Aquatic Pesticide Application Plan for Casitas Municipal Water District

California General National Pollutant Discharge Elimination System (NPDES) Permit for Biological Pesticides and Residual Chemical Pesticide Discharges to Waters of the United States from Aquatic Animal Invasive Species Control Applications

WATER QUALITY ORDER 2016-0041-DWQ
GENERAL PERMIT CAG 990006

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CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. §122.22(c)).

Signed by:
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Casitas Municipal Water District

CASITAS MUNICIPAL WATER DISTRICT

Aquatic Pesticide Application Plan

For the

Aquatic Animal Invasive Species Control NPDES Permit

Water Quality Order No. 2016-0041-DWQ
General Permit # CAG990006

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List of Acronyms

BMP	Best Management Practice
Casitas	Casitas Municipal Water District
CDPR	California Department of Pesticide Regulation
CEQA	California Environmental Quality Act
CIWQS	California Integrated Water Quality System
CTR	California Toxics Rule
DNQ	Detected, but Not Quantified
ft	Feet
GIS	Geographic Information System
GPS	Global Positioning System
IS/MND	Initial Study and Mitigated Negative Declaration
MDL	Method Detection Limit
msl	Mean Sea Level
MRP	Monitoring and Reporting Program
Mussels	Quagga mussels (*Dreissena rostriformis bugensis)* or zebra mussels (*Dreissena polymorpha*) or golden mussels (*Limnoperna fortunei)*
ND	Not Detected
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPDES Permit	National Pollutant Discharge Elimination System Permit for Biological Pesticides and Residual Chemical Pesticide Discharges to Waters of the United States from Aquatic Animal Invasive Species Control Applications (General Permit CAG 990006)
PCA	Pest Control Adviser
PCR	Pest Control Recommendation
Plan	Aquatic Pesticide Application Plan
QA	Quality Assurance
QC	Quality Control
RWQCB	Los Angeles Regional Water Quality Control Board
RWL	Receiving Water Limitation
RWQCB	Regional Water Quality Control Board
SIP	State Implementation Policy
SMR	Self-Monitoring Report
SWRCB	State Water Resources Control Board
United	United Water Conservation District
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency

Introduction

Casitas Municipal Water District (Casitas) owns and operates Lake Casitas, an approximately 2,500 acre reservoir with a capacity of 237,760-acre ft located in Ventura County, California. Quagga mussels (*Dreissena rostriformis bugensis)*, golden mussels (*Limnoperna fortunei)* nor zebra mussels (*Dreissena polymorpha*), hereinafter referred to as Mussels, have been discovered in Lake Casitas to date. Nearby waterbodies like Lake Piru, Pyramid Lake and Lake Castaic have populations of quagga mussels, and golden mussels are moving through the conveyance projects toward southern California waterbodies. At Lake Casitas, there have been in place routine mussel monitoring, including veliger tows and deployment of artificial substrates, and stringent boat inspection and quarantine protocols in place for nearly a decade to prevent an infestation from occurring. Casitas is taking numerous proactive measures, including seeking authorization to use a copper-based molluscicide to treat and potentially eradicate mussels from Lake Casitas, the associated Casitas dam intake and various water treatment plant infrastructure, should a confirmed infestation occur in the future.

Casitas is applying for coverage under the National Pollutant Discharge Elimination System (NPDES) Permit for Biological Pesticides and Residual Chemical Pesticide Discharges to Waters of the United States from Aquatic Animal Invasive Species Control Applications (General Permit CAG 990006, Water Quality Order No. 2016-0041-DWQ) ("NPDES Permit" or "Permit"). Coverage under the NPDES Permit allows for the discharge of pesticide residues resulting from the management of invasive aquatic species like dreissenid mussels. Depending on the degree of distribution and abundance of a future confirmed mussel infestations, Casitas may conduct discreet "spot" treatments or may consider wider scale whole lake or partial volume treatments. Casitas may also make applications to treat infestations in or near the dam or water treatment plant infrastructure. Depending on infestation monitoring results, Casitas may use copper-based molluscicides in discreet or a broad-scale treatment strategies designed to eradicate future infestation of mussels from Lake Casitas, Casitas dam, water treatment plant infrastructure or to prevent their movement downstream into Coyote Creek or the lower Ventura River. Alternatively, if mussels become established in the lake, Casitas may elect to make on-going, low dose treatments to prevent settlement within small diameter pipe infrastructure.

Concurrent with the submittal of this Aquatic Pesticide Application Plan (Plan), Casitas is requesting a State Implementation Policy (SIP) Exception under Section 5.3 to meeting the dissolved copper receiving water limitations (RWLs). Casitas has completed and will submit documentation of compliance with the California Environmental Quality Act (CEQA) to support the SIP Exception request. Casitas will comply with two mitigation measures described in the April 15, 2022 Initial Study and Mitigated Negative Declaration (IS/MND) prepared to support Casitas' use of copper-containing molluscicides in Lake Casitas.

This Plan has been prepared to comply with NPDES Permit requirements and is submitted in conjunction with a Notice of Intent (NOI) and SIP Exception request for coverage under the NPDES Permit to control dreissenid mussels in Lake Casitas. This Plan contains the following elements:

1. Description of all the water bodies or water body systems in which pesticides are being planned to be applied or may be applied to control aquatic animal invasive species;
2. Discussion of the factors influencing the decision to select pesticide applications for aquatic animal invasive species control;

3. Pesticide active ingredients expected to be used and if known, their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;
4. Description of all the application areas and the target areas in the system that are being planned to be applied or may be applied. Provide a map showing these areas;
5. Other control methods used (alternatives) and their limitations;
6. How much product is needed and how was this amount determined;
7. Representative monitoring locations and justification for selection of locations;
8. List of the gates or control structures and inspection schedule of those gates or control structures to ensure that they are not leaking, if applicable;
9. If the Discharger has been granted a short-term or seasonal exception under SIP section 5.3 from meeting RWLs, provide the beginning and ending dates of the exception period, and justification for the needed time for the exception. If applications occur outside of the exception period, describe plans to ensure that RWLs for all applications that occur outside of the exception period;
10. Description of monitoring program that addresses how required elements of the Monitoring and Reporting Program of this Order will be implemented;
11. Description of procedures to prevent sample contamination from persons, equipment, and vehicles associated with aquatic pesticide applications;
12. Evaluation of available best management practices (BMPs) to determine if there are feasible alternatives to the selected pesticide application project that could reduce potential water quality impacts;
13. Description of the BMPs to be implemented. The BMPs shall include, at the minimum:
    a. Measures to prevent pesticide spills;
    b. Measures to ensure that only a minimum and consistent amount is used;
    c. A plan to educate staff and pesticide applicator on any potential adverse effects to waters of the U.S. from the pesticide application;
    d. Descriptions of specific BMPs for each pesticide product used; and
    e. Descriptions of specific BMPs for each environmental setting (agricultural, urban, and wetland).
14. Identification of the problem. Prior to the first pesticide application covered under this Order that will result in a discharge of biological pesticides or residual chemical pesticides to waters of the U.S., and at least once each calendar year thereafter prior to the first pesticide application for that calendar year, the Discharger must do the following for each pest management area:
    a. If applicable, establish densities for pest populations to serve as action threshold(s) for implementing pest management strategies;
    b. Identify each target pest species to develop species-specific pest management strategies based on developmental and behavioral considerations for each species;
    c. Identify known breeding areas for source reduction, larval control program, and habitat management; and
    d. Analyze existing surveillance data to identify new or unidentified sources of each pest problem as well as areas that have recurring pest problems.
15. Examination of Alternatives. The Discharger shall examine alternatives to

pesticide use in order to reduce the need for applying pesticides. Such methods include:

a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms, pesticide resistance, feasibility, and cost effectiveness should be considered:
   - No action
   - Prevention
   - Mechanical or physical methods
   - Cultural methods
   - Biological control agents
   - Pesticides

   If there are no alternatives to pesticides, the Discharger shall use the least amount of pesticide necessary to effectively control the target pest.
b. Using the least intrusive method of pesticide application.

16. Correct Use of Pesticides
    The Discharger must ensure that all reasonable precautions are taken to minimize the impacts caused by pesticide applications. Pesticide applicators should be trained in the proper application of pesticides and handling of spills. All errors in application and spills must be reported to the proper authority.
17. If applicable, specify a website where public notices may be found as required in Section VII.B.

Element 1: Description of Waterbodies

Lake Casitas is a non-contact waterbody managed by the Casitas Municipal Water District primarily for drinking water supply, irrigation water supply, and recreation. Additional benefits include fire protection and flood risk management. Casitas provides drinking water to approximately 65,000 customers. The Lake Casitas Recreation Area provides access to over 600,000 visitors each year. Swimming and wading are prohibited in Lake Casitas; on and near-water activities include motor boating, sailing, kayaking, canoeing, and fishing. No downstream water releases are required from Lake Casitas at any time of year.

Casitas proposes to apply molluscicide to Lake Casitas, the Casitas dam infrastructure, and/or the water treatment filtration plant infrastructure should a confirmed mussel infestation occur. See **Figure 1A** through **Figure 1C**. Lake Casitas is an approximately 2,500 acre reservoir with a capacity of 237,760-acre ft that receives water by runoff from a 33 square mile watershed and through diversions of water from the Ventura River via the Robles Diversion Canal. Major tributaries of Lake Casitas include Coyote Creek, Santa Ana Creek and the Ventura River (through the Robles Diversion Canal). At full capacity the lake has an average depth of 94 ft and a maximum depth of 267 ft. Lake water is drawn into the water treatment plant through the multi-level intake structure. This allows plant operators to select which lake depth water is drawn from, with the goal of utilizing source water with the highest quality available from the lake at any given time. A hypolimnetic oxygenation system has been installed and is used year-round to help prevent excessive algae growth caused by internal nutrient cycling. A bubbler aeration system is also be used depending upon the lake elevation. In the rare event that lake level exceeds capacity, water is released over the dam's spillway to Coyote Creek. Releases of water over the spillway may occur in the rainy period during winter months, in exceptionally wet years. Overflow spill has only occurred nine times since the dam was completed in 1958, with the last spill event occurring in 2024. In order to prevent discharges from the reservoir, water diversion through the Robles Diversion Canal is stopped when the

lake elevation approaches spill level. Water spilling from Lake Casitas discharges to Coyote Creek, which eventually joins the Ventura River.

Water management strategies generally include retaining and storing water in Lake Casitas during the winter and spring months. If the lake should approach or reach maximum elevation, then the Robles Diversion Canal would be closed to stop water delivery to the lake. The valve at the base of the dam is inspected regularly to determine if leakage is occurring. Additionally, the perennial pond at the base of the spillway provides an additional buffer between the valve and water entering Coyote Creek.

Molluscicides, including those that contain copper, will not be applied directly to natural surface waters like Coyote Creek or the Ventura River.

Figure 1A

0	4/12/22	Map Creation	SM
DATE		DESCRIPTION	INIT.

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Notes:

PROJECT: Casitas Municipal Water District ISMND

FIGURE: 1A

DESCRIPTION: Project Location Map

DATE: 4/12/2022

Figure 1B

0	4/12/22	Map Creation	SM
Δ	DATE	DESCRIPTION	INIT.

Blankinship & Associates, Inc.
Ag & Environmental Science & Engineering

Notes:

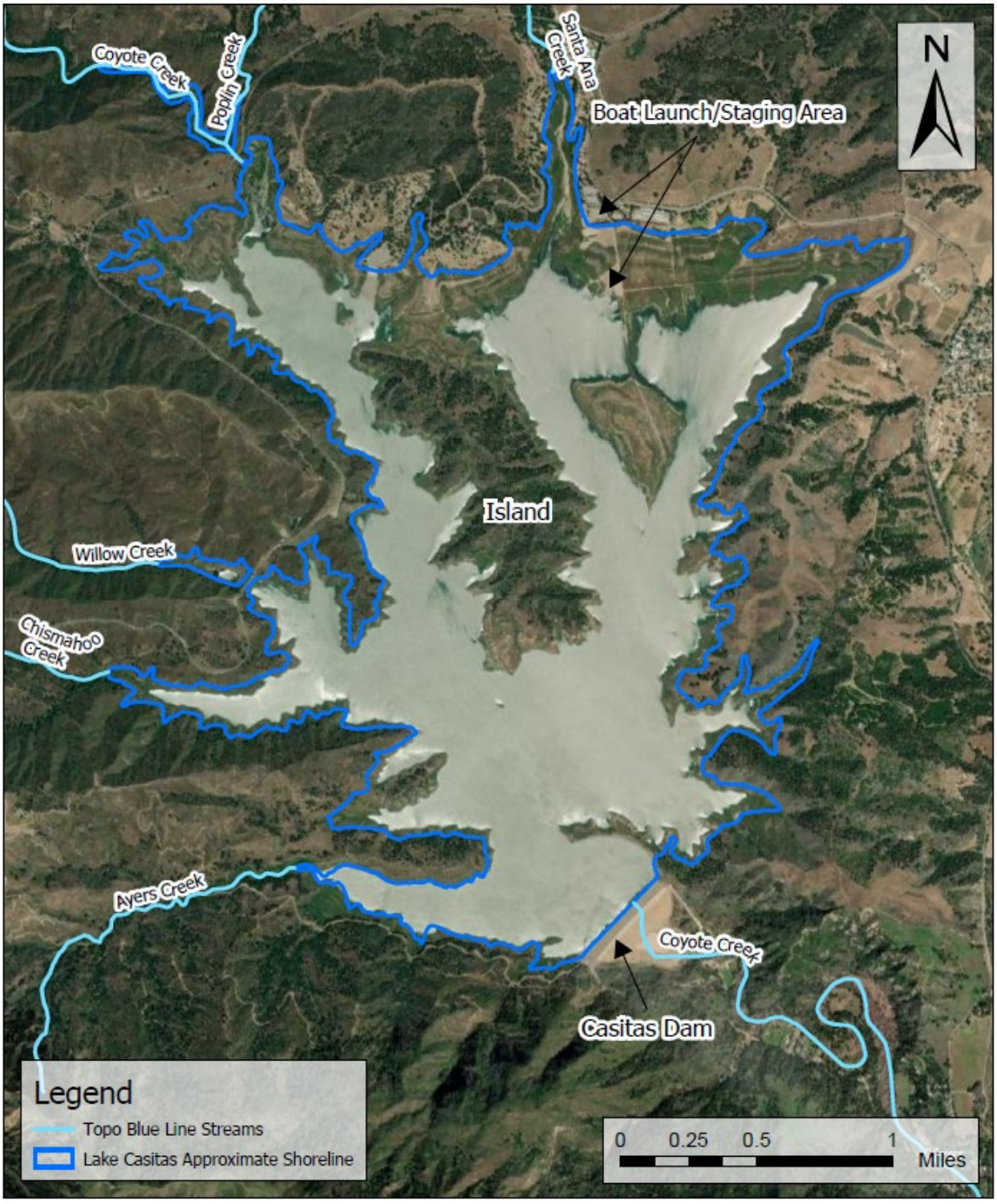
PROJECT: Casitas Municipal Water District ISMND

FIGURE: 1B

DESCRIPTION: Project Vicinity Map

DATE: 4/12/2022

Figure 1C



0	4/12/22	Map Creation	SM
DATE		DESCRIPTION	INIT.

Blankinship & Associates, Inc.
Ag & Environmental Science & Engineering

Notes:

PROJECT: Casitas Municipal Water District ISMND
FIGURE: 1C
DESCRIPTION: Project Site Map
DATE: 4/12/2022

Element 2: Factors Influencing the Decision to Use Pesticides

Following the discovery of quagga mussels in Lake Piru in December of 2013, Casitas expended considerable effort and cost in developing a robust boat inspection and quarantine program, training staff for mussel detection, a monitoring program, as well as carrying out a Vulnerability Assessment, Prevention Control and Management Plan, an Invasive Mussel Rapid Response Plan, in addition to other proactive efforts designed to prevent or address and a mussel infestation. Prevention of infestation is the most important aspect of an integrated pest management approach to avoiding impacts to infrastructure and the environment due to the spread of dreissenid mussels. These efforts expand to the more recent reported spread and detection of Golden mussels.

Casitas conducted literature reviews, consulted with state and federal regulatory agencies, academia, United Water Conservation District staff that have experience working on invasive mussel issues, and suppliers and applicators of molluscicide and aquatic pesticide products. Priority was placed on identifying a molluscicide agent that would be effective, and allow for potential eradication, with the least environmental consequences. To date, the only documented molluscicidal agents that have high potential for successful eradication of mussels on a whole waterbody scale have been potash or copper-based products. Potash-containing products are not currently registered for use as a molluscicide with United States Environmental Protection Agency (USEPA) or California Department of Pesticide Regulation (CDPR), nor are they permitted for discharge under the Permit in California. The efficacy of any selected product is dependent on water chemistry, temperature, and species of mussel. Eradication without the use of pesticides may only be possible if a waterbody can be drained and allowed dry out to the point where mussels and veligers desiccate and die. This approach is unfeasible in Lake Casitas because it is the drinking water source for tens of thousands of Ventura County residents. As such, Casitas has determined that the only viable option for eradication and/or spot treatment is the use of molluscicides.

Element 3: Active Ingredients, Degradation Byproducts, Application Methods, and Adjuvants/Surfactants

Casitas is requesting authorization to use copper-based molluscicides. Casitas intends to use EarthTec QZ® or similar product based on studies conducted by United Water, California Department of Water Resources and others in the event an infestation occurs and due to pesticide labeling specifically for invasive mussels. The active ingredient in EarthTec QZ® is copper in the cupric ion form, a biologically active form of copper. EarthTec QZ® is a liquid, does not have any degradation byproducts, and no adjuvants or surfactants are used in the product or during application. Casitas may decide to review other copper-based molluscicides, and therefore is seeking authorization for a copper-based molluscicide rather than a particular formulation.

Application methods will vary depending on the scale of the project. Isolated “spot” treatments and broad-scale treatment applications would likely be conducted by boat, but some applications may be conducted from shore or marina docks. An isolated treatment of the Casitas dam intake or water treatment plant infrastructure could be achieved by inserting a hose or other device into the intake structure to inject molluscicide and allowing the product to transport through the conveyance system.

A full-scale treatment of the lake would likely be conducted by boat. If the lake is not accessible by

boat due to low water, and the product label allows, a helicopter or drone may be used. The molluscicide will be applied near the water surface and allowed to disperse or, where means exist, delivered via hose to the depths, sites, and surfaces where treatment is considered most effective. When applying to large areas, the product will be dispensed to treatment blocks based on an application plan that takes into account such as structures, bathymetry, target concentration and dilution areas. These maps are typically loaded onto mapping and application systems on application vessels and the routes are followed using GPS tracks to provide consistent treatment rates through the targeted areas. To maintain the copper concentration for the duration of time needed to effectively control mussels, additional applications of molluscicide may be necessary. Casitas will monitor copper concentrations during treatments, and when below the target concentration, will use this data to calculate the amount of additional material needed, and will apply it.

Element 4: Description of Application Areas and Target Areas

Casitas may select to use the copper-based molluscicide to conduct isolated "spot" treatments either in the lake, within the Casitas dam or water treatment plant infrastructure, or in a broad-scale treatment strategy designed to eradicate mussels from Lake Casitas, within the Casitas dam and water treatment plant infrastructure. Since no infestation currently exists, final sites would be determined based on mussel monitoring data, potentially contaminating events, and other factors when planning a treatment.

Element 5: Alternative Control Methods

The following control methods have not been implemented at Lake Casitas as there is no current infestation. The following methods are carried out, or have been implemented at United and other infested waterbodies:

- Mechanical scraping at select hot-spot locations and key infrastructure.
- Oxygen deprivation via tarping at select hot-spot locations.
- Desiccation as provided by fluctuating lake levels.

In their attempts locally, United reports that all these methods were implemented as measures to control populations and protect infrastructure. The methods were only effective at reducing populations within treatment areas and not capable of achieving eradication.

Element 6: Determination of the Amount of Molluscicide Product Needed

The efficacy of any molluscicide is dependent on water chemistry, temperature, and species of mussel. United designed a pilot study to test the efficacy of copper-based molluscicide using both water and quagga mussels from Lake Piru (Draft Quagga Mussel Monitoring and Control Plan Lake Piru, California October 2017). One purpose of the study was to determine the lowest effective dosage. Effective doses were determined for differing water temperatures and dose rates and it appeared that doses of 190 ppb (µg/L) dissolved copper at 22°C (72°F) for 5 to 8 days was required for 100% control. All

applications would comply with USEPA and CDPR registration instructions and concentration restrictions. Casitas proposes to use the Molluscicide Treatment Study data generated by United due to the proximity of Lake Piru to Lake Casitas and the similar geology and resultant water quality that both sites share. As new information and studies become available, Casitas will use them to inform a treatment approach for the lake.

Element 7: Representative Monitoring Locations

Representative monitoring locations and justification for selection of the monitoring locations are included in the Monitoring and Reporting Program (MRP) presented in **Attachment A**. As there is no mussel infestation at the moment, the monitoring locations are examples of how a monitoring plan would be established for a treatment.

Element 8: Gate and Control Structures

There are two transport mechanisms for water to be discharged from Lake Casitas; the Casitas Dam outlet works and the spillway channel. The outlet works contain a valve at the base of the dam, though this is not used to adjust water releases from the lake. The valves are exercised and inspected at regular intervals in accordance with the United States Bureau of Reclamation (USBR) protocol and/or Casitas maintenance activities. There are no gates at the facility. Lake Casitas does not provide flood control and Casitas does not control spill events. However, the Robles Diversion Canal gate can be closed to prevent further water from being diverted from the Ventura River into Lake Casitas. The spillway is constructed at an elevation of 567 feet (ft) mean sea level (msl), and once water surface elevation in the lake reaches the spillway elevation, water will spill over the spillway, through the spillway channel, into lower Coyote Creek. Spill conditions occur as a result of winter storms, and molluscicide application will not be implemented under these conditions consistent with the IS/MND Mitigation Measure BIO-1. See Element 9 for information on treatment timing relative to reservoir capacity. As borne out by United Water testing, control of mussels with copper-containing molluscicides is more effective at warmer water temperatures so treatments will be timed to occur under these conditions.

Element 9: State Implementation Plan Section 5.3 Exception

The Permit allows Casitas to request a Section 5.3 Exception from the SIP to allow for the discharge of molluscicides above the dissolved copper RWL. Concurrent with the submittal of this APAP, Casitas is requesting a SIP Exception under Section 5.3 to meeting the dissolved copper RWLs following application of copper-containing molluscicides.

Casitas has completed and will submit documentation of compliance with CEQA to support the SIP Exception request with the submittal of this document for permit coverage. Casitas will comply with two mitigation measures described in the April 15, 2022 IS/MND prepared to support Casitas' use of copper-containing molluscicides.

Casitas' exception period when copper-containing molluscicides may be applied when the mitigation measure **BIO-1** from the IS/MND can be satisfied. This mitigation measure requires that Casitas consider the current reservoir storage capacity and water surface elevation relative to the elevation at

which water could be discharged from the lake to Coyote Creek and delay application, or conduct monitoring to demonstrate compliance with RWLs prior to discharge, and/or conducting monitoring of the discharge. Outside of the exception period parameters, molluscicides will not be discharged in excess of receiving water criteria.

Consistent with SIP exception requirements, after completion of copper application(s) for the season, a qualified biologist will certify that beneficial uses of receiving waters have been maintained and/or restored.

Molluscicides, including those that contain copper, will not be applied directly to natural surface waters like Coyote Creek or the Ventura River.

To prevent possible adverse impacts to steelhead trout (*Onchorynchus mykiss*) Casitas will comply with mitigation measure BIO-1 from the 2022 CEQA IS/MND:

BIO-1: The District will, to the extent feasible, prevent discharging water from Lake Casitas to steelhead habitat following an application of copper-containing molluscicides until dissolved copper concentrations in Lake Casitas have diminished to below the background concentration or to a level where exceedances of the freshwater and saltwater receiving water limit (RWL) would not occur.

If storage levels in Lake Casitas are equal to or greater than 85% of capacity, Casitas will consult weather forecasts and will consider the probability of precipitation that could lead to overtopping spill, based on current storage levels, as part of their treatment planning process. If storage levels are equal to or greater than 95% of capacity, Casitas will delay treatment, if feasible, until lake levels drop below 95%.

Post-application water-quality sampling, conducted within seven (7) days of the completion of the molluscicide treatment as part of compliance with Casitas' Plan) and NPDES Permit(s), will demonstrate whether dissolved copper concentrations within the treatment area have dissipated to concentrations below applicable RWLs. If dissolved copper concentration within the treatment area exceeds applicable RWLs, additional in-lake sampling will be conducted to track concentrations within the treatment area until it is shown that dissolved copper concentrations have dissipated to levels below the RWL. If copper concentrations within the treatment area continue to exceed applicable RWLs during a spill event, Casitas will collect additional samples from downstream of Casitas Dam within Coyote Creek and within the Ventura River downstream of the confluence with Coyote Creek. If results show an exceedance of an applicable copper RWL and/or observations of adverse impacts to non-target species, Casitas will notify the Regional Water Quality Control Board (RWQCB).

Compliance with the Permit and this APAP will satisfy mitigation Measure HWQ-1 from the IS/MND.

HWQ-1: The District will comply with Aquatic Pesticide Application Plans (APAPs) and other provisions of relevant NPDES permits. Monitoring and reporting described in the APAP will include the permit-required surface water sampling and analysis, a quality control and quality assurance plan, as well as several time-sensitive reporting requirements if adverse impacts to water quality or non-target organisms are detected. The water quality sampling and annual reporting required by the APAP and permits will assess

the impact, if any, that the Project may have on water quality and beneficial uses of the water in Lake Casitas. Additionally, consistent with SIP exception requirements, the District will arrange for a qualified biologist to assess the extent of restoration of receiving water beneficial uses after the use of copper-containing algaecides and/or molluscicides upon Project completion.

Element 10: Description of the Monitoring and Reporting Program

Discussion of implementation of the Monitoring and Reporting Program is provided in Attachment A.

Element 11: Procedures to Prevent Sample Contamination

Procedures used to prevent sample contamination include:

- Sampling personnel will don new nitrile or similar disposable gloves at each site prior to sample collection.
- Laboratory sampling containers will be pre-cleaned according to USEPA specification for the appropriate methods.
- Sampling materials such as bottles, gloves and PPE will not be used or stored near the application area or staging area where they could become contaminated with molluscicide.
- Sampling personnel will prevent contamination of their equipment, vessels and persons by preventing contact with treated water, application equipment and avoiding staging areas or other locations where molluscicide application activities are occurring.
- All sampling and field equipment that may contact samples must be decontaminated before sampling and between each use at different sites.
- Decontaminate any intermediary sampling device such as Van Dorn or Kemmerer sampler by rinsing thoroughly with distilled water and, as needed, a phosphate- and residue-free cleaner like Liquinox®.
- Pre-event monitoring sample collection will be done prior to the application of the molluscicide by personnel not involved with loading or application.
- Collect samples outside of the influence of application vessels.
- Sampling personnel will avoid contact with any application equipment.
- Sampling personnel will cap sample containers immediately after collection.
- Samples will be placed directly in field cooler after collection, and transport to the lab refrigerator prior to pick up, as needed.

Element 12: Evaluation of BMPs and Feasible Alternatives

No action

Avoidance of any type of control or treatment would result in an increased infestation level of mussels in Lake Casitas. Invasive mussels are a threat to infrastructure and environmental ecosystems. They can infest a wide range of aquatic habitats and clog water intake structures, such

as pipelines and screens, interfering with water-based infrastructure for hydroplants, water treatment facilities, and water diversions. Recreation-based industries and activities are also affected by the mussels colonizing docks, breakwalls, buoys, boats and beaches. For boaters, attached mussels increase drag, clog engines causing overheating and can affect steerage.

A population of mussels can filter substantial water volumes continuously, exerting considerable influence over particle concentrations, including phytoplankton, zooplankton, and nutrients, in the water column. As a result, mussels can restructure the dominant energy and nutrient pathways in freshwater ecosystems with a depletion of nutrients, energy, and biomass in the pelagic-profundal pathway and a promotion of nutrients, energy, and biomass in the benthic-littoral pathway (Higgins 2014). Mussels like the golden mussel have been documented to increase the abundance of toxin-producing cyanobacteria, Microcystis, resulting in more frequent harmful algae blooms. These dramatic changes to energy and nutrient cycling have the potential to trigger trophic cascades throughout the food web of the freshwater ecosystem as well as associated upland species that depend on freshwater systems, such as piscivorous birds.

Prevention

Casitas has implemented measures to prevent infestation of quagga mussels in Lake Casitas since approximately 2007. Early prevention measures included vessel inspections and quarantine, and public education campaigns. Since discovery of quagga mussels in Lake Piru in 2013, the measures have been enhanced in an effort to prevent additional infestations of other invasive species and prevent the spread of quagga mussels from Lake Casitas to other water bodies in the event of an infestation. These efforts will continue, especially in light of the infestation of golden mussels discovered in the Delta, State Water Project and Central Valley Project facilities in 2024.

Mechanical or Physical Methods

Casitas has not implemented mechanical and physical methods to control infestations in Lake Casitas as there is no infestation at this time. Mechanical and physical control options known to have occurred at Lake Piru include: 1) mechanical scraping at select hot-spot locations and key infrastructure, 2) oxygen deprivation via tarping at select hot-spot locations, and 3) desiccation as provided by fluctuating lake levels. These methods were reported to have limited effect in controlling infestations at treatment areas and are not sufficient to achieve the eventual eradication goal.

Casitas has considered the feasibility of draining water from Lake Casitas to the lowest level possible to promote desiccation of any quagga mussels. This would be challenging because there are areas of the lake bottom that are located at lower elevations than the dam intake structure where water would not “drain” from the lake through the conveyance system to the outlet works below a certain elevation, and multiple low-level water inputs (e.g., tributary flow, subsurface flow, springs) that would prevent full desiccation.

Under this alternative, mussels have the potential to survive in wetted or mud-like micro- environments for a significant duration and there is no guarantee that all areas would dry prior to a rain event and restoration of water inputs. Surviving mussels could re-populate the lake once water inputs are restored. For the reasons listed, this alternative was deemed infeasible.

The current plan to implement a copper-based molluscicide could include a strategy to draw down water levels prior to treatment. This would reduce the treatment area and amount of molluscicide needed as well as provide for desiccation of mussels exposed on the shoreline.

Cultural Methods

Casitas will continue to implement public education campaigns to prevent additional infestations of mussels and other aquatic invasive species, and prevent mussels from entering Lake Casitas.

Biological Control Agents

Molluscicides

Casitas has determined that the most feasible option for spot treatments and eradication treatments is use of a chemical molluscicide. The copper-based product Casitas is considering is a formulation that keeps the copper in its cupric ion form in solution so it is available for uptake by mussels. Copper is an essential trace nutrient that is required in small amounts by living organisms for metabolism and the functioning of more than 30 enzymes. It is also needed for the formation of hemoglobin and hemocyanin, the oxygen-transporting pigments in the blood of vertebrates and shellfish, respectively. Higher copper concentrations can be toxic; however, mussels are more sensitive to the cupric ion than vertebrate animals, allowing the potential for a lethal dose for mussels with minimal or no impacts to non-target organisms. While copper is taken up in living organisms (e.g. shellfish, algae, etc.), it does not biomagnify or bioaccumlate up the food chain.

Casitas considered the use of the molluscicide Zequanox®, containing the active ingredient *Pseudomonas fluroescense*, strain CL145A, for treatment. However, the product is very expensive, not currently labeled for open water sites, and not sufficiently effective to achieve eradication. Any viable mussels remaining after treatment have the potential to re-populate the lake, and associated structures/features.

Element 13: Description of BMPs

Casitas intends to contract with a qualified applicator licensed by CDPR. All applications will be made by or conducted under the supervision of the qualified applicator, following a Pest Control Recommendation (PCR) prepared by a licensed Pest Control Adviser (PCA). Molluscicide treatments will be made following pesticide label directions, employing safe and effective practices. Casitas and/or its contract applicator or consulting team will provide treatment plan that will include development of a written project plan that takes into account and describes product choice, the treatment dosage, copper concentration monitoring and re-application plan, target concentration for treatment, treatment blocks within the reservoir, permit-related sampling and reporting, relevant RWL criteria, and IS/MND mitigation measure compliance. In addition, the project plan will outline BMPs to be implemented during application activities.

Measures to prevent spills.

All applications will be conducted under the supervision of the qualified applicator following safe handling and storage practices. Spill containment, control and countermeasure procedures will be reviewed with all participants involved in conducting the application activities prior to initiation of application activities, and spill containment equipment will be readily accessible in areas of application activities and staging areas.

Measures to ensure that only a minimum and consistent amount is used.

All applications of copper-based molluscicide will be made implementing industry standard equipment, including GPS-connected application electronics application vessels to ensure that dosages do not exceed registration label concentrations, and target treatment rates are met in the treatment blocks. Casitas may select to use the copper-based molluscicide to conduct isolated "spot" treatments either in the lake around specific infested sites, within the Casitas Dam infrastructure or in a broad-scale treatment strategy designed to eradicate mussels from Lake Casitas and the Casitas Dam infrastructure. Casitas will use the most recent bathymetry data to quantify the volume of water for each treatment event in the lake based on water surface elevation at the time of application and has information available regarding volume of water within Casitas Dam infrastructure should treatment be required within that infrastructure.

Plan to educate staff and pesticide applicator on potential adverse effects to waters of the U.S. from pesticide application.

All applications will be conducted by or under the direct supervision of the qualified applicator that will be knowledgeable of the potential adverse effects to waters of the U.S. from pesticide applications. Prior to application activities, the applicator will provide a pre-project briefing to instruct all participants involved in conducting the application activities. The briefing will include a description of application activities, discussion of precautions to be employed including personal protection equipment, expectation for response to accidental spill events, and any other measures considered appropriate for safe and effective application.

Description of specific BMPs for copper-based molluscicide

The qualified applicator will consult the USEPA and CDPR approved product labeling of the selected copper-based molluscicide and, as needed, incorporate any BMPs specific to the product into the project plan.

Description of specific BMPs for each environmental setting.

The qualified applicator will consult the product label of the selected copper-based molluscicide and incorporate any BMPs specific to each environmental setting for the selected product into the project plan. Other BMPs will be identified and included in the project plan (e.g., specific to lake level conditions) to provide safe and effective practices for applications.

Element 14: Identification of the Problem

Quagga, Zebra, or Golden mussels have not yet been detected in Lake Casitas as of June 2025. Several water bodies in southern California have confirmed infestations, the closest in proximity being Lake Piru. Monitoring by United indicates that Lake Piru is infested with quagga mussels throughout the reservoir and that the mussel population continues to expand. The initial infestation was generally confined to hard substrate areas (e.g., rock walls, docks) during the first year but mussels are now present and dense on many soft substrates (e.g., mud and silt) habitats within the lake. In the shallow northern portion of the lake, the mussel population is generally less dense (with some exceptions, e.g., rock outcrops and marina docks) than the deeper southern portion of the lake where greater than 90% of the lake bottom is covered with mussels. Mussels are most dense in habitats below 15 ft or on

shaded infrastructure (i.e., bottom of docks). Due to similarities in terrain, geology, sediments and water quality, it is likely that Casitas would suffer a similarly damaging infestation as Lake Piru with the exception of hydropower impacts since Lake Casitas does not operate a hydropower plant as part of its facilities. However, it is anticipated that the water treatment plant would be impacted to some degree, per the 2021 Vulnerability Assessment of the Lake Casitas Dam completed by RNT Consulting.

Casitas understands that United performs mechanical removal on infrastructure (e.g., docks and water intake infrastructure) to manage the impacts of the infestation in Lake Piru. Early efforts removed up to 3,500 pounds of mussels from the lake infrastructure per treatment; subsequent, more frequent removal efforts (4-5 times per year) have resulted in decreased mussel density and biomass on infrastructure, potentially as a result of timing mechanical removals prior to mussels reaching reproductive size. Surveys in typically inaccessible areas of Santa Felicia Dam infrastructure (e.g., intake tower, portions of the conveyance system, and outlet works) have been performed and indicate that mussels are present and dense throughout the structures. No control treatments have been conducted inside the Santa Felicia Dam infrastructure to date.

Casitas is taking a proactive approach to prevent the introduction of mussels through its inspection and quarantine program for vessels, and through public awareness campaigns. Additionally, Casitas is applying for permit coverage to allow rapid response to an infestation if mussels are found, or should veligers or mussels be confirmed during routine sampling events, or if a potentially contaminating event occurs.

Element 15: Examination of Alternatives

Prior to spot or larger scale mussel treatments, Casitas will contract with a qualified applicator and/or consulting team to refine lake treatment plans. Casitas will seek to contract a qualified applicator that is experienced in pesticide and molluscicide applications, and can provide guidance on developing treatment strategies that will maximize the potential to achieve eradication goals and minimize environmental impacts.

Element 16: Correct Use of Molluscicides

All applications will be conducted by or under the direct supervision of the qualified applicator knowledgeable and trained in the regulatory requirements, and proper use, storage, handling, and application of molluscicide products, and following a treatment plan and PCR prepared by a CDPR-licensed PCA.

Element 17: Public Notice

Consistent with Section VII.B. of the Permit, Casitas will notify potentially affected government agencies prior to the first treatment of molluscicides each calendar year. The notification will include a statement of intent to apply molluscicide, product name of the molluscicide, purpose for use, time period and location of expected use, any water use restrictions or precautions required during application, and contact information where interested parties can obtain additional information. The

notification will be posted on Casitas' website (https://www.casitaswater.org/) and at appropriate locations within the Lake Casitas Recreation Area.

REFERENCES

Draft Quagga Mussel Monitoring and Control Plan Lake Piru, California October 2017. United Water Conservation District.

Higgins, S.N. 2014. Meta-analysis of dreissenid effects on freshwater ecosystems. Pages 484- 494 in T.F. Nalepa and D.W. Schloesser. 2014. Quagga and Zebra Mussels. CRC Press, Boca Raton, Florida.

RNT Consulting. 2021. Vulnerability Assessment of the Lake Casitas Dam to Dreissenid Mussels.

Attachment A

Monitoring and Reporting Program

Introduction

This Monitoring and Reporting Program (MRP) will ensure compliance with the NPDES aquatic animal invasive species control applications of copper based molluscicides. The goals of the procedures and specifications outlined in this program are to provide references, standardized procedures, and quality specifications for sampling in Lake Casitas following applications (quagga mussel control or eradication treatment) of copper. In order to do this, the MRP identifies sampling locations, number of samples, and field procedures to be used. The MRP details QA (Quality Assurance)/QC (Quality Control) procedures and specifications, and establishes methods for reviewing and documenting compliance with field procedures.

This MRP is designed to address two key questions:

- Does the residual chemical pesticide from discharge or applications cause an exceedance of RWLs?
- Does the chemical pesticide, including active ingredients, inert ingredients, and degradation by-products, in any combination cause or contribute to an exceedance of the "no toxics in toxic amounts" narrative toxicity objective?

This MRP contains the following elements:

I. General Monitoring Provisions
II. Monitoring Locations and Sample Types
    A. Monitoring Locations
    B. Sample Types
III. Receiving Water Monitoring Requirements – Surface Water
    A. Monitoring Plan Design
    B. Monitoring Log
IV. Reporting Requirements
    A. General Monitoring and Reporting Requirements
    B. Annual Reports
    C. Reporting Protocols

I. General Monitoring Provisions

A. Samples taken as required herein shall be representative of the nature of the monitored discharge. All samples shall be taken at the anticipated monitoring locations specified within this MRP. The sample locations and frequencies were selected in order to provide data that are representative of conditions throughout the lake and to represent average conditions found in the lake during and following discharge of copper-based molluscicide for application of copper-based molluscicide for mussel infrastructure/spot treatment or treatment for attempted whole lake eradication.

B. All laboratory analyses shall be conducted at a laboratory certified for such analyses by Environmental Laboratory Accreditation Program (ELAP) administered by the SWRCB.

Laboratories that perform sample analyses shall be identified in all monitoring reports. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by ELAP staff. The QA/QC Program must conform to USEPA and ELAP guidelines.

C. All analyses shall be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants," promulgated by the USEPA (40 C.F.R. part 126). Any procedures to prevent the contamination of samples as described by the Plan shall be implemented.

D. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements;
2. The individuals who performed the sampling or measurements;
3. The dates that analyses were performed;
4. The individuals who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

E. Casitas shall properly maintain and calibrate all monitoring instruments and devices to fulfill the prescribed monitoring program to ensure their accuracy.

F. Casitas shall report all monitoring results, including noncompliance, at intervals and in a manner specified in this MRP.

G. Laboratories that conduct the analyses shall be certified by State Water Board, in accordance with the provision of California Water Code section 13176.

II. Monitoring Locations and Sample Types

A. Monitoring Locations

Casitas has established proposed monitoring locations to demonstrate compliance with the RWLs, molluscicide label specifications, and requirements of the NPDES Permit. The number and location of samples were selected to answer the two key questions. Casitas will use representative monitoring locations to characterize water quality at and around treatment areas. Justification for the selection of these monitoring locations as representative is based on the idea that the locations are similar in factors that may be affected by the applications.

B. Sample Types

1. *Background Monitoring*. Background samples shall be collected in the treatment area or target area within 24-hours before application.
2. *Event Monitoring*. Event monitoring samples shall be collected downstream or outside of the treatment area after the application event but shall not exceed 24 hours after the application event.
3. *Post-Event Monitoring*. Post-event samples shall be collected within the treatment area within one week after project completion, or when treatment is complete, as determined by Casitas.

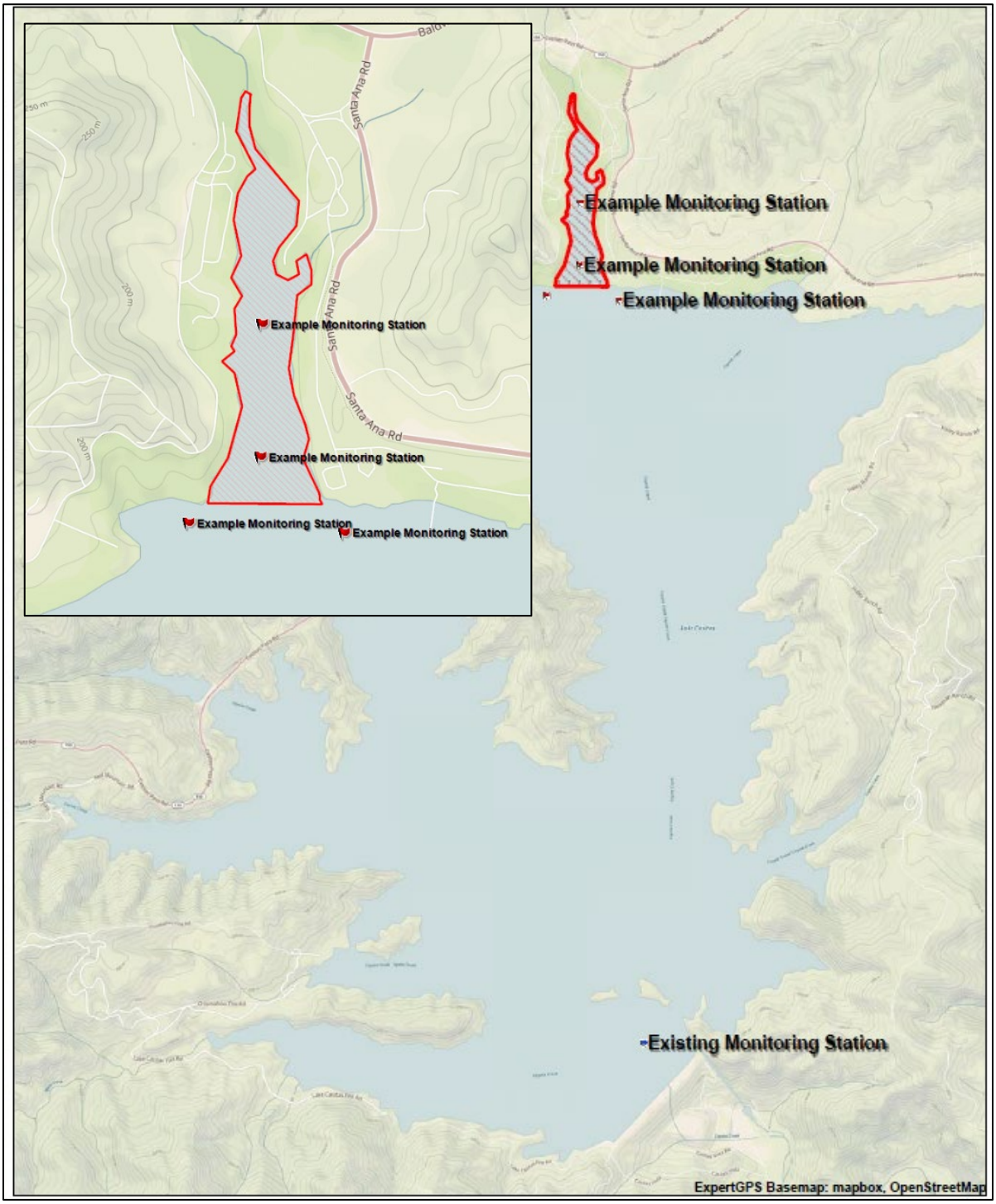


Figure 1 – Monitoring site locations examples in cove targeted for mussel treatment

III. Receiving Water Monitoring Requirements-Surface Water

A. Monitoring Plan Design

1. Lake Casitas is a drinking water reservoir with a capacity of 237,760 acre-ft and approximately 2,500 acre surface area. It receives water from a 33 square mile watershed and the Ventura River diversion through the Robles Diversion Canal. Casitas is prepared to aggressively respond, including considering eradication, in the event mussels are detected in the lake. A spot treatment eradication plan would target a treatment to occur as spot treatments at lake level elevation existing at the time of treatment at which point the lake would contain a water volume that would be used to calculate dose rates. Currently, releases from the Casitas Reservoir are over the spillway when the lake exceeds 100%, or through the outlet works during maintenance activities. If the lake discharges due to winter rains, the water travels into the spillway channel eventually joining Coyote Creek. If water flows are light, flows join a small perennial pond (less than one acre) below the spillway. If flows are higher, they may reach the Ventura River. In the event of periodic maintenance or inspection activities, small releases may be required. Casitas ensures these releases are contained within the small perennial pond.

   The copper-based molluscicide considered in this MRP will be used for two different purposes:

   a. Infrastructure or "spot" treatments which involve specific targeting of infrastructure or hot-spots of infestation and is not aimed at eradication.
   b. Eradication efforts that involve coordinated treatment of the lake and Casitas Dam infrastructure aimed at eradication of mussels from Lake Casitas and Casitas Dam infrastructure.

   The discharge/application points and the pathways of residue flows differ for the infrastructure/spot treatments and eradication efforts. Infrastructure/spot treatments would be restricted to the area being treated and the surrounding areas where the molluscicide would diffuse through the water column. An eradication project would involve full treatment of the lake and Casitas Dam infrastructure.

2. Pilot studies carried out by United Water, Department of Water Resources and others will be used in controlling mussels in a cost-effective manner with minimum environmental impacts (i.e. lowest effective dose). These pilot studies helped determine the concentration of the molluscicide to be used for mussel treatments and/or potential eradication. Application will proceed according to the PCR provided by a PCA to a qualified applicator, licensed by CDPR. Molluscicide dose rate will not exceed labeled rates. To ensure accuracy, geographic information system (GIS) and global positioning system (GPS) technology will be utilized for calculating treatment areas, and to track the actual application process.

3. The copper agent Casitas intends to use, in case of an infestation, is formulated to maintain the copper in its cupric ion form in solution so it is available for uptake by mussels. Copper is an essential trace nutrient that is required in small amounts by living organisms for metabolism and the functioning of more than 30 enzymes. It is also needed for the formation of hemoglobin and hemocyanin, the oxygen-transporting proteins in the blood of vertebrates and shellfish respectively. Higher copper concentrations can be toxic; however, mussels are more sensitive to the cupric ion than vertebrate animals, allowing the potential for a lethal dose for mussels with minimal or no impacts to nontarget vertebrate organisms. While copper is taken up in living organisms (e.g.

shellfish, algae, etc.), it does not biomagnify or bioaccumulate up the food chain.

4. Lake Casitas is a water resource reservoir that is strategically managed to protect, conserve and enhance the water resources of the Ventura River Valley, its tributaries, and associated aquifers. The lake also provides non-contact recreational activities like fishing and boating, and is equipped with a campground, launch ramps, and marina docks.

5. Manufacturers of registered pesticides provide information about the action of cumulative and indirect effects, and of other sources of impact to the USEPA and the CDPR, and the herbicide label is considered when formulating the PCR.

6. Eradication efforts may lead to impacts in the form of temporary suspension of Casitas' non-contact recreational activities at Lake Casitas depending on the agent selected for use, the dose used, temperature at the time of treatment, and the label requirements.

7. The product registration label does not indicate water quality impacts from applications conducted in accordance with label instructions and guidelines.

8. Casitas has one established long-term sampling site and has provided example sampling sites for a spot treatment scenario (Figure 1). Sampling sites would be developed in detail in advance of a treatment after the level of infestation has been determined and delineated, and a treatment area defined.

9. Treatment events would include background monitoring within 24 hours prior to the initiation of the application. During infrastructure/spot treatments and attempted eradication events, monitoring would occur routinely in the treatment area to track copper concentration in the water to understand the need for a "bump" application to maintain a lethal concentration of copper for mussels. Post-event monitoring would be conducted within one week after the completion of the treatment being deemed complete. The constituents/parameters that will be monitored are included in Table 1.

Table 1 - Monitoring Requirements

Sample Type	Constituent/Parameter	Units	Sample Method	Sample Type Requirement	Required Analytical Test Method
Visual	Monitoring area description (lake, spillway, or creek)	Not applicable	Visual Observation	Background, Event, and Post-Event Monitoring	Not applicable
	Appearance of waterway (sheen, color, clarity, etc.)				
	Weather conditions (fog, rain, wind, etc.)				
Physical	Temperature*	°F	Grab or In Situ Probe		According to Section I.E.
	pH**	Standard Unit			According to Section I.E.
	Dissolved Oxygen**	mg/L			According to Section I.E.
	Turbidity**	NTU			According to Section I.E.
	Electrical Conductivity**	µmhos/cm			40 C.F.R. part 136
	Hardness**	mg/l			
Chemical	Dissolved Copper**	µg/L	Grab		EPA Analytical Method 200.8

*Field testing
**Field or Laboratory Testing

B. Monitoring Log

Casitas shall keep a log of the receiving water conditions throughout the treatment and monitoring area when conducting receiving water sampling. Attention shall be given to the presence or absence of:

1. floating or suspended matter,
2. discoloration,
3. bottom deposits,
4. aquatic life,
5. visible films, sheens, or coatings,
6. fungi, slimes, or objectionable growths, and
7. potential nuisance conditions.

IV. Reporting Requirements

A. General monitoring and reporting requirements:

1. Casitas shall inform potentially affected governmental agencies and post an annual notice on it's website (https://www.casitaswater.org/) prior to the first application of molluscicides.
2. Casitas shall comply with all Standard Provisions and Monitoring and Reproting Program Requirements of the NPDES General Permit CAG 990006 related to monitoring, reporting, and recordkeeping.
3. Upon written request of the State Water Board or the Reginal Water Board, Casitas shall submit a summary monitoring report.

4. Casitas shall report to the State Water Board and the Regional Water Board any toxic chemical or pesticide release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986. (42 U.S.C. § 11001 et seq.)
5. The State Water Board Deputy Director of the Division of Water Quality (Deputy Director) or his/her designee may adjust monitoring frequencies to a less frequent basis if Casitas makes a request and provides justification that includes statistical trends of monitoring data submitted.
6. The Deputy Director or his/her designee may add further monitoring and reporting requirements to the MRP.

B. Annual Reports

1. Casitas shall include the following information in the annual report:
   a. An executive summary discussing compliance or violation of NPDES General Permit CAG 990006 and the effectiveness of the Plan to reduce or prevent the discharge of pollutants associated with pesticide applications;
   b. A summary of monitoring data, including the identification of water quality improvements or degradation, and recommendations for improvements to the Plan (including proposed BMPs) and monitoring program based on the monitoring results. All receiving water monitoring data shall be compared to applicable water quality standards;
   c. Identification of BMPs currently in use and a discussion of their effectiveness in meeting the requirements in this order;
   d. A discussion of BMP modifications addressing violations of this Order;
   e. A map showing the location of each application area and the target area;
   f. Types and amounts of pesticides used at each application event during each application;
   g. Information on surface area and/or volume of application and target areas and any other information used to calculate dosage, concentration, and quantity of each pesticide used;
   h. Sampling results shall indicate the name of the sampling agency or organization, detailed sampling location information (including latitude and longitude or township/range/section if available), detailed map or description of each sampling area (i.e., address, cross roads, etc.), collection date, name of constituent/parameter and its concentration detected, minimum levels, method detection limits for each constituent analysis, name or description of water body samples, and a comparison with applicable water quality standards, description of analytical quality assurance/quality control plan. Sampling results shall be tabulated so that they are readily discernible;
   i. Recommendations to improve the monitoring program, BMPs, and Plan to ascertain compliance with NPDES General Permit CAG 990006; and
   j. Pesticide Application Log.
2. Casitas shall include in the annual report any updated information regarding specific monitoring locations from its Plan.

3. At any time during the term of NPDES General Permit CAG 990006, the State Water Board or the Regional Water Board may notify Casitas of the requirement to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/ciwq/index/html). Until such notification is given, Casitas shall submit hard copy SMRs. The CIWQS website will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.
4. Casitas shall report the results for all monitoring specified in this MRP in the SMR. Casitas shall submit annual SMRs including the results of all required monitoring. If Casitas monitors dissolved copper more frequently than required by this Order, the results of this monitoring shall be included in the data submitted in the SMRs.
5. Casitas shall submit monitoring reports to the Deputy Director or his/her designee in accordance with the schedule in Table 2.

Table 2 - Reporting Schedule

Reporting Frequency	Reporting Period	Annual Report Due
Annual	January 1 through December 31	March 1

C. Reporting Protocols

Casitas shall report with each sample result the applicable reported Minimum Level and the current Method Detection Limit (MDL), as determined by the analytical method.

Casitas shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

1. For chemical analyses, sample results greater than or equal to the reported Minimum Level shall be reported as measured by the laboratory (i.e. the measured chemical concentration in the sample).
2. For chemical analyses performed in the laboratory, sample results less than the Reporting Limit, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified" or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For chemical analyses performed in the laboratory, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (plus a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
3. Sample results less than the laboratory's MDL shall be reported as "<" followed by the MDL.
4. Casitas shall instruct its laboratories to establish calibration standards so that the MDL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is Casitas to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. Multiple Sample Data: If two or more sample results are available, Casitas shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or "Not Detected" (ND). In those cases, Casitas shall compute the median in place of the arithmetic

mean in accordance with the following procedure:

a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

6. Casitas shall submit the annual report in accordance with the following requirements:

a. Casitas shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with effluent and receiving water limitations. Casitas is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, Casitas shall electronically submit the data in a tabular format as an attachment.

b. Casitas shall attach a cover letter to the annual report. The information contained in the cover letter shall clearly identify violations of the permit; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. Casitas must submit an annual report to the SWRCB signed and certified as required by the Standard Provisions of NPDES General Permit CAG 990006.

D. Special Provisions Reporting

a. Twenty-Four Hour Report

Casitas shall report to the SWRCB and Los Angeles Regional Water Quality Control Board any noncompliance, including any effect of a pesticide's use that is unexpected or unintended, that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances and must include the following information:

i. The caller's name and telephone number;

ii. Applicator name and mailing address;

iii. Waste Discharge Identification number;

iv. The name and telephone number of a contact person, if different than the person providing the 24-hour notice;

v. How and when the Discharger become aware of the noncompliance;

vi. Description of the location of the noncompliance;

vii. Description of the noncompliance identified and U.S. EPA pesticide registration number for each product the Discharger applied in the area of the noncompliance; and

viii. Description of any steps the Discharger has taken or will take to correct, repair,

remedy, cleanup, or otherwise address any adverse effects.

If Casitas is unable to notify the SWRCB and Los Angeles Regional Board within 24 hours, the Discharger must do so as soon as possible and also provide the rationale for why the Discharger was unable to provide such notification within 24 hours.

b. Five-Day Written Report

Casitas shall also provide a written submission within five (5) days of the time the Discharger becomes aware of the noncompliance. The written submission shall contain the following information:

i. Date and time the Discharger notified the State Water Board and the appropriate Regional Water Board of the noncompliance and any instructions received from the Regional Water Board;

ii. Information required in Section C.3.a above;

iii. A description of the noncompliance and its cause, including exact date and time and species affected, estimated number of individual and approximate size of dead or distressed organisms (other than the target species);

iv. Location of incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc.);

v. Magnitude and scope of the affected area (e.g. aquatic square area or total stream distance affected);

vi. Pesticide application rate, intended use site (e.g., banks, above, or direct to water), method of application, and name of pesticide product, description of pesticide ingredients, and U.S. EPA registration number;

vii. Description of the habitat and the circumstances under which the noncompliance activity occurred including any available data on ambient water (which is the water in the immediate surrounding area) for pesticides applied;

viii. Laboratory tests performed, if any, and timing of tests. Provide a summary of the test results within five days after they become available;

ix. If applicable, explain why the Discharger believes the noncompliance could not have been caused by exposure to the pesticide from the Discharger's application; and

x. Actions to be taken to prevent recurrence of adverse incidents.

c. Adverse Incident to Threatened or Endangered Species or Critical Habitat

If Casitas becomes aware of an adverse incident to a federally-listed threatened or endangered species or its federally-designated critical habitat that may have resulted from the Discharger's pesticide application, the Casitas must immediately notify the National Marine Fisheries Service in the case of an anadromous or marine species, or the U.S. Fish and Wildlife Service in the case of a terrestrial or freshwater species. This notification must be made by telephone or email immediately when the Discharger becomes aware of the

adverse incident and must include at least the following information:

a. The caller's name, telephone number, and email address;
b. Applicator name and mailing address;
c. The name of the affected species;
d. How and when the Discharger became aware of the adverse incident;
e. Description of the location of the adverse incident;
f. Description of the adverse incident, including U.S. EPA pesticide registration number for each product applied in the area of the adverse incident; and
g. Description of any steps that have been taken or will be taken to alleviate the adverse impact to the species.

Additional information on federally-listed threatened or endangered species and federally-designated critical habitat is available from the National Marine Fisheries Service (www.nmfs.noaa.gov) for anadromous or marine species or U.S. Fish and Wildlife Service (www.fws.gov) for terrestrial or freshwater species.

END OF APAP