

PAIRED WATERSHED COMPARISON

2018 CANNABIS PROGRAM FACT SHEET

A Paired Watershed Comparison of Hydrological and Biological Condition in Streams With and Without Cannabis Cultivation, Humboldt County, CA

PROJECT PURPOSE

Using a paired watershed design approach, this study investigates whether there are biological and hydrological impacts to sensitive aquatic habitat from water diversions for cannabis cultivation. Biologically relevant aquatic habitat quality parameters (water temperature, dissolved oxygen concentration, benthic macroinvertebrate community composition and fish passage) will be analyzed in relation to stream flow in watersheds with and without current cannabis cultivation.

HOW WILL THIS INFORMATION BE USED?

The results from this study will provide quantitative hydrological and biological data that could support efforts to establish sustainable levels of cannabis cultivation in sensitive watersheds on the North Coast and inform similar studies throughout the State, where applicable. If surface water diversions for cannabis cultivation are found to result in significant or adverse impacts to sensitive fish species, the results of this study may inform regionally specific flow thresholds, gage installations, local authorizations, regional forbearance periods, outreach efforts, or future voluntary/cooperative agreements.



SCHEDULE OF MILESTONES

- > Study plan developed and circulated for review, land-owner access obtained (May 2018)
- > Field infrastructure installed and passive collection of data begins (June 2018)
- > Hydrological and biological collections complete (Nov 2018)
- > Draft hydrological report circulated for review (Jan 2019)
- > Benthic Macroinvertebrate samples processed (March 2019)
- > Draft hydrologic and biologic report circulated (May 2019)
- > 1 Presentation, Salmonid Restoration Federation (April 2019)
- > Final Admin Report & Publication (July 2019)
- > 3 Presentations, American Fisheries Society (Oct 2019)

RESEARCH QUESTIONS

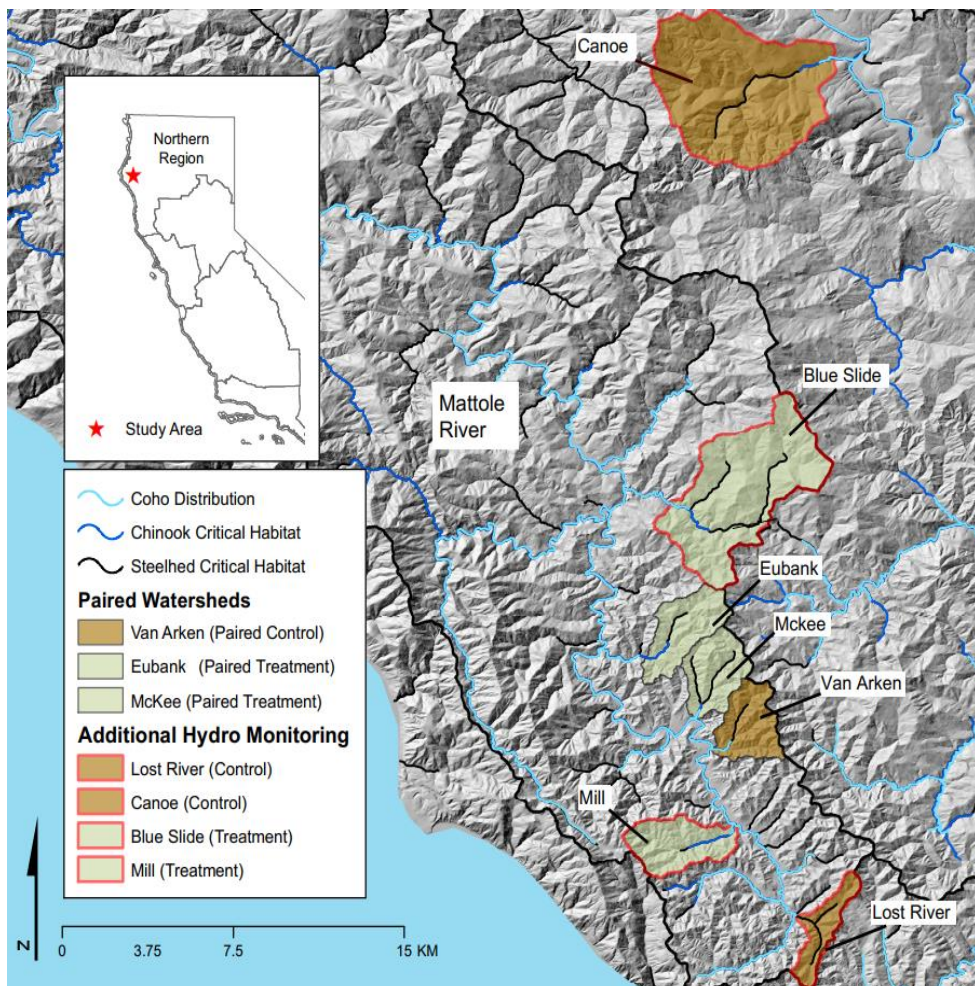
- Assuming all other watershed parameters are similar, is stream flow significantly different between watersheds with and without substantial cannabis cultivation?
- What is the predicted amount of water consumption for cannabis cultivation and other human uses in the study watersheds?
- If stream flow is impaired due to diversions to support cannabis cultivation, how does this impact fish passage?
- Are temperature, dissolved oxygen and benthic macroinvertebrate community structure and composition significantly different between study streams, and if so, how do these parameters vary within streams at different flow levels and among streams with similar flow levels?
- How does temperature, benthic macroinvertebrate, and dissolved oxygen composition compare to published thresholds?

\$360,800


Funding Sources:

- ☒ Medical Marijuana
- ☒ Control Fund

- ☒ Regulatory and Permitting
- ☐ Enforcement Activities
- ☒ Research and Monitoring
- ☐ Outreach
- ☐ Program Implementation or Oversight
- ☐ Novel Tool Development



RELEVANCE TO CLIMATE CHANGE
 Stream temperatures are projected to increase and summer baseflows have been decreasing in most rivers in this region. Drought conditions are anticipated to intensify in magnitude, frequency and duration, which can exacerbate poor instream habitat conditions. Therefore, it is imperative that we understand the potential impacts of cannabis cultivation to vulnerable salmonid populations, in a way that can be replicated and scaled in other watersheds of the state.

RELATED DOCUMENTS:
 Study plan:

 Humboldt County Paired Watershed St

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