

Tourism and visitor management in the San Juan Islands

Part III: A survey of remote island boaters

January 2020

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Photo by Dawn Umstot



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for

**San Juan County
Land Bank
Parks, Recreation, and Fair
Lodging Tax Advisory Committee
Marine Program**

in cooperation with

**Bureau of Land Management
Chambers of Commerce for San Juan, Orcas, and Lopez Islands
National Park Service
San Juan Conservation District
San Juan Preservation Trust
San Juan Islands Visitors Bureau
US Fish and Wildlife Service
Washington State Department of Natural Resources
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Executive Summary

After completion of visitor surveys in 2017, *stakeholders requested comparable data representing residents/businesses, all-island boaters, and remote island boaters*. This report covers the remote islands boater survey.

Methods

The target population for the survey was *boaters visiting remote San Juan Islands*. A representative sample was developed from onsite surveying by BLM volunteers and State Park rangers/technicians in 2018 and 2019.

Highlight findings

Profile of sample. Powerboats (58%) were used by more groups than sailboats (28%) or kayaks (9%). This is similar to the proportions of all-island boaters (from marinas and boat shows). Most remote island boaters travel in small groups (median of 2 adults), with slightly more family groups than all-island boaters. Most report trips of a week or less, and over three-quarters start and end their trips in the San Juan Islands or adjacent waters of the Salish Sea.

Most boaters stay overnight on their boat while visiting remote islands, with 29% on mooring balls, 10% on linear moorings, 17% at anchorages, and 13% on a dock. Most have considerable experience in the San Juans, with half reporting over 10 previous trips.

Findings show *there are small differences between all-island boaters (reported in Part II) and remote island boaters (described in this report)*. Both surveys sample from the same population – boaters who visit the San Juan Islands – with the sampling methods tilting slightly toward those who spend more time on main islands (the all-island survey) or remote islands (this survey). The studies differed in the focus on larger tourism issues (the all-island study) vs. specific conditions on remote islands (this study).

Reasons for boating in the islands. Similar to 2017 visitors and 2019 residents/businesses, boaters visit the San Juan Islands for reasons related to natural resources. Three reasons specific to boating are near the top of the list. The relaxed pace and friendliness of residents were important. Local stores, restaurants, and foods were further down the list, followed by a lively village scene and local arts and crafts. Good accommodations were at the bottom, probably because most boaters stay on their boats.

Crowding. The highest crowding ratings are for space to dock/moor/anchor near remote islands, and visiting a dock or beach while on remote islands. Boaters reported moderate crowding while camping or sleeping on boats, at the marina / launch where they started their trip, and on remote islands during the day. Low crowding levels were reported on the water, at lighthouses, or when viewing marine wildlife. Crowding ratings were higher on Stuart Island and lower on Patos, with Sucia in-between. Overall, all-island boaters reported higher crowding ratings than remote island boaters.

Conditions and facilities. Average acceptability ratings for conditions or facilities were high, although the availability of moorings and places to anchor were notably lower. Sucia had higher acceptability ratings for mooring and anchoring than Stuart or Patos.

Support for specific management actions. The two most-supported actions are acquiring more islands for public use, and developing camping on other remote islands. There is majority support for managing commercial kayaking trips and designating space on public docks for smaller craft. There is more opposition than support for adding camp, mooring, or picnic area reservations, implying support for the existing first-come/first-served system. There is also more opposition than support for closing some campsites or entire islands.

Table of contents

Introduction	1
Organization of this document	2
Methods	3
Survey development	3
Sample development and survey administration	3
Analysis and reporting	4
Findings	5
Profile of the sample (n = 378).....	5
Type of boats.....	5
People on trip.....	7
Boats on trip.....	8
Starting and ending points of trip	9
Launch from trailer	10
Length of boating trips.....	11
Nights on trip	12
Where did boaters stay overnight?	13
Main island locations	14
Remote island locations.....	16
Boating experience	18
Reasons for boating in the islands	19
Crowding.....	21
Evaluations of conditions and facilities at remote islands.....	25
Support for specific management actions.....	26
Appendix A. Master list of crowding ratings.....	30

Introduction

The San Juan Islands are a major northwest tourist destination, with increasing use and impacts that threaten resource health, the quality of visitor experiences, and quality of life for residents. Throughout San Juan County, several city, county, state, federal, and non-governmental organizations work with tourism and manage parks, protected areas, or recreation facilities. Collectively, these agencies understand that visitors' experiences occur across agency boundaries, and the impacts of tourism affect residents, visitors, businesses, and resource managers. As a result, ***solutions for tourism-related problems require a broad county-wide vision and coordinated management actions.***

Over the past three years, these agencies have collectively supported or participated in several projects to organize background information, assess current conditions, assess stakeholder or user group opinions, and brainstorm possible management actions.

- ***Visitor Management Workshop*** (October 2016) reviewed existing information, brainstormed and prioritized issues, and considered example management actions.
- ***Visitor Management Assessment*** (February 2017) summarized the workshop and existing information, including long-term visitation trends, recreation impacts, priority visitor management “hot spots,” information gaps, and study options to fill those gaps.
- ***San Juan Islands Visitor Study*** (February 2018) had several components.
 - ***Visitation analysis*** – described 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*** – provided site-specific use information at attraction sites, specific park units, or along road segments.
 - ***Onsite survey*** – one-page survey of people at attraction sites to evaluate crowding and facility conditions, and characterize users (visitors and 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.
 - ***Accommodation inventory*** – estimated the numbers and types of accommodations used by visitors, compared them with visitation estimates.
 - ***2018 public meetings*** on all three main islands to present and discuss results from the 2017 studies listed above.
 - ***2018 workshop with Terrestrial Managers Group*** to consider results from 2017 studies, reactions from public meetings, and next steps.

In 2019, San Juan County supported additional projects summarized in a four-part report:

- Survey of residents and businesses (***separate report, Part I***)
- Survey of all-island boaters (***separate report, Part II***)
- Survey of remote island boaters (***this report, Part III***)
- Integrating findings: Conclusions, recommendations, and next steps (***separate report, Part IV***)

The overall goal is to develop information for these important stakeholder groups, ***comparable to the information about main island visitors*** developed through the 2017 onsite and ferry surveys. The information can then be used by individual agencies or cooperating groups of agencies to develop and implement a vision for sustainable tourism in the San Juan Islands.

Organization of this document

This report presents findings by topic as listed below. Each topic includes a header, the survey question (in green), tables or graphs with results, and bullets describing key findings. Comparisons with 2017 visitor studies, 2019 resident/business surveys, or 2019 all-island boater survey are included when appropriate.

- Profiles of the remote island visitors
- Reasons for visiting the San Juan Islands
- Crowding
- Evaluating facilities and conditions
- Support for specific management actions

Methods

After completion of land-based visitor surveys (including the onsite and ferry surveys) in 2017, **stakeholders requested comparable data representing residents/businesses, all-island boaters, and remote island boaters.** This report covers the 2018-19 survey of remote island boaters. This survey focused on remote island conditions, and was distinct from the longer all-island boater survey (see Part II) that covered a broader range of boating, tourism, and capacity issues. Specific methods topics are described below.

Survey development

Draft surveys were developed by CRC and pre-tested with the Terrestrial Managers Group (TMG), with primary assistance from Washington State Parks and BLM's San Juan National Monument staff. Following comments from reviewers, CRC produced a survey that was used in 2018 and (with slight revisions) in 2019. Survey questions are provided in the results section; topics covered by surveys follow from the list provided earlier for organizing the document.

Sample development and survey administration

The target population for this survey was **boaters visiting remote San Juan Islands.** Onsite surveying was conducted by BLM volunteers and State Park rangers/technicians on three islands (Patos, Sucia, and Stuart), although a few surveys came from Turn (2), Blind, Clark, and Jones Islands. Patos, Sucia, and Stuart were chosen based on their higher use levels, potential for impact problems, and diverse types of use (powerboaters, sailors, and kayakers).

Surveying was done on summer weekdays/weekends, 29 days in 2018 and 45 days in 2019; this is best described as a convenience sample conducted in conjunction with other duties of volunteers and rangers. Table 1 summarizes sample sizes by island, type of boater, and year. Larger sub-sample sizes produce greater statistical power for Patos and Sucia vs. Stuart, and for powerboaters and sailors vs. kayakers.

Table 1. Onsite surveying on remote islands, 2018-19.

Location / type of boat	2018	2019	Total	Percent of total
Patos	84	72	156	41%
Sucia	20	147	167	44%
Stuart	17	33	50	13%
Other¹	1	4	5	1%
All visitors	122	256	378	
Powerboat	67	155	222	58%
Sailboat	34	73	107	28%
Kayak²	12	21	33	9%
Other (boat taxi; unspecified)	9	7	16	4%
All visitors	122	256	378	

1. Includes: Turn, Blind, Jones, and Clark.

2. Kayak-only groups; several powerboat and sailboat groups also have kayaks on their boats.

Analysis and reporting

Analysis includes descriptive statistics and statistical comparisons among groups. For the sake of parsimony, the report focuses on statistically significant ($p < .05$ unless otherwise noted) and substantively important differences.

Findings

Profile of the sample (n = 378)

Type of boats

What boat(s) are you using on this trip? (Check all that apply)
 Kayak Sailboat (length: _____) Powerboat (length: _____) Boat taxi / drop off Other: _____

Table 2. Types of boats (percent).

	Patos	Sucia	Stuart	All islands
Kayak-only	12	4	12	9
Sailboat	26	35	24	28
Powerboat	54	61	62	58
Other (boat-taxi, unspecified)	8	0	2	5
Total	100	100	100	100

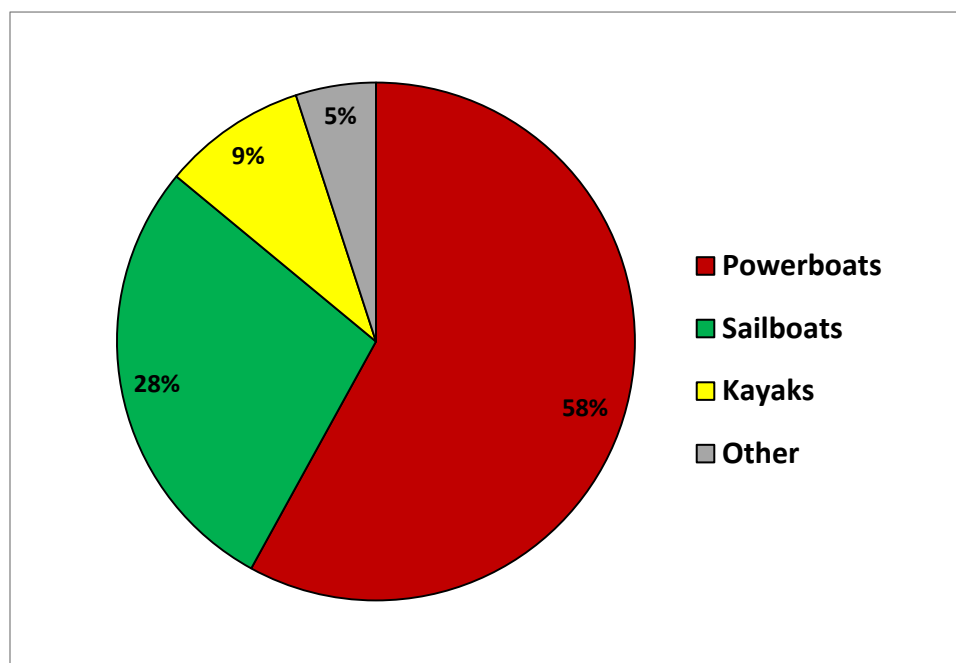


Figure 1. Types of boats in remote islands sample.

- Powerboats were used by more groups (58%) than sailboats (28%) or kayaks-only (9%). This is similar to the all-island boater survey (see Part II), where the split was two-thirds powerboats and one-third sailboats (kayakers were not surveyed).
- Based on Washington State registrations (2017), about 4% are sailboats, 9% are cabin powerboats, and 60% are open motorboats (the remainder are classified as houseboats, inflatable boats, personal watercraft, or pontoon boats). As in the all-island boater survey, the proportion of sailboats was higher for the San Juan Islands than for the state.
- The kayak sample refers to boaters using **only** kayaks (about 9% of powerboats or sailboats carry kayaks, dinghies, tenders, and SUPs in addition to their primary boat). This is similar to the all-island boater survey, where 8% reported carrying kayaks.
- There were some differences among islands; Sucia has proportionately fewer kayak groups and more sailboats than Stuart or Patos.
- The median lengths of sailboats (36 feet) and powerboats (31 feet) were similar; these are nearly double the Washington State boat registration median (18 feet). The longest powerboat was 86 feet; the longest sailboat was 65 feet. 27% of sailboats were under 30 feet vs. 51% of powerboats; 77% of sailboats were under 40 feet vs. 86% of powerboats. Boat length information helps with design standards for docks or linear mooring systems.

People on trip

How many people (including yourself) and dogs are on your boat on this trip?
___ adults ___ children ___ dogs

Table 3. Group sizes.

	Percent reporting any ¹	Median	Average
Adults	--	2.0	3.7
Children	34	2.0 ²	3.5 ²
Dogs	19	1.0 ²	1.5 ²

1. Percent of total sample reporting any children or dogs on trip.

2. For boats that brought any.

- Most boaters travel in groups of two adults (51%), with only 5% solo and 44% in larger groups. The average number of adults was 3.7; the largest one-boat group was 13 (seven respondents were with larger tours or multiple boat trips).
- About 34% bring children, typically one to three (median is 2, average of 3.5 is influenced by a few larger groups).
- About 19% bring dogs; of those, 63% report one (the rest have more).
- Results were similar to the all-island boater survey, although remote island boaters have slightly higher proportions of family groups.
- There were few differences in group sizes among islands. However, Patos boaters were slightly less likely to have dogs (10%), and Sucia boaters were slightly less likely to have children (24%).

Boats on trip

How many boats are in your group on this trip? _____ boats

Table 4. Number of boats in group.

	Percent
One	74
Two	14
Three	2
Four or more	8

- Most boaters travel alone (74%) or with one other (14% more; total of 88%); 8% travel in groups of four or more boats (generally kayak groups).

Starting and ending points of trip

Where will you start and end boating on this trip (name of launch, marina, or beach)?
 Start: _____ End: _____

Table 5. Starting and ending points of remote island boating trips.

	Percent
All San Juan islands (together)	25
San Juan Island	6
Orcas Island	17
Lopez Island	2
Closer mainland U.S. locations (together)	49
Fidalgo / Whidbey Islands (includes Anacortes)	23
Bellingham (including Blaine, Pt. Roberts)	26
Farther mainland U.S. (together)	19
Seattle / Everett	10
Kitsap / Hood Canal /Olympic Peninsula	4
Tacoma / Olympia	5
British Columbia, CAN	1

- Nearly all remote island boaters started and ended their trips at the same location (with the exception of some kayak trips, which tended to start and return to a separate marina/beach on Orcas).
- Nearly half (49%) start/end their trips in the Bellingham area (including locations north to the border such as Blaine and Point Roberts), and Whidbey/Fidalgo Islands area (including Anacortes and La Conner). This is higher than in the visiting boater survey (34%).
- Many (25%) start / end their trips from the main San Juan Islands, particularly Orcas (the closest island to Patos and Sucia, which make up most of the sample).
- About 19% start / end their trips at mainland locations in southern Puget Sound (e.g., Everett, Seattle, Tacoma, or the Olympic Peninsula).
- Few started or ended their trips in other states or Canada.

- There were a few interesting differences among types of boats. For example, sailboats were more likely to be from Seattle than powerboats (16% vs. 5%), and less likely to be from some specific marinas such as La Conner (1% vs. 6%, possibly due to the long “no sail” channel for that port).
- 91% of kayakers start / end their trips from the San Juan Islands (68% from Orcas); a few started from Anacortes (6%) and Lummi Island (3%).

Launch from trailer

Did you launch your boat from a trailer for this trip? Yes No

- About 81% did ***not*** launch from a trailer (lower than the 94% in the all-island boater survey); both results suggest larger craft berthed at marinas or docks.
- A higher proportion of powerboaters (27%) launch from trailers, many from the Anacortes and Bellingham areas. Patos, Sucia, and Stuart are about 25 miles, a short run for powerboats.
- Only 2% of sailboaters launch from a trailer.

Length of boating trips

How many days (including first and last) will you spend boating in the San Juan Islands on this trip?
 _____ days

Table 6. Length of remote island boating trips.

Type / Island	Median	Percent 3 days or less	Percent 4 to 7 days	Percent 8 to 21 days	Percent over 21 days
All boaters	5.0	31	41	24	4
Powerboats	5.0	39	37	21	3
Sailboats	7.0	21	36	38	5
Kayaks-only	5.0	30	54	10	6

- Most remote island boaters (72%) report trips of a week or less, with 4 to 7 days the most common response. The median trip length is 5 days (averages are skewed by outliers).
- About 31% take trips of 1 to 3 days, with 24% over a week and 4% over three weeks.
- Sailors take longer trips, while powerboaters tend to take weekend trips.
- There were few differences among islands (not shown), except for the higher proportion of day visitors to Patos (many of whom appear to stay overnight on Sucia or Orcas).

Nights on trip

How many nights did or will you spend on or near remote islands *on this trip*?

___ nights

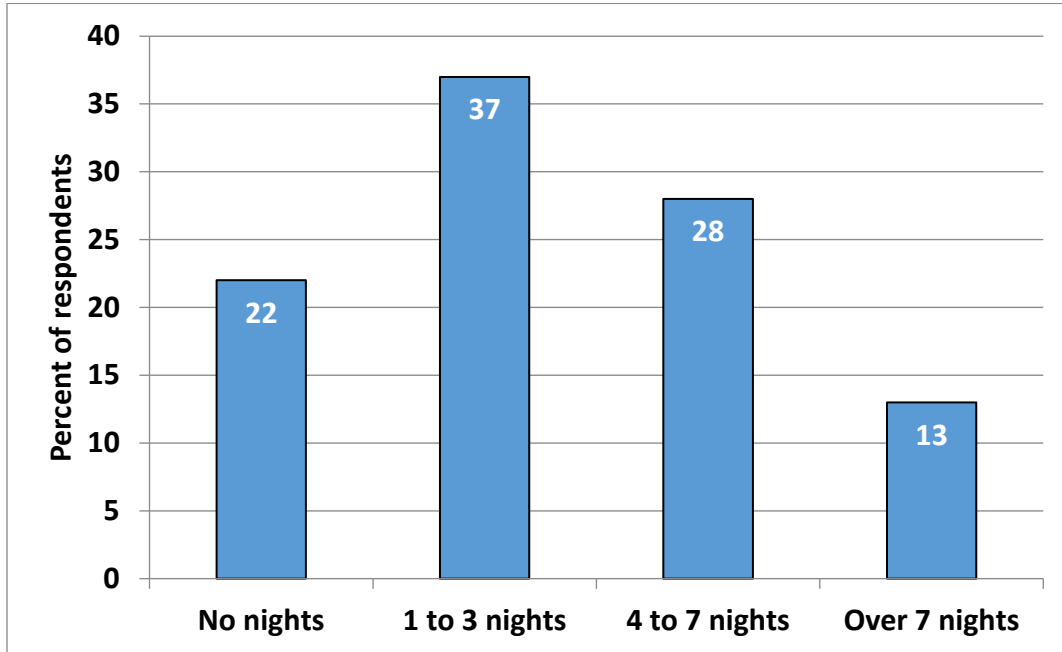


Figure 5. Nights on remote islands.

- Consistent with the trip lengths reported above, the median number of nights on trips was 3.0.
- Numbers of nights on remote islands were similar to the all-island boater survey, although slightly more all-island boaters were day users (26% vs. 22%), and fewer spent 4 to 14 days on remote islands (29% vs. 41%).
- Conclusions from both surveys are consistent; most boaters spent multiple nights on main and remote islands. However, all-island boaters stay slightly more nights on main islands, and remote island boaters stay slightly more nights on remote islands.
- More sailors than powerboaters spend over seven nights per trip on remote islands (19% vs. 10%).

Where did boaters stay overnight?

Where are you staying tonight?

On boat – docked
 On boat – anchored
 On boat – on a mooring
 In a campsite
 In a hotel / B&B
 In a rental house
 I'm only here for the day
 Other please specify: _____

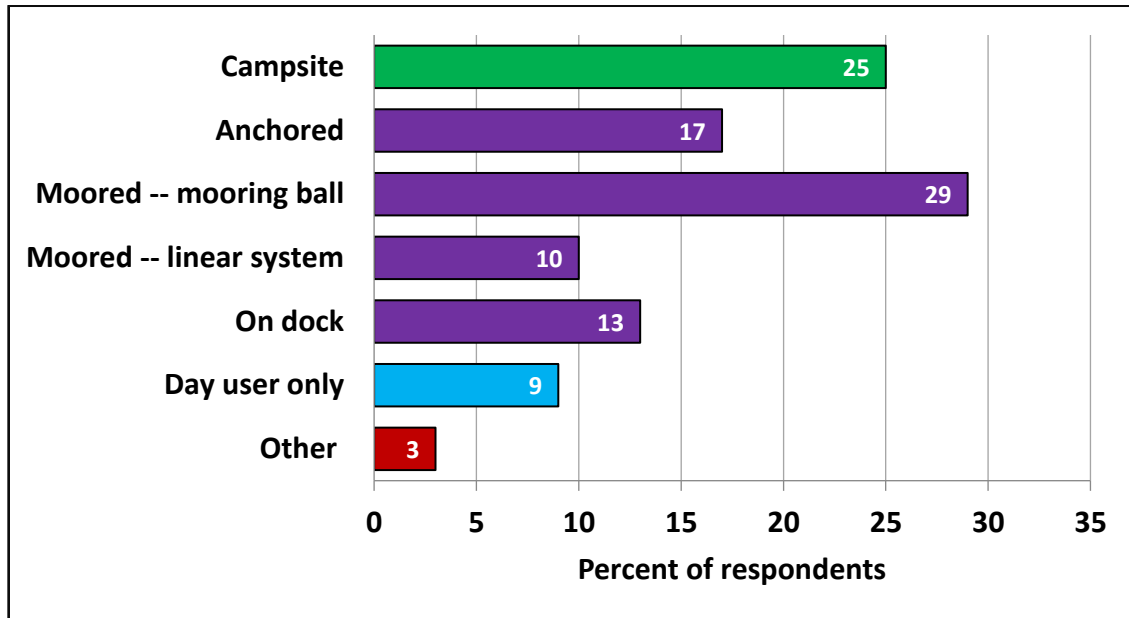


Figure 6. Where remote island boaters stayed overnight.

- Most boaters (69%) stay on their boat at remote islands (shown in purple), with 29% on mooring balls, 10% on the linear mooring systems at Stuart and Sucia, 17% at anchorages, and 13% on a dock.
- 25% stay in campsites on remote islands (shown in green), and 3% stay in on-land accommodations (shown in red) such as hotels or vacation rentals on other (not remote) San Juan Islands.
- 9% report day trips; most of these were on Patos.
- There were a few differences among types of boaters. All overnight kayakers camp, vs. 27% of powerboaters and 3% of sailors. Sailors are more likely to anchor than powerboaters (34% vs. 12%) or use ball moorings (49% vs 25%); sailors are less likely to use docks (11% vs. 16%) or campsites (3% vs. 27%).
- There were a few differences among islands. Higher proportions camp on Patos than Sucia (39% vs. 21%) or stay for the day only (19% vs. 5%), and few anchor at Patos (3% vs. 19%) with its smaller protected harbor.
- Note: This question was asked only of 2019 boaters; results are from smaller sample sizes that are not sufficient to represent kayakers or Stuart Island.

Main island locations

What "main island" locations will you visit on this trip? (Check all that apply)

- | | | | |
|--|---|--|-------|
| <input type="checkbox"/> Friday Harbor, San Juan | <input type="checkbox"/> Deer Harbor, Orcas | <input type="checkbox"/> Any areas on Shaw Island | _____ |
| <input type="checkbox"/> Roche Harbor, San Juan | <input type="checkbox"/> Rosario, Orcas | <input type="checkbox"/> Fisherman's Bay on Lopez | _____ |
| <input type="checkbox"/> Other areas on San Juan | <input type="checkbox"/> Other areas on Orcas | <input type="checkbox"/> Other areas on Lopez Island | _____ |
| <input type="checkbox"/> Other – please specify: _____ | | | |

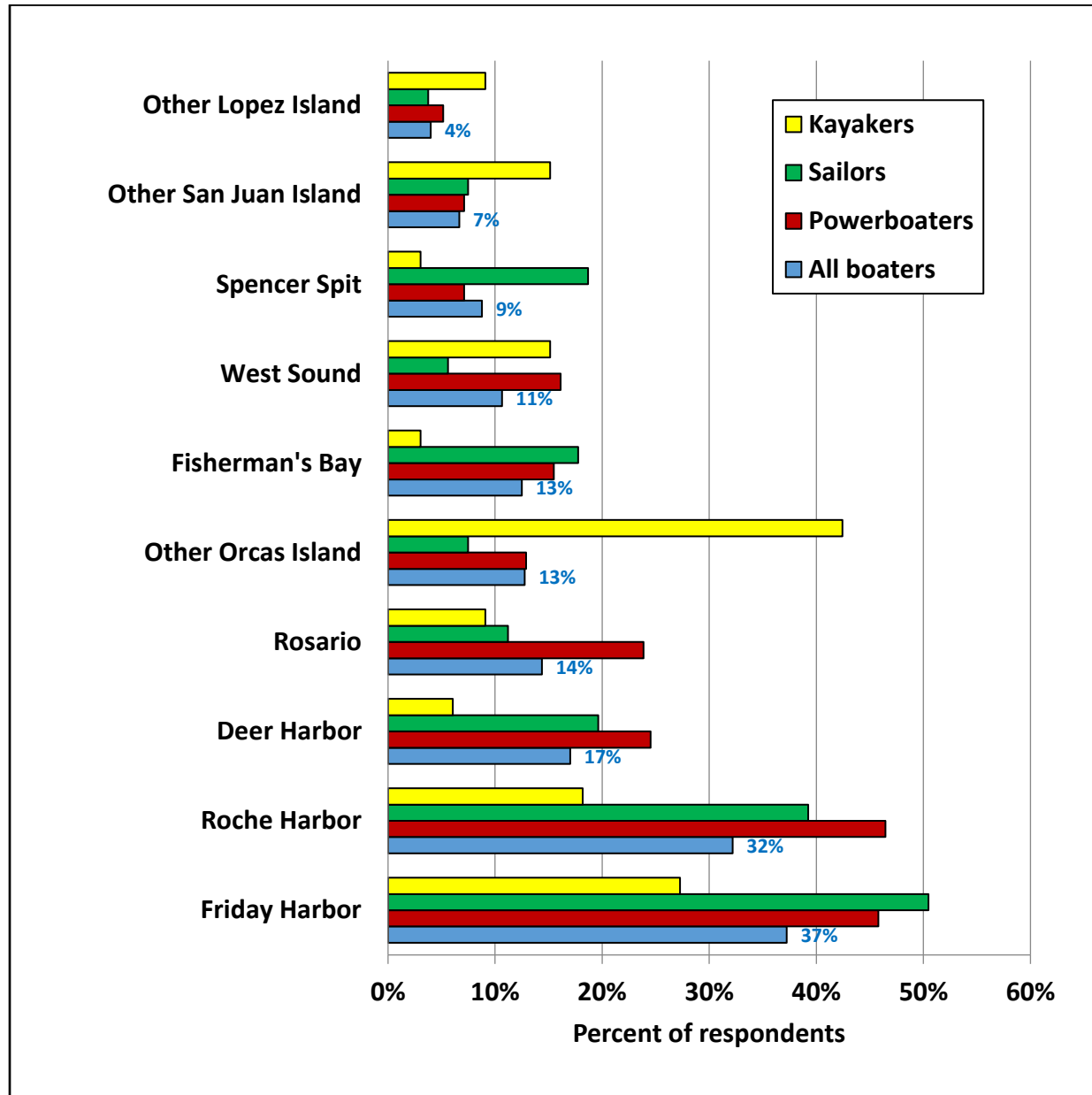


Figure 7. Main Island locations visited by remote island boaters.
Totals sum greater than 100% because boaters reported any that apply

- The most-visited main island locations for all remote island boaters (blue bars) were Friday Harbor and Roche Harbor.
- There were a few differences among types of craft. Powerboaters (red bars) were more likely to visit Roche Harbor, Deer Harbor, and Rosario; sailors (green bars) were more likely to visit Spencer Spit; and kayakers (yellow bars) were more likely to visit other Orcas locations (including beaches and marinas on the north coast facing Patos and Sucia).
- Remote island boaters are less likely than all-island boaters to visit Friday Harbor (37 % vs. 64%), Roche Harbor (32% vs. 47%), and other San Juan Island locations (7% vs. 20%).
- A similar pattern is evident for Deer Harbor (17% for remote island boaters; 28% for all-island boaters), the most visited Orcas location. But both groups visited Rosairo at a similar rate (14% vs. 16%), and remote island boaters were more likely to visit other Orcas locations (24% vs. 11%). This appears to be consistent with the large Patos-Sucia sample (islands just north of Orcas, and farther from Lopez and San Juan Islands).
- Similar proportions of remote island and all-island boaters visited locations on Lopez Island.

Remote island locations

What remote island(s) in the San Juan Islands will you visit on this trip? *(Check all that apply)*

<input type="checkbox"/> Patos Island	<input type="checkbox"/> Matia Island	<input type="checkbox"/> Blind Island	Other – please specify: _____ _____
<input type="checkbox"/> Stuart Island	<input type="checkbox"/> Clark Island	<input type="checkbox"/> James Island	
<input type="checkbox"/> Posey Island	<input type="checkbox"/> Saddlebag Island	<input type="checkbox"/> Turn Island	
<input type="checkbox"/> Sucia Island	<input type="checkbox"/> Doe Island	<input type="checkbox"/> Jones Island	

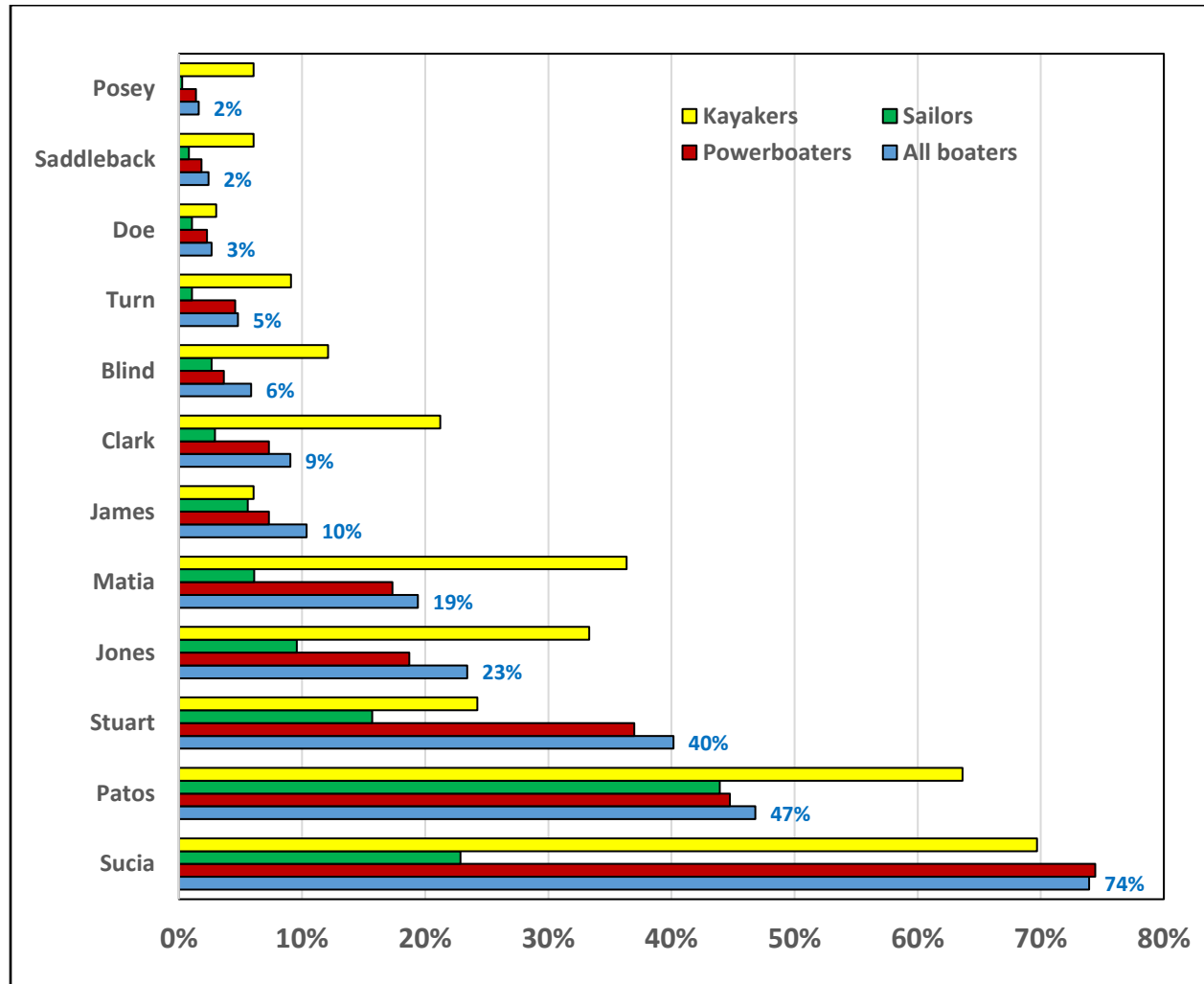


Figure 4. Islands visited by remote island boaters.
Totals sum greater than 100% because boaters reported any that apply

- The most-visited remote islands (blue bars) are Sucia, Patos, and Stuart.
- Stuart (35%) and Sucia (33%) were the most-visited remote islands in the all-island boater survey, and proportions visiting Jones Island were also similar (23% and 19%).

- The higher visitation rates for Patos and Matia are notable in the remote island sample, because they were reported by less than 10% in the all-island boater survey. Matia is adjacent to Patos, which partly explains this result.
- Low visitation rates to other islands are similar in both surveys.
- In general, powerboaters visit more remote islands than sailors (particularly Sucia, Stuart, Jones, and Matia).
- Compared to powerboaters or sailors, higher proportions of kayakers report visits to Sucia, Patos, Jones, Matia, Clark, Turn, and Blind Islands. This may be a function of the small kayak-only sample, which included several boaters on longer tours. Kayakers may also plan multiple stops to break up longer crossings, or to use the designated Cascadia Marine Trail campsites. Or more kayakers may be “island collectors,” while powerboaters and sailors may choose fewer islands (possibly those with better moorings) for longer stays.
- Results from this and other profile questions suggest ***there are small differences between all-island boaters (reported in Part II) and remote island boaters (described in this report)***. Both surveys sample from the same population – boaters who visit the San Juan Islands – with the sampling methods tilting slightly toward those who spend more time on main islands (the all-island survey) or remote islands (this survey). The studies differed in the focus on larger tourism issues (the all-island study) vs. specific conditions on remote islands (this study).

Boating experience

About how many previous trips have you taken in the San Juan Islands? _____ trips

About how many days do you spend boating in the San Juan Islands each year? _____ days per year

Table 7. Experience of remote island boaters

Previous San Juan trips		Days per year in San Juans	
Average	31.1	Average	17.1
Median	12.0	Median	10.0
	Percent		Percent
First trip	8	7 or less	38
1 to 9	41	8 to 14	36
10 to 19	17	15 to 30	16
20 or more	34	31 to 100	10

- Most remote island boaters have considerable experience in the San Juans, with 51% reporting over 10 trips, and 34% over 20. The median was 12, average was 31 (increased by high outliers).
- Most report boating 7 or less (38%) or 8 to 14 (36%) days per year in the San Juans. About 26% report 15 to 100 days. The median was 10 days, but outliers raise the average to 17. This was lower than for the all-island boater survey, where the median was 14 and the average 34.
- There were a few differences among boat types. Powerboaters and sailors reported similar numbers of previous trips (median 15), but sailors spent more days per year in the San Juans (medians are 14 vs. 10). Kayak-only groups have fewer previous trips (median is 6), spend fewer days per year (median is 5.5), and more were first-timers (16% vs. 7%).

Reasons for boating in the islands

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

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
The relaxed pace of life – being on “island time”	0	1	2	3	4
Good choice of hotels, inns, B&Bs, or house rentals	0	1	2	3	4
Good choice of places to dock, moor, or anchor	0	1	2	3	4
Good opportunities for boating, sailing, or kayaking	0	1	2	3	4
Local stores and restaurants	0	1	2	3	4
Local arts and crafts	0	1	2	3	4
Local foods	0	1	2	3	4
Friendliness of residents	0	1	2	3	4
Lively village scene	0	1	2	3	4
Cultural history of the islands	0	1	2	3	4
Natural / rural scenery	0	1	2	3	4
Beach / shore / bluff / headlands hiking	0	1	2	3	4
Forest / mountain hiking	0	1	2	3	4
Marine wildlife viewing	0	1	2	3	4
Good weather / sea conditions for boating	0	1	2	3	4
Biking on rural roads	0	1	2	3	4
Agreeable climate	0	1	2	3	4
Others (please list)					

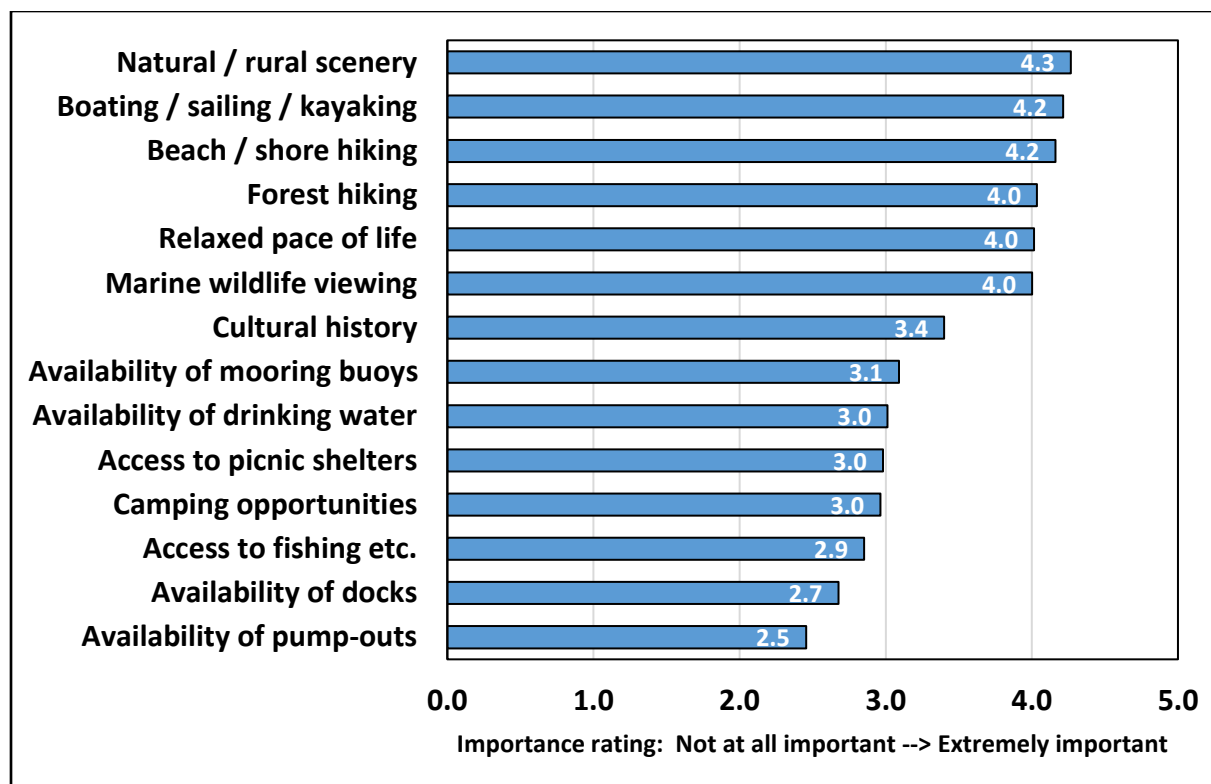


Figure 8. Reasons for boating in the San Juan Islands.

- Similar to 2017 visitors, 2019 residents and businesses, and 2019 all-island boaters, remote island boaters visit the San Juan Islands for reasons related to natural resources.
- Relaxed pace of life was an important social characteristic.
- Differences between remote island and all-island boaters were small, although remote island boaters appear more interested in cultural history (3.4 vs. 2.1), possibly because of sampling at historical sites.
- There were consistent differences between Patos vs. Sucia and Stuart.
 - For six reasons (scenery, boating opportunities, beach hiking, forest hiking, relaxed pace of life, and access to fishing) Patos was rated about a half point lower, perhaps because Patos is a smaller island with fewer attractions and smaller trail system.
 - For four facility-related reasons (availability of mooring buoys, drinking water, docks, and pump-out stations), Patos was rated 1.0 to 1.5 points lower. Patos has fewer facilities, and more boaters are day-visitors.
- There were few differences among types of boaters, although camping opportunities were more important to kayakers, and availability of docks and access to fishing were more important to powerboaters than sailors.

Crowding

As discussed in previous reports for the San Juan Islands, 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.

How crowded did you feel during your trip in the San Juan Islands (so far)? (Please circle one number for each row; if you didn't do an activity, leave that row blank)									
	Not at all crowded		Slightly crowded		Moderately crowded		Extremely crowded		
At the marina / launch where you started your trip	1	2	3	4	5	6	7	8	9
While traveling on the water	1	2	3	4	5	6	7	8	9
While viewing marine wildlife	1	2	3	4	5	6	7	8	9
While on remote islands during the day	1	2	3	4	5	6	7	8	9
While finding space to dock, moor, or anchor near remote islands	1	2	3	4	5	6	7	8	9
At the lighthouse	1	2	3	4	5	6	7	8	9
While camping (or sleeping on your boat) at remote islands	1	2	3	4	5	6	7	8	9
Overall for your trip	1	2	3	4	5	6	7	8	9

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).

This single indicator (***the percent feeling crowded, or crowding rating***) can be easily compared among different places, times, groups, or contexts in the San Juan Islands, as well as to other locations where the indicator has been measured (over 200 studies and several hundred locations or resource contexts since 1977).

The figures below compare crowding ratings ***from the remote island boater survey***. An appendix to Part III of this report compiles these and other crowding ***ratings from all the San Juan Island visitor, resident/business, and all-island boater surveys*** conducted since 2017. This allows ***comparisons across groups, places, contexts, and other similar resources***.

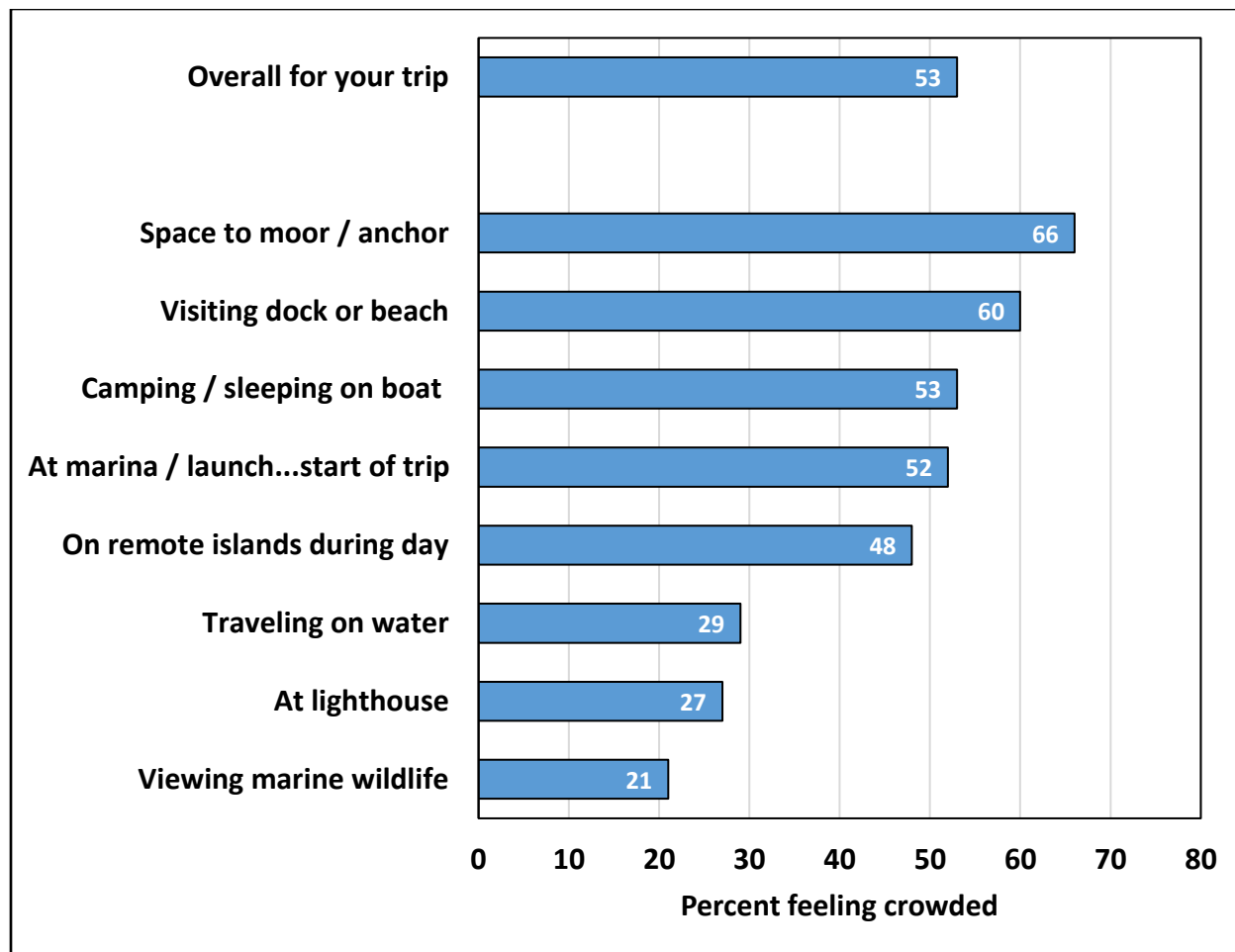


Figure 9. Remote island boaters' crowding ratings for different settings.

- Crowding ratings are highest for space to dock/moor/anchor near remote islands (66%) and visiting a dock or beach while on remote islands (60%). The general boater survey showed 86% crowding for space to moor / dock on remote islands.
- Crowding ratings are more moderate for camping or sleeping on boats (53%), the marina / launch where they started their trip (52%), and remote islands during the day (48%).
- Crowding ratings were lowest for traveling on the water (29%), visiting lighthouses (27%), or viewing marine wildlife (21%).

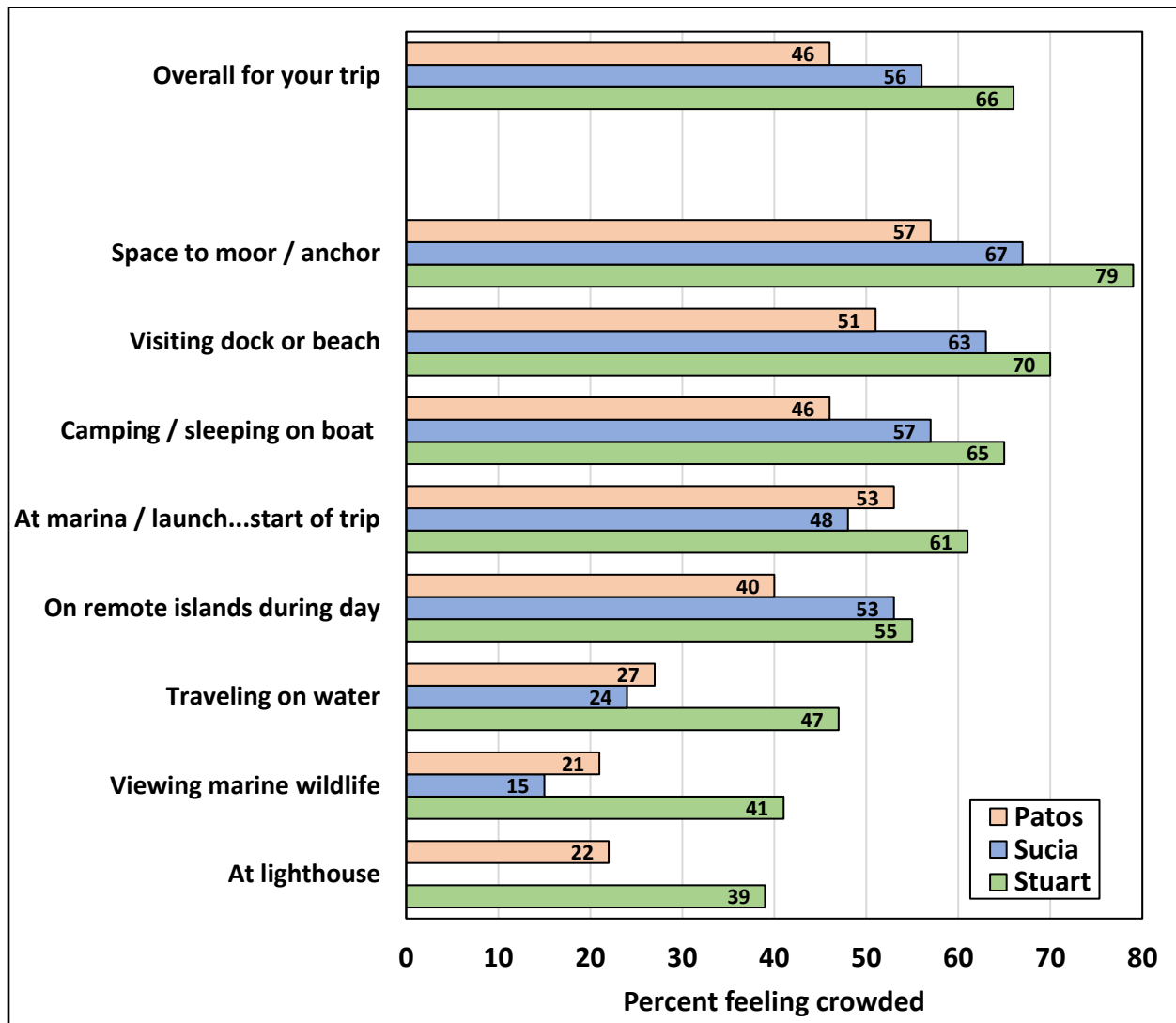


Figure 10. Remote island boaters' crowding ratings – differences among islands.

- In general, crowding ratings were higher on Stuart Island and lower on Patos, with Sucia in-between.
- Differences between Stuart and the other two islands were greatest for traveling on water, viewing marine wildlife, and visiting lighthouses, which may reflect higher boat traffic on the west side of San Juan Island.
- Because there is no lighthouse on Sucia, no crowding score is reported.

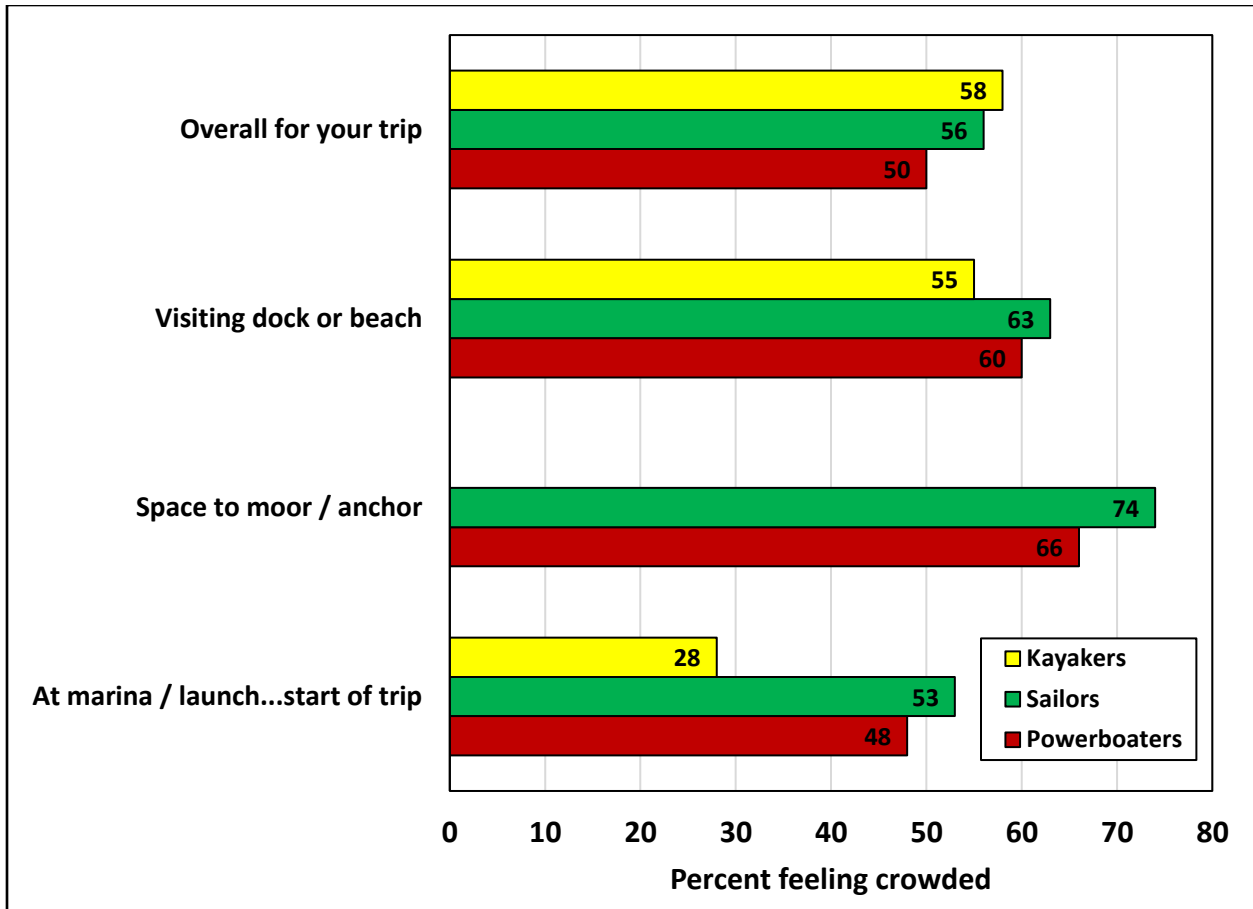


Figure 11. Remote island boaters' crowding ratings – differences among boat types.

- There were few differences among crowding scores by boat type, although kayakers reported less crowding at the beach/launch where they started their trip (for this sample, probably launches on the north shore of Orcas).

Evaluations of conditions and facilities at remote islands

Please rate the acceptability of conditions and facilities *at the remote islands you visited*.
(Please circle one number per row)

	Totally <u>un</u> acceptable	Slightly <u>un</u> acceptable	Marginal	Slightly acceptable	Totally acceptable	OR...✓ if you did not use or notice
Availability of moorings	-2	-1	0	1	2	<input type="checkbox"/>
Availability of places to anchor	-2	-1	0	1	2	<input type="checkbox"/>
Condition of trails	-2	-1	0	1	2	<input type="checkbox"/>
Availability of campsites	-2	-1	0	1	2	<input type="checkbox"/>
Condition of campsites	-2	-1	0	1	2	<input type="checkbox"/>
Information, signs, or exhibits	-2	-1	0	1	2	<input type="checkbox"/>

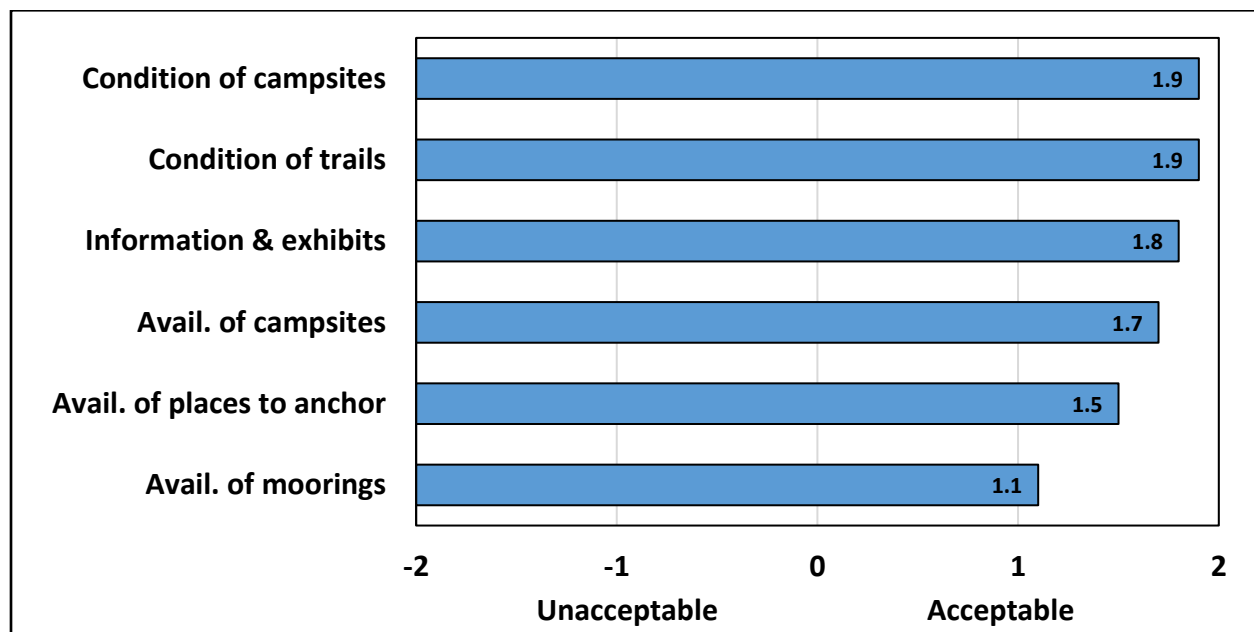


Figure 12. Remote islands boaters' evaluations of conditions or facilities.

- Average acceptability ratings for conditions or facilities were generally high, although the availability of places to anchor and moor were lower.
- There were differences among islands; Sucia rated higher for moorings (1.4 vs. 0.9 for Patos and 1.0 for Stuart) and anchoring (1.7 vs. 1.3 and 1.5).
- There were no differences among types of boats.

Support for specific management actions

Please indicate whether you support or oppose the following management actions. *(Circle one number per row).*

	Strongly oppose	Slightly oppose	Neutral	Slightly support	Strongly support
Reservations for a portion of moorings	-2	-1	0	1	2
Reservations for a portion of picnic areas	-2	-1	0	1	2
Reservations for a higher proportion of campsites	-2	-1	0	1	2
Increase portion of campsites for kayakers/wind-power only	-2	-1	0	1	2
Designate some space on public docks for small craft only	-2	-1	0	1	2
Manage number / timing of commercial kayaking groups	-2	-1	0	1	2
Close some islands to public access to protect resources	-2	-1	0	1	2
Close some campsites to protect resources	-2	-1	0	1	2
Acquire more property on islands for recreation use	-2	-1	0	1	2
Develop camping on other remote islands	-2	-1	0	1	2

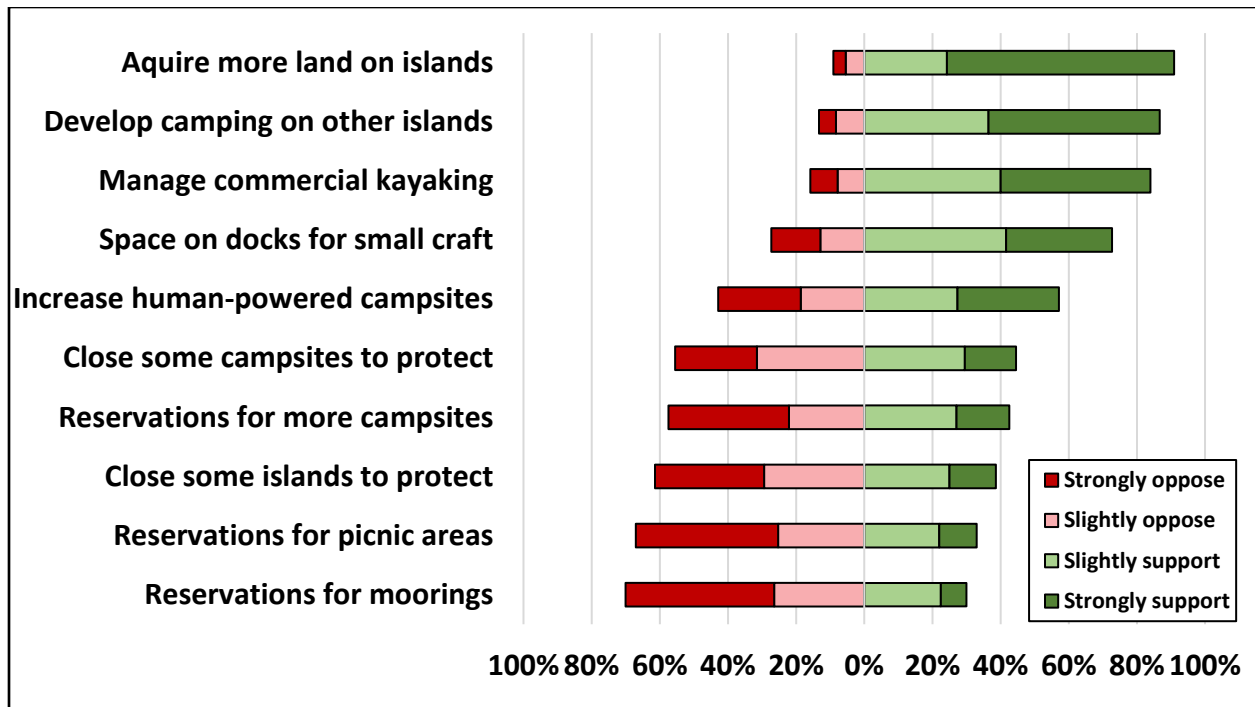


Figure 13. Remote islands boaters' opinions about specific management actions (detailed results). Ranked by mean score.

- The two most-supported actions are acquiring more islands for public use (91% support) and developing camping on other remote islands (87% support).
- There is majority support for managing commercial kayaking trips (84%) and designating space on public docks for smaller craft (73%).
- There is more opposition than support for reserving a portion of moorings (70%), picnic areas (67%), or a higher (than current) proportion of campsites (57%). This implies support for the current first-come/first-served system.
- There is more opposition than support for closing entire islands (61%) or camps on islands (56%).

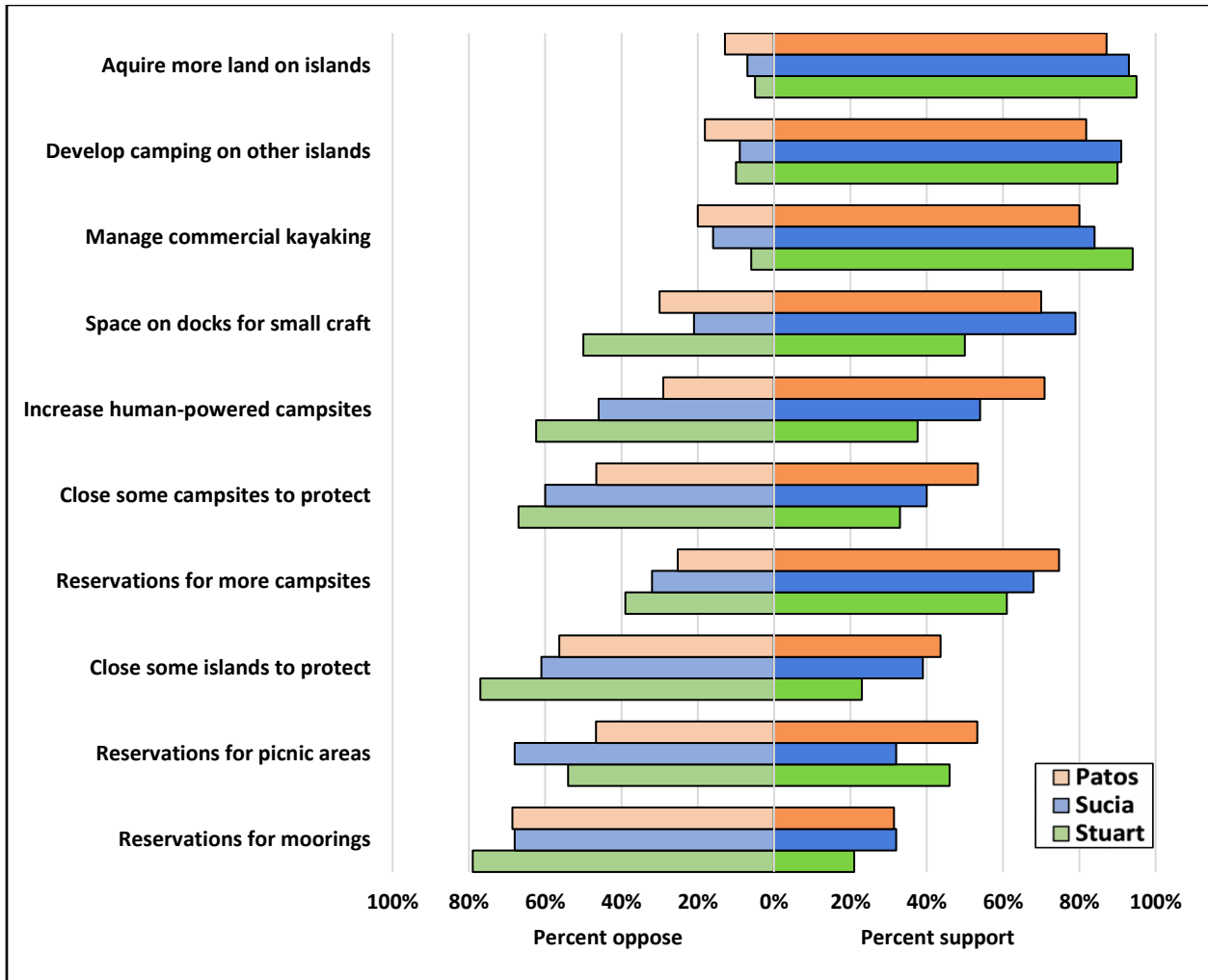


Figure 14. Remote islands boaters’ opinions about specific management actions – differences among islands (summary of support/oppose only; ranked by mean score).

- Differences among islands were generally small. However, Stuart showed greater opposition toward mooring reservations (79% vs. 68 and 69%) in spite of higher mooring crowding ratings.
- Stuart showed more opposition to closing islands or campsites, consistent with their scarcity and crowding ratings.
- Patos showed more support for increasing reservations for human-powered boaters or reserving more campsites, probably reflecting the higher proportion of kayakers and sailors in that island’s sample (powerboaters can travel faster to obtain first-come/first-served sites).

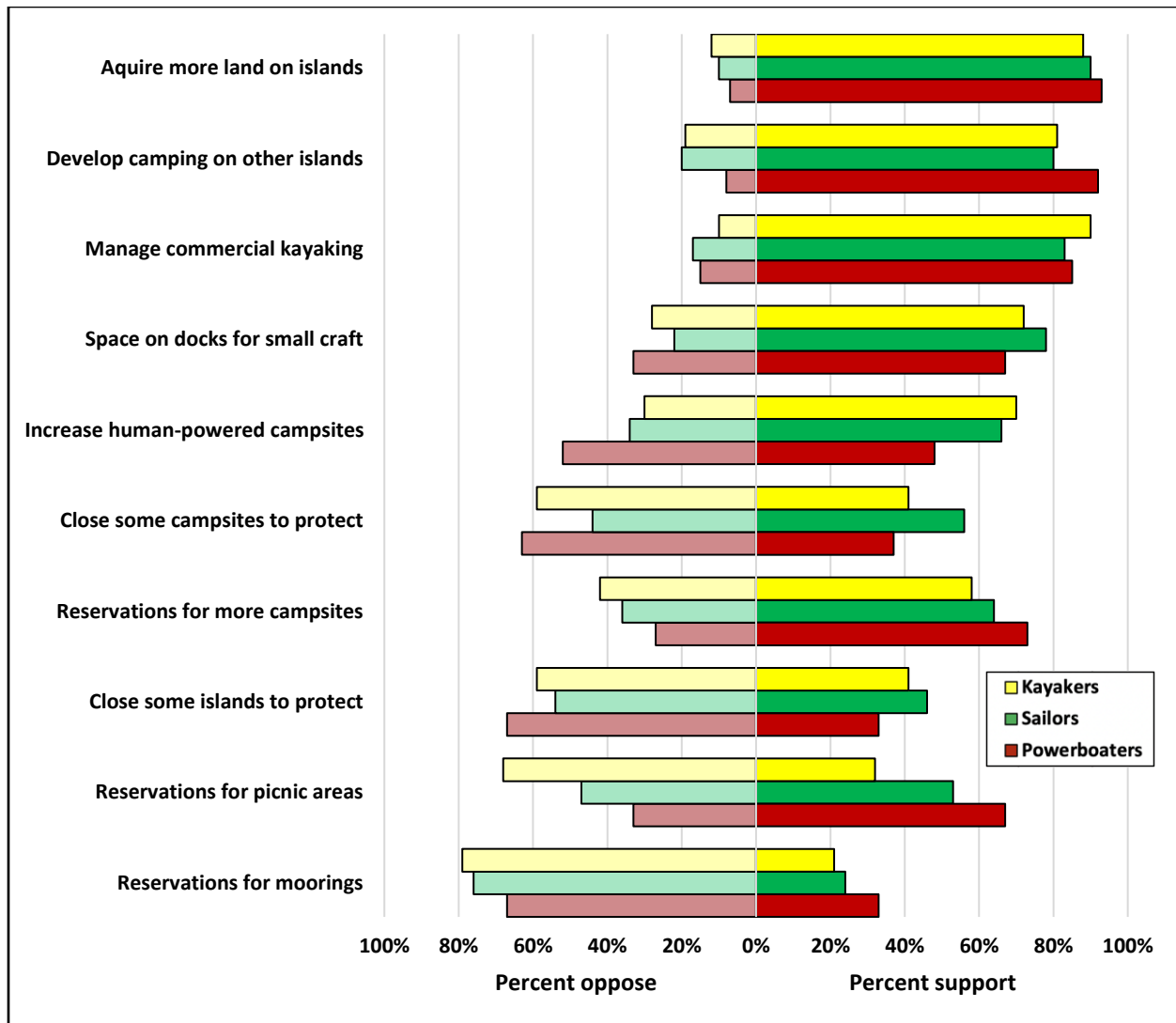


Figure 15. Remote islands boaters' opinions about specific management actions – differences among boat types (summary of support/oppose only; ranked by mean score).

- There were few substantive differences among boat types, although powerboaters were slightly less likely to oppose more reservations for campsites, picnic areas, and moorings.
- Kayakers (70%) and sailors (66%) showed more support than powerboaters (48%) for increasing campsites for human-powered boaters.
- Powerboaters showed more support for developing campsites on other islands (92% vs 80-81%).
- In general, powerboaters can travel faster and are less weather-dependent than kayakers and sailors. This probably explains evaluations of several management actions regarding supply and allocation of scarce resources such as camps, moorings, or picnic areas.

Appendix A. Master list of crowding ratings.

As discussed in previous reports for the San Juan Islands, 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.

Crowding questions were asked on all the San Juan Islands surveys following the standard 9-point format. This is shown below for the remote islands survey, although the list of places and activities evaluated by respondents varied across the different surveys.

How crowded did you feel during your trip in the San Juan Islands (so far)? (Please circle one number for each row; if you didn't do an activity, leave that row blank)									
	Not at all crowded		Slightly crowded		Moderately crowded		Extremely crowded		
At the marina / launch where you started your trip	1	2	3	4	5	6	7	8	9
While traveling on the water	1	2	3	4	5	6	7	8	9
While viewing marine wildlife	1	2	3	4	5	6	7	8	9
While on remote islands during the day	1	2	3	4	5	6	7	8	9
While finding space to dock, moor, or anchor near remote islands	1	2	3	4	5	6	7	8	9
At the lighthouse	1	2	3	4	5	6	7	8	9
While camping (or sleeping on your boat) at remote islands	1	2	3	4	5	6	7	8	9
Overall for your trip	1	2	3	4	5	6	7	8	9

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).

This single indicator (**the percent feeling crowded, or crowding rating**) can be easily compared among different places, times, groups, or contexts in the San Juan Islands, as well as to other locations where the indicator has been measured (over 200 studies and several hundred locations or resource contexts since 1977).

The master table below compiles the crowding ratings **from all the San Juan Island onsite, ferry, resident/business, remote island boater, and all-island boater surveys** conducted since 2017. This allows **comparisons across groups, places, contexts, and other similar resources**.

Master list of crowding ratings from San Juan studies (2017-2019) and other similar locations.

- Residents in purple (mail/online survey 2019)
- Businesses in red (mail/online survey 2019)
- On-site visitors in gold (onsite survey 2017)
- All-island visitors in orange (ferry survey 2017)
- All-island boaters in blue (onsite/email survey 2019)
- Remote island boaters in green (onsite survey 2018-19)

% Feeling Crowded	Resource	Population/Comments
100	Deschutes River, Or	Boaters on weekends
100	Kenai River, Ak	Upper river bank anglers on high use days
98	Parking in Friday Harbor	Residents in summer
96	On streets in Friday Harbor	Residents in summer
94	Brooks River, Katmai NP, Ak	Bear viewers at mouth of river (September)
94	Colorado River, Az	Anglers at Thanksgiving
93	Parking in villages	Businesses in summer
92	On streets in villages	Businesses in summer
92	Kenai River, Ak	Lower river powerboaters on high use days
90	Overall rating	Residents in summer
90	Koh Chang marine park, Thailand	Snorkelers
90	Driving roads in Yosemite Valley, Ca	River users in Valley
88	Overall rating	Businesses in summer
88	Parking at trailheads	Businesses in summer
88	Finding parking in Yosemite Valley	River users in Valley
87	Parking at trailheads San Juan Island	Residents in summer
87	Oregon Caves National Monument, Or	All visitors
86	Boat space at docks/moorings	All-island boaters
85	Arches National Park, Ut	Mountain bikers on Slick Rock trail
83	Columbia Icefield, Banff-Jasper NP	SnoCoach tourists
83	Riding shuttles in Yosemite Valley	River users in Valley
82	Marinas	All-island boaters
81	Bridalveil Falls, Yosemite NP (1999)	Falls visitors at base of falls
79	Wildlife viewing areas San Juan Island	Residents in summer
79	On streets in Eastsound	Residents in summer
79	Parking in villages	All-island boaters
78	Parking in Eastsound	Residents in summer
78	Parking at marinas and boat launches	All-island boaters
77	Overall rating	All-island boaters
77	Parking at trailheads Orcas Island	Residents in summer
75	Wildlife viewing areas	Businesses in summer
75	On rural roads San Juan Island	Residents in summer
74	Acadia NP, Me	Thunder Hole visitors
74	Rocky Mountain NP, Co	Visitor Center visitors
74	On beaches San Juan Island	Residents in summer
74	On trails San Juan Islands	All-island boaters
73	Boundary Waters, Mn	Canoers/boaters
72	On trails San Juan Island	Residents in summer

% Feeling Crowded	Resource	Population/Comments
72	Grand Canyon, Az	Rafters
70	On beaches all islands	Businesses in summer season
69	On trails all islands	Businesses in summer
69	Glacier Point, Yosemite NP (1999)	Glacier Point visitors evaluating viewing areas
69	Rocky Mountain NP, Co	Longs Peak hikers
68	San Juan Islands -- parking in villages	All ferry survey visitors in summer
68	Hiking in Yosemite Valley	River users in valley
67	Cascade Lake day use on Orcas Island	Visitors in summer
67	Mesa Verde NP, Co	Visitors
66	Boat space at mooring/anchor	Remote islands boaters
66	On rural roads all islands	Businesses in summer
65	On trails Orcas Island	Residents in summer
64	Travelling on water	All-island boaters
64	On beaches Orcas Island	Residents in summer
63	Wildlife viewing areas Orcas Island	Residents in summer
61	Yosemite Falls, Yosemite NP, Ca	Falls visitors on trail and at base of falls
60	On docks and beaches	Remote islands boaters
60	On rural roads Orcas Island	Residents in summer
60	Boating in Yosemite Valley	River users on Merced River
58	Arches NP, Ut	Visitors to Delicate Arch
57	Wildlife viewing from boats	All-island boaters
56	San Juan Islands -- Parking at attractions	All ferry survey visitors in summer
55	Watmough Bay, Lopez Island	Visitors in summer
54	Yosemite Valley, Yosemite NP, Ca	River users about relaxing along Merced River
53	Grand Canyon, Az	Rafters in winter
53	Camping or sleeping on boat	Remote islands boaters
53	Overall rating	Remote islands boaters
53	Mountain Lake day use area, Orcas Island	Visitors in summer
52	At marina/launch where trip started	Remote islands boaters
51	Yosemite NP, Ca (2001)	Frontcountry users along trails
51	Traveling streets in villages	All-island boaters
48	On remote islands during day	Remote islands boaters
48	Agate / Iceberg Point on Lopez Island	Visitors in summer
47	Hiking beaches / bluffs / shorelands	All-island boaters
46	San Juan Islands – Overall	All ferry survey visitors in summer
46	Mt Constitution summit	Visitors in summer
45	Swimming in Yosemite Valley, Ca	River users on Merced River
45	Acadia NP, Me	Visitors on Carriage Roads
44	Docking/mooring/anchor main islands	All-island boaters
43	Westside Preserve on San Juan Island	Visitors in summer
39	Pacific Rim National Park, BC	Ocean kayakers
38	Apostle Islands National Lakeshore, WI	Kayakers
37	Parking at trailheads Lopez Island	Residents in summer
37	Parking in Lopez Village	Residents in summer
37	San Juan Islands – on roads	All ferry survey visitors in summer
37	Lake Mead, NV	Shoreline users
37	Obstruction Pass SP on Orcas Island	Visitors in summer

% Feeling Crowded	Resource	Population/Comments
36	San Juan Islands – beaches / shorelands	All ferry survey visitors in summer
36	Yosemite NP, Ca (2001)	Remote wilderness hikers
34	San Juan Islands – marine viewing areas	All ferry survey visitors in summer
34	On streets in Lopez Village	Residents in summer
33	On beaches Lopez Island	Residents in summer
33	San Juan Islands – on trails	All ferry survey visitors in summer
31	Wildlife viewing areas Lopez Island	Residents in summer
30	On trails Lopez Island	Residents in summer
29	Traveling on water	Remote islands boaters
29	Shark Reef Sanctuary on Lopez Island	Visitors in summer
28	Vail Pass, CO	Skiers, snowshoers, and snowboarders
27	At lighthouses	Remote islands boaters
27	County Park on San Juan Island	Visitors in summer
27	South Beach on San Juan Island	Visitors in summer
27	Muir Beach, CA	Visitors overall
26	On rural roads Lopez Island	Residents in summer
26	Lime Kiln State Park on San Juan Island	Visitors in summer
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 in summer
22	Spencer Spit State Park on Lopez Island	Visitors in summer
21	Viewing marine wildlife	Remote islands boaters
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

Results can be used for generally **comparing and categorizing locations and times** with different levels of crowding and **considering explanations or management responses**. As discussed in a meta-analysis of 35 early studies using this measure (Shelby, et al., 1989), these crowding ratings are **not a substitute for more complete information** about use levels, impacts, and standards that capacity studies can provide. However, this simple measure helps compare places and direct attention to crowding or other related problems. With this caveat, we have highlighted a few examples from the San Juan Islands crowding ratings, and we encourage readers to review places of interest to them.

- Residents and businesses generally reported much higher crowding than visitors, suggesting they are more aware of and thoughtful about density and crowding impacts on the islands. These groups see the high-density summer season in contrast to lower densities the rest of the year, and they contend with the impacts more frequently. Most visitors do not see that contrast, and they may compare impacts to higher density urban and suburban settings where they live (primarily the greater Seattle region).
- For residents and businesses, San Juan and Orcas Islands show the highest crowding ratings. Hot spots include parking and traffic in Friday Harbor and Eastsound, parking at attractions, and wildlife viewing on San Juan Island.

- Boaters (all-island and remote island) generally have lower crowding ratings than residents, businesses, or on-land visitors. Because they spend time on the water, boaters may be one step removed from on-land crowding issues.
- Boaters (from both the all-island and remote island surveys) report the highest crowding ratings for finding mooring/docking space on remote islands and at marinas.
- For land-based visitors, some well-known attraction sites have higher crowding ratings (e.g., Cascade Lake and Mountain Lake on Orcas; Shark Reef and Agate/Iceberg Point on Lopez).
- Some crowding ratings from the San Juans (e.g., by residents and businesses for parking and streets in villages) are among the most crowded resources studied by researchers; similarly rated areas include weekend boating on Oregon's Deschutes River, "combat fishing" on Alaska's Kenai River, and driving on roads in Yosemite Valley. When crowding ratings exceed 80%, researchers generally consider those areas to have substantial crowding/capacity issues and associated management challenges.
- Some crowding ratings from the San Juans (e.g., by remote island boaters for viewing marine wildlife, and summer visitors for Spencer Spit or Odlin Park on Lopez Island) are among the least crowded resources studied by researchers; similarly rated areas include kayak touring in Gwaii Haanas, BC and Isle au Haut hiking in Maine's Acadia National Park. When crowding ratings are less than 35%, researchers generally consider them uncrowded areas that offer low-density experiences.
- Crowding ratings between the two extremes have less obvious interpretations. Researchers generally consider places with crowding ratings of 35-50% to have few problems but probably deserve monitoring, while those with 50-65% ratings are candidates for closer attention (including studies like those conducted for the San Juans) to help anticipate problems. For places with ratings of 65-80%, studies and additional management may be needed to preserve high quality experiences.