDFW Proposed New SLOW ZONE Guideline: NOT IN EFFECT as of June 2011**
40.1	area restriction - SJIVNBZ 1	vessel w/in **1/4mile** (**440y**/402m) of the SJI shoreline in the determined zone with whales present
40.2	area restriction - Lime Kiln	vessel w/in **1/2mile** (**880y**/808m) of shoreline 1mile radius of Lime Kiln Light with whales present
40.3	area restriction - NWR	vessel w/in **200y**/183m of U.S. National Wildlife Refuse (NWR) site
40.4	area restriction - RRER	vessel w/in **100y**/91m of any Race Rocks Ecological Reserve shoreline
40.6	area restriction - SJIVNBZ 2	vessel w/in **1/8mile** (**220y**/201m) of ANY shoreline with whales present
40.7	area restriction -SJI Slow Zone	vessel > 7 knots w/in **1/2mile** (880y/808m)SJIVNBZ with whales present **WDFW PROPOSED New Guideline**
	AIRCRAFT	
50.1	aircraft - low flying	aircraft flying lower than 1000feet (**333y**/305m)
50.2	aircraft - low circling	aircraft circling lower than 1000 feet (**333y**/305m)

Appendix H1: Soundwatch Marine Wildlife Guideline and Law Incident Codes for Vessel Incident Observations (Page 2).

60.1	**kayaks - spread out**	**kayaks not rafted up (spread loosely) when whales are present**
60.2	**kayaks - 100y/91m**	**kayaks paddling w/in 100y/91m of whales**
60.3	kayaks - launching	kayaks launching into area when whales are present
60.4	kayaks - offshore 1/4m	kayaks paddling farther than 1/4 mile (**440y**/402m) offshore when whales are present
60.5	**kayaks- parked on headland**	**kayaks parked on headland with whales present**
60.6	**kayak - 200y/183m**	**kayaks paddling w/in 200y/183m of whales NEW 2011 LAW**
	BOWRIDING	
20.1	bowriding - erratic	vessel operating in erratic fashion while engaged in bowriding
20.2	bowriding - deliberate	vessel deliberately attempting to have animal(s) bow/stern ride i.e. REPEATED CIRCLING
	HAULOUT	
30.0	haulout - speed	vessel over 7 knots w/in **200y**/183m of active haulout
31.2	haulout - no navigation restriction	vessel w/in **100y**/91m of an active haulout - no navigation restriction
32.0	haulout - disturbance	vessel w/in **400y**/366m of active haulout causing disturbance
32.1	haulout - disturb deliberate	any deliberate disturbance of active haulout
32.2	haulout - disturb maintain	disturbance with no attempt to move away from haulout
32.3	haulout - disturb but moved	disturbance but moved away
9.0	INTERACTION	swimming, feeding, touching wildlife DEFINE INTERACTIONS
10	Other: Define	something out of the ordinary or site specific DEFINE OTHER
8.0	TIME LIMIT	vessel is staying longer than 30 minutes w/in 1/4 Mi (**440y**/402m) of whales- record if only a few whales

Appendix I: Soundwatch Data Sheet Vessel Incidents.

Vessel Incident Log

Time 24hour	General Location Name/Dir/Distance	Lat Decimal Minutes	Long Decimal Minutes	Quad Pick one!	Vessel Codes NOVESSEL ID'S NEEDED		Incident Code #'s	Previous Contact: Yes/No?	Photos? Yes/No?	Comments on Situation:
					TYPE	ACT				

Appendix J: Soundwatch Data Sheet Vessel Count/Whale Survey.

DATE:

Weekend ☐

Weekday ☐

Holiday ☐

Boating

Time	Lat	Location Name:	Dir:	Distance:	Total Count:	Total Eco:	Total Priv:	Total: Kayak	Count: A B
Sea St.	Long	Quad:	Weather:	Visibility:	EU EC PM PS EK PK CA PA MM RP GW GN GD MW MX MY				OTHER DEFINE:
Pod: J Jp K Kp L Lp T		Vessel Activity?		Whale Cmt/Mmt					
Spp: DIR/NON DIR: N S E W				Fish					
Cnfg: CTC THT LOO SPRD SPRDGps=clc tht loo				Transit					
Frmtn: FLNK LIN NONLIN		Specific Bhvrs:		Rsrch NonWhale					
Spd: Mnls Slo Med Fst Porp				Enforce Active					
BhvrST: Trvl Rst Mill Socl				Acoustic >1/2mi					
Cmmnts:				Other Dscp:					

Appendix K: Soundwatch Whale Survey & Behaviors Codes for Whale Scans.

Species code	Species Name	Latin Name
oror (SR)	killer whale - **southern resident**	Orcinus orca
oror (T)	killer whale - **transients**	Orcinus orca
oror (NR)	killer whale - **northern resident**	Orcinus orca
esro	gray whale	Eschrichtius robustus
meno	humpback whale	Megaptera novaeangliae
baac	minke whale	Balaenoptera acutorostrata
bamu	fin whale	Balaenoptera musculus
phph	harbour porpoise	Phocoena phocoena
phda	Dall's porpoise	Phocoena dalli
laob	Pacific white-sided dolphin	Lagenorhyncus obliquidens
phvi	harbour seal	Phoca vitulina richardsi
euju	Stellar's sea lion	Eumatopius jubatus
enlu	sea otter	Enhydra lutris
brma	marbled murrelet	Brachyramphus marmoratus
syan	ancient murrelet	Synthliboramphus antiquus
arhe	Pacific great blue heron	Ardea herodias fannini

Configuration
Contact: physical contact
Tight: 0 to 10m from another animal
Loose: 10 to 100m
Spread: Greater than 100m

Orientation/Formation
Flank: side-to-side-to-side
Linear: head-to-tail
Non-linear: no particular orientation within group

Speed
Motionless: 0 knots, "hanging", "logging"
Slow: less than 2 knots, less smooth or "jerky" surfacing
Medium: 2-6 knots, slow roll, "normal"
Fast: 6-10 knots, fast roll
Porpoising: greater than 10 knots, large portion of body out of water

Common Behaviors		
Spy Hop	Aerial scan	Breach
Half breach	Bellyflop	Pec slap
Pec wave	Inverted pec slap	Tail wave
Tail Slap	Inverted tail slap	Tail lift-headstant
Dorsal fin slap	Cartwheel	Chasing
Lunging/surging	Rolling at surface	High arch dives
Reverse	Push/lift/carry whale	Playing with log / object
Kelping	Fish seen	Vocalization heard
Bubble blowing	Synchronous surfacing	Mating
Penis seen-whale w/another	Penis seen-whale alone	Other-describe

Direction of travel	
N	North
NW	SouthWest
NE	NorthEast
E	East
S	South
SW	SouthWest
SE	SouthEast
W	West

Directionality
Directional: less than or equal to 90deg from previous direction of travel
Non-directional: deviation of greater than 90deg from previous direction of travel

Species code	Species Name	Latin Name
oror (SR)	killer whale - **southern resident**	Orcinus orca
COOSE ALL THAT APPLY: J Jpartial K Kpartial L Lpartial List ID's If possible		
oror (T)	killer whale - **transients**	Orcinus orca
oror (NR)	killer whale - **northern residents**	Orcinus orca
esro	gray whale	Eschrichtius robustus
meno	humpback whale	Megaptera novaeangliae
baac	minke whale	Balaenoptera acutorostrata
phvi	harbour seal	Phoca vitulina richardsi

Common Behaviors/Overall Behavior State		
Spy Hop	Aerial scan	Breach
Half breach	Bellyflop	Pec slap
Pec wave	Inverted pec slap	Tail wave
Tail Slap	Inverted tail slap	Tail lift-headstant
Dorsal fin slap	Cartwheel	Chasing
Lunging/surging	Rolling at surface	High arch dives
Reverse	Push/lift/carry whale	Playing with log / object
Kelping	Fish seen	Vocalization heard
Bubble blowing	Synchronous surfacing	Mating
Penis seen-whale w/another	Penis seen-whale alone	Milling
Tail-Lob	Sharking	**Other-describe:**
Fast Non-Directional	Long-dives	
Behavior States: TRAVEL REST MILL SOCIALIZE		

Sea State	Effect of Combined Wind And Currents on Sea State
0	like a mirror (flat)
1	ripples form with the appearance of scales, but without foam crests
2	small wavelets, crests appear glassy, no breaking
3	larger wavelets begin to break, glassy foam, scattered white caps
4	small waves predominant but fairly frequent white caps
5	moderate waves, distinctly elongated, many white horses, chance of spray
6	long waves with extensive white foam breaking crests begin to form, spray likely
7	sea heaps up, white foam breaking waves start to be blown in streaks
8+	WHY THE HELL ARE BOATS STILL OUT THERE?

Configuration (Overall Group)
Contact: physical contact
Tight: 0 to 10m from another animal
Loose: 10 to 100m
Spread: Greater than 100m **Spread in Groups:** Distinct sprd groups

Formation (Overall Group)
Flank: side-to-side-to-side
Linear: head-to-tail
Non-linear: no particular orientation within group

Speed
Motionless: 0 knots, "hanging", "logging"
Slow: less than 2 knots, less smooth or "jerky" surfacing
Medium: 2-6 knots, slow roll, "normal"
Fast: 6-10 knots, fast roll
Porpoising: greater than 10 knots, large portion of body out of water

Direction of travel
Directionality
Directional: less than or equal to 90deg from previous direction of travel
Non-directional: deviation of greater than 90deg from previous direction of travel
N, NW, NE, E, S, SW, SE, W

Weather & Abbrv.
sunny **S**
sunny w/ partial clouds **SPC**
overcast - high **OCH**
overcast **OC**
foggy **FOG**
rain - light **RL**
rain - heavy **RH**

Appendix L: Soundwatch Marine Conditions & Vessel Codes for Vessel Counts.

Beaufort Scale	Mariner's Description	Wind Speed	Effect of Wind at Sea
0	calm	0-1	like a mirror (flat)
1	light air	1-3	ripples form with the apperance of scales, but w/out foam crests
2	light breeze	4-6	small wavelets, crests appear glassy, no breaking
3	gentle breeze	7-10	larger wavelets begin to break, glassy foam, scattered white caps
4	moderate breeze	11-16	small waves predominant but fairly frequent white caps
5	fresh breeze	17-21	moderate waves, distinctly elongated, many white horses, chance of spray
6	strong breeze	22-27	long waves with extensive white foam breaking crests begin to form, spray likely
7	moderate gale	28-33	sea heaps up, white foam breaking waves start to be blown in streaks, beginning of spindrift
8	fresh gale	34-40	
9	strong gale	41-47	
10	white gale	48-55	
11	storm	56-66	
12	hurricane	above 66	

Vessel Code	Description
CA	Commercial Aircraft
EA	Ecotour aircraft
EC	Ecotour Canadian
EK	Ecotour Kayak
EU	Ecotour US
PA	Private Aircraft
PK	Private Kayak/Paddle
PM	Private Motor
PS	Private Sail
MC	Marine Charter
MF	Marine Fishing
ML	Marine Tug with log barge
MM	Marine Monitoring
MQ	Marine Cruiseship
MW	Marine Tug with tow
MX	Marine Shipping
MY	Marine Ferry
GA	Government aircraft
GB	Government BC Parks
GC	Government Coast Guard
GD	Government DFO
GL	Government military
GN	Government NOAA
GO	Government
GW	Government WDFW
RP	Permitted Research

Visibility
none
poor
fair
good
excel

Weather
sunny
sunny w/ partial clouds
overcast - high
overcast
foggy
rain - light
rain - heavy

Location
Prominent Place Name
Direction:
N, NE, NW, E, S, SE, SW, W
Distance:
1/4 Mi, 1/2 Mi, 1 Mi, 2mi, 2+Mi

Vessel activity	
W	Whale Oriented
F	Fishing
T	Transiting
R	Research (whale oriented)
E	Enforcement
A	Acoustic Range
O	Other with description