

Floater Use of the Big Springs National Recreation Water Trail

An assessment of use in relation to facility capacity and quality of experience

By:

Rob Van Kirk*

Kamberlee Allison

Caryn Dawson

Bella Fucigna

Matt Hively

Jamie Laatsch

Ashly Loibman

Natalie Pontikes

Ilinca Popescu

Amber Roseberry

Henry's Fork Foundation

P.O. Box 550

Ashton, ID 83420

208-652-3567

December 2, 2019

*Author to whom correspondence should be sent: rob@henrysfork.org

EXECUTIVE SUMMARY

The Big Springs Water Trail is located on the upper Henry's Fork, in the Caribou-Targhee National Forest (CTNF) and was designated as a National Recreation Trail in 1981. The Water Trail is known for its scenic beauty and unique hydrologic characteristics. To maintain the aesthetic qualities of recreational floating on the Water Trail, the original management plan set a capacity of 158 floaters on the trail at any one time, and the original parking lot was built to accommodate only 11-15 vehicles as a strategy to limit floater use. Forest Service monitoring in 2010 and 2012 showed that use greatly exceeded the original capacity on many days each summer. The upper Henry's Fork is also a popular angling destination, but long-time anglers, including members of fly fishing clubs that were established on the river in the early 20th century, have expressed increasing dissatisfaction with their fishing experience and with the number of floaters on the river. This study was motivated by increased use of the Water Trail and declining angler experience, as well as by other changes underway on the upper Henry's Fork, including construction of a large Marriott hotel on the site of the old Mack's Inn, expiration of the current Water Trail livery permit held by Mack's Inn, and need to replace and expand the 35-year old wastewater treatment system that serves the Mack's Inn area.

Study objectives were:

1. Quantify floater use of the Big Springs Water Trail.
2. Assess whether floater use is exceeding capacity of facilities.
3. Determine floater characteristics and satisfaction with experience.
4. Determine angler satisfaction with fishing experience on the upper Henry's Fork and attitudes regarding floater use.

We directly counted floater use of the Water Trail launch with a motion-sensor camera, and used sampling methods only as necessary to fill data gaps caused by camera malfunction. We counted all vehicles entering the launch area with a vehicle counter. We assessed use and condition of launch facilities with personal observations made at randomly selected times. Floater characteristics and recreational experience were determined from personal interviews conducted at the take-out area at randomly selected times. Angler satisfaction and attitudes were assessed with a survey instrument distributed on the river at randomly selected times and provided to members of the Flat Rock and North Fork clubs. The study was conducted from May 25, 2019 to September 2, 2019.

We estimated total use at 37,187 floaters with a margin of error of $\pm 1.2\%$. This represented a 5-fold increase in use since the early 1980s and resulted in frequent exceedance of the original Water Trail carrying capacity. During peak use periods, over 100 floaters per hour used the launch. Around 18% of all floaters used the Mack's Inn livery service, compared with commercial use estimated at around 39-46% in previous studies. Over the study period, 17,530 vehicles entered the launch area, and the capacity of the parking lot was exceeded around one-third of the time. As many as 100 vehicles were observed parked along the road outside of the

Water Trail launch area. However, we observed few negative effects of heavy use on condition of the launch facilities or on experience of floaters at the launch. As was the case in the late 1990s, over 90% of floaters interviewed were satisfied or very satisfied with all aspects of their recreational experience.

By contrast, only 58% of anglers surveyed rated their fishing experience as anything better than “fair,” compared with 83% in a similar survey conducted in 1998. Dissatisfaction with angling experience was greatest among anglers who had fished the upper Henry’s Fork for several decades. Relative to their expectations, anglers were significantly dissatisfied with size of fish caught, quality of fish habitat, and number of non-anglers they encountered on the river, the latter the strongest of these factors in terms of dissatisfaction. Angler satisfaction with number of fish caught, number of rising fish, number of other anglers, and aesthetic qualities was roughly equal to their expectations. When presented with various management options, anglers strongly favored a change to catch-and-release fishing regulations and limits on the number of floaters that can use the river. Despite this, there was no strong support for prohibiting floating during specific times of day or days of the week. Furthermore, level of dissatisfaction with the number of floaters was not a significant predictor of satisfaction with fishing experience, and neither quality of angling experience nor level of dissatisfaction with floaters differed between anglers who fished on the Water Trail section of the river upstream of Mack’s Inn Bridge and those who fished downstream of Mack’s Inn. We concluded that angling experience is determined by a combination of biological, physical, aesthetic, and sociological factors rather than by a single factor such as encounters with floaters.

Although we did not conduct a formal capacity analysis and did not consider ecological effects of recreational use, we determined that current use exceeds capacity of existing parking facilities at the launch and the original recreational carrying capacity determined for the Water Trail. However, neither of these exceedances appears to have a negative effect on floater experience. Current floater use is also apparently in excess of what anglers consider acceptable for maintaining their desired fishing experience. Of the many factors that appear to be contributing to angler dissatisfaction, only one—the number of floaters putting in at the Water Trail launch—lies fully within the management authority of the Forest Service. The options of prohibiting floater use at certain times of day or on certain days are available to CTNF managers, but these were not strongly supported by anglers. Regulating or limiting commercial use is another option available to managers, but commercial use currently accounts for only 18% of total use, and that percentage appears to be declining. Reducing the quota on the current livery permit is unlikely to reduce overall floater use and will probably increase the number of vehicles using and parked at the launch area, as evidenced by a steady increase in the number of vehicles relative to floaters over the past decade. Ultimately, addressing the larger issue of declining fishing quality on the upper Henry’s Fork will require a collaborative effort involving CTNF, Idaho Department of Fish and Game, Fremont County, the Henry’s Fork Foundation, the upper river fishing clubs, and other stakeholder groups and agencies.

INTRODUCTION

The Big Springs Water Trail is located on the upper Henry's Fork, on the Caribou-Targhee National Forest (CTNF) in Island Park, Idaho (Figure 1). Big Springs is the headwaters of the Henry's Fork of the Snake River (Van Kirk and Benjamin 2000) and is one of the largest springs in the country (Whitson 1981). It is considered to be a unique geological feature and is appreciated by the many visitors who come to float its waters (USFS 2019). The Big Springs Water Trail was designated as a National Recreation Trail in 1981 (Whitson 1981) and is managed and maintained by the USDA Forest Service. An abundance of beautiful lodgepole pines, meadow grass, and wildflowers can be observed from the river. Moose, geese, herons, swans, ducks, and fish are also often seen while floating. There is no fee required for trail use. The float from the boat launch to the take-out area is a little over 4 miles, and depending on what kind of floating device is used, can take anywhere from 1.5 to 4 hours.

Carrying capacity of an outdoor resource is not an absolute value but rather can be subjective and is dependent on the resources being impacted. Carrying capacity can be defined in terms of physical capacity of point-of-entry facilities such as parking lots and restrooms, damage to natural features such as plant communities and geologic formations, effects on ecological function, and the recreational experience of either the target user group or other types of users sharing the resource (Hammit and Cole 1998; Leung and Marion 2000; Cole 2009). The original Big Springs Water Trail management plan set a carrying capacity of 158 persons at one time, based on recreational experience of the floaters on the trail. This number was determined by assuming the average group size to be 6 people and allowing 300 yards of space between each group. At the time, managers doubted that the number of floaters on the river would get close to reaching this capacity even on weekends and holidays, and that apparently was the case through the 1980s and 1990s. Surveys conducted by Idaho Department of Parks and Recreation estimated average use of the entire upper Henry's Fork from Big Springs to Island Park Reservoir (Figure 2) at 82 floaters per day in the summer of 1983 and 65 floaters per day in the summer of 1989 (IWRB 1992). Use of the Big Springs Water Trail in the summer of 1997 was estimated at 161 floaters per day (Van Kirk et al. 1997).

However, use has increased dramatically in recent years, prompting the CTNF to monitor the Water Trail launch in 2010 and 2012, using volunteer labor. In 2010, maximum observed use was 334 floaters launching in a 4-hour period, and mean use over the 64-day survey period was 321 floaters per day (CTNF unpublished data). In 2012, maximum use was 434 floaters launching in a 4-hour period, and mean use was 729 floaters per day (CTNF unpublished data). The parking area was originally built to accommodate 11-15 vehicles and was designed to maintain an acceptable number of people on the river at one time. Restricting the physical capacity of parking lots is commonly used as a management tool to maintain quality of outdoor recreational experience once users leave the road and enter the backcountry (Van Kirk et al.

2014). The current parking lot can accommodate around twice this many vehicles. Vehicles are frequently forced to park outside of designated parking spaces, including along the Big Springs Loop Road. Maximum observed vehicle use of the launch area in 2010 and 2012, respectively, was 58 and 93 vehicles in a 4-hour period (CTNF unpublished data).

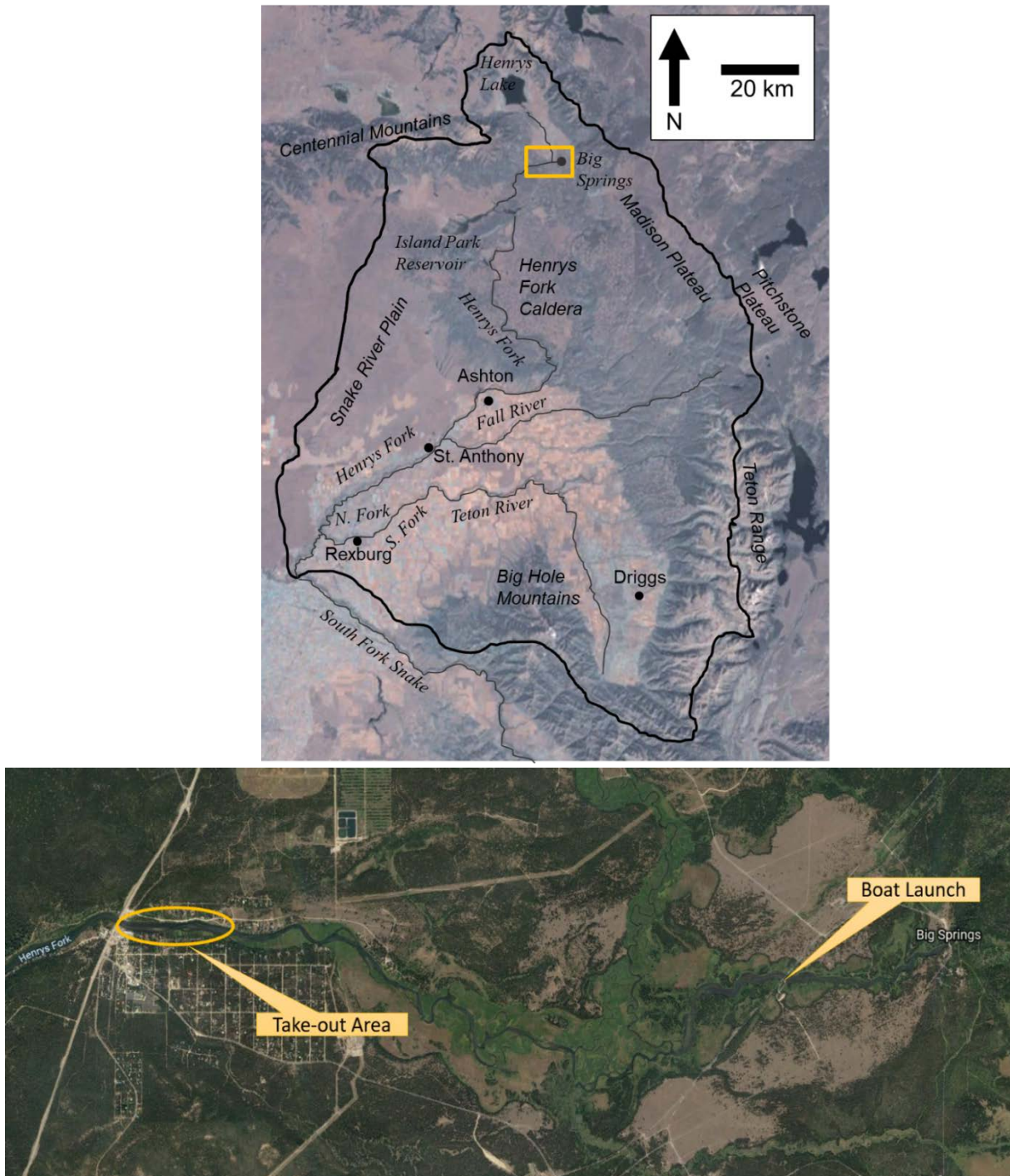


Figure 1 – Map of the Henry's Fork watershed, showing location of the Big Springs Water Trail (top); and close-up map of the Water Trail (bottom).

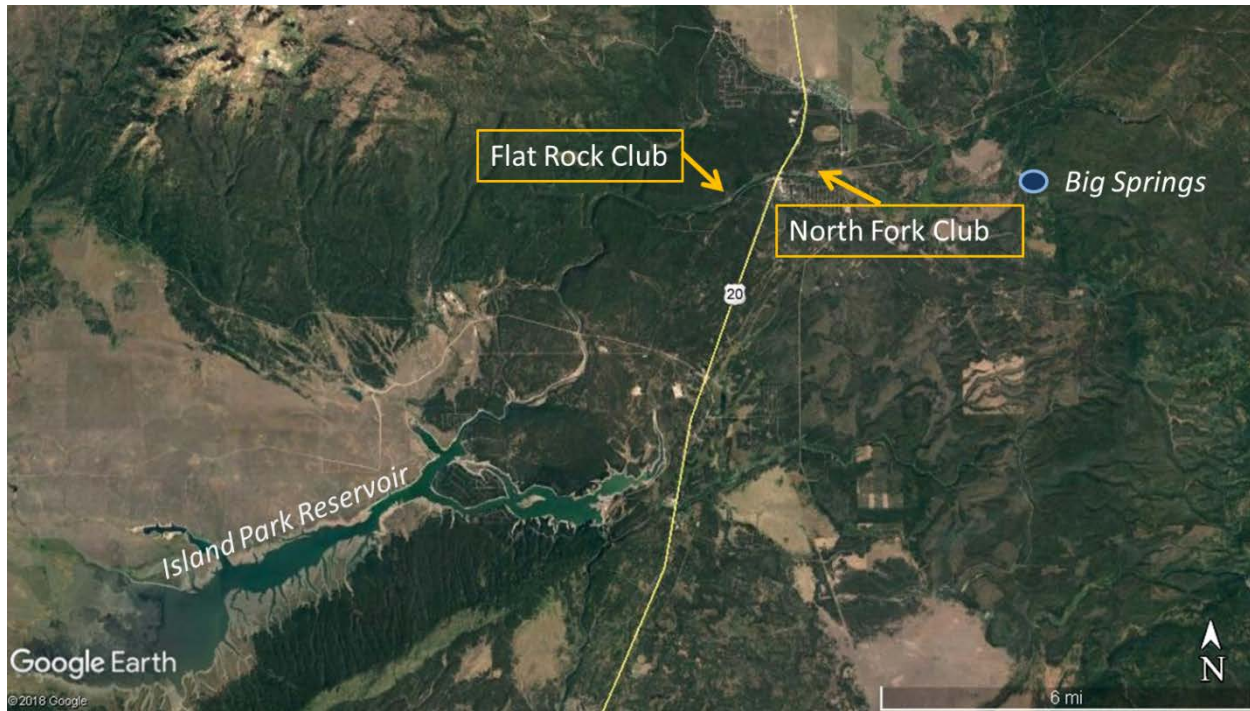


Figure 2 – Map of the upper Henry's Fork, showing locations of the two fishing clubs referred to in this report.

For almost three decades, Mack's Inn, located on the south side of the river on the upstream side of the bridge, has held a Special Use Permit from the Forest Service to deliver up to 6,000 people per year to the Big Springs Water Trail put-in. Mack's Inn also rents float craft. Floaters who use the Mack's Inn livery service generally take out at Mack's Inn, but many floaters who do not use Mack's Inn livery or rental services also take out at Mack's Inn. The Mack's Inn property and business, including the livery permit, was purchased by Ensign Hospitality of Salt Lake City, UT in 2017 and is developing a Marriott Hotel on the site. The current Special Use Permit for the livery concession expires at the end of 2019.

Fishing is another popular use of the Water Trail reach of the Henry's Fork downstream from the Henry's Lake Outlet, and the season is open year-round. Sport fish found in the Henry's Fork along the Big Springs Water Trail include native Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*) and Mountain Whitefish (*Prosopium williamsoni*) and nonnative Brook (*Salvelinus fontinalis*) and Rainbow (*O. mykiss*) trout. Nonnative Kokanee Salmon (*O. nerka*), once abundant in the upper Henry's Fork during their autumn spawning migration from Island Park Reservoir, have been observed in only limited numbers in recent decades (Schoby et al. 2014). From December 1 to the Saturday of Memorial Day weekend, all fish caught must be released. For the remainder of the year, general Upper Snake Region fishing regulations apply (IDFG 2019). Harvest limits are 25 for Brook Trout and Mountain Whitefish, and 6 for all other trout in combination, except that no more than 2 Cutthroat Trout may be harvested. All Cutthroat Trout less than 16 inches in length must be released. There are no special restrictions on fishing gear.

As floater use has increased on the Big Springs Water Trail, long-time anglers on the upper Henry's Fork have reported declines in all aspects of the fishery and their fishing experience, ranging from physical and biological factors to conflicts with floaters. Many of these anglers belong to the North Fork Club, located on the Henry's Fork just upstream of the official Water Trail take-out, and to the Flat Rock Club, located on the river downstream of Mack's Inn bridge (Figure 2). These clubs were founded in the early 20th century and have rich traditions of fishing on the upper Henry's Fork. Members of these clubs, as well as other anglers, have communicated their concerns to CTNF, Henry's Fork Foundation (HFF), and Idaho Department of Fish and Game. These concerns date back decades and prompted HFF to conduct surveys of angler and floater use and attitudes on the Big Springs Water Trail in the late 1990s (Van Kirk et al. 1997, 1999).

This study was motivated by the factors described above, particularly exceedance of parking capacity at the launch, conflicts between anglers and floaters, and expiration of the current livery permit. In addition, management of and experience on the Water Trail could be affected by construction of the new hotel and by need to replace and expand the area's wastewater treatment system, which was built in the 1980s. The purpose of the report is to provide government agencies, conservation organizations, and other upper Henry's Fork stakeholders with objective and scientifically sound information that can inform future management, planning, and conservation actions. Although this is not a formal study of recreational use capacity, we analyzed current use in the context of the capacity of existing facilities and the quality of recreational experience of both floaters and anglers on the upper Henry's Fork. This study did not address potential ecological effects of floater use on the Water Trail.

OBJECTIVES

1. Quantify floater use of the Big Springs Water Trail.
2. Assess whether floater use is exceeding capacity of facilities.
3. Determine floater characteristics and satisfaction with experience.
4. Determine angler satisfaction with fishing experience on the upper Henry's Fork and attitudes regarding floater use.

STUDY AREA

The study area is the Henry's Fork from Big Springs to Island Park Reservoir, which we call "upper Henry's Fork" in this report (Figures 1 and 2). The official Water Trail take-out is located on Forest Service land on the north side of the river, about 0.5 miles upstream of the U.S.

Highway 20 bridge (Figure 3). Floaters also take out on both sides of the river at the bridge, at private cabins along the river, and at other locations. For the purposes of this report, we refer to the Big Springs Water Trail as the reach of the Henry's Fork from the water trail launch to the Highway 20 bridge, also referred to as the Mack's Inn bridge.



Figure 3 – Map of the Big Springs Water Trail take-out area.

METHODS

This study was a collaborative effort of the HFF and the CTNF. The HFF facilitated and staffed the survey effort, compiled and analyzed data, and wrote the report. The CTNF assisted in equipment installation, and manages the Big Springs Water Trail. The study was conducted May 25, 2019 through September 2, 2019, encompassing the summer season from the Saturday of Memorial Day weekend through Labor Day. Each study objective listed above was addressed with its own methodology, as outlined here.

1. Floater and vehicle use were measured directly with remote, electronic recording devices.
2. We assessed use and condition of launch facilities with personal observations made at randomly selected times.
3. Floater characteristics and experience were determined from personal interviews conducted at the take-out area at randomly selected times.
4. Angler satisfaction and attitudes were assessed with a survey instrument distributed on the river at randomly selected times and provided to members of the Flat Rock and North Fork clubs.

Floater interviews and launch assessments were conducted on randomly selected days and at randomly selected times during each sample day. We used random, weighted probability

sampling to determine sample times. Days were assigned sampling probabilities so that half of the expected sample shifts occurred on weekend days and holidays and the other half on weekdays. This weighting was based on previous observations that roughly half of all floater use occurs on weekends and holidays (Van Kirk et al. 1997). We assumed that most recreational use occurs between 8:00 AM and 8:00 PM and divided this into four three-hour blocks: 8:00 AM – 11:00 AM, 11:00 AM – 2:00 PM, 2:00 PM – 5:00 PM, and 5:00 PM – 8:00 PM, with equal probability of selection. In all, we surveyed 81 of 404 (20%) possible three-hour survey shifts over the summer. On many days, more than one shift was selected. We randomly selected a subset of 25% of the 81 chosen survey shifts on which to distribute angler surveys, in addition to conducting the floater interviews and launch assessments.

1. Floater and vehicle use

A Browning Dark Ops Pro XD motion sensor trail camera was attached to the bridge just below the launch (Figure 4). We set the camera to a one-second capture delay, meaning that the camera would take a picture when it first sensed motion and then would continuously take pictures every second until it stopped sensing motion. The recommended 4mp low picture size was chosen. Date, time and temperature were recorded, and a fresh 64 GB SD card was installed into the camera during every survey shift. Floaters that launched downstream of the bridge were not included in our count, but based on our observations, that number is very small. After every survey shift, the date, time, floating device, and number of people on that floating device were manually recorded from the relevant images taken by the camera.

The camera observed float start times during all hours from 5 AM to midnight. Given 101 days in the study period, this gave a total of 1,919 possible hours during which floaters could launch. The camera functioned properly during 1,691.4 (88.1%) of these hours but malfunctioned or ran out of battery power during the remaining 227.6 hours. Because the camera failed at random times, we treated the time over which the camera was operational as a random sample from which we estimated use during the periods of camera malfunction. Based on observed use, we divided days into three strata: Friday, Saturday, and Sunday-through-Thursday. On days when no camera data were available, we estimated use as the mean over all complete days of that stratum observed by the camera. On days when only a fraction of recreation hours was missing, we multiplied the mean daily use for that stratum by the fraction of total daily use expected during the missing hours, as estimated from the observed distribution of use over all recreation hours on complete days of camera operation. In both full-day and partial-day estimation, we used standard methods for calculating standard error on the estimate.

Total, cumulative vehicle use over the study period was measured with a Cuesta Systems laser vehicle counter, model TS625 Interrogator. The counter was placed just past the turn-off to the Big Springs summer home area to capture all vehicles that drove to the Big Springs launch, regardless of whether they parked in or outside of the parking lot (Figure 4). We estimated the mean party size (number of floaters per vehicle) by dividing the total number of floaters by the

total vehicle count, after accounting for floaters who used the Mack's Inn livery service. In particular, we multiplied total floater use by the fraction of interviewees (described below) who reported using the Mack's Inn service and then assumed that these floaters were delivered in an 8-passenger van that entered the launch area only once. These floaters and the appropriate number of vehicles were subtracted from the respective totals. We divided the remaining floaters by the remaining number of vehicles and doubled that figure, under the assumption that private floaters shuttle their own vehicles and would thus enter the launch area twice.

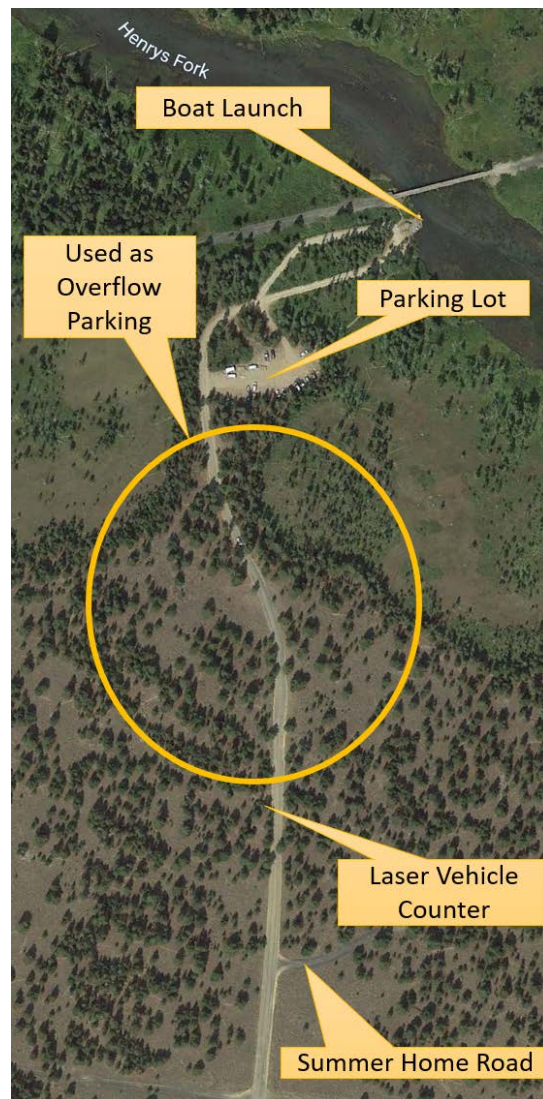


Figure 4 – Map of the Big Springs put-in and surrounding area.

2. Use of launch facilities

At the start of every survey shift, we conducted instantaneous counts of vehicles parked in the designated parking area, parked outside of the parking area, and waiting to launch. We also recorded the total number of group vehicles, which were defined as vehicles that could hold more than eight people. If there were three or more vehicles waiting to launch floating vessels, we recorded the time required for the third vehicle in line to reach the put-in area and begin unloading. We also recorded general observations such as how much trash could be seen, the state of the restrooms, and the general attitude of people at the put-in.

3. Floater Characteristics and Satisfaction

Floater interviews were conducted in-person at the three usual take-out locations for the Big Springs Water Trail (Figure 3). The survey clerk(s) drove to the particular take-out that maximized the number of interviews that could be obtained at a given time. On especially busy days, when it was not possible to intercept all floaters at any one of the take-out locations, the clerk would drive to the other locations in order to distribute interviews among the different locations as much as possible. Most often, only one member of each group of floaters was interviewed, unless multiple floaters were willing to take the survey and the clerk had sufficient time to conduct multiple interviews without missing other groups.

The floater experience survey instrument (Appendix A) was designed to take around two minutes to complete and used questions that were simple enough that even very young floaters could answer accurately. The survey was given orally. Floaters were asked if they had used or planned to use the Mack's Inn livery service to travel between Mack's Inn and the Water Trail launch. Based on experience with the original survey instrument over the first two weeks of the study, we modified the instrument slightly to increase interviewee comprehension and eliminate repetitive questions (Appendix A). The original version of the survey did not include the option of using the shuttling service in order to return to their car after they had already floated the river. If the floater did not use Mack's Inn shuttling, they were asked how they arrived at the launch and given the options of personal vehicle, guest ranch transportation, BYU-I Outdoor Program transportation, or other. Floaters were asked whether their floating device was rented or privately owned. The only demographic information collected was the floater's zip code. We then asked floaters to rate, on a 1-5 scale from very good to very poor, their experiences at the put-in, during the float and at the take-out, respectively. We asked how they felt about the number of people they saw on the Water Trail, giving them options on a 1-5 scale ranging from "way too few" to "way too many," and also adding the option of "did not matter." Floaters were asked if they would do the trip again and asked to state any reason(s) why or why not. They were also asked whether they would recommend this trip to someone else. Without asking the floater, the clerk recorded the type of floating device that was used and the particular take-out location where the interview occurred.

We used statistical hypothesis testing to investigate potential factors that could explain floater satisfaction. To limit the total number of hypothesis tests, we used only two response variables: floater satisfaction during the float itself, and whether the floater would take the trip again (binary response: yes/no). Floater satisfaction was converted from the 5-point response used in the survey instrument to a binary variable (satisfied/dissatisfied) in which “dissatisfied” corresponded to responses 4 and 5 and “satisfied” to all other responses. We tested the potential explanatory power of three independent variables, one of which was response to the question about encountering other floaters. This response was converted to a binary variable (crowded/uncrowded) in which “crowded” corresponded to the responses of “saw too many people” and “saw way too many people” and “uncrowded” to all other responses, including “did not matter.” The other two potential explanatory variables were mean daily air temperature and daily precipitation (binary variable: rained/did not rain), as measured at the White Elephant SnoTel site, the closest continuous-recording weather station to the Water Trail. Logistic regression was used to fit the statistical models, and the likelihood ratio test was used to test for dependence of each response on each of the three potential predictors. For the tests using temperature and precipitation, mixed-effect models were used, treating day as a random variable. The tests were performed at a significance level of 0.05 across the family of six tests, or 0.008 for each individual test.

4. Angler Satisfaction

During the shifts that were designated as angler survey shifts, anglers fishing along the river on public land were asked if they would be willing to participate in a survey to assess the impact that recreational use of the Big Springs Water Trail has on fishing on the upper Henry’s Fork. During the angler survey shifts, if a floater was carrying a fishing rod, we asked the floater if they would also be willing to complete an angler survey, after completing the floater interview. If the angler (or angling floater) was willing to take the survey, we asked for an email address and emailed them a unique link to the online survey instrument. Paper angler survey instruments were also distributed at the North Fork and Flat Rock clubs to specifically target this population of anglers. The survey instructions directed anglers to fill out only one survey during the season, regardless of how many times they fished the upper Henry’s Fork.

The angler experience survey was designed to take around 5 minutes to complete (Appendix A). General questions were asked about the location, date, start time, and duration of the fishing trip, as well as quality of fishing (1-5 scale) on the day the angler used as the basis for the survey responses. We also asked the angler to rate quality of fishing (1-10 scale) during the survey year compared with all previous years the angler had fished the upper Henry’s Fork. Anglers were asked to what extent they approved or disapproved of six potential fisheries and recreation management strategies and could check boxes on a scale from strong approval to strong disapproval. A final question asked if the angler had any other input on the management of the upper Henry’s Fork, including potential strategies they would like to see implemented.

The heart of the angler survey was based on satisfaction with eight different aspects of their fishing experience that day: number of fish caught, size of fish caught, number of rising fish, number of other anglers on the river, number of non-angling recreationists on the river, quality of insect hatches, quality of stream habitat, and aesthetics. Satisfaction was measured on a 1-10 scale, with 1 being the most dissatisfied and 10 being the most satisfied. After asking some other demographic questions the angler was asked how important or unimportant, again on a 1-10 scale, those eight aspects were in determining whether they had a high quality fishing experience. The difference between satisfaction and importance is called the “gap score” or “disconfirmation” and is a measure of how well perception of reality aligns with the expected recreational experience (Burns et al. 2003, Brunke and Hunt 2007). A negative gap score indicates that reality fails to meet expectations, whereas a positive gap score indicates that reality exceeds expectation. We treated gap score as a continuous variable and used standard estimation methods to determine whether gap scores differed significantly from 0. We also used linear regression and analysis of variance to test four hypotheses about angling quality, with emphasis on opinions regarding floater use of the river. We tested whether overall quality of fishing in 2019 was dependent on the number of years the angler had been fishing the Henry’s Fork or on angler dissatisfaction with floaters, as measured by the gap score. We also tested whether overall angling quality and dissatisfaction with floaters differed between anglers fishing upstream of Mack’s Inn bridge and those fishing downstream. These four tests were performed at a significance level of 0.05 for the family of tests, or 0.0125 for each individual test.

RESULTS

1. Floater and vehicle use

The earliest launch time recorded by the camera was 5:37 AM while the latest was 11:45 PM. The median and mean launch times were both 1:30 PM. Over 50% of all floaters launched between noon and 3 PM (Figure 5). Around 52% of all use occurred on Fridays and Saturdays, and use was relatively uniformly distributed across the remaining days (Figure 6). Use was highest from late June to mid-August and again over Labor Day weekend (Figure 7). Highest single-day use was 1,852 floaters, on July 6. Total estimated use was 37,187 floaters (Figure 8), with a 95% confidence interval of ± 462 (1.2%) around the estimate. Over half of all floating devices used were kayaks, with the next most common devices being tubes and canoes. Tubes included a variety of floating devices such as large inflatable animals and inflatable swimming pools (Figure 9).

From interviews, we estimated that 8,248 floaters (22.7% of the total) used Mack’s Inn transportation. In 2019, CTNF permitted the Mack’s Inn service to deliver an additional 600 users in late August through Labor Day weekend due to high demand, increasing the permitted deliveries to 6,600. The concessionaire reported actual delivery of 6,598 floaters (17.7% of total

use). Cumulative vehicle count was 17,530 over the summer (Figure 10). Outside of Mack's Inn group deliveries, the estimated average party size was 3.7 floaters.

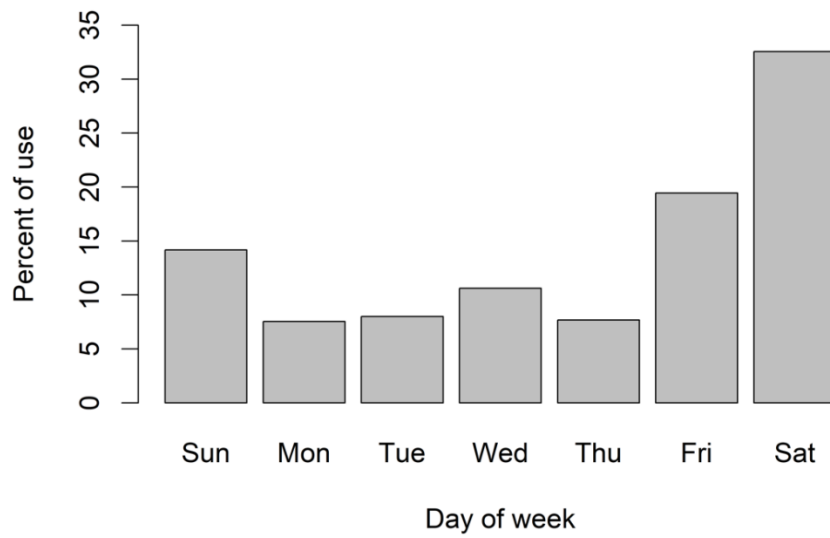


Figure 5 – Distribution of floater use across days of the week.

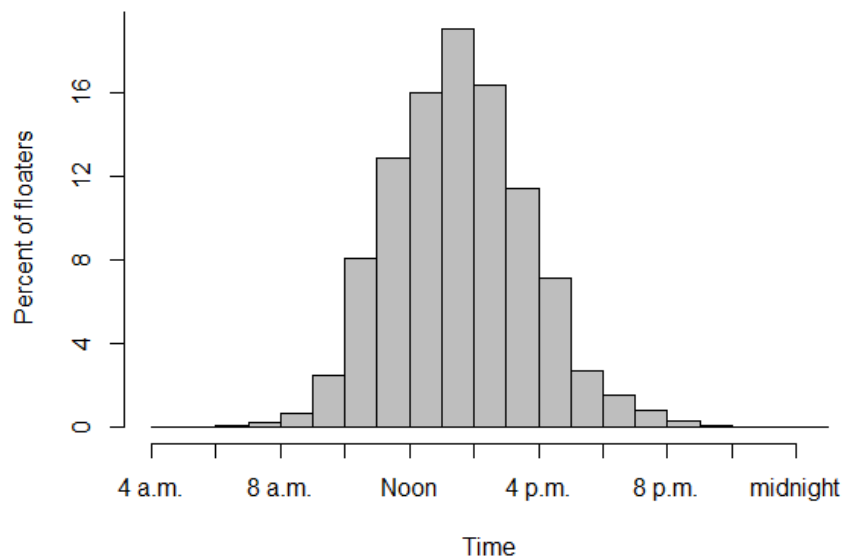


Figure 6 – Distribution of floater start times during the day.

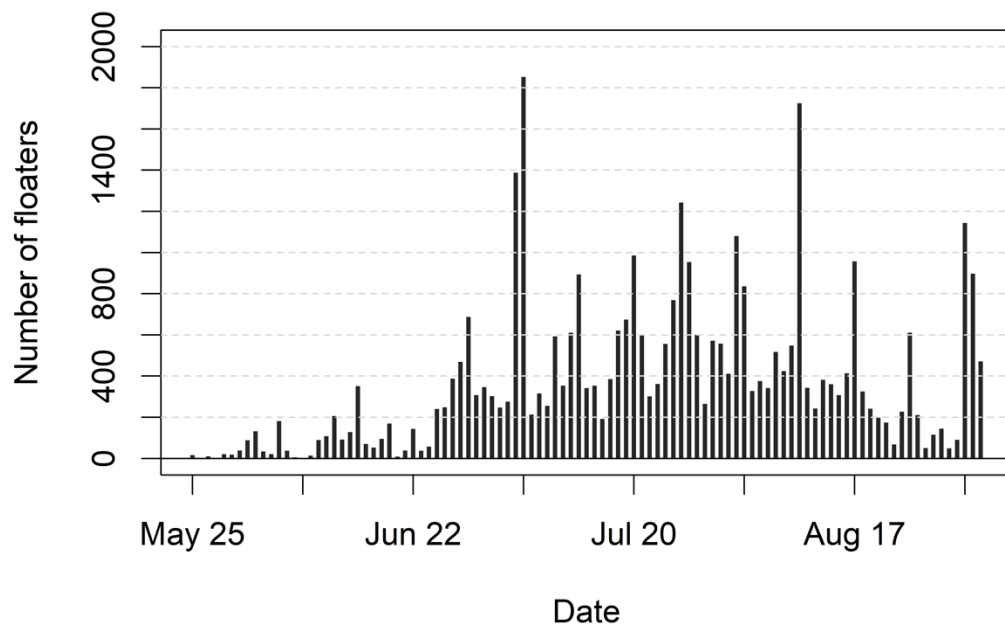


Figure 7 – Use by day of the season.

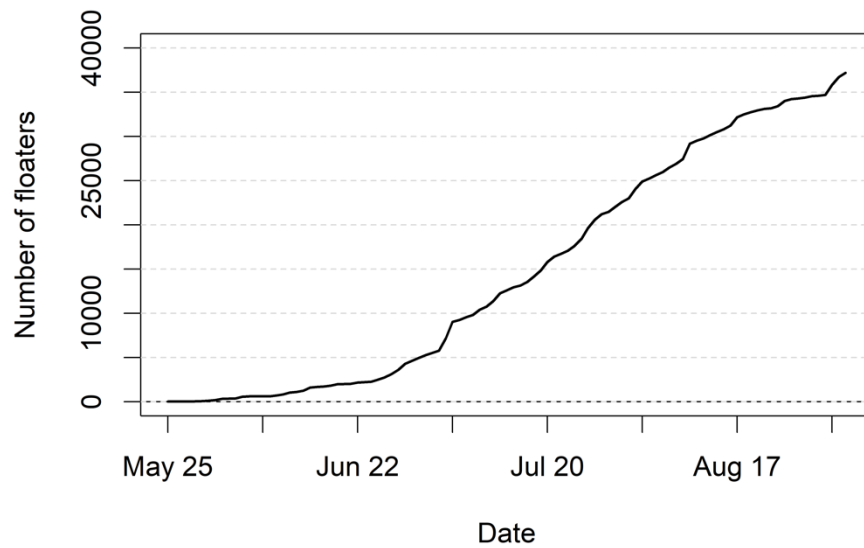


Figure 8 – Cumulative floater use from May 25 through September 2.

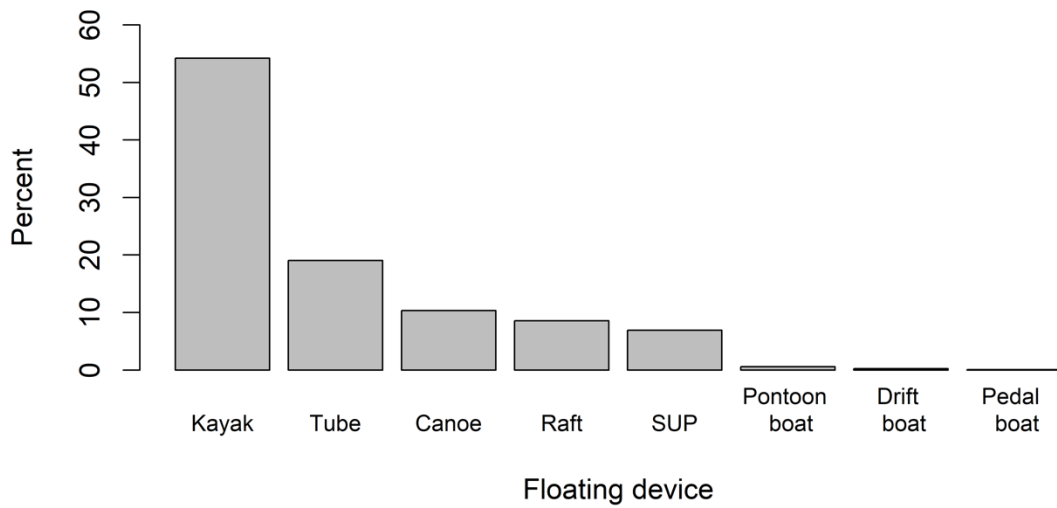


Figure 9 – Floating device use. SUP = stand-up paddle board.

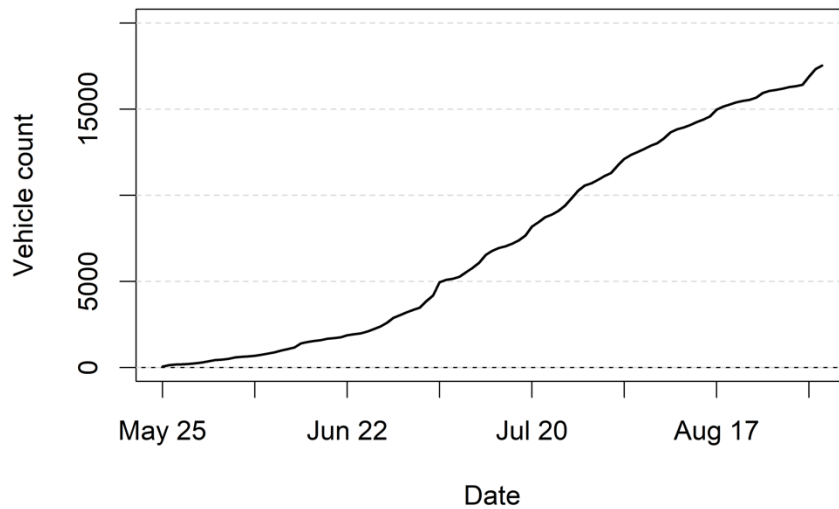


Figure 10 – Cumulative vehicle use at the Big Springs launch

2. Use of launch facilities

The median number of vehicles parked in the parking lot at any given time was 3, and the maximum number was 35 vehicles. The median number found parked out of the parking lot was 0, although the maximum was 102. There were vehicles parked outside of the parking lot on 33%

of the 81 randomly selected observation times. The median number of vehicles waiting to launch was 0, and the maximum was 15. The median waiting time was 0 minutes, and the maximum was 18 minutes. Waiting at the boat launch was a rare occurrence. The vast majority of people observed unloaded quickly and were considerate to any who were waiting behind them, although some floaters reported inconsiderate behavior on the part of others (Appendix B). We observed very little litter around the launch area. We observed trash on the restroom floor and other signs of restroom overuse on three of the 81 visits to the launch site.

3. Floater Characteristics and Satisfaction

In total, we conducted 411 floater interviews. Over half of the floaters were from Idaho, and 34% were from Utah, Montana and Wyoming, combined. While the majority came from these four states, visitors were recorded from 27 different states and Canada. Of those interviewed, 77.9% reported traveling to the launch in a personal or rental vehicle, and the other 22.1% reported using Mack's Inn livery services. After adjusting for weighted sampling probability, we estimated that 22.7% ($\pm 0.2\%$) of all floaters used Mack's Inn services. No floaters said they came through any other means of transportation. Despite only 23% of floaters reporting use of the Mack's Inn shuttle service, 64% of floaters took out their floating device at Mack's Inn. Another 23% took out across the river from Mack's Inn at Café Sabor, and only 13% used the designated take-out on CTNF lands. These figures do not account for floaters who continued floating downstream of Mack's Inn or took out at a personal dock. Two-thirds of floaters used a private floating device, and the remaining one-third rented their floating device.

At least 90% of floaters rated their experience as very good or good at the put-in, during the float, and at the take-out (Figure 11). Over 77% of floaters replied that the number of people they saw was "just right" or that the number of people they saw "didn't matter" (Table 1). Only 1.5% reported seeing too few people, and the remaining 21.2% reported seeing too many people. Nearly 99% of interviewees reported that they would do this float again, and 98% said they would recommend the float to someone else. Numerous reasons were given for why a floater would choose to do the float again, but most of them fell within six general categories. Listed in descending order of popularity, those categories were "fun", "scenic", "tradition", "relaxing", "wildlife", and "family". We found no statistically significant dependence of floater experience or desire to repeat the float on the number of people seen on the float or on weather conditions ($P > 0.11$ for all tests). However, a few floaters commented on the degree of crowding, and at least three of the interviewees who said they would not recommend the float to others did so because they did not want to increase the number of people on the river (Appendix B).

4. Angler Satisfaction

Return rate from online angler surveys was 53%, and about one-half of all surveys received were completed by members of the two fishing clubs. In total, we received 50 completed angler surveys: 24 from anglers who fished upstream of the Mack's Inn bridge and 26 from anglers who fished downstream of the bridge. Survey respondents were from 15 different

states; the top six were Utah (31.2% of respondents), California (14.6%), Montana (10.4%), Kansas (8.3%) and Washington (8.3%). Only 4.2% of anglers reported Idaho as their state of residency. Age of survey respondents ranged from 5 years old to 85 years old, with a median of 65 years old. The year anglers reported first fishing the upper Henry's Fork ranged from 1946 to 2019, with a median of 2008; 40% of respondents have been fishing the upper Henry's Fork for 20 years or more.

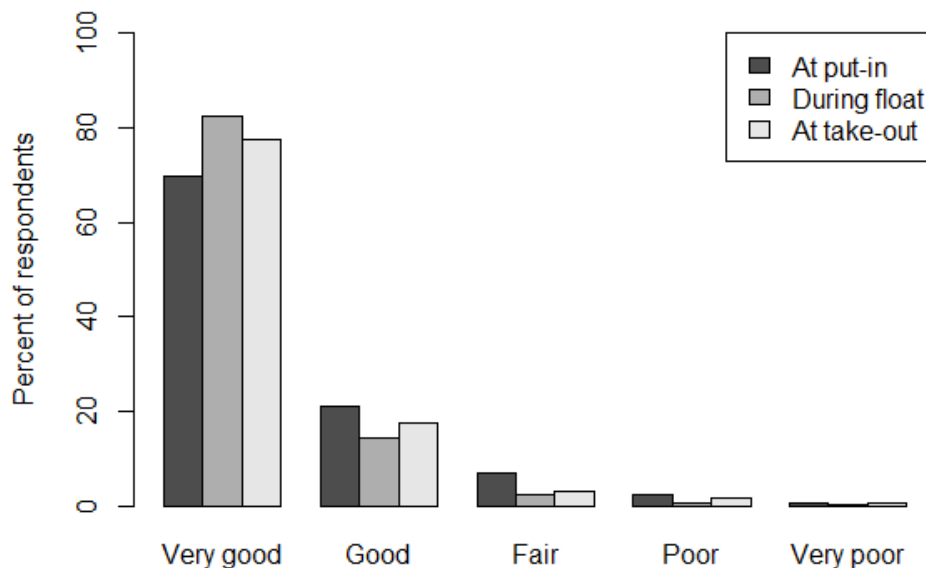


Figure 11 – Floater experience, rated on a 1-5 scale.

Table 1 – Floater opinion on the number of people they saw during their float.

	Saw way too few	Saw too few	Just Right	Saw too many	Saw way too many	Did not matter
Percent of Respondents	0.2%	1.3%	53.5%	15.6%	5.6%	23.8%

Anglers were more likely to start their fishing trip between 6:00 AM and 10:00 AM than any other time of the day, and they spent an average of 3 hours on the river (Figure 12, 13). Some 58% of survey respondents rated the quality of fishing that day as either good or very good (Figure 14). The median answer given for overall quality of fishing compared to past experiences was a 5, on a scale of 1-10 (Figure 15). Gap analysis showed that angler satisfaction was not significantly different from expectations with respect to number of fish caught, number of rising fish, number of other anglers on the river, and quality of insect hatches (Figure 16). Angler satisfaction with the aesthetics of their fishing experience was slightly better than their

expectation. Angler satisfaction was lower than expectations with respecting to size of fish, quality of fish habitat, and number of non-angling recreationists seen on the river. Mean gap score for number of other anglers -2.5, far below any of the other gap scores, and even the top of the 95% confidence interval was well below zero, at -1.4.

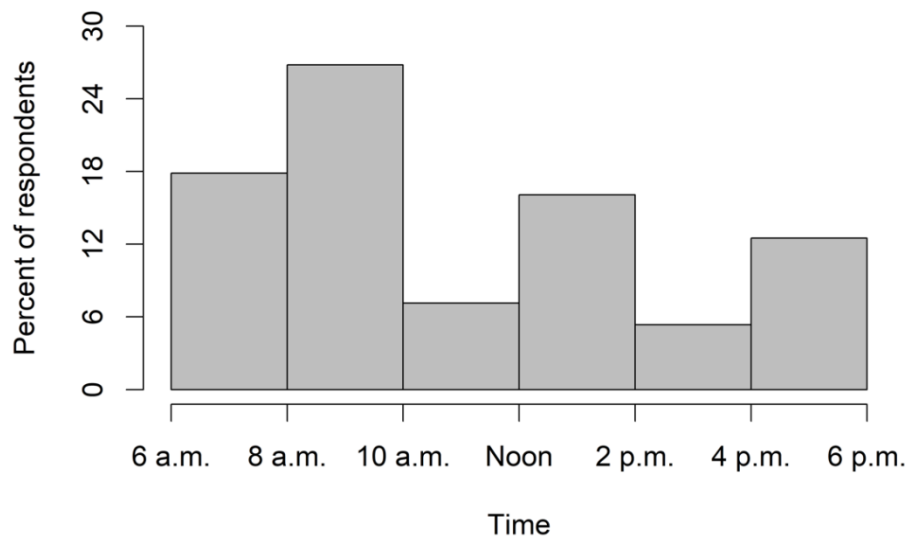


Figure 12 – *Start time of angler fishing trips.*

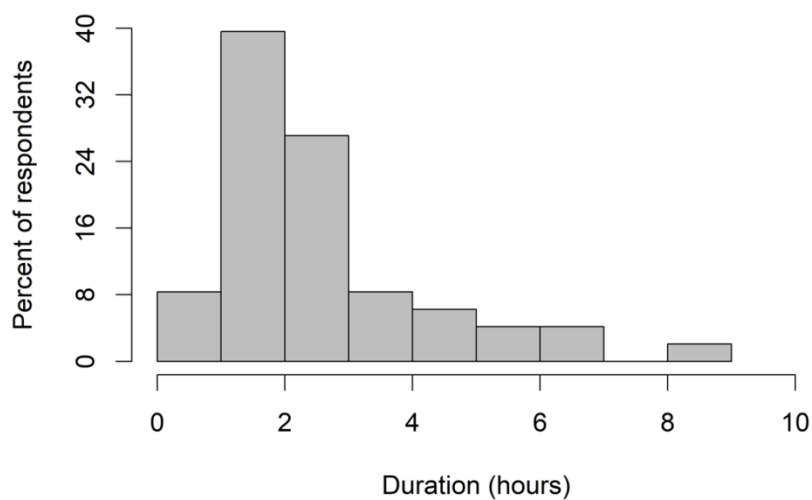


Figure 13 – *Duration of angler fishing trips.*

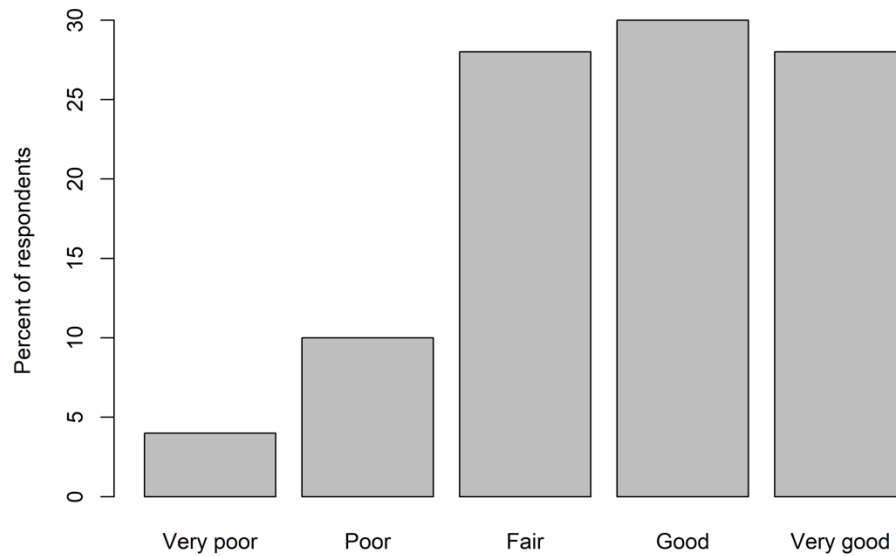


Figure 14 – Anglers' opinion of the quality of fishing on the upper Henry's Fork on the survey day.

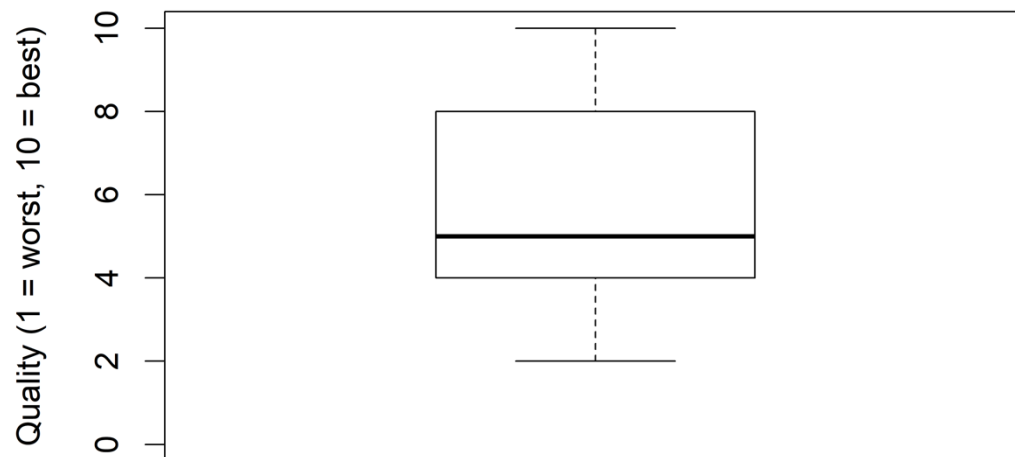


Figure 15 – Box-and-whisker plot summarizing anglers' opinion of the quality of fishing in 2019, compared with all of their experience fishing on the upper Henry's Fork. Thick bar indicates the median, bottom and top of the box are the 25th and 75th percentiles, respectively, and bottom and top of the whiskers indicate minimum and maximum, respectively.

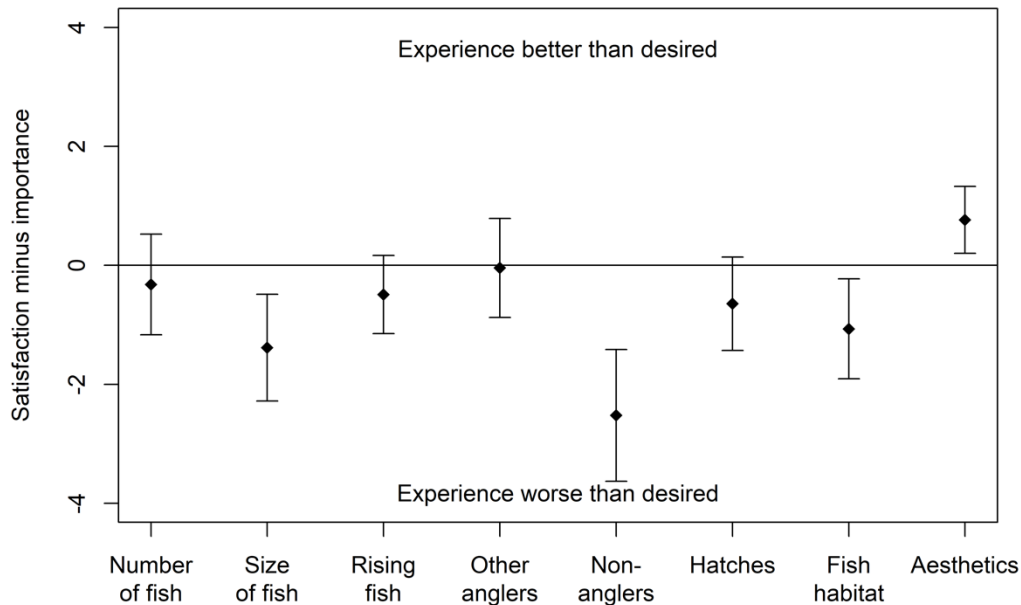


Figure 16 – Angler satisfaction relative to importance (gap scores) for various aspects of the fishing experience, with 95% confidence intervals.

Reported overall angling quality did not differ between anglers who fished downstream of Mack’s Inn bridge and those who fished upstream ($P = 0.200$). Similarly, level of dissatisfaction (gap score) with number of non-anglers on the river did not depend on fishing location ($P = 0.458$). Angling quality did not depend on gap score for number of non-anglers seen on the river ($P = 0.066$), but it did depend significantly on the number of years an angler had fished the upper Henry’s Fork ($P = 0.002$). Anglers with long histories of fishing the upper Henry’s Fork were more likely to report lower quality of fishing in 2019 relative to their cumulative experience on the river.

The two potential management strategies anglers strongly approved were changing fishing regulations to catch-and-release and limiting the number of people who can float the water trail on a given day (Figures 17, 18). Anglers also generally approved of a two-trout limit and prohibiting floating during certain times of day, although consensus toward these strategies was less strong than for catch-and-release and daily floater limitation (Figures 19, 20). For the anglers who approved of prohibiting floaters during certain times of day, the most common times that anglers favored floater prohibition were the morning hours between 7:00 AM and 9:00 AM and the evening hours between 3:00 PM and 9:00 PM (Figure 21). Anglers showed no general consensus toward eliminating stocking of trout and prohibiting floating on certain days of the week (Figures 22, 23).

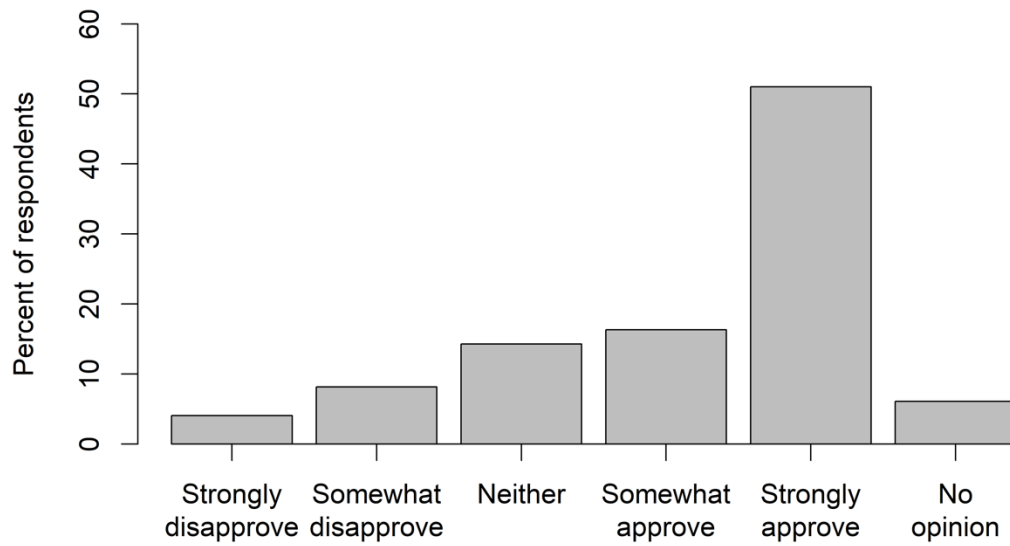


Figure 17 – Angler responses to changing fishing regulations to catch and release.

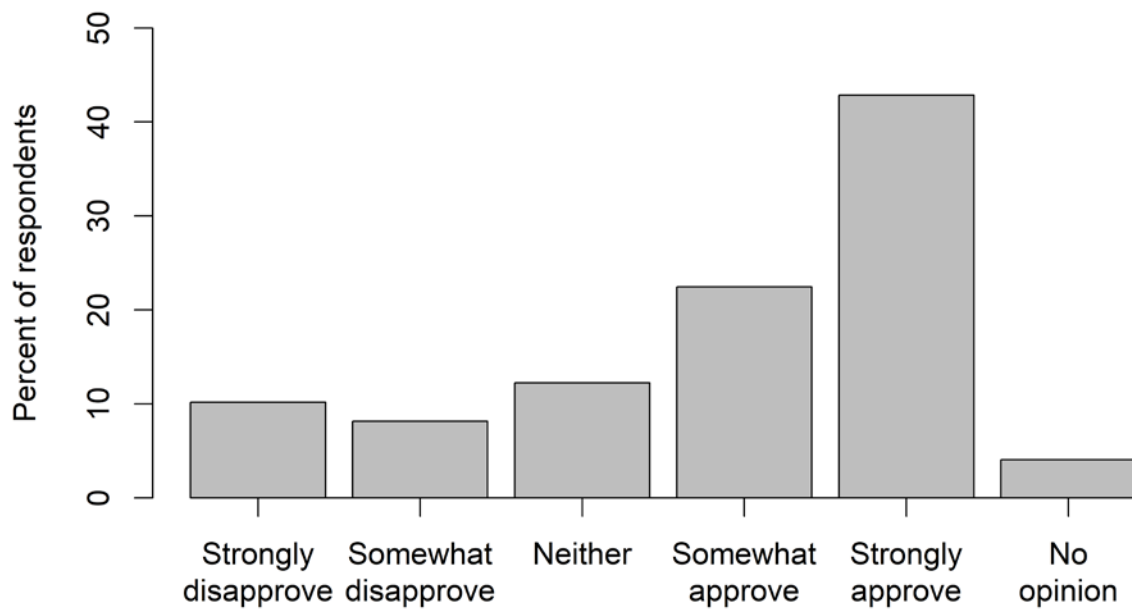


Figure 18 – Angler responses to limiting the number of people who can float the water trail on a given day.

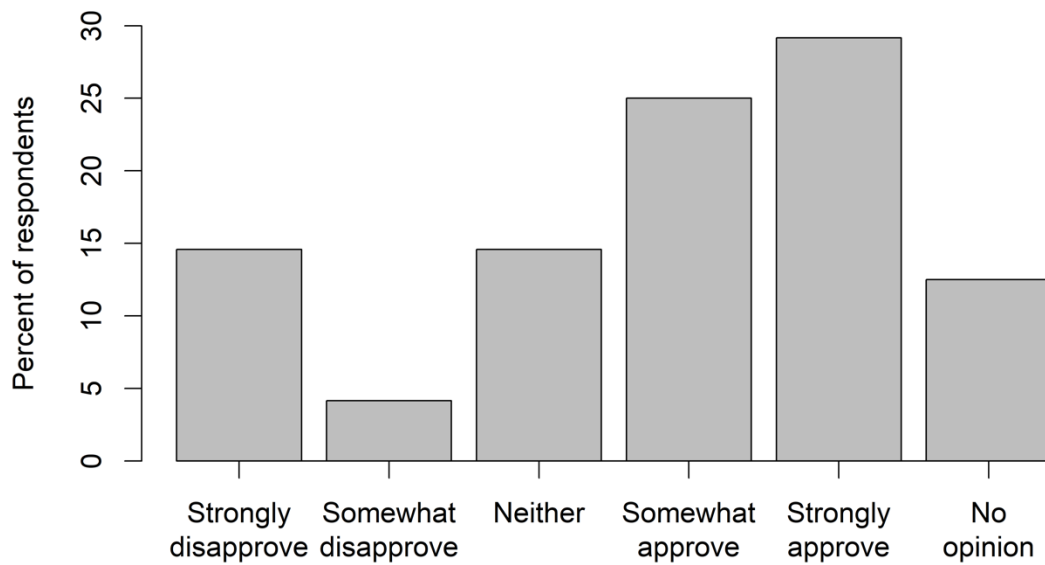


Figure 19 – Angler responses to changing fishing regulations to a two-trout limit.

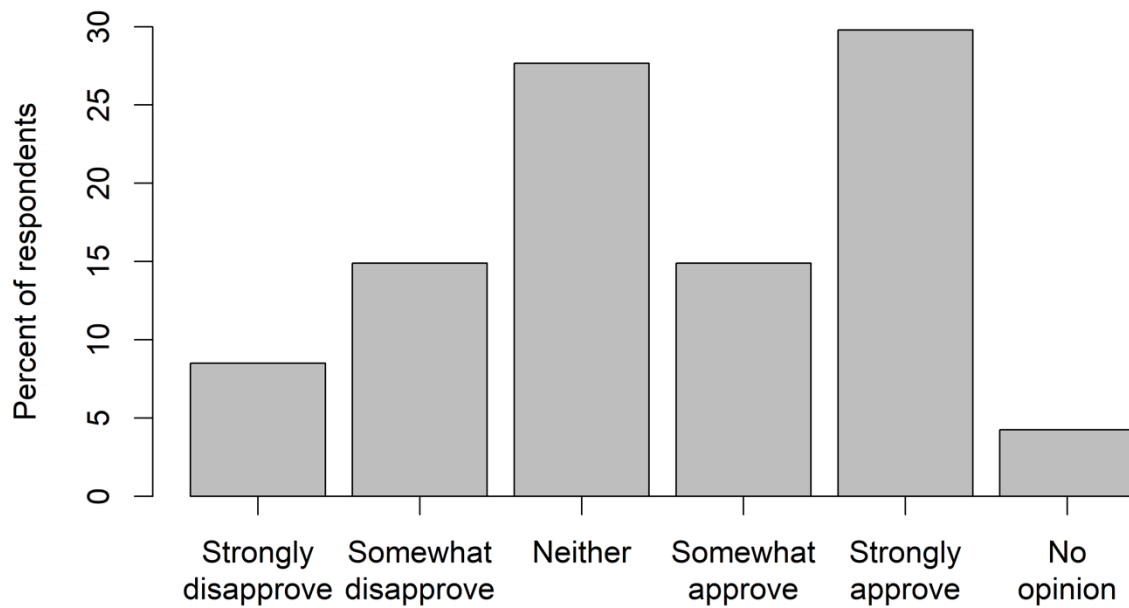


Figure 20 – Angler responses to prohibiting floating at certain times of day.

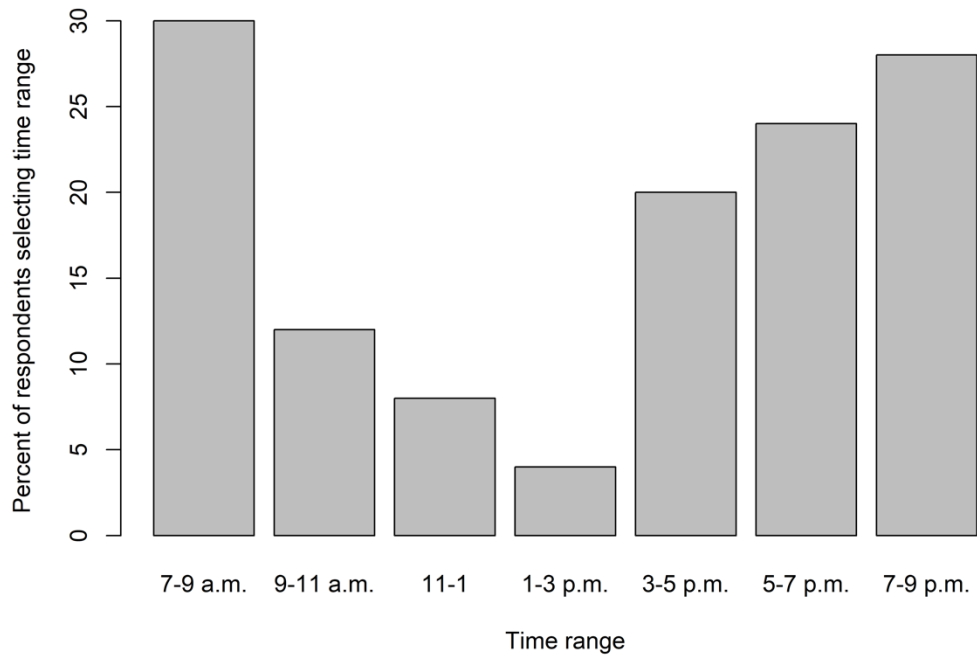


Figure 21 – Angler responses to times of day floating should be prohibited.

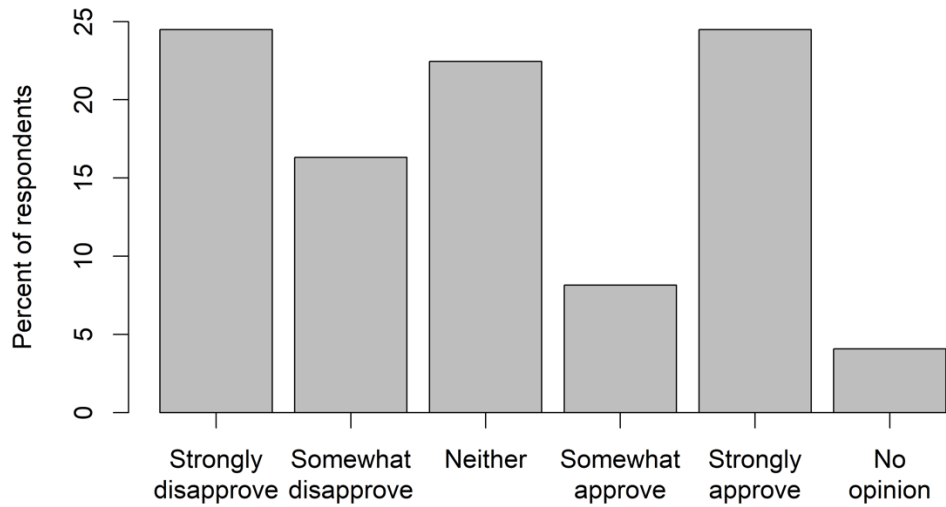


Figure 22 – Angler responses to eliminating stocking of trout.

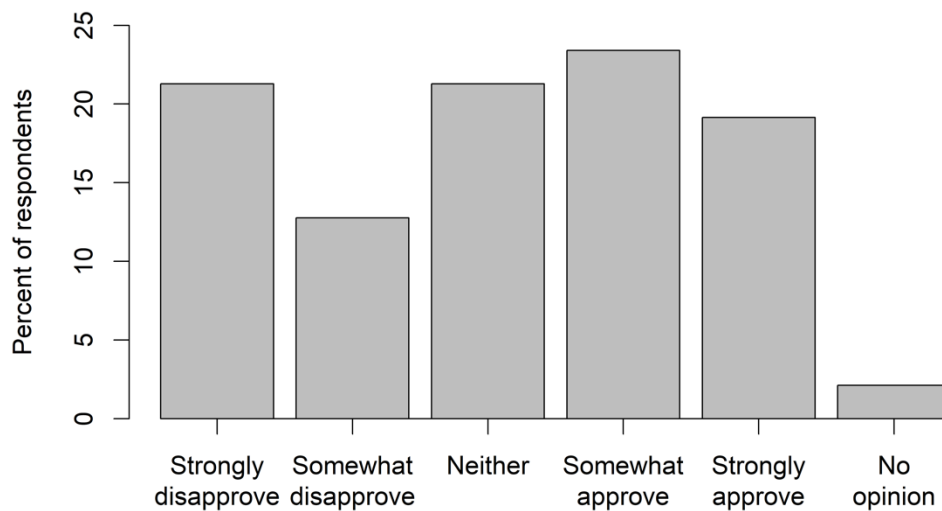


Figure 23 – Angler responses to prohibiting floating on certain days of the week.

DISCUSSION

Floater use of the Big Springs Water Trail has clearly increased in the decades since it was established (Table 1). Although the surveys summarized in Table 1 differ in methodology, the increase from 65-80 floaters per day to over 350 per day is well outside of differences that can be attributed to methodology or sampling error. The 2012 use estimate is large compared to the other recent estimates, although the survey that year was conducted from mid-July through the week of Labor Day, which was the highest period of use we observed in 2019. Mean daily use in 2019 over the time period comparable to that used in 2012 was 486 floaters, closer to the 729 apparent from the CTNF unpublished data. In any case, use appears to have increased at a fairly constant rate of around 6% per year between the early 1980s and the 2010s. On July 6, the date of our maximum observed use, over 100 floaters per hour launched during the peak afternoon hours, greatly exceeding the original intended capacity of 158 users on the river at any one time. More frequent surveys with consistent, statistically robust methodology will be required to determine whether use is still increasing or has leveled off.

Vehicle use has also increased, although vehicle data are available only from the CTNF unpublished 2010 and 2012 surveys and from this study. Despite a much higher daily use rate in 2012, vehicle use was greater in 2019. This difference could be due to changes in the number of floaters delivered to the launch in large groups. Although definitions are not clear in the CTNF data, around 46% of use at the launch was characterized as “commercial” in both 2010 and 2012,

whereas commercial use in 2019 was only 17.7% of the total (Table 1). Our interview-based estimate of 22.7% assumed that floaters interpreted and answered the question correctly and assumed that we encountered floaters randomly among the different take-out areas. The Flat Rock Club caretaker reported observing floaters continuing past Mack’s Inn and taking out at several locations downstream of the bridge. We did not interview floaters at those locations, so our sample-based estimate of Mack’s Inn use was biased in the positive direction. We would have needed to interview only 21 people taking out at locations downstream of the Mack’s Inn bridge to obtain a sample-based estimate of Mack’s Inn use equal to that reported by the concessionaire. Without adjusting for commercial vehicles and numbers of trips in and out of the lot for shuttling, floaters per vehicle averaged 4.6 in 2010, 5.2 in 2012, and 2.1 in 2019, suggesting lower numbers of large-capacity vehicles and perhaps a correspondingly lower percentage of commercial use in 2019. Even given several definite choices such as “guest ranch” or “BYUI” transportation, all of our survey respondents reported using either a personal vehicle or the Mack’s Inn service.

Table 2 – Summary of available data on floater use on the upper Henry’s Fork.

Year	Survey reach	Survey period	Mean daily floater use	Commercial use	Mean daily vehicle use ¹	Source
1983	Big Springs to IP Reservoir	May 25 – Sep 03	82	NA	NA	IWRB 1992 ²
1989	Big Springs to IP Reservoir	May 29 – Sep 10	65	NA	NA	IWRB 1992 ²
1997	Big Springs Water Trail	Jun 14 – Sep 01	161	38%	NA	Van Kirk et al. 1997
2010	Big Springs Water Trail	Jul 22 – Sep 23	321	47%	70	CTNF unpublished ³
2012	Big Springs Water Trail	Jul 21 – Sep 08	729	46%	140	CTNF unpublished ³
2019	Big Springs Water Trail	May 25 – Sep 02	368	18%	174	This study

1. Vehicle use is defined as number of vehicles entering the Water Trail launch area.
2. The IWRB (1992) report summarized results of surveys conducted by Idaho Department of Parks and Recreation but did not include a citation for those surveys. The units of measure are not clearly indicated in the report. Van Kirk et al. (1997) interpreted the reported use as number of boats, but upon more careful analysis, we determined that the reported use is in visitor (floater) days.
3. The unpublished CTNF data report floater and vehicle counts per survey period, defined as one of morning (4 hours), noontime (4 hours), afternoon (3 hours), or evening (3 hours). Without knowledge of how the survey periods or days of week were chosen, we adjusted the data for sampling bias in days of week (weekends versus weekdays) and sampling periods, as well as for duration of the periods. This resulted in estimates that were in proportion to actual distribution of days of the week and sampling periods.

Van Kirk et al. (1997) estimated commercial use at 38% of all use in 1997, providing further evidence that commercial use as a percent of total may be declining. In fact, we found

that only one-third of all floaters even rented a floating device, regardless of whether they used a commercial transportation service. Thus, it appears that a large majority of current floaters are “non-commercial” by any definition, arriving in personal vehicles and using personally owned craft. One notable change in floater characteristics over the years is type of watercraft used to float the Water Trail. In 1997, the only craft types observed were canoes, rafts, and inner tubes. In 2019, kayaks accounted for over 50% of all use, and canoes, rafts, and inner tubes accounted for less than 40% of use.

Not surprisingly, the number of vehicles using the launch area exceeded parking lot capacity on many days, although on the average day, only 3 cars were parked in the lot at any one time and none were parked outside of the lot. Almost all of the vehicles using the parking lot were personal or rental vehicles, as we never observed one of the large-group vans used by Mack’s Inn parked in the lot and only rarely observed large-capacity vehicles of any type in the lot. Our random observations indicated that the parking lot capacity was exceeded around one-third of the time during the summer. Despite heavy vehicle use of the launch area, floaters rarely had to wait in line to launch and when they did, wait times were only a few minutes. Furthermore, in our random visits, we found little evidence that use at the launch negatively affected either the physical condition of the launch facilities or floater experience at the launch. However, CTNF received several complaints about disagreements and discourteous behavior at the boat launch. On three occasions, a person abandoned their vehicle at the launch area and floated the river. In each of those cases, the person was threatened with a violation if they did not immediately move their vehicle.

Use at the take-out area was much more dispersed, since users took out at three different locations near the Mack’s Inn bridge, although the designated take-out was the least used of the three. However, CTNF received complaints from North Fork Summer Home residents about increase in use of the road to the designated take-out, increased dust and excessive speeds. Anecdotal observations suggest that floaters also took out at undesignated sites downstream of Mack’s Inn and parked along the driveway at the entrance to the Flat Rock Club.

Floater satisfaction was extremely high and no different in 2019 than in 1997. In both years, fewer than 10% of floaters interviewed reported any level of dissatisfaction with their experience. Furthermore, the fraction of respondents expressing some level of dissatisfaction with the number of other floaters on the river was similar between years, at 16% in 1997 and 21% in 2019. We found no correlation between number of floaters and satisfaction with the floating experience.

On the other hand, anglers were much less satisfied with their experience than were floaters and were less satisfied than they were two decades ago. In this study, 58% of anglers rated their fishing experience on the survey day as better than “fair,” compared with 85% in 1998 (Van Kirk et al. 1999). Although gap analysis was not done in the 1998 survey, open-ended responses from anglers indicated similar reasons for any dissatisfaction with their fishing

experience, including small fish size, too many users on the river, and poor habitat conditions. Over 60% of survey respondents in 2019 expressed some degree of approval for limiting floating, compared with only 33% in 1997, suggesting that decreased angler satisfaction could be related to increased numbers of floaters on the river. Another factor that could explain lower angler satisfaction in 2019 is a large difference in length of experience fishing the upper Henry's Fork, a factor we found to be negatively correlated with satisfaction. In this study, 40% of respondents had fished the river for 20 years or more, whereas in the 1997 study, fewer than 22% of respondents had fished the upper Henry's Fork for that length of time. In addition, although both studies distributed survey instruments non-randomly to North Fork Club members, the 1997 survey had a much larger sample size and many more responses from anglers randomly encountered on the river. We should note that both HFF and CTNF received reports from anglers and guides that fishing was excellent on the upper Henry's Fork during the fall, after the period of data collection for this study.

Although dissatisfaction with number of non-angling river users was by far the most negative aspect of the fishing experience in 2019, it was not a significant predictor of overall angler satisfaction and did not differ between anglers upstream of the Mack's Inn bridge and those downstream, despite much heavier float traffic upstream of the Mack's Inn bridge. Furthermore, angler satisfaction did not differ between the two river reaches. These results are somewhat contradictory and suggest that although anglers are clearly dissatisfied with the number of non-anglers using the river, their overall fishing experience is determined by a combination of factors, including fish size and quality of habitat, both of which had negative gap scores. Further evidence is provided by degree of angler support for potential management changes. While 63% of survey respondents supported limiting the number of floaters on the river, 67% percent of supported adoption of catch-and-release regulations, indicating that support for management changes aimed at the biological aspects of their fishing experience was at least as high as that for changes aimed at sociological aspects. Written, open-ended comments from anglers further illustrated the multidimensionality of their fishing experience (Appendix B). Despite strong support for catch-and-release regulations, anglers were less supportive of a two-trout limit, possibly because some respondents interpreted the two types of regulations as mutually exclusive and preferred catch-and-release to the two-trout limit, given the choice.

Despite strong support for limiting floaters, there was no strong consensus on use of prohibitions to limit floater use. Of two options presented on the survey instrument, prohibiting floating at certain times of day received the greatest support among anglers, although only 45% expressed some degree of approval and 32% were either neutral or had no opinion. Among those who approved of prohibiting floating at certain times, the times of day suggested were the morning and evening hours, which are the hours already used least by floaters (Figure 24). Thus, even though modestly supported by anglers, this type of management action would have little effect on reducing the number of floaters that anglers encounter on the river.

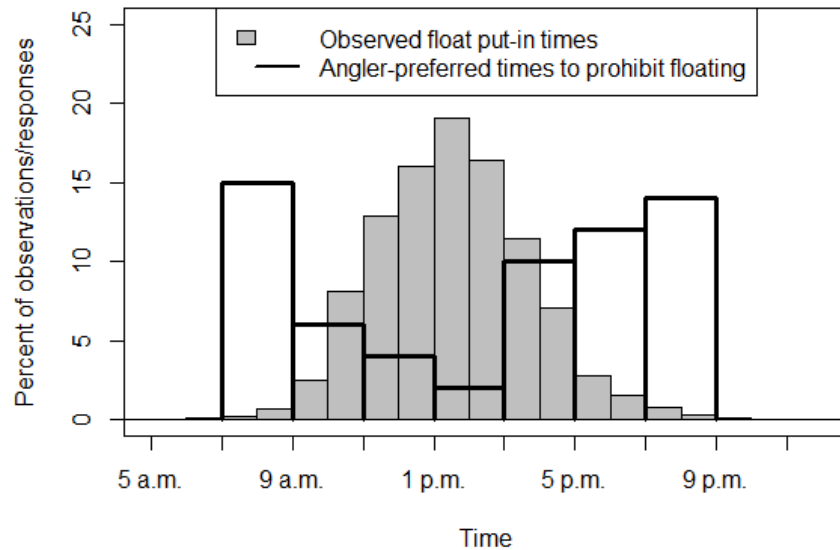


Figure 24 – Distribution of float start times and angler-preferred prohibition.

Conclusions, Management Implications, and Recommendations

As stated in the introduction, this study was not a formal analysis of the recreational use capacity of the Big Springs Water Trail. We did not attempt to determine the maximum number of floaters that can be accommodated on the Water Trail, and we did not address potential ecological effects of floater use. However, we found that the number of vehicles parked at the launch exceeded the number of existing parking spaces around one-third of the time during the summer and by as many as 100 vehicles. Furthermore, floater use frequently exceeded the originally intended capacity of 158 floaters on the river at any one time. During busy times, we observed as many as 100 floaters launching per hour. From these two perspectives, current use exceeds capacity of the Water Trail. On the other hand, the original capacity determined for the Water Trail was intended to maintain a high quality of recreational experience, yet floaters are overwhelmingly satisfied with their experience, will take the trip again, and will recommend the trip to others. Even high use concentrated at the launch point had relatively little if any negative effect on floater experience or on the launch facilities themselves.

As the other large recreational user group on the upper Henry's Fork, anglers were much less satisfied with their recreational experience than floaters, have become increasingly dissatisfied with their angling experience over the years, and were very dissatisfied with the number of non-angling users they encountered on the river. Anglers were strongly in favor of placing limits on the number of floaters that can use the river. Thus, current floater use appears

to exceed a level that maintains the desired recreational fishing experience. However, reported quality of the angling experience was not directly related to dissatisfaction with floaters but rather appeared to be determined by a combination of biological, physical, aesthetic, and sociological factors.

From the manager's perspective, two questions must be answered: 1) Is there a problem? and 2) If so, what management options are available to solve it? This study clearly identified only two "problems," although we should emphasize again that we did not conduct any assessment of effects of floater use on ecological function. First, the parking lot at the launch is too small. The original strategy of building a small parking lot to limit use was obviously unsuccessful, and building a larger parking lot is unlikely to attract any additional use. In this case, management considerations include cost-benefit analysis and whether a larger parking lot in the vicinity of the launch will improve the current recreational experience or could possibly detract from it.

The second problem we identified is increasing dissatisfaction on the part of anglers with both their overall fishing experience and with the number of floaters on the river. Of the many factors that appear to be contributing to angler dissatisfaction, only one—the number of floaters putting on the river at the Water Trail launch—lies fully within the management authority of the Forest Service. The options of prohibiting floater use at certain times of day or on certain days are available to CTNF managers, but these were not strongly supported by anglers. Regulating or limiting commercial use is another option available to managers, but commercial use currently accounts for only 18% of total use, and that percentage appears to be declining. Reducing the quota on the current livery permit is unlikely to reduce overall floater use and will probably increase the number of vehicles using and parked at the launch area, as evidenced by an increase in the number of vehicles relative to floaters over the past decade.

Ultimately, addressing the larger issue of declining fishing quality on the upper Henry's Fork will require a collaborative effort involving CTNF, Idaho Department of Fish and Game, Fremont County, HFF, the upper river fishing clubs, and other stakeholder groups and agencies. Several as yet unsuccessful attempts have been made over the years to organize such an effort, but the pressures of development and increased use of all kinds on the upper Henry's Fork have never been as great as they are now. Given the importance of the upper Henry's Fork from ecological and hydrologic perspectives—especially in the face of a changing climate—it deserves the same scientific and management attention that other reaches of the river have been receiving for the past 35 years. Management of the Big Springs Water Trail is important to the future of the upper Henry's Fork but is only one of many aspects that need attention.

We recommend more frequent monitoring of use on the Big Springs Water Trail, including conducting vehicle counts with a remote counter every year. The Mack's Inn livery report to the CTNF can be used in conjunction with the vehicle count to estimate the number of private vehicles. The estimate of private party size from this report can then be used to obtain a

rough estimate of floater use in absence of direct counts. Because of the high cost of conducting a complete count of all use with a camera, we recommend this be done only every two or three years, as resources allow. If use continues to increase, an in-depth study should be repeated. Regardless, we recommend that an in-depth study be conducted during the environmental review and planning process for upgrade of the Mack's Inn wastewater treatment facility.

REFERENCES

- Burns, R. C., A. R. Graefe, and J. D. Absher. 2003. Alternate measurement approaches to recreational customer satisfaction: Satisfaction-only versus gap scores. *Leisure Sciences* 25(4): 363-380.
- Brunke, K. D., and K. M. Hunt. 2007. Comparison of two approaches for the measurement of waterfowl hunter satisfaction. *Human Dimensions of Wildlife* 12(6):443-457.
- Cole, D. 2009. Ecological Impacts of Wilderness Recreation and Their Management. Pp. 396–407 in C. Dawson & J. Hendee, Editors, *Wilderness management: Stewardship and protection of resources and values* (4th ed.). Fulcrum, Golden, CO.
- Hammitt, W., & Cole, D. 1998. *Wildland recreation: Ecology and management* (2nd ed.). Wiley & Sons.
- Idaho Department of Fish and Game (IDFG). 2019. Idaho Fishing Seasons and Rules, <https://idfg.idaho.gov/rules/fish>. Accessed November 29, 2019.
- Idaho Water Resource Board (IWRB). 1992. Comprehensive State Water Plan: Henrys Fork Basin. Boise, ID.
- Leung, Y., & Marion, J. 2000. Recreation impacts and management in wilderness: A state-of-knowledge review. In D. Cole, S. McCool, B. Borrie, & J. O’Laughlin, Editors, *Wilderness science in a time of change conference—Volume 5: Wilderness ecosystems, threats, and management*, May 23–27, 1999, Missoula, MT. Proceedings RMRS-P-15-VOL-5. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Ogden, UT.
- Schoby, G., B. High, D. Keen, and D. Garren. 2014. Fishery Management Annual Report, Upper Snake Region. Idaho Department of Fish and Game Report #14-101, Boise, ID.
- U.S. Forest Service (USFS). 2019. Big Springs Campground, Caribou-Targhee National Forest. <https://www.fs.usda.gov/recarea/ctnf/recarea/?recid=53759>, accessed November 29, 2019.
- Van Kirk, R.W. and L. Benjamin. 2000. Physical and human geography of the Henry's Fork watershed. *Intermountain Journal of Sciences* 6:106-118.
- Van Kirk, R., A. Frazier, B. Smith, and A. Mali. 1997. Floater use and attitudes on the Big Springs Water Trail and use of Wood Road 16 on the Targhee National Forest. Henry's Fork Foundation, Ashton, ID. 17 pp.

- Van Kirk, R., D. Hanson, G. Peracca, K. Giese, and A. Kitching. 1999. Angler attitudes on the Mack's Inn reach of the Henry's Fork of the Snake River. Report to Idaho Fish and Wildlife Foundation. 17 pp.
- Van Kirk, R., S. Martin, K. Ross, and M. Douglas. 2014. Computer simulation to determine trailhead quotas for overnight wilderness visitor use. *Journal of Parks and Recreation Administration* 32(3):29-48.
- Whitson, J.E. 1981. Management Plan: Big Springs Water Trail, Idaho. United States Forest Service, Targhee National Forest, Island Park Ranger District, Island Park, ID. 11 pp. plus appendices.

Appendix A. Survey instruments

Original version of floater survey

Big Springs Water Trail Floater Attitude Survey

Date: _____

Hi, I'm _____ and I'm conducting a survey of floater experience on behalf of the Henry's Fork Foundation. Are you willing to take 3 minutes to answer a few questions about your float today?

8. Which of the following best describes how you arrived at the Big Springs Water Trail today?

- a. Personal Vehicle
- b. Guest Ranch Transportation
- c. BYU-I Outdoor Program Transportation
- d. Mack's Inn Transportation
- e. Other Outfitter Transportation
- f. Other: _____

9. Did you rent your boat/tube/floating device today or was it privately owned? _____

10. What is your Zipcode?

11. How would you rate your experience

	Very Good	Good	Fair	Poor	Very Poor
At the Put-In					
During the Float					
At the Take-out					

12. How did the number of other users on the river effect your experience today?

- Very positively
- Somewhat positively
- Not at all
- Somewhat negatively
- Very negatively

13. Would you do this trip again? Why/ Why not?
☐ Yes ☐ No

14. Would you recommend this trip to someone else? Why/Why not?
☐ Yes ☐ No

OBSERVE ONLY: What kind of floating device did they use?

☐ Boat ☐ Canoe ☐ Kayak ☐ SUP ☐ Inner Tube ☐ Pool Noodle ☐ Other:

Second version of floater survey, used for all but the first two weeks

Big Springs Water Trail Floater Attitude Survey

Date: _____

Hi, I'm _____ and I'm conducting a survey of floater experience on behalf of the Henry's Fork Foundation. Are you willing to take 3 minutes to answer a few questions about your float today?

1a. Did you or will you use Mack's Inn shuttling services to get to the Big Springs Water Trail put-in today?

☐ Yes ☐ No

1b. IF NO: Which of the following best describes how you arrived at the Big Springs Water Trail today?

- a. Personal Vehicle
- b. Guest Ranch Transportation
- c. BYU-I Outdoor Program Transportation
- d. Other: _____

2. Did you rent your boat/tube/floating device today or was it privately owned? _____

3. What is your Zipcode? _____

4. How would you rate your experience

	Very Good	Good	Fair	Poor	Very Poor
At the Put-In					
During the Float					
At the Take-out					

5. How do you feel about the number of people you saw on the Big Springs Water Trail?

- Saw way too few
- Saw too few
- Just Right
- Saw too many
- Saw way too many
- Did not matter

6. Would you do this trip again? Why/ Why not?

☐ Yes ☐ No

7. Would you recommend this trip to someone else?

☐ Yes ☐ No

OBSERVE ONLY: What kind of floating device did they use?

☐ Boat ☐ Canoe ☐ Kayak ☐ SUP ☐ Inner Tube ☐ Pool Noodle ☐ Raft ☐ Other: _____

OBSERVE ONLY: Which Takeout did the floater use?

☐ Designated ☐ Mack's Inn ☐ Café Sabor

Angler Survey

Big Springs Water Trail – Angler Attitude Survey

Thank you for agreeing to take this survey. We anticipate it will take you about 5 minutes to complete. This survey's purpose is to assess the impact that recreational use of the Big Springs Water Trail has on fishing. This assessment is being conducted collaboratively by the Henry's Fork Foundation and the USDA Forest Service. We greatly appreciate your time and contribution to this effort.

Please fill this survey out based on your fishing experience the day you received this survey or the link to the online survey. Even though you may complete the survey sometime after this day of fishing, we refer to this day as "today," for ease in phrasing and reading the questions. Please fill out only one survey during the season regardless of how many times you fish the Henry's Fork upstream of Island Park Reservoir.

- 1) Angler Location: Were you fishing upstream or downstream of the Mack's Inn Bridge?

☐ Upstream

☐ Downstream

- 2) What is today's date? _____ [e.g., 6/1/19]

- 3) What time did you arrive at the river today? _____ [e.g., 9:05 AM]

- 4) How much time did you spend on the river today? _____ Hours

- 5) How satisfied or dissatisfied were you with each of the following aspects of your fishing experience on the Henry's Fork upstream of Island Park reservoir today?

	Very dissatisfied	1	2	3	4	5	6	7	8	9	10	Very satisfied
(A) The number of fish you caught	1	2	3	4	5	6	7	8	9	10		
(B) The size of fish you caught	1	2	3	4	5	6	7	8	9	10		
(C) The number of opportunities you had to fish to rising fish	1	2	3	4	5	6	7	8	9	10		
(D) The number of other anglers on the river	1	2	3	4	5	6	7	8	9	10		
(E) The number of non-angling users on the river	1	2	3	4	5	6	7	8	9	10		
(F) The quality of insect hatches	1	2	3	4	5	6	7	8	9	10		
(G) The condition of the fish habitat in the river	1	2	3	4	5	6	7	8	9	10		
(H) The aesthetic qualities of the river (e.g., the scenery)	1	2	3	4	5	6	7	8	9	10		

- 6) Overall, how would you rate the quality of fishing on the Henry's Fork upstream of Island Park reservoir today?

☐ Very good

☐ Good

☐ Fair

☐ Poor

☐ Very poor

- 7) What year did you begin fishing the Henry's Fork upstream of Island Park Reservoir? _____ [YYYY]

- 8) How would you rate the overall quality of fishing in the Henry's Fork upstream of Island Park Reservoir this year compared to the quality of fishing throughout the entire period you have been fishing this reach of the river?

Worst

Best

1 2 3 4 5 6 7 8 9 10

- 9) Please list the ZIP code of your permanent residence: _____

- 10) What is your age? _____

11) How important or unimportant is each of the following factors in determining whether you have a high quality fishing experience on the Henry's Fork upstream of Island Park Reservoir?

	Not at all Important	1	2	3	4	5	6	7	8	9	Extremely Important	10
(A) The number of fish you caught	1	2	3	4	5	6	7	8	9	10		
(B) The size of fish you caught	1	2	3	4	5	6	7	8	9	10		
(C) The number of opportunities you had to fish to rising fish	1	2	3	4	5	6	7	8	9	10		
(D) The number of other anglers on the river	1	2	3	4	5	6	7	8	9	10		
(E) The number of non-angling users on the river	1	2	3	4	5	6	7	8	9	10		
(F) The quality of insect hatches	1	2	3	4	5	6	7	8	9	10		
(G) The condition of the fish habitat in the river	1	2	3	4	5	6	7	8	9	10		
(H) The aesthetic qualities of the river (e.g., the scenery)	1	2	3	4	5	6	7	8	9	10		

12) To what extent do you approve or disapprove of the following potential strategies for managing the Mack's Inn reach of the Henry's Fork?

	Strongly approve	Somewhat approve	Neither approve nor disapprove	Somewhat disapprove	Strongly disapprove	No opinion
(A) Change fishing regulations to catch and release	☐	☐	☐	☐	☐	☐
(B) Change fishing regulations to a two-trout limit	☐	☐	☐	☐	☐	☐
(C) Eliminate stocking of trout	☐	☐	☐	☐	☐	☐
(D) Limit the number of people who can float the water trail on a given day	☐	☐	☐	☐	☐	☐
(E) Prohibit floating on certain days of the week	☐	☐	☐	☐	☐	☐
(F) Prohibit floating during certain times of day	☐	☐	☐	☐	☐	☐

13) If you approved of option F above, what times of day should floaters be prohibited? Check all that apply

- | | | |
|--|---|---|
| ☐ 7:00 am – 9:00 am | ☐ 9:00 am – 11:00 am | ☐ 11:00 am – 1:00 pm |
| ☐ 1:00 pm – 3:00 pm | ☐ 3:00 pm – 5:00 pm | ☐ 5:00 pm – 7:00 pm |
| ☐ 7:00 pm – 9:00 pm | | |

14) Please give us any other input you have on management of the upper Henry's Fork, including potential strategies you would like to see implemented.

Appendix B. Additional comments from floaters and anglers

Floater comments

Because the floater interviews were conducted orally, comments were summarized or paraphrased by the clerk. Thus, these comments are not verbatim quotes from the interviewees. They are grouped here roughly by theme.

- There were people blowing up devices at the put-in and fishing where they weren't supposed to be.
- Inconsiderate people at the put-in.
- Other floaters were too loud and were disturbing wildlife.
- Other floaters were playing loud music.
- In 20 years of floating the stretch they saw the most people they'd ever seen on the river today.
- Wouldn't recommend it simply because they don't want more floaters crowding the river.
- Said "no" to the question: "would they recommend this trip to someone else?" because they want to limit crowds.
- Said "no" to the question: "would they recommend this trip to someone else?" because they want to limit crowds.
- Recommends wearing proper shoes, no sandals or flip flops.
- Took them forever because of upstream winds. Wished they would have had paddles of some sort (were floating in inner tubes).
- It was too windy today, but it would be fun on a nice day.
- It's a really nice break from whitewater kayaking
- Appreciates that it's safe for kids.
- The most important thing to me is that the river stays the way it is now for my grandkids. I don't want to see it degraded or the wildlife going away.
- The Café Sabor takeout is dangerous. The docks are in bad shape.
- Doesn't like the designated takeout, too much traffic on a road with lots of kids.
- They would like more alternative shuttling options.
- Irritated at poor service (Mack's Inn).

Angler comments

These comments are taken verbatim from the angler surveys and are listed in no particular order.

- first visit ever to Idaho. I caught fish every day at every location I stopped at. I see no reason to make any changes. The fishing was fantastic
- Awesome fishery, the amount of fish caught was also great. Wish the fish were a little bigger; but nonetheless still had a great time fishing
- Never understood why a motor boat is aloud on this river
- limit huge complexes being built along the river
- better control on how people exit the river so they don't get tangled in lines. additional access points along the river that are vehicle and ATV accessible.
- Limit Floater Permit. Better Water Quality.
- Improve habitat: Food sources
- I'm concerned how the river is not monitored. I've been fishing this stretch for over 50 years and was last asked to see my fishing license in summer of 1966.
- Replied somewhat approve to option C since the habitat is poor - stop stocking when the habitat is improved.
- We've been coming here for 10 years. This was the best fishing in the area we've had. I am worried about the silt build up. Is there more than can be done?
- Catch and release with no stocking seems like a good future goal. Wild trout! Less floaters means more moose sightings.
- I don't think there's any reason for bait-fishing to be allowed on the Henry's Fork. It is too unique of a place and waterway to allow it. I also think there should be a daily max for floaters putting in at Big Springs... not just a 6000 lives limit for Marriot.
- Understand that consumptive use is important for a large number of users, but river cannot support heavy take of fish! Need Habitat!! Willing to speak - (801) 663-9029 -TJT
- I already catch and release, but will occasionally keep trout to eat. My family loves to float the river from Big Springs to Mack's Inn in kayaks. We are always repsectful of any fisher persons we encounter. I don't think there should be restrictions to floating the river, and I don't think there should be days of the week closed to fishing either.