

Initial Study Attachment A Lake Davis Pike Eradication Project Project Description

1.1 INTRODUCTION

The California Department of Fish and Game (CDFG) proposes to eradicate northern pike, *Esox lucius*, from Lake Davis and its tributaries, Plumas County. This document describes the purpose and need for the project, project objectives, a summary of project components, a description of proposed alternatives, and potential environmental impacts of the project.

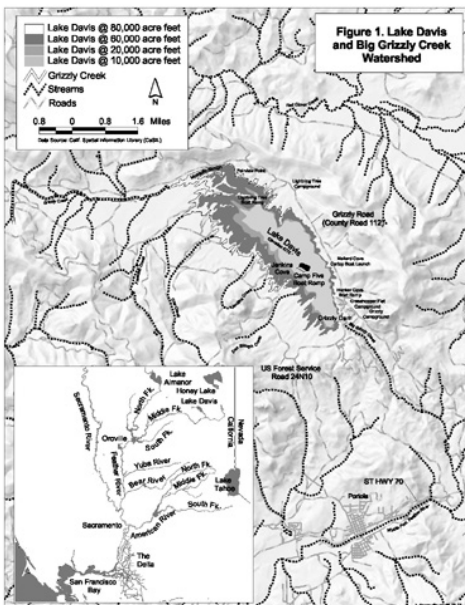
Northern pike (pike) (and all members of the Family Esocidae) are restricted in California and it is unlawful to import, transport, or possess live animals listed in Section 671 of Title 14 California Code of Regulations except under permit issued by CDFG.

The Legislature has declared that the protection and conservation of fish is of the utmost public interest. Several sections of the California Fish and Game Code (FGC), including but not limited to the following, 1700, 2118, 2119, 5501, and 15500 to 15505 and Title 14 of the California Code of Regulations (CCR), 5.51, 236, 238, 238.5, 671, mandate the management of California fisheries. In some instances, CDFG uses chemicals (piscicides) to manage fisheries in California. This project is designed to help protect the fishery resources of the state by eradicating pike from Lake Davis and its tributaries.

1.2 PURPOSE AND NEED

Pike are a nonnative invasive fish species illegally introduced to California. Pike can seriously impact aquatic ecosystems by preying heavily on other fish species. Experience in Alaska (see the following web site for additional information - <http://www.sf.adfg.state.ak.us/region2/areas/anch/html/pikepage.stm>) and elsewhere suggests that where habitat conditions are favorable, introduced pike have the potential to cause irreversible negative environmental impacts. Pike can become the dominant fish species, often to

the near total exclusion of native fish species. Portions of the Feather River, Sacramento River, and the Sacramento-San Joaquin Delta, as well as many aquatic environments in other California watersheds, match the preferred habitat of the pike in terms of temperature, aquatic vegetation, current speed and other features.



The geographical extent of pike in California is thought to be limited to Lake Davis and its tributary streams. Located in Plumas County, Lake Davis is a reservoir of the State Water Project on Big Grizzly Creek (Figure1 – See Appendix 1 for full page picture). Big Grizzly Creek is tributary to the Middle Fork Feather River, which flows into Lake Oroville and thence to the lower Feather River, then into the Sacramento River, and then the Sacramento-San Joaquin Delta. Pike were previously successfully eliminated from both Frenchman Reservoir and Sierra Valley waterways (both tributary to the Middle Fork) by CDFG after illegal introductions into those bodies of water.

Within the Sacramento-San Joaquin Delta system, a number of fish species have life history stages and habitat preferences which make them vulnerable to pike predation. These include the state- and federally-listed out migrating juveniles of winter- and spring-run Chinook salmon, steelhead, and delta smelt. In addition to these species, other species of concern such as splittail and Sacramento perch may be detrimentally affected by pike. In these and other watersheds, in riverine, lake and reservoir environments, a variety of fish species, including stocked trout, are vulnerable. The threat of pike in the Sacramento-San Joaquin Delta system is recognized by the state and federal governments and stakeholders otherwise known as CALFED Bay Delta Program in its Strategic Plan for Ecosystem Restoration.

Based upon current knowledge of the physical and biological processes that influence the spread and impact of pike on aquatic ecosystems, the pike population in Lake Davis appears poised to have a serious and widespread negative impact on California's aquatic ecosystems. If the pike population is not eradicated, biological and physical processes will eventually result in the spread of the pike population to downstream locations. The risk of such a spread has steadily increased since 1999 as the pike population in Lake Davis has increased in numbers. The presence of even a single pike population in California increases the risk of both natural and human movement of this species to other watersheds in the state. Fortunately, because California's pike population is limited to the one currently contained in the Lake Davis area, there is a window of opportunity to eliminate the species from the state.

1.3 PROJECT OBJECTIVES

The objective of the project is to eradicate pike from Lake Davis and its tributaries thus preventing their downstream spread and reducing the chances of pike being relocated to other California waters.

1.4 RECENT HISTORY

Pike were first discovered in Lake Davis in 1994. A Final EIR was prepared and filed in January of 1997 as part of a program to eliminate pike from Lake Davis and its tributaries. In 1997, a chemical treatment was conducted to remove pike from Lake Davis and its tributary streams. Pike were rediscovered in Lake Davis in May 1999, about eighteen months after what appeared to be a successful rotenone treatment of the reservoir.

The discovery prompted a visit to Portola from then- CDFG Director Robert Hight, who discussed the issue with community leaders. CDFG opened a local Portola field office and at Mr. Hight's request, the Lake Davis Steering Committee (Steering Committee) (composed of private citizens and elected city and county officials from the local community, with participation from state and federal agencies) was formed to address the issue. Pike experts were brought in from Alaska, Colorado, Idaho, Minnesota, and Wisconsin to assess the situation. They concurred with CDFG that Lake Davis provided the necessary habitat for successful pike reproduction and the pike's presence could present a threat to the fishery of Lake Davis and also to other fisheries throughout California should the pike escape or be moved from the reservoir.

In February 2000, CDFG and the Steering Committee developed a management plan: "Managing Northern Pike at Lake Davis, A Plan for Y2000." This document can be viewed at (<http://www.dfg.ca.gov/northernpike/mgpik.html>). This document recommended strategies to suppress the pike population, contain it within Lake Davis, and to remove as many pike as possible from the reservoir. Recommendations included increased education, law enforcement,

netting, electrofishing and trapping, as well as an experimental method of using detonation cord. Since the spring of 2000, CDFG personnel have conducted extensive field work in an attempt to control the illegally introduced, invasive, non-native pike in Lake Davis. In September 2003, CDFG evaluated the previous 3 ½ years of pike removal. A summary of this information can be reviewed on the web at the following location:

(http://www.dfg.ca.gov/northernpike/history/summary_report.pdf). Data indicated pike numbers continued to increase in spite of the concerted control efforts. Although all methods succeeded in removing some pike from the reservoir, none have proven effective in preventing a population increase. CDFG is currently continuing its pike removal efforts, and to date about 50,000 of the pike have been removed.

In December 2003, the Lake Davis Steering Committee sent a letter to the Secretary of Resources Mike Chrisman, requesting CDFG investigate methods to rid Lake Davis of the pike. Mr. Chrisman replied he was directing the CDFG to investigate methods of eliminating the pike from the reservoir. Protection of public health and addressing economic issues are important considerations in any decision to effectively deal with the pike.

In May of 2004, CDFG presented the community with a list of eradication options which had been suggested by various persons and/or agencies. The information in this document, entitled Lake Davis Northern Pike Eradication Options - May 24, 2004, can be viewed on the web at the following address: (<http://www.dfg.ca.gov/northernpike/history/options.pdf>). The document includes an evaluation of the options to determine their feasibility, effectiveness, and safety. This evaluation indicated that the use of formulated rotenone or a combination of formulated rotenone and rotenone powder combined with a significant drawdown of Lake Davis could be a feasible, effective and safe method for eradicating the pike. It further recommends that any such project if proposed by CDFG should be thoroughly evaluated pursuant to applicable environmental laws. It was determined that continuation of the current "Control and Containment" program was not a viable method for eradication. Throughout 2004, CDFG personnel continued to gather information regarding possible options.

On February 28, 2005, CDFG Director Ryan Broddrick met with the Lake Davis Steering Committee and various community members. Mr. Broddrick stated he was very pleased to see all the hard work and commitment of time from members of the community in working with the CDFG to solve a very complex issue. He reassured the community that CDFG would continue to work with them to solve this difficult and complex issue and is moving towards developing a plan to rid the reservoir of pike.

CDFG is taking several steps to build a solid foundation for proposing, planning and implementing a project. CDFG recently appointed a project manager. CDFG has also been coordinating with federal, state and local agencies that may have a role in reviewing, and/or providing permits or other approvals for various aspects of such a project to get their input early in the process. This will help CDFG prepare a well-thought-out project to eradicate pike from Lake Davis that addresses other agencies concerns. These agencies include, but are not limited to, the Plumas National Forest, Plumas County Environmental Health Department, the California Department of Health Services, and the Central Valley Regional Water Quality Control Board. It is important that any concerns and requirements of these and other agencies are understood by CDFG early in the planning process.

The proposed project will be analyzed and subjected to public review pursuant to CEQA and the National Environmental Policy Act (NEPA). CDFG and the Plumas National Forest intend to prepare a joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the

proposed project. The public's first formal opportunity for input into the process will be during the scoping process. One or more public scoping meetings will be scheduled and noticed in the NOP and NOI. Thereafter, the public will have an opportunity to comment on the draft EIR/EIS. In addition to the environmental review, CDFG intends to conduct a separate economic analysis of the project. CDFG intends to hire an economic consultant to assist in this effort. The CDFG intends to involve the Lake Davis Steering Committee in the process. Any final decision by CDFG to go forward with any project will be made after certifying and considering the final EIR/EIS as well as considering the economic analysis. The target date for approval of any such project would be January 2007. Implementation would occur thereafter.

1.5 SETTING

Lake Davis is located in Plumas County, California, at elevation 5,775 feet above sea level. Included in the project area are Lake Davis, all the tributaries in the watershed to Lake Davis, and Big Grizzly Creek below Lake Davis. These all occur in the upper reaches of the Middle Fork Feather River watershed in the Sierra Nevada Mountains (Figure 1). Lake Davis is a State Water Project reservoir that was first impounded in 1966-68 by the construction of Grizzly Valley Dam on Big Grizzly Creek. The reservoir is fed by three main tributaries, Big Grizzly, Freeman, and Cow Creeks. The total drainage area is about 44 square miles. Lake Davis has a surface area of 4,025 acres when full, a capacity of 84,371 acre-feet and an average depth of 21 feet. The deepest point of the reservoir is 108 feet, just upstream of Big Grizzly Dam. The reservoir is operated by the California Department of Water Resources (CDWR), and lies within the U.S. Forest Service Plumas National Forest.

Lake Davis water is used for recreation, irrigation, and for the benefit of fish and wildlife. It supports a trout fishery managed by CDFG. Lake Davis has been developed as a source of domestic water for the City of Portola and the Grizzly Lake Resort Improvement District (GLRID). The Plumas County water treatment plant, which treats Lake Davis water, was taken offline prior to the October 1997 chemical treatment as it did not meet regulatory standards, and continues to be offline pending improvements to the water treatment plant. Thus, neither entity currently uses Lake Davis as a water supply. Nearby residences depend on groundwater from private wells.

The two outlet structures at Grizzly Dam, one a 30 inch pipe and the other a 10 inch pipe, have a grating system installed across the mouth of the outlet which act as impingement bars to kill any fish passing through the outlet. This system appears to have successfully prevented any species of fish greater than 4 inches in length from passing through the outlet and surviving. However, the number of pike within the reservoir is increasing over time. CDFG personnel have been finding more pike and smaller pike closer to the dam as the population increases in the lake.

1.6 ALTERNATIVES

The lead agencies, the Department and the U.S. Forest Service, are considering the Proposed Project / Preferred Alternative and a reasonable range of potentially feasible alternatives that would meet the project objective of eradicating pike from Lake Davis and its upstream tributaries. The following is a preliminary list of alternatives that may be analyzed in the draft EIR/EIS. Alternatives will be refined and additional alternatives may be identified during the scoping period and the development of the draft EIR/EIS. In addition, some of the proposed alternatives may be dropped from consideration when subjected to additional input and review.

1.6.1 Proposed Project / Preferred Alternative

The Draft EIR/EIS will evaluate the environmental effects of a Proposed Project/Preferred Alternative involving the drawdown of Lake Davis to a volume of about 10,000-20,000 acre-feet. A liquid rotenone formulation would then be applied to eliminate pike.

The remaining water held in Lake Davis and any ponded water, and waters flowing into Lake Davis, from the headwaters of all tributaries, to the lake, or wetland areas, ponds, etc., adjacent to the flowing waters that are tributary to Lake Davis within its watershed would be treated with liquid rotenone at concentrations sufficient to eradicate the pike. It is anticipated at this time that the concentration of rotenone formulation used would be 2 ppm. The NEPA Preferred Alternative is to issue the required USFS permits needed to carry out the Proposed Project.

1.6.1.1 Reservoir Drawdown

Reservoir drawdown by the CDWR would commence immediately following the approval of the EIR/EIS. The average storage in Lake Davis on January 1 is approximately 60,000 acre feet at an elevation of 5,768 feet. CDWR personnel have examined and estimated drawdown capabilities for releases from Lake Davis using the 5700 foot elevation intake valve. This valve is located in Lake Davis about 100 feet upstream of the dam and about 10 feet above the bottom of the reservoir. Use of this valve would assist in preventing accidental flushing of pike during the drawdown process. Release capabilities range from approximately 190 cubic feet per second (cfs) at a storage elevation of 60,000 acre-feet to 170 cfs at 10,000 acre-feet (elevation 5,745 feet). CDWR estimates the reservoir can be drawn down to 10,000 to 20,000 acre-feet by the first of September in dry, average and most wet water years. Examination of inflow records for Lake Davis over the 37 years of record indicated the reservoir could be lowered to 20,000 acre-feet by September 1 in 29 of the 37 years or 78 percent of the time when the reservoir contains 60,000 acre-feet on January 1.

If an extremely wet water year occurs during the drawdown process, additional water may be pumped past the dam using a large diesel or electric pumping system with screened intakes. Screening would be designed by engineers working with biologists familiar with pike biology to minimize the potential for pike entering the pumping system.

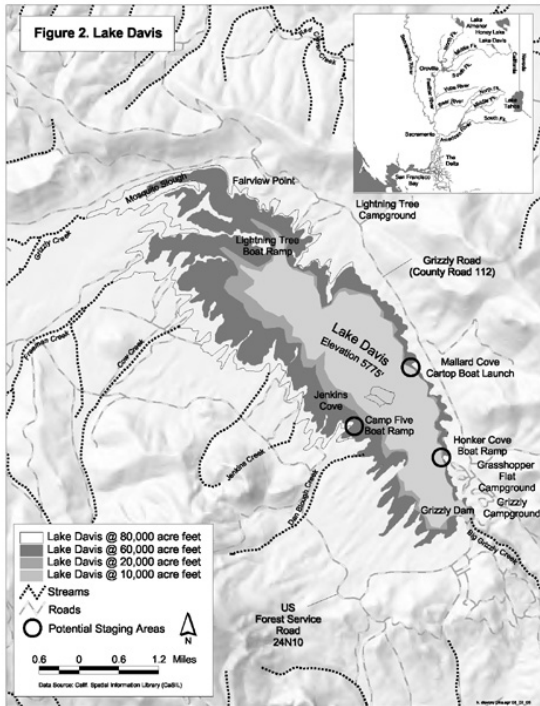
1.6.1.2 Containment Structures

Lowering the reservoir to 10,000 to 20,000 acre-feet could increase the risk of accidental flushing of pike (including eggs and larvae) through the outlet. Project personnel are currently investigating possible screening modifications to determine if a device capable of further reducing the potential for pike to move downstream is feasible and allowable. In addition, CDFG would monitor juvenile pike growth during drawdown and evaluate the need for any additional containment devices to keep pike in the reservoir for the chemical treatment. It may be possible to limit the drawdown to a time of year when the existing containment structure is adequate.

Containment options will be more fully developed after input from on-going studies is received and analyzed, and public input is received from the scoping process. Any proposed containment option and feasible alternatives will be discussed in further detail in the EIR/EIS.

Rotenone Application

A liquid formulation of rotenone that is registered for use in California will be proposed. Potential staging areas on USFS land for possible storage of equipment, materials, supplies, access, etc. used during the treatment and access to the lake could occur at Honker, Mallard, Camp 5 Coves, or at all sites (Figure 2 – See Appendix 1 for full page picture).



Rotenone would be applied to water in Lake Davis by means of boats, rafts or other floatation devices. Residual pools on the lake bottom would be treated with rotenone from boats or shore depending on the size, volume, and based on the expertise of the person in charge of the treatment. Rotenone would be applied to flowing waters by means of drip stations and hand-type spray bottles, hand-type sprayers, backpack sprayers or other similar devices. In addition, some areas could be sprayed by aerial application (helicopter). Aerial spraying would be considered primarily for wet seep areas that would be hard to spray using other methods, or where large open areas or marsh-like areas may exist. Small pockets of water along the streams or where the streams may become intermittent would be sprayed by hand if feasible. In the case of residual lake-bottom pools or small ponded areas found on tributaries, the use of ATV-mounted sprayers could be considered and utilized with U.S. Forest Service approval. This will be discussed in greater detail in the EIR/EIS. All applications would be conducted according to

label directions and all required safety measures would be adhered to as part of this project. The treatment would be conducted under the on-site supervision of a person that possesses a Qualified Applicator Certificate issued by the Department of Pesticide Regulation.

The chemical treatment would be carried out under Department guidelines for rotenone treatment. It would incorporate the best management practices as specified in the Programmatic Environmental Impact Report entitled Rotenone Use for Fisheries Management or subsequent updates to that document or "Rotenone Use in Fisheries Management; Administrative and Technical Guidelines Manual" published by the American Fisheries Society. This treatment would include a site safety plan in order to protect human health and safety.

1.6.1.3 Neutralization

Neutralization methods currently being investigated are: 1) Shutting off the dam outlet valves and allowing rotenone to break down naturally within the reservoir; 2) releasing flows from the dam and neutralizing the rotenone with potassium permanganate; 3) releasing minimal flows at the dam and filtering out rotenone formulation constituents with a granular activated carbon filter.

The exact methods to be proposed and how the neutralization would be accomplished will depend, in part, on information that is gathered later this summer and from comments received during the scoping and public comment processes. This will be discussed in further detail in the EIR/EIS.

1.6.2 Other Alternatives

In accordance with Section 15126.6 of the State CEQA Guidelines, an EIR must “describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives.” The list and nature of alternatives to be analyzed in the EIR/EIS may be altered based on input received from responsible agencies and the public during scoping.

Several alternatives are currently being considered, as summarized in the sections that follow.

1.6.2.1 Completely dewater reservoir

This alternative would involve the complete dewatering of Lake Davis using existing dam outlets and pumps, piping and/or siphons. Structures may be installed to prevent flushing of any pike (including eggs, larvae and juveniles). Flowing water would be diverted via a pipe or dammed with a series of check dams, and water remaining in resulting ponds would be removed using pumps and screens. Diverted water would have to be handled in some manner to ensure that pike did not live and eventually get introduced into other waters.

1.6.2 .2 Draw down reservoir to minimum pool and use liquid rotenone

Draw down Lake Davis to a minimum pool of about 90 acre-feet (surface elevation 5,700 feet above sea level). This would result in a reservoir surface area of about 25 acres. The remaining volume of about 90 acre feet and all remaining flowing waters would be treated with liquid rotenone. Application would take place during the summer or fall.

1.6.2.3 Draw Reservoir Down to 48,000 Acre-Feet and Eradicate with Liquid Rotenone

Draw down Lake Davis to a volume of 48,000 acre-feet (surface elevation 5,767 feet above sea level). The standing water and all remaining flowing waters would be treated with liquid rotenone in summer or fall.

1.6.2.4 No Action

Under this proposal, the CDFG would not attempt to eradicate the pike from Lake Davis. The current management plan would continue to attempt to suppress the Lake Davis pike population.

1.7 PROBABLE ENVIRONMENTAL EFFECTS OF THE PROJECT

In accordance with CEQA, the EIR/EIS will address significant and potentially significant environmental effects of the proposed project as identified in the Initial Study. In addition, in accordance with NEPA, the EIR/EIS will address any other effects that are required by NEPA to be analyzed.

1.8 AGENCY REVIEW AND APPROVALS AND STAKEHOLDER COORDINATION

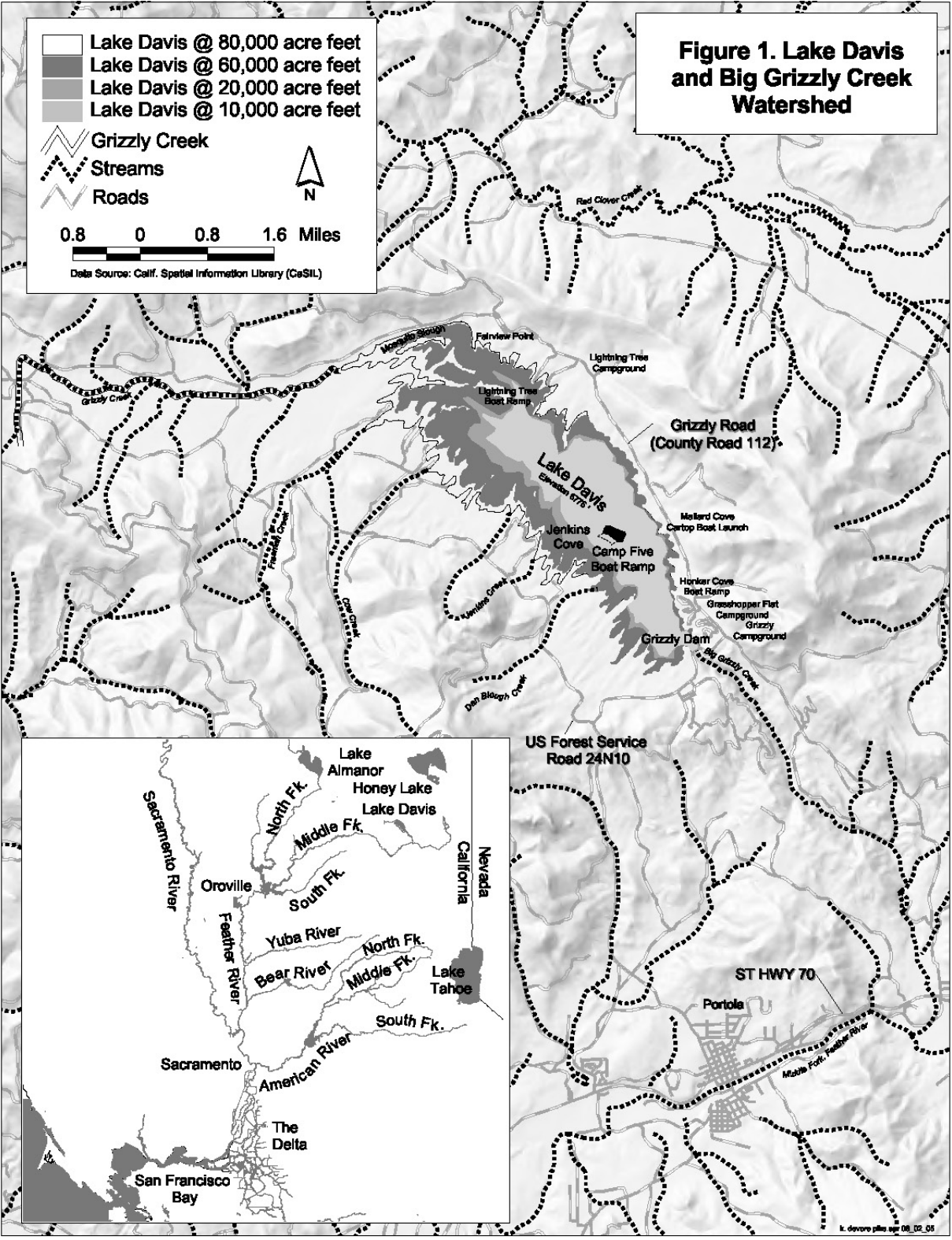
The CDFG may coordinate with, or seek permits and approvals, from the following agencies, or other entities it determines as the project progresses. In addition, the CDFG will continue to work with the Steering Committee and the community.

- U.S. Fish and Wildlife Service (Endangered Species Act Consultations)
- U.S. Forest Service (Special Use Permit, Pesticide Use Permit and/or Forest Closure Order)
- Central Valley Regional Water Quality Control Board (possible Waste Discharge Requirements)
- California Department of Health Service (Certification of use of substance in drinking water supply)
- California Department of Water Resources
- Office of Emergency Health Hazard Assessment
- California Department of Pesticide Regulation
- Northern Sierra Air Quality Management District
- California Department of Food and Agriculture (Plumas County Agricultural Commissioner)
- California Highway Patrol
- CalTrans
- Plumas County (Environmental Health Department, Public Health Officer, Sheriff Department)
- City of Portola
- Grizzly Lake Resort Improvement District
- California Environmental Protection Agency

Appendix 1

**Figures
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Figure 1. Lake Davis and Big Grizzly Creek Watershed



Lake Davis @ 80,000 acre feet
 Lake Davis @ 60,000 acre feet
 Lake Davis @ 20,000 acre feet
 Lake Davis @ 10,000 acre feet
 Grizzly Creek
 Streams
 Roads

N

0.8 0 0.8 1.6 Miles

Data Source: Calif. Spatial Information Library (CaSIL)

