Quantifying and Identifying Recreation Enhancement Opportunities

Sustaining Colorado’s Watersheds - Pre-Conference Workshop
October 2, 2023
Agenda

Recreation Needs Assessment Introduction (10 mins)
Small Group Work (20 mins)
Sharing and Recap of Small Group Work (5 mins)
Project Application (5 mins)
Next Steps for Quantifying Recreation Needs and Opportunities (5 mins)
American Whitewater's Flow Studies

American Whitewater's flow studies document water volumes necessary for a range of whitewater flows between minimum acceptable and optimum, using methodologies to obtain the supporting preference data. The flow studies are designed to give paddlers and river enthusiasts an opportunity to identify their preferred flows for a range of recreational experiences. Recommendations from these studies identify important boating reaches and quantify minimum, optimum, and maximum flows in those reaches to support whitewater recreation. American Whitewater has used several flow study methods to inform the Colorado Basin Supply and Demand Study. In addition, the flow study methods have been utilized in over 80 Federal Energy Regulatory Commission relicensing proceedings. The National Park Service's Hydropower Relicensing Program includes a document that summarizes the flow study methods.

As with many nonconsumptive attributes, streamflow is only one of the many variables that may affect recreational resources. Other factors that affect actual recreational use include but are not limited to the time of year, weather conditions, and river access. It is important to consider nonflow related parameters along with flow in any measurement of floatboating conditions.
Defining Flow Preference and Boatable Days

Flow-recreation studies focus on whitewater boating and float fishing as flow often determines whether people have the opportunity to successfully complete a trip. Flow level often contributes to the risk, challenge, and aesthetic attributes of river-based recreation.

These studies identify important boating reaches and quantify minimum, optimum, and maximum flows in those reaches to support whitewater recreation.

Boatable Days are the number of days in a given year that fall within certain defined flow ranges.

Table ES.1. User-defined flow preferences for reaches included in the Boatable Days assessment.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate Users</td>
<td>Taylor</td>
<td>New Generation to Almont</td>
<td>250</td>
<td>350</td>
<td>600</td>
<td>900</td>
<td>1200+</td>
</tr>
<tr>
<td>Gunnison</td>
<td></td>
<td>Almont to McCabes</td>
<td>300</td>
<td>500</td>
<td>1000</td>
<td>1800</td>
<td>5000+</td>
</tr>
<tr>
<td>Gunnison</td>
<td></td>
<td>Whitewater Park</td>
<td>400</td>
<td>550</td>
<td>1200</td>
<td>1600</td>
<td>5000+</td>
</tr>
</tbody>
</table>
Defining Flow Preference and Boatable Days

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Figure ES.1. Commercial rafting results for the Taylor River between the commercial put-in at Todd’s Slot and South Bank Access. A) Boatable Days results by year type and B) Year type hydrographs overlaid with identified flow preferences. Grey hydrograph lines represent the minimum and maximum flow recorded over the 43-year period of record and do not represent a single annual hydrograph.
Small Group Work Set Up

Your table should have three graphs. Break each table into two groups and each group take a graph. Identify which group at the table will represent the commercial recreation industry and who will represent the environment. Take a few minutes to discuss and decide on a few goals for the interest your group is now representing. Develop an ‘ideal’ hydrograph based on your interest group using 40 sticky notes. Each month must include some flow (at least one sticky note) and you cannot use more than 40 to complete your hydrograph. Next develop a third hydrograph with your whole table, optimizing the hydrograph to meet as many recreational and environmental goals as possible.

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Taylor River (South Bank to Five Mile) for Commercial Users</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>600</td>
<td>1000</td>
</tr>
</tbody>
</table>
Group Work Recap

What were goals for your interest group? Recreation and Environment?

How did you optimize for both in-channel uses?

Did other considerations come up? Effects of changing runoff patterns? Reservoir operations and downstream deliveries?
Gunnison WMP Web-based Boatable Days Tool

Jul 7:
Max. Flow: 1200
Wet: 656
Wet. Typical: 404
Dry. Typical: 322
Dry: 252
Min. Flow: 57
Custom.1: 300
Custom.2: 0
Gunnison WMP Web-based Boatable Days Tool
## Gunnison WMP Web-based Boatable Days Tool

### Annual Boatable Days Totals

<table>
<thead>
<tr>
<th>Year Type</th>
<th>Flow Condition</th>
<th>Total Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom.1</td>
<td>Lower Acceptable</td>
<td>45</td>
</tr>
<tr>
<td>Custom.1</td>
<td>Minimum Navigable</td>
<td>78</td>
</tr>
<tr>
<td>Dry.Typical</td>
<td>Lower Acceptable</td>
<td>39</td>
</tr>
<tr>
<td>Dry.Typical</td>
<td>Minimum Navigable</td>
<td>85</td>
</tr>
</tbody>
</table>
**Monthly Results & Annual Results**

**Monthly Boatable Days Totals**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom1</td>
<td>16</td>
<td>30</td>
<td>14</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Dry Typical</td>
<td>6</td>
<td>10</td>
<td>29</td>
<td>31</td>
<td>26</td>
</tr>
</tbody>
</table>

- **Flow Condition**:
  - Lower Acceptable
  - Minimum Navigable
Project Background and Expectations

Inform the next Colorado Water Plan Technical Update (2025 to 2029)

Statewide review and buy-in

Phased project approach
Phase 1 Steps

1. Identify and map current water-based recreational locations
2. Define metrics to identify impacts and opportunities
3. Collect available information for metric evaluation
4. Identify locations where more information is required
5. Document current water sharing agreements that enhance recreational opportunities
6. Identify and initiate outreach for potential water sharing opportunities for up to three high priority recreational locations

Results Managed in Recreational GeoDataBase
Phase 2 Steps

1. Fill identified data gaps to complete Geodatabase
2. Quantify existing impacts and future risks from diminished streamflows and watershed yield
3. Identify opportunities to reduce those impacts and risks and/or provide improved flows
4. Move identified potential water sharing opportunities forward

Final Recreational GeoDataBase for use in Colorado’s Water Plan Technical Update
Work to date - Data sources used

Currently includes:

- BLM Recreation Sites Dataset (fishing access, campsites, boat launches etc.)
- Endless Waves River Surfing Locations Dataset
- Colorado State Parks and Wildlife Areas
- River walks and river corridor amenities
- CPW Low Head Dam Inventory
- USFS Recreation Opportunities Dataset (fishing access, campsites, boat launches etc.)
- Ski areas/snowmaking
- National Parks and Monuments
- Recreational In-Channel Diversions

Future Inclusions:

- CPW COTREX Dataset (campsites, boat launches, fishing access etc.)
- CPW Fishing Atlas Dataset (fishing access and gold medal reaches)
- American Whitewater Datasets
### Work to date - Current Example Map

**Colorado River Identified Recreation Sites**

#### Statistics

- **River Surfing Sites**: 10
- **USFS**
  - Total Water-Based Sites: 108
  - Camping Sites: 74
  - Beaches: 1
  - Fishing: 5
  - Picnicking: 17
  - Water Activities: 11
- **BLM Sites**
  - Total Water-Based Sites: 223
  - Camping: 96
  - Day Use Site: 26
  - Parking Area: 27
  - Access Point: 9
  - Water Based Sites: 44
  - Toilets: 21
Work to date - Current map

Gunnison River Identified Recreation Sites

Statistics

River Surfing Sites - 2

USFS
Total Sites - 77
Camping Sites - 52
Fishing - 5
Picnicking - 8
Water Activities - 11
Beaches - 1

BLM
Total Sites - 133
Camping Sites - 80
Water Based Site - 16
Day Use Site - 11
Toilet - 4
Parking Area - 4
Access Point - 18
Proposed GeoDatabase Attributes

River reaches (in River Recreation) – Line Coverage

- River name
- Reach Miles
- River recreation use 1 (for example white water kayaking)
- Optimum flows for use 1
- River recreation use x (for example white water rafting, stand up paddleboarding, angling, tubing, etc.)
- Optimum flows for use x
- Recreational constraints (for example access, restroom facilities, parking, river closures due to water quality issues, river obstructions, etc)
- Sport Fish Species
- Information source (for example, American Whitewater surveys, CPW biologist information, decrees, planning documents)
- Link to other documented information (for example, memo/fact sheet regarding economic benefits, river use days, water rights if RICD or instream flow reach, etc.)
Proposed GeoDatabase Attributes

Flatwater Recreation – Point Coverage

- Reservoir/Lake Name
- Ownership Information
- Non-recreational Reservoir Uses (for example municipal or agricultural)
- Surface Area (acres)
- Capacity (acre-feet)
- River Source
- Recreation use 1 (for example motor fishing boats)
- Optimum Storage levels for use 1
- Recreation use x (for example shore fishing, swim beach, stand-up paddleboarding, non-motorboats, trails, waterfowl hunting)
- Optimum Storage levels for use x
- Recreation constraints (for example storage levels for boat launches, restroom facilities, parking, water quality closures, etc.)
- Sport Fish Species
- Information sources (for example CPW, City of Lakewood, studies, etc)
- Link to other information (for example, memo/fact sheet regarding economic benefits)