

# Hack Lake Executive Summary

---



## CWCB STAFF NATURAL LAKE LEVEL RECOMMENDATION January 24-25, 2023

CENTER POINT: UTM North: 4409994.98 UTM East: 316816.32  
WATER DIVISION: 5  
WATER DISTRICT: 53  
COUNTY: Garfield  
WATERSHED: Colorado Headwaters  
CWCB ID: 23/5/A-004  
RECOMMENDER: Bureau of Land Management (BLM)  
RECOMMENDED SURFACE ELEVATION: 9,875.0 feet  
RECOMMENDED VOLUME: 8.92 acre feet



**COLORADO**

**Colorado Water  
Conservation Board**

Department of Natural Resources

## **BACKGROUND**

Colorado's General Assembly created the Instream Flow and Natural Lake Level Program in 1973, recognizing "the need to correlate the activities of mankind with some reasonable preservation of the natural environment" (see 37-92-102 (3), C.R.S.). The statute vests the Colorado Water Conservation Board (CWCB or Board) with the exclusive authority to appropriate and acquire instream flow (ISF) and natural lake level water rights (NLL). Before initiating a water right filing, the Board must determine that: 1) there is a natural environment that can be preserved to a reasonable degree with the Board's water right if granted, 2) the natural environment will be preserved to a reasonable degree by the water available for the appropriation to be made, and 3) such environment can exist without material injury to water rights.

The information contained in this Executive Summary and the associated supporting data and analyses form the basis for staff's ISF recommendation to be considered by the Board. This Executive Summary provides sufficient information to support the CWCB findings required by ISF Rule 5i on natural environment, water availability, and material injury. Additional supporting information is located at: <https://cwcb.colorado.gov/2023-isf-recommendations>.

## **RECOMMENDED ISF REACH**

BLM recommended that the CWCB appropriate a Natural Lake Level (NLL) water right on Hack Lake. Hack Lake is located within Garfield County and is approximately 12 miles northeast from Dotsero at 9,875 feet in elevation (See Vicinity Map). The lake is in the headwaters of Hack Creek within the Hack Lake Wilderness Study Area, adjacent to the Flat Tops Wilderness Area.

The lake is spring fed and has no above ground outlet. The entire proposed lake is located on public lands managed by BLM (See Land Ownership Map). Hack Lake is located along the Johnny Meyer trail which is a popular recreational route to the Flattops Wilderness. BLM maintains a trailhead and camping area that supports use of Hack Lake for camping, fishing, and wildlife viewing. The NLL will assist in maintaining the habitat and fish species for recreational fishing as well as meeting BLM's wildlife habitat management objectives by providing a perennial source of water.

## **OUTREACH**

Stakeholder input is a valued part of the CWCB staff's analysis of ISF recommendations. Currently more than 1,100 people subscribe to the ISF mailing list. Notice of the potential appropriation of an ISF water right on Hack Lake was sent to the mailing list in November 2022 and March 2022. A public notice about this recommendation was also published in the Glenwood Springs Post Independent on December 21, 2022.

Staff presented information about the ISF program and this recommendation to the Garfield County Board of County Commissioners on November 14, 2022. In addition, staff contacted Deputy Water Commissioner Timothy Ritchard and the Water Commissioner Rick Bumgardner on December 13, 2022 and on January 4, 2023 regarding water availability on Hack Lake.

## NATURAL ENVIRONMENT

CWCB staff relies on the recommending entity to provide information about the natural environment. In addition, staff reviews information and conducts site visits for each recommended ISF appropriation. This information provides the Board with a basis for determining that a natural environment exists.

Hack Lake is located in a relatively flat region between mountain ridges and steep cliffs north of Sweetwater Lake. Hack Lake is a high elevation, cold-water lake fed by three visible, perennial springs on the north shore. The lake bottom is made up of porous volcanic rock the size of small boulders. Small sections of shallow areas along the north shore have silty substrate. Outflow from the lake is subterranean.

Colorado Parks and Wildlife (CPW) collaborates with BLM in stocking Hack Lake with Colorado River Cutthroat Trout, a Colorado species of greatest conservation need and species of special concern. The water quality is suitable for sustaining long-term populations of salmonids such as trout. Mayfly and caddisfly are the primary trout food source. These species were observed by CWCB staff. Surveying conducted by CPW indicates that natural reproduction of trout is not occurring in Hack Lake, which is likely due to the lack of suitable spawning areas. CPW & BLM are considering minor modifications to the lakebed to create adequate spawning areas. An NLL water right will assist in protecting this resource and support further investments in this effort.

The riparian community near the lake includes willow, red osier dogwood, aspen, twinberry, and sedges. The south and east shores are lined with dense alpine forest, and woody debris is visible along these shores. The water supply and plant communities at the lake support area wildlife such as mountain lions, Rocky Mountain elk, Rocky Mountain bighorn sheep, black bear and mule deer. CWCB Staff also observed grouse and marmots. Table 1 includes a list of species identified in Hack Lake.

**Table 1. List of species identified in Hack Lake.**

Species Name	Scientific Name	Status
Colorado River Cutthroat Trout	<i>Oncorhynchus clarkii pleuriticus</i>	State - Species of Greatest Conservation Need State - Species of Special Concern
caddisfly	<i>Trichoptera</i>	None
dragonfly	<i>Odonata</i>	None
mayfly	<i>Ephemeroptera</i>	None
water strider	<i>Gerridae</i>	None

## ISF QUANTIFICATION

CWCB staff relies on the biological expertise of the recommending entity to quantify the amount of water required to preserve the natural environment to a reasonable degree. CWCB staff performs a thorough review of the quantification analyses completed by the recommending entity to ensure consistency with accepted standards.

### **Quantification Methodology**

CWCB staff relies upon the biological expertise of the recommending entity to quantify the amount of water required to preserve the natural environment to a reasonable degree. In NLL appropriations, BLM recommends that the entire volume of water in a natural lake be appropriated to preserve the natural environment to a reasonable degree. BLM has determined that appropriating a lesser volume would likely result in diminution of habitat to which species have become accustomed.

### **Data Collection and Analysis**

BLM and CPW staff conducted a survey of Hack Lake on September 22, 2021. This included a bathymetric survey of the lake, the perimeter of the lake at the time of the survey, and the perimeter of the lake at full pool. This survey data and lidar data were used to determine the surface water elevation, surface area, and volume when Hack Lake is full (See Table 2). The appendices include a report produced by CPW that provides additional detail about survey methods and data processing.

**Table 2. Hack Lake measurements.**

<b>Volume (acre-feet)</b>	<b>Elevation (feet)</b>	<b>Average Depth (feet)</b>	<b>Surface Area (acres)</b>
8.92	9,875	6.4	1.29

### **NLL Recommendation**

The BLM recommends that Hack Lake be protected at an elevation of 9,875.0 feet and a volume of 8.92 acre-feet based on survey results and biological expertise.

### **WATER AVAILABILITY**

CWCB staff conducts hydrologic analyses for each recommended ISF appropriation to provide the Board with a basis for making the determination that water is available.

### **Basin Characteristics**

The drainage basin of the proposed NLL on Hack Lake is 0.91 square miles, with an average elevation of 10,399 feet and average annual precipitation of 37.02 inches (See the Hydrologic Features Map). Inflows to the lake include perennial springs identified by BLM as well as groundwater and any other flow from the contributing basic area. During typical conditions, there is not an outlet to the lake. According to BLM, the water-surface elevation of the Lake varies seasonally due to changing flow rates and changing evapotranspiration rates. The lake is typically full during the snowmelt runoff season and then gradually recedes during the summer and fall. There are no water diversions in the basin tributary to Hack Lake, therefore the hydrology reflects natural conditions.

### **Data Collection**

BLM collected discharge measurements on the largest springs on September 21, 2021. The total discharge from all three measured springs was 140.22 gallons per minute. This measurement and the bathymetric survey were both completed during drought conditions and the spring discharge was the lowest ever observed by BLM staff. CWCB visited the site on 8/20/2022 and estimated that the total spring flow was approximately 1 cfs.

**Water Availability Summary**

Hack Lake is clearly identified on USGS 1:24000 scale maps and in the Geographic Names Information System (GNIS), a database of federally recognized feature names. Based on the persistence of the lake through time, staff concludes that water is available for appropriation.

**MATERIAL INJURY**

As a new junior water right, the proposed NLL on Hack Lake can exist without material injury to other water rights. Under the provisions of section 37-92-102(3)(b), C.R.S., the CWCB will recognize any uses or exchanges of water in existence on the date this NLL water right is appropriated.

**ADDITIONAL INFORMATION****Citations**

United States of America Board on Geographic Names, 2022, The geographic names information system (GNIS): the federal and national standard for geographic nomenclature. Retrieve from URL: <https://www.usgs.gov/tools/geographic-names-information-system-gnis>

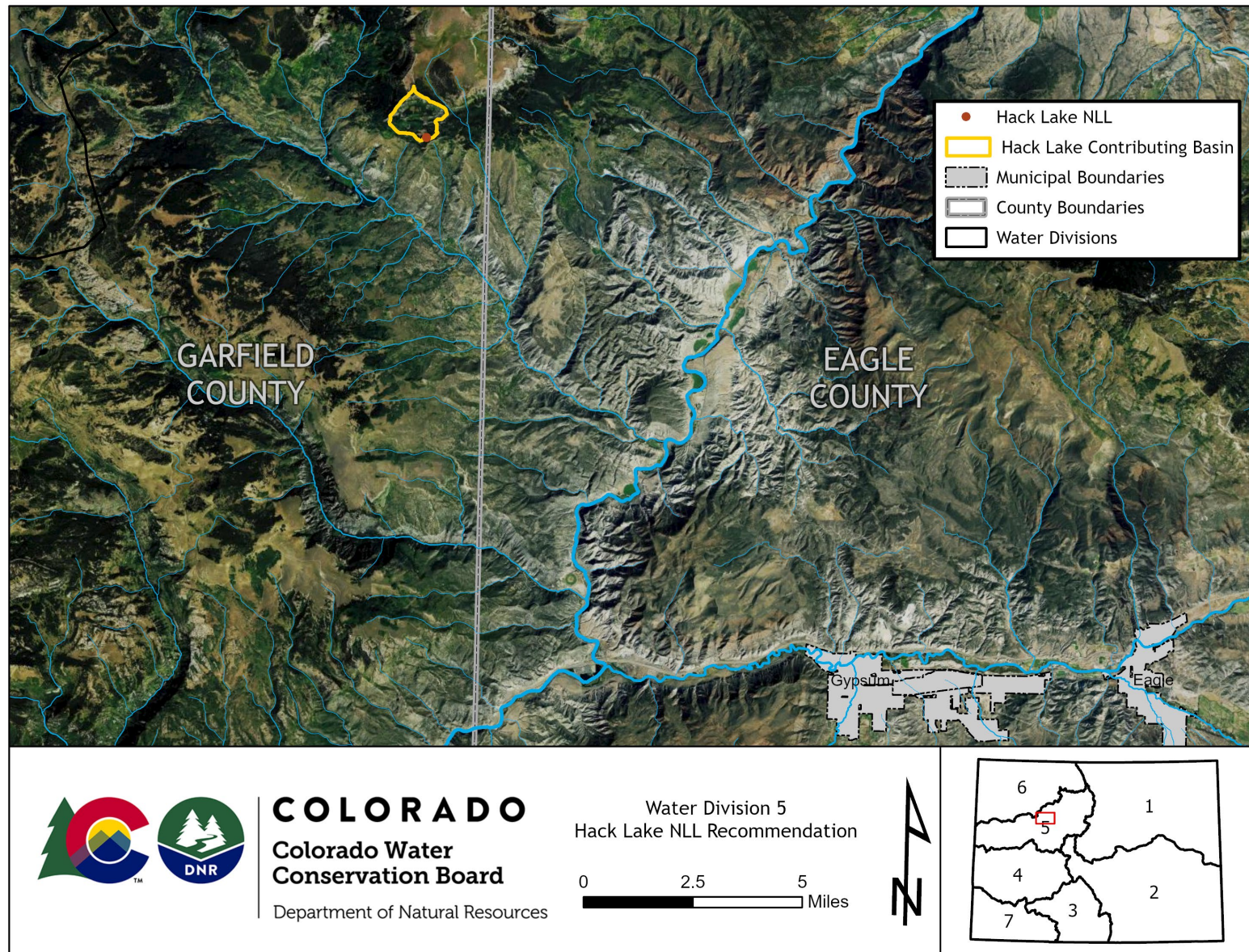
**Metadata Descriptions**

The UTM locations for the upstream and downstream termini were derived from CWCB GIS using the National Hydrography Dataset (NHD).

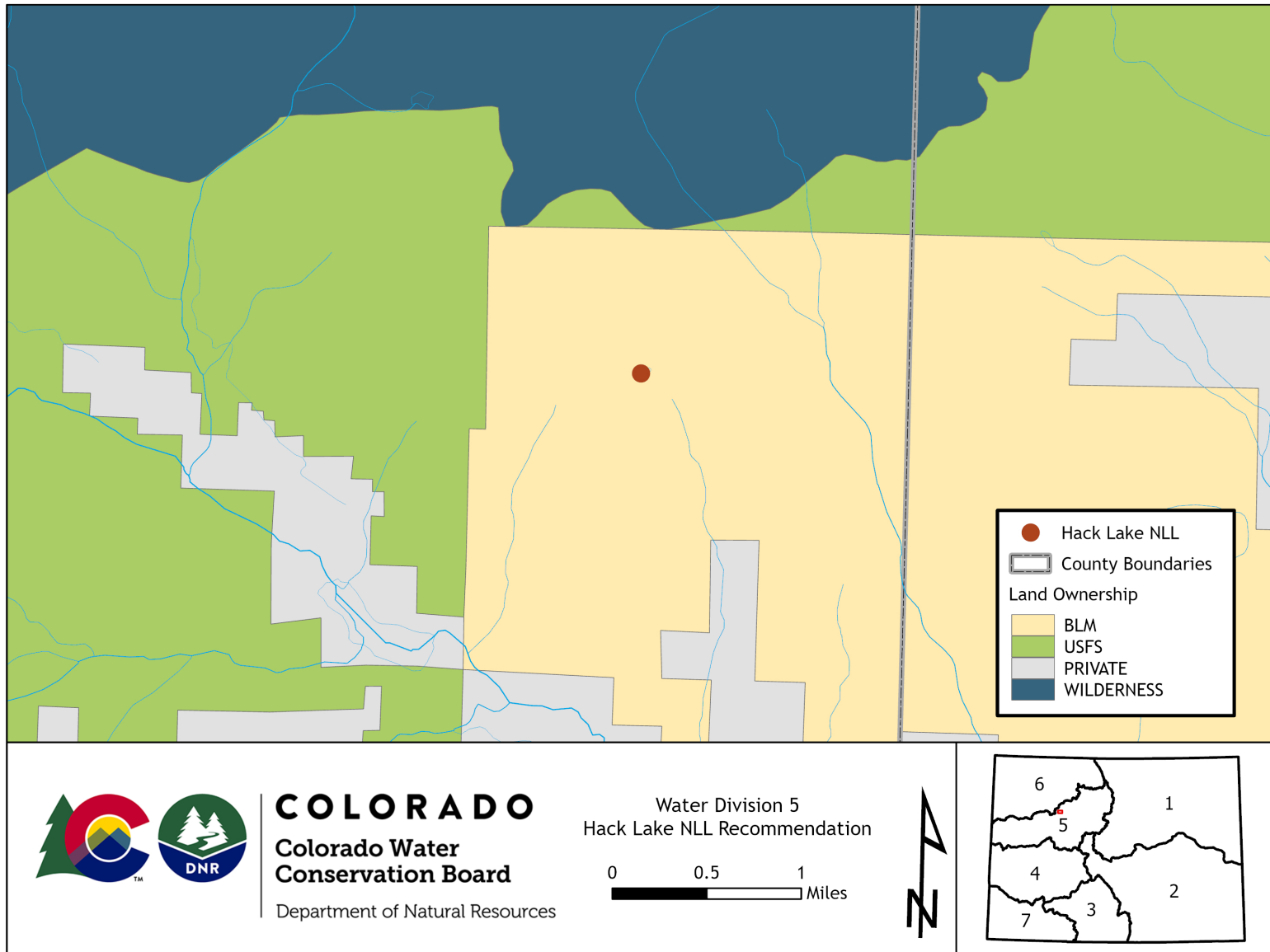
Projected Coordinate System: NAD 1983 UTM Zone 13N.



## VICINITY MAP



## LAND OWNERSHIP MAP





## HYDROLOGIC FEATURES MAP

