

White River Algae Meeting

February 13, 2019

1:00 @ Sheriff's Training Room

Meeker, CO 81641

Alden Vanden Brink	Kurt Nielsen	Tristan Nielsen	Tyler Adams
Ben Rogers	Mindi May	Bob Regulski	Bailey Franklin
Brian Hodge	Perry Cabot	Brett Harvey	Bob Tobin
Callie Hendrickson	Si Woodruff	Colton Brown	Leif Joy
Cory Williams	Terry Smalec	Denver & Janet Hayes	
Hunter Causey	Tiffany Jehorek	Matt Weaver	
Jocelyn Mullen	Tory Eyre	Shawn Welder	
Ken Leib	Travis Day	Susan Nall	

Welcome and Introductions: Facilitator, Callie Hendrickson, welcomed everyone. She noted that the purpose of the meeting was to finalize the SOW.

Review/Highlights from December Meeting:

- Ken Leib – USGS W. Colorado Office Chief:
 - Goal: Document and understand benthic algal occurrence, characteristics, and controls at multiple locations within the White River (WR) study area.
 - Study Design and Approach
 - Historical Analysis and Literature review (2018-19): Streamflow, water temp, and nutrient trends; Historical synthesis
 - Physical and chemical characterization/ data collection (2018-20): Peak-flow condition measurements; Channel surveys, grain-size analysis, continuous QW monitoring; Water quality sampling
 - Algae sampling (summer 2018-20)
 - Isotope sampling (2018,2019)
 - Nutrient load/source area analysis (fall 2020)
 - Statistical analysis and report (2021)
 - 2018 activities and findings: Historical analysis, physical characterization/data collections, algal sampling, QW monitoring, isotope sampling
- Cory Williams – USGS W. Colorado Studies Chief
 - Historical Analysis – Patterns in data:
 - Streamflow – WR near Meeker (Chart) shows decreasing trend in flow patterns since 1900
 - Water Temperature (Chart) – data indicates increasing daily-mean temperatures during May-Sept. between 1979-84 and 2007-17
 - Water-Quality (WQ) Trends (Nutrients): To help provide answers about sources of nutrients and timing of change, USGS looked at multiple variables such as trends adjusted for variability due to time, streamflow, and season. WQ Concepts are Concentration and Flux.
 - Kjeldahl Nitrogen (Charts): little to no change in annual concentration; approximately 13% increase in flux; large increase in concentration during spring at high flow and decrease during winter months; decrease in concentration and flux downstream of Meeker.
 - Total Phosphorus: increased during snowmelt-runoff (high flow) and decreased during fall and winter months; decrease in concentration downstream of Meeker
 - Site Locations: 20 sites were selected, one was withdrawn during the field season due to lack of landowner permission.
 - Physical Characteristics:

- Characterized peak-flow energy, channel geometry, and streambed grain size
 - Hydraulic analysis of streambed movement relies on: stream velocity, sediment acoustics, and high-water marks/cross-section surveys
- Continuous Water Quality 2018:
 - Dissolved Oxygen (DO) Observations: Low-flow may exacerbate DO conditions; large changes from day to night, low concentrations and percent of saturation at night mostly; downstream sites tended to have lower concentrations; no fish kills were observed; algal life-stage affects DO patterns
- Algae 2018: algal samples were collected at 19 USGS study sites and analyzed.
 - Notes: several types of algae were present; variations along cross-sections; Cladophora was found at each site; more algae at downstream sites; algal conditions were variable between sites and at a site through time
- Isotope Analysis: intended to aid in identification of sources of nitrate in the watershed.
 - 2018 field work: samples were collected and analyzed for nitrate concentrations at 6 locations, concentrations were too low for isotope analysis; sampling and nitrate analysis is ongoing, USGS is exploring alternative sampling approaches to meet target concentration range
- 2019 activities and adaptive management discussion topics:
 - Historical analysis and literature review (2018-19)
 - Physical and chemical characterization/data collection (2018-20)
 - Algae sampling (summer)
 - Isotope sampling (June 2019)

See <http://www.whiterivercd.com/white-river-algae-working-group.html> for Power Point presentation and more info.

- Notes:

- CO State threshold for nitrogen levels is 1.25 mg/L (annual medium)
- Cladophora is not always the dominant form of algae in some areas

Army Corps of Engineers (ACE) Permitted Activity in Recent Past:

- Tyler Adams - Project Manager and Susan Nall - Section Supervisor
 - Regulatory Authorities:
 - Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged or fill material into waters of the U.S.
 - When is a project regulated?
 - When a project involves the discharge of fill in Waters of the U.S. (WOTUS). Examples: Rivers, streams, lakes ponds marshes springs, etc.
 - Fill material is: material placed in WOTUS where the material has the effect of replacing any portion of a WOTUS with dry land; or changing the bottom elevation of any portion of a water of the U.S.
 - Six Exemptions
 - 1.) Normal farming and ranching such as plowing, seeding, harvesting, etc 2.) Maintenance activities 3.) construction and maintenance on stock ponds or irrigation ditches 4.) construction of temporary sedimentation basins 5.) nonpoint source pollution activities 6.) construction or maintenance of farm roads, forest roads or temporary roads for moving mining equipment
 - Maintenance activities, and Construction and maintenance are dealt with most commonly.
 - Aquatic Resource Delineation
 - Wetland delineations - 3 Parameter approach: 1.) Hydric Soils 2.) Hydrophytic Vegetation 3.) Hydrology
 - 1987 Wetland Delineation Manual: Describes methods used to delineate wetlands
 - Available Permits
 - Nation Wide Permits (NWP)
 - Re-issued every five years.
 - In Colorado 104 Water Quality Certification issued by statute for all GPs

- NWP Applications
 - NWPs may or may not require a Pre-Construction Notification (PCN)
 - ACE encourages land owners to have pre-app discussions to verify whether a project is permissible/acceptable
- Regional General Permits (RGP)
 - RGP 12 – Aquatic Habitat Improvements for Stream Channels in Colorado.
 - Notification and approval procedures: CPW authorization is required, provide that documentation to ACE in the pre-app process
 - RGP 37 – Stream stabilization projects in CO
 - Is a common permit in Colorado
 - Pre-application coordination with ACE is very important
- Individual Permits (IP)
 - Required when no NWP or RGP fit the description, or there are more than minimal effects
 - Requires: Public notice, alternatives analysis, 404(b)(1) guidelines – Public Interest Factors, Least Environmentally Damaging Practicable Alternative (LEDPA), Individual WQ Certificate.
 - Highest level permit
- General Conditions are required in all permits
 - Common General Conditions: GC #18: Endangered species and GC #20: Historic properties
- Mitigation of Impacts: necessary to ensure that adverse effects on the aquatic environment are minimal
 - Sequence of mitigation: 1.) Avoid 2.) Minimize 3.) Compensate
- Enforcement
 - Unauthorized Activities (USEPA)
 - Non-Compliance (USACE)
- Permitting History (2008-2018)
 - Chart of permits in last ten years of various rivers (for HUC 8's that were analyzed)
 - Upper White River: (~866,939 acres) Total Permits = 53 (NWPs=38, RGPs=14, IP=1)
- Where to find Information: Sacramento District Regulatory Program Website link: <http://www.spk.usace.army.mil/Missions/Regulatory/>

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K/K Fisheries Enhancement Project

- Matt Weaver – 5 Rivers Inc.
 - Project proposal is to enhance fish habitat in the White River (WR)
 - 18 Pools (~15,400 ft reach) are proposed. They will remove material from the pool area and add it to the bank to allow everything to still function as a pool-bar sequence.
 - Navigability of the river will be maintained
 - Work is typically done in stable reaches of the river.
 - Working with CPW to avoid disrupting “special times” such as spawning times, etc.
 - Turbidity is always considered. They time the amount of work they do at a time and reflect it with an equal time for settling. The process is called Pulsing.
 - The goal is to have all the work done before the snowpack runoff comes down this year. The project should take about 30 days
 - Photo monitoring is maintained
 - There is communication with the Rio Blanco County (RBC) throughout the permitting process
 - One USGS study site is encompassed in the project area. Discussion was had about whether the disturbance from the river would have any effect on the River Algae project plans. K/K is willing to work with the TAG to do their best to not impact the ongoing study.

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Public Input – Specific recommendations regarding the 2019 Scope of Work (SOW):

- Consider broadening the TAG's SOW and remove Algae as the main focus of the group. Focus on the WR as a whole.
- Some of the work that is/has been done to the river has been unnecessary.

TAG discussion regarding the finalization of the 2019 SOW

- There were several discussion items identified at the last TAG meeting for changes to the USGS 2019 SOW. The below items were discussed, and decisions made as follows:
 - **Monitoring of algae during growing season** (peak bloom varies by site) – Members of the TAG and landowners will capture photos and relay them to USGS in order to better target peak algae.
 - **Isotopic analysis** – helps identify sources of nitrate. USGS will pursue this for 2019
 - **Water temp monitoring** – determined that CPW and TU are conducting this research so no need to include it in the USGS SOW.
 - **Taxonomy** (identification and quantification) – Different algal types have different physical and chemical preferences. Differences in algae type may provide clues regarding algae controls in the system. Though important for upcoming studies, this will not be included in 2019 studies.
 - **Capture the impacts of stream structure changes** – USGS will note the presence of organic matter deposits. This was done in FY18 and is associated with flushing flows from year to year. USGS will communicate with land owners on their study times and the land owner project work times. The TAG determined that this would be a significant additional cost so it will not be pursued in 2019.
 - **Consider water clarity** (turbidity) – Is a surrogate for light availability and also sediment/phosphorous transport. Continuous monitoring is needed to effectively assess. The TAG determined that this would be a significant additional cost so it will not be pursued in 2019.
 - **Consider Quantitative Mapping** – The County will use the drone to capture pictures of one mile stretches of the river to give a better indication of algae biomass on a larger more complete scale.
- After this discussion, the TAG reached a consensus that the White River Conservation District should move forward with the original agreement with USGS to continue 2019 SOW for the White River Algae project. That SOW includes the workplan elements: Scouring flows and analysis and Pre, peak-, post-algae and water quality sampling events.