COLORADO
Colorado Water Conservation Board
Department of Natural Resources

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Jared Polis, Governor

Dan Gibbs, DNR Executive Director

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TO: Colorado Water Conservation Board Members

FROM: Lauren Ris, Deputy Director
Lauren Miremont, Finance Manager

DATE: March 11-12, 2020 Board Meeting

AGENDA ITEM: 8. Severance Tax Operational Fund Grants

Staff Recommendation:

Staff recommends that the Board approve the proposed funding for each of the projects from the Severance Tax Operational Fund as summarized as Table 1 to this memo. Recommended projects are numbered 1 – 26 and projects not recommended are numbered 27 - 31.

Background:

CWCB is entitled to an amount up to a 5% share of the Severance Tax Operational Fund. In January 2020, CWCB received internal requests and outside applications for funding that becomes available from the Operational Fund in July 2020 via the Long Bill enacted by the General Assembly. CWCB Staff reviews the applications and then recommends to the Board the projects that should receive funding. We expect to receive $1,275,500 in funding; however, should that amount be changed, the project funding will also need to be revised. Table 1 on pages 2 through 4 provides a summary of the recommended and non-recommended projects by CWCB Staff. These projects are described in more detail following Table 1 (see each write-up by the corresponding Project Number).

Table 1

SEVERANCE TAX OPERATONAL FUND PROJECTS
FOR FUNDING FROM JULY 1, 2020 TO JUNE 30, 2021

No.	Applicant	Project Name	Funding Recommended	Priority
1	Brink, Inc	Modeling the Effects of Conservation Practices on Edge-of-Field Salinity Discharges	$39,000.00	High
2	Center for Snow & Avalanche Studies	Colorado Dust-on-Snow Energy Balance Modeling Demonstration Project	$25,000.00	High
3	CO Department of Agriculture	Building Drought Resistance for Working Lands Through Soil Health Improvements	$75,000.00	High
4	Colorado Geological Survey, School of Mines	Statewide Dakota Aquifer Mapping	$49,807.00	High
5	Colorado Youth Corps Association	Watershed Health Grants: Implementation of riparian restoration, watershed health, and wildfire mitigation projects statewide	$60,000.00	High
6	CSU	CSU Water Resources Archive - Digitization of Water Resources Archive Materials	$25,000.00	High
7	CWCB	Water Plan Implementation	$95,195.00	High
8	CWCB	Flood Mitigation and Project Compliance	$100,000.00	High
9	CWCB	Community Assistance Program	$35,000.00	High
10	CWCB	Work Related to Recreational Water Projects	$40,000.00	High
11	CWCB	Colorado River Drought Contingency Planning - Technical Support	$60,000.00	High
12	CWCB	Operating support related to outreach for ISF	$15,000.00	High
13	CWCB	Agency Case Management and Program Support	$100,000.00	High
14	CWCB	Water & Climate Systems Mapping Pilot	$36,000.00	High
15	DWR Dam Safety	Update of Hydrologic Parameter Estimation Guidelines in Support of Dam Safety Spillway Evaluations	$50,000.00	High
16	DWR Dam Safety	CO Dam Safety Inundation Mapping Grant Program	$20,000.00	High

No.	Applicant	Project Name	Funding Recommended	Priority
17	Open Water Foundation	TSTool and StateDMI Web Service Integrations	$45,000.00	High
18	Water Research, LLC	Continuation of ATM Support	$19,690.00	High
19	Open Water Foundation	StateMod Graphical User Interface	$50,000.00	High

HIGHER EDUCATION RESEARCH PROJECT REQUESTS:

No.	Applicant	Project Name	Funding Requested	Priority
20	CSU	Impacts of extreme events on forest recovery and streamflow across Colorado's forest-dominated ecosystems	$36,524.00	High
21	CSU	Quantification of industrial hemp CU rates, THC levels, weed pressure, and disease effects under irrigated conditions in Western Colorado	$49,887.00	High
22	CSU	Relationship Between Irrigation Return Flows, Riparian Vegetation Water Use, and Soluble Pollutant Removal in the Lower Arkansas River Basin (Phase II)	$50,000.00	High
23	CSU	Linking the topology of forest disturbance to water quality to enhance forest and water resource management in Colorado	$49,772.00	High
24	CSU	Reproductive ecology of invasive Northern Pike informs management actions to reduce their abundance	$50,000.00	High
25	Fort Lewis College Mountain Studies Institute	Watershed conditions, climate and post-fire mitigation for two wildfires in southwest Colorado and their influence on forest health and watershed recovery	$49,945.00	High
26	Colorado School of Mines	Aquatic Ecosystem Impacts and Recovery After Wildfire: Can Forest Health be an Indicator of Recovery	$49,180.00	High
		Grand Total	**$1,275,000.00**	

PROJECTS NOT RECOMMENDED:

No.	Applicant	Project Name	Funding Requested	Priority
27	Branson Trinchera Conservation District	Branson Trinchera CD Groundwater Resource Monitoring Project	$20,000.00	Low
28	Colorado Corn Administrative Committee	Irrigated Agriculture and Salinity in the South Platte Basin	$60,000.00	Low
29	USGS Colorado Water Science Center	Rural Douglas County Water-Level Monitoring Extension	$14,210.00	Low
30	CGS, School of Mines	County Groundwater Resources Series, Year 8	$50,000.00	Low
31	DWR Dam Safety	Ritschard Dam - 3rd Party Independent Review	$35,000.00	Low

Project No. 1

Applicant: Brink, Inc.

Project Title: Modeling the Effects of Conservation Practices on Edge-of-Field Salinity Discharges

Recommended Amount: $39,000
Requested Amount: $39,000

Description of Project: Quantify the effects of NRCS Environmental Quality Incentives Program (EQIP) funded conservation practices on salinity discharges from agricultural fields using CSU's Edge-of-Field Conservation Modeling Tool

Project Manager(s): Alex Funk

Program: Interstate & Federal

Purpose: The results will help characterize how individual conservation practices are affecting salinity discharges from farmland, as well as the collective effect of multiple conservation practices installed over a 10-year period.

Project No. 2

Applicant: Center for Snow & Avalanche Studies

Project Title: Colorado Dust-on-Snow Energy Balance Modeling Demonstration Project

Recommended Amount: $25,000
Requested Amount: $25,000

Description: Conduct parallel model runs in the Senator Beck Basin to provide a "ground truth" model assessment to the Colorado Basin River Forecast Center's model outputs that are on a Basin scale. Incorporate energy-balance modeling into Colorado Dust on Snow operations.

Project Manager(s): Andrew Rickert

Program: Watershed and Flood Protection Program

Purpose: Output will be to provide water managers, water forecast centers and researches of immediate impacts that dust on snow will have on snowmelt timing, rater and overall yield on the winter's snowpack.

Project No. 3

Applicant: CO Department of Agriculture

Project Title: Building Drought Resistance for Working Lands through Soil Health Improvements

Recommended Amount: $75,000
Requested Amount: $75,000

Description: With drier conditions becoming the new "normal" in Colorado, it is more important than ever to help producers increase their resilience to drier conditions. Practices such as no-till and reduced till, cover cropping, crop rotation, continuous cropping, managed livestock grazing, and the addition of mulch, biochar, and compost can all help improve soil health. Improved surface water infiltration reduces sedimentation in water storage structures, and shaded soil stays cooler, reducing evaporation. With Colorado's growing population and increasing demands on limited water resources, it is important to encourage practices that improve soil health and benefit water quality and efficient utilization. In some cases, soil health improvements have actually decreased crop irrigation requirements and increased crop production over time.

Project Manager(s): Alex Funk

Program: Interstate & Federal

Purpose: Incentivize soil health practices through competitive grants to conservation districts to assist with creating demonstration plots, workshops, no-till/cover crop planning and soil testing (remainder of project funded through Long Bill).

Project No. 4

Applicant: Colorado Geological Survey, School of Mines

Project Title: Statewide Dakota Aquifer Mapping

Recommended Amount: $49,807
Requested Amount: $49,807

Description: This project is to obtain new statewide data about extent, stratigraphic and structural characteristics, and hydrologic properties of the Dakota Aquifer that have become available since publication of the 2003 Ground Water Atlas of Colorado. Many new sources of information exist including a carbon sequestration study by the CGS, oil and gas publications, water rights court cases, and non-tributary rule-making efforts.

Project Manager(s): Erik Skeie

Program: Interstate & Federal

Purpose: The information will be added to the new web-based Colorado Groundwater Atlas of 2020 as statewide information and downloadable geospatial data. Hydrogeologic data on this regional aquifer will serve as a resource for the Analysis and Technical Update to the Colorado Water Plan.

Project No. 5

Applicant: Colorado Youth Corps Association

Project Title: Watershed Health Grants: Implementation of riparian restoration, watershed health, and wildfire mitigation projects statewide

Recommended Amount: $60,000
Requested Amount: $60,000

Description: This project will fund Youth Corps activities in the realms of riparian restoration, watershed health, and wildfire mitigation work throughout the State. This work is critical for both water resources protection and providing professional work experience to the next generation of watershed stewards in Colorado. $52,200 of this application will be awarded to Youth Corps projects, while $7,800 will go towards the Colorado Youth Corps Association for administration of the funds. Applications will be received from Youth Corps across the state and reviewed by CWCB and CYCA staff. Projects will be awarded based on scoring established in the attached RFP, and will begin work July 1, 2019.

Project Manager(s): Erik Skeie

Program: Interstate & Federal

Purpose: This overall project will create up to 60 jobs for youth, young adults, and veterans; and contribute to more than $75,000 earned in AmeriCorps Education Awards earned by the corps members that may be used for future tuition or existing student loans.

Project No. 6

Applicant: CSU

Project Title: CSU Water Resources Archive - Digitization of Water Resources Archive Materials

Recommended Amount: $25,000
Requested Amount: $25,000

Description of Project: To digitize materials in CSU's Water Resources Archive. Of highest priority are documents related to groundwater research and administration in Colorado, especially in the South Platte, Rio Grande, and Arkansas River basins.

Project Manager(s): Carolyn Kemp

Program: Water Information

Purpose: To provide online, public access to historical water resource related documents within CSU's Water Resources Archive.

Project No. 7

Applicant: CWCB

Project Title: Water Plan Implementation

Recommended Amount: $95,195
Requested Amount: $100,000

Description: CWCB needs funding to meet immediate needs for water planning and implementation. CWCB is implementing a number of water planning efforts and has the responsibility to address other water planning needs that emerge during the fiscal year, but for which no other funding source is available.

Project Manager(s): Lauren Ris/Kirk Russell

Program: Water Project Planning and Implementation

Purpose: To provide technical and administrative assistance to water providers in the state for planning or implementation of small and urgent water project issues.

Project No. 8

Applicant: CWCB

Project Title: Flood Mitigation and Project Compliance

Recommended Amount: $100,000
Requested Amount: $100,000

Description of Project: The CWCB has identified a substantial need for identification of deficiencies to flood mitigation projects throughout Colorado, a point vastly reinforced by the devastating floods of September 2013. Funds from this program will be used to develop solutions to bring these projects back into technical or regulatory compliance. The focus of this work will be to address local requests as well as identification and design of projects that can be implemented or upgraded to reduce the flood risk. The best example of the use of these funds are the current nationwide focus on the condition of levees, which has already impacted some Colorado communities and is expected to impact many more in the coming years. Many of these levees and other flood control/mitigation projects are located in small or impoverished communities throughout the state that are in need of both technical and, in some cases, financial assistance. Other projects being considered include ongoing post-wildfire analysis and mitigation as well as a long overdue update to the Statewide Floodplain and Stormwater Criteria Manual, last updated in 2006. Finally, the section is evaluating the impacts of climate change to flood flows, and funds from this account could be used for a portion of this work.

Project Manager(s): Kevin Houck

Program: Watershed and Flood Protection Program

Purpose: Mitigate flood hazards throughout the state by partnering with local governments in plans, studies, and minor flood projects.

Project No. 9

Applicant: CWCB

Project Title: Community Assistance Program

Recommended Amount: $35,000
Requested Amount: $35,000

Description of Project: To administer the Community Assistance Program, a 75/25 partnership with FEMA for administration of the National Flood Insurance Program in Colorado.

Project Manager(s): Doug Mahan

Program: Watershed and Flood Protection Program

Purpose: To provide technical and administrative assistance for communities in the state for administering floodplain regulations and other related issues. To assist communities in adopting updated floodplain management regulations, including the requirements promulgated in the Rules and Regulations for Floodplains in Colorado

Project No. 10

Applicant: CWCB

Project Title: Work related to Recreational Water Projects

Recommended Amount: $40,000
Requested Amount: $40,000

Description of Project: 1) fund work associated with the litigation of Recreational In-Channel Diversions (RICDs); or 2) fund projects that have benefits to water based recreational interests. In the next fiscal year, CWCB is anticipating that it may receive requests to assist local governments (i.e. Grand County, Town of Eagle, and the City of Fort Collins, etc.) in the design, construction or repair of their whitewater courses. Products may include: 1) design drawings and permitting these communities to move toward building and/or repairing their whitewater courses, and/or 2) construction or repair of these structures.

Project Manager(s): Erik Skeie

Program: Interstate & Federal

Purpose: These funds will help assure that Colorado can fully use its compact entitlements while allowing mountain communities to develop water based recreational infrastructure. To the extent that recreational uses of water and the associated structures are designed and constructed in a manner that promotes maximum utilization of Colorado's water resources and that allows Colorado to fully use its compact entitlements.

Project No. 11

Applicant: CWCB

Project Title: Colorado River Drought Contingency Planning – Technical Support
Recommended Amount: $60,000
Requested Amount: $100,000

Description: CWCB needs funding to meet immediate needs for issues related to Drought Contingency Planning. CWCB has the responsibility to address needs that emerge during the fiscal year, but for which no other funding source is available.

Project Manager(s): Michelle Garrison

Program: Interstate & Federal

Purpose: Coordinate with Upper Colorado River Commission to model and evaluate possible drought contingency actions and reservoir operations. Planning efforts may explore drought contingency options, risk/vulnerability assessment, coordinated reservoir management options and opportunities to improve short-term and mid-term forecasting of reservoir operations and storage levels.

Project No. 12

Applicant: Linda Bassi, Chief, Stream and Lake Protection Section

Project Title: Stream and Lake Protection Section Education and Outreach

Recommended Amount: $15,000
Requested Amount: $15,000

Description of Project: In most years, the Stream and Lake Protection Section has budgeted between $12,000 and $16,000 to fund operating expenses such as travel, telecomm, printing, equipment, official functions, and conference registrations. However, those funds have been supplemented in most years by the Section's Severance Tax Operational Fund Education and Outreach Project, which historically has been funded at $15,000.

The Section's operating budget can vary significantly from year to year depending on the amount of outreach activities that are required to address issues associated with new instream flow (ISF) appropriations, acquisitions, legal protection, and implementation of Colorado's Water Plan, including Section staff's involvement in stream management plans and Water Plan grants. Staff estimates that $15,000 of supplemental funding will be required to address travel associated with meetings, fieldwork, and other outreach activities related to over 60 ISF new appropriation recommendations, ISF water acquisitions generated from the Request for Water Acquisition Program, stream management plans, and Water Plan grants.

Project Manager(s): Linda Bassi/ Rob Viehl

Program: Instream Flow and Natural Lake Level

Purpose: Supplemental funding for the Stream and Lake Protection Section's annual operating budget to address extended outreach and education needs.

Project No. 13

Applicant: CWCB

Project Title: Agency Case Management and Program Support

Recommended Amount: $100,000
Requested Amount: $100,000

Description of Project: Hire temporary or contract paralegal staff to (1) assist the Stream and Lake Protection Section with instream flow ("ISF") case management, (2) assist the Federal and Interstate Section with recreational in-channel diversion cases; the Bear Creek Lake appropriation and litigation; the Platte River Recovery Implementation Program; and Wild and Scenic River Alternative stakeholder group participation, (3) assist the Watershed and Flood Protection Section with implementing the Watershed Restoration Program and Fish and Wildlife Resources Fund projects; and developing rules, regulations and legislative analyses; and (4) assist the Finance Section with loan contracting issues.

Project Manager(s): CWCB Section Chiefs

Program: CWCB

Purpose: Provide adequate staffing for legal protection of the State's ISF water rights and implementation of various agency program

Project No. 14

Applicant: CWCB

Project Title: Water & Climate Systems Mapping Pilot

Recommended Amount: $36,000
Requested Amount: $36,000

Description: Chapter 10.2 of the Colorado Water Plan states a broad supply and demand objective to "address the effects of climate change on water resources." This systems mapping project will provide foundational research and context to help the CWCB expand upon the vague 2015 critical action "Prepare for Climate Change: Respond to, monitor, and prepare for climate change." Systems thinking is a synthesis-based methodology to understand the interdependent relationships in complex systems. Systems *mapping* is a tool, in the form of a dynamic visual diagram, to support decision-making and action that accounts for complexity. Cluster mapping can be thought of as the static, analog parallel of systems mapping.

Project Manager(s): Megan Holcolmb

Program: Water Plan

Purpose: Developing a survey and pilot study to map the field of organizations and leaders working at the intersection of water and climate resilience issues. Deliverables include multiple presentations to share the process with interested agencies and stakeholders, a visual synthesis of the workshop deliberations, and an online systems map (via Kumu, a free online tool).

Project No. 15

Applicant: Division of Water Resources Dam Safety

Project Title: Update of Hydrologic Parameter Estimation Guidelines in Support of Dam Safety Spillway Evaluations

Recommended Amount: $50,000
Requested Amount: $50,000

Description: A critical element of the Colorado Water Plan is attaining 400,000 acre-feet of additional water storage in Colorado by 2050. Some additional storage will be provided by constructing new dams and enlarging existing dams. However, many existing dams might have unrealized storage (i.e. excess freeboard and spillway capacity) because traditional hydrologic (computer) modeling methods appear to significantly overestimate major floods for mountain basins in Colorado. The overall objectives of the ongoing work are to: (1) determine whether the current hydrologic guidelines correctly specify the runoff production mechanisms for extreme precipitation events in Colorado's mountain basins and (2) develop updated hydrologic guidelines that include the appropriate runoff production mechanisms.

Project Manager(s): Matt Stearns

Program: Dam Safety

Purpose: Test parameter estimation methods to build models that can be used with historical rainfall data to predict flood magnitudes related to unrealized storage in existing dams throughout the state.

Project No. 16

Applicant: Division of Water Resources Dam Safety

Project Title: CO Dam Safety Inundation Mapping Grant Program

Recommended Amount: $20,000
Requested Amount: $20,000

Description: Colorado's Dam Safety Rules require owners of high and significant hazard dams to prepare and maintain an Emergency Action Plan (EAP). A key component of the EAP is an inundation map which shows the calculated extents of the flood wave that would occur in the event the dam were to fail. To ensure the mapping products are consistent, a guideline and sample scope of work are provided to the dam owner which outlines the minimum requirements of the Rules for use in selecting a qualified engineer to complete the project.

Project Manager(s): Matt Stearns

Program: Dam Safety

Purpose: Continuation of inundation mapping grant program to provide financial support to dam owners of high and significant hazard dams in updating inadequate inundation mapping through a grant program that provides an average of 60% cost share with dam owner.

Project No. 17

Applicant: Open Water Foundation

Project Title: TSTool and StateDMI Web Service Integrations

Recommended Amount: $45,000
Requested Amount: $45,000

Description: Colorado's Decision Support Systems (CDSS) provides REST web services to access water-related data. The TSTool software has previously been updated to use web services to retrieve telemetry station and historical structure time series. The State has recently (early 2020) published web services for historical station data, which have been lacking in TSTool since the previous generation of historical time series web services were disabled by the State. This project will update TSTool to provide access to historical station time series web services. Additionally, TSTool will be updated to address issues with diversion record time series being different between direct HydroBase queries and web services. StateDMI will also be updated to query HydroBase and web service diversion records consistent with TSTool.

Project Manager(s): Brian Macpherson

Program: Interstate & Federal

Purpose: Update the TSTool software to provide features to query CDSS HydroBase historical station time series web services, update StateDMI to read diversion record web services and ensure consistency between HydroBase and web services queries.

Project No. 18

Applicant: Water Research, LLC

Project Title: Continuation of ATM Support

Recommended Amount: $19,690
Requested Amount: $19,690

Description: The existing contract extends through June 2020, with the development of a draft strategy plan. This funding will allow a 3-month extension to meet with the CWCB Board of Directors and develop a final project report whichwill summarize the project methods, provides an ATM status assessment, and make recommendations for an ATM framework. Along with a narrative report, the Project Team will develop a summary handout document and PowerPoint presentation slides for communicating project results.

Project Manager(s): Alex Funk

Program: Interstate & Federal

Purpose: ATMs are identified in the Colorado Water Plan as an important tool to address the permanent loss of irrigated agriculture due to "buy and dry", and to address other objectives such as environmental flows. The Water Plan sets out a goal of 50,000 AF of ATMs by 2030. The existing project will allow CWCB to understand the role of ATMs in Colorado.

Project No. 19

Applicant: Open Water Foundation

Project Title: StateMod Graphical User Interface

Recommended Amount: $50,000
Requested Amount: $50,000

Description: Colorado's Decision Support Systems (CDSS) projects have resulted in the creation of StateMod datasets, which are useful to understand water resources planning. Although experienced modelers can be successful running the command line StateMod program and viewing results using TSTool, Excel, GIS, and other programs, many users struggle to view model input and results. This project will update software technologies used by the StateMod GUI, confirm that all model input files can be displayed in read-only mode, confirm network and map interface, enhance integration to run StateMod command line program, and integrate with other CDSS tools, including TSTool and StateDMI.

Project Manager(s): Brian Macpherson

Program: Interstate & Federal

Purpose: The result will be a modeling tool that is up to date with other CDSS tools and facilitates efficient StateMod modeling for a range of expertise. The project will meet the needs of the water resources community throughout the State of Colorado who are trying to use CDSS to understand and address water resources issues.

Project No. 20

Applicant: Colorado State University

Project Title: Impacts of extreme events on forest recovery and streamflow across Colorado's forest-dominated ecosystems

Recommended Amount: $36,524
Requested Amount: $36,524

Description: Study the impacts of extreme events on forest recovery and streamflow across Colorado's forest-dominated ecosystems. Trends of increasing temperatures and more frequent and severe climate-driven disturbances are predicted to continue throughout Colorado. Yet the long-term consequences of these extreme events on water budgets are dependent upon forest recovery, which strongly varies based on forest and disturbance type, physiography, and the severity and climatic conditions following the disturbance.

Project Manager(s): Chris Sturm

Program: Watershed & Flood Protection

Purpose: Synthesize research on the hydrologic impacts of these disturbances and forest recovery following these disturbances. This will allow water resource planners to not only identify the hydrologic impacts overtime following extreme events but also the management options to enhance water yield and quality.

Project No. 21

Applicant: Colorado State University

Project Title: Quantification of industrial hemp CU rates, THC levels, weed pressure, and disease effects under irrigated conditions in Western Colorado

Recommended Amount: $49,887
Requested Amount: $49,887

Description: With the majority of Colorado water rights used for agriculture, the next generations of farmers will face the pressing issue of increasing the conservation and efficiency of water use. Widely touted as a drought-resistant plant, hemp has been heralded as a new crop that offers alternative to many of the traditional agricultural markets that farmers currently access. Farmers throughout Colorado seek clarity on irrigation practices for hemp, while the concept of using this crop as a water-conserving alternative speaks to the need for understanding its consumptive use (CU) rates against other crops currently grown in the state.

Project Manager(s): Alex Funk

Program: Interstate & Federal

Purpose:Together, the information on these topics will benefit water resource managers at regional and district scales to better understand the water demand of this crop. Additional information will also be provided to clarify the impacts and benefits of different irrigation systems on both weed pressure and disease resistance.

Project No. 22

Applicant: Colorado State University

Project Title: Relationship Between Irrigation Return Flows, Riparian Vegetation Water Use, and Soluble Pollutant Removal in the Lower Arkansas River Basin (Phase II)

Recommended Amount: $50,000
Requested Amount: $50,000

Description: Irrigation of the valuable agricultural lands in the LARV results in large quantities of return flow and solute loading to the Arkansas River and its tributaries. Resulting concentrations of dissolved nitrate (NO3), Se, U, and salts violate chronic stream standards for human health and aquatic life and have led to crop yield reductions. Interventions are needed to reduce solute-laden return flows to the stream system while ensuring that State and interstate water laws are not violated and that crop yields are sustained.

Project Manager(s): Alex Funk

Program: Interstate & Federal

Purpose: Our study is needed to further understand the seasonal time-series and spatial variation of return flow volumes and their associated solute loadings, along with riparian ET, to assess if management improvements can be made while still complying with water law constraints.

Project No. 23

Applicant: Colorado State University

Project Title: Linking the topology of forest disturbance to water quality to enhance forest and water resource management in Colorado

Recommended Amount: $49,772
Requested Amount: $49,772

Description: Forests in Colorado are undergoing drastic environmental change associated with wildfire and insect infestation. In this project we will use remote sensing of forest composition along with synoptic water quality sampling across the State to evaluate how wildfire and infestation are influencing the clean water resources that forests provide.

Project Manager(s): Chris Sturm

Program: Watershed & Flood Protection

Purpose: Quantify relations between forest change and water quality; determine how the spatial structure and intensity of forest disturbance impacts water resources and provide tools for forest and water managers in Colorado to develop strategies to deal with the increasing frequency and intensity of forest disturbance and associated water resource uncertainties

Project No. 24

Applicant: Fort Lewis College Mountain Studies Institute

Title: Watershed conditions, climate and post fire mitigation for two wildfires in southwest Colorado and their influence on forest health and watershed recovery

Recommended Amount: $49,945
Requested Amount: $49,945

Description: Recently there has been an increase in wildfire activity and severity in forests dominated or co-dominated by ponderosa pine due to changes in forest structure and surface fuels caused by fire exclusion, as well as from a warming and drying climate. When post-fire areas characterized by steep topography (>30% slope) and high soil burn severity experience short-duration, high intensity precipitation events, watershed health and function can severely decrease through the development of flood flows an order of magnitude larger than similar pre-fire precipitation events. In order to mitigate some of these negative effects, land managers may employ various slope stabilization treatments immediately post-fire including grass seeding, contour felling, and/or mulch. Treatment effectiveness, however, is not clear.

Project Manager(s): Chris Sturm

Program: Watershed & Flood Protection

Purpose: Research conducted will be relevant to many other communities given the rapidly growing wildland urban interface and increase in wildfire activity and severity across the state of Colorado

Project No. 25

Applicant: Colorado School of Mines

Project Title: Aquatic Ecosystem Impacts and Recovery after Wildfire: Can Forest Health be an Indicator of Recovery
Recommended Amount: $49,180
Requested Amount: $49,180

Description: This project will assist in meeting one of the goals of the Southwest Basin Implementation Plan ("Protect, maintain, monitor and improve the condition and natural function of streams, lakes, wetlands, and riparian areas to promote self-sustaining fisheries, and to support native species and functional habitat in the long term, and adapt to changing conditions") and will further our understanding of how native aquatic life and intact habitat could change in a future that may bring increased frequency of wildfire. Hermosa Creek has long been a valued tributary in the Animas River Basin and years of focus by community partners lead to the designation of the Hermosa Creek Wilderness and the State of Colorado's Outstanding Waters recognition. Our research will build on the work of the Hermosa Creek Workgroup, who in 2010 prioritized ensuring "water quality stays at current level" and the "trout fishery stays strong."

Project Manager(s): Chris Sturm

Program: Watershed & Flood Protection

Purpose: This research will create a tool for water managers to use, where publicly available remotely sensed measures of vegetation greenness could be used as a proxy for aquatic ecosystem recovery. This research will also further advance our knowledge of wildfire impacts and aquatic ecosystem recovery in legacy mine regions.

Project No. 26

Applicant: Colorado State University

Project Title: Reproductive ecology of invasive Northern Pike informs management actions to reduce their abundance

Recommended Amount: $50,000
Requested Amount: $50,000

Description: Invasive nonnative fishes have been established in streams and reservoirs of the upper Yampa River watershed, posing a threat to native fish populations. Mechanical removal is currently employed and is sometimes effective but additional information on their reproductive ecology would aid removal efforts by focusing removal at optimal times and locations. Sample Pike in early life stages during the spring reproductive season to establish the timing and temporal extent of spawning and to discover areas where most abundant.

Project Manager(s): JoJo La

Program: Endangered Species

Purpose: Information may inform water managers about efficacy of reservoir water level manipulations and storage operations that may reduce spawning habitat for Pike and reduce their abundance. Top priority for CWCB Fish Recovery Program

PROJECTS NOT RECOMMENDED:

Project No. 27

Applicant: Branson Trinchera Conservation District

Project Title: Branson Trinchera CD Groundwater Resource Monitoring Project

Recommended Amount: $0
Requested Amount: $20,000

Description: Determine impacts of drought in district on groundwater that impacts livestock, wildlife and domestic well water in the area and provide information for planning.

Program: Interstate & Federal

Purpose: Test 10 new wells each year for 3 years and then meet with stakeholders/landowners about results. Educate youth and community in the field and in the classroom to get them engaged in monitoring/planning to maintain way of life in area.

Project No. 28

Applicant: Colorado Corn Administrative Committee

Project Title: Irrigated Agriculture and Salinity in the South Platte Basin

Recommended Amount: $0
Requested Amount: $60,000

Description: It is assumed that irrigated agriculture is increasing salinity, but the effect has not been investigated. Salinity increases in the lower basin may be predominately due to agricultural return flows, but water storage and conveyance may also play a role. The lower basin salinity has been shown to follow trends in the Front Range tributaries. The elevated salinity in these tributaries may be influenced by natural geologic sources. The expectation is that this study will assist in clarifying the importance of these salinity sources and processes. This will provide focus to management and mitigation measures.

Program: Interstate & Federal

Purpose: Study includes 4 complementary components: 1) Salinity Impact on Crop Yields 2) Irrigated Agriculture's Salinity Contribution 3) Lower Basin Reservoir Salinity 4) Geologic Salinity Contributions. The overall purpose is to better understand the salinity contributions to the South Platte River from irrigated agriculture and natural, geologic sources.

Project No. 29

Applicant: USGS Colorado Water Science Center

Project Title: Rural Douglas County Water-Level Monitoring Extension

Recommended Amount: $0
Requested Amount: $14,210

Description: Water supply for the growing population of Douglas County, Colorado, is provided primarily by groundwater pumped from confined aquifers in the Denver Basin bedrock aquifer system. Outside of municipal service areas, rural residents rely on self-supplied groundwater from domestic wells, and there is concern for the effects of continued municipal and domestic pumping on groundwater availability.

Program: Interstate & Federal

Purpose: Continued water-level measurements and data processing of groundwater in all 33 wells in rural areas of Douglas County (Denver Basin aquifers) to track effects of continued municipal and domestic pumping on groundwater availability.

Project No. 30

Applicant: CGS, School of Mines

Project Title: County Groundwater Resources Series, Year 8

Recommended Amount: $0
Requested Amount: $50,000

Description: The Colorado Geological Survey has implemented a program of producing countywide geology and groundwater to generate information web-based applications tailored to inform the public, planners, and policy-makers about local geology and groundwater resources. The work addresses all aquifers utilized in each county including alluvial, sedimentary, and crystalline formations. Patterned after countywide groundwater resource series produced in the 1960s through mid-1970s, our effort is intended to address counties omitted from the earlier series where development pressures are straining current water resources. It can support existing decision support and monitoring systems. The work is intended to be a derivative of our ongoing STATEMAP efforts, which is part of the National Cooperative Mapping program focused on detailed 1:24,000 scale 7.5 quadrangle geologic mapping. This builds upon other work by the CGS including the 2003 Ground Water Atlas of Colorado. The importance of groundwater is clearly recognized in Colorado's Water Plan and these countywide applications will assist in sound management of existing resources.

Program: Interstate & Federal

Purpose: Continuation of countywide geology and groundwater data collection. Intended to be a derivative of ongoing STATEMAP mapping. Addresses all aquifers utilized in each county including alluvial, sedimentary and crystalline formations.

Project No. 31

Applicant: Division of Water Resources Dam Safety

Project Title: Ritschard Dam - 3rd Party Independent Review

Recommended Amount: $0
Requested Amount: $35,000

Description: The Ritschard dam, north of Kremmling, CO has been settling and deforming at higher rates than expected since its construction in the 1990's. Now, Dam Safety does not feel there is immediate concern for the dam but cannot predict future changes. There is a desire to have a study prepared to develop a model for the dam's behavior to ensure the dam continues to be safe.

Program: Dam Safety

Purpose: Academic review of 12 years of monitoring information related to continuing deformation (settlement) of a high hazard dam to inform regulatory decision making involving public safety.