



Initial Study/Negative Declaration and  
Initial Environmental Checklist/Finding of No Significant Effect for the  
**Target Invasive Fish Control  
Program at Lake Tahoe**

PREPARED FOR:





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Initial Environmental Checklist/  
Finding of No Significant Effect  
for the  
Target Invasive Fish Control Program at Lake Tahoe

PREPARED FOR

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# LIST OF ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
2012 RTP/SCS	<i>Lake Tahoe Regional Transportation Plan and Sustainable Communities Strategy: Mobility 2035</i>
AIS	aquatic invasive species
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
cm	centimeter
Conservancy	California Tahoe Conservancy
EDCAQMD	El Dorado County Air Quality Management District
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
GID	General Improvement District
GIS	Geographic Information System
IEC/FONSE	initial environmental checklist and finding of no significant effect
IS/ND	initial study and proposed negative declaration
Lahontan RWQCB	Lahontan Regional Water Quality Control Board
lb/day	pounds per day
LTAB	Lake Tahoe Air Basin
LTAISCC	Lake Tahoe Aquatic Invasive Species Coordination Committee
LTBMU	Lake Tahoe Basin Management Unit
LTGRP	Lake Tahoe Geographic Response Plan
m	meters
m/km	meters per kilometer
mm	millimeters
MRF	Materials Recovery Facility
MTCO <sub>2e</sub> /year	million tons of carbon dioxide equivalent per year
NAAQS	National Ambient Air Quality Standards
NDEP	Nevada Division of Environmental Protection
NEPA	National Environmental Policy Act
NO	nitric oxide

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NO <sub>2</sub>	nitrogen dioxide
NOP	notice of preparation
NO <sub>x</sub>	oxides of nitrogen
NTU	Nephelometric Turbidity Units
NWP	Nationwide Permit
ozone	photochemical smog
PAS	plan area statement
PM <sub>10</sub>	respirable particular matter with an aerodynamic resistance diameter of 10 micrometers or less
PM <sub>2.5</sub>	fine particular matter with an aerodynamic resistance diameter of 2.5 micrometers or less
PRC	Public Resources Code
program	Target Invasive Fish Control Program at Lake Tahoe
PUD	Public Utility District
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan and Sustainable Communities Strategy
SR	State Route
STR	South Tahoe Refuse
TAC	toxic air contaminant
Tahoe RCD	Tahoe Resource Conservation District
TCR	tribal cultural resource
TMPO	Tahoe Metropolitan Planning Organization
TRPA	Tahoe Regional Planning Agency
TTSD	Tahoe-Truckee Sierra Disposal Company, Inc.
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
ZEV	zero emission vehicle



# 1 INTRODUCTION

Tahoe Resource Conservation District (Tahoe RCD) is proposing the Target Invasive Fish Control Program at Lake Tahoe (program). Target invasive fish species are species that are contributing to declines in native and recreational non-native fish, alterations in food-web dynamics, and reductions in water quality. Recreational non-native fish species (i.e., rainbow trout [*Oncorhynchus mykiss*], brown trout [*Salmo trutta*], brook trout [*Salvelinus fontinalis*], lake trout [*Salvelinus namaycush*], and kokanee salmon [*Oncorhynchus nerka*]) are not targeted by the proposed program. The proposed program would authorize a selection of mechanical fish control methods that can be implemented in locations of suitable habitat for the target species for long-term implementation. Target invasive fish species include Smallmouth bass (*Micropterus dolomieu*), Largemouth bass (*Micropterus salmoides*), Bluegill (*Lepomis macrochirus*), Black crappie (*Pomoxis nigromaculatus*), Brown bullhead (*Ameiurus nebulosus*), and goldfish (*C. auratus auratus*). No chemical control methods would be used with this proposed program.

The proposed program expands on prior planning efforts conducted by Tahoe RCD, California Department of Fish and Wildlife, the University of Nevada at Reno, the Lake Tahoe Aquatic Invasive Species Coordination Committee (LTAISCC), the Aquatic Nuisance Species Task Force, the California Tahoe Conservancy (Conservancy), the U.S. Army Corps of Engineers (USACE), the Tahoe Regional Planning Agency (TRPA), and other stakeholder agencies and organizations. TRPA is Tahoe RCD's program partner and is also a leader in managing aquatic invasive species in Lake Tahoe. Specifically, the proposed program defines treatment strategies based on the 2014 *Lake Tahoe Region Aquatic Invasive Species Management Plan* (TRPA et al. 2014), the 2015 *Implementation Plan for the Control of Aquatic Invasive Species within Lake Tahoe* (Wittmann and Chandra 2015), and the 2019 *Lake Tahoe Region AIS Action Agenda 2021-2030* (Creative Resource Strategies 2019).

The control of target invasive fish in Lake Tahoe would result in improvements to native and recreational non-native fish distribution and abundance by reducing known predators and competitors. Control and removal of these species would increase the quality and quantity of habitat for desirable aquatic species and improve water quality and overall ecosystem health.

Tahoe RCD and TRPA are conducting environmental review of the proposed program to facilitate increasing the pace and scale of target invasive fish control treatments on a lakewide scale as implementation funding becomes available. Future projects that are consistent with the program description in this environmental document and applicable permits that are obtained would be implemented without additional environmental review. Current funding for the proposed program is limited to planning, environmental review, and permitting; the funding for these efforts comes from Proposition 1, a water bond approved by California voters in November 2014, and administered locally by the Conservancy.

Tahoe RCD also leads the implementation of the prevention and control program for aquatic invasive weed removal and is conducting this environmental review to implement a companion target invasive plant control program. Target invasive fish are recognized as aquatic invasive species (AIS) that threaten aquatic species native to the Lake Tahoe Basin. AIS are defined as "nonindigenous species that threaten the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural or recreational activities dependent on such waters" (NANPCA 1990). AIS includes both aquatic plants and aquatic animals.

The proposed program would apply to all areas within the Lake Tahoe region that include suitable habitat for target invasive fish. These areas include marinas and shallow waters of Lake Tahoe, portions of the tributaries that feed into Lake Tahoe, a short reach of the Truckee River just downstream of the dam (the lake's only river outlet), where it is under the jurisdiction of TRPA, and marsh areas around the lake shoreline.

## 1.1 PURPOSE OF THIS DOCUMENT

Under the California Environmental Quality Act (CEQA) (Public Resources Code § 21067), the lead agency is the public agency with primary responsibility for carrying out or approving a project (or program) that has the potential for resulting, directly or indirectly, in a physical change to the environment. As the agency responsible for leading implementation of the basin-wide aquatic invasive species prevention and control program, including the proposed program that targets invasive fish, Tahoe RCD is the CEQA lead agency. Under CEQA, the environmental impacts of the project are evaluated based on the whole of the project (i.e., implementing control methods that target invasive fish in all locations that include suitable habitat within the Lake Tahoe region). TRPA also has jurisdiction over the proposed program pursuant to the Tahoe Regional Planning Compact, Code of Ordinances (Code), and Rules of Procedure. As such, TRPA is the lead agency pursuant to its rules and regulations. Tahoe RCD and TRPA directed the preparation of this analysis to comply with CEQA and TRPA regulations. Note: National Environmental Policy Act (NEPA) environmental review is discussed in Section 2.3, "Project Approvals."

## 1.2 PUBLIC REVIEW PROCESS

The purpose of this initial study and proposed negative declaration (IS/ND) and initial environmental checklist and finding of no significant effect (IEC/FONSE) is to present to decisionmakers and the public the environmental consequences of implementing the proposed program. The environmental review process for proposed program began with efforts to gather information to establish the breadth, or scope, of environmental review. Although not expressly required by CEQA or TRPA regulations, a scoping letter was issued to inform agencies and the public that an IS/ND and IEC was being prepared for the proposed program, and to solicit views of agencies and the public as to the scope and content of the document. The scoping letter and the comment letters received from the public, agencies, and organizations are included in their entirety in Appendix A. The scoping letter was released on November 12, 2019 and comments were invited through December 13, 2019. The scoping comments that were received were considered in preparation of this IS/ND and IEC.

As required by CEQA, this IS/ND and IEC is being made available to the public for a 30-day review and comment period from January 23, 2020 to February 24, 2020.

If you wish to send written comments (including via e-mail), they must be postmarked by February 24, 2020. Written comments should be addressed to:

Mollie Hurt  
 Director of Programs  
 Tahoe Resource Conservation District  
 870 Emerald Bay Road, Suite 108  
 South Lake Tahoe, CA 96150

Paul Nielsen  
 Special Projects Manager  
 Tahoe Regional Planning Agency  
 P.O. Box 5310  
 Stateline, NV 89449

E-mail comments should be addressed to [mhurt@tahoercd.org](mailto:mhurt@tahoercd.org) and/or [pnielsen@trpa.org](mailto:pnielsen@trpa.org).

After comments are received from the public and reviewing agencies and considered by Tahoe RCD, the agency may (1) adopt the ND and approve the proposed project; (2) undertake additional environmental studies; or (3) abandon the project.

Once a completed project application is submitted to TRPA, the agency will consider the IEC/FONSE, project approval, and permit issuance.

Digital copies of the IS/ND and IEC/FONSE are available on the internet at: <https://tahoercd.org/tahoe-aquatic-invasive-species-resources/>.

Copies of the document are also available for public review during normal business hours at the following locations:

Tahoe RCD Offices  
870 Emerald Bay Road, Suite 108  
South Lake Tahoe, CA 96150

Tahoe City Library  
740 N. Lake Blvd.  
Tahoe City, CA 96145

TRPA Offices  
128 Market Street  
Stateline, Nevada 89449

## 1.3 SUMMARY OF FINDINGS

Chapter 3, "CEQA and TRPA Environmental Checklist," contains the analysis and discussion of potential environmental impacts of the project. The full range of environmental issues in the Appendix G checklist of the State CEQA Guidelines and TRPA IEC have been analyzed. Based on the issues evaluated in that chapter, it was determined that the project would have no impact related to the following issue areas:

- ▶ agriculture and forest resources,
- ▶ energy,
- ▶ mineral resources and natural resources,
- ▶ population and housing, and
- ▶ public services.

Project impacts were determined to be less than significant for the following issue areas:

- ▶ aesthetics,
- ▶ air quality,
- ▶ biological resources,
- ▶ cultural resources,
- ▶ geology and soils,
- ▶ greenhouse gas emissions,
- ▶ hazards and hazardous materials,
- ▶ hydrology and water quality,
- ▶ land use and planning,
- ▶ noise,
- ▶ recreation,
- ▶ transportation,
- ▶ tribal cultural resources,
- ▶ utilities and service systems, and
- ▶ wildfire.

## 1.4 DOCUMENT ORGANIZATION

This IS/ND and IEC/FONSE is organized as follows:

**Chapter 1: Introduction.** This chapter introduces the environmental review process. It describes the purpose and organization of this document and presents a summary of findings.

**Chapter 2: Program Description.** This chapter describes the program objectives and provides a detailed explanation of the program.

**Chapter 3: CEQA and TRPA Environmental Checklist.** This chapter presents an analysis of a range of environmental issues identified in the CEQA Environmental Checklist (Appendix G of the State CEQA Guidelines) and the TRPA IEC. The CEQA Environmental Checklist considers, for each environmental topic, whether the project would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact. Potential responses to the TRPA IEC Checklist questions for each topic are yes, no, no impact with mitigation, or data insufficient. If any impacts are determined to be significant, an EIR/EIS would be required. For this project, however, Tahoe RCD has committed to project modifications that would avoid or lessen the effects of the project to a less-than-significant level.

**Chapter 4: References.** This chapter lists the references used in preparation of this IS/ND and IEC/FONSE.

**Chapter 5: Report Preparers.** This chapter lists the authors of each chapter and section.

**Appendices.** The appendices provide additional information used in the preparation of this IS/ND and IEC/FONSE.

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## 2 PROGRAM DESCRIPTION

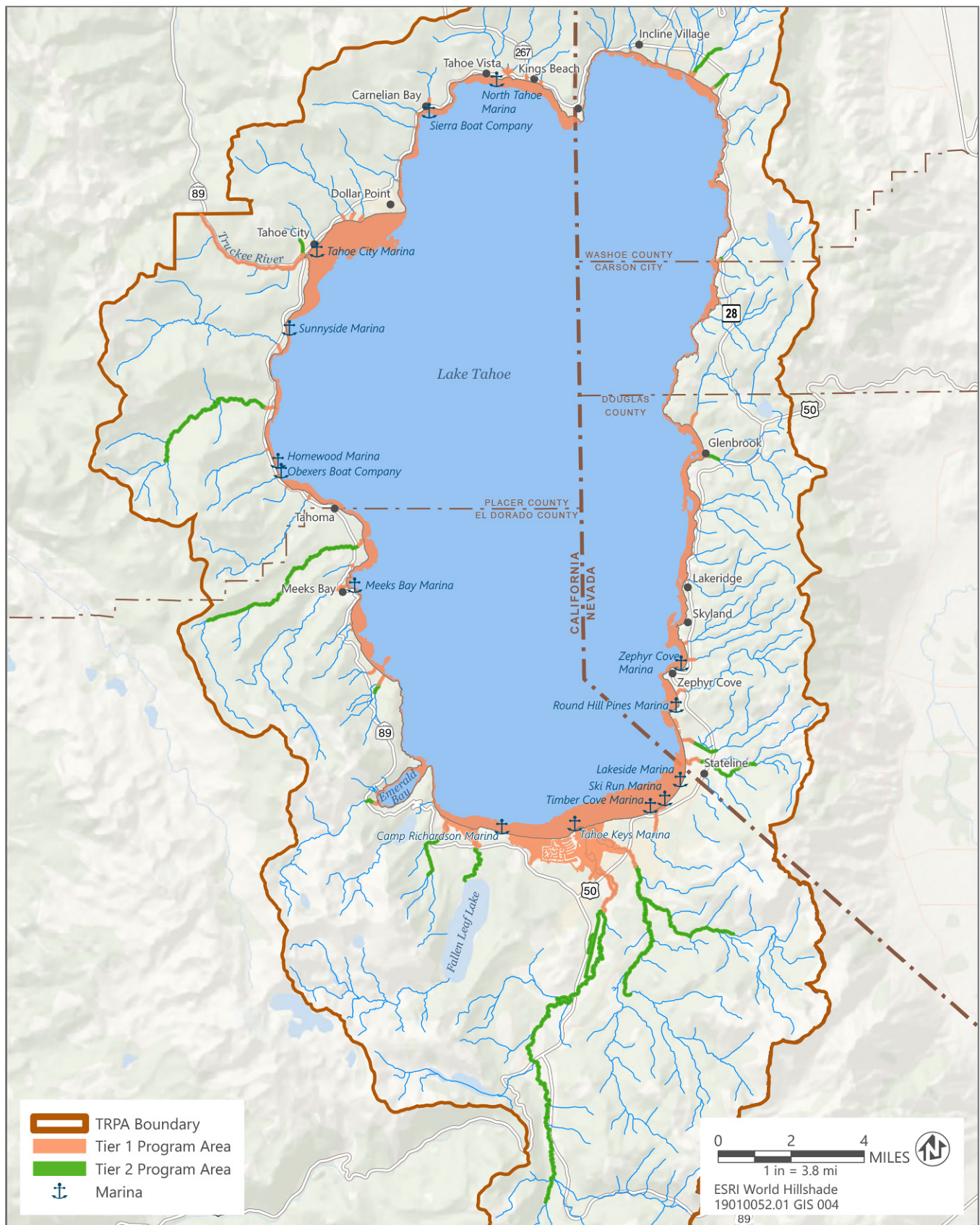
### 2.1 PROGRAM LOCATION

The proposed program would apply to all areas within the Lake Tahoe Basin where target invasive fish are present and includes all locations with suitable habitat for target invasive species. These areas include marinas and shallow waters of Lake Tahoe, portions of the tributaries that feed into Lake Tahoe, a short reach of the Truckee River just downstream of the dam (the lake's only river outlet), where it is under the jurisdiction of TRPA, and marsh areas around the lake shoreline. For illustrative purposes, the proposed program area for Tahoe RCD's Target Invasive Fish Control Program at Lake Tahoe is shown in Figure 2-1 and described below. To provide a scale where the locations of the Tier 1 and 2 boundaries can be easily understood, the northern and southern extents of the TRPA boundary and program area are not shown in Figure 2-1.

With respect to tributaries, the proposed program prioritizes areas best suited for native fish management, recovery, and restoration. These are areas where range expansion of target invasive fish may be actively controlled. The tributary program area has been divided into two tiers that represent areas where target invasive fish occur in higher populations. Tier 1 represents the area where target invasive fish are most likely to occur with the highest populations and Tier 2 represents the area where target invasive fish could also occur but with lower populations. Of the targeted species, smallmouth bass (*Micropterus dolomieu*) is most likely to migrate the farthest upstream or to the highest elevations of Lake Tahoe's tributaries. This species is well adapted to streams with clear water and cooler summer water temperatures and is most abundant in streams of moderate gradient with complex habitat typical of Sierra Nevada streams (Moyle 2002; Lawrence et al. 2012). For these reasons, smallmouth bass is expected to migrate and establish farther upstream than other nonnative species targeted by the proposed program.

Stream flow, velocity, and water temperature are the preferred habitat variables used to assess smallmouth bass habitat suitability in Lake Tahoe tributaries. Because smallmouth bass would potentially migrate farther upstream than other target species, its habitat suitability variables would be appropriate to help establish program area boundaries if sufficient data were available. However, fine-scale velocity and water temperature data for all Lake Tahoe tributaries are not readily available for Lake Tahoe tributaries. In lieu of this data, a stream gradient-based approach, which is a surrogate characteristic for streamflow velocity, is used to define the program area within tributaries because stream gradient data is readily available through a desktop Geographic Information System (GIS) analysis of digital elevation models. Stream gradient is a suitable and often-used proxy for stream water velocity when assessing watershed-scale fish distribution (Burton & Odum 1945; Lawrence et al. 2012).

Previous studies have found that smallmouth bass are rarely present in stream segments where the gradient exceeds one percent for a distance of 500 meters (m) or 10 m of rise per one kilometer of run (m/km) (Brewer et al. 2007; Dauwalter et al. 2007), or have observed limited distribution above high-gradient reaches of approximately 8-9 m/km (Lawrence et al. 2012). This evidence suggests a stream gradient threshold of approximately 10 m/km is an appropriate threshold to apply to Lake Tahoe tributaries for the purposes of defining priority areas within the program area. Priority areas, labeled "Tier 1" on Figure 2-1, represent the locations within tributaries where target invasive fish populations are most likely to occur. It is important to note that gradient thresholds should not be interpreted as impassable by smallmouth bass (Lawrence et al. 2012), but rather as an indicator of stream segments that should be prioritized for native fish management, recovery, and restoration. Areas where target invasive fish are possible, but where habitat conditions may preclude established populations, are included as "Tier 2." Tier 2 stream segments represent areas within tributaries where target invasive fish may be present in smaller numbers (Figure 2-1). Tier 2 reaches are defined as extending from the upstream limit of Tier 1 to a point where the tributary exceeds 10 percent slope, or the farthest extent where target invasive fish populations have been documented. Areas upstream of Tier 2 locations could still be used to implement target invasive fish controls but would likely result in fewer fish removed from the tributary than either Tier 1 or 2 areas.



Source: Data downloaded from U.S. Forest Service and adapted by Ascent Environmental in 2019

Figure 2-1 Target Invasive Fish Control Program Area

Shallow water areas within Lake Tahoe are also included in the program area. For the purposes of this document, the shallow water boundary is defined based on the established depth from the low water elevation of Lake Tahoe (i.e., 6,223.0 feet Lake Tahoe Datum) (TRPA 2019) that provides critical elements of suitable habitat for largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), and black crappie (*Pomoxis nigromaculatus*). These elements principally include warmer water temperatures necessary for growth and cover in the form of aquatic macrophyte beds, both of which are typically found in shallow-water zones near shorelines. Comprehensive nearshore water temperature data at a gradient of depths is not readily available for Lake Tahoe; however, aquatic macrophyte surveys conducted in 2017 pursuant to the Lahontan Regional Water Quality Control Board (Lahontan RWQCB) Order No. R6T-2014-0059 describe the nearshore, shallow zone, and the macrophytes that occupy these areas as occurring in water approximately 20 feet deep or less in Lake Tahoe (TKPOA 2018). This depth criteria (20 feet) also corresponds to the typical depths in which the targeted invasive fish species inhabit lakes (Moyle 2002). Therefore, this document defines the limits of shallow water to include the area between high lake level and 20 feet below Lake Tahoe's water elevation at the time of implementation. Marsh areas connected to Lake Tahoe and its tributaries during periods of flooding are also included within the program area (Figure 2-1). Location data from annual Tahoe yellow cress (*Rorippa subumbellata*) surveys completed by the Tahoe yellow cress Adaptive Management Working Group or others would be consulted prior to planning any fish control activities that utilize beach areas. Areas where Tahoe yellow cress has been mapped or identified would be avoided and would not be disturbed by fish control activities.

The highest elevations of the southwest and south portions of the program area contain occurrences of Sierra Nevada yellow-legged frog (*Rana sierrae*; SNYLF), which is listed as endangered under the federal Endangered Species Act and is U.S. Fish and Wildlife Service (USFWS) designated critical habitat for the species. These occurrences and critical habitat are not located within any Tier 1 habitats or Tier 2 areas. Because SNYLF generally does not persist in aquatic habitats with fish due to predation, aquatic sites in the program area that support target invasive fish and where control treatments would likely be implemented are not expected to support SNYLF. To further avoid the potential for incidental take (i.e., harassment, injury, mortality) of SNYLF that may result from fish control activities if the species was present at a treatment site, aquatic sites with SNYLF occurrences documented within the last 50 years prior to treatment implementation would not be treated under the program unless absence of the species has been confirmed (e.g., through surveys).

Researchers at Lake Tahoe are testing the hypothesis that climate change and local land use practices (i.e., marina development) are expanding target invasive fish distribution around the lake by increasing the amount of thermally suitable habitat (Chandra et al. 2009). Constructed areas (such as marinas) experience elevated water temperatures throughout summer months due to a lack of mixing with the main body of the lake, which facilitates growth of aquatic weeds. The combination of these local and global effects is likely to favor proliferation of target invasive fish species over time (Chandra et al. 2009). Additionally, climate change is expected to warm water and lower the average lake level, which would lead to less mixing of cool and warm water, nutrient release, altered habitat, decreasing water clarity, and increased spread of invasive species (Conservancy 2019). For the purpose of developing a program area that reflects anticipated lake level changes resulting from climate change, climate projections were considered for the next 20 years when defining the program area illustrated in Figure 2-1; projections regarding changes in lake level are less certain beyond this timeframe.

## 2.2 BACKGROUND

Tahoe RCD and TRPA are the co-chairs of LTAISCC, which consists of over 40 public and private organizations that collaborate on prevention, control and early detection of AIS in the Lake Tahoe Basin. LTAISCC shares resources and information, standardizes methods for treatment and data collection, performs coordinated education and outreach activities, obtains grants, and prioritizes projects and organizes effective control efforts. Tahoe RCD leads the implementation of the prevention and control program for aquatic invasive plant removal and is conducting this environmental review to implement a companion target invasive fish control program. Target invasive fish are recognized as AIS that threaten aquatic species native to the Lake Tahoe Basin. AIS are defined as "nonindigenous species that threaten the diversity or abundance of native species or the ecological stability of infested waters, or

commercial, agricultural, aquacultural or recreational activities dependent on such waters” (NANPCA 1990). AIS includes both aquatic plants and aquatic animals.

The number of nonnative fish species is correlated with anthropogenic, landscape-level changes related to watershed disturbance and altered hydrology (Tucker et al. 2010). In the late 19th century, resource agencies introduced numerous exotic species to the Lake Tahoe Basin with the hope of improving recreational angling (Allen 2007). Another wave of fish introductions began around 1961 during a period of rapid development within the Lake Tahoe Basin. For the most part, these introductions were illegally carried out by private citizens without the support of state or federal fish and wildlife agencies, and so did not receive scientific scrutiny (Allen 2007). Construction of the Tahoe Keys and other marinas created “ponded” water along the shores of Lake Tahoe, where elevated water temperatures could develop over prolonged periods (Allen 2007). These introductions and watershed disturbances allowed target invasive fish populations in Lake Tahoe to establish and grow. Additionally, migration of invasive fish has coincided with increases in lake temperature, primarily from populations on the south shore, like the Tahoe Keys Marina (Kamerath et al. 2008).

The control of target invasive fish in Lake Tahoe would result in improvements to water quality, native fish habitat, and ecosystem health. Invasive fish alter nutrient cycles and increase algal growth by adding phosphorus to the water column (Tahoe RCD 2019). Studies show that when invasive fish are present, native fish populations are depressed due to predation and competition from invasive fish (Kamerath et al. 2008). These species threaten to displace and decrease native fish populations and reduce nearshore water clarity. Tahoe RCD proposes a robust target invasive fish control program to restore and enhance habitat for native species which would be intended to also improve ecosystem health and lake water quality.

Figure 2-2 shows the locations within Lake Tahoe where target invasive fish populations have been known to occur. Target invasive fish have also been detected in the following tributaries: Eagle Creek, General Creek, Taylor Creek, Trout Creek, and the Upper Truckee River (USFS 2013); Meeks Creek (USFS 2010); Tallac Creek (USFS 2016); Edgewood Creek (Kelso, pers. comm., 2020); Mill Creek (Dolan, pers. comm. 2020); and the Truckee River (Chandra et al. 2009).

## 2.2.1 Program Objectives

Tahoe RCD’s objectives for the proposed program are to:

- ▶ Eradicate target invasive fish where feasible;
- ▶ Facilitate native fish restoration, including Lahontan cutthroat trout, in Lake Tahoe and its tributaries;
- ▶ Improve water quality in Lake Tahoe and its tributaries;
- ▶ Improve ecosystem health in Lake Tahoe and its tributaries; and
- ▶ Limit the spread of existing target invasive fish populations in the Lake Tahoe Basin by employing strategies that minimize threats to native species and extirpate existing target invasive fish populations when feasible.

As noted in the introduction, recreational non-native fish species (i.e., rainbow trout [*Oncorhynchus mykiss*], brown trout [*Salmo trutta*], brook trout [*Salvelinus fontinalis*], lake trout [*Salvelinus namaycush*], and kokanee salmon [*Oncorhynchus nerka*]) are not targeted as a part of the proposed program’s objectives. Recreational non-native fish populations are not intended to be reduced by the proposed program, nor is the proposed program intended to improve their habitat quality and population health. The ultimate goal of eradicating invasive fish is likely infeasible given limited resources and therefore suppressing the invasive fish population is the realistic goal of the program.

## 2.2.2 Site Prioritization

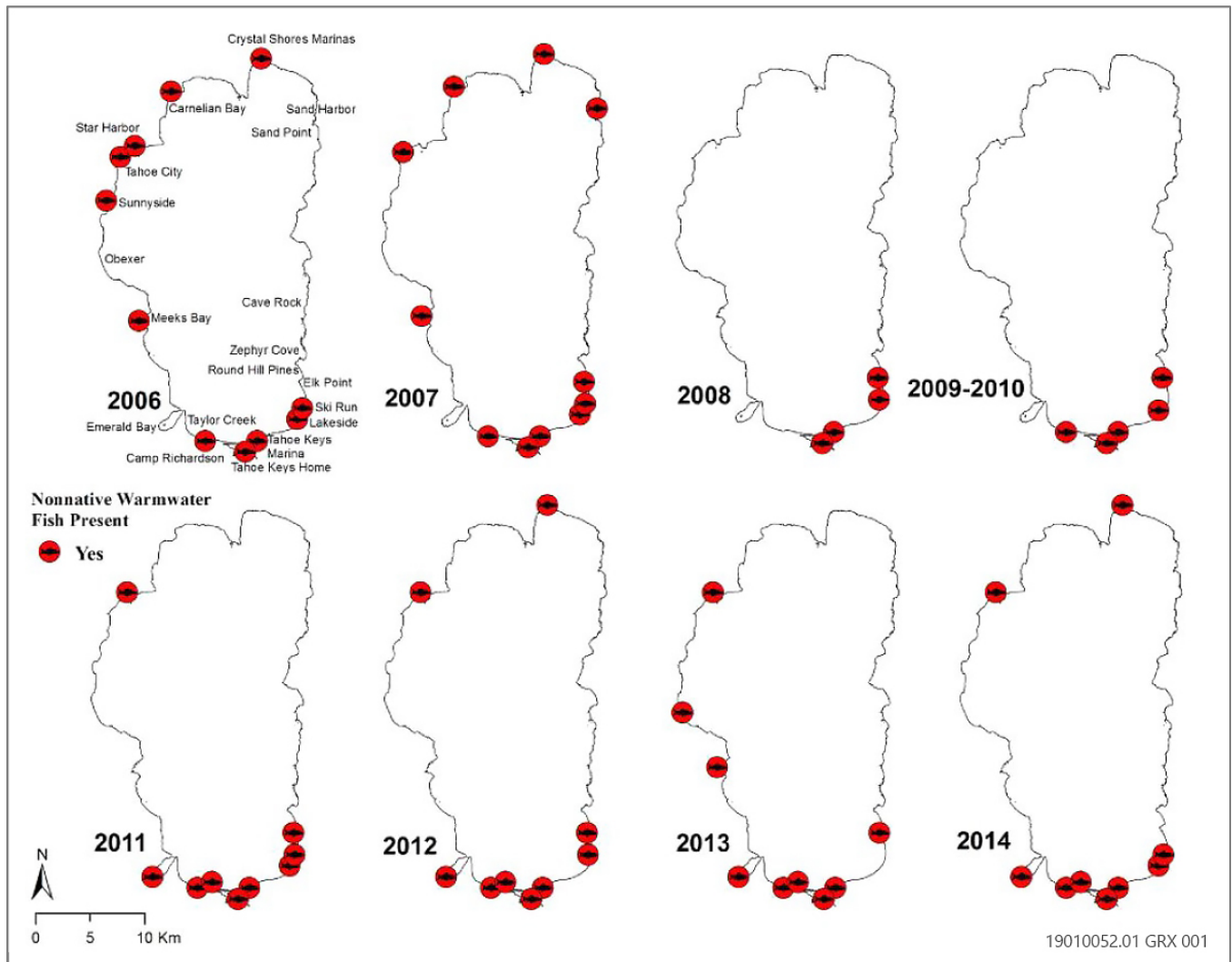
Areas infested with aquatic invasive plant species enhance the ability for target invasive fish to establish and to increase in population size (Dibble et al. 1997, Hoyer and Canfield 1996). It is anticipated that the removal of aquatic invasive plants in Lake Tahoe (which is a separate Tahoe RCD program) not only decreases the unwanted effects



associated with these species but also reduces the availability of habitat for target invasive fish. It is also understood that areas with more intensive recreational boat activity represent areas of invasive species introduction.

A pilot program conducted in 2011-2013 confirmed that the distribution of nonnative invasive fish was uniform across all portions of the Tahoe Keys marina and canals, and therefore, control methods should be targeted uniformly across the Tahoe Keys and likely other marinas (Chandra et al. 2009).

The 2015 Implementation Plan prioritized sites for treatment of target invasive fish. These target areas overlap habitat used by native fish species. An ecologically based framework was used to determine site prioritization and priority sites include the Tahoe Keys Marina, Meeks Bay Marina, Ski Run Marina and Channel, and Lakeside Marina and swim area (Chandra et al. 2009). As funding allows, these sites would also be prioritized for treatment under Tahoe RCD's proposed control program. As new data becomes available regarding infestation locations, new prioritization sites would be established.



Source: Wittmann and Chandra 2015

Figure 2-2 Target Invasive Fish Distribution (Presence) in Lake Tahoe

### 2.2.3 Target Invasive Fish Species

Lake Tahoe has an extensive history of nonnative aquatic species introductions (Vander Zanden et al. 2003, Goldman et al. 1979). Before the 1980s, aquatic species were intentionally introduced to increase sport fishery production, but the opposite effect resulted when growth rates of top fishery species declined (Clarke and Bennett 2002). In the late 1980s many invasive fish species were observed in the Tahoe Keys Marina. These species are thought to have been illegally introduced by anglers (Reuter and Miller 2000).

By the 1990s, recreational fishing guides were unable to collect native bait minnows at certain marinas. This rapid reduction in native fish abundance raised concerns, while at the same time near shore habitat for nonnative fishes increased with the expansion of aquatic plant beds (Kamerath et al. 2008). Nonnative fish introductions are commonly associated with reduced food web efficiency, extirpation or reduction of native species, and decreased native sport fishery production (Pimentel et al. 2000, Vander Zanden 1999). Invasive fish targeted by the proposed program comprise the six species described below but would also include other invasive fish species as infestations arise.

#### Smallmouth bass (*Micropterus dolomieu*)

Smallmouth bass (*Micropterus dolomieu*) are typically brown, occasionally black or green (rarely yellow), with red eyes and dark brown vertical bands (CABI 2019a) (Figure 2-3). Bronze streaks are common on their cheeks. The species has two dorsal fins with spinous and soft-rayed portions united (CABI 2019a). Smallmouth bass use a larger habitat than other invasive fish species and can survive in colder waters (Chandra 2009).



Source: Photograph provided by Eric Engbretson in 2019

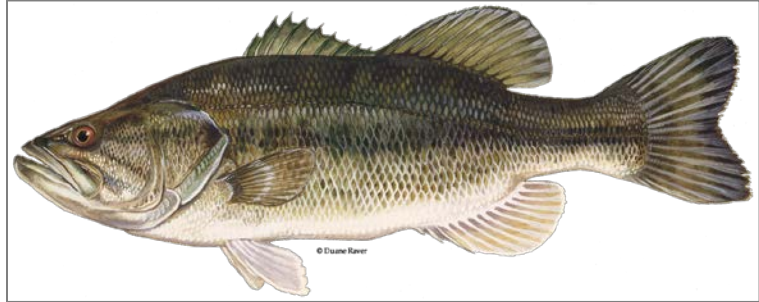
**Figure 2-3**      **Photograph of Smallmouth Bass**

They also spawn in rocky outcroppings, which are abundant in Lake Tahoe. Their ideal habitat contains protective cover such as shoal rocks, talus slopes, and submerged logs, with a preferred water temperature of 20–21 degrees Celsius (°C) (CABI 2019a). Spawning activity begins in the spring when water temperatures reach a minimum of 15°C. Males excavate a small, saucer-shaped nest in the shallow waters of lakes and tributaries, on sand, gravel, or rocky bottoms and nest near to structures such as logs or boulders. Females lay approximately 2,000 eggs at each spawning (CABI 2019a). Several females may spawn in one nest (Whitlock 2004). After spawning, the female leaves the nest and may spawn with another male in another nest. The male guards the eggs for 4–6 days and then the fry for approximately 2 weeks before they disperse (CABI 2019a). Smallmouth bass mature at age three or four and occasionally live to be 10–12 years old (CABI 2019a).

Smallmouth bass are cannibalistic and mostly consume fish, insects and crayfish (CABI 2019a), with the bulk of their diets consisting of crayfish and aquatic insects (CABI 2019a). Juvenile smallmouth bass, however, primarily eat plankton and insects. When smallmouth bass is introduced into a waterbody, they prey heavily on smaller fish, competing with native species. It is possible that smallmouth bass may become a dominant component of the food web, particularly in systems of low biological and physical complexity. It has been reported that the introduction of smallmouth bass often results in a shift in forage fish assemblages manifested as declines in abundance and reduced species diversity (DFO 2009).

## Largemouth bass (*Micropterus salmoides*)

Largemouth bass (*Micropterus salmoides*) were spread primarily for recreational angling opportunities. The establishment of largemouth bass was likely assisted by its aggressive feeding strategy, which has caused considerable declines in native prey fishes (CABI 2019b, Welcomme 1988). Largemouth bass have few natural predators due to its large size, swimming ability, and dorsal fin spines. Adult lengths typically range from 203-381 millimeters (mm) with a large, long head and large eyes (Figure 2-4).



Source: Illustration provided by Duane Raver

**Figure 2-4** Illustration of Largemouth Bass

The lower jaw is slightly longer than the upper jaw. Largemouth bass have two dorsal fins joined slightly above the dorsal surface, a caudal fin which is broad and shallowly forked with soft rays throughout, an anal fin with a base length less than that of second dorsal, pelvic fins occupy the thoracic position with one spine and five soft rays (CABI 2019b). Dorsal surfaces range from bright green to olive while the flank may be light to dark green or gold, complete with a pronounced wide, solid black lateral band across body, often extending to the opercular flap (CABI 2019b).

Largemouth bass prefer warm freshwater habitats within lakes, ponds, rivers, and streams. The species has wide habitat tolerances that allow it to colonize many temperate and sub-tropical freshwaters (CABI 2019b). The species may tolerate ice-cover for up to 6 months providing that suitably warm temperatures (> 15.6°C) exist during spawning season. Within its native range the species frequents relatively shallow waters and is seldom captured from depths greater than 7 m (CABI 2019b). The species preferentially occupies the nearshore (littoral) area of lakes due to the abundance of aquatic vegetation and warm temperatures. Aquatic vegetation is usually necessary for largemouth bass habitat, as are mud, sand, or gravel substrates that provide spawning habitat.

To spawn, males clear a 61–95 centimeter (cm) area that may include exposed roots of emergent vegetation. Nudging and nipping between males and females initiates spawning, which results in the female depositing between 2,000 and 109,314 eggs (CABI 2019b). Males aggressively guard the nest during egg development. Yolk is absorbed usually 6 or 7 days after hatching, at which point young will feed and school actively.

Largemouth bass are generalist carnivores, feeding mostly during the day and eating mainly nearshore organisms that occur frequently within freshwaters. Their diet consists primarily of invertebrates when they are young but is dominated by fishes as they age. Once introduced, largemouth bass increase predation at one or more lower trophic levels, which results in altered ecosystem processes (CABI 2019b).

## Bluegill (*Lepomis macrochirus*)

Bluegill (*Lepomis macrochirus*) have been widely introduced outside its native range due to intentional stocking for sport fishing. This species can overcrowd and stunt the growth of other fish by competing for food and habitat. It may even cause displacement and extinction of native fish (CABI 2019c). Bluegill are able to tolerate a wide range of environmental conditions such as temperature, pH, and dissolved oxygen, giving them an advantage over many native fish (Welcomme 1988).

Body depth is usually two to two and one-half times its standard length (CABI 2019c) (Figure 2-5). The sides of the head and chin are bluish in color and the back is olive-green to brown. The breast is yellow and it has a yellowish-white abdomen with olive green fins and often a black opercula flap (CABI 2019c). Bluegill has a darkened spot on the posterior edge of the gills and the base of the dorsal fin (CABI 2019c). Bluegill have long and pointed pectoral fins; lower fin rays are shorter than upper pectoral fin rays (CABI 2019c).

Bluegill commonly nest at depths from 0.2–1.2 m (Gosch et al. 2006), but spawning depths to 3.3 m have been documented (CABI 2019c). Bluegill spawn over a wide variety of substrates including gravel, sand, clay, and detrital nests (CABI 2019c). Nests are usually constructed in a vegetation free area and over sand or gravel. Bluegill nests are placed close together (CABI 2019c) in colonies of 9–15 nests (CABI 2019c). Males sweep away silt and sand with their tails when preparing a nest so as to expose gravels underneath (CABI 2019c). The spawning season of bluegill may vary according to geographic location and water temperature but generally occurs from March–October (CABI 2019c). Generally bluegill first spawn at one year of age but under favorable conditions can spawn as early as 4 months (Swingle and Smith 1943). Females can spawn an average of five times per year, with a 12 cm female spawning about 80,000 eggs per year (CABI 2019c). Females that are 2 years old produced more than 3,800 eggs and those that are 4 years old produced more than 19,000 eggs (CABI 2019c). Fertilized eggs typically hatch in the littoral zone, before migrating to the limnetic zone (the open and well-lit area of a lake) after yolk-sac absorption, and then returning to the littoral zone after growing larger (CABI 2019c). Generally, bluegill live up to 5 years, with the oldest age recorded at 11 years (CABI 2019c).

Bluegill are opportunistic feeders that can alter their diet according to food availability. Fry feed primarily on zooplankton and small insects, while juveniles and adults feed on zooplankton, aquatic and terrestrial insects, and aquatic vegetation, including algae (CABI 2019c).



Source: Photograph provided by Eric Engbretson in 2019

**Figure 2-5**      **Photograph of Bluegill**

### Black crappie (*Pomoxis nigromaculatus*)

Black crappie (*Pomoxis nigromaculatus*) are freshwater fish that have been widely introduced as a game species throughout North America. They are omnivorous, and in the absence of predators may overpopulate areas, altering fish communities through competition and predation (CABI 2019d). Black crappie have been reported to reduce populations of endemic and native prey species, including invertebrates and fish (CABI 2019d).

Black crappie have a laterally compressed and deep body (CABI 2019d) (Figure 2-6). The species is silvery green in color with yellow-greenish sides and irregular black splotches. The tail and ventral fins are covered by flecks (CABI 2019d). Individuals generally have seven or eight dorsal spines, with five and eight spines, and six or seven branchiostegals.



Source: Photograph provided by Fishes of North Carolina in 2019

**Figure 2-6** Photograph of Black Crappie

Black crappie occur in shallow parts of large lakes, ponds, reservoirs and oxbow lakes, and slower sections of large streams and rivers (CABI 2019d). In their natural range, they prefer densely vegetated, warm, sandy to muddy bottoms, moderately acidic, and non-turbid waters of lakes and rivers (CABI 2019d). They are usually found in the middle to upper sections of the water column in the summer (CABI 2019d), but in north temperate lakes that freeze during winter, black crappie are often found near the bottom in the deepest parts of the lake. They are found in open water during the day, but along the shore at night when they are more active (CABI 2019d). Their preferred temperature range is 14–26°C and preferred spawning temperature is about 18–20°C.

Black crappie usually spawn between April and June, in water temperatures of 14–20°C (CABI 2019d). Individuals reach sexual maturity at 2 years. This species aggregates in shallow waters for feeding before spawning and then males prepare nests to attract females. Female black crappie have a very high egg production potential, usually 10,000–200,000 eggs depending on the size of the female. Males guard the nest until the juveniles can swim and feed freely (CABI 2019d). Black crappie can live 15 years (CABI 2019d).

Black crappie mainly feed in the early morning. Young individuals feed on planktonic crustaceans, dipterous larvae, and zooplankton. Adults feed on insects, minnows, and fingerlings of other species (CABI 2019d).

### Brown bullhead (*Ameiurus nebulosus*)

Brown bullhead (*Ameiurus nebulosus*) were likely introduced to Lake Tahoe for recreational angling purposes. The success of the species, once introduced, was likely assisted by its generalist, omnivore diet with feeding aided, even in turbid waters, by its chin barbels (CABI 2019e). Its stout shape and strong dorsal and pectoral fin spines minimize predation by native predators (CABI 2019e).



Source: Illustration provided by Duane Raver Jr. in 2019

**Figure 2-7** Illustration of Brown Bullhead

The species is a moderate-sized catfish with adult total lengths between 203–356 mm (Figure 2-7). Its greatest body depth occurs at the origin of the dorsal fin, which is typically about 18–26

percent of the total length. Its eyes are small (with a diameter about 10–19 percent of its head length), round, and protruding. Brown bullheads have one pair of long flattened maxillary barbels, which are the longest of four pairs of barbels. Its gill rakers are moderately long and pointed. The fish have one dorsal fin, ahead of midpoint of body, which is soft-rayed but with a strong leading spine; two pectoral fins that are high, broad, rounded, with anterior heavy spine with numerous barbs; one adipose fin that is small; two inconspicuous pelvic fins; and one long and slender anal fin. The skin lacks scales throughout but contains taste glands. Its lateral line is complete throughout the midpoint of the body. The dorsal surface of the head and body may be yellow-brown, olive, or grey. Sides are often mottled with vague brown blotches. The underside anterior of pelvic fins may be pale yellow or white. All barbels are dark brown or black, except chin barbels, which may be pale (CABI 2019e).

Young brown bullheads hatch at 6 mm total length, are yellow in color initially, but darken soon after hatching. Once swimming and feeding actively, the young resemble tadpoles with very dark color and similar body shape. Growth is rapid, with sexual maturity attained by age 3 (203–330 mm total length) in females. Maximum age is reported as 6–8 years (CABI 2019e).

Brown bullhead prefer warm water habitats within lakes, ponds, rivers and streams. Aquatic vegetation is usually necessary, as are mud or sand bottoms. The species is benthic and, therefore, persists most frequently in the nearshore area, but has been captured as deep as 12 m in offshore habitats (CABI 2019e). The physiological tolerances of the species allow colonization of very warm (up to 37.5°C) waters with low (as little as 0.2 parts per million) dissolved oxygen.

During spawning, one or both sexes clear a shallow nest in mud or sand, usually near aquatic vegetation or other available cover (such as rocks and stumps) (CABI 2019e). Water depth may be between 15 cm to several meters. Spawning sites are usually contained within protected waters (such as coves or bays), with spawning occurring during the day. Male and female circle the nest, caressing with barbels. Between 2,000 and 13,000 eggs may be deposited by mature females. Egg care is provided by one or both parents, during which the eggs are fanned continuously with paired fins to increase oxygen concentrations. Growth is rapid with the young reaching 51–122 mm by the end of the first growing season (CABI 2019e).

As an adaptation for prey capture within turbid waters, the species uses oral barbels to sense food items. Brown bullhead is a generalist omnivore, feeding mostly at night and eating benthic organisms that occur frequently within freshwaters. Brown bullheads feed on waste, mollusks, immature insects, terrestrial insects, leeches, crustaceans, worms, algae, plant material, fish, and fish eggs (CABI 2019e). Young (30–60 mm total length) prefer chironomid larvae, ostracods, amphipods, mayflies, and other small aquatic invertebrates (CABI 2019e).

## Goldfish (*Carassius auratus*)

Originating in China, goldfish (*C. auratus auratus*) have been bred as an ornamental pond and pet fish for over 500 years. Often released intentionally or otherwise, this hardy and omnivorous fish species has been implicated in causing changes to the local environment, such as increasing water turbidity and facilitating algal blooms, and predation upon native fish species.

Goldfish have an elongated, stocky body (Figure 2-8). Wild populations vary in color from gold to olive green or even creamy white. Goldfish have a long dorsal fin with 15–21 rays and a hard serrate spine at the origin of the dorsal and anal fins. The lateral line is complete, with 25–31 scales in a lateral series. Goldfish typically grow to 120–220 mm (CABI 2019f) but can be much larger in large lake and stream environments. The usual life span is 6–7 years, with a maximum of 30 years recorded (CABI 2019f).



Source: Photograph provided by Tahoe RCD

**Figure 2-8** Photograph of a Goldfish in Lake Tahoe

The presence of goldfish may increase the risk of algal blooms. Studies have shown growth of cyanobacteria is stimulated by passage through goldfish intestines (CABI 2019f). Goldfish have been known to eat cyanobacteria, diatoms, nematodes, insect larvae, mosquito fish, green algae, and some terrestrial insects (CABI 2019f).

## 2.2.4 Fish Control Methods

A broad range of fish control methods has been previously evaluated for use in Lake Tahoe and its tributaries (Wittmann and Chandra 2015, Chandra et al. 2009). These methods, as well as other more recent approaches, were further evaluated for use based on the target invasive fish species and target areas, described above. The control methods proposed as part of the program consist of:

- ▶ electrofishing,
- ▶ benthic electrode arrays,
- ▶ fishing nets and traps,
- ▶ angling and education outreach, and
- ▶ tributary exclusion/counting weirs.

Descriptions of each method, the most suitable locations for application, and targeted species for each method are described in more detail below and in Table 2-1. These methods would be employed individually, or in combination, depending on the habitat and target species/life stages present. The proposed program to control target invasive fish would be subject to permitting by the California Department of Fish and Wildlife (CDFW), Nevada Department of Wildlife (NDOW), Tahoe Regional Planning Agency (TRPA), and other regulatory agencies listed in Table 2-2 and in accordance with the description below. Permit conditions set forth by the regulatory agencies would be consistent with or more restrictive (i.e., more protective of the environment) than the proposed program described and evaluated in this IS/ND and IEC; therefore, the conditions listed for each fish control method below represent the least restrictive manner in which invasive fish control activities could be implemented.

## ELECTROFISHING

Electrofishing introduces an electric field to the water that results in fish being temporarily stunned so that they can be more easily captured with hand nets. Two methods of electrofishing are being proposed for this program, boat and backpack electrofishing.

### Boat Electrofishing

Boat electrofishing would be performed using a generator-powered electrofishing apparatus transported on the water by boat with boom-mounted anodes, and a boat-mounted cathode (Figure 2-9). The apparatus would be on a boat suitable for operation in shallow water (> 3 feet) and capable of deploying the anodes into water as little as 1-foot deep. Electrofishing boats range in size from small inflatable boats to larger research vessels. Electrofishing settings would adhere to the National Marine Fisheries Service (NFMS 2000) Electrofishing Guidelines for all electrofishing activities to minimize any negative effects. Accordingly, only the minimum settings necessary to generate efficient results would be used. Electrofishing would sometimes

be performed at night using flood lights that are angled down on the bow of the boat. Generators that would be used for electrofishing purposes would produce sound levels similar to those used to power recreational vehicles (RVs). The use of motorized boats and generators would be required to comply with noise standards contained in TRPA's Code of Ordinances and the goals and policies of the Regional Plan, as well as noise ordinances adopted by local governments around the lake. Noise standards for sensitive receptors (such as residences and hotels) are most restrictive during nighttime hours (e.g., Placer County's noise ordinance limits noise levels to 45 Leq during nighttime hours [10:00 p.m. to 7:00 a.m.]). To comply with noise standards and minimize sleep disruption, electrofishing activities would be limited to daytime hours within 800 feet of sensitive receptors (calculated assuming noise from generators is 67 Leq at 50 feet [FHWA 2006] and use of standard principles of noise attenuation). Electrofishing control activities typically takes 30 minutes to 3 hours depending on the size of the treatment area and could include multiple passes through the area depending on the number of target fish captured. The duration of a treatment would be limited to minimize processing of non-target species (i.e., the time in which they are placed in live wells or aerated holding containers). The treatment area would be clearly blocked from public access by diver flags or equivalent markers.

Because the electric field produced by this apparatus is only effective to a depth up to approximately 8–10 feet, boat electrofishing would be used to stun fish in marina habitat areas, shallow water, potentially portions of the Truckee River downstream of the lake's outlet, and deeper areas of marsh habitats. All life stages of all target species would be treated with this method.

Stunned fish would be collected by trained crews using mesh nylon nets. Captured target species would be identified, counted, and transferred to the shore for disposal. Captured non-target species would be transferred to on-board live wells or aerated holding tanks and released back into the water following the completion of electrofishing. Data would be collected on size/health of the fish and recovery, as evidenced by ability to hold position upright in the water column and a return to normal respiratory rate.



Source: Photograph provided by Stillwater Sciences in 2019

**Figure 2-9**      **Photograph of Boat-Mounted Electrofishing Apparatus**



## Backpack Electrofishing

Backpack electrofishing would be performed in shallow, wadable water (< 3.5 feet) inaccessible to electrofishing boats (Figure 2-10). The number of backpack electrofishing units and associated netters would be adjusted for the size and complexity of the target habitat. Electrofishing settings would adhere to the National Marine Fisheries Service (NMFS) (2000) Electrofishing Guidelines for all electrofishing activities to minimize impacts. Accordingly, only the minimum settings necessary to generate efficient results would be used. The area where the electrofishing activity takes place would be clearly blocked off by diver flags or equivalent.

Because this method would be limited to depths no greater than 3.5 feet, backpack electrofishing would primarily be used to stun fish in tributary streams to Lake Tahoe or shallow margins of the Truckee River. It could also be conducted in shallow portions of marina habitat areas, nearshore water, and marshes. Target fish species and life stages would most likely include juvenile–adult life stages of all target species.

Captured fish would be segregated by target invasive and non-target fish species as soon as feasible and held in aerated containers or instream live cars away from the electrofishing area. Following recovery of non-target fish from exposure to the electric field, individuals would be returned to the water following the completion of electrofishing operations. Captured target species would be identified, counted, and transferred offsite for disposal.



Source: Photograph provided by Stillwater Sciences in 2019

**Figure 2-10** Photograph of Backpack Electrofishing in a Shallow Headwater Stream

## BENTHIC ELECTRODE ARRAYS

Benthic electrode arrays kill incubating fish eggs by subjecting eggs along the bottom of a water body, or in redds (i.e., spawning nests) in bottom materials to a lethal electric field that penetrates lake bottom substrates. Benthic electrode arrays would be deployed for targeted suppression of invasive fish eggs incubating in nests using generator-powered, electrode arrays deployed from a watercraft (Figure 2-11). Electrode arrays would be placed in contact with the bottom substrate in locations of known invasive fish nests in shallow lake areas up to 20 feet, deep stream pools, or marina habitat. The number and size of electrode arrays would be adjusted for the size and complexity of the target habitat. The array could be portable and be placed for minutes per area or it could be set up along the shoreline for one to two months. Mobile arrays would be used most often. Like with boat electrofishing, use of benthic electrode arrays could occur during nighttime hours, though there is no preference for nighttime electrofishing compared to daytime hours for the target species. Actual electrofishing using arrays would be limited to discrete periods of time (i.e., 10-15 minutes, then they would be turned off and moved to a new location). Areas where the array is deployed would be clearly blocked from public access with diver flags or equivalent markers.



Source: Photograph provided by Stillwater Sciences in 2019

**Figure 2-11** Photographic of Benthic Electrode Array being Prepared for Deployment

This method can be precisely limited to target invasive species' nests in any water depth, such that impacts to non-target species are minimized if locations of native and nonnative fish spawning are known. Target fish species and life stages would be the egg incubation stage of bluegill, black crappie, and all species of bass. Nests for these species would typically be in marina habitat areas, shallow water, and potentially deeper pools within tributary streams.

## FISHING NETS AND TRAPS

### Gillnets

Gillnets are transparent walls of netting hanging passively in the water column that entangle fish by allowing a fish's head, but not body, to fit through the mesh, trapping the fish by its operculum, or bony gill covering (Figure 2-12). Mesh sizes typically vary from one-half inch to 4 inches to enable targeting different sizes of fish. Gillnets can be deployed in any depth water greater than 4 feet and little to no current, such as within marina areas, shallow nearshore water of the lake, and marshes (depending on depths). Gillnets can be deployed from small to large watercraft, depending on number of nets required and type of habitat.

Because of the mesh size of the netting would selectively capture fish, it is an effective method for juvenile to adult life stages of all the target species. Gillnets are typically deployed for 12–48 hours but would be checked daily (< 24 hours) to remove and relocate non-target fish species. Areas where gillnets would be deployed would be blocked from public access by diver flags or equivalent markers.

Gillnetting can capture non-target fish species because gillnet mesh sizes can rarely be selected to exclude all life stages of non-target species. Fish entangled in gillnets can suffer elevated stress levels, physical injury, and sometimes death if entangled for prolonged periods of time. Accordingly, gillnetting to control nonnative fishes often requires pilot capture efforts with multiple mesh sizes to find the sizes that results in the capture of target fish species while minimizing capture of native, or non-target species.

Captured fish would be transferred to onboard live wells or aerated holding containers, segregated by target and non-target species. Non-target individuals would be released away from any active gillnets or back to where they were captured following completion of gillnetting. Data would be collected on size/health of the fish, and recovery. Captured target species would be identified, counted, and transferred offsite for disposal.

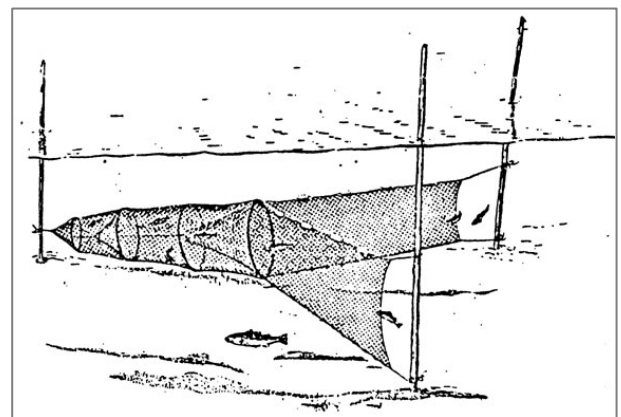
### Fyke Nets

Fyke nets are large diameter cylindrical nets mounted on posts with rings that have directional leaders that guide fish toward the opening of the net and into a series of progressively smaller cone-shaped nets that hamper escape (Figure 2-13). Fyke nets are typically deployed in shallow water and would be placed in marina habitat areas, shallow nearshore water of the lake, and marsh habitats (particularly in ingress/egress channels) known or expected to be occupied by target invasive fish species. Fyke nets can be deployed from small or large watercraft, depending on the number of nets required and type of habitat, or they may be set by staff wading in shallow water. Target fish species and life stages would include juvenile to adult fish of all target species. Fyke nets would be deployed for 24 hours to several days but would be checked daily to remove and relocate non-target species. The area where fyke nets are deployed would be clearly blocked off by diver flags or equivalent.



Source: Photograph provided by Stillwater Sciences in 2019

**Figure 2-12** Photograph of a Gillnet being Deployed



Source: Illustration provided by Stillwater Sciences in 2019

**Figure 2-13** Illustration of a Typical Fyke Net

Fyke nets are generally less selective of certain life stages and species compared to gillnets, but capture would result in negligible, if any, negative effects to non-target fish species, if the fyke net is checked and emptied regularly (< 24 hours) as is proposed.

Captured fish would be transferred to on-board or on-shore live wells or aerated holding containers and segregated by target and non-target species. Non-target individuals would be released a short distance away from the net or back to their capture area following the completion of fyke netting. Data would be collected on size/health of the fish, and recovery. Captured target species would be identified, counted, and transferred offsite for disposal.

### Minnow Traps

Minnow traps are small diameter, cylindrical, or box-shaped traps made from wire or mesh with one cone-shaped net on each side that permit fish to enter but hampers escape (Figure 2-14). Minnow traps are typically deployed in shallow water, and would be placed in marina habitat areas, shallow nearshore water of the lake, or marshes known, or expected to be occupied by target invasive fish species. Minnow traps can be deployed from small or large watercraft depending on number of nets required and type of habitat, or they may be set by staff wading in shallow water. Target fish and life stages would be juveniles of all target species. Minnow traps would be deployed for 24 hours to several days but would be checked daily to remove and relocate non-target species.



Source: Photograph provided by Stillwater Sciences in 2019

**Figure 2-14** Photograph of a Wire Mesh Minnow Trap

Minnow traps are generally not species selective and seldom result in negative effects to non-target fish species, if the minnow trap is checked and emptied regularly (< 24 hours) as is proposed. Captured fish would be transferred to on-board or on-shore live wells or aerated holding tanks, segregated by target and non-target species. Non-target individuals would be released a short distance away or back to their capture area following the completion of minnow trapping. Data would be collected on size/health of the fish, and recovery. Captured target species would be identified, counted, and transferred offsite for disposal.

### Seines

Seines are vertical, float-supported, blocking nets that are actively pulled through shallow water by two people in a single direction to corral fish to an area for removal (Figure 2-15). Seines typically have a weighted line along the bottom of the net and floats at the surface to maintain a complete barrier extending from the substrate to the surface. To capture fish, seines are pulled in a broad sweeping motion, typically away from and then back toward the shoreline where corralled fish become trapped within a basket-shaped pocket of the net. Because seines are pulled across the substrate, and deployment is limited by the height of the net and depth of water for wading, seining would be limited to shallow areas (< 4 feet in depth) absent of large material, such as boulders, woody vegetation, or woody material. Seines would be used for short net hauls lasting 30 minutes to an hour. Areas where seines are deployed would be clearly blocked off by diver flags or equivalent.



Source: Photograph provided by Stillwater Sciences in 2019

**Figure 2-15** Photograph of Seine Deployment in a Shallow Water Shoreline Setting

Seines are generally less selective of life stages and species compared to other nets, such as gillnets, and have the potential to capture juvenile to adult life stages of all the target species; however, adequate habitat conditions for

seining tends to favor juvenile fishes along the shoreline, and larger fish have a higher potential to avoid entrapment. Therefore, seines would be used primarily to target juvenile fish of all the target species in shallow shorelines, marinas (with beach-type habitat), slow-moving stream habitat areas (tributary streams or potentially portions of the Truckee River downstream of the lake's outlet), and marshes known or expected to be occupied by target invasive fish species. Seine capture typically results in negligible, if any, negative effects to non-target fish species, when seine is deployed appropriately.

Captured fish would be transferred to shore-based live wells or aerated holding containers and segregated by target and non-target species. Non-target individuals would be released back to their capture area following the completion of seining. Data would be collected on size/health of the fish, and recovery. Captured target species would be identified, counted, and transferred offsite for disposal.

## ANGLING AND EDUCATION OUTREACH

Because the daily limit for the target species is already high (e.g., current State of California Freshwater Sport Fishing Regulations set a daily bag limit of 25 bass, bluegill, and crappie), regulatory changes to the Lake Tahoe sport fishery are not included in this control method. Angling-based invasive fish control measures would predominantly rely on promotional and educational programs designed to increase the number of recreational anglers contributing to the harvest of target invasive fish in Lake Tahoe. Both one-day or weekend-length special events and longer-term interpretative programs have the potential to increase harvest of target invasive species. Target fish species and life stages of these events or programs would be sportfish, i.e., adult bluegill, black crappie, bullhead, and all species of bass and would include shallow waters, marinas, tributaries, and portions of the Truckee River downstream of the lake's outlet. Fishing would be restricted in the navigation lanes of the Tahoe Keys Property Owners Association for safety and navigational purposes.

## TRIBUTARY EXCLUSION/COUNTING WEIRS

Fish weirs are temporary metal or wooden fences installed across streams that guide fish into a capture pen where target species may be collected and removed from the stream. Non-target species would be allowed to pass through and reenter the stream in either an upstream or downstream direction (Figure 2-16). Fish weirs would be deployed in tributary habitat at risk of invasion by target invasive fish species or in the Truckee River downstream of the lake's outlet. Target fish species and life stages would include all life stages of all target species. Tributary exclusions/counting weirs would be deployed for 1 to 3 months at a time.

Fish weirs are generally not species selective and seldom result in negative effects to non-target fish species, when the capture pen is checked and emptied regularly (<24 hours) as is proposed. Captured target fish species would be segregated from non-target species identified, counted, and transferred offsite for disposal. Captured non-target species would be returned to the stream to complete their normal migrations or behaviors following the collection of data on size/health of the fish and recovery.

Additionally, because weirs inherently restrict passage, target species may congregate upstream or downstream of the passage barrier, which could provide an opportunity to capture target fish using additional methods (e.g., backpack electrofishing or seine net).



Source: Photograph provided by Stillwater Sciences in 2019

**Figure 2-16** Photograph of a Fish Weir Spanning a Small, Shallow Tributary with Target Species Shown in a Collection

## 2.2.5 Handling and Disposition of Target Species After Capture

Target invasive fish species would be disposed of according to any permit conditions set by the California Department of Fish and Wildlife (CDFW), Nevada Division of Wildlife (NDOW), and USFWS. Potential disposal options include composting fish at Full Circle Compost in Carson City, Nevada. According to Full Circle Compost, fish acidify the soil and are a good amendment for compost (Witt pers. comm. 2019). Fish could also be provided to Lake Tahoe Wildlife Care as food for animals in their care. Food banks are another option for fish disposal as long as the fish can be properly stored and transported until they can be prepared and served.

## 2.2.6 Staging and Access

Access to the shallow waters of Lake Tahoe, marinas, and tributaries for target invasive fish control work would occur by boat (motorized or non-motorized) or by foot. Boats used in implementing control methods within the waters of Lake Tahoe would access the treatment sites from the closest marina or boat ramp after passing inspection from the Tahoe Boat Inspection Program. Boats could pull onto the beach in approved locations. Boat refueling would only occur at designated fueling stations in accordance with TRPA Code Section 84.6.3.A.3. For control methods involving treatments within tributaries or along the shoreline of Lake Tahoe, access would occur by foot from the closest available designated parking areas. Small areas (< 100 square feet) of the stream bank area adjacent to the tributaries or shoreline could be used for processing fish (collecting data) and live wells or aerated holding container storage.

## 2.2.7 Training and Operations

Personnel involved in fish control work would be trained in fish identification and handling, stream bank protection, and field safety protocols. Fish identification and handling training would educate personnel on how to minimize impacts to non-target fish species. Stream bank protection training would include strategies for stream access that minimize erosion and protect bank stability. Field safety would include training in identification and avoidance of unstable streambanks or slopes, seismic risks related to liquefaction and seiche, and emergency protocols for protection of personnel during and after seismic events.

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**Table 2-1 Characteristics of Proposed Control Methods**

Characteristics	Electrofishing		Benthic Electrode Arrays	Fishing Nets and Traps				Angling and Education	Tributary Exclusion/ Counting Weirs
	Boat	Backpack		Gillnets	Fyke Nets	Minnow Traps	Seines		
<i>Control Method Overview</i>									
General Description	Introduces an electric field to the water that results in fish being momentarily stunned so that they may be more easily captured with hand nets; can be done by boat in 3 to 10 feet depth, or by backpack in wadable areas. Several measures would be employed to minimize effects to non-target species, including adherence to NMFS electrofishing guidelines, use of live wells or aerated holding tanks, return of non-target fish to their general area of capture, and avoidance of repeat efforts within 24 hours.		Benthic electrode arrays kill incubating fish eggs by subjecting target species' redds (i.e., nests) along the benthos to a lethal electric field that penetrates lake or stream bottom substrates.	Gillnets are transparent walls of netting hanging passively in the water column that entangle fish by allowing a fish's head, but not body, to fit through the mesh, trapping the fish by its operculum, or bony gill covering. Mesh sizes can vary to enable targeting different sizes of fish, and nets can be deployed in any depth water up to 4 feet within target areas. Gillnets are typically deployed for 12–48 hours but would be checked daily (< 24 hours) to remove and relocate non-target fish species.	Fyke nets are large diameter cylindrical nets mounted on posts with rings that have directional leaders that guide fish toward the opening of the net and a series of progressively smaller cone-shaped walls that hamper a fish's ability to exit the net. Fyke nets would be deployed for 24 hours to several days but would be checked daily to remove and relocate non-target species.	Minnow traps are small, cylindrical, or box-shaped traps made from wire or mesh with one cone-shaped net on each side that permit fish to enter but hamper attempts to exit the net. Minnow traps would be deployed for 24 hours to several days but would be checked daily to remove and relocate non-target species.	Seines are effectively vertical, float supported blocking nets that are actively pulled through shallow water by two people in a single direction to corral fish to an area for removal. Seines typically have a weighted line along the bottom of the net and floats at the surface to maintain a complete barrier extending from the substrate to the surface. To capture fish, seines are pulled in a broad sweeping motion, typically away from and then back toward the shoreline where corralled fish become trapped within a basket-shaped pocket of the net.	Angling-based invasive fish control measures would predominantly rely on promotional and educational programs designed to increase the number of recreational anglers contributing to the harvest of target invasive fish in Lake Tahoe. Both one-day or weekend-length special events and longer-term interpretative programs have the potential to increase harvest of target invasive species.	Fish weirs are temporary metal or wooden fences installed across streams that guide fish into a capture pen where target species may be collected and removed from the stream, and other species are allowed to pass through and reenter the stream in either an upstream or downstream direction. Fish weirs would be deployed in tributary habitat at risk of invasion by focal invasive fish species or in the Truckee River downstream of or near the lake's outlet. Though life histories of target species do not necessitate migration into tributaries, their out-migration may be forced due to seasonal conditions. The capture pen would be checked and emptied regularly (< 24 hours).
Equipment Used	Boat or backpack electrofishers, nets, live wells or aerated holding tanks		Electrode arrays, generator, boat	Boat, nets, live wells or aerated holding tanks	Boat (can be set by wading in shallow water), nets, live wells or aerated holding tanks	Boat (can be set by wading in shallow water), traps, live wells or aerated holding tanks	Nets, aerated holding tanks	Fishing rods, media	Fencing, live well
<i>Targeted Treatment Areas</i>									
Marinas	X	X	X	X	X	X	X	X	
Shallow Waters	X	X	X	X	X	X	X	X	
Tributaries/Truckee River	X <sup>1</sup>	X	X				X	X	X
Marshes	X	X		X	X	X	X		
<i>Targeted Species/Targeted Life Stage</i>									
Smallmouth Bass	All life stages	Juveniles to adults	Eggs	Juveniles to adults	Juveniles to adults	Juveniles	Juveniles to adults	Adults	All life stages
Largemouth Bass	All life stages	Juveniles to adults	Eggs	Juveniles to adults	Juveniles to adults	Juveniles	Juveniles to adults	Adults	All life stages
Bluegill	All life stages	Juveniles to adults	Eggs	Juveniles to adults	Juveniles to adults	Juveniles	Juveniles to adults	Adults	All life stages
Black crappie	All life stages	Juveniles to adults	Eggs	Juveniles to adults	Juveniles to adults	Juveniles	Juveniles to adults	Adults	All life stages
Brown bullhead	All life stages	Juveniles to adults		Juveniles to adults	Juveniles to adults	Juveniles	Juveniles to adults	Adults	All life stages
Goldfish	All life stages	Juveniles to adults		Juveniles to adults	Juveniles to adults	Juveniles	Juveniles to adults		All life stages

Source: Adapted by Ascent Environmental in 2019





## 2.3 PROJECT APPROVALS

The following permits, reviews, and approvals would be required for project implementation:

**Table 2-2 Permits and Approvals for the Target Invasive Fish Control Program**

Agency	Environmental Process Role	Required Permit/Approval
Tahoe Resource Conservation District	CEQA Lead Agency	CEQA compliance, program approval
Tahoe Regional Planning Agency	TRPA Lead Agency	Environmental Improvement Project (EIP) permit
U.S. Army Corps of Engineers	NEPA Lead Agency	Nationwide Permit 4
U.S. Fish and Wildlife Service	Federal Reviewing Agency	Section 7 Consultation, Biological Opinion
U.S. Forest Service, Lake Tahoe Basin Management Unit	NEPA Lead Agency	Special Use Permit
California State Lands Commission	CEQA Responsible Agency, Permitting Agency	Lease of State Lands for placement of benthic electrode arrays, seines, and fyke nets at or below the ordinary high-water mark of Lake Tahoe.
California Department of Fish and Wildlife	CEQA Responsible Agency, Permitting Agency	Lake and Streambed Alteration Agreement; Scientific Collecting Permit
California Tahoe Conservancy	CEQA Responsible Agency	Approval of funding expenditures
Lahontan Regional Water Quality Control Board	CEQA Responsible Agency, Permitting Agency	401 Water Quality Certification for any activities that require 404 permit from the USACE
Nevada Department of Wildlife	Permitting Agency	Scientific Collection Permit
Nevada Division of State Lands	Permitting Agency	Authorization to use State-Owned Submerged Lands

Source: Data compiled by Ascent Environmental in 2019

It should also be noted that if control methods are implemented on federal lands and/or using federal funds, then those activities would also be subject to NEPA review in addition to this document. This IS/ND and IEC/FONSE was prepared in a manner intended to streamline any subsequent environmental review prepared pursuant to NEPA. USACE Nationwide Permit (NWP) 4, "Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities," already allows for the use of the proposed control methods in Lake Tahoe and the portion of the Truckee River under the jurisdiction of TRPA; activities permitted under NWP 4 have already been evaluated pursuant to NEPA. Similarly, use of federal funds originating from USACE but administered by TRPA for the purpose of implementing control activities within the Lake Tahoe Basin (in both Nevada and California) in support of the Lake Tahoe Aquatic Invasive Species Program is already authorized pursuant to an agreement between the two agencies (USACE and TRPA 2018). Use of these funds to implement the proposed program would not trigger the need to conduct subsequent NEPA review. At this time, the U.S. Forest Service, Lake Tahoe Basin Management Unit intends to prepare a categorical exclusion supported by a Decision Memorandum that addresses activities that could occur on National Forest System lands, such as foot access to treatment sites or the use of small areas of land for processing fish (i.e., collecting data) and live well or aerated holding container storage.

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# 3 CEQA AND TRPA ENVIRONMENTAL CHECKLIST

## PROJECT INFORMATION

1. Project Title: Target Invasive Fish Control Program at Lake Tahoe
2. Lead Agency Name and Address: Tahoe Resource Conservation District  
870 Emerald Bay Road Suite 108  
South Lake Tahoe, CA 96150
3. Contact Person and Phone Number: Mollie Hurt 530-543-1501 x102
4. Project Location: Lake Tahoe Basin
5. Project Sponsor's Name and Address: Tahoe Resource Conservation District  
870 Emerald Bay Road Suite 108  
South Lake Tahoe, CA 96150
6. General Plan Designation: Varies
7. Zoning: Varies
8. Description of Project: Refer to Chapter 2, "Program Description"
9. Surrounding Land Uses and Setting: Refer to Chapter 2, "Program Description"
10. Other public agencies whose approval is required: Refer to Section 2.3, "Project Approvals"

## ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Aesthetics               | <input type="checkbox"/> Agriculture and Forest Resources   | <input type="checkbox"/> Air Quality                 |
| <input type="checkbox"/> Biological Resources     | <input type="checkbox"/> Cultural Resources                 | <input type="checkbox"/> Geology / Soils             |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials      | <input type="checkbox"/> Hydrology / Water Quality   |
| <input type="checkbox"/> Land Use / Planning      | <input type="checkbox"/> Mineral Resources                  | <input type="checkbox"/> Noise                       |
| <input type="checkbox"/> Population / Housing     | <input type="checkbox"/> Public Services                    | <input type="checkbox"/> Recreation                  |
| <input type="checkbox"/> Transportation / Traffic | <input type="checkbox"/> Tribal Cultural Resources          | <input type="checkbox"/> Utilities / Service Systems |
|   | <input type="checkbox"/> Mandatory Findings of Significance | <input checked="" type="checkbox"/> None             |

### DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- I find that the proposed project could not have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**Nicole Cartwright**  
\_\_\_\_\_  
Printed Name

**Director**  
\_\_\_\_\_  
Title

**Tahoe Resource Conservation District**  
\_\_\_\_\_  
Agency

### TRPA ENVIRONMENTAL DETERMINATION (to be completed by TRPA)

On the basis of this TRPA Initial Environmental Checklist:

- a. The proposed project could not have a significant effect on the environment and a finding of no significant effect shall be prepared in accordance with TRPA’s Rules of Procedures Yes  No
  
- b. The proposed project could have a significant effect on the environment, but because of the listed mitigation measures which have been added to the project, could have no significant effect on the environment and a mitigated finding of no significant effect shall be prepared in accordance with TRPA’s Rules of Procedure. Yes  No
  
- c. The proposed project may have a significant effect on the environment and an environmental impact statement shall be prepared in accordance with this chapter and TRPA’s Rules of Procedures. Yes  No

*TRPA will sign at time of permit issuance*

\_\_\_\_\_  
Signature of Evaluator

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title of Evaluator

## CEQA EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant with Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less-Than-Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a) Earlier Analysis Used. Identify and state where they are available for review.
  - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
  - a) the significance criteria or threshold, if any, used to evaluate each question; and
  - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

## TRPA INITIAL ENVIRONMENTAL CHECKLIST EVALUATION OF IMPACTS

Applicants for projects shall complete a TRPA initial environmental checklist (IEC) and shall submit the checklist as part of the project application.

- a) The applicant shall describe and evaluate the significance of all impacts receiving "yes" answers.
- b) The applicant shall describe and evaluate the significance of all impacts receiving "no with mitigation" answers and shall describe, in detail, the mitigation measures proposed to mitigate these impacts to a less than a significant level.

### 3.1 AESTHETICS

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>I. Aesthetics. Would the project:</b>				
Except as provided in Public Resources Code (PRC) Section 21099 (where aesthetic impacts shall not be considered significant for qualifying residential, mixed-use residential, and employment centers), would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>18. Scenic Resources/Community Design. Would the project:</b>				
e) Be visible from any state or federal highway, Pioneer Trail or from Lake Tahoe? (TRPA Item 18a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Be visible from any public recreation area or TRPA designated bicycle trail? (TRPA Item 18b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Block or modify an existing view of Lake Tahoe or other scenic vista seen from a public road or other public area? (TRPA Item 18c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Be inconsistent with the height and design standards required by the applicable ordinance or Community Plan? (TRPA Item 18d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Be inconsistent with the TRPA Scenic Quality Improvement Program (SQIP) or Design Review Guidelines? (TRPA Item 18e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>7. Light and Glare. Would the project:</b>				
j) Include new or modified sources of exterior lighting? (TRPA Item 7a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



k) Create new illumination which is more substantial than other lighting, if any, within the surrounding area? (TRPA Item 7b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
l) Cause light from exterior sources to be cast off-site or onto public lands? (TRPA Item 7c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
m) Create new sources of glare through the siting of the improvements or through the use of reflective materials? (TRPA Item 7d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.1.1 Environmental Setting

#### VISUAL CHARACTER OF THE PROGRAM AREA AND SURROUNDING ENVIRONMENT

Lake Tahoe is the dominant natural feature of the proposed program area. Lake Tahoe has remarkable clarity, size, and depth. The color of Lake Tahoe's water is highly variable, influenced by depth. Water color ranges from clear, light green at the shallow lake edges, to dark blue in the deeper areas. The expansiveness of the lake allows for long-distance views throughout the proposed program area.

Each portion of the Lake Tahoe shoreline (i.e., the edges of the program area) is classified as one of four shoreline character types, based on the level of human development that is visible. The visual character types along the shoreline include the following:

- ▶ **Visually Dominated Shoreline.** This character type includes all marinas and other areas with large prominent buildings, high boat density and buoy fields, equipment, and commercial activity. There is usually considerable visual clutter associated with these uses. The program area includes the 14 marinas located around Lake Tahoe.
- ▶ **Visually Modified Shoreline.** This character type includes areas with visually-prominent homes and other structures along the shoreline, but with considerable vegetation intact. This character type can include limited areas with high intensity clusters of shoreline structures. Most of the developed portions of the shoreline fall into this category.
- ▶ **Visually Sensitive Shoreline.** These are highly scenic or vulnerable landscapes exhibiting the influence of man-made modifications within an otherwise natural setting. Visually sensitive areas include long expansive sandy beaches where shoreline structures are highly visible and difficult to screen from view.
- ▶ **Natural Dominated Shoreline.** These areas consist of either naturally appearing landscapes (e.g., Emerald Bay, Upper Truckee Marsh), or historical/traditional locations that include culturally modified landscapes in highly scenic locations (e.g., Vikingsholm).

The proposed program area includes 63 tributaries to Lake Tahoe. The proposed program area also includes a portion of the lake's only outlet, the Truckee River within the Lake Tahoe Basin. These are perennial streams with riparian vegetation along their banks. Views in these areas are generally of forested areas and may include limited views of the lake and mountains around the Lake Tahoe Basin. Portions of the tributaries and Truckee River are adjacent to or cross developed infrastructure, such as U.S. 50, State Route (SR) 89, and paved multi-use paths.

Marshes in the proposed program area vary and may be characterized by open water during certain times of the year, aquatic vegetation, and open wet meadow intermixed with low-lying shrubs. Views in marshes can include forested areas at the edges intermixed with urban or residential development.

## 3.1.2 Regulatory Setting

### TRPA Threshold Standards

TRPA adopted environmental threshold carrying capacities in August 1982 for the purpose of maintaining and improving the various resources of the Lake Tahoe Basin. Scenic quality is an exceptional attribute of the Lake Tahoe Basin, and specific threshold carrying capacities were developed to protect and improve the scenic resources of the area. TRPA threshold standards require maintenance of threshold rating values for roadway and shoreline travel routes, individually mapped scenic resources, recreation area scenic resources, and compatibility with the natural environment.

### California Scenic Highway Program

California's Scenic Highway Program is intended to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. A highway may be designated "scenic" depending on how much of the natural landscape travelers can see, the scenic quality of the landscape, and the extent to which development intrudes on travelers' enjoyment of the view (Caltrans 2019a). Near the program area, SR 89 and SR 28 within the Placer County portion of the Tahoe region are classified as "eligible" routes under the Scenic Highway Program. Within the El Dorado County portion of the Tahoe region, SR 89 is officially designated as a State Scenic Highway (Caltrans 2019b). U.S. 50 from the Nevada state line to the "Wye" intersection with SR 89 is designated as eligible, and U.S. 50 from the "Wye" intersection through Echo Summit is officially designated as a State Scenic Highway.

## 3.1.3 Discussion

### a) Have a substantial adverse effect on a scenic vista?

**Less than significant.** The proposed program would involve implementation of targeted invasive fish control treatments on a basin-wide scale, including in marinas and shallow waters of Lake Tahoe, portions of the tributaries that feed into Lake Tahoe, and the portion of the Truckee River in the Lake Tahoe Basin. The proposed program includes a toolbox of mechanical control methods that can be implemented in targeted locations. The control methods would involve the use of boats and other equipment, such as nets, traps, backpack electrofishing equipment, benthic electrode arrays, seines, and fish weirs (temporary metal or wooden fences installed across streams). The types of boats and equipment used for the control treatments are shown in Figures 2-9 through 2-16 in Chapter 2, "Program Description." Implementation of these control methods would occur over a short duration and would be temporary. No permanent structures would be developed under the proposed program.

Access to the shallow waters of Lake Tahoe, marinas, and tributaries for target invasive fish control work would occur by boat or by foot. Boats used in implementing control methods within the waters of Lake Tahoe would access the treatment sites from the closest marina or boat ramp after passing inspection through the Lake Tahoe Boat Inspection Program. Boats could pull onto the beach in approved locations.

Implementation of the targeted invasive fish control treatments could occur in areas containing scenic vistas (such as along the shoreline of the lake). However, these treatments would not result in a substantial adverse effect on a scenic vista because of their short-term, temporary nature and the use of small boats and low-profile equipment that would not interfere with scenic views. The proposed program's effects on a scenic vista would be less than significant.

### b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

**Less than significant.** The proposed program would be implemented lake wide in shallow waters and marinas in addition to a portion of the Truckee River within the Lake Tahoe Basin and portions of tributaries to the lake and marshes. It is possible that control methods implemented in Emerald Bay and Meeks Bay could be visible from SR 89 and could be visible from U.S. 50 where the highway crosses the Upper Truckee River. U.S. 50 and SR 89 in these

areas are designated scenic highways. However, because the control method treatments would be short term and temporary and small boats and low-profile equipment would be used, the proposed program would not substantially damage scenic resources (including trees, rock outcroppings, and historic buildings) within a state scenic highway. This impact would be less than significant.

- c) **In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

**Less than significant.** The proposed program consists of targeted invasive fish control treatments in marinas and shallow waters of Lake Tahoe, portions of the tributaries that feed into Lake Tahoe, and the portion of the Truckee River under the jurisdiction of TRPA. The control treatments would be short term and temporary and would not result in the development of new permanent uses or structures. For these reasons, the proposed program would not substantially degrade the existing visual character or quality of public views of the site and its surroundings and would not conflict with applicable zoning and other regulations governing scenic quality. This impact would be less than significant.

- d) **Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

**Less than significant.** The boats used for implementation of boat electrofishing, benthic electrode arrays, and fishing nets and traps would be similar in nature to the boats shown in Figures 2-9 and 2-11, which do not contain any surfaces that would cause glare. If boat electrofishing is conducted at night, then flood lights on the bow of the boat would be used. These lights would be angled down into the water while electrofishing is being conducted. Nets that are left overnight may be periodically checked at night during which headlamps or lanterns could be used. Control methods would be short term and temporary and would primarily occur during the daytime with minimal use of lights at night. For these reasons, implementation of the proposed program would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. This impact would be less than significant.

- e) **Be visible from any state or federal highway, Pioneer Trail or from Lake Tahoe?**

**Yes.** A large portion of the proposed program area is within the shallow water of Lake Tahoe; thus, control method activities would be visible from Lake Tahoe. Portions of the proposed program area are visible from some portions of highways in the Lake Tahoe Basin and visible from Pioneer Trail. Temporary control method activities that occur near any portion of the shoreline or tributaries of Lake Tahoe that is visible from U.S. 50, SR 89, SR 28, and Pioneer Trail would be visible to users of these highways. Areas around the lake where the roadway is close enough to the shoreline for highway users to have the potential to see control methods include the shoreline east of Lakeview Commons in South Lake Tahoe, areas along SR 89 north and south of Homewood, a section of SR 28 between Carnelian Bay and Tahoe Vista, and a portion of SR 28 between Incline Village and Sand Harbor. The portions of the program area in Cold Creek and Trout Creek cross Pioneer Trail and control methods near Pioneer Trail could be visible. For the reasons described under subsections "a" and "b," above, implementation of the proposed program would not result in a substantial adverse effect on views from any state or federal highway, Pioneer Trail, or Lake Tahoe.

- f) **Be visible from any public recreation area or TRPA designated bicycle trail?**

**Yes.** Numerous public recreation areas are located throughout the proposed program area, including some that are designated for protection by TRPA consistent with the scenic threshold (TRPA 2015). Additionally, three TRPA designated bicycle trail segments (Timberland to Tahoe Pines, Tahoe Pines to Tahoma, and Tahoe City to River Ranch) are adjacent to and have views of the program area. For the reasons described under subsections "a" and "b,"

above, implementation of the proposed program would not result in a substantial adverse effect on views from any public recreation area or TRPA designated bicycle trail.

**g) Block or modify an existing view of Lake Tahoe or other scenic vista seen from a public road or other public area?**

**No.** Numerous scenic vistas from public roads or other public areas are located throughout the program area. For the reasons described under subsections "a" and "b," above, implementation of the proposed program would not block or modify an existing view of Lake Tahoe or other scenic vista seen from a public road or other public area.

**h) Be inconsistent with the height and design standards required by the applicable ordinance or Community Plan?**

**No.** The proposed program consists of targeted invasive fish control treatments in marinas and shallow waters of Lake Tahoe, marshes, portions of the tributaries that feed into Lake Tahoe, and the portion of the Truckee River under the jurisdiction of TRPA. The control treatments would not result in the development of new permanent uses or structures. Implementation of the proposed program would not result in inconsistencies with height and design standards required by any applicable ordinances or community plan.

**i) Be inconsistent with the TRPA Scenic Quality Improvement Program (SQIP) or Design Review Guidelines?**

**No.** See discussion under subsection "h," above.

**j) Include new or modified sources of exterior lighting?**

**No.** See discussion under subsection "d," above.

**k) Create new illumination which is more substantial than other lighting, if any, within the surrounding area?**

**No.** See discussion under subsection "d," above.

**l) Cause light from exterior sources to be cast off-site or onto public lands? (TRPA)**

**No.** See discussion under subsection "d," above.

**m) Create new sources of glare through the siting of the improvements or through the use of reflective materials?**

**No.** See discussion under subsection "d," above.

## CUMULATIVE IMPACTS

Because implementation of the control methods associated with the proposed program would be temporary and would not contribute to a substantial change in the landscape character or scenic views throughout the program area, or result in adverse effects related to light and glare, the proposed program would not make a considerable contribution to a significant cumulative impact related to aesthetics.

### 3.2 AGRICULTURE AND FORESTRY RESOURCES

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>II. Agriculture and Forest Resources.</b>				
<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.</p> <p>In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.</p> <p>Would the project:</p>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.2.1 Environmental Setting

The proposed program area is located within marinas, marshes, shallow waters of Lake Tahoe, tributaries feeding the lake, and the portion of the Truckee River under the jurisdiction of TRPA. The proposed program area does not contain any forest land (as defined in PRC Section 12220[g]) or timberland (as defined by PRC Section 4526). As the proposed program area consists of areas limited to waterways and marshes within the Lake Tahoe Basin, it is not zoned for or managed as a Timber Production Zone and it does not contain agricultural land, including Farmland or lands under a Williamson Act contract or zoned for agricultural use.

### 3.2.2 Discussion

- a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

**No impact.** The proposed program area is located within marinas, marshes, shallow waters of Lake Tahoe, tributaries feeding the lake, and the portion of the Truckee River under the jurisdiction of TRPA. There is no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, lands subject to Williamson Act contracts or zoned for agricultural use, or forest land or timberland within or adjacent to the project site. There would be no impact.

- b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

**No impact.** See discussion under subsection "a," above.

- c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?

**No impact.** See discussion under subsection "a," above. The proposed program area does not contain any forest land (as defined in PRC Section 12220[g]) or timberland (as defined by PRC Section 4526). There would be no impact.

- d) Result in the loss of forest land or conversion of forest land to non-forest use?

**No impact.** See discussion under subsection "c," above.

- e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

**No impact.** See discussion under subsection "c," above.

### CUMULATIVE IMPACTS

The proposed program would result in no impacts on farmland or forest land. Therefore, the proposed program would not combine with other cumulative projects to result in a cumulative loss of farmland or forest land. There would be no cumulative impact.

### 3.3 AIR QUALITY

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>III. Air Quality.</b>				
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.				
Are significance criteria established by the applicable air district available to rely on for significance determinations?	<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>2. Air Quality. Would the project cause:</b>				
e) Substantial air pollutant emissions? (TRPA Item 2a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Deterioration of ambient (existing) air quality? (TRPA Item 2b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) The creation of objectionable odors? (TRPA Item 2c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally? (TRPA Item 2d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Increased use of diesel fuel? (TRPA Item 2e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.3.1 Environmental Setting

The proposed program is located in the Lake Tahoe Air Basin (LTAB). The ambient concentrations of air pollutant emissions are determined by the amount of criteria pollutants and precursors emitted by the sources and the atmosphere’s ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the LTAB are determined by such natural factors as topography, meteorology, and climate.

#### CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The program area is located in the LTAB that comprises portions of Placer and El Dorado counties in California, and Washoe and Douglas counties and the Carson City Rural District in Nevada. Lake Tahoe lies in a depression between

the crests of the Sierra Nevada and Carson ranges at a surface elevation of 6,260 feet above sea level. The mountains surrounding Lake Tahoe are approximately 8,000 to 9,000 feet high, with some reaching beyond 10,000 feet.

Thermal inversions occur when a warm layer of air traps a cold layer of air at the surface of the land and lake. Locally generated air pollutants are often trapped in the "bowl" by frequent inversions that limit the amount of air mixing, which allows pollutants to accumulate. Inversions most frequently occur during the winter in the LTAB; however, they are common throughout the year. Often, wintertime inversions result in a layer of wood smoke, mostly from residential heating, which can be seen over the lake.

The second meteorological regime affecting air quality in the LTAB is the atmospheric transport of pollutants from the Sacramento Valley and San Francisco Bay Area. Lake Tahoe's location directly to the east of the crest of the Sierra Nevada mountain range allows prevailing easterly winds, combined with local mountain upslope winds, to bring air from populated regions west of the Sierra to the LTAB. The strength of this pattern depends on the amount of heat, usually strongest in summer beginning in April and ending in late October.

## CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the LTAB is provided below. Emission source types and health effects are summarized in Table 3.3-1.

**Table 3.3-1 Sources and Health Effects of Criteria Air Pollutants**

Pollutant	Sources	Acute <sup>1</sup> Health Effects	Chronic <sup>2</sup> Health Effects
Ozone	Secondary pollutant resulting from the reaction of ROG and NO <sub>x</sub> in the presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO <sub>x</sub> results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen dioxide (NO <sub>2</sub> )	Combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Sulfur dioxide (SO <sub>2</sub> )	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO <sub>2</sub> exposure to chronic health impacts
Respirable particulate matter (PM <sub>10</sub> ), Fine particulate matter (PM <sub>2.5</sub> )	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO <sub>2</sub> and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis
Lead	Metal processing	Reproductive/developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO<sub>x</sub> = oxides of nitrogen; ROG = reactive organic gases

<sup>1</sup> Acute health effects refer to immediate illnesses caused by short-term exposures to criteria air pollutants at fairly high concentrations. An example of an acute health effect includes fatality resulting from short-term exposure to carbon monoxide levels in excess of 1,200 parts per million.

<sup>2</sup> Chronic health effects refer to cumulative effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations. An example of a chronic health effect includes the development of cancer from prolonged exposure to particulate matter at concentrations above the national ambient air quality standards.

Source: EPA 2018



## Attainment Area Designations

Both the California Air Resources Board (CARB) and the U.S Environmental Protection Agency (EPA) use ambient air quality monitoring data to designate the attainment status of an area relative to the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) for each criteria air pollutant. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are “nonattainment,” “attainment,” and “unclassified.” “Unclassified” is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called “nonattainment-transitional.” The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. Attainment designations in the LTAB are shown in Table 3.3-2 for each criteria air pollutant.

**Table 3.3-2 Attainment Status Designations for the Lake Tahoe Air Basin**

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	–	Attainment (1-hour)
	Unclassified/Attainment (8-hour) <sup>3</sup>	Attainment (8-hour)
	Nonattainment (8-hour) <sup>4</sup>	
Respirable particulate matter (PM <sub>10</sub> )	Unclassified (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
Fine particulate matter (PM <sub>2.5</sub> )	Unclassified/Attainment (24-hour)	–
	Unclassified/Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO <sub>2</sub> )	Attainment (1-hour)	Attainment (1-hour)
	Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO <sub>2</sub> ) <sup>5</sup>	Unclassified/Attainment (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)
Vinyl Chloride		Unclassified (24-hour)

Notes:

<sup>1</sup> Air Quality meets federal 1-hour ozone standard (Title 77 of the Code of Federal Regulations Section 64036). The U.S. EPA revoked this standard, but some associated requirements still apply.

<sup>2</sup> Per Health and Safety Code Section 40921.5(c), the classification is based on 1989–1991 data, and therefore does not change.

<sup>3</sup> 1997 – Standard

<sup>4</sup> 2008 – Standard

<sup>5</sup> 2010 – Standard

Source: CARB 2018

## TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality*, the majority of the estimated health risks from toxic air contaminants (TACs) can be attributed to relatively few compounds, the most important being diesel PM (CARB 2013). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM<sub>10</sub> database, ambient PM<sub>10</sub> monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Diesel PM poses the greatest health risk among these 10 TACs. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

## SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals who may be particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants. Due to the scale of the proposed program, the specific sites of sensitive receptors would be wide reaching and would be primarily focused in developed shoreline areas of Lake Tahoe including Kings Beach, Tahoe City, South Lake Tahoe, Incline Village, and others.

### 3.3.2 Regulatory Setting

Air quality in the Lake Tahoe Basin is regulated through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy making, education, and a variety of programs.

## TAHOE REGIONAL PLANNING AGENCY

### Environmental Threshold Carrying Capacities

TRPA has established thresholds that address CO, ozone, regional and sub-regional visibility, and nitrate deposition. Numerical standards have been established for each of these parameters, and management standards have been developed that are intended to assist in attaining the thresholds. The management standards include reducing particulate matter, maintaining levels of NO<sub>x</sub>, reducing traffic volumes on U.S. 50, and reducing vehicle miles traveled. In addition, the TRPA Compact between California and Nevada states that the Regional Plan shall provide for attaining and maintaining federal, state, or local air quality standards, whichever are strictest, in the respective portions of the Lake Tahoe region for which the standards are applicable. The TRPA thresholds related to vehicle miles traveled and traffic volume are addressed further in Section 3.17, "Transportation."

### 3.3.3 Discussion

#### a) Conflict with or obstruct implementation of the applicable air quality plan?

**Less than significant.** The proposed program would generate emissions of criteria pollutant and precursors from the combustion of gas or diesel-fuels to power water vessels as well as from the combustion of gasoline and diesel fuels

to operate automobiles traveling to sites where control methods would be implemented. Diesel-powered generators would also produce emissions of diesel PM, which is classified as a TAC by CARB. Odors would be emitted from the use of diesel-generators used to power electrofishing equipment as well.

Recommended mass emissions thresholds were developed by PCAPCD and EDCAQMD in recognition of each respective county's attainment designations under the NAAQS and CAAQS. PCAPCD and EDCAQMD would consider the impact on regional air quality to be significant if it would (PCAPCD 2016 and EDCAQMD 2002):

- ▶ generate construction-related emissions of criteria air pollutant or precursors that exceed PCAPCD- and EDCAQMD-recommended significance criteria of 82 pounds per day (lb/day) for ROG, NO<sub>x</sub>, or PM<sub>10</sub>;
- ▶ result in long-term operational emissions of criteria air pollutant or precursors that exceed PCAPCD-recommended significance criteria of 55 lb/day for ROG and NO<sub>x</sub>, or 82 lb/day for PM<sub>10</sub> or EDCAQMD-recommended significance criteria of 82 lb/day for ROG, NO<sub>x</sub>, and PM<sub>10</sub>;
- ▶ long-term operational mobile-source CO emissions that would result in, or contribute to, an exceedance of the CAAQS or NAAQS for CO; and/or
- ▶ expose sensitive receptors to TAC concentrations that result in an incremental increase in cancer risk greater than 10 in one million and/or a noncarcinogenic hazard index of 1.0 or greater.

The proposed program would not generate emissions that would exceed the Placer County Air Pollution Control District (PCAPCD)- and the El Dorado County Air Quality Management District (EDCAQMD)-recommended mass emissions thresholds for criteria pollutants and precursors. The Nevada Division of Environmental Protection (NDEP) does not have adopted mass emissions thresholds.

Based on guidance provided by PCAPCD and EDCAQMD, projects that emit emissions beneath the recommended mass emissions thresholds would not contribute air pollutants in a manner such that PCAPCD's trajectory to attaining the NAAQS and CAAQS would be impeded. Thus, the proposed program would not conflict with an applicable plan including California's State Implementation Plan for Carbon Monoxide (CO Maintenance Plan). This impact would be less than significant.

**b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?**

**Less than significant.** Criteria pollutants and ozone precursors would be generated from the combustion of petroleum and diesel fuels from operation of automobiles and trucks associated with worker commute trips, as well as from the combustion of diesel fuels to operate boats and generators for fish control activities. There would be an increase in mobile source emissions of criteria air pollutants associated with automobiles traveling to sites where treatments would be implemented; however, as compared to baseline conditions, this increase would not be considered substantial.

Emissions from the proposed program would not exceed the applicable PCAPCD- and EDCAQMD-recommended mass emissions thresholds for criteria pollutants and precursors. Thus, the proposed program would not contribute a cumulatively considered net increase of a criteria pollutant. This impact would be less than significant.

**c) Expose sensitive receptors to substantial pollutant concentrations?**

**Less than significant.** The implementation of control measures under the proposed program could generate emissions of diesel PM from the exhaust of diesel-fueled generators that would be used for some fish control activities such as electrofishing. There exists the potential that on-road diesel-powered trucks could also be used to access sites where control measures would be conducted. However, on-road, diesel-powered trucks traveling to and from the control method sites are less of a concern because they do not operate at a single location for extended periods and therefore would not expose receptors to excessive diesel PM emissions. This analysis focuses primarily on diesel-powered boats and generators used for electrofishing.

Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) were identified as a TAC by CARB in 1998. The potential cancer risk from inhaling diesel PM outweighs the potential for all other diesel PM-related health impacts (i.e., noncancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003:K-1). Chronic and acute exposure to noncarcinogens is expressed as a hazard index, which is the ratio of expected exposure levels to an acceptable reference exposure level.

As discussed under subsection "b," above, the level of PM emissions from control methods occurring under the proposed program would not be substantial nor would they exceed an applicable threshold. Emissions of diesel PM, a surrogate pollutant of PM<sub>10</sub>, would be even lower. Additionally, studies show that diesel PM is highly dispersive and that concentrations of diesel PM decline with distance from the source (e.g., 500 feet from a freeway, the concentration of diesel PM decreases by 70 percent) (CARB 2005:9). It would be expected that control methods such as boat and generator use would occur off-shore within a distance that would allow for adequate dispersal to avoid adverse effects to sensitive receptors (e.g., schools, residences).

Therefore, because emissions of diesel PM would be nominal and because sufficient distance would exist between sources of diesel PM and sensitive receptors, the proposed program would not generate substantial pollutant concentrations. This impact would be less than significant.

**d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

**Less than significant.** As discussed previously, the proposed program would entail the use of gas or diesel generators used for electrofishing activities. This would constitute the only source of odor related to operation of activities under the proposed program. Diesel emissions can be detected as a form of odor, however, as discussed under subsections "b" and "c," emissions related to operation of such generators would be minimal and would occur offshore at an adequate distance from sensitive receptors for an odor to disperse. Thus, the proposed program would not result in other emissions that would lead to odors adversely affecting a substantial number of people. This impact would be less than significant.

**e) Substantial air pollutant emissions?**

**No impact.** See the discussions under subsections "b" and "c," for an evaluation of the proposed program's emissions of air pollutants. For the reasons described in subsections "b" and "c," the proposed program would not result in substantial air pollutant emissions. There would be no impact.

**f) Deterioration of ambient (existing) air quality?**

**No impact.** See the discussions under subsections "b" and "c," for an evaluation of the proposed program's contribution of air pollution to the LTAB. For the reasons described in subsections "b" and "c," the proposed program would not cause the deterioration of ambient air quality. There would be no impact.

**g) The creation of objectionable odors?**

**No impact.** See the discussion under subsection "d," for an evaluation of the proposed program's emissions of odors. For the reasons described under subsection "d," the proposed program would not result in the creation of objectionable odors. There would be no impact.

**h) Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?**

**No impact.** The proposed program would not introduce any structures or entail any actions that could result in the alteration of air movement, moisture, temperature, or climate. There would be no impact.

### i) Substantially increase use of diesel fuel?

**No impact.** As discussed previously, the proposed program would require the use of diesel fuel to power boats and generators for electrofishing operations, and potentially for diesel-powered on-road trucks. However, the level of additional diesel to power these mobile sources would be nominal as compared to baseline conditions. Thus, implementation of control actions under the proposed program would not result in a substantial increase in diesel fuel use. There would be no impact.

## CUMULATIVE IMPACTS

The LTAB is currently designated as attainment for the 1-hour and 8-hour CAAQS for ozone and PM<sub>2.5</sub>; nonattainment for the PM<sub>10</sub> CAAQS; unclassified for the CAAQS for hydrogen sulfide and visibility reducing PM; and listed as unclassified for the NAAQS for ozone, CO, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead. Construction- and operation-related emissions of criteria air pollutants and precursors from other projects in the LTAB could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations. Operation-related emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> associated with the proposed program were determined to be less than significant because program emissions would be minimal and would not exceed the applicable mass emissions significance criteria recommended by PCAPCD and EDCAQMD. According to PCAPCD and EDCAQMD, a project would have a cumulative contribution to an air quality violation if:

- ▶ operational phase cumulative-levels of ROG and NO<sub>x</sub> exceed 55 pounds per day (lb/day) (PCAPCD),
- ▶ operational phase emissions levels of ROG and NO<sub>x</sub> exceed 82 lb/day (EDCAQMD), and/or
- ▶ operational phase cumulative-levels of PM<sub>10</sub> exceed 82 lb/day (PCAPCD and EDCAQMD).

These significance criteria are numerically identical to the operational significance criteria used to evaluate project-level emissions above. As discussed previously, the proposed program's operational emissions would not exceed these significance criteria. Based on PCAPCD and EDCAQMD's guidance, a project that would exceed the aforementioned significance criteria would have a cumulatively considerable impact on regional air quality. The proposed program would not produce emissions substantial enough to exceed these significance criteria. As such, operation-related emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would not result in a considerable contribution to a significant cumulative-related impact. Moreover, as discussed under subsection "c", above, TACs are pollutants of local concern and such impacts were found to be less than significant. Thus, the proposed program's contribution of air pollutants (i.e., criteria air pollutants and precursors) would not be cumulatively considerable.

### 3.4 BIOLOGICAL RESOURCES

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>IV. Biological Resources. Would the project:</b>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with mitigation	Data insufficient	No
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**4. Vegetation. Would the project cause:**

g) Removal of native vegetation in excess of the area utilized for the actual development permitted by the land capability/IPES system? (TRPA Item 4a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table? (TRPA Item 4b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| i) Introduction of new vegetation that will require excessive fertilizer or water, or will provide a barrier to the normal replenishment of existing species? (TRPA Item 4c)                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Change in the diversity or distribution of species, or number of any species of plants (including trees, shrubs, grass, crops, micro flora and aquatic plants)? (TRPA Item 4d)            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| k) Reduction of the numbers of any unique, rare or endangered species of plants? (TRPA Item 4e)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| l) Removal of stream bank and/or backshore vegetation, including woody vegetation such as willows? (TRPA Item 4f)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| m) Removal of any native live, dead or dying trees 30 inches or greater in diameter at breast height (dbh) within TRPA's Conservation or Recreation land use classifications? (TRPA Item 4g) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| n) A change in the natural functioning of an old growth ecosystem? (TRPA Item 4h)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**5. Wildlife. Would the project cause:**

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| o) Change in the diversity or distribution of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects, mammals, amphibians or microfauna)? (TRPA Item 5a) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| p) Reduction of the number of any unique, rare or endangered species of animals? (TRPA Item 5b)   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| q) Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals? (TRPA Item 5c)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| r) Deterioration of existing fish or wildlife habitat quantity or quality? (TRPA Item 5d)   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

### 3.4.1 Environmental Setting

For this analysis, information about common and sensitive biological resources known or with potential to occur in the proposed program area is based on a review of the following existing sources: TRPA and U.S. Forest Service (USFS) survey and GIS data; a records search of the California Natural Diversity Database (CNDDB 2019) and Nevada Natural Heritage Program database (NNHP 2019); California Native Plant Society Online Inventory of Rare and Endangered Plants (CNPS 2016); a list of federally proposed, candidate, threatened, and endangered species that may occur in the program area obtained from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system (USFWS 2019); USFS Region 5 EVeg land cover data (USFS 2014); USFWS National Wetlands Inventory (updated July 2016) (USFWS 2016); Chapter 5, "Fish and Aquatic Biological Resources," and Chapter 14, "Terrestrial Biological Resources," of the TRPA Shoreline Plan EIS (TRPA 2018); and high resolution aerial imagery.

The following sections summarize the biological resources in the proposed program area that are most relevant to the significance criteria and impact analysis for the project, which are provided below in Section 3.4.3, "Discussion." The

proposed program would generally apply to all areas within the Lake Tahoe Basin that include suitable habitat for target invasive fish. These areas include marinas and shallow waters of Lake Tahoe, marshes, portions of the tributaries that feed into Lake Tahoe, and the portion of the Truckee River (the lake’s only outlet) under the jurisdiction of TRPA. Because proposed control methods would be implemented almost entirely in Lake Tahoe and its tributaries, the following discussion focuses on aquatic habitats and special-status aquatic fish and wildlife species. Terrestrial wildlife and botanical species, terrestrial vegetation/habitat, and aquatic vegetation were considered and evaluated but dismissed from further detailed analysis, because no substantial direct, indirect, or cumulative impact on these resources are expected due to the nature of the control methods and their potential impacts.

The environmental setting and impact analysis for fisheries and aquatic resources in this document are based substantially on, and directly incorporate elements of, the *Aquatic Resources Effects Analysis* prepared by Stillwater Sciences for the proposed program (Stillwater Sciences 2019).

All of the protection measures described in Section 2.2.4, “Fish Control Methods,” are elements of the proposed program. The most relevant protection measures are reiterated below in Table 3.4-1 by control method.

**Table 3.4-1 Biological Protection Measures for Fish Control Methods**

Fish Control Method	Biological Protection Measures included in the Program
Electrofishing	<p>Electrofishing settings would adhere to the National Marine Fisheries Service (NFMS 2000) Electrofishing Guidelines for all electrofishing activities to minimize any negative effects. Accordingly, only the minimum settings necessary to generate efficient results would be used.</p> <p>The duration of any treatment would be limited to minimize processing of non-target species (i.e., the time in which they are placed in live wells or aerated holding containers).</p>
Benthic electrode arrays	<p>This method can be precisely limited to target invasive species’ nests in any water depth, such that impacts to non-target species are minimized if locations of native and non-native fish spawning are known.</p>
Fishing nets and traps	<p>Gillnets, fyke nets, and minnow traps would be checked daily (&lt;24 hours) to remove and relocate non-target fish species. Seines would be used for short net hauls lasting 30 minutes to an hour. Seine capture typically results in negligible, if any, negative effects to non-target fish species, when seine is deployed appropriately.</p>
Tributary exclusion/counting weirs.	<p>Fish weirs are generally not species selective and seldom result in negative effects to non-target fish species, when the capture pen is checked and emptied regularly (&lt;24 hours) as is proposed.</p>

Source: Adapted by Ascent Environmental in 2019

Additional site-specific protection measures based on location and timing may also be incorporated during the permitting process.

## HABITAT TYPES

The proposed program area includes areas within the Lake Tahoe Basin where target invasive fish species are present as well as all locations with suitable habitat for those species. The proposed program’s target invasive fish species include: smallmouth bass, largemouth bass, bluegill, black crappie, brown bullhead, and goldfish but could include any invasive species. Suitable habitat for these species includes shallow waters, marinas (e.g., Tahoe Keys Marina), portions of several tributaries to Lake Tahoe, and the portion of the Truckee River downstream of Lake Tahoe’s outlet under the jurisdiction of TRPA. Tributary streams to Lake Tahoe within the proposed program area are further divided into two tiers: Tier 1 represents the area where target fish species are most likely to occur and where abundance is likely to be highest, and Tier 2 represents the area where target fish species could also occur but at lower abundances (Figure 2-1).

The following describes the aquatic habitats in the program area where invasive fish control treatments would be implemented.



## Shallow Water

Shallow waters provide critical elements of suitable habitat for largemouth bass, bluegill, and black crappie, including warmer water temperatures necessary for growth and cover in the form of aquatic macrophyte beds, both of which are typically found in shallow-water zones near shorelines. The proposed program defines shallow water as the area between elevation contours 6,223.0 and 6,003.0 feet (feet). This definition is based on the established low water elevation of Lake Tahoe and includes water depths up to 20 feet. The 20 feet depth criterion corresponds with the observed distribution of aquatic macrophytes in the nearshore, shallow waters of Lake Tahoe (TKPOA 2018) and the typical depths at which the targeted invasive fish species occur in lakes (Moyle 2002).

## Marina Habitat

Constructed areas (e.g., marinas) experience elevated water temperatures throughout summer months due to shallow water and/or a lack of mixing with the main body of the lake. These temperatures facilitate growth of non-native invasive aquatic plants, which have become prevalent in these habitats and which provide habitat for several target species. Additionally, climate change is expected to warm water and lower the lake level, which would lead to less mixing of cool and warm water, nutrient release, altered habitat, decreasing water clarity, and increased spread of invasive species (Conservancy 2019). The combination of these local and global effects is likely to favor proliferation of target fish species over time (Chandra et al. 2009). The proposed program would be implemented over the next 20-year period or longer; climate change within this timeframe was considered when defining the proposed program area as described in Section 2.1, "Program Location."

## Lake Tahoe Tributary Streams and Truckee River

The proposed program also applies to portions of tributary streams to Lake Tahoe and the Truckee River with suitable habitat for the target species. The range expansion of target fish species may be actively controlled in these streams. The proposed tributary program area is divided into two tiers, representing anticipated differences in relative abundance of target fish species. Tier 1 represents the area where target invasive fish species are most likely to occur and where abundance is likely to be highest. Tier 2 represents the area where target invasive fish species could also occur but at lower abundances. Of the targeted species, smallmouth bass is the species most likely to migrate the farthest or to the highest elevations of Lake Tahoe's tributaries. This species is well adapted to streams with clear water and cooler summer water temperatures and is most abundant in streams of moderate gradient with complex habitat typical in the Sierra Nevada (Moyle 2002; Lawrence et al. 2012). For these reasons, smallmouth bass are considered more likely to migrate and establish farther upstream than other non-native species targeted by the proposed program.

Stream water velocity and water temperature are the preferred variables used to assess smallmouth bass habitat suitability in streams; however, fine-scale velocity and water temperature data for all Lake Tahoe tributaries are not readily available. In lieu of this data, a stream velocity and gradient-based approach was used to define the program area within tributaries because stream gradient data are readily available through a desktop Geographic Information System (GIS) analysis of digital elevation models (DEM), and stream gradient is a suitable and often-used proxy for stream water velocity when assessing watershed-scale fish distribution (Burton and Odum 1945; Lawrence et al. 2012).

Previous studies have found that smallmouth bass are rarely present in stream segments where the gradient exceeds 1 percent for a distance of approximately 1,600 feet (or 53 feet of rise per one mile [mi] of run [feet/mi]; Brewer et al. 2007; Dauwalter et al. 2007). Distribution of smallmouth bass is limited in reaches with gradients of approximately 8–9 percent (45 feet/mi; Lawrence et al. 2012). Stream gradient thresholds of  $\leq 1\%$  were used to define priority areas within the program area, identified as "Tier 1" on Figure 2-1, representing sections of tributaries where target fish populations are most likely to occur. It is important to note that these gradient thresholds do not represent gradients that are impassable by smallmouth bass (Lawrence et al. 2012), but rather provide a tool to identify stream segments that should be prioritized for target fish control treatments. Stream segments where target fish species are possible, but where habitat conditions may preclude established populations, are included as "Tier 2," representing segments of tributaries where target fish species may be present in smaller numbers (Figure 2-1). Tier 2 segments are defined as extending from the upstream limit of Tier 1 to a point where the tributary exceeds 10 percent slope, or the farthest extent where target fish populations have been documented. Fish control methods could be implemented in stream

segments upstream from Tier 2 stream segments, but efforts would likely result in the fewest fish removed from the tributary compared to efforts within Tier 1 or 2 stream segments.

## Marsh Areas

Some marsh areas, including lagoons and ponds, in the Lake Tahoe Basin become connected to Lake Tahoe or its tributaries during periods of flooding. These areas may be perennially or seasonally flooded and connect to adjacent tributaries during periods of higher flow, thereby allowing target invasive species to access preferred habitat that may later become isolated and allowing establishment of localized populations. Marshes connected to Tier 1 or Tier 2 tributary streams that maintain perennial inundated habitat are therefore also included within the proposed program area (Figure 2-1).

## LAKE TAHOE FISH ASSEMBLAGE

The Lake Tahoe Basin currently supports both native and non-native (i.e., introduced) fish species. The native fish species include trout (including special-status Lahontan cutthroat trout [*Oncorhynchus clarkia henshawi*] and mountain whitefish [*Prosopium williamsonii*; Salmonidae]), along with non-game fish species such as sucker (Catostomidae), minnows (Cyprinidae), and sculpin (Cottidae). Introduced fish species compose a large portion of the current fish assemblage and also include salmonids (rainbow [*Oncorhynchus mykiss*], brown [*Salmo trutta*], lake [*Salvelinus namaycush*], and brook trout [*Salvelinus fontinalis*] as well as kokanee salmon [*Oncorhynchus nerka*]) and target invasive species including smallmouth bass, largemouth bass, bluegill, black crappie, brown bullhead, and goldfish (Kamerath et al. 2008, LTBMU 2013).

Below is a brief description of the life history, distribution, and habitat requirements of non-target native and non-native fish species potentially affected by the proposed program and a description of the non-native target fish species.

## Common Fish Species

### Native Fish

Common native fish species (i.e., native species that do not have a special status due to rarity or sensitivity) in the Lake Tahoe Basin include Tahoe sucker (*Catostomus tahoensis*), Paiute sculpin (*Cottus beldingi*), Lahontan redbreast (*Richardsonius egregius*), Lahontan speckled dace (*Rhinichthys osculus*), and mountain sucker (*Catostomus platyrhynchus*). The non-special-status fish species descriptions that follow are summarized predominantly from Moyle et al. (2015). Information on fish species distribution and habitat conditions within specific stream reaches in the Lake Tahoe Basin is limited.

### Tahoe Sucker

Tahoe sucker is native to Lahontan basin streams draining the eastern Sierra Nevada, including the Truckee River Basin. The old Lahontan basin extends from the Avlord and Coyote Lake basins in the north to the Humboldt River basin in the east and to the Truckee, Carson, and Walker river basins in the south. Tahoe sucker are found in a wide variety of habitats including lakes, reservoirs, and streams and are abundant in Lake Tahoe (Moyle 2002). They are frequently found in streams with summer temperatures below 61 degrees Fahrenheit (°F), although they are also tolerant of temperatures exceeding 77°F in summer. Tahoe sucker generally spawn in March–May, and as late as August, when temperatures reach 52–57°F. Spawning success appears to be highest when sustained high flows occur during spawning, presumably due to the prevalence of flooded vegetation. Tahoe sucker populations can be limited by egg predation from Lahontan redbreast and other species.

### Paiute Sculpin

Paiute sculpin is widely distributed in the lower Columbia and Snake river basins in Oregon, Washington, Idaho, and Wyoming and are present in the Upper Truckee River (LTBMU 2013). They are the only sculpin native to the Lahontan basin. Paiute sculpin prefer clear, cold streams with cobble and gravel substrate. They have been found in streams with summer water temperatures reaching 77°F, although they mostly occupy streams with temperatures less than

68°F. Paiute sculpin typically reach maturity at two to three years of age, and spawn in May–June, depending on water temperature. Juvenile sculpin are benthic feeders and rear on the streambed and in the interstices of streambed substrate.

#### **Lahontan Redside**

Lahontan redbreast is native to the old Lahontan basin and are present in streams draining the northeastern Sierra Nevada, including the Susan, Truckee, Carson, and Walker basins. Lahontan redbreast are abundant in Lake Tahoe (Sigler and Sigler 1987). Lahontan redbreast become sexually mature at 3 to 4 years of age. Spawning generally takes place during late July when water temperature is 55–75°F, although it can occur anytime between late-May and August. Fry rear in calm, shallow water. During winter, when water temperatures are below 50°F, Lahontan redbreast retreat to the interstices of streambed substrate where they are relatively inactive. Their abundance can be negatively affected by high winter flows and predation by brown trout.

#### **Lahontan Speckled Dace**

Lahontan speckled dace is distributed throughout the northeastern Sierra Nevada. In the Lake Tahoe Basin, speckled dace are widely distributed in lakes, streams, and reservoirs, including the upper Truckee River (LTBMU 2013). They inhabit a wide range of habitats including intermittent streams, small springs and brooks, large rivers, and lakes. They particularly thrive in small streams. Speckled dace are relatively tolerant of high temperatures, with some populations commonly surviving summer water temperatures of 77–86°F. Speckled dace can spawn throughout the summer, with most spawning occurring in June and July. Eggs generally take about a week to hatch and another week before fry emerge from the streambed substrate. After fry emerge, they tend to use warm shallow water habitats for rearing. Speckled dace are common forage for brown trout, which can reduce population abundance or restrict their range.

#### **Non-Native Fish**

Lake Tahoe has an extensive history of non-native aquatic species introductions (Goldman et al. 1979, Van Tassell et al. 2000, Vander Zanden et al. 2003). Before the 1980s, trout and salmon introductions were done intentionally to increase sport fishery production, yet introductions resulted in reduced growth rates of preferred native sport fish (Van Tassell et al. 2000, Clarke and Bennett 2002). In the late 1980s, many invasive fish species (e.g., bass, sunfish, and goldfish) were observed in the Tahoe Keys Marina. These species are thought to have been illegally introduced by anglers or aquarium enthusiasts (Reuter and Miller 2000).

By the 1990s, recreational fishing guides were unable to collect native bait minnows at certain marinas. This rapid reduction in native fish abundance raised concerns, while at the same time nearshore habitat for non-native fishes increased with the expansion of aquatic weed beds (Kamerath et al. 2008). Non-native fish introductions are commonly associated with reduced food web efficiency, extirpation or reduction of native species, and decreased native sport fishery production (Vander Zanden 1999, Pimentel et al. 2000, MacRae and Jackson 2001).

#### **Introduced Trout and Salmon**

Non-native trout and salmon have been introduced to streams, lakes, and reservoirs in the Lake Tahoe Basin for sport fishing. There is a wealth of information on the life history, regional distribution, and habitat requirements of these fish species; however, the summary provided here is consistent with the information provided for native fish species (above) and relevant to the assessment. These are recreational species and are not targets of the proposed program.

#### **Rainbow Trout**

Non-native rainbow trout are widely distributed in the Lake Tahoe Basin and are considered a prized sport fish. Rainbow trout densities in stream reaches are likely highest in larger streams in the lower watersheds, decreasing in abundance moving upstream. Rainbow trout generally prefer habitats with cool, clear water. Optimal temperatures for growth are around 59–64°F, with water temperatures above 68–72°F generally being stress-inducing. Rainbow trout typically spawn in the spring by burying eggs in stream gravels. Eggs typically take about 3–4 weeks to hatch, and fry emerge 2–3 weeks later, although times vary depending on water temperature. Fry prefer shallow water with low water velocity and use deeper and faster water as they grow.

### Brown Trout

Brown trout are native to Europe and have been introduced throughout North America. They are widely distributed in the Lake Tahoe Basin, with their distribution generally overlapping with rainbow trout. Brown trout have similar habitat and temperature requirements to rainbow trout, although their life history timing differs in that brown trout spawn in the fall. The difference in spawning time affects the relative timing of the early life stages of these species, such that juvenile brown trout are typically larger than rainbow trout during their first summer, which can give brown trout a competitive advantage over rainbow trout. Adult brown trout are a more nocturnal predator than rainbow trout and are largely piscivorous at larger sizes.

### Brook Trout

Brook trout are native to the northern half of the eastern United States and eastern Canada and have been introduced throughout much of the remaining United States and Canada. In the Lake Tahoe Basin, brook trout are widely distributed in lakes and streams and tend to be the dominant species in smaller headwater streams. Brook trout have similar habitat and temperature requirements to rainbow and brown trout and, like brown trout, typically spawn in the fall with the timing dependent on water temperature. Brook trout can be highly territorial and aggressive and have been identified as a factor in the decline of Lahontan cutthroat trout (USFWS 2009).

### Lake Trout

Lake trout (mackinaw) are native to the Great Lakes region and northeastern United States and are widely distributed in northern Canada and Alaska (Page and Burr 1991). They are very similar to brook trout with some significant differences in spotting and habitat use. Lake trout are generally found at the bottom of cold (50–57°F), well-oxygenated lakes. Lake trout tend to feed for brief periods above the thermocline and in near-shore zones. Like brook trout, spawning occurs in the fall and is dependent on the temperature; however, lake trout generally spawn within lakes with depths from 2–213 feet (Perkins and Krueger 1994). Introduction of lake trout into Lake Tahoe for sport fishing first occurred in the late 1800s (Cordone and Frantz 1966) and has had dramatic ecological effects on the native Lahontan cutthroat trout (Vander Zanden et al. 2003).

### Kokanee Salmon

Kokanee salmon (landlocked sockeye salmon) are a non-native species that have been introduced into numerous lakes in the Sierra Nevada, including Lake Tahoe. Kokanee average 9–12 inches (in) in length with an average weight of 1 pound (lb) but can reach lengths up to 20 in and weights of 3–5 lb. Adult kokanee can be found in open water where the thermocline is around 50°F. Their main food source is plankton. Kokanee migrate upstream from lakes to streams to spawn in the fall. Similar to other stream-spawning salmonids, the female digs a redd (spawning nest) in the gravel into which she deposits eggs, and the male fertilizes the eggs while deposition is occurring. The eggs hatch after 3–4 months of incubation. The juveniles then migrate down to the lake where they spend approximately 4 years rearing to adulthood.

### Target Species

Non-native, invasive fish targeted by the proposed program include smallmouth bass, largemouth bass, bluegill, black crappie, brown bullhead, and goldfish. Other invasive fish species could be target species in the future. These species are described in Section 2.2.3, "Target Invasive Fish Species."

## Special-Status Species

### Special-Status Fish

Special-status native fish known or with potential to occur in the program area include Lahontan cutthroat trout, mountain whitefish, Lahontan tui chub, and mountain sucker. Their conservation status, habitat associations, and distribution within the program area are discussed below.

### Lahontan Cutthroat Trout

Lahontan cutthroat trout is listed as threatened under the federal Endangered Species Act (ESA) (Title 40 of the Federal Register Section 29864). This species is native to the Lahontan basin of northeast California and western

Nevada which extends from the Avlord and Coyote Lake basins in the north to the Humboldt River basin in the east and to the Truckee, Carson, and Walker river basins in the south. Lahontan cutthroat trout populations currently occupy less than 3 percent of their historical range, but since 2004 the Lahontan National Fish Hatchery Complex has been producing and releasing them into Pyramid, Walker, and Fallen Leaf lakes, the Truckee River, and Marlette Reservoir in an effort to aid the species' recovery (USFWS 2017). Lahontan cutthroat trout produced by the hatchery were released into Lake Tahoe in October 2019 (Griffo 2019). It is the policy of the TRPA Governing Board to support, in response to justifiable evidence, state and federal efforts to reintroduce Lahontan cutthroat trout.

Lahontan cutthroat trout are found in a wide variety of habitats including large desert lakes with high alkalinity (e.g., Pyramid, Walker), relatively warm Nevada desert streams that may exceed 80°F for short periods of time, and alpine lakes and streams with relatively cool water temperatures year-round. Historically, stream-dwelling Lahontan cutthroat trout in California were most often found in cool streams that rarely exceeded 73°F. Lahontan cutthroat trout generally mature in their second to fourth year. Spawning occurs during April–July following the return of spawning adults to the stream in which they hatched. Eggs hatch in about 6–8 weeks, depending on temperature, and fry emerge about 2 weeks after hatching. Similar to other trout, early fry tend to use shallow margin habitat with low water velocities. As they grow, stream-dwelling Lahontan cutthroat trout tend to utilize deeper habitats and associate with cover.

A number of factors, such as hybridization and competition with introduced trout species; alteration of stream channels and morphology; loss of spawning habitat due to pollution, channelization, and sediment loads; and anthropogenic migration barriers like dams or culverts, have led to the severe decline in range and numbers of Lahontan cutthroat trout (Gerstung 1986 and 1988; Elliott and Layton 2004; USFWS 1995; Murphy and Knopp 2000).

### **Mountain Whitefish**

Mountain whitefish is designated by CDFW as species of special concern in California. This species is in the family Salmonidae, the family that includes salmon, trout, and char. Mountain whitefish are distributed throughout western North America, although their distribution within California is limited to a few Lahontan basins draining the eastern Sierra Nevada, including the Upper Truckee River (Moyle et al. 2017). Although still present in tributaries to Lake Tahoe, these populations are already small in size and appear to still be decreasing (LTBMU 2013). Mountain whitefish are commonly found in streams with large pools (> 3 ft depth) and summer water temperatures of 52–70°F. Populations in California are generally found at elevations of approximately 4,600–7,500 ft, which is within the range of the program area. Mountain whitefish reach maturity at age 2–4 and spawn in the fall (October–early December). Eggs typically take about 6–10 weeks or longer to hatch, depending on water temperature. After hatching, the young fish are carried downstream into calm habitats such as alcoves and backwaters. As fish grow larger, they progressively use deeper habitats with faster-moving water.

### **Lahontan Tui Chub**

Lahontan tui chub is a California species of special concern and designated as sensitive by the U.S. Forest Service. This species is considered abundant and widely distributed in habitats of the eastern Sierra Nevada and is present in Lake Tahoe (Moyle 2002). Tui chub are found in waters with a wide range of total dissolved solids, pH, water temperatures, and dissolved oxygen levels. They are considered temperature-tolerant and are typically found in habitats where summer water temperature is greater than 68°F. Tui chub are long-lived, with individuals surpassing 20 years in age in some populations (e.g., Eagle Lake, California). Tui chub typically spawn in shallow water during the spring (April–July). Eggs hatch within 3–6 days, and larvae are mainly planktonic. Juvenile and adult tui chub in the Lahontan basin display two forms, a benthic form found in shallow water in streams and lakes and a planktivorous form found in open water in lakes.

### **Mountain Sucker**

Mountain sucker is a California species of special concern. This species is native to and distributed throughout western North America, although its native distribution within California is limited to Lahontan basin streams draining the eastern Sierra Nevada. Its present distribution includes the Upper Truckee River (LTBMU 2013). Mountain sucker have been recorded at elevations up to approximately 9,000 feet and water temperatures to 82°F. They are

characteristically found in relatively shallow streams (< 2 feet deep) of moderate size (10–50 feet wide). In Lahontan basin streams, their abundance has been found to be positively correlated with pools and negatively correlated with riffles. Male mountain sucker reach maturity in their second or third year, and females in their third or fourth year. Spawning occurs in summer (June–early August) at temperatures of 52–66°F. Young fish use low-velocity areas along stream margins to forage and grow when rearing.

### Other Special-Status Aquatic Species

In addition to the non-target fish species described above, other aquatic species have the potential to be affected by the proposed program given the species' known historic and present distribution, documented occurrences, and habitat preferences. The status, habitat associations, and distribution within the program area of other special-status species are discussed below.

#### **Sierra Nevada Yellow-Legged Frog**

The U.S. Fish and Wildlife Service (USFWS) listed Sierra Nevada yellow-legged frog (*Rana sierrae*) as endangered under the federal ESA on April 29, 2014. The California Fish and Game Commission listed Sierra Nevada yellow-legged frog as threatened under the California Endangered Species Act on April 1, 2013. Sierra Nevada yellow-legged frog is also designated as a sensitive species by the U.S. Forest Service. Portions of the program area are within designated Critical Habitat for the species (USFWS 2016).

Sierra Nevada yellow-legged frogs are highly aquatic. Adults and juveniles may be found in a variety of aquatic habitats, including perennial lakes, perennial and ephemeral ponds, isolated pools, wet meadows, and streams in the Sierra Nevada at elevations typically ranging from 4,500–12,000 feet. Because of their multi-year tadpole stage, permanent water is required for successful breeding. Breeding activity begins soon after ice-melt in spring, ranging from April at lower elevations to June and July in higher elevations (AmphibiaWeb 2019).

Within the Lake Tahoe Basin, Sierra Nevada yellow-legged frogs persist in habitats that are free of introduced fish species and other invasive species with well-connected microhabitat for dispersal (USFWS 2016). Frog occurrences have been documented in the surrounding mountain lakes and drainages within Desolation Wilderness and Eldorado National Forest, including Lake Aloha, Lake of the Woods, Pyramid Lake, Gefo Lake, and Waca Lake. Important areas for recovery identified in the 2016 Lake Tahoe Basin Management Unit Land and Resource Management Plan include the headwaters of Glen Alpine and Trout creeks.

#### **Southern Long-Toed Salamander**

Southern long-toed salamander (*Ambystoma macrodactylum sigillatum*) is designated by CDFW as a species of special concern (CDFW 2019). Adults spend most of their lives out of water and underground, often utilizing the tunnels of burrowing mammals, or beneath objects such as rotting logs, rocks, bark, and leaf litter (Nafis 2019). Rising temperature is the primary factor influencing the start of the breeding season; adults emerge in May and June to migrate to breeding sites, which include perennial ponds, small lakes, marshes, and slow-moving streams of southwestern Oregon and northeastern California (Anderson 1967, Howard 1997). Breeding sites are often only partially thawed at the onset of the breeding season, and adults may even migrate through snow to reach them. Eggs are usually laid on the underside of logs and large branches in deeper portions of the water (10–30 in) so they are safe if a sudden drop in temperature should occur. Aquatic larvae hatch and start to develop in the summer, but the length of the larval period varies depending on elevation and permanence of the pool. In temporary ponds at lower elevations, metamorphosis may take place within three to four months of egg deposition. However, at higher elevations and in permanent water bodies, larvae do not metamorphose until their second season. In this case, larvae will spend the winter under the ice and rest under debris at the bottom of the water (Anderson 1967, Nafis 2019). After metamorphosis, southern long-toed salamanders disperse from the breeding site to terrestrial wintering habitats.

This species is carnivorous, primarily feeding on small invertebrates such as insects, worms, spiders, and mollusks. Larvae feed on aquatic arthropods, particularly small crustaceans, and larger larvae may even cannibalize smaller larvae when there is a lack of other suitable prey or a high density of conspecifics (Oliver 1955, Verner et al. 1980,

Wildly et al. 2001). Predators of the southern long-toed salamander include fish, birds, small mammals, and snakes. Predation of eggs is likely by crayfish, garter snakes, and various fish, and the introduction of trout poses a particular threat to larval salamanders (Tyler 1996).

### 3.4.2 Regulatory Setting

Biological resources in the Lake Tahoe Basin are regulated by several federal, state, and local laws and policies. Key regulations and conservation planning issues applicable to the program area and proposed control methods are summarized briefly below.

#### Federal

The following federal regulations are applicable to the proposed fish control program:

- ▶ Federal Endangered Species Act (ESA)
- ▶ Executive Order 11990, Protection of Wetlands
- ▶ Executive Order 13112, National Invasive Species Management Plan
- ▶ Section 404 of the Clean Water Act
- ▶ Clean Water Act Section 401 Water Quality Certification

#### Tahoe Regional Planning Agency

TRPA implements its authority to regulate growth and development in the Lake Tahoe Region through the Regional Plan. The Regional Plan includes the Goals and Policies, Environmental Threshold Carrying Capacities (threshold standards), Code of Ordinances, and other guidance documents.

#### State

- ▶ California Endangered Species Act (CESA)
- ▶ California Fish and Game Code Section 1602—Streambed Alteration
- ▶ California Native Plant Protection Act
- ▶ Porter-Cologne Water Quality Control Act
- ▶ Nevada Administrative Code 527.010 and Nevada Revised Statutes (NRS) 527.260, NRS 527.270, and NRS 527.300
- ▶ Nevada Revised Statutes, Title 45
- ▶ Nevada Revised Statutes 503.610 and 503.620

### 3.4.3 Discussion

Would the project:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

**Less than significant.** Potential effects of the proposed program on special-status fish and amphibian species and habitat that could be directly or indirectly affected are discussed below for each proposed control method. Because the control methods would be implemented almost exclusively within Lake Tahoe and its tributaries, and due to the nature of the control methods and their potential impact mechanisms, program implementation is not expected to substantially affect special-status botanical species, aquatic macroinvertebrates, or terrestrial wildlife, including piscivorous predators that forage in Lake Tahoe (e.g., osprey [*Pandion haliaetus*] and bald eagle [*Haliaeetus leucocephalus*]); these resources are not discussed further for each control method.

#### Electrofishing

Electrofishing efforts (boat or backpack) would introduce an electric field to the water that results in fish being momentarily stunned so that they may be more easily captured with hand nets. Because of the range of habitats where electrofishing can be applied, improper application has the potential to result in direct injury to, or mortality of, special-status species including Lahontan cutthroat trout, mountain whitefish, Lahontan tui chub, mountain sucker, Sierra Nevada yellow-legged frog, and southern long-toed salamander. Additional stress may be caused during handling and holding prior to release back into the area of capture. Use of electrofishing is unlikely to result in habitat modifications.

Application following NMFS Electrofishing Guidelines (NMFS 2000), including the use of the minimum electrofishing settings necessary to generate efficient results, would minimize potential adverse effects on these species. Additionally, use of live wells or aerated containers for non-target species would further reduce handling stress and returning captured non-target species to their area of capture would reduce any effect on species distribution. Therefore, following the proposed approach, use of electrofishing would not substantially reduce the distribution, abundance, or viability of a special-status species, either directly or through habitat modifications.

#### Benthic Electrode Arrays

Benthic electrode arrays use localized electric fields to kill incubating fish eggs (specifically spawning bluegill, black crappie, and bass) within lake or deep stream substrates. The spawning habitat preferences of bluegill, black crappie, and bass may overlap with special-status southern long-toed salamander in flooded marshes and slow-moving streams during the spawning period of these target fish. Although adult southern long-toed salamanders spend most of their life out of water, adults may be present during the breeding season of the target fish species, and juveniles may be present year-round. Therefore, improper application may result in direct injury to or mortality of southern long-toed salamander. Use of electrode arrays is unlikely to result in habitat modifications.

Southern long-toed salamanders are very susceptible to desiccation so will typically remain under aquatic vegetation or submerged objects like bark and logs when in the water. Because nesting beds of bluegill, black crappie, and bass are visible from the surface, and electrode arrays can be accurately applied to target species' nests with the ability to halt shocking if non-target species enter the area or are discovered, impacts to non-target species would be minimized. Additionally, the low voltage needed to kill incubating eggs is less than the voltage typically used for electrofishing and would have less effect on other life stages or aquatic organisms. Therefore, following the proposed approach, use of benthic electrode arrays would not substantially reduce the distribution, abundance, or viability of special-status species, either directly or through habitat modifications.

#### Fishing Nets and Traps

Nets and traps are used to actively or passively capture fish. Although some methods, like gill nets and minnow traps are size selective, others like fyke nets and seines generally target all fish in, or moving through, an area. Gillnetting can affect non-target fish species because gillnet mesh sizes can rarely be selected such that all life stages of non-target species are excluded. Because of the range of habitats where gillnets can be deployed, extended soak times have the potential to result in direct injury to, or mortality of, special-status fish species, including Lahontan cutthroat



trout, mountain whitefish, Lahontan tui chub, and mountain sucker. Fish entangled in gillnets can suffer elevated stress levels, physical injury, and mortality if entangled for prolonged periods of time. Accordingly, gillnetting to control nonnative fishes often requires pilot capture efforts with multiple mesh sizes to find the mesh sizes that results in the capture of target fish species while minimizing bycatch of native, or non-target species. Additional stress may be caused during handling and holding prior to release back into the area of capture. Use of nets or traps is unlikely to result in habitat modifications. Pilot capture efforts with multiple gillnet mesh sizes would be used at the initiation of control methods to find the mesh sizes that result in the capture of target fish species while minimizing bycatch of native, or non-target species. This pilot effort would minimize potential adverse effects to special-status species. Additionally, on-board live wells or aerated containers for non-target species would further reduce handling stress and returning captured non-target species to their area of capture following completion of the netting would reduce any effect on species distribution.

Fyke nets, minnow traps, and seines nets are generally less selective of certain life stages and species compared to gillnets; however, capture typically results in negligible, if any, negative effects to non-target fish species when deployed appropriately and when the net or trap is checked and emptied regularly (e.g., < 24 hours for fyke nets and minnow traps, and short seine hauls) (Portt et al. 2006). Similar to gillnetting, on-board live wells or aerated containers for non-target species would further reduce handling stress and returning captured non-target species to their area of capture following completion of the netting would reduce any effect on species distribution. Therefore, following the proposed approach, use of fishing nets and traps would not substantially reduce the distribution, abundance, or viability of special-status species, either directly or through habitat modifications.

#### Angling and Education

Angling-based fish control measures would be limited to promotions and educational programs designed to shift or increase the number of recreational anglers contributing to the harvest of target fish in Lake Tahoe. Target fish species and life stages included in these events or programs would be limited to sportfish, including adult bluegill, black crappie, bullhead, and all species of bass. Although increased angling could affect other non-target special-status sportfish, including Lahontan cutthroat trout, it is more likely that the focus of anglers would be shifted from non-target species to target species. Additionally, education programs on handling, de-hooking, and catch and release of special-status fish would further reduce stress and mortality to non-target fish. Therefore, angling promotions and educational programs would not substantially reduce the distribution, abundance, or viability of special-status species, either directly or through habitat modifications.

#### Tributary Exclusion/Counting Weirs

Fish weirs would be installed across streams to guide migrating fish into a capture pen where target fish can be removed from the stream and other species are returned to the stream in either an upstream or downstream direction. Because fish weirs would be deployed in stream habitat, weirs have the potential to result in minor disruption in migratory routes of some special-status fish species, including Lahontan cutthroat trout, mountain whitefish, and mountain sucker. Additional stress may be caused during handling and holding prior to release back into the stream. Also, because weirs inherently restrict passage, target species may congregate downstream of the passage barrier to prey on disoriented juveniles passing through the weir, which may increase predation on out-migrating juvenile Lahontan cutthroat trout, mountain whitefish, and mountain sucker. Use of fish weirs is unlikely to result in substantial habitat modifications.

Fish weirs are not expected to result in adverse effects on non-target fish species when the capture pen is checked and emptied regularly (< 24 hours). Captured Lahontan cutthroat trout, mountain whitefish, and mountain sucker would be returned to the stream to complete their normal migrations or behaviors. If concentration of predator fishes downstream of the weirs is observed, additional methods could be used, such as backpack electrofishing downstream of weirs, to take advantage of the concentrating fishes. Therefore, following the proposed approach, use of fish weirs would not substantially reduce the distribution, abundance, or viability of special-status species, either directly or through habitat modifications.

### Impact Summary

For the reasons described in detail above for each proposed control method, program implementation would not substantially adversely affect any special-status fish or amphibian species (Lahontan cutthroat trout, mountain whitefish, mountain sucker, Lahontan tui chub, Sierra Nevada yellow-legged frog, long-toed salamander), either directly or through habitat modifications. Because the control methods would be implemented almost exclusively within Lake Tahoe and its tributaries, and due to the nature of the control methods and their potential impact mechanisms, program implementation is not expected to substantially affect special-status botanical species, aquatic macroinvertebrates, or terrestrial wildlife. Therefore, this impact would be less than significant. In addition, consultation with USFWS on potential for incidental take of Lahontan cutthroat trout (listed as threatened under the ESA) and Sierra Nevada yellow-legged frog (listed as endangered under the ESA) will be initiated for the proposed program. If incidental take authorization is required and issued by USFWS and a biological opinion (BO) is issued, any conservation measures required in the BO would be implemented as part of the proposed program.

**b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

**Less than significant.** The proposed fish control methods do not involve the development of new structures or facilities, or any activities related to site access or treatment implementation that would require the removal or substantial disturbance of riparian vegetation or other sensitive habitat. Installation of some methods could result in minor short-term disturbances to some riparian vegetation (e.g., during access to electrofishing sites in riparian areas, installation of fish weirs); these activities would not result in any permanent removal of vegetation. This potential impact would be less-than-significant.

**c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

**Less than significant.** Fish habitat where the proposed control methods would be implemented qualify as state and federally protected wetlands. The control treatments do not involve any wetland removal, filling, or hydrological interruptions; and, no state or federally protected wetlands would be degraded or removed as a result of treatment implementation. Therefore, disturbances to wetlands during implementation of fish control activities would be less than significant.

**d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

**Less than significant.** Of the control methods proposed, fish weirs would be the only method to affect fish movement or migration of non-target species. In addition to potential effects on special-status species (discussed in subsection "a," above), weirs have the potential to result in minor disruption in migratory routes of native Tahoe sucker to native nursery sites. Other native species that would otherwise be affected by a temporary migration barrier are relatively small and are likely to move through the weir structure without being captured. Additional stress may be caused during handling and holding prior to release back into the stream. Also, because weirs inherently restrict passage, target species may congregate downstream of the passage barrier to prey on disoriented juveniles passing through the weir, which may increase predation on migrating juvenile suckers.

Fish weirs are not expected to result in substantial adverse effects on Tahoe suckers when the capture pen is checked and emptied regularly (< 24 hours). Captured Tahoe suckers would be returned to the stream to complete their normal migrations or behaviors. If concentration of predator fishes downstream of the weirs is observed, additional methods could be used, such as backpack electrofishing downstream of weirs, to take advantage of the concentrating fishes. Therefore, following the proposed approach, use of fish weirs would not substantially affect the

movement of native resident or migratory fish or wildlife species or impede the use of native fish or wildlife nursery sites. This impact would be less than significant.

**e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

**No impact.** The proposed program would reduce the population of non-native sportfish from Lake Tahoe, including bluegill, black crappie, bullhead, and all species of bass. Control of these species would not conflict with any local policies or ordinances protecting biological resources. Therefore, implementation of the proposed fish control methods would result in no impact related to this issue. The proposed program is expected to benefit the native fish and other non-target sportfish populations. These benefits would be consistent with the TRPA Goals and Policies and Code of Ordinances provisions for maintaining and improving native biological resources, including Lake Tahoe's native fishery.

**f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

**No impact.** The program area is not located within an area covered under an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan. Therefore, implementation of the proposed program would result in no impact related to a potential conflict with an adopted conservation plan.

The proposed program expands on prior planning efforts conducted by Tahoe RCD, the University of Nevada at Reno, LTAISCC, the Aquatic Nuisance Species Task Force, Conservancy, USACE, TRPA, and other stakeholder agencies and organizations. Specifically, the proposed program defines treatment strategies based on the 2014 Lake Tahoe Region Aquatic Invasive Species Management Plan (TRPA 2014), the 2015 Implementation Plan for the Control of Aquatic Invasive Species within Lake Tahoe (2015 Implementation Plan; Wittman and Chandra 2015), and the Lake Tahoe Region AIS Action Agenda 2021-2030 (DeBruyckere 2019). Therefore, the proposed program is in alignment with and advances these resource management and conservation efforts.

**g) Removal of native vegetation in excess of the area utilized for the actual development permitted by the land capability/IPES system?**

**No.** The proposed program does not propose any development or removal of native vegetation.

**h) Removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table?**

**No.** As discussed in subsection "b," above, no riparian vegetation or other vegetation associated with critical wildlife habitat would be removed. The proposed program would not involve groundwater pumping or excavation that could directly or indirectly affect the groundwater table. Thus, there would be no impact.

**i) Introduction of new vegetation that will require excessive fertilizer or water, or will provide a barrier to the normal replenishment of existing species?**

**No.** The proposed program does not include the establishment or maintenance of any vegetation.

**j) Change in the diversity or distribution of species, or number of any species of plants (including trees, shrubs, grass, crops, micro flora and aquatic plants)?**

**No.** None of the proposed treatments would substantially disturb or permanently remove vegetation. Implementation of the proposed program would not cause a change in the diversity, distribution, or abundance of any botanical species.

**k) Reduction of the numbers of any unique, rare or endangered species of plants?**

**No.** See the discussion provided for subsection "a," above. The discussion of program-related effects on special-status species in subsection "a" also applies to unique, rare, or endangered species of plants.

**l) Removal of stream bank and/or backshore vegetation, including woody vegetation such as willows?**

**No.** See the discussion provided in subsections "b," "c," and "h," above.

**m) Removal of any native live, dead or dying trees 30 inches or greater in diameter at breast height (DBH) within TRPA's Conservation or Recreation land use classifications?**

**No.** The proposed fish control treatments would be implemented within aquatic habitats; no tree removal is proposed or would be required.

**n) A change in the natural functioning of an old growth ecosystem?**

**No.** See the discussion provided in subsection "m," above.

**o) Change in the diversity or distribution of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects, mammals, amphibians or microfauna)?**

**No.** The proposed program is expected to improve or maintain the diversity, distribution, and abundance of non-target aquatic species by reducing adverse effects from target invasive species. Target fish species prey upon and compete for resources with non-target species. Therefore, the proposed program would not substantially reduce the diversity or distribution of non-target aquatic species.

**p) Reduction of the number of any unique, rare or endangered species of animals?**

**No.** See the discussion provided for subsection "a," above. The discussion of program-related effects on special-status species in subsection "a" also applies to unique, rare, or endangered species of animals.

**q) Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?**

**No.** The proposed program would reduce target invasive fish in the Lake Tahoe Basin. Because the control methods have the potential to introduce or spread aquatic invasive species, decontamination protocols approved by CDFW would be followed when moving sampling equipment (e.g., boats, boots and waders, fish nets, and gear) between streams and lakes, including management directives included in the Forest Service Manual 2900 Invasive Species Management (USFS 2011), which sets forth USFS policy, responsibilities, and direction for the prevention, control, and restoration of effects from aquatic and terrestrial invasive species. Forest Service Manual 2900 is available at [http://www.invasivespeciesinfo.gov/docs/toolkit/fspolicy\\_2900\\_20111205.pdf](http://www.invasivespeciesinfo.gov/docs/toolkit/fspolicy_2900_20111205.pdf). Therefore, with the proposed decontamination protocols, the proposed program would not cause a substantial introduction or spread of non-native or invasive species. Regarding effects on animal migration or movement, see the discussion provided in subsection "d," above.

**r) Deterioration of existing fish or wildlife habitat quantity or quality?**

**No.** The proposed fish control methods would not result in the removal, degradation, or physical modification of any aquatic or terrestrial habitats, including TRPA-designated prime fish habitat. The proposed fish control methods would improve aquatic habitat quality for non-target species, including introduced species, by removing target non-native invasive fish. Target fish species prey upon and compete for resources with non-target species. Additionally, the removal of some target species is anticipated to improve water quality conditions in Lake Tahoe. Therefore, the

proposed program would not substantially reduce the existing quantity or quality/suitability of habitat for native or non-target game fish species.

## CUMULATIVE IMPACTS

The primary biological resources with potential to be affected by the proposed control methods and subject to cumulative effects are special-status aquatic species. Special-status species known or with potential to occur in the program area include Lahontan cutthroat trout, mountain whitefish, Lahontan tui chub, mountain sucker, Sierra Nevada yellow-legged frog, and southern long-toed salamander; although, the likelihood of some of these species (Lahontan cutthroat trout, Sierra Nevada yellow-legged frog, southern long-toed salamander) to occur specifically at treatment sites targeted for warm water fish removal is considered low. The existing cumulative condition for each of these species is adverse, and severely so for Lahontan cutthroat trout and Sierra Nevada yellow-legged frog, due to substantial rangewide population declines and local extirpations.

The cumulative projects considered in this analysis include the UV Light Pilot Control Project, Lakewide Aquatic Invasive Plant Control Project, Asian Clam Control and Removal, Tahoe Keys Lagoon Restoration, and several other projects focused on restoring and enhancing aquatic ecosystems. Each of these ongoing or reasonably foreseeable projects would contribute to a trajectory of improved aquatic habitat and ecosystem function in the Lake Tahoe Basin, including habitat for some special-status aquatic species.

As described in detail in Section 3.4.3, "Discussion," above, for each proposed control method, program implementation could result in minor disturbances to but is not expected to substantially affect the distribution, breeding productivity, population viability, or the regional population of any special-status species; or cause a change in species diversity locally or regionally. Additionally, the proposed fish control methods would not cause removal, degradation, or physical modification of any aquatic or terrestrial habitats, including TRPA-designated prime fish habitat. The proposed fish control methods would improve aquatic habitat quality for non-target species by removing target non-native invasive fish; and, the removal of some target species is anticipated to improve water-quality conditions in Lake Tahoe. Additionally, the proposed program expands on several aquatic resources management and conservation efforts being led by numerous stakeholder agencies and organizations (see Section 3.21, "Cumulative Impacts and Mandatory Findings of Significance"). When combined with ongoing and reasonably foreseeable aquatic habitat enhancement projects in the Lake Tahoe Basin, effects of the Target Invasive Fish Control Program would be cumulatively beneficial and would not contribute to a significant adverse cumulative impact on special-status species, aquatic habitats, or other biological resources.

### 3.5 CULTURAL RESOURCES

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>V. Cultural Resources. Would the project:</b>				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>20. Archaeological/Historical.</b>				
d) Will the proposal result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object or building? (TRPA Item 20a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Is the proposed project located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records? (TRPA Item 20b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Is the property associated with any historically significant events and/or sites or persons? (TRPA Item 20c)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values? (TRPA Item 20d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Will the proposal restrict historic or pre-historic religious or sacred uses within the potential impact area? (TRPA Item 20e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.5.1 Environmental Setting

##### PREHISTORY

The Lake Tahoe Basin is the center of the Washoe Tribe of Nevada and California’s territory and is considered to be the “physical and spiritual center of the Washoe world”. The Washoe people held territory that included the sierra crest to the north, areas south of Lake Tahoe and Truckee Meadows, and the Pine Nut Range to the east. The Washoe traveled between camps located near resources such as fish, pinyon pines, and acorn that were available seasonally (Tahoe RCD 2019). This travel linked the Washoe to other tribal groups in California and in the Great Basin.

The Washoe households were small and loosely combined to form villages. The Washoe territory or people are often divided into three regions or groups that more frequently interacted and cooperated with each other than with other groups. These groups were the wélmeltiz (“northerners”), the pá:wazluz (“valley dwellers”), and the há\_aleltiz (“southerners”) (Tahoe RCD 2019). The Upper Truckee River and Trout Creek areas were the summer territory for two of these groups, primarily há\_aleltiz families of the Woodfords-Markleeville area and also some pá:wazluz from the Carson Valley (Tahoe RCD 2019). These visits were centered on gathering fish from territories claimed along productive streams. If the winter was mild or if the pinyon pine nut crop was poor, settlement in these areas could continue in the fall and winter, sometimes becoming year-long residence (Tahoe RCD 2019).

The Washoe built individual, circular houses that were typically 12–15 feet in diameter and constructed using poles interlocked at the top like a cone. The sides of the houses were covered with bark slabs or thatched with grass, tule, and willow (Tahoe RCD 2019). Temporary summer dwellings were dome-shaped and thatched with grass and tule.

Every stream entering Lake Tahoe was named by the Washoe and most were recognized as camping and fishing bases for specific kin groups (Tahoe RCD 2019). The nearest named stream was the Upper Truckee River, called *Imigi Watah* (“Cutthroat Trout Creek”), with its delta with Trout Creek called *Mešuk málam*. There was a major fishing area for suckers on the west side of the Upper Truckee River called *Ázawakhu ityútcim* (“Suckerfish Fishing-dam”). Ownership of particular areas were signaled by the presence of bedrock milling features and stream improvements, such as weirs (Tahoe RCD 2019).

In general, Washoe lifeways went mostly unchanged for centuries until the middle decades of the 19th century. At this time miners, loggers, ranchers, and Euro-American settlers began to flood the area following the gold strikes in the Sierra Nevada foothills and the silver discoveries in the nearby Nevada Comstock Lode. Like many Native American groups in California and Nevada, the Washoe suffered greatly from the loss of their traditional territory and lifeways, and their population decreased dramatically and soon became marginalized (California State Parks et al. 2010).

Today, the Washoe people are a thriving native community that is reinvesting in its heritage and culture through newfound political, economic, and social influence throughout the Lake Tahoe Basin and the surrounding area. Currently, the Washoe are a recognized tribe by the U.S. government and have maintained an established land base. The Washoe have 1,200 tribal members, which are governed by a tribal council that consists of members of the Carson, Dresslerville, Woodfords, and Reno-Sparks Indian groups, as well as members from non-reservation areas (TRPA 2009).

## EUROAMERICAN HISTORY

### Early Exploration

The earliest documented Euro-American presence in the Lake Tahoe region occurred in the 1840s. More Euro-Americans visited the region in the early to mid-1850s as travelers and surveyors passed through the area. The Comstock mining boom in Nevada starting in 1859 led to rapid development of the Lake Tahoe Basin. The surge in freight and passenger traffic through the Sierra Nevada quickly led to the creation of improved transportation routes, the harvesting of large stands of timber, and the eventual development of ranching, all of which have played important roles in the economic and social history of the area (California State Parks et al. 2010).

### Transportation and Early Settlement in the Lake Tahoe Basin

U.S. 50 is a prominent historic-era transportation feature in the Lake Tahoe Basin. It has largely followed the existing roadway alignment since at least the 1860s. It was formerly known as the Johnson Pass Road, the Placerville–Lake Tahoe Road, the Lake Bigler Toll Road, and the Lincoln Highway and was originally part of a series of routes informally referred to in the 19th century as the Bonanza Road System in reference to its connection with the rich Comstock Lode mines, located just over the Sierra crest in Nevada (California State Parks et al. 2010).

## Lumbering

In support of the Nevada Comstock mines in 1859, logging began in the Lake Tahoe Basin and expanded to support the rapid economic and population growth in Carson City, Reno, and Northern California. Timber production was the single most important regional industry, substantially outpacing the economic output of ranching and agriculture in the Lake Tahoe Basin by the early 1880s (California State Parks et al. 2010).

## Ranching and Dairy Farming

The ranching and dairy farming industries were established in the Lake Valley area of the Lake Tahoe Basin in the 1800s. The prominence of these industries is reflected in the 1870 California Products of Agriculture census, which shows production of 228 tons of hay and 500 tons of butter in Lake Valley alone (California State Parks et al. 2010). Dairy farming and ranching in Lake Valley decreased during the latter decades of the 19th century with the rise in timber production. By the turn of the century, when most of the profitable stands of timber had been cut in the Lake Tahoe Basin, dairy farming expanded once again, revived in part by the increased pasture lands made available by the lack of dense stands of timber (California State Parks et al. 2010).

## Recreation and Community Development

By the late 19th century, Lake Tahoe had become a popular vacation location for affluent San Francisco residents. Guests staying at Tahoe area resorts could take a South Pacific train from San Francisco all the way to Truckee. The Lake Tahoe Railway would then take them into Tahoe City for lodging or boarding a steamship that could deliver them to several spots around the Lake (North Lake Tahoe Visitors Bureau 2019).

Modern recreational skiing in the Sierra dates back to 1938, when Sugar Bowl officially opened. The resort would go on to build the first ski lift in California. In 1960, Lake Tahoe's reputation for winter sports gained international recognition when Squaw Valley hosted the Winter Olympics. These were the first Olympic Games to be televised. Many of the resorts, motels, restaurants, and ski lifts built to accommodate the influx of Olympians and fans still host guests today (North Lake Tahoe Visitors Bureau 2019).

## KNOWN CULTURAL RESOURCES IN THE REGION

Inventories of historic and archaeological resources in the Lake Tahoe Basin are maintained by federal, state, and regional regulatory agencies. The National Registrar of Historic Places (NRHP) and the California Registrar of Historic Resources (CRHR) are comprehensive inventories of cultural resources. Additionally, LTBMU and the Nevada State Historic Preservation Office (SHPO) both keep inventories of cultural resources. The Nevada SHPO administers the Nevada Cultural Resource Information System (NVCRIS), which contains recorded archaeological and architectural resources and inventories for the state.

In fall 2019, Justin Wisely of Cardno performed a cultural resources records search in support of the environmental review for Tahoe RCD's Aquatic Invasive Plant Control Program (Tahoe RCD 2019). At the direction of Tahoe RCD, Wisely also included the program area for the proposed Target Invasive Fish Control Program in the record search; the program area for the two separate programs are largely overlapping. The record search was conducted using the NVCRIS online cultural resources database and at the North Central Information Center (NCIC) in Sacramento, California (IC No. PLA-19-31). Through research at LTBMU's office in South Lake Tahoe, additional site records were identified within the program area that were recorded by archaeologist Charles Blanchard during a period of low lake levels in 1988; his work was completed on behalf of LTBMU as part of a volunteer effort.

The NVCRIS and NCIC records searches identified a total of 215 previously recorded cultural resources and 82 previously conducted cultural studies within the program area (Tahoe RCD 2019). The kayak survey conducted by Blanchard identified an additional 260 resources within the program area. In total, there are 316 historic-era resources, 85 prehistoric, and 17-multi-component sites within the program area. Wisely developed a cultural resource sensitivity ranking system based on the control methods developed for the Aquatic Invasive Plant Control Program. The control activities that would cause only minimal ground disturbance were classified as "Exempt and Screened Activities," based on their low potential to affect cultural resources. The aquatic invasive plant control methods that fall within this category of sensitivity include hand pulling of plants, bottom barriers, UV-C light



treatment, and laminar flow/aeriation. For these activities, Wisely recommends that no further analysis or mitigation to protect cultural resources is necessary due to the low potential for these actions to adversely affect a cultural resource of significance. Based on the records search, Wisely also defined areas of "Low," "Moderate," "High," and "Undefined Cultural Sensitivity" based on location, consistent lakeshore topography, and consistent proximity to a freshwater source. With respect to the proposed program, all the proposed target invasive fish control activities would cause little to no ground disturbance and would thus fall within the "Exempt and Screened Activities" category. Therefore, based on Wisely's recommendation, no further analysis or mitigation to protect cultural resources is necessary for the Target Invasive Fish Control Program.

### 3.5.2 Regulatory Setting

#### TAHOE REGIONAL PLANNING AGENCY

##### Regional Plan

TRPA regulates growth and development in the Lake Tahoe region through the Regional Plan, which includes the Goals and Policies, Code, and other components. The Goals and Policies document establishes guiding policies for each resource element. The Conservation Element (Chapter IV) of the Goals and Policies document includes a Cultural Subelement.

### 3.5.3 Discussion

a) **Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?**

**Less than significant.** The Lake Tahoe Basin includes numerous identified historical resources and known historic uses as described in the environmental setting above. The proposed target invasive fish control methods do not involve any grading or construction and are temporary in nature. The activities either do not disturb substrate at all (electrofishing, angling, minnow traps, nets) or cause only very minimal substrate disturbance (placement of benthic arrays or stakes for nets and weirs). Therefore, there would be only minimal ground disturbance associated with the implementation of the target invasive fish control methods. Because of the low potential for these activities to adversely affect a historical resource, the impact is less than significant.

b) **Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?**

**Less than significant.** For the same reasons described in subsection "a," the proposed program would not cause a substantial adverse change in the significance of an archaeological resource.

c) **Disturb any human remains, including those interred outside of dedicated cemeteries?**

**Less than significant.** For the same reasons described in subsection "a," the proposed program would not disturb any human remains, including those outside of dedicated cemeteries.

d) **Will the proposal result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object or building?**

**No.** There is no grading associated with the proposed program and as discussed in subsection "a," above, only minimal ground disturbance associated with some of the temporary fish control activities. Therefore, the proposed program would not result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object, or building.

- e) Is the proposed project located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records?

**Yes.** The proposed program would be implemented in shallow, nearshore areas of the lake, in tributaries, and in marshes some of which have known cultural, historical, and archaeological resources. For the same reasons described in subsection "a," above, the proposed program would not adversely affect any known cultural, historical, and/or archaeological resources.

- f) Is the property associated with any historically significant events and/or sites or persons?

**Yes.** For the same reasons described in subsections "a" and "e," above, the proposed program would not have any adverse impacts on any property associated with any historically significant events or sites or persons.

- g) Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?

**No.** For the same reasons described in subsection "a," above, the proposed program does not have the potential to cause a physical change which would affect unique ethnic cultural values.

- h) Will the proposal restrict historic or pre-historic religious or sacred uses within the potential impact area?

**No.** For the same reasons described in subsection "a," above, the proposed program does would not restrict historic or pre-historic religious or sacred uses within the program area.

## CUMULATIVE IMPACTS

Because the proposed program would not have a significant impact on cultural resources, the proposed program would not make a considerable contribution to significant cumulative cultural resources impacts.

### 3.6 ENERGY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VI. Energy. Would the project:</b>				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>15. Energy. Would the project cause:</b>				
c) Use of substantial amounts of fuel or energy? (TRPA Item 15a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy? (TRPA Item 15b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.6.1 Environmental Setting

Many invasive fish control projects would be implemented by hand and without use of machinery which require the use of energy (i.e., placing nets and weirs). Other invasive fish control activities such as electrofishing and angling would involve the use of small motor boats, generators, and electrofishing backpacks. Energy would be consumed under the proposed program in the form of fossil fuel (e.g., diesel and other petroleum fuels) combustion in the engines of passenger vehicles, generators, and boats, which would be used by workers accessing treatment areas and during implementation of some control activities.

#### 3.6.2 Discussion

- a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

**No impact.** The proposed program would only require the use of energy in the form of fossil fuels to transport a small number of personnel to the treatment sites. Additionally, the use of small motor boats and generators would also be required for implementation of some of the activities. These activities would not result in an impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project implementation.

- b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

**No impact.** There are many state plans for renewable energy or energy efficiency including the Warren-Alquist Act; State of California Energy Action Plan; Assembly Bills 2076, 1007, and 32; Senate Bills 1078, X1-2, 100, 350, 32, and 375; and Executive Order B-30-15. At the local level, individual cities and counties establish policies in their general plans and climate action plans (CAPs) related to the energy efficiency of new development and land use planning and the use of renewable energy sources. The TRPA Code (Section 13.5.3E) requires area plans to have a Greenhouse Gas

Reduction Strategy. Additionally, Goal E-1 of the TRPA Regional Plan is to promote energy conservation programs and development of alternative energy sources to lessen dependence on scarce and high-cost energy supplies. The Target Invasive Fish Control Program at Lake Tahoe would not conflict or obstruct any state or local plans for renewable energy or energy efficiency. Therefore, there would be no impact.

**c) Use of substantial amounts of fuel or energy?**

**No.** See discussion under subsection "a," above.

**d) Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?**

**No.** Due to the limited energy use that would be required to implement the proposed program, there would not be a substantial increase in demand upon existing sources of energy or require the development of new sources of energy.

## **CUMULATIVE IMPACTS**

Other programs and projects to control aquatic invasive species within the Lake Tahoe Basin would occur concurrent with the proposed program. Due to the minor energy use associated with typical aquatic invasive species control projects, the proposed program would not have a cumulatively considerable impact on energy.

### 3.7 GEOLOGY AND SOILS

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>VI. Geology and Soils. Would the project:</b>				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
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**1. Land. Would the project cause:**

g) Compaction or covering of the soil beyond the limits allowed in the land capability or Individual Parcel Evaluation System (IPES)? (TRPA Item 1a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	-------------------------------------

- |   |                                     |                          |                          |                                     |
|---|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| h) A change in the topography or ground surface relief features of site inconsistent with the natural surrounding conditions? (TRPA Item 1b)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Unstable soil conditions during or after completion of the proposal? (TRPA Item 1c)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Changes in the undisturbed soil or native geologic substructures or grading in excess of 5 feet? (TRPA Item 1d)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| k) The continuation of or increase in wind or water erosion of soils, either on or off the site? (TRPA Item 1e)   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| l) Changes in deposition or erosion of beach sand, or changes in siltation, deposition or erosion, including natural littoral processes, which may modify the channel of a river or stream or the bed of a lake? (TRPA Item 1f) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| m) Exposure of people or property to geologic hazards such as earthquakes, landslides, backshore erosion, avalanches, mud slides, ground failure, or similar hazards? (TRPA Item 1g)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |

### 3.7.1 Environmental Setting

#### GEOLOGY

The Lake Tahoe Basin is located in the Sierra Nevada geomorphic province in eastern California and a small portion of western Nevada. The Sierra Nevada is a tilted fault block with a gradual western slope and a steep eastern escarpment. The Range extends 400 miles from the Mojave Desert in the south to the Cascade Range and Modoc Plateau in the north and is between 50 and 80 miles wide.

Lake Tahoe is located in the northern Sierra Nevada, between the Sierra crest to the west and the Carson Range to the east (Saucedo 2005). Faulting and volcanism created the Lake Tahoe Basin over 2 million years ago, and as a result, the basin contains granitic, metamorphic, and volcanic rock (Saucedo 2005). The predominant bedrock in the Lake Tahoe Basin is Cretaceous granodiorite of the Sierra Nevada batholith.

Over the past 1.5 million years, the Tahoe Region has been altered by glacial activity, and most of the landforms surrounding the lake are a result of glaciation. During glacial activities, valley glaciers dammed the Truckee River Canyon, raising the water level of Lake Tahoe. Lakebed sediments were deposited in the bays and canyons around the lake as a result of the rising lake levels. The faulting, folding, and in some cases overturning of rock formations that has taken place during various periods of geologic activity, in combination with erosion, deposition, and subsequent cementation of rock materials that occurred during relatively quiet periods, have left a complex arrangement of geologic rock types and structures in the area. However, the extraordinary clarity of Lake Tahoe is related to the prevalence of resistant granitic bedrock in the Lake Tahoe Basin and the unusually small drainage basin relative to the size of Lake Tahoe.

#### SOILS

Natural Resources Conservation Service (NRCS) Soil Survey of the Lake Tahoe Basin (NRCS 2018) describes many soil map units in the Lake Tahoe Basin. They are differentiated from each other by characteristics such as parent material,

landscape position, texture, structure, organic matter content, depth to bed rock, depth to groundwater, and hydrologic function. Frequently, soils from similar parent materials found in similar landscape positions will have many qualities in common. For this analysis, soils found in the vicinity of perennial streams and near the shoreline of Lake Tahoe have been grouped by a dominant characteristic that affects the soils use and erosion hazard.

Alluvial Soils. After glaciers disappeared from the Lake Tahoe Basin, the rivers and streams became the strongest soil altering force. The alluvial soils in the program area are the product of sediments that were carried by waterbodies and deposited in floodplains. These soils are very different from mountain slope and glacial soils because of the presence of a seasonal high water table that supports an abundance of moisture loving vegetation. Many sensitive ecosystems such as wetlands, meadows, and riparian areas are associated with alluvial soils. The Tahoe and Marla soil types are they dominant alluvial soils in the Lake Tahoe Basin.

Organic Soils. Organic soils are commonly alluvial soils that developed in an area where a persistently high water table allows the accumulation of organic matter. These highly sensitive soils are found in the wettest areas of meadows and stream margins and are found in pot hole wetlands in the high country. In the Lake Tahoe shorezone, the dominant organic soil is the Watah peat.

Beach Soils. Beaches are characterized by well-drained, homogenous, gravelly coarse sand. Beach sediments take on a variety of characteristics depending on their physical origin and location, including stable beach sediments as well as active littoral deposits that respond to wave action. Beaches account for only a small portion of the Lake Tahoe shorezone and include younger and older barrier beaches, lakeshore dunes, and lakeshore strand beaches. These landforms are highly prone to erosion when disturbed by either natural or human activity (Orme 1972:52).

## SEISMIC SETTING

Seismic activity is the release of energy in the earth's crust in the form of seismic waves or earthquakes. Earthquakes have the potential to cause ground rupture, landslides, avalanches, liquefaction, and seiche waves in the shorezone of Lake Tahoe. The three major faults in the Lake Tahoe Basin are the West Tahoe Fault, the Stateline Fault, and Incline Faults. The Stateline–North Tahoe, Incline Village, and West Tahoe–Dollar Point faults all show evidence for large (2+ magnitude) rupture events within the past 11,000 years (Dingler et al. 2009:18). Studies by Brothers et al. (2009:499 and 514) suggest a magnitude-7 earthquake occurs every 2,000–3,000 years in the Lake Tahoe Basin, and that the largest fault in the Lake Tahoe Basin, West Tahoe, appears to have last ruptured between 4,100 and 4,500 years ago. The presence of these faults indicates the program area could be affected by seismic activity.

## GROUND FAILURE/LIQUEFACTION

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits are susceptible to liquefaction, while clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking (CGS 2008: pp. 35-37). Liquefaction can cause slope instability or collapse. Portions of the program area underlain by relatively loose sandy soils combined with a shallow groundwater table could be susceptible to liquefaction.

## SUBSIDENCE

Land surface subsidence can be induced by both natural and human phenomena. Natural phenomena include: subsidence resulting from tectonic deformations and seismically induced settlements; soil subsidence from consolidation, hydrocompaction, or rapid sedimentation; subsidence from oxidation or dewatering of organic rich soils; and subsidence related to subsurface cavities. Subsidence related to human activity includes subsurface fluid or sediment withdrawal. Lateral spreading is the horizontal movement or spreading of soil toward an open face, such as a streambank, the open side of fill embankments, or the sides of levees. The potential for failure from subsidence and

lateral spreading is highest in areas where there is a high groundwater table, where there are relatively soft and recent alluvial deposits, and where creek banks are relatively high. In the program area, locations near stream mouths and alluvial deposits in areas of high groundwater could be susceptible to subsidence and lateral spreading.

## TSUNAMI/SEICHE

A tsunami is a wave or series of waves that may result from a major seismic event that involved the displacement of a large volume of water (such as rupture of a major fault), and may occur in any large body of water. A seiche is a periodic oscillation of an enclosed or restricted water body, typically a lake or reservoir, produced by seismic shaking. The action of a seiche is similar to the sloshing of a bathtub, with waves bouncing back and forth across the water body. Seiche waves can continue for hours following a tsunami inducing earthquake. Modeling of potential earthquakes occurring beneath Lake Tahoe indicate that a fault rupturing seismic event of magnitude 7.0 could trigger a tsunami, followed by seiche with waves of up to 30 feet high along the shoreline of Lake Tahoe (Ichinose et al. 2000).

### 3.7.2 Discussion

Would the proposed program result in any of the following?

- a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

**No impact.** The proposed program would not involve the construction of permanent structures or other development that could be affected by fault rupture. Therefore, the proposed program would have no impact relative to rupture of an earthquake fault.

- ii) Strong seismic ground shaking?

**No impact.** The proposed program would not involve the construction of permanent structures or other development that could be affected by strong seismic shaking. Therefore, the proposed program would have no impact.

- iii) Seismic-related ground failure, including liquefaction?

**Less than significant.** The proposed program may include the use of temporary structures placed on the surface of lake or stream sediments including benthic electrode arrays, fyke nets, and weirs. In susceptible areas, seismic shaking could cause the collapse and settling of saturated lakeshore or lake bottom slopes or stream banks. Ground failure within a project area could damage project equipment, however the likelihood of such an event occurring during the short period of time when nets, arrays, or weirs are deployed in any given area is very low. Additionally, damage would be limited to relatively low value and replaceable materials. Ground based personnel working in areas of high stream banks or historic landslide areas could be exposed to increased risk from seismic related ground failure. The potential for program activities to place personnel in high risk locations during a seismic event is low and all personnel involved in fish control activities would be trained in field safety and emergency protocols including response to seismic events. For these reasons, the risk to life and property from seismic related ground failure would be less than significant.



## iv) Landslides?

**Less than significant.** Program activities could occur in stream corridors with steep or unstable slopes that could be susceptible to landslides or rockfall. This could create an increased risk to fish control personnel. As described above and in Section 2.2.7. "Training and Operations," all personnel involved in fish control activities would be trained in field safety and emergency protocols including identification and avoidance of unstable slopes. Because exposure to landslide risk would be limited and because field personnel would be trained in avoidance of high-risk situations, the risk to life and property from landslides would be less than significant.

## b) Result in substantial soil erosion or the loss of topsoil?

**Less than significant.** Program activities could result in minor ground disturbance from personnel walking through streams or in shallow waters, installation and removal of ground anchored structures such as weirs or fyke nets and launching of small watercraft from the shoreline. Because ground disturbance would be minor and temporary in nature and would not result in substantial soil erosion, this impact would be less than significant.

## c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

**No impact.** The proposed program would not involve the construction of permanent structures or other development that could be affected by or contribute to slope instability. Therefore, the proposed program would have no impact.

## d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?

**No impact.** The proposed program would not involve the construction of permanent structures or other development that could be affected by expansive soil. Therefore, the proposed program would have no impact.

## e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

**No impact.** The proposed program would not involve the construction of septic systems or alternative waste water disposal systems. Therefore, the proposed program would have no impact.

## f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

**No impact.** The proposed program would not involve excavation or extensive ground disturbance that could result in the destruction of a unique paleontological resource or a unique geologic feature. Therefore, the proposed program would have no impact.

## g) Compaction or covering of the soil beyond the limits allowed in the land capability or Individual Parcel Evaluation System (IPES)?

**No.** The proposed program would not create compaction or land coverage and would therefore have no impact relative to TRPA's IPES system.

## h) A change in the topography or ground surface relief features of site inconsistent with the natural surrounding conditions?

**No.** The proposed program would not involve excavation or extensive ground disturbance that could result in changes to topography. Therefore, the proposed program would have no impact.

**i) Unstable soil conditions during or after completion of the proposal?**

**No.** Program activities would include foot traffic in stream and beach areas where soils may be susceptible to instability. The ground disturbances caused by foot traffic could result in a temporary acceleration of erosion in small areas, however this erosion would be minor compared to natural erosion or instability in stream and beach areas. Program activities would not occur on steep upland slopes and would not include excavation that could create soil instability. Therefore, the impact of the proposed program on unstable soil conditions would be less than significant.

**j) Changes in the undisturbed soil or native geologic substructures or grading in excess of 5 feet?**

**No.** The proposed program would not involve excavation or grading and would therefore have no impact.

**k) The continuation of or increase in wind or water erosion of soils, either on or off the site?**

**Yes.** Streams and shorelines constantly experience erosion and sediment deposition through the action of waves and streams. As described in subsection "i," above, program activities could generate small amounts of erosion in stream or beach areas. As described above, this impact would be temporary and minor relative to natural erosion conditions at these sites. For these reasons, the impact of the proposed program would be less than significant.

**l) Changes in deposition or erosion of beach sand, or changes in siltation, deposition or erosion, including natural littoral processes, which may modify the channel of a river or stream or the bed of a lake?**

**Yes.** The proposed program would include the placement of weirs in streams fyke nets in lake habitat. Although these structures would be temporary in nature, while they remain in the water, lake and stream currents would be modified in the immediate vicinity. This could result in localized changes to siltation, deposition, or erosion; however, these nets would generally be removed from the site within 24 hours and weirs would be removed within 1–3 months. After removal of temporary structures littoral processes would return to pre-project conditions. Therefore, the proposed program would have a less-than-significant impact on littoral processes.

**m) Exposure of people or property to geologic hazards such as earthquakes, landslides, backshore erosion, avalanches, mud slides, ground failure, or similar hazards?**

**Yes.** The potential for the proposed program to expose people or property to geologic hazards is discussed under subsections "ai," "aii," "aiii," and "aiv," above. As discussed, all personnel involved in fish control activities would be trained in field safety and emergency protocols including response to seismic events and avoidance of geologic hazard areas. Additionally, the potential for exposure to geologic hazards is low. For these reasons, the impact of the proposed program would be less-than-significant.

## CUMULATIVE IMPACTS

The control methods implemented through the proposed program would have temporary impacts such as minor increases in erosion related to foot traffic or small disturbances of the lake bottom. However, these effects would be temporary in nature and work sites would return to pre-project conditions after completion of activities. The proposed program does not include large disturbances or site modifications that could add to the effects of other programs in the region. Therefore, the proposed program would not make a considerable contribution to significant cumulative geologic impacts.

### 3.8 GREENHOUSE GAS EMISSIONS

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>VII. Greenhouse Gas Emissions. Would the project:</b>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTION	Yes	No, with Mitigation	Data Insufficient	No
<b>2. Air Quality. Would the project cause:</b>				
c) Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally? (TRPA Item 2d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.8.1 Environmental Setting

#### THE PHYSICAL SCIENTIFIC BASIS OF GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth’s atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth’s surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth’s surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead “trapped,” resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO<sub>2</sub>, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth’s climate, known as global climate change or global warming. It is “extremely likely” that more than half of the observed increase in global average surface temperature from 1951–2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014:5).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more carbon dioxide (CO<sub>2</sub>) is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO<sub>2</sub> emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO<sub>2</sub> emissions remain stored in the atmosphere (IPCC 2013:467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is considered to be enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

A GHG inventory for the Tahoe Region is provided in the Lake Tahoe Sustainability Action Plan (SAP) and summarized in Table 3.8-1. These emissions are averaged over 5 years from 2005–2010 to account for non-linear factors and other sources of variation.

**Table 3.8-1 Baseline Average Region-Wide Greenhouse Gas Emissions from 2005 to 2010 (MTCO<sub>2e</sub>)**

Emissions Sector	2005 to 2010 Average Emissions
Electricity Consumption	498,682
On-Road Transportation	314,815
Natural Gas Consumption	239,654
Wood Combustion	100,999
Solid Waste	68,608
Off-Road Transportation	56,306
Wildfires and Prescribed Burns	47,968
Water Consumption	26,366
Recreational Boats	19,199
Livestock	12,734
Other Combustion	6,010
Aircraft	4,935
Wastewater Treatment	2,279
<b>Total</b>	<b>1,398,554</b>

Notes: Totals may not equal the sum of the numbers because of independent rounding.

MTCO<sub>2e</sub> = metric tons of carbon dioxide equivalent.

Source: Lake Tahoe Sustainable Communities Program 2013:3-1

## EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7–4.8°C (6.7–8.6°F) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate California will experience average daily high temperatures that are warmer than the historic average by 2.5°F from 2006–2039, by 4.4°F from 2040–2069, and by 5.6°F from 2070–2100; and if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7°F from 2006–2039, by 5.8°F from 2040–2069, and by 8.8°F from 2070–2100 (OPR, CEC, and CNRA 2018:5).

Since its previous climate change assessment in 2012, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012–2016, an almost non-existent Sierra Nevada winter snowpack in 2014–2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR, CEC, and CNRA 2018:3). According to the California Natural Resources Agency's (CNRA) *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012–2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018:55). According to the National Oceanic Administration and National Aeronautics and Space Administration, 2016, 2017, and 2018 were the hottest recorded years in history

(NOAA 2019). In contrast, the northern Sierra Nevada experienced one of its wettest full year on record during the 2016–2017 water year (CNRA 2018:64). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires increases. In November 2018, the Camp Fire completely destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the state’s deadliest fire in recorded history. Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018, following the Thomas Fire, 0.5 in of rain fell in 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire. These mudslides resulted in 21 deaths.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California’s levee/flood control system (CNRA 2018:190–192). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California’s coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR, CEC, and CNRA 2018:6).

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity and stability. Existing habitats may migrate from climatic changes where possible, and those habitats and species that lack the ability to retreat will be severely threatened. Altered climate conditions will also facilitate the movement of invasive species to new habitats thus outcompeting native species. Altered climatic conditions dramatically endanger the survival of arthropods (e.g., insects, spiders) which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects such as ticks and mosquitos, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018:64, 116–117, 127; OPR, CEC, and CNRA 2018:7–14). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive, physical damage to communities and the state.

## 3.8.2 Regulatory Setting

### TAHOE REGIONAL PLANNING AGENCY

TRPA has not specifically identified any goals, policies, or Environmental Threshold Carrying Capacities (environmental threshold standards) directly related to GHG emissions or climate change. Through its Regional Plan and Code, however, TRPA has defined conformance requirements for area plans relative to GHG reduction strategies. In addition, through its Regional Transportation Plan and Sustainability Action Plan, both prepared in partnership with the Tahoe Metropolitan Planning Organization (TMPO), TRPA addresses GHG reduction targets for cars and light trucks mandated by Senate Bill (SB) 375 and defines a GHG emissions target and broader GHG reduction strategies, respectively.

## 3.8.3 Discussion

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

**Less than significant.** GHGs would be generated from the combustion of petroleum and diesel fuels from operation of automobiles and trucks associated with worker commute trips, boat use, as well as from the combustion of diesel

fuels to operate generator-powered fish control activities. There would be a regional increase in mobile source emissions of GHGs associated with automobiles traveling to sites where control methods would be implemented; however, as compared to baseline conditions, this increase would not be considered substantial.

The proposed program would have a significant contribution to global climate change if it were to produce emissions in exceedance of 1,100 million tons of carbon dioxide equivalent per year (MTCO<sub>2</sub>e/year). As discussed in PCAPCD's CEQA Thresholds of Significance Justification Report, "the District identifies that projects emitting less than 1,100 MTCO<sub>2</sub>e/year in Placer County would be expected to have a 'De Minimis' impact because they contribute a relatively small fraction of the cumulative GHG emissions in Placer County" (PCAPCD 2016:20). PCAPCD also characterizes the size of a land use that would generally produce GHG emissions in exceedance of this de minimis threshold. The proposed program would only generate emissions from the mobile-source sector from the operation of automobiles and water vessels only. The emissions associated with such activity would be nominal.

As a result, emissions from the proposed program would not exceed the applicable PCAPCD-recommended mass emissions thresholds for GHG emissions. Thus, the proposed program would not contribute a cumulatively considerable level of GHG emissions. This impact would be less than significant.

**b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

**Less than significant.** The relevant plans, policies, and regulations that would apply to the proposed program include *California's 2017 Climate Change Scoping Plan*, prepared by CARB, which outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26) as well as the *Linking Tahoe: Regional Transportation Plan and Sustainable Communities Strategy* (RTP/SCS), which seeks to improve mobility and safety for the commuting public while at the same time delivering environmental improvements throughout the transportation network in the Tahoe Region. Other regulations that would indirectly apply to the proposed regulation include CARB's Advanced Clean Cars program (including the zero emission vehicle [ZEV] program) and the low carbon fuel standard. As discussed above, the proposed program would generate operational GHG emissions from automobile travel associated with movement of workers to and from sites where control methods are conducted as well as from generators powering water vessels. Because the proposed program would occur within Placer County and El Dorado County, its emissions would be subject to PCAPCD's and EDCAQMD's thresholds of significance. As discussed above under subsection "a," the proposed program would generate emissions below these thresholds of significance. PCAPCD explains in its Thresholds Justification Report that their thresholds were developed using 2030 as a target year, which was "selected in consideration of SB 32 and the Clean Energy and Pollution Reduction Act" (PCAPCD 2016:19). Therefore, projects that result in emissions below these thresholds of significance would not conflict with the goals of the 2017 Scoping Plan, which serves as the state's roadmap to achieving the reduction goals set forth by SB 32. This principle could apply to the proposed program.

The transportation-related activity under the proposed program would be subject to the transportation strategies contained in the RTP/SCS including roadway improvements and expansions and investments in bicycle and pedestrian infrastructure. Because the proposed program would not entail the construction or operation of new development, the growth projections and land use map included in the RTP/SCS would not apply to the proposed program. Execution of control methods under the proposed regulation would not preclude TMPO or TRPA from implementation strategies to reduce GHG emissions from the passenger vehicle sector. Thus, the proposed program would be consistent with the tenets on the RTP/SCS.

Transportation emissions from the proposed program would also decline over time as statewide programs and policies would result in the electrification of the transportation sector including the zero emission vehicle (ZEV) program under CARB's Advanced Clean Cars program. The automobiles used for workers commute trips to site where control methods are conducted would be subject to these programs as would other cars operating within the region.

For the reasons discussed above and under subsection "a," implementation of the proposed program would not conflict with an applicable plan, policy, or regulation to reduce GHG emissions. This impact would be less than significant.

c) **Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?**

**No impact.** As discussed previously, the proposed program would require the use of diesel fuel to power boats and generators for implementation of fish control activities, and potentially for diesel-powered on-road trucks. However, the level of additional diesel to power these mobile sources would be nominal as compared to baseline conditions. Thus, implementation of control methods associated with the proposed program would not result in a substantial increase of diesel fuel use. There would be no impact.

## CUMULATIVE IMPACTS

Anthropogenic climate change is a global problem. Its adverse impacts are a result of a cumulative contribution of several sources of GHG emissions. Thus, climate change is inherently cumulative. Due to the minimal GHG emissions that would be generated by the proposed program, it would not be considered cumulatively considerable.

### 3.9 HAZARDS AND HAZARDOUS MATERIALS

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>VIII. Hazards and Hazardous Materials. Would the project:</b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>10. Risk of Upset. Would the project:</b>				
h) Involve a risk of an explosion or the release of hazardous substances including, but not limited to, oil, pesticides, chemicals, or radiation in the event of an accident or upset conditions? (TRPA Item 10a)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Involve possible interference with an emergency evacuation plan? (TRPA Item 10b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



**17. Human Health. Would the project cause:**

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| j) Creation of any health hazard or potential health hazard (excluding mental health)? (TRPA Item 17a) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| k) Exposure of people to potential health hazards? (TRPA Item 17b)                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

### 3.9.1 Environmental Setting

#### HAZARDOUS MATERIALS

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined in the Code of Federal Regulations as “a substance or material that ... is capable of posing an unreasonable risk to health, safety, and property when transported in commerce.” (49 CFR 171.8.) California Health and Safety Code Section 25501 defines a hazardous material as follows:

Hazardous material means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous wastes are defined in California Health and Safety Code Section 25141(b) as wastes that ... because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Existing soil contamination generally occurs in areas that are or have been previously developed, especially with industrial-type uses. The Target Invasive Fish Control Program does not propose any ground-disturbing activities that could disturb known hazardous material sites.

To implement the proposed program, common household hazardous materials such as fuels, oils, lubricants, solvents, and detergents would be used for equipment and boat use and maintenance. The quantity of the common hazardous materials used would be limited to the small amounts needed to implement each project. As described in Chapter 2, “Program Description,” agencies have already implemented target invasive fish control activities. Therefore, transportation, use, and storage of hazardous materials associated with control activities already occur in the program area under existing conditions.

#### SCHOOLS

All ten of the schools on the California side of the Lake Tahoe Basin (Kings Beach Elementary, North Tahoe School, North Tahoe High School, Tahoe Lake Elementary School, Bijou Community School, Tahoe Valley Elementary School, Lake Tahoe Environmental Science Magnet School, Sierra House Elementary School, South Tahoe Middle School, and South Tahoe High School) and sensitive receptors (Barton Memorial Hospital and many daycare centers) are not located within a 0.25 mile of the program area but some are located close to a 0.25 mile away from a tributary to Lake Tahoe where a control project could be implemented. Only a very limited amount of common household hazardous materials such as fuels, oils, lubricants, solvents, and detergents would be used for equipment and boat use and maintenance to implement the proposed program.

## AIRPORTS

There is one airport located within two miles of the program area adjacent to the Upper Truckee River in South Lake Tahoe. The proposed program would not interfere with an airport land use plan or result in a safety hazard or excessive noise for people residing or working in the program area.

## EMERGENCY RESPONSE AND EVACUATION PLANS

There are many emergency response and evacuation plans in place throughout the Lake Tahoe Basin implemented by the different jurisdictions including TRPA, counties, and cities. No alterations to roadways would occur and control activities would be temporary and small scale and occur off road in tributaries and shallow areas of Lake Tahoe. There would only be very few additional vehicles required for personnel to drive to an individual treatment site but this would not disrupt roadways. While there may be disruptions to some areas of tributaries and lakes while activities are being implemented, these disruptions would be temporary and would not interfere with any emergency response and evacuation plans.

## WILDLAND FIRE HAZARDS

Implementation of the Target Invasive Fish Control Program would involve motorized equipment such as generators and boats. These motors would mostly be used within water bodies and in wet areas. There is limited potential that a spark from the motor could result in a wildland fire.

### 3.9.2 Regulatory Setting

#### TRPA

The TRPA Code establishes programs in Chapter 60 to protect water quality from hazardous materials. Section 60.1.6 states that all persons handling, transporting, using, or storing toxic or hazardous substances shall comply with applicable state and federal laws regarding spill prevention, reporting, recovery, and clean-up.

#### Lake Tahoe Geographic Response Plan

The Lake Tahoe Geographic Response Plan (LTGRP) is the principal guide for agencies within the Lake Tahoe watershed, its incorporated cities, and other local government entities in mitigating hazardous materials emergencies. The LTGRP establishes the policies, responsibilities, and procedures required to protect life, environment, and property from the effects of hazardous materials incidents. The LTGRP establishes the emergency response organization for hazardous materials incidents occurring within the Lake Tahoe watershed. The plan is generally intended to be used for oil spills or chemical releases that impact or could potentially impact drainages entering Lake Tahoe and the Truckee River.

### 3.9.3 Discussion

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

**Less than significant.** Program activities would require the use of common household hazardous materials, such as fuels, oils, lubricants, or other fluids associated with the operation and maintenance of boats and generators. Generally, these materials would be stored in containers designed for safe storage and transport and the proposed program would adhere to federal, state, and local regulations. Only small quantities of these materials would be used for each project implemented under the proposed program. Therefore, the proposed program would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and the impact would be less than significant.

- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

**Less than significant.** See discussion under subsection "a," above. The proposed program would be implemented in compliance with federal, state, and local regulations and permit programs to avoid and minimize hazards to the public or the environment involving the release of hazardous materials into the environment. The possibility of accidental release into the environment is possible during implementation of the proposed program. Because of the limited quantities of hazardous materials that would be used to implement the proposed program, the impact would be less than significant.

- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

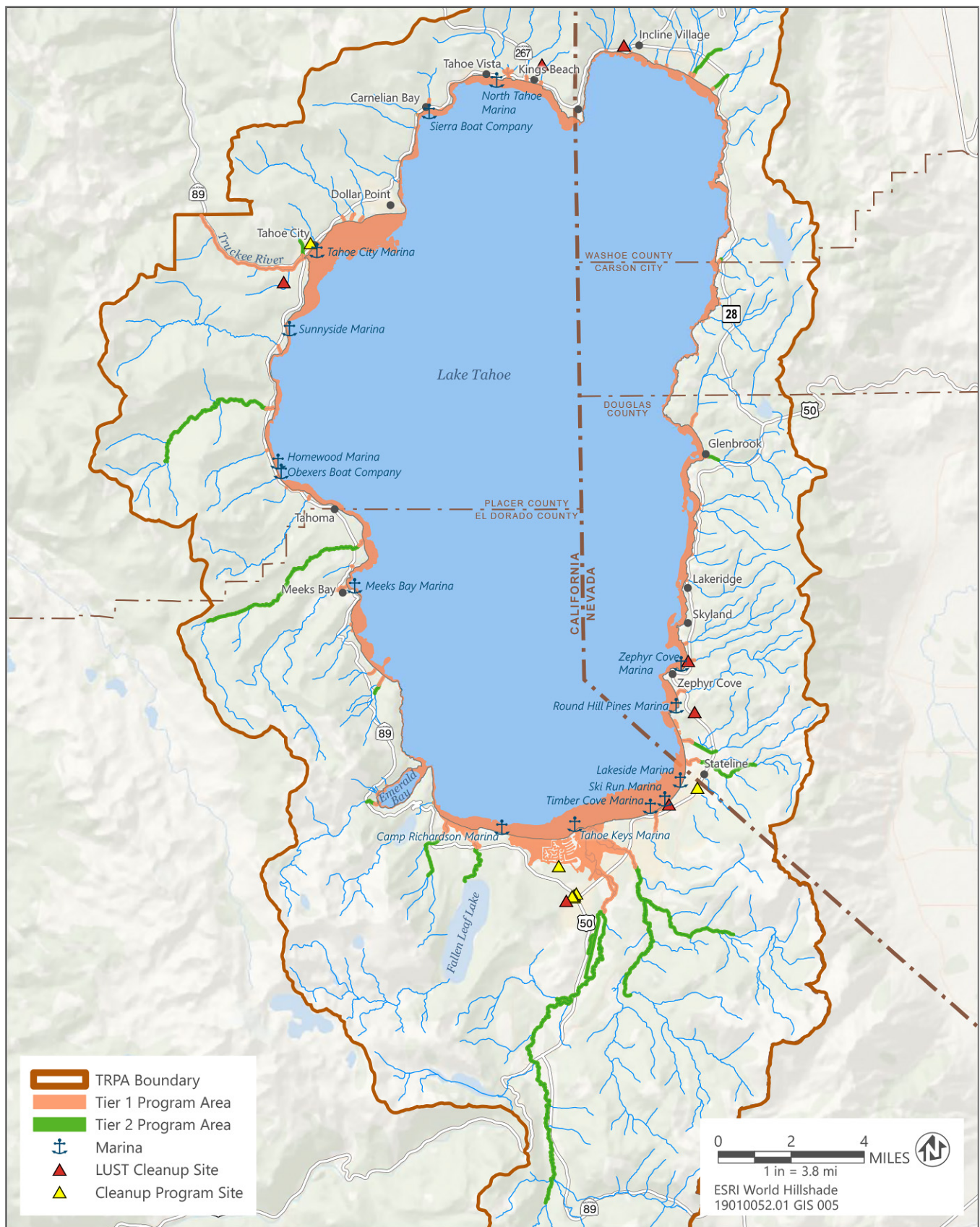
**Less than significant.** The program is not proposed within one-quarter mile of an existing or proposed school. There are tributaries where control activities could be performed close to one-quarter mile from a school but due to the limited quantities of hazardous material present for each project implemented under the proposed program, the impact is less than significant.

- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

**Less than significant.** There are some documented hazardous material sites within the program area as shown on the California State Water Resources Control Board Geotracker website that occur within marinas and tributaries (see Figure 3.9-1). The proposed program would not disturb soil except for minor pole/stake installations for weirs and possible nets. Therefore, the possibility of creating a significant hazard to the public or environment would be less than significant.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

**No impact.** While it is likely that some target invasive fish control activities may occur within two miles of the South Lake Tahoe airport, activities proposed under the program do not include the development of new structures or facilities. Therefore, the proposed program would not violate any structural height standards that could interfere with aircraft flight patterns or air traffic control communications. Furthermore, the proposed program would not pose a significant safety hazard for people residing or working within two miles of an airport because no new residents would result from implementation of the proposed program, and the teams of workers would be small and only temporarily present within a treatment area. Therefore, there would be no impact.



Source: Data adapted from USGS, Department of Toxic Substances Control and Nevada Division of Environmental Protection by Ascent Environmental in 2019

**Figure 3.9-1 Known Hazardous Materials Sites Within or Near the Program Area**

**f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

**No impact.** Implementation of the proposed Target Invasive Fish Control Program would not alter potential emergency evacuation routes or impair an adopted emergency plan, as no alterations to roadways would occur and treatment activities would be temporary and small scale and occur off road in tributaries and shallow areas of Lake Tahoe. The proposed program would only consist of control projects that contribute very few additional vehicles to roadways related to personnel driving to a treatment site. While the proposed program would block some areas of tributaries and the lake while fish control activities are being implemented, these blockages would be temporary and access would return to existing conditions once the activity is complete. Thus, the proposed program would have no impact on adopted emergency response or emergency evacuation plans.

**g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?**

**Less than significant.** Most activities associated with the Target Invasive Fish Control Program would take place within water or in wet areas, which would decrease the risk that a motor could spark a fire. Due to the proximity to water for all control activities, it is unlikely that the proposed program would expose people or structures, directly or indirectly, to a significant loss, injury, or death involving wildland fires. The impact would be less than significant.

**h) Involve a risk of an explosion or the release of hazardous substances including, but not limited to, oil, pesticides, chemicals, or radiation in the event of an accident or upset conditions?**

**Yes.** The proposed program would not involve a risk of an explosion. No pesticides or radiation are proposed for use with the proposed program. The release of hazardous substances including oil and chemicals is discussed in subsections "a" and "b," above. Although there is a risk of release of hazardous substances including oil, the limited quantity required to implement the proposed program make this a less than significant impact.

**i) Involve possible interference with an emergency evacuation plan?**

**No.** See discussion under subsection "f," above. The proposed program would not involve possible interference with an emergency evacuation plan.

**j) Creation of any health hazard or potential health hazard (excluding mental health)?**

**No.** See discussion under subsections "a" and "b," above. Because of the limited and isolated use of hazardous materials, the proposed program would not create any health hazard or potential hazard.

**k) Exposure of people to potential health hazards?**

**No.** See discussion under subsection "a," above. Due to the limited and isolated use of hazardous materials, the proposed program would not expose people to potential health hazards.

## CUMULATIVE IMPACTS

Other aquatic invasive species treatment programs would take place concurrently within the proposed program area but would similarly be required to comply with all regulations pertaining to hazardous materials. Therefore, there would not be any cumulatively considerable impacts due to hazardous materials.

### 3.10 HYDROLOGY AND WATER QUALITY

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>IX. Hydrology and Water Quality. Would the project:</b>				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Result in substantial on- or offsite erosion or siltation;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>3. Water Quality. Would the project cause:</b>				
f) Changes in currents, or the course or direction of water movements? (TRPA Item 3a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff so that a 20 yr. 1 hr. storm runoff (approximately 1 inch per hour) cannot be contained on the site? (TRPA Item 3b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Alterations to the course or flow of 100-year flood waters? (TRPA Item 3c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- |  |                                     |                          |                          |                                     |
|--|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| i) Change in the amount of surface water in any water body? (TRPA Item 3d)   | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity? (TRPA Item 3e) | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| k) Alteration of the direction or rate of flow of groundwater? (TRPA Item 3f)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| l) Change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations? (TRPA Item 3g)   | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| m) Substantial reduction in the amount of water otherwise available for public water supplies? (TRPA Item 3h)  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| n) Exposure of people or property to water related hazards such as flooding and/or wave action from 100-year storm occurrence or seiches? (TRPA Item 3i)                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| o) The potential discharge of contaminants to the groundwater or any alteration of groundwater quality? (TRPA Item 3j)   | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| p) Is the project located within 600 feet of a drinking water source? (TRPA Item 3k)   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |

### 3.10.1 Environmental Setting

#### HYDROLOGY

The Lake Tahoe Basin was formed approximately 2–3 million years ago by geologic faulting and volcanic activity. Geologic faults running in a north-south direction allowed the formation of a valley between the uplifting Sierra Nevada and the Carson Range. The northern portion of the valley was blocked and dammed by volcanic activity that created the 506-square-mile basin that lies along the California-Nevada border. Precipitation and runoff eventually filled a portion of the basin to create Lake Tahoe, which has a water surface area covering nearly two-fifths of the total basin area (191 square miles).

Lake Tahoe is fed by 63 tributary streams and intervening zones that drain directly to the lake. The largest tributary is the Upper Truckee River, which accounts for 25 percent of the annual inflow to Lake Tahoe. The Truckee River is the lake's only outlet, flowing to Pyramid Lake in Nevada. A dam constructed at Tahoe City in the early 1900s regulates water flow to the Truckee River from the natural rim at 6,223.0 feet above sea level to the maximum legal lake level of 6,229.1 feet (Lake Tahoe Datum). The lake is 12 miles wide and 22 miles long with 72 miles of shoreline.

Regional topography is characterized by steep mountain slopes at higher elevations, transitioning to more moderately sloped terrain near the lakeshore. A notable precipitation gradient exists from the western boundary of the Tahoe Region along the crest of the Sierra Nevada to the eastern boundary at the crest of the Carson Range. The west shore of Lake Tahoe averages about 35 in per year of precipitation, while the east shore averages about 20 in per year. Most precipitation in the Tahoe Region falls between October and May as snow at higher elevations and as a mixture of snow and rain at lake level. In the higher elevations, peak stream runoff from snowmelt occurs in May or June, while the snowpack near lake level melts a few weeks earlier.

## WATER QUALITY

Lake Tahoe is classified by limnologists as an oligotrophic lake, which means the lake has very low concentrations of nutrients that can support algal growth, leading to clear water and high levels of dissolved oxygen (TERC 2011: p. 6.15). The exceptional transparency of Lake Tahoe results from naturally low inputs of nutrients and sediment from the surrounding watersheds. Long-term changes to the transparency and clarity of Lake Tahoe are influenced by the amount of particulate material in the water, which includes inorganic particles that scatter light (e.g., fine sediment suspended in the water column) and organic particles that absorb light (e.g., suspended algae). Tahoe's transparency is currently 22 feet worse than 1968 values, based on average annual Secchi disk measurement (TERC 2018).

The quality of water in the nearshore area, the primary point of contact for most residents and visitors to the lake, is tracked by measuring turbidity, which is an indication of the cloudiness of water expressed in Nephelometric Turbidity Units (NTU). Higher turbidity measurements indicate cloudier water. TRPA maintains standards for nearshore turbidity, < 3 NTU in areas influenced by stream discharge, and < 1 NTU in areas not influenced by stream discharge. Elevated turbidity measurements in the nearshore area of the lake, defined as levels exceeding 0.25 NTU, appear to be influenced by surface runoff from developed areas. While measures exceeding 0.25 NTU may be higher relative to other areas of the lake, they do not represent exceedance of the standard. Nearshore turbidity monitoring completed between November 2014 and November 2015 did not result in a single value that exceeded the < 1 NTU standard (TRPA 2016).

Sediment entering streams may come from floodplains, upland slopes, urban runoff, or stream bank erosion. Stream systems influenced by watershed disturbance typically show stream channel degradation and increased bank erosion (LRWQCB and NDEP 2010). Additionally, pollutants such as phosphorus and nitrogen are often attached to sediment particles, further degrading water quality. In 2006, an analysis of sediment loading was completed for all 63 streams that flow into Lake Tahoe (Simon 2006). The streams that contribute the highest volume of suspended sediment are (in descending order) the Upper Truckee River, Blackwood Creek, Trout Creek, Ward Creek, and Third Creek. These five streams, with watersheds making up about 40 percent of the Lake Tahoe Basin, account for almost 50 percent of all fine-sediment loading to the lake (Simon 2006).

### 3.10.2 Regulatory Setting

#### TRPA

The TRPA implements the Lake Tahoe Water Quality Management Plan which is a framework that sets forth the components of the water quality management system in the Lake Tahoe region, the desired water quality outcomes for the Lake Tahoe Basin, and the mechanisms adopted by all the relevant entities to achieve and maintain those outcomes. The Lake Tahoe Water Quality Management Plan was updated in 2013 to better serve as a living and relevant framework within which the distinct but interrelated programs and efforts of the various entities work in a coordinated and complementary fashion.

#### LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD AND NEVADA DIVISION OF ENVIRONMENTAL PROTECTION LAKE TAHOE TMDL

Section 303(d) of the Clean Water Act requires states to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that a state develop a total maximum daily load (TMDL) for each of the listed pollutants. A TMDL is the amount of an identified pollutant that a water body can receive and still comply with water quality objectives. A TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives.

The Lake Tahoe TMDL was developed through a partnership between Lahontan RWQCB and the Nevada Division of Environmental Protection to address the declining transparency and clarity of Lake Tahoe. The addition of



phosphorus and nitrogen to Lake Tahoe contribute to phytoplankton growth. Because fine sediment particles, phosphorus, and nitrogen are responsible for the decline in lake transparency and clarity, Lake Tahoe is listed under Section 303(d) of the Clean Water Act as impaired by the input of these three pollutants of concern.

### 3.10.3 Discussion

Would the proposed program result in any of the following?

- a) **Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?**

**Less than significant.** The proposed program would not discharge material of any kind into Lake Tahoe or its tributaries. Equipment used for the control of invasive fish would be removed from each site after each use and boat refueling would only occur at designated fueling stations. Minor ground disturbance or lakebed disturbances caused by foot traffic or equipment use could occur during control activities. This could result in a temporary increase in turbidity while control activities are happening (such as while a seine is being pulled across the surface of the lake or stream bed). Due to the type and scale of the lake or streambed disturbance, it is unlikely that turbidity levels would be increased to a level that would violate water quality standards. All permit conditions, including those specified in the 401 Water Quality Certification issued by Lahontan RWQCB, would be followed. Additionally, turbidity levels would return to pre-disturbance conditions shortly after the completion of control activities. Therefore, the implementation of the proposed program would have a less-than-significant impact on surface and groundwater quality.

- b) **Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

**No impact.** The proposed program would not use groundwater, proposes no excavation, and would not create a permanent structure that could interfere with groundwater flow recharge. Therefore, the proposed program would have no impact on groundwater supplies, movement, or management.

- c) **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:**

**No impact.** The proposed program does not include the construction of permanent structures or impervious surfaces, modification of drainage from upland sites, or alteration of stream courses. Therefore, the proposed program would have no impact on drainage patterns.

- i) **Result in substantial on- or offsite erosion or siltation;**

**Less than Significant.** Proposed program activities could result in minor ground disturbance from personnel walking through streams or in shallow waters, installation and removal of ground anchored structures such as weirs or fyke nets, and launching of small watercraft from the shoreline. These disturbances would be limited in their extent and would not result in substantial amounts of erosion. Weirs placed in streams would slow water currents and could result in an accumulation of sediment near the weir structure. However, sediment would be redistributed by water currents when the weir is removed after 1–3 months of use. Therefore, the proposed program would have a less-than-significant impact relative to erosion or siltation.

- ii) **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;**

**No impact.** The proposed program does not include the construction of permanent structures or impervious surfaces that would create surface runoff. Therefore, the proposed program would have no impact.

- iii) **Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**

**No impact.** The proposed program does not include the construction of permanent structures or impervious surfaces that would create surface runoff. Therefore, the proposed program would have no impact.

- iv) **Impede or redirect flood flows?**

**No impact.** Of the proposed control method options, only the installation of weirs has the potential to slow stream currents and redirect flood flows. However, weirs would not be used while streams are at high flow or flood stage because the weir structure would be destroyed or made ineffective by the force of the stream. Because the proposed program would not result in the placement of structures in streams during high flow or flooding events, there would be no impact relative to the flood flows and their direction.

- d) **In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?**

**Less than Significant.** All proposed program activities would occur in Lake Tahoe and its tributaries in areas that experience seasonal floods or that could experience damaging wave action during tsunami or seiche. However, no control activities would take place during flood events and the potential for a tsunami or seiche to occur during a short-term treatment is very low. In addition, the control activities included in the proposed program would temporarily place inert solid materials such as metal, wood, and nylon into the water. These materials cannot be spilled and, if control materials were lost during a tsunami or seiche event, it is likely that they could be recovered and removed from the water at a later point with no adverse effects to water quality. The gas or diesel-powered engines of small boats or boat mounted electrofishing equipment could be submerged as the result of a tsunami or seiche, however this would potentially be the case for all boats on Lake Tahoe. The proposed program's use of such equipment would not increase the potential for a lake wide pollutant release due to submerged gas of diesel-powered engines in the event of a tsunami or seiche.

Because the proposed control methods would use equipment intended for underwater use or use in an aquatic environment, the potential for release of pollutants is very low. If submerged during an extreme wave event such as a tsunami or seiche, gas or diesel-powered engines could release pollutants, however the projects use of these engines would not affect the lake-wide risk of pollutant release. Additionally, it is highly unlikely that such an event would occur during short-term treatment activities. Therefore, the potential for the proposed program to result in pollutant release due to project inundation would be less than significant.

- e) **Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

**No impact.** The proposed program does not include activities that would conflict with a water quality control plan or sustainable groundwater management plan. Additionally, as discussed in subsection "a," above, the proposed program would not significantly affect surface or groundwater quality. Therefore, the proposed program would have no impact.

- f) **Changes in currents, or the course or direction of water movements?**

**No.** The proposed program would include the placement of weirs in streams, fyke nets in lake, and stream habitats. Although these structures would be temporary in nature, some modification of lake and stream currents would occur

in the immediate vicinity of the net or weir while the structure remains in the water. This could result in localized changes to siltation, deposition, or erosion; however, nets would generally be removed from the site within 24 hours and weirs would be removed within 1–3 months. After removal of temporary structures littoral processes would return to pre-project conditions. Therefore, the proposed program would have a less-than-significant impact on currents and water movement.

**g) Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff so that a 20 yr. 1 hr. storm runoff (approximately 1 inch per hour) cannot be contained on the site?**

**No.** The proposed program does not include the construction of permanent structures or impervious surfaces, that would create surface runoff. Therefore, the proposed program would have no impact.

**h) Alterations to the course or flow of 100-year flood waters?**

**No.** See the response to subsection "civ," above.

**i) Change in the amount of surface water in any water body?**

**No.** The control activities that would be implemented through the proposed program would not affect the amount of water in any water body. Therefore, the proposed program would have no impact.

**j) Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?**

**No.** See the discussion under subsection "a," above.

**k) Alteration of the direction or rate of flow of groundwater?**

**No.** See the discussion under subsection "b," above.

**l) Change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?**

**No.** See the discussion under subsection "b," above.

**m) Substantial reduction in the amount of water otherwise available for public water supplies?**

**No.** The control activities included in the proposed program would not require the use of public water supplies other than for cleaning of equipment to comply with aquatic invasive species quarantine protocols. No new water connections would be added as a result of the proposed program. Therefore, the proposed program would have no impact.

**n) Exposure of people or property to water related hazards such as flooding and/or wave action from 100-year storm occurrence or seiches?**

**Yes.** As discussed in subsection "d," above, the control activities conducted through the proposed program would be located in tsunami and seiche hazard zones around the shore of Lake Tahoe. Historic fault ruptures and seismically induced seiche have been documented in the Tahoe region and could occur again in the future. However, because of the short duration of the control activities, the potential for fault rupture to generate a seiche during program activities is very low. Additionally, as described in Section 2.2.7, "Training and Operations," all personnel involved in fish control work would be trained in field safety and emergency protocols including response to seismic events, including seiche. For these reasons, the risk to life and property from seismic related ground failure would be less than significant.

**o) The potential discharge of contaminants to the groundwater or any alteration of groundwater quality?**

**No.** See the discussion under subsection "a," above.

**p) Is the project located within 600 feet of a drinking water source?**

**Yes.** Invasive fish control would occur along the shoreline of Lake Tahoe potentially including areas within 600 feet of drinking water source intake lines. As described in subsection "a," above, the proposed activities could cause short duration, localized increases in turbidity from the action of feet or nets on the lake bottom. However, these minor and temporary disturbances would not substantially degrade water quality. The executive director of the Lake Tahoe Water Suppliers Association confirmed that temporary disturbances caused by the proposed fish control activities in the shallow areas of Lake Tahoe would not affecting drinking water supply intake lines (Dunbar pers. comm. 2019), because the amount of disturbance would be minimal and the closest control activities would occur at least 500 feet away (the closest distance from the program area's shallow water boundary to the nearest water source intake line). Therefore, while the proposed program may include activities within 600 feet of a drinking water source, potential impacts would be less than significant.

## CUMULATIVE IMPACTS

Some of the control methods implemented through the proposed program would have temporary water quality impacts such as minor increases in siltation related to foot traffic or small disturbances of the lake bottom. However, these effects would be temporary in nature and work sites would return to pre-project conditions after completion of activities. The proposed program does not include large disturbances or site modifications that could add to the effects of other programs in the region. Therefore, the proposed program would not make a considerable contribution to significant cumulative hydrologic or water quality impacts.

### 3.11 LAND USE AND PLANNING

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>X. Land Use and Planning. Would the project:</b>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>8. Land Use. Would the project:</b>				
c) Include uses which are not listed as permissible uses in the applicable Plan Area Statement, adopted Community Plan, or Master Plan? (TRPA Item 8a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expand or intensify an existing non-conforming use? (TRPA Item 8b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.11.1 Environmental Setting

The proposed program location is throughout the Lake Tahoe Basin and consists of marinas (including the Tahoe Keys Marina) and shallow waters of Lake Tahoe, portions of the tributaries that feed into Lake Tahoe, and the portion of the Truckee River (the lake’s only outlet) under the jurisdiction of TRPA. Developed land uses within the program area include commercial, residential, public service, recreation, and resource management uses.

#### 3.11.2 Regulatory Setting

##### LAKE TAHOE REGIONAL PLAN

Land use regulation by TRPA is guided by its Regional Plan and implementing ordinances. The Regional Plan is intended to establish a balance, or equilibrium, between the natural environment and the built environment; and attain and maintain TRPA’s environmental threshold carrying capacities. The Goals and Policies of the Regional Plan establish an overall framework for development and environmental conservation in the Lake Tahoe region. The goals and policies present the overall approach to meeting TRPA’s environmental threshold carrying capacities and establish guiding policy for each resource element. The TRPA’s Shoreline Plan guides resource management and development within the shorezone and lakezone of Lake Tahoe. The proposed Shoreline Plan addresses primary policy areas related to boating, access, marinas, piers, and low lake level adaptation.

The Conservation Element of the Tahoe Regional Plan includes Policy FI-1.9, which is applicable to the proposed program. This policy promotes the control or eradication of existing aquatic invasive species populations and implementing measures to prevent accidental or intentional release of such species (TRPA 2012).

##### Land Use Classification System

Land in the Lake Tahoe region is assigned to one of eight classifications: Wilderness, Backcountry, Conservation, Recreation, Resort Recreation, Residential, Mixed-Use, and Tourist. The classifications summarize major land uses that

exist in the region and are further supplemented by the plan area statements (PASs), community plans, master plans, and area plans. Land uses adjacent to the program area include Backcountry, Conservation, Mixed-Use, Recreation, Resort Recreation, Residential, and Tourist.

### Plan Area Statements

PASs provide a detailed guide for planning within discrete areas of the region. Each PAS is assigned a single land use classification and one of three management strategies: development with mitigation, redirection of development, or maximum regulation. Additionally, PASs provide planning considerations, special policies, maximum densities for residential and tourist accommodation uses, community noise equivalent levels, allowable and special uses, and the amount of additional recreation capacity that is permissible.

## 3.11.3 Discussion

### a) Physically divide an established community?

**No impact.** The short-term, temporary activities within marinas, shallow waters, tributaries, Truckee River, and marshes in the program area would not physically divide an established community.

### b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

**Less than significant.** The proposed program expands on prior planning efforts, including the 2014 Lake Tahoe Region Aquatic Invasive Species Management Plan (LTAIS) Management Plan (TRPA 2014) and the 2015 Implementation Plan (Wittman and Chandra 2015), and the Lake Tahoe Region AIS Action Agenda 2021-2030 (DeBruyckere 2019). The LTAIS Management Plan provides localized guidance for prevention and long-term control of AIS in the Lake Tahoe region (TRPA et al. 2014). The goals and objectives of this plan call for enhancing implementation of AIS prevention, monitoring, control, education, and research in the Lake Tahoe region. The 2015 Implementation Plan is an extension of the LTAIS Management Plan and is used as a guide for resource managers at Lake Tahoe for prioritizing control efforts. Control of target invasive fish was identified in the 2015 Implementation Plan as a feasible control action and implementation of mechanical control methods for target invasive fish was recommended. The 2019 Action Agenda focuses on reducing AIS in priority locations and suppressing the spread of AIS in the Lake Tahoe region by aggressively treating established and new introductions of AIS populations simultaneously and with unprecedented effort.

The proposed program would be consistent with policies or management direction in the LTBMU Forest Plan. The Forest Plan includes management direction to help maintain habitat quality and native species diversity and avoid introduction of invasive species and invasive species management strategies (USFS 2016).

The proposed program is also consistent with a number of local plans that are administered by local jurisdictions throughout the program area. The program area is within the boundaries of the El Dorado County General Plan, Placer County Tahoe Basin Area Plan, Douglas County Master Plan, South Shore Area Plan, Tourist Core Area Plan, Meyers Area Plan, City of South Lake Tahoe General Plan, and Tahoe Area Plan for the Washoe County portion of the Lake Tahoe Basin. Most of these plans do not contain policies that would pertain to the proposed program. The Placer County Tahoe Basin Area Plan includes Policy FI-P-1, which supports active management of AIS and implementation of the LTAIS Management Plan. Policy FI-P-2 states the county will pursue aquatic resource enhancement projects, such as AIS management, in coordination with EIP and TMDL programs and partner agencies (Placer County 2017).

Because the proposed program would implement methods to control AIS (i.e., target invasive fish) consistent with local and regional plan in the Lake Tahoe Basin, the proposed program would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This impact would be less than significant.

c) **Include uses which are not listed as permissible uses in the applicable Plan Area Statement, adopted Community Plan, or Master Plan?**

**No.** Nonstructural fish management activities, such as those included in the proposed program, are allowed in all land use and zoning districts in each of the area plans, PASs, and applicable local jurisdiction zoning within the program area. Thus, implementation of the proposed program would not include uses which are not listed as permissible uses in the applicable PAS, area plan, community plan, or master plan.

d) **Expand or intensify an existing non-conforming use?**

**No.** The proposed program would not include development of any land uses. As described under subsection "b," above, the proposed program is an allowable use under Resource Management (nonstructural fish habitat management) in Chapter 21 of the TRPA Code of Ordinances, throughout the Lake Tahoe Basin. The proposed program would not expand or intensify an existing non-conforming use; therefore, the proposed program would have no impact relative to this criterion.

## CUMULATIVE IMPACTS

Because the proposed program would be consistent with applicable goals policies of the various planning documents in the program area and would result in no impact related to land use and planning, it would neither contribute to a cumulative impact nor result in a cumulatively considerable contribution to land use and planning impacts.

### 3.12 MINERAL RESOURCES AND NATURAL RESOURCES

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XI. Mineral Resources. Would the project:</b>				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>9. Natural Resources. Would the project cause:</b>				
c) A substantial increase in the rate of use of any natural resources? (TRPA Item 9a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantial depletion of any non-renewable natural resource? (TRPA Item 9b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.12.1 Environmental Setting

Mineral resources include oil, natural gas, and metallic and nonmetallic deposits, including construction aggregates. In California, mineral resource zones (MRZ) are mapped as:

- 1) Areas of No Mineral Resource significance
- 2) Areas of Identified Mineral Resource significance
- 3) Areas of undetermined Mineral Resource significance
- 4) Areas of Unknown Mineral Resource significance

In Placer and El Dorado Counties most of the Lake Tahoe Basin is mapped as MRZ 4 (DOC 1995, 2001). The proposed program would involve limited ground disturbance associated with the anchoring of weirs and use of nets. Therefore, the proposed program would not disturb mineral resources or deplete non-renewable natural resources.

#### 3.12.2 Discussion

- a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

**No impact.** The proposed program would only temporarily disturb minimal amounts of soil for the placement of weirs and nets and, therefore, would not result in the loss of availability of a known mineral resource that would be of value to the region and to the residents of the state. There would be no impact.



b) **Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

**No impact.** Implementation of the Target Invasive Species Control Program at Lake Tahoe would not result in the loss of availability of a locally important mineral resource recovery site because control activities would only temporarily disturb limited amounts of soil. There would be no impact.

c) **A substantial increase in the rate of use of any natural resources?**

**No.** Fish are considered natural resources because they occur in nature and can be used for economic gain. Implementation of the proposed program would remove target invasive fish from Lake Tahoe but because they are not native and they negatively affect native species and habitats, removal would not be considered a substantial increase in the rate of use of any natural resource.

d) **Substantial depletion of any non-renewable natural resource?**

**No.** For the same reasons discussed under subsection "c," implementation of the proposed program would not result in the substantial depletion of any non-renewable natural resources.

## CUMULATIVE IMPACTS

Implementation of the proposed program would not result in any potentially significant impacts on mineral resources, therefore no cumulative impacts would be considerable.

### 3.13 NOISE

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XII. Noise. Would the project result in:</b>				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>6. Noise. Would the project cause:</b>				
d) Increases in existing Community Noise Equivalency Levels (CNEL) beyond those permitted in the applicable Plan Area Statement, Community Plan or Master Plan? (TRPA Item 6a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Exposure of people to severe noise levels? (TRPA Item 6b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Single event noise levels greater than those set forth in the TRPA Noise Environmental Threshold? (TRPA Item 6c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) The placement of residential or tourist accommodation uses in areas where the existing CNEL exceeds 60 dBA or is otherwise incompatible? (TRPA Item 6d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) The placement of uses that would generate an incompatible noise level in close proximity to existing residential or tourist accommodation uses? (TRPA Item 6e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Exposure of existing structures to levels of ground vibration that could result in structural damage? (TRPA Item 6f)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.13.1 Environmental Setting

Noise-sensitive land uses generally include those uses where noise exposure could result in health risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship and transient lodging, and other places where low interior noise levels are essential, are also considered noise sensitive. Those noted above are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance. Older buildings are also more prone to vibration-induced damage.

Existing sensitive land uses exist throughout the program area. Because of the regional scale of this project and analysis, identification of individual receptors that might be affected by future, as yet unknown projects would not be possible. Noise levels and potential impacts are addressed generally because specific locations of future development are unknown.

The sound levels in most communities fluctuate, depending on the activity of nearby and distant noise sources, time of the day, or season of the year. Noise sources around Lake Tahoe include roadway traffic, aircraft, watercraft, and recreational activity (e.g., people talking, music playing, dogs barking). Other secondary noise influences include noise attributed to construction and natural events, such as thunderstorms.

### 3.13.2 Regulatory Setting

#### TAHOE REGIONAL PLANNING AGENCY

##### Thresholds

TRPA has established environmental thresholds, known as environmental threshold carrying capacities (thresholds), for nine resources, including noise. There are two noise threshold indicators: single noise events and cumulative noise events, discussed separately below.

##### Single Noise Events

Single noise event threshold standards adopted by TRPA are based on the numerical value associated with the maximum measured level in acoustical energy during an event. This threshold establishes maximum noise levels for aircraft, watercraft, motor vehicles, motorcycles, off-road vehicles, and snowmobiles. Table 3.12-1 shows the types of operation applicable to the proposed program.

**Table 3.12-1 TRPA Maximum Allowable Noise Levels for Boats**

Types of Operation	dBA L <sub>max</sub>
Boats (not to exceed any of 3 tests)	Pass-By Test: 82 dBA measured at 50 ft with engine at 3,000 rpm
	Shoreline Test: 75 dBA, microphone 5 ft above water, 2 ft above curve of shore, dock, or platform; watercraft in lake, no minimum distance (standard adopted 7/03)
	Stationary Test: 88 dBA if watercraft manufactured on or after 1/1/93 and 90 dB if watercraft manufactured before 1/1/93, microphone 3.3 ft from exhaust outlet-5 ft above water. (standard adopted 7/03)

Notes: dB = decibels; dBA = A-weighted decibels; rpm = revolutions per minute

Source: TRPA Code, Chapter 68

## Cumulative Noise Events

TRPA adopted cumulative noise standards, expressed using the 24-hour community noise equivalent level (CNEL) metric for different zones within the region to account for expected levels of serenity. Table 3.12-2 summarizes thresholds for community noise events.

The noise limitations established in Chapter 68 of the TRPA Code, including the noise standards of individual area plans, PASs, and community plans, do not apply to noise from TRPA-approved construction or maintenance projects, or the demolition of structures, provided that such activities are limited to the hours between 8:00 a.m. and 6:30 p.m. Further, the noise limitations of Chapter 68 do not apply to emergency work to protect life or property.

**Table 3.12-2 TRPA Cumulative Noise Level Thresholds**

Cumulative Noise Level Thresholds	
Use Type	dBA CNEL
<b>Land-Use Based Thresholds</b>	
High density residential	55
Low density residential	50
Hotel/motel facilities	60
Commercial area	60
Industrial	65
Urban outdoor recreation	55
Rural outdoor recreation	50
Wilderness and roadless areas	45
Critical wildlife areas	45
<b>Transportation Corridor Thresholds<sup>2</sup></b>	
U.S. 50	65
State Routes 89, 207, 28, 267, and 431	55 <sup>1</sup>
South Lake Tahoe Airport	60

Notes: CNEL = community noise equivalent level; dB = decibels; dBA = A-weighted decibels;

<sup>1</sup> Between the hours of 8:00 p.m. and 8:00 a.m.

<sup>2</sup> The transportation corridor noise threshold overrides the land use-based CNEL thresholds and is limited to an area within 300 feet from the edge of the road.

Source: TRPA Code, Chapter 68

### 3.13.3 Discussion

- a) **Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?**

**Less than significant.** In assessing increases in noise, a doubling of the noise source results in a 3-A weighted decibels (dBA) increase. Traffic generated by an individual target invasive fish control project could include up to four vehicles accessing a project site, marina, or boat launch, which could include employee vehicles and a work truck that is used to carry supplies and fish collected from the project. It is possible that a number of separate target invasive fish control projects may be implemented concurrently throughout the program area; however, because of the limited resources and factors that contribute to deciding when projects are implemented (e.g., funding, equipment, agency priorities) the number of concurrent projects would be limited. Therefore, because of the low volume of vehicular traffic that the proposed program would generate on the surrounding roadway network, the proposed program

would not result in a doubling of traffic volumes; and thus, traffic noise increases would not exceed 3 dBA. Thus, additional vehicular trips generated by the proposed program would not result in substantial noise increases on any roadway segment within the program area.

In general, the control methods proposed under the proposed program would not include the use of noise-generating equipment other than watercraft and generators. The type of watercraft likely to be used would be an inflatable fishing dinghy with a low horsepower (i.e., 5–15 horsepower) outboard motor, or something similar. Therefore, the boats used for individual invasive fish control projects implemented under the proposed program would not generate excessive noise levels. Additionally, the watercraft that could be used for some of the individual invasive fish control projects would primarily operate close to shore and within the TRPA enforced 600-foot no-wake zone, which requires boaters to limit their speed to 5 miles per hour (mph) within 600 feet of the shore. Limiting boat speed reduces engine noise, exhaust noise, and wake-slapping noise, thus substantially reducing boat noise levels at the shore. Additionally, any increase in noise exposure at nearby receptors would be temporary and periodic. Therefore, implementation of the proposed program would not result in the exposure of noise-sensitive receptors to a permanent or substantial temporary increase in ambient noise levels. This impact would be less than significant.

**b) Generation of excessive groundborne vibration or groundborne noise levels?**

**Less than significant.** Individual target invasive fish control projects and the control methods that could be utilized under the proposed program would not include types of equipment or activities that have the potential to generate relatively high levels of ground vibration, such as pile driving, drilling, boring, or rock blasting. Additionally, no heavy equipment (i.e., dozers, scrapers, etc.) would be utilized during individual target invasive fish control projects. Therefore, the proposed program would not result in the long-term or short-term operation of a source of ground vibration. In addition, the proposed program would not develop new vibration-sensitive receptors. Therefore, this impact would be less than significant.

**c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

**Less than significant.** No residential or tourist accommodation uses are proposed as part of the proposed program; therefore, noise-sensitive uses would not be placed in areas where existing noise levels exceed applicable limits. However, target invasive fish control projects could take place near the Lake Tahoe Airport. As shown in Figure 2-1, the Tier 2 portion of the program area includes tributaries adjacent to and east of the Lake Tahoe Airport. However, the proposed program does not include development of structures where people would reside or work near existing airports; and thus, any exposure of people working in this area to excessive noise levels would be temporary and intermittent. Therefore, this impact would be less than significant.

**d) Increases in existing Community Noise Equivalency Levels (CNEL) beyond those permitted in the applicable Plan Area Statement, Community Plan or Master Plan?**

**No.** See discussion under subsection "a," above.

**e) Exposure of people to severe noise levels?**

**No.** See discussion under subsection "a," above.

**f) Single event noise levels greater than those set forth in the TRPA Noise Environmental Threshold?**

**No.** Single-event noise standards are set forth in Section 68.3.1 of the TRPA Code for aircraft, watercraft, motor vehicles, motorcycles, off-road vehicles (e.g., dirt bikes), and over-snow vehicles.

The proposed program would include the use of watercraft for some of the proposed control methods. The type of watercraft likely to be used would be an inflatable fishing dinghy with a low horsepower (i.e., 5–15 horsepower) outboard motor, or something similar. Therefore, the boats used for individual target invasive fish control projects under the proposed program would not generate excessive noise levels. Additionally, the watercraft that could be used for individual invasive target fish control projects would primarily operate close to shore and within the TRPA enforced 600-foot no-wake zone, which requires boaters to limit their speed to 5 mph within 600 feet of the shore. Limiting boat speed reduces engine noise, exhaust noise, and wake-slapping noise, thus substantially reducing boat noise levels at the shore. Therefore, boats used for individual target invasive fish control projects under the proposed program would not exceed single event noise levels set forth in the TRPA Noise Thresholds. There would be no impact.

**g) The placement of residential or tourist accommodation uses in areas where the existing CNEL exceeds 60 dBA or is otherwise incompatible?**

**No.** The proposed program does not include the development of new residential or tourist accommodation uses. There would be no impact.

**h) The placement of uses that would generate an incompatible noise level in close proximity to existing residential or tourist accommodation uses?**

**No.** Individual target invasive fish control projects implemented under the proposed program would be dispersed throughout the program area and carried out over a limited number of days at individual sites. Therefore, project-generated noise would be short-term and intermittent in nature and no new land uses or long-term/operational noise sources would be located in close proximity to existing residential or tourist accommodation uses. There would be no impact.

**i) Exposure of existing structures to levels of ground vibration that could result in structural damage?**

**No.** See discussion under subsection “b,” above

## CUMULATIVE IMPACTS

The proposed program would result in no substantial permanent changes to noise levels. The proposed program would result in temporary noise increases during the implementation of some individual target invasive fish control projects (such as operation of a generator during boat electrofishing). However, the noise generated during individual invasive fish control projects implemented under the proposed program would not combine with other cumulative projects in such a way that would result in significant noise exposure to the same individual noise-sensitive receptors. Thus, the proposed program would not make a considerable contribution to a cumulatively significant impact.

### 3.14 POPULATION AND HOUSING

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XIII. Population and Housing. Would the project:</b>				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>11. Population. Would the project:</b>				
c) Alter the location, distribution, density, or growth rate of the human population planned for the Region? (TRPA Item 11a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Include or result in the temporary or permanent displacement of residents? (TRPA Item 11b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>12. Housing. Would the project:</b>				
e) Affect existing housing, or create a demand for additional housing? (TRPA Item 12a) To determine if the proposal will affect existing housing or create a demand for additional housing, please answer the following questions:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(1) Will the proposal decrease the amount of housing in the Tahoe Region? (TRPA Item 12a.1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(2) Will the proposal decrease the amount of housing in the Tahoe Region historically or currently being rented at rates affordable by lower and very-low-income households? (TRPA Item 12a.2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Will the proposal result in the loss of housing for lower-income and very-low-income households? (TRPA Item 12b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.14.1 Environmental Setting

Recent data from the U.S. Census Bureau estimates the population of the Lake Tahoe Basin is at approximately 53,000 with over 51,000 total housing units (U.S. Census Bureau 2018a, 2018b). Many of the residences are used as second homes or vacation rentals. In 2017, the annual estimated unemployment rate in the Lake Tahoe Basin was 5.6 percent (U.S. Census Bureau 2018c).

### 3.14.2 Discussion

- a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

**No impact.** The proposed program would not include construction of new housing or commercial businesses. Therefore, no direct population growth would result from implementation of the proposed program. Implementation of individual control projects under the proposed program would utilize teams of 3–4 people. Projects would be led by Tahoe RCD but could be implemented by a range of entities (e.g., LTBMU, Conservancy, local jurisdictions, marinas, etc.). People employed for the purposes of these individual projects could be existing staff of these entities or could be outside contractors. It is possible that some people may commute to the program area for the purposes of implementing these projects; however, the projects would be short-term and temporary and would not result in unplanned population growth or result in the need to construct new housing. Because project implementation would only require a few people that would be anticipated to be existing staff of the implementing entities or contracted crews, the proposed program would not generate additional employment demand. For these reasons, the proposed program would have no impact on population growth.

- b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

**No impact.** There are no homes or other structures located within the program area. The proposed program would not include removal of any homes. Therefore, the proposed program would have no impact on displacement of existing people or homes.

- c) Alter the location, distribution, density, or growth rate of the human population planned for the Region?

**No impact.** As described under subsection "b," above, no homes would be displaced as a result of the proposed program. Therefore, no people or existing residences would be displaced, and there would be no impact.

- d) Include or result in the temporary or permanent displacement of residents?

**No impact.** See discussion under subsection "a," above.

- e) Affect existing housing, or create a demand for additional housing?

To determine if the proposal will affect existing housing or create a demand for additional housing, please answer the following questions:

- (1) Will the proposal decrease the amount of housing in the Tahoe Region?

**No impact.** See discussion under subsection "b," above.

- (2) Will the proposal decrease the amount of housing in the Tahoe Region historically or currently being rented at rates affordable by lower and very-low-income households?

**No impact.** See discussion under subsection "b," above.

- f) Will the proposal result in the loss of housing for lower-income and very-low-income households?

**No impact.** See discussion under subsection "b," above.



## CUMULATIVE IMPACTS

Because the proposed program would result in no impact related to population and housing, it would neither contribute to a cumulative impact nor result in a cumulatively considerable contribution to such impacts related to population and housing.

### 3.15 PUBLIC SERVICES

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XIV. Public Services. Would the project:</b>				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
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**14. Public Services.**

Will the proposal have an unplanned effect upon, or result in a need for new or altered governmental services in any of the following areas?

b) Fire protection? (TRPA Item 14a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Police protection? (TRPA Item 14b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Schools? (TRPA Item 14c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Parks or other recreational facilities? (TRPA Item 14d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Maintenance of public facilities, including roads? (TRPA Item 14e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Other governmental services? (TRPA Item 14f)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 3.15.1 Environmental Setting

### FIRE PROTECTION

Nine local fire protection districts are charged with providing fire protection, rescue, emergency medical treatment, hazardous materials control and response services to the Tahoe Region:

- ▶ City of South Lake Tahoe Fire Department,
- ▶ Lake Valley Fire Protection District,
- ▶ Fallen Leaf Lake Fire District,
- ▶ Meeks Bay Fire Protection District,
- ▶ North Tahoe Fire Protection District,
- ▶ North Lake Tahoe Fire Protection District,
- ▶ Sierra Fire Protection District,
- ▶ Carson City Fire Department, and
- ▶ Tahoe-Douglas Fire Protection District.

In addition, portions of the Lake Tahoe region are considered to be State Responsibility Areas, which are identified by the State Board of Forestry as areas for which California Department of Forestry and Fire Protection (CAL FIRE) has the primary duty for wildland fire prevention and suppression. Areas on national forest land are under the jurisdiction of LTBMU.

The Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy for the Lake Tahoe Region (Fuel Reduction Strategy) provides land management, fire, and regulatory agencies with strategies to reduce the probability of a catastrophic fire in the Region. Under the Fuel Reduction Strategy, fire prevention, fire protection, and emergency services in the Tahoe Region are provided by various agencies and fall under federal, state, and local jurisdiction.

### POLICE PROTECTION

Law enforcement within the Tahoe region is provided at the federal, state, county, and city levels. At the community level, police protection services are provided by the Placer, El Dorado, Washoe, and Douglas County Sheriff Departments in each respective county, the Carson City Sheriff's office, and South Lake Tahoe Police Department. In addition to local law enforcement agencies, the Tahoe region is also served by a variety of federal agencies (e.g., Federal Bureau of Investigation, U.S. Coast Guard) and State Highway Patrols.

### SCHOOLS

Four kindergarten through grade 12 (K-12) public school districts serve the Tahoe region: Tahoe Truckee Unified School District and Lake Tahoe Unified School District in California, and Washoe County School District and Douglas County School District in Nevada.

### PARKS

A number of recreation facilities, including park amenities associated with the Tahoe Keys community, that serve local residents and visitors are located in and surrounding the program area. A description of these recreation facilities is included in Section 3.16, "Recreation."

### 3.15.2 Discussion

- a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

**No impact.** The proposed program would not result in the construction of permanent facilities that would generate demand for public services, such as fire protection. Additionally, the nature of the individual control projects as temporary and short-term would not be anticipated to generate demand for fire protection services such that new or improved fire protection facilities would be required. There would be no impact.

Police protection?

**No impact.** The proposed program would involve implementation of several target invasive fish control projects by various entities throughout the Lake Tahoe Basin each year. These projects are temporary and short-term. For the reasons described above under subsection "a) Fire protection?," the proposed program would not be anticipated to generate demand for police protection services such that new or improved law enforcement facilities would be required. There would be no impact.

Schools?

**No impact.** The proposed program does not include development of new residences and would not increase demand for employees. Therefore, the proposed program would not increase demand for schools. The project would have no impact on schools.

Parks?

**No impact.** The proposed program would not result in a permanent increase in demand for park facilities that would result in the need for new or physically altered park facilities. There would be no impact.

Other public facilities?

**No impact.** Implementation of the proposed program does not include development of new residences nor would it increase employment demand. Therefore, the proposed program would not increase area population that could increase the demand for other public facilities, such as libraries and community centers. Therefore, implementation of the proposed program would have no impact on other public facilities.

Will the proposal have an unplanned effect upon, or result in a need for new or altered governmental services in any of the following areas?

- b) Fire protection?

**No.** See discussion under subsection "a," above.

- c) Police protection?

**No.** See discussion under subsection "a," above.

- d) Schools?

**No.** See discussion under subsection "a," above.

- e) Parks or other recreational facilities?

**No.** See discussion under subsection "a," above.

**f) Maintenance of public facilities, including roads?**

**No.** See discussion under subsection "a," above. Implementation of the proposed program would involve project implementation teams driving to individual project sites or to marinas or boat launches. However, limited individual target invasive fish control projects would be implemented each year, distributed throughout the Lake Tahoe Basin, and project teams would be relatively small (3–4 people) such that traffic generated by the proposed program would be minimal and would not be anticipated to generate substantial traffic that could result in the need for maintenance of roads. There would be no impact.

**g) Other governmental services?**

**No.** See discussion under subsection "a," above.

**CUMULATIVE IMPACTS**

Because the proposed program would result in no impact on public services, it would neither contribute to a cumulative impact nor result in a cumulatively considerable contribution to such impacts on public services.

### 3.16 RECREATION

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XV. Recreation. Would the project:</b>				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>19. Recreation. Would the project:</b>				
c) Create additional demand for recreation facilities? (TRPA Item 19a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create additional recreation capacity? (TRPA Item 19b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have the potential to create conflicts between recreation uses, either existing or proposed? (TRPA Item 19c)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Result in a decrease or loss of public access to any lake, waterway, or public lands? (TRPA Item 19d)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 3.16.1 Environmental Setting

The recreation opportunities in the Lake Tahoe region are abundant due to the diverse terrain and topography. Recreation activities generally associated with the tributaries and the lake where target invasive fish control activities could take place include swimming, boating, personal watercraft use (i.e., kayaks and stand up paddle boards), and fishing. Over 40 public beaches and access points are located around Lake Tahoe. The highest concentration of these public areas is located in Tahoe City, Tahoe Vista, Kings Beach, and the south shore between Emerald Bay and the state line. Public beaches on the west shore and east shore are generally located in Lake Tahoe Nevada State Park, national forest lands managed by LTBMU, and California state parks. During peak summer months, Lake Tahoe’s public beaches and access points are popular places for a variety of recreation activities: swimming, sunbathing, relaxing, barbecuing, paddle boarding, kayaking, jet skiing, and boating. There are many formal and user created trails that run along the tributaries and the lake in the Lake Tahoe Basin. These trails are popular for hiking, running, and biking.

The Lake Tahoe Basin is home to nearly 55,000 full-time residents and is a recreational destination with 4–6 million visitors each year (TRPA 2017), including many who live in nearby metropolitan centers. Tourism is an important part of the local economy and a high-quality recreation experience coupled with abundant recreation opportunities is important to maintain tourism. The peak period for recreational use of Lake Tahoe and its tributaries at Lake Tahoe occurs during the summer months (i.e., June through August). Less recreational use occurs in the shoulder seasons (i.e., spring and fall) and in the winter when temperatures are too cold for water-related recreation.

## 3.16.2 Regulatory setting

### TAHOE REGIONAL PLANNING AGENCY

The TRPA adopted threshold standards includes two separate policy statements that are evaluated separately. One policy statement directs TRPA to preserve and enhance high quality recreational experiences and provide additional access to the shorezone and other areas for dispersed recreational uses. The second policy statement directs TRPA to "...establish and ensure a fair share of the total basin capacity for outdoor recreation is available to the general public." The goal of the recreation element of the Regional Plan is to manage recreation consistent with the guidance provided in the recreation threshold policy statements to "ensure equilibrium between the region's natural endowment and its manmade environment." Based on the 2015 Threshold Evaluation Report, this recreation threshold is implemented.

### 3.16.3 Discussion

- a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

**Less than significant.** Implementation of the proposed program would result in short-term, temporary closures of tributaries, marshes, and shallow areas of Lake Tahoe during project implementation, which could cause aquatic recreationists (e.g., swimmers, boaters, and anglers) to increase recreation demand on other nearby tributaries, marshes, and shallow water areas within the program area and surrounding Tahoe region. Because of the amount of recreation resources, tributaries, marshes, and shallow water areas of Lake Tahoe available in the program area and Lake Tahoe region, a short-term, temporary effect on recreation opportunities during the times when treatments would occur would not result in the concentration of recreation users on any single water body. Similarly, no closures of boat launching facilities are anticipated, except in instances where a temporary control project is proposed adjacent to a boat launching facility. In this case, the effect would be short term in nature and would not substantially impede boat launching activities. These short-term effects on recreation opportunities would not result in substantial physical deterioration or acceleration of physical deterioration of those resources. For these reasons, the impact would be less than significant.

- b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

**Less than significant.** Implementation of the proposed program would not result in the construction of any new recreational facilities. The proposed program would take place in tributaries, marshes, and shallow water areas where people recreate. Due to the limited area and short-term nature of target invasive fish control activities, temporary shifts in recreation user demand for tributary and shallow areas of Lake Tahoe would not result in the concentration of recreation users on any single recreation facility such that new or expanded facilities would be required. The impact would be less than significant.

- c) Create additional demand for recreation facilities?

**No.** See the discussion under subsections "a" and "b," above. Due to the limited area and short-term nature of target invasive fish control activities, temporary shifts in recreation user demand for tributary and shallow areas of Lake Tahoe would not result in the concentration of recreation users on any single recreation facility such that new or expanded facilities would be required.

**d) Create additional recreation capacity?**

**No.** The proposed program would address the need to control target invasive fish species and would not create additional recreation capacity.

**e) Have the potential to create conflicts between recreation uses, either existing or proposed?**

**Yes.** The potential exists that the same invasive fish species that are targeted for control activities could be desired species for anglers to catch for sport. The proposed program is not intended to reduce the populations of all fish in Lake Tahoe and its tributaries, but to reduce the number of invasive fish and promote the growth of native fish species. Therefore, anglers would still have ample fish species to capture if the proposed program is implemented.

**f) Result in a decrease or loss of public access to any lake, waterway, or public lands?**

**Yes.** See the discussion under subsections "a" and "b," above. Although implementation of the proposed program would result in limited, short-term disruption of public access to shallow areas of Lake Tahoe and its tributaries due to the flagged and cordoned off areas during treatment activities, the disruption would be temporary. There would be no permanent loss of public access to any lake, waterway, or public lands therefore this impact is not considered significant.

**CUMULATIVE IMPACTS**

Implementation of the proposed program could increase demand for and use of recreation facilities (but not at a level that would result in physical deterioration of recreation facilities), because treatment activities would temporarily displace recreation users causing them to seek recreation opportunities elsewhere. Implementation of the proposed program could also reduce the availability of recreation opportunities and affect the quality of recreation user experiences from short-term, temporary closures of recreation resources, and displacement of recreation users. The cumulative aquatic invasive species control projects could each result in similar impacts on recreation as identified for the proposed program and would be dispersed throughout the Lake Tahoe Basin. For these reasons and because recreation demand in the Tahoe region is met with a wide variety and amount of recreational facilities and resources, the proposed program would not result in a considerable contribution to a cumulative impact on recreation resources.



### 3.17 TRANSPORTATION

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XVI. Transportation. Would the project:</b>				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>13. Transportation/Circulation. Would the project cause:</b>				
e) Generation of 100 or more new Daily Vehicle Trip Ends (DVTE)? (TRPA Item 13a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Changes to existing parking facilities, or demand for new parking? (TRPA Item 13b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Substantial impact upon existing transportation systems, including highway, transit, bicycle or pedestrian facilities? (TRPA Item 13c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Alterations to present patterns of circulation or movement of people and/or goods? (TRPA Item 13d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Alterations to waterborne, rail or air traffic? (TRPA Item 13e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians? (TRPA Item 13f)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.17.1 Environmental Setting

##### ROADWAY SYSTEM

The four basic types of roadways in the program area include state routes, arterials, collectors, and local/neighborhood streets.

##### State Highways

Most vehicular travel in the Tahoe region occurs on state highways including U.S. 50, SR 28, SR 89, SR 207, SR 267, and SR 431. Most highways are two-lane facilities; however, portions of U.S. 50, SR 28, and SR 89 have wider cross-sections such as four-lane roadways with center two-way left turn lanes.

## Arterials

Arterial roadways carry moderate to high traffic volumes to and from local and collector roads to other arterials and highways. Although access to adjacent parcels is more limited from arterials than from collector and local streets, arterial roadways also provide direct access to properties, particularly in commercial areas.

## Collectors

Collector roadways serve as transition facilities, distributing traffic from arterials and highways to their ultimate destination, and collecting traffic from local roadways to roads higher in the street classification hierarchy, such as arterials and state highways. Collector roads serve a dual function by providing access to properties on the roadway and moving moderate traffic volumes for medium length trips.

## Local/Neighborhood Streets

Local roadways are intended to serve as access roads to adjacent properties only. They provide connections to higher order roadways, carry little if any through traffic, and generally have low traffic volumes.

## BICYCLE AND PEDESTRIAN FACILITIES

The current network includes approximately 50 miles of shared-use path, 44 miles of bicycle lanes, 23 miles of sidewalks, and four enhanced crosswalks that include a pedestrian activated beacon or rapid flashing beacon (TRPA 2017). LTBMU also operates and maintains 350 miles of National Forest System trails and 250 miles of National Forest System roads (TRPA 2017).

The Region has over 70 miles of separated class-I shared-use paths and sidewalks. These routes are well-connected in some areas and have gaps in others. Caltrans and local jurisdictions have constructed sidewalks along the state highway system through town centers and more are planned. Local jurisdictions are connecting Class-I shared-use paths around the lake, providing links across communities and to neighboring areas (TRPA 2017).

## TRANSIT SYSTEM

Transit service within the program area is provided by a mix of public and private transit services. The Tahoe Transportation District and Tahoe Truckee Area Regional Transit are the regional transit providers. These two transit providers operate year-round and seasonal services on the north, east, south and west shores. They also provide commute services to nearby areas such as Truckee to the north, and Carson Valley to the east. Washoe Regional Transportation Commission, the Town of Truckee, State Departments of Transportation, and private entities such as ski resorts also partner with the transit providers to offer transit service through cost sharing agreements, formula funding allotments, and private shuttles and taxi services (TRPA 2017).

## 3.17.2 Regulatory Setting

### TAHOE REGIONAL PLANNING AGENCY

#### Regional Transportation Plan

TMPO and TRPA jointly developed the *Lake Tahoe Regional Transportation Plan and Sustainable Communities Strategy: Mobility 2035* (TRPA 2012) (2012 RTP/SCS) as Lake Tahoe's blueprint for a regional transportation system that enhances the quality of life in the Tahoe region, promotes sustainability, and offers improved mobility options for people and goods. Important objectives of the 2012 RTP/SCS are to reduce the overall environmental impact of transportation in the Region, create walkable and vibrant communities, and provide real alternatives to driving. The 2012 RTP/SCS included an SCS, in accordance with California Senate Bill 375, statutes of 2008 (Sustainable Communities and Climate Protection Act). The 2012 RTP/SCS presents 14 goals consistent with regional and federal

requirements that focus on reducing dependency on the automobile and giving preference to projects that increase the capacity of the Region's transportation system through public transportation projects and programs.

The 2012 RTP/SCS was updated in 2017, tiering from the 2012 RTP/SCS EIS through an expanded checklist. The 2017 RTP/SCS, *Linking Tahoe: Regional Transportation Plan and Sustainable Communities Strategy* (TRPA 2017) builds on the 2012 RTP/SCS, focusing on providing frequent and prioritized multi-modal connections between town centers and neighborhoods and easy and convenient access to high demand recreation sites. The 2017 RTP/SCS contains new goals and policies that draw from stakeholder feedback, detailed goals in the 2015 Intelligent Transportation Systems Strategic Plan, and the 2016 Active Transportation Plan.

## Thresholds

TRPA has adopted threshold standards pertaining to air quality that are expressed in terms of regionwide vehicle miles traveled (VMT). These thresholds are also applicable to transportation analyses. VMT is a computed value, which correlates to the volume of traffic, the length of vehicle trips, and the extent of an area's reliance on the private automobile for travel. The TRPA TransCAD Travel Demand Model provides a forecast of the number of trips made on the highway network and the distance between trip origins and destinations for each trip purpose. Total VMT is the sum of all these trip lengths.

The adopted air quality management TRPA threshold standard that relates to traffic and transportation facilities in the Region calls for reducing VMT in the Lake Tahoe Basin by 10 percent of the 1981 base year values.

The VMT threshold is periodically updated whenever TRPA updates its transportation model. The most recent base year VMT of 1,937,070 and corresponding VMT threshold standard of 2,030,938 are established in the Air Quality Chapter of the 2015 Threshold Report. Over the last decade VMT has declined by approximately 9 percent within the Region (2017). Based on the most recent modeling completed in support of the Regional Transportation Plan, existing VMT in the Tahoe region over the course of a peak summer weekday is approximately 1,937,070, indicating that the Region is currently in attainment (TRPA 2016).

### 3.17.3 Discussion

#### a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

**Less than significant.** Section 15064.3 was added to the State CEQA Guidelines effective December 28, 2018 as part of a comprehensive guidelines update. The section addresses the determination of significance for transportation impacts, which requires that the analysis be based on VMT instead of a congestion metric. Pursuant to State CEQA Guidelines Section 15064.3(c), and because future invasive fish control projects analyzed under the proposed program would occur after the date on which VMT is required to be considered, VMT is the primary metric used to identify transportation impacts, and the level of service of intersections and roadways is not analyzed herein. Therefore, TRPA, state, and local level of service based standards and thresholds are not analyzed or addressed in this IS/ND and IEC/FONSE.

Future target invasive fish control projects implemented under the proposed program would not alter the physical public roadway network surrounding treatment sites or result in the modification or construction of new roadways. Therefore, implementation of the proposed program would not adversely affect any existing or planned public transit, bicycle, or pedestrian facilities. Additionally, due to the temporary nature of the invasive fish control projects at individual locations, and the anticipated dispersion of the individual treatment sites within the program area, project activities under the proposed program would not generate substantial pedestrian, bicycle, or transit demand. Thus, the proposed program would not conflict with a program, plan, ordinance or policy addressing pedestrian, bicycle, or transit facilities.

**b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?**

**Less than significant.** Section 15064.3 was added to the State CEQA Guidelines and became effective December 28, 2018 as part of a comprehensive guidelines update. The section addresses the determination of significance for transportation impacts, which requires that the analysis be based on VMT instead of a congestion metric (such as level of service). The change in the focus of transportation analysis is the result of legislation (SB 743, Statutes of 2013) and is intended to change the focus from congestion to, among other things, reduction in GHG emissions, encouraging mixed-use development, and other factors. Pursuant to State CEQA Guidelines Section 15064.3(c), this change in analysis may be implemented now and is mandated to be addressed beginning July 1, 2020. Because the later treatment activities analyzed under the proposed program would occur after the date on which VMT is required to be considered, it is included in the analysis of the proposed program.

State CEQA Guidelines Section 15064.3(b) identifies criteria for analyzing the transportation impacts of a project, including land use projects (Section 15064.3[b][1]) and transportation projects (Section 15064.3[b][2]). Project activities analyzed under the proposed program are not land use or transportation projects, so neither of these sections apply. State CEQA Guidelines Section 15064.3(b)(3) (Qualitative Analysis) explains that there may be conditions under which a qualitative rather than quantitative analysis of VMT is appropriate. This section states that if existing models or methods are not available to estimate the VMT for the particular project being considered, a lead agency may qualitatively analyze VMT generated by a project. This section also notes that for many projects, a qualitative analysis of construction traffic may be appropriate.

Project activities analyzed under the proposed program would generally occur in areas including marinas (including the Tahoe Keys Marina) and shallow waters of Lake Tahoe, marshes, tributaries that feed into Lake Tahoe, and the portion of the Truckee River under the jurisdiction of TRPA. Due to the variability of the location and timing of individual invasive fish control projects, the number of vehicle trips and trip lengths and the timing for such activities are not feasible to precisely predict at this time. Additionally, the individual invasive fish control projects under the proposed program are generally consistent with construction activities in terms of the temporary nature of activities, trip generation characteristics, and types of employee commute vehicles utilized. Therefore, qualitative analysis allowed by Section 15064.3(b)(3) provides the most applicable approach for analyzing the change in VMT resulting from invasive fish control activities implemented under the proposed program.

The Technical Advisory on Evaluating Transportation Impacts (OPR 2018) notes that projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact, absent substantial evidence indicating otherwise (OPR 2018). The Lake Tahoe VMT Impact Analysis Guidance (TRPA 2019) document is intended to establish a consistent methodology for determining the VMT impacts of projects proposed in the Tahoe Region to maintain compliance with Compact Article VII and Chapter 4 of the TRPA Code (TRPA 2019). The Lake Tahoe VMT Impact Analysis Guidance document states that proposed activities that are allowed uses, generate less than 100 daily vehicle trips and are not changing from one major use classification to another are not required to complete a transportation analysis or a Change in Operation Form. Therefore, for the purposes of this analysis if the proposed program as a whole would not generate 100 or more daily vehicle trips it would not require a transportation analysis study and would also be assumed, using OPR guidance, to result in a less-than-significant VMT impact.

Individual invasive fish control projects implemented under the proposed program could include up to four vehicles and approximately 8 vehicle trips accessing a project site, marina, or boat launch on a daily basis for a limited number of days. Vehicle types would be limited to employee commute vehicles and a work truck that is used to carry supplies and fish collected from the project. Therefore, using OPR and TRPA guidance, individual invasive fish control projects would generate fewer than 100 trips per day; and thus, would result in a less-than-significant VMT impact.

However, it is possible that multiple separate target invasive fish control projects may be implemented concurrently throughout the program area. Because of the limited resources and factors that contribute to deciding when projects are implemented (e.g., funding, equipment, agency priorities) the proposed program as a whole is not anticipated to generate 100 or more daily vehicle trips on any day during implementation of the proposed program. Therefore, consistent with OPR and TRPA guidance, this impact would be less than significant.

c) **Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**No impact.** The proposed program would not include development of new permanent structures or uses that would increase hazards due to roadway design features or incompatible uses. There would be no impact.

d) **Result in inadequate emergency access?**

**No impact.** The proposed program would not include development of new permanent structures or uses that would result in inadequate emergency access. Additionally, the small number of vehicles that would be associated with implementation of an individual control project would not interfere with or result in inadequate emergency access. There would be no impact.

e) **Generation of 100 or more new Daily Vehicle Trip Ends (DVTE)?**

**No.** Traffic generated by an individual invasive fish control project could include up to four vehicles accessing a project site, marina, or boat launch, which could include employee vehicles and a work truck that is used to carry supplies and fish collected from the project. It is possible that a number of separate warm water fish control projects may be implemented concurrently throughout the program area. Although a number of invasive fish control projects could occur simultaneously, because of the limited resources and factors that contribute to deciding when projects are implemented (e.g., funding, equipment, agency priorities) the proposed program is not anticipated to generate 100 or more DVTE. This impact would be less than significant.

f) **Changes to existing parking facilities, or demand for new parking?**

**No.** The proposed program would not include development of new permanent structures or uses resulting in changes to existing parking facilities. Parking demand from the project would be up to a few vehicles at access points to the program area, including at marinas and near boat launches and tributaries. While parking availability near access points throughout the program area may be limited in some areas, sufficient parking would be available to periodically accommodate parking for a few vehicles. This impact would be less than significant.

g) **Substantial impact upon existing transportation systems, including highway, transit, bicycle or pedestrian facilities?**

**No.** See discussion under subsection "a," above.

h) **Alterations to present patterns of circulation or movement of people and/or goods?**

**No.** The proposed program would not include development of new permanent structures or uses that would alter patterns of circulation or movement of people and/or goods. There would be no impact.

i) **Alterations to waterborne, rail, or air traffic?**

**No.** The proposed program would not include development of new permanent structures or uses that would result in alterations to waterborne, rail, or air traffic. There would be no impact.

j) **Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?**

**No.** The proposed program would not include development of new permanent structures or uses. Implementation of the proposed program would primarily involve activities associated with implementing the control methods within the lake, marinas, marshes, and tributaries. Roadway travel associated with implementation of the proposed program would be associated with project implementers traveling to and from access points to the program area. These characteristics of the proposed program would not increase traffic hazards to motor vehicles, bicyclists, or pedestrians.

## CUMULATIVE IMPACTS

The cumulative aquatic invasive control projects would generate a temporary, short-term increase in traffic on local roads throughout the project vicinity. The cumulative projects would result in similar amounts of traffic to that generated by the project and would be dispersed throughout the vicinity. Additionally, the timing of traffic generated by the cumulative projects would be dispersed throughout the day.

The proposed program would not combine with other cumulative projects to result in a cumulative hazard on roadways in the neighborhoods adjacent to where individual invasive fish control projects could be implemented because of a design feature or incompatible use. Additionally, the proposed program would result in no impacts on public transit, bicycle facilities, or pedestrian facilities. Therefore, the proposed program would not combine with other cumulative projects to result in a cumulative impact on transportation facilities. As described above, the proposed program would not make a considerable contribution to a significant cumulative impact related to transportation and traffic.

### 3.18 TRIBAL CULTURAL RESOURCES

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XVII. Tribal Cultural Resources.</b>				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code (PRC) Section 21080.3.1(b)?	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.18.1 Environmental Setting

The contextual background included under the header "Prehistory" in Section 3.5, "Cultural Resources," summarizes information related to Native American occupation in the Lake Tahoe Basin.

Assembly Bill (AB) 52, signed by Governor Edmund G. Brown, Jr. in September 2014, established a new class of resources under CEQA: "tribal cultural resources" (TCRs). AB 52, as provided in PRC Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete, prior to the issuance of a notice of preparation (NOP) of an environmental impact report (EIR) or notice of intent to adopt a negative declaration or mitigated negative declaration.

AB 52 applies to those projects for which a lead agency had issued a NOP of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration on or after July 1, 2015. Therefore, the requirements of AB 52 apply to the proposed program. However, no tribe has requested consultation through Tahoe RCD in accordance with AB 52. Regardless, given the known importance of the Lake Tahoe region to the Washoe Tribe, Tahoe RCD initiated consultation with the Washoe Tribe on October 18, 2019 with a letter and project map. The letter was sent to the Chairman of the Council at Washoe Tribe Headquarters at 919 U.S. Highway 395 South Gardnerville, NV 89410. Tahoe RCD also initiated consultation with the Colfax-Todds Valley Consolidated Tribe (Miwok/Maidu) on November 26, 2019. The letter was sent to Chairman Clyde Prout III and Cultural Preservation Officer Pam Cubbler at PO Box 4884 Auburn, CA 95604. No responses from either tribe were received within 30 days, or at the time of publication of this IS/ND and IEC.

Cardno conducted a Sacred Lands File search with the Native American Heritage Commission (NAHC). The Sacred Lands File search yielded three contacts: two from the Colfax-Todds Valley Consolidated Tribe and one from the Washoe. The Sacred Lands File search results were received on May 24, 2019.

### 3.18.2 Discussion

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?

**Less than significant.** The proposed program would not disturb soil except for minor areas where stakes would secure nets or weirs. For this reason, even in areas within the program area that meet the PRC Section 5024.1(c) criteria listed above, resources would not be disturbed. Therefore, the project would have a less than significant impact on TCRs as defined in PRC Section 21074.

- b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

**Less than significant.** In compliance with AB 52, the Tahoe RCD sent a consultation letter to the Washoe Tribe and Colfax-Todds Valley Consolidated Tribe. No other tribes have requested consultation from Tahoe RCD pursuant to AB 52. Consultation with the Tribe did not identify any tribal concerns or TCRs in the project site. PRC Section 5024.1(c) provides that a resource meets criteria for listing as an historic resource in the California Register if any of the following apply:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- (2) Is associated with the lives of persons important in our past.
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- (4) Has yielded, or may be likely to yield, information important in prehistory or history.

The program area is located within the traditional territory of the Washoe; however, the proposed program would not disturb soil except for minor areas where stakes would secure nets or weirs. For this reason, even in areas within the program area that meet the PRC Section 5024.1(c) criteria listed above, resources would not be disturbed. Therefore, the proposed program would have a less-than-significant impact on TCRs as defined in PRC Section 21074.

### CUMULATIVE IMPACTS

Because the proposed program would not have a significant impact on TCRs, the proposed program would not make a considerable contribution to significant cumulative TCR impacts.



### 3.19 UTILITIES AND SERVICE SYSTEMS

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XVIII. Utilities and Service Systems. Would the project:</b>				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
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**16. Utilities.**

Except for planned improvements, will the proposal result in a need for new systems, or substantial alterations to the following utilities:

f) Power or natural gas? (TRPA Item 16a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Communication systems? (TRPA Item 16b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Utilize additional water which amount will exceed the maximum permitted capacity of the service provider? (TRPA Item 16c)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Utilize additional sewage treatment capacity which amount will exceed the maximum permitted capacity of the sewage treatment provider? (TRPA Item 16d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Stormwater drainage? (TRPA Item 16e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
k) Solid waste and disposal? (TRPA Item 16f)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## 3.19.1 Environmental Setting

### WASTEWATER

Wastewater treatment and conveyance services in the Lake Tahoe Basin are provided by several entities. Sewage collection and treatment on the Nevada side of the Lake Tahoe Basin is provided by Douglas County Lake Tahoe Sewer Authority and Incline Village General Improvement District (GID). Round Hill GID and Kingsbury GID operate a collection system and discharge into Sewer Authority's collection and treatment system. North Tahoe Public Utility District (PUD) and Tahoe City PUD, located in California, provide sewage collection for its customers and convey raw wastewater to the Tahoe-Truckee Sanitation Agency for treatment at the Truckee Water Reclamation Plant. South Tahoe PUD provides sewage collection, treatment, and export from the portion of El Dorado County within the Lake Tahoe Basin.

### WATER SUPPLY

Numerous water suppliers obtain their water from the lake or from groundwater throughout the Lake Tahoe Basin. These water suppliers include:

- ▶ Cave Rock Water System
- ▶ Edgewood Water Company
- ▶ Glenbrook Water Company
- ▶ Incline Village GID
- ▶ Kingsbury GID
- ▶ Lakeside Park Association
- ▶ Lukins Brothers Water
- ▶ North Tahoe PUD
- ▶ Round Hill GID
- ▶ Skyland Water Company
- ▶ South Tahoe PUD
- ▶ Tahoe City PUD
- ▶ Tahoe Keys Water Company
- ▶ Zephyr Water Utility

### STORMWATER DRAINAGE

Stormwater drainage systems vary throughout the Lake Tahoe Basin and include curb and gutter to direct stormwater flows, stormwater treatment systems, catchment basins, infiltration basins, and many stormwater pipes that flow directly into the lake.

### SOLID WASTE

The Tahoe-Truckee Sierra Disposal Company, Inc. (TTSD) provides waste removal services in the Lake Tahoe Basin from Emerald Bay to Crystal Bay. All materials collected by TTSD, including garbage and recyclables, are hauled to the Eastern Regional Materials Recovery Facility (MRF), located between Truckee and Squaw Valley in Placer County, where they are sorted in an effort to meet California's mandatory solid waste diversion requirements. The Eastern Regional Landfill MRF and Transfer Station separates and recycles marketable materials such as paper, cardboard, plastics, metals, and glass. The facility also recycles source-separated wood waste, pine needles, and inert materials. Wood waste is chipped for mulch, woodchips, or biomass fuel, pine needles are used for slope stabilization, and inert materials are crushed for reuse as aggregate or in on-site land remediation (Placer County 2015). The Eastern Regional Landfill MRF and Transfer Station is permitted to receive 800 tons of material each day, has a processing capacity of approximately 40 tons of material per hour, and the daily processing capacity for an 8-hour period is approximately 320 tons per day (Placer County 2017, CalRecycle 2018). Material that is not recyclable is treated as solid waste and brought to the Lockwood Regional Landfill in Nevada.

Waste Management provides solid waste collection services in the portion of Washoe County within the Lake Tahoe Basin (Waste Management No Date). Solid waste collected in this area is taken to the Incline Transfer Station where it is sorted and nonrecyclable materials are sent to Lockwood Regional Landfill for disposal. Between November 2014 and October 2015, close to 15,000 tons of solid waste was sent from the Incline Village Transfer Station to the landfill (Washoe County 2016).

South Tahoe Refuse (STR) provides waste removal services for the portion of the Lake Tahoe Basin in El Dorado County, California and Douglas County, Nevada. STR collects more than 100,000 tons of waste each year with more than 60 percent that is recycled (STR 2018). This waste is collected and sorted for recycling at the MRF located at STR's transfer station in South Lake Tahoe, California. The MRF initiates or improves separation of aluminum cans, glass, plastics, cardboard, different grades of paper, tin, metals, appliances, milled wood, green waste, stumps, construction debris, and tires. Waste collected by STR and IVGID is delivered to Lockwood Regional Landfill.

The Lockwood Regional Landfill, located in Nevada, covers 856 acres and has a total waste volume of about 302 million cubic yards (NDEP 2013). In 2016, the Lockwood Regional Landfill accepted an average of 2,960 tons of solid waste per day. The volume of waste conveyed to the Lockwood Regional Landfill from California communities accounts for 7.5 percent of municipal solid waste. The Lockwood Regional Landfill has a remaining capacity of about 267 million cubic yards and an estimated closure date of 2150 (NDEP 2017).

## ELECTRICITY AND NATURAL GAS

Electrical service in the Lake Tahoe Basin is provided by Liberty Utilities in California and NV Energy in Nevada. Natural gas service is provided throughout the Lake Tahoe Basin by Southwest Gas Corporation.

### 3.19.2 Discussion

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?

and

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

and

c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

**No impact.** The proposed program would involve implementation of several target invasive fish control projects by various entities throughout the Lake Tahoe Basin each year. These projects would not result in the construction of permanent facilities and are temporary and short-term. For these reasons, the proposed program would not be anticipated to generate demand for utilities, including water supply, wastewater treatment, stormwater drainage, electricity, natural gas, or telecommunications. Implementation of the proposed program would not affect utility service providers' capacity or supply and would not require relocation or construction of associated facilities. There would be no impact.

- d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

and

- e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

**Less than significant.** The proposed program would involve implementation of several target invasive fish control projects by various entities throughout the Lake Tahoe Basin each year. These projects would result in the removal of target invasive fish from the lake. The amount of fish removed by an individual project could range from what could fit in a typical large garbage bag to the size of a pickup truck or a 6-yard dumpster. These fish removed from the lake as a result of the proposed program may be collected as part of normal trash service provided in the program area or could be taken to one of the nearby transfer stations to be ultimately disposed of at the Lockwood Regional Landfill, which has approximately 269 million cubic yards of available capacity (NDEP 2018). It is the intention of the proposed program to use the fish as a food source or compost source if appropriate interested parties and facilities can be located. Solid waste generated by individual target invasive fish control projects would be minimal and intermittent and would not be substantial to exceed the capacity of the local MRFs or the Lockwood Regional Landfill. Additionally, implementation of the proposed program would not affect the ability of the solid waste facilities in California or Nevada to comply with applicable state or local standards, such as the California Integrated Waste Management Act and Section 444A.020 of the Nevada Revised Statutes. Because adequate landfill capacity is available to serve the solid waste generated by operations and the proposed program would comply with applicable state and local regulations related to solid waste, this impact would be less than significant.

Except for planned improvements, will the proposal result in a need for new systems, or substantial alterations to the following utilities:

- f) Power or natural gas?

No. See discussion under subsections "a" through "c," above.

- g) Communication systems?

No. See discussion under subsections "a" through "c," above.

- h) Utilize additional water which amount will exceed the maximum permitted capacity of the service provider?

No. See discussion under subsections "a" through "c," above.

- i) Utilize additional sewage treatment capacity which amount will exceed the maximum permitted capacity of the sewage treatment provider?

No. See discussion under subsections "a" through "c," above.

- j) Stormwater drainage?

No. See discussion under subsections "a" through "c," above.

- k) Solid waste and disposal?

No. See discussion under subsections "d" and "e," above.

## CUMULATIVE IMPACTS

Because the proposed program would result in no impact on water supply and conveyance, wastewater treatment and conveyance, stormwater drainage, power or natural gas, or communication systems, it would neither contribute to a cumulative impact nor result in a cumulatively considerable contribution to such impacts on these utilities.

The amount of solid waste generated by individual control method activities is not anticipated to result in a substantial increase in solid waste. Lockwood Regional Landfill, which has approximately 267 million cubic yards of available capacity, would have sufficient capacity to accept cumulative generation of solid waste from construction of the proposed program and projects listed in Table 3.20-1. The cumulative impact related to solid waste would be less than significant.

### 3.20 WILDFIRE

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XX. Wildfire.</b>				
Is the project located in or near State Responsibility Areas or lands classified as high fire hazard severity zones?		<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No
If located in or near State Responsibility Areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.20.1 Environmental Setting

The proposed program would be implemented in or near State Responsibility Areas and lands classified as high fire hazard severity zones. The proposed program would include use of motors associated with boats and generators, which have the potential to create sparks. The proposed program would only be implemented within water bodies in the Lake Tahoe Basin, which minimizes the risk of the proposing program causing a wildfire.

#### 3.20.2 Discussion

- a) **Substantially impair an adopted emergency response plan or emergency evacuation plan?**

**No impact.** The short-term, temporary closures of portions of the shallow areas of Lake Tahoe, marshes, and tributaries would not interfere with or impair an adopted emergency response plan or emergency evacuation plan in place in Placer County, El Dorado County, City of South Lake Tahoe.

- b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

**Less than significant.** The proposed program would not exacerbate wildfire risks nor expose project occupants to pollutant concentrations from a wildfire because the proposed program would be implemented within water bodies. The only motorized equipment proposed for use includes passenger vehicles to transport limited personnel to treatment sites, small motor boats, and generators. The risk of sparks from this equipment creating wildfire is no greater than regular passenger vehicle, generator, and boat use.

- c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

**No impact.** The proposed program would not require the installation of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environments. Only limited ground disturbance associated with the installation of weirs would occur with the proposed program.

- d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

**No impact.** No invasive fish control activities would involve grading or drainage changes. The proposed program would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

## CUMULATIVE IMPACTS

The proposed program would not result in impacts related to wildfire, therefore the proposed program would not be considered cumulatively considerable.

### 3.21 CUMULATIVE IMPACTS AND MANDATORY FINDINGS OF SIGNIFICANCE

CEQA INITIAL STUDY CHECKLIST QUESTIONS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
<b>XIX. Mandatory Findings of Significance.</b>				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TRPA INITIAL ENVIRONMENTAL CHECKLIST QUESTIONS	Yes	No, with Mitigation	Data Insufficient	No
<b>21. Findings of Significance.</b>				
d) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California or Nevada history or prehistory? (TRPA Item 21a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time, while	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



long-term impacts will endure well into the future.) (TRPA Item 21b)

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| f) Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environmental is significant?) (TRPA Item 21c) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Does the project have environmental impacts which will cause substantial adverse effects on human being, either directly or indirectly? (TRPA Item 21d)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Authority: PRC Sections 21083, 21083.5.

Reference: Government Code Sections 65088.4.

PRC Sections 21080, 21083.5, 21095; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

### 3.21.1 Cumulative Setting

Table 3.20-1 provides a list of cumulative projects that could occur simultaneously with implementation of the proposed program.

**Table 3.20-1 Cumulative Projects List**

Project Name	Location	Description	Project Status
UV Light Pilot Control Project	Tahoe Keys, Lakeside Marina and Lakeside Beach	Involves use of ultraviolet-C light to damage the DNA and cellular structure of invasive plants.	2019–2020
2014 Lake Tahoe Aquatic Invasive Plant Control Implementation Project	Lake Tahoe, marinas, Truckee River	Uses various control methods to treat aquatic invasive plants.	Ongoing, funding dependent
Lake-wide Control of Aquatic Invasive Plant Project Lake Tahoe, California and Nevada with new methods proposed	Lake Tahoe, marinas, Truckee River	Uses various control methods to treat aquatic invasive plants.	Environmental review currently in progress
Truckee River Eurasian Watermilfoil Removal	Truckee River	Map and implement control efforts to remove Eurasian watermilfoil.	Ongoing, funding dependent
Asian Clam Control and Removal	Sand Harbor	Includes installation of rubber bottom barriers and use of diver assisted suction removal.	Ongoing, funding dependent
Veliger monitoring	Fallen Leaf Lake, Elks Point, Tahoe Keys, Emerald Bay, Meeks Bay, North Tahoe Marina, Sand Harbor, Obexers Marina, Cave Rock, and Echo Lake.	Involves monitoring for larva of bivalve mollusks using plankton tows.	Ongoing, seasonal annual monitoring
Ski Run Marina Aquatic Invasive Plant Control Pilot Project	Ski Run Marina	Uses laminar flow aeration to determine efficacy of aquatic invasive plant control.	Ongoing

Project Name	Location	Description	Project Status
Tahoe Keys Aquatic Weed Control Methods Test	Tahoe Keys Lagoons and Marina	Would involve use of three different types of herbicides followed by a maintenance period using non-chemical control methods. It would also involve use of laminar flow aeration.	Environmental review in progress.
General Creek Aquatic Plant Control Project	General Creek	Surveillance monitoring and removal of Eurasian watermilfoil.	Ongoing
Meeks Bay Aquatic Invasive Species Plant Control and Monitoring Project	Meeks Bay Marina	Removal of Eurasian watermilfoil and monitoring.	Ongoing
Taylor and Tallac Ecosystem Restoration Project, Phase 1	Tallac and Taylor Creek	Restore ecological processes and functions by eradicating/controlling aquatic invasive species.	No current activities
Baldwin Beach Eurasian Watermilfoil Removal Project	Offshore Baldwin Beach	Surveillance monitoring and removal of Eurasian watermilfoil.	Ongoing
Pope Marsh Eurasian Watermilfoil Removal Project	Pope Marsh	Surveillance monitoring and removal of Eurasian watermilfoil.	Ongoing
Camp Richardson Eurasian Watermilfoil Removal Project	Camp Richardson	Surveillance monitoring and removal of Eurasian watermilfoil.	Ongoing
Upper Truckee River and Marsh Restoration Project	Upper Truckee River and Marsh	Restore Upper Truckee Marsh and remove the sailing lagoon. Invasive species control for Eurasian watermilfoil and curly-leaf pondweed will be implemented.	Ongoing
Timber Cove Eurasian Watermilfoil Removal Project	Timber Cove	Surveillance monitoring and removal of Eurasian watermilfoil.	Ongoing
Nevada Shoreline Aquatic Invasive Plant Control	Wavoka Estates rock crib	Removal of Eurasian watermilfoil followed by surveillance monitoring.	Ongoing
	Tahoe Beach Club	Removal of Eurasian watermilfoil followed by surveillance monitoring.	Ongoing
	Burke Creek	Removal of Eurasian watermilfoil followed by surveillance monitoring.	Ongoing
Elk Point Eurasian Watermilfoil Removal Project	Elk Point Rock Crib	Removal of Eurasian watermilfoil followed by surveillance monitoring.	Ongoing
Elk Point Marina Aquatic Invasive Plant Control Project	Elk Point Marina	Removal of Eurasian watermilfoil and curlyleaf pondweed populations in Elk Point Marina followed by surveillance monitoring.	Ongoing

Source: Compiled by Ascent Environmental 2019

### 3.21.2 Discussion

- a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

**Less than significant.** The proposed program does not have the potential to substantially degrade the quality of the environment nor reduce the habitat of a fish or wildlife species. The intention of the proposed program is to cause target invasive fish populations to drop below self-sustaining levels, which would improve the populations of native and non-target fish populations. This would benefit the quality of the environment. The proposed program would not reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory. This impact is less than significant.

- b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

**No impact.** No cumulative impacts were identified therefore the proposed program would not have impacts that are individually limited but cumulatively considerable. There would be no impact.

- c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

**No impact.** The proposed program would not have any significant effects on the environment that would cause substantial adverse effects on human beings, either directly or indirectly. There would be no impact.

- d) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California or Nevada history or prehistory?

**No.** For the same reasons listed in subsection “a,” above, the proposed program does not have the potential to degrade the quality of the environment, eliminate a plant community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California or Nevada history or prehistory. The intention of the proposed program is to reduce target invasive fish populations to drop below self-sustaining levels, which would allow native and non-target fish to increase their populations. Therefore, this impact is less than significant.

- e) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time, while long-term impacts will endure well into the future.)

**No.** The project’s short-term and long-term environmental goals are the same. The intention is to reduce invasive fish populations in the Lake Tahoe Basin to provide the following environmental benefits:

- ▶ Eradicate target invasive fish where feasible;
- ▶ Facilitate native fish restoration in Lake Tahoe and its tributaries;

- ▶ Improve water quality in Lake Tahoe and its tributaries;
- ▶ Improve ecosystem health in Lake Tahoe and its tributaries; and
- ▶ Limit the spread of existing target invasive fish populations in the Lake Tahoe Basin, by employing strategies that minimize threats to native species, and extirpate existing target invasive fish populations when possible.

f) Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant?)

No. See discussion under subsection "b," above.

g) Does the project have environmental impacts which will cause substantial adverse effects on human being, either directly or indirectly?

No. See discussion under subsection "c," above.

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### 3.21, Cumulative Impacts and Mandatory Findings of Significance

No references cited in this section.





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# Appendix A

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Scoping Letter and  
Scoping Comments Received



**TAHOE**  
RESOURCE CONSERVATION DISTRICT



## Scoping Notice for the Invasive Fish Control Program at Lake Tahoe Lake Tahoe, California and Nevada

Tahoe Resource Conservation District (Tahoe RCD), Tahoe Regional Planning Agency (TRPA), and U.S. Forest Service Lake Tahoe Basin Management Unit are seeking public scoping comments on a proposal to implement a program for the control of target invasive fish in the Lake Tahoe region. Target invasive fish species are species that are contributing to declines in native and desirable recreational non-native fish, alterations in food-web dynamics and reductions in water quality. Desirable recreational non-native fish species such as lake trout, rainbow trout, and kokanee salmon, are not targeted by this program. The program would offer a toolbox of mechanical control methods that could be implemented in targeted locations over the next 20 years. No chemical control methods are proposed. The proposed program expands on prior planning efforts conducted by Tahoe RCD, University of Nevada at Reno, the Lake Tahoe Aquatic Invasive Species Coordinating Committee, the Aquatic Nuisance Species Task Force, California Tahoe Conservancy, U.S. Army Corps of Engineers, TRPA, and other stakeholder agencies and organizations. Specifically, the proposed program defines treatment strategies based on the *2014 Lake Tahoe Region Aquatic Invasive Species Management Plan* and the *2015 Implementation Plan for the Control of Aquatic Invasive Species within Lake Tahoe*.

### BACKGROUND

Invasive fish were first observed in the Lake Tahoe region in the late 1980s and were presumably illegally introduced by anglers (Reuter and Miller 2000). These species are considered invasive because they displace and decrease native and recreational non-native fish populations through predation and competition for resources, reduce nearshore water clarity, reduce food web efficiency and decrease biodiversity of fish assemblages (MacRae and Jackson 2001). Studies show that when invasive fish were present, abundance and diversity of native fish populations decreased. (Betolli et al. 1992; MacRae and Jackson 2001; Vander Zanden et al. 2003a, Moyle and Nickols 1973). Additionally, invasive fish alter nutrient cycles and increase algal growth by adding phosphorus to the water column (Schindler, Knapp and Leavitt 2001). Without active management these species are expected to expand in range and population size in Lake Tahoe as warming temperatures increase areas of suitable habitat.

### PROGRAM OBJECTIVES

Tahoe RCD proposes a robust target invasive fish control program to restore and enhance aquatic habitat in the Lake Tahoe region that is consistent with the Goals and Objectives of the Tahoe Regional Plan and helps facilitate the actions stated in the Lake Tahoe Aquatic Invasive Species Management Plan. The control of target invasive fish in Lake Tahoe would result in improvements to native and recreational non-native fish distribution and abundance by reducing known predators and competitors. Control and removal of these species would increase the quality and quantity of habitat for desirable aquatic species, and improve water quality and overall ecosystem health. Tahoe RCD, TRPA, and LTBMU are conducting

the environmental review for the proposed program to facilitate increasing the pace and scale of target invasive fish control on a lakewide scale once implementation funding becomes available.

Tahoe RCD's objectives for the proposed program are to:

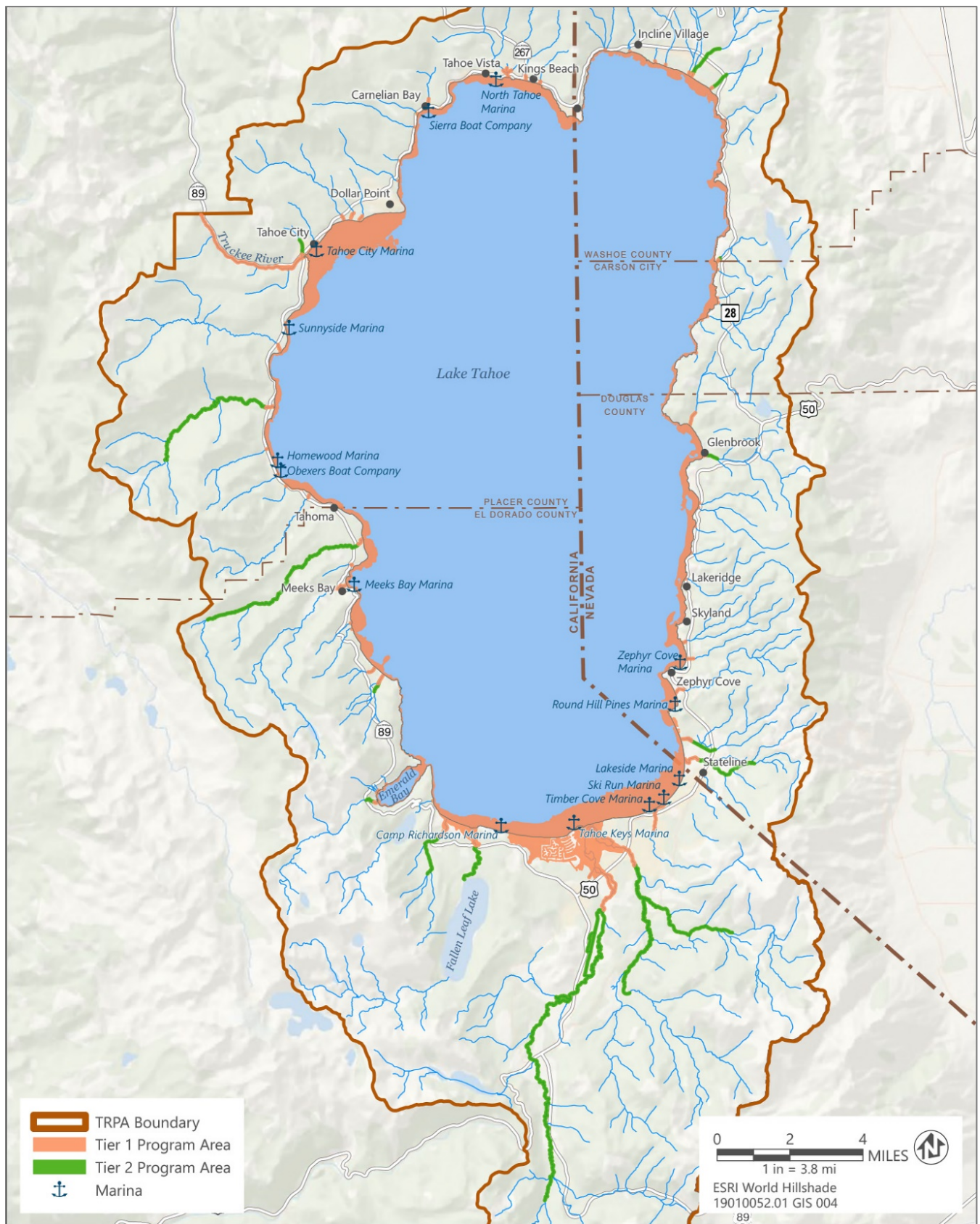
- ▶ limit the spread of existing target invasive fish populations in the Lake Tahoe region and eradicate existing target invasive fish populations when possible.
- ▶ facilitate native fish restoration in Lake Tahoe and its tributaries;
- ▶ improve water quality in Lake Tahoe and its tributaries; and
- ▶ improve ecosystem health in Lake Tahoe and its tributaries.

## PROGRAM LOCATION

The proposed program would generally apply to all areas within the Lake Tahoe region that include suitable habitat for target invasive fish, including, but not limited to, largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), and black crappie (*Pomoxis nigromaculatus*). These areas include marinas and shallow waters of Lake Tahoe, portions of the tributaries that feed into Lake Tahoe, the portion of the Truckee River (the lake's only outlet) under the jurisdiction of TRPA, and marsh areas (Figure 1).

With respect to tributaries, the proposed program applies to areas that currently support target invasive fish populations or could support them in the future based on available habitat and the projected changing climate. These are areas where range expansion of target invasive fish may be actively controlled. The tributary program area has been divided into two tiers that represent where target invasive fish occur at various densities. Tier 1 represents the area where target invasive fish are most likely to occur in the highest densities while Tier 2 represents the area where target invasive fish could also occur but in fewer numbers. The upper most boundary of the tributary program was based on slope, assuming the associated stream gradients would prevent any further upstream migration.

Shallow water areas within Lake Tahoe are also included in the program area. For the purposes of this environmental review, the shallow water boundary is defined by the established depth from the low water elevation of Lake Tahoe (i.e., 6,223.0 feet Lake Tahoe Datum) and extends to the high-water elevation of Lake Tahoe. These elements principally include warmer water temperatures necessary for growth of fish, and cover in the form of aquatic macrophyte (i.e., plant) beds, both of which are typically found in shallow-water zones near shorelines. Comprehensive nearshore water temperature data is not readily available for Lake Tahoe. However, macrophyte surveys conducted in 2017 pursuant to the Lahontan Regional Water Quality Control Board Order No. R6T-2014-0059 describe the nearshore, shallow zone, and aquatic plants that occupy these areas as occurring in water approximately 20 feet or less in Lake Tahoe. This depth criteria (20 feet) also corresponds to the typical depths in which the targeted invasive fish species normally occur in lakes. During drought cycles at Lake Tahoe, lake level can fall below the established low water elevation of Lake Tahoe. Therefore, this document defines the limits of shallow water to include the area between high lake level and 20 feet below Lake Tahoe's water elevation at time of implementation. Marsh areas connected to Lake Tahoe and its tributaries during periods of flooding are also included within the program area.



Source: Data downloaded from U.S. Forest Service and adapted by Ascent Environmental in 2019

Figure 1 Target Invasive Fish Control Program Area

## PROPOSED ACTIVITIES

Invasive fish species that are primarily targeted by the program include smallmouth bass (*Microterus dolomieu*), largemouth bass, bluegill, black crappie, brown bullhead (*Ameiurus nebulosus*), and goldfish (*C. auratus auratus*). This list does not limit treatment of future target invasive fish that are detected in the project area. Control methods are intended to focus on target species and minimize threats to native and recreational non-native species (e.g. rainbow trout, lake trout). Control methods that are proposed include:

- ▶ electrofishing (backpack and/or boat), which introduces an electric field to the water that results in fish being momentarily stunned so that they may be more easily captured with hand nets.
- ▶ targeted benthic electrode arrays, which kill incubating fish eggs by subjecting eggs along the lake bottom, or in lake-bottom redds (i.e., spawning nests) to a lethal electric field that penetrates lake bottom substrates;
- ▶ fishing nets and traps, which include gillnets, fyke nets, minnow traps, and seines;
- ▶ tributary exclusion/counting weirs, which are temporary metal or wooden fences installed across streams that guide fish into a capture pen where target species may be collected and removed from the stream, and other species are allowed to pass through and reenter the stream in either an upstream or downstream direction; and
- ▶ angling and education outreach, which would predominantly rely on promotional and educational programs designed to increase the number of recreational anglers contributing to the harvest of targeted warm water fish in Lake Tahoe.

## HOW TO COMMENT AND TIMEFRAME

Tahoe RCD, as lead agency, and TRPA request your comments on this program. The anticipated environmental analyses and documentation for each agency are:

- An Initial Study / Mitigated Negative Declaration for California Environmental Quality Act [CEQA], completed by Tahoe RCD
- An Initial Environmental Checklist / Finding of No Significant Effect, completed by TRPA
- A Decision Memo, using the Categorical Exclusion (CE) found in 36 CFR 220.6(e)(6): "Timber stand and/or wildlife habitat improvement activities that do not include the use of herbicides or do not require more than 1 mile of low standard road construction.", completed by the LTBMU

Comments would be most helpful if received by December 13, 2019. You may provide comments by mail or email to either agency contact provided below. Acceptable formats for electronic submissions include email message, plain text (.txt), rich text format (.rtf), Word (.doc or .docx), or portable document file (.pdf). Submit hand-delivered comments to Tahoe RCD or TRPA during business hours (9:00 a.m. to 12:00 p.m. and 1:00 to 4:00 p.m.) on Monday, Wednesday, Thursday or Friday, excluding holidays.

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South Lake Tahoe, CA 96150

Paul Nielsen  
Tahoe Regional Planning Agency  
128 Market Street  
P.O. Box 5310  
Stateline, NV 89449

VIA REGULAR & ELECTRONIC MAIL ([mhurt@tahoercd.org](mailto:mhurt@tahoercd.org), [pnielsen@trpa.org](mailto:pnielsen@trpa.org))

**Subject: Scoping Notice for the Lake Tahoe Invasive Fish Control Program**

Dear Ms. Hurt and Mr. Nielsen:

The California State Lands Commission (Commission) staff has reviewed the subject scoping notice for the Lake Tahoe Invasive Fish Control Program (Program), which is being requested by the Tahoe Resource Conservation District (RCD) and the Tahoe Regional Planning Agency (TRPA). Tahoe RCD is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and TRPA is the lead agency pursuant to Article 6 of the TRPA Rules of Procedure. The Commission is a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on State sovereign land, the Commission will act as a responsible agency.

**Commission Jurisdiction and Public Trust Lands**

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.



As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The state holds these lands for the benefit of all people of the state for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. On navigable non-tidal waterways, including lakes, the state holds fee ownership of the bed of the waterway landward to the ordinary low-water mark (OLWM) and a Public Trust easement landward to the ordinary high-water mark (OHWM), except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

State sovereign land under the jurisdiction of the Commission is limited to the natural bed of Lake Tahoe at and below elevation 6,223 feet, Lake Tahoe Datum (LTD). This elevation also serves as the OLWM for Lake Tahoe. Program activities at or below this elevation will require a lease from the Commission. In addition, a Public Trust easement exists within Lake Tahoe lying at and below elevation 6,228.75 feet, LTD, which also serves as the OHWM for Lake Tahoe. The public may use this easement area for Public Trust purposes. The use of the easement may be limited only to the extent and duration necessary to accomplish a public purpose such as protecting sensitive species, protecting identified cultural or historic resources, or ensuring the safety of the general public. If any portions of the Program will occur at or below the OHWM, the Commission will require that Program activities include provisions to minimize the interference with public rights in this easement area. In particular, the Program activities should ensure that public access is provided over or around any proposed work areas.

### **Project Description**

Tahoe RCD is proposing a target invasive fish control program at Lake Tahoe that would include various mechanical control methods that can be implemented in targeted locations over the next 20 years at a lake wide scale. Proposed areas include marinas and shallow waters of Lake Tahoe, portions of tributaries to the lake, and the Truckee River within TRPA jurisdiction. Desirable recreational non-native fish species such as lake trout, rainbow trout, and kokanee salmon are not targeted by the Program. No chemical control methods are proposed.

From the Project Description, Commission staff understands that the Program would include the following components that have potential to affect State sovereign land and could be subject to lease approval by the Commission:

- Targeted benthic electrode arrays, which kill incubating fish eggs by subjecting eggs along the lake bottom, or in lake-bottom redds (i.e., spawning nests) to a lethal electric field that penetrates lake bottom substrates.
- Fishing nets and traps, which include gillnets, fyke nets, minnow traps, and seines.

## Environmental Review

Commission staff understands that an Initial Study/Mitigated Negative Declaration (MND) is anticipated for CEQA documentation, and an Initial Environmental Checklist and Finding of No Significant Effect is anticipated with TRPA environmental documentation.

## Recreation

1. Recreational Fishing: Please assess potential impacts of Program activities to all non-target fish species that support recreational fishing in Lake Tahoe, including brown trout, brook trout, and the federally threatened Lahontan cutthroat trout.
2. Public Access: Please assess potential impacts of Program activities on motorized and non-motorized watercraft navigation on Lake Tahoe, including within marinas. Describe any potential restrictions or closures of watercraft navigation and lake access for marinas and boat launching facilities. Describe when Program activities are anticipated to occur, especially during the summer boating recreation season.

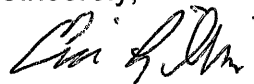
## Cumulative Impacts

3. Other Invasive Species Control Activities: Please assess the impacts of all other past, present, and reasonably anticipated future aquatic invasive species (AIS) control projects that could contribute cumulatively considerable impacts with proposed Program activities. Other projects of potential consideration could include the Tahoe Keys Lagoons Aquatic Weed Control Methods Test Project, the Meeks Bay Restoration Project, other known AIS control projects, and future projects with authorized funding.

Thank you for the opportunity to provide scoping comments for the proposed Program's joint environmental document. As a responsible and trustee agency, the Commission will need to rely on the adopted MND for the issuance of a lease as specified above and, therefore, we request that you consider our comments during preparation of the Draft MND.

Please include the Commission staff referenced below on the mailing list for the Draft MND and provide notice on the availability of the Draft MND for public review and comment when available. Please refer questions concerning environmental review to Jason Ramos, Senior Environmental Scientist, at (916) 574-1814 or [jason.ramos@slc.ca.gov](mailto:jason.ramos@slc.ca.gov). For questions concerning Commission leasing jurisdiction and the lease application process required for proposed Program activities, please contact Jannalisa Toy, Public Land Management Specialist, at (916) 574-1926 or [jannalisa.toy@slc.ca.gov](mailto:jannalisa.toy@slc.ca.gov).

Sincerely,



Eric Gillies, Acting Chief  
Division of Environmental Planning  
and Management

cc: J. Toy, Commission  
J. Ramos, Commission

**From:** Meredith Gosejohan <[mgosejohan@lands.nv.gov](mailto:mgosejohan@lands.nv.gov)>  
**Sent:** Friday, December 13, 2019 11:09 AM  
**To:** Mollie Hurt <[mhurt@tahoercd.org](mailto:mhurt@tahoercd.org)>  
**Cc:** Sara Matthews <[smatthews@tahoercd.org](mailto:smatthews@tahoercd.org)>  
**Subject:** FW: Scoping Notice: Target Invasive Fish Species Control Program at Lake Tahoe

Dear Mollie,  
Please see below for comments from our Team. Let me know if you have any questions.

Sincerely,  
Meredith

**From:** Mark Enders <[menders@ndow.org](mailto:menders@ndow.org)>  
**Sent:** Monday, December 9, 2019 2:46 PM  
**To:** Meredith Gosejohan <[mgosejohan@lands.nv.gov](mailto:mgosejohan@lands.nv.gov)>  
**Subject:** FW: Scoping Notice: Target Invasive Fish Species Control Program at Lake Tahoe

Meredith,

Here are comments from Travis Hawks.

**From:** Travis Hawks <[thawks@ndow.org](mailto:thawks@ndow.org)>  
**Sent:** Monday, December 09, 2019 10:54 AM  
**To:** Mark Enders <[menders@ndow.org](mailto:menders@ndow.org)>  
**Cc:** Kim Tisdale <[ktisdale@ndow.org](mailto:ktisdale@ndow.org)>; Mark Freese <[markfreese@ndow.org](mailto:markfreese@ndow.org)>; David Catalano <[dcatalano@ndow.org](mailto:dcatalano@ndow.org)>  
**Subject:** RE: Scoping Notice: Target Invasive Fish Species Control Program at Lake Tahoe

Hey Mark,

In general I don't see any issues with the overall proposal. Any effort to remove the listed invasive species will benefit the lake and the recreational non-native fish as well as recovery efforts for native species. I also really appreciate the fact that they differentiate between invasive and non-native recreational. I just have a few comments on the program proposal, they are as follows:

- There is no mention of brown bullhead catfish (*Ameiurus nebulosus*). They are one of the most widely distributed non-native invasive currently in the lake. Their ability to persist in stream environments should make them a top priority for removal.
- Page 4 lists multiple methods that utilize electrofishing. All efforts should be made to conduct this work outside of spawning periods for the native and desirable non-native species (typically Mar-June and Sept-Nov) to avoid any potential negative impacts to recruitment of those species.
- Page 4 mentions the utilization of "exclusion/counting weirs" on tributaries. For the listed invasive species as well as any other warmwater invasive species in Tahoe this method wouldn't make sense. Life history of these species doesn't require them to utilize tributaries for any real portion of their life cycle and any use of tributaries would be random making the use of weirs a time consuming method with little to no effective capture. It would also be extremely difficult to design a weir to select the undesirable species over the desirable ones that would be utilizing the tribs for spawning activities.

Thanks!



**Travis Hawks, Fisheries Biologist**  
Nevada Department of Wildlife  
1100 Valley Road  
Reno, Nevada 89512  
(775) 688-1677  
(775) 230-0844 Cell  
[thawks@ndow.org](mailto:thawks@ndow.org)

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**From:** Mark Enders <[menders@ndow.org](mailto:menders@ndow.org)>  
**Sent:** Monday, December 09, 2019 10:02 AM  
**To:** Travis Hawks <[thawks@ndow.org](mailto:thawks@ndow.org)>  
**Cc:** Kim Tisdale <[ktisdale@ndow.org](mailto:ktisdale@ndow.org)>; David Catalano <[dcatalano@ndow.org](mailto:dcatalano@ndow.org)>; Mark Freese <[markfreese@ndow.org](mailto:markfreese@ndow.org)>  
**Subject:** FW: Scoping Notice: Target Invasive Fish Species Control Program at Lake Tahoe

Hi Travis,

Have you seen this scoping notice yet? It was drafted last month, but I just received it today. TRCD wants to implement an invasive fish control program at Tahoe. It has a comment deadline of this Friday, but if you need more time to look it over that shouldn't be a problem.

Thanks,



Mark S. Enders  
Wildlife Biologist  
Nevada Tahoe Resource Team  
Nevada Department of Wildlife  
901 S. Stewart St., Suite 5003  
Carson City, Nevada 89701  
(775) 684-2742  
[menders@ndow.org](mailto:menders@ndow.org)

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**From:** Meredith Gosejohan <[mgosejohan@lands.nv.gov](mailto:mgosejohan@lands.nv.gov)>  
**Sent:** Monday, December 09, 2019 9:19 AM  
**To:** Roland Shaw <[rshaw@forestry.nv.gov](mailto:rshaw@forestry.nv.gov)>; Mark Enders <[menders@ndow.org](mailto:menders@ndow.org)>; Jay Howard <[j.howard@parks.nv.gov](mailto:j.howard@parks.nv.gov)>; Jeff Haas <[jhaas@lands.nv.gov](mailto:jhaas@lands.nv.gov)>; Sherri Barker <[sbarker@lands.nv.gov](mailto:sbarker@lands.nv.gov)>;

Chris LaCasse <[chris.lacasse@lands.nv.gov](mailto:chris.lacasse@lands.nv.gov)>; Scott Carey <[scarey@lands.nv.gov](mailto:scarey@lands.nv.gov)>

**Subject:** FW: Scoping Notice: Target Invasive Fish Species Control Program at Lake Tahoe

Hello Team,

Does anyone have comments we would like to submit on behalf of the NTRT (due this Friday December 13<sup>th</sup>)?

Mark,

Will NDOW submit comments separate from the Team?

Scott,

Can you make sure this was posted through the Nevada Clearinghouse?

Thank you,

Meredith

**From:** Sara Matthews <[smatthews@tahoercd.org](mailto:smatthews@tahoercd.org)>

**Sent:** Tuesday, November 12, 2019 5:09 PM

**Cc:** Mollie Hurt <[mhurt@tahoercd.org](mailto:mhurt@tahoercd.org)>; Nicole Cartwright <[ncartwright@tahoercd.org](mailto:ncartwright@tahoercd.org)>; Kelley Kelso <[kelley.kelso@ascentenvironmental.com](mailto:kelley.kelso@ascentenvironmental.com)>; Nanette Hansel

<[nanette.hansel@ascentenvironmental.com](mailto:nanette.hansel@ascentenvironmental.com)>; [pnielsen@trpa.org](mailto:pnielsen@trpa.org); [smuskopf@fs.fed.us](mailto:smuskopf@fs.fed.us)

**Subject:** Scoping Notice: Target Invasive Fish Species Control Program at Lake Tahoe

Greetings,

You have received the attached scoping notice because of your potential interest in invasive fish at Lake Tahoe.

Tahoe Resource Conservation District (Tahoe RCD), Tahoe Regional Planning Agency (TRPA), and the U.S. Forest Service Lake Tahoe Basin Management Unit are seeking public scoping comments on Tahoe RCD's proposal to implement a program for the control of target invasive fish species in the Lake Tahoe region.

You may provide comments by mail or email to either agency contact provided below. Submit hand-delivered comments to Tahoe RCD or TRPA during business hours (9:00 a.m. to 12:00 p.m. and 1:00 to 4:00 p.m.) on Monday, Wednesday, Thursday or Friday, excluding holidays.

**AGENCY CONTACTS:**

Tahoe Regional Planning Agency  
Conservation District  
**Paul Nielsen, Special Projects Manager  
Programs**  
128 Market Street  
Suite 108  
P.O. Box 5310  
Stateline, NV 89449  
[pn Nielsen@trpa.org](mailto:pn Nielsen@trpa.org)

Tahoe Resource

**Mollie Hurt, Director of**  
  
870 Emerald Bay Road,  
  
South Lake Tahoe, CA  
[mhurt@tahoercd.org](mailto:mhurt@tahoercd.org)

Comments are welcome through December 13th, 2019.

Best Regards,

Sara



**Sara Matthews**  
Aquatic Invasive Species Control Coordinator  
office: 530.543.1501 x 125 | cell: 530.708.7821  
email: [smatthews@tahoercd.org](mailto:smatthews@tahoercd.org)  
Tahoe Resource Conservation District

**From:** Victor Babbit <[info@tahoeflyfishing.com](mailto:info@tahoeflyfishing.com)>  
**Sent:** Monday, November 18, 2019 11:52 AM  
**To:** [pnielsen@trpa.org](mailto:pnielsen@trpa.org); Mollie Hurt <[mhurt@tahoercd.org](mailto:mhurt@tahoercd.org)>  
**Subject:** invasive fish control program questions

Paul,  
Mollie,

A couple of quick questions regarding the Invasive Fish Control Program...

Is the Brown Trout, Brook Trout and the Golden Trout left off of this document for a particular reason? Where do each of these fit into this document?

What is the reduction rate this program is shooting for as far as the warm water species are concerned? The question comes from the eradication program in the Keys of warm water species which seemingly was a failure? Can the invasive fish be removed via today's science? What is the chance these same species will still be around in 100 years in these waters due to the unavailability of science that shows the possibility of a complete eradication?

Is this program a reduction program or an eradication program?

Thank you,

Victor Babbitt  
Tahoe Fly Fishing Outfitters  
Sawmill Lake Fly Fishing  
530-541-8208  
[www.tahoeflyfishing.com](http://www.tahoeflyfishing.com)

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Guide School: May 11-17, 2020



# United States Department of the Interior

Pacific Southwest Region  
FISH AND WILDLIFE SERVICE  
Lahontan National Fish Hatchery Complex  
710 Highway 395  
Gardnerville, NV 89410  
Ph.: (775) 265-2425 ~ Fax: (775) 265-3004



December 13, 2019

Tahoe Resource Conservation District  
Mollie Hurt, Director of Programs  
870 Emerald Bay Road, Suite 108  
South Lake Tahoe, CA 96150

Subject: Scoping Notice for the Invasive Fish Control Program at Lake Tahoe, Lake Tahoe California and Nevada

Dear Ms. Hurt:

Thank you for the opportunity to provide comments on the proposed invasive fish control program at Lake Tahoe. The scoping document currently does not mention Lahontan Cutthroat Trout (LCT) as a native fish. Invasive fish control is an important component for successful recovery of LCT in Lake Tahoe. LCT are present in Lake Tahoe and Fallen Leaf Lake, and the Lake Tahoe Restoration Act identifies \$20 million dollars for LCT recovery (LTRA pg. 411 lines 1-6). As a Threatened species under the Endangered Species Act, LCT provide additional justification for the invasive fish control program. The Lahontan National Fish Hatchery Complex (LNFHC) recommends that LCT be included in the scoping document as one of the primary purposes for non-native fish removal. We also suggest deleting the word “desirable” from the phrase “*desirable* recreational non-native fish”. These non-native trout are not desirable for LCT recovery in Lake Tahoe.

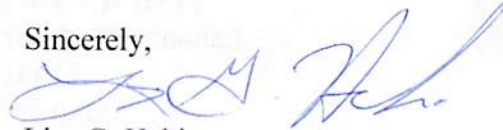
We will be interested in the data gathered from Tier 1 and Tier 2 program areas. For your information, in 2020 LNFHC will initiate development of a Tahoe Tributary management plan for LCT. Priority tributaries for our respective programs may overlap, and we would like to explore partnership opportunities.

The LNFHC is supportive of your proposed invasive fish control program, and we look forward to partnering for the benefit of LCT and the health of the Lake Tahoe ecosystem.



Please contact Roger Peka if you have any questions or need additional information at (775) 861-6365 or email [roger\\_peka@fws.gov](mailto:roger_peka@fws.gov).

Sincerely,



Lisa G. Heki  
Project Leader  
Lahontan National Fish Hatchery Complex