

## **Rio Grande Basin Stream Management Plan**

### **Hydrology Kickoff Meeting Notes**

Monday, February 25<sup>th</sup> at 2:00 pm  
San Luis Valley Water Conservancy District  
623 Fourth Street,  
Alamosa, CO 81101

Introductions – Allen Law (RiGHT), Steve Russell (RGHRP), Rob Phillips (SLVID), Nathan Coombs (CWCD), Mike Gibson (RGHRP), Kestrel Kunz (AW), Kara Sobieski and Brenna Mefford (WWG), Cath Morin (RGHRP), Emma Reesor (RGHRP), Heather Dutton (SLVWCD), Sue Swift-Miller (BLM), Tony Aloia (CPW), Jeremy Gallegos (CPW), Jenny Nehring & Cary Aloia (Wetland Dynamics), Andrea Jones (USFS), Tristram Post (USFS), Jesse Jaminet and Geoff Warden (DWR), Patrick Moran (USFS), Chris Chaffer (USFWS), Heather Greenswolf (HA), Emily Chavez (Bird Conservancy/NRCS), Rio de la Vista (Salazar Rio Grande del Norte Center)

#### **Daniel: Overview of RGSMP Objectives**

- Reminder of RGSMP objectives and framework
- Highlighted the overall purpose of SMPs, quoting the Colorado Water Plan: “The purpose of a SMP is to provide the framework for maintaining healthy stream systems while also protecting local water uses and planning for future consumptive and nonconsumptive water needs.”

#### **Daniel: Update on biological and infrastructure assessments.**

- Riparian vegetation: McBride Biotracking completed a site-level assessment of riparian vegetation.
  - The assessment includes 26 sites distributed across the SMP project area (Rio Grande, Conejos River, and Saguache creek). 280 taxa were noted, of which 255 were identified to species.
  - Following a modified version of the Colorado Natural Heritage Programs (CNHP) Ecological Integrity assessment (EIA) protocol, it assessed several metrics including site buffer characteristics and native vs. nonnative vegetation cover and diversity. Each site receives a letter grade indicating its overall condition.
  - Each site received a letter grade as well as restoration and management recommendations
  - There are some critical thresholds between letter grades to pay attention to (outlined in powerpoint)
  - A remote sensing study of riparian vegetation will be paired with the site-level data collection. This utilizes GIS tools to identify the riparian zone for each stream and to analyze LANDFIRE imagery to assess the current condition of riparian vegetation across the project area.

- Water Quality – Daniel described the process for assessing water quality, which involved a compilation of data collected by RGHRP summer 2018 and most recent available CDPHE data.
- Aquatic Life – Daniel described the process for assessing both macroinvertebrate health and fish populations. This assessment is underway, pending the completion of macroinvertebrate sample processing. Samples are being processed at a lab in Fort Collins. This assessment uses CDPHE’s multimetric index (MMI) to assess macroinvertebrate health.
- Diversion structure inventory – This assessment is underway. It will show the current condition of headgates and diversion dams as well as any streambank erosion or other channel conditions affecting/threatening instream infrastructure.
  - Recommendations for each structure will be included in the report.

**Hydrology Assessment: Wilson Water Group (Kara and Brenna): Description of hydrology assessment design and outputs.**

The hydrology assessment includes 5 main steps:

1. Meet with water commissioners to understand existing uses and hydrology
  2. Work with SMP project team to identify hydrological points of interest, or “nodes”
  3. Obtain streamflow and diversion data
  4. Develop and calibrate point flow models where necessary
  5. Develop streamflow data and statistics at hydrological points of interests
- Brenna showed maps of hydrology nodes for each prioritized stream:
    - Rio Grande: 11 points of interest/nodes (including 2 ungauged locations)
    - Conejos: 10 points of interest/nodes (7 ungauged locations)
    - Saguache: 4 points of interest/nodes (3 ungauged locations)

\*For a description of each node, please see the **hydrology node document attached to the email.**
  - Point-flow models:
    - Models will be calibrated to historical conditions/streamflow. These models will allow us to identify hydrologic stressors as well as general hydrologic trends, but they are less useful for predicting “what-if” scenarios.
 

\*Point-flow models will not be necessary on the Rio Grande, as all but two points of interest are located at gauging stations. For the two ungauged locations, flows can be estimated by average precipitation and drainage area of tributary streams.
  - Assessment will primarily use stream gauge data and diversion records from DWR.

- Streamflow data & statistics will include:
  - Streamflow data from 1998-2017 → showing dry, average, and wet hydrographs at each node
  - Flow duration curves (to be used for geomorphology assessment's sediment transport calculations).
  - Peak flows (to be used for geomorphology assessment and to characterize hydrology of the prioritized streams).
  
- Kara explained that the data and graphs will tell the stories of each stream's hydrology, including the over appropriated nature of the RG Basin. She explained the data **will also tie into other assessments (Boatable Days study, aquatic habitat target flows, geomorphology, etc.)**. **Some of the outputs from the assessment will be used directly for the geomorphology assessment and to support the Boatable Days study. See below for more details.**
  
- **Kara explained the period of record and why it was chosen. 1998 - 2017 was chosen because 1) it best reflects current water administration, and 2) it represents the current hydrology of the prioritized streams as well as predicted future hydrology.**

Questions about data used for hydrology assessment:

- Rio: asked about dust on snow and how data could be included? Kara: She is familiar with effects of dust on snow, however she's not aware of a dataset that accurately captures the effect of this phenomenon in the Rio Grande Basin. Rio mentioned the Silverton monitoring station. Kara said we can talk about incorporating that if it's of interest to the TAT.
- Steve Russell: Are you going to factor in impacts of forest fires on runoff? Kara: We could correlate to past events (e.g. West Fork Complex Fire) to show effect of wildfires on runoff, but that isn't currently included in the assessment.

#### **Description and update on boatable days study, Kestrel (AW):**

- Boatable days survey - 132 participants responded to the survey!
  
- AW reviewed survey content. Results show the majority of the participants are Class III or higher boaters (84%) and are comfortable reporting flows (63%).
  
- Kestrel explained that the survey utilized two main questions to define how changes in streamflow influence recreation quality: 1) overall flow evaluations, and 2) single flow judgements. Kestrel explained that these two main questions allow AW to evaluate the frequency of defined acceptable and optimal flows for each reach using **survey results and hydrographs from each hydrologic point of interest**. In addition, by asking survey respondents

to specify their craft type, AW can determine the number of boatable days per reach for each craft type.

- Next steps: Kestrel showed an example of the data analysis AW will perform for each boatable days segment. Analysis will include minimum, optimal, and maximum boating flows for each segment, illustrated by graphing those flows (in cfs) with a hydrograph from the nearest hydrologic point of interest. Hydrographs will include dry, average, and wet curves using the 1998-2017 period of record to illustrate variations in flow.

\*The PowerPoint includes a map of the segments used in the Boatable Days survey. **You can also find them in the handout attached to the email.**

Questions about the Boatable Days study:

- Jenny: Does weather, especially cold weather, factor into the number of boatable days? For example, if it's early season (e.g. early May), and most boaters aren't going to be out even if there are adequate flows, does that still count? What percent of commercial boaters responded? Kestrel: the survey did not account for cold or inclement weather in the shoulder seasons; results will represent the total number of boatable days based on flows. 88% of respondents were non-commercial. However, some of those respondents may be employees of commercial outfitters.
- Jeremy: Noted that CPW breaks down commercial use by type, and different times of year suit different types of boating

#### **Methodology for Aquatic Habitat Assessment Methodology, Daniel.**

- Described the methodology to define target flows for aquatic habitat. Specifically, reaches that serve critical aquatic habitat needs were selected in conjunction with CPW and USFS fisheries staff. A map of prioritized aquatic habitat reaches can be seen in the PowerPoint.
- Within each reach, the R2-Cross protocol will be used to collect detailed data on stream geomorphology. Using R2-Cross data and input from fisheries experts, we will define reach-specific target flows for aquatic habitat needs.
- **Similar to the Boatable Days study, hydrographs resulting from the hydrology assessment will be used to determine how frequently aquatic habitat target flows are being met.**

#### **Description of geomorphology assessment and how it will be integrated into and build off hydrology assessment, Daniel.**

- Daniel said the geomorphology assessment will be completed by Round River Design, Inc. and Watershed Science and Design, LLC.
- Methodology/Key features: Primary outputs of the geomorphology assessment are:
  - Delineate geomorphic reach breaks

- Classify each reach (using River-Styles and Rosgen)
- Identify channel stressors:
  - 1) Active, problematic bank erosion
  - 2) Geomorphic change indicators (e.g. headcuts/bars/islands/chutes/debris jams)
  - 3) Sediment transport barriers/disruptions (using flow duration curves)
  - 4) Channel alteration (e.g. channelization, dredging)
- Daniel showed a map of the geomorphic reach breaks, which can be seen in the PowerPoint.
- This assessment will primarily utilize remotely-sensed data to assess these geomorphic conditions. Contractors will include field truthing to ensure accuracy of results.
- The geomorphology assessment will use flow duration curves from the hydrology assessment and cross sections/pebble counts from the aquatic habitat assessment to calculate sediment transport. Daniel also noted that channel migration and trajectory will be assessed for key reaches.

#### **Next Steps, Daniel.**

- Described the framework for identifying and implementing goals to improve flows and physical stream conditions:
  - Community meetings will be held to present results and key findings from conditions assessments to stakeholders. These meetings will also refine our understanding of community values.
  - Ultimately, we will identify and prioritize projects and actions that address multiple stakeholder needs and values.
- Daniel emphasized that the SMP is a great opportunity to build on collaborative approaches to water management that already exist in the SLV.
- Daniel also showed a timeline for each assessment as well as stakeholder meetings and report preparation.

#### Questions regarding framework for identifying and implementing goals:

- Andrea: Each watershed/river is different, will these differences be captured in the SMPs?  
Daniel: Yes, each SMP will include a characterization of the subbasin (i.e. Rio Grande, Conejos, and Saguache Creek). That characterization will account for variations in hydrology, geography, stakeholder groups, etc. Community meetings will be held in each subbasin to maximize efficiency and to tailor each meeting to specific basin issues.