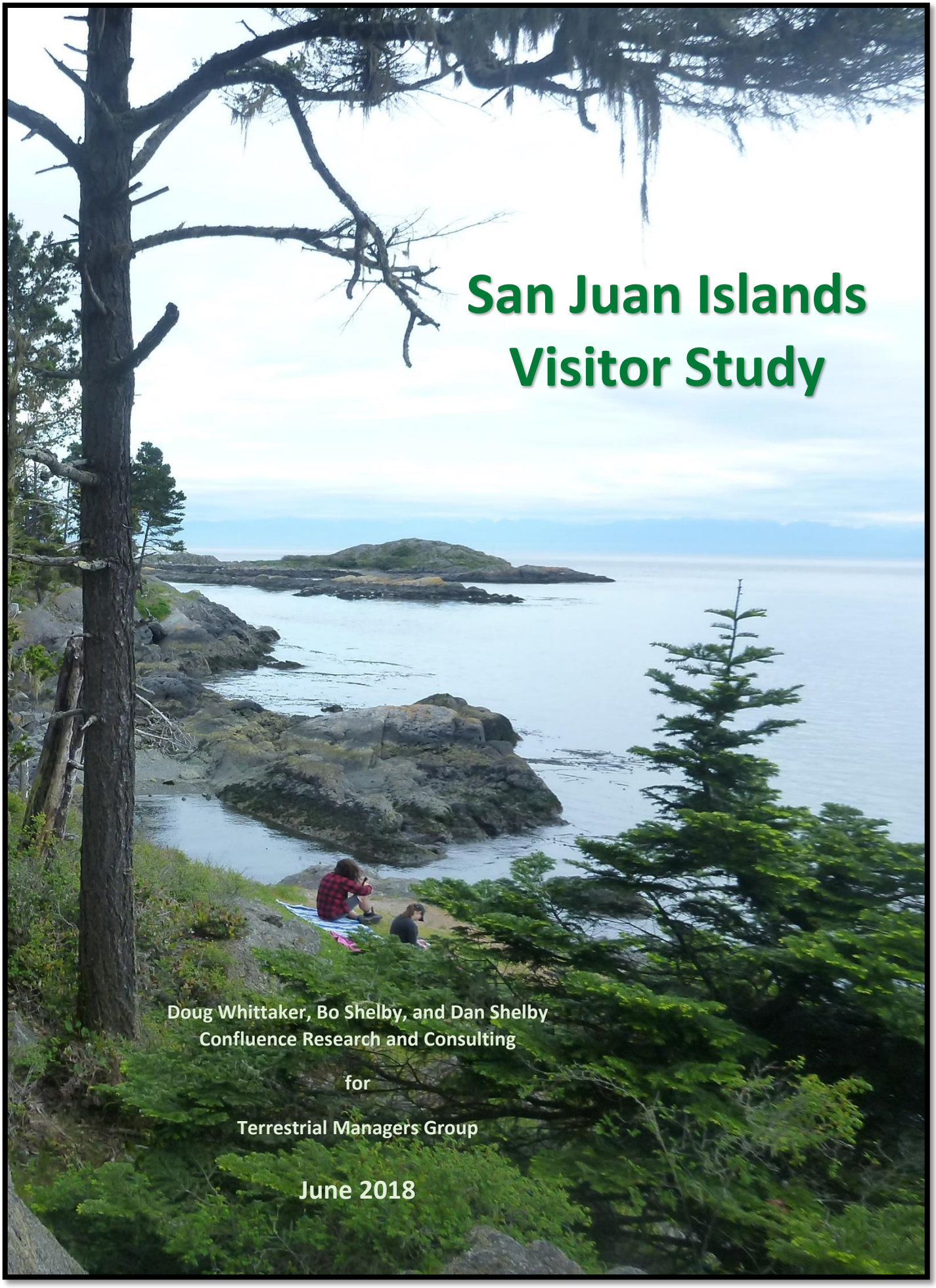

San Juan Islands Visitor Study

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for

Terrestrial Managers Group

June 2018

San Juan Islands
Visitor Study

Prepared by

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for

San Juan County
Parks, Recreation, and Fair
Land Bank
and
San Juan Island National Historical Park
National Park Service

in cooperation with the

San Juan Islands
Terrestrial Managers Group

Funded by San Juan County and National Park Service

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Introduction

The San Juan Islands are a major northwest tourist destination, with increasing use and impacts that threaten resource health and the quality of visitor experiences. Several local, state, federal, and non-governmental organizations that manage parks, protected areas, or recreation facilities formed the San Juan Islands Terrestrial Managers Group (TMG) to address these challenges. The TMG recognizes that visitors' experiences occur across agency boundaries, and solutions for many visitor problems require a broader view and coordinated decisions. The long-term goal is a Cooperative Action Plan (CAP) to manage visitor use to protect and enhance resources and visitor experiences.

The TMG and Confluence Research and Consulting (Confluence) held a ***Visitor Management Workshop*** in October 2016 to review existing information, brainstorm and prioritize issues, and consider example management actions. Existing information and output from the workshop were summarized in a ***Visitor Management Assessment*** in February 2017. That document described long-term visitation trends, assessed recreation supply and demand, characterized recreation impacts, and prioritized "hot spots" with visitor management issues. The Assessment also identified information gaps, and reviewed study options that might be used to fill them. Several of these were funded as part of the ***2017 San Juan Islands Visitor Study,*** which is reported in this document.

The Visitor Study is designed to assess use levels and patterns; accommodation supply; resource and experiential conditions; visitor tolerances for conditions; and public acceptability of management actions that might address problems or improve experiences. This information was developed from multiple sources and methods; the five major elements of the study included:

- ***Visitation analysis*** – patterns and trends of visitation to the islands from Washington State Ferries, other passenger ferries, cruise ships, airlines and charters, and private boats.
- ***Counts and observations*** – site-specific use information at attraction sites, specific park units, or along road segments.
- ***Accommodation inventory*** – the number and types of accommodation used by visitors to compare with visitation estimates.
- ***Onsite survey*** – one-page survey of people at attraction sites to evaluate crowding and facility conditions, and characterize users (visitors or residents).
- ***Ferry survey*** – six-page survey of people waiting for ferries to Anacortes covering several topics: respondent characteristics, recreation participation, attractions visited, reasons for visiting, evaluations of use densities at beach and marine viewing areas, and support for management actions.

Study process

The Visitor Study was multi-faceted, with complex logistics and multi-agency support. Major steps in the process are summarized below. Details about specific study elements are summarized in the Methods chapter.

- The ***study was developed*** by researchers at Confluence in cooperation with the TMG steering committee, with primary funding from the National Park Service (San Juan National Historic Park) and San Juan County (through the Parks, Recreation, and Fair and Land Bank).
- ***Onsite and ferry surveys were pre-tested*** among TMG members in April 2017. WSF also reviewed reservations-related questions on the ferry survey.
- ***Count/observation and onsite survey protocols*** were developed during April 2017 fieldwork.
- ***Training for field technicians*** (to conduct counts/observations, onsite surveys, and ferry surveys) occurred in May 2017. Technicians included staff, interns, and volunteers associated with several agencies and volunteer groups, as well as staff from Confluence (see Appendix A for a list).
- ***Revised study forms and protocols*** (e.g., maps, count/observation forms, survey logs and forms, and fieldwork schedules) were finalized in late May 2017.
- ***Counts/observations and surveys*** were conducted by technicians from Memorial Day through mid-September. There were some logistical and scheduling adjustments in response to staff changes, ferry schedule disruptions, and use levels.
- ***Data coding*** by volunteer and Confluence staff occurred from mid-summer through November 2017.
- ***The accommodation inventory and visitation analysis*** occurred from May through November, 2017.
- ***Analysis and initial results*** were developed by Confluence for a ***series of public presentations*** on San Juan, Orcas, and Lopez Islands, and to the TMG steering committee, all in February 2018. This allowed stakeholders and the public to review major findings and suggest additional issues for the draft report. Electronic PDF files of the presentations, which include hundreds of graphs and photos illustrating findings, are available on the SJI County website.
- This ***Draft Study Report*** was developed by Confluence for TMG, stakeholder, and public review in April and May 2018.
- A ***Final Study Report*** incorporating public and agency feedback (this document) was made available in June 2018.

Organization of this document

This report ***summarizes findings*** and suggests ***implications for management***. Following a ***review of methods*** for each study element (visitation analysis, counts/observations, accommodation inventory, onsite survey, and ferry survey), ***findings are organized by topics*** rather than by information source (although both are labeled). A final section suggests ***possible management actions*** that might address issues and kick-start a multi-agency Cooperative Action Plan. Appendices in separate documents provide additional information about methods and results (to reduce redundancy in the main report, results are sometimes given for one island only).

Methods Summary

This chapter describes study objectives and summarizes methods for each study element. Additional detail about each element are provided in appendices (a series of separate documents).

Visitation analysis

- Objectives included:
  - Summarize long term annual and summer visitation trends.
  - Characterize "study year" visitor use levels relative to recent years and long-term trends.
  - Identify time of day, daily, day of week, and seasonal use patterns.
  - Describe relative visitation from different sources, including Washington State ferries (WSF), other passenger ferries, cruise ships, private boats, airlines, and private aircraft.
  - Describe relative visitation to the three major islands from different sources.
  - Assess potential for growth in visitation from different sources.
- WSF data are typically available only as quarterly averages by type of fare for different routes, which is useful for exploring longer-term seasonal and annual use trends.
- For this study, WSF provided ferry-by-ferry data for summer 2017, which allowed more detailed analyses of vehicles, passengers in vehicles, walk-ons, and bike-ons (as well as the sum of all = total riders).
- The study focused on WSF island-bound ferries from Anacortes (to San Juan Island, Orcas, and Lopez). Analyses explored use by time of day, day of week, specific holiday weekends, and time of year.
- Ferry schedule disruptions due to maintenance issues occurred from July 16-31 and August 6-9; these non-representative periods were excluded from analysis.
- Structured interviews and web research provided estimates of non-WSF transportation providers during the 2017 season. The focus was on typical and peak daily visitation during the summer season. This included information from…
  - Victoria Clipper and Port Townsend passenger ferries
  - Three cruise companies (American Cruise Lines, Un-Cruise Adventures, and USA River Cruises).
  - Several public and private marinas (including Port of Friday Harbor, Shipyard Cove, and Roche Harbor on SJI; Cayou Quay, Deer Harbor, West Sound, and Rosario on Orcas; and Spencer's Landing Marina, Islander, and Island Marine Center on Lopez).
  - Kenmore and San Juan Airlines
  - FAA airport statistics

Additional methods information and results for the ***visitation analysis element*** are summarized in Appendix B.

Counts and observations

- Objectives included:
  - Summarize visitation to specific attraction sites on the three main islands.
  - Identify time of day, daily, day of week, and seasonal use patterns at those sites.
  - Compare average, typical peak, and maximum use levels at those sites to establish baseline conditions.
  - Review other sources of information about use levels collected by other agencies as indicators of daily, weekly, or seasonal use.
  - Organize count information to allow analysis of use relative to crowding evaluations (from onsite and ferry surveys) or facility capacity.
- Systematic counts by study technicians or volunteers occurred at 30 different attraction sites on the three main islands.
  - 11 locations on San Juan: Cattle Point (DNR/BLM), American Camp, 4th of July Beach, South Beach, Eagle Cove, Jackson Beach, Westside Preserve, Lime Kiln, SJ County Park, and Jackson Beach.
  - 8 locations on Orcas: North Beach, Crescent Beach, Waterfront Park, Judd Cove, Cascade Lake Day Use area, Mt. Constitution summit, Mountain Lake day use area, and Obstruction Pass State Park.
  - 11 locations on Lopez: Ferry Landing (DOT), Odlin Park, Village, Hummel Lake, Spencer Spit, Fisherman Spit, Otis Perkins Park/Tombolo, Shark Reef, Agate Beach/Iceberg Point, Watmough Bay, and Blackie Brady Park.
- Counts were scheduled at medium and higher use times to assess locations "under load" with greater congestion, crowding, or resource impacts.
- A few locations on each island were initially scheduled to have counts throughout the entire summer, but early counts were low and technician effort was directed elsewhere. Appendix C provides more detail about the number of counts by location.
- In total, technicians conducted 1,805 separate "count-sessions" at a given location on a given date and time (often while counting multiple variables for each location; see below). This total included 986 on San Juan, 229 on Orcas, and 590 on Lopez. The reduced numbers of counts for Lopez and Orcas were intentional; the availability of additional accurate traffic counters at key locations on those islands obviated the need for more frequent in-person counting.
- For each site, several types of counts were made (depending on its site characteristics). Counts might include people, vehicles, bikes, sail/powerboats, kayaks, boat trailers, or commercial recreation vans.
- For some sites, geographically-defined trail segments or areas were defined on maps so counts could be made systematically. Appendix C includes example maps for key sites.
- Counts for some trail segments (e.g., at Lime Kiln, Shark Reef) were standardized into densities (number of people per 100 yards) and shown on maps to illustrate relative use levels.

- While traveling between attraction sites on Lopez and San Juan Islands, some technicians conducted counts along road segments of bicycles, mopeds, transit buses, tour buses, and poorly parked vehicles. In total, technicians made 69 road segment counts on Lopez and 20 on San Juan.
- Use information collected by other organizations or agencies provided additional indicators of use levels on all three islands, as listed below. Summaries are provided in Appendix C.
    - NPS road counters at American Camp and English Camp.
    - State Park road counters at Lime Kiln, Moran, Mt. Constitution road, Obstruction Pass, Spencer Spit.
    - BLM-sponsored trail/vehicle counters at Watmough Bay, Iceberg Point, and Point Colville.
    - SJ County counts of kayak use through San Juan County Park.
    - State Park campground occupancy at Moran, Obstruction Pass, and Spencer Spit.
    - County campground occupancy at San Juan County Park, Fair campground, and Odlin Park.
    - Moorage information from Obstruction Pass and Spencer Spit State Park.
    - NPS cumulative daily visitor counts at English Camp and American Camp visitor centers.
    - Visitor counts at the Lime Kiln lighthouse by whale researcher Robert Otis.
    - Daily visitor counts at FOLKS-operated visitor center at Lime Kiln.

Additional methods information and results for the ***Counts and Observations element*** are provided in Appendix C.

Accommodation inventory

- Objectives included:
    - Summarize the number and type of overnight accommodations on the three main islands.
    - Create an updateable database that can track accommodation trends over the years (and compare to estimates from the visitation analysis).
    - Include several characteristics in the database to allow comparisons between types of accommodation, including size, amenities, ratings, and costs.
    - Categories of accommodation included: resorts/condos; hotel/motels/inns; cabins; bed & breakfast inns; hostels; campgrounds; and vacation rentals.
    - Assess relative proportions of accommodation of different types by island relative to visitation demand trends.
- The inventory had two main components: 1) ***vacation rentals*** and 2) ***other types of accommodations*** (e.g., hotels, resorts, bed & breakfasts, campgrounds, etc.)
- ***Vacation rentals*** are permitted by the County differently than hotels, but their characteristics are more difficult to assess because permit details are in paper-based files.
- Study resources were insufficient to conduct a census of all vacation rentals available on the three main islands, but Confluence reviewed a representative sample of 217 properties from internet research (97 from San Juan, 60 from Orcas, and 60 from Lopez).
- This sample represents about 25% of the properties advertised on the VRBO and Airbnb websites (considered the two largest, with about 9% overlap) on the three main islands. This is slightly less than the estimated total of all vacation rentals (about 950 based on active County permits, which does not include those in the Town of Friday Harbor).
- The vacation rental sample was developed systematically by sorting all available properties by bedroom size, then selecting every n^{th} property in the list for a given island (until a quota was filled). Half of each island's sample came from each website. Taken together, the method produces a representative sample of different sized properties.
- Information about ***other types of accommodations*** were developed from structured interviews and internet research. In total, we found 88 separate accommodation properties on the three main islands (44 on San Juan, 34 on Orcas, and 10 on Lopez).
- For each accommodation property, the database includes information about its type, number of units, typical occupancy (pillows or people per unit), availability of pool/Jacuzzi; availability of exercise facilities; availability of breakfast; availability of kitchen; whether the property has waterfront or water views; average star rating (if available); and double room cost.

Additional methods information and results for the ***Accommodation inventory*** are provided in Appendix D.

Onsite survey

- Objectives included:
  - Survey a representative sample of visitors and residents who are at key attraction sites on the three main islands.
  - Describe proportion of visitors and residents at key attraction sites on the three main islands.
  - Describe visitors' trip characteristics: islands visited, length of stay, group size, type of accommodation, home zip code.
  - Describe residents' characteristics: home island, years on island, months per year on island.
  - Describe visitors' and residents' attraction site visit: length of stay, how they traveled to the site, times visiting per month.
  - Assess perceived crowding at attraction sites (and while traveling to the site). Compare perceived crowding at different sites to other locations in San Juans, western U.S.
  - Assess facility conditions at attraction sites.
- The onsite survey was one page long and self-administered, given to visitors present at a location during a sampled survey period. For each location, technicians roamed a designated route (e.g., a short trail to a marine viewing area) or established a station near the common exit of the location (e.g., a picnic table next to a parking lot).
- Survey periods were generally scheduled for about an hour, and technicians were instructed to contact 4 to 10 groups during the period (based on pre-testing survey length).
- Technicians used a script that included an introduction and a protocol for randomly selecting a single person in a group to participate; Appendix E includes the script.
- Visitors generally completed the on-site questionnaire in the vicinity of the surveyor, who answered questions and collected the completed surveys.
- If a group refused to participate in the study, technicians estimated their group size and noted the reason for refusal (see log refusal form in Appendix E).
- Target sample sizes and sampling times were developed for specific locations on all three islands. In general, the goal was to collect 100 surveys from higher use sites and 50 to 70 surveys from lower use sites.
- Sample scheduling included similar numbers of week days and weekend days, and similar numbers of hours during medium and higher use times. The study targeted few lower use times.
- Onsite surveys were conducted at 17 sites on the three main islands, but samples from six sites were discontinued because of low use or volunteer technician shortages. Sample sizes for different locations are given in Table 1. Response rates for onsite surveys were high (over 96%).

Appendix E provides additional information about the onsite survey, including the survey instrument, script, and sample sizes for each location by time periods, days of week, and months for each location.

Table 1. Onsite survey sample sizes by location.

Attraction site	Sample size	Comments
San Juan Island	**537**	
Lime Kiln SP	356	
County Park	139	
Westside Preserve	7	~30 more surveys from SJI Naturalist Program coming.
South Beach	20	Discontinued due to volunteer shortage.
Cattle Point	10	Discontinued due to volunteer shortage.
Orcas Island	**510**	
Cascade Lake day use area	136	
Mt. Constitution summit	134	
Mountain Lake day use area	149	
Obstruction Pass State Park	79	
Crescent Beach	5	Discontinued due to low visitor use.
Waterfront Park	7	Discontinued due to low, short-term visitor use.
Lopez Island	**497**	
Odlin Park	102	
Spencer Spit	104	
Shark Reef	112	
Agate Beach/Iceberg Point	56	Lower use site.
Watmough Bay	107	
Otis Perkins Park/Tombolo	16	Discontinued due to low visitor use.

Ferry survey

- Objectives included:
    - Survey a representative sample of visitors and residents on ferries bound for Anacortes (visitors leaving the islands after their trip; residents travelling to the mainland during survey periods).
    - Describe visitors' trip characteristics: islands and attractions visited, outdoor recreation activity participation, length of trip, group size, type of accommodation, number of previous trips to the San Juans, and home zip code.
    - Describe residents' characteristics: home island, attractions visited in the previous week, outdoor recreation participation, years on island, months per year on island, average trips per year to the mainland.
    - Describe whether respondents made reservations for ferry trips, and whether those were for first choice dates and times.
    - Assess perceived crowding at various locations during their trip (or in past week, for residents). Compare perceived crowding among different sites, and to other locations in the San Juans Islands and western U.S.
    - Assess proportions of visitors and residents who use different coping responses when crowded.
    - Describe the importance of different reasons for visiting or living in the San Juan Islands.
    - Evaluate different use densities at a generic 1) beach and 2) marine viewing area.
    - Assess support and priorities for a range of infrastructure, education, regulation, and capacity management actions that might be used to address problems or improve experiences.
- The ferry survey was six pages long and self-administered during sampled survey periods to visitors present in the Anacortes-bound ferry lines on the three main islands.
- Survey periods were generally scheduled for about 1 to 1.5 hours before a scheduled ferry departure. Technicians were instructed to contact about 10 groups during the period (based on pre-testing).
- Technicians were provided a script that included an introduction and protocol for randomly selecting a single person in a group to participate; Appendix F includes the script.
- Visitors generally completed the questionnaire in the vicinity of the surveyor, who answered questions and collected the completed surveys.
- Target sample sizes were initially 400 from Friday Harbor and 200 each from Orcas and Lopez, for 800 total. Ferry schedule disruptions and technician shortages reduced those targets; final sample sizes were 323 from San Juan Island, 219 from Orcas, 230 from Lopez, for a total of 772.
- The ferry survey sample included 631 visitors and 141 non-visitors (including 112 residents and 29 who were either commuters, commercial vehicle drivers, or unknown).
- Sampling scheduling targeted similar numbers of week days and weekend days, and ferries in the morning, afternoon, and early evening. The study did not target ferries during darkness due to safety concerns; WSF permission to conduct the survey was contingent on surveying during high visibility periods.

- The survey included vehicle-based and walk-on/bike-on passengers. For Friday Harbor, technicians targeted 7 to 8 vehicle-based groups and 2 to 3 walk- or bike-on groups (the ratio of vehicle vs. walk-on passengers on Friday Harbor routes, based on WSF statistics). For Orcas and Lopez, they targeted 8 to 9 vehicle-based groups and 1 to 2 walk-on groups. For Friday Harbor and Orcas, walk-on samples were challenging because these passengers are boarded before vehicles (with less time to complete the survey), they do not have to wait in line like vehicle passengers, and there are several stores and other facilities where they can wait for the ferry to board). Overall, 7% of the sample were walk-ons or bike-ons (5% Friday Harbor, 5% Orcas, and 10% Lopez).

Appendix F provides additional information about the ferry survey, including the survey instrument, script, and sample sizes by months for each island.

Findings

Getting to the islands

Washington State Ferry visitation (from WSF)

Long term annual trends

Rider and vehicle trends on WSF ferries to the San Juan Islands have varied over the past 15 years, probably in response to fee and regional population and economic changes.

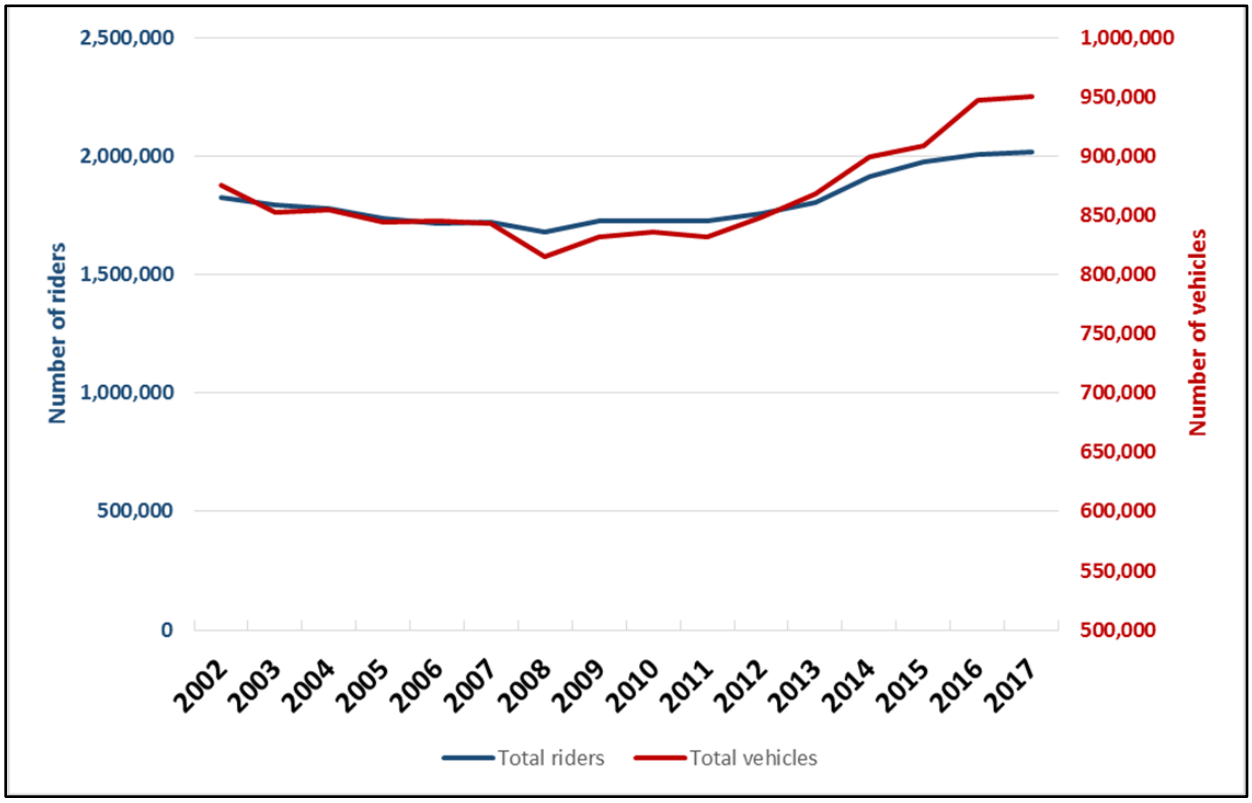


Figure 1. Year-round WSF use trends (riders and vehicles from Anacortes to all San Juan Islands).

- There has been a steady increase in WSF use since the 2007-08 recession, although 2017 was similar to 2016.

- The number of vehicles appears to be increasing faster than the total number of riders in recent years.

Long-term summer visitation trends

Compared to year-round use (Figure 1), summer vehicle use has not increased as dramatically in recent years, as illustrated in Figure 2, which shows vehicles to each island (and inter-island).

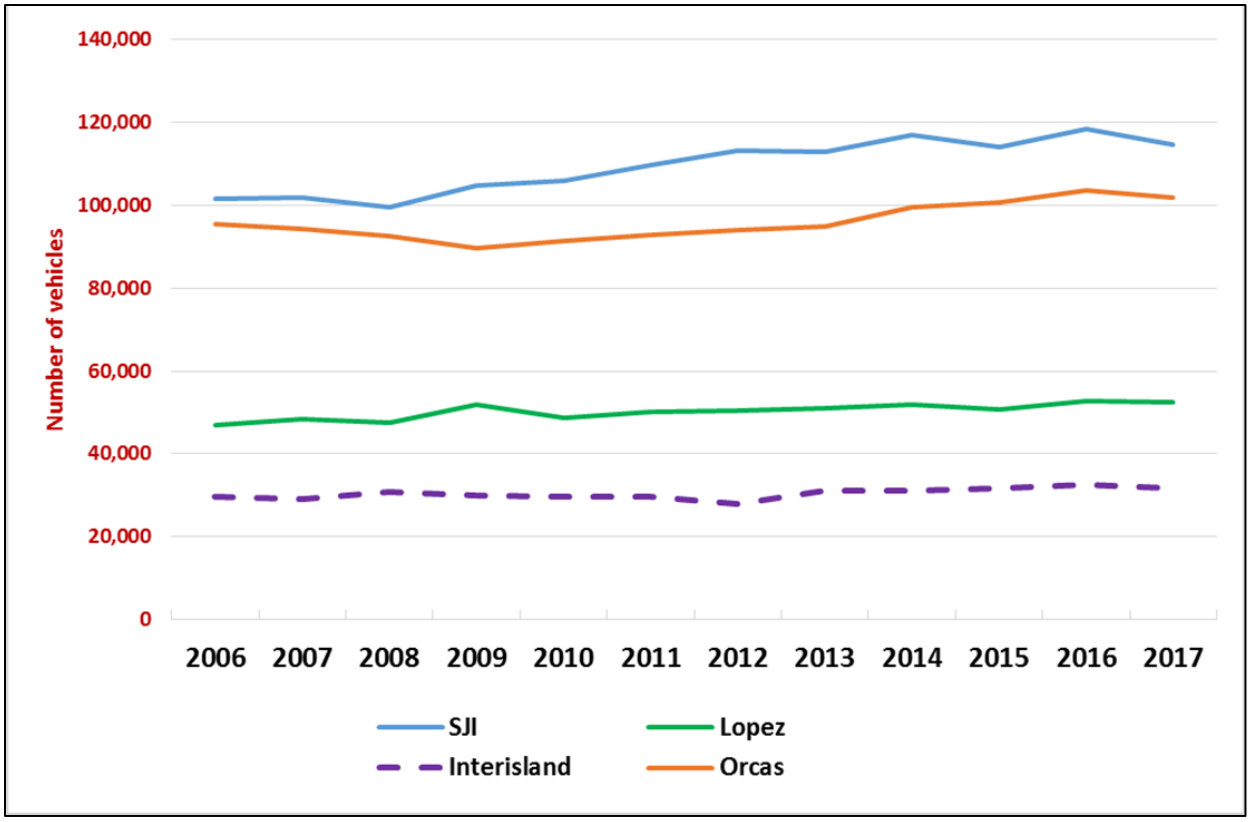


Figure 2. Annual trends for vehicles on WSF in summer (Jul-Sep) (Anacortes to the three main islands and on interisland route).

- In general, more vehicles take ferries to San Juan Island than Orcas, with Lopez far below both.
- 2017 had lower vehicle use to SJI and Orcas, while Lopez was steadier.
- 2017 had several specific conditions that may explain these results, including rainy/cold weather in early summer; ferry disruptions in July (three weeks) and early August (half a week); and fire/smoke from the mainland in August.

Seasonal, day of the week, and holiday use patterns – <u>daily riders</u>

Daily use patterns during the highest use part of the summer season in 2017 illustrate seasonal, weekend, and holiday effects.

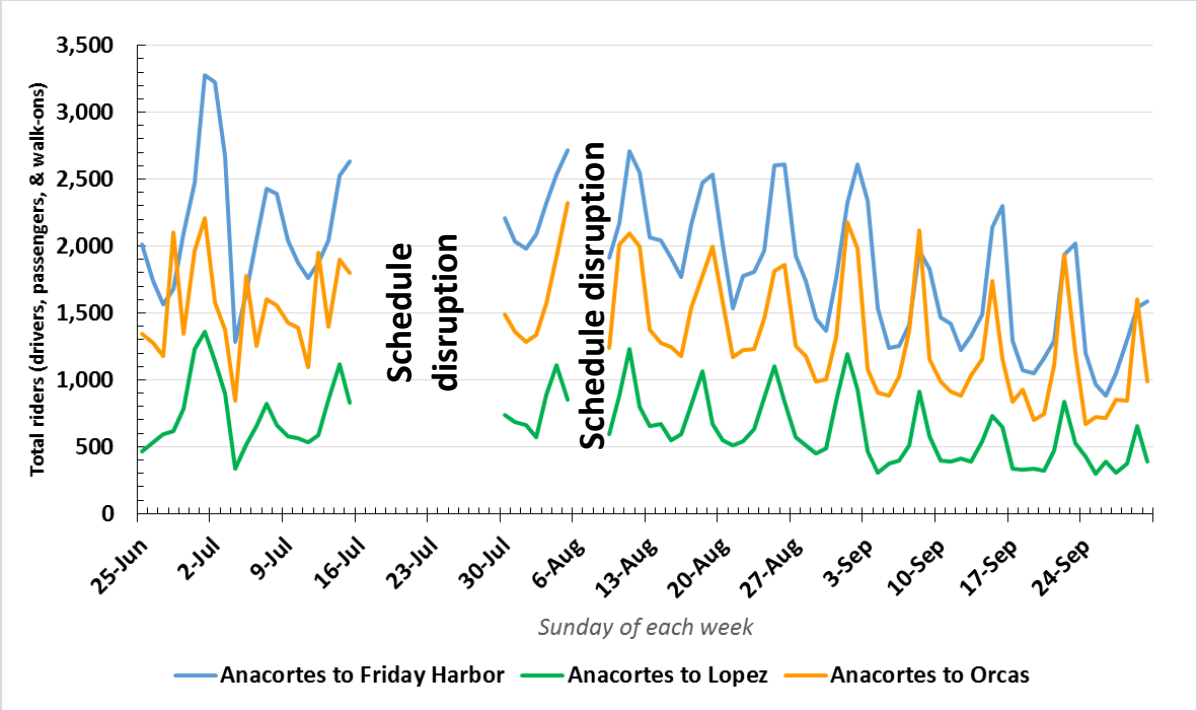


Figure 3. Daily <u>riders</u> on WSF (drivers + passengers + walk-ons) in 2017.

- Typical weekend peaks (Friday and Saturday arrivals from Anacortes) are nearly double the midweek "troughs" on all three routes.
- July 4 weekend has a particularly high peak on San Juan Island – the parade of visitors attending the renowned parade in Friday Harbor.
- SJI has more riders than Orcas, which has more than Lopez.

Ferry vehicle capacities

- ***It is challenging to estimate*** the vehicle capacity on any particular ferry sailing (or cumulative totals for days, weeks, months, or seasons) for several reasons.

    - At least three different ferry sizes are used on Anacortes to San Juan Island routes. On smaller ferries, the vehicle capacity is estimated about 64, while more typical larger ferries hold up to 124 or 144 vehicles (depending on the specific boat).

    - Some ferry sailings are direct from Anacortes to one island, while others "share space" to two or more islands. For example, the 11 pm "last boat" from Anacortes stops at all three islands.

    - The number of sailings per day varies (e.g., more from the mainland on Fridays, more to the mainland on Sundays).

    - Ferry staff can fit more vehicles on a ferry than its stated capacity depending upon the lengths, heights, and numbers of oversized vehicles. Interviews with ferry staff indicate that the largest ferries (estimated capacity 144) with few oversized vehicles may hold as many as 155 vehicles, but with more oversized vehicles may hold only 120 to 130 vehicles.

    - Nuances of the ferry reservation and waitlist system (e.g., some vehicle space is not offered for reservations to ensure sufficient capacity for typical commercial vehicles) further complicate generalizations about the total daily number of vehicles that can be transported to the islands.

- ***With the above caveats,*** it is possible to roughly estimate the peak season daily vehicle capacity to each island through a sailing-by-sailing analysis from 2017.

    - Anacortes to Friday Harbor has 5 to 6 larger direct ferries per day (no other stops), and 2 other ferries that share space with Lopez or Orcas. Taken together, these offer space for about 900 to 1,100 vehicles per day (commercial and private).

    - Anacortes to Orcas has 5 direct ferries per day (no other stops), and 2 to 3 other ferries that share space with Lopez or San Juan. Taken together, these offer space for about 800 to 1,000 vehicles per day (commercial and private).

    - Anacortes to Lopez has 5 direct ferries per day (no other stops), and 2 to 3 other ferries that share space with either Orcas or Friday Harbor. Taken together, these offer space for about 500 to 700 vehicles per day (commercial and private).

- In addition to ***vehicle capacities,*** ferries also have ***passenger capacities,*** which include people driving vehicles, passengers in vehicles, bike-ons, and walk-ons. Although there are differences for ferries in different classes, passenger capacities range from 750 to 2,000 (with 1,500 to 2,000 the most common capacity on Anacortes routes). For example, with 1,500-capacity ferries, the eight daily ferries could bring about 11,000 total passengers (assumes 1,500 capacities on six direct ferries, plus 2,000 from two ferries that share space with Orcas and Lopez routes).

Seasonal, day of the week, and holiday use patterns – <u>daily vehicles</u>

Summing daily vehicles across all sailings per day also shows daily, weekly, and seasonal user patterns.

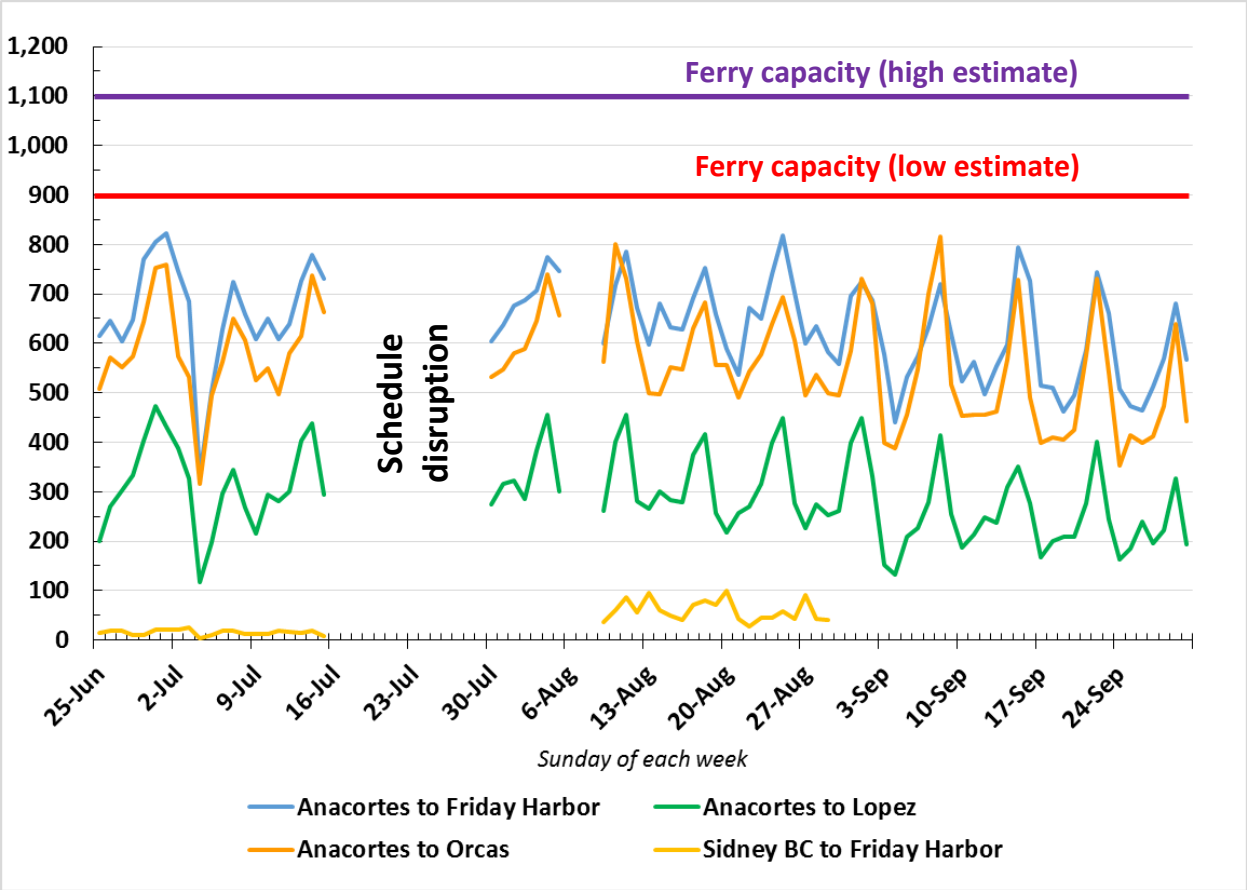


Figure 4. Daily vehicles on WSF routes to main San Juan Islands, 2017.

- If one assumes the daily ferry vehicle capacity for Anacortes – Friday Harbor is between 900 and 1,100 vehicles, there were no days when the actual number of vehicles reached this maximum.

- Similarly, there were only a few days when the actual number of vehicles to Orcas reached the estimated capacity of 800 to 1000, and no days when the actual number of vehicles to Lopez reached the estimated capacity of 500 to 700.

- On mid-week days, actual numbers were often 200 vehicles below the low estimated daily capacity on all three routes.

Space for vehicles per day on busy days

A closer look at individual sailings illustrates when daily ***vehicle space*** is available, as shown in an example from the Friday of Labor Day weekend.

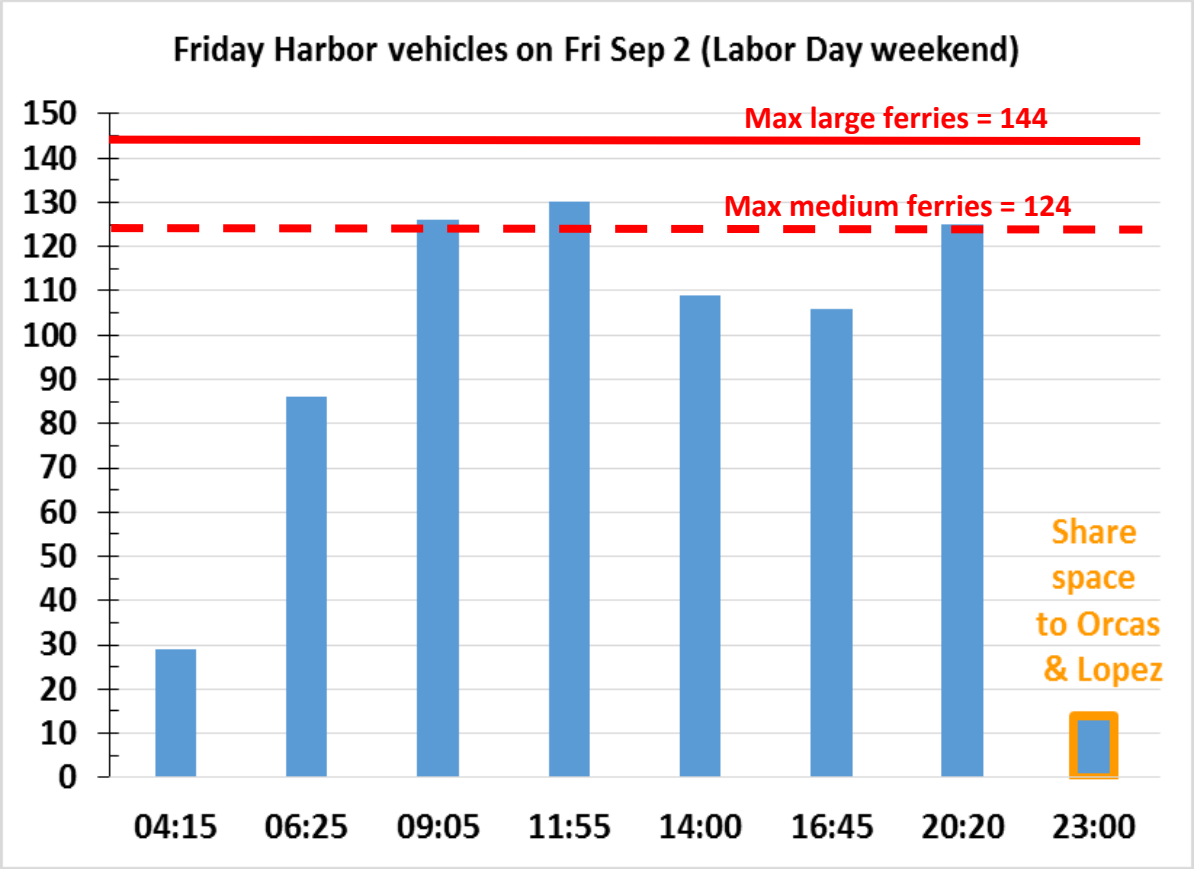


Figure 5. Example of vehicles on Anacortes to Friday Harbor sailings on Friday of Labor Day Weekend.

- On one of the ***busiest days of the year*** (the Friday before Labor Day), at least some ferry sailings (e.g., at 4:15 am, 6:25 am, and 11 pm) have space for additional vehicles.

- Assuming the more popular sailings from 9 am through 8 pm were larger ferries (which is typical), there may have been some space on these boats (most sailed with 110 to 130 vehicles, when the estimated capacity was 144). It is also possible that some of these ferries were completely full because of oversized vehicles or other inefficiencies.

- Appendix B has graphs for peak use days to Orcas and Lopez, showing similar results. Analysis of ***typical days*** (including Fridays, Saturdays, and mid-week days) shows more unused vehicle space on several sailings each day.

- The number of ***people per vehicle*** (combining drivers and passengers, which are counted separately by WSF) in summer 2017 averaged 2.1 people for San Juan ferries, 2.3 for Orcas, and 1.8 for Lopez.

- Given that most private vehicles can accommodate more than 2 people, it is fair to suggest there is ***space for people <u>in</u> vehicles*** on ferries, even on the busiest days.

- Winter and shoulder seasons have lower average numbers of fewer people per vehicle; we don't know if summer visitors do more car sharing.

Evaluations of reservation and waitlist systems (from ferry survey)

The ferry survey included a question about respondents' experience with the reservation or waiting list system. The verbatim question is below; results are given in Figure 6 for visitors and non-visitors.

Did you make a reservation for this ferry? (Please check "yes" or "no" and check the boxes that apply)

❑ **Yes** – and my reservation was…	❑ **No** – because…
❑ …for my first choice date and time	❑ …I didn't know about the reservation system
❑ …for my first choice date, but at a different time	❑ …no reservations were available
❑ …for a different date than my first choice	❑ …my schedule was uncertain
	❑ …I knew there would be space on this ferry
	❑ Other:

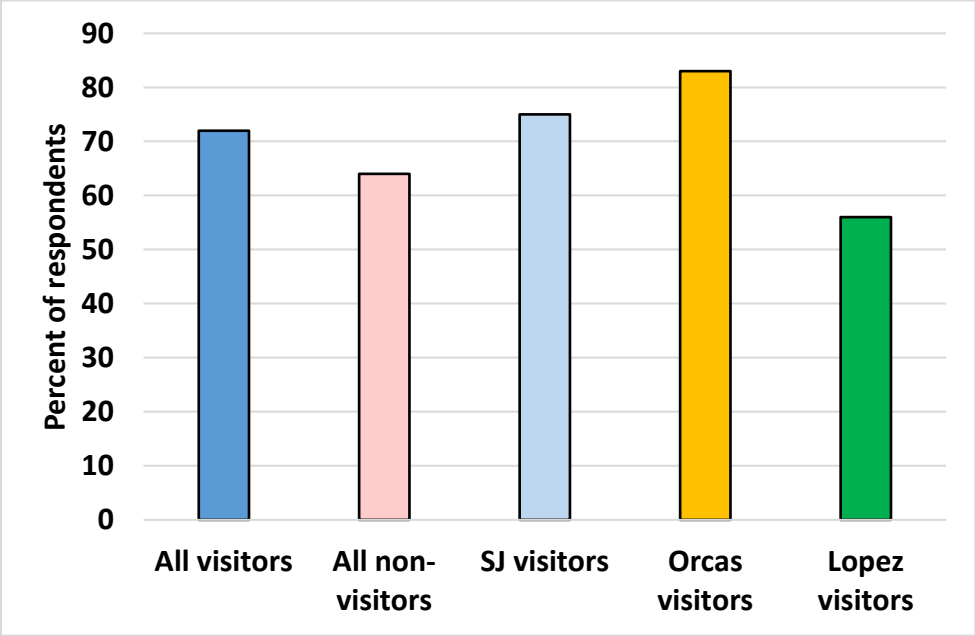


Figure 6. Percent of ferry respondents making reservations.

- Visitors (72%) are slightly more likely to make ferry reservations than non-visitors (64%; which includes residents and commercial users).

- The percent of visitors making reservations was different for the three islands: Orcas 83%, SJI 75%r, and Lopez 56%.

- Lopez visitors were not allowed to make reservations on east-bound ferries; Lopez respondents reporting reservations are referring to those made on their west-bound ferry.

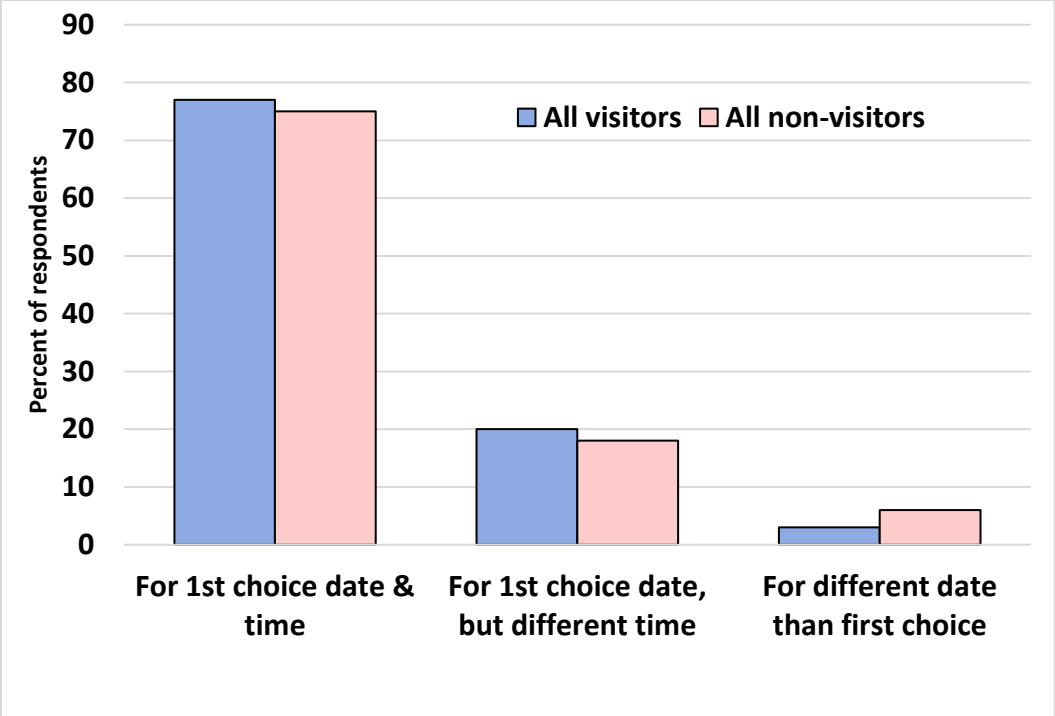


Figure 7. Among those making a reservation, percent who made a reservation for their… 1) first choice date and time; 2) first choice date but different time; or 3) different date.

- ***Among those who made reservations,*** about three quarters of both visitors and non-visitors got their first choice date and time. For those who didn't get their first choice, more got a reservation on a different ferry on the same date (18-20%) than a different date (3-6%).

- Differences between visitors and non-visitors were small, suggesting that neither group has an advantage making reservations.

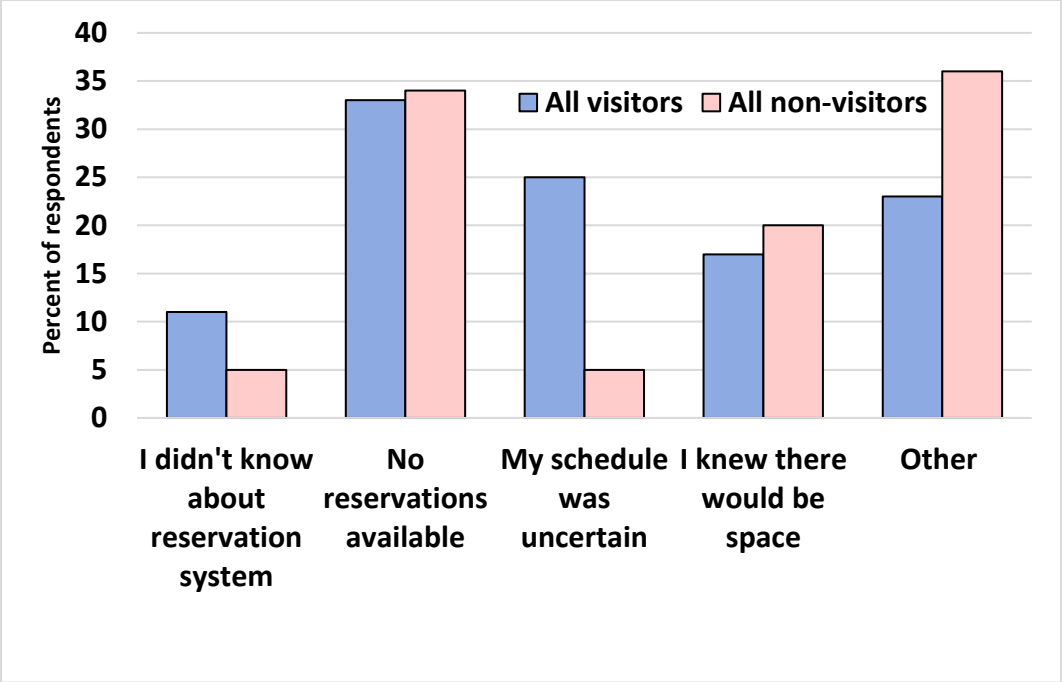


Figure 8. Percent reporting different reasons for <u>not</u> making a reservation (for ferry respondents who did <u>not</u> make a reservation).

- For the 23% of ***visitors who did not make a reservation,*** about 33% reported that no reservations were available and so they chose to get in the waiting line. This is about 8% of the entire ferry visitor sample.

- For the 27% of ***non-visitors who did not make a reservation,*** 35% reported that no reservations were available. This is about 9% of the entire ferry non-visitor sample.

- Other visitors did not make a reservation because their schedule was uncertain (25%), they expected space without reservations (17%), or other reasons (23%; see below). Few did not know about the reservation system (5%).

- Non-visitors (including residents, commuting workers, and commercial drivers) were slightly more likely than visitors to report that they expected space to be available (20%), but less likely to report that their schedule was uncertain (5%). About 36% reported other reasons (see below).

- Other "write-in" reasons included: I am a bike-on or walk-on; I had last minute plans; no cell service; reservations are a hassle; and Lopez doesn't take east-bound reservations.

- Other "write-in" reasons for non-visitors were nearly all about Lopez not taking east-bound reservations, although a few made comments about ferry schedule changes, or reported being a walk-on.

- Taken together, results suggest that ***most ferry users have few problems using the primary reservation or secondary waiting list system***. Over three quarters were able to make a reservation, and of those who did not, many expected to be accommodated by waiting in line or recognized that

their schedule uncertainty was a problem. In general, the "price" for not getting a reservation was waiting in the line for non-reservation space.

- Results are consistent with anecdotal evidence from interviews with ferry staff, who report it is almost always possible to ***accommodate all the vehicles by the end of a day*** (although some people may have to wait for the last ferry).

Ride-on bicycles – Per day numbers on different routes

WSF does not report the number of bicycles on vehicles (although those might affect the fare charged because it changes a vehicle length or width). However, WSF records ride-on bicycles, which indicate bicycle visitation patterns.

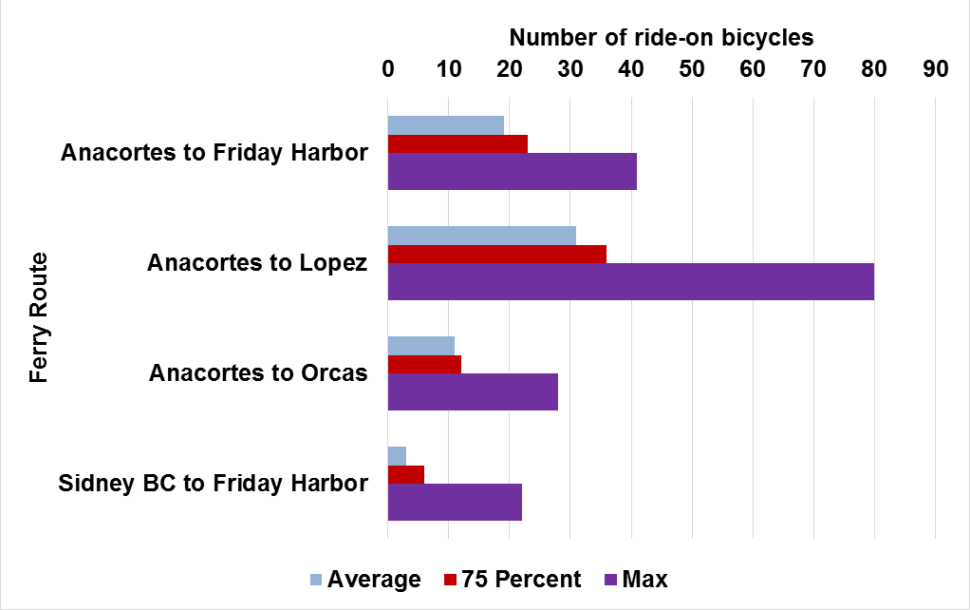


Figure 9. Average, 75%, and maximum ride-on bicycles per day on ferry routes in peak season.

- There is considerably more ride-on bicycle use to Lopez than San Juan Island, with Orcas far below both.

- Peak ride-on cycle use is more than twice the average level, and additional analysis identified a clear weekend peak pattern.

- From a limited number of ferry unloading counts in Friday Harbor, the average number of bicycles on the back of vehicles was about 10 per sailing (about 1 bike for every 12 cars). If this ratio remains consistent, about 70-90 bicycles arrive on San Juan Island on an average day.

Ride-on bicycles by time of day

Ride-on bicycle information also illustrated interesting time of day patterns.

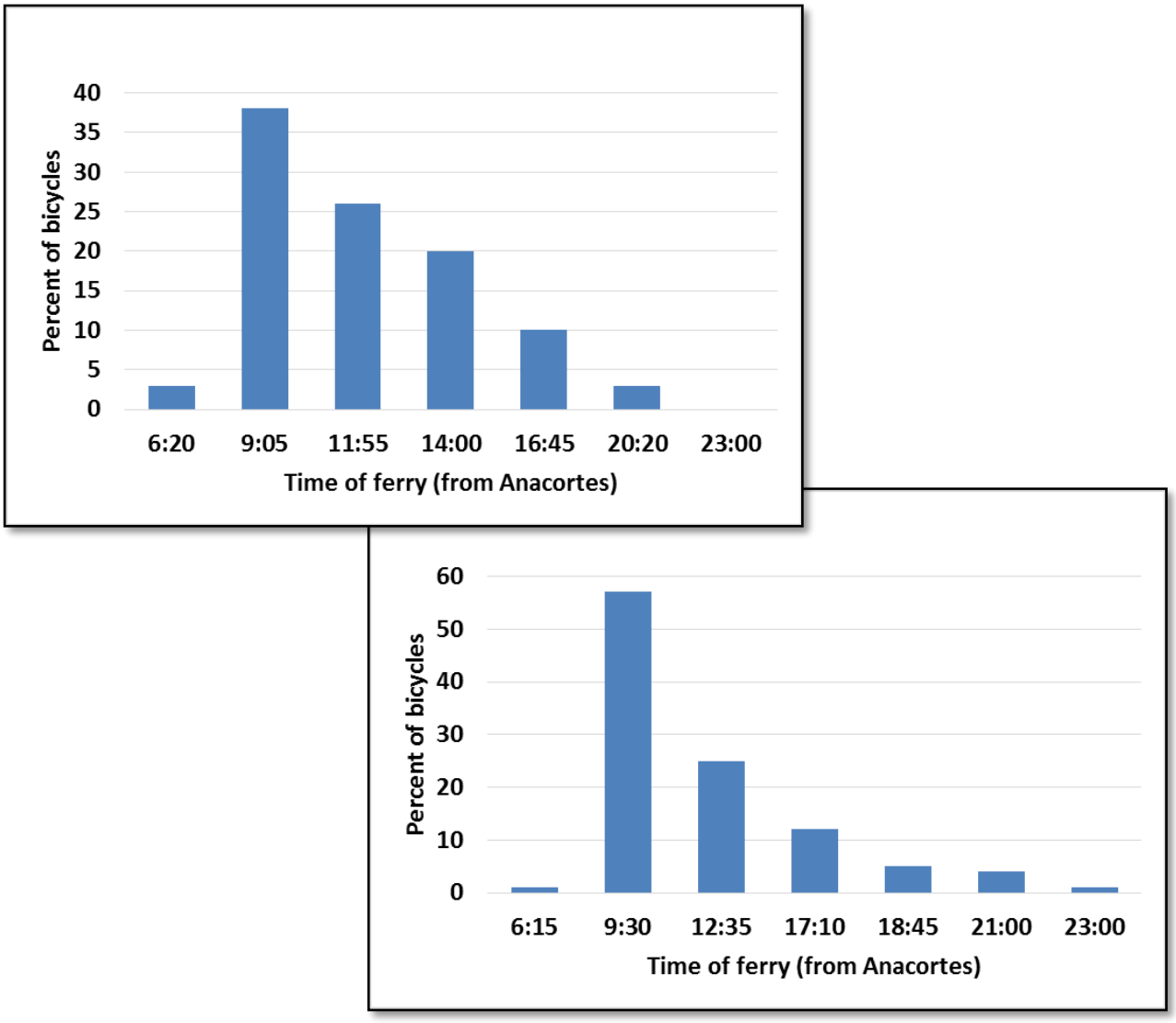


Figure 10. Percent of ride-on bicycles on ferries at different times to Friday Harbor (top left) and Lopez (bottom right)

- WSF does not limit the number of ride-on bicycles on any ferry sailing, so ride-on cyclists are not constrained by the reservation or waitlist systems (unlike vehicles).

- Given the ability to ride on any ferry from Anacortes, data in Figure 10 shows a clear preference for the first "reasonably early" ferry (9:05-9:30), with declining numbers through the rest of the day.

Walk-ons by day of the week

WSF records the number of walk-on passengers (those who have no vehicle on board), which vary by island and day of the week.

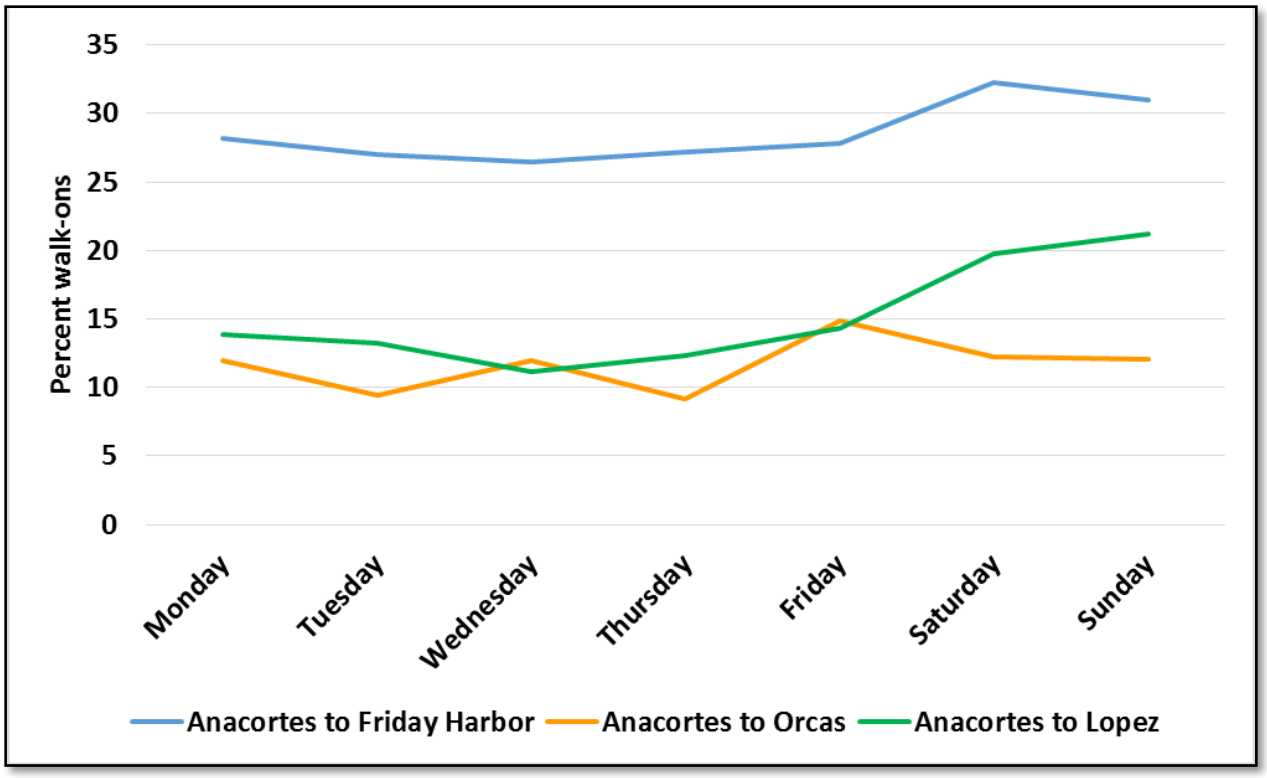


Figure 11. Percent of walk-ons by day of the week on different routes.

- San Juan Island has more walk-on passengers (23 to 33% of all riders) than Orcas (12 to 22%) or Lopez (10 to 15%).

- The proportion of walk-ons increases toward the end of the week, with the highest number on Saturdays and Sundays. These may be day users and weekenders who don't need a car or bike, people who have a vehicle on the island, or people joining the rest of their group (who brought a vehicle earlier).

- Higher walk-on use makes sense for Friday Harbor because the ferry landing is in the village, with several visitor services, accommodations, and rental agencies (cars, bikes, and mopeds/scooters), and a transit system (two companies with limited routes to major attractions).

Other passenger ferries

- The Victoria Clipper is a passenger-only ferry operating between Seattle and Friday Harbor. It has a formal capacity of 200, and operates daily in the peak season (weekends only in the shoulder season). It is usually full in peak season, especially on weekends.

- The Clipper arrives in Friday Harbor just after midday and allows passengers to 1) stay on board for a two hour marine wildlife viewing tour around the islands; 2) disembark and return on another day; or 3) disembark for about two hours of touring Friday Harbor. Based on interviews with Clipper staff, about one third disembark, but most of those return to Seattle the same day.

- In total, this passenger ferry typically lands less than 60 people per day in Friday Harbor, and most of those only stay the afternoon.

- There is also a daily passenger ferry from Port Townshend to Friday Harbor, although this ship also markets on-water tours rather than point-to-point services. Based on interviews with staff, the ship's capacity is 70 passengers and few disembark in Friday Harbor.

Cruise ships

- At least three small cruise ship lines offer trips through the San Juan Islands, with ships making short day-long stops at the three main islands.

- All trips occur in spring (Mar-May) or fall (Sep-Nov), and scheduling appears to distribute different ships in different weeks.

- Ships appear to limit their stops to mid-week days, with only one island covered per day. Based on itinerary descriptions, stops in Friday Harbor feature village shopping or a trip to Lime Kiln, while stops in Orcas feature hiking and sightseeing in Moran State Park.

- The ships range in size from 22 to 76 to 200 passengers.

- Taken together, at peak use times these cruise lines deliver less than 100 people per day to any given island on occasional days during narrow shoulder seasons.

Airline visitation

Kenmore Air

- Based on FAA statistics, this airline appears to carry about 70% of the air passengers between the islands and Seattle.

- The airline offers 5 to 6 flights in up to three wheeled planes (with a max of 8 passengers) per day to Friday Harbor airport. Similarly, they offer 5 to 6 flights in as many as three sea planes (with a maximum of 9 passengers) to docks in Friday Harbor.

- The airline shifts planes to follow demand (more incoming passengers toward the end of a week; more outgoing passengers following a weekend).

- In peak season, Kenmore may carry 100 to 150 people per day to Sand Juan Island, 50 to 80 to Orcas, and 10 to 30 to Lopez.

Other charter airlines

- San Juan Airlines offers scheduled flights from Anacortes and Bellingham to Friday Harbor and is the other major carrier to the islands. They deliver about 20 to 40 people into Friday Harbor per day during peak season. They operate 3 to 4 flights per day in up to two planes that can carry 3 to 5 passengers.

- Three other smaller airlines offer charter or air taxi trips to outlying islands or other locations. Based on FAA statistics, they account for about 6% of commercial air traffic into Friday Harbor Airport.

Itinerant private planes

- Based on interviews and limited FAA statistics, it appears that a maximum of 50 people on private planes use Friday Harbor per day during peak season, with about half that on Orcas. The percentage of these people who are resident vs. visiting is unknown.

Summary of air-based visitation

Taken together, airlines and private planes currently deliver a maximum number of 210 to 360 people per day to all three islands, based on the following island-specific estimates.

- 150 to 250 people per day to San Juan Island;
- 50 to 80 to Orcas; and
- 10 to 30 to Lopez.

Private boat visitation

Transient boats using SJI marinas and moorage

- There are 17 public, club, or commercial marinas on the three main San Juan Islands (8 on San Juan, 6 on Orcas, and 3 on Lopez).

- Marinas range in size from 8 (e.g., West Beach on Orcas) to over 500 slips (Port of Friday Harbor). Slip counts can be challenging because some are longitudinal docks and the number of boats they accommodate depends on individual boat lengths.

- Based on interviews with marina operators, web site research, and aerial photo counts, the three main islands have marina slips for about 1,940 boats (1,260 on San Juan; 425 on Orcas; and 254 on Lopez). This does not include dozens of private docks at private residences.

- There are also several well-known anchorages where cruising boats either moor or anchor on trips to the islands. Based on mid-summer aerial photos, these have accommodated at least 270 boats per night (130 on San Juan, 60 on Orcas, and 80 on Lopez), as well as many on outlying islands (e.g., Sucia, Matia, Stuart). This is a conservative estimate because there is space for more boats in these anchorages.

- Taken together, the three main San Juan Islands could accommodate about 2,200 boats per night (assumes all slips are used and typical numbers of boats are moored/anchored).

- It is challenging to estimate San Juan visitation from private boats using these slips, because different types of boaters occupy these spaces by day and overnight, including…
    - ***Liveaboards*** who use their boats as a home, and are not visitors;
    - ***Full-time residents*** who live on the island and are not visitors;
    - ***Part-time residents*** who own a vacation home on the island, and keep their boat there too. Some of these may act like residents because they spend the entire summer on the island, but some may visit less frequently and act more like visitors.
    - ***Non-residents*** who don't have a home on the islands, but keep their boat there. Some of these are *de facto* visitors using their boat as a hotel during their visit to the three main islands, but others may spend more time sailing/boating or visiting outlying islands.
    - ***Transient boaters*** who visit the islands by boat only on a specific trip – sometimes for the day and sometimes overnight; these are the only group that are clearly visitors to the three main islands.

  Based on discussions with several marina operators, these proportions vary by facility and can be hard to estimate. For example, there appear to be higher proportions of non-resident and transient boaters at Friday Harbor (about 50%), compared to smaller private marinas whose slips are primarily occupied by full-time residents or part-timers who spend the entire summer in the islands. Based on interviews, we have assumed that about 20% of all slips are used by non-residents and transient boaters, who should be considered visitors.

- Estimating visitation from private boats also requires estimates of people per boat, which varies by size and type of boat. The west region average from the National Recreational Boating Survey (USCG, 2012) was 3.4 people per powerboat and 2.6 per sailboat; for this analysis we assumed 3.0 people per boat.

- Occupancy levels are also variable at the marinas. Although Saturday nights and holiday weekends are sometimes full, mid-week and shoulder season periods have more availability.

- Applying these assumptions (20% of slips occupied by visiting boaters, 100% of anchorages occupied by visiting boaters, and 3.0 people per boat), we estimate ***peak weekend private boat visitation*** as follows:
  - San Juan Island – about 600 people per day
  - Orcas Island – about 250 people per day
  - Lopez Island – about 100 people per day
  - Total for three main islands – about 950 people per day

Total visitation from all sources

Example maximum daily visitation

A "theoretical maximum" daily visitation estimate can be generated from various sources by making assumptions about capacities from each source.

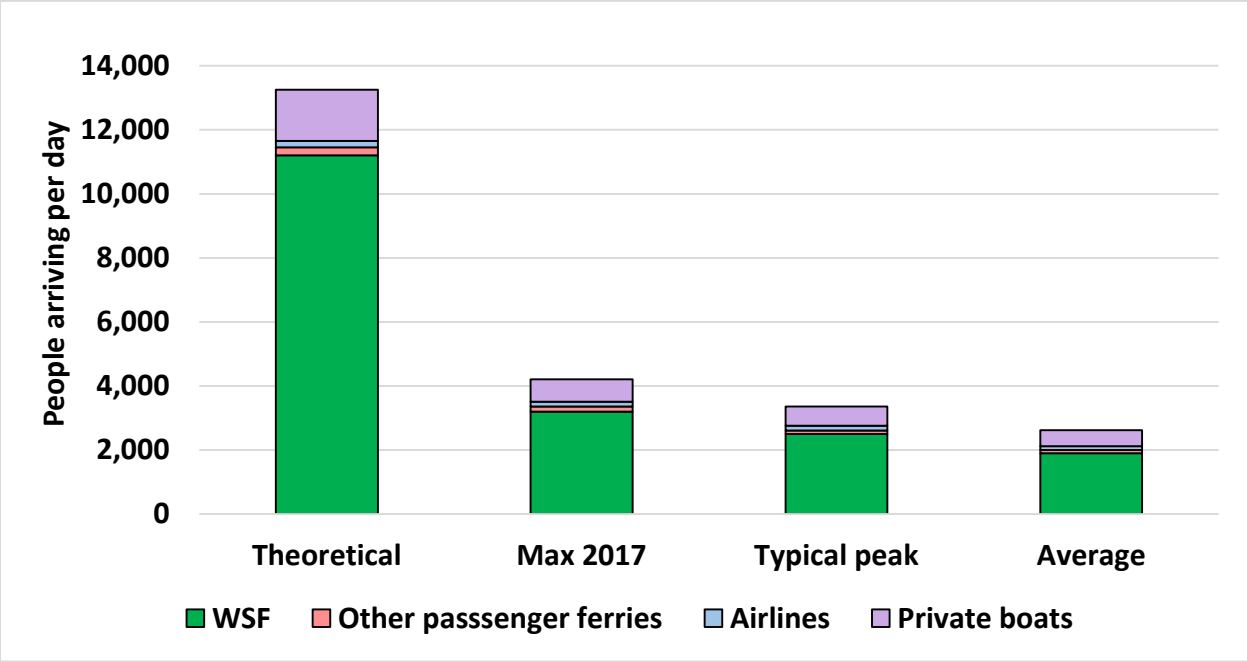


Figure 12. Estimated number of people arriving per day to San Juan Island: 1) theoretical maximum; 2) highest use in 2017; 3) typical peak in recent years; and 4) average in recent years.

- Using San Juan Island as an example in Figure 12, we assumed:
  - 8 ferries x 1,400 passengers per day = 11,200 (includes drivers, passengers, and walk-ons)
  - 250 from other ferries or cruise ships
  - 200 from airlines and private airplanes
  - 1,600 from private boats (assumes 20% of all slips occupied by visiting boaters + 10% of anchorages)

- The ***2017 maximum*** assumes the highest use levels reported for any day from WSF, other passenger ferries, and airlines. For private boating use, we assumed 15% higher than average peaks.

- The ***2017 typical peak*** assumes numbers for peak weekends in the summer, but not the maximum days. For private boating use, we assumed average peaks.

- The ***2017 average*** assumes averages. For private boating use, we assumed 15% below average peaks.

- This analysis shows that the number of people that ***could*** arrive per day (the theoretical maximum) is roughly ***three times higher than the highest use days in 2017, and five times higher than average levels***. It also shows that ***WSF is the dominant source of existing and potential use***, private boating

visitation is noticeable but small, and airlines and other passenger ferries contribute smaller amounts.

- Similar analyses have been conducted for Orcas and Lopez islands are shown in Figure 13 below.

Figure 13. Estimated number of people arriving per day to Orcas (bottom left) and Lopez Island (top right): 1) theoretical maximum; 2) highest use in 2017; 3) typical peak in recent years; and 4) average in recent years.

Does the WSF system or other sources constrain visitation?

Taken together, this transportation information suggests several conclusions.

- Space is scarce for vehicles on popular WSF sailings (in the middle of the day) on higher use days (weekends and holidays) during the peak season (Memorial Day through Labor Day weekends). This scarcity might influence an individual visitor's decision not to travel to the San Juans (as suggested by anecdotal reports).

- There is unused space for vehicles on two to three ferries each day, even on the busiest days of the year.

- There is unused space for vehicles on most ferries (even mid-day) during the middle of the week, and almost all days during shoulder seasons.

- There is space for those without vehicles (walk-ons and bike-ons) on every ferry, and passenger space inside vehicles with reservations).

- Although not always available for first-choice days and times, this available space allows considerably more visitation than recent year peaks.

- Other methods transport visitors to the islands, but these are minimal compared to WSF.

Visitor characteristics

This section of the report summarizes information about visitors from the onsite and ferry survey samples. The ferry information better represents typical visitors to each island, while the onsite survey better represents visitors to attraction sites.

Which islands do they visit? (from onsite and ferry survey)

The onsite survey asked visitors to indicate "the islands they will visit on this trip" and the "island where they are staying tonight." The ferry survey asked visitors to "please write the number of days you spent on each island."

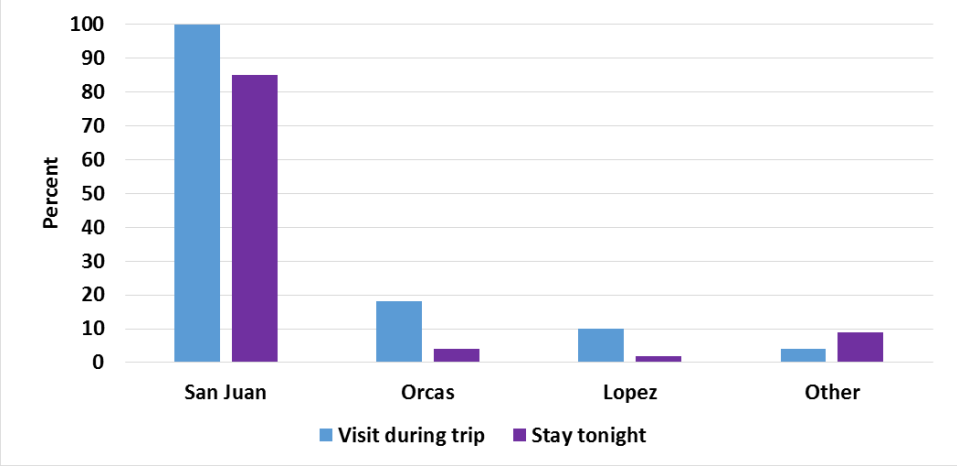


Figure 14. Percent of San Juan onsite survey visitors who visited different islands 1) during their trip, or 2) will stay at least one night.

- Figure 14 provides an example from San Juan Island ferry visitors shows how most visitors travel to or stay on one island only, although about 25% visit and about 15% stay overnight on other islands.
- Information developed for the other two islands shows a similar pattern, as summarized below.
    - Lopez visitors are more likely to visit San Juan Island (29%) than Orcas (18%), with less than 4% staying overnight on either.
    - Orcas visitors are more likely to visit San Juan Island (20%) than Lopez (6%), with less than 5% staying overnight on either.
    - Less than 5% of Orcas or Lopez visitors go to islands other than the main three.

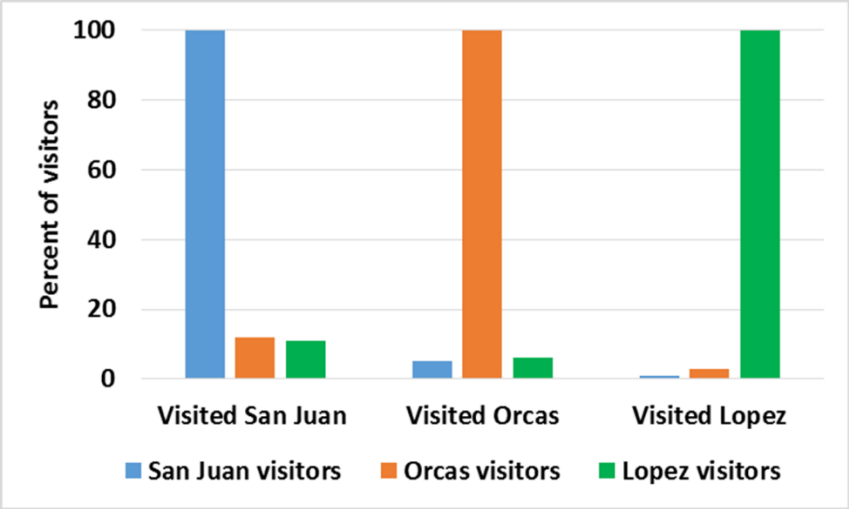


Figure 15. Percent of visitors to each island that report visiting other islands (from ferry survey).

- Figure 15 shows ferry survey results for all three islands.
- Fewer ferry respondents travel to multiple islands than onsite respondents. Onsite respondents probably seek attractions more than the general visitor population, who may focus more on relaxing at their accommodations.
- San Juan-surveyed visitors are more likely to visit other islands. This is consistent with San Juan Island's higher proportion of first-time visitors who seek attractions.
- In contrast, Lopez-surveyed visitors are the least likely to go to other islands, which fits with its higher proportion of visitors staying with friends/family and lowest proportion of first-time visitors.

Number of days on each island

The ferry survey asked visitors to "please write the number of days you spent on each island," which was analyzed for visitors to each island.

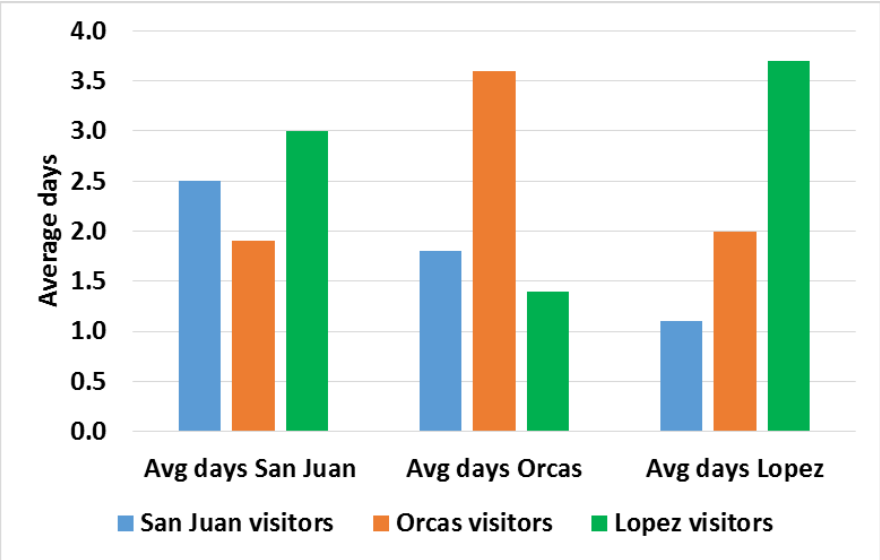


Figure 16. Average days spent on each island (by visitors from each island; from ferry survey).

- San Juan Island visitors tend to stay the shortest amount of time (an average of about 2.5 days) compared to Orcas and Lopez visitors (about 3.5).

- Of those visitors who go to multiple islands, many stay more than one day on those other islands. One interpretation is that people on longer trips (e.g., one week) are the most likely to visit multiple islands and stay more than one night on each.

- Note: The averages for "visit other islands" (e.g., San Juan visitors who go to Orcas or Lopez) are from small samples of visitors who visited multiple islands, and probably over-estimate total trip lengths. Better estimates of total trip length come from a different question as discussed below.

- Visitors could also write-in outlying islands they visited, and about 5% did. The most frequently named included Pearl Island, Henry Island, Stuart Island, James Island, Sucia Island, Jones Island, and Shaw Island. A few named Fidalgo, Vancouver, and the Gulf Islands (not in the San Juans).

Getting to attraction sites (onsite survey)

Onsite visitors were asked "how did you travel to this location?" by circling one of the following: own vehicle, rental vehicle, own bike, rental bike, bus, or specify "other."

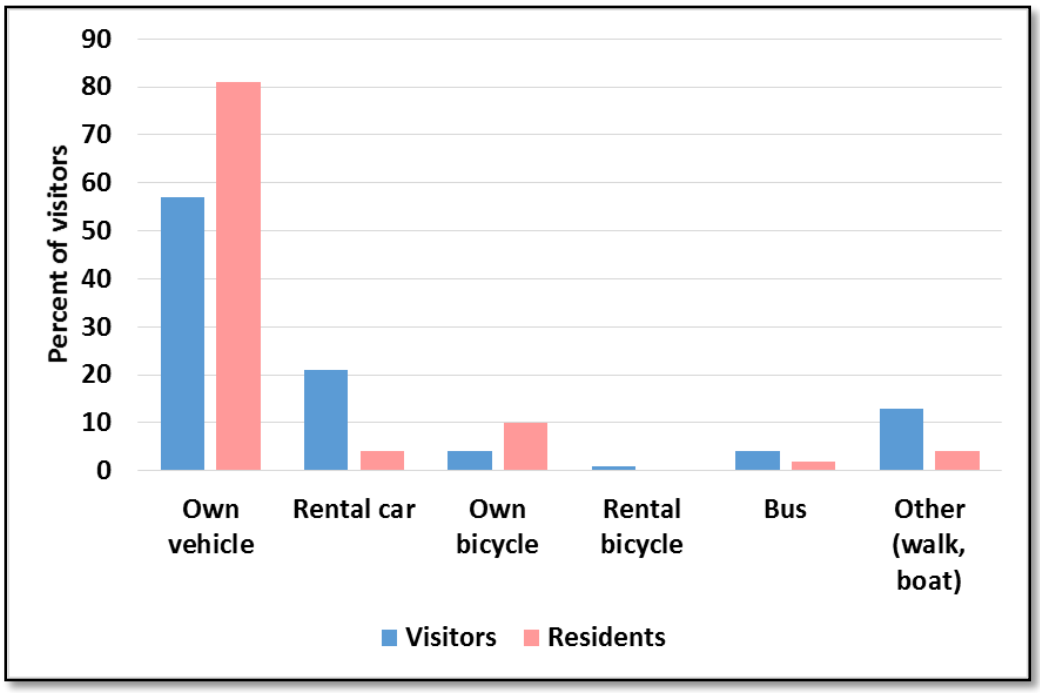


Figure 17. Percent of visitors and residents who take different types of transportation to San Juan Island attraction sites.

- Most people use vehicles to access attraction sites (about 75-85% for own and rented vehicles combined).
- Very few use bicycles (5-10%) or bus transit (less than 4%).
- Additional analysis suggests visitors reporting rentals are more frequently referring to vehicles rented as part of a larger trip rather than on the San Juan Islands.
- Results were similar for Orcas and Lopez, although higher proportions of Lopez visitors use bicycles (10%).

Proportion of visitors & residents at attraction sites

The onsite survey asked visitors to choose whether they were a visitor or resident. The proportion of visitors and residents at each onsite location with sufficient samples are given below.

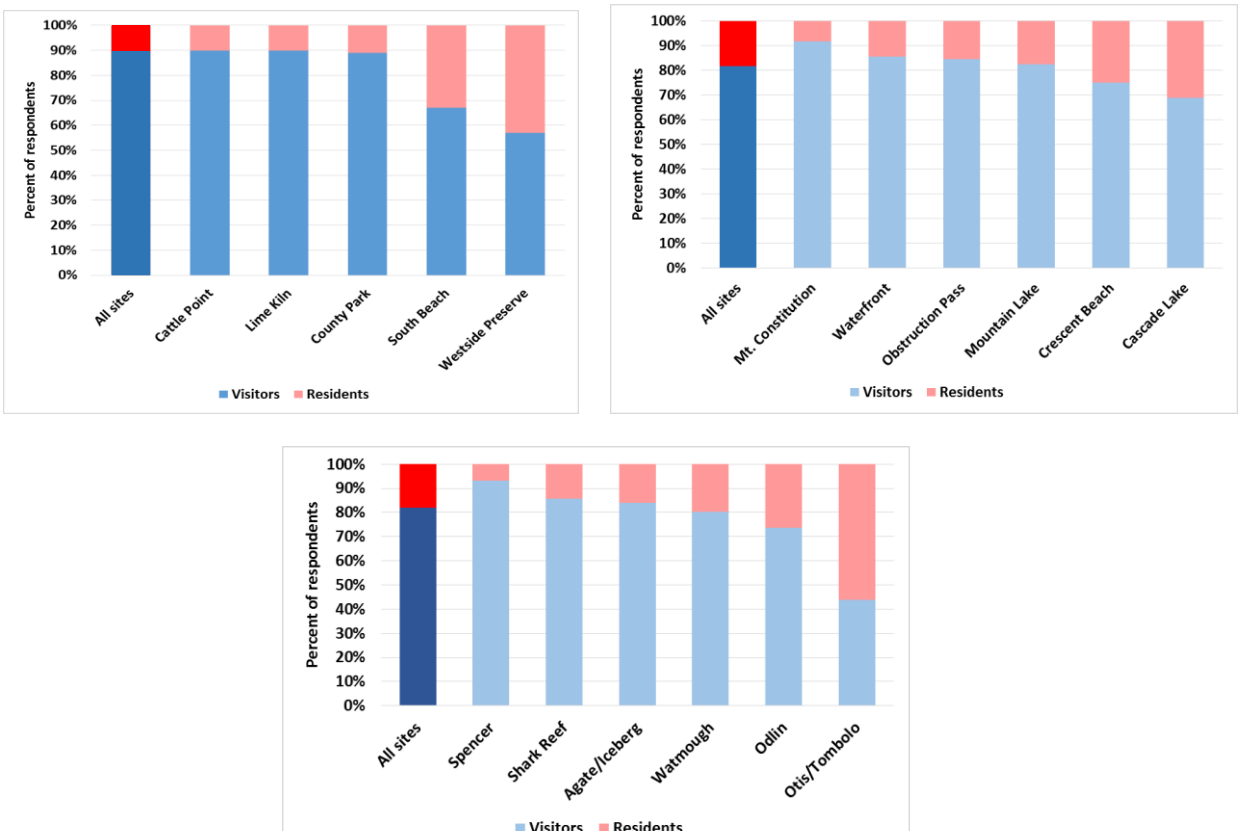


Figure 18. Percent of visitors and residents in onsite survey samples for different attraction sites on San Juan (top left), Orcas (top right) and Lopez (bottom).

- About 90% of people at San Juan Island attraction sites are visitors compared to about 80% for Orcas and Lopez.

- South Beach and Westside Preserve have the highest proportions of residents on San Juan Island, Crescent Beach and Cascade Lake on Orcas, and Odlin Park and Otis Perkins/Tombolo on Lopez

Length of visit

Total trip length among ferry survey visitors

Ferry survey visitors were asked "How many days did you spend in the San Juan Islands on this trip?"

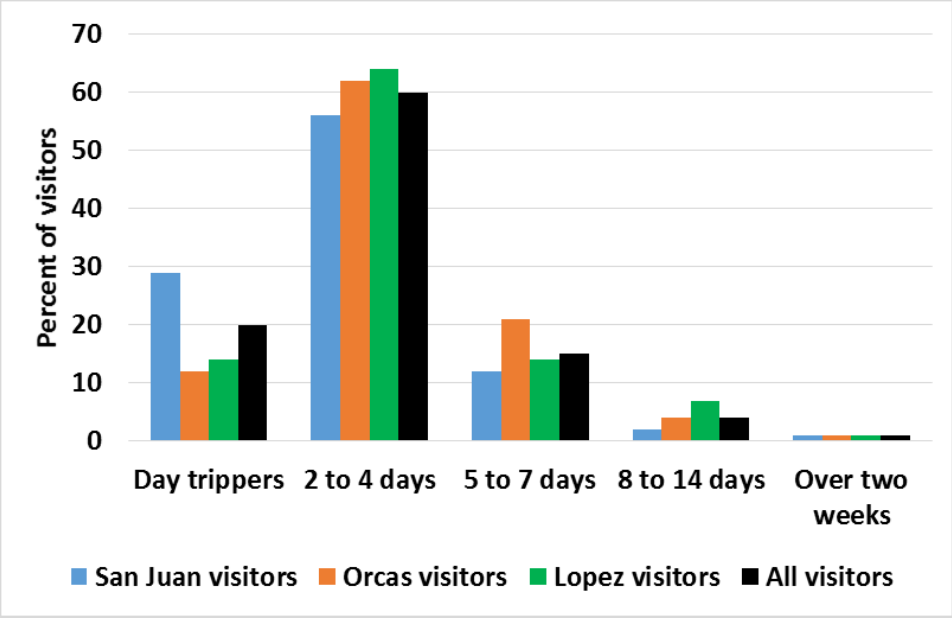


Figure 19. Percent of ferry survey visitors reporting different trip lengths

- Among ferry survey visitors, 2-4 day (weekend) trips were much more common than day or week-long trips.
- Average trip lengths were 2.5 days for San Juan visitors, 3.7 for Orcas visitors, and 3.6 for Lopez visitors.
- Compared to San Juan, Orcas and Lopez had lower percentages of day trippers.
- Nearly a third of San Juan visitors were day trippers, even though only 5% were walk-ons. This indicates that most day trippers bring private vehicles.
- Very few visitors spend longer than a week on the islands.

Trip length among onsite survey visitors

Onsite survey visitors were asked "How many days will you spend in the San Juan Islands on this trip?

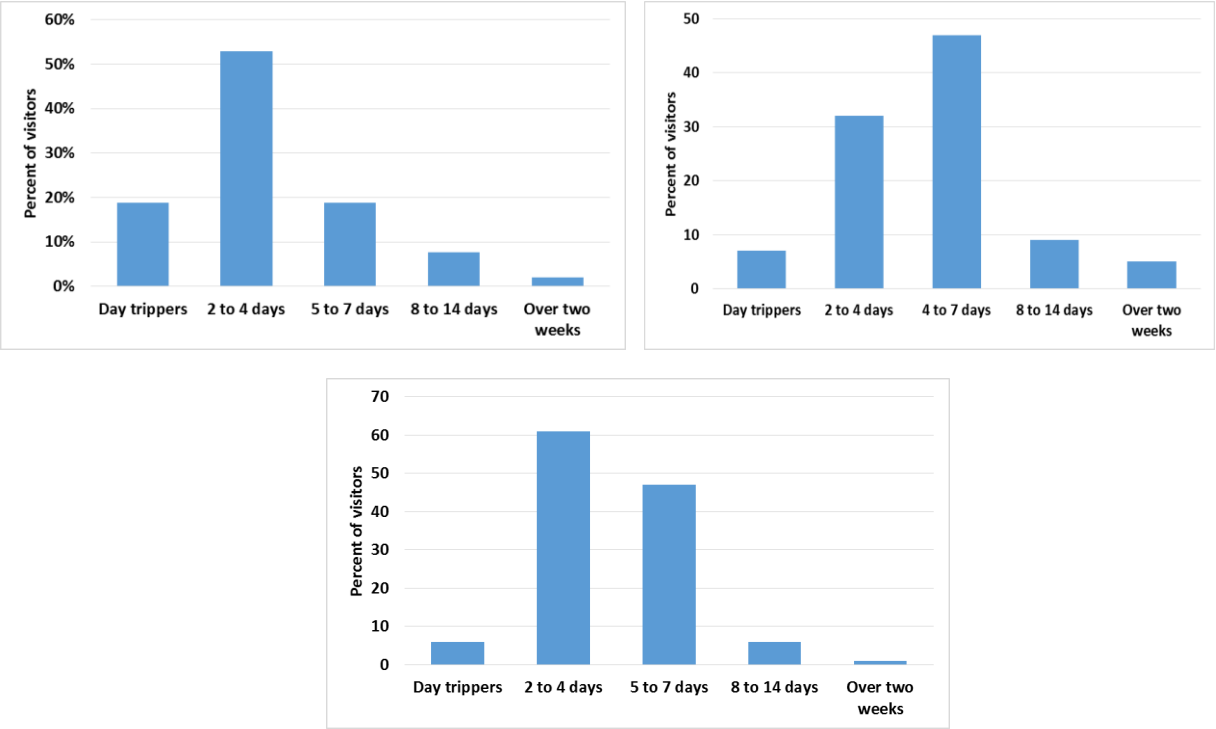


Figure 20. Percent of onsite survey visitors reporting different trip lengths For San Juan (top left), Orcas (top right), and Lopez (bottom).

- Among onsite survey visitors, San Juan Island has the most day trippers (19%), while Orcas and Lopez have less than 7%.

- The most common length of stay for San Juan and Lopez attraction site visitors was 2 to 4 days, consistent with the weekend peaks in WSF use patterns. More Orcas attraction site visitors reported staying longer, perhaps because Orcas sites were in Moran State Park where week-long camping trips are common.

- The median trip length for San Juan and Lopez was 3.0 days; for Orcas it was 4.0.

- These data were for visitors surveyed at attraction sites, which may not represent "average visitors" as well as the ferry survey.

Group size

Group sizes among ferry survey visitors

Ferry survey visitors were asked to report "How many people were in your group on this trip?"

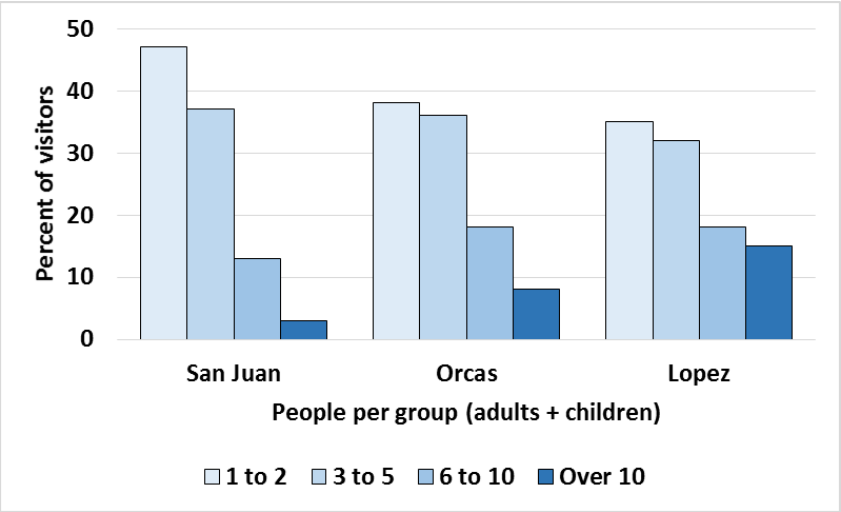


Figure 21. People per group on different islands (from ferry survey)

- Among ferry survey visitors, group sizes were typically small – with highest proportions 1-2 or 3-5.
- San Juan visitors had average group sizes of 3.8, Orcas 4.8, and Lopez 5.7.
- Averages are slightly inflated by outliers such as large family reunion, tour, or scout groups (the latter included two reported group sizes of over 100). Roughly 3% of ferry survey visitors were in such groups.
- Onsite visitors were asked a similar question. Average group sizes were similar for onsite and ferry visitors (3.0 for all visitors), but distributions were slightly different. In general, onsite visitors tended to be slightly larger (more with 3-5 and 6-10 people; fewer with 1-2 people).

Where do visitors live?

Residency of ferry survey respondents

Questions on the onsite and ferry surveys asked visitors to report their residency zip code. The ferry survey provides the best estimate of typical visitors to the islands.

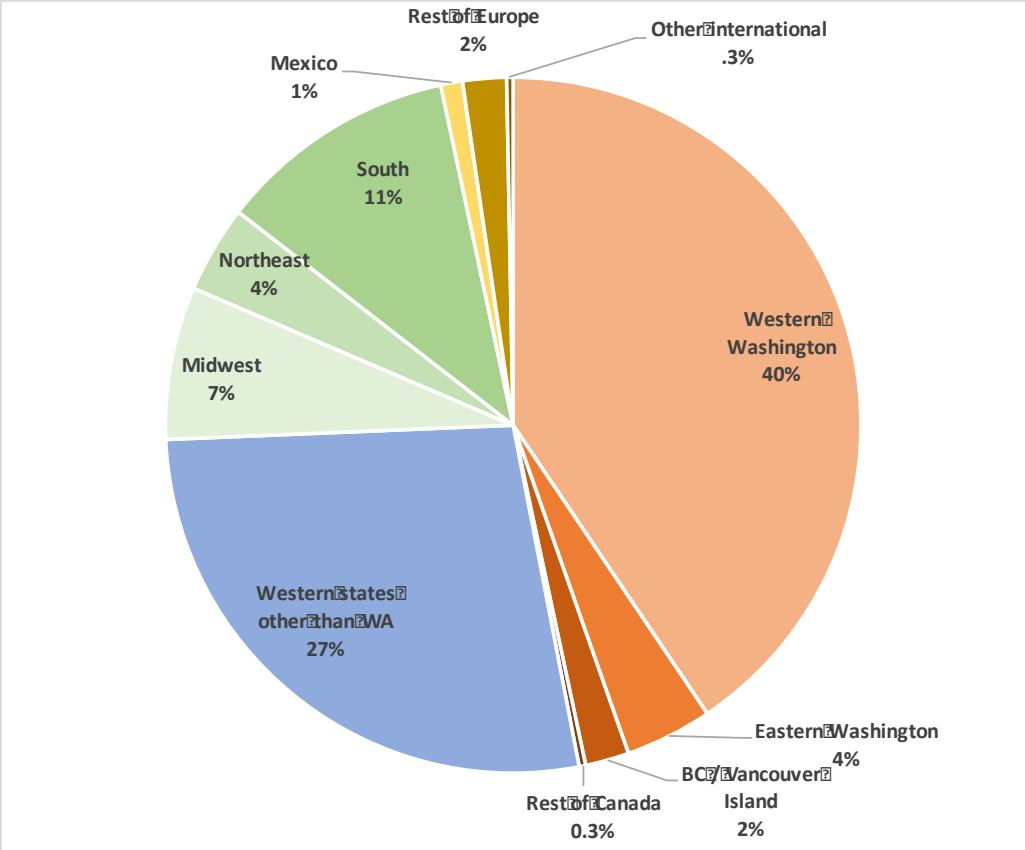


Figure 22. Residency of visitors responding to the ferry survey (all islands).

- About 40% of visitors to the San Juan Islands reside in Western Washington, with most of those living in the "greater Seattle" counties that border Puget Sound.

- There are more visitors from other western states (27%) than from eastern Washington (4%), with 22% from other parts of the country.

- There are less than 5% international visitors, with about half of those coming from Canada. Of the Canadians, most are from BC and Vancouver Island (part of the wider Salish Sea region).

- Onsite survey visitors were asked residency as well. They are less likely to be from Western Washington (25%) than ferry survey visitors (40%), suggesting that "regional visitors" from Western Washington are less likely to visit attraction sites.

Previous visitation to the San Juan Islands (from ferry survey)

Ferry survey visitors were asked to report the number of previous times they had visited the San Juan Islands. Figure 23 summarizes averages, medians, and frequency distributions by category.

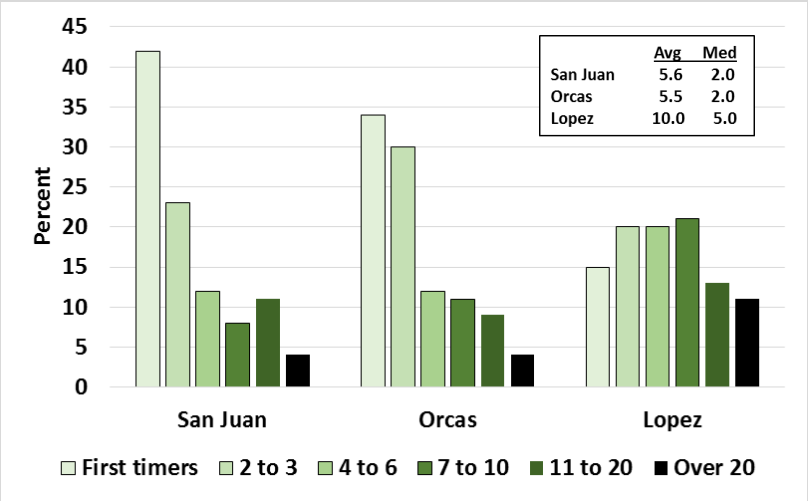


Figure 23. Reported previous visitation to the San Juan Islands.

- Ferry survey visitors were asked to report the number of previous times they had visited the San Juan Islands.
- San Juan Island has the highest proportion of first-time visitors.
- Lopez visitors were most likely to be "repeat visitors," with an average of 10 trips (median = 5) compared to San Juan (average 5.6; median 2.0) or Orcas (average 5.5, median 2.0).
- Respondents in the "over 20" category included people who wrote in responses such as "dozens" or "hundreds," which were not included in averages.

Recreation participation during their visit (from ferry survey)

Ferry survey respondents were asked to "Please check all the outdoor activities you have done during your visit (if a resident, check activities you have done in the past week)." 14 activities were listed on survey, and the percent checking each activity is shown below.

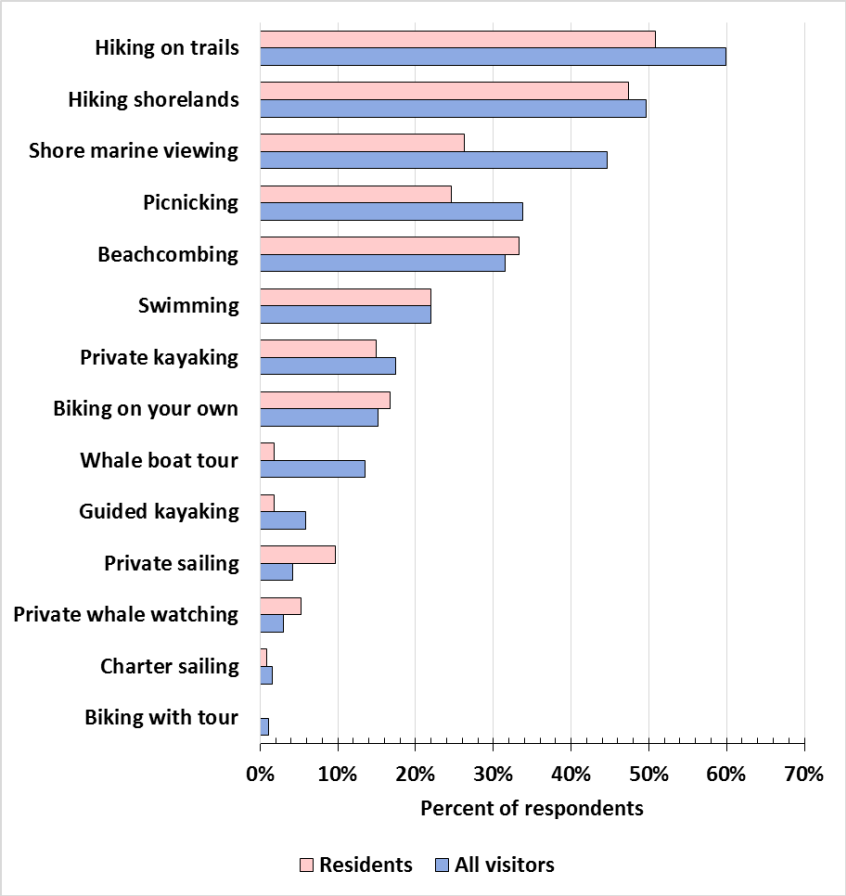


Figure 24. Percent of ferry respondents reporting participation in different recreation activities.

- Hiking on trails or shorelands were the top activities.
- Five of the seven most popular activities are water proximate, highlighting the importance of marine and lake environments.
- Commercial recreation activities were listed by few visitors (13% for whale watching; 6% for kayaking), and even fewer residents.
- There are some differences between visitors and residents in participation rates, but they are generally small, and the rank orderings are similar.

Recreation participation differences between islands (from ferry survey)

Differences between ferry survey visitors to the three different islands are given in Figure 25.

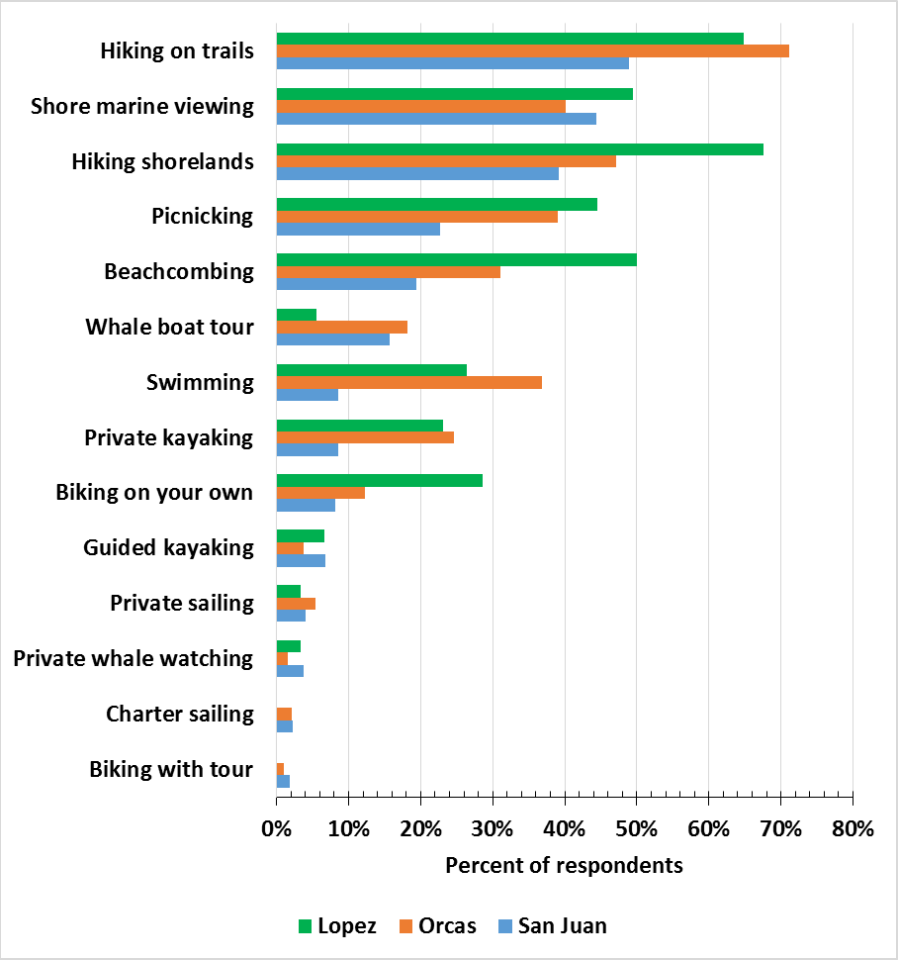


Figure 25. Visitor participation in recreation activities: differences between islands.

- Rank orderings of activities were similar across islands.

- Differences between participation rates fit with resources on each island. For example, Lopez visitors were more likely to hike shorelands, beachcomb, and bicycle, which fits with that island's public lands (e.g., Shark Reef, Spencer Spit, Fisherman's Spit, Iceberg Point, and Watmough Bay) and its reputation for biking.

- Similarly, Orcas has notably higher swimming participation, which fits with the availability of warmer swimming opportunities in Cascade Lake.

Resident characteristics (from ferry and onsite survey)

Both the onsite and ferry survey samples included self-reported residents of the San Juan Islands, but each has some limitations in representing island residents. The ferry resident sample (n=141) probably over-represents those who travel to the mainland more frequently, while the onsite sample (n=241) over-represents residents those who use attraction sites more frequently. With those caveats, these two samples can provide some "teasers" about resident characteristics, and suggest topics for a larger-scale survey designed to accurately represent residents.

Which island do residents live on? (from onsite survey)

- 92% of residents surveyed at San Juan Island attraction sites live on that island, and others reported living on outlying islands; none reported living on Orcas or Lopez.
- 88% of residents surveyed at Orcas Island attraction sites live on that island. Seven percent reported living on San Juan, 3% on Lopez, and 1% on Shaw.
- 87% of residents surveyed at Lopez Island attraction sites live on that island. Eight percent reported living on San Juan, 4% on Orcas, and the 1% on Shaw or reported commuting.

Months per year living on the island (from both surveys)

Table 2. Percent of residents reporting residence durations on the islands.

	San Juan	Orcas	Lopez
Onsite survey (percentages)			
Percent year round residents	59	61	64
7 to 9 months	8	14	13
4 to 6 months	12	15	13
Less than 4 months	20	12	10
n	*59*	*93*	*89*
Ferry survey (percentages)			
Percent year round residents	63	73	50
7 to 9 months	3	7	11
4 to 6 months	9	0	8
Less than 4 months	25	20	31
n	*44*	*15*	*36*

- 59-64% of ***residents surveyed at attraction sites*** live on the islands year-round (defined here as over 9 months), with few differences between islands.
- Most ***residents surveyed at the ferry*** were also year-round residents, although these data show bigger differences between islands.
- The onsite survey shows higher proportions of San Juan residents (20%) fit into the "summer-only" category by staying less than four months, compared to Orcas (12%) or Lopez (10%). However, the pattern is different for the ferry survey.

Years living on the islands (from both surveys)

The onsite and ferry surveys asked residents to report the number of years they had lived on the islands; results are given in Table 3.

Table 3. Average and median years residents report living on San Juan Islands.

	San Juan	Orcas	Lopez
Onsite survey			
Percent 3 years or less	31	26	10
Average	12	13	27
Median	9	9	15
Ferry survey			
Percent 3 years or less	19	28	15
Average	18	19	18
Median	17	18	13

- Averages are generally higher than medians because of a few high outlier responses (people who have lived on the islands for 30 plus years). Medians provide a better estimate of the "typical" length of residence.

- ***Residents surveyed at attraction sites*** report living on the islands fewer years on San Juan and Orcas (median 9) compared to Lopez (median 15). Similarly, there are higher proportions of relative newcomers (less than three years) on San Juan and Orcas.

- Compared to the onsite survey, ***residents surveyed at the ferry*** report longer residency on the islands for San Juan and Orcas (while medians for Lopez were similar).

- Taken together, Lopez has more long-term residents and smaller proportions of new-comers than the other two islands.

Frequency of site visits (from onsite surveys)

The residents visiting attraction sites were asked to report the ***number of times per month*** they visited that site.

- San Juan residents visiting attraction sites reported visiting a median of 4 times per month; 25% reported visiting 10 times per month or more.

- Orcas residents visiting attraction sites reported visiting a median of 5 times per month; 18% reported visiting 10 times per month or more.

- Lopez residents visiting attraction sites reported visiting a median of 4 times per month; 25% reported visiting 10 times per month or more.

Number of trips to mainland per year (from ferry survey)

Residents surveyed at the ferry were asked to report the ***number of trips to the mainland per year***.

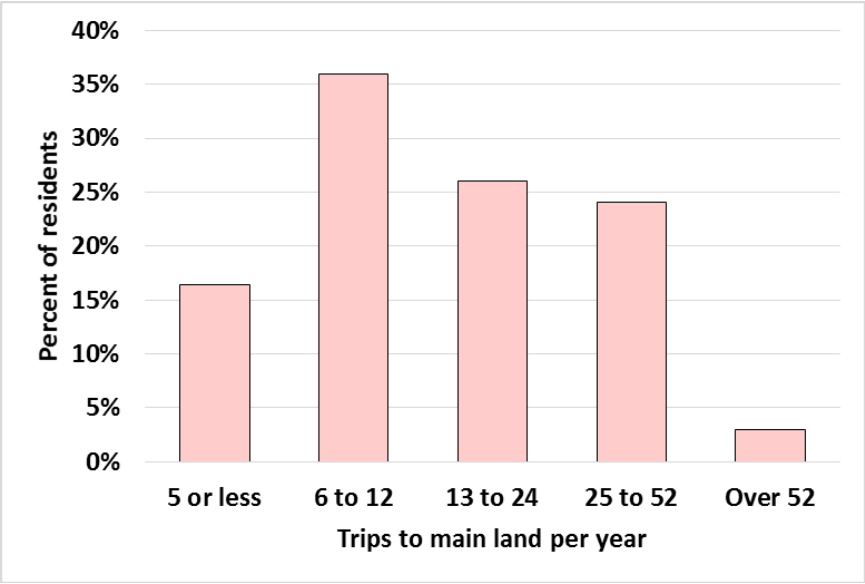


Figure 26. Reported trips to mainland per year by ferry survey residents.

- For all residents together (n=141), about 54% take 12 or less trips per month to the mainland, while 46% take 13 or more trips per year.
- Few residents (about 3%) take more than one trip per week.
- The median number of trips per year was 15; the average was 22 (but this was affected by high outliers). Medians were 10 on San Juan and Orcas, but 20 on Lopez.

Reasons for visiting (from ferry survey)

Ferry survey visitors were asked to rate the importance (on a 5 point scale) of 15 different attributes of the San Juan Islands. The format of the survey question and attributes are listed below:

People enjoy the San Juan Islands for many reasons; please rate the following reasons for you. *(Circle one number for each row.)*

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Reasons list	0	1	2	3	4
Etc.	0	1	2	3	4

- The relaxed pace of life – being on "island time"
- Good choice of hotels, inns, B&Bs, or house rentals
- Local stores and restaurants
- Local arts and crafts
- Local foods
- Friendliness of the local people
- Lively village scene
- Cultural history of the islands
- Natural / rural scenery
- Beach / shore / bluff / headlands hiking
- Forest / mountain hiking
- Marine wildlife viewing
- Boating, sailing, or kayaking
- Biking on rural roads
- The experience of riding on the ferry

Results can be analyzed by average importance (allowing statistical comparisons between groups and attributes; Figure 27). Frequency distributions (percent of responses for each attribute) are provided in Appendix F.

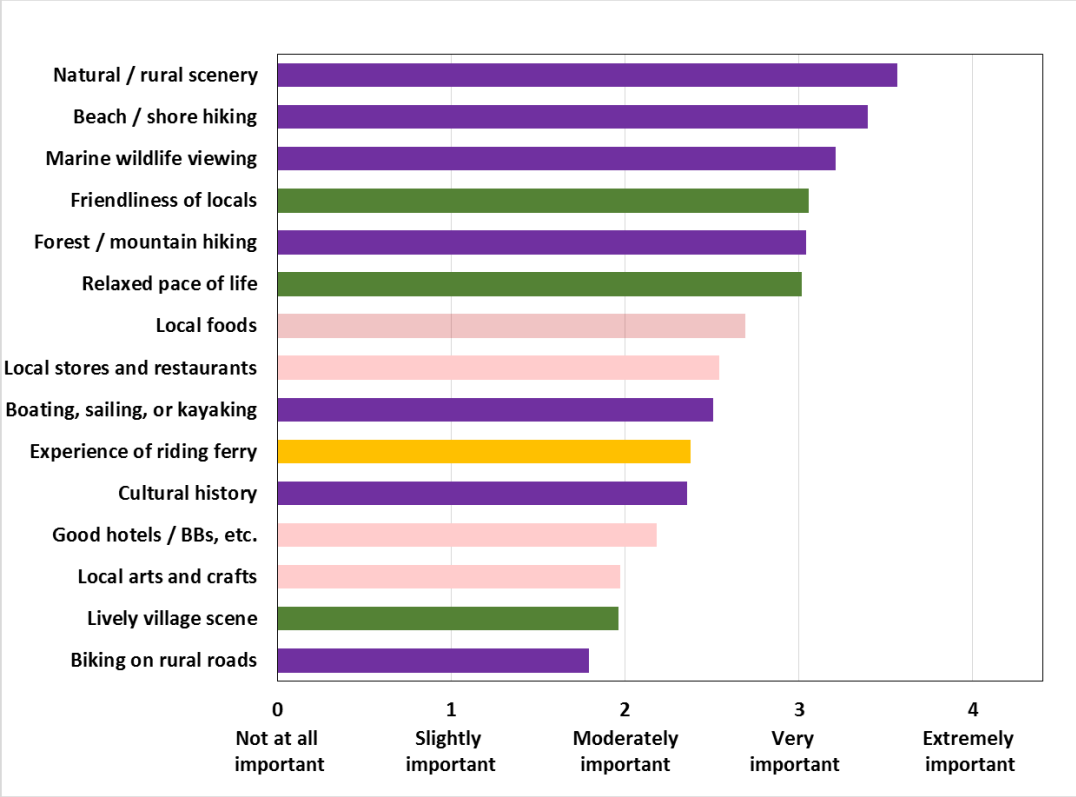


Figure 27. Average importance ratings of 15 possible reasons for visiting the San Juan Islands.
Purple bars = natural resource-related reasons
Green bars = social setting-related reasons
Rose bars = tourism development/facility-related reasons
Gold bar = ferry experience reason

- Four of the five most important reasons (purple bars) are related to natural resources and occur on public land.

- Among the social setting reasons, more importance is placed on the "friendliness of locals" and "a relaxed pace of life" than a "lively village scene." This fits with the visitor profile information showing many visitors are from Seattle or other locations that have more urban attractions, and the San Juans are renowned for a slower pace and rural atmosphere.

- Some common developed tourism attributes (e.g., restaurants, hotels, shops, and arts) are rated less important than natural resource-based and social setting attributes.

- The experience riding the ferry is moderately important, but rates lower than many other attributes of the islands.

- The low rating for biking rural roads fits with the small proportion of the ferry survey brought or rented bikes.

Reasons for visiting: Differences between islands

There were several interesting differences in importance rating between islands; statistically significant ($p<.05$) differences are shown in Figure 28. A red outline is shown around the island(s) that are different from the other island(s).

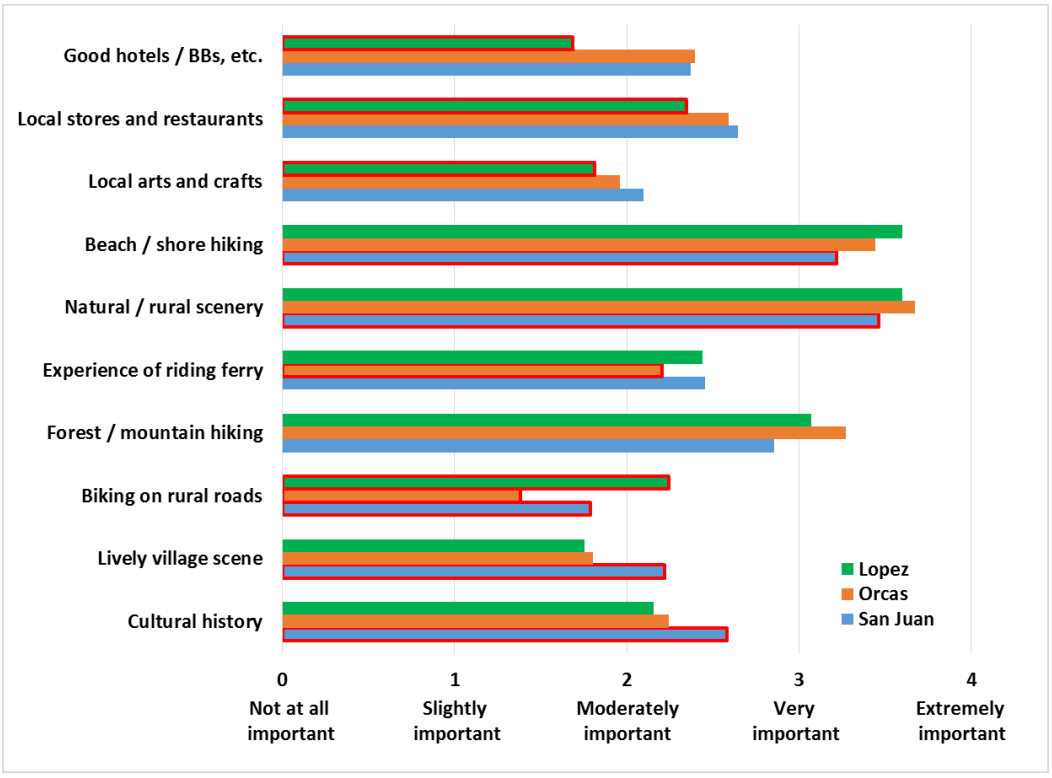


Figure 28. Comparing average importance ratings of reasons for visiting different San Juan Islands.

- Results generally fit with different islands' reputations:
  - San Juan respondents rated cultural history and lively village scene more important than Orcas and Lopez respondents.
  - San Juan and Orcas rated local arts, stores/restaurants, and accommodation higher than Lopez.
  - San Juan and Lopez ferry experience higher than Orcas.
  - Orcas rated forest/mountain hiking higher than San Juan and Lopez.
  - Orcas and Lopez rated natural/rural scenery higher than San Juan.
  - Lopez rated biking higher than San Juan, which rated biking higher than Orcas.
  - All islands were similar on friendliness of locals (not shown here)

Reasons for living in the San Juans

Residents from the ferry survey were asked to rate the same 15 reasons for living in the San Juans. Average importance ratings are given in Figure 28, using the same color scheme for different types of reasons.

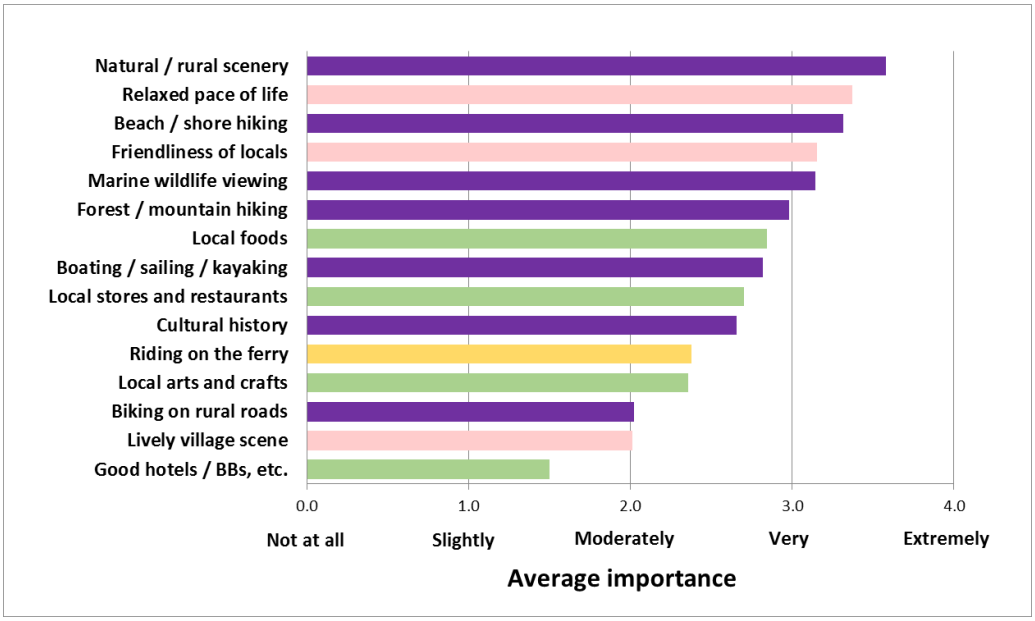


Figure 29. Average importance ratings of 15 possible reasons for living in the San Juan Islands (among residents from ferry survey).
Purple bars = natural resource-related reasons
Green bars = social setting-related reasons
Rose bars = tourism development/facility-related reasons
Gold bar = ferry experience reason

- Rank-order importance of reasons was similar to visitors, with natural resource and slow-paced social settings higher than tourism development.

- Residents rated a relaxed pace of life statistically higher than visitors, possibly accentuating the link between this often-mentioned attribute and islanders' identity.

- Residents also rated boating, sailing, and kayaking higher than visitors, possibly reflecting greater access to craft that allow those activities.

- Visitors rated choice of hotels/accommodation and local arts/crafts higher than residents, reflecting interest in common tourism concerns.

Where do they stay? An accommodation inventory

This section of the report reviews the range of accommodation used by San Juan Island visitors. It includes an inventory of typical tourist accommodations (e.g., hotels, inns, B&Bs, hostels, condos, and campgrounds), and a separate inventory of vacation rentals (e.g., VRBO, Airbnb).

Range of typical tourist accommodations

- A list of 76 overnight businesses (San Juan 41, Orcas 28, Lopez 7) was developed using internet research and structured interviews. Appendix D provides additional details about this inventory, and an updateable database that will be made available to the County at the conclusion of this study.

- The San Juan Islands have a diversity of accommodation types that differ by size, location, and amenities. Major types range from luxury spa resorts, bed and breakfasts, vintage cabins, hostels, modern hotels, and blocks of condos, to modest motel rooms with shared bathrooms.

- Although definitions of these different accommodation types can be less than precise, and some accommodation owners use these labels haphazardly, our database attempts to classify each facility into one of the following:
  - Resorts – Larger hotel complexes, often with a mix of hotel, condo, and cabin units. Most have multiple additional amenities such as a marina, pool, exercise facilities, etc.
  - Hotels – multiple private rooms (usually more than 10), central lobby, in a building that is not a former house. May have additional amenities such as restaurants.
  - Inns – multiple private rooms, but usually less than 10, in buildings that may be a converted home.
  - B&Bs – typically homes that offer a small number of rooms; must serve breakfast.
  - Cabins – typically smaller rustic homes (or a series of cabins) offered for short-term rentals.
  - Hostels – typically a mix of shared and private rooms, with shared restrooms.
  - Campgrounds – RV or tent sites. May include “glamping” or soft-side semi-permanent units (e.g., onsite yurts, cabins) as part of the larger complex. Usually shared bathrooms.

- For each entry, the database includes information about its location; type; number of units (rooms or sites); largest unit (people); availability of pool or Jacuzzi; availability of a restaurant; availability of exercise facilities; availability of breakfast; availability of kitchen units; whether the location is on the waterfront or has a water view; its star rating (if known); average cost for a double occupancy unit; and estimate of maximum occupancy (number of units multiplied by an assumed number of people per unit).

Total accommodations by type

Simple counts of the number of accommodations of different types illustrate several differences between the islands.

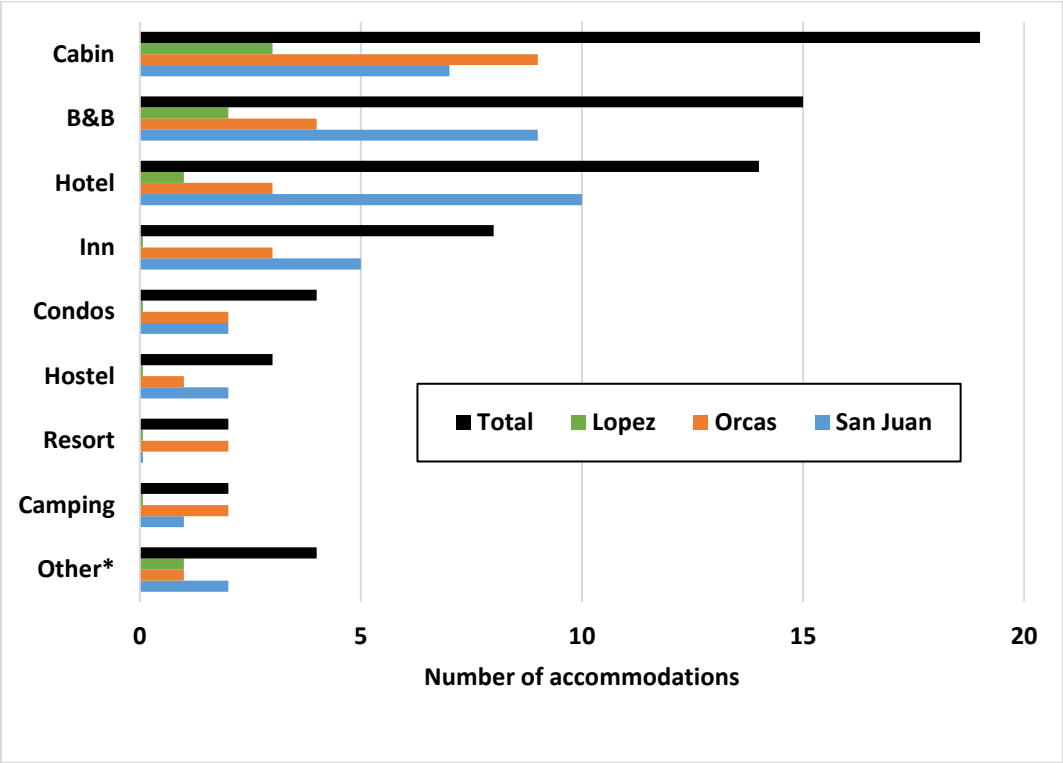


Figure 30. Number of accommodations of different types on each island (and all islands).

- The inventory shows there are considerably more hotels, inns, and B&Bs on San Juan than the other two islands, and that Lopez has the fewest accommodations.

- Note: The "Other" category includes yurts, RVs, and houses within a campground/resort setting.

Proportion of accommodations with different amenities

The database tracks different amenities across the inventory, further suggesting how accommodations differ on each island.

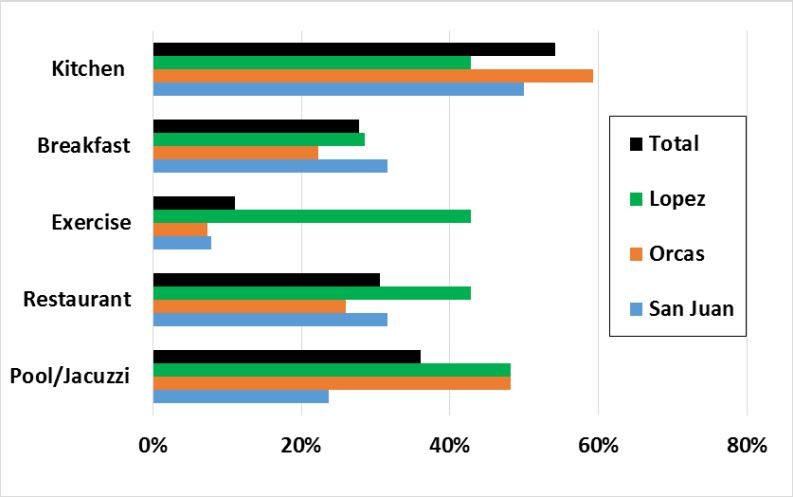


Figure 31. Percent of accommodations with different amenities.

- Nearly half of all accommodations have units with kitchens.
- About one quarter to one-third serve breakfasts or have restaurants. Only about 10% have exercise facilities (except on Lopez,).
- About half of the accommodations on Orcas and Lopez have pools or Jacuzzis.

Understanding vacation rentals – Overview of San Juan County housing stock

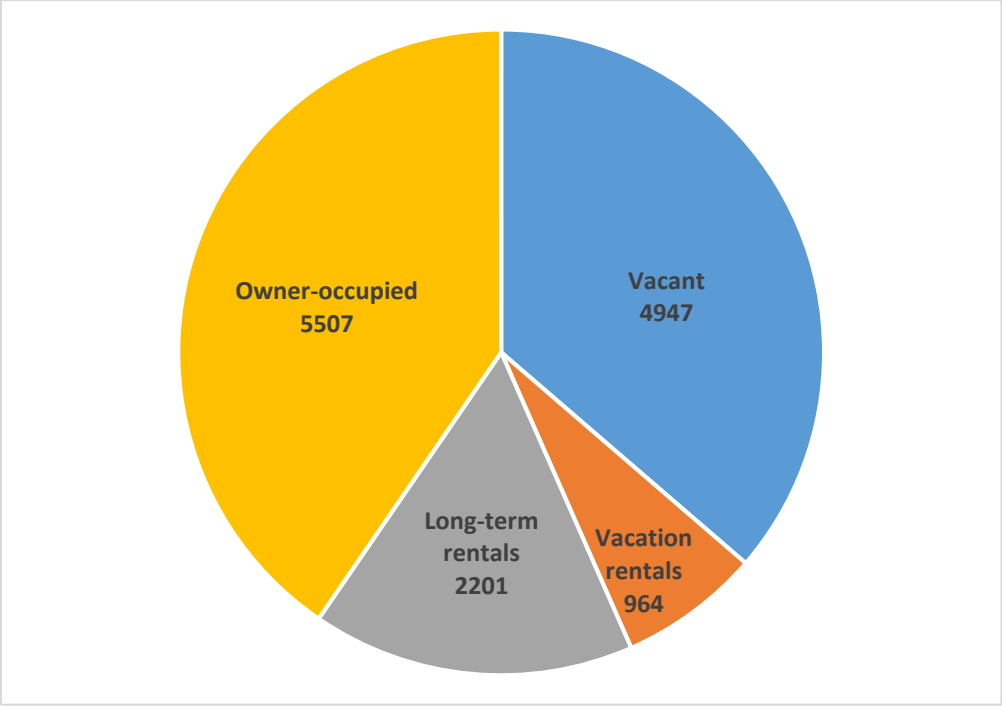


Figure 32. Number of different housing stock in San Juan County.
Source: SJI County DCD 2017 briefing on vacation rental code amendments (Erica Shook & Linda Kuller)

- Based on recent analyses, San Juan County has roughly ***13,600 housing units, of which 7,700 are full-time resident households*** (San Juan County Community Development, 2017). About 71% or 5,500 of these resident households own their homes, while the rest (29% or 2,200) live in long-term rentals.

- The ***remaining 6,000 housing units are "second homes" that can be divided into vacation rentals (about 1,000), and so-called "vacant homes" (about 5,000).*** The former are permitted by the County to be rented to visitors, like hotels or other accommodation. The latter are not all "vacant," they are simply used part-time.

- These ***vacant homes can be further divided into three types:***
  - Occupied only by their owners.
  - Occupied by their owners or owners' friends and relatives (for free).
  - Occupied by others (not the owners or their relatives) for a fee, but not under permit with the County. These may be advertised on Craigslist, by word of mouth, or through some other "black market" platform. This category bypasses the County permitting process and county and state lodging taxes.

- It is ***challenging to estimate the number or proportion of homes*** in these different "vacant" categories. It is similarly ***challenging to estimate the percent of time the homes in any of these categories are actually occupied.*** It is also possible that vacant homes currently used by owners, their friends, or through "black markets" will be converted to permitted vacation rentals at some time in the future.

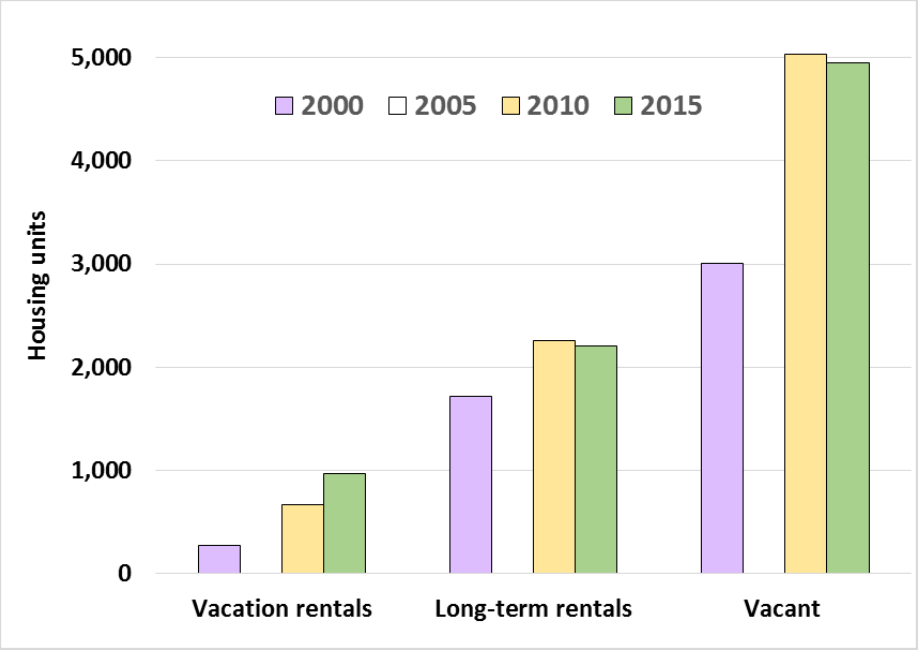


Figure 33. Number of vacation rentals, long-term rentals, and vacant homes in San Juan County.
Source: SJI County DCD 2017 briefing on vacation rental code amendments (Erica Shook & Linda Kuller)
Note: 2005 data is unavailable, but a gap is shown to highlight the temporal trend.

- As shown in Figure 33, the ***proportions of the different housing stocks are changing.*** Without over-stating the precision of these numbers, vacation rentals have more than tripled in the last 15 years, while vacant houses initially increased about 65% (from 3,000 to 5,000), but now seem to have stabilized or decreased slightly. Long term rentals increased about 35%, and have also stabilized or decreased. It is unclear if this is a "zero sum game," but the increase in vacation rentals may represent conversions from the long-term rental or vacant home categories.

- If these trends continue, ***visitor accommodation could increase substantially even if no new lodging is actually built.*** This is particularly true if substantial numbers of the stock of vacant homes, which is more than twice the stock of long term rentals and nearly as large as the stock of owner-occupied homes, convert to vacation rentals.

- There is a need to ***maintain an accurate, comprehensive, "real time" housing database to follow these trends.***

Vacation rentals – Estimating numbers and their characteristics

San Juan County requires permits for homeowners to rent their houses to visitors. This formal process requires rentals to have a capacity related to the number of bedrooms and bathrooms, utilities, parking, permission of neighbors, etc. A file is created for each permit, but the information has been incompletely digitized (usually limited to name, address, and location; only about one third have any information about the number of beds or rental capacity). The County is revising its vacation rental ordinance, which provides an opportunity to refresh and digitize all permit information.

In the interim, there is a need to estimate the number and capacity of vacation rentals, to fit with the capacity information we have for other types of visitor accommodations. Confluence developed a systematic sample of 217 vacation rentals (97 on San Juan, 60 on Orcas, and 60 on Lopez) listed on Airbnb and VRBO. These two platforms are purpose-made websites that allow owners to list their houses (for a percentage of the rental proceeds).

A combined initial list of 875 vacation rentals was developed using the map scrolling tools on the Airbnb and VRBO websites. Although vacation rentals are offered through other platforms (e.g., Craigslist, direct booking, and word of mouth), the 875 combined VRBO and AirBNB listings were sufficiently close to the approximately 950 County-permitted vacation rentals (some of which may be offered on other marketing platforms), so we considered these two sufficient. Based on our sampling, there appears to be a 9% overlap where owners list on both websites, so the two websites probably cover about 790 distinct vacation rentals.

The list was then sorted by number of bedrooms and sampled at systematic intervals until the target number of rentals for each island was met. This ensured a representative sample of different size rentals, for which we collected more detailed information. The sample returned mostly houses, but also included some units that better fit within some of our other accommodation types (e.g., downtown condos, apartments, cabins/cottages, tent cabins, bed and breakfasts, boats, and private campsites). In general, however, the majority of vacation rentals are a single house or unit offered by its owner (not part of a group of units as with a B&B or hotel).

Estimating vacation rental characteristics

- The vacation rental database (n=217) has information about the owner; address; island; VRBO/Airbnb identification number; capacity (people); number of bedrooms; number of bathrooms; type (e.g., house, condo, cabin, apartment, campsite, other); square footage; waterfront availability (own beach, access to public beach, waterfront, water view); star rating; and cost (per person if filled, per bedroom, and per square foot).

- Most vacation rentals are higher quality accommodations. For our entire database, 93% were rated 4.5 or 5 stars. There were no units listed below 3.5 stars (although 11% of units were not rated).

- The average cost of a listing is $246 per night ($51 per person; $130 per bedroom; $240 per 1,000 square feet). Costs (per person, per square foot, or per bedroom) follow from star ratings. For example, 5 star units go for $135 per bedroom, while 3.5 star units go for $65 per bedroom.

- The average vacation rental sleeps 5.2 people, has 2.0 bedrooms, and 1.7 baths, but this conflates small rooms and apartments with larger rentals.

- The average room/apartment sleeps 3, has 1.1 bedroom, and 1.0 bath. They cost about $137 per bedroom.

- The average cottage/cabin sleeps 4 people, has 1.5 bedrooms, and 1.1 baths. They cost about $141 per bedroom.

- The average house sleeps 6.8 people, has 2.7 bedrooms, and 2.2 baths. They cost about $122 per bedroom.

- Additional information about the vacation rental database is provided in Appendix D. The database will be provided to the County upon completion of the study.

Accommodation inventory – Total units across all types

It is useful to sum the total accommodation units across different types; Figure 34 shows amounts for each island and in total.

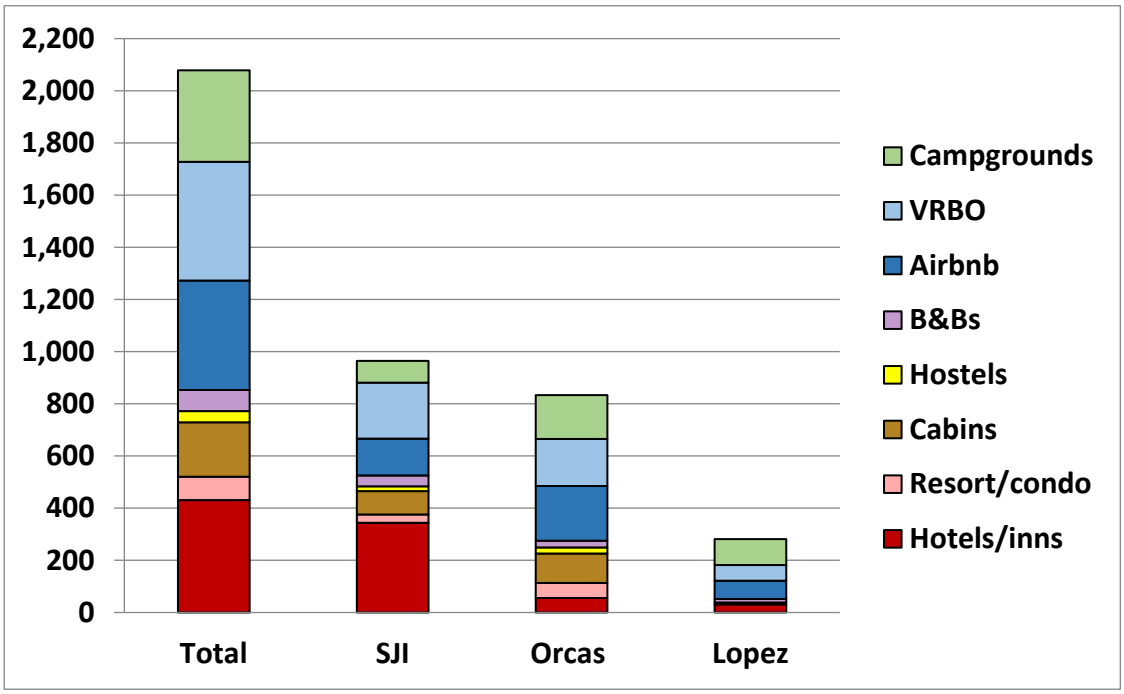


Figure 34. Number of accommodation units by island and type.

- The greatest number of accommodation units on all islands are in the vacation rental (Airbnb/VRBO) category, although hotels/inns on San Juan are a close second. There are very few hostel, B&B, resort, or condo units available.

- San Juan Island has the majority of hotels/inns and the least amount of camping.

- Orcas has more vacation rentals and more camping than the other islands due to a large number of campsites at Moran State Park.

- Lopez has the least lodging; most of their overnight units are vacation rentals and campgrounds.

Accommodation inventory – Total people across all types

By applying simple multiplier assumptions for people per unit, we estimated the capacity of existing accommodation (assuming all rooms were full). For this exercise, based on a review of our databases, we assumed 3 people per hotel unit, 7 per condo, 6 per cabin, 4 per hostel room, 3 per B&B bedroom, 5 per transient rental unit, and 6 per campsite.

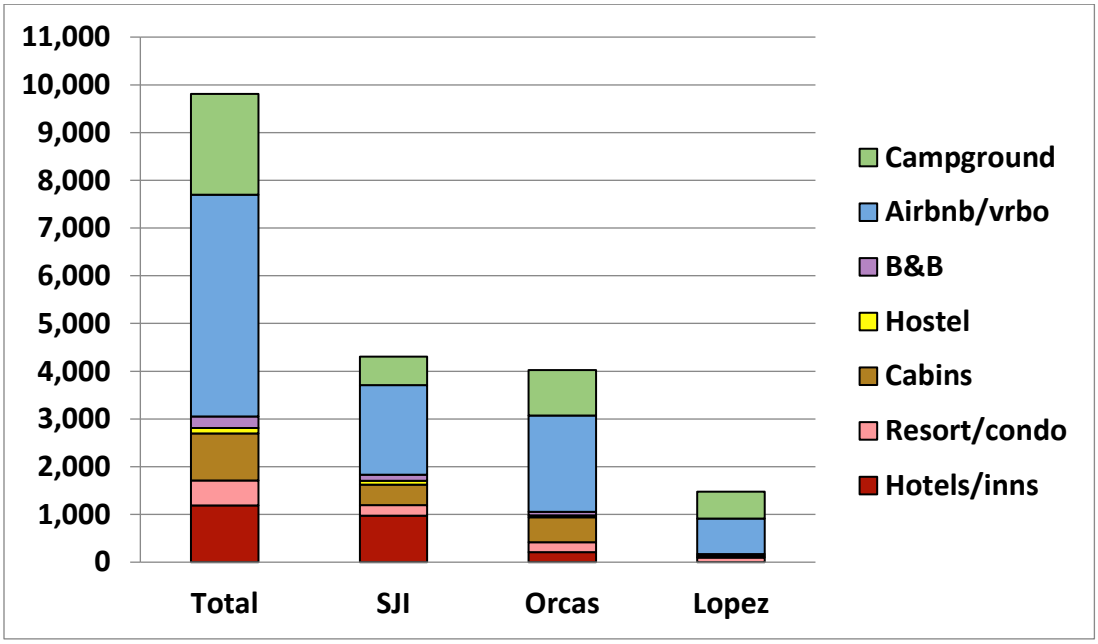


Figure 35. Estimated average overnight visitors (if all units were occupied)

- Results show a similar pattern to Figure 36, but high occupancy units like vacation rentals and campsites show larger proportions of total accommodation.

- Overall, San Juan and Orcas islands appear to have similar accommodation capacities. Orcas has fewer hotel rooms but more vacation rentals and campsites, which can handle more people.

- Lopez has few hotel units, and its vacation rentals and campgrounds provide most of its accommodation capacity.

Reported accommodation: Ferry survey

The ferry survey asked visitors to report the type of accommodation they were using; it provides the most representative estimate of visitors' accommodation choices.

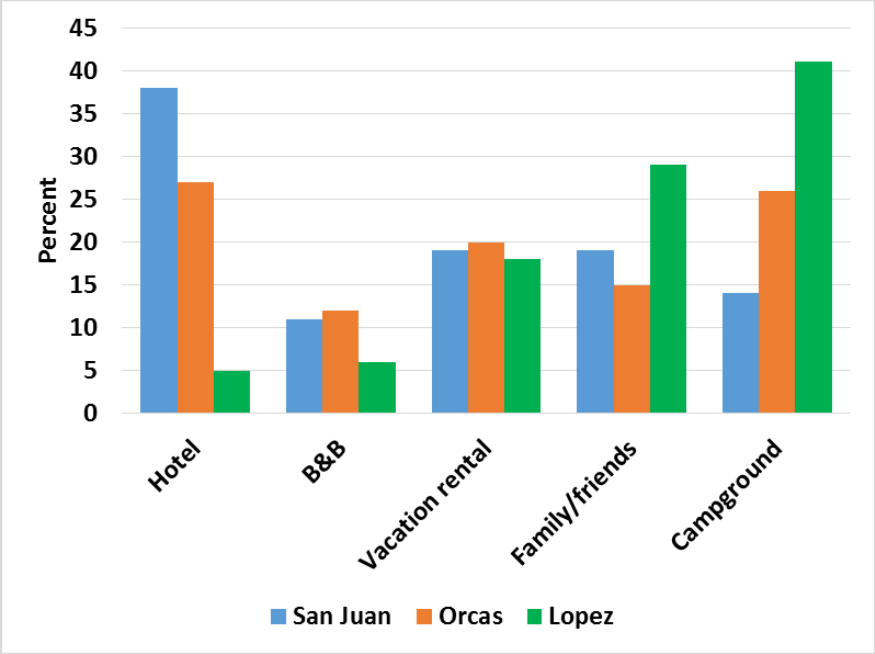


Figure 36. Percent of ferry survey visitors who stayed in different types of accommodation

- These reported accommodation types fit with the availability of different types of accommodation shown in the inventory on each island.
- Compared to other islands, San Juan has more visitors staying in hotels and B&Bs, and less in campgrounds.
- Orcas has fewer visitors in hotels and more in campgrounds, while Lopez has more with family/friends and in campgrounds, and few in hotels and B&Bs.

Reported accommodation amenities (from ferry visitors)

The ferry survey asked visitors to report the amenities at their accommodation.

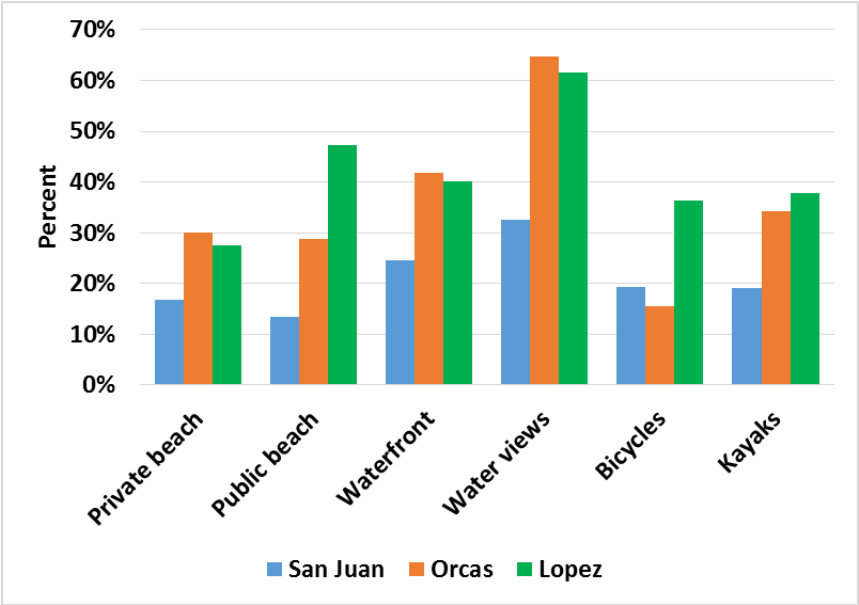


Figure 37. Percent of ferry visitors reporting amenities at their accommodation.

- Over 60% of Orcas and Lopez visitors reported water views, and about 40% reported waterfront property. San Juan percentages were 33% and 25%, respectively.

- Lopez visitors were more likely to report bicycles, kayaks, and a public beach. The latter may be related to the campers from Odlin and Spencer Spit State Park in the sample.

Does accommodation capacity constrain overall visitation?

Structured interviews with several staff suggest that most hotels/inns are fully occupied on summer weekends, although there is often space mid-week and during shoulder seasons. This suggests some growth in peak season visitation can occur in this category. We assume the same is true for cabins and resort/condos.

The overall housing stock in the County is the other major component of accommodation supply. The current stock of vacation rentals is the single largest accommodation category, overall providing roughly a third of the units and serving roughly half the visitors. It is more of a "wild card" because it has several unknowns.

The current stock of vacant housing is five times larger than the vacation rental stock. Ferry survey data show that numbers of visitors staying with friends and family are about the same as numbers in vacation rentals, which suggests about 20% of the vacant category may serve as *de facto* units in the vacation rentals category, occupied by people who consider themselves visitors. If an additional 20% of the vacant category (currently truly vacant) was converted to vacation rentals, it would double the number of vacation rentals, and perhaps increase the number of visitors by as much as 50%. This change could occur without any new construction.

Long-term rentals present other unknowns. The evidence suggests that some long-term rentals may be converting to vacation rentals. If this depletes the stock of long-term rentals, it may induce higher visitation while decreasing housing for those needed to service visitation. In general, vacation rentals appear to be larger and "higher-end" units than long-term rentals, but the data show that vacation rentals include modest units too.

Many vacant homes are already accommodating visitors, just not visitors who reserve or pay for their accommodation in an easy-to-monitor way. If vacant homes currently used by visitors are converted to vacation rental status, it may not change the overall amount of visitation unless occupancy rates change.

Occupancy rates for both vacant housing and vacation rentals are currently unknown. Lodging tax receipts might allow estimates of occupancy for vacation rentals, but this analysis requires complex assumptions. Occupancy rates for "vacant" housing are even more difficult to estimate. Both of these issues could be addressed on a resident survey and additional analysis of vacation rental lodging tax receipts.

The current accommodation supply is a probably a larger constraint on visitation than the WSF system. For example, our earlier transportation analysis shows that typical peak weekends bring as many as 3,000 people per day to San Juan Island, and because they stay an average of 2.0 days, roughly 6,000 people need to be accommodated each night. The accommodation inventory suggests there is space for about 4,000 visitors on San Juan Island, so 2,000 of the ferry arrivals must be residents, or people staying in the vacant homes stock. If the "staying with friends or family" category is the same size as the vacation rental category (as indicated by ferry survey data in Figure 36), about 20% of that vacant home stock would accommodate these arriving visitors.

Where do visitors go?

Number of recreation sites visited (from ferry survey)

Visitors from the ferry survey were asked to "check all the outdoor recreation locations you visited on this San Juan Islands trip," and provided a list of 11 to 14 sites on each island (respondents could write-in other responses too). A count of the number of sites checked or listed allowed analysis of the number visited per trip and per day.

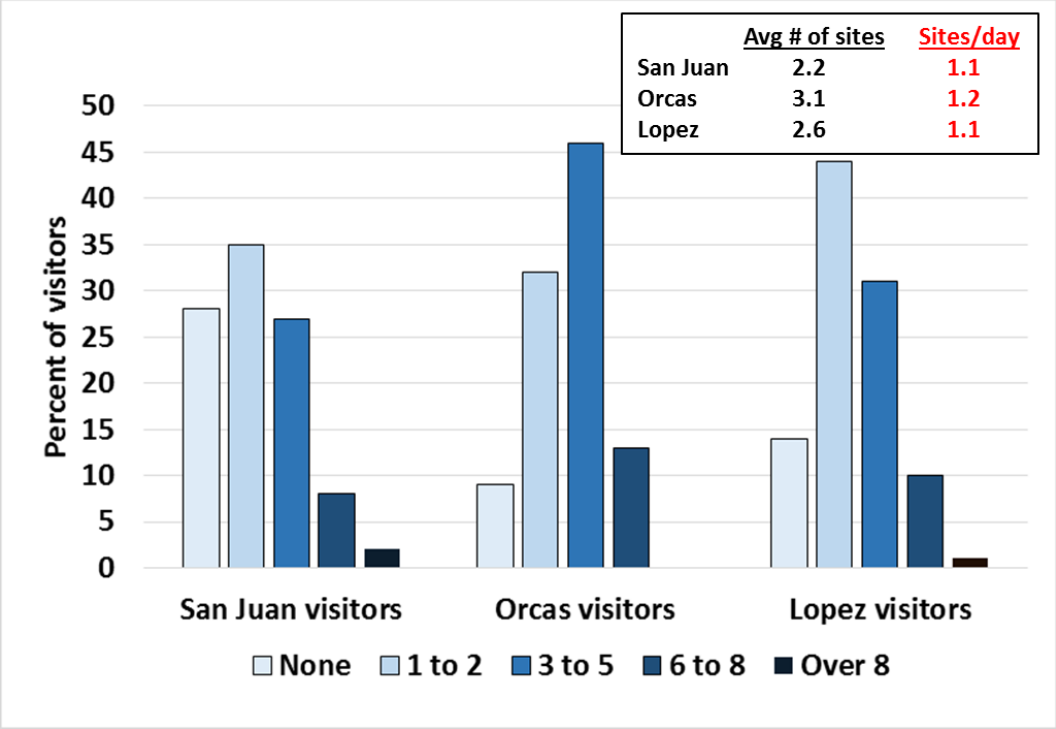


Figure 38. Percent reporting the number of sites they visited on the island where they were surveyed.

- Most visitors go to several attraction sites, although some (about a quarter on San Juan, 10 to 15% on Orcas and Lopez) do not visit any.
- In general, visitors on Orcas go to more sites than those on Lopez, who go to more than San Juan.
- Controlling for length of trip (dividing number of sites visited by number of days on trip), visitors average one site per day. There are some sightseeing-focused visitors who check-off many sites on the lists, but there are others who do not.

Reported sites visited (from ferry survey)

The ferry survey listed 14 sites on San Juan and 11 each on Orcas and Lopez. The following figures show percent of visitors who visited each site.

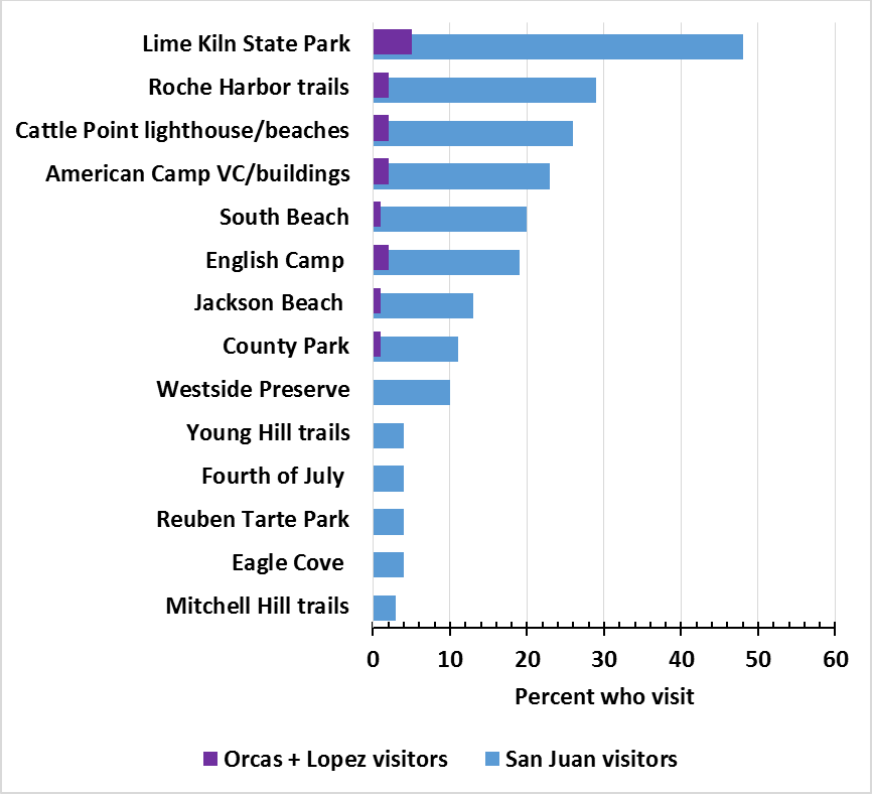


Figure 39. Percent of ferry survey visitors who visit San Juan attraction sites.

- On ***San Juan Island***, Lime Kiln SP is the only attraction that attracts nearly half of all ferry survey visitors; it also attracts about 5% of those staying on Lopez and Orcas.

- Several other places attract 10-30% of all visitors, including the NPS National Historic Park units, Cattle Point (DNR and BLM), County Park, and Westside Preserve.

- Although Roche Harbor trails appear popular, it is unclear if respondents actually used the trails, or checked the site because they visited the larger Roche Harbor area (resort, marina, and sculpture garden).

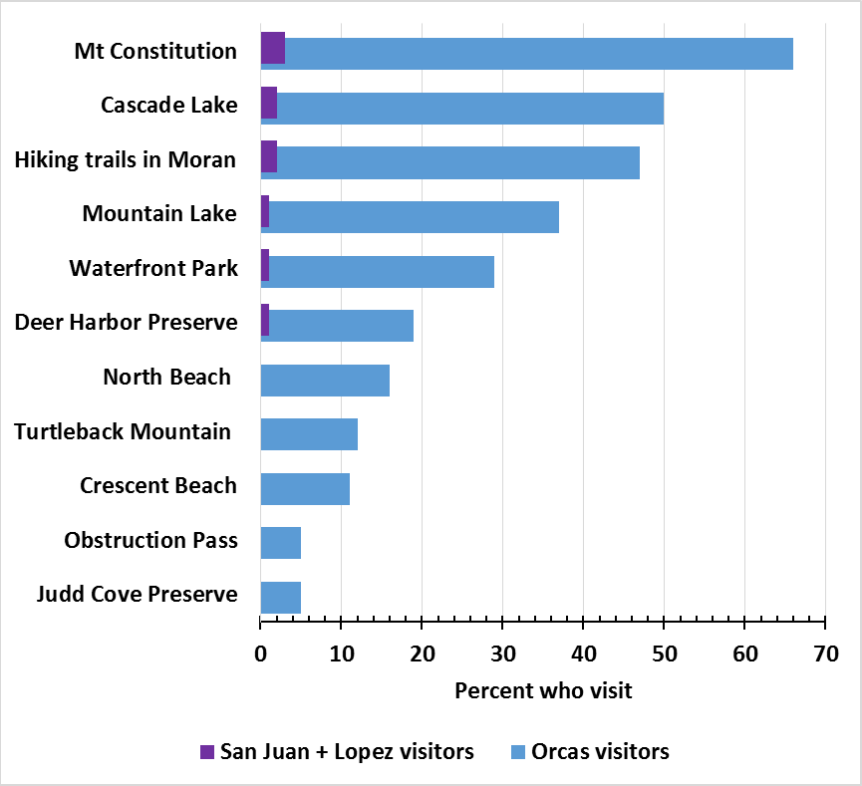


Figure 40. Percent of ferry survey visitors who visit Orcas attraction sites

- On ***Orcas Island,*** Mt. Constitution summit is the most-visited site, attracting over 65% of Orcas visitors and about 5% of San Juan and Lopez visitors.

- Cascade Lake and Mountain Lake attract nearly half of all Orcas visitors, explaining the high densities at those sites (see below).

- Despite having one of the few non-roadside public beaches on the island, Obstruction Pass State Park attracts relatively little use.

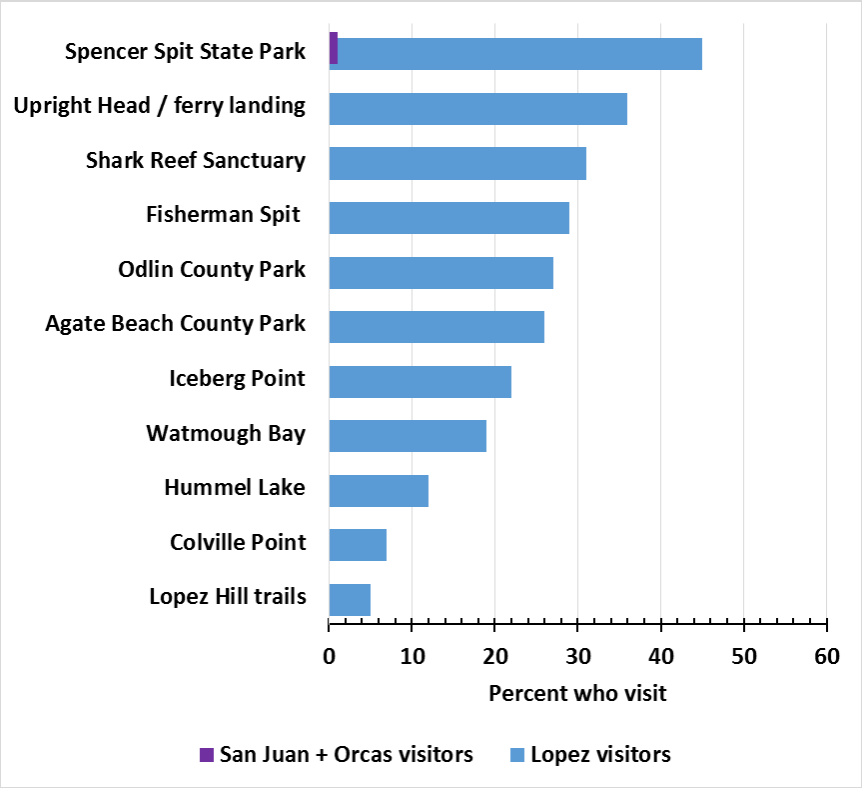


Figure 41. Percent of ferry survey visitors who visit Lopez Island attraction sites.

- One of Lopez's most popular attraction sites is among the least managed – the DOT property at the ferry landing. Few visitors go just to see that site, but most spend time waiting at the ferry landing.
- Spencer Spit State Park and Shark Reef are the most popular attractions, with 45% and 31%, respectively.
- About 25% of Lopez visitors go to Agate/Iceberg Point, while 19% visit Watmough Bay.

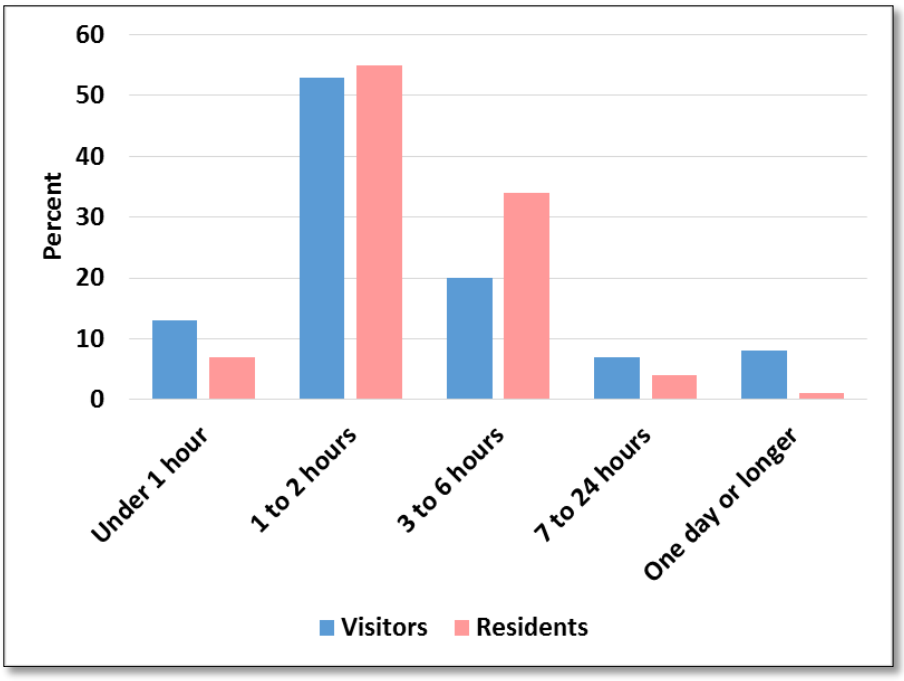


Figure 42. Reported length of stay at attraction sites for visitors and residents (from onsite survey).

- Onsite survey respondents (visitors and residents) were asked to report the amount of time they spent at the site where they were surveyed. Results for all islands are given in Figure 46; differences between islands were small.

- Most visitors spend a couple of hours at a given attraction site, although 20 to 30% spend as many as 3 to 6 hours.

- Differences for visitors and residents were small. Longer times among visitors were generally for places they were camping.

Use levels at attraction sites by island (from counts/observations)

Counts at San Juan Island sites

Counts of people vehicles etc. were made at 11 sites on San Juan Island. The comparison of average, 75 percentile, and maximum counts help characterize use at each.

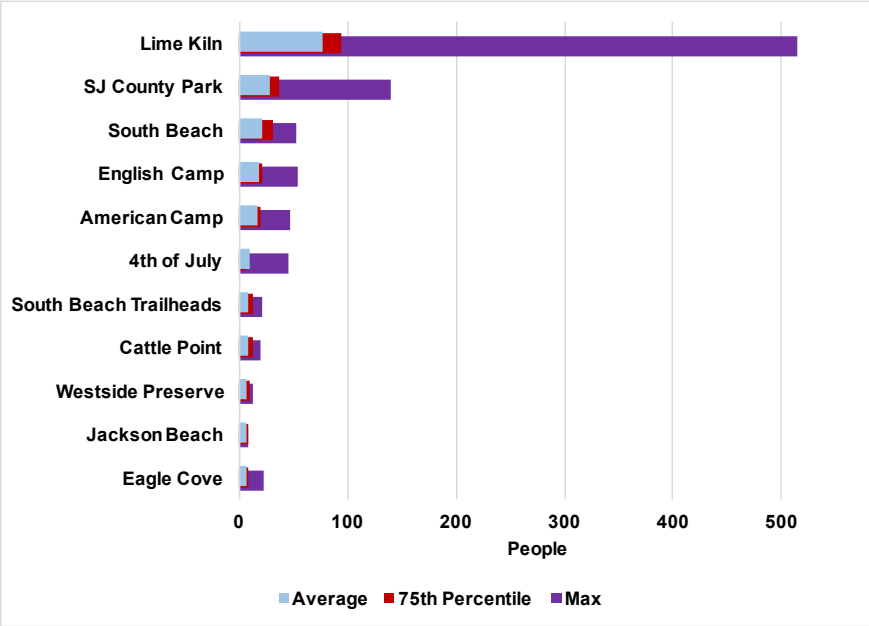


Figure 43. Onsite people counts at attraction sites on San Juan Island.

- Lime Kiln has the highest use levels of any site on San Juan Island.
- County Park, South Beach, English Camp, and American Camp also see substantial use.
- Differences between average (blue) and maximum (purple) counts show more than 5x (maximum vs. average) at Lime Kiln and 3x at County Park. Maximum spikes of high use were infrequent; 75% counts were typically much closer to averages than maximums. These "rare episodic high use" events raise interesting questions about whether to set up staff and facilities to meet these demands, set up systems to distribute use and avoid peaks, or adopt a *laissez faire* approach that tolerates these occasional high use problems.
- This example for San Juan Island illustrates the count/observation information collected at roughly 17 main sites across all three islands. Similar information has been developed for Orcas and Lopez sites in Appendix C.

Example of site counts: Lime Kiln State Park

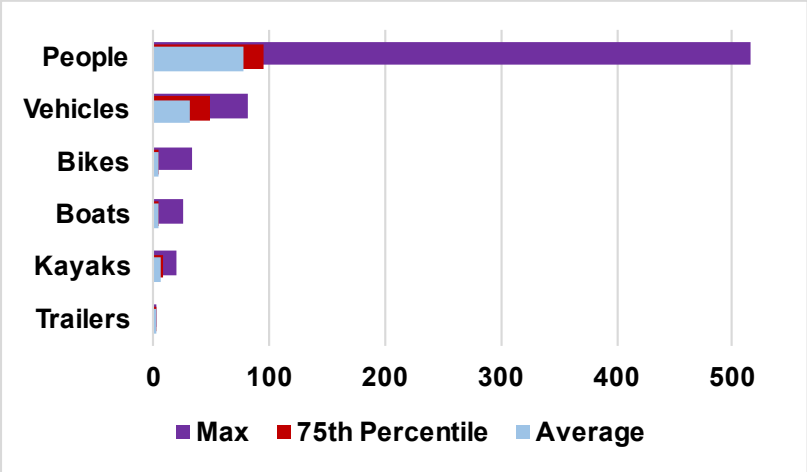


Figure 44. Counts for people, vehicles, bikes, boats, kayaks, and trailers at Lime Kiln SP.

- Detailed information collected during site counts is shown in this example for Lime Kiln. In this case, "rare episodic high use" (max levels are 5x average levels) applies to people, but does not show up in vehicle or other counts.

- The data indicate that during this event (likely a whale sighting) many people were probably dropped off by buses or vehicles that cannot fit in the site's limited parking lots (which hold approximately 50 vehicles).

Example of site counts: County Park on San Juan Island

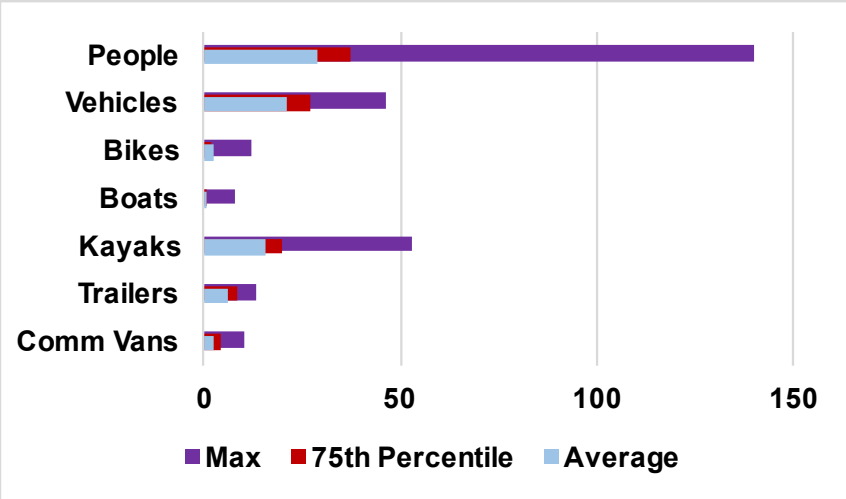


Figure 45. Counts for people, vehicles, bikes, boats, kayaks, and trailers at County Park.

- Episodic high use also occurs at County Park (max counts are nearly 5x the average), typically in conjunction with scheduled guided kayaking tours.

- On normal days, 50 people make the day use areas busy but manageable. But when tides, good weather, and weekend days coincide, 100 people may be present during launch windows, overwhelming facilities and park staff.

- People and boats crossing the road adjacent to the beach create safety issues, while congestion on the ramp and beach create undesirable conditions for paddlers organizing gear and conducting beach talks.

- Based on field observations, there is room for about 40 kayaks to safely launch from the beach at Smallpox Bay at one time. Most of the time there are less than 25 kayaks present, well under capacity for a "good quality experience." But with 50 kayaks, some users launch in unsafe conditions, and interfere with each other's trips.

Example of site counts: American Camp

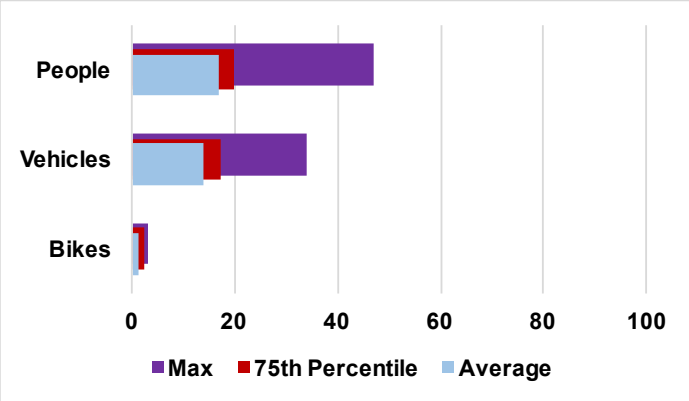


Figure 46. Counts of people vehicles and bikes at SJNHP American Camp.

- American Camp has smaller differences between average and maximum use (about 2.5x), suggesting that episodic high use is less of an issue at this site.

- American Camp has more extensive dispersed trails that can distribute use better than a concentrated site like Lime Kiln or County Park.

Counts at Orcas Island sites

Counts of people vehicles etc. were made at 8 sites on Orcas Island. The comparison of average, 75 percentile, and maximum counts help characterize use at each.

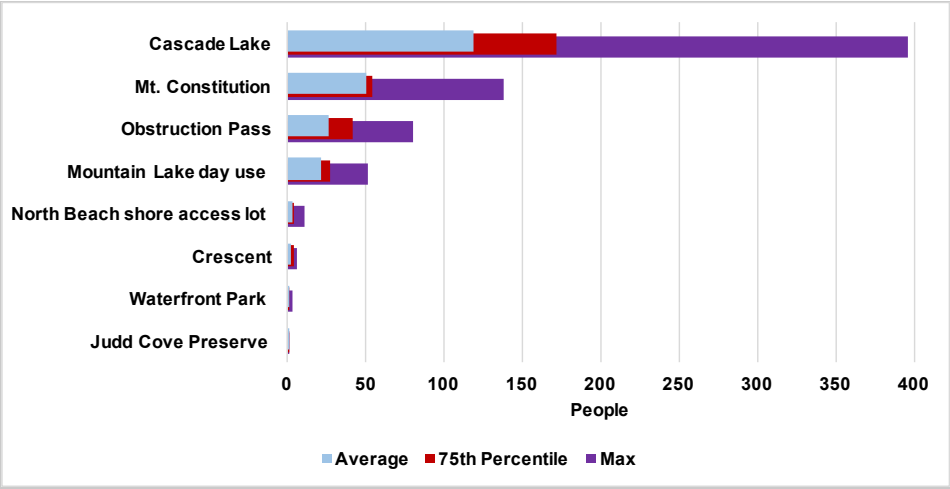


Figure 47. People counts at Orcas attraction sites.

- Cascade Lake had the highest use levels of any site on the three main islands. As with Lime Kiln and County Park, it has episodic high use, with maximums about 3x average use.

- The 75th percentile count was also substantially larger than the average, compared to any other site. This indicates that high use occurs more often than at other high use sites.

- Cascade Lake rarely has high use before noon, and nearly all peaks occur on warm afternoons (best conditions for swimming).

- Mt. Constitution is the other Orcas attraction with substantial use, averaging about 50 at one time, with 2.3x peaks over 100.

Counts at Lopez Island sites

Counts of people vehicles etc. were made at 11 sites on Lopez Island. The comparison of average, 75 percentile, and maximum counts help characterize use at each.

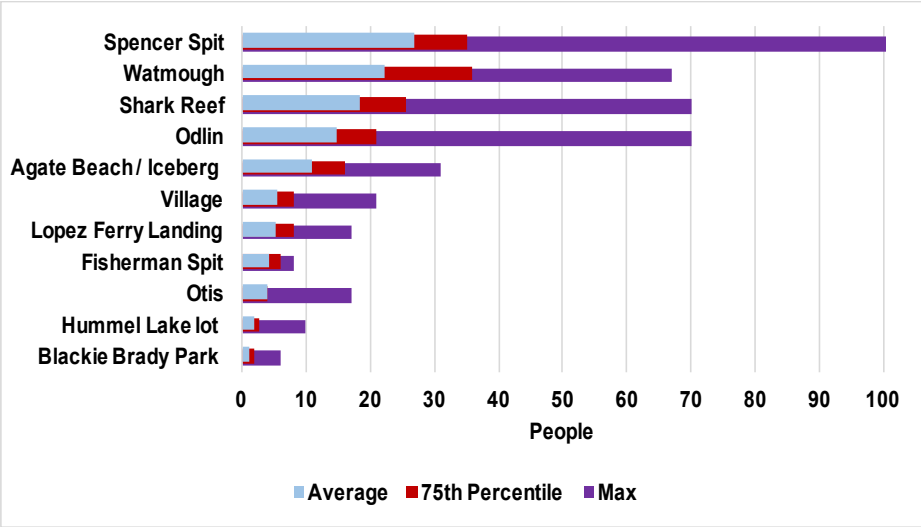


Figure 48. People counts for Lopez Island attraction sites.

- Lopez Island has four sites (Spencer Spit, Watmough, Shark Reef and Odlin) that attract episodic high use, although none of these sites have actual use levels as high as Lime Kiln, County Park, Cascade Lake or Mt. Constitution summit.

- Spencer Spit has the highest (3x) difference between average and maximum use. The other three are closer to 2x sites. Of these four sites, Shark Reef has the most concentrated use, because the out-and-back trail deposits visitors at a few small marine viewing and picnic areas.

Other site specific counts and count/density maps

Counts for vehicles, bikes, boats, and other variables for several sites have been collected in Appendix C. These are helpful as baseline data for future years, but they also offer opportunities for additional analysis. Results include counts and densities on specific trail segments at different times to illustrate how use can vary dramatically by time of day, day of week, or season. Examples are given for Lime Kiln in Figure 49.

Figure 49. Counts and densities of people on trail segments at Lime Kiln State Park.

- This example illustrates how people are distributed along trails (along the marine viewing shore). Comparisons include a holiday afternoon, the following morning, and average for the season.

- Counts are for the specified trail segment, while densities are calculated as people per 100 yards. People are likely to be concentrated within trail segments at popular areas like the lighthouse or whale wall.

- The maps include information about daily traffic averages and other use indicators from the whale research station at the lighthouse (see discussion below). Additional analysis explored correlations between daily traffic indicators and at-one-time use levels; these were relatively low (r<.3).

Visitation at sites (from traffic counters)

State Parks staff operate TRAFx vehicle counters through the year, providing useful information about seasonal and day of the week trends. An example for Lime Kiln State Park is given below.

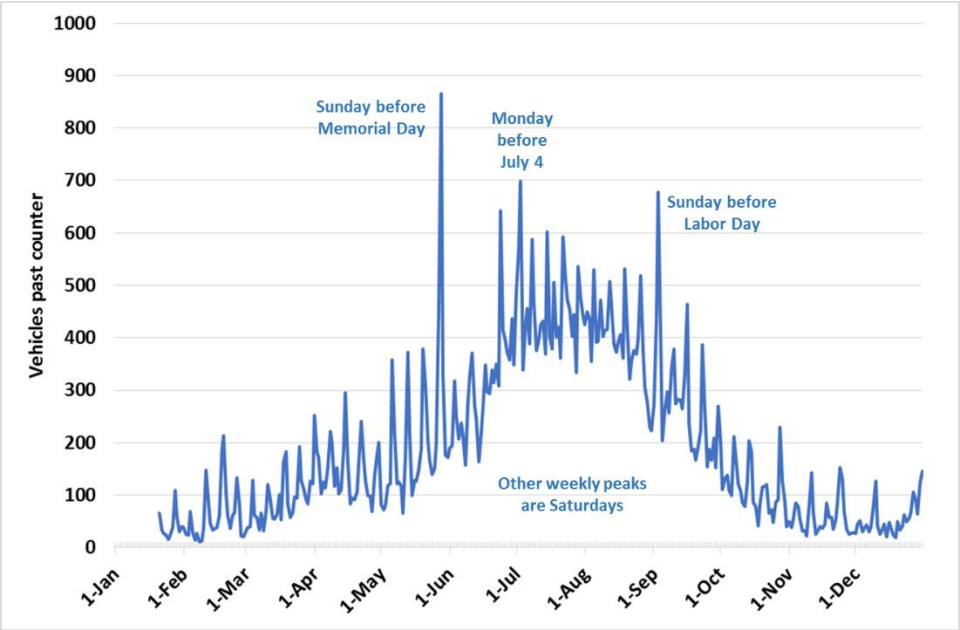


Figure 50. Daily traffic counts at Lime Kiln State Park in 2017.

- Regular weekend and holiday peaks are very predictable at this park, following from WSF use patterns discussed earlier.

- Weekend peaks are generally 2x midweek traffic, while mid-summer peaks (around 600 to 800 vehicles per day) are roughly 2-3x shoulder season peaks (about 200 to 300 vehicles).

- Daily traffic counts are cumulative counts for 24 hours, and do not provide information about distributions through the day. Typical weekend peaks (600 vehicles) parked for an average of one hour through a 12 hour day would require 50 parking spaces – the number currently available. Because use is often concentrated in the afternoons (not evenly distributed), cumulative daily vehicle counts over 600 are probably over capacity and produce episodic congestion and crowding. These are exacerbated on holiday peaks, or when whales are present (and people are more likely to stay longer than about an hour).

Similar daily traffic graphs have been developed in Appendix C for American Camp and English Camp on San Juan Island; Moran State Park, Mt. Constitution, and Obstruction Pass on Orcas; and Spencer Spit on Lopez. They show similar weekend and seasonal patterns, and provide baseline information that will help identify longer term trends in future years.

Visitation information from other sources

San Juan National Historical Park visitor center counts

NPS visitor center staff at American Camp and English Camp have tracked cumulative daily visitor numbers entering their facilities.

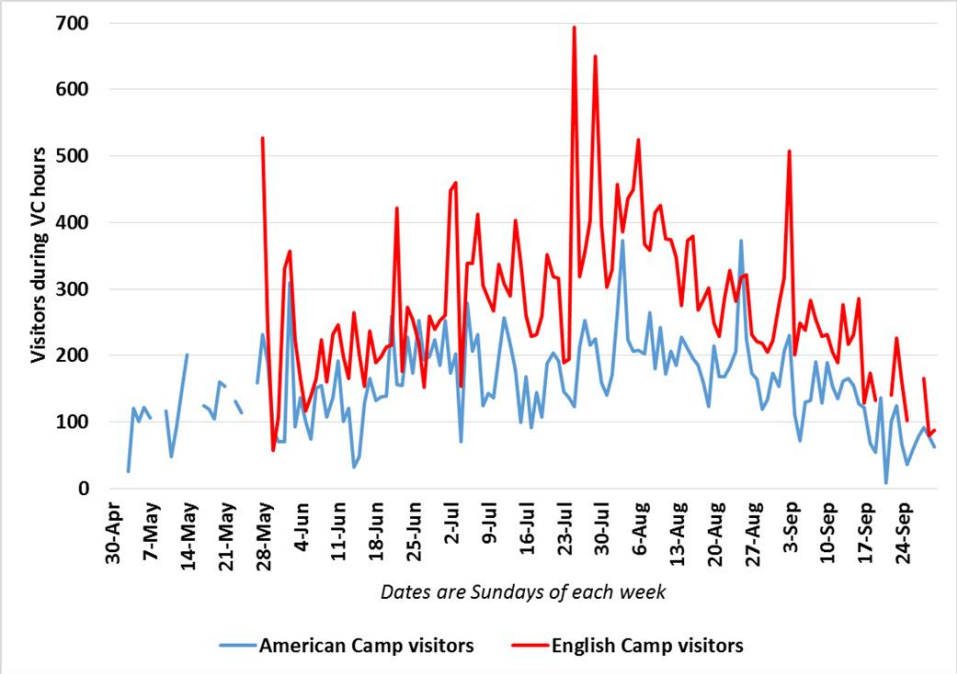


Figure 51. Daily cumulative visitors to American Camp and English Camp visitor centers.

- Patterns are similar to Lime Kiln traffic use levels, showing holiday and mid-summer weekend peaks, with lower use on weekdays and in should seasons.

- The highest peaks (500 to 700 people per day) are about twice midweek levels (250 to 350).

- English Camp has consistently higher visitor center use levels than American Camp. This contrasts with higher total numbers of visitors traveling into the American Camp unit, which includes South Beach and several trailheads on the east side of the island.

- Assuming 3 people per vehicle, daily peaks about 600 people at ***English Camp*** would equal about 200 vehicles. If length of stay averaged about one hour through a 12 hour day, and use was distributed evenly through the day, about 17 spaces are needed. There are currently 30 marked spaces in the main lot, with additional limited parallel parking at the Youngs Hill trailhead on West Valley Road. But if parking durations average more than an hour or use is concentrated (e.g., on sunny weekend afternoons), this lot could easily fill and may produce congestion problems along West Valley Road.

- ***At American Camp,*** daily peaks of about 300 people equates to about 100 vehicles. If length of stay averages about one hour through a 12 hour day, and use was distributed evenly through the day, about 8 spaces are needed. There are currently about 12 marked spaces in the main lot, but there is overflow parallel parking along the access road, and it is commonly needed on sunny afternoons. At 25 feet per unmarked parallel space along both sides of the southern part of the loop, there is room for about 18 additional vehicles (35 total); the maximum vehicle count at American Camp in 2017 was 32.

  Planning for a new Visitor Center is currently underway, and will include parking improvements. If one assumes longer parking durations, less evenly distributed temporal patterns, or future growth due to the new center, a slightly larger lot (about 40 to 50 vehicles) is probably sufficient to handle peaks.

Robert Otis's Lime Kiln counts

- Robert Otis is a retired Ripon College (WI) whale researcher who has tracked whales off Lime Kiln since 1990. He spends 83 days per summer (9 to 5 from May 20 through Aug 10) at the lighthouse watching and documenting whale behavior. He has tracked other variables such as numbers of visitors, dogs, weather, etc.

- His work documents the percent of times that whales are present (4 times per day tracking). The long term average is about 14%, typically ranging from 10 to 20% in most years. In 2017, whales were present only 3% of the times.

- Of interest to this study are two types of visitor counts, conducted since 2000:
  - Cumulative daily visitors who walk into the lighthouse
  - At-one-time counts of visitors in view from the top of the lighthouse at 10 am, noon, 2:30 pm, and 5 pm; for each of these times, he also logs whether whales are present.

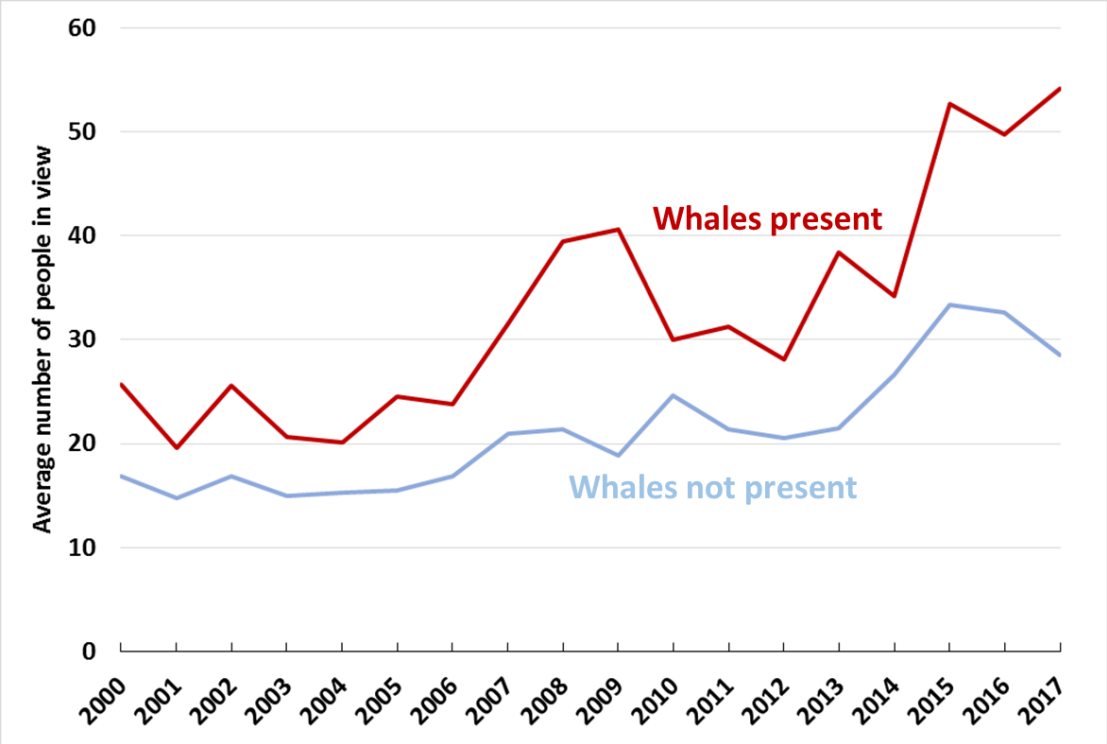


Figure 52. Average of multiple at-one-time counts from the Lighthouse when whales are/are not present.

- These data illustrate that use has been increasing over the past two decades, with peak use levels averaging 30 to 50 people near the lighthouse in recent years.

- Data also suggest that whales attract visitors to the site (possibly through social media reports), and encourage people to stay longer. When whales are not present, the site offers a lower density experience, but whale sightings can double average use, and these episodic high use periods may create crowding and congestion in parking or viewing areas.

County Park commercial kayaks and people 2017

San Juan County has tracked commercial and private kayak use from County Park since at least 2004.

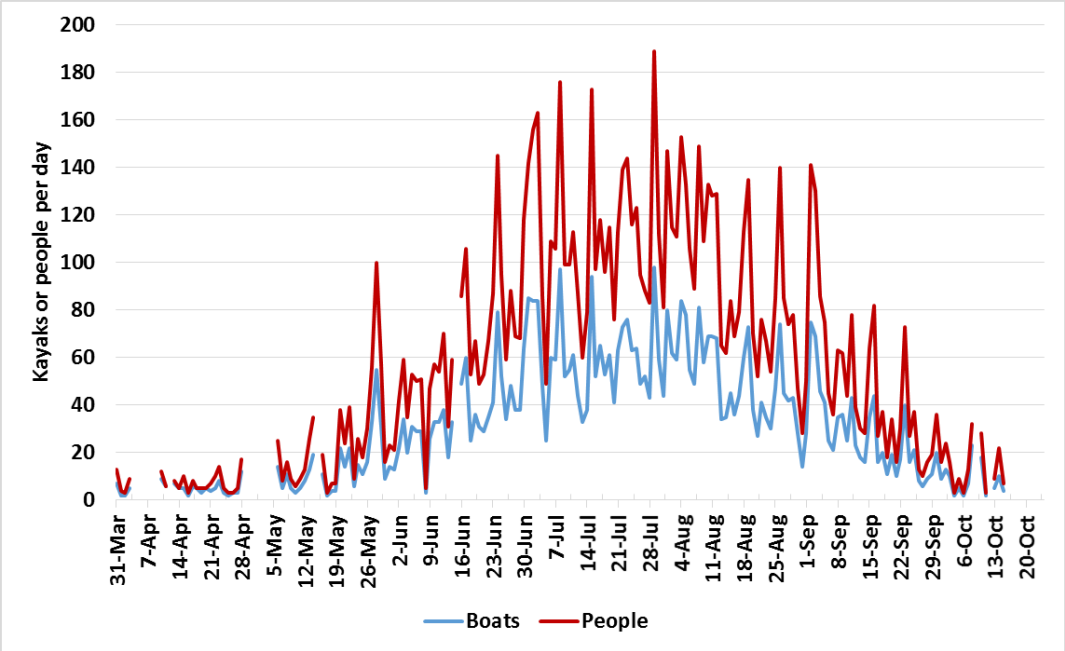


Figure 53. Daily boats and people launching on commercial kayak trips from SJ County Park.

- Daily kayak use from 2017 shows the holiday, weekend, and seasonal use patterns shown with traffic counters and the WSF arrivals.

- Weekend and holiday peaks are about 2x midweek troughs.

- From onsite observations during peak season, daily use levels are not always correlated with at-one-time peak use, which can occur episodically when good tides, good weather, and weekends coincide.

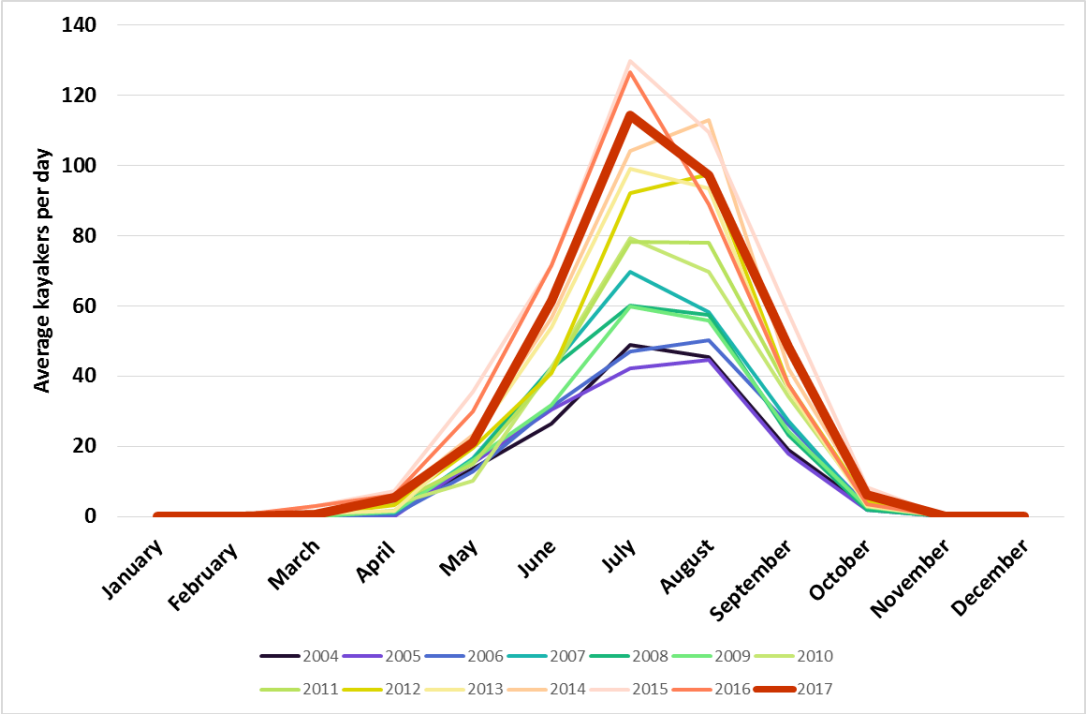


Figure 54. Average daily kayak use by month at County Park, 2004 to 2017.
Source: Toby Haskett, SJC Parks, Recreation, and Fair.

- Average monthly use illustrates how use has increased in two different ways over the years.

- Use has been increasing in the highest use months (July and August); recent years have been about triple the use levels of the early 2000s.

- The shoulder season has also been widening, with May, June, and September use increasing from about 10-20 kayakers per day to about 40-60.

- Because the timing of kayak trips is often tide-dependent, use tends to be temporally concentrated, increasing parking congestion. If 60 kayakers came in private vehicles (with 3 people per car), there would need to be parking for 20 vehicles. The current day use and boat parking areas only have space for about 18 vehicles, leaving little space for non-boating use. Park managers accordingly require kayak outfitters bring clients in vans and boats on trailers. They also don't allow long term parking in the launch area spaces (saving them for boaters and outfitters who are actively loading or unloading).

Campground occupancy counts

County Park and State Parks tracks campground sites sold through the year, and data can be compared with capacity to estimate occupancy rates. Appendix C includes monthly occupancy averages for San Juan County Park on San Juan; Moran and Obstruction Pass on Orcas; and Odlin and Spencer Spit on Lopez. The data also include State Park moorage occupancy.

Crowding

Researchers recognize a difference between use density and crowding (Shelby and Heberlein 1986; Shelby et al., 1989). ***Density*** is a descriptive term that refers to the number of people per unit area (and it can be determined objectively). ***Crowding*** is a negative evaluation of density; it involves a value judgment that a particular number is too many. The term *perceived crowding* is used to emphasize the evaluative nature of the concept.

1	2	3	4	5	6	7	8	9
Not at all Crowded		Slightly Crowded			Moderately Crowded			Extremely Crowded

Results can be analyzed in several ways. The traditional analysis collapses the scale into two categories. This provides a conceptually meaningful break point between those who labeled the situation as "not at all crowded" (scale points 1 and 2, a positive evaluation), and those who labeled the situation as slightly, moderately, or extremely crowded (scale points 3 through 9, a negative evaluation). While analyses of other statistics (such as averages) can be done, a comparison showed correlations of .90 to .95 with the traditional analysis (Vaske and Shelby, 2008), suggesting few differences among these choices.

Since 1975, this single item measure has been used in over 200 studies across the United States, Canada, New Zealand, Australia, and Korea. This has produced crowding ratings for over 600 different settings/activities (Vaske & Shelby, 2008), and the list keeps growing. The activities included rafting, canoeing, kayaking, tubing, motor boating, hiking, backpacking, wildlife viewing, wildlife photography, hunting of many types, fishing of many types, rock climbing, sailing, and driving for pleasure. Some locations had extremely high density and use impact problems, others had low densities and no problems, and still others had management strategies designed to control densities and impacts.

A meta-analysis of 35 early studies (Shelby, et al., 1989) identified five "rule of thumb" capacity categories using the traditional analysis described above (see Table 4). The paper warns that these categorizations are "not a substitute for the information about use levels, impacts, and standards that a more complete capacity study can provide." But this simple measure provides "useful comparative data that allow managers to understand better the carrying capacity challenges that face them, and give investigators an idea about what kinds of studies would be most useful."

Table 4. "Rule of thumb" capacity judgments based on levels of perceived crowding (from Shelby et al., 1989).

% Feeling Crowded	Capacity "rule of thumb" judgment	Shelby et al.'s recommendations for management or research
0-35%	Uncrowded	Crowding usually limited by management or situational factors (remote location, difficult access), or refers to low use areas.
35-50%	Low normal	Problem situation does not exist at this time.
50-65%	High normal	Should be studied if increased use is expected, allowing management to anticipate problems.
65-80%	Over capacity	Studies & management necessary to preserve experiences.
80-100%	Greatly over capacity	Manage for high-density recreation.

Overall reported crowding (from ferry survey)

Ferry survey visitors were asked to report crowding at different locations during their visit:

1. How crowded did you feel in the following locations during your visit? *(If you didn't visit a location, leave that line blank)*

	Not at all crowded		Slightly crowded		Moderately crowded			Extremely crowded	
Parking in villages	1	2	3	4	5	6	7	8	9
On roads	1	2	3	4	5	6	7	8	9
Parking at attractions	1	2	3	4	5	6	7	8	9
On trails	1	2	3	4	5	6	7	8	9
On beaches	1	2	3	4	5	6	7	8	9
At wildlife viewing areas	1	2	3	4	5	6	7	8	9
Overall for your whole trip	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

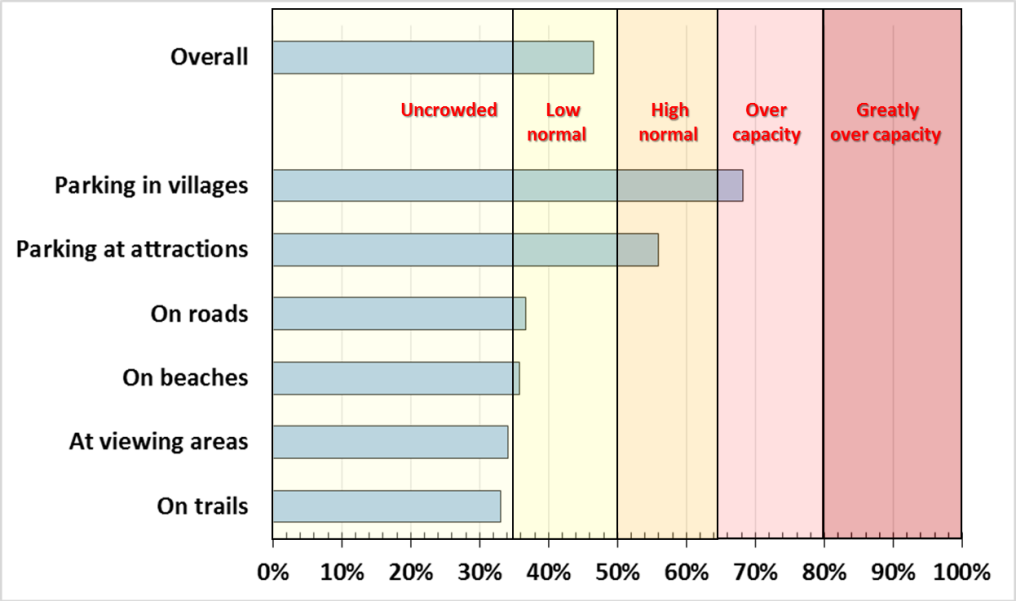


Figure 55. Percent of all ferry survey visitors feeling crowded.

- The highest crowding ratings were while parking in villages (in the over-capacity category) or at attraction sites (in the high normal category).

- Crowding ratings were substantially lower for traveling on roads (low normal), or at destinations such as beaches (low normal), trails, or viewing areas (both uncrowded).

- Overall crowding ratings were higher than for roads or destinations, although still in the low normal category. As in other studies, the overall rating is affected by the congestion encountered while parking.

Feeling crowded – differences between islands (from ferry survey)

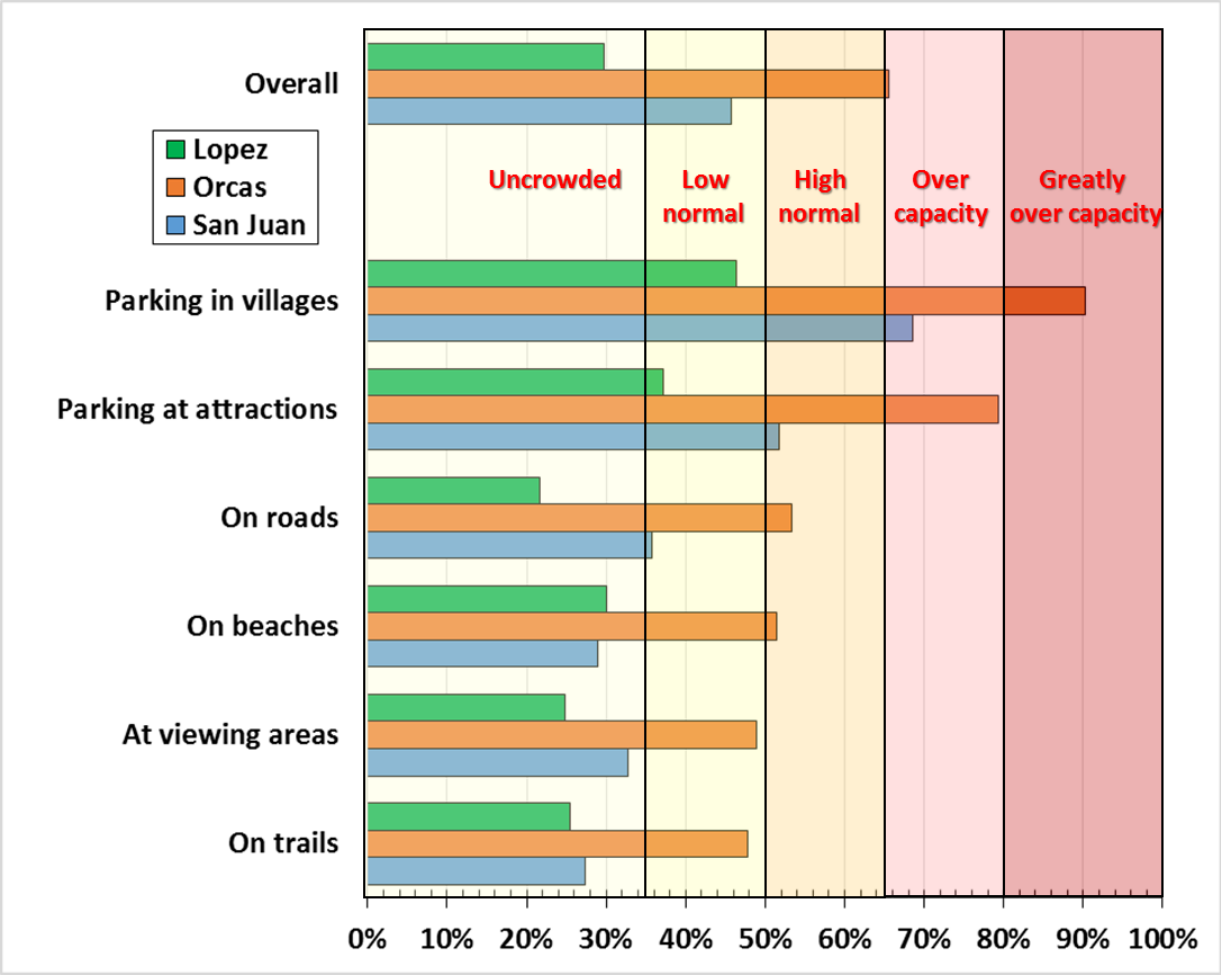


Figure 56. Percent of ferry survey visitors feel crowded – differences between islands.

- There were several differences in crowding ratings for the three islands. In general, Orcas visitors reported more crowding than San Juan visitors, who reported more than Lopez visitors.

- The relative rank of different contexts was similar for all three islands. Parking in villages and at attractions were more crowded than while traveling on roads or at destinations such as beaches, viewing areas, or trails.

- Overall crowding for the entire trip is affected by crowding while parking.

- The three contexts where crowding ratings indicate use may be over capacity are parking in Eastsound, parking in Friday Harbor, and parking at Orcas attraction areas (e.g. Mt Constitution, Cascade Lake).

Crowding at attraction sites (from onsite survey)

The onsite survey was administered at the 14 specific sites listed below. Respondents were asked:

1. How crowded did you feel during your visit ***at this location?*** *(Please circle one number for each row)*

	Not at all crowded				Slightly crowded		Moderately crowded		Extremely crowded
On roads traveling to this location	1	2	3	4	5	6	7	8	9
Finding parking at this location	1	2	3	4	5	6	7	8	9
On trails at this location	1	2	3	4	5	6	7	8	9
Using facilities (such as restrooms, picnic tables)	1	2	3	4	5	6	7	8	9
At your primary destination at this location (such as a beach, overlook, or picnic area)	1	2	3	4	5	6	7	8	9
Overall for this location	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

Table 5. Percent feeling crowded (overall) at San Juan Islands' attraction sites.

% Feeling Crowded	Attraction site	Island
Over capacity: Studies and management likely needed to preserve quality		
67	Cascade Lake day use area	Orcas Island
High Normal: Should be studied if use increases expected; managers might anticipate problems		
55	Watmough Bay	Lopez Island
53	Mountain Lake day use area	Orcas Island
Low Normal: Unlikely to be a problem; may offer unique low density experiences		
48	Agate / Iceberg Point	Lopez Island
46	Mt Constitution summit	Orcas Island
43	Westside Preserve	Orcas Island
37	Obstruction Pass	Orcas Island
Uncrowded: no problem; may offer unique low-density experiences		
29	Shark Reef	Lopez Island
27	County Park	San Juan Island
27	South Beach	San Juan Island
26	Lime Kiln State Park	San Juan Island
22	Odlin Park	Lopez Island
22	Spencer Spit	Lopez Island
6	Otis Perkins/Tombolo Park	Lopez Island

- Results allow comparisons among sites on the San Juans, and classifications into the different capacity categories. For example, Cascade Lake is the most crowded site, and is in the over-capacity category. This is in contrast to 11 sites with crowding ratings below 50%, which are in the low normal or uncrowded categories.

- Several sites that have episodic high use show low crowding ratings (e.g., Lime Kiln, County Park). There are at least two possible explanations. First, crowding evaluates a particular use density as "too high," but if visitor's norms for a site or experience consider higher densities "acceptable," crowding evaluations will be low. Second, places that have low densities most of the time may have many visitors with low crowding ratings, and few visitors with higher crowding ratings; the result may be a low overall rating. Both these explanations are probably true for sites like Lime Kiln and County Park; these places appear to have few capacity issues most of the time, except during episodes of intense high use where use levels are 3-5 times the average.

Comparing crowding San Juan Islands to other tourism destinations

Table 6. Percent feeling some degree of crowding at various resources.

% Feeling Crowded	Resource	Population/Comments
Greatly over capacity: Should be managed for high densities; might be described as sacrifice area		
100	Deschutes River, Or	Boaters on weekends
100	Kenai River, Ak	Upper river bank anglers on high use days
94	Brooks River, Katmai NP, Ak	Bear viewers at mouth of river (September)
94	Colorado River, Az	Anglers at Thanksgiving
92	Kenai River, Ak	Lower river powerboaters on high use days
90	Koh Chang marine park, Thailand	Snorkellers
90	Yosemite Valley, Yosemite NP, Ca	River users about finding parking in Valley
87	Oregon Caves National Monument, Or	All visitors
85	Arches National Park, Ut	Mountain bikers on Slick Rock trail
Over capacity: Studies and management likely needed to preserve quality		
83	Columbia Icefield, Banff-Jasper NP	Snocoach tourists
81	Bridalveil Falls, Yosemite NP (1999)	Falls visitors at base of falls
74	Acadia NP, Me	Thunder Hole visitors
74	Rocky Mountain NP, Co	Visitor Center visitors
73	Boundary Waters, Mn	Canoers/boaters
72	Grand Canyon, Az	Rafters
69	Glacier Point, Yosemite NP (1999)	Glacier Point visitors evaluating viewing areas
69	Rocky Mountain NP, Co	Longs Peak hikers
67	**Cascade Lake day use area on Orcas Island**	**Visitors overall**
67	Mesa Verde NP, Co	Visitors overall
High Normal: Should be studied if use increases expected; managers might anticipate problems		
61	Yosemite Falls, Yosemite NP, Ca	Falls visitors on trail and at base of falls
60	Yosemite Valley, Yosemite NP, Ca	River users about boating on Merced River
58	Arches NP, Ut	Visitors to Delicate Arch
55	**Watmough Bay, Lopez Island**	**Visitors overall**
54	Yosemite Valley, Yosemite NP, Ca	River users about relaxing along Merced River
53	Grand Canyon, Az	Rafters in winter
53	**Mountain Lake day use area, Orcas Island**	**Visitors overall**
51	Yosemite NP, Ca (2001)	Frontcountry users along trails
Low Normal: Unlikely to be a problem; may offer unique low density experiences		
48	**Agate / Iceberg Point on Lopez Island**	**Visitors overall**
46	Mt Constitution summit	Visitors overall
45	Yosemite Valley, Yosemite NP, Ca	River users about swimming in Merced River
45	Acadia NP, Me	Visitors on Carriage Roads
43	**Westside Preserve on San Juan Island**	**Visitors overall**
39	Pacific Rim National Park, BC	Ocean kayakers
38	Apostle Islands National Lakeshore, WI	Kayakers
37	Lake Mead, NV	Shoreline users
37	**Obstruction Pass State Park on Orcas Island**	**Visitors overall**
36	Yosemite NP, Ca (2001)	Remote wilderness hikers
Uncrowded: no problem; may offer unique low-density experiences		
29	**Shark Reef Sanctuary on Lopez Island**	**Visitors overall**
28	Vail Pass, CO	Skiers, snowshoers, and snowboarders at trailhead
27	**County Park on San Juan Island**	**Visitors overall**
27	**South Beach on San Juan Island**	**Visitors overall**
27	Muir Beach, CA	Visitors overall
26	**Lime Kiln State Park on San Juan Island**	**Visitors overall**
23	Yosemite NP, Ca (2001)	Wilderness “transition” users on trails
23	Kenai Fjords NP, Ak	Visitors to Exit Glacier
23	Acadia NP, Me	Isle au Haut hikers
22	**Odlin Park on Lopez Island**	**Visitors overall**
22	**Spencer Spit State Park on Lopez Island**	**Visitors overall**
21	Zion National Park, UT	Weeping Rock trail users
21	Hawaii Volcanoes NP, Hi	Visitors at Thurston lava tube
16	Gwaii Haanas, BC	Touring kayakers at various areas

Perceived crowding scores for several other comparable resources are shown in Table 7. These were chosen from a master list assembled by Jerry Vaske from nearly 200 studies (available at http://warnercnr.colostate.edu/~jerryv/CROWDING/Vaske_Crowding.htm). For example, busy weekend boaters on Oregon's Deschutes River and high use bank anglers on Alaska's Kenai River have scores at the top of the "greatly over capacity" category. Bear viewers in Alaska's Katmai NP, visitors at Oregon Caves NM, and Slick Rock Trail mountain bikers in Arches NP were in the same category. Ratings for activities at other rivers and resource areas are found throughout the table. These results provide context for the San Juan Island data and "face validity" for the perceived crowding measure and analysis.

Coping with crowding and congestion

The ferry survey asked respondents how they might cope with crowding or congestion, using the item shown below:

If visitation to the San Juan Islands grows higher than you'd like, how will you cope with it? *(Check all that apply)*
❑ Resign myself to the new more crowded or congested experience.
❑ Try to avoid crowds or congestion by visiting villages or attractions at a different day of the week or time of day.
❑ Try to avoid crowds or congestion by visiting villages or attractions during the off-season.
❑ Become dissatisfied.
❑ Visit other tourist destinations instead of the San Juan Islands.
❑ Other (specify): _____

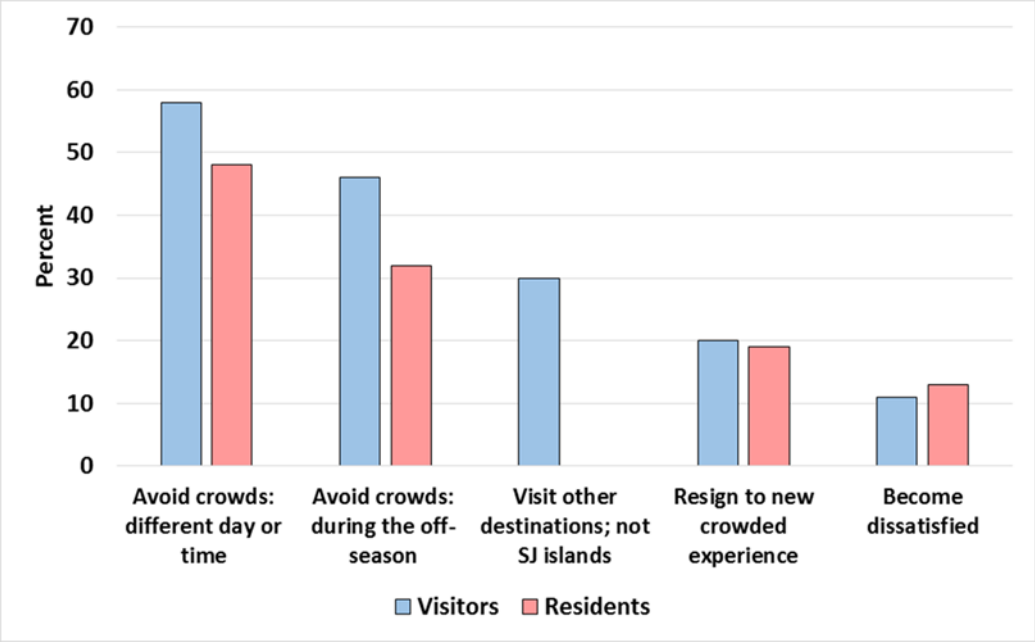


Figure 57. Ferry survey coping responses to crowding.

- There were few differences between visitors and residents.
- The most common response (48-58%) is ***temporal displacement***: avoid crowds by going on a different day or time.
- The second most common response (32-41%) is ***seasonal displacement***: avoid crowds by going in the off-season.
- About 30% of visitors said they would be ***completely displaced*** from the San Juan Islands, and visit different tourist destinations instead. These visitor would be lost from the San Juan Island visitor economy.
- About 20% said they would become resigned to the higher density experience (called a ***product shift***).
- Very few (11-13%) said they would ***become dissatisfied*** (cognitive dissonance from a self-selected activity and location that should be evaluated positively).

Evaluating conditions and facilities at attraction sites

Onsite survey respondents were asked to rate the acceptability of several conditions or facilities as shown below. Results are analyzed as 1) average scores on the 5-point acceptable-unacceptable scale (green line; left axis) and 2) percent reporting unacceptable ratings (red bars, right axis).

2. Please rate the acceptability of conditions and facilities ***at this location.*** *(Please circle one number per row)*

	Totally unacceptable	Slightly unacceptable	Marginal	Slightly acceptable	Totally acceptable	OR…✓ if you did not use or notice
Directional signs and information	-2	-1	0	1	2	❑
Amount of parking	-2	-1	0	1	2	❑
Condition of trails	-2	-1	0	1	2	❑
Rest rooms	-2	-1	0	1	2	❑
Interpretive information / exhibits	-2	-1	0	1	2	❑
Other facilities _____	-2	-1	0	1	2	❑

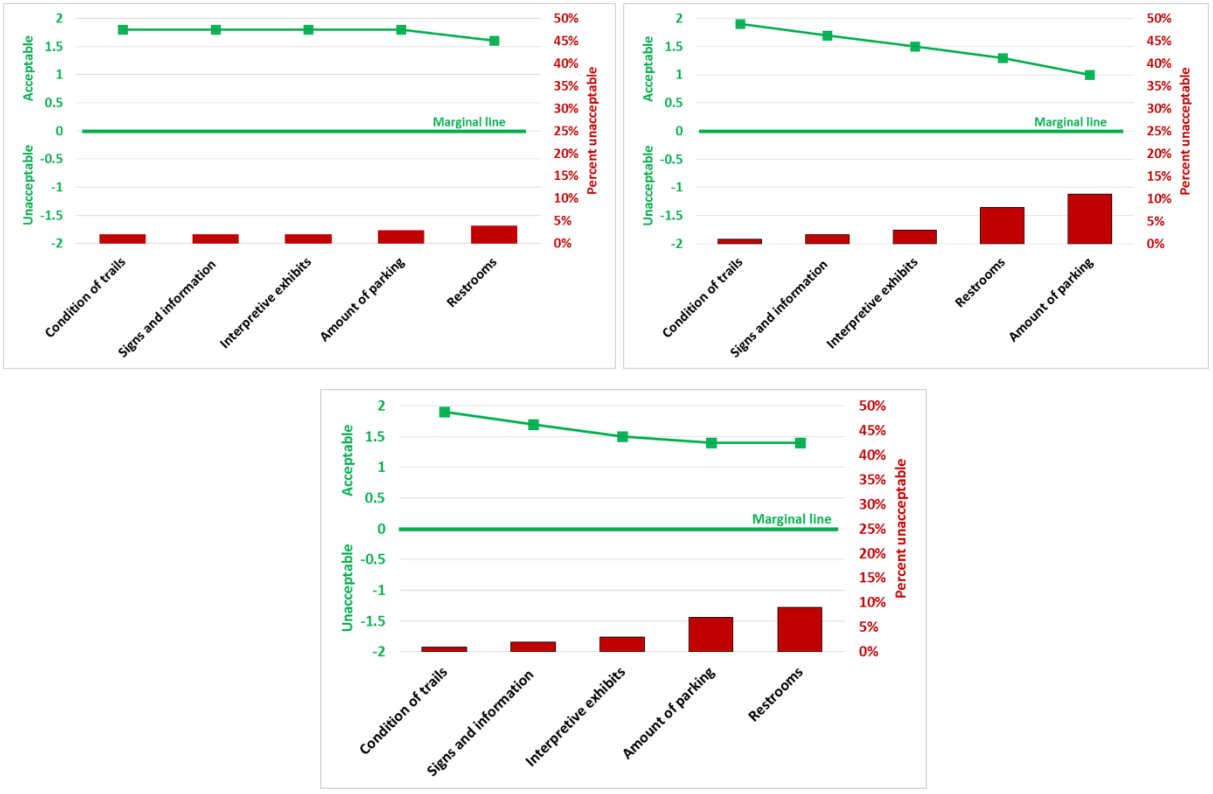


Figure 58. Evaluations of conditions and facilities at attraction sites (from onsite survey) San Juan Island (upper left); Orcas Island (upper right); and Lopez Island (bottom).

- Ratings for most conditions and facilities were very high, with less than 10% reporting any condition/facility "unacceptable."

Evaluating use densities at beaches and marine viewing areas

Ferry survey respondents were shown four photos with different use densities on 1) a generic beach, and 2) a generic marine wildlife viewing area.

- The beach photos depicted 5, 12, 24, and 36 people on a beach that is approximately 240 feet long and 60 feet wide (14,000 square feet, about one-third of an acre).
- The marine viewing photos depicted 4, 10, 18, and 26 people in an area approximately 90 feet by 70 feet (about 6,000 square feet, about .15 of an acre).
- Both sets of photos were "photo-shopped" from actual photos and people at those sites. The photos as they appeared in the survey are shown below.
- The survey asked respondents the following questions:

Please look at the ***photos on the laminated insert.*** They show different use levels ***on a beach*** (Photos A, B, C, and D, labeled ***"beach photos"***) and at a ***marine wildlife viewing area*** (Photos E, F, G, and H, labeled ***"scenic photos"***).

2. For the ***beaches*** you have visited on the San Juan Islands, please rate the acceptability of the use levels shown in ***Photos ABCD***.

	Very unacceptable			Marginal			Very acceptable
Photo A	-3	-2	-1	0	+1	+2	+3
Photo B	-3	-2	-1	0	+1	+2	+3
Photo C	-3	-2	-1	0	+1	+2	+3
Photo D	-3	-2	-1	0	+1	+2	+3

3. For the ***beaches*** you visited, please choose which photo best represents… *(Circle one letter or ✓ a box for each row)*

…the number of people you ***prefer*** to see.	A	B	C	D	❑ Lower than A	❑ I don't have a preference.
…the number of people that would ***cause you to leave*** this beach.	A	B	C	D	❑ Higher than D	❑ Use level doesn't matter to me.

4. For the ***marine wildlife viewing areas*** you visited in the San Juans, rate the acceptability of the use levels in ***Photos EFGH.***

	Very unacceptable			Marginal			Very acceptable
Photo E	-3	-2	-1	0	+1	+2	+3
Photo F	-3	-2	-1	0	+1	+2	+3
Photo G	-3	-2	-1	0	+1	+2	+3
Photo H	-3	-2	-1	0	+1	+2	+3

5. For the ***marine wildlife viewing areas*** you visited, choose which photo best represents… *(Circle one letter or ✓ a box for each row*

…the number of people you ***prefer*** to see.	E	F	G	H	❑ Lower than E	❑ I don't have a preference.
…the number of people that would ***cause you to leave*** this area.	E	F	G	H	❑ Higher than H	❑ Use level doesn't matter to me.

6. Which of these San Juan Island opportunities (beaches or marine viewing areas) is more important to you?
   ❑ Beaches ❑ Marine wildlife viewing areas ❑They are equally important

Beach density evaluations

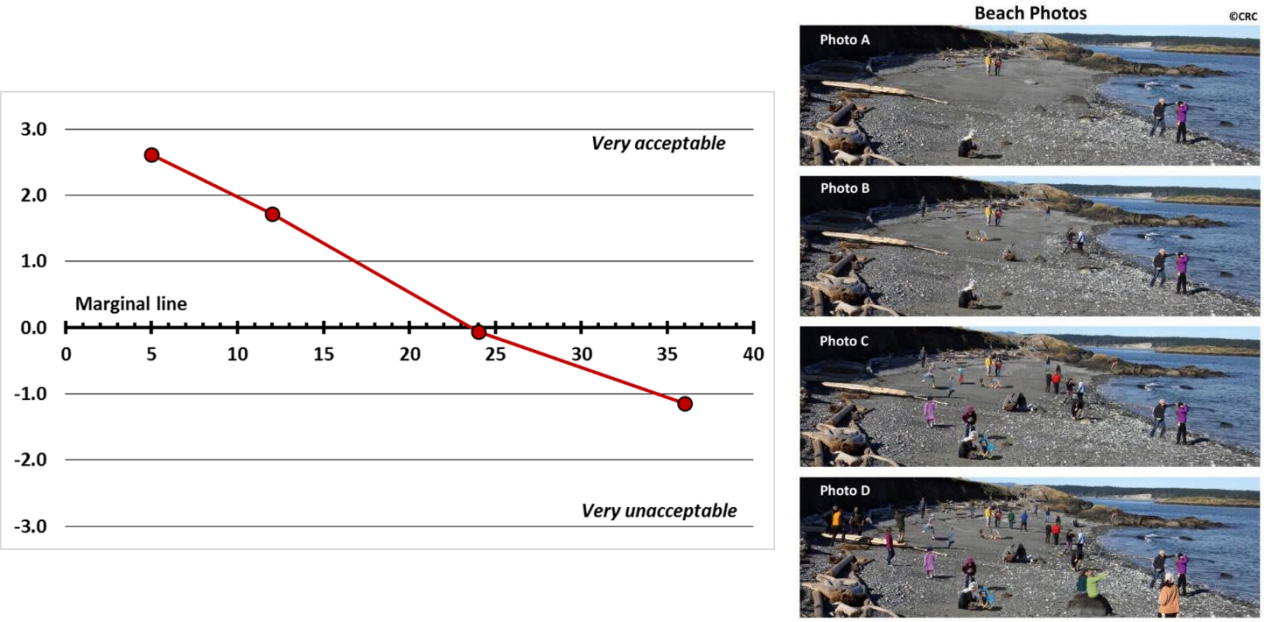


Figure 59. Evaluations of different use densities on a generic beach.

- The two lower densities in photos A and B are rated acceptable; the density in photo C with 24 people was marginal, and 36 people was clearly unacceptable.
- There were no statistical differences among islands or between visitors/residents.

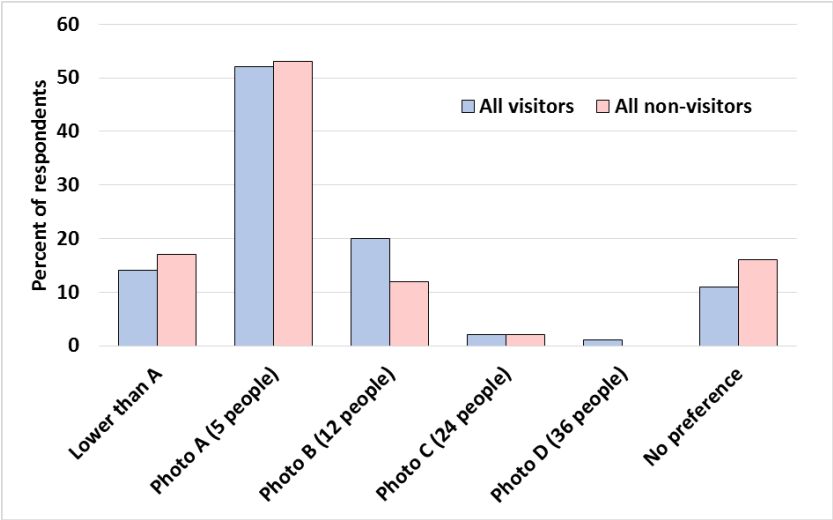


Figure 60. Preferences for beach density photos.

- Majorities prefer Photo A; few prefer higher use in Photos C and D
- There were few differences between visitors and residents, although slightly more Lopez respondents prefer Photo A compared to those from the other two islands.

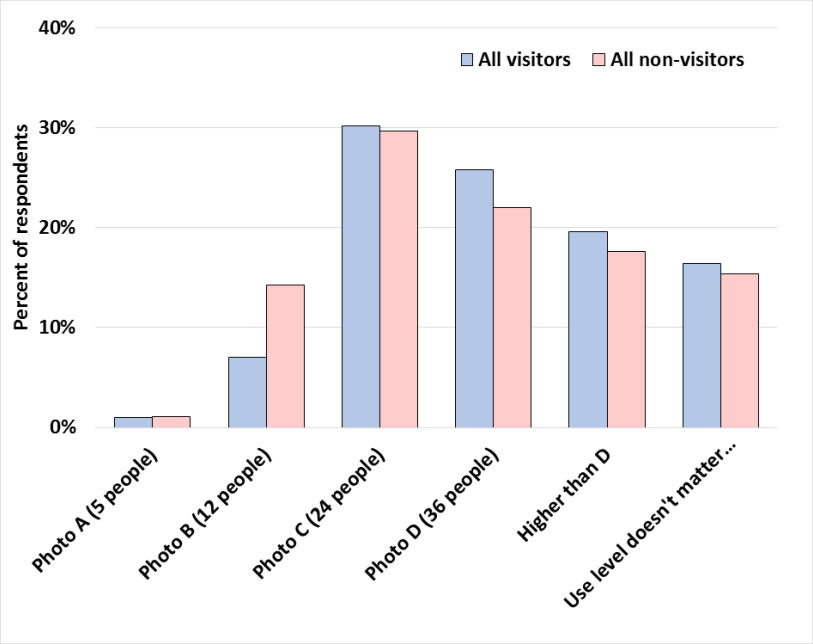
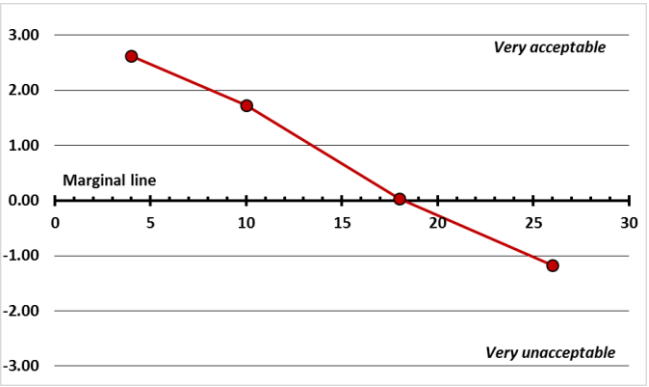
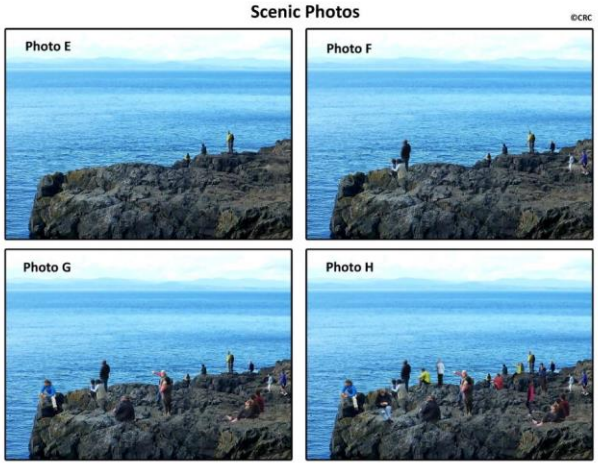


Figure 61. Displacement evaluations for beach density photos.

- The median density that would displace visitors is Photo D.
- In addition, about 20% of respondents would tolerate higher densities, and 15% report density "doesn't matter"
- There were few differences between visitors and residents.

Marine viewing area densities





- The two lower densities in photos E and F are rated acceptable; photo G with 24 people was marginal, and 36 people shown in photo H was clearly unacceptable.

- There were few statistical differences between islands or visitors/residents, although Lopez respondents rated Photo G more negatively than Orcas and San Juan respondents.

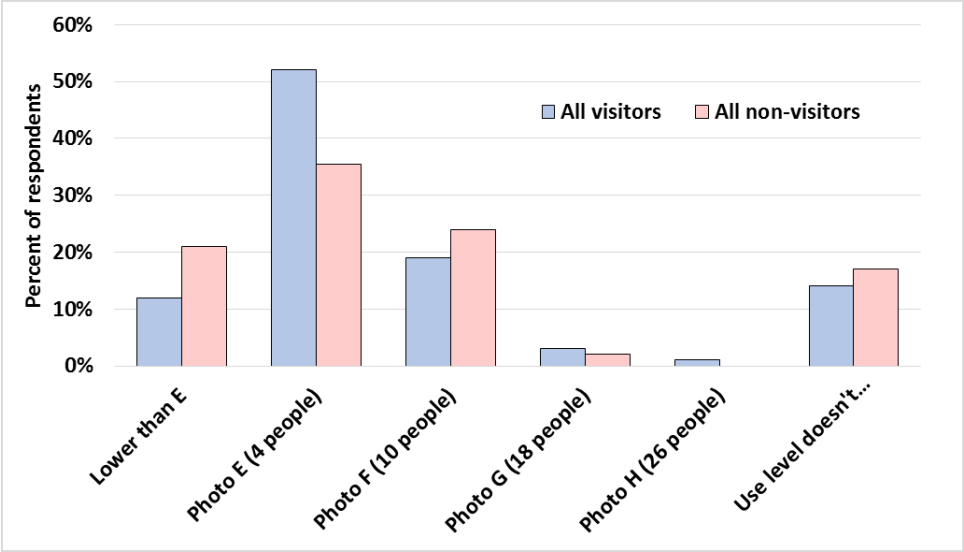


Figure 62. Preferences for marine viewing area density photos.

- Majorities prefer Photo E; few prefer higher use in Photos G and H; 12-21% prefer densities lower than photo E.

- There were few differences between visitors and residents, or among islands.

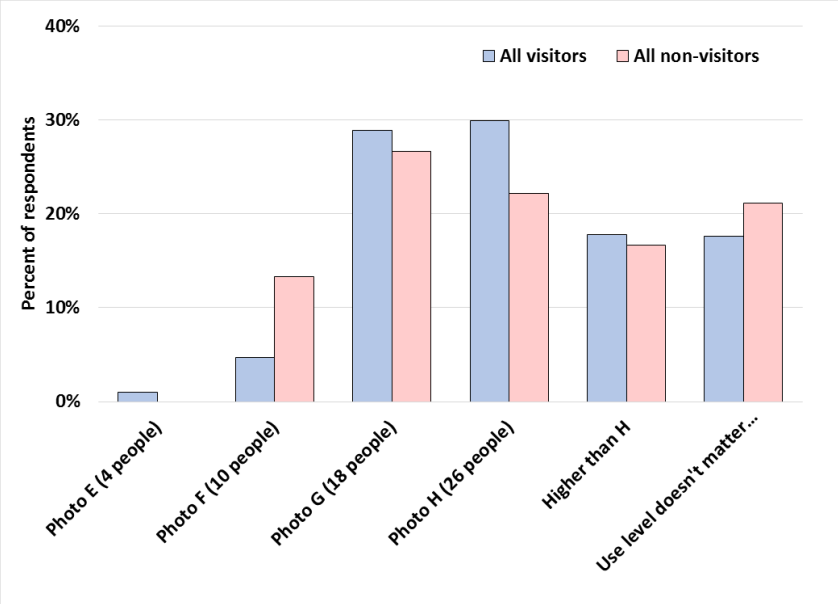


Figure 63. Displacement evaluations for marine viewing area photos.

- The median density that would displace visitors is Photo H.
- Almost 20% of respondents would tolerate higher use, and a similar number said "use level doesn't matter."
- There were few differences between visitors and residents, or among islands.

Taken together, the density evaluation questions suggest that most visitors have standards or norms that define "how many is too many" people on a beach or in a viewing area.

- For a generic pocket beach as depicted, the tolerable level appears to be about 24 people per third of an acre, or about 600 square feet per person.
- For a generic marine viewing area as depicted, the tolerable level appears to be about 18 people per .15 acre, or about 300 square feet per person.

These standards can help managers "right-size" parking areas for beaches or marine viewing areas.

Support for management actions (from ferry survey)

Ferry survey respondents were asked to rate their support for a range of management actions that might be used to address visitor impacts or improve experiences, as shown below.

Prioritizing potential management actions

Please tell us if you support or oppose the following actions that might be used to improve tourism in the San Juans. If you support an action, identify whether it should be a low, medium, or high priority. *(Circle one number per row).*

Management action				***I support this*** & it should be a…		
	Strongly oppose	Slightly oppose	No opinion	Low priority	Medium priority	High priority
Increase parking in villages.	-2	-1	0	+1	+2	+3
Develop more parking at attraction sites.	-2	-1	0	+1	+2	+3
Improve traffic flow thru villages during "ferry rushes."	-2	-1	0	+1	+2	+3
Encourage visitors to "leave their cars on the mainland."	-2	-1	0	+1	+2	+3
Subsidize bus travel to attractions to reduce traffic congestion.	-2	-1	0	+1	+2	+3
Education about car-bike etiquette to reduce traffic conflicts.	-2	-1	0	+1	+2	+3
Acquire more public beach / bluff / headland properties.	-2	-1	0	+1	+2	+3
Acquire more public forest / mountain properties.	-2	-1	0	+1	+2	+3
Provide information about less-used areas to spread out use.	-2	-1	0	+1	+2	+3
Develop separated bicycle paths on high-use roads.	-2	-1	0	+1	+2	+3
Widen roads and add bicycle lanes on high-use roads.	-2	-1	0	+1	+2	+3
Education and enforcement about dog-walking etiquette.	-2	-1	0	+1	+2	+3
Manage number / timing of commercial kayaking groups.	-2	-1	0	+1	+2	+3
Manage number / timing of commercial bicycling groups.	-2	-1	0	+1	+2	+3

Management actions (continued)				***I support this*** & it should be a…		
	Strongly oppose	Slightly oppose	No opinion	Low priority	Medium priority	High priority
Develop more exhibits at attractions.	-2	-1	0	+1	+2	+3
Increase tent camping opportunities.	-2	-1	0	+1	+2	+3
Increase RV camping opportunities.	-2	-1	0	+1	+2	+3
Reduce tourism promotion.	-2	-1	0	+1	+2	+3
More development to accommodate increased visitation.	-2	-1	0	+1	+2	+3
Limit visitation to the islands.	-2	-1	0	+1	+2	+3
Allow congestion and crowding to increase.	-2	-1	0	+1	+2	+3
Other (please list)						

Summary of support for all actions (from ferry survey)

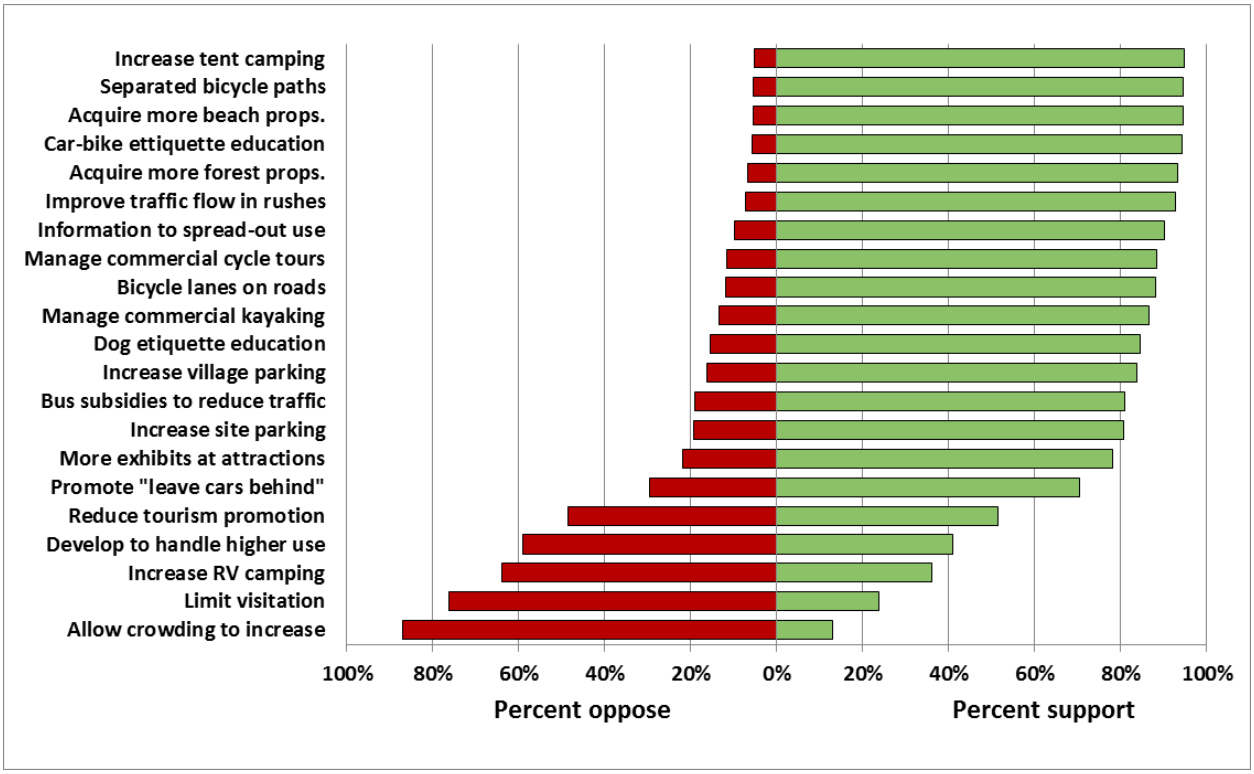


Figure 64. Overall support and opposition to management strategies (all ferry survey respondents).

Figure 64 shows visitor responses for all the management actions listed on the survey, arrayed from those receiving the most support at the top, to those receiving the least support at the bottom.

- There was 65-95% *support* for the actions down to and including promoting "leave cars behind." Reducing tourism promotion was at 50-50 support vs opposition.

- There was 58-85% *opposition* to developing to handle higher use, increasing RV camping, limiting visitation, and allowing crowding to increase.

- These management actions are grouped into categories and discussed further below.

Public land acquisition and infrastructure development

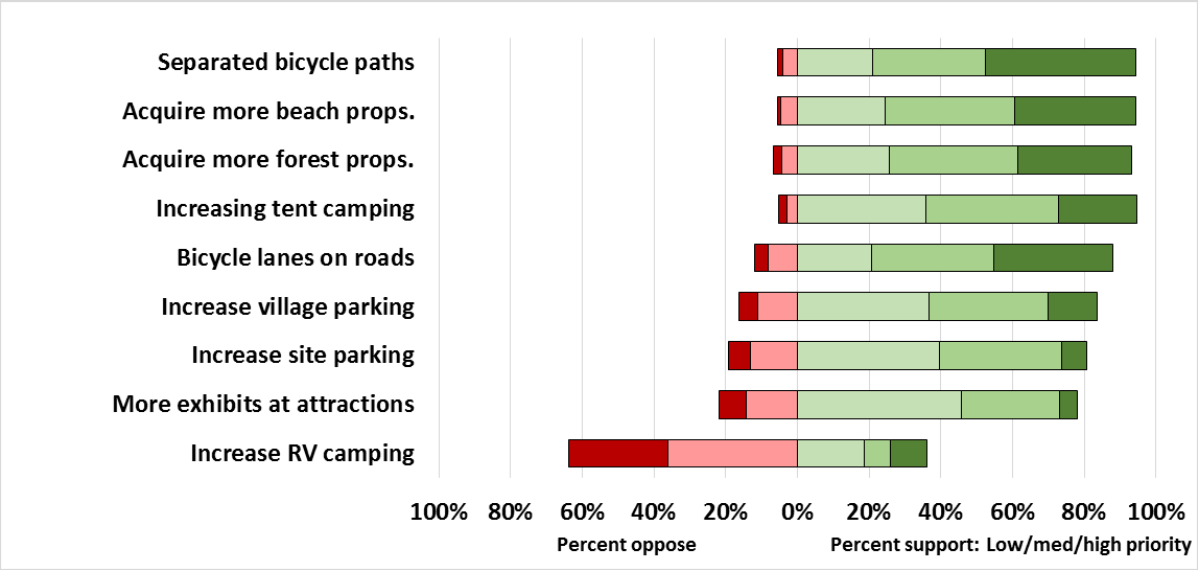


Figure 65. Percent of visitors that support/oppose different acquisition and infrastructure actions.

- There is over 90% support for acquiring more public land, with slightly greater support for acquiring shorelands than forest/uplands.
- There is 85-95% support for cycling improvement, with slightly greater support for separated bicycle lanes than roadside bike lanes.
- There is over 80% support for increased parking, in villages and at attraction sites. This follows from crowding ratings.
- There is 93% support for tent camping, but 65% opposition to RV camping.
- There was 78% support for interpretive exhibits at attractions.

Transportation management actions

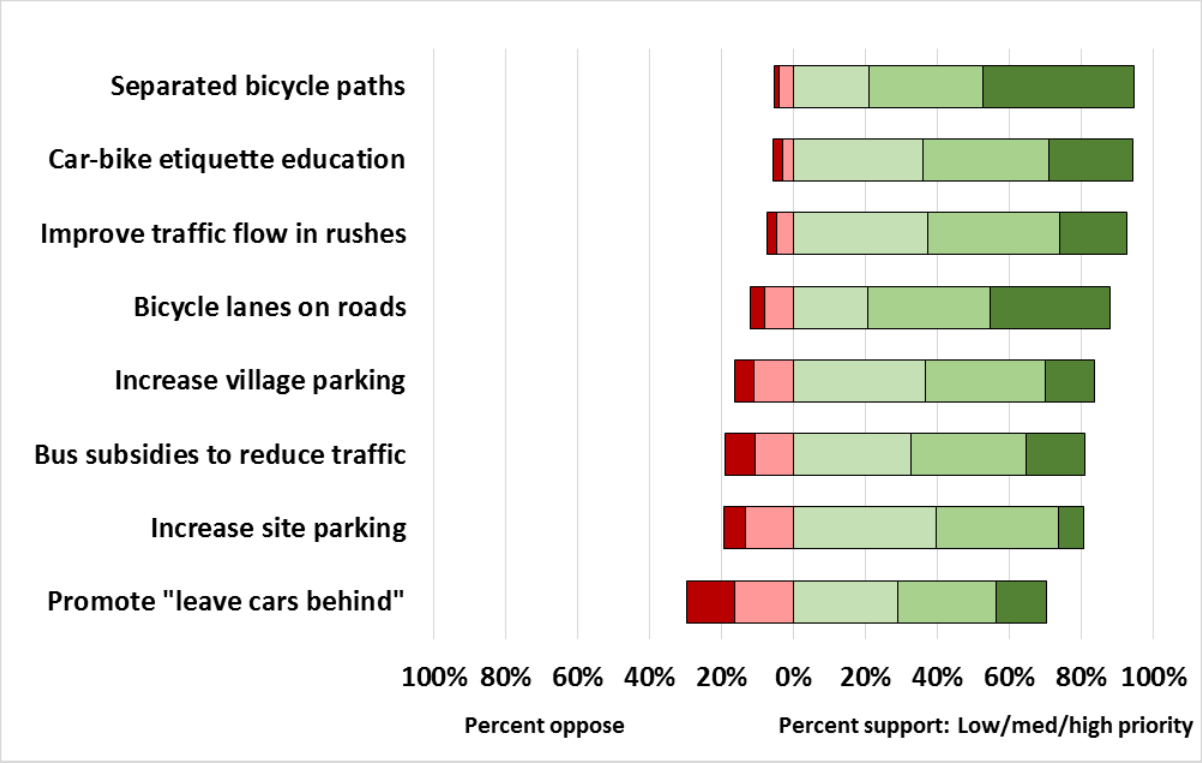


Figure 66. Percent of visitors that support/oppose different acquisition and infrastructure actions.

- There was 70-95% support for all of the transportation actions.
- There is 95% support for separated bike paths and car-bike etiquette education, and 86% support for bicycle lanes on roads.
- There is 92% support for improving traffic flow in ferry rushes.
- There is considerable support for increased parking, particularly in villages, but also at attraction sites. This follows from crowding ratings.
- Bus subsidies were supported more (82%) than “leave cars behind” initiatives (70%).

Education and regulation actions

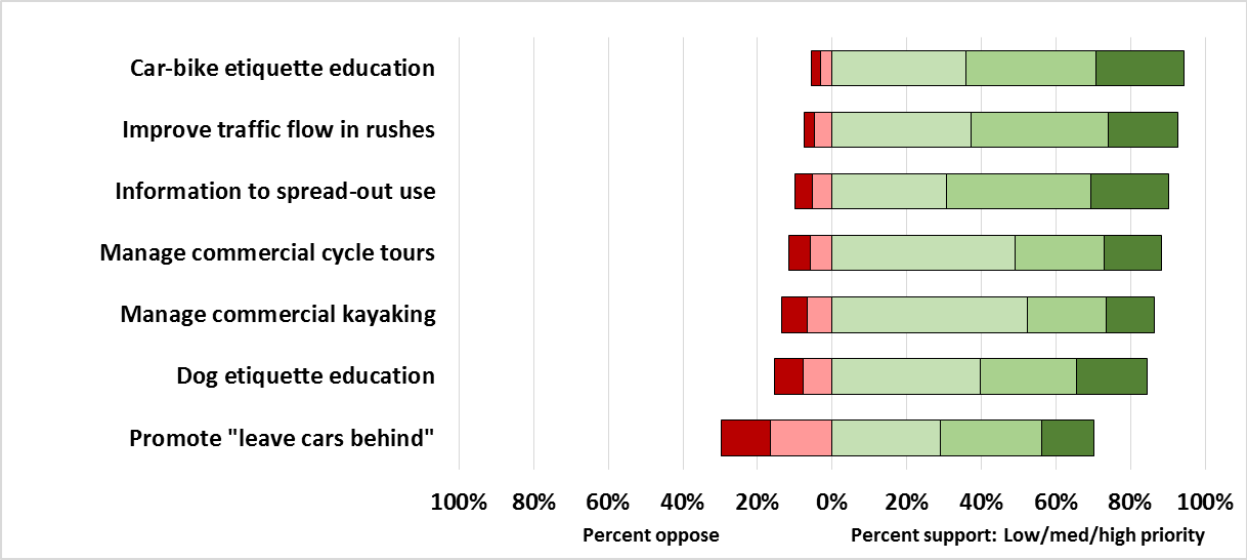


Figure 67. Percent of visitors that support/oppose different education actions.

- There was 85-95% support for information/education actions, including dog etiquette, spreading out use, and car-bike etiquette.

- There was considerable support for increased parking, particularly in villages, but also at attraction sites. This follows from crowding ratings.

- There is 85-90% support for managing commercial kayaking and bicycle tours.

Managing use: Which strategies do visitors support?

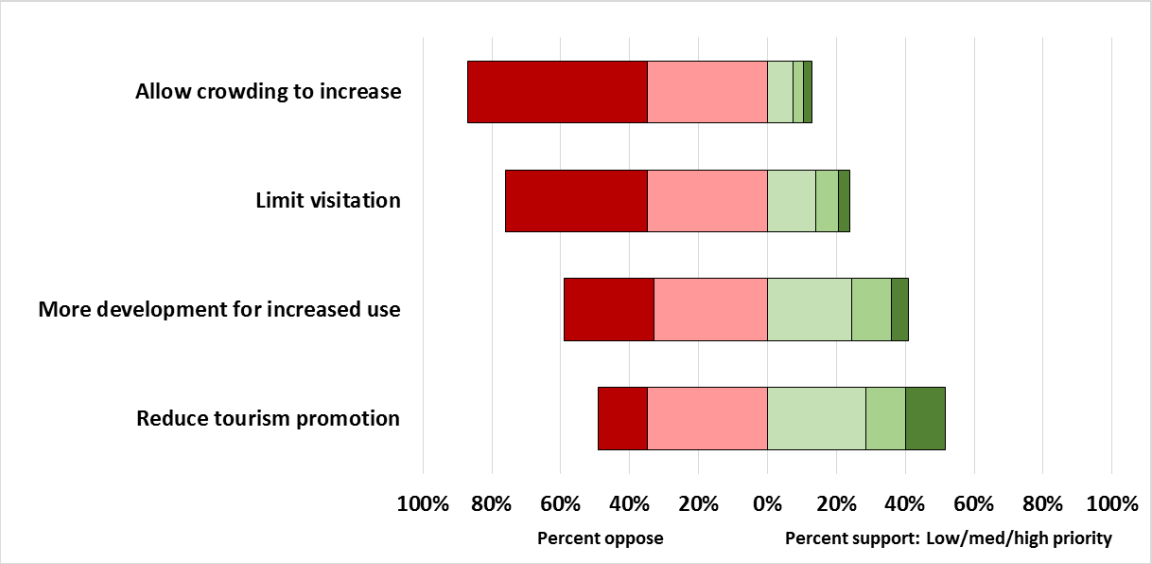


Figure 68. Percent of visitors that support/oppose broad management strategies.

- 87% oppose the current default management strategy: allow congestion and crowding to increase.
- 76% oppose limiting visitation to the islands.
- 59% oppose more development to accommodate increased use – "building your way out of problems."
- There was about a 50-50 support-opposition split on reducing tourism promotion.
- There were differences among islands over these four broad strategies.
    - Lopez visitors showed more support for "reducing tourism promotion," compared to San Juan and Orcas
    - San Juan visitors showed greater support for "more development," compared to the other islands.
    - San Juan visitors showed more support for "allow congestion and crowding to increase" compared to other islands.
    - Orcas visitors showed slightly more support for "limit visitation" than other islands.
- There are tradeoffs between limiting visitation/tourism promotion, developing infrastructure to accommodate use, and allowing congestion and crowding to increase. Change one, and there will be effects on others. Results here show clear opposition to congestion and crowding, but less substantial support for how to accomplish this goal (limiting visitation/promotion, or increasing development). This reluctance to make difficult choices is not surprising, and a common finding in visitor impact studies.
- Solving most visitor management problems requires multiple strategies – usually a suite of actions that borrow from each of these strategies and work together.

Thirty ideas to jump-start a multi-agency cooperative action plan

In the 2017 Visitor Management Assessment, the Terrestrial Managers Group recognized the need to collectively determine management needs, then communicate and coordinate to implement actions. The model they identified is a ***non-binding, multi-agency "Cooperative Action Plan,***" where agencies work together to…

- Review results from this study and other related visitor management information;
- Identify highest priority issues;
- Brainstorm possible management actions that will address issues;
- Prioritize a list of implementable actions;
- Consider agency jurisdictions and responsibilities;
- Estimate costs and funding options;
- Identify environmental review needs or other implementation issues; and
- Conduct outreach (as needed) to assess stakeholder/public priorities and concerns (as needed) throughout the preceding steps.

The cooperative nature of the process encourages staff to look beyond their individual agency responsibilities to serve the broader needs of the islands, and develop ideas that share resources, cross jurisdictions, and avoid redundancy. The non-binding nature of the plan helps agencies be responsive, nimble, and efficient by reducing the level of bureaucratic effort. By focusing on the "best ideas" rather than the implementation challenges, this approach produces potential projects that attract agency, stakeholder, and public support. That support then helps agencies address inevitable funding, environmental, or administrative challenges through their normal agency decision-making processes.

To jump-start the Cooperative Action Plan process for the San Juan Islands, we have developed a brainstormed list of management actions that might be considered. Inspired by information from this report and workshops with the public and the TMG steering committee in March 2018, these ***example ideas*** illustrate a range of infrastructure, regulation, education, and capacity actions. ***They have not been thoroughly developed, prioritized, vetted with the TMG, or subjected to public review.*** The goal is to get things started.

San Juan Island ideas

1. Friday Harbor welcome center and parking

Develop a ***multi-agency visitor center and "welcome parking lot" for new ferry arrivals.*** Shared office space and reception area could reduce costs and encourage inter-agency cooperation, while providing visitors with "one-stop" information about all the attractions and recreation opportunities on the island. A well-signed, close, easy-to-find parking area that can handle first-time SJI visitors (42% of passengers, approximately 50 to 60 vehicles on each ferry) would be most effective with parking duration limits that cleared the lot in time for the next ferry arrival. This might reduce parking and road congestion in Friday Harbor, because these generally uninformed visitors may otherwise circle and then abandon the downtown core due to scarce parking.

2. Friday Harbor ferry rush congestion management

Ferry landings create substantial traffic congestion, parking scarcity, and pedestrian-vehicle conflicts in Friday Harbor that detract from the island's pace of life, small town aesthetic, and overall welcome. In addition to the welcome parking lot described above, additional ***road and sign improvements*** might better direct off-loading vehicles through town, reducing "friction" caused by vehicles circling the core area in search of scarce parking. Because ferry-rush congestion is episodic but regular and concentrated, more intensive management of vehicles by traffic officials is a possible solution – and might only be necessary only for 30 minute periods during midday arrivals.

3. Expand San Juan Island transit system

Strongly supported by ferry survey respondents, this action could ***organize and subsidize existing transit companies*** so their schedules and routes are sufficient to encourage more visitors to "leave their vehicles on the mainland." San Juan Island is the island best positioned to offer this option, with its proximate ferry landing, stores, restaurants, and accommodation.

4. Lime Kiln congestion and parking redistribution

Lime Kiln State Park has the highest use densities among San Juan Island attractions, with congestion and crowding on weekend afternoons and when whales are present. Real-time park ***occupancy information and improved parking organization*** might help relieve these problems, especially if integrated with alternative transportation options (e.g., additional bus transit, improved bicycle access).

5. Westside Preserve—Deadman's Cove—Lime Kiln trail

These three properties are contiguous and connected by informal trails, but taken together they offer a ***1.5 mile hiking / picnicking / marine viewing opportunity.*** With appropriate design, parking improvements, and signs, this trail might help redistribute concentrated use from Lime Kiln to the lower use Preserve properties.

6. Friday Harbor to Westside Preserve separated bicycle path

Roads to Westside attractions (Lime Kiln, Westside Preserve, County Park) experience crowding, congestion, and conflicts with traffic as increasing numbers of cyclists use the narrow roads on Bailer Hill. A ***separated bicycle path*** on this popular route can alleviate the problem and provide a high-quality cycling opportunity.

7. Friday Harbor to American Camp bicycle path options

Narrow roads from town to American Camp make it challenging for vehicles to pass groups of cyclists on this popular cycling route. ***Separated and/or roadside paths*** are options on different segments, and ***connections to Westside and Cattle Point bicycle paths*** would start a bicycle trail system that may encourage more bicycles (and less vehicles) on the island.

8. Cattle Point to American Camp multi-use trail

Study findings show considerable interest in separated bicycle paths and hiking opportunities. A multi-use path from American Camp Visitor Center along existing trails and roads to South Beach, and then along the bluff to Cattle Point, would provide a ***3.5 mile family-friendly upland/beach trail.*** Appropriate trail design (e.g., crushed rock surfacing, consolidate existing user-created trails) could reduce bicycle speeds and conflicts with hikers, while maintaining the rural aesthetic of the area.

9. Zilstra Lake to False Bay multi-use trail and wildlife restrictions

Recent Land Bank property purchases may allow development of a ***hiking or multi-use trail from a parking area to the lake and down to False Bay.*** Appropriate trail design (e.g., crushed rock surfacing, consolidate existing user-created trails) could reduce bicycle speeds and conflicts with hikers, while maintaining the rural aesthetic of the area. Routing and seasonal use restrictions can control impacts to nesting/breeding wildlife.

10. Young's Hill – Mitchell Hill – Roche Harbor trail connections and parking improvements

This series of connected trails may be underused by visitors due to parking scarcity and congestion at trailheads, and lack of information about how the trail system works. ***Improved signage, trailhead parking expansion, transit stops, and publicity*** might help visitors and residents recognize and use these scenic upland/forest hiking opportunities.

11. County Park commercial kayak management

Increasing commercial kayak use at County Park has produced congestion and parking shortages, requiring considerable on-site agency oversight during peak periods. Informal ***scheduling and improved organization in parking, ramp, and beach areas*** are likely to reduce problems, but formal scheduling or commercial limits are options if kayak use levels continue to increase.

12. English Camp kayak launch development

Developing another west side kayak launching area for commercial and private use could relieve congestion at County Park, and provide additional kayaking opportunities in a different part of the island. Road access to the waterfront is one of the challenges.

Orcas Island ideas

13. Eastsound welcome parking lot

Develop a ***welcome parking lot for new ferry arrivals.*** A well-signed, easy-to-find parking area that can handle first-time Orcas visitors (approximately 50 to 60 vehicles on each ferry) would be most effective with parking duration limits that cleared the lot in time for the next ferry arrival. This might reduce parking and road congestion in Eastsound, as newcomers may otherwise travel downtown roads multiple times in search of scarce parking.

14. Reduce ferry rush traffic congestion in Eastsound

Ferry rushes create substantial traffic congestion, parking scarcity, and pedestrian-vehicle conflicts in Eastsound that detract from the island's pace of life, small town aesthetic, and overall welcome. In addition to the welcome parking lot described above, additional ***traffic management and sign improvements*** might better direct arriving vehicles around town, or pass more efficiently through the three-way stop sign at Main Street/North Beach Road. Ferry-based congestion is episodic but regular and concentrated, so more intensive management (e.g., traffic officials) may be necessary only for 20 to 30 minute periods during three or four midday/evening ferries.

15. Bicycle trail from ferry landing to Eastsound via Crow Valley

Orcas Island with its steeper topography and narrow roads is the least suitable for cycling, but there are several appropriate rural roads in Crow Valley. This action would ***connect Crow Valley roads with the ferry landing and Eastsound,*** offering a separated path or roadside lane from the landing all the way to Eastsound. Appropriate design (e.g., crushed rock surface) on the separated path segments can minimize impacts to the rural aesthetic of the island.

16. Mount Constitution parking improvements and traffic information

This road and parking area is one of the most crowded attractions in the Sand Juan Islands. As an out-and-back route, it can experience gridlock if the number of vehicles at the summit exceeds the number of parking spaces. A ***real-time parking occupancy sign activated by an automated vehicle counting system***, located before vehicles are committed to traveling the summit road, could prevent vehicles from proceeding when there is no parking.

17. Mount Constitution car-free periods

Some cyclists enjoy the challenge of riding to the summit of Mt Constitution, but the narrow road and steep terrain create hazards for cyclists and congestion for vehicles. ***Scheduled hour-long "no vehicle periods" on a few days per week*** could produce higher quality cycling opportunities and encourage concentrated use during those periods, perhaps reducing bike traffic at other times.

18. Cascade Lake – Mount Constitution shuttle

Parking adjacent to the day use area at Cascade Lake is probably the most congested location on the islands, and has the highest crowding ratings. On warmer summer afternoons, the area is a magnet for visitors and residents. ***A subsidized shuttle that linked camping areas, the day use area, Eastsound, or another "overflow" parking area*** might alleviate the problem.

19. Mountain Lake parking improvements

The day use lot at this popular attraction is notoriously congested on peak use days, with a *cul de sac* that does not allow larger vehicles to turn around if it is full. ***Improved routing, signage, and possibly real-time occupancy information*** might discourage vehicles from proceeding when there is no available parking space.

20. Develop parking and trails at Point Lawrence

Orcas has the highest crowding ratings of the three islands, suggesting the need for additional attractions to disperse use. Point Lawrence is a State Parks-managed property on the eastern end of the island, separate from the main contiguous park and accessible by user-created trails. This action would ***develop a trailhead, parking, and trail system to provide access to marine views and beaches.***

21. Obstruction Pass State Park parking

This increasingly popular park has limited parking that becomes congested on some peak use days. This action would ***organize parking to accommodate more vehicles.***

22. Deer Harbor to Turtleback Mountain Preserve multi-use trail

Road improvements provide an opportunity to ***develop a multi-use trail connecting the village with a major hiking trailhead.*** Most of the path would be along Deer Harbor Road.

23. Informal improved Camp Orkila use distributions

Camp Orkila has weekly exchanges of several busloads of campers at the ferry landing, and regularly brings large scout groups to several island attractions (e.g., Mountain Lake, Cascade Lake, Mt. Constitution). These large groups can increase congestion on trails or other attractions. Communication between the camp and agencies may ***develop better schedules that avoid peak use times.***

Lopez Island ideas

24. Ferry Landing trails and picnic site improvements

Lopez ferry landing is distant from the village and has no restaurants, stores, or picnic facilities. With no eastbound reservations, people waiting in the ferry line often have considerable downtime. The idea is to ***develop sustainable primary and spur trails to picnic sites*** to replace the spider-web of user-created trails and heavily impacted picnic sites on DOT land (east side of the landing). Similar ***trail development in the 26-acre Upright Head Preserve*** (west side of the landing) could help alleviate crowding on the two acre DOT property.

25. Ferry Landing to Odlin Park to Lopez Village bicycle path

Many cyclists' introduction to Lopez Island begins with the 3.5 mile ride on the narrow ferry road (with two- foot shoulders) from the landing to Lopez Village, often contending with a stream of ferry traffic on the steep grade near the landing. A ***dedicated bike lane or separated bike path*** would improve safety and reduce congestion of this commonly-cycled road segment.

26. Center Road bicycle path

Bicycle maps for Lopez Island discourage cyclists from using Center Road because of its "heavy traffic" and lack of shoulder. This primary artery connects Lopez Village to southern attractions and provides access to the schools, so a ***separated bicycle path or roadside bike lanes*** could reduce bicycle-vehicle conflicts, improve safety, increase bicycle commuting, and offer visiting cyclists route options.

27. Separated bicycle paths on selected hills and sharp corners

Many popular cycling routes on Lopez Island have low-medium traffic levels that may not require wider shoulders or bike lanes. But a few steeper grades and sharp corners have short sight lines with the potential for bicycle-vehicle conflicts, especially for groups of bikers who don't ride single file. ***Segments of separated bicycle paths*** could make these safer, reduce vehicle congestion, and enhance the quality of cycling experiences.

28. Shark Reef loop trail and trail improvements

San Juan County plans to ***develop a second trail*** to the Shark Reef shore, creating a ***loop hiking opportunity.*** Additional trail improvements are needed to concentrate visitors on sustainable, well-designed trails and discourage an increasing spider-web of user-created trails and heavily impacted picnic/viewing sites. The goal is a single primary route along the coast, with well-defined spur trails to a reasonable number of pocket beaches and picnic/viewing sites that can handle daily use.

29. Watmough Bay and Point Colville parking improvements

At Watmough Bay, parking is limited and fills to capacity on many peak use days, and overflow parallel parking along the road makes it difficult for vehicles to turn around. In addition, undefined spaces and disorganized parking reduce capacity of the existing lot. The Point Colville trailhead has only a handful of poorly defined spaces, and nowhere to turn around if those spaces are full. This action would ***organize parking to accommodate more vehicles at both locations.***

30. Agate Park road realignment and parking improvements

San Juan County plans to ***realign a segment*** of the Mackaye Harbor Road from its shore-side location to the back of the park property, and ***develop a larger parking lot***. This will provide a more rural shoreline park experience, and handle increasing demand for parking (which also provides access to the Iceberg Point trails).

Multi-island management ideas

31. Cooperative use statistics program

Several agencies already collect a diversity of use information that can help agencies understand daily, weekly, and seasonal use patterns and trends. Analyzing, integrating, and/or sharing that information has been sporadic, and could be improved by a systematic program that prioritizes and analyses information and shares costs. An ideal system would provide ***real-time indicators of visitation levels for each island and key locations,*** allowing agencies, stakeholders, and the public to calibrate use levels with on-the ground conditions that affect quality (a necessary step in assessing capacity).

32. Cooperative Leave No Trace education program

San Juan County became the first county in the U.S. to voluntarily adopt San Juan-specific Leave No Trace principles to promote stewardship among residents and visitors, and other agencies have incorporated them into their education programs. This action would advance the initial concept by

prioritizing and sharing funding for different education options (e.g., brochures, kiosk-based posters, social media, TV/radio public service announcements, ferry videos, etc.).

33. Long-distance trails and trail connections

From 2013 to 2016, the Lopez Community Trails Network conducted an annual 18-mile "walkabout" that traversed the island from north to south, linking trail segments on public and private land (with permission) to illustrate the benefits of a larger network of trails. With nearly 85% private land on the San Juan Islands, there will be challenges to developing long distance trails or links that connect existing trails and attractions. However, these types of longer trail networks are central features of celebrated hiking destinations (e.g., several countries in the European Alps, extensive trails along the British and Irish coasts, long trail hikes like the Appalachian Trail, Pacific Crest Trail, Colorado Trail, local successes like the Corvallis to the Sea Trail) that attract visitors and residents who will appreciate the islands' rural and natural character. Trail groups on all three islands have identified several connection priorities (e.g., cross-island trails on Lopez and San Juan); this idea would ***identify and share routes and potential access solutions.***

Additional information needs

Several additional information needs have been identified over the course of this project. This section summarizes a brainstormed list, based on public meeting discussions, workshops with the Terrestrial Managers Group, and a review of this report. Some ideas were considered but not funded for 2017 and are reasonably well-developed, while others are earlier in their development. The list is not exhaustive or definitive, but has been included for documentation purposes, reminding us of collectively-identified knowledge gaps and implementation issues. Any of these can be further developed through scoping.

Resident survey

The onsite and ferry surveys each provided small resident samples, but because these studies were designed for other purposes, the samples are not representative of all residents. Just as the ferry sample accurately represented visitors, a resident survey is needed to accurately represent residents of all three islands.

Although San Juan County surveyed residents on several recreation and open space issues, broad strategy priorities in March 2016, low response rates (12%) and lack of comparability to issues in this visitor survey limit its usefulness. A resident survey addressing the issues raised in this visitor study is the flip side of the coin necessary for developing a recreation and tourism action plan that addresses the needs of visitors and residents. Example topics are listed below (starred items are parallel to questions on the visitor survey).

- Estimates of vacant housing stock, including estimates of units that may become vacation rentals.
- Estimates vacant house use – how often they are occupied by primary owners vs. others.
- Recreation participation and site visitation rates by residents.*
- Evaluations of crowding and use densities by residents.*
- Evaluations of "reasons for living in the San Juans" by residents.*
- Coping responses to crowding and congestion.*
- Acceptability of management actions*
- Ferry reservation and use.

WSF ferry data

WSF conceptually agreed to provide reservations zip code information to the TMG, but has so far not provided those data. We remain hopeful that WSF staff will be able to deliver this data eventually, because it offers the most reliable way to improve estimates of resident vs. visitor use on ferries by season, day of week, and time of day. These issues are crucial for understanding potential tourism growth and ferry capacity constraints on overall use.

Additional count / observation information

Friday Harbor congestion and parking counts

This would estimate percent parking occupancy at peak times through the day. We developed 2017 parking occupancy protocols, and they have been field tested and work well. The primary goal is to develop a sufficiently large sample of counts to represent occupancies at a range of relevant times.

A second goal is to develop and conduct other measures of congestion in Friday Harbor, showing how ferry rush traffic works its way through the town's circulation system of roads. This requires two to three field technicians conducting counts at specific places at the same time.

American Camp and Eagle Cove use

Additional parking and people at one time counts at the American Camp Visitor Center and nearby Eagle Cove use area are needed to adequately represent the range of use in these areas. Protocols and forms have been prepared and work well, but they need to be implemented with greater frequency at a representative sample of times. A county staff person (Kendra Smith) has promised to help with Eagle Cove, but we need NPS to organize staff or volunteers to conduct counts at American Camp.

English Camp use

Additional parking and people at one time counts at English Camp and Youngs Hill trailhead are needed to adequately represent use in these areas. Protocols and forms have been prepared and work well, but they need to be implemented with greater frequency at a representative sample of times. We need NPS to organize staff or volunteers to conduct these counts.

Cattle Point use

Additional parking and people at one time counts at Cattle Point DNR are needed to adequately represent use. Protocols and forms have been prepared and work well, but they need to be implemented with greater frequency at a representative sample of times. We need staff or volunteers to conduct these counts.

Eastsound congestion and parking

This would integrate our limited counts, Paul Kaimin's previous work on Eastsound counts to improve estimates of parking occupancy at peak times, especially 30 to 90 minutes after a ferry arrival. We developed 2017 parking occupancy protocols, and they have been field tested and work well. The primary goal is to develop a sufficiently large sample of counts to represent occupancies at the range of relevant times.

A second goal is to develop and conduct other measures of congestion in Eastsound, showing how ferry rush traffic works its way through the town's circulation system of roads. This may require two to three technicians or volunteers to conduct counts at the same time.

Tourism Master Plan

This topic comes up frequently. Confluence described our interest in this work in a note to Rick Hughes at his request. We also discussed this at a meeting with the TMG Steering Committee, and copied them on the note to Rick Hughes. We understand that Erica Shook with County Planning and Development is currently leading this effort, and we have been asked to contact her about next steps.

Outlying islands survey

An onsite survey of visitors to outlying islands was conceived in the middle of 2017 implementation, and Confluence helped develop a draft survey instrument. We understand that BLM, State Parks, and the County are interested in moving forward on this element in 2018, perhaps using patrol personnel to do the sampling and data collecting. We would be glad to help design the data collection protocols immediately data collection will proceed in this summer, and then develop a scope for coding, data analysis, and report writing for the fall. We understand that Marcia Dechadenes, Chris Guidotti, Dona Wuthnow, and Kendra Smith are co-leads on this project.