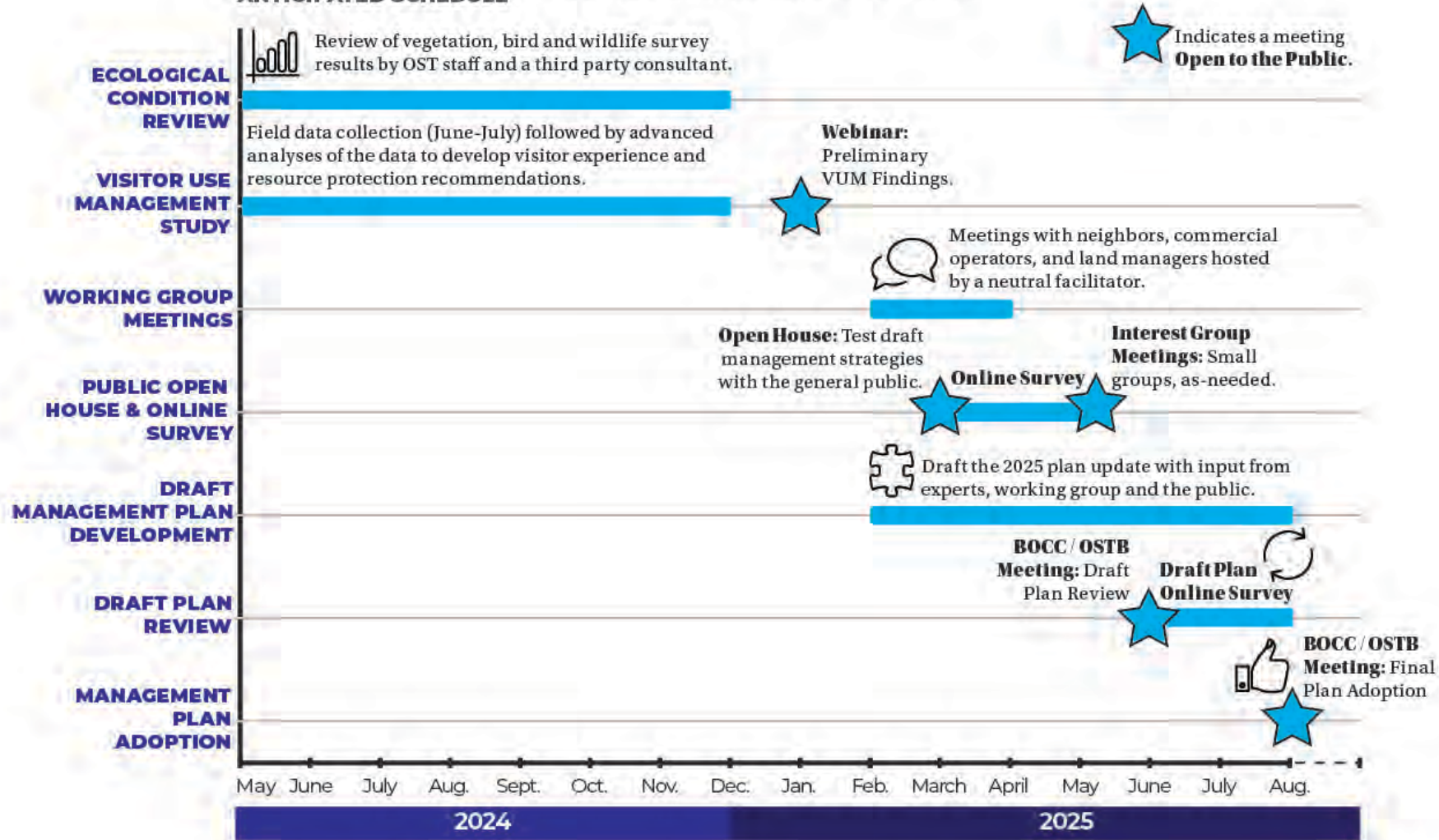


**NORTH STAR NATURE PRESERVE 2025 MANAGEMENT PLAN UPDATE
ANTICIPATED SCHEDULE**



Review Boards and Partner Organizations:

- White River National Forest
- Aspen Valley Land Trust
- City of Aspen
- Aspen Center for Environmental Studies
- Colorado Parks and Wildlife
- Colorado Department of Transportation
- Watershed Biodiversity Initiative
- Aspen Snowmass Nordic Council
- Roaring Fork Conservancy
- Healthy Rivers and Streams Board
- Aspen Chamber Resort Association
- East of Aspen Caucus

Management Plan Inputs

Laws / Policies
Conservation
Easement
Requirements

Previous
Management
Plan Actions and
Regulations

Ecological
Monitoring Data
and Reports
(+ Chris Monz
Ecological
Review)

2024 Visitor Use
Study (DJ&A)

Other Available
Data and Best
Practices

Public Survey
Data / Input on
Draft Plan

Partner and
Working Group
Input

Facilitated
Focus Group
Meetings

Working
Group

Public
Survey /
Meeting

Working
Group

Draft Plan

OSTB/BOCC
and other
Board
Review

Public Input
on Draft Plan

2025
Management
Plan
BOCC / OSTB
Adoption

Land Managers

OST, City of Aspen, USFS, CPW, CDOT

Commercial Operators (2)

Partner Organizations

AVLT, Watershed Biodiversity Initiative, ACRA

Public Users (2-3)

East of Aspen Caucus Representatives / Neighbors /
Wildwood School (2-3)

OST Board Liaison

Health Rivers and Streams Board

Partners:

City of Aspen, AVLT, WBI, ACRA, RFC, ACES

East of Aspen Caucus



North Star Nature Preserve Visitor Use Management Project

*Pitkin County Open Space & Trails Public Webinar
January 2025*



Presentation objectives

Provide an overview of the North Star Visitor Use Management Project context, purpose, and components.

Present and discuss 2024 onsite visitor use management study methods and results.

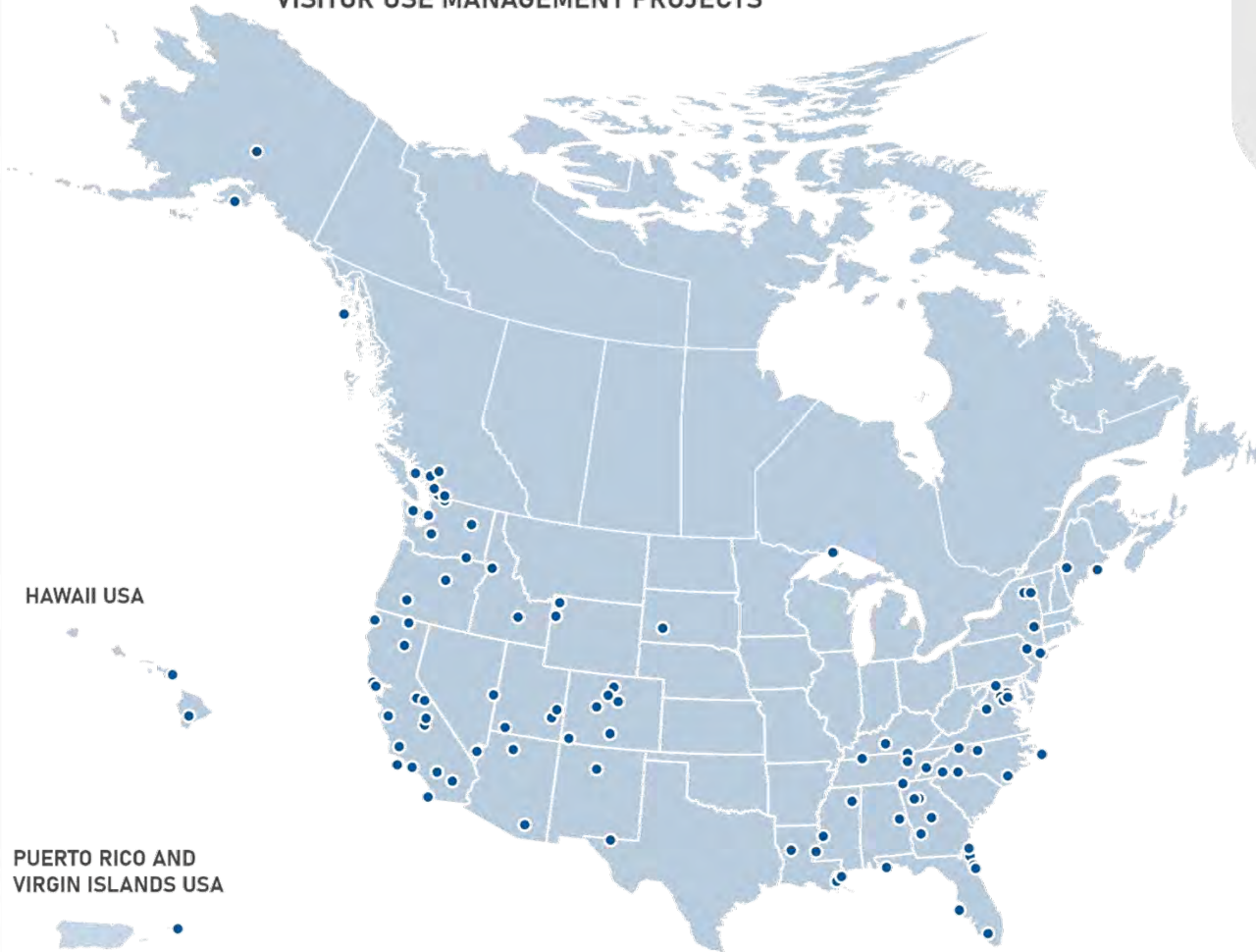
Present preliminary findings of ecological monitoring peer review.

Review next steps and timing.



DJ&A team

VISITOR USE MANAGEMENT PROJECTS



Steve Lawson
Project Team Leader



Abbie Larkin
Transportation Planner/
Visitor Use Analyst



Annie Engen
Transportation Planner/
Visitor Use Analyst

Our areas of expertise

- Field-based recreation use & user capacity studies
- Visitor use management strategies & plans
- Visitor use monitoring plans & protocols
- Staff, stakeholder, & public engagement for VUM

North Star VUM Project team



Steve Lawson
Project Team Leader



Abbie Larkin
Transportation Planner/
Visitor Use Analyst



Annie Engen
Transportation Planner/
Visitor Use Analyst

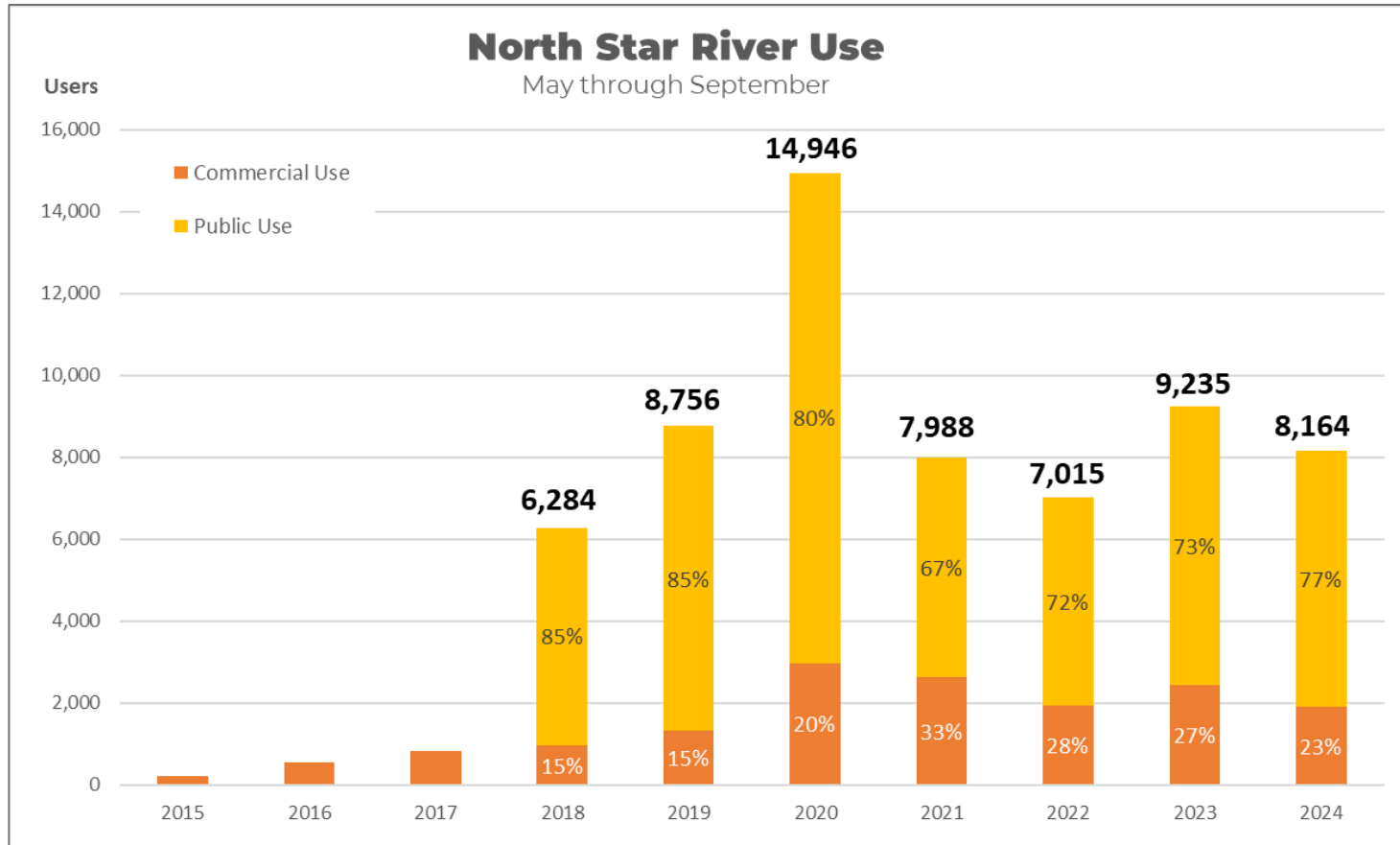


Chris Monz
Recreation Ecologist



Melissa Bade
Community Engagement
Specialist

Project context: Visitation trends



- Nearly 50% increase in annual river use since 2018.
- Doubling of commercial use since 2018.
- A function of several factors, including weather and water flows.

Project context: Potential river use impacts



Questions/concerns about potential impacts to...

- Ecological conditions and visitors' experiences in the Preserve.
- Traffic and parking conditions within and surrounding the Preserve.

Project purpose

The purpose of the North Star VUM Project is to provide a data-driven basis and inclusive process to:

1) Assess current recreational river use conditions and potential impacts;

2) Help OST evaluate and develop visitor use management components for the 2025 North Star Nature Preserve Management Plan.

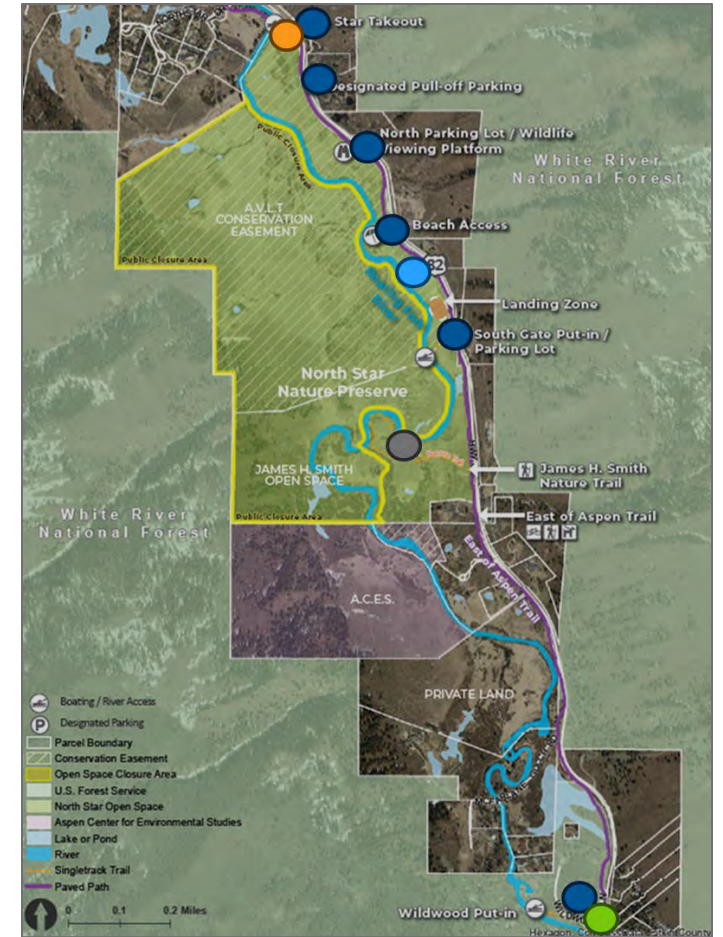
Project components

- Onsite study of recreational river use and users.
- Visitor use management analysis and recommendations.
- Peer review of ecological data and monitoring methods.
- In-person public meeting (& web survey).
- In-person Working Group meetings.



Onsite study (June 22 - July 28, 2024)

- Survey of recreational river users
 - Personal, group, and trip characteristics
 - Crowding perceptions and tolerances
 - Attitudes about management options
- Vehicle traffic and parking counts
- River use volumes & crowding counts



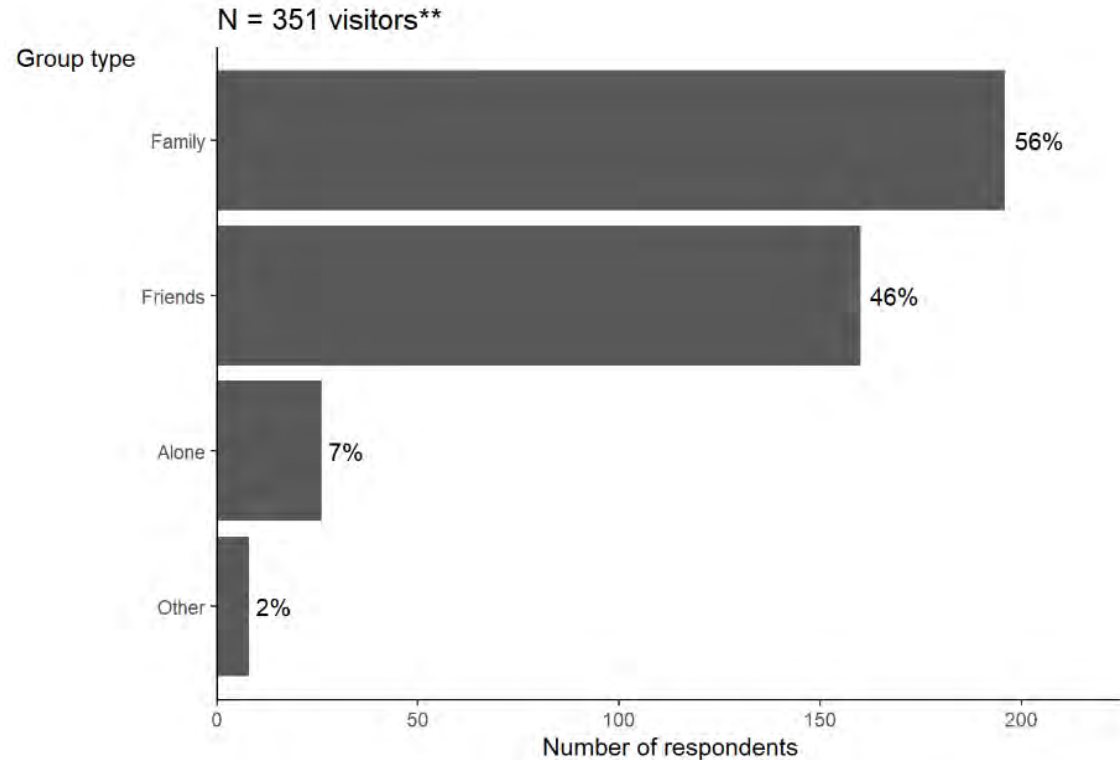
- Survey
- Vehicle traffic counter
- Parking counts
- River use volume counts
- Crowding counts

Crowding counts - People-per-viewscape (PPV)



- “Indicator” of crowding.
- We measured current PPV conditions.
- We surveyed visitors’ about PPV tolerances.
- Precedent in highest-stakes VUM.

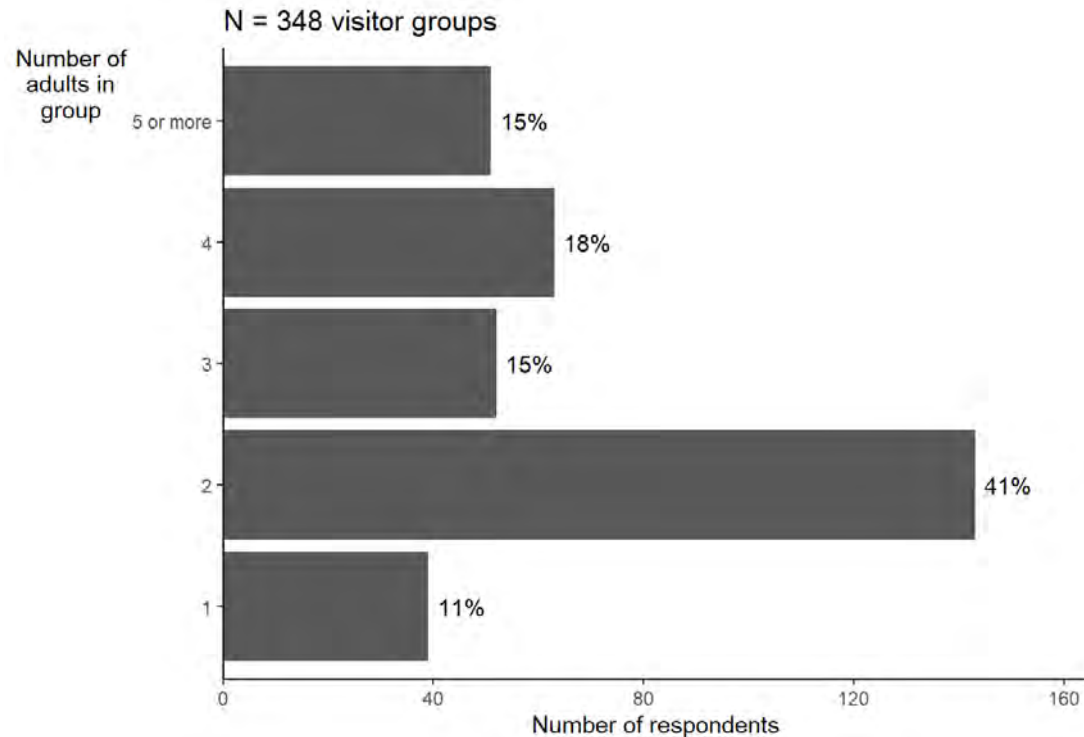
Survey results – group types



- A majority (56%) of respondents floated the river with family.
- Nearly half (46%) floated the river with friends.
- Few floated the river alone (7%), or in other types of groups (2%).

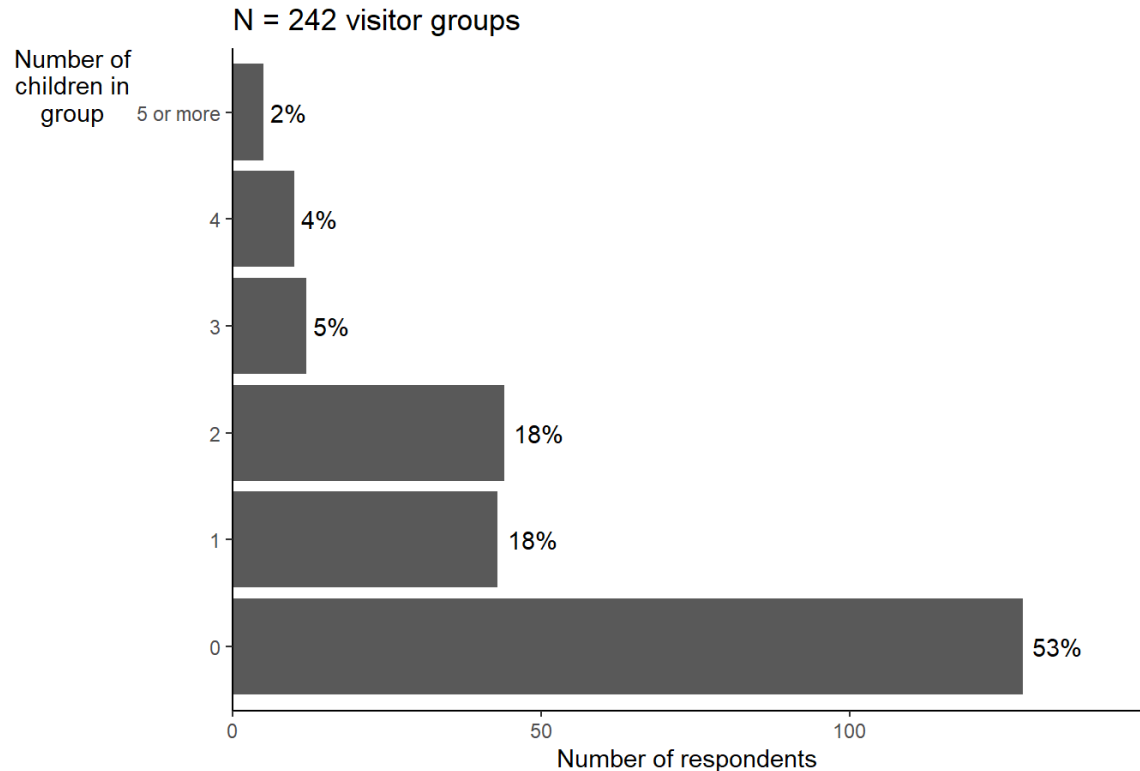
** Percentages may not sum to 100% because river users could select more than one answer

Survey results – number of adults in group



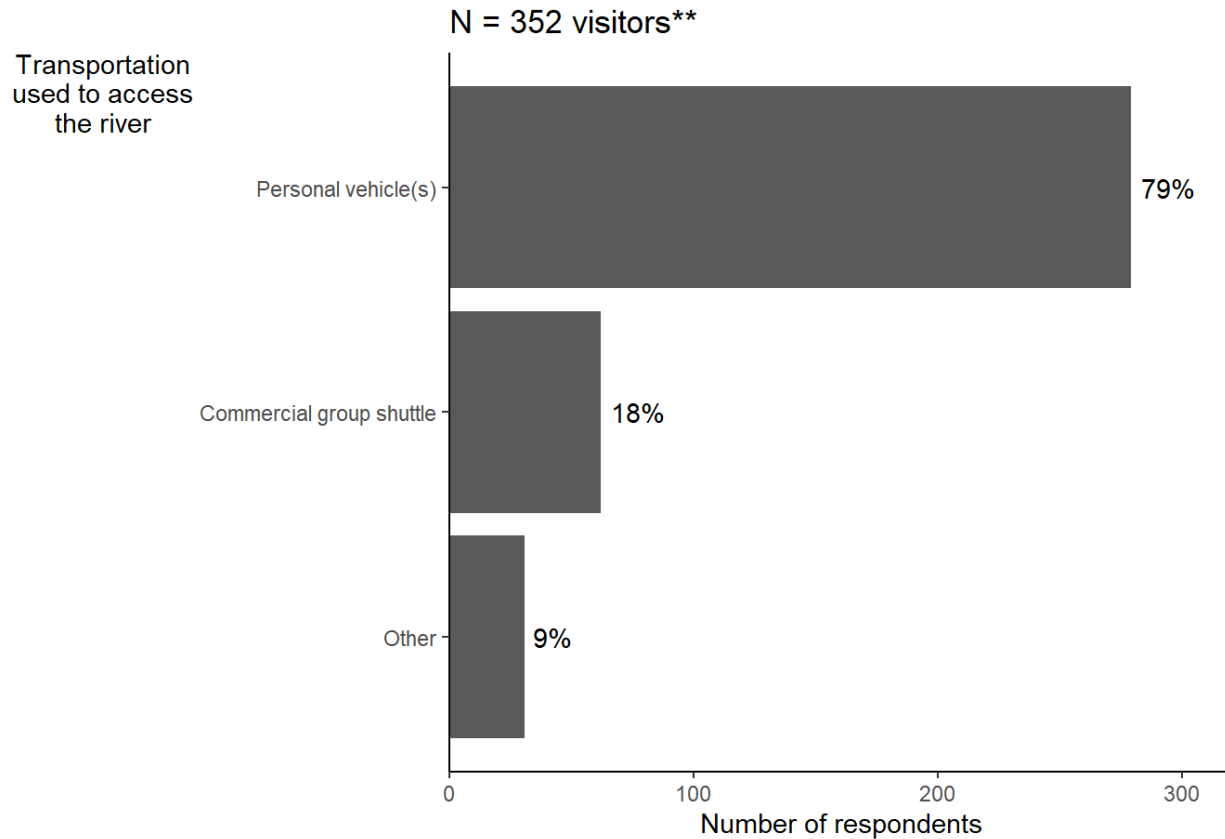
- A majority (56%) floated the river in groups with 2 or 3 adults.
- About one-in-five (18%) floated the river in groups with 4 adults.
- Smaller shares floated the river alone (11%) or with groups of 5 or more adults (15%).

Survey results – number of children in group



- About half of groups (47%) included children (under 18 years), and about half (53%) did not.

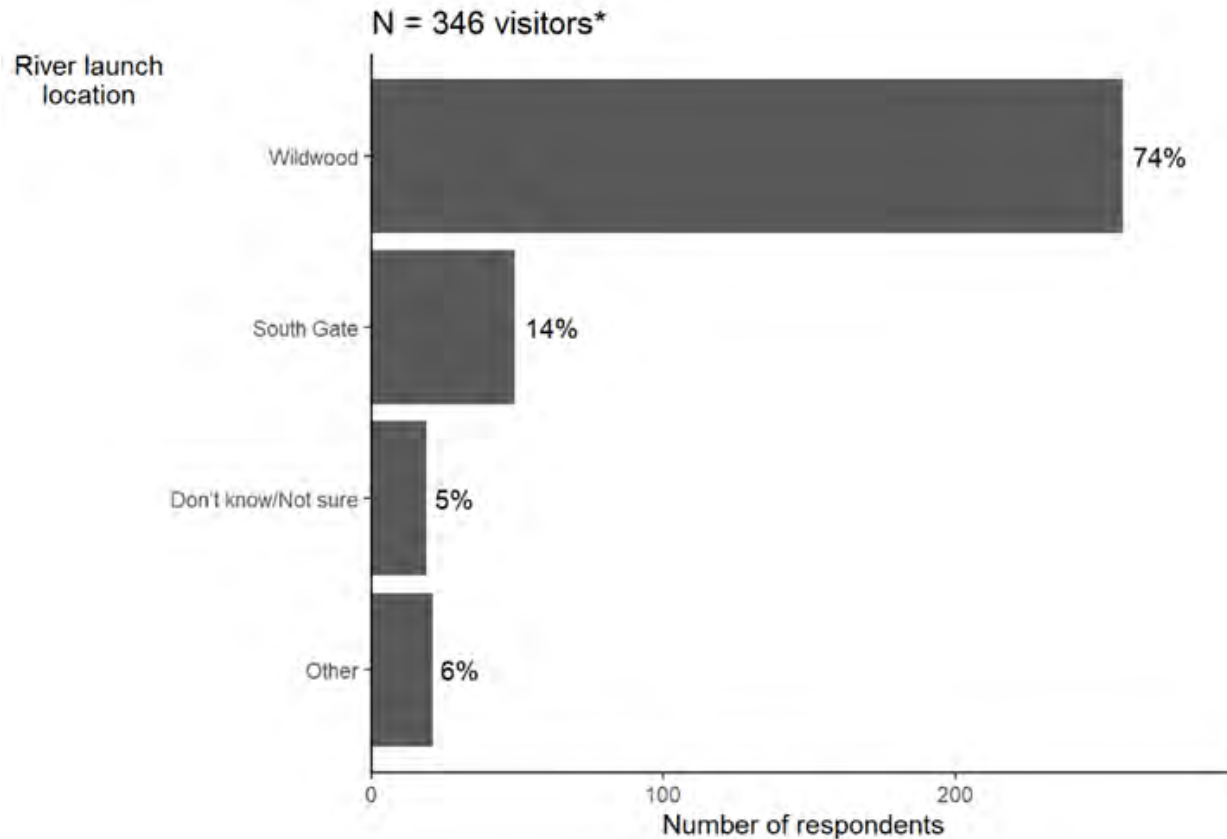
Survey results – mode of access to the river



- A majority (79%) used their personal vehicles to access the river.
- About one-in-five groups (18%) used a commercial shuttle to access the river.
- Few (9%) used other modes.

** Percentages may not sum to 100% because river users could select more than one answer

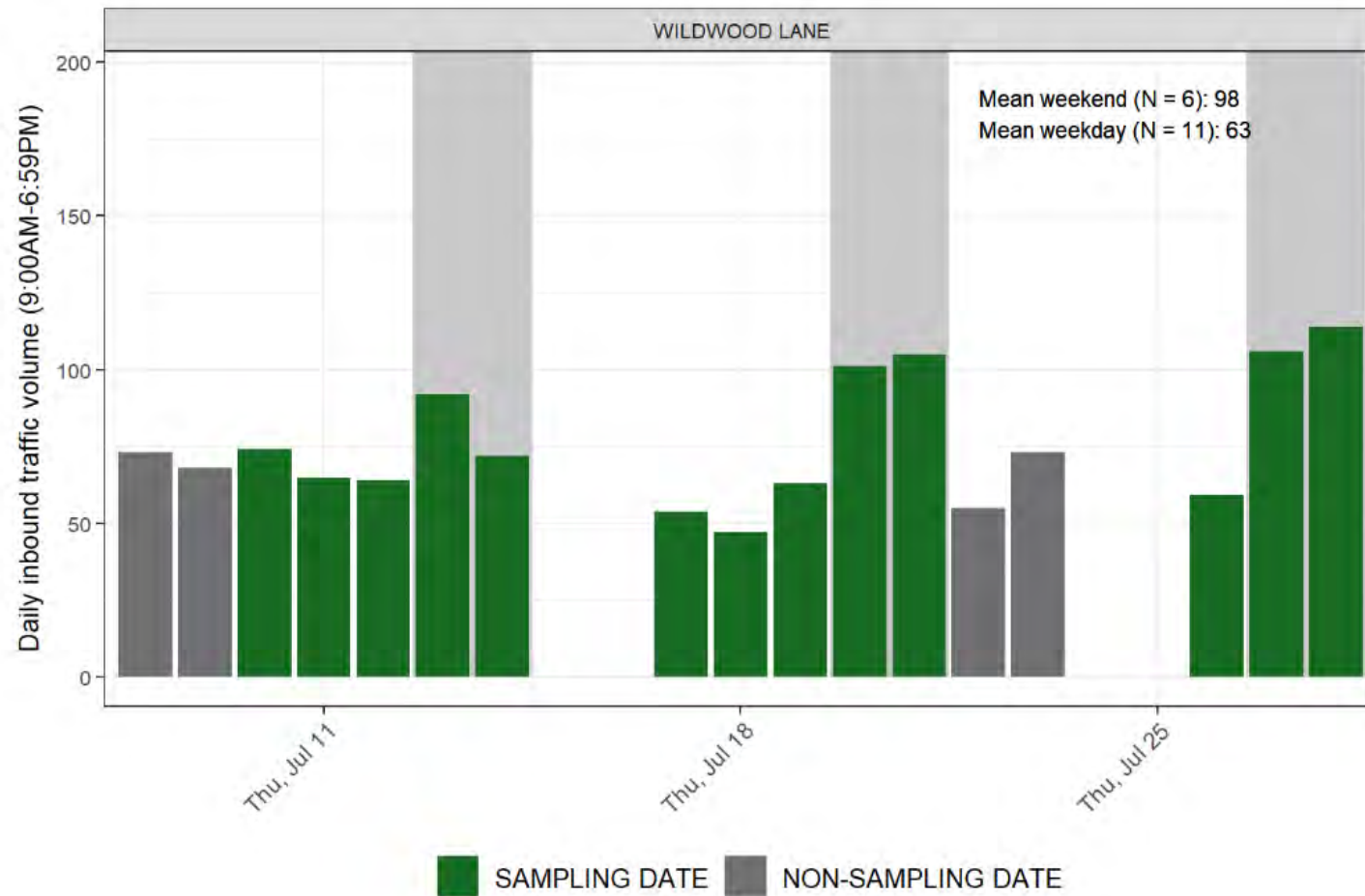
Survey results – river launch location



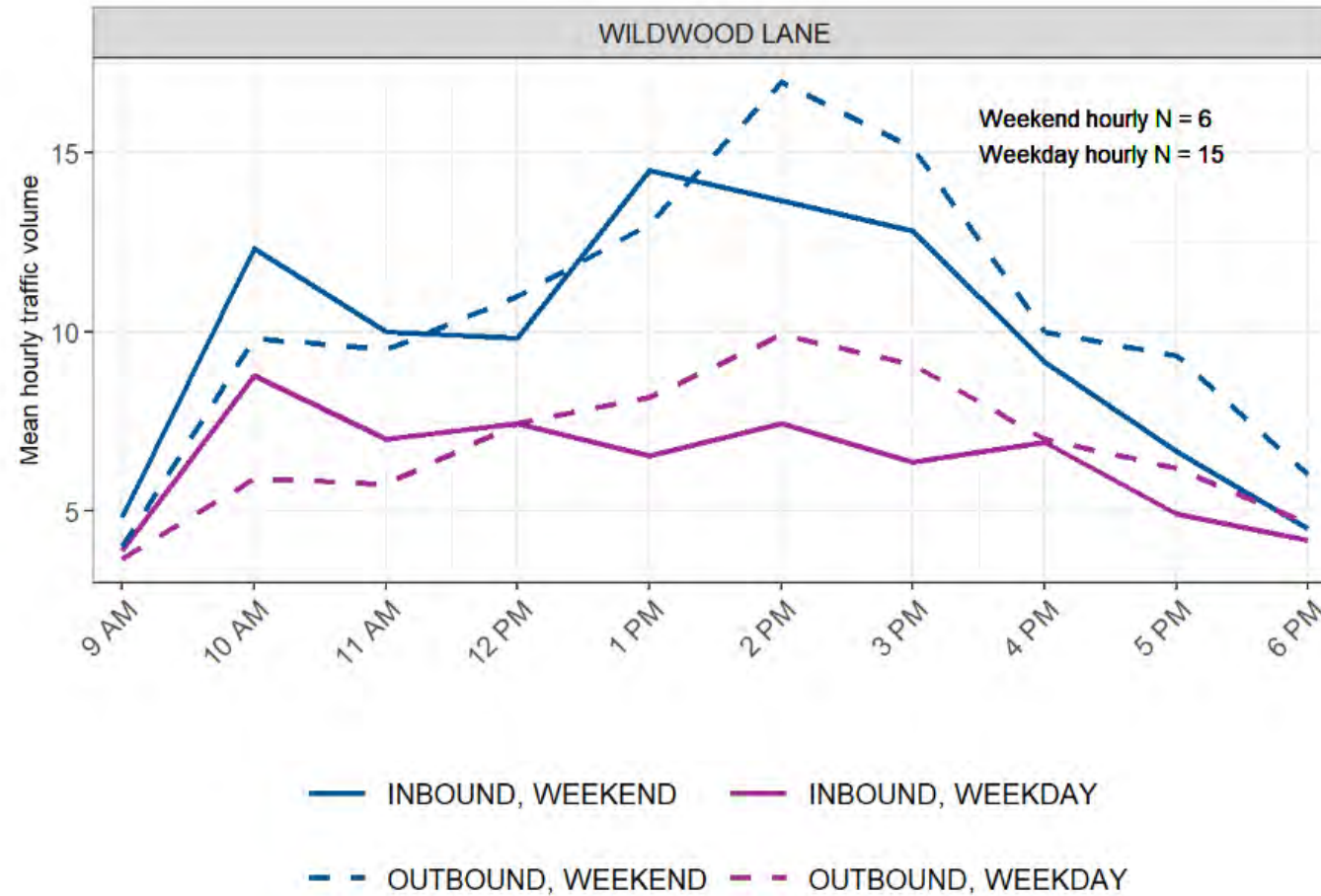
- A majority (74%) launched at Wildwood.
- Far fewer (14%) launched at South Gate, or other locations (6%).
- A few (5%) were not sure where they launched.

* Percentages may not sum to 100% due to rounding

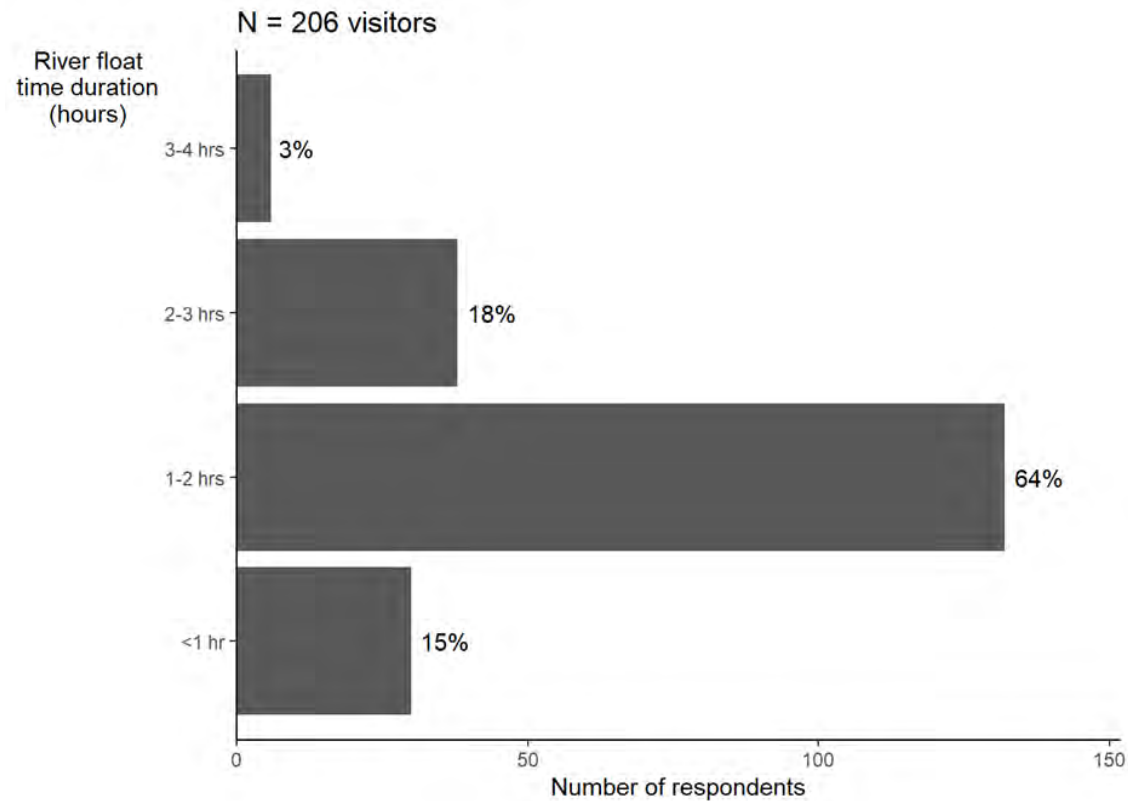
Daily inbound traffic - Wildwood Lane



Mean hourly traffic - Wildwood Lane

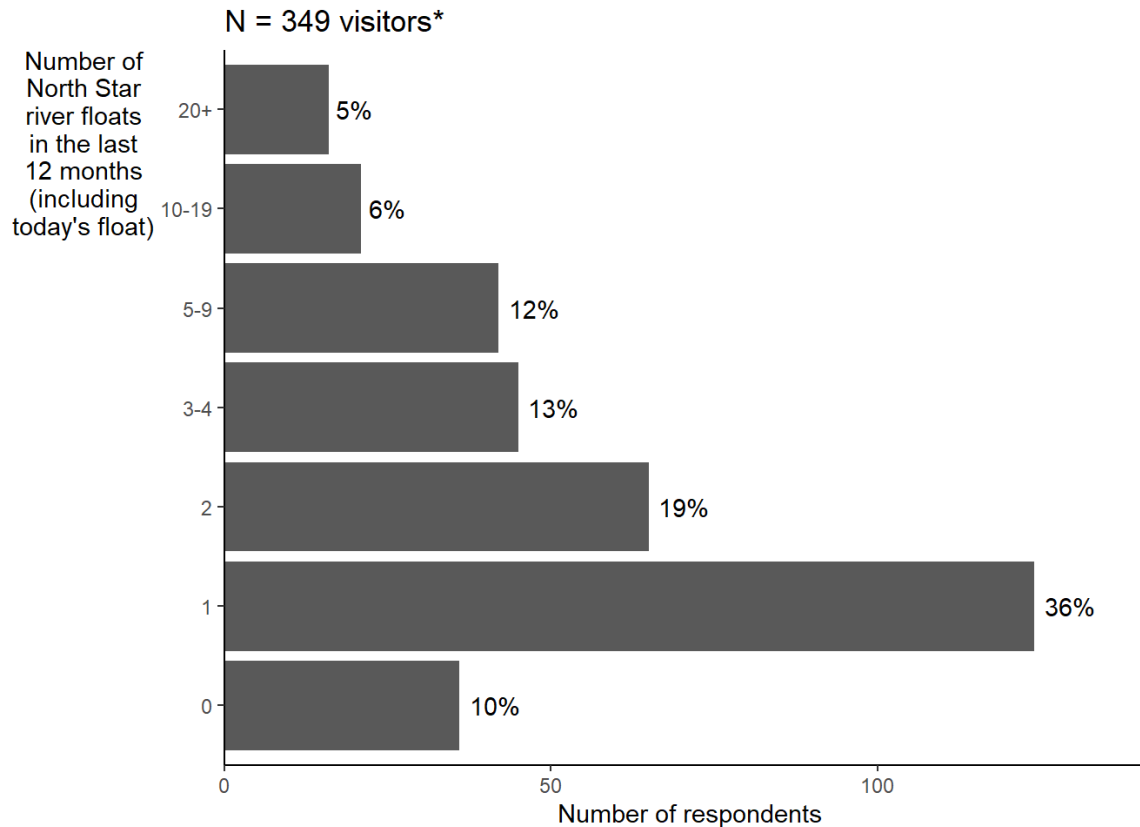


Survey results – river float duration



- About two-thirds (64%) floated the river for 1-2 hours.
- About one-in-five (21%) floated the river for 2-4 hours.
- The average float duration was about 1.5 hours.

Survey results – river floats in last 12 mos.



- About two-thirds (65%) were first-time or infrequent river users.
- About one-third (31%) were moderately regular or regular river users.
- Relatively few (5%) were “super users.”

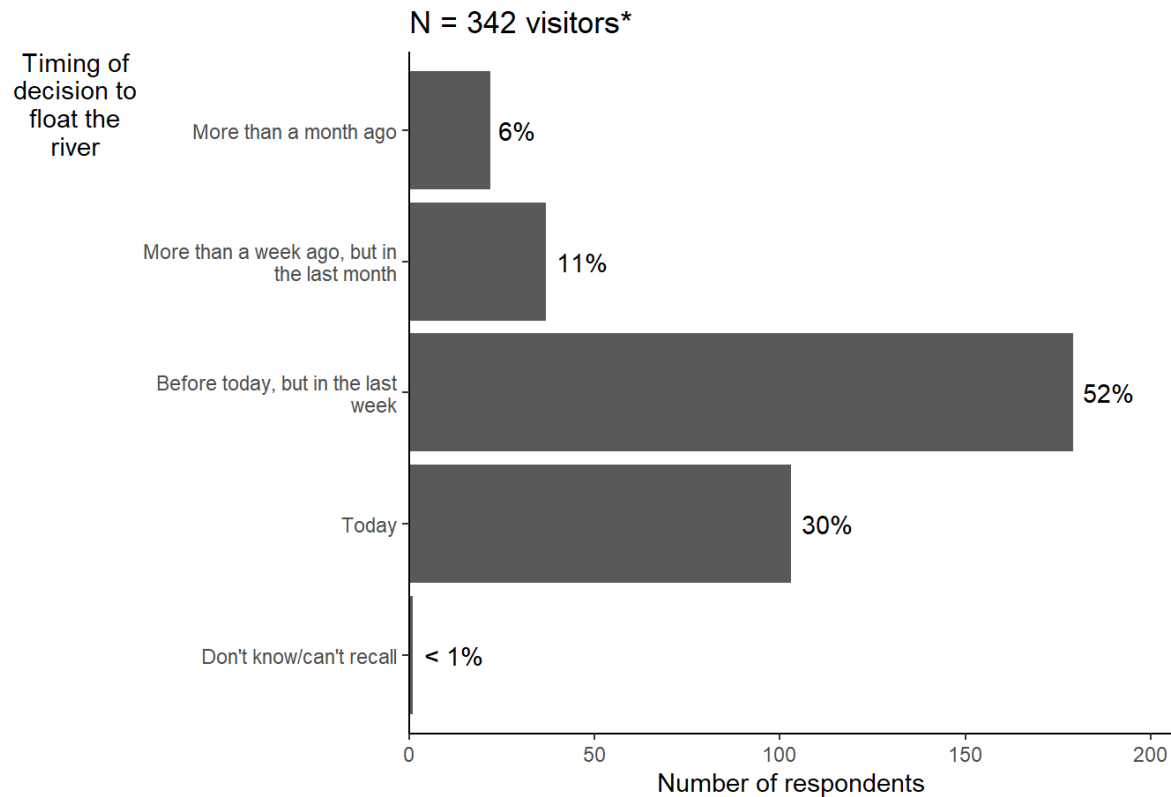
* Percentages may not sum to 100% due to rounding

Survey results – reasons for floating the river

I Felt Crowded Today...	Extremely/ Very Important
To enjoy natural scenery	98%
To do something I enjoy with friends and/or family	96%
To immerse myself in the river environment	84%
To explore a new area	52%
To get physical exercise	29%

- The most important reasons for floating the river, by far, were:
 - Enjoying natural scenery
 - Enjoying time with friends/family
 - Immersing in the river environment

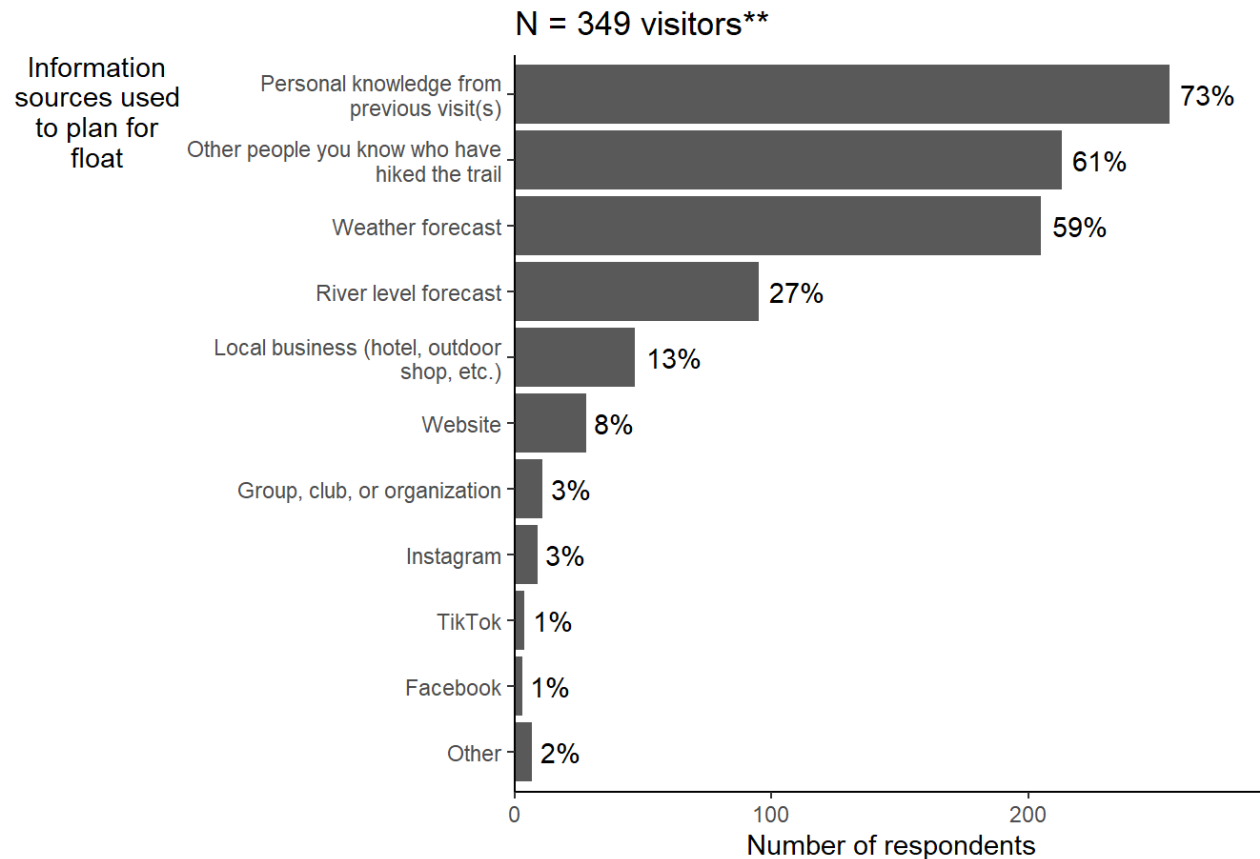
Survey results – river trip planning



- About half (52%) decided to float the river within a week of their float.
- About one-third (30%) decided on the same day of their float.
- About one-in-five (17%) decided a month or more in advance of their float.

* Percentages may not sum to 100% due to rounding

Survey results – sources of information



- Most (97%) felt they had the information they needed to plan their float from:
 - Personal knowledge (73%)
 - Other people they know (61%)
 - Weather forecast (59%)
 - River level forecast (27%)
- Relatively few (13% or fewer) used the other information sources listed.

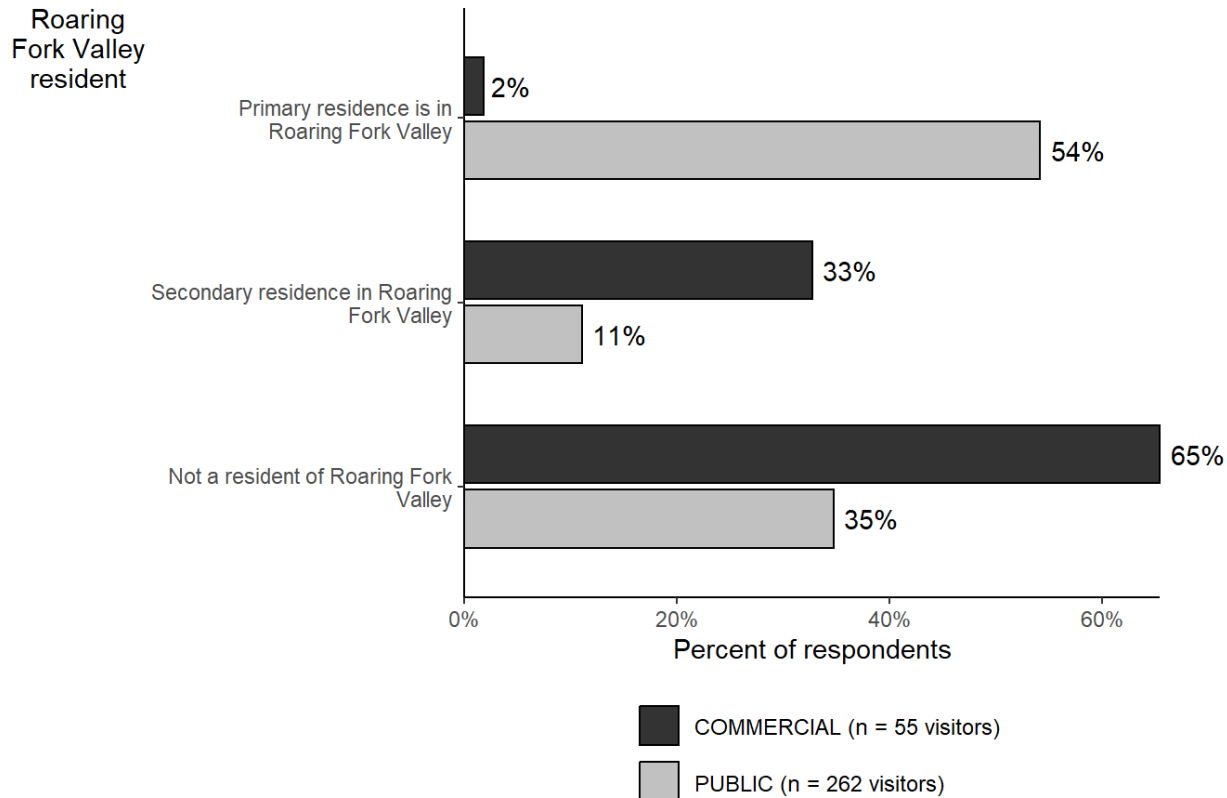
** Percentages may not sum to 100% because river users could select more than one answer

Survey results - demographics



- Most respondents:
 - Are US residents (99%).
 - Self-identified as White or Caucasian (87%).
 - Are 49 years of age or younger (78%).
 - Residents of Colorado (64%).
 - Have an annual household income of \$100,000 or more (56%).

Survey results – resident of RFV



- Public river users were more likely than commercial users to have a primary or secondary residence in RFV (65% vs. 35%).
- The majority of public users (54%) were primary residences of RFV.
- Commercial users were more likely than public users to have a secondary residence in RFV (33% vs. 11%).

Survey results – perceptions of crowding

I Felt Crowded Today...	Weekend/ Holiday	Weekday
Parking and/or unloading in the parking lot	24%	18%
At the put-in while launching onto the river	14%	13%
While floating on the river	13%	3%
At the takeout where I finished floating the river	21%	13%

- River users were more likely to feel crowded on weekends/holidays than on weekdays.
- On weekends/holidays, about one-quarter or more (24%+) felt crowded at some point during their float trip.
- Crowding was more common unloading and taking out than while launching or floating on the river.

Survey results – PPV crowding tolerances

Would you feel crowded if you saw the number of people depicted in the photo?



Survey results – PPV crowding tolerances

Would you feel crowded if you saw the number of people depicted in the photo?



Survey results – PPV crowding tolerances

Would you feel crowded if you saw the number of people depicted in the photo?



Survey results – PPV crowding tolerances

Would you feel crowded if you saw the number of people depicted in the photo?

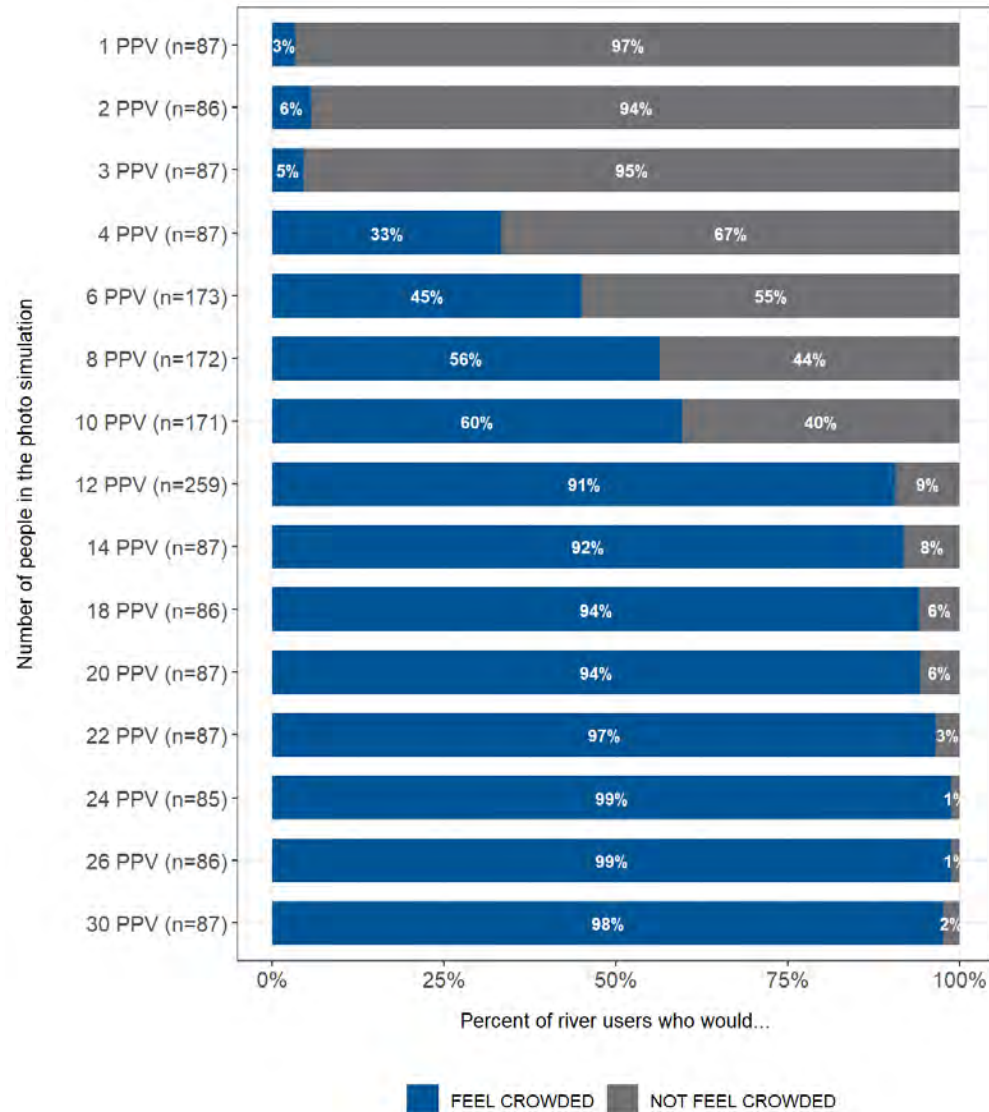


Survey results – PPV crowding tolerances

Would you feel crowded if you saw the number of people depicted in the photo?

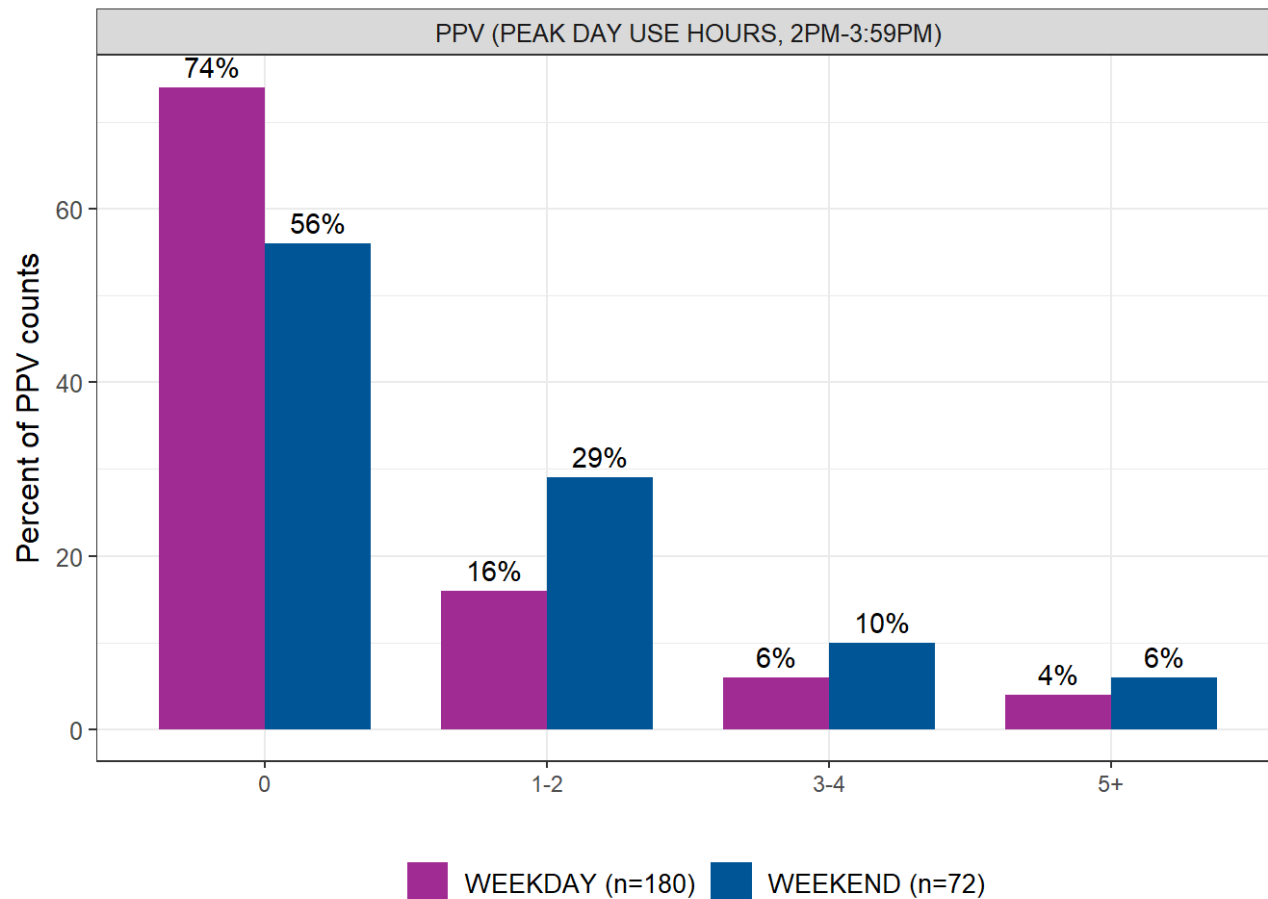


Survey results – PPV crowding tolerances



6 PPV

Crowding (PPV) counts – “Peak Hours”



- The majority of counts on weekends and weekdays were of 0 PPV.
- About one-third (29%) of weekend counts were of 1-2 PPV.
- There were 3-4 PPV in 10% of counts on weekends, and 5 or more in 6% of weekend counts.

Hypothetical crowding (PPV) thresholds

Hypothetical Threshold	Peak Day Use Hours (2:00 p.m. – 3:59 p.m.)	
	% Exceeded on Weekend/Holidays (N=72)	% Exceeded on Weekdays (N=180)
2 PPV (~6% would feel crowded)	15%	9%
4 PPV (~33% would feel crowded)	6%	4%
6 PPV (~45% would feel crowded)	3%	1%



2 PPV

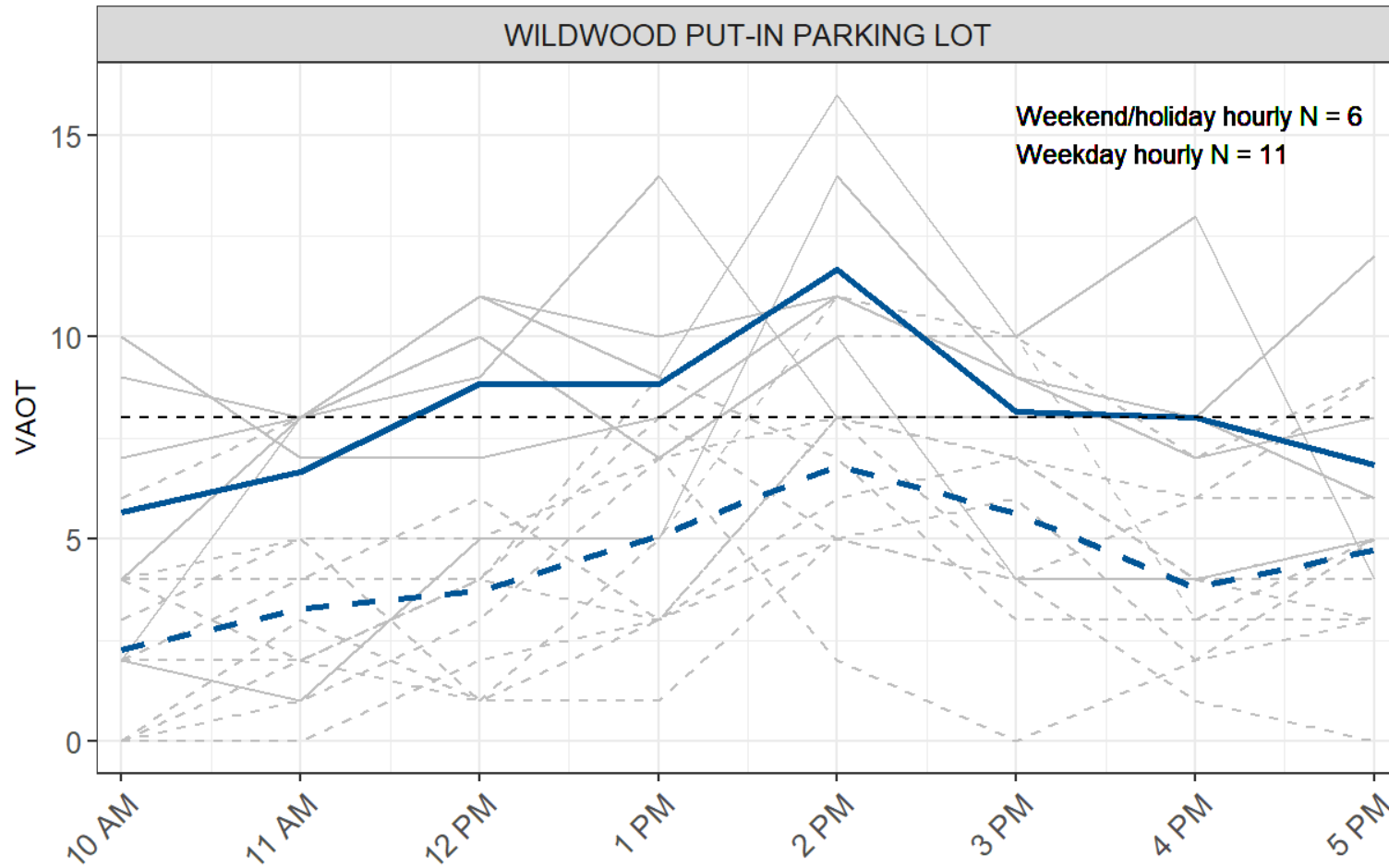


4 PPV



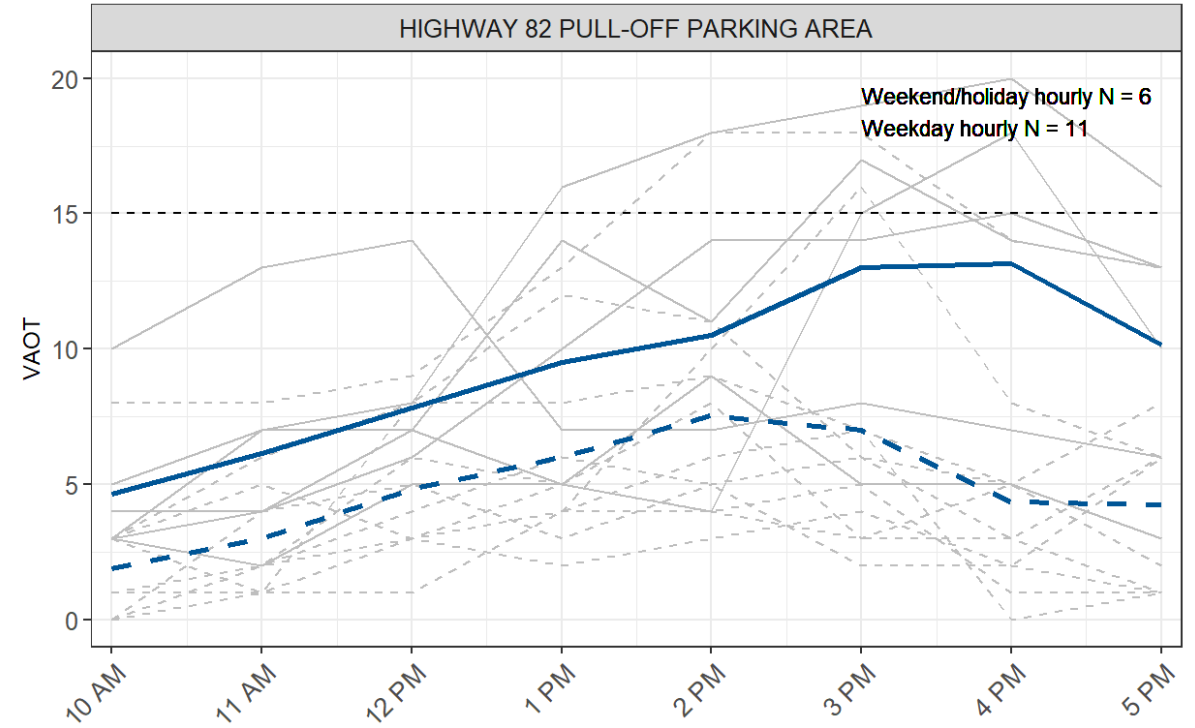
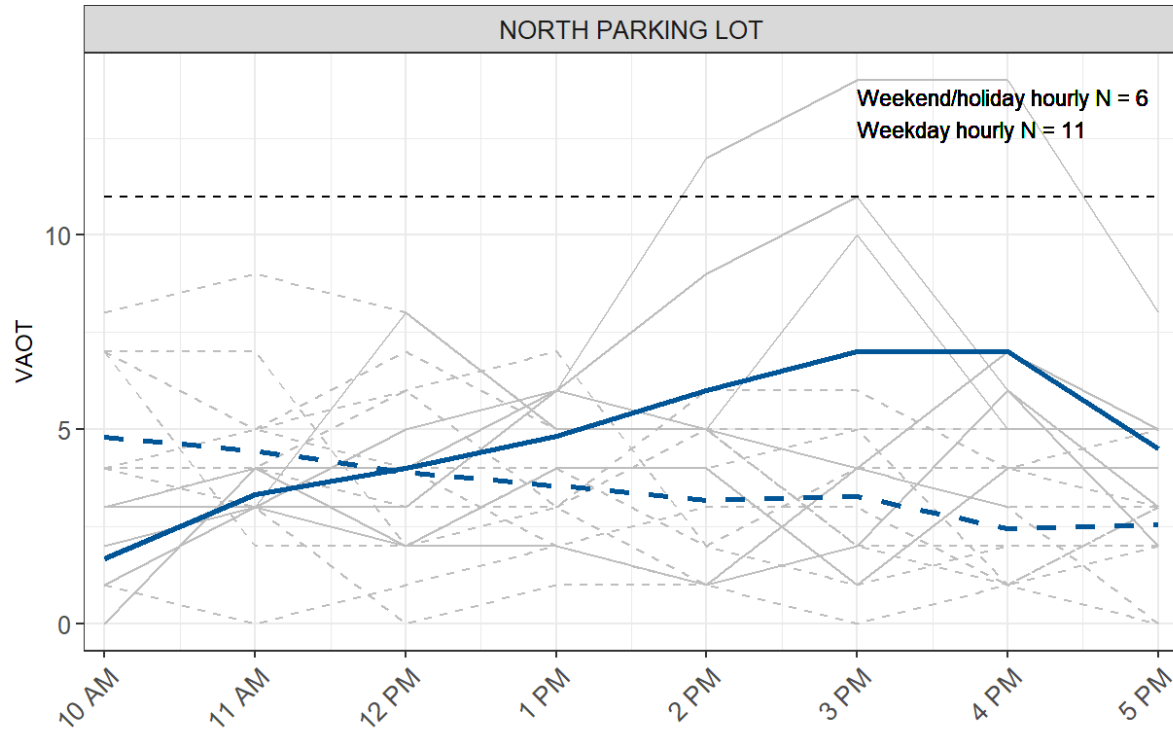
6 PPV

Parking counts – Wildwood put-in



- STRIPED PARKING LOT CAPACITY
- WEEKEND/HOLIDAY (MEAN)
- - - WEEKDAY (MEAN)
- WEEKEND/HOLIDAY (OBSERVED)
- - - WEEKDAY (OBSERVED)

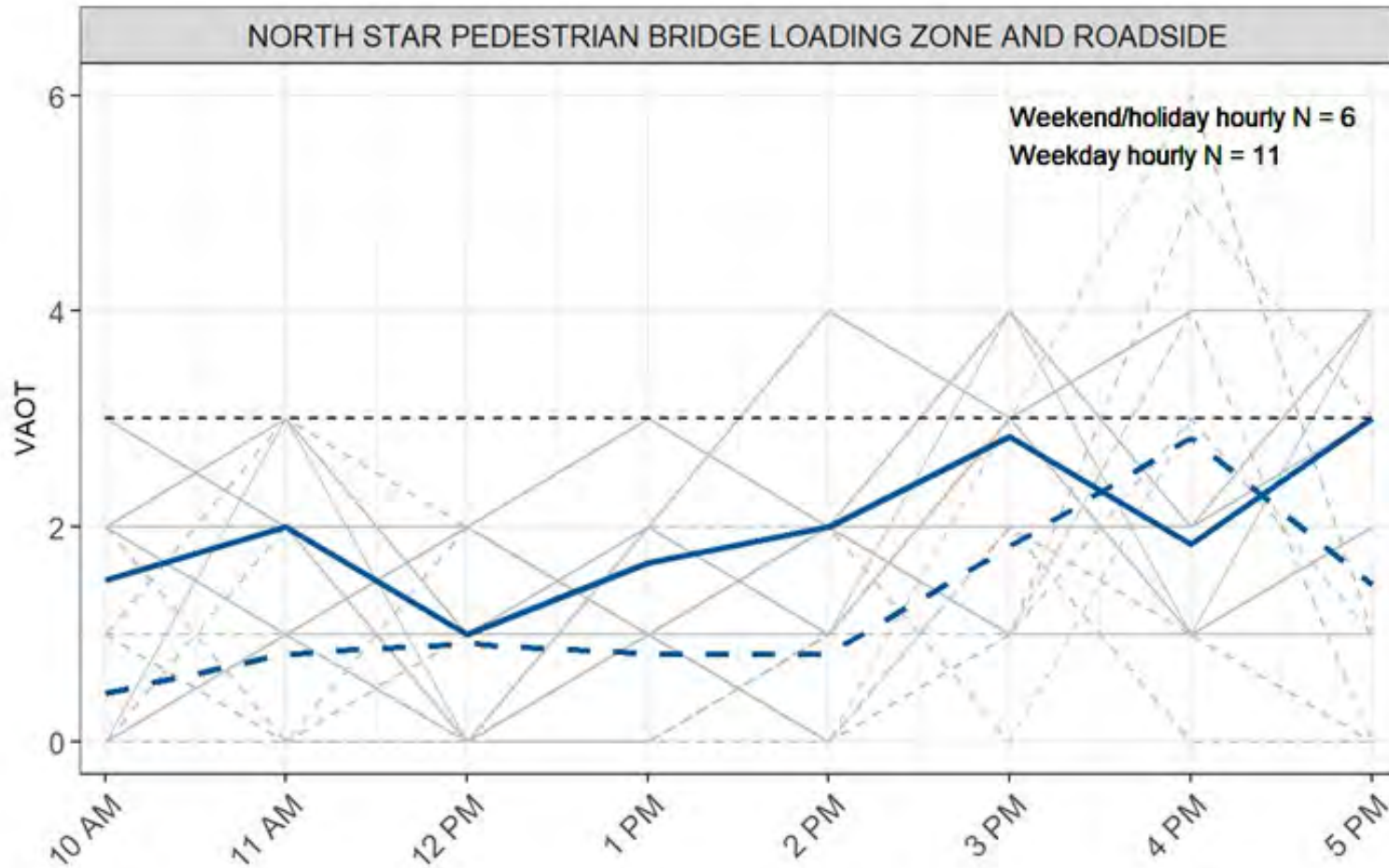
Parking counts – Takeout parking locations



- STRIPED PARKING LOT CAPACITY
- WEEKEND/HOLIDAY (MEAN)
- - - - WEEKDAY (MEAN)
- WEEKEND/HOLIDAY (OBSERVED)
- - - - WEEKDAY (OBSERVED)



Parking counts – Pedestrian bridge



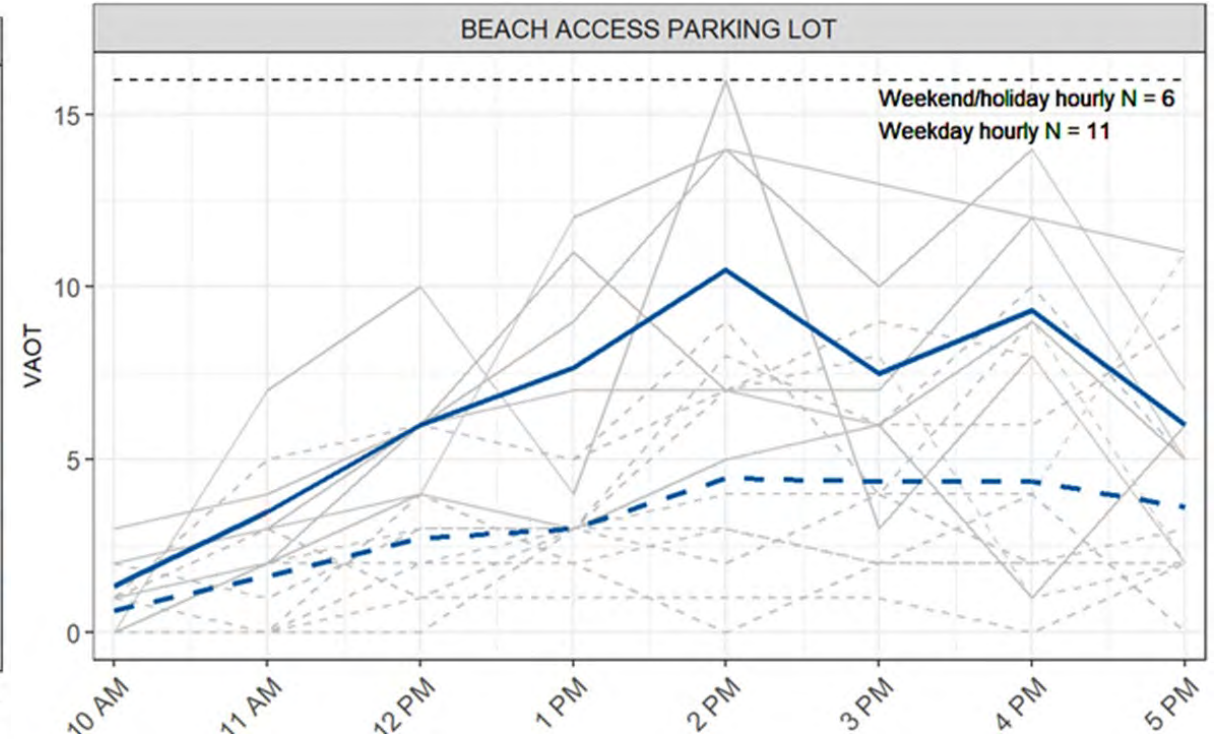
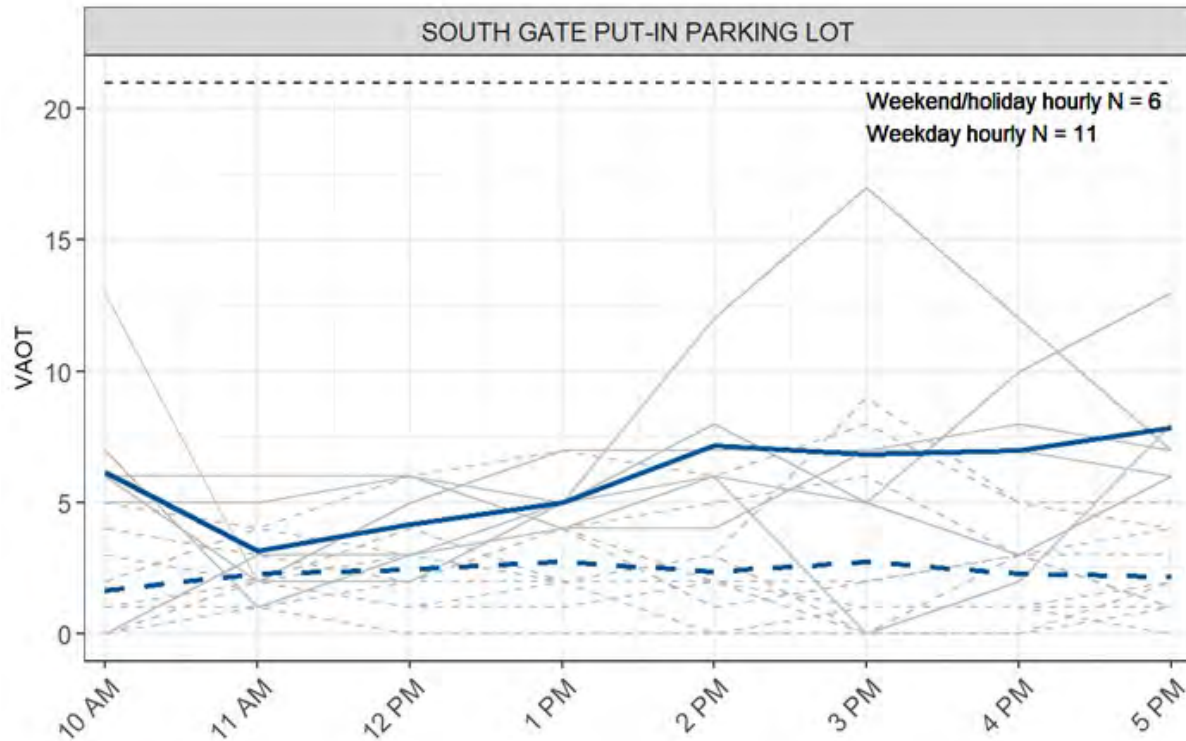
- STRIPED PARKING LOT CAPACITY
- WEEKEND/HOLIDAY (MEAN)
- - - WEEKDAY (MEAN)
- WEEKEND/HOLIDAY (OBSERVED)
- - - WEEKDAY (OBSERVED)

Parking conditions - 2019



*North Star pedestrian bridge / river access - has as many as 30-40 vehicles at peak times during the summer.
There is no designated parking provided (2019).*

Parking counts – South Gate and Beach Access



- STRIPED PARKING LOT CAPACITY
- WEEKEND/HOLIDAY (MEAN)
- - - - WEEKDAY (MEAN)
- WEEKEND/HOLIDAY (OBSERVED)
- - - - WEEKDAY (OBSERVED)

Survey results - *current* visitor use management

Current Visitor Use Management Strategy	Support
Managing the size of commercial groups who float the river	84%
Managing the number of commercial group arrivals who float the river per hour	83%
Providing mandatory low impact education to all commercial groups before they float the river	71%
Managing use through limited availability of parking	54%

- The majority of river users sampled support *current* visitor use management strategies.

Survey results - *potential* visitor use management

Potential Visitor Use Management Strategy	Support
Manage the size of personal groups/individuals who float the river	45%
Provide mandatory low impact education to personal groups/individuals before they float the river	46%
A permit system to manage the number of people allowed to float the river per hour	30%
Close the nature preserve to floating use during the morning and evening for the benefit of wildlife	23%
Allow access to float the river only by commercial operator or alternative transportation (shuttle/walk/bike)	13%
Close the nature preserve to all floating use for the benefit of wildlife	8%

Support is less forthcoming for potential future visitor use management strategies, than for current strategies.

Key visitor use management findings

- Perceptions of crowding are more common on weekends/holidays than on weekdays.
- Perceptions of crowding are more common unloading and taking out than on the river itself.
- Crowding is likely understated due to non-response from those who felt crowded.
- Most visitors would feel crowded with more than 4 PPV while floating.



Key visitor use management findings

- Support is less forthcoming for potential future visitor use management strategies than for current strategies.
- There is more support for managing the size rather than number of groups.
- Strategies may differ to address crowding while loading/unloading and crowding on the river itself.
- Managing total numbers alone may not address crowding on the river.





Peer-Review of Ecological Monitoring Process and Protocols

Context:

- 30-year history monitoring projects with Federal Agencies for land management
- Most effective as part of adaptive management
- Key elements:
 - Desired conditions
 - Specific indicators;
 - Protocols with QA/QC
 - Integration into indicator-based adaptive management process

North Star Nature Preserve Management Plan

June 2020 (Adopted 6.24.2020)



Key Findings: Desired Future Conditions

- *“The overarching management objective at North Star Nature Preserve is to allow natural processes to occur and to support ecological resilience.”*
- *“OST seeks to support native plant communities and natural processes...to protract the ecological integrity of the property.”*
- Aspirational statements that provide overall guidance for management.



Key Findings: Indicators and Protocols

- Over 25-year history
- 17 current protocols developed with expert ecologists
- Clear and specific monitoring intervals
- Key indicators of
 - Hydrologic and geomorphic processes
 - Plant species presence and distribution (including invasives)
 - Wide range of wildlife including small mammals, megafauna, and birds
- A robust and comprehensive program of ecological assessment

Table 1. A summary of ecological monitoring on the NorthStar Preserve

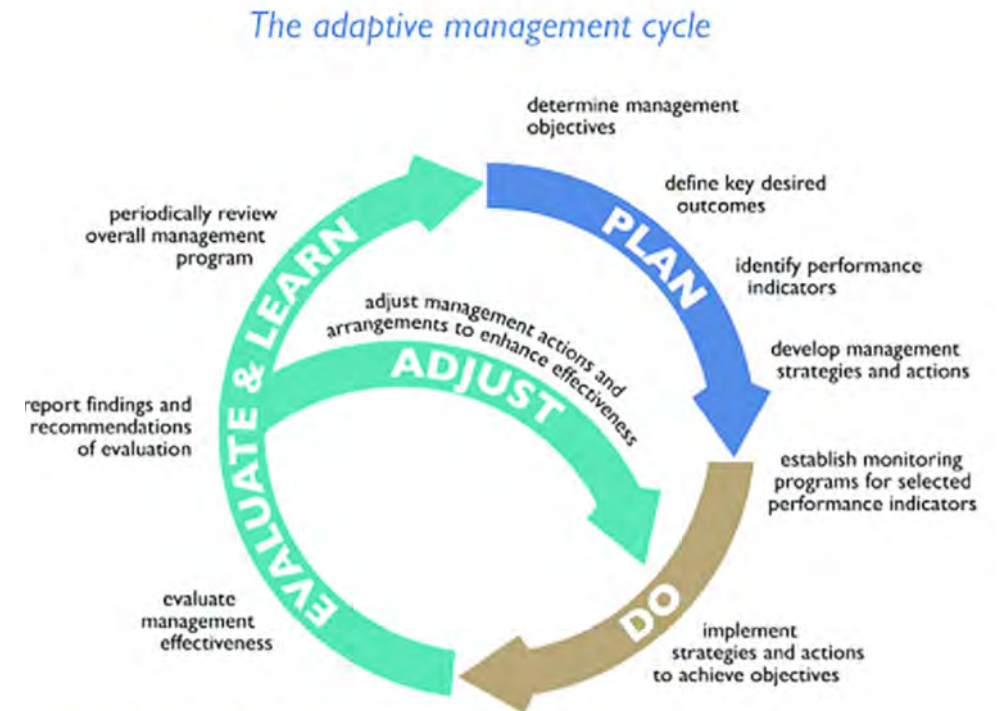
Protocol Type	Monitoring Interval and Most Recent	Spatial Extent	Variables Measured	Most Recent Data (link)
<i>Point-Transect, for Songbirds</i>	Every 3 years. Completed 2020.	16 sampling points distributed evenly across the Entirety of North Star Nature Preserve	Species richness, species diversity, relative abundance, bird densities, sensitive species ratios	2024 North Star Nature Preserve Wildlife Monitoring Report: 2020-2021 Field Seasons
<i>Broadcast surveys, visual nest surveys and TVES, for Diurnal Raptors (Accipiter emphasis)</i>	Every 3-5 years. Completed 2014, 2017, 2021	Two 10-hectare focal areas (same as TVES above)	Presence and distribution of diurnal raptor species, nesting activity	2024 North Star Nature Preserve Wildlife Monitoring Report: 2020-2021 Field Seasons
<i>Broadcast and encounter Surveys, for Nocturnal Raptors (Owl emphasis)</i>	Every 3-5 years. Completed 2014, 2017, 2021	9 monitoring points along one 2,122m transect traversing the Preserve	Presence and distribution of owl and nocturnal bird species, nesting activity	2024 North Star Nature Preserve Wildlife Monitoring Report: 2020-2021 Field Seasons
<i>Great Blue Herons</i>	As Needed, completed 2018.	Entirety of North Star Nature Preserve, focused study only where nesting occurs	Heron Colony presence/size, nest productivity	2024 North Star Nature Preserve Wildlife Monitoring Report: 2020-2021 Field Seasons

Key Findings Adaptive Management

Example: Great Blue Heron

- Creation of a no-fly zone for paragliders in the air space within 200 meters of nests
- Creation of a quiet zone for river users near the heron nests
- Active protection of alternative nesting trees and heron habitat
- Closure of a walking trail that was located near existing heron nests

OST Adaptive Management (Jones 2009)



Source: DPIPWE 2014 after Jones 2005, 2009



Conclusions

- A robust and rigorous program of monitoring
- Future management plans should consider:
 - Clarifying DFC's, associated indicators
 - Developing triggers and thresholds of acceptability that initiate management actions
- Keep up the good work!

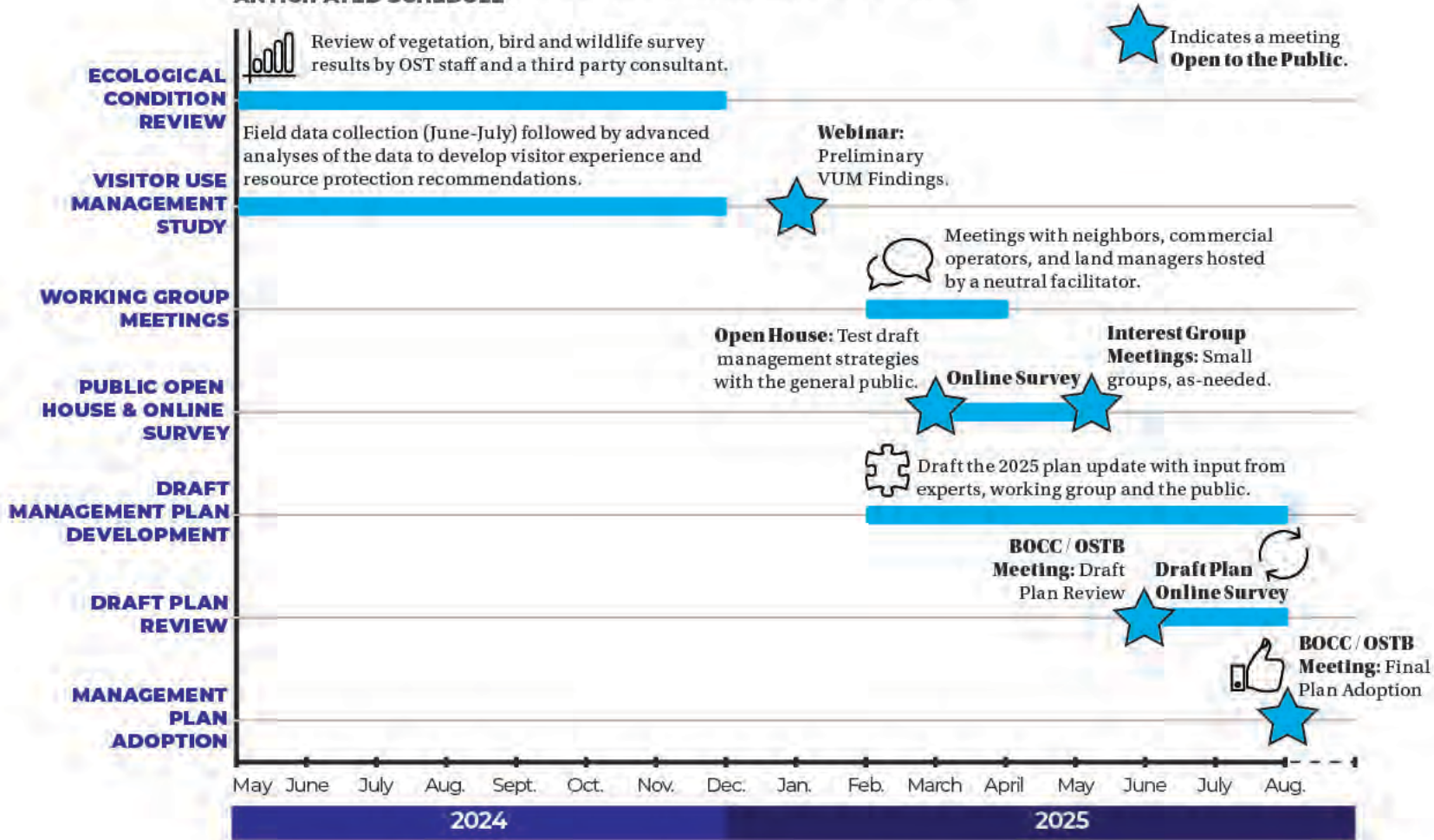
Questions and discussion



2024 field team

- OST seasonals
- ACES naturalists
- DJ&A intern

**NORTH STAR NATURE PRESERVE 2025 MANAGEMENT PLAN UPDATE
ANTICIPATED SCHEDULE**



Working Group Members

- Pitkin County Open Space and Trails
- City of Aspen
- USFS
- Aspen Valley Land Trust
- CDOT
- ACES
- Colorado Parks and Wildlife
- Watershed Biodiversity Initiative
- ACRA
- Wildwood School
- Neighbors/East of Aspen Caucus Representatives (2-3)
- Commercial Operator (2)
- Public Users (1-2)
- OST Board Liaison

Review Boards and Partner Organizations:

- | | | |
|--|---|------------------------------------|
| • White River National Forest | • Colorado Parks and Wildlife | • Roaring Fork Conservancy |
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