YAMPA-WHITE BASIN WATERSHED FLOW EVALUATION TOOL

Yampa-White Basin Roundtable Meeting

January 18, 2012

Overview

- Study Objectives
- Overview of Work Projects and Summary of Results
- Conclusions and Recommendations
- Next Steps

Study Objectives

- Develop the Watershed Flow Evaluation Tool (WFET) in the Yampa-White Basin
- Develop ecological and recreational risk mapping and the associated range of flow for the attributes mapped previously by the Yampa-White Basin Roundtable
- Assess whether water that is being delivered as part of existing water rights and Colorado River Compact deliveries in the Yampa-White Basin supports nonconsumptive needs in the basin

Overview of Work Products and Summary of Results

- Flow-ecology metrics for trout, warm water fish and riparian attributes
- Flow-ecology risk maps for trout, warm water fish and riparian attributes
- Recreational flow survey and flow ranges from major recreational reaches
- Recreation usable days analysis
- Ranges of flow for the attributes mapped previously by roundtable (includes information on Threatened and Endangered Species flow recommendations)

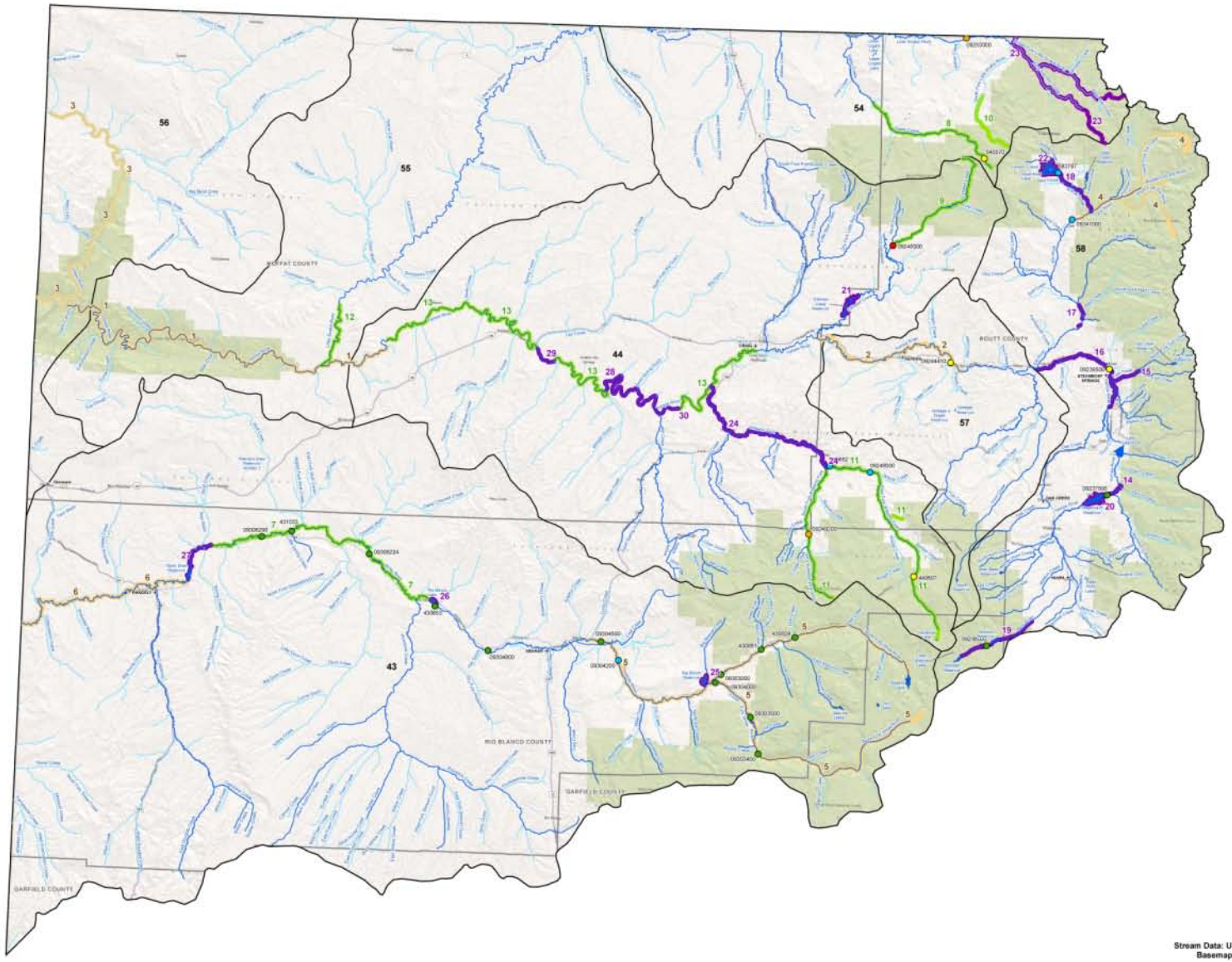


Figure 3-1

Trout Flow-Ecology Risk Mapping (Current Overview)

Yampa - White Basin Watershed Flow Evaluation Tool

- <10% Inadequate to support trout (Very High Risk)
- 10% to 15% Inadequate to support trout (High Risk)
- 16% to 25% May severely limit trout stock every few years (Moderate Risk)
- 26% to 55% Low flow may occasionally limit trout numbers (Minimal Risk)
- >55% Low flow may very seldom limit trout (Low Risk)

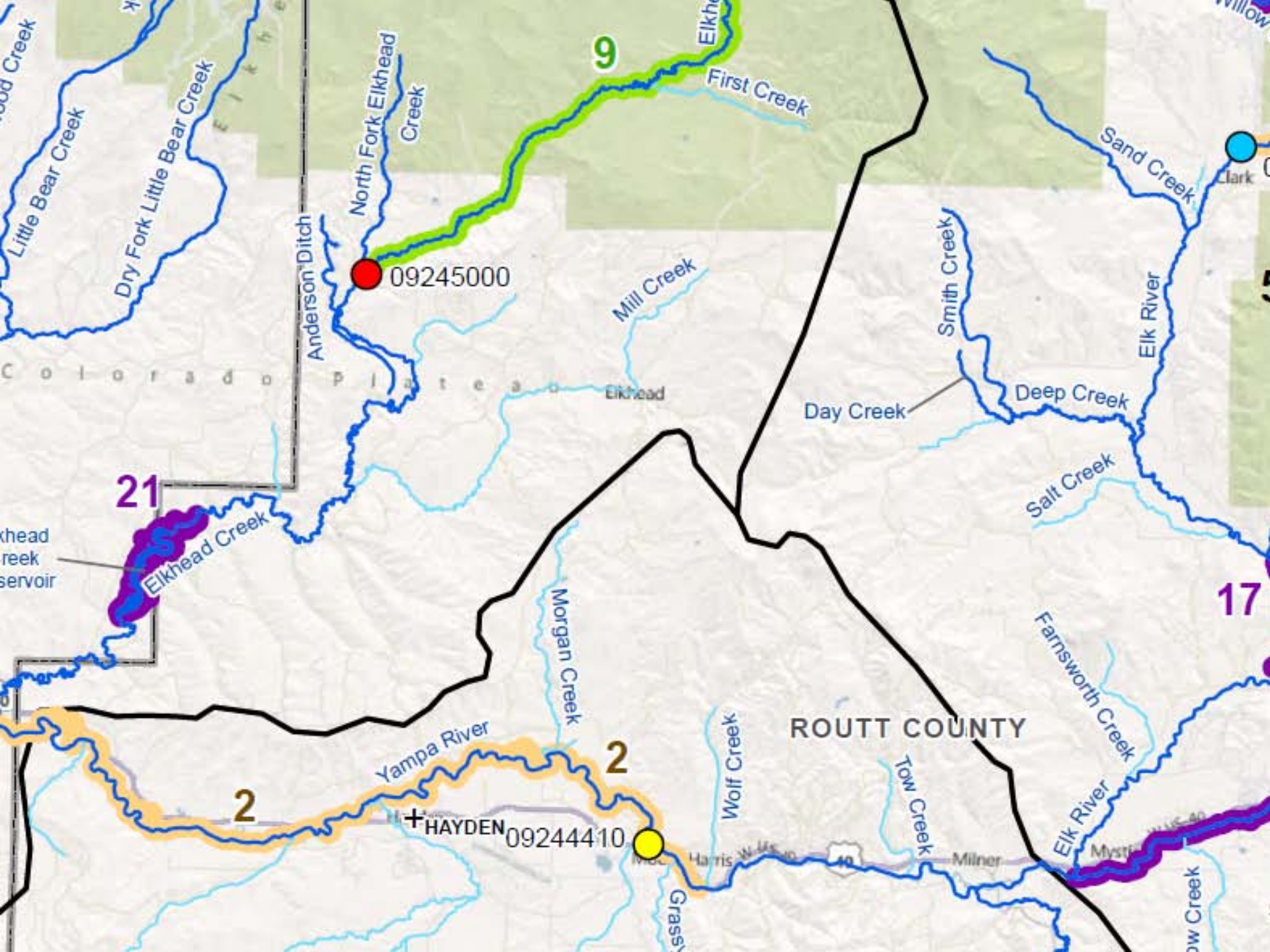
- Study Stream
- Stream
- Environmental Segments
- Environmental and Recreational Segments
- Recreational Segments

- Highway
- Road
- City and Town
- Yampa - White Basin Water District
- Lake and Reservoir
- County Boundary
- National Forest / State Park

N W E S

0 2.5 5 10 15 20 Miles

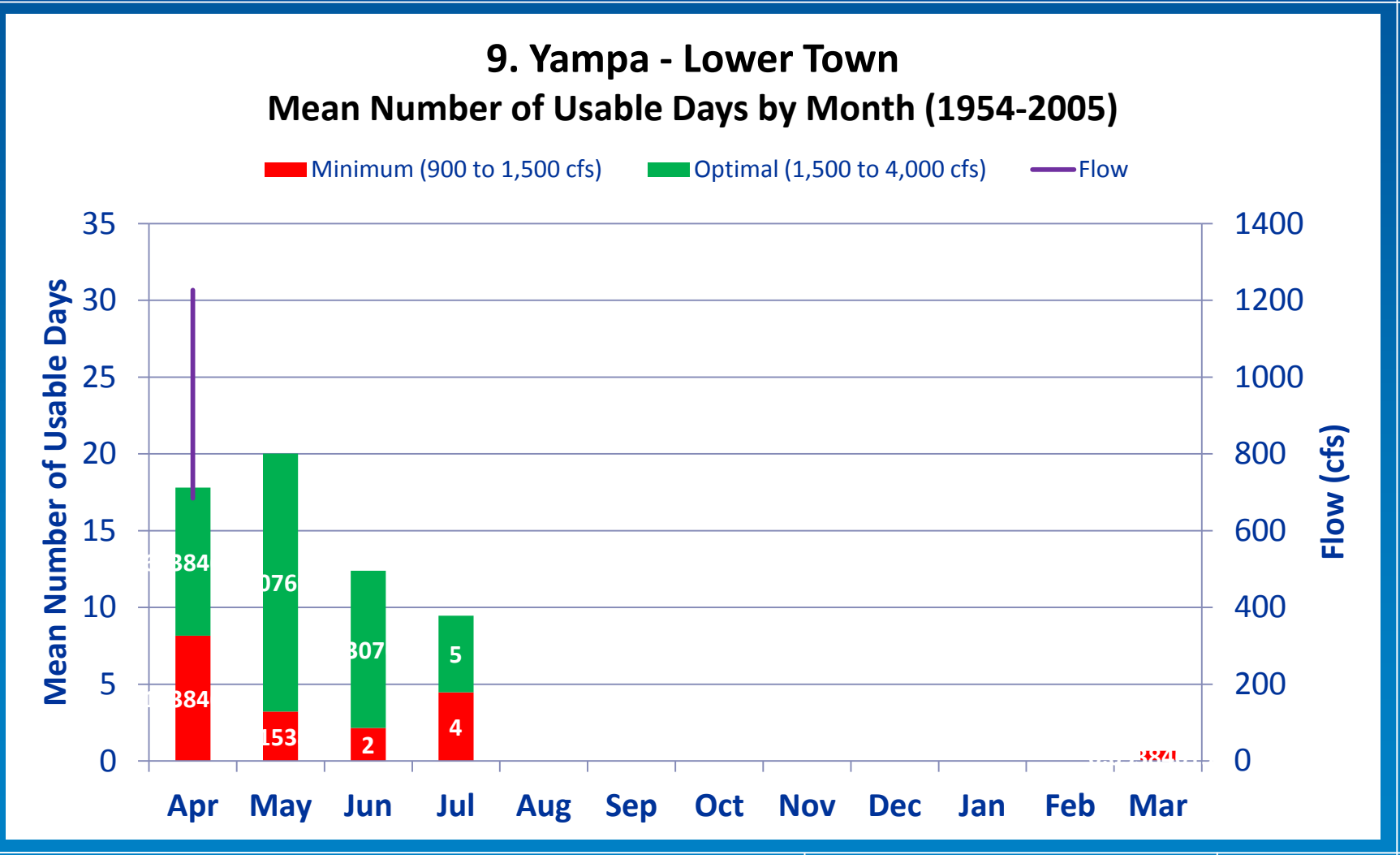
CDM Smith


9
First Creek
Elkhead
North Fork Elkhead Creek
Little Bear Creek
Dry Fork Little Bear Creek
Anderson Ditch
09245000
Mill Creek
Colorado Plateau
Elkhead
Sand Creek
Clark
Smith Creek
Elk River
Day Creek
Deep Creek
Salt Creek
21
Elkhead Creek
17
Morgan Creek
Farnsworth Creek
ROUTT COUNTY
Yampa River
2
2
HAYDEN
09244410
Wolf Creek
Tow Creek
Milner
Elk River
Harris
Grass

Recreational Flow Ranges

Segment	Minimum (cfs)	Optimal (cfs)	Highest (cfs)
1 Fish Creek	400	800-1,000	1,400
2 Steamboat Town	700	1,500-2,700	5,000+
3 Elk River Box	700	1,000-2,100	5,000+
4 Elk River - Clark	700	1,300-4,000	5,000+
5 Willow Creek	300	700-800	1,250
6 Mad Creek	400	400-1,000	2,000+
7 MF Little Snake	500	800-1,100	2,000+
8 Slater Creek	600	1,100-2,100	3,000+
9 Yampa – Lower Town	900	1,500	4,000
10 Little Yampa Canyon	1,100	1,700-2,500	10,000+
11 Cross Mountain Gorge	700	1,500-3,500	5,000
12 Yampa Canyon	1,300	2,700-20,000	20,000+
13 Gates of Lodore	1,100	1,900-15,000	20,000+
14 SF White River	700	2,500-3,500	10,000
15 White River above Kenney Reservoir	700	1,500-2,500	10,000+
16 White River Rangely to Bonanza	700	1,500-5,000	10,000+

Usable Days Analysis



Range of Flow Summary

- See Handout

Conclusions

- Flow ecology relationships were developed for trout, warm water fish and cottonwood (riparian) attributes or changes in the hydrology related to climate change.
- The watershed scale, science-based maps of flow-related ecological risks throughout the drainage correspond well with current understanding of impacts resulting from flow management.
- In general, across the entire White River Basin, the majority of trout and warm water fish locations examined indicate minimal to low flow-ecology risk

Conclusions

- For the Yampa River Basin, the trout and warm water fish locations were mostly low to minimal flow-ecology risk with higher moderate to high locations than the White River Basin
- For both the Yampa and White River Basins, the majority of cottonwood locations examined indicate low to minimal flow-ecology risk for riparian areas
- Baseline information was developed for whitewater boating attributes and these results can be utilized in the future to understand how the amount of usable days may vary in the future due to changes in water management

Conclusions

- The WFET and recreational analysis conducted during the study do not address every issue affecting non-consumptive outcomes and flow-related decision-making should be embedded in a framework of planning for all factors affecting these outcomes

Recommendations

- In the near term, use the WFET in conjunction with the focus area map and the process described above to identify strategies and implementation plans for long-term protections
- In the medium and long term, use the WFET and recreational flow analysis results to analyze scale and distribution of expected flow-related risk to non-consumptive attributes resulting from new development projects, a Compact call, and/or climate change

Next Steps

- Nonconsumptive Committee and Roundtable Review Draft Report
- Finalize Report