

# **2011 SOUNDWATCH PROGRAM ANNUAL CONTRACT REPORT**

**Project Title:** Soundwatch Public Outreach/Boater Education Project.

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The Whale Museum

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**Contract Number:** **AB133F-07-CN-0221 Tasks 2.1.2 & 2.1.3**

**Contract Date:** Multi-year contract. Modification 7: July 1, 2011 through June 30, 2012

## **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 2011 killer whale watching season and to provide a data update to the **AB133F-07-CN-0221 2010** 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 2011 whale watch season and present a data update to the 2010 report on whale watching trends in the Haro Strait region to inform future management strategies.

The objectives of this 2011 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 2011 whale watching season; and to 2) conduct analysis on present whale watch data to provide an update to the 2010 Soundwatch Public Outreach/Boater Education Project report. In 2010 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 within the voluntary no-go zone along the west side of San Juan Island. These tasks were repeated in 2011.

In April 2011, NOAA Fisheries implemented new vessel regulations for 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 parking in the path of the whales. This report provides an evaluation of the effectiveness of the new regulations during the first year of implementation.

Data used for this update reflects data that was collected during operation of the Soundwatch Boater Education Program in 2011, including new vessel incident definitions related to the new 2011 US federal vessel regulations. This report depicts general trends in vessel based whale watching activities associated with Southern Resident Killer Whales (SRKW) in the Haro Strait Region of Washington State and Southern Vancouver Island, 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 and the systematic monitoring of vessel activities. 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 voluntary guidelines and the need to develop additional marine wildlife guidelines and/or regulations.

2011 Data collection consists of 1) counts of vessels near wildlife by type, location and activity; 2) wildlife/whale identification, location, travel direction and behavior states; 3) vessel contact information; 4) commercial and private vessel compliance with voluntary guidelines and/or regulations; 5) vessel behaviors in designated Marine Protection Areas (MPAs); and 6) counts of vessels launching from the San Juan Island County Park. Whale sightings, whale behaviors and MPA monitoring results are not covered in this report. All Soundwatch data on marine wildlife/whale 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 Reports. 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 2011 data sets in MS Excel. This update report on disposition of funds from Contract Number **AB133F-07-CN-**

**0221, Tasks 2.1.2 & 2.1.3**, 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 2011 whale watching season and provide data analysis updates to the 2010 update 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 2011 whale watch season, including kayaker outreach at the San Juan Island County Park;
- 2) Collect data on vessel activities during the 2011 whale watch season, including kayaker activities along the west side of San Juan Island and activities relative to the new 2011 US federal vessel regulations;
- 3) Conduct analysis on current whale watch activities including evaluation of new 2011 US federal vessel regulations;
- 4) Provide 2011 data updates to the 2010 Soundwatch Public Outreach/Boater Education Project Report.

**Project Results:**

The contract listed several deliverables including:

Task 2.1.2: Conduct on-the-water Activities July 1, 2011-June 30, 2012.

- 2.1.2a Provide the vessel and operational staff to conduct the on-the-water activities beginning July 1, 2011-June 30, 2012.
- 2.1.2b Contact boaters engaged in whale watching activities to provide information on regional Be Whale Wise marine wildlife guidelines, marine mammal regulations, and the Kayakers Code of Conduct; provide additional outreach to kayakers at the San Juan Island County Park.
- 2.1.2c Provide information on observations of possible violations of the marine mammal regulations to the NMFS Northwest Regional Office for Law Enforcement and/or Washington Fish and Wildlife Enforcement in support of possible investigation or enforcement action.
- 2.1.2d Provide summaries of outreach activities including dates when on-the-water and shore-based activities were conducted and hours of operation with monthly invoices submitted for payment.

Task 2.1.3: Conduct data analysis and report on present and historical compliance with whale watch guidelines and regulations.

- 2.1.3a Collect data on vessel compliance for the 2011 whale watch season to assess effectiveness of the Be Whale Wise Guidelines, the Kayakers Code of Conduct and new 2011 US federal regulations; conduct shore-based monitoring of kayaking activities with Southern Resident Killer Whales within the NOAA proposed No-Go Zone along the west side of San Juan Island.
- 2.1.3b Conduct analysis and provide an update to the 2010 report on vessel activities and vessel compliance under prior and new regional guidelines and regulations.
- 2.1.3c Provide a comparative report on past and present guideline/regulation compliance including information on vessels of different types and activities.

## Task 2.1.2: Conduct On-the-water Activities Summer Season 2011.

### 2.1.2a On-the-water and Shore-based Program Activities.

#### Soundwatch On-the-Water Vessel Patrol Effort:

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 to adjust or develop additional marine wildlife guidelines and/or regulations and to evaluate the effectiveness of newly implemented guidelines or regulations.

During the summer months of 2011 (May-September), Soundwatch operated vessel patrols to educate and monitor boaters an average of seven days per week. Soundwatch staff and volunteer crews spent a total of 110 days on the water between May 14, 2011 and October 1, 2011, totaling over 660 hours. A total of 104 days (573 hours) were dedicated to outreach and monitoring whale watching activities (Figure 1). Over the summer seasons (May-September) since 1998, Soundwatch has totaled more than 8,764 observational and outreach hours with vessels and whales in the Haro Strait region (Figure 2). In 2011, 1,170 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 and Southern Vancouver Island, British Columbia, Canada (Figure 3).

Figure 1: Distribution of Soundwatch On-the-Water Activities 2011.

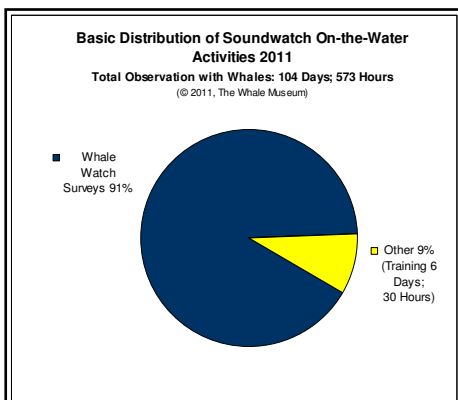


Figure 2: Distribution of Soundwatch On-the-Water Activities 1998-2011.

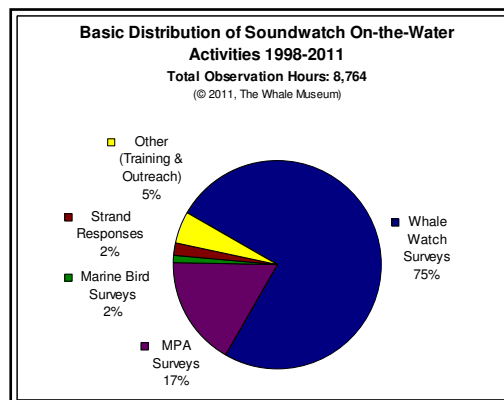
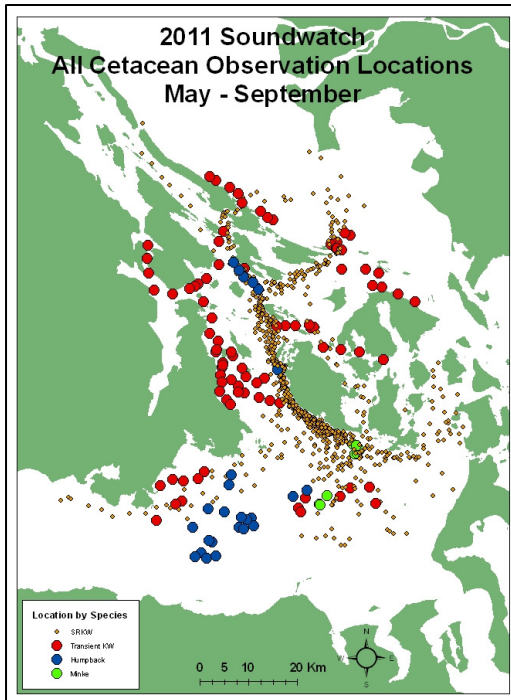


Figure 3: Soundwatch 2011, 1,170 Vessel Counts & Whale Surveys by Location and Species.



In addition to paid staff, the Soundwatch program relies on the help of many dedicated interns and volunteers. In 2011, 55 regular volunteers, including 4 academic interns, provided over 2,862 hours of volunteer time participating on Soundwatch vessel patrols, distributing educational materials and assisting with data entry and photo archiving. In 2011, volunteers assisted with 1,989 hours of vessel patrols and an additional 873 hours of shore-based outreach education, data entry and assistance with data analysis. In 2011, the Soundwatch program ran with a reduced staff (the program coordinator was eliminated) due to funding shortages. Program staffing included a full time director responsible for the implementation and administration of the Soundwatch vessel program, (along with two seasonal, part-time vessel driver/educators); and the shore-based KERP and kayak monitoring programs (along with two seasonal part-time researchers).

### **Kayak Education and Leadership Program (KERP) Shore-based Outreach Effort at the San Juan Island County Park**

The Soundwatch Kayak Education and Leadership Program, KERP, targets outreach to recreational and commercial kayakers. In 2010, the Soundwatch KERP Program was contracted to assist with planning and implementation of a new seasonal vessel launch permit, a 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 and implemented the outreach program and a self-reporting data collection system designed by the KERP program. In 2011, KERP 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. The 2011 updates to the Kayakers Code of Conduct were based on the new US federal vessel regulations and feedback from the 2010 KERP educators, the San Juan Island Kayakers Association and Soundwatch 2010 kayak monitoring trends. The intent of the training and permit program is to better educate all vessel operators launching from the park on the laws and best practice guidelines for marine wildlife, focusing on endangered Southern Resident Killer Whales. In 2011, the Vessel Code of Conduct Training was done as an automated slide show conducted as needed by park staff from 8 am to 8 pm, daily. 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, with assistance from KELP staff. All data was processed and analyzed by The Whale Museum's Soundwatch/KELP program staff.

### 2.1.2b Contact boaters engaged in whale watching activities to provide information on regional Be Whale Wise Guidelines for Boaters, Paddlers and Viewers; marine mammal regulations, Kayakers Code of Conduct and whale watch etiquette.

#### Soundwatch On-the-water Outreach to Vessel Operators

When Soundwatch crews encounter vessels traveling in known whale or other wildlife areas, they politely contact the boater and provide marine wildlife viewing guidelines, regulations and localized Marine Protection Area (MPA) information. Soundwatch currently distributes the 2011 updated Be Whale Wise Marine Wildlife Guidelines for Boaters, Paddlers and Viewers (Appendix A & A1), the new 2011 US Federal Vessel Regulations for Killer Whales (Appendix B & B1), and a Soundwatch Boater Education Program brochure entitled Whale Watching in the Salish Sea with localized MPA information and maps including the San Juan County Marine Stewardship Area, the San Juan National Wildlife Refuge and the Haro Strait Voluntary No Motor Boat Zones for Whales (Appendix C). When the Soundwatch patrol vessel crew encounters kayakers that are easily approached, educators highlight the special concerns for kayakers paddling around marine wildlife and include the updated 2011 Kayakers Code of Conduct (Appendix D) brochure in the materials given out.

Plotting annual locations of Soundwatch vessel contacts can be used as an overall indicator of effort and vessel and whale use patterns in the designated summer core habitat for SRKW (Figures 4 and 5). The busiest vessel contact areas by Soundwatch in 2011 tended to be within a half mile near shore along the West side of San Juan Island (Zone 1- the NOAA proposed vessel restriction area), outside of a half mile along the West side of San Juan Island and north into Haro Strait (Zones 2, and 5), San Juan Channel and Southern Haro Strait (Zones 3 and 4), Southern Rosario Strait (Zone 8) and in Canadian waters of Swanson Channel & Boundary Pass (Zones 16 and 17) (Figures 4 and 5).

Figure 4: 2011 Soundwatch Vessel Contacts By Monthly Location Map.

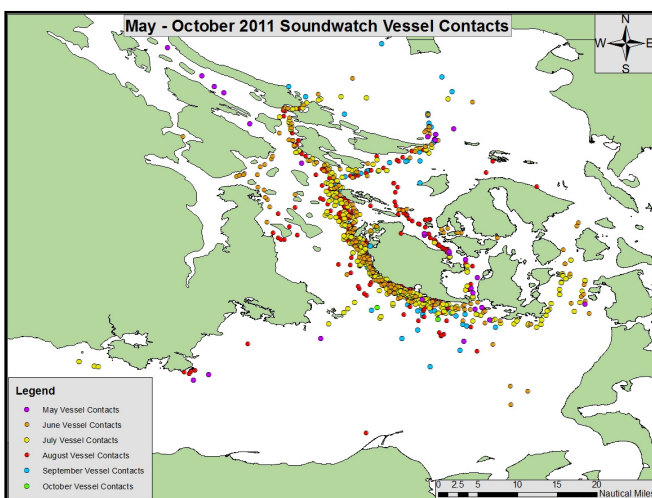


Figure 5: 2011 Soundwatch Vessel Contacts By Numbered Zone Map.

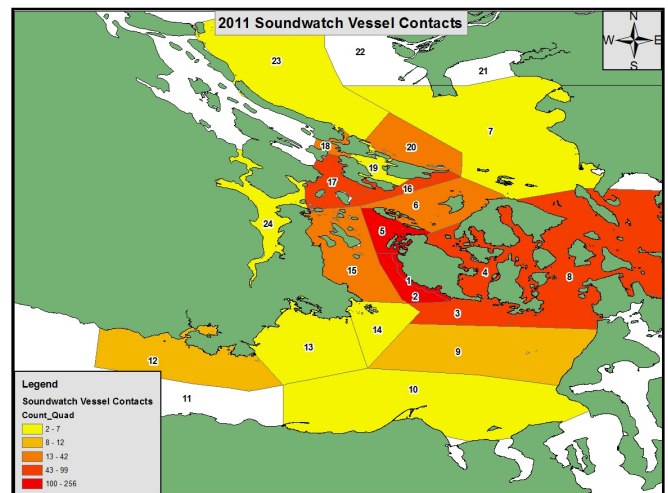


Figure 6: Soundwatch Private Boat Monthly Contacts 2001-2011, May-September.

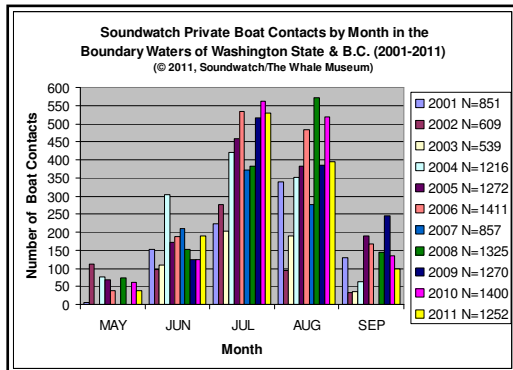


Figure 7: Soundwatch Private Boat Monthly Contacts 2011, May-September.

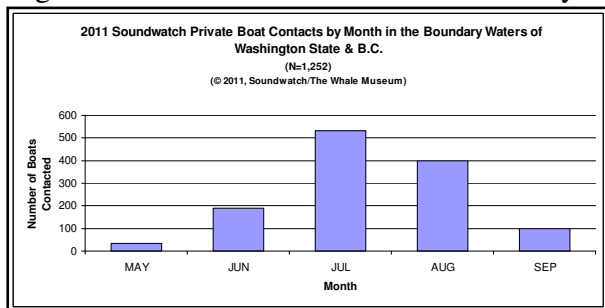


Figure 8: Soundwatch Number of People Contacted per Vessel 2001-2011, May-September.

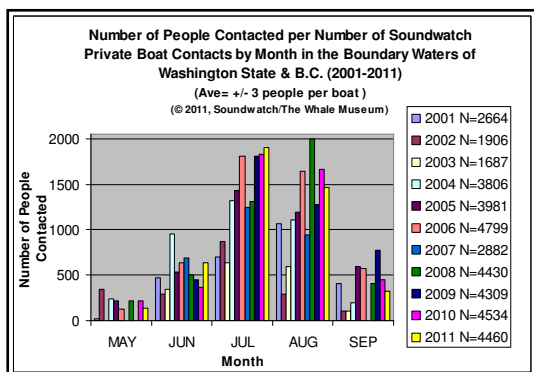
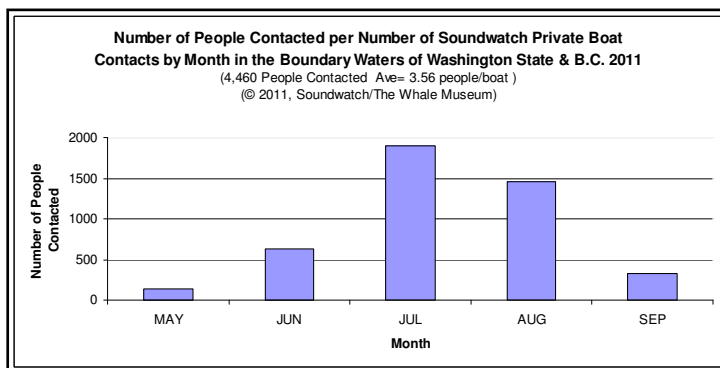


Figure 9: Soundwatch Number of People Contacted per Vessel 2011, May-September.



During the 2011 seasonal patrols on the water, Soundwatch delivered Be Whale Wise, new vessel regulations for killer whales, and localized information on MPA's to over 1,252 vessels reaching over 4,460 recreational boaters (Figures 6-10). The average number of persons per vessel contacted by Soundwatch in

2011 was 3.56 (Figure 9). This average is consistent with previous seasons, 2001-2010, at nearly 3.3 persons per vessel (Figure 8).

Soundwatch looks at previous year's contact data as well as vessel counts to assist with future program planning to target busy times for the following season. Soundwatch shares this information to effectively plan collaboration efforts with other monitoring programs and government enforcement agencies. Consistently the busiest months for recreational boaters have been in July and August (Figures 6-9). Peak hours tend to be between 1100 hours and 1600 hours with higher overall numbers in the afternoon. Soundwatch private vessel contacts 2001-2011 reflect this overall trend (Figures 10-12).

Figure 10: Soundwatch Daily Distribution of Private Boat Contacts 2001-2011, May-September.

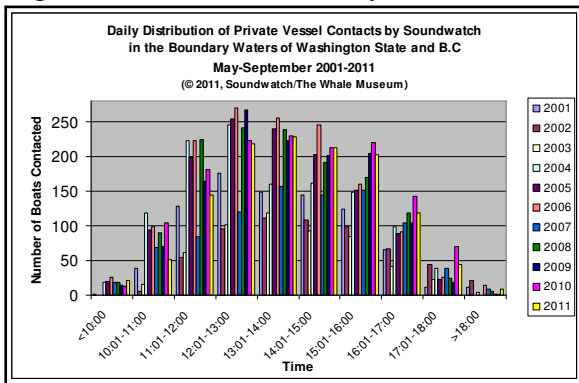


Figure 11: Soundwatch Daily Distribution of Private Boat Contacts 2011, May-September.

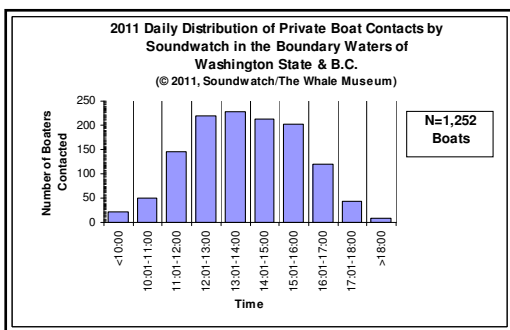
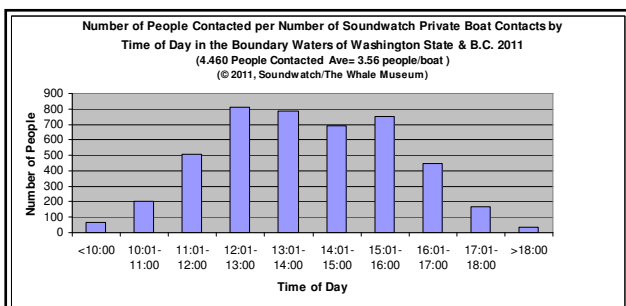


Figure 12: Soundwatch Daily Distribution of People Contacted per Vessel Contact 2011, May-September.



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 E). 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; had 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 Soundwatch contacted them, if so the time of the incident is recorded; if there were photos of this vessel, and any other relevant comments.

In 2011, 62% of vessels contacted by Soundwatch were whale oriented (already watching whales) followed by contacts of vessels transiting in areas with whales at 32% and vessels engaged in fishing at 5% of contacted vessels (Figure 13). It should be noted that while vessels engaged in fishing account for 23% of vessel activities recorded near whales (Figure 48), Soundwatch often does not go inshore or amongst whales to contact fishing vessels so as not to get too close or inshore of whales, or get tangled up in fishing gear while vessels are trolling, etc. Therefore, Soundwatch does not contact the majority of vessels near whales that are engaged in fishing for safety and logistical reasons. The majority of the time (71%) vessels are contacted by Soundwatch to *Provide Education* while they are already engaged in whale watching activities, followed by 19% being contacted to *Prevent a Likely Incident* by intercepting their transit into areas with whales, with 10% of vessels being contacted for *Follow-up from an Incident* (Figure 14). Often times vessels with recorded vessel incidents occur inshore of whales with the vessel traveling at high speeds, making it unfeasible for the Soundwatch crew to pursue making contact with the vessel. When vessel operators are contacted, 22% respond enthusiastically (*Excellent*) about the contact and program, 56% are recorded as having a *Good* overall response, 19% a *Fair* or neutral response and a minority, 3%, of vessel operators have a *Poor* or negative 1% (*Bad*) response when contacted by the Soundwatch vessel crew (Figure 15).

Figure 13: Vessel Activity Percentages of Private Boaters Contacted by Soundwatch 2011, May-September.

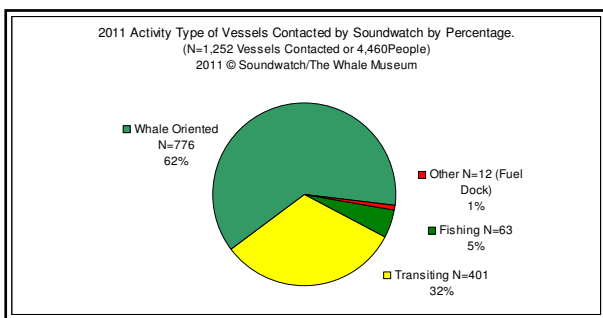


Figure 14: Percentage of Primary Reasons Private Boaters were Contacted by Soundwatch 2011, May-September.

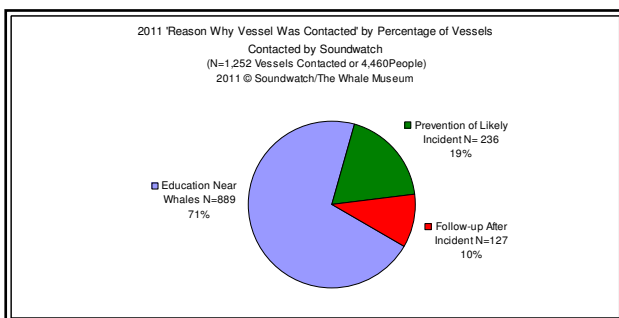
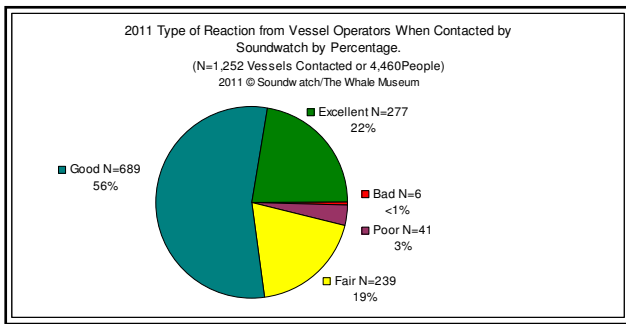


Figure 15: Percentage of Reaction Types from Private Boaters Contacted by Soundwatch 2011, May-September.



In 2010, and again in 2011, only 11% of contacted vessels had passengers who responded that they had previously been contacted by Soundwatch, which suggests that around 89% of contacts may have been new vessel contacts (Figure 16). Just over half of the time (54%) when contacted, people on board did not take the educational materials provided and responded that they were *Aware* of the information, while the remaining 44% of contacted boaters *Did* take the information, with 60% responding that they were *Aware* of the information and 40% indicating that they were *Unaware* (Figure 17), suggesting that more boaters than not may be aware of the rules. Of the 699 boaters (54%) who *Did Not* take the educational materials provided, 36% responded that they '*Already Had It*' and were '*Aware*' of the rules; 34% of the time the boaters did not take the materials because they were registered in Canada and/or had Canadian clearance status, of those, 39% responded that they were *Aware*, 61% that were *Unaware*; 7% who did not take the information had fishing gear or sailing rigging that made it too difficult to hand over the information, of those, 53% responded that they were *Aware*, 47% that they were *Unaware*; 14% of the time the weather conditions prevented a hand-off or there was not enough time (i.e. whales were fast approaching or the vessel did not slow down for Soundwatch to hand off information), in those cases, 31% responded they were *Aware* of the info and 69% were *Unaware*; the remaining 9% of the people contacted who did not take the information refused to take it from the Soundwatch crew who offered, with 45% responding they were already *Aware* and 55% who were *Unaware* but did not want the information (Figure 18). It should be noted that even though a boater did not take the information (for whatever reason), information on whales and rules was always provided verbally, in context to the current situation. In some cases, those boaters who did not take the information were also contacted via VHF marine radio and were given the information in more detail.

Of the 1,252 vessels contacted by Soundwatch in 2011, 73% (166) of the vessels had one or more incidents recorded before the Soundwatch vessel could contact them and 27% (60) of the vessels had one or more incidents recorded after the Soundwatch crew had contacted them (Figure 19).

Figure 16: Percentage of Previously Contacted Private Vessel Operators 2011, May-September.

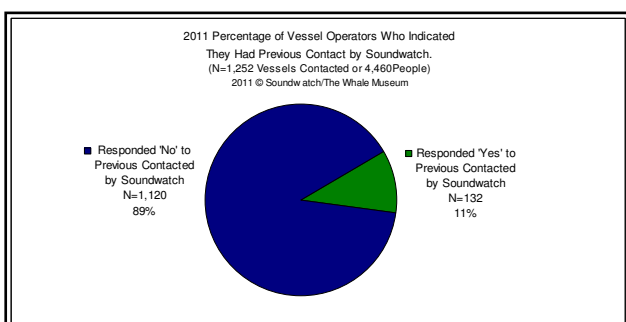


Figure 17: Percentage of Contacted Private Vessel Operators Who Did Not Take Soundwatch Information 2011, May-September.

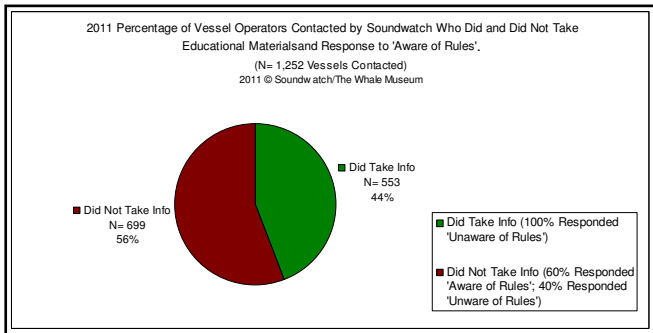


Figure 18: Percentage of Reasons Why Private Vessel Operators Did Not Take Soundwatch Information 2011, May-September.

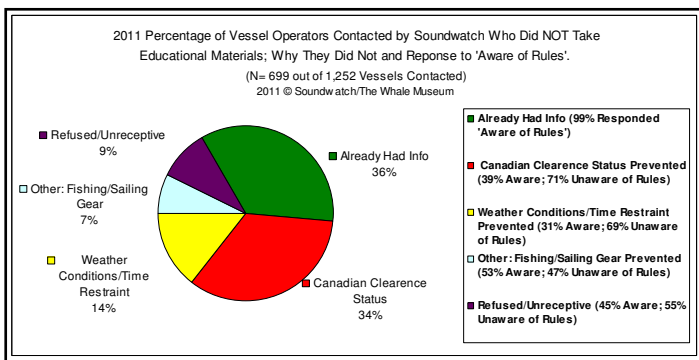
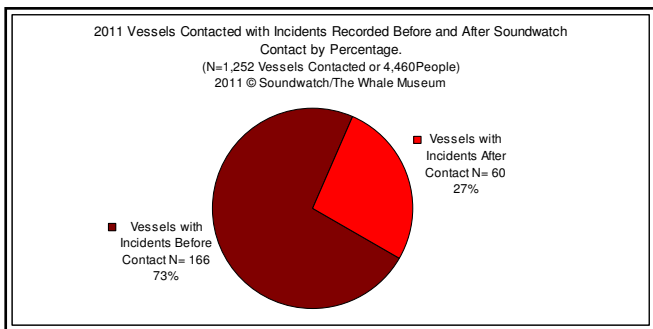


Figure 19: Percentage of Private Vessels with Recorded Vessel Incidents Before and After Soundwatch Contact 2011, May-September.



## Soundwatch Shore-based Outreach

In addition to the on-the-water outreach, over 5,000 of the new 2011 Be Whale Wise brochures and 200 posters as well as 5,000 new Federal Rules rack cards and 250 posters were distributed in 2011 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 20,000 museum visitors and education program participants. In addition, materials were given to over 3,000 Whale Museum members and adopters through The Whale Museum's Orca Adoption Program.

In the spring of 2011, Soundwatch staff mailed educational materials including the new Be Whale Wise

and Federal Rules brochures and posters to marinas and boating facilities who responded positively to previous comprehensive mailings to all boating facilities in the inland waters of the state. Over 150 state parks and boating facilities throughout the San Juan Islands; from Whidbey Island and La Conner north to Blaine, and out the Olympic peninsula to Port Angeles and Sequim, received guideline and law materials. Soundwatch staff again worked with Washington State Ferries (WSF) to obtain approval for posting Be Whale Wise and State Law materials on all WSF ferries and waiting rooms in the system. Funding was available through NOAA Fisheries to include the new 2011 Federal Vessel Regulations for Killer Whales and an updated Be Whale Wise message in the 2011-2012 Washington State Sport Fishing Rules Pamphlet. In addition, a small ad was included in the Marine Area 7 (San Juan) section with a web site address directing people to the Washington Department of Fish and Wildlife Killer Whale page.

Soundwatch Stewardship Trainings were conducted for WSU Beach Watchers, the US commercial whale watch drivers, San Juan Island commercial kayak guides, the Salish Sea Association of Marine Naturalists, both of The Whale Museum's Marine Naturalist Training Programs, and for new and returning Soundwatch and KELP volunteers and interns. Additional Marine Wildlife Viewing presentations were given to the San Juan Power Squadron, the Anacortes Yacht & Sailing Clubs, the University of Washington undergraduate students at the Friday Harbor Labs enrolled in a Social Science and Policy semester class, new students in the School of Marine and Environmental Affairs graduate program and to undergraduate students enrolled in the Fall and Spring sessions of the Beam Reach Sustainability and Killer Whale Acoustics 8- week field course.

Soundwatch provided 2 summary feedback reports to member companies of the Pacific Whale Watch Operators Association (PWWA) (one Mid Season Summary from mid-May through mid-July and an End of Season Summary mid-May through the end of September). 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 both the Soundwatch vessel incident recording protocols as well as the feedback reporting process in 2011 based in part on feedback from the whale watch industry concerned 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, 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 and therefore 2011 Soundwatch feedback reports contained only observed generic (no vessel identification, vessel type included) US and Canadian commercial operator *vessel incidents*. Generic summary reports were also sent to agency partners within NOAA Fisheries Enforcement, DFO Enforcement, WDFW Enforcement and monitoring partner, Straitwatch out of Victoria, B.C., Canada. The Whale Museum updated the Soundwatch Program web page to include new postings of the Feedback Summaries as well as previous years' Feedback Archives, new Soundwatch presentations, annual reports, ways to report 'bad boaters', all guideline and law materials and a link to The Whale Museum's Responsible Whale Watching Choices Brochure and the regional Be Whale Wise site. More information on the Soundwatch Program can be found at <http://www.whalemuseum.org>.

### **KELP Program Shore-based Outreach to Kayakers and Boat Launch Users at the San Juan County Park.**

The Soundwatch Kayak Education and Leadership Program, KELP, targets outreach to recreational and commercial kayakers to better educate kayakers on the laws and best practice guidelines for marine wildlife, focusing on endangered Southern Resident Killer Whales. In 2011, the San Juan County Park administered the

permit system and implemented an outreach program and a self-reporting data collection system designed by the KELP program in 2010. In 2011, KELP 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. The 2011 updates to the Kayakers Code of Conduct were based on the new US federal vessel regulations and feedback from the 2010 KELP educators, the San Juan Island Kayakers Association and Soundwatch 2010 kayak monitoring trends. In 2011, the Vessel Code of Conduct Training was done as an automated slide show conducted as needed by park staff from 8 am to 8 pm, daily. More information on the KELP program and on the San Juan County Park Vessel Launch Permit program can be found at <http://www.whalemuseum.org>.

### San Juan County Park Recreational Vessel Launch Permit Procedure

All recreational vessel operators, regardless of vessel type, were required to obtain a vessel launch permit (Appendix H) between May 31 and September 5, 2011. Attendance of the Vessel Code of Conduct Training was needed to obtain a permit. This 13-minute, automated slide show presentation was given, on demand, by park staff daily between 8 am and 8 pm. Recreational users were given a colored tag to be placed on the bow of their vessel to identify having received their permit. The tags were color coded: pink for day use, orange for registered campers and green for seasonal permits. The associated permit fees were \$7 per vessel for day use, \$7 per vessel and good for the duration of one's stay for registered campers and \$35 per vessel for seasonal permits. Permit fees were waived for individuals with a San Juan County driver's license and/or voter registration card, which was meant to demonstrate their primary residency, was local to the county. Individuals were given educational materials including the new Be Whale Wise guidelines (Appendix A), new federal vessel laws for Killer Whales (Appendix B), the Soundwatch Whale Watching in the Salish Sea brochure (Appendix C), which includes a map of the San Juan County Marine Stewardship Area, and the Kayaker Code of Conduct (Appendix D). Permit holders were also asked to sign their vessel out prior to each launch using a Recreational Launch Sign-Out Sheet (Appendix F). The purpose of the sign-out sheet was to gain needed data on the recreational use of County Park boat launch facilities.

### San Juan County Park Commercial Vessel Launch Permit Procedure

Commercial kayak tour companies launching and/or landing at County Park currently operate under two types of permits: use permits, with an associated yearly fee; and launch permits, with a per guest fee. In the 2011 season the commercial companies had to comply with additional launch permit terms in order to utilize County Park vessel launch facilities. All commercial companies were required to identify all their company specific kayaks with a disc identifying the company at least 5" in diameter and placed within 2" of the deck/hull seam and within 12" of the bow. The purpose was to distinguish commercial groups from private kayakers, as well as to identify individual companies. All guides and guests were also required to attend the Vessel Code of Conduct Training. There were two ways to comply with this term. Companies could opt to have guides and guests attend the Vessel Code of Conduct Training at park prior to launching. Alternatively, guides could attend a Kayaker Code of Conduct Guide Training. Attendance of the guide training resulted in being placed on the Park's Approved Guide List. All guides were required to use a Commercial Launch Sign-Out/Sign-In Sheet (Appendix G) prior to their launch and sign in upon return. This provided the park with accurate numbers of guests, from which they billed the company for their per guest vessel permit fee.

Table 1: Number of KELP Educator Presentations to Permit Holders at the San Juan County Park to Recreational Boaters

RECREATIONAL Boaters	Vessel Launch Permits Issued	Individuals Trained for Launch Permit
June	106	198
July	211	438
August	171	292
September	29	47
TOTAL	517	975

In 2011 there were 517 recreational vessel launch permits issued to 975 people associated with the issued permits for a total of 975 people having attended a Vessel Code of Conduct Training as reported by park staff (Table 1). The numbers of permits issued was lower than in 2010, and may in part reflect a shorter seasonal permit requirement for 2011 (May 31-Sept. 5) than in 2010 (May 1-September 30) Unfortunately, there is no park launch data previous to 2010 to compare beyond the 2 years. Anecdotally, the park staff commented that there were less recreational vessels launched the past 2 summers, than were witnessed over the past several years. Park staff speculate as to whether the permit system has turned away would be kayakers, or if the windy and cold weather over the past 2 seasons were just not good for kayaking.

Figure 20: San Juan County Park Vessel Launch Permit Percentages by Permit Type.

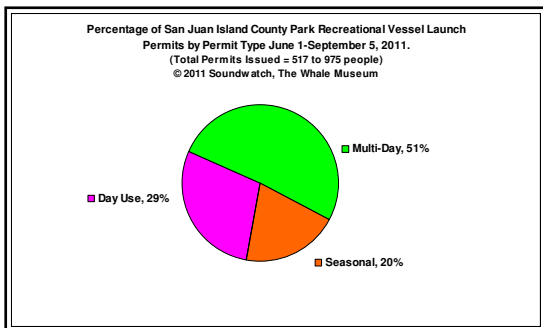


Figure 21: San Juan County Park Vessel Launch Permit Percentages by Permit Type with Fees Collected VS. Not Collected.

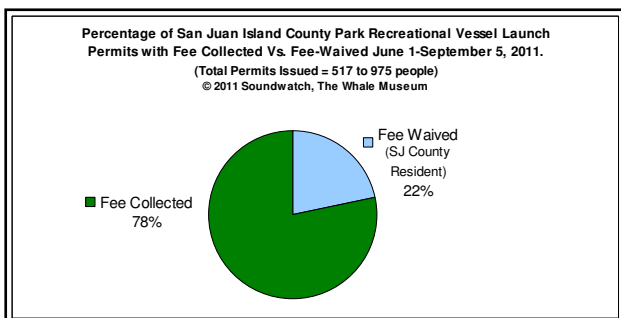


Figure 22: San Juan County Park Vessel Launch Permit Percentages by Permit by Campers VS. Non-Campers.

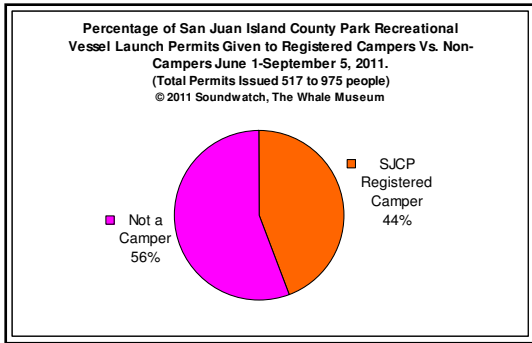
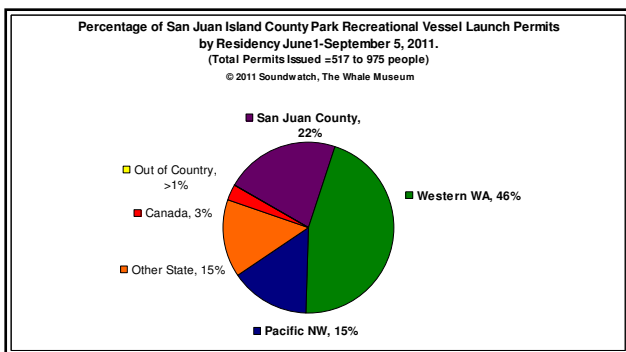


Figure 23: San Juan County Park Vessel Launch Permit Percentages by Permit by Residency.



Three recreational permit types are available: day use, multi-day registered camper and seasonal. The majority of permits, 51%, were issued to multi-day registered campers, while 29% were day use and 20% were seasonal permits (Figure 20). Just over half, 54%, of the permits went to the non-camper demographic (Figures 20, 22). Nearly all of seasonal permits were issued to San Juan County residents, whose per vessel fee was waived (Figures 20 and 21). The remainder of the public, 78%, paid fees for using County Park launch facilities.

The majority of the public, 46%, utilizing the park launch facilities between May and September 2010, reside within Western Washington (Figure 23). Many others, 15%, were located with the Pacific Northwest region, which we defined as: Washington, Oregon and Northern California. A total of 22% were identified as San Juan County residents.

The predominant vessel type permitted at County Park in 2011 were kayaks totaling 87% of all permits issued (Figure 24). The remaining 13% of vessel types included small motor boats at 10% and a variety of other human-powered craft.

Figure 24: San Juan County Park Vessel Launch Permit Percentages by Permit by Vessel Type.

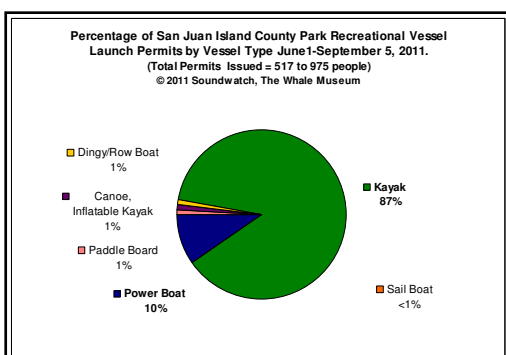




Figure 25: Total Permitted Vessels Launched From The San Juan County Park.

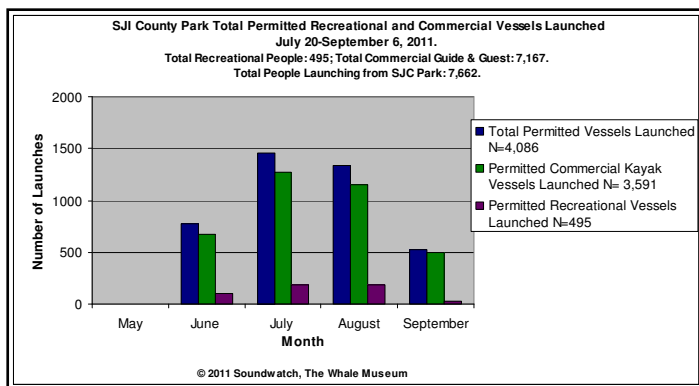


Table 2: All San Juan County Park Permitted Vessel Launch Numbers.

Permitted Launches	Commercial Trips	Commercial Vessels Launched	REC Trips	REC Vessels Launched	Total Trips	Total Vessels Launched
June	168	671	99	99	267	770
July	273	1,270	188	188	461	1,458
August	280	1,155	180	180	460	1,335
September	113	495	28	28	141	523
TOTAL	834	3,591	495	495	1,329	4,086

A total of 1,329 trips were documented at County Park during the 2011 season (Table 2). Of those, 834 were commercial kayak company trips which had 3,591 associated vessels; 495 recreational trips took place with 495 vessels. A grand total of 4,086 vessels were recorded as launched between May and September with July and August having the greatest number of trips and launched vessels (Figure 25). When trips and associated vessels launched are compared, it can be seen that most recreational trips were often one or two vessels. The Vessel Code of Conduct training log data confirms that often two people comprised a group with either a double kayak or two single kayaks being launched for a given recreational trip.

Table 3: All San Juan County Park Permitted Recreational Vessel Launch Numbers by Vessel Type.

RECREATIONAL	Total Trips	Total Vessels Launched	Total People	Kayak	Motor / Sail Boat	Other Human Powered Craft
June	267	99	99	80	14	3
July	461	188	188	148	40	12
August	460	180	180	158	22	0
September	141	28	28	25	3	0
TOTAL	1,333	495	495	411	79	15

Kayaks were the main recreational vessel type launched with a total of 411 out of 495 total launches (Table 3). July and August saw spikes in motorized craft, due in large part to excellent fishing conditions. August was the busiest month for kayak launches with 158 recorded. Note launch numbers are self-reported through Recreational Sign Out sheets that the public was responsible for completing; it is likely there were launches that took place that were not documented, thus these launch figures are probably underestimated. With self-reporting, 495 people were recorded as launching from 495 vessels.



Table 4: All San Juan County Park Permitted Commercial Vessel Launch Numbers\* (\*All 2011 commercial launches were kayaks and the commercial launch permit ran May-September).

COMMERCIAL	Total Trips	Total Vessels Launched	Total Guides	Total Guests	Total People
May	40	168	54	227	281
June	168	671	233	974	1,207
July	273	1,270	374	2,009	2,383
August	280	1,155	323	2,060	2,383
September	113	495	134	779	913
TOTAL	874	3,759	1,118	6,049	7,167

In 2011 (May-September) 874 commercial trips were recorded with 6,049 associated guests and 1,118 guides totaling 7,167 people (Table 4). Commercial launch data was obtained through the County Park Commercial Company self reporting Sign-out/Sign-in sheets. These numbers were slightly higher than the overall 2010 number of 6,900 commercial guides and guests. Some trips had multiple guides due to the numbers of guests. July and August had the greatest number of trips and therefore the highest volume of vessels launched. As noted previously, commercial trips by nature often had significantly higher group sizes, meaning more kayaks, than recreational trips. A target group size for many companies appears to be one guide with eight guests.

A total of six commercial kayak tour companies received the required County Park commercial use and launch permits. Three of the companies utilize the park as their primary launch spot. Typically, San Juan Island-based companies meet their guests at the ferry terminal in Friday Harbor and return them there after the trip; therefore the ferry schedule influences company operations. Companies tend to arrive, launch and depart the park at roughly the same time for day trips and overnight trips. The customary day trip from the park is to travel south past Lime Kiln State Park, have lunch at Dead Man's Bay (property of San Juan County Land Bank with outhouse facilities) and then return to the County Park. Overnight trips depart traveling north bound, typically en route to Washington State Park's at Stuart Island, Posey or Jones Islands.

**2.1.2c Provide information on observations of possible violations of the marine mammal regulations to the NMFS Northwest Regional Office for Law Enforcement in support of possible investigation or enforcement action.**

Annually Soundwatch provides fisheries enforcement agencies with annual commercial whale watch vessel identification guides and contact information. Soundwatch also provides a calendar of regional marine related events as well as previous Soundwatch vessel count and contact numbers by date, time, location and activity to assist in the planning of enforcement patrols to target busy times and locations. Soundwatch assists with whale location information and works cooperatively with the Washington Department of Fish and Wildlife (WDFW) Enforcement, NOAA Fisheries Enforcement, Canadian DFO Fisheries Enforcement and occasionally the San Juan County sheriff's department and the US Coast Guard during their vessel patrols with whales.

There were limited numbers of vessel patrols conducted by the Washington Department of Fish and Wildlife (WDFW) Enforcement, NOAA Fisheries Enforcement, and the San Juan County sheriff's department in 2011. However, no information on enforcement activities was provided to Soundwatch at the time of compiling this report.

Over the 2011 viewing season, Soundwatch staff witnessed 1,652 *vessel incidents* that were possible violations of both the new 2011 federal vessel regulations and/or the Washington State vessel regulations for killer whales, and/or MMPA and ESA laws as well (Table 7). Of these 1,652 *vessel incident* observations, 628

incidents involved vessels either motoring or stopped within 0 to 100-yards of killer whales, 761 observations involved vessels either motoring or stopped within 100 to 200-yards of killer whales, and an additional 263 observations were of vessels parked in the 200-400 yards on-coming path of killer whales. Of these Soundwatch observed incidents, the vast majority of all incident types were committed by private recreational vessels.

Soundwatch has been asked by US and Canadian enforcement agencies to forward observations of possible law violations to the appropriate agencies. In 2011, as in the past several years, Soundwatch has forwarded periodic summaries of Soundwatch observed *vessel incidents* to enforcement agencies. In addition, Soundwatch responded to 11 complaints (a dramatic decline from the 57 complaints received in 2010) from the public and members of the commercial whale watch industry via The Whale Museum's public hot-line, email, phone and VHF marine radio calls regarding observations of possible vessel regulation infractions committed by recreational and commercial whale watch and fishing vessels. Soundwatch conducted phone or email follow-up with these individuals and encouraged each of them in turn to forward their information and photographs to the appropriate US or Canadian enforcement agencies. When the Soundwatch staff received complaints from the public or commercial whale watch operators regarding commercial whale watch vessels, information on that company was given to the public for them to contact the owner of the company and the company owner was notified that a complaint was received about a company vessel.

In some cases, Soundwatch staff has felt that the vessel incidents they witnessed were egregious behaviors that warranted filing an elevated *Serious Incident* report on possible violations of the marine mammal regulations. Soundwatch staff members use a *Serious Incident Form* generated by Soundwatch to record and report these types of more serious observations (Appendix I). In 2011, Soundwatch reported one possible *serious incident* with Southern Resident Killer Whales in US waters.

The Series incident report was filed on August 26, 2011, after the Soundwatch driver received a distress call from a commercial whale watch driver who claimed to have just witnessed a private boater hitting a Southern Resident Killer Whale off the west side of San Juan Island. Soundwatch responded to the call immediately and interviewed both the whale watch driver and the driver of the private vessel. Soundwatch then monitored the whale which was spending a lot of time motionless on the surface, with bouts of slow travel, several miles behind the whales' family group. Soundwatch then coordinated with state and federal management and enforcement agencies, the commercial whale watch industry, killer whale researchers and monitoring partner Straitwatch. Soundwatch spent the rest of the day working with Straitwatch to keep a ¼ mile perimeter free of boat traffic, while the researchers stayed with the whale in question. The evidence was inconclusive as to whether or not the whale was actually hit by the vessel in question, or perhaps a different vessel, but it was determined that something unusual was occurring with the whale exhibiting abnormal behaviors. Soundwatch staff coordinated with monitoring, research and enforcement groups on the water throughout September and October to keep an eye out for this whale and created a monitoring protocol and form that was shared with all groups (Appendix T, *L90 Monitoring Form*).

#### **2.1.2d Provide summaries of outreach activities including dates when on-the-water activities were conducted and hours of operation with monthly invoices submitted for payment.**

Invoices for documented outreach and monitoring efforts were routinely submitted to NOAA throughout the season for payment of contract funds for the stated activities.

#### **Task 2.1.3: Conduct Data Analysis and Report on Present and Historical Compliance with Whale Watch Guidelines and Regulations.**

##### **2.1.3a Collect data on vessel compliance for the 2011 whale watch season to assess effectiveness of the Be**

**Whale Wise Guidelines, the Kayakers Code of Conduct and federal and state vessel regulations for killer whales; conduct shore-based monitoring of kayaking activities with Southern Resident Killer Whales within the NOAA proposed No-Go Zone along the west side of San Juan Island.**

During on-the-water patrols, the Soundwatch crew monitors commercial whale watch operators, recreational boaters and other vessels to record compliance with current best practice guidelines and laws. Using a set of incident definitions previously agreed upon with US and Canadian management agencies, monitoring programs and commercial whale watch operators, perceived contradictions are recorded as *vessel incidents* (Figure 26). A *vessel incident* is defined as an operator of a commercial whale watch vessel, private vessel, kayak or other vessel type, operating contrary to the current Be Whale Wise Guidelines, the Kayaker Code of Conduct, and/or local, state and federal vessel regulations. *Vessel incidents* are observed and recorded using the agreed upon standardized codes, including new vessel incident categories used in 2011 to reflect new US federal vessel regulations (Appendix J & J1). In some cases these incidents may also be violations of U.S. and/or Canadian marine mammal regulations, federal and state vessel regulations for Southern Resident Killer Whales and/or other marine mammal protection restrictions.

Vessel incidents are recorded on a Soundwatch *Vessel Incident data sheet* whenever Soundwatch staff observes a perceived incident (Appendix K). In response to concerns that Soundwatch was potentially serving as defacto law enforcement, in 2011 vessel incident data collection protocols changed to not record a vessel's name or registration during an observed *vessel incident*, only the vessel type and activity (commercial as well as recreational or other vessel types). The date, time, location (including lat/long, fisheries quad and exact name location) are recorded as well as the type of incident(s). Notation is made if video or photos were taken and if a laser range finder was used to estimate the distance to wildlife. Any special considerations or needed follow-up is indicated in a comments field. In the case that extreme or egregious vessel operator behavior is witnessed by Soundwatch staff, incident information, including specific vessel identification, is forwarded to the appropriate enforcement agencies.

**2.1.3b Conduct analysis and provide report on vessel activities and vessel compliance under prior and new regional guidelines.**

Data collected on vessel numbers, types and behaviors since 1998 has provided the basis for Soundwatch to characterize Southern Resident Killer Whale vessel viewing trends in the Haro Strait region and provide its findings to the whale watch industry, various stakeholders and regional marine managers to best characterize past and present whale watching trends and to provide a basis for whale watch management strategies.

**Soundwatch Vessel Based Patrols**

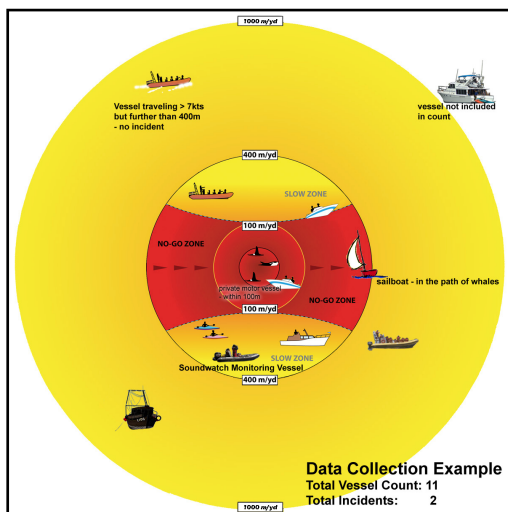
Soundwatch vessel monitoring is conducted continuously to determine vessel activities around whales including commercial and private vessel compliance to the voluntary guidelines and regulations. *Vessel incidents* are recorded opportunistically as they are observed. Through continuous monitoring, new vessels arriving on scene are observed and contacted by Soundwatch opportunistically as time and safety to whales allow. Every time a vessel is contacted, specific contact information is recorded on a *Soundwatch Vessel Contact data sheet* (Appendix E). 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 L). 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 US and Canadian management and research agencies as well as both the monitoring programs, Straitwatch of B.C., Canada and Soundwatch (Appendixes M and N). Vessels within a half-mile (880 yards) radius of all known whale activity are

counted according to type and vessel activity (Figure 26). A half-mile radius is defined as the half-mile distance around known whale activity. The area of known whale activity is variable and not limited to a half-mile, but 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 Soundwatch is in) and a 'B count' still reliable enough to count, but with less confidence and usually the count that Soundwatch vessel is not in.

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. 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 non-whale research or some kind); *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.).

Figure 26: Soundwatch Vessel Patrol Count and Vessel Incident Data Collection Diagram Example.

Figure illustration courtesy of Straitwatch, Doug Sandilands.



## Shore-based Kayak Monitoring

In 2011 additional terms were added to the annual education and monitoring contract to specifically monitor recreational and commercial kayaker activities along the west side of San Juan Island during the summer whale watch season. The goal of this monitoring effort was to better characterize kayaker trends on the west side of San Juan Island as well as measure kayaker compliance with established whale watching guidelines (Be Whale Wise and the Kayakers Code of Conduct) and regulations (US federal, Washington State and federal MMPA and ESA). The sites for the study were chosen to include the main commercial and recreational paddling route, were adjacent to the established voluntary no go zone for motorized vessels and could be easily monitored from the shore at publically owned properties.

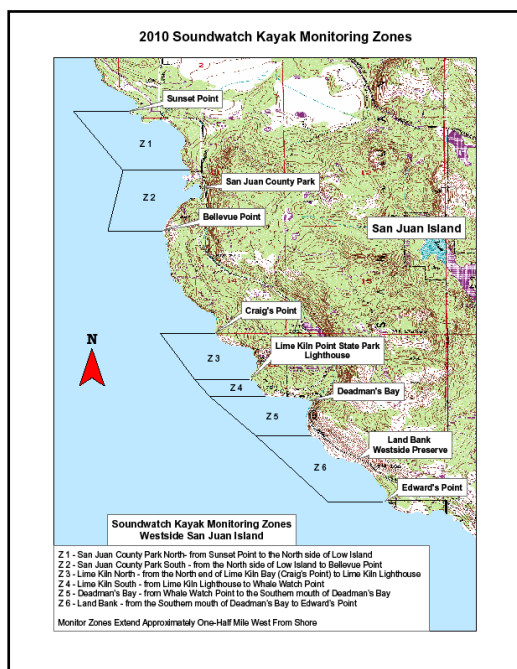
Unlike the Soundwatch vessel monitoring, the kayak monitoring program used a scan sampling method to count kayakers by type and activity and to record kayaker incidents when whales were present within a half

mile (880 yards) from shore. Scans were done for 10 minutes and were dependent on how long the whales remained in the study site. At the beginning and end of each 10 minute scan, the date, location, time, weather conditions and a survey of whales and a count of kayakers within one half-mile of shore was recorded. At the end of the 10-minute Scan an average of the kayakers at the beginning and end of the Scan was taken to get a more accurate count of kayakers present throughout the Scan. The monitoring team used a sub-set of the Soundwatch standardized vessel type, vessel activity, and vessel incident definitions (including the new vessel incident categories reflecting new US federal vessel regulations) as well as the full whale attribute set previously agreed upon (Appendixes O & P) to determine kayaker type and activity; kayaker incidents; and whale surveys and behaviors. The study site was broken into six observation zones (Figure 27 and Appendix Q), and the monitoring teams moved from site to site as whales moved through the area, making sure to have a mixed hourly sample for each site

Each observed kayak during a scan, within a zone range, was counted and categorized according to type, permit status (San Juan County Park Permit Types) and a specific best-fit kayaker activity to describe what the kayaker was engaged in. Kayaker activity categories included *Whale Oriented*, *Transiting (continuous paddling)*; *Fishing (with lines)*; *Beached*; *Staging*; or *Other*. *Beached* kayakers were counted when they were temporarily out of the water and were typically launched within the hour. Zone locations were determined using the study site map (Figure 27 and Appendix Q). Monitoring staff recorded whale and kayaker attribute data on a *Kayak Count/Whale Survey data sheet* (Appendix R). Monitoring for *vessel incidents* was done continuously throughout the scan to determine compliance to the voluntary guidelines and regulations. *Vessel incidents* were recorded opportunistically as they were observed, using a *Kayaker Incident data sheet* (Appendix S).

To establish the parameter of each of the six monitoring zones (Appendix Q), charts and photographs were used to create sight-lines and points of reference regarding the edges of each zone. A laser range finder was used to measure and record the distance from shore to a monitoring vessel; while at the same time a photograph was taken and later the distance was recorded on the photograph to use as reference. The reverse was also done from the water to shore. Kelp beds, and identified markers such as land formations were measured using the laser range finder to further aid in judging distances. The laser range finder was used throughout the study to ensure accuracy and consistency.

Figure 27: 2010-2011 Kayak Monitoring Zones By Location.



### **2.1.3c Provide a comparative report on past and present guideline compliance including information on vessels of different types and activities.**

Soundwatch vessel count and incident data collection design and methodology do not allow for the analysis of vessels according to size. However, Soundwatch has consistently maintained an annual record of the regional commercial whale watch companies and respective vessels including vessel types and sizes. This annual record is useful in characterizing the annual composition of the commercial whale watch industry in the region. Annual industry profile information is included in the 2011 Soundwatch data set CDs.

#### **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 US and Canada being relatively static over the past few years (Figures 28 and 29). Recent estimates 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. Many shore-based whale watching areas have gained use in recent years due in part to the efforts of a new collective known as The Whale Trail. This collective of non-profit and localized community groups is dedicated to promoting shore-based whale watch opportunities (<http://www.thewhaletrail.org>). Lime Kiln Light House, a Washington State Park, reliably records visitor numbers, while other locations do not currently record visitation. Using a metric that includes the annual number of US and Canadian commercial vessels in operation (including kayaks), a portion of the number of commercial passenger seats available, a conservative estimate of the number of whale watch trips conducted, recreational vessel numbers from Soundwatch counts and vessel contacts (including kayaks), as well as Lime Kiln State Park visitor numbers, Soundwatch makes an estimate on regional whale watching numbers. Each summer season (May-Sept) during the years 2009 through 2011, Soundwatch estimates that the total number of people engaged in whale watching in the Salish Sea from shore and commercial and recreational vessels (including kayaks) is nearly 530,000 people (Figure 28). Currently commercial company members in the US-Canadian transboundary 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 estimates are the best available information.

In 2011 there were 76 *active* (defined as on the water at least 1/week May-Sept) commercial whale watch vessels originating from 33 *active* commercial companies in U.S. and Canadian in the Haro Strait region (Figures 28-31). The number of U.S. and Canadian companies remained nearly the same as in 2010, with 16 Canadian and 17 U.S. companies respectively. There continues to be more Canadian vessels, totaling 54 *active* vessels compared to 22 U.S. *active* vessels, (Figures 28-31). Canadian vessels continue to be mostly the smaller rigid hull inflatable (RHIB) style of vessels while the US fleet is made up of mostly larger passenger style vessels. However, more Canadian companies are acquiring larger passenger style vessels in addition to the small vessels in their fleets. It is estimated that the number of relative US and Canadian passengers is nearly the same as 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 2011 (Figure 31).

Figure 28: Whale Watching Trends in the Boundary Waters of Haro Strait 1976-2011.

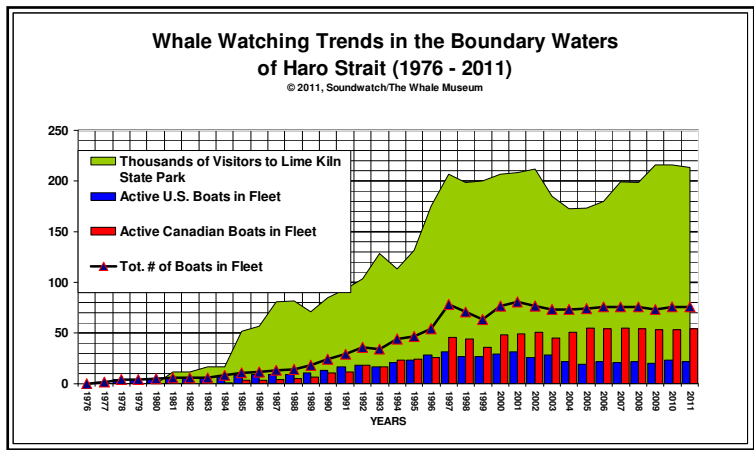


Figure 29: Growth of Commercial Whale Watching in the Boundary Waters of Haro Strait 1976-2011.

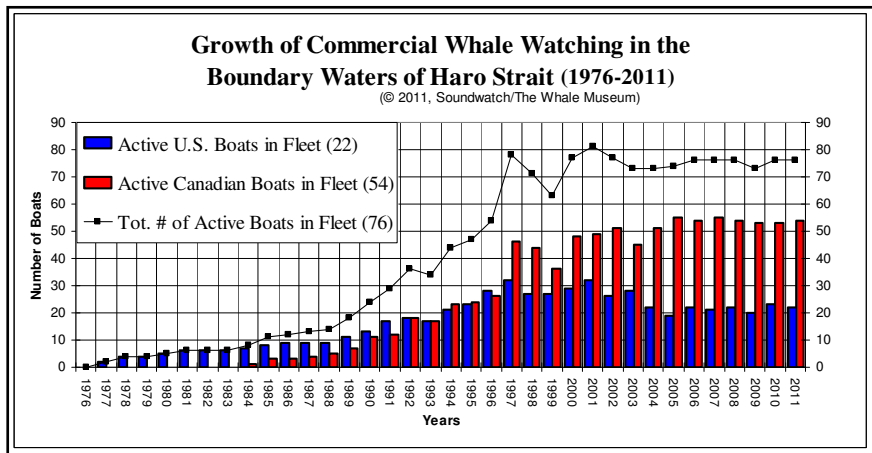


Figure 30: 2011 Whale Watch Platforms in the Boundary Waters of Haro Strait.

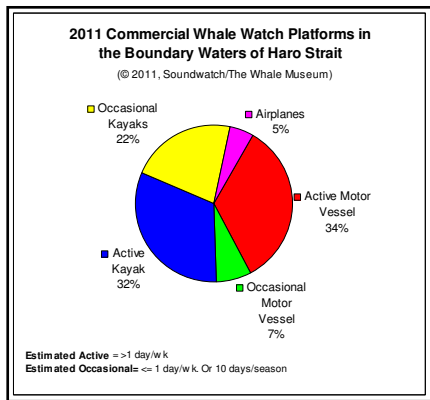
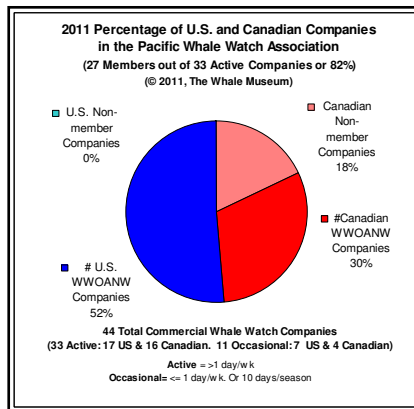


Figure 31: 2011 Percentage of U.S. and Canadian Companies in the Pacific Whale Watch Association.



## Soundwatch Vessel Patrols 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 32-34). However, Soundwatch targets locations where the highest concentrations of boats are following whales to conduct education and monitoring activities. A more complete depiction of SRKW habitat use can be found through The Whale Museum's annual 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 busiest whale and vessel areas observed by Soundwatch in 2011 tended to be within a half mile nearshore along the West side of San Juan Island (Zone 1- the NOAA proposed vessel restriction area), outside of a half mile along the West side of San Juan Island and north into Haro Strait (Zones 2, 3, and 5), Southern Rosario Strait (Zone 8), Southern Haro Strait (Zone 9) and the Canadian waters of Swanson Channel & Boundary Pass (Zones 16 and 17) (Figures 32- 34).

Figure 32: 2011 Soundwatch Vessel Counts by Location Map.

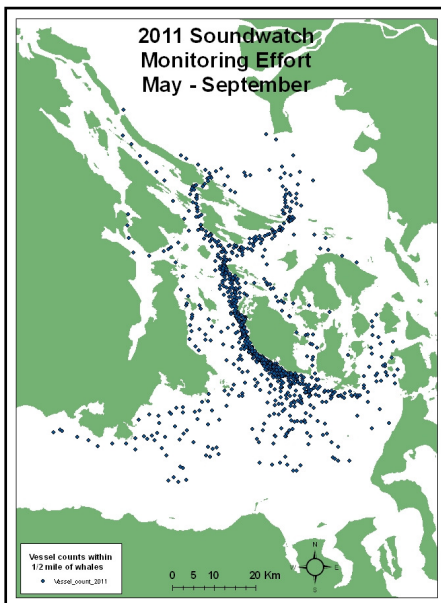


Figure 33: 2011 Soundwatch Vessel Count Density With No Go Zone Highlighted Map.

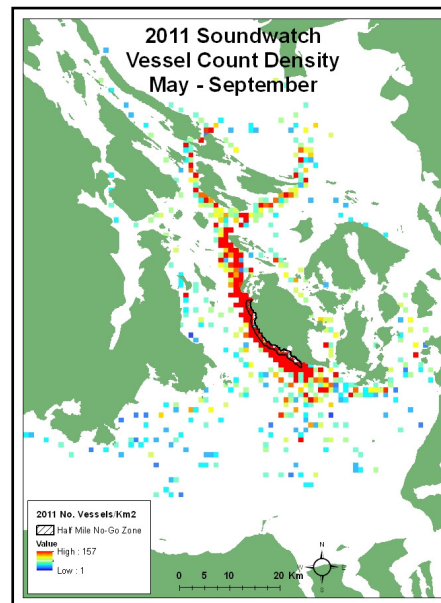
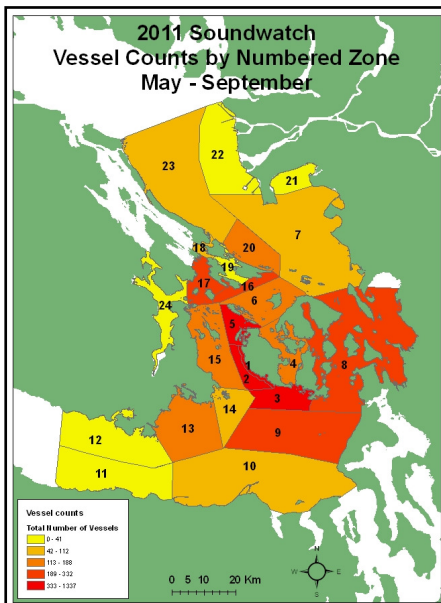


Figure 34: 2011 Soundwatch Vessel Count By Numbered Zone Map.





Southern Resident Killer Whales are the primary viewing target and have had an annual and monthly average of nearly 20 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 1998-2011, as observed by Soundwatch (Figures 35-45). In 2011, May-September, the annual total boat average was 12, which continues a nearly eight-year trend in lower overall averages of vessels seen with whales (Figures 39 & 40, 42). This lower vessel average trend is not 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. The lower average vessel trend with whales observed by Soundwatch likely reflects a targeted 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>). In addition, whale habitat use trends over the past several years (Soundwatch, Orca Master) indicate that the whales are traveling more often in separate groups (by pod groups and mixed pod groups) and that these groups are often travelling in spread formations, apart from each other, thereby spreading out the boat concentrations, both commercial and private, with whales as well.

The 2011 annual maximum number of vessels observed with whales was 62 total boats, which is also a reduction from previous years, and reflects annual and monthly variability in number of boats with whales, and the concentrations of vessels that routinely occur (Figures 39-42). The maximum number of commercial whale watch vessels was 25, recorded in August, as well as commercial fishing (maritime industry) with 10 vessels and the maximum number of kayakers at 25 also recorded in August (Figure 40). The maximum number of recorded private vessels was 60 recorded in September, likely a reflection of an odd year pink salmon run that made for excellent recreational fishing opportunities (Figure 40). 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 2011 monthly average of commercial whale watch, private vessels, kayakers as well as commercial fishing vessels remained mostly constant throughout the season, again with a rise seen in July and August (Figures 35, 37 & 38, 43-46). The hours between 11 a.m. and 4 p.m. continue to be the busiest, with a slight dip around 12 p.m. to 1 p.m. as commercial vessels exchange passengers between morning and afternoon trips (Figure 35-38). In some years with good fishing conditions, August and September can have spikes in numbers of private and commercial fishing vessels (maritime industry) engaged in commercial and recreational fishing activities overlapping with whale locations (Figures 44 and 50). Overall, September tends to have less overall vessel traffic with lower average vessel numbers; however the long Labor Day holiday weekend and a 4-day fishing derby in San Juan County can create busy vessel traffic days, thereby raising the overall average as well as some maximum numbers and larger numbers earlier in the day (Figure 37). Vessel numbers observed with whales dramatically decline in October both because the whales are less predictably in the area and the main commercial and recreational boating season is over. Soundwatch collected vessel and whale data only on October 1, 2011 as it was the last weekend day of a four day salmon derby September.

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 2011 the maximum number of all vessel types recorded within a half mile of whales was 62, with the maximum of commercial vessels observed at 25, private recreational vessels at 60, and kayakers at 23, which if totaled together would equal 108, well above the recorded maximum number of 62 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 35: Average Number of Vessels Accompanying Orcas by Month, 1998-2011.

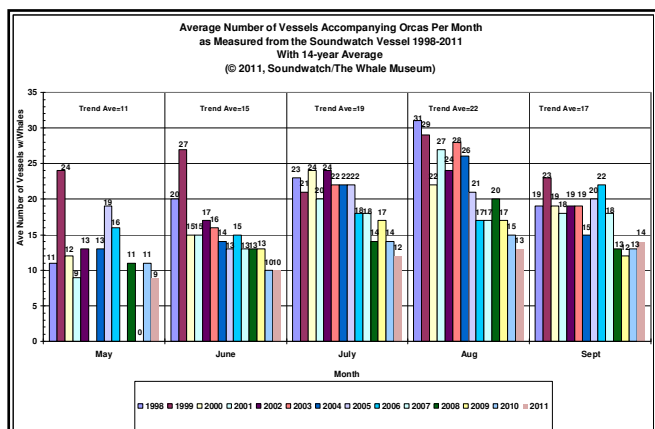


Figure 36: Annual Average Numbers of Vessels with Orcas by Time of Day, 1998-2011.

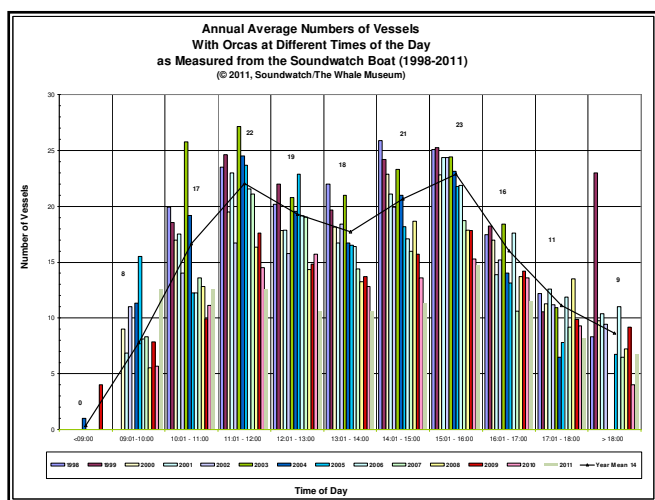


Figure 37: Monthly Number of Vessels with Whales by Time of Day, June-September 2011.

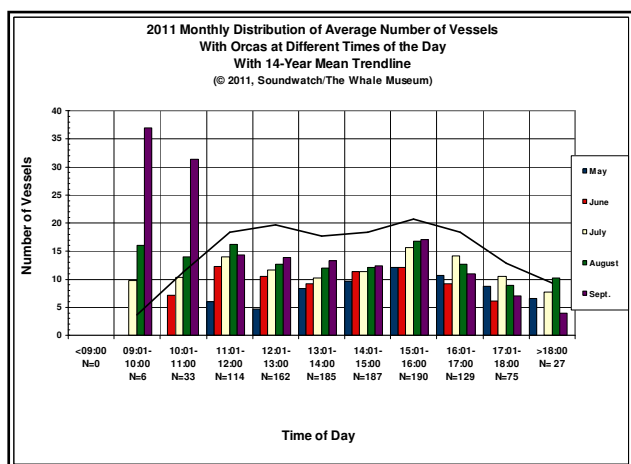


Figure 38: Average Number of Vessels with Whales by Time of Day, May-September 2011.

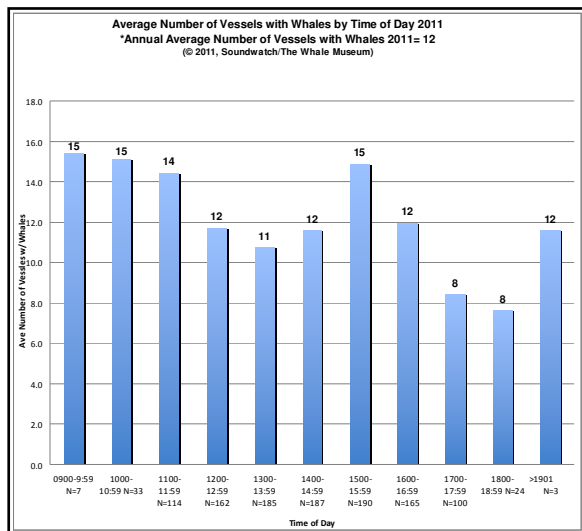


Figure 39: Annual Vessel Type Averages and Maximums Accompanying Orcas in Boundary Waters, May-September, 1998-2011.

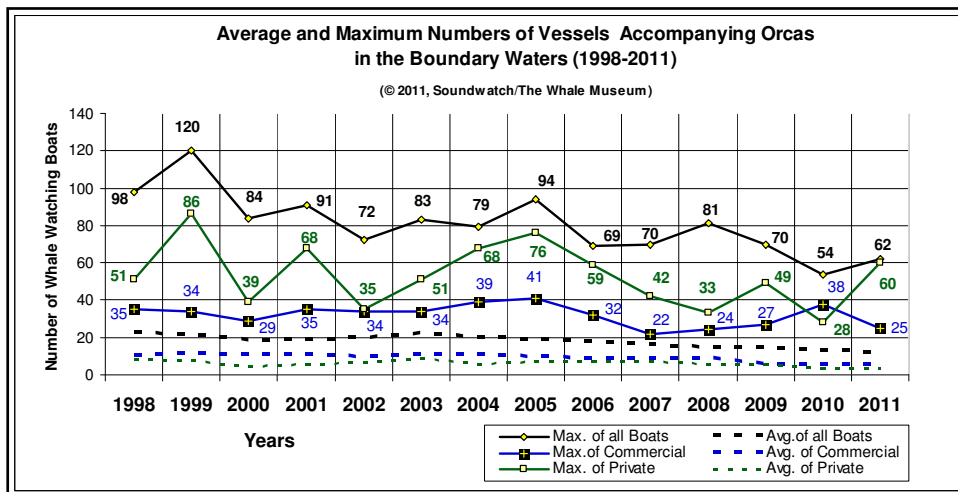


Figure 40: Annual Averages of Vessel Types Accompanying Orcas May-September, 1998-2011.

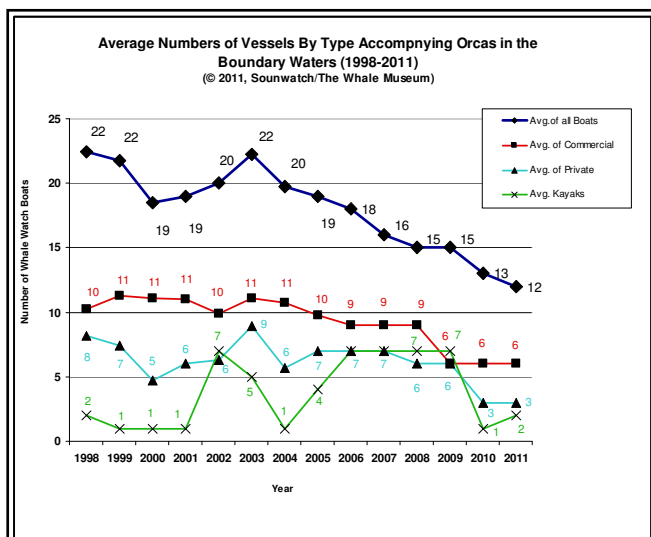


Figure 41: Annual Maximums of Vessel Types Accompanying Orcas May-September, 1998-2011.

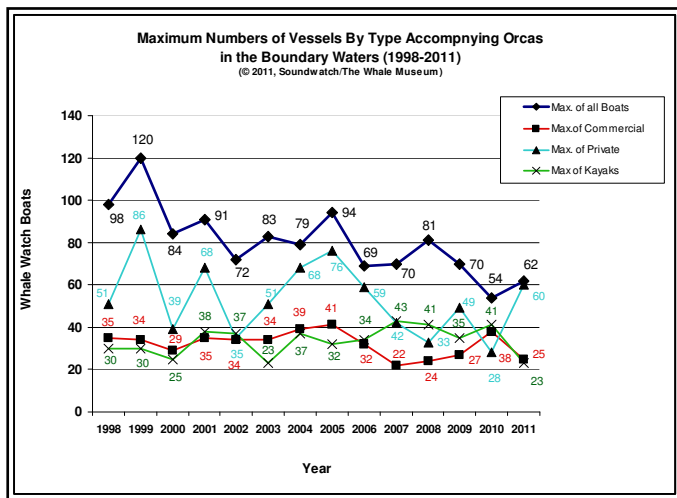


Figure 42: Mean Annual Daily Average of Number of Commercial and Private Boats with Whales in Haro Strait Region May-September 1998-2011 with Standard Deviation.

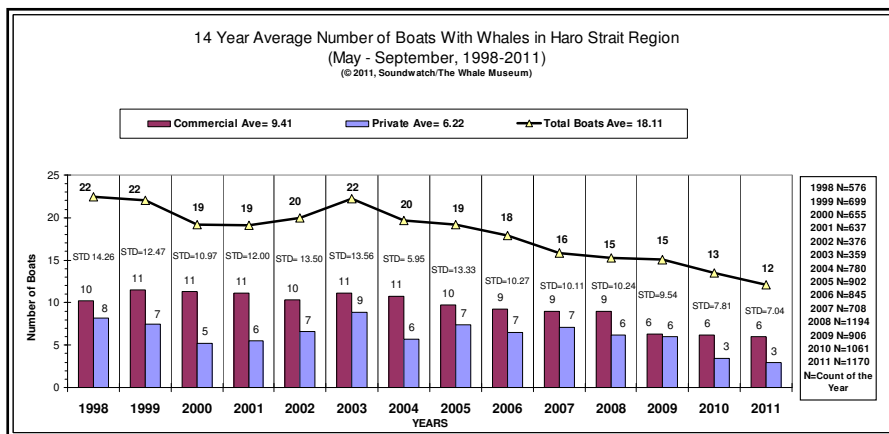


Figure 43: Monthly Average by Type of Vessels with Orcas, May-September 2011.

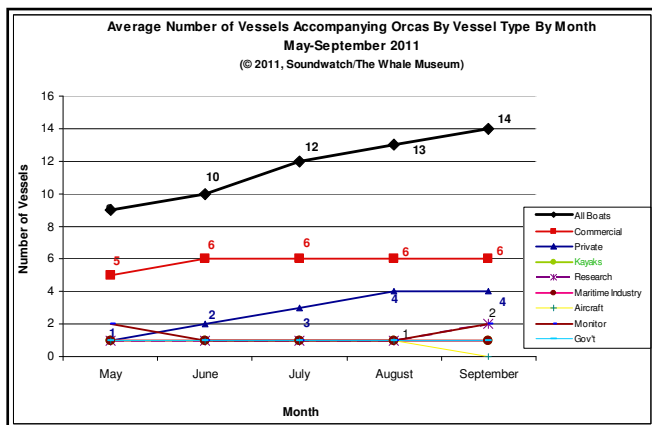


Figure 44: Monthly Maximum by Type of Vessels with Orcas, May-September 2011.

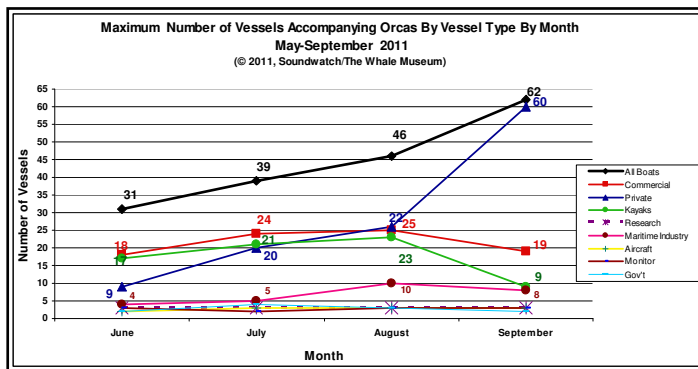


Figure 45: Average Number of Commercial Vessels with Whales by Commercial Vessel Type by Month, 2011.

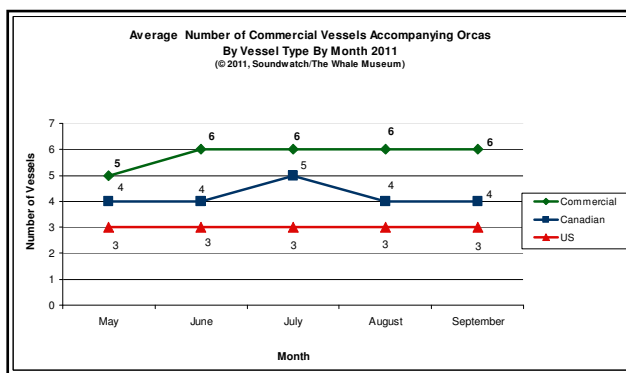
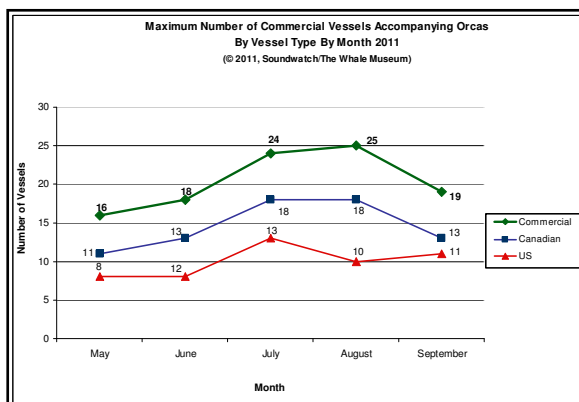


Figure 46: Maximum Number of Commercial Vessels with Whales by Commercial Vessel Type by Month, 2011.



There is a great variability in the number and types of vessels with whales (Figures 35-50). 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 47-50). In 2011, of the vessels seen on average with whales 38% of the time were commercial whale watch vessels (16% US and 22% Canadian), 15% private recreational vessels, 15% commercial fishing vessels, 2% kayaks, 7% research vessels, 7% monitoring vessels (Soundwatch and Straitwatch), 9% marine shipping/cargo (also referred elsewhere as maritime industry), and 1% each airplanes and government or military vessels (Figure 47). Throughout the season the majority of vessel types observed within a half mile of whales were engaged in whale oriented activities 48% of the time (Figures 48 and 49). Commercial and recreational fishing activities increased in August and September, raising the percent of vessels recorded as engaged in fishing activities near whales to 23% (Figures 49 and 50). Other vessel

activities recorded within a half mile of whales included transiting at 11%, non-whale focused research, such as geographic or marine bird surveys, at 5%, or activities recorded as ‘other’, such as diving or marine rescue operations, at 5%. 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 2011, 8% of vessels recorded with whales were large ships within acoustic range of vessels (Figures 48-50).

Figure 47: Distribution of Vessels by Vessel Type When Whales Present May-September 2011.

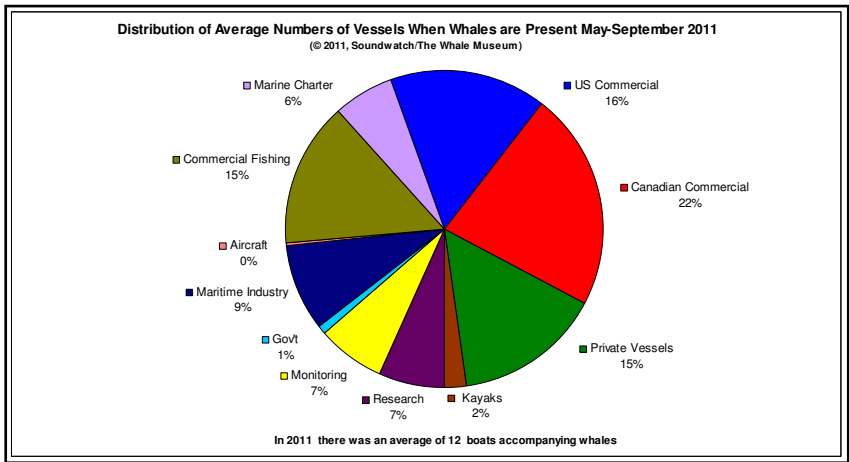


Figure 48: Distribution of Vessels by Vessel Activity When Whales Present May-September 2011.

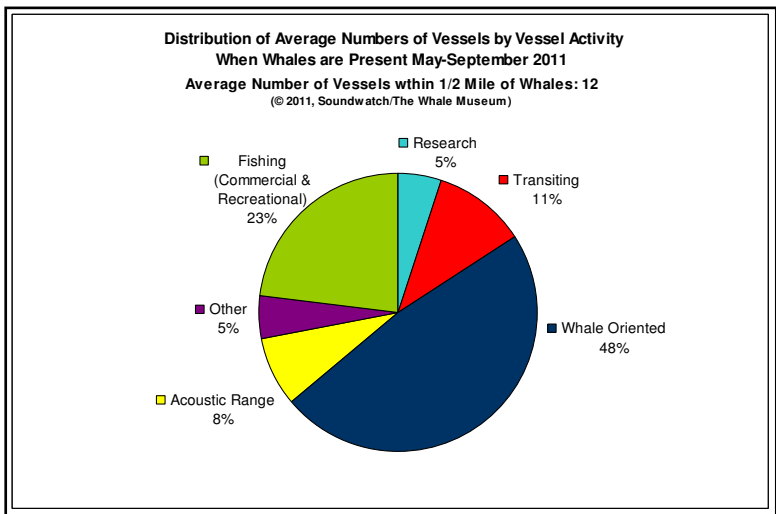


Figure 49: 2011 Monthly Average Numbers of Vessels with Whales by Vessel Activity.

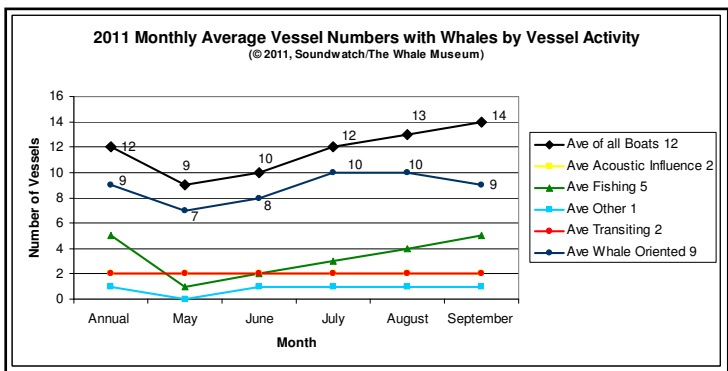
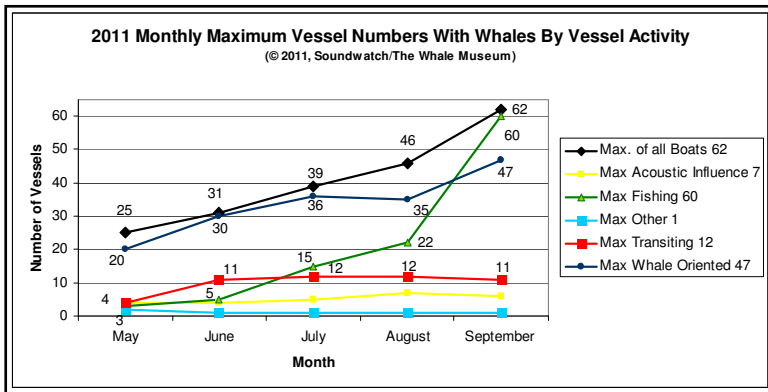


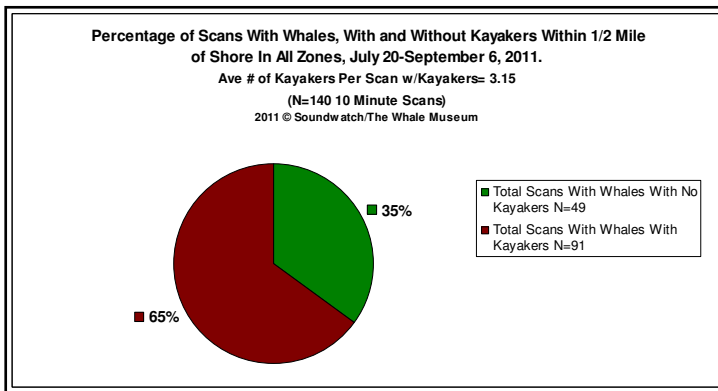
Figure 50: 2011 Monthly Maximum Numbers of Vessels with Whales by Vessel Activity.



### Shore-based Kayak Monitoring Scan Data Count Trends

The Soundwatch Kayak Monitoring Program made observations of the number, type, permit status and activity of kayakers (a kayaker is defined as ‘one kayak’ and could have been a single kayak or a double, etc.) during 10-minute Scans, and when whales were present within a half mile of shore, in one of six monitoring zones along the Westside of San Juan Island. In 2011, the kayak monitoring effort was reduced from the pilot program conducted in 2010, resulting in fewer scans and a shorter season running July 20 through September 6, 2011.

Figure 51: 2011 Percentage of Monitoring Scans with and without Whales



There were a total of 140 10-minute Scans conducted between July 20 and September 6, 2011. Out of the 140 scans, 49 scans, or 35% of the time, no kayakers were observed with whales; in 91 out of 140 scans, kayakers were observed with whales, or 65% of the time. An average of 3.15 kayakers was observed in the 91 10-minute scans with whales and kayakers (Figure 51). Of the 91 scans, commercial kayakers made up the majority of the kayaker types present, with 72%; recreational kayakers were observed 27% of the time, with non-commercial groups and ‘other human powered craft’ observed only 1% of the time (Figure 52).

Figure 52: 2011 Percentage of Monitoring Scans with Whales and Kayakers, by Kayaker Type Percentage.

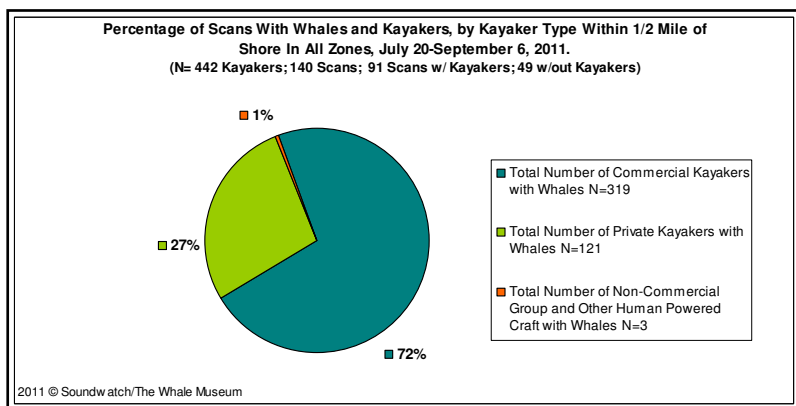


Figure 53: 2011 Average and Max of All Kayakers in All Monitoring Zones.

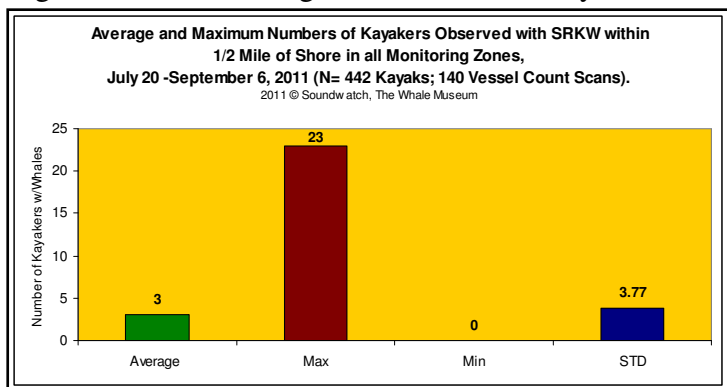
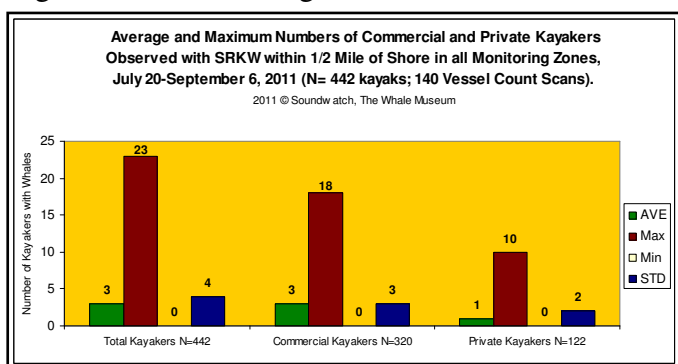


Figure 54: 2011 Average and Max of Commercial and Private Kayakers in All Monitoring Zones.



In the 91 scans with whales and kayakers, a total number of 422 kayakers observed. The maximum number of kayakers observed with whales was 23, the average number of kayakers observed with whales was 3, and a minimum number of kayakers with whales of zero (Figures 53 and 54). The maximum number of commercial kayakers observed with whales was 18, with the average number of commercial kayakers observed with whales being 3; the maximum number of recreational kayakers observed with whales was 10, with the average number of commercial kayakers observed with whales being 2 (Figures 53 and 54).



Figure 55: 2011 Percentage of Scans By Monitoring Zone.

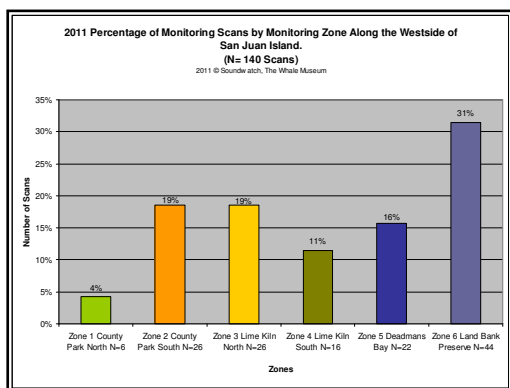


Table 5: 2010-2011 Shore-based Kayak Monitoring Zone Locations.

<b>Site 1:</b> County Park North - from Sunset Point to the North side of Low Island
<b>Site 2:</b> County Park South - from the North side of Low Island to Bellevue Point
<b>Site 3:</b> Lime Kiln North - from the North end of Lime Kiln Bay (Craig's Point) to Lime Kiln Lighthouse
<b>Site 4:</b> Lime Kiln South - from Lime Kiln Lighthouse to Whale Watch Point
<b>Site 5:</b> Deadman's Bay - from Whale Watch Point to the Southern mouth of Deadman's Bay.
<b>Site 6:</b> Land Bank - from the Southern mouth of Deadman's Bay to Edward's Point.

Monitoring Zone 6, Land Bank West Side Preserve, had the most scans with whales and with whales and kayakers; Zone 1, San Juan County Park North, had the least scans with whales and with whales and kayakers. This result is due, for the most part, to the whales' movement patterns as the whales, on whole, spend more time on the south end of San Juan Island (Figure 55, Table 5).

Figure 56: 2011 Percentage of Scans with Whales with Kayakers by Zone.

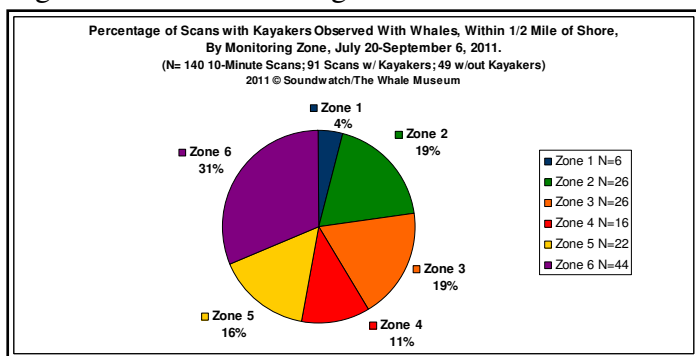
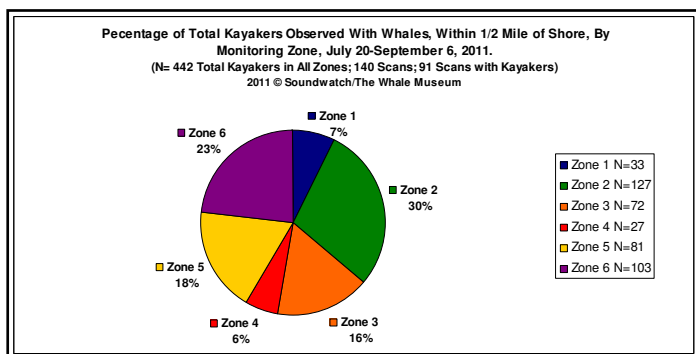


Figure 57: 2011 Percentage of Kayakers Observed with Whales by Monitoring Zone.



Of the 91 scans with whales and kayakers, Zone 6, Land Bank Preserve, had the most number of scans with 44 scans or 31% of all scans, with Zone 1 having the least number of scans with 6 or 4% (Figure 56). Zone 2, San Juan County Park North, had the most number of kayakers with 127 or 30% of all observed kayakers, and Zone 4, Lime Kiln South, having the least number of kayakers with 27 or 6% of total kayakers observed (Figure 57).

Figure 58: 2011 Average and Maximum of Kayakers by monitoring Zone.

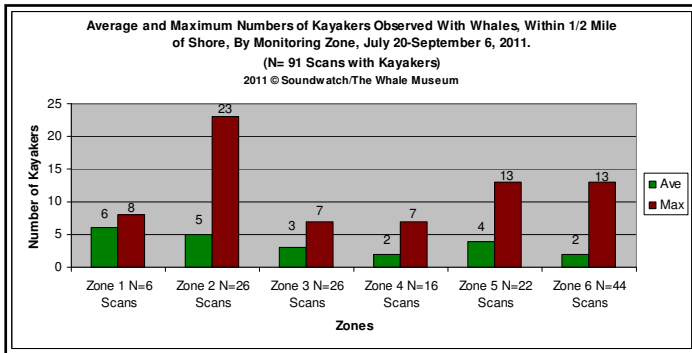
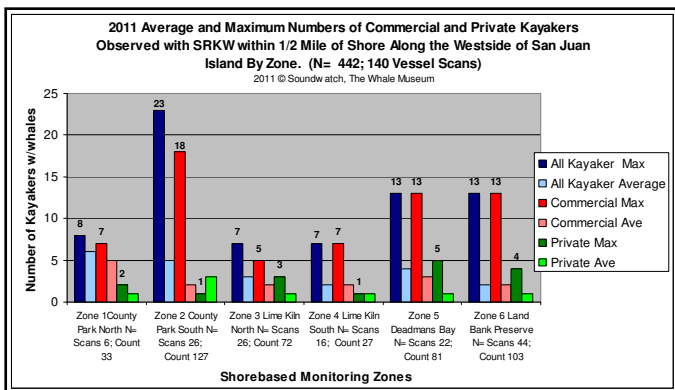


Figure 59: 2011 Average and Maximum of Commercial and Private Kayakers in Each Zone



Monitoring Zone 2, San Juan County Park South, had the highest number of commercial and recreational kayakers observed, which was expected as this is the zone that contains the primary launch and take out area (Figures 58 and 59). Monitoring Zones 3 & 4, Lime Kiln North & South, had the lowest number of commercial and recreational kayakers observed, which may be due to the fact that this is an exposed and public viewing area where kayakers may be inclined to paddle through quickly (Figures 58 and 59). Not surprisingly, commercial kayakers made up the majority of kayakers present in all of the zones.

## Vessel Incident Trends

Vessel incident data can be utilized to characterize types of vessels, types of vessel incidents and area locations most commonly observed with vessel incidents 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 new US 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 to record 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 (Figure 26).

A set of standardized *incident descriptions* was established in 2007 (Appendixes J & J1, Kayaker Sub-set O). This standardization is being used by the US and Canadian federal governments as well as the respective monitoring programs, Straitwatch of B.C., 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: Eco-Tour) are used in this report when discussing *vessel types* and *vessel incidents* because they are more commonly used outside of the monitoring programs.

## Evolution of Vessel Incident Categories

In 2009, NMFS issued a proposed rule to adopt elements of the Be Whale Wise guidelines as regulations. The proposed regulations were based on the high number of observed incidents and concerns over the number of vessels in the immediate vicinity of the whales, as well as an increase in world-wide research documenting whale behavioral changes and the potential for acoustic masking from vessels. NOAA Fisheries implemented US federal vessel regulations for killer whales in the inland waters of Washington State in April 2011. The final rule included two elements: 1) a prohibition on approaching killer whales within 200 yards, and 2) a prohibition on parking in the path of killer whales.

The new US federal vessel regulations increased the vessel distance for killer whales seen in US waters from a 100 yard guideline limit to a 200 yard mandatory regulation, but the guideline limit of 100 yards/meters is still in effect for other cetacean species encountered, as well as for killer whales encountered in Canadian waters. A vessel restriction on parking in the path of a whale was a previous Be Whale Wise guideline limit for all cetaceans encountered on both sides of the border. Therefore, a new broad incident category was added in 2011, as well as sub incident categories and the clarification of existing incident categories to reflect the new regulations and existing guidelines (See *Incident Descriptions* Appendixes J & J1, O). The new vessel incident category is termed *Vessels within 200 yards of whales*, which is further divided into two main categories to be consistent with previous year's analysis: 1- *Stopped within 200-yards of Whales* and 2- *Motoring/ fishing within 200-yards of Whales*. Both of these categories are 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*; the previous *Parked in the Path of Whales* incident was modified to *In the Path of Whales which is defined as a vessel 200-400 yards ahead of whales, either motoring, or stopped*. These adjustments were made so as to be consistent with the new US federal vessel killer whale regulations that apply in US waters, but not in Canadian waters as well as the Be Whale Wise guidelines that apply in both US and Canadian waters.

As the vessel guidelines and laws have evolved over the past 15 years, the definitions and categories of vessel incidents have evolved along with them (Table 6). As not all vessel incidents were applicable each year, it has been necessary to discontinue use of those categories or in some cases, combine or separate incident types to match new incident definitions. Therefore, in the analysis some incident types are missing from year to year while other incident types are depicted as either combined or separate, making some of the incident categories change percentages depending on how they are being compared. An example of this evolution has been the persistent vessel incident type of being 'in the whales' path'. As the specific incident definition has changed over the years, it has been categorized differently as *Leapfrogging*, *Repositioning*, *Parked in the Path* or *In the Path of whales*. This incident type has sometimes been considered one or two separate incidents (i.e. 2 incidents: 1-being in the path up to 400 yards and not moving out of the way resulting in 2-being within 100 yards; or 1 incident: 1-in the path of whales because of not moving at 400 yards) depending on how it was annually defined. Therefore some years the analysis has combined or separated the incidents types of *Parked In*

*the Path of Whales* from *Stopped within 100-yards of Whales* (Tables 6 and 7, Figures 63, 71 and 72). With the adoption Washington State vessel regulations for killer whales in 2008 and US federal regulations for killer whales in 2011 that specifically delineate a difference between the being in the path of a killer whale up to 400 yards ahead, and being within 100-200 yards from a killer whale, the incidents of *vessels in the path* (moving or stopped) and *vessels stopped within 100 yards* (in 2011, *within 200 yards* as well) were analyzed separately.

### **Soundwatch Vessel Patrols Vessel Incident Trends**

Soundwatch uses summary statistics to analyze annual vessel incident data. In 2011, there were a total of 2,500 vessel incidents observed and recorded by Soundwatch staff (Tables 6 and 7, Figures 63-65). Because new incident categories were added in 2011 to reflect the new US federal vessel regulations and existing guidelines (See *Incident Descriptions* Appendixes J & J1, O), 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 from previous years (Table 6, Figures 71 & 72). 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 had resulted in one incident being recorded. Thus while 2011 vessel incident data is useful to reflect on 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 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 US/Canadian border which the whales and vessels frequently travel back and forth across, are not consistent with lesser guidelines in effect for other species and 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 density from vessels within a half mile of Southern Resident Killer Whales within the designated summer core habitat (Figures 60-62). 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 2011 tended to be within a half mile near shore along the West side of San Juan Island (Zone 1- the 2009 NOAA proposed vessel restriction area), outside of a half mile along the West side of San Juan Island and north into Haro Strait (Zones 2, 3, and 5), San Juan Channel (Zone 4), Canadian waters of Swanson Channel & Boundary Pass (Zones 16 and 17) (Figures 60-62). 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 62).

Figure 60: 2011 Soundwatch All Observed Vessel Incidents by Incident Location Map.

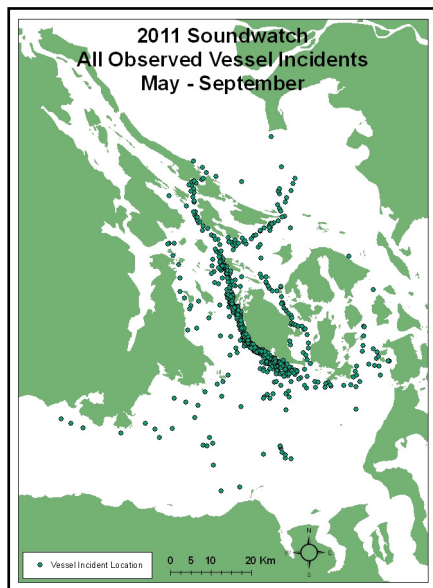


Figure 61: 2011 Soundwatch All Observed Vessel Incident Numbers by Zone Map.

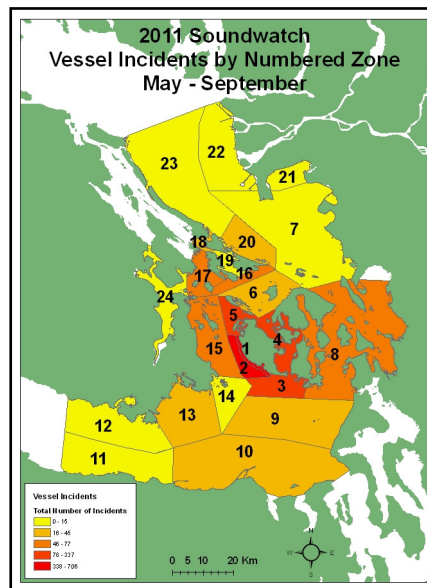


Figure 62: 2011 Soundwatch All Observed Vessel Incident Density per Square Kilometer, with San Juan Island ½ Mile No Go Zone Area Map.

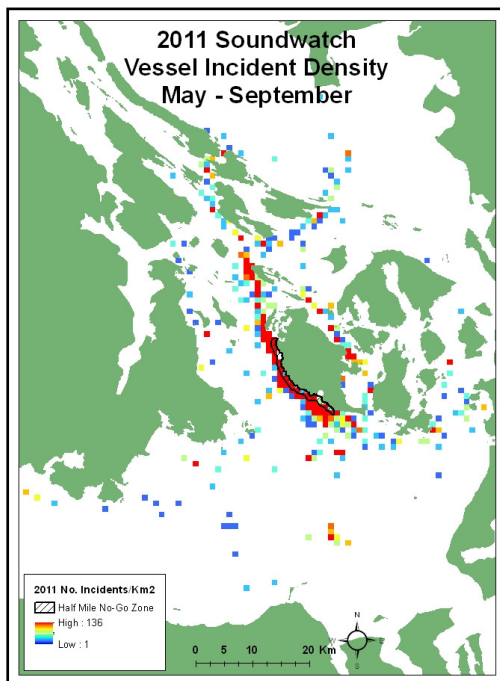
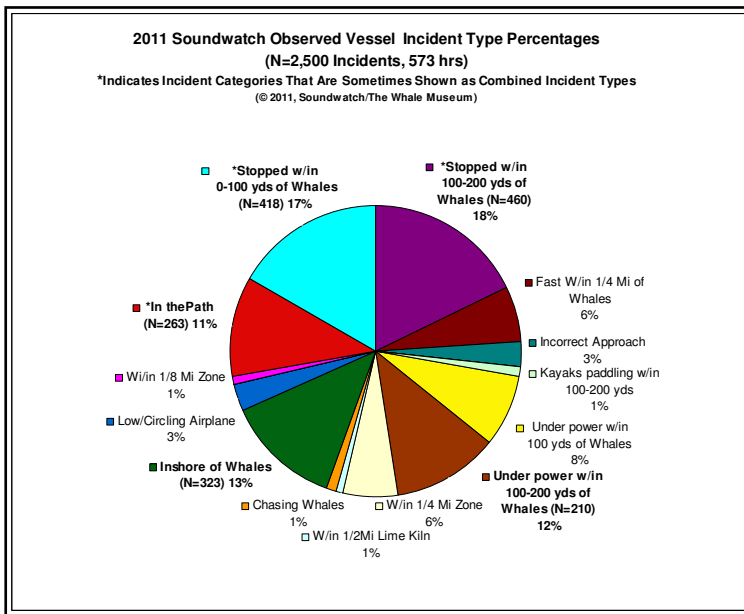


Table 6: Soundwatch 1998-2011 All Vessel, All Incident Type Percentages.

Soundwatch Observed All Vessel Behaviors Contrary to Guidelines and/or Regulations 1998-2011 (© 2011, 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
•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%
•Under power within 100-200yards of whales														12%
Within 440 yards of SJI No-Boat Zone	39%	26%	17%	17%	7%	13%	4%	8%	4%	5%	6%	8%	10%	6%
Within 880 yards of Lime Kiln	2%	2%	2%	1%	2%	5%	1%	2%	1%	3%	1%	3%	4%	1%
Crossing path of whales	4%	3%	5%	2%	4%	7%	6%	4%	5%	8%	4%	5%	5%	2%
Chasing/pursuing whales	3%	1%	3%	2%	<1%	4%	3%	1%	2%	3%	3%	3%	3%	1%
Inshore of whales	5%	29%	24%	25%	19%	16%	22%	18%	17%	16%	21%	24%	17%	13%
Airplane within 1000 feet	4%	2%	4%	7%	14%	6%	6%	4%	6%	8%	8%	6%	4%	3%
Within 200 yards of National Wildlife Refuge	0%	1%	3%	1%	2%	2%	1%	0%	<1%	1%	1%	<1%	1%	<1%
•Other		1%	3%	3%	14%	5%	15%	11%	10%	3%	2%	1%	1%	0%
•Within 220 yards of shore; whales present			4%	4%	2%	<1%	4%	1%	2%	2%	<1%	<1%	1%	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%	43%
•Fast within 1/4 mile					3%	4%	9%	10%	11%	16%	11%	13%	13%	6%
•1st Approach head on, behind, or on shore					4%	2%	1%	<1%	1%	2%	3%	2%	3%	1%
•Kayaks spread out					<1%	3%	0%	<1%	1%	1%	1%	1%	1%	<1%
•Kayaks with whales outside 1/4 SJI Zone					<1%	1%	0%	<1%	1%	<1%	1%	1%	1%	<1%
•Kayaks paddling w/in 0-100 yds						3%	0%	<1%	1%	<1%	1%	<1%	1%	<1%
•Kayaks paddling w/in 100-200 yds														1%
Total %	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
Estimated Annual Observation Hours	426hr	510hr	462hr	486hr	378hr	312hr	486hr	564hr	516hr	420hr	540hr	420hr	442hr	573hr

Figure 63: 2011 Soundwatch Observed Vessel Incident Percentages.



In 2011, the top Soundwatch observed vessel incidents by percentage included 1- *Stopped within 200-yards of Whales* at 35% (which was broken up into two categories *Stopped within 0-100-yards of Whales* (17%) and *Stopped within 100-200-yards of Whales* (18%) to be consistent with the new vessel law that only applies in US waters, but not in Canada); 2- *Vessels motoring within 200- yards of Whales* (Under power within 200-yards of Whales) 20% (which was also broken up into two categories *Motoring within 0-100-yards of Whales* (8%) and *Motoring within 100-200-yards of Whales* (12%) to be consistent with the new vessel law that only applies in US waters, but not in Canada); 3- *Vessels motoring inshore of whales* (Inshore of whales) at 17% of all incidents; 4- *Vessels In the Path of whales* (200-400 yards) at 11% of all incidents; and 5- *Vessels motoring fast within 400 yards of whales* (Fast w/in 1/4 mi Whales) and *Vessels within 1/4 mile San Juan Island Voluntary*

*No Motor Boat Zone* (W/in ¼ Mi No Go Zone) at 6% each of all incidents (Tables 6 and 7, Figure 63).

Figure 64: 2011 Soundwatch Observed Vessel Incidents Percentages by Vessel Type.

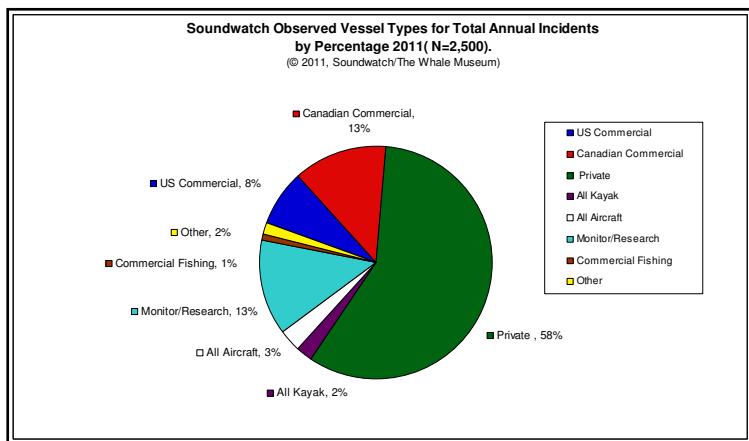
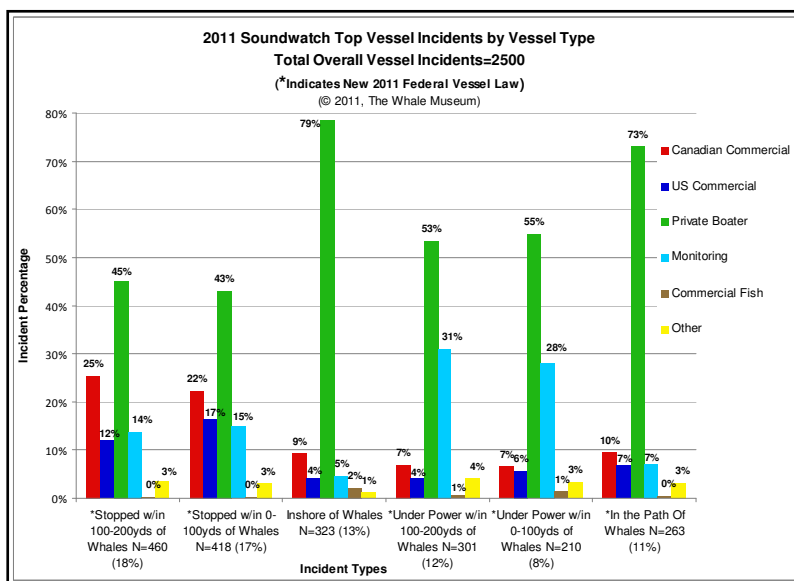


Figure 65: 2011 Soundwatch Observed Top Vessel Incidents by Vessel Type.

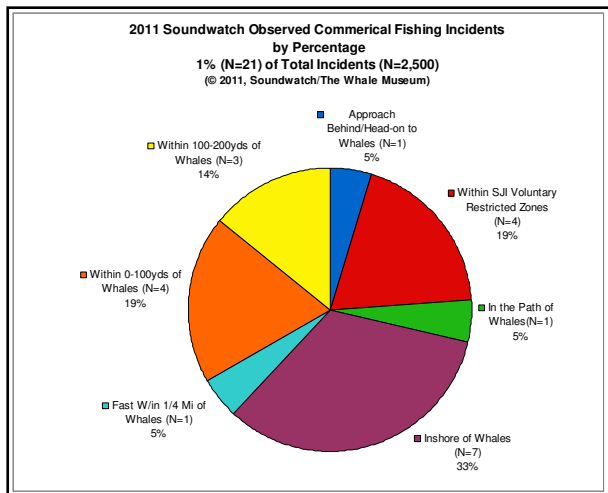


Overall in 2011, private vessel operators committed 58% of all incident types, followed by Canadian commercial operators and monitoring vessels (Soundwatch) with 13% each, and US commercial operators with 8% of all incidents (Figures 64 and 65). Private boaters were once again the number one vessel type committing the majority of top ranked vessel incident types, including *Vessels Stopped within 200 yards of whales vessels*, 0-100 yards 43% and 100-200 yards at 45%; *Vessels Motoring within 200 yards of whales*, 0-100 yards at 55% and 100-200 yards at 53%; *Vessels inshore of whale* at 79%; and *Vessels In the Path* at 73% (Table 7 and Figures 64 and 65). In 2011, Canadian commercial operators were responsible for *Vessels Stopped within 200 yards of whales vessels*, 0-100 yards at 22% and 100-200 yards at 25%; *Vessels Motoring within 200 yards of whales*, also broken down by 0-100 yards at 7% and 100-200 yards at 7%; and *Vessels inshore of whale* at 9%; and *Vessels In the Path* at 10%; US commercial operators were responsible for *Vessels Stopped within 200 yards of whales vessels*, 0-100 yards at 17% and 100-200 yards at 12%; *Vessels Motoring within 200 yards of whales*, also broken down by 0-100 yards at 6% and 100-200 yards at 4%; and *Vessels inshore of whale* at 4%; and *Vessels In the Path* at 7% (Table 7 and Figures 64 and 65). The monitoring vessel Soundwatch found themselves committing more incidents (13% all of incidents in 2011) than in previous years due to the new vessel regulations and the fact that the monitoring vessels are often contacting private vessels who themselves



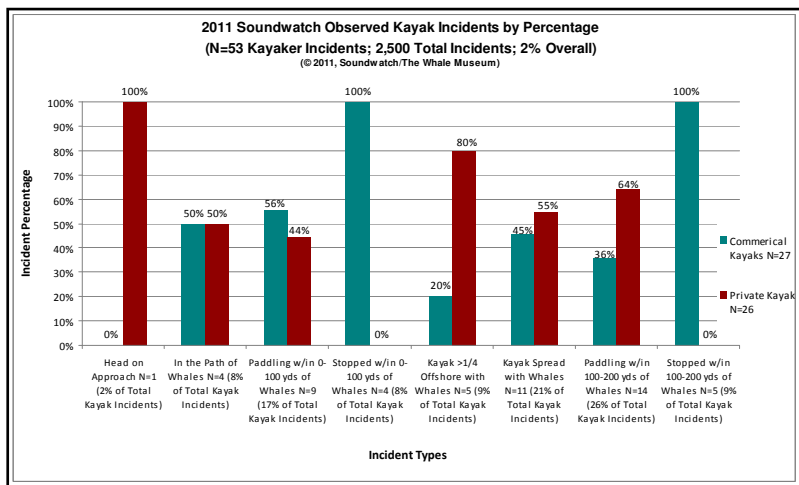
are in too close to whales. In 2011, the Soundwatch monitoring vessel was responsible for *Vessels Stopped within 200 yards of whales*, 0-100 yards at 15% and 100-200 yards at 14%; *Vessels Motoring within 200 yards of whales*, also broken down by 0-100 yards at 28% and 100-200 yards at 31%; and *Vessels inshore of whale* at 5%; and *Vessels In the Path* at 7% (Table 7 and Figures 64-65, 68).

Figure 66: 2011 Soundwatch Observed Commercial Fishing Vessel Incident Percentages.



In late August and on 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 2011, Soundwatch recorded commercial fishing vessels committing 21 incidents, or 1% of overall vessel incidents, which is a reduction from the 55 incidents (5% overall incidents) observed in 2010 when a record run of sockeye allowed for extended commercial fishing openings (Figure 64). The 1% observed commercial fishing vessel operator incidents were comprised of 33% *inshore of whales*; 19% *within 0-100 yards of whales*, 14% *within 100-200 yards of whales* which included both transiting and fishing activities; 19% *within one or more of the shoreline restricted zones*; 5% *motoring fast within 400 yards of whales*; 5% *parking in the path of whale*; and 5% *Head-on or Approach from Behind* (Table 7, Figure 66).

Figure 67: 2011 Soundwatch Vessel-based Observed Commercial and Private Kayaker Incident Percentages.



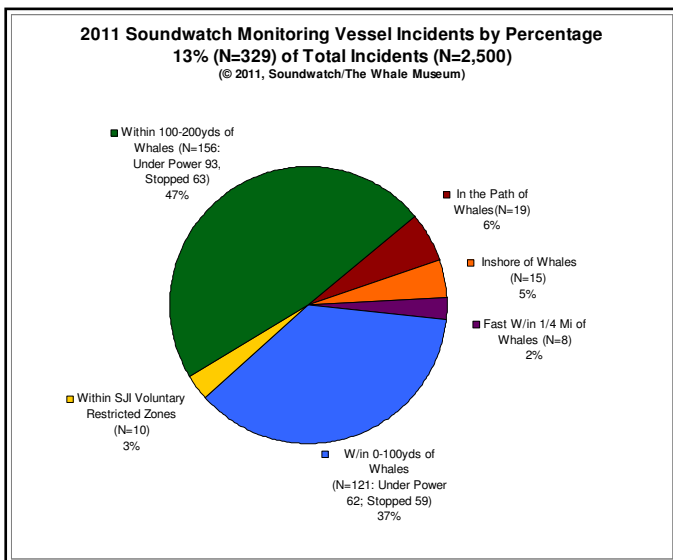
In the 2011, the vessel-based Soundwatch program observed kayakers making 2% of overall observed



incidents (Figure 64). Private and commercial kayakers 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 D): *kayaks spread out with whales present, kayakers paddling greater than ¼ mile offshore with whales, kayakers paddling within 100-200 yards of whale's, and kayakers launching into the path of whales* along with other incident types, including Be Whale Wise Guidelines (Appendix A) and/or US federal vessel Regulations (Appendix B) not restricted to kayaks.

In 2011, the vessel-based Soundwatch program observed 2,500 vessel incidents, with all kayaker types committing 53 incidents, or 2%, of all incident types (Figure 67). Of the 53 incidents observed, the top incidents included **1-Kayakers Paddling with 100-200 yards of Whales** with 14 incidents or 26%, with commercial kayakers making 36%, and private kayakers making 64% of incidents; **2-Kayakers Not Rafted (or Spread) with Whales** with 11 incidents, or 21%, with commercial kayakers making 45%, and private kayakers making 55% of incidents; **3- Kayakers Paddling with 0-100 yards of Whales** with 9 incidents, or 17%, with commercial kayakers making 56%, and private kayakers making 44% of incidents; **4- Kayakers Offshore of ¼ Mile with Whales** with 5 incidents, or 9%, with commercial kayakers making 80%, and private kayakers making 20% of incidents and **Kayakers Stopped within 100-200 yards of Whales** with 5 incidents, or 9%, with commercial kayakers making 100% of incidents, **5- Kayakers Stopped within 0-100 yards of Whales** with 4 incidents, or 8%, with commercial kayakers making 100% of incidents and **Kayakers In the Path of Whales** with 4 incidents, or 8%, with commercial kayakers making 50%, and private kayakers making 50%; and **6-Head-on Approach** with 1 incidents, or 2%, with commercial kayakers making 50%, and private kayakers making 100% of incidents (Table 7, Figure 67).

Figure 68: 2011 Soundwatch Monitoring Vessel 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 to conduct its education and monitoring tasks, however, the majority of the time the Soundwatch vessel is far from whales, well over 200-yards or 400-yards ahead. Occasionally the Soundwatch crew finds itself nearer to whales (within 200 or 400 yards) while contacting private vessels. The Soundwatch policy is to record itself every time there is the slightest chance that they 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 2011, Soundwatch recorded 329 Soundwatch Monitoring Vessel incidents making up 13% of overall vessel incidents, which is on par with the overall incident percentage committed by Canadian commercial operators (Figure 64). The 13% of overall incidents committed by the Soundwatch monitoring and education program vessel crews included *Within 100-200 yards of whales* with 156 incidents (under power 93, stopped 63) or 40% ; *Within 0-100 yards of whales* with 121 incidents (under power 62, stopped 59) or 37%; *In the path of whales* with 19 incidents or 6%; *inshore of whales* with 15 incidents or 5%; *w/in the San Juan Islands ½ mile & ¼ Mile No Go Zones* with 10 incidents or 3%; and *Motoring fast within 400 yards of whales* with 8 incidents or 3% (Table7, Figure 68).

Table 7: 2011 Annual Summary of Vessel Incidents By Incident and Vessel Type.

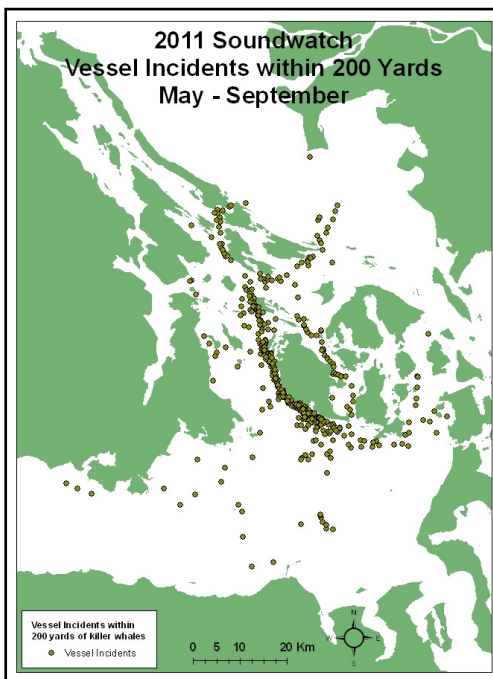
Soundwatch Observed Vessel Incidents Summary														May 14 - October 1, 2011		Observation Hours 573	
	Eco Can	Eco US	Private Motor/Sail	Eco Kayak	Private Kayak	Other Type	Aircraft	SW & STW Monitor	Research	Govt	Marine Fishery	Marine Other	Total				
Aircraft																	
aircraft - low circling						0	31			2			33				
aircraft - low flying						0	47			2			49				
Aircraft						0	78			4			82				
Approach																	
non-compliant approach - head on		1	27		1	0					1	1	31				
non-compliant approach from behind	1		14			0				1			16				
Approach	1	1	41		1	0				1	1	1	47				
Area Restriction																	
area restriction - Lime Kiln	4	5	19			0		3				1	32				
area restriction - NWR			2			0							2				
area restriction - SJIVNBZ (1/4mi)	9	4	119			0		5	1	1	4	3	146				
Area restriction - SJIVNBZ (1/8mi)	2	1	12			0		2	1				18				
Area Restriction	15	10	152			0		10	2	1	4	4	198				
In Path																	
In path 200-400 yds	21	15	145	2	2	0		11		1	1	3	201				
Parked in Path	0	0	1	0	0	0		0		0	0	0	1				
vessel crossed the path of whales	4	3	46			0		8					61				
In Path	25	18	192	2	2	0		19		1	1	3	263				
Inshore																	
vessel inshore of whales	30	13	254			0		15			7	4	323				
Inshore	30	13	254			0		15			7	4	323				
Kayak Specific																	
kayak - 100m/yds				5	4	1							10				
kayak - offshore 1/4mile				1	4	0							5				
kayak - spread out when whales present				5	6	0							11				
kayak - 200y/183m				5	9	1							15				
Kayak Specific				16	23	2							41				
Speed																	
speed > 7knts w/in 400m	1	2	81			0		7			1		92				
speed > 7knts w/in 400m (coming on scene)	1	2	42			0		1	1				47				
speed > 7knts w/in 400m (departing)	1		17			0							18				
Speed	3	4	140			0		8	1		1		157				
Within 100 m/yds																	
vessel within 100m - fishing			16			0							16				
vessel within 100m - stopped	93	69	180	4		2		62		1	1	6	418				
vessel within 100m - under power	14	12	99			0		59		2	3	5	194				
Within 100 m/yds	107	81	295	4		2		121		3	4	11	628				
Within 200m/yds																	
200y/183m- fishing			27			0							27				
200y/183m- stopped	117	55	208	5		1		63	1	2	1	7	460				
200y/183m- under power	21	12	134			0		93	1	2	2	9	274				
Within 200m/yds	138	67	369	5		1		156	2	4	3	16	761				
Grand Total	319	194	1443	27	26	5	78	329	5	14	21	39	2500				
Tuesday, October 25, 2011														Page 1 of 1			

In light of new 2011 US 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 69 and 70). As the US 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 69) or *In the path of killer whales* (Figure 70); in contrast, regulatory vessel incidents are shown in US waters *Within 0-200*

*yards of killer whales* (Figure 69) or *In the path of killer whales* (Figure 70). 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 US 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. During May and June of 2011 Soundwatch staff did record when a vessel operator in Canadian waters was *Within 100-200 yards of a killer whale* both as a way to better train themselves to recognize and record when this new vessel incident was taking place and to compare if there was a difference in vessel operator effort to move further away from killer whales in US vs. Canadian waters; these incidents were not included in the overall vessel incident analysis or in any vessel incident feedback reports. During this brief effort comparing vessel operators in US vs. Canadian waters there were 337 total vessel incidents observed with vessel operators being *Within 100-200 yards of a killer whale*; 210 were in US waters and 127 were in Canadian waters (Table 8).

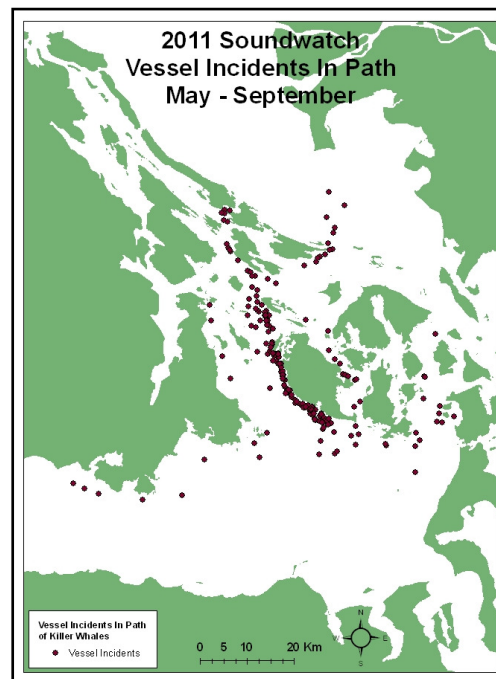
The areas with the most US federal vessel regulation incidents observed by Soundwatch tended to be along the US West side of San Juan Island, outside of a half mile along the US West side of San Juan Island, US North Haro Strait, US San Juan Channel, US South Rosario and Haro Straits, and both guideline and regulation incidents occurring in Swanson Channel & the US/Canadian Boundary Pass area (Figures 69 and 70).

Figure 69: 2011 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 US waters. Incidents shown occurring in Canadian waters are 0-100 yards Be Whale Wise Guideline incidents only.

Figure 70: 2011 Soundwatch Observed Vessels \**In the Path of Killer Whales* Incidents Location Map.



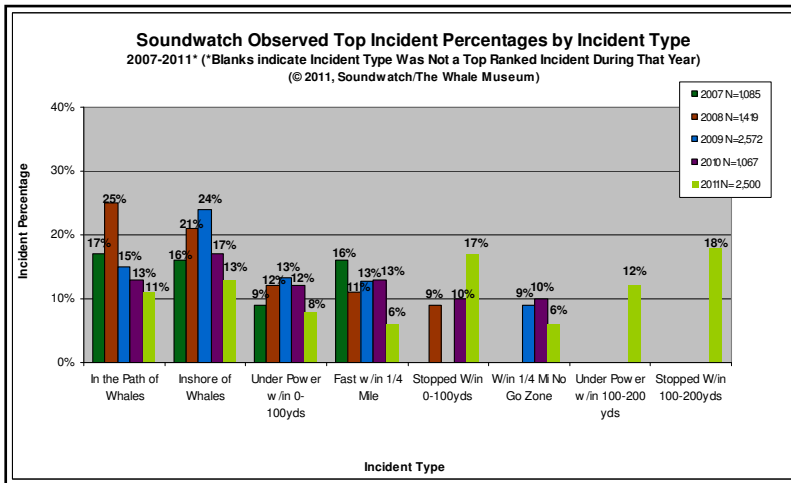
\*US Vessel Laws restricting vessels In the Path 200-400 yards of a killer whale applies only in US waters. Vessel incidents shown occurring in Canadian waters depict Be Whale Wise In the Path Guideline incidents only.

Table 8: 2011 May-June # of US vs. Canadian Locations with Incidents *Within 100-200 yards of a killer whale*.

2011 May-June All Vessel Types with Vessel Incidents Within 100-200 Yards		
Total Incidents	US Waters	Canadian Waters
337	210	127

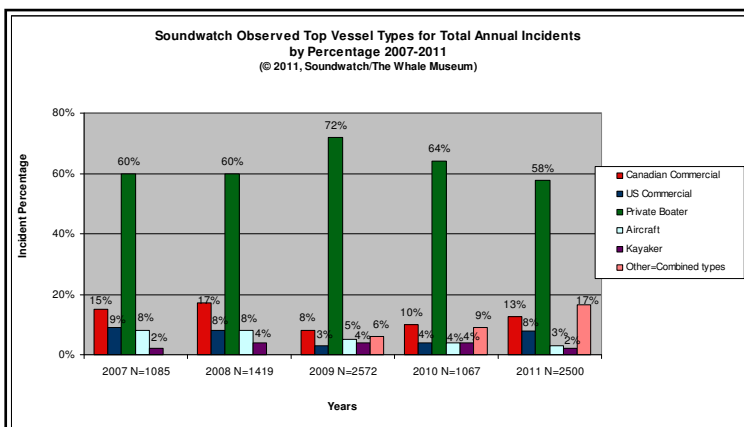
## Vessel Incident Trends 2007-2011

Figure 71: 2007-2011 Soundwatch Observed Top Vessel Incident Percentages by Incident Type.



Trends appear in the top vessel incident types from 2007-2011. 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 1/4 mile voluntary no go zone* and *Vessels stopped within 100 yards of whales* (Figure 71). 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*.

Figure 72: 2007-2011 Soundwatch Observed Vessel Incident Percentages by Top Vessel Type.



Overall trends 2007-11 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%) followed by a wide margin by Canadian commercial operators (2007 15%, 2008 17%, 2009 8%, 2010 10%, 2011, 13%), US commercial operators (2007 9%, 2008 8%, 2009 3%, 2010 4%, 2011, 8%) (Figure 72). The Soundwatch monitoring program has recorded itself making an increased number of incidents annually over the years 2007-2011, and has also emerged as an annual top vessel type making the annual top incident types. Since the Washington State vessels laws were put in place in 2008, and new US 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 within 200-yards of whales, and in the path of whales up to 400-yards; 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 operated as a co-investigator under an existing NOAA Research permit in 2011, and has put in an application for a Soundwatch specific permit for use in the 2012 season that would allow close approaches in some unavoidable circumstances.

### **Soundwatch Shore-based Kayak Monitoring Scan Data Incident Trends**

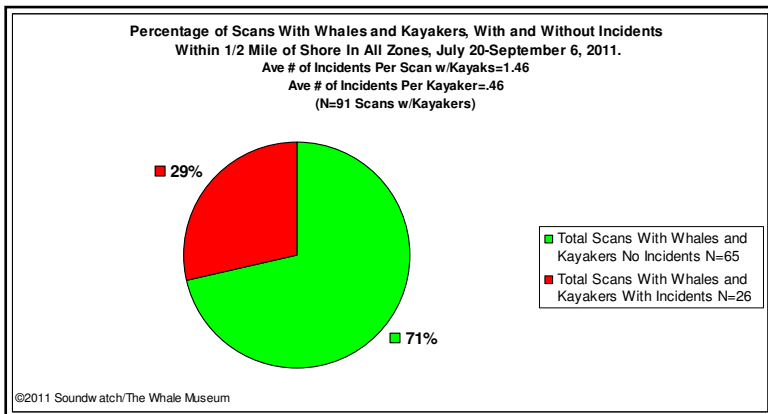
The shore-based kayak monitoring study observed commercial and recreational kayakers to record behaviors that were inconsistent with current best practice guidelines and/or vessel regulations. Using a sub-set of the incident definitions and incident recording protocols that are specific to kayakers; (Appendix O) perceived contradictions of the guidelines and/or laws by kayakers were recorded as *kayak incidents*. A *kayak incident* is specifically defined as an operator of a kayak or other human powered vessel (canoe, rowing vessel, stand-up paddle board, etc.) operating contrary to current voluntary 2011 Be Whale Wise Guidelines, 2011 Kayakers Code of Conduct, and/or federal or state vessel regulations.

This was the second year of the shore-based study focusing on kayaker behaviors around whales. Only a sub-set of the large number of *kayaker incident* variables that were observed and recorded in 2010 were repeated again in 2011, thus there is a reduction in the number of 2011 figures describing kayaker trends. In 2011, the kayak monitoring effort was reduced from the pilot program conducted in 2010, resulting in fewer scans and a shorter season running July 20 through September 6, 2011.

Based on substantial feedback from the San Juan Island Kayak Association indicating that the 2010 *kayaker incident* data was too confusing and potentially misleading, only *kayaker incidents* that were vessel regulation incidents were recorded and analyzed as a *kayaker incident* in 2011. Observations were made and recorded if additional Kayaker Code of Conduct Guidelines (Appendix D) were not being followed at the time a *kayaker incident* was recorded so as to better understand what occurred during the incident. Based on further feedback from the San Juan Island Kayak Association that the method of estimating kayaker effort in 2010 was too confusing and potentially misleading, and new method to simplify effort estimates was also undertaken in 2011. When a kayaker was observed behaving contrary to the US federal vessel regulations for killer whales and recorded as making a *kayaker incident*, observations were also made and recorded if kayakers made adjustments to their course as advised in the Kayaker Code of Conduct Guidelines (Appendix D). Three types of *Kayaker Adjustment* types (Appendix O) were recorded at the same time *kayaker incident* occurred to help evaluate why kayaker vessel regulation incidents may have occurred. The *Kayaker Adjustments* included *Did Not Adjust* (Kayaker made no or not enough adjustments to course before becoming within 200 yards whales or 200-400 yards of the whales path), *Could Not Adjust* (There was not enough room for a kayaker to adjust further inshore, whales surprised kayakers or whale behavior such as milling prevented adjustments) and *Weather/Conditions Prevented Adjustments* (Weather, boat wakes, current, etc. prevented reasonable course adjustments).

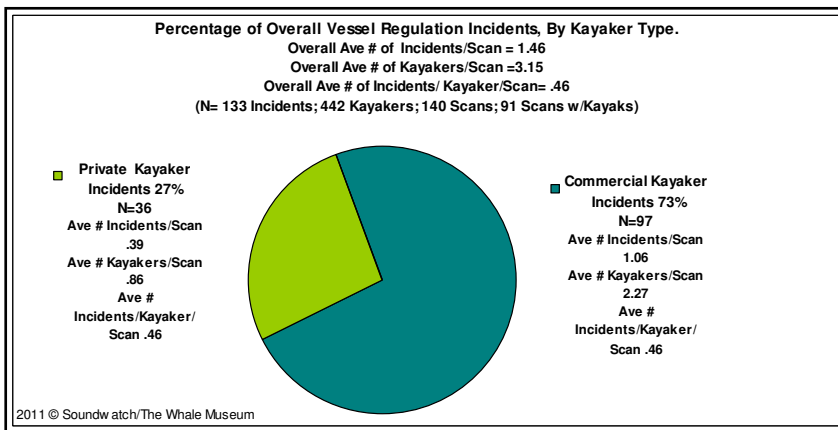
The Soundwatch Kayak Monitoring Program made observations during 10-minute scans with whales, within a half mile of shore, in one of six monitoring zones along the Westside of San Juan Island, between July 20 and September 6, 2011. There were a total of 140 10-minute scans conducted. The scan observations can be used to look at incident rates per kayaker type, incident type and by zone, as well as counts of kayakers by type with more rigor than the vessel based, opportunistic Soundwatch observations. Summary statistics were used to analyze kayaker incident data.

Figure 73: 2011 Percentage of Scans with Whales and Kayakers, with and without Incidents.



In 2011, 91 out of the 140 10-minute scans had both whales and kayakers present, with an average of 3.15 kayakers per scan (Figure 51). Of those 91 scans with kayakers and whales, no kayaker incidents were recorded the majority of time, 65 out of 91 scans, or 71% of the time; 26 scans had incidents recorded, or 29% of the time (Figure 73). Of the 91 scans with whales and kayakers, with and without incidents, an overall average of 1.46 kayakers incidents were observed, with an individual kayaker (single kayakers or individuals within a group), making an average of .46 incidents per 10-minute scan (Figure 73).

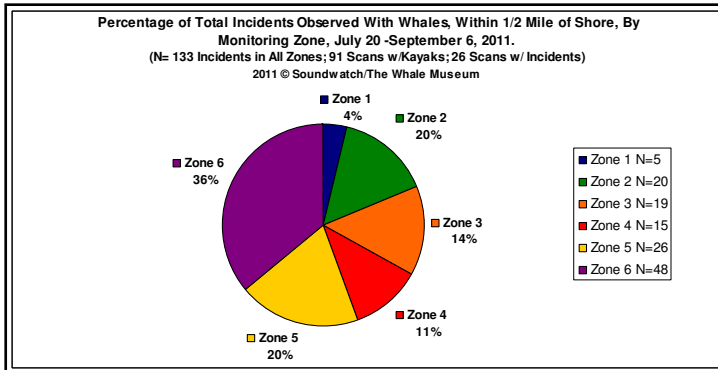
Figure 74: 2011 Percentage of Vessel Regulation Incidents, by Kayaker Type.



In the 91 scans with whales and kayakers with kayaker incidents, commercial kayakers made 97 out of the 133 observed kayaker incidents, or 73% of all incidents, with recreational kayakers making 36 of 133 incidents, or 27%. Non-commercial groups and 'other human powered craft' were not observed with incidents in the 91 scans (Figure 74). In the 91 scans with kayakers with and without incidents, the average number of commercial kayaker incidents observed per 10-min. scan was 1.06; with an individual kayaker (an individual within a group), making an average of .46 incidents per 10-min. scan (Figure 74). In the 91 scans with kayakers with and without incidents, the average number of private kayaker incidents observed per 10-min. scan was .39; with an individual kayaker (single kayakers or individuals within a group), making an average of .46 incidents per 10-min. scan (Figure 74).



Figure 75: 2011 Percentage of All Incidents Observed with Whales by Monitoring Zone.

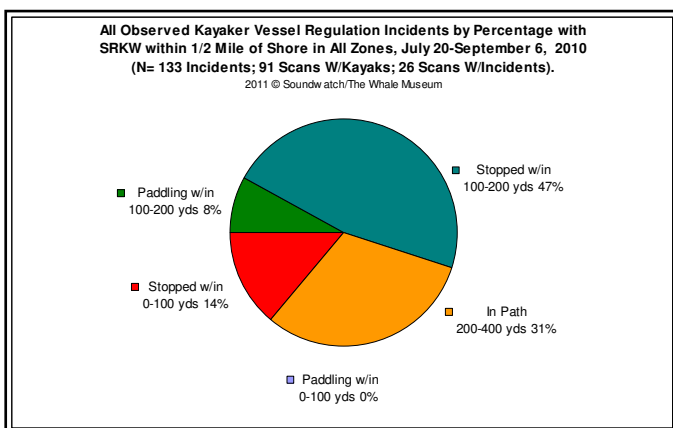


In 91 scans with whales and kayakers 133 kayaker incidents were observed. Zone 6, Land Bank Preserve, had the most number of observed incidents, with 48 or 36% of incidents. Zone 1, San Juan County Park North, had the least number of observed incidents with 5 incidents or 4% of incidents (Figure 75).

Table 9: 2011 Overall All Kayaker Incident Type Totals.

All Observed Kayaker Incidents In All Zones July 20-September 6, 2011 2011 © Soundwatch/The Whale Museum					
Incident Codes & Titles Vessel Regulation Incidents	Incident #	Incident %	Commercial Kayak		Private Kayak
60_2 Paddling w/in 0-100 yds	0	0%	0	0%	0 0%
5_1 Stopped w/in 0-100 yds	19	14%	17	89%	2 11%
60_6 Paddling w/in 100-200 yds	10	8%	7	70%	3 30%
6_1 Stopped w/in 100-200 yds	63	47%	48	76%	15 24%
3_1 In Path 200-400 yds	41	31%	25	61%	16 39%
<b>Total</b>	<b>133</b>	<b>100%</b>	<b>97</b>	<b>73%</b>	<b>36 27%</b>

Figure 76: 2011 Overall All Kayaker Incident Types by Percentage.



When kayakers were observed behaving contrary to the US federal vessel regulations for killer whales, incident types involving distances 0-200 yards from whales, or 200-400 yards in the path ahead of whales were recorded and the distance between kayakers and whales was measured, and/or estimated, using laser range finders. The new vessel regulations require that all vessels, including kayakers, remain at least 200 yards from killer whales and out of the on-coming path out to 400 yards. Sub-categories of incidents were used to record when kayakers were either stationary (stopped) or moving (paddling) within 0-100 yards of killer whales (previously the less restrictive Be Whale Wise Guideline, also new vessel regulation) or were either stationary (stopped) or moving (paddling) within 100-200 yards of killer whales (new vessel regulation). There were 133



kayaker vessel regulation incidents observed in 91 scans with kayakers and whales (Table 9). Commercial kayakers were observed making 97 incidents, or 73% of observed incidents; private kayakers 36 incidents at 27% of observed incidents (Table 9, Figures 76-79). The top incident types being **1- Kayakers Stopped within 100-200-yards of whales** with 47% or 63 incidents (commercial kayakers 48 incidents or 76%; private kayakers 15 incidents or 24%); **2- Kayakers In the Path of Whales 200-400 yards** at 31% or 41 incidents (commercial kayakers 25 incidents or 61%; private kayakers 16 incidents or 39%); **3- Kayakers Stopped within 0-100-yards of whales** with 14% or 19 incidents (commercial kayakers 17 incidents or 89%; private kayakers 2 incidents or 11%); **4- Kayakers Paddling within 100-200-yards of whales** with 8% or 10 incidents (commercial kayakers 7 incidents or 70%; private kayakers 3 incidents or 30%); and **5- Kayakers Paddling within 0-100-yards of whales** with no observed incidents (Table 9, Figures 76-79).

Figure 77: 2011 Observed Overall All Incident Types by Kayaker Type Percentage.

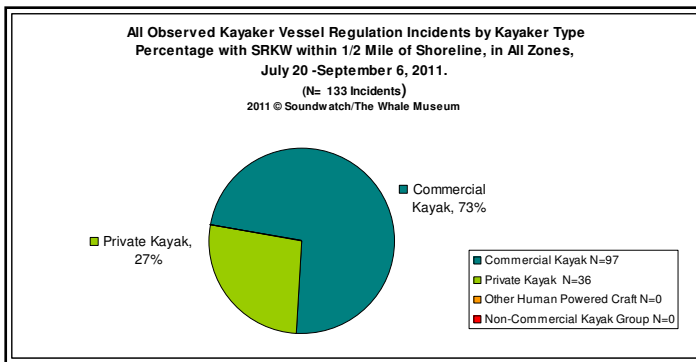


Figure 78: 2011 Observed Overall All Incident Type Percentages by Kayaker Type.

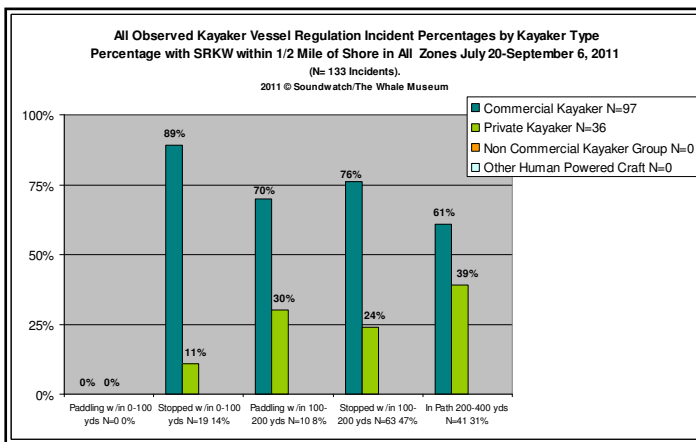
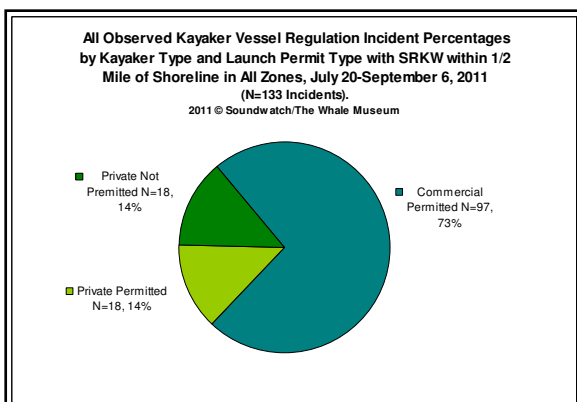


Figure 79: 2011 Overall Observed All Incident Types by Kayaker Type and San Juan County Park Permit Type.



Of the 133 observed kayaker incidents, all of the commercial kayaker incidents, 73% (97 incidents), were committed by permitted commercial companies; of the private kayaker incidents, 14% (18 incidents) were committed by permitted kayakers, while an additional 14% (18 incidents) of incidents committed by unpermitted private kayakers coming from outside of the San Juan County Park launch area (Figure 79).

Figure 80: 2011 All Kayaker Vessel Regulation Incidents Between 0-200 yards by Proximity Distances.

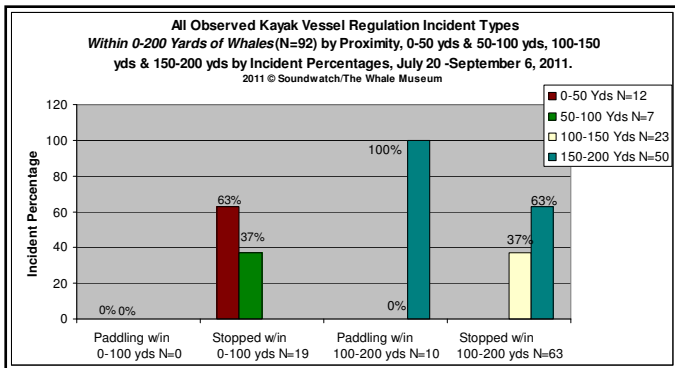


Figure 81: All Commercial Kayaker Vessel Regulation Incidents Between 0-200 yards by Proximity Distances.

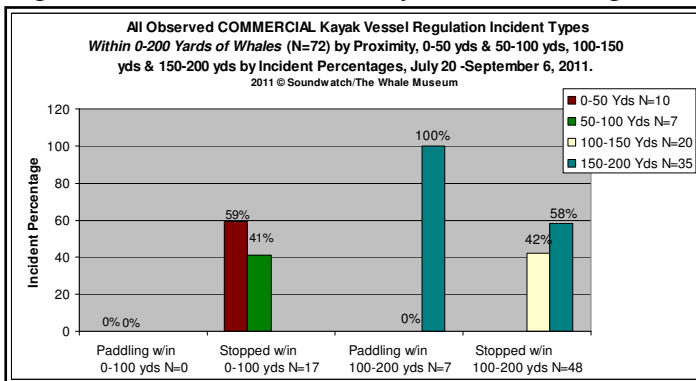
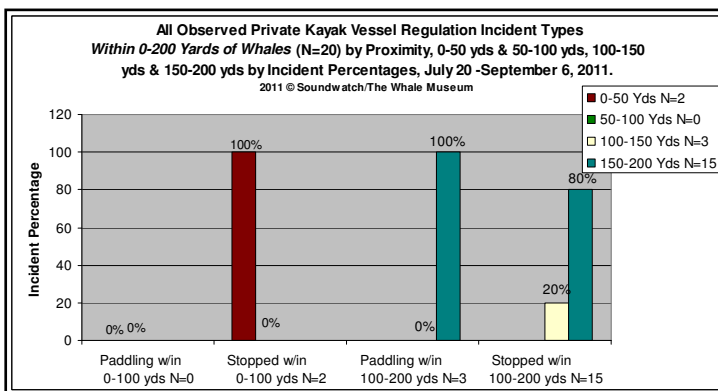


Figure 82: All Private Kayaker Vessel Regulation Incidents Between 0-200 yards by Proximity Distances.



The vessel regulation incident sub-categories were further measured and recorded when kayakers , 1- paddling or stopped within 0-50 yards and 2- paddling or stopped within 50-100 yards; 3- paddling or stopped within 100-150 yards; and 4- paddling or stopped within 150-200 yards to better understand at what distances the kayaker incidents were actually taking place. Of the 92 observed incidents of *Kayakers within 0-200 yards of Killer Whales* 13% or 12 incidents (10 commercial; 2 private) were determined to be within 0-50 yards; 8% or 7 incidents (7 commercial; 0 private) within 50-100 yards; 25% or 23 incidents (20 commercial; 3 private)

within 100-150 yards; and 54% or 50 incidents (35 commercial; 15 private) within 150-200 yards (Figure 80-82).

Figure 83: 2011 All Kayaker Vessel Regulation Incidents with Concurrent Guideline Incidents.

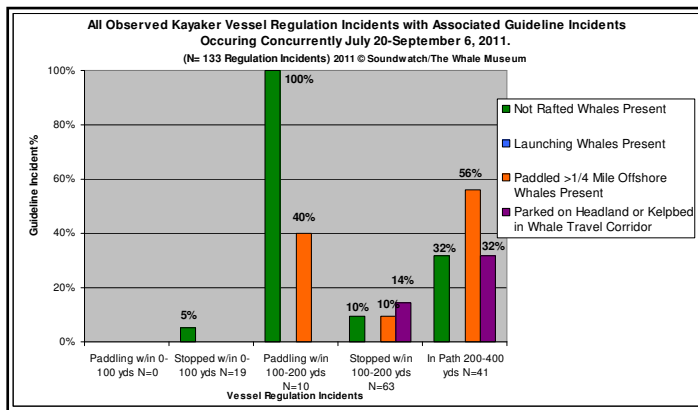


Figure 84: 2011 Commercial Kayaker Vessel Regulation Incidents with Concurrent Guideline Incidents.

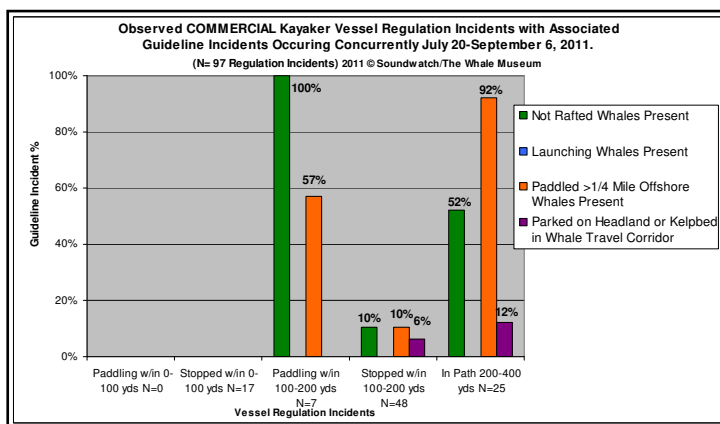
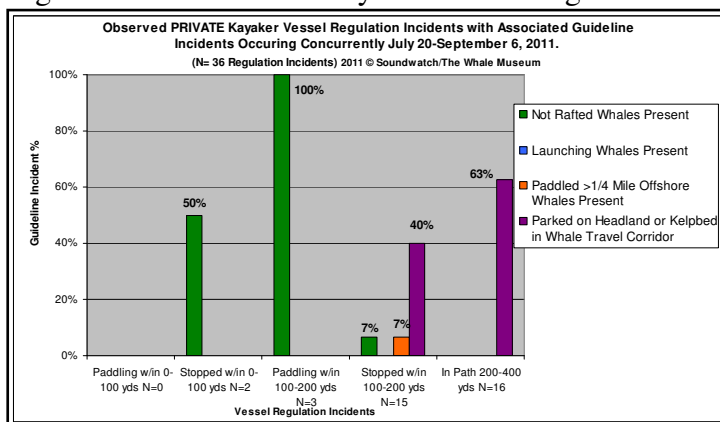


Figure 85: 2011 Private Kayaker Vessel Regulation Incidents with Concurrent Guideline Incidents.



When kayakers were observed behaving contrary to the US federal vessel regulations for killer whales and recorded as making a *vessel incident*, observations were also made and recorded if additional Kayaker Code of Conduct Guidelines (Appendix D) were also not being followed, so as to better understand what was occurring during the time of incident. Four *Kayaker Code of Conduct Guideline* incident types were recorded if

they occurred at the same time as a vessel regulation incident; these guideline incidents included *Kayakers Not Rafted when Whales Present*; *Kayakers Launching when Whales Present*; *Kayakers Paddling >1/4 Mile Offshore when Whales Present*; and *Kayakers Parked on a Headland or Kelpbed in Whale Corridor when Whales Present*.

When the 133 kayaker vessel regulation incident types were observed, *Kayakers Code of Guideline Incidents* also were observed, including; **1-** *Stopped within 100-200 yards of Whales* with 47% of observed incidents (commercial kayakers 48 incidents; private kayakers 15 incidents) also had *Parked on a Headland/Kelpbed* occur 14% of the time; *Paddling >1/4 Mile Offshore* 10% of the time and *Not Rafted* 10% of the time; **2-** *In the Path of Whales* 31% of observed incidents (commercial kayakers 25 incidents; private kayakers 16 incidents) also had *Paddling >1/4 Mile Offshore* 56% of the time; *Parked on a Headland/Kelpbed* 32% of the time; and were also observed *Not Rafted* 32% of the time; **3-** *Kayakers Stopped within 0-100-yards of whales* at 14% of observed incidents (commercial kayakers 17 incidents; private kayakers 2 incidents) also had kayakers observed *Not Rafted* 5% of the time; **4-** *Kayakers Paddling within 100-200-yards of whales* at 8% of observed incidents (commercial kayakers 7 incidents; private kayakers 3 incidents) also had kayakers *Not Rafted* 100% of the time, and kayakers *Paddling >1/4 Mile Offshore* 40% of the time; **5-** *Kayakers Paddling within 0-100-yards of whales* had no observed incidents (Figures 83-85).

When kayakers were observed behaving contrary to the US federal vessel regulations for killer whales and recorded as making a *vessel incident*, observations were also made and recorded if kayakers made adjustments to their course as advised in the Kayaker Code of Conduct Guidelines (Appendix D). Three types of *Kayaker Adjustment* types (Appendix O) were recorded at the same time vessel regulation incidents occurred to help evaluate why kayaker vessel regulation incidents may have occurred. The *Kayaker Adjustments* included *Did Not Adjust* (No or not enough adjustments made to kayakers course before becoming within 200 yards whales or 200-400 yards of the whales path), *Could Not Adjust* (Not enough room to adjust further inshore, whales surprised kayakers or whale behavior such as milling prevented adjustments) and *Weather/Conditions Prevented Adjustments* (Weather, boat wakes, current, etc. prevented reasonable course adjustments).

During the 91 scans with whales and kayakers when the 133 kayaker vessel regulation incidents were observed, 59% of the time or when 79 incidents occurred (43 commercial incidents, 44% of the time; 36 private incidents, 100% of the time) observations of *Did Not Adjust* were also recorded; 41% of the time or when 54 incidents occurred (54 commercial incidents, of the time; 0 private incidents) observations of *Could Not Adjust* were also recorded; no observations were made when weather or conditions were deemed to have prevented course adjustments (Figures 86-91). It was determined that 100% of the time when commercial kayakers had incidents of *Kayakers Stopped within 0-100-yards of whales* (17 incidents), the kayakers *Could Not Have Adjusted* to prevent the incident; likewise, it was also determined that 100% of the time when commercial kayakers had incidents of *Kayakers Stopped within 100-200-yards of whales* (48 incidents), the kayakers *Could Not Have Adjusted* to prevent the incident (Figures 88 and 89). It was determined that 100% of the time when commercial kayakers had incidents of *Kayakers Paddling within 100-200-yards of whales* (7 incidents) the kayakers *Did Not Adjust* to prevent the incident; as well as 100% of the time when commercial kayakers had incidents of *In the Path of Whales* (25 incidents) the kayakers *Did Not Adjust* to prevent the incident (Figures 88 and 89). When private kayakers were observed making the 36 vessel regulation incidents, it was determined that 100% of the time they *Did Not Adjust* to prevent the incident (Figures 90 and 91).

Figure 86: 2011 All Kayaker Observed Vessel Regulation Incidents When Adjustments Could Have been Made Vs. When Adjustments Could Not Have Been Made.

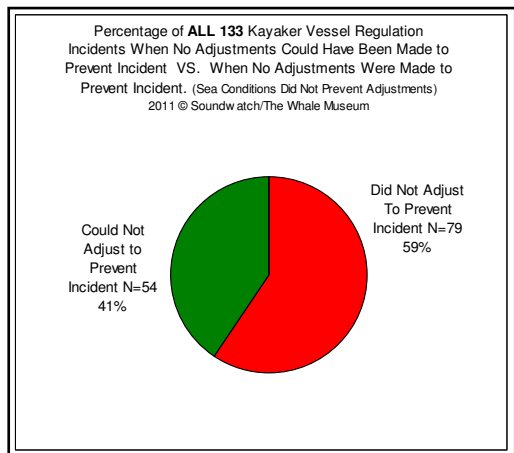


Figure 87: 2011 All Kayaker Observed Vessel Regulation Incidents by Incident Type When Adjustments Could Have been Made Vs. When Adjustments Could Not Have Been Made.

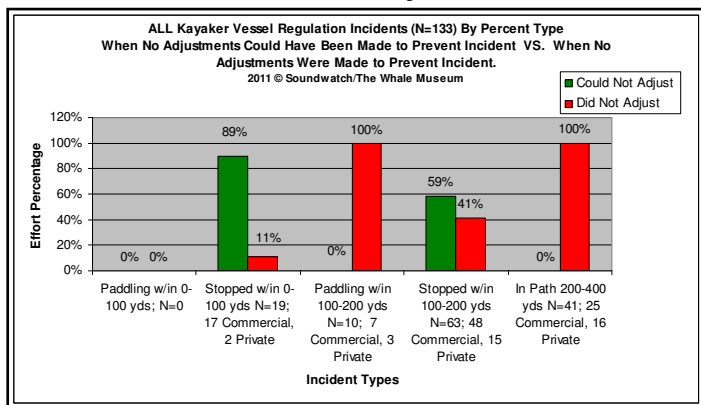


Figure 88: 2011 All Commercial Observed Vessel Regulation Incidents When Adjustments Could Have been Made Vs. When Adjustments Could Not Have Been Made.

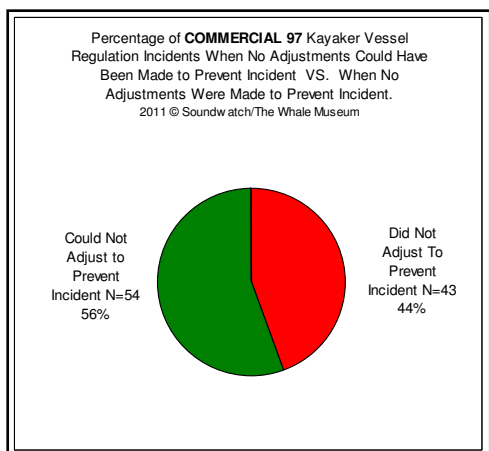


Figure 89: 2011 Commercial Kayaker Observed Vessel Regulation Incidents by Incident Type When Adjustments Could Have been Made Vs. When Adjustments Could Not Have Been Made.

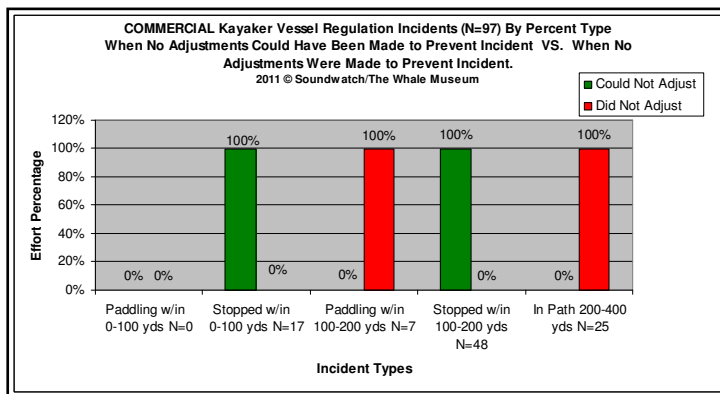


Figure 90: 2011 All Private Kayaker Observed Vessel Regulation Incidents When Adjustments Could Have Been Made Vs. When Adjustments Could Not Have Been Made.

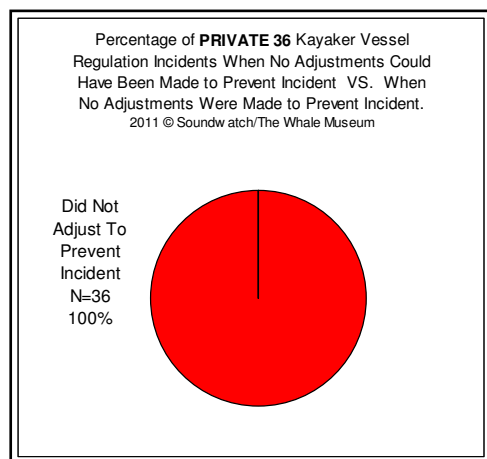


Figure 91: 2011 Private Kayaker Observed Vessel Regulation Incidents by Incident Type When Adjustments Could Have been Made Vs. When Adjustments Could Not Have Been Made.

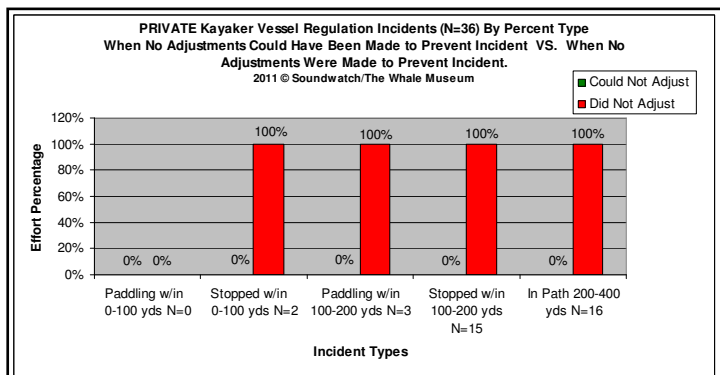
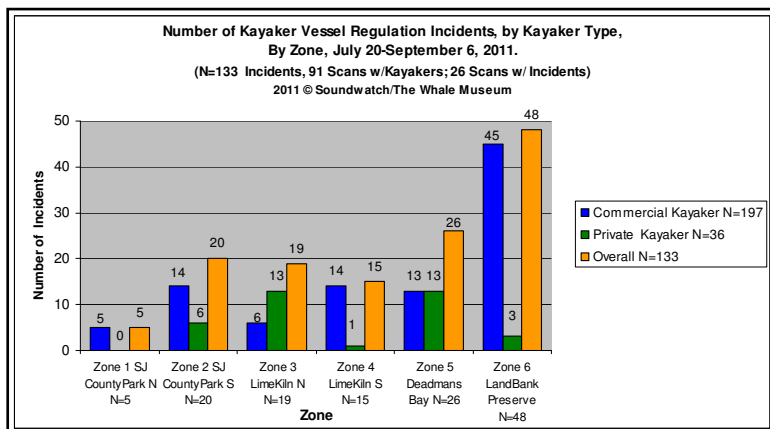
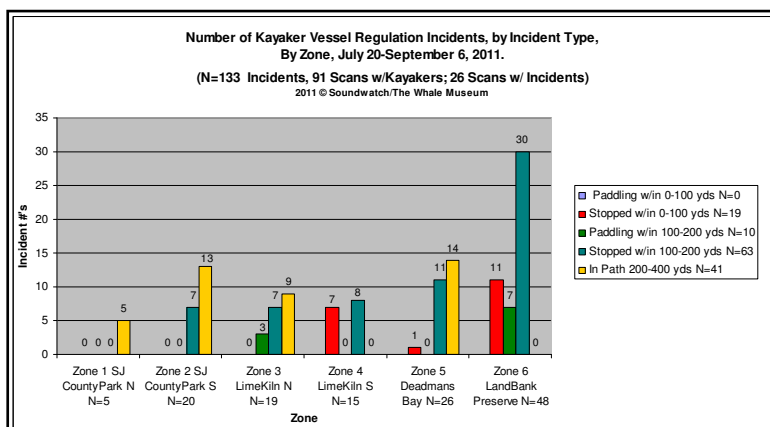


Figure 92: 2011 Vessel Regulation Incident Types, By Kayaker Type by Zone.



In the 91 scans with whales and kayakers with 133 kayaker incidents observed, Zone 6, Land Bank Preserve, had the most incidents with 45 incidents or 36% and Zone 1, San Juan County Park North, had the least with 5 incidents or 4% of incidents (Figures 75 and 92). In all zones, except Zone 5, Deadman's Bay, commercial kayakers made the majority of incidents; in Zone 5 the incident numbers were equal for commercial and private kayakers with each having 5 incidents or 20% of overall incidents. No incidents were observed by non-commercial groups and/or 'other human powered craft' in any of the zones. Of the 36% of all kayaker incidents observed in Zone 6, Land Bank Preserve, the majority of incidents were *Kayakers Stopped within 100-200 yards of whales* with 30 incidents or 48% all of *Kayakers Stopped within 100-200 yards of whales* incidents (Figure 93). Zone 5, Deadman's Bay, had 34% or 14 incidents of kayakers *In the Path of Whales*, followed by Zone 2, San Juan County Park South, with 32% or 13 of *In the Path of Whales* incidents (Figure 93).

Figure 93: 2011 Number of Vessel Regulation Incident Types, By Kayaker Type by Zone.



## Overall Conclusions

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 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 US 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.

## 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 up to 4 times larger than average numbers (2011 Max 62, Ave 12).
- There is a 8-year trend of reduced annual averages and maximum numbers of vessels with whales (1998-2011 Max 120, Ave 18).
- 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, 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 8-year trend of declining numbers of vessels observed travelling within ½ mile of whales.
- 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 (2011 Peak months: August Max 46; September Max 62).
- 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, 23% of all vessels observed with whales were engaged in fishing activities).
- 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.
- The highest numbers of vessels observed within ½ mile of whales occurs during the month of August (2011: Aug. Max 46, Ave 13) and sometimes in September (Sept. Max 62, Ave 14) if it is a good commercial and/or recreational fishing year, or a pink/sockeye return year.
- Private vessels observed within ½ mile of whales have had higher maximum numbers than commercial vessels from 2003-2009, and again in 2011 (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'.
- Kayaks (commercial and private) have been observed with overall higher maximum numbers within ½ mile of whales than private or commercial motor vessels (2011 Soundwatch Vessel and Shore-based Kayak Observed Max 23 Kayaks).
- On average (2001-2011) Soundwatch contacted over 1,000 recreational vessels per year with an average of 3.3 people on board each vessel, for an overall average number of 3,500 people given educational materials on the water annually (2011: 1,252 boat contacts, 4,460 people).
- The majority of boaters (62%) contacted by Soundwatch in 2011 were whale oriented (as opposed to transiting or fishing, etc.) with the majority, 89%, being new Soundwatch contacts. Of those contacted in 2011, 40% 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.

## Commercial Whale Watch Industry Trends

- Commercial whale watching occurs April – October with increasing numbers of US & 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 August (2011 Max 25) 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 US & Canadian commercial trips going out again at 5 pm-sunset (8:30-9 pm, July-September).
- For the past eleven years (2000-2011) there have been a similar number of 30-40 active Canadian and US commercial companies (Ave # of Companies 2000-2011: 38; Ave # US Companies 17; Ave # Canadian Companies 21; 2011: # of Commercial Companies 33; 16 Canadian; 17 U.S.).
- For the past eleven years (2000-2011) there have been a similar number of 70-80 active commercial whale watch vessels (Ave # of Commercial Vessels 2000-2011: 77; 51 Canadian; 26 US; 2011: 76; 54 Canadian; 22 US).
- Since 1997 there have consistently been more active Canadian commercial vessels than active US commercial vessels (2011: 54 Canadian, 22 US).
- Canadian commercial whale watch vessels continue to be mostly the smaller rigid hull inflatable (RHIB) style of vessels while the US fleet is made up of mostly larger passenger style vessels.
- The number of relative US 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 companies (2011 vessel number range: 1-11 vessels/company).
- The more maneuverable, RHIB-style and other smaller, commercial vessels lend themselves to a slightly different whale watching technique than the slower, larger passenger style vessels. Smaller vessels often engage in 'park and wait' sequences ahead of groups of whales, while the larger vessels often engage in 'parallel viewing' travelling alongside of whales. Commercial vessels engaged in the 'park and wait' technique are observed more often committing incidents (primarily '*parked in the path of whales*') than those engaged in parallel viewing.
- The majority of active Canadian and US commercial companies are members of the transboundary Pacific Whale Watch Association (formerly the Whale Watch Operators Association Northwest). <http://pacificwhalewatch.org/>

## KELP & San Juan County Park Vessel Launch Trends

- There were 517 vessel launch permits given to boaters wishing to launch from the county park launch site (multiple people associated w/each permit).
- KELP Code of Conduct Training was given to 975 people using the vessel launch.
- Less than half of all the permits given (44%) were to Campers, 56% to Not Campers, at the county park.
- The majority of permits were multi-day permits (51%), followed by day-use permits (29%) and seasonal permits (20%).
- There were a total of 4,086 recorded vessel launches from the county launch site; 3,591 were commercial kayaks, 495 were recreational vessels.
- Recreational kayaks were the majority recreational vessel type (87%) launched, the remaining were small power boats (10%) and other human-powered small craft (3%).
- The majority of vessels launched were in July (1,458) followed by August (1,335).
- Total number of people using the launching facilities at the San Juan County Park was 7,662 (7,167 Commercial kayakers, 495 private boaters).

## Vessel Incident Trends

- A new vessel incident category of *Vessels within 200 yards of whales* was added in 2011 which likely increased the 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. 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 US vessel regulations that apply in US 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 200-400 yards ahead of whales, either motoring, or stopped.
- Soundwatch has observed similar top five vessel incidents 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 the 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, and 58% in 2011).
- Canadian and US commercial operators are observed making less overall incidents than private boaters and are held to a higher standard of operation around whales than private boaters as they expected to know all vessel guidelines and regulations.
- Canadian commercial vessel operators are more likely than US commercial vessel operators to be observed committing incidents (Canadian 15% in 2007, 17% in 2008, 8% in 2009, 10% in 2010, and 13% in 2011; US 9% in 2007, 8% in 2008, 3% in 2009, 4% in 2010, and 8% in 2011).
- The primary vessel incident type observed committed by commercial whale watch operators is being *stopped with 200 yards*, with the majority being committed by Canadian commercial whale watch operators.
- Annual commercial fishing incidents are similar to previous years (2% of all incidents 2011).
- Annual commercial and private aircraft numbers and aircraft specific incidents are similar to previous years (3% of all incidents 2011).
- Annual commercial and private kayak numbers and kayak specific incidents, as well as other incidents committed by kayakers, are similar to previous years. Commercial and private kayakers observed from the Soundwatch vessel, in all areas, accounted for 2% each of all incidents in 2011.
- Annual numbers of the Soundwatch vessel self-reported incidents are increasing (13% of overall incidents in 2011). Soundwatch has applied for a NOAA Research and Enhancement Permit for 2012.
- In 2011, 1,652 *vessel incidents* (out of 2,500, or 66%) were observed that were possible violations of the US federal vessel law for killer whales. Of these observations, 628 involved vessels either motoring or stopped within 0-100-yards of whales; 761 involved vessels motoring or stopped within 100-200-yards of whales; with an additional 263 observations of vessels in the on-coming 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.

## Shore-based Kayak Monitoring Trends

- The average number of kayakers (# of kayaks, not # of people) observed from shore along the west side of San Juan Island was 3, the maximum 23.
- The majority of kayakers observed were commercial (72%), followed by recreational kayakers (27%) and non-commercial groups and 'other human powered craft' (1%).
- Commercial kayakers had higher averages and maximums than recreational kayakers (commercial Ave 3, Max 18, recreational Ave 1, Max 10).
- August was the busiest month (August Max 23).
- The area adjacent to the San Juan County Park had the highest number of kayakers observed (23).
- An average of 3.15 kayakers was observed per 10-minutes when whales and kayakers were observed along the west side of San Juan Island.
- Of the vessel regulation incident types the majority (73%) were committed by commercial kayakers; followed by recreational kayakers (27%).

- An average of 1.46 incidents was observed per 10-minutes when whales and kayakers were observed along the west side of San Juan Island; an individual kayaker (single kayakers or individuals within a group), made an average of .46 incidents per 10-minutes.
- The Land Bank Preserve area had the most incidents observed (48) and the area just north of the San Juan County Park had the least (5).

## **Spatial Trends**

- There are spatial trends indicating that the whales are seen more often along the west side 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 west side of San Juan Island.
- There are spatial trends indicating that the highest concentrations of vessels incidents types are along the west side 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 west side of San Juan Island.

## **Recommendations**

Soundwatch observed vessel trends from 1998-2011 show continued boating pressures and noncompliance with best practice guidelines and vessel regulations for killer whales throughout the inland waters of Washington State and Southern Vancouver Island, 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 an 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 US 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.

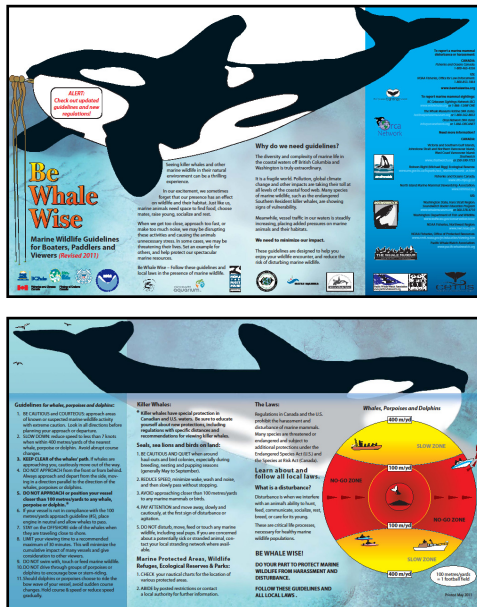
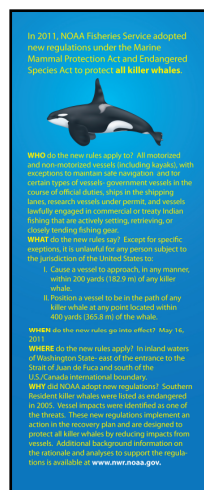
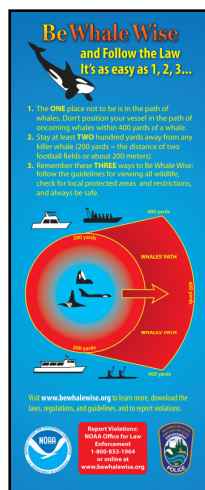
During both of the NOAA SRKW Recovery Plan and Proposed Vessel Regulations public input process, overwhelming support for increased enforcement effort as well as the continuation and expansion of the Soundwatch program was expressed through written and verbal public comment. The Whale Museum and Soundwatch are struggling to secure funding and other resources to continue to collect this important annual monitoring data. The effort required to collect 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 will be critical after new federal regulations are implemented to assist in evaluating the effectiveness of the regulations and enforcement efforts.

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

The Whale Museum staff (Museum Director Jenny Atkinson, Finance Manager Julie Hanks, and Soundwatch Program Director Kari Koski) administered grant funds, including accounting and disbursement, from award AB133F-07-CN0221. The Soundwatch Director (Kari Koski), seasonal Soundwatch driver/educator staff (John Calogero and David Howitt), academic interns (Jaeda Gothberg, Lauren Ryan, Shannon Buckham, and Alex Ulmke) and over 40 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. Individuals who made major contributions to the outreach activities, data collection and data analysis include Soundwatch Drivers: John Calogero and David Howitt; Kayak Monitoring Program Investigators Jim Rappold and Gaia Wilson; help was given from long-term collaborators Johanna Smith (former Soundwatch Coordinator), Debbie Giles (Whale Museum Research Associate) and Jeff Hogan (Killer Whale Tales Director and former Soundwatch diver/educator); the Straitwatch South Team: Nic Dedeluk, Doug Sandilands, Cara Lachmuth, and Bo Garrett; the U.W. Conservation Biology Conservation Canine Program: Jessica Lundin (PI), Elizabeth Seely (dog handler, research assistant), Debbie Giles (vessel driver, research assistant) and interns Charlie Rolsky, Rachel Pausch and Katrina van Raay. GIS Map work was done by The Whale Museum's Research Associate (previous research director), Jason Wood and the Conservation Canine Program's Elizabeth Seely. We could not begin to pull this program off without the fantastic staff and Board of Directors at The Whale Museum, the vision of the former Soundwatch program director, Rich Osborne, and the help and dedication of the nearly 600 past and present interns and volunteers who have collectively contributed more than 60,000 volunteer hours to Soundwatch activities since 1996! Special thanks also go the numerous Soundwatch fans 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.

With deep gratitude, THANK YOU!

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## Appendix C: 2010 Soundwatch Whale Watching in the Salish Sea Brochure, Folded, Double-sided (Available at <http://www.whalemuseum.org>).

**Soundwatch Whale Watching**

Soundwatch is a non-profit organization dedicated to the protection and conservation of marine mammals. We provide education and outreach programs to the public, and we monitor and research marine mammals in the Salish Sea.

Our programs include:

- Whale watching tours
- Marine mammal research
- Public education and outreach
- Marine mammal conservation

For more information, please contact us at:

Soundwatch Whale Watching  
1000 4th Street, Suite 100  
Seattle, WA 98101  
Phone: (206) 461-1000  
Email: [info@soundwatch.org](mailto:info@soundwatch.org)

**Whale Watching in the Salish Sea**

Whale watching is a popular activity in the Salish Sea. There are many different species of whales that can be seen in this area, including:

- Gray whales
- Minke whales
- Fin whales
- Blue whales
- Right whales
- Humpback whales
- Sperm whales
- Orca

When whale watching, it is important to follow the guidelines set by Soundwatch to ensure the safety of the whales and the enjoyment of the experience for all.

Guidelines include:

- Keep a safe distance from the whales.
- Do not feed the whales.
- Do not touch the whales.
- Do not use binoculars or cameras to take pictures of the whales.
- Do not use flash photography.
- Do not use loudspeakers or other electronic devices.
- Do not use alcohol or drugs while whale watching.
- Do not smoke or drink while whale watching.
- Do not litter.
- Do not use sunscreen that contains oxybenzone.

For more information, please contact us at:

Soundwatch Whale Watching  
1000 4th Street, Suite 100  
Seattle, WA 98101  
Phone: (206) 461-1000  
Email: [info@soundwatch.org](mailto:info@soundwatch.org)

**San Juan County Marine Stewardship Area**

The San Juan County Marine Stewardship Area (SJMSA) is a designated area in the Salish Sea, off the coast of Washington state. It is the largest marine protected area in the state, and it covers an area of over 100,000 acres.

The SJMSA was established in 1992, and it was the first marine protected area in the United States to be designated as a "Marine Stewardship Area".

The SJMSA is managed by the San Juan County Marine Stewardship Council (SJMSC), which is a non-profit organization dedicated to the protection and conservation of marine mammals in the Salish Sea.

The SJMSC's mission is to protect and conserve the marine mammals of the Salish Sea, and to provide education and outreach programs to the public.

The SJMSC's programs include:

- Whale watching tours
- Marine mammal research
- Public education and outreach
- Marine mammal conservation

For more information, please contact us at:

SJMSC  
1000 4th Street, Suite 100  
Seattle, WA 98101  
Phone: (206) 461-1000  
Email: [info@sjmsc.org](mailto:info@sjmsc.org)

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- Gray whales
- Minke whales
- Fin whales
- Blue whales
- Right whales
- Humpback whales
- Sperm whales
- Orca

When whale watching, it is important to follow the guidelines set by Soundwatch to ensure the safety of the whales and the enjoyment of the experience for all.

Guidelines include:

- Keep a safe distance from the whales.
- Do not feed the whales.
- Do not touch the whales.
- Do not use binoculars or cameras to take pictures of the whales.
- Do not use flash photography.
- Do not use loudspeakers or other electronic devices.
- Do not use alcohol or drugs while whale watching.
- Do not smoke or drink while whale watching.
- Do not litter.
- Do not use sunscreen that contains oxybenzone.

For more information, please contact us at:

Soundwatch Whale Watching  
1000 4th Street, Suite 100  
Seattle, WA 98101  
Phone: (206) 461-1000  
Email: [info@soundwatch.org](mailto:info@soundwatch.org)

## Appendix D: 2010 Kayaker Code of Conduct Brochure, Folded, Double-sided (Available at <http://www.whalemuseum.org>).

**The Whale Museum's Soundwatch Boater Education Program**

The Whale Museum's Soundwatch Boater Education Program is a non-profit organization dedicated to the protection and conservation of marine mammals. We provide education and outreach programs to the public, and we monitor and research marine mammals in the Salish Sea.

Our programs include:

- Whale watching tours
- Marine mammal research
- Public education and outreach
- Marine mammal conservation

For more information, please contact us at:

Soundwatch Whale Watching  
1000 4th Street, Suite 100  
Seattle, WA 98101  
Phone: (206) 461-1000  
Email: [info@soundwatch.org](mailto:info@soundwatch.org)

**Kayaker Code of Conduct**

Paddling is a quiet and low-impact way to explore the Salish Sea. Even so, kayakers and operators of other small boats 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 risk of disturbing marine wildlife.

**Responsible Paddlers:**

- Are aware of and strive to follow all local, state, and federal laws and the BSA's guidelines governing behavior around killer whales and other marine wildlife, as well as special Marine Protection Areas.
- Have a stop 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.

**San Juan County Marine Stewardship Area**

The San Juan County Marine Stewardship Area (SJMSA) is a designated area in the Salish Sea, off the coast of Washington state. It is the largest marine protected area in the state, and it covers an area of over 100,000 acres.

The SJMSA was established in 1992, and it was the first marine protected area in the United States to be designated as a "Marine Stewardship Area".

The SJMSA is managed by the San Juan County Marine Stewardship Council (SJMSC), which is a non-profit organization dedicated to the protection and conservation of marine mammals in the Salish Sea.

The SJMSC's mission is to protect and conserve the marine mammals of the Salish Sea, and to provide education and outreach programs to the public.

The SJMSC's programs include:

- Whale watching tours
- Marine mammal research
- Public education and outreach
- Marine mammal conservation

For more information, please contact us at:

SJMSC  
1000 4th Street, Suite 100  
Seattle, WA 98101  
Phone: (206) 461-1000  
Email: [info@sjmsc.org](mailto:info@sjmsc.org)

**Whale Watching in the Salish Sea**

Whale watching is a popular activity in the Salish Sea. There are many different species of whales that can be seen in this area, including:

- Gray whales
- Minke whales
- Fin whales
- Blue whales
- Right whales
- Humpback whales
- Sperm whales
- Orca

When whale watching, it is important to follow the guidelines set by Soundwatch to ensure the safety of the whales and the enjoyment of the experience for all.

Guidelines include:

- Keep a safe distance from the whales.
- Do not feed the whales.
- Do not touch the whales.
- Do not use binoculars or cameras to take pictures of the whales.
- Do not use flash photography.
- Do not use loudspeakers or other electronic devices.
- Do not use alcohol or drugs while whale watching.
- Do not smoke or drink while whale watching.
- Do not litter.
- Do not use sunscreen that contains oxybenzone.

For more information, please contact us at:

Soundwatch Whale Watching  
1000 4th Street, Suite 100  
Seattle, WA 98101  
Phone: (206) 461-1000  
Email: [info@soundwatch.org](mailto:info@soundwatch.org)

## Appendix E: Soundwatch Data Sheet Vessel Contact.

**VESSEL CONTACT**

Time Location Latitude Longitude Why contacted? Took BWW? Why Not? Prev Cntct? Redo? Incident Recorded? Time:

Vessel Type Vessel Activity Vessel Name Vessel ID Reaction Port # pass Photo? Comments:





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

	<b>FAST/SPEED</b>	
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)
	<b>IN PATH</b>	<b>NEW 2011 LAWS</b>
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
	<b>APPROACH</b>	
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
	<b>W/in 100 YARDS/M</b>	
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/91m of whales (did not attempt to move out of path of whales)
	<b>W/in 200 YARDS/M</b>	<b>NEW 2011 LAWS</b>
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	<b>INSHORE</b>	vessel on the inshore side of whales, when whales are traveling close to shore (within 1/2 mile)
	<b>AREA RESTRICTION</b>	<b>** Placeholder for WDFW Proposed New SLOW ZONE Guideline: NOT IN EFFECT as of June 2011**</b>
40.1	area restriction - SJIVNBZ 1	vessel w/in 1/4mile (440y/402m) of the SJ 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 Refuge (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 - SJ Slow Zone	vessel > 7 knots w/in 1/2mile (880y/808m) SJIVNBZ with whales present <b>**WDFW PROPOSED New Guideline**</b>
	<b>AIRCRAFT</b>	
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 J1: 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 <b>NEW 2011 LAW</b>
	<b>BOWRIDING</b>	
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
	<b>HAULOUT</b>	
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	<b>INTERACTION</b>	<b>swimming, feeding, touching wildlife DEFINE INTERACTIONS</b>
10	Other: Define	something out of the ordinary or site specific <b>DEFINE OTHER</b>
8.0	<b>TIME LIMIT</b>	<b>vessel is staying longer than 30 minutes w/in 1/4 Mi (440y/402m) of whales- record if only a few whales</b>

## Appendix K: 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 L: Soundwatch Data Sheet Vessel Count/Whale Survey.

DATE:	Time	Lat	Location Name:	Dir:	Distance:	Total Count:	Total Eco:	Total Priv:	Total: Kayak	Count: A B													
Weekend <input type="checkbox"/>	Sea St.	Long	Quad:	Weather:	Visibility:	EU	EC	PM	PS	EK	PK	CA	PA	MM	RP	GW	GN	GD	MM	MX	MY	OTHER	DERIVE:
	Pod: J Jp K Kp L Lp T	Vessel Activity?	Whale Cmt/Mnr																				
Weekday <input type="checkbox"/>	Soc:	DIR: N S E W	Fish																				
	Orig: CTC HT LOO SPD SPD Gps: dlc tht loo	Transit																					
Holiday <input type="checkbox"/>	Prim: FUNK UN NONUN	Specific Behvs:	Resch NonWhale																				
	Soc: Mns S lo Med Fst Porp	Enforce Active																					
Boating	Prim: Tvl Rst Mill Soc	Acoustic > 1/2mi																					
	Omms:	Other Dscp:																					

## Appendix M: Soundwatch Whale Survey &amp; 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	Lagenorhynchus obliquidens
phvi	harbour seal	Phoca vitulina richardsi
euju	Stellar's sea lion	Eumatopius jubatus
enlu	sea otter	Enhydra lutris
brma	marbled murrelet	Brachyramphus marmoratus
syau	ancient murrelet	Synthliboramphus antiquus
arhe	Pacific great blue heron	Ardea herodias fannini

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-headstunt
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

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

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

## Appendix N: Soundwatch Marine Conditions &amp; 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 appearance 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	Visibility	Weather
CA	Commercial Aircraft	none	sunny
EA	Ecotour aircraft	poor	sunny w/ partial clouds
EC	Ecotour Canadian	fair	overcast - high
EK	Ecotour Kayak	good	overcast
EU	Ecotour US	excel	foggy
PA	Private Aircraft		rain - light
PK	Private Kayak/Paddle		rain - heavy
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		

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

## Appendix O: Soundwatch Shore-based Kayak Monitoring Vessel and Incident Codes for Scans.

Kayak Type Code	Description	Zone/ST Area Location
EKP	Comm Eco Kayak Permitted	1-San Juan County Park North
EKNP	Comm Eco Kayak Not Permitted	2-San Juan County Park
PKP	Private Kayak Permitted	3-Lime Kiln North
PKNP	Private Kayak Not Permitted	4-Lime Kiln
GHPP	Group Permitted	5-Deadman's Bay
GHNP	Group Not Permitted	6-Land Bank Preserve
OHPCP	Other Human Powered Craft Permitted	
OHPCNP	Other Human Powered Craft Not Permitted	
Tag Color	Don't Need to Record 2011	Kayak Activity
Pink	Day Use	W-Whale Oriented
Orange	Camp/Multi-day	F-Fishing
Green	Seasonal	T-Transiting
NID	Tag Color Not Identified	S-Staging
		O-Other with description
COMMON COMMERCIAL COMPANIES	Don't Need to Record 2011	SCAN TYPE
DSK	Discovery Sea Kayaks	
CSK	Crystal Seas Kayaks	FS - Full Scan, 8-10 Minutes
OO	Outdoor Oddyseys	PS - Partial Scan, 5-7 Minutes
SO	Sea Quest	NS- No Scan, < 5 Minutes
SJIO	San Juan Island Outfitters	
SJEX	San Juan Expeditions	
		Adjustment USE ONE
		D.N.A. did Not Adjust
		No or not enough adjustments made before 200yds or 400yds
		C.N.A. Could Not Adjust
		Not room inshore to adjust, whales surprised, milling etc.
		weather & conditions
		prevanted adjustments
Kayak Regulation Incident Types & Distance 0-50yds A, 50-100yds B, 100-150yds C, 150-200yds D		
80.2 Paddling w/in 100 yards		
5.1 Stopped w/in 100 yards		
80.6 Paddling w/in 200 yards		
6.1 Stopped w/in 200 yards		
3.1 In Path 200-400yds (Includes Crossing in Path)		
Kayakers Code Incident Types: Record When Regulation Incident Occurred		
80.1 Not farred with whales present		
80.3 Launching with whales present		
80.4 Paddled offshore > 1/4 Mi, whales present offshore		
80.5 Parked on headland or offshore kelp bed in expected travel corridor		
Record info about Incident, record if photos/video taken to go back to later, etc.		

## Appendix P: Soundwatch Shore-based Kayak Monitoring Whale Survey & Behavior Codes for Scans.

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	Belly flop	Pec slap
Pec wave	Inverted pec slap	Tail wave
Tail Slap	Inverted tail slap	Tail lift-headstart
Dorsal fin slap	Cartwheel	Chasing
Lunging/surging	Rolling at surface	High arch dives
Reverse	Push/tilt/carry whale	Playing with log / object
Kelping	Fish seen	Vocalization heard
Bubble blowing	Synchronous surfacing	Mating
Paras seen-whale w/ another	Paras 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	Sea is mirror (flat)
1	ripple 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

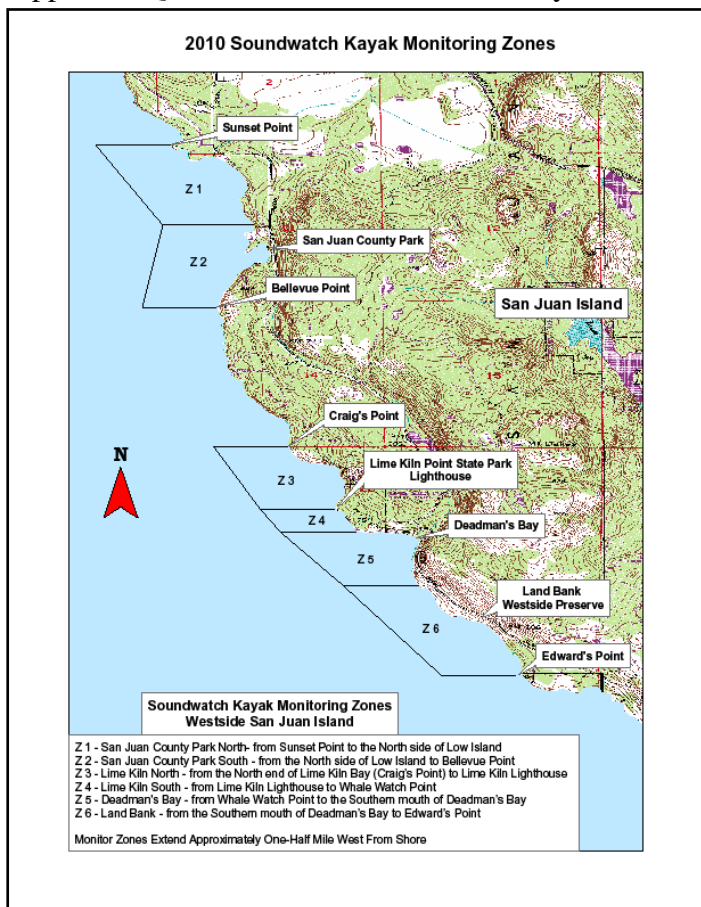
  

Direction of travel	
Directionality	
Directional:	less than or equal to 90deg from previous direction of travel
Non-directional:	deviation of greater than 90deg from previous direction of travel
N, NW, NE, E, S, SW, SE, W	

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

## Appendix Q: Soundwatch Shore-based Kayak Monitoring Zone Locations.





## Appendix R: Soundwatch Shore-based Kayak Monitoring Data Sheet Vessel Count/Whale Survey.

Date:	Time:	<1/4 Mi	1/4 to 1/2 Mi	> 1/2 Mi	Total Count:	Total EK:	Total PK:	Scan: FS PS NS	Incidents: Y N					
Crew:	ZONE 1-6:	Weather	Sea State	Visibility	K Type & Activity	EK PERMIT	EK NOPERMIT	PK PERMIT	PK NOPERMIT	GRP PERMIT	GRP NOPERMIT	OHPC PERMIT	OHPC NO PERMIT	OTHER
POD/SPECIES: J J P K KP L LP T OTHER:					#									
CONFG: CTC THT LOO SPRD SPRD GRPS: ctc tht loo					Whale									
NON or DIR: N S E W					Transit									
FORMATION: FLANK LINEAR NONLINEAR					Fish									
SPEED: Motionless Slow Medium Fast Porpoising					Staging									
BEHAVIOR STATE: TRAVEL REST MILLING SOCIALIZE					Other									
OTHER BEHAVIORS:					DESCRIBE OTHERS:									
COMMENTS:														

## Appendix S: Soundwatch Shore-based Kayak Monitoring Data Sheet Vessel Incident.

Date & Time	Zone 1-6	KYK Type & Act	INDV OR GRP #	# of kayaks w/ Incidents	Regulation Incidents 0-50 Yds A 50-100 Yds B 100-150 Yds C 150-200 Yds D Circle all that apply	D.N.A.	C.N.A.	Weather	Kayakers Code of Conduct Incidents Occurred with Regulation Incident Circle all that apply	FS PS NS	Photo/Video?	Comments
1 2 3 4 5 6	EKP EKN PKP PKN GRPP GRPN OHPCP OHPCN	INDV GRP GRP			60.2 Paddle 100 A 5.1 Stopped 100 B 60.6 Paddle 200 C 6.1 Stopped 200 D 3.1 In Path				60.1 Not rafted 60.3 Launched 60.4 > 1/4 w/whales 60.5 Path Kelp or headland	FS PS NS		

## Appendix T: Soundwatch L90 Monitoring Sheet.

Date	Time	Lat	Long	Location Name:	Distance:	Dir:	Sea State:	Weather:	Visibility:
Left or Right ID Photos #'s:		Head/Melon Photo #'s:		Body / Back Photo #'s:		Peduncle Photo #'s:		Surfacing Photos #'s:	
Video Tape Logging, Respirations, Surfacing, w/ Engine OFF if possible. Please Describe What Filmed and Tape #'s:									
Other Individuals in Area? ID & Photos:		If With Others: Configuration: CTC THT LOO SPRD			Group Formation: FLNK LIN NONLIN		Est. Distance to nearest Group?		
Travel DIR or NON? N S E W		Travel Speed: Mins Slo Med Fst Porp Estimate Spd in Knts:				Overall Behavior State: Trvl Rst Mill Soci			
Observation of # Respirations, Dive Time, Behaviors Start Time: End Time: Observation Total Time:									
# of Surfacing/Respirations per 5 Minutes				Respiration/Surface Times:					
# of Surfacing/Respirations per 5 Minutes				Respiration/Surface Times:					
# of Surfacing/Respirations per 5 Minutes				Respiration/Surface Times:					
Observed Behaviors CHOOSE FROM BEHAVIOR LIST or DESCRIBE OTHERS:									
OTHER NOTES, Please Record Times Closer than 100 yards, if any samples were collected etc.:									
CREW & PLATFORM:									