

FINAL

**MITIGATED NEGATIVE DECLARATION
And
RESPONSE TO COMMENTS RECEIVED**



**ASIAN CLAM CONTROL PROJECT
EMERALD BAY STATE PARK**

2012



State of California
California State Parks

MITIGATED NEGATIVE DECLARATION

PROJECT: ASIAN CLAM CONTROL PROJECT, EMERALD BAY STATE PARK

LEAD AGENCY: California Department of Parks and Recreation

AVAILABILITY OF DOCUMENTS:

The Initial Study for this Mitigated Negative Declaration was made available throughout the 30-day public review period at the public information desks of the Department of Parks and Recreation (DPR) Northern Service Center, Sierra District Headquarters, and on the DPR website. This document was also provided to Lake Tahoe basin regulatory agency representatives up to 6 months prior to being made available for public review. The final Mitigated Negative Declaration and all supporting materials will be available by request at DPR's Sierra District Headquarters office.

- Sierra District Headquarters
California State Parks
7360 West Lake Blvd.
PO Box 266
Tahoma, CA 96142

FINDINGS:

An Initial Study was prepared to assess the proposed project's potential impacts on the environment and the significance of those impacts is incorporated in the Draft Mitigated Negative Declaration. Based on this initial study, it has been determined that the proposed project would not have any significant impacts on the environment, once all proposed mitigation measures have been implemented. This conclusion is supported by the following findings:

- There was no potential for adverse impacts on Agriculture, Air Quality, Cultural Resources, Land Use and Planning, Mineral Resources, or Population and Housing.
- Potential adverse impacts resulting from the proposed project were found to be less than significant for Aesthetics, Geology and Soils, Greenhouse Gas Emissions, Noise, Public Services, and Utilities and Service Systems.
- Full implementation of the proposed mitigation measures included in this MND would reduce potential project related impacts on Biological Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Recreation, and Transportation and Traffic to a less than significant level.

PROJECT DESCRIPTION:

Asian clam (*Corbicula fluminea*; AC) were first documented in Lake Tahoe in 2002. Since the initial AC detection, the populations in South Lake Tahoe increased rapidly from 1 to nearly 200 acres in less than 10 years with densities up to 6,000 individuals per square meter measured. A relatively sparse population was discovered near the mouth of Emerald Bay in

2009. Initial surveys estimated this infestation at approximately 3.5 acres in size just inside and on the south side of the mouth of Emerald Bay, in water depths of 6 to 30 feet. Surveys in 2011 showed the infestation had spread to approximately 5.5 acres, an increase in infestation size of over 40% in only two years. An expansion of the Emerald Bay infestation similar to that seen in South Lake Tahoe would result in considerable ecological and recreation impacts.

The invasion and establishment of AC can lead to a variety of significant negative impacts. The clams can dominate native benthic invertebrates and plants which are important components of the food web in Lake Tahoe, and the presence of AC may increase the habitat suitability for other non-native invasive species such as zebra and quagga mussels and promote algal growth. Water quality can be degraded through concentrated nutrient excretion and associated algal blooms. The extended algal blooms supported by clam populations can have far reaching impacts on nearshore conditions. When algae die and wash ashore, they decompose and rot on beaches and rocks where they impact the aesthetic beauty of the lake and influence water quality and clarity.

The infestation in Emerald Bay is currently a relatively sparse population presumed to still be in the early stages of invasion. This level of infestation offers the opportunity to prevent further spread and contain or control the existing infestation. If the population goes untreated for even a short duration of time, this small and sparse infestation could potentially expand as seen in the populations in South Lake Tahoe. An expanded infestation will become extremely difficult and expensive to control.

A small scale experiment by UC Davis researchers in 2009 using 10' by 10' EDPM pond liners reduced the dissolved oxygen available to AC and resulted in 100% mortality after 28 days at peak summer temperatures. Additional work utilizing this technique has shown that it is a good method with which to cause AC mortality. There is some subsurface water flow through the sill in the mouth of Emerald Bay, so benthic barrier deployment at this site will require barriers to be in place for an extended duration to increase mortality, and alternative treatment methods may be required to supplement the benthic barrier treatment method.

MITIGATION MEASURES:

The following mitigation measures have been incorporated into the scope of work for the Fuels Reduction and Understory Burning Project and will be fully implemented to avoid or minimize adverse environmental impacts identified in this MND. These mitigation measures will be included in contract specifications and instructions to all personnel involved in implementing the project.

MITIGATION MEASURE BIO-1: Nesting Osprey and Bald Eagle

- To the extent possible, project activities would occur outside of the osprey (April 1 – August 15) and bald eagle (February 15 – August 15) breeding seasons.
- If work is required during the breeding season, a DPR-approved biologist would conduct surveys to document reproductive activity of the established osprey and eagle nests within 0.25 and 0.5 miles, respectively, of the project area.

- If the nests are not occupied or the young have fledged then project activities would be allowed to commence.
- If osprey or eagles are actively incubating eggs or have young in the fledgling state within 0.25 or 0.5 miles, respectively, of the project area, no work would be conducted.
- If there are chicks on the nest, work could be authorized by a DPR-approved biologist if:
 - i. A DPR-approved biologist is onsite during all operations to monitor the nests to ensure the young or adults are not visibly disturbed by project activities,
 - ii. Any visible disturbance attributable to the project activities would result in the project being postponed until after the young fledge,
 - iii. No more than 4 hours of activities creating noise above ambient levels would occur in any 24-hour period.

MITIGATION MEASURE HAZMAT-1: Spill Prevention and Response

- Prior to the start of project activities, all equipment and vehicles will be cleaned and serviced. Routine vehicle and equipment checks will be conducted during the project to ensure proper operating conditions and to avoid any leaks.
- All contaminated residue or other hazardous compounds will be contained and disposed of outside of the boundaries of the site at a lawfully permitted or authorized site.
- Benthic barriers will be cleaned at an established decontamination facility authorized by the Tahoe Regional Planning Agency.
- Boats and barges used in project activities will be required to have an emergency spill response plan and kit.

MITIGATION MEASURE HYDRO-1

- A Water Quality Monitoring Plan will be prepared and presented to the TRPA and LRWQCB for approval prior to conducting project activities. Turbidity will be measured before, during, and after installation and removal of benthic barriers.
- Turbidity curtains will be utilized during suction removal activities to contain any disturbance related turbidity.
- Underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.
- The water intake at Eagle Point Campground will be turned off during removal of the benthic barriers and will not be turned back on until water quality returns to background levels.

MITIGATION MEASURE REC-1: Boating Access

- Work will be coordinated with tour boat operators in Lake Tahoe to determine the least disruptive days and hours to conduct work. Work will occur during these days and time periods to the extent possible.

- Emerald Bay will require traffic control for motorized boat traffic for up to 6 hours per day for an estimated 4 weeks during barrier installation and 4 weeks during barrier removal, and during some alternative treatment work. Non-motorized boats and escorted motorized boats may be allowed to pass through the mouth if the water level is high enough to allow passage and maintain the safety of the divers.
- Public notices will be used to inform the public of temporary boat traffic control.
- Work will be scheduled during the mornings and on weekdays to the extent possible. No boat traffic control would occur during the weekend, unless there is a need to re-secure a barrier that has moved.
- A boat will be positioned at the mouth of Emerald Bay to inform the public of project activities and provide information on when the bay will open.
- Overnight boaters in Emerald Bay will be informed of the temporary boat traffic control to allow departure prior to the start of work.
- To the extent possible, all installation and removal activities will be scheduled outside of the high recreation period between the Memorial Day and Labor Day weekends.

MITIGATION MEASURE TRANS-1: Securing Barriers

- Bottom barriers will be checked routinely to inspect and re-secure any bottom barriers that move or start to billow as gas accumulates under them.

This document, along with the Draft Initial Study/Mitigated Negative Declaration (SCH#2012022052), including Comments and Response to Comments; and the Notice of Determination, constitute the Final Mitigated Negative Declaration for the Asian Clam Control Project in Emerald Bay State Park.

Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Parks and Recreation (DPR) has independently reviewed and analyzed the Initial Study and Draft Mitigated Negative Declaration for the proposed project and finds that these documents reflect the independent judgment of DPR. DPR, as lead agency, also confirms that the project mitigation measures detailed in these documents are feasible and will be implemented as stated in the Mitigated Negative Declaration.

 Marilyn Linkem
 District Superintendent, Sierra District

 Date

 Dan Shaw
 Environmental Scientist

 Date

**RESPONSE TO COMMENTS RECEIVED ON THE ASIAN CLAM CONTROL PROJECT INITIAL
STUDY/MITIGATED NEGATIVE DECLARATION**

CDPR did not receive any comments during the public review period between February 21 and March 21, 2012. However, comments were received after the closing date from Lahontan Regional Water Quality Control Board on March 22, and California State Lands Commission on March 26. CDPR will incorporate these comments into our final environmental document as these agencies are important partners in this restoration project. Additions to the Mitigated Negative Declaration are underlined, and deletions are noted with ~~striketrough~~ and these edits have been incorporated in the final document to follow the comment letters and response to comments.



Lahontan Regional Water Quality Control Board

March 22, 2012

Dan Shaw (via email)
California State Parks
Sierra District Resources Office
P.O. Box 16
Tahoe City, CA96145-0016

COMMENTS ON THE PROPOSED INITIAL STUDY/MITIGATED NEGATIVE DECLARATION FOR THE EMERALD BAY ASIAN CLAM CONTROL PROJECT (SCH# 2012022052)

Thank you for the opportunity to provide comments on the Initial Study/Mitigated Negative Declaration (IS/MND) for the above-referenced project. The proposed project is located within El Dorado County within the underwater portion of Emerald Bay State Park in South Lake Tahoe, California. The project consists of (1) treating a discrete population of Asian Clams present in Emerald Bay with benthic barriers, (2) testing alternative treatment methods (e.g., suction removal, supplementing benthic barriers with biomass, freezing), and (3) assessing effectiveness of the treatment and impacts on non-target invertebrates.

State law assigns responsibility for protection of water quality within the Lahontan watershed basin to the California Regional Water Quality Control Board-Lahontan Region (Water Board). The Water Board implements and enforces the Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.) and the *Water Quality Control Plan for the Lahontan Region* (Basin Plan). The Water Board will be a responsible agency under the California Environmental Quality Act (CEQA) for the Project and will need an adequate CEQA document as the basis for issuing Clean Water Act section 401 water quality certification and/or waste discharge requirements. As such, the Water Board must ensure compliance with CEQA when taking discretionary actions on this project.

During November 2011, Water Board staff provided comments on a draft version of the IS/MND, and those comments have been incorporated into this final draft. Water Board staff has reviewed the information provided in the IS/MND in context to the proposed Project's potential impacts to water quality and beneficial uses of waters of the State. Our comments are as follows:

General Comment

To prevent the spread of invasive species, the preparation and implementation of a Hazard Analysis and Critical Control Point (HACCP) Planning should be an element of risk management that is built into the project. Implementing the HACCP should eliminate the project's potential direct and indirect impacts to biological resources caused by the degradation of cold freshwater habitat.

Comments on Project Description and Implementation, Section 2.5

The project includes design and testing of alternative treatment methods. The IS/MND explains that one alternative method that may be tested involves the placement of straw (organic matter) under the barriers. If this method is tested, the straw that is used must be certified weed free to eliminate the introduction of potential non-native and invasive weeds. The use of certified weed free straw should be identified as a control measure in the HACCP.

The project description indicates that alternative methods to control Asian Clams will be tested. These methods may include freezing the clams in place. There is no further information provided in the IS/MND regarding what will be used to induce freezing. Any chemicals that may be used (e.g., liquid nitrogen) should be included in the project being analyzed and considered during the environmental analysis. If freezing methods have the potential to introduce constituents that may violate any water quality standard or waste discharge requirements, this impact should be disclosed in the Environmental Checklist within the Hydrology and Water Quality section 3.IX.a. Appropriate mitigation measures (e.g., full underwater enclosure/containment, emergency spill response in the event of a breach or accidental spill, etc.) should be included in the project to reduce potentially significant impacts to a less than significant level.

During project implementation, bottom barriers will be secured in place with rebar or other weights. Upon removal of the barriers, the project description indicates that rubber barriers and associated materials will be removed from the lake bottom. If sand bags are used to secure the bottom barriers, the project proponent must consider that degradation of the burlap, jute, or polymer bags used to contain the sand, could impede full recovery of these project materials from the project site and result in a pollutant discharge to surface waters. The project proponent should identify the potential for pollutants associated with the sand bag (sediment, nutrients, bag material) to enter the water column. The potential discharge of these pollutants could impact water quality (e.g., clarity), and should be considered in the Environmental Checklist within the appropriate discussion section in 3.IX. a. Appropriate mitigation measures (e.g., using washed gravels, or obtaining clean sand from a compatible near-site location) should be included in the project to reduce potentially significant impacts to a less than significant level.

Additionally, if sandbags are used to weight the barriers, the project proponent should consider this as fill material when applying to the Water Board for a Clean Water Act section 401 Water Quality Certification. Additional conditions may be specified in the 401 Certification that require the project proponent to perform sediment quality testing to assure that the chemical and physical characteristics of the fill material has no more fine sediment particles and nutrients than the lake substrate over which the fill is proposed to be placed.

The project involves activities that will disturb the lake bottom substrate. These activities include (1) suction dredging, (2) driving rebar stakes into the bottom substrate during both field delineation of the project area and placement of the rubber material at the field site barrier, and (3) collecting ponar bottom grab samples. Such subsurface disturbances have the potential to physically damage subsurface pipes and/or impact the services (drinking water, electricity) provided by these utilities lines. The lead agency adequately identifies utilities present in or near the project area in Section XVI – Utilities and Service Systems.

At the time this project is submitted to the Water Board for coverage under a Clean Water Act section 401 Water Quality Certification, the project applicant must affirmatively document whether any subsurface utilities are present in the project area and provide such documentation to the Water Board. This can be accomplished by: (1) contacting all utilities (both public and private) that provide service in the area, documenting these contacts and providing such documentation to the Water Board; (2) contacting Underground Service Alert, documenting this contact and providing such documentation to the Water Board; or, (3) some other equivalent affirmative action to determine whether or not there are any subsurface utilities in the area of construction and providing the results of such action to the Water Board. The area of construction is defined as any area within the Project boundaries where there will be excavation for sample collection or other purposes and/or driving of rebar stakes or other materials to secure the benthic barriers. If subsurface utilities are located in the construction area, the Applicant must provide a utility avoidance plan that will be followed during construction.

If this information is already available the lead agency may consider including this protective measure as an element of the project.

Comments on Hydrology and Water Quality, Section 3.IX.

Section 2.5 – Project Description and Implementation describes that a barge or boat will be used during various field actions (i.e., barrier placement and removal, ponar sampling) associated with the project. Motorized watercraft have the potential to contribute pollutants (e.g., gasoline, oil) to the water column, and these pollutants should be identified in the Environmental Checklist discussion for section 3.IX.a, along with the already listed turbidity and sediment. The project has the potential to discharge pollutants associated with spills, leaks, and other releases from a motorized watercraft and these pollutants have the potential to violate water quality standards and waste discharge requirements. Proposing and implementing mitigation measures (e.g. routine boat maintenance, emergency spill response kit) should reduce this impact to less than significant.

Section 2.5 – Project Description and Implementation describes that bottom barriers will be transported by land to an established decontamination wash station. The discharge of wash water from the decontamination site should be identified as a potential impact to water quality in section 3.IX. – Hydrology and Water Quality. Water from the decontamination site should be collected, recycled, and disposed of properly (e.g., to a sanitary sewer collection system). The decontamination area should be equipped with perimeter control measures to capture any runoff water associated with the wash stations and eliminate the potential for soil erosion. Appropriate control measures must be in place to capture overspray and ensure that all washwater drains to a proper collection system (i.e., not the storm water drainage system). Wash water must not be co-mingled with storm water, and discharge of wash water to the sanitary sewer must be in accordance with applicable industrial pre-treatment requirements, or disposed of otherwise in accordance with applicable laws and regulations.

Additionally, the HACPP (referred to in the General Comment above) should include the decontamination site as a control point at which control measures should be implemented to further prevent the spread of invasive species.

Thank you for considering and incorporating the above comments into your project. If you have any questions regarding this letter, please contact Mary Fiore-Wagner at (530) 542-5425.



Richard Booth, P.G.
Chief, TMDL and Basin Planning Unit

cc: Kim Boyd, Tahoe Resource Conservation District
(via email at kboyd@tahoercd.org)
Jim Brockett, Tahoe Resource Conservation District
(via email at jbrockett@tahoercd.org)
Patrick Stone, Tahoe Regional Planning Agency
(via email at pstone@trpa.org)
Mary Hays / California State Lands Commission
(via email at haysm@slc.ca.gov)
Lynette Blanchard / U.S. Army Corps of Engineers, Reno Office
(via email at Lynette.A.Blanchard@usace.army.mil)
Kristine Hansen/ U.S. Army Corps of Engineers, Sacramento District
(via email at Kristine.S.Hansen@usace.army.mil)
Steve Chilton/U.S. Fish and Wildlife

LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD (LRWQCB) RESPONSE

GENERAL COMMENT ON PREPARATION OF A HACCP

Preparation of a Hazard Analysis and Critical Control Point (HACCP) plan should be an element of risk management that is built into the project.

RESPONSE

Mitigation Measure Hydro-1: Water Quality states that underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.

To prevent impacts to Lake Tahoe from inadvertent movement or introduction of non-target species, regulatory agencies in the Lake Tahoe basin are now requiring preparation and adherence to a Hazard Analysis and Critical Control Point (HACCP) plan. HACCP planning is an international standard for reducing or eliminating the spread of unwanted species during specific processes or practices, such as delivery, removal, and installation of benthic barriers. The Water Quality Control Plan for the Lahontan Region (LRWQCB 1994 Chapter 5: Water Quality Standards and Control Measures for the Lake Tahoe Basin) has designated beneficial uses for the surface waters of the Lake Tahoe Hydrologic Unit, such as Cold Freshwater Habitat. HACCP planning will be a permit requirement of this project and this planning will help protect these beneficial uses.

COMMENTS ON PROJECT DESCRIPTION AND IMPLEMENTATION, SECTION 2.5

WEED FREE STRAW COMMENT

The IS/MND explains that one alternative method involves the placement of straw (organic matter) under the barriers. If this method is used, the organic matter (straw) that is used must be certified weed free to eliminate the introduction of potential non-native and invasive weeds. The use of certified weed free straw should be identified as a control measure in the HACCP (detailed above).

RESPONSE

The HACCP developed as a permit requirement for restoration work in Lake Tahoe to control Asian clams (see response above) will require the use of certified weed free straw if organic matter is used to augment benthic barriers. **Mitigation Measure Hydro-1** requires that project activities attain permits from regulatory agencies in the basin and this requirement of use of weed free straw or other organic matter will be a condition of this mitigation measure.

FREEZING CLAMS COMMENT

More detail is required for the LRWQCB to assess potential impacts of pilot testing of technology to freeze clams in place in the lake sediment.

RESPONSE

Freezing clams in place has been suggested as a potential method because the technology is used in non-restoration actions to freeze sediment under the surface of water bodies in order to conduct construction activities such as tunneling or installing piers. Since this method has not been tested on clams, we cannot provide the detail requested. We will remove freezing as a potential alternative method to test with pilot research under this project. Freezing will be removed from the Project Description, 2.4 Project Objectives, 2.4 Project Description and Implementation under design and testing of alternative treatment methods, and from the Section V Cultural Resources discussion.

SAND BAGS COMMENT

Concern was expressed that if sand bags were used to weigh barriers down, degradation of the bags could impede full recovery of these project materials from the site. This could result in potential discharge of pollutants and the sand bags would be considered fill when applying for Water Quality Certification.

RESPONSE

Mitigation Measure Hydro-1: Water Quality states that underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.

All clam work to date in Emerald Bay has used rebar to weigh down barriers, which can all be recovered at the completion of work. The IS/MND did not mention the use of sand bags and sand bags were not considered as a potential option for weighing down barriers due to the issues mentioned in the reviewers comment, but the document also did not specifically remove sand bags as an option. This project will not use sand bags to weigh down benthic barriers and this will be considered as a permit requirement.

POTENTIAL TO IMPACT SUBSURFACE PIPES OR UTILITY LINES COMMENT

The comment from the LRWQCB noted that the lead agency adequately identifies utilities present near the project area. LRWQCB states that at the time the project is submitted to the Water Board for Water Quality Certification, the applicant must affirmatively document whether any subsurface utilities are present in the project area and provide documentation to the Water Board.

RESPONSE

Mitigation Measure Hydro-1: Water Quality states that underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.

The Lead Agency will affirmatively document whether any subsurface utilities are present in the project area at the time the project is submitted for coverage under the requirement of **Mitigation Measure Hydro-1: Water Quality**. The closest current distance from any utility to

the infestation is 600 feet. The barriers have not been secured with rebar driven into the substrate during pilot activities (rebar was used as a weight laid over the top of the barriers) and rebar inserted into the substrate would not be necessary to complete this project. In addition, ponar grabs are a sampling method and avoiding sampling near the utilities would not impact sampling results. So, no subsurface disturbance anywhere within a potential utility area would be necessary to complete project activities.

MOTORIZED WATERCRAFT POTENTIAL POLLUTANTS COMMENT

Motorized water craft have the potential to contribute pollutants to the water column. These should be discussed and proposing mitigation measures such as routine boat maintenance and an emergency spill response kit should reduce this impact to less than significant. In addition, these potential pollutants should be called out in the Hydrology Section.

RESPONSE

The potential for water craft to contribute pollutants to the water column is discussed in Hazards and Hazardous Materials. **Mitigation Measure Hazmat-1** requires routine boat and equipment maintenance. This Mitigation Measure will be altered to include an emergency spill response kit and plan. The discussion contained in the Hazards and Hazardous Materials Section will be referenced in the Hydrology Section.

DECONTAMINATION FACILITY COMMENT

The discharge of wash water from the decontamination site should be identified as a potential impact to water quality. Water from the decontamination site should be collected, recycled, and disposed of properly. Wash water must not be co-mingled with storm water, and discharge of wash water to the sanitary sewer must be disposed of in accordance with applicable laws and regulations.

RESPONSE

Mitigation Measure Hazmat-1 requires that benthic barriers be cleaned at an established decontamination facility authorized by the Tahoe Regional Planning Agency. The decontamination facility will be approved by regulatory agencies in the Tahoe basin to meet all legal obligations as required under **Mitigation Measure Hydro-1**: Water Quality states that underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.

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March 26, 2012

File Ref: SCH # 2012022052

Dan Shaw
California State Parks
Sierra District Resources Office
P.O. Box 16
Tahoe City, CA 96145-0016

**Subject: Mitigated Negative Declaration (MND) for Asian Clam Control Project,
Emerald Bay State Park**

Dear Mr. Shaw,

The California State Lands Commission (CSLC) staff has reviewed the subject MND for the Asian Clam (AC) Control Project (Project), which is being prepared by California Department of Parks and Recreation (DPR). DPR, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC will act as a trustee agency because of its trust responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters. Because the Project involves work on sovereign lands, the CSLC will also act as a responsible agency.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 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.

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 and a Public Trust easement landward to the ordinary high water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

After review of the information provided in the MND, CSLC staff believes the proposed Project may be covered under an existing lease with DPR: General Lease – Public Agency Use No. PRC 7366.9. However, staff is reviewing the existing lease to determine if an amendment to the lease is necessary in order to cover the ongoing maintenance involved with the proposed Project. Please contact the Land Management Division staff listed at the end of this letter as Project planning proceeds for further information regarding leasing requirements.

Project Location and Description

DPR proposes to extirpate AC (*Corbicula fluminea*) within the Project area of Emerald Bay State Park in Lake Tahoe, California. An area of approximately 5.5 acres, centrally located near the mouth/entrance of Emerald Bay and depicted on the map included as Appendix A of the MND, will be treated with placement of temporary rubber pond liner (or similar material) bottom barriers. The bottom barriers will remain on the lake bottom for more than six months, but less than 20 months, and will serve to deplete oxygen within the underlying lake bottom substrate to extirpate AC as the target species. However, they will also affect other macro-invertebrate and aquatic plant species. As presented in the MND, the proposed Project includes the following components:

- **Field delineation of the Project area:** The area would be marked underwater using rebar stakes and 3/8-inch nylon rope. The stakes would be secured into the bottom substrate and the nylon rope will be tied to the stakes along the lake bottom. All materials would be directly on the lake bottom, except for site indicator subsurface floats placed on the corners of the field delineation site that would be three feet above the bottom (12 feet below the water surface).
- **Baseline condition sample collection:** A pre-implementation characterization of benthic macroinvertebrate communities would be conducted at the Project site by benthic grab samples (using a Ponar sampler) as well as SCUBA-based sampling for sediment porewater nutrient content and sediment algal content (Seston). This monitoring would continue (at a reduced sampling rate) immediately after bottom barrier removal and for a period of up to three years.
- **Delivery of rubber materials from land to underwater field site:** Approximately 250, 100-foot-long by 10-foot-wide, 45-mil.-thick rubber sheets (or equivalent) would be placed overlapping upon each other for a continuous area of coverage. These sheets would be prepared on land. Once the preparation stage is complete, the rubber barrier material would be transferred to a barge or boat and delivered to the field site.

- Placement of the rubber material at the field site: The rubber barriers and associated weights (rebar rods and/or chain link) for the rubber sheets would be lowered to the lake bottom from the side of the barge using a winch or backhoe. The rubber barriers would be rolled out underwater by divers, and the edges and seams of the rubber treatment site would be covered with rebar and other weights and staked down where necessary.
- Design and testing of alternative treatment methods: DPR will use alternative methods to supplement benthic barrier treatment, as proposed in the MND, to extirpate AC, including:
 - Insert supplemental material such as straw (organic matter) under the barriers to determine whether the supplements adequately decrease dissolved oxygen under the mats to increase the effectiveness of the benthic barriers.
 - Engineer and test new suction removal technology and use it to supplement benthic barrier treatment in Emerald Bay.
 - Pilot test additional methods such as freezing clams in place in the substrate.
- Removal and decontamination of rubber material: After greater than six months but fewer than 20 months, the rubber bottom barriers and all associated materials would be removed from the lake bottom and delivered to an established decontamination station, at sites established and operated by resource management and regulatory agencies in the Lake Tahoe Basin that manage the Tahoe Boat Inspection Program.

Environmental Review

Project Description

The MND Project description is lacking with regard to specific information necessary to fully understand the nature and scope of potential project-related environmental impacts. As a result, CSLC staff cannot determine if the analysis presented in the MND is sufficient. In order to provide a more complete and accurate Project description, DPR should revise Section 2.5, Project Description and Implementation, to include the following additional information:

- More detail regarding proposed watercraft control/restriction measures during bottom barrier installation and removal activities;
- Range of lake bottom elevations (highest/lowest elevations) within the 5.5 acre area for placement of bottom barriers;
- Characterization of the lake bottom substrate and fish habitat and/or Tahoe Regional Planning Agency designated fish habitat.;
- Total depth within the lake bottom substrate that will be affected/treated by the bottom barriers;
- Alternative treatment methods of suction removal operations and use of freezing methods;
- Ongoing monitoring activities of the treatment area both during treatment and after removal of the bottom barriers;

- How the remaining clam shells will be dealt with following removal of the bottom barriers; and
- Locations of the marker buoys and motorized watercraft navigation lane at the entrance of Emerald Bay in Appendix A of the MND, to identify whether the bottom barriers would be located within the marker buoys and watercraft navigation lane.

Aesthetics

The MND states that there will be no impact to the existing visual character or quality of the Project site. However, the MND does not address the extent to which the top surface color of the rubber liner bottom barriers may have visual impacts when viewed from the lake surface by watercraft recreationists. Given the high quality scenic environment of Emerald Bay, particularly the underwater landscape at the entrance of Emerald Bay, this section should discuss and consider the feasibility of using rubber liner material that is colored to blend in with the lake bottom substrate (dark gray/brown, etc.). Given that the lake bottom barriers will be placed in a relatively shallow location with high boat traffic and steady wind exposure, this section should assess how these conditions will potentially affect sediment deposition on the bottom barriers (boat propellers, large paddle boats, fetch, littoral drift, etc.). In particular, this assessment should identify if these conditions have potential to inhibit sediment deposition on top of the bottom barriers and make them more visible from the lake surface.

Biological Resources

The MND identifies that negative impacts are not anticipated to the federally threatened Lahontan cutthroat trout. However, there is no discussion whether informal or formal consultation has occurred between DPR and the U.S. Fish and Wildlife Service (USFWS) as part of this determination. Item A of the Environmental Checklist should disclose this information and explain that the Project will comply with any potential mitigation measures imposed through the federal consultation process between the U.S. Army Corps of Engineers (USACE) and USFWS, since a permit is expected to be required by the USACE.

Greenhouse Gas (GHG) Emissions

The MND concludes that GHG emissions resulting from the Project would be less than significant. However, the analysis and discussion do not contain information sufficient to support this conclusion, such as the type and number of equipment vehicles needed, the number of vehicle trips expected, or any other pertinent information related to estimating the amount of GHG emissions and the significance of those emissions. In order to more adequately support the conclusion reached in the MND, DPR should include a GHG analysis that is consistent with the California Global Warming Solutions Act (AB 32) and required by section 15064.4 of the State CEQA Guidelines¹ in a revised

¹ The State "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

MND. This discussion should include a complete accounting of the emission sources, a quantitative or qualitative estimate of GHG emissions, and how those GHG emissions compare to any applicable local, regional, or State thresholds (proposed or approved).

Hydrology/Water Quality

Mitigation Measure Hydro-1: Water Quality states that the water intake at Eagle Point Campground will be turned off during removal of the benthic barriers and will not be turned back on until water quality returns to background levels. Since this is stated as mitigation, please include in the Environmental Setting section further description of where the Eagle Point Campground water intake is located in relation to the proposed location of the bottom barriers. This information will allow the reader to better assess potential impacts to the water intake.

Noise

The MND concludes that impacts related to noise would be less than significant. However, given the multitude of noise sources during the boating season (automobiles, motorized watercraft, commercial charters with amplified noise, etc.), CSLC staff recommends the Environmental Setting section be revised to discuss whether the Project area is currently out of attainment with any State, federal, or Tahoe Regional Planning Agency (TRPA) noise standards. Project-related noise should then be evaluated against the baseline of existing noise to determine if additional mitigation is needed, or to justify why mitigation is not required. The Environmental Setting should also identify that Emerald Bay is subject to a 5 mile per hour "no wake" zone, which among other objectives is intended to reduce motorized watercraft noise at Emerald Bay.

Recreation and Traffic

The Recreation section identifies that recreation impacts would be less than significant with mitigation, and the traffic section identifies that traffic impacts would be less than significant. However, these sections do not account for a "worst case" scenario of having to manage watercraft recreation and traffic for bottom barrier installation/removal activities during the peak boating season (Memorial Day weekend through Labor Day weekend), if implementation delays are encountered with permit approvals, etc. CSLC staff recommends a detailed traffic control plan to address the following concerns (potential impacts):

- clear identification of whether temporary closure of Emerald Bay to watercraft is proposed during bottom barrier installation and removal activities;
- how watercraft entrance/departure will be controlled/managed within the marker buoys and watercraft navigation lanes at the entrance of Emerald Bay;
- whether traffic control/restrictions could occur during the peak boating season (Memorial Day weekend through Labor Day weekend);

- whether marker buoys will be installed to identify a surrounding zone of avoidance while divers are installing bottom barrier equipment;
- whether non-motorized watercraft (particularly kayaking and paddle boarding) will be affected by proposed traffic control/restrictions; and
- proposed locations of public notices regarding watercraft traffic control/restrictions; locations should include public marinas and the watercraft inspection stations.

In addition to addressing the above concerns, the traffic control plan should identify mitigation measures and serve as the basis for determining the overall level of traffic and recreation impacts attributable to the Project.

Thank you for the opportunity to comment on the MND for the Project. As a responsible and trustee agency, the CSLC will need to rely on the MND for the issuance of any amended/new lease as specified above and, therefore, we request that you consider our comments prior to adoption of the MND. Please send additional information on the Project to the CSLC staff listed below as plans become finalized.

Please send copies of future Project-related documents, including an electronic copy of the MND, when they become available, and refer questions concerning environmental review to Jason Ramos, Environmental Scientist, at (916) 574-1814 or via email at jason.ramos@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact Beverly Terry, Public Land Manager, at (916) 574-0343, or via email at beverly.terry@slc.ca.gov.

Sincerely,



Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
Beverly Terry, LMD, CSLC
Jason Ramos, DEPM, CSLC

California State Lands Commission Comment Response

Project Location and Description

Comment Summary:

The bottom barriers will remain on the lake bottom for more than six months, but less than 20 months, and will serve to deplete oxygen within the underlying lake bottom substrate to extirpate AC as the target species.

Response:

Barriers may need to be in place for up to 24 months instead of up to 20 months to avoid conducting barrier installation or removal during the busy boating recreation period between Memorial Day and Labor Day. If there are unexpected delays in project implementation, it would be preferable to leave the barriers for an additional 4 months to avoid conducting work during the busy visitor use period. We will add a bullet to **Mitigation Measure Rec-1** to state that “To the extent possible, all installation and removal activities will be scheduled outside of the high recreation period between Memorial Day and Labor Day.” This will not affect any of the assessments in the environmental analysis.

Comment Summary:

However, they will also affect other macro-invertebrate and aquatic plant species.

Response:

As stated in the Biological Resources discussion, this project is not expected to have significant impacts on any species identified as sensitive, candidate, or special status. Researchers have reported no aquatic vegetation in the project area so no impacts to aquatic plant species are expected.

Environmental Review – Project Description

Comment Summary:

The reviewer states that the project description is lacking with regard to specific information necessary to fully understand the nature of the impacts including:
More detail regarding proposed watercraft control/restriction measures during bottom barrier installation and removal activities.

Response: Mitigation Measure Rec-1: Boating Access states that there will be coordination with tour boat operators, coordination with the U.S. Coast Guard, public notices, a boat positioned to provide information during operations, scheduling to avoid high recreation periods, and traffic control for motorized boat traffic for up to 6 hours per day for approximately a month during barrier installation and during removal. This traffic control will require closure of the mouth of Emerald Bay unless the water level is high enough to allow passage of non-motorized boats and escorted passage of motorized boats, as stated in **Mitigation Measure Rec-1: Boating Access bullet 3**. These restrictions on boating are also discussed in **Transportation/Traffic** and **Public Services**. We will add a bullet to **Mitigation Measure Rec-1** to state that “To the extent possible, all installation and removal activities will be scheduled outside of the high recreation period between Memorial Day and Labor Day.”

More detail on the range of lake bottom elevations, and locations of the marker buoys and watercraft navigation land at the entrance of Emerald Bay, to identify whether the bottom barriers would be located within the watercraft navigation lane.

Response: These comments are related to whether or not boat traffic into and out of Emerald Bay will be restricted. The map on Appendix A shows the contours of water depth which detail the deepest part of the channel where the watercraft navigation lane is. The Asian clam project activities would occur throughout the entire navigation lane as this is where the Asian clam infestation is centered. As stated above, traffic into and out of Emerald Bay will need to be controlled to implement the project safely (also discussed in **Transportation** and **Public Services**), which means that no boats will be allowed in or out for short periods of each day during installation and removal unless water levels are high enough to allow non-motorized boats to pass and escorted motorized boats to pass, while still protecting diver safety. These closure periods would be scheduled during the mornings and on weekdays to avoid visitor use periods to the extent possible and we will add a bullet to **Mitigation Measure Rec-1** to state that “To the extent possible, all installation and removal activities will be scheduled outside of the high recreation period between Memorial Day and Labor Day.”

More detail on characterization of the lake bottom substrate and fish habitat and/or Tahoe Regional Planning Agency designated fish habitat.

Response: This restoration project is located in prime feeding and cover habitat on the Tahoe Regional Planning Agency Fish Habitat Map. As stated in the Biological Resources discussion “The proposed project would not impede fish or wildlife movement and would not impact wildlife corridors. Work would occur in a fish bearing lake, but the high boat traffic and wave action in the treatment area, short term duration of barrier deployment and removal activities, and positive impact of removing an invasive competitor would result in less than significant impacts to fish.” There is also discussion of fish spawning areas and Lahontan cutthroat trout in the Environmental Setting section of **Biological Resources**. Completion of project activities would constitute a restoration of this prime feeding and cover habitat.

More detail on the total depth within the lake bottom substrate that will be affected/ treated by bottom barriers.

Response: This information is not currently known. The benthic barriers have been shown to kill Asian clams down to greater than 8 cm depth, and it is anticipated that impacts would be similar in this case. We do not feel that this information would change any determinations in this environmental analysis.

More detail on alternative treatment methods.

Response: Freezing clams in place has been suggested as a potential method because the technology is used in non-restoration actions to freeze sediment under the

surface of water bodies in order to conduct construction activities such as tunneling or installing piers. Since this method has not been tested on clams, we cannot provide the detail requested. We will remove freezing as a potential alternative method to test with pilot research under this project. Freezing will be removed from the Project Description, 2.4 Project Objectives, 2.4 Project Description and Implementation under design and testing of alternative treatment methods, and from the Section V Cultural Resources discussion.

Regarding suction dredging and other potential alternative methods, **Mitigation Measure Hydro-1: Water Quality** states that “underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.”

Suction dredging has been used to treat Asian clams in Lake Tahoe and this method will be fully permitted if it is an option that becomes necessary to successfully treat Asian clams in Emerald Bay. Suction removal is described in the **Geology and Soils Discussion b)**.

More detail on ongoing monitoring activities of the treatment area both during treatment and after removal of the barriers.

Response: Regarding monitoring- **Mitigation Measure Hydro-1: Water Quality** states that “underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.” Monitoring requirements that satisfy all of these permit conditions will be adhered to, including the development of a Water Quality Monitoring Plan as stated in **Mitigation Measure Hydro-1: Water Quality**.

In addition, **2.5 Project Description and Implementation** details baseline condition sampling and requirements for post-project monitoring for a period of up to 3 years.

More detail on how clam shells will be dealt with following removal of the bottom barriers.

Response: Asian clam shells will be produced and deposited onsite without this restoration treatment. If the clams are not controlled, the clam shell deposition will be a chronic condition into the future as the clams reproduce and die and keep reproducing and dying. Project activities are expected to reduce or remove this long term chronic condition.

Aesthetics

Comment Summary:

The MND states that there will be no impact to the existing visual character or quality of the Project site. The comment states that the MND does not address the extent to which the top surface color of the barriers may have visual impacts by watercraft recreationists.

Response: The MND makes that determination in the **Aesthetics** discussion that the project will not substantially degrade the existing visual character or quality of the site or its surroundings. This determination is made because the project will be short term in nature and there will be no permanent impacts which would substantially degrade the visual character of the site. Clam shell deposits from infestations in other areas of Lake Tahoe can be seen from aircraft and leaving the clam infestation in Emerald Bay untreated could lead to a permanent and substantially degraded visual character.

The comment states that the MND does not address the extent to which the barrier color may have visual impacts by watercraft recreationist. However; visual impacts are discussed in the **Aesthetics Discussion a)** “Impacts to the scenic vista from deployment and removal of benthic barriers will consist of temporary boat use at the mouth of Emerald Bay. Boats are a very common fixture in the bay so this will not change the scenic vista. The benthic barriers may be visible by boaters traveling in and out of the bay, but a fine sediment layer typically covers the barriers within days, making the barriers difficult to see unless specifically looking for them, resulting in less than significant impacts.” This assessment of the visibility of the barriers is based on having 2 10X100 foot black barriers in the navigation channel of Emerald Bay for the past 12 months and receiving no negative input or comments from visitors. Barriers used in this project will be black. Many boaters that frequent Emerald Bay were asked how they felt about the barriers, only to find out that they had never seen them. We also tested light colored weed barriers in Emerald Bay compared to dark colored material and the light colored barriers were much more visible. **Please see our paper which discusses testing of barrier coloration (<http://www.tahoescience.org/wp-content/uploads/2011/10/Effectiveness-of-Aquatic-Invasive-Plant-Control-in-Emerald-Bay-Lake-Tahoe-California.pdf>)**

Biological Resources

Comment Summary:

There is no discussion whether informal or formal consultation has occurred in regards to Lahontan cutthroat trout and that consultation between the U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (FWS) could result in potential mitigation measures, since a permit will be required from the USACE.

Response: Lahontan cutthroat trout were introduced into Emerald Bay in August of 2011 as a recreational fishery and to collect scientific information, not as a recovery effort. This is detailed in the Biological Resources Section as follows “Researchers are in the process of reintroducing the Federally Threatened Lahontan cutthroat trout into Lake Tahoe and Emerald Bay and monitoring survival and life history as well as providing a recreational fishery. These fish are obligate stream spawners so deployment of benthic barriers is not expected to impact potential spawning habitat. A combination of factors is presumed to have led to the extinction of Lahontan cutthroat trout from Lake Tahoe, with the introduction of non-native species perhaps being the

primary factor. Asian clams are a non-native species that negatively impact native species and removal of these clams from a target reintroduction area is not anticipated to negatively impact reintroduced Lahontan cutthroat trout.” Our determination that these project activities were not anticipated to negatively impact reintroduced Lahontan cutthroat trout.

Regarding consultation with the FWS- **Mitigation Measure Hydro-1: Water Quality** states that “underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.”

Protective measures required for successful receipt of all required permits as directed in **Mitigation Measure Hydro-1: Water Quality**, will be adhered to as stated. Because there will be a federal agency involved in permitting, potential consultation with the FWS likely will not occur between DPR and the FWS, but rather between the two federal agencies.

Greenhouse Gas (GHG) Emissions

Comment Summary:

The MND should include a complete accounting of the Greenhouse Gas emission sources, a quantitative or qualitative estimate of GHG emissions, and how those GHG emissions compare to any applicable local, regional, or State thresholds.

Response: The discussion in **VII Greenhouse Gas Emissions** determines that “Equipment used in project activities including delivery vehicles, barge, and boats could contribute to an increase in CO₂ and N₂O levels, both components of GHG. The limited use of boats and vehicles, and the temporary nature of this activity, would result in a less than significant impact on the generation of GHG emissions.” In addition, the spread of invasive bivalves like Asian clams has been reported in the literature as a substantial potential local and global contributor to carbon dioxide (see Chauvaud, L. et al. Clams as CO₂ generators: The *Potamocorbula amurensis* example in San Francisco Bay. *Limnol. Oceanogr.* 48(6), 2003) so leaving the infestation untreated could result in a substantial chronic contribution of CO₂ in the project area.

Hydrology and Water Quality

Comment Summary:

Please include further description of where the Eagle Point Campground water intake is located so the reader can better assess potential impacts to the water intake.

Response: The Lead Agency needs to affirmatively document whether any subsurface utilities are present in the project area at the time the project is submitted for coverage under a Water Quality Certification as required by **Mitigation Measure Hydro-1: Water Quality**. The closest current distance from any utility to the infestation is 600 feet. The

barriers have not been secured with rebar driven into the substrate during pilot activities (rebar was used as a weight laid over the top of the barriers) and rebar inserted into the substrate would not be necessary to complete this project. In addition, ponar grabs are a sampling method and avoiding sampling near the utilities would not impact sampling results. Ponar grab samplers are the main bottom sampling device use to study the composition of the bottom of a lake or river and the device is named after Great Lakes scientists. So, no subsurface disturbance anywhere within a potential utility area would be necessary to complete project activities and there will be no impacts to these facilities.

Noise

Comment Summary:

The Environmental Setting section should be revised to discuss whether the Project area is currently out of attainment with any State, federal, or Tahoe Regional Planning Agency (TRPA) noise standards. Project-related noise should then be evaluated against the baseline of existing noise to determine if additional mitigation is needed, or to justify why mitigation is not required. The Environmental Setting should also identify that Emerald Bay is subject to a 5 mile per hour “no wake” zone, which among other objectives is intended to reduce motorized watercraft noise at Emerald Bay.

Response: Because boat traffic in and out of Emerald Bay would be restricted during project activities, the baseline condition of existing noise would be diminished substantially during installation and removal. This reduction in baseline noise levels, along with the short-term and limited production of project-related noise resulted in a determination that the limited short-term noise produced by project activities would not rise above the level of a Less than Significant Impact.

This issue is detailed in the **Noise Discussion Section d)** “The mouth of Emerald Bay is exposed to relatively high boat traffic in Lake Tahoe, and the noise that accompanies this boat use. Project activities will result in boat use at the project site and noise from a winch or backhoe, or from suction removal equipment such as an air compressor or pump. However, this noise will be temporary in nature and will not be substantially higher than the periodic noise that this site routinely experiences. Project activities may require a temporary reduction in boat traffic into Emerald Bay which would reduce the ambient noise during project activities. This will result in less than significant impacts.”

The 5 mph “no wake” zone would adhere to project related boats as well so there would be no change in this regard from baseline conditions.

Recreation and Traffic

Comment Summary:

These sections do not account for a “worst case” scenario of having to manage watercraft recreation and traffic for bottom barrier installation/removal activities during the peak boating season (Memorial Day weekend through Labor Day weekend). The reviewer recommends a

detailed traffic control plan if delays result in work being necessary during this high visitor use period.

Response: We believe the main concerns expressed in these comments are the potential problems associated with conducting installation or removal of barriers during the busy visitor use period. We agree and to the extent possible, we will avoid the busy visitor use period between Memorial Day and Labor Day, unless there are barriers that need to be re-secured or small modifications to the project are necessary. We will add a bullet to **Mitigation Measure Rec-1** to state that “To the extent possible, all installation and removal activities will be scheduled outside of the high recreation period between Memorial Day and Labor Day.”

In addition, **Mitigation Measure Rec-1: Boating Access** states that there will be coordination with tour boat operators, coordination with the U.S. Coast Guard, public notices, a boat positioned to provide information during operations, scheduling to avoid high recreation periods, and traffic control for motorized boat traffic for up to 6 hours per day for approximately a month during barrier installation and during removal. This traffic control will require closure of the mouth of Emerald Bay unless the water level is high enough to allow passage of non-motorized boats and escorted passage of motorized boats, as stated in **Mitigation Measure Rec-1: Boating Access bullet 3**. These restrictions on boating are also discussed in **Transportation/Traffic and Public Services**.

INITIAL STUDY MITIGATED NEGATIVE DECLARATION



ASIAN CLAM CONTROL PROJECT EMERALD BAY STATE PARK

2012



State of California
California State Parks

FINAL MITIGATED NEGATIVE DECLARATION

PROJECT: ASIAN CLAM CONTROL PROJECT, EMERALD BAY STATE PARK

LEAD AGENCY: California Department of Parks and Recreation

AVAILABILITY OF DOCUMENTS: The Initial Study for this Mitigated Negative Declaration is available for review at:

- Sierra District Headquarters
California Department of Parks and Recreation
7360 West Lake Blvd.
Tahoma, CA 96142
- Northern Service Center
California Department of Parks and Recreation
One Capitol Mall, Suite 410
Sacramento, CA 95814

PROJECT DESCRIPTION:

The California Department of Parks and Recreation (DPR) proposes to treat and control Asian clams (*Corbicula fluminea*) in Emerald Bay State Park in Lake Tahoe, California. The following is a brief summary of proposed work:

- Strategically place EPDM rubber pond liner (or similar) material over the benthic substrate (benthic barriers) where an Asian clam (AC) population occurs on the lake floor within Emerald Bay State Park. This infestation increased in size by 40% between 2009 and 2011.
- Employ other treatment methods such as suction removal ~~or substrate-freezing~~ in areas where placement of rubber benthic barriers has limited success. Insertion of material such as straw under the barriers will also be tested to determine if these supplements help to decrease dissolved oxygen under the mats to more effectively treat the AC.
- Conduct pre- and post-project characterization of the benthic invertebrate community to document effectiveness of AC treatment and impacts on other benthic invertebrates.

A copy of the Initial Study is attached. Questions or comments regarding this Initial Study/Mitigated Negative Declaration may be addressed to:

Dan Shaw
California State Parks
Sierra District Resources Office
P.O. Box 16
Tahoe City, CA 96145-0016
E-mail Address: dshaw@parks.ca.gov
Include "Asian Clam Control" on the subject line
Fax Number: 530/581-5849

Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Parks and Recreation (DPR) has independently reviewed and analyzed the Initial Study and Draft Mitigated Negative Declaration for the proposed project and finds that these documents reflect the independent judgment of DPR. DPR, as lead agency, also confirms that the project mitigation measures detailed in these documents are feasible and will be implemented as stated in the Mitigated Negative Declaration.

Acting District Superintendent

Date

Environmental Scientist

Date

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

The Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed Asian Clam Control Project at Emerald Bay State Park, El Dorado County, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 *et seq.*, and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 *et seq.*

An Initial Study is conducted by a lead agency to determine if a project may have a significant effect on the environment [CEQA Guidelines §15063(a)]. If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the lead agency determines that revisions in the project plans or proposals made by or agreed to by the applicant mitigate the potentially significant effects to a less-than-significant level, a Mitigated Negative Declaration may be prepared instead of an EIR [CEQA Guidelines §15070(b)]. The lead agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

1.2 LEAD AGENCY

The lead agency is the public agency with primary approval authority over the proposed project. In accordance with CEQA Guidelines §15051(b) (1), "the lead agency will normally be an agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The lead agency for the proposed project is DPR. The contact person for the lead agency regarding specific project information is:

Dan Shaw, Environmental Scientist
California Department of Parks and Recreation
Sierra District Resources Office
1155 North Lake Boulevard (PO Box 16)
Tahoe City, CA 96145
(530) 581-4315 Phone
(530) 581-5849 Fax
Email Address: dshaw@parks.ca.gov
(Include "Asian Clam Control" on the subject line)

Submissions must be in writing and postmarked or received by fax or email no later than March 26, 2012. The originals of any faxed document must be received by regular mail within ten working days following the deadline for comments, along with proof of successful fax transmission. Email or fax submissions must include full name and address. All comments will be included in the final environmental document for this project and become part of the public record.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the proposed Asian Clam Control Project at Emerald Bay State Park. Mitigation measures have also been incorporated into the project to eliminate any potentially significant impacts or reduce them to a less-than-significant level.

This document is organized as follows:

- Chapter 1 - Introduction.
This chapter provides an introduction to the project and describes the purpose and organization of this document.
- Chapter 2 - Project Description.
This chapter describes the reasons for the project, scope of the project, and project objectives.
- Chapter 3 - Environmental Setting, Impacts, and Mitigation Measures.
This chapter identifies the significance of potential environmental impacts, explains the environmental setting for each environmental issue, and evaluates the potential impacts identified in the CEQA Environmental (Initial Study) Checklist. Mitigation measures are incorporated, where appropriate, to reduce potentially significant impacts to a less than significant level.
- Chapter 4 - Mandatory Findings of Significance.
This chapter identifies and summarizes the overall significance of any potential impacts to natural and cultural resources, cumulative impacts, and impact to humans, as identified in the Initial Study.
- Chapter 5 - Summary of Mitigation Measures.
This chapter summarizes the mitigation measures incorporated into the project as a result of the Initial Study.
- Chapter 6 - References.
This chapter identifies the references and sources used in the preparation of this IS/MND.
- Chapter 7 - Report Preparation

This chapter provides a list of those involved in the preparation of this document.

1.4 SUMMARY OF FINDINGS

Chapter 3 of this document contains the Environmental (Initial Study) Checklist that identifies the potential environmental impacts (by environmental issue) and a brief discussion of each impact resulting from implementation of the proposed project.

Based on the IS and supporting environmental analysis provided in this document, the proposed Asian Clam Control Project would result in less than significant impacts for the following issues: aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.

In accordance with §15064(f) of the CEQA Guidelines, a MND shall be prepared if the proposed project will not have a significant effect on the environment after the inclusion of mitigation measures in the project. Based on the available project information and the environmental analysis presented in this document, there is no substantial evidence that, after the incorporation of mitigation measures, the proposed project would have a significant effect on the environment.

CHAPTER 2

PROJECT DESCRIPTION

2.1 INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed Asian Clam Control Project at Emerald Bay State Park, located in El Dorado County, California. The proposed project would control a population of invasive Asian clams near the mouth of Emerald Bay (see map: Appendix A).

2.2 PROJECT LOCATION

Lake Tahoe is a large, high elevation (approximately 6,223 ft.) lake in the Sierra Nevada Mountains. The lake sits in a basin encompassed by the Crystal Range to the west and the Carson Range to the east. The border between California and Nevada divides the lake. Lake Tahoe Basin is approximately 20 miles southwest of Reno, Nevada and approximately 80 miles northeast of Sacramento, California.

Emerald Bay State Park (SP) is located around Emerald Bay, a National Natural Landmark since 1968. It is immediately south and contiguous with D. L. Bliss SP. The park contains the only island in Lake Tahoe- Fannette Island. In 1994, DPR included the surrounding water of the bay as a part of the park, making Emerald Bay SP one of the first underwater parks of its type in the state. The underwater park is managed by DPR under a lease from the California State Lands Commission. The park is accessible by State Route 89 near the southwest shore of the lake. The unit is 663 land acres in size, with the underwater area of Emerald Bay covering an additional 870 acres. There is approximately 14,130 feet of shoreline along Lake Tahoe.

2.3 BACKGROUND AND NEED FOR THE PROJECT

Asian clam (*Corbicula fluminea*; AC) were first documented in Lake Tahoe in 2002 (U.C. Davis 2009; Whittmann et al. 2011). Since the initial AC detection, the populations in South Lake Tahoe increased rapidly from 1 to nearly 200 acres in less than 10 years with densities up to 6,000 individuals per square meter measured (U.C. Davis 2010). A relatively sparse population was discovered near the mouth of Emerald Bay in 2009. Initial surveys estimated this infestation at approximately 3.5 acres in size just inside and on the south side of the mouth of Emerald Bay, in water depths of 6 to 30 feet (see map: Appendix A). Surveys in 2011 showed the infestation had spread to approximately 5.5 acres (2011 U.C. Davis Survey Results; see Appendix A), an increase in infestation size of over 40% in only two years. An expansion of the Emerald Bay infestation similar to that seen in South Lake Tahoe would result in considerable ecological and recreation impacts.

The invasion and establishment of AC can lead to a variety of negative impacts (U.C. Davis 2009; Whittmann et al. 2011). The clams can dominate native benthic invertebrates and plants which are important components of the food web in Lake Tahoe, and the presence of AC may increase the habitat suitability for other non-native invasive species such as zebra and quagga mussels and promote algal growth. Water quality can be degraded through concentrated nutrient excretion and associated algal blooms. The extended algal blooms supported by clam populations can have far reaching impacts on nearshore conditions. When algae die and wash ashore, they decompose and rot on beaches and rocks where they impact the aesthetic beauty of the lake and influence water quality and clarity. Localized populations of AC in Lake Tahoe have densities among the highest recorded worldwide (U.C. Davis 2010) and have been observed growing at greater depths than reported in the literature anywhere else they occur.

The infestation in Emerald Bay is currently a relatively sparse population presumed to still be in the early stages of invasion. This level of infestation offers the opportunity to prevent further spread and contain or control the existing infestation. If the population goes untreated for even a short duration of time, this small and sparse infestation could potentially expand as seen in the populations in South Lake Tahoe and in the 40% increase in infestation size over the two years since the infestation was discovered. An expanded infestation will become extremely difficult and expensive to control.

A small scale experiment by UC Davis researchers in 2009 using 10' by 10' EDPM pond liners reduced the dissolved oxygen available to AC and resulted in 100% mortality after 28 days at peak summer temperatures. Additional work utilizing this technique has shown that it is a good method with which to cause AC mortality. There is some subsurface water flow through the sill in the mouth of Emerald Bay, so benthic barrier deployment at this site will require barriers to be in place for an extended duration to determine if longer deployment increases mortality, and alternative treatment methods may be required to supplement the benthic barrier treatment method.

2.4 PROJECT OBJECTIVES

The mission of DPR is to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality recreation. The intent of the proposed Asian Clam Control Project is to:

- Treat a relatively sparse and discrete population of Asian clams within Emerald Bay prior to the local spread of the population by covering the infestation with benthic barriers to create anoxic conditions in order to kill the clams and by supplementing benthic barrier treatment with additional treatment methods such as suction removal and ~~potentially freezing the clams in place.~~
- Characterize the benthic invertebrate community prior to barrier installation and after removal to assess effectiveness of the treatment and impacts on non-target invertebrates.

2.5 PROJECT DESCRIPTION AND IMPLEMENTATION

The application of a large scale, approximately 5.5 acre area of EPDM rubber pond liner (or similar material) bottom barriers will be initiated in early fall 2012, with an estimated bottom barrier removal date in ~~early to mid-~~ fall 2013. Unanticipated delays would potentially reschedule the anticipated start date until the ~~spring or summer of 2012~~ fall of 2013 and push back the removal date. Additional follow up treatments and techniques may be necessary to maintain the treatment effectiveness and supplement the barrier treatment. The major field actions to occur during this time include: a) a field delineation of the project area site, b) baseline condition sample collection, c) delivery of rubber pond liner materials from land to field site, d) placement of rubber pond liner material at field site (underwater), e) design and testing of alternative treatment methods and f) removal and decontamination of the barrier material. The following is a description of each of the six major actions:

Field delineation of the project area

The infestation area will be marked underwater using rebar stakes and 3/8 inch nylon rope at the Emerald Bay site (see map: Appendix A). The stakes will be secured into the bottom substrate and the nylon rope will be tied to the stakes along the lake bottom. All materials will be directly upon the lake bottom except for site indicator subsurface floats placed on the corners of the field delineation site that will be 3 feet above the bottom (12 feet below the water surface). This delineated area will help to guide the placement of the bottom barrier application and guide the science team for collection of baseline and ongoing monitoring samples.

Baseline condition sample collection

A pre-application characterization of benthic macroinvertebrate communities will be conducted at the project site by benthic grab samples (using a Ponar sampler) as well as SCUBA-based sampling for sediment porewater nutrient content and sediment algal content (Seston). Ponar grab samplers are the main bottom sampling device use to study the composition of the bottom of a lake or river and the device is named after Great Lakes scientists. The Ponar samples will be collected in and around the treatment area to identify the abundance and biodiversity of the benthic macroinvertebrate community in this area, and to characterize the AC populations in this treatment area. The Ponar sample locations will be in regular distances from the edge of the delineated barrier plot to the center, as well as along the fringe of the plot. This monitoring will continue (at a reduced sampling rate) immediately after bottom barrier removal and for a period of up to 3 years.

Delivery of rubber materials from land to underwater field site

Approximately 250 100-foot long by 10-foot wide 45 mil. black rubber sheets (or equivalent) will be placed, overlapping upon each other for a continuous area of coverage. These sheets will be transferred to a barge or boat and delivered to Emerald Bay. These sheets must be prepared on land for application in the lake and this may include: rolling the sheets onto PVC pipe cores for diver ease of handling, and preparing

the edges of the rubber sheets for underwater securement as well as for removal after the application period is complete. Once the preparation stage is complete, the rubber barrier material will be transferred to a barge or boat and delivered to the field site.

Placement of the rubber material at the field site

The rubber barriers and associated weights (rebar rods and/or chain link) for the rubber sheets will be lowered to the lake bottom from the side of the barge using a winch or backhoe. The materials will be lined up along the edge of the delineated field site. Float bags may be used to secure the rubber bottom barrier material underwater to reduce the weight of each rubber barrier roll. The rubber barriers will be rolled out underwater by divers. It is estimated that approximately 6 divers per day for 20 days (3 hours each in water, 4 in the water at any one time) is required for this task. Shorter dives to schedule work to avoid high visitor use periods or for other reasons would increase the number of days required to complete work. After the rubber barriers are rolled out, the edges and seams of the rubber treatment site will be covered with rebar and other weights (no sand bags will be used) and staked down where necessary; it is estimated that this task will take 10 days (total of 6 divers, 3 hours each in water, 4 people in water at any one time).

Design and testing of alternative treatment methods

Benthic barrier treatment has been shown to be a very effective method to kill AC in Lake Tahoe, but there are some situations where flow through the substrate underneath the barriers allows clams to survive in a highly stressed state. In these limited situations, alternative methods to supplement benthic barrier treatment will be required to control AC. One alternative tested will be insertion of supplemental material such as straw (organic matter) under the barriers to determine whether the supplements adequately decrease dissolved oxygen under the mats to increase the effectiveness of the benthic barriers where there is some subsurface flow. Suction removal of AC has been tested in Lake Tahoe but the method was determined to be more costly than the benthic barrier treatment method. We may engineer and test new suction removal technology to attempt to bring the cost down and this method may be used to supplement benthic barrier treatment in Emerald Bay. ~~Additionally, a literature review and pilot testing of additional methods such as freezing clams in place in the substrate may be employed depending on treatment cost.~~ All treatment methods will be vetted through the permitting agencies and included in all permit applications.

Removal and decontamination of rubber material

After greater than 6 months but less than ~~20-24~~ months, the rubber bottom barriers and all associated materials will be removed from the lake bottom. The initial step in this process is to remove all weights from the field treatment site. It is estimated this task will take 20 days (total of 6 divers, 3 hours each in water, 4 in water at any one time). Shorter dives to schedule work to avoid high visitor use periods or for other reasons would increase the number of days required to complete work. The next step is the removal of each rubber barrier sheet. A diver will attach the edges of each sheet to a rolling system that will be operated from the barge. The rolling system will draw the sheet up as it rolls it up from the bottom of the lake and will require no diver labor other

than attachment and monitoring of proper recovery. After all barriers and weighting materials are removed from the lake bottom, they will be delivered to an established decontamination station. Decontamination will occur using high pressure, high temperature (140 degrees or greater) wash stations to remove any clam, algal, or other remaining biological material. This decontamination will occur at sites established and operated by resource management and regulatory agencies in the Lake Tahoe Basin that manage the Tahoe Boat Inspection Program.

2.6 PROJECT REQUIREMENTS

Under CEQA, the Department of Parks and Recreation (DPR) has the distinction of being considered a lead agency, a public agency that has the primary responsibility for carrying out or approving a project and for implementing CEQA. A responsible agency is a public agency other than the lead agency that has responsibility for carrying out or approving a project and for complying with CEQA. A trustee agency is a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California. With this distinction comes the responsibility to ensure that actions that protect both cultural and natural resources are always taken on all projects. Therefore, DPR maintains a list of Project Requirements that are included in project design to reduce impacts to resources.

DPR has developed a list of Standard Project Requirements that are actions that have been standardized statewide for the use of avoiding significant project-related impacts to the environment. From this list, standard project requirements are assigned, as appropriate to all projects. For example, projects that include ground-disturbing activities such as trenching would always include standard project requirements addressing the inadvertent discovery of archaeological artifacts. However, for a project that replaces a roof on an historic structure, ground disturbance would not be necessary; therefore standard project requirements for ground disturbance would not be applicable and would not be assigned to the project.

DPR also makes use of specific project requirements. These are project requirements that are developed to address project impacts for projects that have unique issues; they would not typically be standardized for projects statewide.

2.9 CONSISTENCY WITH LOCAL PLANS AND POLICIES

The project is consistent with the DPR mission and its management directives aimed at preserving the state's extraordinary biological diversity and protecting valued natural resources. The proposed project is consistent with local plans and policies currently in effect and is being coordinated with other agencies in the Tahoe Basin. Please see Chapter 3, Section X, Land Use and Planning, for further details.

2.10 DISCRETIONARY APPROVALS

DPR retains approval authority for the proposed Asian Clam Control Project on lands it manages. The project also requires approval from the following government agencies:

- Permitting agencies including the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and California Department of Fish and Game.
- California State Lands Commission through which DPR leases the underwater portion of Emerald Bay State Park.

Additional internal document reviews include compliance with Public Resources Code § 5024; Cultural Resources. DPR will acquire all necessary reviews and permits prior to implementing any project components requiring regulatory review.

2.11 RELATED PROJECTS

DPR and cooperating agencies are conducting ongoing invasive aquatic weed control programs in Emerald Bay. These weed infestation areas are on the opposite end of Emerald Bay from the known AC project area, but any new aquatic weed infestations would be actively controlled if they become established near the AC project area.

CHAPTER 3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1. Project Title: Asian Clam Control, Emerald Bay
2. Lead Agency Name & Address: California Department of Parks and Recreation
3. Contact Person & Phone Number: Dan Shaw (530) 581-4315
4. Project Location: Emerald Bay State Park
5. Project Sponsor Name & Address: California Department of Parks and Recreation
Sierra District Resources Office
PO Box 16
Tahoe City, CA 96145-0016
6. General Plan Designation: None
7. Zoning: Public Lands
8. Description of Project: The intent of the proposed Asian Clam Control Project is to:
*Treat a relatively sparse and discrete population of Asian clams in Emerald Bay before the population spreads by covering the infestation with benthic barriers to create anoxic conditions in order to kill the clams and by supplementing benthic barrier treatment with additional methods such as suction removal, ~~potentially freezing clams in place~~, supplementing barriers with biomass to increase biological oxygen demand, ~~or other methods~~.
9. Surrounding Land Uses & Setting: Refer to Chapter 3 of this document (Section X, Land Use Planning).
10. Approval Required from Other Public Agencies: Refer to Chapter 2, Section 2.9

1. 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"/> Agricultural Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <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"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | <input checked="" type="checkbox"/> None |

DETERMINATION

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 original scope of the proposed project **COULD** have had a significant effect on the environment, there **WILL NOT** be a significant effect because revisions/mitigations to the project have been made by or agreed to by the applicant. 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** or its functional equivalent will be prepared.

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment. However, at least one impact has been adequately analyzed in an earlier document, pursuant to applicable legal standards, and has been addressed by mitigation measures based on the earlier analysis, as described in the report's attachments. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the impacts not sufficiently addressed in previous documents.

I find that, although the proposed project could have had a significant effect on the environment, because all potentially significant effects have been adequately analyzed in an earlier EIR or Negative Declaration, pursuant to applicable standards, and have been avoided or mitigated, pursuant to an earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, all impacts have been avoided or mitigated to a less-than-significant level and no further action is required.

Environmental Coordinator

Date

ENVIRONMENTAL ISSUES

I. AESTHETICS.

ENVIRONMENTAL SETTING

The topography, flora, water features, and climate combine to create the aesthetic character of Emerald Bay State Park (SP). Chapter 3 provides an overview of the park's environmental setting and a brief reiteration of regional features affecting the park's aesthetic resources is included below.

Lake Tahoe is a large, high elevation (approximately 6223 ft.) lake in the Sierra Nevada Mountains. The Lake Tahoe Basin is renowned for its natural beauty and Lake Tahoe is recognized as an Outstanding National Resource Water by the U.S. Environmental Protection Agency's Water Quality Standards Program and the Clean Water Act. Rugged peaks, forested slopes, and the clear, blue waters of the lake characterize the scenery. The lake sits in a basin encompassed by the Crystal Range to the west and the Carson Range to the east. The border between California and Nevada divides the lake. Lake Tahoe Basin is approximately 20 miles southwest of Reno, Nevada and approximately 80 miles northeast of Sacramento, California.

Emerald Bay is an embayment in the southwest corner of Lake Tahoe with a narrow inlet separating the bay from the lake. Emerald Bay is a unique, high profile attraction in the Lake Tahoe basin and is a primary destination for photographers, boaters, campers, hikers, and other recreationists. Formed through glacial activity in the last ice-age, the bay is approximately 1.7 miles long and 2/3 mile wide at the widest point (total surface area of approximately 704 acres).

Emerald Bay SP is located around Emerald Bay, a National Natural Landmark since 1968 (DPR 1990). It is immediately south and contiguous with D. L. Bliss SP. The park contains the only island in Lake Tahoe - Fannette Island. In 1994, the California Department of Parks and Recreation (DPR) included the surrounding water of the bay as a part of the park, making Emerald Bay one of the first underwater parks of its type in the state. The park is accessible by State Route 89 near the southwest shore of the lake. The unit is 663 land acres in size, with the underwater area in and adjacent to Emerald Bay covering an additional 870 acres. There is approximately 14,130 feet of shoreline along Lake Tahoe.

The California Legislature initiated the California Scenic Highway Program in 1963, with the goal of preserving and protecting the state's scenic highway corridors from changes that would reduce their aesthetic value. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 *et seq.* The State Scenic Highway System consists of eligible and officially designated routes. A highway may be identified as eligible for listing as a state scenic highway if it offers travelers scenic views of the natural landscape, largely undisrupted by development. Eligible routes advance to officially designated status when the local jurisdiction adopts ordinances to establish a scenic corridor protection program

and receives approval from the California Department of Transportation. In El Dorado County, State Route 89 is a designated scenic highway along the southwest portion of Lake Tahoe.

WOULD THE PROJECT:	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) Impacts to the scenic vista from deployment and removal of benthic barriers will consist of temporary boat use at the mouth of Emerald Bay. Boats are a very common fixture in the bay so this will not change the scenic vista. The black benthic barriers may be visible by boaters traveling in and out of the bay, but a fine sediment layer typically covers the barriers within days, making the barriers difficult to see unless specifically looking for them, resulting in less than significant impacts.
- b) Work will occur under the surface of the water and a considerable distance from state scenic Highway 89. No impact.
- c) Barrier deployment will be temporary in nature and the barriers will be installed and removed during a period of six to ~~20~~ 24 months. The existing visual character of the site will not be permanently altered. No impact.
- d) The project does not create a new source of light or glare. No impact.

II. AGRICULTURAL AND FOREST RESOURCES.

ENVIRONMENTAL SETTING

The Williamson Act of 1965 is the state's principal policy for the preservation of agricultural land (CDOC 2010a). The program encourages landowners to work with local governments to protect important farmland.

Proposed project activities would occur in the underwater portion of Emerald Bay State Park (SP) in the Lake Tahoe Basin. The park unit supports mature and second growth mixed-conifer forest, riparian habitats, wet and dry meadows, and rocky slopes. Agricultural operations and farm land are not located within the boundaries of Emerald Bay SP and the project area does not adjoin any agricultural lands. Neither the state park unit nor adjacent lands (federal, state, or private) are enrolled per the Williamson Act (CDOC El Dorado 2009). None of the land within Emerald Bay SP or the area immediately surrounding the park unit is included in any of the Important Farmland categories, as delineated by the California Department of Conservation under the Farmland Mapping and Monitoring Program (CDOC 2010b).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT*:				
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 Public Resources Code §4526), or timberland zoned Timberland Production (as defined by government Code § 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"/>

* 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), prepared by the California Department of Conservation as an optional model for use in assessing impacts on agricultural and farmland.

DISCUSSION

a-e) As noted in the Environmental Setting above, the state park unit proposed for project activities does not support any agricultural operations. All work proposed as part of this project would be confined within park boundaries. Therefore, this project will have no impact on any category of California Farmland or Timberland, will not conflict with any existing zoning for agricultural or forest land use, or result in the conversion of farmland to non-agricultural use. No impact.

III. AIR QUALITY.

ENVIRONMENTAL SETTING

Lake Tahoe sits in a high-elevation basin bounded by the Sierra Nevada Mountains to the west and the Carson Range to the east. The source of the air pollutants that threaten Lake Tahoe water clarity are created both locally and from outside the basin. Local sources are the most significant contributor of pollutants and include urban and forest wood smoke, vehicle exhaust, and dust (Gertler et al. 2006). Air pollution sources from outside the basin include Sacramento and San Francisco Bay Area urban pollutants and smoke from wildfires.

The Lake Tahoe Air Basin is comprised of the eastern portions of Placer and El Dorado Counties in California and the western portions of Washoe, Douglas, and Carson City Counties in Nevada that encompass the Lake Tahoe hydrographic basin (CARB 2008). Emerald Bay State Park (SP) is within the jurisdiction of the El Dorado County Air Quality Management District (EDCAQMD 2010).

Climate

The climate of the Lake Tahoe region is generally Mediterranean, but is modified by topography and geography. It is characterized by relatively warm, dry summers, interrupted by occasional lightning storms, and cold, wet winters with variable precipitation, mostly falling as snow (O'Hara et al. 2007). Weather conditions can change rapidly as upper level wind currents and pressure systems in the western states shift locations and both dry and wet frontal systems move through the mountainous terrain.

The topographic condition of the Lake Tahoe Basin surrounded by high mountains has a tremendous influence on local weather conditions and the resulting air quality. Lake Tahoe experiences both surface-based and subsidence inversions. Surface-based inversions form when cool air settles down into the basin replacing the warmer surface air, resulting in the warm air rising and creating a lid over the basin, which traps the air below. These surface-based inversions generally begin late evening and lift during mid-morning as the sun warms the atmosphere. Subsidence inversions result from high pressure centered over the region. The high pressure compresses the atmosphere, creating a lid over the basin. These high pressure systems are common during the summer and fall, and may persist for long periods.

Air Quality Designations

Public land owners and managers within El Dorado County are subject to air quality planning programs required by the federal Clean Air Act of 1970 (CAA), its 1990 amendments, and the California Clean Air Act of 1988 (CCAA). Both the federal and state clean air statutes provide for ambient air quality standards related to air pollutants, timetables for progressing toward achieving and maintaining ambient standards, and the development of plans to guide air quality improvement efforts by state and local agencies. Ambient air pollutants called criteria pollutants are pollutants for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set.

The United States Environmental Protection Agency (USEPA) is responsible for setting National Ambient Air Quality Standards (NAAQS) and established national area designations

for six criteria pollutants after the passage of the Clean Air Act of 1970 (USEPA 2008). These pollutants include carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), particulate matter 10 microns or less in diameter (PM₁₀), and particulate matter 2.5 microns or less in diameter (PM_{2.5}). If an area does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant, it is designated as “non-attainment.” If an area meets the national primary or secondary ambient air quality standard for the pollutant, it is designated in “attainment.” An area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant is designated “unclassifiable” (USEPA 2008).

The California Air Resources Board (CARB) is the lead state agency responsible for air quality and for assisting local air districts in California. CARB has set California area designations for ten criteria pollutants including ozone, PM₁₀, PM_{2.5}, CO, NO₂, SO₂, sulfates, lead, hydrogen sulfide, and visibility reducing particles (VRPs). If a pollutant concentration is lower than the standard, the area is classified as “attainment” for that pollutant. If an area exceeds the standard, the area is classified as “non-attainment” for that pollutant. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated “unclassified” (CARB 2010).

CARB monitored the entire Lake Tahoe Air Basin for ambient air quality via a multi-agency cooperative agreement with the Nevada Division of Environmental Protection. Currently, the Lake Tahoe Air Basin is classified as attainment or unclassified/attainment for all the National Air Quality Standards criteria pollutants (CARB 2006). It is in attainment or unclassified for the California Ambient Air Quality Standards for all criteria pollutants except for the California State 24-hour Particulate Matter 10 (PM₁₀); however, it is in attainment for the annual average standard (Table III-1).

Table III-1: Air Quality Standards - 2006 Lake Tahoe Air Basin Air Quality Designations

Pollutant	State Designation	National Designation
Ozone	Unclassified	Unclassified
PM ₁₀	Non-Attainment	Unclassified
PM _{2.5}	Attainment	Unclassified
Carbon Monoxide	Attainment	Unclassified
Nitrogen Dioxide	Attainment	Unclassified
Sulfur Dioxide	Attainment	Attainment
Sulfates	Attainment	Not Applicable (NA)
Lead	Attainment	NA
Hydrogen Sulfide	Unclassified	NA
Visibility Reducing Particles	Unclassified	NA

(CARB 2006)

The Tahoe Regional Planning Agency (TRPA) uses the air quality data for the Lake Tahoe Basin to check if the TRPA air quality threshold is met. In the TRPA 2006 Threshold Evaluation Report, non-attainment of thresholds by indicators included carbon monoxide, ozone, particulate matter, regional visibility, and vehicle miles traveled (TRPA 2006).

Sensitive Receptors

There are several Forest Service lease cabins along the northern edge of Emerald Bay SP. No schools lie in close proximity to Emerald Bay SP.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT*:				
a) Conflict with or obstruct implementation of the applicable air quality plan or regulation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations (e.g., children, the elderly, individuals with compromised respiratory or immune systems)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

* Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make these determinations.

DISCUSSION

- a) The work proposed as part of the Asian Clam Control Project would not conflict with, or obstruct the fulfillment of any applicable air quality plan for the EDCAQMD. No impact.
- b) The proposed work would not violate any air quality standard or contribute to any existing air quality violation. No impact.
- c) The proposed project would not result in a considerable net increase of any criteria air pollutant. No impact.
- d) No sensitive receptors will be exposed to substantial pollutant concentrations as a result of project activities. No impact.
- e) Objectionable odors affecting a substantial number of people will not be produced by project activities. No impact.

IV. BIOLOGICAL RESOURCES.

ENVIRONMENTAL SETTING

The proposed project activities are located within Emerald Bay State Park (SP) which is managed by the California Department of Parks and Recreation (DPR) under a lease from California State Lands Commission. Upland vegetation is typical of the eastern Sierra consisting of mixed conifer stands of fir and pine species. There are meadows in the park which contain a diverse array of grass species, forbs, and wildlife. Riparian hardwood stands are comprised of alder, willow, and aspen. The park is home to many mammal and bird species with fewer reptiles and amphibians, all typical species of high elevations in the Sierra Nevada mountain range.

Emerald Bay SP is located around Emerald Bay, a National Natural Landmark since 1968. The park is accessible by State Route 89 near the southwest shore of the lake. The park is home to Eagle Falls and Vikingsholm Castle, a 38-room mansion that is one of the best examples of Scandinavian architecture in the United States. The park contains the only island in Lake Tahoe- Fannette Island. In 1994, DPR included the surrounding water of the bay as a part of the park, making Emerald Bay one of the first underwater parks of its type in the state. The underwater park is managed under a lease from the California State Lands Commission.

Special-Status Species

Sensitive biological resources that occur or potentially could occur in or near the proposed project site are discussed in this section. Special-status species (sensitive species) are defined as plants and animals that are legally protected or that are considered sensitive by federal, state, or local resource conservation agencies and organizations. Specifically, this includes species listed as state or federally Threatened or Endangered, those considered as candidates for listing as Threatened or Endangered, species identified by the US Fish and Wildlife Service (USFWS) and/or California Department of Fish and Game (DFG) as Species of Special Concern, animals identified by DFG as Fully Protected or Protected, special status species of particular concern to the United States Forest Service Lake Tahoe Basin Management Unit (USFS LTBMU), Threshold Species as identified by the Tahoe Regional Planning Agency (TRPA), and other protected or sensitive animals. Plants considered by the California Native Plant Society (CNPS) and USFS LTBMU to be rare, threatened, or endangered are also included in this discussion. Habitats that are considered critical for the survival of a listed species or have special value for wildlife species and plant communities that are unique or of limited distribution are also included in this section.

All special-status species and their habitats were evaluated for potential impacts from the proposed Asian Clam Control project. Existing available data were collected and reviewed to determine the proximity of special-status plants, animals, and their habitats to the project site. Queries of the DFG California Natural Diversity Database (CNDDDB) (DFG 2008), the California Native Plant Society's On-line Inventory (CNPS 2009), and the US Fish and Wildlife Service (USFWS 2008) were conducted for special-status species and habitats within the United States Geological Survey 7.5 minute quadrangle maps surrounding Emerald Bay SP.

Special-status plant and animal species are described below along with their potential to occur at the project site and the impacts this project could cause to these species.

Plant Species

The initial review of available information identified 5 special-status plant, lichen, and fungi species that could occur in or near the project area. Table 4.1 summarizes the potential for occurrence of each special-status plant species that was evaluated during this analysis (Schlesinger and Holst 2000). Based on a review of this list, none of these special-status plant species have the potential to occur in the project area, or are known to exist in proximity to project activities. One plant community of local interest is also reviewed, and has the potential to occur near the project area.

The following table summarizes the plant species of interest for this project. It shows each species that is listed on at least one of the aforementioned plant lists, the status of each plant, and the likelihood of it occurring in the project area.

Table 4.1 Special-Status Plant Species Evaluated for the Asian Clam Control Project			
Common and Scientific Name	Regulatory Status¹	Habitat and Flowering Period	Potential for Occurrence
Shore sedge <i>Carex limosa</i>	CNPS 2.2	Upper and lower montane conifer forest, bogs, fens, meadows, marshes, seeps, and swamps; in floating bogs and soggy meadows at lake margins; from 3,700-9,100 feet. Blooms June - August.	Not expected to occur. Activities will be staged off of a boat or barge. No lake margin plants will be impacted by this project
Slender-leaved pondweed <i>Potamogeton filiformis</i>	CNPS 2.2	Marshes and swamps, clear lakes and drainage channels, assorted shallow water; 980 – 7,600 feet. Blooms May – July.	Not expected to occur. Activities will be staged off of a boat or barge. No lake margin plants will be impacted by this project.
Tahoe yellow cress <i>Rorippa subumbellata</i>	CE FSS (FC) TRPA CNPS 1B.1	Decomposed granitic beaches; 6217 – 6234 feet. Blooms May – September.	Not expected to occur. Activities will be staged off of a boat or barge. No lake margin plants will be impacted by this project.
Water bulrush <i>Schoenoplectus subterminalis</i>	CNPS 2.3	Bogs and fens, marshes and swamps, montane lake margins in shallow water; 2,400 – 7,700 feet. Blooms July - August	Not expected to occur. Activities will be staged off of a boat or barge. No lake margin plants will be impacted by this project.
Crème-flowered bladderwort <i>Utricularia ochroleuca</i>	CNPS 2.2	Meadows and seeps, marshes and swamps, lake margins; 4,650 – 4750 feet. Blooms June – July.	Not expected to occur. Activities will be staged off of a boat or barge. No lake margin plants will be impacted by this project.
Deep Water Plant Community- mosses, liverworts, stoneworts, and algae	TRPA	This plant community is typically found at depths greater than 200 feet, but some species that are represented in this plant community have been found in shallower water.	Not expected to occur. Work would occur in shallow water areas and plant species which are components of the Deep

			Water Plant Community are not expected to be impacted by project activities.
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¹ Regulatory Status Codes:

CE = California endangered

FSS = United States Forest Service Sensitive

FC = Federal Candidate for listing

TRPA = Tahoe Regional Planning Agency threshold species or plant community of concern

CNPS = California Native Plant Society Lists: List 1A = presumed extinct in California; List 1B = rare or endangered in California and elsewhere; List 2 = rare or endangered in California, more common elsewhere; List 3 = need more information; List 4 = plants of limited distribution. New threat code extensions are: .1 = seriously endangered in California; .2 = fairly endangered in California; and .3 not very endangered in California.

Plant Species with a Potential to Occur near the Project Area

Five plants evaluated as potentially present near the project area occur near lake margins, or other wet systems (Table 4.1). Project activities will be conducted from a boat or barge and work will occur underwater. None of these plants have the potential to occur in the project area. No operations from shore will be authorized in areas with potential habitat for any of these five plant species. Plant species also represented in the Deep Water Plant Community, of local concern, may have the potential to occur near the project area.

Wildlife Species

It is estimated that the Lake Tahoe Basin has 312 resident and migrant vertebrate species (Murphy and Knopp 2000). The following information is based on observations made by park staff and information obtained from the California Natural Diversity Database, the USFS LTBMU and other database queries.

Mammals and birds use forested areas within the Lake Tahoe Basin for concealment, cover, nesting, denning, and foraging. Large mammals using this habitat include black bear (*Ursus americanus*), mule deer (*Odocoileus hemionus*), and mountain lion (*Felis concolor*). These large mammals have extensive home ranges and the same individual could conceivably frequent more than one park unit. Medium and small mammals observed in the park unit include coyote (*Canis latrans*), bobcat (*Lynx rufus*), raccoon (*Procyon lotor*), porcupine (*Erethizon dorsatum*), long-tailed weasel (*Mustela frenata*), pine marten (*Martes americana*), golden-mantled ground squirrel (*Spermophilus lateralis*), lodgepole chipmunk (*Tamias speciosus*), Trowbridge's shrew (*Sorex trowbridgii*), and deer mouse (*Peromyscus maniculatus*). Common bird species include dark-eyed junco (*Junco hyemalis*), western tanager (*Piranga ludoviciana*), mountain chickadee (*Poecile gambeli*), and red-breasted nuthatch (*Sitta canadensis*).

Reptiles, amphibians, and fish comprise a relatively small percentage of the wildlife found in the Lake Tahoe Basin. In coniferous forest areas, lizard and snake species that may be found include western fence lizard (*Sceloporus occidentalis*) and western terrestrial garter snake (*Thamnophis elegans*). Most amphibians are dependent on streams, ponds, and other water bodies for reproduction and other aspects of their life. Amphibian species include Pacific tree frog (*Hyla regilla*). Fish species that occur include rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), Piute sculpin (*Cottus beldingi*), Lahonton redbreasted shiner

(*Richardsonius egregious*), and Tahoe sucker (*Catostomus tahoensis*). Both the rainbow trout and brook trout are non-native species.

The proposed Asian Clam Control Project occurs underwater near the mouth of Emerald Bay. Special-status wildlife species that have been documented in Emerald Bay or could potentially occur in or near the project site are described below. Other species not known from the area, but included on state or federal database lists, are also discussed.

The following table summarizes the wildlife species of interest for this Asian Clam Control Project. It shows each species that is listed on at least one of the aforementioned sensitive wildlife lists, the status of each animal, and the likelihood of it occurring in the project area.

Common and Scientific Name	Regulatory Status¹	Habitat	Potential for Occurrence
American badger (<i>Taxidea taxus</i>)	SSC	Shrub, forest, and herbaceous habitats with friable soils.	Not likely to occur. Suitable habitat is not present in the project area.
Amphibious caddisfly (<i>Desmona bethula</i>)		Wet meadows, small spring streams or beaver ponds with slow currents.	Not likely to occur. Suitable habitat is not present in the project area.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	SE TRPA D – FE	Mature or old-growth trees or snags near a large body of water	Could occur. Suitable habitat present, known to occur in proximity to project area.
Bank swallow (<i>Riparia riparia</i>)	ST	Riparian habitats with vertical banks of fine texture soil.	Not likely to occur. Suitable habitat is not present in the project area.
Black swift (<i>Cypseloides niger</i>)	SSC	Cliffs proximal to waterfalls, deep canyons.	Not likely to occur. Suitable habitat is not present in the project area.
California spotted owl (<i>Strix occidentalis occidentalis</i>)	SSC FSS	Mature and old-growth forest stands	Not likely to occur. Suitable habitat is not present in the project area.
California wolverine (<i>Gulo gulo</i>)	SE FC	Mixed conifer, wet meadow, montane chaparral	Not likely to occur. Suitable habitat is not present in the project area.
Cooper's hawk (<i>Accipiter cooperii</i>)	WL	Dense stands of riparian or conifer forest near water.	Not likely to occur. Suitable habitat is not present in the project area.
Fringed myotis (<i>Myotis thysanodes</i>)		Montane hardwood conifer forests	Not likely to occur. Suitable habitat is not present in the project area.
Golden eagle (<i>Aquila chrysaetos</i>)	TRPA FP	Cliffs and large trees for cover and nesting, open areas for hunting	Not likely to occur. Suitable habitat is not present in the project area.
Gray-headed pika (<i>Ochotona princeps schisticeps</i>)		Rocky talus fields	Not likely to occur. Suitable habitat is not present in the project area.
Great Basin rams-horn		Soft mud within lakes, rivers, and	Could occur. Occurs in

(<i>Helisoma newberryi</i>)		creeks.	Lake Tahoe, suitable habitat present.
Kings Canyon cryptochian caddisfly (<i>Cryptochia excella</i>)		Restricted to small, cold spring streams and their tributaries.	Not likely to occur. Suitable habitat is not present in the project area.
Lahontan cutthroat trout (<i>Oncorhynchus clarkia henshawi</i>)	FT	Cold water habitats, including streams and rivers. Flowing water with stable, vegetated banks and riffle-run areas.	Could occur. Previously presumed extinct but reintroduction occurred in Emerald Bay in 2011.
Lake Tahoe benthic stonefly (<i>Capnia lacustra</i>)		Deep-water plant beds in Lake Tahoe from 95 feet to greater than 400 feet in depth.	Could occur. Endemic to Lake Tahoe but project activities will not occur in known water depth range of this species.
Long eared owl (<i>Asio otus</i>)	SSC FSS	Dense conifer stands and riparian thickets near meadow edges	Not likely to occur. Suitable habitat is not present in the project area.
Long-legged myotis (<i>Myotis volans</i>)		Forest and chaparral habitats, including early successional stages.	Not likely to occur. Suitable habitat is not present in the project area.
Mule deer (<i>Odocoileus hemionus</i>)	TRPA	Mosaic of vegetation, including dense brush, riparian, herbaceous opening, and edge habitat	Not likely to occur. Suitable habitat is not present in the project area.
Northern goshawk (<i>Accipiter gentilis</i>)	SSC TRPA FSS	Mature and old-growth forest stands	Not likely to occur. Suitable habitat is not present in the project area.
Northern leopard frog (<i>Lithobates pipiens</i>)	SSC	Calm waters within a variety of habitats.	Not likely to occur. Suitable habitat is not present in the project area.
Osprey (<i>Pandion haliaetus</i>)	TRPA	Large snags or other suitable nesting platform within 15 miles of fishable water	Could occur. Suitable habitat present, known to occur in proximity to project area.
Olive-sided flycatcher (<i>Contopus cooperi</i>)	SSC	Montane conifer forest	Not likely to occur. Suitable habitat is not present in the project area.
Pacific fisher (<i>Martes pennanti pacifica</i>)	FC	Areas of high canopy closure and large trees within coniferous forests and deciduous riparian habitats.	Not likely to occur. Suitable habitat is not present in the project area.
Pallid bat (<i>Antrozous pallidus</i>)	SSC FSS	Rocky outcrops, cliffs, and crevices for roosting, open habitats for foraging	Not likely to occur. Suitable habitat is not present in the project area.
Peregrine falcon (<i>Falco peregrinus</i>)	SE D - FE TRPA FSS	Woodland and forest in proximity to riparian areas, requires cliffs for nesting	Not likely to occur. Suitable habitat is not present in the project area.
Sierra marten (<i>Martes americana sierrae</i>)	FSS	Mixed conifer forest with greater than 40% crown closure, large trees and snags	Not likely to occur. Suitable habitat is not present in the project area.
Sierra Nevada mountain beaver (<i>Aplodontia rufa californica</i>)	SSC	Narrow, shallow stream with willow, alder, fir, and aspen	Not likely to occur. Suitable habitat is not present in the project area.

Sierra Nevada red fox (<i>Vulpes vulpes necator</i>)	ST	Subalpine forests, mixed conifer, lodgepole pine, and meadows.	Not likely to occur. Suitable habitat is not present in the project area.
Sierra Nevada snowshoe hare (<i>Lepus americanus tahoensis</i>)	SSC	Montane riparian with alder and willow thickets and young conifer thickets with chaparral	Not likely to occur. Suitable habitat is not present in the project area.
Sierra Nevada yellow-legged frog (<i>Rana sierrae</i>)	FC ST	Streams, lakes, and ponds in montane riparian, lodgepole pine, and wet meadow	Not likely to occur. Suitable habitat is not present in the project area.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	SSC FSS	Roosts include caves, mines, and buildings while forages in mesic habitats	Not likely to occur. Suitable habitat is not present in the project area.
Western white-tailed jackrabbit (<i>Lepus townsendii townsendii</i>)	SSC	Sagebrush, perennial grassland, wet meadow, early successional stage conifer	Not likely to occur. Suitable habitat is not present in the project area.
Willow flycatcher (<i>Empidonax traillii</i>)	SE FSS	Wet meadow and montane riparian with willow thickets	Not likely to occur. Suitable habitat is not present in the project area.
Yellow warbler (<i>Dendroica petechia</i>)	SSC	Riparian woodland, montane chaparral, and open conifer forest with substantial shrub	Not likely to occur. Suitable habitat is not present in the project area.
Yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	SSC	Emergent wetland with dense vegetation and deep water	Not likely to occur. Suitable habitat is not present in the project area.
Yosemite toad (<i>Bufo canorus</i>)	FC	Montane wet meadows and seasonal ponds in lodgepole pine forests.	Not likely to occur. Suitable habitat is not present in the project area.

¹ Regulatory Status Codes

SSC: California Department of Fish and Game Species of Special Concern

SE: California Department of Fish and Game Endangered

ST: California Department of Fish and Game Threatened

WL: California Department of Fish and Game Watch List

FP: California Department of Fish and Game Fully Protected

D – FE: Delisted United States Fish and Wildlife Service Endangered

TRPA: Tahoe Regional Planning Agency Threshold Species

FSS: United States Forest Service Sensitive

FC: Candidate species for listing by United States Fish and Wildlife Service

Wildlife Species Known or Likely to Occur in Emerald Bay State Park with Potential for Presence at or near the Project Site

Bald eagle (*Haliaeetus leucocephalus*) (nesting and wintering). This California Endangered species was recently delisted under the Federal Endangered Species Act. The bald eagle is also protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). Bald Eagles in California can be either year-round residents or winter migrants. Nest trees are often in very large trees in proximity to water and the breeding season generally ranges between February and July (DFG 2008). Suitable nesting and wintering habitat occur near the proposed project site. There is a known nest site near the

mouth of Emerald Bay. Creating noise or visual disturbance during sensitive periods of the breeding season could result in impacts to this species.

Osprey (*Pandion haliaetus*). The osprey is a TRPA threshold species. They are a migratory species and are present during the breeding season, April 1 through August 15. They build large stick nests in treetops or snags in open forests within fifteen miles of water used for foraging (DFG 2008). Ospreys are known to nest in Emerald Bay SP, including near the proposed project area. No habitat suitable for this species would be altered by project activities; however, project activities during the breeding season could impact this species. Ospreys have high nest site fidelity and selectively choose nesting locations with a clear view of the surrounding area. Creating noise or visual disturbance during sensitive periods of the breeding season could result in impacts to this species.

Great Basin rams-horn (*Helisoma newberryi*). This species is known to occur in Lake Tahoe. These snails burrow into soft mud of larger lakes and slow rivers. The project area consists of rock or cobble and there are no soft, muddy habitat types with slow moving water in proximity to project activities. Because typically suitable habitat for this species does not occur in the project area, impacts to this species are expected to be less than significant.

Lake Tahoe benthic stonefly (*Capnia lacustra*). This species is known to occur in Lake Tahoe at depths of 95-400 feet. Project activities will not occur in deep water areas and will not impact suitable habitat for this species.

Benthic invertebrates- Although these animals are not listed as sensitive species, the benthic animal community in Lake Tahoe is an important component of the ecosystem. Whittmann et al. (2011) found that benthic barriers resulted in 100% mortality to Asian clams (AC) after 28 days, and resulted in 70-95% of total macroinvertebrate diversity reduced. Most notable was the less severe impacts to native species including the pea clam (*Pisidium* spp.), with no significant impacts seen in one test plot. Lesser impacts to native macroinvertebrates would potentially allow a pool for recolonization. While the barriers reduce diversity of native macroinvertebrates in the short term, the alternative of allowing the AC populations to expand would potentially exclude native macroinvertebrates from the larger system into the future. The infestation in Emerald Bay has already expanded over 40% in size since the initial survey in 2009. Treatment of approximately 5.5 acres out of the 870 (.6%) acres included in the underwater park would result in less than significant short term impact to this community, with potential substantial long term benefits.

Lahontan Cutthroat Trout (*Oncorhynchus clarkia henshawi*). Researchers are in the process of reintroducing the Federally Threatened Lahontan cutthroat trout into Lake Tahoe and Emerald Bay and monitoring survival and life history as well as providing a recreational fishery. These fish are obligate stream spawners so deployment of benthic barriers is not expected to impact potential spawning habitat. A combination of factors is presumed to have led to the extinction of Lahontan cutthroat trout from Lake Tahoe, with the introduction of non-native species perhaps being the primary factor. Asian clams are a non-native species that negatively impact native species and removal of these clams from a target reintroduction area is not anticipated to negatively impact reintroduced Lahontan cutthroat trout.

Fish spawning- Other fish potentially utilizing the project area in Emerald Bay are either non-native or not listed as sensitive species, however, covering the substrate with benthic mats could remove potential spawning habitat during the short term. The mouth of Emerald Bay receives high boat use and associated wake and wave action which reduces the suitability of the area for spawning. AC can reduce food for fish by filtering planktonic plants and animals out of the water column, which many species of fish, especially when young, depend on for growth. Treatment of the AC infestation area would result in a less than significant short term impact, with potentially substantial long term gains as fish do not have to compete locally with AC for the plankton-based food source upon which they depend.

Sensitive Natural Plant Communities

Sensitive plant communities are regionally uncommon or unique, unusually diverse, or of special concern to local, state, and federal agencies. Removal or substantial degradation of these plant communities constitutes a significant adverse impact under CEQA. A search of the CNDDDB did not show any sensitive natural plant communities near the project area (CNDDDB 2009), but the deep water plant communities in Lake Tahoe are of concern because they are important ecological components in Lake Tahoe and have experienced substantial long term declines. These plant communities consist of mosses, liverworts, stoneworts, and algae and are typically found at depths greater than 200 feet. Control activities will occur in waters generally less than 30 feet deep and research has also indicated that AC may be able to impact the algal biomass in the lake littoral zone and cause local decreases in the algal biomass in near shore areas, while also stimulating the growth of undesirable filamentous algae (Whittmann et al. 2011). Project activities are not expected to impact deep water plant communities.

Wetlands and Waters of the United States

The Federal Clean Water Act (CWA) defines wetlands as lands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The U.S. Army Corps of Engineers (USACE) has jurisdictional authority of wetlands under provisions found in Section 404 of the CWA. Typically, the USACE jurisdictional wetlands meet three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology.

Waters of the U.S. (Other Waters) are regulated by the USACE under Section 404 and by the state water pollution control authority (Lahontan Regional Water Quality Control Board) under Section 4041 of the CWA. They are defined as all waters used in interstate or foreign commerce, waters subject to the ebb and flow of the tide, all interstate waters including interstate wetlands and all other waters such as: intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds. Waters of the U.S. are under the USACE jurisdiction.

Tahoe Regional Planning Agency (TRPA) Goals and Policy, Chapter IV: Conservation Element, Vegetation Goal #2 is to "Provide for maintenance and restoration of such unique

ecosystems as wetlands, meadows, and other riparian vegetation.” TRPA’s goals and policy are implemented by TRPA and the Lahontan Regional Water Quality Control Board by special designation for wetlands and other waters known as Stream Environment Zones (SEZs). SEZs have additional protective regulations.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 Game 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 federally protected wetlands, as defined by §404 of the Clean Water Act (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"/>

DISCUSSION

a) While the placement of the underwater benthic barriers over the substrate in Emerald Bay is not expected to have significant impacts on any species identified as sensitive, candidate, or special status, the installation and removal of the barriers could potentially create visual or noise disturbance for nesting osprey and bald eagles near the project area. Implementation of **Mitigation Measure Bio-1** would reduce this potential visual and noise disturbance to a less than significant level.

- b) Project activities would not result in impacts to riparian habitat. Deep water plant communities are of local concern because they are important to the ecology of Lake Tahoe and because they have experienced substantial documented declines in the lake. The proposed project is not expected to impact deep water plant communities because the project area is in shallow water, and the work would result in a long term benefit for native species in Emerald Bay.
- c) Work would occur on the lake substrate near the mouth of Emerald Bay. Benthic barriers would be secured to the lake bottom temporarily covering the substrate and any substrate affected by suction removal of clams would be left in place or returned clean. This project would comply with all State and Federal regulatory requirements concerning work in protected waters. The short term duration of the project, long term ecological benefits of the proposed work, and lack of permanent impacts or alteration of the substrate would result in less than significant impacts from the proposed activities.
- d) The proposed project would not impede fish or wildlife movement and would not impact wildlife corridors. There are no known wildlife nursery sites in the project area. Work would occur in a fish bearing lake, but the high boat traffic and wave action in the treatment area, short term duration of barrier deployment and removal activities, and positive impact of removing an invasive competitor would result in less than significant impacts to fish.
- e, f) The proposed project would be designed to ensure there are no conflicts with any local ordinances, adopted conservation plans, or policies. This includes complying with the Tahoe Regional Planning Agency's Goals and Policies regarding Biological Resources and Threshold Attainment. No impact.

Mitigation Measure Bio-1: Nesting Osprey and Bald Eagle

- To the extent possible, project activities would occur outside of the osprey (April 1 – August 15) and bald eagle (February 15 – August 15) breeding seasons.
- If work is required during the breeding season, a DPR-approved biologist would conduct surveys to document reproductive activity of the established osprey and eagle nests within 0.25 and 0.5 miles, respectively, of the project area.
 - If the nests are not occupied or the young have fledged then project activities would be allowed to commence.
 - If osprey or eagles are actively incubating eggs or have young in the fledgling state within 0.25 or 0.5 miles, respectively, of the project area, no work would be conducted.
 - If there are chicks on the nest, work could be authorized by a DPR-approved biologist if:
 - i. A DPR-approved biologist is onsite during all operations to monitor the nests to ensure the young or adults are not visibly disturbed by project activities,
 - ii. Any visible disturbance attributable to project activities would result in the project being postponed until after the young fledge.
 - iii. No more than 4 hours of activities creating noise above ambient levels would occur in any 24-hour period.

V. CULTURAL RESOURCES.

ENVIRONMENTAL SETTING

The proposed project activities are located in the underwater portion of Emerald Bay State Park (SP), which is managed by the Department of Parks and Recreation (DPR) as an underwater park under a lease from the California State Lands Commission. Emerald Bay is on the southwest shore of Lake Tahoe in the Sierra Nevada Mountain Range. The basin is a large box-like depression surrounded by rugged mountains. The major topographic feature of the basin is the lake itself, by far the largest body of water in the Sierra Nevada, with a surface area of over 190 square miles.

The climate of the Lake Tahoe Basin is generally Mediterranean and is modified by topography and geography. It is characterized by relatively warm, dry summers, interrupted by occasional thundershowers and cold, wet winters, with the majority of precipitation falling as snow.

EXISTING CONDITIONS

A full accounting of known cultural resources within the project area was achieved through a comprehensive literature review and records search of DPR archives. Records searches undertaken for this project had two primary purposes: to determine whether known archaeological or historic resources are located within the study area; and to determine the likelihood of unrecorded resources based on the distribution and characteristics of known submerged sites.

Denise Jaffke, Associate State Archaeologist for the Sierra District of DPR, conducted a records search of the District Unit Data Files located at the Cultural Resource Office (Archaeology), Ed Z'berg Sugar Pine Point State Park. Information collected in the course of research was supplemented with pertinent archival information compiled by DPR staff using files maintained at the Sierra District Cultural Resources Office in Tahoma. Past cultural resource inventory reports and related documentation were reviewed. The reports document a wide variety of archaeological and structural features around Emerald Bay, most notably the historic Vikingsholm complex. The bay itself contains numerous submerged cultural resources, primarily associated with the building of Vikingsholm and recreational activities at Emerald Bay Resort. None of these resources are located in the project Area of Potential Effects.

PREHISTORIC CONTEXT

Heizer and Elsasser (1953) were the first researchers to construct a regional chronology for the North-central Sierra. Based on mutually exclusive site locations and tool technologies from north Lake Tahoe and Truckee, two cultural complexes were identified. The Martis Complex (ca. 5,000-1,300 B.P.), commonly referred to as the "Middle Archaic," was defined by a heavy reliance on basalt flaked stone scrapers, drills, large dart points, and handstones and millingstones, and appeared to reflect an economic focus on hunting and seed-gathering. The later King's Beach Complex (ca. 1,300-150 B.P.), in contrast, was characterized by chert and obsidian toolstone, bedrock mortars, smaller projectile points (presumably arrow points), and

an economic emphasis on fishing and seed-gathering. The King's Beach Complex is usually attributed to the late prehistoric Washoe.

The archaeological sequence of the Lake Tahoe area was revised and expanded to reflect research findings by Elston (1970, 1972), Elston and Davis (1972), and Elston et al. (1976). Based on stratified deposits, presence of Great Basin Stemmed series points and radiocarbon dates, the regional chronological framework was amended to include a pre-Martis culture and incorporating a transitional phase between Martis and Kings Beach (Elston et al. 1977). Elston's "Pre-Archaic," which incorporates the Tahoe Reach Phase, broadly places the earliest Eastern Front prehistory between 10,000 to 8,000 years ago and is generally equated with highly residential mobile, large-game hunting people.

The Early Archaic (8,000-5,000 B.P.), consisting of the Spooner Phase, is described by Elston et al. as "a hypothetical construct to name the interval for which little archaeological data existed, and it remains poorly known to the present" (Elston et al. 1995:13). This cultural phase was formally characterized by Pinto (Gatecliff) Split Stem and Humboldt series points found predominantly in the Great Basin, but reliance on this temporal range has been questioned (Milliken and Hildebrandt 1997). Paleoenvironmental conditions during this period represent regional warming and drying trends during the Middle Holocene. General cultural patterns attributed to the Early Archaic include small game hunting, increased milling of hard seeds, and mixed-mode, forager-collector subsistence strategy.

The Middle Archaic (5000-1300 B.P.), is represented by the Early (5000-3000 B.P.) and Late Martis (3000-1300 B.P.). Phases, is portrayed as a shift toward cooler and wetter conditions, similar to the climate experienced today. Human populations increased and diversified, but remained low enough to prevent resource overexploitation (Zeier and Elston 1992:8). Originally, the pan-Sierran cultural complex was marked as the "basalt culture" (Heizer and Elsasser 1953). This interpretation was re-evaluated and then considered an east Sierran expression (Elston 1986; Zeier 1992); however, McGuire and Bloomer (McGuire 1997) have since revived the notion that the "Martis Complex" may represent a broader cultural phenomenon.

The Martis Complex remains a mystery to local researchers and debate continues (e.g., Bloomer et al. 1997; Clewlow 1984; Duke 1998; Elsasser and Gortner 1991; Jackson et al. 1994). Current research and discussion is in regards to whether the Martis Complex represents a distinct cultural phenomenon or a unique culture specializing in high Sierran resources, particularly the uncharacteristic reliance on basalt toolstone. Lindström (1985), for instance, speculates that Martis reflects an indigenous Sierran culture rather than representing groups from Great Basin or California, incorporating the mountains into their seasonal settlement patterns.

The transition from Middle to Late Archaic/ethnographic Washoe is described as one of "profound cultural change" (Elston 1986:19). Late Archaic is divided into the Early Kings Beach Phase (1300 -700 B.P.) and Late Kings Beach Phase (700-150 B.P.) (Elston et al. 1995). Environmental conditions continued to be temperate during the Late Archaic, although periodic episodes of cool-moist and warm-dry intervals existed which resulted in substantial

and prolonged droughts (Lindström and Bloomer 1994). Socio-economic and technological changes likely resulted from population increases and “demographic packing” and consequent “interspersed” settlement patterns (Elston 1986). Innovations attributed to the Late Archaic include the bow and arrow, bedrock mortars (pinyon pine exploitation) and simple flake tools. The inclination towards basalt and other coarse-grained material for tool manufacture changed to obsidian and chert toolstone.

ETHNOGRAPHIC BACKGROUND

Lake Tahoe is situated within the ethnographic territory of the Washoe, who inhabited the Tahoe/Truckee area at the time of Euroamerican contact (Carlson 1986; d’Azevedo 1966, 1986; Downs 1966; Price 1962, 1980). The primary habitation focal points were centered around large valleys on and along the eastern side of the Sierra Nevada mountains between Honey Lake (north) and Little Antelope Valley (south) (d’Azevedo 1986:468 [Figure 1]; Elston 1986:13). The core area was approximately 120 miles long by 40 miles wide and covered about 4,000 square miles.

Permanent settlements along the eastern slopes of the Sierra Nevada were identified by traditionally acknowledged subgroups and geographic features. Permanent settlements were also located in small valleys around the 5,500 foot elevation, such as Woodfords and Markleeville in Alpine County, the upper reaches of the Truckee River near Donner Lake, and in eastern Sierra Valley (d’Azevedo 1986:467). Although most lived in permanent/winter settlements in the lowland valleys east of the Sierran crest, Lake Tahoe comprised the spiritual and geographic center of the Washoe world (Downs 1966:16).

The Washoe are members of the wide-spread Hokan linguistic group and are the only Great Basin group to speak a non-Numic language. Kroeber (1925:569) and Downs (1966:70) postulate an early relationship prior to 4,500 years ago between the Hokan speaking Washoe and other Hokan speakers in California. The cultural origins are still unclear, but linguistic evidence suggests past associations with California groups.

The Washoe were economically and socially organized into basic household or extended family units residing in multifamily communities (Barrett 1917:8; Jackson et al. 1994:II.A). Groups maintained ties with each other as well as with neighboring Penutian-speaking groups, including Maidu, Miwok and Paiute. Washoe territory, including the core area, was fluid in that it was utilized by non-Washoe people, particularly when resources were abundant, or as a trade/travel corridor. Joint use or trespassing was usually accommodated by negotiation (d’Azevedo 1986:467).

With a relatively abundant environment and some of the highest pre-contact population densities in the Great Basin (Lindström and Bloomer 1994:27; Price 1980), the Washoe pursued an “intensive subsistence strategy and a demographically packed settlement pattern” (Zeier and Elston 1986:379) which involved high seasonal mobility, mixed strategies of foraging and collecting and intensive exploitation of high and low ranked resources. Lake Tahoe consists of several types of microenvironments. Habitats include meadows, marshes

and riparian corridor vegetation communities. The broad resource base enabled various kinds of subsistence activities practiced by ethnographic Washoe.

HISTORICAL BACKGROUND

Although the Washoe were largely excluded from Lake Tahoe historic era development, one element adopted was the name. Also known as “Mountain Lake,” “Lake Bonpland,” and “Lake Bigler,” the name “Tahoe” was initially derived from the Washoe word *da’ow*, signifying “lake.” Lake Tahoe was not officially named by the California legislature until 1945 (Lindström 2000).

When John C. Fremont traversed the Sierra Nevada for the purposes of conducting an expedition for the U.S. Bureau of Topographical Engineers, he came upon the deep blue mountain lake that would eventually become known as Lake Tahoe in the winter of 1844. Later the same year, six men from the Stephens-Townsend-Murphy emigrant party followed the Truckee River to its outlet into Lake Tahoe. As such, they became the first known Euroamericans to set foot on the shores of the lake (Scott 1957). The lake remained undisturbed throughout the latter part of the decade as people rushed to the California gold fields, bypassing the lake to avoid dual summit crossings. The first Euroamerican trading post was not established in the Tahoe Basin until 1851 in Lake Valley.

The discovery of silver near Virginia City caused a reverse migration from west to east with travel corridors becoming established through the Tahoe basin. The development of Nevada’s Comstock mines was only possible by exploiting the lake’s seemingly endless supply of timber and water needed to build the square-set timbering system and to supply water for the steam-powered mills (Elliot 1973).

The urgent demand for fuel wood and construction lumber by the growing settlements and mines devastated the forest stands east of the Carson Range and the Lake Tahoe basin. Within the basin, timber was initially harvested along the east side of the lake followed by operations expanding to the west, north and south shores, respectively. Many historical records and photographs (Scott 1957, 1973) indicate that many timber stands were clear-cut. Clear-cutting on steep slopes and near drainages accelerated erosion and caused high sediment loads to enter the streams and subsequently into the lake. The basin was stripped of marketable timber by 1898 which concluded large-scale harvesting operations in the area (Lindström 2000).

With people traveling through the basin from the California Mother Lode to Nevada’s Comstock Lode, came the need for new travel routes through the basin. The most popular route was the road along Tahoe’s south shore which is the approximate alignment of modern Highway 50 and Pioneer Trail (Landauer 1996). Various summit passes opened by the early 1860s but roads were generally in poor condition and did not yet circumvent the lake. Steamer traffic dominated travel in the Tahoe basin from the 1860s to 1910s. Automobile traffic increased through the basin with the designation of the Lincoln Highway, the nation’s first coast-to-coast highway, and included the main road through South Lake Tahoe (Highway 50/Pioneer Trail) as well as the road over Donner Summit (Highway 40/Interstate 80). The U.S. Bureau of Public

Roads expanded and upgraded the roads within the basin between 1928 and 1935, and consequently promoted a wider range of public to travel to the Lake (Lindström 2000).

The early resort era at Lake Tahoe began in the 1860s with resorts opening in Lake Valley, Tahoe City, Brockway, McKinneys and Glenbrook. Ranches, hostlers and commercial fisherman in Lake Valley profited from the lucrative business of supplying travelers and the growing mining centers with locally grown hay, vegetables, dairy products and fish. Various hotels and resorts operated during the next decade as tourism flourished in the 1880s with the establishment of resorts in Lake Valley, Emerald Bay, Sugar Pine Point, Blackwood and Tahoe City. Tourism in north Tahoe was promoted by the completion of the Lake Tahoe Railway and Transportation Company (LTRTC) in 1901 which connected Tahoe City with the Southern Pacific mainline at Truckee. Visitor traffic and the associated tourism industry increased substantially with the completion of the first automobile loop road circumventing the Lake by 1925 and the expansion and improvement of basin roads in the early 1930s (Landauer 1996; Lindström 2000). Tourism and development in the Lake Tahoe basin has continued through the latter part of the 20th Century and continues to today.

Lake Tahoe was a summer recreation area for wealthy Californians, mainly from San Francisco and the Sacramento Valley. It was not until 1865 that the first recorded property transaction took place in the Emerald Bay area. Three years later, Ben Holladay Jr. acquired the property, including Fannette Island and the land that wraps around Emerald Bay. Holladay built a Victorian Gothic Revival two-story, five room summerhouse (known as the “Cottage”) and it was the first private house on Lake Tahoe. He also built a pier, boathouse, and mall house on Fannette Island, and another small house near the shore for his caretaker, Richard Barter (the “Hermit”). Holladay suffered economic hardships and the government seized his property due to his debt. The land was then purchased by Dr. Paul T. Kirby in 1880. Four years later, they built a summer resort (where Vikingsholm is today) which included a hotel, cottages, tents and a steamer landing.

A portion of the Kirby land was sold to the William Henry Armstrong family in 1895. Mrs. Knight purchased the land from the Armstrongs in 1928. Mrs. Knight's land included the only island (Fannette Island) in Lake Tahoe and the only water fall (Eagle Falls) flowing directly into the Lake. Emerald Bay reminded her of many of the fjords she had seen on numerous travels to Scandinavia and commissioned her nephew by marriage, Lennart Palme, a Swedish architect, to design the plans.

Mrs. Knight passed away at the age of 82 in 1945. After her death, the home was sold to Lawrence Holland, a rancher from Nevada. He subsequently sold it to Harvey West, a lumberman from Placerville, California. In the early 1950s, Mr. West, a noted philanthropist, negotiated with the State of California and said he would donate one-half of the appraised value of the land, as well as Vikingsholm, if the State would pay him the other half. This arrangement was agreed upon, and in 1953 the house and property were acquired by the State.

In 1907 Russell and Margaret Graves began construction of the Emerald Bay Resort/Camp on the northwest shore of Emerald Bay. In 1914 Nelson Salter bought 30 acres (at the site of the

present day boat-in campground) from the Graves in an effort to expand the newly opened Emerald Bay Resort/Camp. By 1924 the camp/resort included two and three room cottages, tents, butcher shop, express deport, post office, dance pavilion and steamer landing. Salter sold the Emerald Bay Resort/Camp to Joseph Watson in 1947, who in turn sold the property to the State of California in 1953, but Watson leased back some of the land and continued to operate the resort/camp for a few more years. In 1959, the resort officially closed and the buildings were removed. In 1961 the State of California approved plans for a boat-in campground in the area where the Emerald Bay Resort/Camp once existed and construction began a year later.

ARCHAEOLOGICAL RESOURCES

Three historic era cultural resource complexes have been recorded in Emerald Bay SP and include Vikingsholm, Emerald Bay Camp/Resort and Emerald Bay Underwater Park. As early as 1868 there were reports of vernacular Victorian residential structures near the site of the present-day pier and on the west end of Fannette Island. Several other residential structures are known from archival data and the photographic record. One of the developments was the Emerald Bay Resort which existed in the area (now occupied by the Vikingsholm complex) from the 1880s to the early 20th century. No surface evidence of any of these structures has been discovered. Standing structures in the Vikingsholm complex include Vikingsholm, the duplex, the warehouse, the gardener's cottage, the powerhouse, remains of the boat slip near the duplex, and the remains of the Teahouse on Fannette Island.

The Comyn/Law property is a 2.2-acre residential parcel immediately west of the boat camp area. The property was developed as a residence from the 1890s until purchased by Realtor Moisey Matuchansky in 1949. The property was then leased to the adjacent Emerald Bay Camp, and the combined properties were renamed Emerald Bay Resort (not to be confused with the Emerald Bay Resort at the west end of the bay of the late 19th century). This portion of the park includes numerous archaeological features consisting of rock walls, retaining walls, stairs/steps, concrete foundations, earthen pads, garden borders, paths, roads, jetties and a dump.

The Emerald Bay Camp/Resort consists of the foundations of a former lake-side cabin resort on the shore of Lake Tahoe, about ¾-mile from Vikingsholm. Numerous dry-laid and mortared stone features remain, including structure footings, paths and water channels. The site was officially recorded in 2003, with a subsequent update, to document 116 historic archaeological features that made up the camp/resort in 2004.

Several submerged cultural resources have been recorded in the Emerald Bay Underwater Park and include two barges located off the western shore of Eagle Point, several small recreation boats identified near Emerald Bay Camp/Resort, an underwater electric cable (dating to 1929) that traverses across the mouth of Emerald Bay, and several refuse deposits. In 2004, Panamerican Consultants, Inc. conducted a submerged cultural resources survey of Emerald Bay using remote sensing technology which resulted in the identification of 51 additional unknown targets, possibly representing additional underwater cultural resources.

CALIFORNIA ENVIRONMENTAL QUALITY ACT AND PUBLIC RESOURCE CODE

The California Environmental Quality Act (CEQA) requires that projects financed by, or requiring the discretionary approval of public agencies in California, must consider the effects that a project has on historical and unique archaeological resources (Public Resources Code [PRC] Section 21083.2). Historical resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural or scientific importance (PRC Section 50201).

The CEQA Guidelines (Section 15064.5) define three cases in which a property may qualify as a historical resource for the purpose of CEQA review (A through C):

- A. The resources are listed in or determined eligible for listing in the California Register of Historical Resources (CRHR). The CRHR is a statewide list of Historical Resources with qualities assessed significant in the context of the state's heritage. The CRHR functions as an authoritative guide that is intended to be used by state and local agencies to indicate types of cultural resources that require protection, to a prudent and feasible extent, from project-related substantial adverse changes. Properties that are listed in the NRHP, or are eligible for listing, are considered eligible for listing in the CRHR, and thus are significant historical resources for the purpose of CEQA (PRC Section 5024.1(d)(1)).

PRC Section 5024.1 defines eligibility requirements and states that a resource may be eligible for inclusion in the CRHR if it:

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, represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Properties must retain integrity to be eligible for listing on the CRHR.

- B. The resource is included in a local register of historic resources, as defined in Section 5020.1(k) of the PRC, or is identified as significant in a historical resources survey that meets the requirements of Section 5024.1(g) of the PRC (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).
- C. The lead agency determines that the resource may be a historical resource as defined in PRC Section 5020.1(j), 5024.1, or significant as supported by substantial evidence in light of the whole record.

PRC Section 21083.2 governs the treatment of *unique archaeological resources*, which must be afforded consideration in the assessment of impacts under CEQA. A unique archaeological resource is defined as “an archaeological artifact, object, or site about which it can be clearly demonstrated” as meeting any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

As defined by the California State Health and Safety Code, Section 7050.5, and PRC Section 5097.98, the inadvertent discovery of human remains requires cessation of project work relative to the find until an assessment of the remains, including determination of origin and deposition, is completed by the County Coroner, in consultation with the Native American Heritage Commission (NAHC) and/or appropriate Tribal representative(s). In the event of inadvertent discoveries, an on-going program of Native American consultation provides an opportunity for such groups to participate in the identification, evaluation, and mitigation of impacts to human remains and funerary objects.

When a project will affect state-owned historical resources, as described in PRC Section 5024, and the lead agency is a state agency, the lead agency will consult with the California State Historic Preservation Officer prior to approval of a proposed project (14 California Code of Regulations [CCR] Section 15064.5(b)(5)).

EXECUTIVE ORDER W-26-92

Executive Order W-26-92 requires all state agencies, including Parks, in furtherance of the purposes and policies of the state’s environmental protection laws and historic resource preservation laws, to the extent prudent and feasible within existing budget and personnel resources, to preserve and maintain the significant heritage (cultural and historical) resources of the state. Each state agency, including Parks, is directed to:

1. Administer the cultural and historic properties under its control in a spirit of stewardship and trusteeship for future generations;
2. Initiate measures necessary to direct its policies, plans, and programs in such a way that state-owned sites, structures, and objects of historical, architectural, or archaeological significance are preserved, restored, and maintained for the inspiration and benefit of the people;
3. Ensure the protection of significant heritage resources are given full consideration in all of its land use and capital outlay decisions; and
4. Institute procedures to ensure that state plans and programs that contribute to the preservation and enhancement of significant non-state owned heritage

resources in consultation with the Office of Historic Preservation (OHP)
 (Executive Order W-26-92 Section 1).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Cause a substantial adverse change in the significance of a historical resource, as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource, pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

a-c) The proposed project would lay rubber blankets over the substrate of the mouth of Emerald Bay, which would be secured in place with rebar. These barriers would be a temporary blanket over the lake bottom and there are no known cultural resources in the project area. Alternative treatment methods such as ~~freezing clams in place or~~ suction removal of clams from the substrate may also be employed in small scale areas and to supplement benthic barrier effectiveness. Due to the nature and location of project activities, it is anticipated that there will be no impacts to historical or archaeological resources, and no human remains will be disturbed.

VI. GEOLOGY AND SOILS.

ENVIRONMENTAL SETTING

Lake Tahoe lies within the Sierra Nevada Geomorphic Province. It occupies a basin surrounded by peaks of the Sierra Nevada Mountains with Freel Peak the highest at 10,891 feet. The eastern and western sides of the basin are composed of granite rock, with minor amounts of older metamorphic rock. Volcanic rock, some deposited as recently as 2.5 million years ago, covers most of the northern and some of the southern part of the basin. The Sierra Nevada is a gently sloping fault block mountain range that was uplifted along its eastern edge. This range is bounded on the east and west by a series of interconnected fault segments. The displacement has been greater on the eastern margin, giving the Sierra Nevada a western tilt. South of Lake Tahoe, there is a single crest dividing the gentle western slope from the steep eastern scarp. The crest splits south of the lake, with one crest trending northwesterly and the other crest trending northward creating the Carson Range. This range separates the Carson Valley from Lake Tahoe. Lake Tahoe occupies the basin between the two uplifted crests (DPR 2005).

Soils

Most of the soils in the Lake Tahoe Basin are of granitic or volcanic parent material. The soils are geologically young and poorly developed. Most soils are shallow, coarse textured, and have low cohesion, and contain small amounts of organic material. These attributes account for a high erosion potential on steeper slopes in the Tahoe Basin. The subsurface of the lake in the project area consists of cobble and sand.

Seismicity

The Preliminary Resource Element for Sugar Pine Point State Park (DPR 1991) characterizes the seismicity of the Lake Tahoe Basin. The fault activity has played a major, geologically recent role in the evolution of the Tahoe Basin, and the potential for a large destructive earthquake sometime in the future should be considered to be high. Relative to much of the rest of California, however, the earthquake shaking potential (Branum et al. 2008) and earthquake hazard (USGS and CGS 2010) in the project area are low. Rather than a single linear fault, the Sierra Nevada frontal fault system is a complex zone of faults along the eastern face of the Sierra Nevada. The western Lake Tahoe boundary fault, and the mountains that rise above the western edge of Emerald Bay, very likely represent a segment of the Sierra Nevada fault system.

Based upon physiographic evidence, the main fault on the west side of the Lake Tahoe Basin probably lies less than a mile east of the shore at Ed Z'berg-Sugar Pine Point State Park, about 0.5 mile east of the shore at Rubicon Point, and continues south immediately offshore of Eagle Point at the mouth of Emerald Bay, heading inland at Baldwin Beach.

Since the 1900's, a number of earthquakes with an intensity of less than 5.0 Richter magnitude have been recorded in the Basin, although historical epicenters are more common to the north of Lake Tahoe and to the south-southeast of the Lake Tahoe Basin along the Sierra Nevada frontal fault system. Both of these areas have experienced moderate to high magnitude earthquake activity measuring between 5.0 and 7.5 on the Richter scale.

Liquefaction and Landslide Hazards

Secondary seismic hazards, such as liquefaction and landslides, may occur during an earthquake. Liquefaction could occur in loose, granular materials (alluvium) below the water table, such as along stream channels and in unconsolidated, disturbed materials. It takes place when a granular material is transformed from a solid state to a liquid state during earthquake events. The potential for liquefaction as a result of seismic events is high in areas of unconsolidated and saturated fine-grained alluvium such as at the mouth of creeks.

Regulations

There are regulatory laws governing geologic protection and safety from geological hazards. For geologic and topographic features, the key federal law is the Historic Sites Act of 1935 which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

Other federal regulations include the Earthquake Hazard Reduction Act of 1977, Executive Order 12699 on Seismic Safety of Federal Buildings, and the Uniform Building Code (superseded in California by the 2001 California Building Code). State regulations include the Alquist-Priolo Earthquake Zone Act, the Field Act, the 2001 California Building Code, the Seismic Hazards Mapping Act, and the Historic Structures Act (California Public Resources Code Section 5028). Some state agencies have their own regulations covering seismic and geologic hazards.

In the Lake Tahoe Basin, TRPA Goals and Policies, Soils (1986), Goal #1 is stated as “Minimize soil erosion and the loss of soil productivity.” This goal is to maintain soil productivity and existing vegetation cover and prevent excessive sediment and nutrient transport to streams and lakes.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Expose people or structures to 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 Division of Mines and Geology 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 checked="" type="checkbox"/>	<input 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 (1997), creating substantial 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 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"/> |

DISCUSSION

- a) Seismic ground shaking is possible from earthquake events along the faults discussed above in the Environmental Setting.
- i) The Alquist-Priolo Earthquake Fault Zoning Act of 1972 was implemented to regulate development near active faults and to prevent construction of buildings for human occupancy on or near active faults (i.e., that have ruptured within the past 11,000 years). The designated zone extends from 200 to 500 feet on both sides of known active fault traces. Under the Act, no buildings intended for human occupancy may be constructed on or within fifty feet of an active fault trace. The project site is not located within an Alquist-Priolo Earthquake Fault Zone as designated by the California Geological Survey (CGS 2007). No structures that are designed for human occupancy are located at the project site and no structures are proposed as part of this project. Therefore, there is no expected adverse effect on people or structures with regard to earthquake rupture as a result of implementation of this project. No impact.
 - ii) Seismic ground shaking may occur during an earthquake with an epicenter located in the vicinity of Lake Tahoe. However, project activities will not increase the risk of exposure of employees or contractors working in the forest and open space to a seismic event. Therefore, the potential risk of effects to staff, contractors, or the public is considered to be less than significant.
 - iii) Seismic-induced ground failure, such as liquefaction, usually occurs in unconsolidated granular soils that are water saturated. During seismic-induced ground shaking, pore water pressure in the soil could increase in loose soils, causing the soils to change from a solid to a liquid state (liquefaction). Any potential for liquefaction in the project area

would not increase as a result of the project. Therefore, the potential risk of effects to staff, contractors, or the public is considered to be less than significant.

- iv) As described in the Environmental Setting, portions of the proposed project area have potential for coherent landslides in the event of an earthquake in the Lake Tahoe Basin. This is an existing condition and the proposed project would not increase this potential hazard. Therefore, the potential risk of effects to staff, contractors, or the public is considered to be less than significant as a result of project implementation.
- b) Benthic barriers will be placed over the top of the underwater substrate in Emerald Bay. In addition, some portions of the project area may be treated with suction removal. The top 4-8 inches of substrate would be filtered in place for clams, or the substrate may be suctioned onto a barge and returned clean to the same location after clam removal. Underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to a water body. This action will not contribute to soil erosion and all necessary permits will be attained prior to commencing any project activities, resulting in less than significant impacts.
- c) Benthic barriers will be placed over the top of the underwater substrate in Emerald Bay. In addition, some portion of the project area may be treated with suction removal. These actions will not contribute to runoff or contribute to instability of soil. No impact.
- d) Expansive soils are those soils that have high clay content that swell when wet and shrink when dry. Soils on the project area site do not have high clay content, are therefore not expansive, and would not result in a substantial risk to life and property. No impact.
- e) The project does not involve the installation of any waste disposal systems. Therefore, there would be no impact to onsite soils from this project.
- f) There are no known unique paleontological or geological resources at the project site which could potentially be impacted by project activities. No impact.

VII. GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL SETTING

Greenhouse gases (GHG) such as carbon dioxide and methane trap heat in the earth's atmosphere. Increased concentrations of these gases over time produce an increase in the average surface temperature of the earth. The rising temperatures can in turn produce changes in precipitation patterns, storm severity, and sea level, resulting in what is commonly referred to as "climate change."

The California State Legislature has proposed and the Governor has approved laws and policies to reduce the amount of GHG generated each year. As stated in Assembly Bill 32, Global Warming Solutions Act (AB 32), passed in 2006; "The State of California found that Global Warming would have detrimental effects on some of California's largest industries including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry." AB 32 requires statewide GHG emissions in California be reduced to 1990 levels by the year 2020 and requires the California Air Resources Board (CARB) to adopt rules and regulations to achieve this goal.

California Department of Parks and Recreation (DPR) has developed a "Cool Parks" initiative to address climate change within the State Park system. Cool Parks proposes that DPR itself, as well as resources under its care, adapt to the environmental changes resulting from climate change. In order to fulfill the Cool Parks initiative, DPR is dedicated to using alternative energy sources, low emission vehicles, recycling and reusing supplies and materials, and educating staff and visitors on climate change (DPR 2008).

Greenhouse Gas Emissions and Climate Change

Some GHG such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and through human activities. Naturally occurring greenhouse gasses include water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

- *Water Vapor* - Water Vapor is the most abundant GHG in the atmosphere. Changes in its concentration are considered a result of climate feedback loops related to the warming of the atmosphere rather than a direct result of human activities. The feedback loop that involves water is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the absolute humidity can be higher (in essence, the air is able to 'hold' more water when it's warmer), leading to more water vapor in the atmosphere. As a greenhouse gas, the higher concentration of water vapor is then able to absorb more thermal energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a 'positive feedback loop'. However, scientific uncertainty exists in defining the extent and importance of this feedback loop. As water vapor increases in the atmosphere, more of it would eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

- *Carbon Dioxide* - The natural production and absorption of carbon dioxide (CO₂) is achieved through the terrestrial biosphere and the ocean. Carbon dioxide also enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or “sequestered”) when it is absorbed by plants as part of the biological carbon cycle. Carbon dioxide was the first greenhouse gas demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century.
- *Methane* – Methane (CH₄) has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands (at the roots of the plants). Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. Methane is an extremely effective absorber of radiation, though its atmospheric concentration is less than CO₂ and its lifetime in the atmosphere is brief (10-12 years), compared to some other greenhouse gases (such as CO₂, N₂O, CFCs).
- *Nitrous Oxide* - Nitrous Oxide (N₂O) is produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. Concentrations of nitrous oxide began to rise at the beginning of the industrial revolution and it is understood to be produced by reactions that occur in fertilizer containing nitrogen. Increasing use of these fertilizers has occurred over the last century (NOAA).
- *Ozone* – Ozone (O₃) is a gas present in both the upper stratosphere, where it shields the Earth from harmful levels of ultraviolet radiation, and at lower concentrations in the troposphere, the air closest to the Earth’s surface, where it forms through chemical reactions between pollutants from vehicles, factories, fossil fuels combustion, evaporation of paints and many other sources. Key pollutants involved in ozone formation are hydrocarbon and nitrous oxide gases (CARB 2008). Sunlight and hot weather cause the ground-level ozone to form in harmful concentrations and is the main component of anthropogenic photochemical “smog” (USEPA).

Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities.

- *Fluorinated Gases*: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases (USEPA).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
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 type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) Equipment used in project activities including delivery vehicles, barge, and boats could contribute to an increase in CO₂ and N₂O levels, both components of GHG. The limited use of boats and vehicles, and the temporary nature of this activity, would result in a less than significant impact on the generation of GHG emissions.
- b) Project activities would not conflict with any existing plans, policies, or regulations adopted for the purpose of reducing emissions of greenhouse gases. No impact.

VIII. HAZARDS AND HAZARDOUS MATERIALS.

ENVIRONMENTAL SETTING

The proposed project site is located under the water in the Emerald Bay underwater park, Lake Tahoe, on California State Lands Commission land leased and managed by California Department of Parks and Recreation (DPR). Proposed project actions include transporting and deploying plastic bottom barrier material and weights by boat and barge to cover an Asian clam bed in order to reduce available oxygen and kill the clams.

Hazardous Materials

There are no hazardous materials cleanup sites listed by the California Department of Toxic Substance Control (DTSC) in or near the proposed project area (DTSC 2010). The types of materials used and stored that could be hazardous include fluids such as motor vehicle and mechanical equipment fuels, oils, and other lubricants. No storage facilities, or other structures or industrial sites that could contain hazardous materials are located at the site of the proposed project.

Airports and Schools

There are no airports or schools in or near the project area.

Fire

Proposed work would occur under the surface of the water and staged from a boat or barge.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
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, substances, or waste 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites, compiled pursuant to Government Code §65962.5, and, as a result, create a significant hazard to the public or environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
e) Be 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? If so, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be located in the vicinity of a private airstrip? If so, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death from wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a-b) Project activities associated with the proposed Asian Clam Control Project could require the use of certain hazardous materials, such as fuels, oils, lubricants or other fluids associated with the operation and maintenance of boats and barges. Generally, these materials would be contained within vessels engineered for safe storage. Large quantities of these materials would not be stored at or transported to the project site; however, spills, upsets, or other construction related accidents could result in an inadvertent release of fuel or other hazardous substances into the environment. Implementation of **MITIGATION MEASURE HAZMAT-1** and **MITIGATION MEASURE HYDRO-1** (Chapter 2) will reduce the potential for adverse impacts from these incidents to a less than significant level.
- c) There are no existing or proposed schools in the vicinity of the project area. No impact.
- d) The Proposed Action would not occur on or near any hazardous materials sites compiled pursuant to Government Code §65962.5. No area within the project site is currently restricted or known to have hazardous materials present. No impact.
- e) The proposed project activities do not occur within 2 miles of an airport. No impact.
- f) The proposed activities do not occur in the vicinity of a private airstrip. No impact.
- g) The proposed project would not impair or interfere with an adopted emergency response plan or emergency evacuation plan because activities could be delayed to respond to

emergencies and activities would also be coordinated with the United States Coast Guard, resulting in a less than significant impact.

- h) Work would occur from a boat and under the surface of the water. No project activities would result in exposure of the public to wildfires. No impact.

Mitigation Measure Hazmat-1: Spill Prevention and Response

- Prior to the start of project activities, all equipment and vehicles will be cleaned and serviced. Routine vehicle and equipment checks will be conducted during the project to ensure proper operating conditions and to avoid any leaks.
- All contaminated residue or other hazardous compounds will be contained and disposed of outside of the boundaries of the site at a lawfully permitted or authorized site.
- Benthic barriers will be cleaned at an established decontamination facility authorized by the Tahoe Regional Planning Agency.
- Boats and barges used in project activities will be required to have an emergency spill response plan and kit.

IX. HYDROLOGY AND WATER QUALITY.

ENVIRONMENTAL SETTING

The climate of the Lake Tahoe region is generally Mediterranean, but is modified by topography and geography. It is characterized by relatively warm, dry summers interrupted by occasional lightning storms, and cold wet winters with variable precipitation mostly falling as snow. About 95% of the precipitation falls between October and May. An average of more than 80 inches of precipitation falls on the west side of the Lake Tahoe Basin, mostly as snow (Boughton et al. 1997). The annual mean temperature is 45 degrees. The coldest month is February, with an average temperature of 28 degrees. Average summer temperatures range from 60 to 80 degrees during the day, and from 35 to 40 degrees at night. Snow accounts for 75% to 80% of the total precipitation, with an average snowfall of 200 to 325 inches. The normal average precipitation in the basin is 34 inches.

Infrequent large, warm winter storms can potentially produce extreme streamflows and flooding resulting from high rainfall and melting of existing snowpack. The seasonal snowmelt process results in peak streamflows between May and June. Minimum streamflows occur during late summer and fall.

Lake Tahoe is recognized as an Outstanding National Resource Water by the U.S. Environmental Protection Agency's Water Quality Standards Program and the Clean Water Act. Under this designation, Lake Tahoe is afforded the highest protection from degradation (TRPA 2002). The Water Quality Control Plan for the Lahontan Region (LRWQCB 1994 Chapter 5: Water Quality Standards and Control Measures for the Lake Tahoe Basin) has designated beneficial uses for the surface waters of the Lake Tahoe Hydrologic Unit, such as Cold Freshwater Habitat. The Cold Freshwater Habitat (COLD) definition is "beneficial uses of waters that support cold water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife..." For all waters designated COLD, the temperature shall not be altered. Other Beneficial Uses such as municipal water supply and recreational uses are discussed under other sections of this document.

Lake Tahoe is considered to be an oligotrophic lake, with low concentrations of nutrients, low algal productivity, and high oxygen content. These factors lead to its exceptional clarity. There has been a significant decline in water clarity since 1968 (UC Davis 2010). Current concerns are attributed in part to the increased algal growth caused by nutrient inputs from development of the Lake Tahoe watershed. Control of nutrient inputs to the lake has thus become one of the priorities of regulatory agency action in the basin.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<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 alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place structures that would impede or redirect flood flows within a 100-year flood hazard area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Result in inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The proposed project may cause a temporary increase in turbidity during removal of benthic barriers or suction removal. The barriers can have fine sediment deposited on them during the period of deployment, and this fine sediment, along with dead clam material, can cause turbidity as the barriers are removed. Previous bottom barrier water quality monitoring results indicate that turbidity is localized and temporary in nature. A pilot

project in Marla Bay showed that large scale benthic barrier removal yielded turbidity levels not to exceed 0.9 NTU (nephelometric turbidity units) and the turbidity measurements returned to background levels in a matter of minutes. Suction removal also has the potential to increase local turbidity. Implementation of **Mitigation Measure Hydro-1** and **Mitigation Measure Hazmat-1** will reduce these potential impacts to less than significant.

- b) The project would not deplete groundwater supplies or interfere with groundwater recharge. No impact.
- c) No existing drainages or drainage patterns would be substantially altered by the proposed project. No impact.
- d) No project activities would result in a substantial increase in the rate or amount of surface runoff or result in off-site flooding. No impact.
- e) The proposed project would not create or contribute runoff water. No impact.
- f) The proposed project may cause a temporary increase in turbidity during removal of benthic barriers or suction removal activities. The barriers can have fine sediment deposited on them during the period of deployment, and this fine sediment can cause turbidity as the barriers are removed. Previous bottom barrier water quality monitoring results indicate that turbidity is localized and temporary in nature. A pilot project in Marla Bay showed that large scale benthic barrier removal yielded turbidity levels not to exceed 0.9 NTU (nephelometric turbidity units) and the turbidity measurements returned to background levels in a matter of minutes. Suction removal can also result in short term localized increases in turbidity similar to that observed during barrier removal. Supplementation of the barrier treatment method with straw or other material to help reduce oxygen under the mats would be small in scale and not negatively impact water quality. Implementation of **Mitigation Measure Hydro-1** will reduce these potential impacts to less than significant.
- g) The proposed project does not include a housing component. No impact.
- h) The proposed project does not include construction of any structures. No impact.
- i) The proposed project would not expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam. No impact.
- j) Lake Tahoe is a large water body with the potential for the production of seiche waves. However, project activities would not increase the risk of seiche waves or increase public exposure to this risk. The Lake Tahoe Basin is classified as having low incidence and susceptibility of small or large landslides (USGS 2007) and project activities will not expose the public or property to an increased risk or susceptibility from these events. No impact.

Mitigation Measure Hydro-1: Water Quality

- A Water Quality Monitoring Plan will be prepared and presented to the TRPA and LRWQCB for approval prior to conducting project activities. Turbidity will be measured before, during, and after installation and removal of benthic barriers.
- Turbidity curtains will be utilized during suction removal activities to contain any disturbance related turbidity.
- Underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.
- The water intake at Eagle Point Campground will be turned off during removal of the benthic barriers and will not be turned back on until water quality returns to background levels.

X. LAND USE AND PLANNING.

ENVIRONMENTAL SETTING

The project site is located in El Dorado County on the California side of the Lake Tahoe Basin. California Department of Parks and Recreation (DPR) has a Special Use Permit to operate facilities and allow recreation on this in-holding which is leased from California State Lands Commission. The typical land uses surrounding Emerald Bay State Park (SP) are a mixture of recreation and timberland (State or U.S. Forest Service Land).

For park units within the California State Parks System, DPR creates general plans, which are broad policy documents that set the direction for park development and management for the next 20 years or more. Not all parks have general plans, but other DPR guidelines and directives help to ensure appropriate operations and management are achieved. Other such guidance documents include the DPR cultural resource management directives and the DPR Operations Manual 0300, Natural Resources. Both of these documents provide DPR policy direction, definitions, processes, and procedures to guide the management of the natural and cultural resources on DPR lands.

Emerald Bay SP does not have a general plan but this project is consistent with the DPR cultural resource management directives and the DPR Operations Manual 0300, Natural Resources. The project is also consistent with the El Dorado County General Plan which calls out invasive species as a management concern (El Dorado County 2004).

Land use in the area will remain generally the same in the future (10-20 years); small towns surrounded by resource management lands with high quality recreation and a healthy natural environment.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with the applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The proposed project area is within the boundary of Emerald Bay SP within the Lake Tahoe Basin, which is used for recreation and contains no residential or commercial development. No impact.
- b) As noted in the Environmental Setting above, the proposed project site occurs within a state park unit within the Lake Tahoe Basin. No project elements are in conflict with the zoning, regulatory policies, land use plans, conservation plans, or ordinances for this area. All appropriate interagency coordination, consultation and permits would be completed or obtained, in compliance with all applicable local, state, and federal requirements. No impact.
- c) There are no applicable habitat conservation plans or natural community conservation plans in effect for this park unit. No impact.

XI. MINERAL RESOURCES.

ENVIRONMENTAL SETTING

There are currently no important mineral resources identified in Emerald Bay State Park (SP) per the El Dorado General Plan (2004).

DPR policy does not permit the commercial extraction of mineral resources due to impacts to resources and in accordance with the Public Resources Code § 5001.65.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Result in the loss of availability of a known mineral resource that is or 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"/>

DISCUSSION

a-b) No significant mineral resources have been identified within the boundaries of Emerald Bay SP and all project actions would occur within land managed by DPR under a lease with California State Lands Commission. The project would not change land use activities on the site and would therefore not result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site. As stated in the Environmental Setting above, under PRC § 5001.65, mining within any unit of the State Park System is prohibited. No impact.

XII. NOISE.

ENVIRONMENTAL SETTING

The project area is located in Emerald Bay State Park (SP) in the Lake Tahoe Basin. Activities would be conducted from a boat or barge and work would occur in the underwater portion of the park. This area is characterized by a natural setting which is often free of loud noise; however, boat traffic can be very heavy at times in this area and noise can travel great distances over the flat lake surface.

Sound is any detectable fluctuation in air pressure and generally is measured on a logarithmic scale in decibels (dB). When unwanted sound (i.e., noise) is measured, an electronic filter is used to de-emphasize extreme high and low frequencies to which human hearing has decreased sensitivity. Resulting noise measurements are expressed in weighting frequencies called A-weighted decibels (dBA). While zero dBA is the low threshold of human hearing, a sustained noise equal or greater than 90 dBA is painful and can cause hearing loss (Table XI-1, Bearden 2000).

Table XI-1: Sound Levels Generated by Various Sources of Noise

Sound Level	dBA
Quiet library, soft whispers	30
Living room, refrigerator	40
Light traffic, normal conversation, quiet office	50
Air conditioner at 20 feet, sewing machine	60
Vacuum cleaner, hair dryer, noisy restaurant	70
Average city traffic, garbage disposals, alarm clock at 2 feet	80
Constant exposure to the following sound levels can lead to hearing loss	
Subway, motorcycle, truck traffic, lawn mower	90
Garbage truck, chain saw, pneumatic drill	100
Rock band concert in front of speakers, thunderclap	120
Gunshot blast, jet plane	140
Rocket launching pad	180

(Bearden 2000)

Noise is further described according to how it varies over time and whether the source of noise is moving or stationary. Background noise in a particular location gradually varies over the course of a 24-hour period with the addition and elimination of individual sounds. Several terms are used to describe noise and its effects. The equivalent sound level (L_{eq}) describes the average noise exposure level for a specific location during a specific time period, typically over the course of one hour. The Community Noise Equivalent Level (CNEL) is a twenty-four hour average of L_{eq} with an additional 5 dBA penalty for noise generated between the hours of 7:00 p.m. and 10:00 p.m. and a 10 dBA penalty during the hours of 10:00 p.m. and 7:00 a.m. The penalties account for how much more pronounced a noise is at night when other sounds have diminished. Federal, state, and local governments have defined noise and established

standards to protect people from adverse health effects such as hearing loss and disruption of certain activities. Noise is defined in the California Noise Control Act, Health and Safety Code, California Code of Regulations (CCR) § 46,022 as excessive or undesirable sound made by people, motorized vehicles, boats, aircraft, industrial equipment, construction, and other objects.

Tahoe Regional Planning Agency (TRPA) has two sets of standards, one for single noise events and one for cumulative noise events in the community. See Appendix F for the TRPA Noise Event Standards tables. Single noise events are identified by source such as aircraft, watercraft, vehicles, snowmobiles, and the like. Cumulative noise sources are identified by land use category such as high and low density residential, commercial, industrial, urban/rural outdoor recreation, wilderness/roadless areas, and wildlife areas. Thresholds are set in dBA based on threshold noise for single noise events and average of background noise levels for cumulative noise events.

There are no public or private airstrips in the vicinity of the project areas.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Generate or expose people to noise levels in excess of standards established in a 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) Generate or expose people to excessive groundborne vibrations or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Create a substantial permanent increase in ambient noise levels in the vicinity of the project (above levels without the project)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Be 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? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be in the vicinity of a private airstrip? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) Project activities requiring use of a barge, boat, winch, and/or backhoe could produce noise in excess of typical noise in the area; however, noise related to project activities will be temporary in nature, and temporary increases in noise levels in this location frequently occur as a result of substantial watercraft recreation. Noise generated by these project activities will not violate any established noise standards established by the Tahoe Regional Planning Agency or other local, state, or federal standards. The noise generated by project activities will result in a less than significant impact in regards to public exposure to elevated noise levels.
- b) Project activities will not result in excessive groundborne vibrations or noise levels. No impact.
- c) Project activities will be temporary in nature and there will be no permanent change in noise levels at the project site. No impact.
- d) The mouth of Emerald Bay is exposed to relatively high boat traffic in Lake Tahoe, and the noise that accompanies this boat use. Project activities will result in boat use at the project site and noise from a winch or backhoe, or from suction removal equipment such as an air compressor or pump. However, this noise will be temporary in nature and will not be substantially higher than the periodic noise that this site routinely experiences. Project activities may require a temporary reduction in boat traffic into Emerald Bay which would reduce the ambient noise during project activities. This will result in less than significant impacts.
- e) The project is not located within two miles of any public airstrip. No impact.
- f) The project is not located within two miles of any privately owned airstrip. No impact.

XIV. POPULATION AND HOUSING

ENVIRONMENTAL SETTING

Emerald Bay State Park (SP) is located in the Lake Tahoe Basin. South Lake Tahoe is the largest city in the Lake Tahoe Basin and many small towns are also scattered throughout this rural area, including Tahoe City, Tahoma, and Kings Beach. Most summer visitors arrive from the San Francisco Bay Area followed by Southern California, other states, Central California, and Nevada. The table below shows the approximate driving distances from the park unit to the nearest larger populated communities of Tahoe City and South Lake Tahoe.

Table XII-1: Driving Distances from Park Units to Larger Population Centers

Park Unit	Approximate Driving Distance from Park Unit to Tahoe City	Approximate Driving Distance from Park Unit to South Lake Tahoe (Intersection HWY 50 & 89)
Emerald Bay SP	18.5 miles	10.5 miles

Population

In 2000, the population within the Lake Tahoe Basin (California and Nevada) was approximately 63,000 people (TRPA 2006). The majority of these residents live in the City of South Lake Tahoe. Much of the Lake Tahoe Basin is forested and/or rural, and contains small towns and cities primarily located along the highway system which encircles the lake.

Housing

There are no housing facilities in close proximity to the project area. The closest dwellings consist of several U.S. Forest Service lease cabins above the western and opposite end of Emerald Bay from proposed project activities.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

a-c) The project does not have a housing component and all work would take place within the confines of the park unit boundaries, with no additions or changes to existing local infrastructure. The project would neither modify nor displace any existing housing and would displace no people, either temporarily or permanently. All jobs created by the project would be tied to short-term project related activities and would be temporary in nature. Visitation to the area is not expected to change as a result of the project. No impact.

XIV. PUBLIC SERVICES.

ENVIRONMENTAL SETTING

Public services include fire and police protection, schools, parks, and other public facilities. The project site in Emerald Bay State Park (SP) benefits from existing public services, such as law enforcement protection.

Fire Protection

All California state park units in the Tahoe Basin are located on State Responsibility Land in Placer and El Dorado Counties. The California Department of Forestry and Fire Protection (CalFire) has primary jurisdiction for fire suppression in State Responsibility Land including units of the State Park System (CalFire 2007). Approximately 80 percent of the lands within the Tahoe Basin are owned and managed by the United States Forest Service Lake Tahoe Basin Management Unit (USFS LTBMU). CalFire has an agreement with the USFS LTBMU to provide fire protection to State Responsibility Lands in the Basin.

The size of the state and the numerous types of emergencies such as wildfires, floods, and earthquakes, require the cooperative efforts of federal, state, and local agencies. The LTBMU provides service to the entire Lake Tahoe Basin in California and Nevada. The Fire Protection Districts within Tahoe Basin work cooperatively with LTBMU and adjacent Fire Protection Districts. The Lake Valley Fire Protection District or Meeks Bay Fire Protection District would respond to emergencies at Emerald Bay SP.

Police Protection

DPR rangers assigned to DPR lands within the Lake Tahoe Basin are Peace Officer Standards and Training (POST) certified law enforcement officers and provide year round law enforcement within park unit boundaries. The El Dorado County Sheriff's Department responds to emergency calls and assists with criminal investigations.

Schools

South Lake Tahoe, where the closest schools are located, is over 10 miles from the project area.

Parks and Other Public Facilities

Many parks and recreational facilities that serve local residents and visitors are located throughout El Dorado County. D.L. Bliss SP adjoins Emerald Bay SP immediately to the north, California Tahoe Conservancy land adjoins Emerald Bay SP to the south, and USFS LTBMU land adjoins Emerald Bay SP to the west.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

This proposed project would conduct Asian clam control activities in Emerald Bay SP.

a) Fire Protection: No components of the proposed project would contribute to an increase of visitation and the long-term level of required public services will not change due to project activities. No impact.

Police Protection: As noted in the **ENVIRONMENTAL SETTING**, DPR rangers with law enforcement authority patrol DPR land in the Lake Tahoe Basin with emphasis on campgrounds and public use areas. DPR rangers have full law enforcement authority and are only assisted from local police as backup as needed. No additional demands on rangers or local police are expected as a result of this project. No impact.

Schools, Parks and Other Public Facilities: There would be no impacts to schools or other public facilities as a result of the proposed project and no need for new or physically altered governmental facilities related to these services. Access into Emerald Bay via boat would be restricted for a short period of time during installation and removal to allow for work in the mouth of Emerald Bay and to ensure safety of the divers; however, the limited duration of the restricted access, availability of the rest of the lake for recreation, and incorporation of **Mitigation Measure Rec-1** would result in less than significant impacts.

XV. RECREATION.

ENVIRONMENTAL SETTING

The Lake Tahoe area is renowned for its beauty as well as its outdoor recreation. Public lands in the Lake Tahoe Basin are used for many different recreation activities year round. Visitation to Emerald Bay State Park (SP) predominantly occurs during summer and on weekends and holidays. During snow free months, visitors are able to camp in the campgrounds and picnic, hike, mountain bike, and explore. With shore access, visitors enjoy water sports such as kayaking, canoeing, motor boating, swimming, fishing and scuba diving. During the winter, recreational activities such as sledding, cross-country skiing, and snowshoeing dominate.

The Water Quality Control Plan for the Lahontan Region (LRWQCB 1994 Chapter 5: Water Quality Standards and Control Measures for the Lake Tahoe Basin) has designated beneficial uses for the surface waters of the Lake Tahoe Hydrologic Unit, including beneficial recreational uses Water Contact Recreation (REC-1) and Noncontact Water Recreation (REC-2).

Emerald Bay receives substantial boat traffic, especially between Memorial Day and Labor Day. Several commercial boat tour operators take guests into Emerald Bay. These include the paddlewheel boats Tahoe Queen and M.S. Dixie II, operated by the Aramark Zephyr Cove Resort and Lake Tahoe Cruises. The Tahoe Gal is also a paddlewheel boat which is stationed in Tahoe City and operated by North Tahoe Cruises. There are other operators which also tour Emerald Bay including the Tahoe Bleu Wave, Harrah's Tahoe Star, Safari Rose, Tahoe Cruises trips, Tahoe Thunder, Woodwind Cruises, and others. In addition to tour operations, many private boaters also frequent Emerald Bay for sightseeing, fishing, and camping at the Emerald Bay SP Boat Camp, which is a boat-in campground.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) During proposed project activities, Emerald Bay would require temporary boat traffic control to allow installation and removal of barriers, and ensure the safety of the divers. Impacts to other recreation facilities are anticipated to be less than significant because the traffic control would be short-term and **Mitigation Measure Rec-1** would also be

implemented to inform the public, schedule activities with respect to recreation, and cooperate with tour operators. In addition, the rest of Lake Tahoe would still be available for boating recreation.

- b) The proposed project does not involve the expansion of existing or the construction of new recreational facilities. No impact.

Mitigation Measure Rec-1: Boating Access

- Work will be coordinated with tour boat operators in Lake Tahoe to determine the least disruptive days and hours to conduct work. Work will occur during these days and time periods to the extent possible.
- The U. S. Coast Guard will be contacted to coordinate dissemination of information and to potentially assist with boater compliance and diver safety.
- Emerald Bay will require traffic control for motorized boat traffic for up to 6 hours per day for an estimated 4 weeks during barrier installation and 4 weeks during barrier removal, and during some alternative treatment work. Non-motorized boats and escorted motorized boats may be allowed to pass through the mouth if the water level is high enough to allow passage and maintain the safety of the divers.
- Public notices will be used to inform the public of temporary boat traffic control.
- Work will be scheduled during the mornings and on weekdays to the extent possible. No boat traffic control would occur during the weekend, unless there is a need to re-secure a barrier.
- A boat will be positioned at the mouth of Emerald Bay to inform the public of project activities and provide information on when they can proceed into the bay.
- Overnight boaters in Emerald Bay will be informed of the temporary boat traffic control to allow departure prior to the start of work.
- To the extent possible, all installation and removal activities will be scheduled outside of the high recreation period between the Memorial Day and Labor Day weekends.

XVI. TRANSPORTATION/TRAFFIC.

ENVIRONMENTAL SETTING

The Lake Tahoe Basin is located on the California-Nevada border in the Sierra Nevada Mountains. Principle access to the Lake Tahoe Basin is by vehicle via Interstate 80, by U.S. Highways 50 and 395, and by State Routes 28, 89, and 267. Driving time from Sacramento is approximately two hours under favorable driving conditions. Winter storm events and occasional landslides can close highways or contribute to significant driving delays. State Route 89 on the edge of Emerald Bay State Park (SP) frequently closes during adverse winter weather due to snow avalanche danger. Major bus lines and railroad stations are located in Truckee and South Lake Tahoe. There are no direct commercial airline flights into the Lake Tahoe Basin.

The predominant mode of transportation used in the Lake Tahoe Basin is private vehicle (TRPA 2006). In the summer, there is considerable private vehicle traffic on the highways around the lake and at times traffic can become congested on these roads. The Tahoe Interregional/ Intraregional Transit Study Final Report (TRPA 2006) studied strategies to expand on surface (bus, rail, or waterborne) public transportation network connecting the North and South Shores, and connecting the Tahoe Region to nearby urban areas.

Streets and Highways

State Routes 28 and 89 and U.S. Highway 50 encompass the perimeter of Lake Tahoe. These main travel corridors can experience high traffic volume from private vehicles during portions of the year.

Road Traffic and Level of Service

Level of Service (LOS) measures how the route operates during peak hour traffic. LOS summarizes the effects of speed, travel time, traffic interruptions, freedom to maneuver and other factors. The performance of the county roads and highways is evaluated based on LOS definitions. Six levels of service represent varying roadway conditions ranging from ideal (LOS "A") to forced flow (LOS "F"). The areas of congestion are the intersections of Highway 50 and Highway 89 in South Lake Tahoe and in Tahoe City at the intersection of Highway 89 and Highway 28.

Level Of Service (LOS)	Description of Typical Traffic Conditions	Delay	Service Rating
A	Highest quality of service. Free traffic flow, low volumes and densities. Little or no restriction on maneuverability or speed, and a high level of comfort and convenience.	None	Excellent
B	Stable traffic flow – speed becoming slightly restricted; the presence of others in the traffic stream begins to be noticeable. Low resistance on maneuverability.	None	Very Good
C	Stable traffic flow, but less freedom to select speed, change lanes or pass. Comfort and	Minimal	Good

D	convenience decreasing as density increases. Approaching unstable flow. Speeds tolerable, but subject to sudden and considerable variation. Reduced maneuverability, driver comfort and convenience.	Minimal	Adequate
E	Unstable traffic flow with rapidly fluctuating speeds and flow rates. Short headways, low maneuverability and low driver comfort and convenience.	Significant	Fair
F	Forced traffic flow. Speed and flow may drop to zero with high densities. Queues tend to form behind such locations since arrival flow exceed traffic discharges.	Considerable	Poor

Bicycle Traffic

The Lake Tahoe Regional Bicycle and Pedestrian Master Plan was developed in 2003 by the Tahoe Metropolitan Planning Organization. This plan provides a “blueprint for developing a regional bicycle and pedestrian system that includes both on-street and off-street facilities as well as support facilities and programs throughout the Lake Tahoe region”.

Air Traffic

Within the Lake Tahoe Basin, the Lake Tahoe Airport is the only airport that serves primarily the south shore of the lake. The Lake Tahoe Airport is owned and operated by the City of South Lake Tahoe, California. This small airport has a single runway and is for public use. The Lake Tahoe Airport is located approximately three air miles southwest of the downtown area of the City of South Lake Tahoe. Other airports that also serve the Lake Tahoe Basin include the Truckee Tahoe Airport (corporate and private planes) in Truckee, California and the Reno/Tahoe International Airport in Reno, Nevada.

Rail Traffic

Passenger: Rail service is limited to one daily Amtrak California Zephyr stop in each direction in Truckee, California. Amtrak Thruway Motorcoach service is provided to both Truckee and South Lake Tahoe for passengers connecting with the Capital Corridor rail service in Sacramento (TRPA 2006). *Freight:* Private companies, primarily the Union Pacific Railroad (UP) and the Burlington Northern Santa Fe (BNSF) railroad provide long distance freight movement of goods.

Bus Transportation

The Lake Tahoe Basin can be reached by bus service. Greyhound intercity bus service is provided along the Interstate 80 with a stop in Truckee (TRPA 2006). Casinos on the Nevada side often offer discount bus travel to gaming centers. Within the Lake Tahoe Basin, there are several local bus operators serving regions of the Basin. The Tahoe Area Regional Transit (TART) serves the Truckee, northwest and northern region of Lake Tahoe. BlueGo serves primarily the City of South Lake Tahoe. There are various seasonal “Trolleys” that travel to highly visited locations, including Emerald Bay SP, and their schedules supplement the regional bus schedules.

Parking

During peak visitation in the summer, parking on paved surfaces is limited to a first-come, first served basis at all the park units. There are no parking facilities near the project area.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Cause a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Contain a design feature (e.g., sharp curves or a dangerous intersection) or incompatible uses (e.g., farm equipment) that would substantially increase hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The proposed project is a resource management project and would not cause a substantial increase in traffic volume, result in additional congestion, or conflict with any local plan or ordinance. No impact.
- b) This project will not exceed individually or cumulatively the established LOS standards discussed in the Environmental Setting above. The only vehicle traffic expected to be generated by this project would be a vehicle to transport equipment and the boat or barge to deliver divers and equipment to the project site. No impact.

- c) This project will not will not impact air traffic. No impact.
- d) The bottom barriers would be secured to the lake substrate. Barrier movement or billowing due to gas accumulation could present an obstacle for boat traffic, although there has been no indication of these occurrences during pilot testing. Implementation of **Mitigation Measure Trans-1** will reduce this potential impact to less than significant.
- e) Boat traffic in and out of the mouth of Emerald Bay would need to be temporarily restricted during installation and removal of bottom barriers to protect the safety of the divers and allow the divers to conduct treatment activities with no overhead boat wake. Work would be coordinated with the U. S. Coast Guard for diver protection and safety. While boat traffic would be temporarily controlled to conduct project activities, work could be halted in the case of an emergency to allow boat traffic, in coordination with the U. S. Coast Guard, resulting in less than significant impacts.
- f) Project activities would not result in inadequate parking capacity. No impact.
- g) There are no policies, plans, or programs supporting alternative transportation that apply to this project. No impact.

Mitigation Measure Trans-1: Securing Barriers
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- | |
|---|
| <ul style="list-style-type: none"> • The bottom barriers will be checked routinely to inspect and re-secure any barriers that move or start to billow due to gas accumulation. |
|---|

XVI. UTILITIES AND SERVICE SYSTEMS.

ENVIRONMENTAL SETTING

The project would be conducted within the boundaries of Emerald Bay State Park (SP) and underwater park, which are managed by California Department of Parks and Recreation (DPR) under a lease from the California State Lands Commission.

Utilities and services are available at the day use and campground facilities. Day use areas provide picnic tables, barbecues, bathroom sinks, flush toilets, and garbage disposal. Campgrounds offer picnic tables, barbecues, campfire pits, water spigots, bathroom sinks, flush toilets, showers, garbage disposal, and lighted areas at night. There are landscaped areas around Vikingsholm Castle, and there are piers at Vikingsholm and Boat Camp.

Water

The Water Quality Control Plan for the Lahontan Region (LRWQCB 1994 Chapter 5: Water Quality Standards and Control Measures for the Lake Tahoe Basin) has designated beneficial uses for the surface waters of the Lake Tahoe Hydrologic Unit, including Municipal and Domestic Supply (MUN). There are three water intakes in Emerald Bay at Boat Camp boat-in campground, Vikingsholm Historic Complex, and Eagle Point Campground. Only the Eagle Point Campground water intake is in proximity to the project area.

Wastewater

Wastewater is either treated in septic systems, pumped from vault toilets, or removed from portable toilets.

Solid Waste

Garbage collected in the park day use and campground facilities is removed by DPR personnel and deposited into commercial contract containers. The containers are picked up by Tahoe Truckee Sierra Disposal.

Other Service Systems

There is a historic and a current power line that runs underneath Emerald Bay. The power lines exit the bay near the Emerald Point campground beach. The power line does not run through the project area.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Exceed wastewater treatment restrictions or standards of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Would the construction of these facilities cause	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

significant environmental effects?

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Would the construction of these facilities cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in a determination, by the wastewater treatment provider that serves or may serve the project, that it has adequate capacity to service the projects anticipated demand, in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations as they relate to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

DISCUSSION

- a) Project activities are in the jurisdiction of the Lahontan Regional Water Quality Control Board. Cleaning of barriers after completion of the control activities would occur at the existing Lake Tahoe Boat Inspection Program decontamination facilities or Tahoe Regional Planning Agency facility. Although the decontamination process would utilize water treatment facilities, the barrier cleaning would be an activity for which these decontamination facilities were designed to service and would not substantially contribute to exceeding treatment restrictions or standards. Proper decontamination of barriers, along with implementation of **Mitigation Measure Hydro-1**, will result in less than significant impacts.
- b-e) No new water treatment, wastewater treatment, or stormwater drainage facilities or expansion of these facilities would be required as a result of this project. There would be no requirement for the wastewater treatment provider to make a determination of capacity to service the project because of the minor service needs and because the action would occur under the existing decontamination program for the Lake Tahoe Basin. No impact.
- f-g) There are no solid waste disposal needs which could affect permitted capacity of local landfills or result in non-compliance with federal, state, or local statutes or regulations. No impact.

CHAPTER 4

MANDATORY FINDINGS OF SIGNIFICANCE

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Does the project have the potential to 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, reduce the number or restrict the range of a rare or endangered plant or animal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have the potential to eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probably future projects?)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have environmental effects that will cause substantial adverse effects on humans, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) The proposed project was evaluated for potential significant adverse impacts to the natural environment and its plant and wildlife communities. The project site supports certain special status animal species and natural communities. DPR has determined that the project would have the potential to degrade the quality of the habitat and/or reduce the number or restrict the range of sensitive animals. The project also would have the potential to degrade water quality by causing a release of fine sediments into the water column. However, full implementation of all project requirements and mitigation measures incorporated into this project would reduce those impacts, both individually and cumulatively, to a less than significant level.

- b) There are no known important examples of the major periods of California history or prehistory in the project area. In addition, project activities will be temporary in nature and will not alter the physical character of the lake substrate. No impact.

- c) DPR often has smaller maintenance programs, as well as rehabilitation, interpretation, and accessibility projects planned for a park unit. Potential impacts from environmental issues addressed in this evaluation do not overlap in such a way as to result in cumulative impacts that are greater than the sum of the parts. Less than significant impact.

- d) Most project-related environmental effects have been determined to pose a less than significant impact on humans. However, possible impacts from project related spills (Hazards and Hazardous Waste), boating activity (Recreation), moving bottom barriers (Transportation), and project related turbidity (Hydrology and Water Quality) though temporary in nature, have the potential to result in significant adverse effects on humans. These potential impacts would be reduced to a less than significant level if all project requirements incorporated into this project are fully implemented.

CHAPTER 5

SUMMARY OF MITIGATION MEASURES

The following mitigation measures would be implemented by DPR as part of the Asian Clam Control Project.

AESTHETICS

No project requirements or mitigations measures are necessary.

AGRICULTURAL RESOURCES

No project requirements or mitigations measures are necessary.

AIR QUALITY

No project requirements or mitigations measures are necessary.

BIOLOGICAL RESOURCES

MITIGATION MEASURES Bio-1: Nesting Osprey and Bald Eagle

- To the extent possible, project activities would occur outside of the osprey (April 1 – August 15) and bald eagle (February 15 – August 15) breeding seasons.
- If work is required during the breeding season, a DPR-approved biologist would conduct surveys to document reproductive activity of the established osprey and eagle nests within 0.25 and 0.5 miles, respectively, of the project area.
 - If the nests are not occupied or the young have fledged then project activities would be allowed to commence.
 - If osprey or eagles are actively incubating eggs or have young in the fledgling state within 0.25 or 0.5 miles, respectively, of the project area, no work would be conducted.
 - If there are chicks on the nest, work could be authorized by a DPR-approved biologist if:
 - i. A DPR-approved biologist is onsite during all operations to monitor the nests to ensure the young or adults are not visibly disturbed by project activities,
 - ii. Any visible disturbance attributable to the project activities would result in the project being postponed until after the young fledge,
 - iii. No more than 4 hours of activities creating noise above ambient levels would occur in any 24-hour period.

CULTURAL RESOURCES

No project requirements or mitigations measures are necessary.

GEOLOGY AND SOILS

No project requirements or mitigations measures are necessary.

GREENHOUSE GAS EMISSIONS

No project requirements or mitigations measures are necessary.

HAZARDS AND HAZARDOUS MATERIALS

MITIGATION MEASURE HAZMAT-1: Spill Prevention and Response

- Prior to the start of project activities, all equipment and vehicles will be cleaned and serviced. Routine vehicle and equipment checks will be conducted during the project to ensure proper operating conditions and to avoid any leaks.
- All contaminated residue or other hazardous compounds will be contained and disposed of outside of the boundaries of the site at a lawfully permitted or authorized site.
- Benthic barriers will be cleaned at an established decontamination facility authorized by the Tahoe Regional Planning Agency.
- Boats and barges used in project activities will be required to have an emergency spill response plan and kit.

HYDROLOGY AND WATER QUALITY

MITIGATION MEASURES HYDRO-1

- A Water Quality Monitoring Plan will be prepared and presented to the TRPA and LRWQCB for approval prior to conducting project activities. Turbidity will be measured before, during, and after installation and removal of benthic barriers.
- Turbidity curtains will be utilized during suction removal activities to contain any disturbance related turbidity.
- Underwater AC control activities in Lake Tahoe require permits from the Army Corps of Engineers, Lahontan Regional Water Quality Control Board, Tahoe Regional Planning Agency, and the California Department of Fish and Game. All of these permits require monitoring and protective measures to ensure that project activities do not result in significant impacts to water quality. Project activities will not commence until all required permits are attained.
- The water intake at Eagle Point Campground will be turned off during removal of the benthic barriers and will not be turned back on until water quality returns to background levels.

LAND USE AND PLANNING

No project requirements or mitigations measures are necessary.

MINERAL RESOURCES

No project requirements or mitigations measures are necessary.

NOISE

No project requirements or mitigations measures are necessary.

POPULATION AND HOUSING

No project requirements or mitigations measures are necessary.

PUBLIC SERVICES

No project requirements or mitigations measures are necessary.

RECREATION

MITIGATION MEASURES REC-1: Boating Access

- Work will be coordinated with tour boat operators in Lake Tahoe to determine the least disruptive days and hours to conduct work. Work will occur during these days and time periods to the extent possible.
- Emerald Bay will require traffic control for motorized boat traffic for up to 6 hours per day for an estimated 4 weeks during barrier installation and 4 weeks during barrier removal, and during some alternative treatment work. Non-motorized boats and escorted motorized boats may be allowed to pass through the mouth if the water level is high enough to allow passage and maintain the safety of the divers.
- Public notices will be used to inform the public of temporary boat traffic control.
- Work will be scheduled during the mornings and on weekdays to the extent possible. No boat traffic control would occur during the weekend, unless there is a need to re-secure a barrier that has moved.
- A boat will be positioned at the mouth of Emerald Bay to inform the public of project activities and provide information on when the bay will open.
- Overnight boaters in Emerald Bay will be informed of the temporary boat traffic control to allow departure prior to the start of work.
- To the extent possible, all installation and removal activities will be scheduled outside of the high recreation period between the Memorial Day and Labor Day weekends.

TRANSPORTATION/TRAFFIC

MITIGATION MEASURES TRANS-1: Securing Barriers

- Bottom barriers will be checked routinely to inspect and re-secure any bottom barriers that move or start to billow as gas accumulates under them.

UTILITIES AND SERVICE SYSTEMS

No project requirements or mitigations measures are necessary.

CHAPTER 6 REFERENCES

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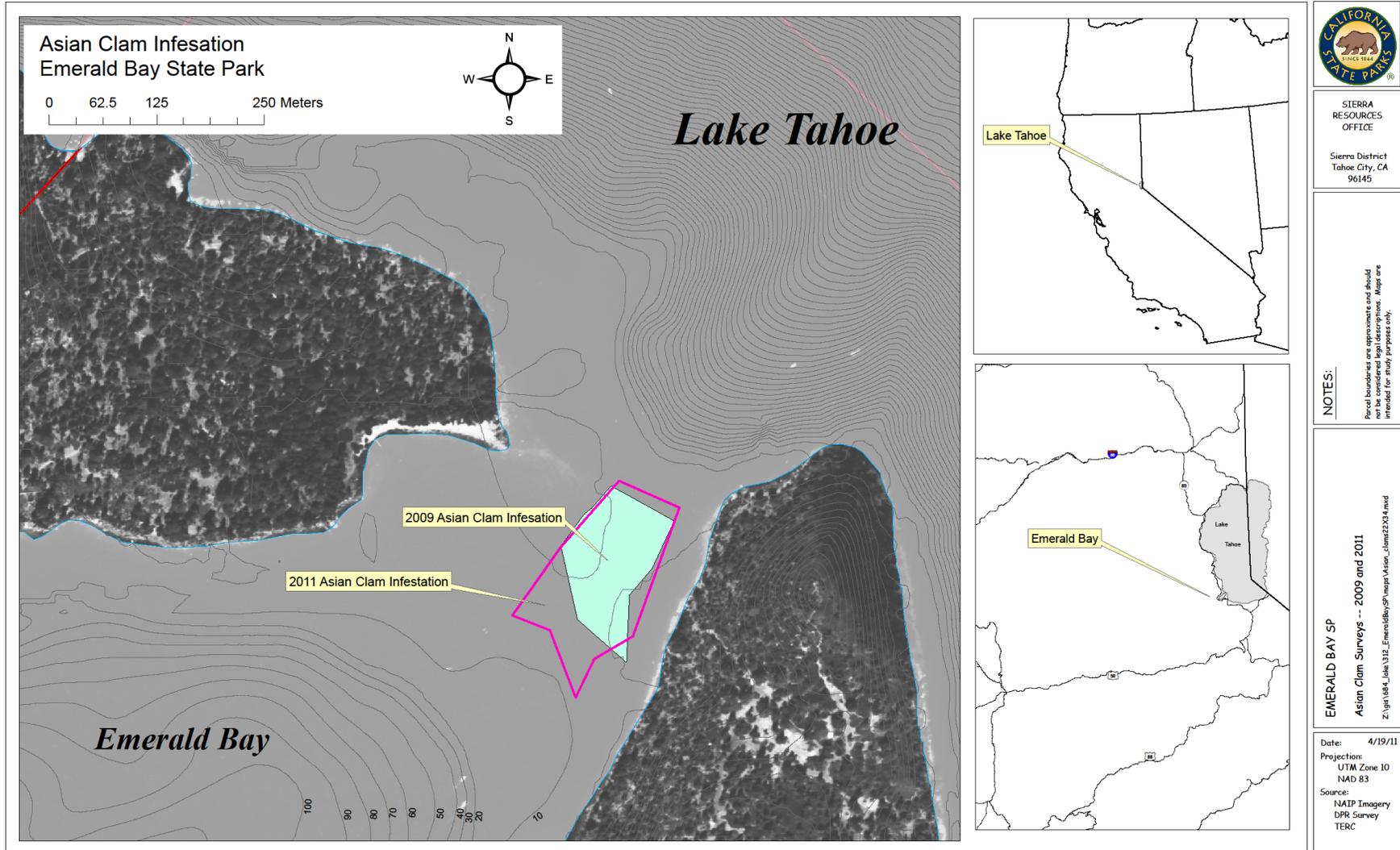
CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

**Dan Shaw, ENVIRONMENTAL SCIENTIST
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APPENDIX A MAP



United States Department of the Interior



FISH AND WILDLIFE SERVICE



**Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825**

July 6, 2011

Document Number: 110706122902

Daniel Shaw
California State Parks
1155 North Lake Boulevard
PO Box 16
Tahoe City, CA 96148

Subject: Species List for Asian Clam Control Project

Dear: Mr. Shaw

We are sending this official species list in response to your July 6, 2011 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Asian Clam Control Project IS/MND
Emerald Bay State Park
California Department of Parks and Recreation

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be October 04, 2011.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 110706122902

Database Last Updated: April 29, 2010

Quad Lists

Listed Species

Fish

- Hypomesus transpacificus
 - delta smelt (T)
- Oncorhynchus (=Salmo) clarki henshawi
 - Lahontan cutthroat trout (T)
- Oncorhynchus mykiss
 - Central Valley steelhead (T) (NMFS)

Candidate Species

Amphibians

- Bufo canorus
 - Yosemite toad (C)
- Rana muscosa
 - mountain yellow-legged frog (C)

Mammals

- *Martes pennanti*
 - fisher (C)

Plants

- *Rorippa subumbellata*
 - Tahoe yellow-cress (C)

Quads Containing Listed, Proposed or Candidate Species:

SOUTH LAKE TAHOE (522B)

FREEL PEAK (522C)

EMERALD BAY (523A)

ROCKBOUND VALLEY (523B)

PYRAMID PEAK (523C)

ECHO LAKE (523D)

HOMEWOOD (538C)

MEEKS BAY (538D)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a

permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be October 04, 2011.

APPENDIX C
ACRONYMS

AB – Assembly Bill
AC – Asian Clam
APEFZ - Alquist-Priolo Earthquake Fault Zoning
BGEPA – Bald and Golden Eagle Protection Act
BP – Before Present
BNSF - Burlington Northern Santa Fe
CalFire - California Department of Forestry and Fire Protection (CDF)
CA – California
CAA – Clean Air Act of 1970
Caltrans - California Department of Transportation
CARB – California Air Resources Board
CCAA – California Clean Air Act of 1988
CCR - California Code of Regulations
CE – California Endangered
CDF - California Department of Forestry and Fire Protection (CalFire)
CDFG - California Department of Fish and Game
CDOC – California Department of Conservation
CDPR or DPR – California Department of Parks and Recreation
CDTSC – California Department of Toxic Substance Control
CEQA - California Environmental Quality Act
CFC's - Chlorofluorocarbons
CGS - California Geological Survey
CH₄ - Methane
CNDDDB - California Natural Diversity Database (Calif. Dept. of Fish and Game)
CNEL – Community Noise Equivalent Level
CNPS - California Native Plant Society
CO – Carbon Monoxide
CO₂ – Carbon Dioxide
COLD – Cold Freshwater Habitat
CRHR - California Register of Historic Resources
CWA – Clean Water Act
D – FE – Delisted under the Federal Endangered Species Act
dB – Decibels
dBA – Noise Measurement Expressed in Weighting Frequencies
DPR - California Department of Parks and Recreation
DTSC – Department of Toxic Substance Control
EIR - Environmental Impact Report
EDCAQMD - El Dorado County Air Quality Management District
EPA – United States Environmental Protection Agency
EPDM – Ethylene Propylene Diene Monomer (M-class) Rubber Pond Liner
FC – Candidate Species for Federal Listing Under the Endangered Species Act
FSS – United States Forest Service Sensitive Species

GHG – Greenhouse Gas
GP - General Plan
HCP – Habitat Conservation Plan
HCFC's - Hydrofluorocarbons
IS/MND - Initial Study / Mitigated Negative Declaration
L_{eq} – Equivalent Sound Level
LRWQCB – Lahontan Regional Water Quality Control Board
LOS - Level of Service
LTRTC – Lake Tahoe Railway Transportation Company
MND - Mitigated Negative Declaration
MBTA – Migratory Bird Treaty Act
NA – Not Applicable
NAAQS – National Ambient Air Quality Standards
NAHC – Native American Heritage Commission
N₂O – Nitrous Oxide
NCCP – Natural Community Conservation Plan
NO₂ – Nitrogen Dioxide
NO_x - nitrogen oxide
NOAA – National Oceanic Atmosphere Administration
NRHP - National Register of Historic Places
NTU – Nephelometric Turbidity Units
O₃ - Ozone
OHP – California Office of Historic Resources
Pb - Lead
PM₁₀ - Particulate Matter (particles with an aerodynamic diameter of 10 Microns or less)
PM_{2.5} - Particulate Matter (particles with an aerodynamic diameter of 2.5 Microns or less)
POST – Peace Officer Standards and Training
PRC - Public Resources Code
SCUBA – Self Contained Underwater Breathing Apparatus
SE – State Endangered in California
SO₂ – Sulfur Dioxide
SP – State Park
SSC – California Department of Fish and Game Species of Special Concern
SEZ's – Stream Environment Zones
ST – State Threatened in California
TART - Tahoe Area Regional Transit
TRPA – Tahoe Regional Planning Agency
UP – Union Pacific Railroad
U.S. - United States
USACOE - United States Army Corps of Engineers
USFS – United States Department of Agriculture – Forest Service
USFS LTBMU – United States Department of Agriculture- Forest Service- Lake Tahoe Basin Management Unit
USEPA - United States Environmental Protection Agency
USFWS - United States Fish and Wildlife Service
USGS - United States Geological Service
VRP's – Visibility Reducing Particles
WL – California Department of Fish and Game Watch List