Clear Lake Mussel Prevention Project

General

FOR OFFICE USE ONLY: Version # _____ APP # 706879

1. Applicant Information

a.	Applicant Name	Lake County Watershed Protection District		
b.	Organizational Unit			
c.	Address	255 North Forbes Street		
d.	Address 2	Room 309		
e.	City	Lakeport	State CA	Zip 95457
f.	Federal ID Number	94-6000825	Unique Entity Id.	

g. Agency Type

- ○ City
- ○ U.S. Forest Service
- ○ Federally or State Recognized Native American Tribe
- ○ State Agency
- ○ Other Public Agency
- ◉ County
- ○ Federal Agency
- ○ Nonprofit Organization - 501(c)(3) status only
- ○ District
- ○ Private Inc/LLP

If 'Other Public Type' is selected as the Agency Type, please specify:

TYPE OF PROJECT? Check the appropriate box

- ○ Planning/Assessment (Tier 1) : A letter from California Department of Fish and Wildlife (CDFW) is not required
- ◉ Implementation (Tier 2): A letter from California Department of Fish and Wildlife (CDFW) is required noting that the Prevention Plan for the reservoir is accepted

i. Do you have a CDFW accepted Prevention Plan (Plan) that is consistent with Fish and Game Code §2302 and CA Code of Regulations, Title 14, Section 672.1 (b)? ◉ Yes ○ No

If yes, please upload Prevention Plan in PDF format. 513_Lake County QZ 2019 PPP and APPENDICES.pdf

If you responded 'Yes' to i., please upload Letter from CDFW

2. Project Information

a.	Project Name	Clear Lake Mussel Prevention Project		
b.	Is implementing agency same as Applicant		◉ Yes ○ No	
c.	Implementing Agency Name			
d.	Project Start Date	Oct-01-2025	End Date	Sep-30-2027
e.	Amount of Funds Requested	$399,520.00	Project Cost	$399,520.00

PROJECT COMPONENTS INCLUDED IN THE PROJECT

f. **Tier 1 - Planning/Assessment Project (Check all components included in the Project where funding will be requested)**

- ☐ Prevention Plan Development
- ☐ Prevention Plan Improvement
- ☐ Early Detection Mussel Monitoring
- ☐ Water Chemistry Monitoring (i.e. Calcium, pH, Salinity, Water Temp, Dissolved Oxygen)

g. **Tier 2 - Implementation Project (Check all components included in the Project where funding will be requested)**

- [x] Public Education / Outreach
- [x] Early-Detection Mussel Monitoring
- [x] Water Chemistry Monitoring (i.e. Calcium, pH, Salinity, Water Temp, Dissolved Oxygen)
- [x] Management of Recreational Activities (inspection, decontamination etc.)
- [ ] Assessment/Evaluation of the Prevention Program/Plan
- [ ] Construction related Project
- [ ] Equipment

h.

NAME OF RESERVOIR(s) and PROJECT SITE/LOCATION	Latitude	Longitude
Clear Lake	39.053390	-122.871931

Coordinates of the reservoir (UTM NAD 83 Units Meters)

i. **BRIEF PROJECT DESCRIPTION (Maximum 700 characters)**

This project will maintain the Clear Lake Invasive Mussel Prevention Program by funding and supporting water vessel monitoring and inspection staff at public high-use ramps around Clear Lake. This project also includes specialized mussel-detection canine teams (i.e. Mussel Dogs), which provide comprehensive boat inspections and program awareness during busy time periods and supports administrative and coordinating staff, up to 3 ramp monitor leads, ~20 ramp monitors and technical and coordinating program staff to conduct administration, accounting, training, water quality and early detection veliger tow, substrate, and infrastructure monitoring at numerous sites around Clear Lake.

j. If your agency is submitting more than one application, please indicate the Priority level (1st, 2nd, 3rd) for each application:

Project Title	Priority Level
Clear Lake Mussel Prevention Project 25/27	1st

FOR OFFICE USE ONLY: Version # _____ APP # 706879

3. Contact

a. Project Administrator

Name	Pawan Upadhyay				
Title	Director				
Mailing Address	255 N Forbes Street				
City	Lakeport	State	CA	Zip	95453
Telephone	(707) 263-2344			Fax	
E-mail Address	pawan.upadhyay@lakecountyca.gov				

Statement of Eligibility

FOR OFFICE USE ONLY: Version # _____ APP # 706879

1. Applicant Questionnaire

As a pre-qualification requirement for the submittal of an application, the following information is a summary of our eligibility to request funding from the QZ Grant Program.

NOTE: These are the minimum eligibility requirements in order to apply for the QZ grant. If you do not meet the minimum requirements, you will not be allowed to continue with the application process.

a. Are you an Owner and/or Manager of any aspect of the water in the reservoir(s)? Defined under California Water Code, Division 3, Part I, Chapter I, Section 6004.5, a "reservoir" is referred to as "any reservoir which contains or will contain the water impounded by a dam". (●) Yes ( ) No

b. Is your reservoir uninfested? (●) Yes ( ) No

c. Is your reservoir(s) accessible to the public and open for recreational activities? (●) Yes ( ) No

d. Describe your agency's Owner/ Management Authority and the entity that delegated the authority (i.e. who gave your agency the authority).

Clear Lake management and stewardship authority was handed to the County of Lake by the California Statutes of 1973 in Chapter 639. This athority was approved by the Governor September 21, 1973. "An Act to convey in trust the submerged lands in Clear Lake to the County of Lake, and to its successors, in furtherance of navigation and commerce and the fisheries and to provide for the government, management, and control thereof, and to reserve certain rights to the state."

Provide the document(s) that states your management/ownership authority. 540_ClearLake Manager Justification_S1973_Ch 639_SB1136.pdf

Provide the specific page and/or paragraph number within the document(s) that identifies the ownership or management authority. Pages 1-11

e. Describe what methods were used to determine that the reservoir(s) is uninfested (NOT infested)

Clear Lake is determined uninfested due to results of collaborative monitoring efforts between Lake County Watershed Protection District (the applicant) and the California Department of Fish and Wildlife (CDFW). Additionally, other water bodies within Lake County are determined uninfested due to the collaborative monitoring efforts of the applicant (District), the CDFW, Pacific Gas & Electric (PG&E) and private volunteer citizens (Hidden Valley Lake). The monitoring program methods includes artificial substrate monitoring, infrastructure / surface structure surveys, and veliger tows. Physical (temperature, clarity via Secchi Disk depth) and water quality (pH, conductivity, dissolved oxygen, total dissolved solids, hardness, calcium) monitoring accompanies some of the sampling events to identify environmental conditions of the monitored waterbody. All monitoring protocols are provided by the CDFW and are available online at:

https://www.wildlife.ca.gov/Conservation/Invasives/Quagga-Mussels

Evidence

f. Evidence to support the uninfestation determination

To demonstrate that your reservoir(s) is/are not infested, provide monitoring data for adult and veliger quagga zebra mussels (dressenid mussels) that is no older than March of the previous year. Monitoring data may consist of plankton tows, artificial substrates and/or surface surveys. The data submitted may be collected from the agency(ies), consultants and/or CDFW.

NOTE: Applicants may use the monitoring protocols and datasheets developed by CDFW below.

Description / Title	Site Link
Surface Survey Protocol with data sheet:	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4948&inline
Artificial Substrate Protocol with data sheet:	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4953&inline
Plankton Tow Protocol with data sheet:	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4954&inline

OR applicants can use their own format that includes at minimum:

- Reservoir Name:
- County:
- Sampling Date:
- Sampling sites within the reservoir (latitude and longitude)
- Name and contact information of person who conducted the sampling
- Sampling Method Type (plankton tow(s), artificial substrate, or surface survey)
- Sampling Method used (reference the document that described the methodology used)
- Results of field sampling (presence or absence) and laboratory analysis (positive or negative)

In addition, information specific to each method reported shall include, as applicable:

For plankton tows:

- Tow volume
- Name and contact information of the person/entity who analyzed the samples
- Preservation method and Preservative used
- Method of analyses (Cross-Polarized Light Microscopy (CPLM) and/or polymerase chain reaction (PCR) analysis)

For artificial substrate

- Surface area inspected

For surface surveys

- Linear distance and type of surface inspected

Please upload your mussel monitoring results

Description / Title	Attachment
Infrastructure / Survey Clear Lake and Lake County Waterbodies - 2025	480_Clear Lake Monitoring _ Surface Survey 2024.pdf
Substrate Survey Clear Lake and Lake County Waterbodies - 2024	51_Clear Lake Monitoring _ Substrate Survey 2024.pdf

Veliger / Tow Survey Clear Lake and Lake County Waterbodies - 2024	572_Clear Lake Monitoring _ Veliger Tow Survey 2024.pdf

g. Describe the public access points and what recreational activities are allowed in the reservoir(s).

Clear Lake is a fishing destination, hosting more than 100 tournaments annually from local club contests to largescale commercial events with over 1000 entries. The shallow, calm, and productive water along the littoral zone of Clear Lake attracts professional bass fishermen from all over the country and was rated within the top three best bass fishing lakes in the continental US by Bassmaster Magazine in 2016 and Bass fishing lake off the Decade by Bassmaster in 2020. The lake is also a water recreationists paradise, popular for tubing, swimming, sailing, kayaking, paddle boarding, water skiing, jet skiing, and leisure boating. Due to the popularity of Clear Lake, Lake County receives thousands of visitors -- and their watercraft -- annually. For example, 8,027 boaters visited Lake County from all over North America with a total of 13,882 boaters in 2023 using Clear Lake. Because invasive mussels are primarily spread by boaters, the probability of an invasive mussel introduction via one of at least 500 public or private boat ramps from a visiting vessel on the lake is high.

The figure provided at the link below displays eleven of the most popular public access boat ramps. Image (Below) Free public launch and access areas as advertised through a fishing guide service (http://www.clearlakeguideservice.com/images/webgraphics/boatmap.jpg)

District and County Information

FOR OFFICE USE ONLY:	Version # _____	APP # 706879

1. California State Senate Districts

Select one or more of the California State Senate Districts where the proposed project activities will occur. Copy and Paste the URL (http://www.legislature.ca.gov/legislators_and_districts/districts/districts.html) in your browser to determine the State Senate district(s).

☑ State Senate 02

2. California State Assembly Districts

Select one or more of the California State Assembly Districts where the proposed project activities will occur. Copy and Paste the URL (http://www.legislature.ca.gov/legislators_and_districts/districts/districts.html) in your browser to determine the State Assembly district(s).

☑ State Assembly 04

3. California Congressional Districts

Select one or more of the California Congressional Districts where the proposed project activities will occur. Copy and Paste the URL (https://www.govtrack.us/congress/members/CA) in your browser to determine the Congressional district(s).

☑ Congressional District 4

4. County

Select one or more of the California Counties where the proposed project activities will occur.

☑ Lake

5. Location Map

To download the location map:

- Click on 'Show Documents' located in the upper right-hand corner of the screen to access the Location Map.
- Once the Location Map displays, click on the 'Applicant's Location' box and enter your agency's name in the box (deleting 'Applicant's Location'). Then click on the arrow and drag the arrow to point to your agency's general location.
- Save the Location Map to your desktop or other appropriate location, then click the 'Browse…' button to attach the Location Map and enter a title in the 'Attachment Title' field (e.g., location map (include reservoir name)).

Please upload your location map: 211_Location Map Lake County Watershed Protection District.pdf

Narratives / CEQA / NEPA

FOR OFFICE USE ONLY:	Version # _____	APP # 706879

Narratives Instructions

This page is information only. Please read completely before moving to the next page.

In this Section, the applicant must develop and submit two separate narratives.

a. Project Description Narrative based on the type of Project.

Planning/Assessment Project (Tier 1) or

Implementation Project (Tier 2)

b. Scope of Work Narrative, which includes a Table of Deliverables

Both narratives will be completed outside of OLGA and upload into OLGA upon completion. The narrative instructions are available in the 'Show Documents' link at the top- right corner of this screen. Click on the 'Show Documents' link; download or print the instructions to develop the narratives.

To develop the Project Description Narrative, click the Project Type (Tier 1, Planning/Assessment or Tier 2, Implementation) and choose the narrative Instructions that matches the Project type that you are proposing.

To develop the Scope of Work, click on the 'Show Documents' link and the select Scope of Work instructions. These instructions can either be downloaded onto your desktop or printed.

Follow the directions closely in the narrative instructions document. If you have questions pertaining to the instructions, please email the QZ Grant Program at QZGrant@parks.ca.gov.

1. Project Description Narrative based on the type of Project

Attachment Title	Attachment
Clear Lake Mussel Prevention Project Narrative	626_QZ Narrative Implementation Lake County 2025_2027.pdf

2. Scope of Work, which includes Schedule and a Table of Deliverables

Attachment Title	Attachment
QZ Clear Lake SOW and Table of Deliverables	682_QZ 2025_2026 Lake County SOW _ Deliverables.pdf

3. Environmental Compliance

a. Lead Agency(ies) (if compliance is needed for both CEQA and NEPA): Lake County Community Development Department

b. **CEQA/NEPA Compliance:**

Yes (if project has either a CEQA or NEPA document)

(•) Yes ( ) No ( ) Both

If Yes, please upload the document.

Document Name	CEQA / NEPA Attachment
CEQA Categorical Exemption Notification Filing Document _Lake	40_CE PL-25-74

County CDD	Quagga Zebra Messel Grant Program FY 25-27.pdf

No (If no, explain why the work is not a 'project" as defined by CEQA and identify the section that supports this)

c. **Environmental Document:**

Mark which type of document will be submitted for the project

- ○ Initial Study / Mitigated Negative Declaration/ Negative Declaration (or Environmental Assessment/Finding of No Significant Impact for NEPA compliance)
- ○ Environmental Impact Report (EIR) (or Environmental Impact Statement for NEPA compliance)
- ◉ Exemption (if categorical exclusions are used by a federal agency for NEPA compliance, include the list of that agency's exclusion)

Categorical 15307

Class: 7 Actions by Regulatory Agencies for Protection of Natural Resources

Statutory: 15322

Type of Action: Class 22 Educational or Training Programs Involving No Physical Changes

Task Budget

FOR OFFICE USE ONLY: Version # _____ APP # 706879

1. Task and Budget (1)

Task No: 1 **Task Title:** Project Management - Administration

List the # of Personnel and Personnel Types

Applicant - Personnel	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Accountant	30.00	34.00	1,020.00	1,020.00
Coordinator Program	60.00	60.00	3,600.00	3,600.00
Technician Program	100.00	50.00	5,000.00	5,000.00
Total Personnel Expenses			9,620.00	9,620.00

Applicant Expenses	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Equipment		
Travel		
Total Applicant Expenses		

Professional Services - Consulting	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Total Professional Services - Consulting				

Professional Services	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Travel		
Total Professional Services		

Task Cost Summary	Total Cost ($)	DBW QZ Grant Funding ($)
Applicant - Personnel	9,620.00	9,620.00
Applicant Expenses	0.00	0.00
Professional Services - Consulting	0.00	0.00
	0.00	0.00

Professional Services - Consulting Expenses		
Task Total ($)	9,620.00	9,620.00

1. Task and Budget (2)

Task No: 2 **Task Title:** Early Detection Mussel Monitoring

List the # of Personnel and Personnel Types

Applicant - Personnel	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Technician Program	100.00	50.00	5,000.00	5,000.00
Total Personnel Expenses			5,000.00	5,000.00

Applicant Expenses	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field) (Field Supplies for Mussel, WQ, Chemical Monitoring)	500.00	500.00
Materials / Supplies 2 (Office)		
Equipment		
Travel		
Total Applicant Expenses	500.00	500.00

Professional Services - Consulting	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Total Professional Services - Consulting				

Professional Services	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Travel		
Total Professional Services		

Task Cost Summary	Total Cost ($)	DBW QZ Grant Funding ($)
Applicant - Personnel	5,000.00	5,000.00
Applicant Expenses	500.00	500.00
Professional Services - Consulting	0.00	0.00
Professional Services - Consulting Expenses	0.00	0.00
Task Total ($)	5,500.00	5,500.00

1. Task and Budget (3)

Task No: 3 **Task Title:** Continue to fund and support up to 3 ramp monitor leads and up to 20 ramp monitors.

List the # of Personnel and Personnel Types

Applicant - Personnel	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Inspection Staff Ramp Monitors	8,000.00	28.00	224,000.00	224,000.00
Ramp Monitor Leads	1,800.00	35.00	63,000.00	63,000.00
Total Personnel Expenses			287,000.00	287,000.00

Applicant Expenses	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field) (Clothing and field supplies for Ramp Monitors and Staff)	2,400.00	2,400.00
Materials / Supplies 2 (Office) (Office supplies for staff)	500.00	500.00
Equipment (Decontamination Unit Accessories and Supplies)	2,000.00	2,000.00
Travel		
Total Applicant Expenses	4,900.00	4,900.00

Professional Services - Consulting	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Total Professional Services - Consulting				

Professional Services	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Travel		
Total Professional Services		

Task Cost Summary	Total Cost ($)	DBW QZ Grant Funding ($)
Applicant - Personnel	287,000.00	287,000.00
Applicant Expenses	4,900.00	4,900.00
Professional Services - Consulting	0.00	0.00
Professional Services - Consulting Expenses	0.00	0.00
Task Total ($)	291,900.00	291,900.00

1. Task and Budget (4)

Task No: 4 **Task Title:** Incorporate boat inspection support by mussel detection canine teams (i.e. Mussel Dogs) during peak lake-use times.

List the # of Personnel and Personnel Types

Applicant - Personnel	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Total Personnel Expenses				

Applicant Expenses	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Equipment		
Travel		
Total Applicant Expenses		

Professional Services - Consulting	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Mussel Dogs (Mussel Sniffing Canines)	320.00	125.00	40,000.00	40,000.00
Total Professional Services - Consulting			40,000.00	40,000.00

Professional Services	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Travel		
Total Professional Services		

Task Cost Summary	Total Cost ($)	DBW QZ Grant Funding ($)
Applicant - Personnel	0.00	0.00
Applicant Expenses	0.00	0.00
Professional Services - Consulting	40,000.00	40,000.00
Professional Services - Consulting Expenses	0.00	0.00
Task Total ($)	40,000.00	40,000.00

1. Task and Budget (5)

Task No: 5 **Task Title:** Improve education through outreach events, digital, radio, video PSA distribution, printed materials and other formats.

List the # of Personnel and Personnel Types

Applicant - Personnel	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Technician Program	50.00	50.00	2,500.00	2,500.00
Total Personnel Expenses			2,500.00	2,500.00

Applicant Expenses	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field) (Outreach Materials (easy ups, table cloths, chairs, displays, posters, banners, tabletop banners, signs))	1,000.00	1,000.00
Materials / Supplies 2 (Office) (Reproduction (copies, brochures, fliers, factsheets))	1,000.00	1,000.00
Equipment		
Travel		
Total Applicant Expenses	2,000.00	2,000.00

Professional Services - Consulting	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Social Media Ads - Meta	4.00	100.00	400.00	400.00
Digital, Radio, PSA, video, Podcast Ads Marketing	15.00	1,000.00	15,000.00	15,000.00
Total Professional Services - Consulting			15,400.00	15,400.00

Professional Services	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Travel		
Total Professional Services		

Task Cost Summary	Total Cost ($)	DBW QZ Grant Funding ($)
Applicant - Personnel	2,500.00	2,500.00
Applicant Expenses	2,000.00	2,000.00
Professional Services - Consulting	15,400.00	15,400.00
Professional Services - Consulting Expenses	0.00	0.00
Task Total ($)	19,900.00	19,900.00

1. Task and Budget (6)

Task No: 6 **Task Title:** Maintain the digital screening & inspection system by replacing broken hardware, accessories and support training and troubleshooting.

List the # of Personnel and Personnel Types

Applicant - Personnel	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Data Entry and Admin Support	860.00	35.00	30,100.00	30,100.00
Technician Program	50.00	50.00	2,500.00	2,500.00
Total Personnel Expenses			32,600.00	32,600.00

Applicant Expenses	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Equipment		
Travel		
Total Applicant Expenses		

Professional Services - Consulting	Hours	Salary ($/hour)	Total Cost ($)	DBW QZ Grant Funding ($)
Total Professional Services - Consulting				

Professional Services	Total Cost ($)	DBW QZ Grant Funding ($)
Materials / Supplies 1 (Field)		
Materials / Supplies 2 (Office)		
Travel		
Total Professional Services		

Task Cost Summary	Total Cost ($)	DBW QZ Grant Funding ($)
Applicant - Personnel	32,600.00	32,600.00
Applicant Expenses	0.00	0.00
Professional Services - Consulting	0.00	0.00
Professional Services - Consulting Expenses	0.00	0.00
Task Total ($)	32,600.00	32,600.00

2. Task and Budget Summary

Task #	Task Title	Total Cost ($)	DBW QZ Grant Funding ($)
1	Project Management - Administration	9,620.00	9,620.00
2	Early Detection Mussel Monitoring	5,500.00	5,500.00
3	Continue to fund and support up to 3 ramp monitor leads	291,900.00	291,900.00

	and up to 20 ramp monitors.		
4	Incorporate boat inspection support by mussel detection canine teams (i.e. Mussel Dogs) during peak lake-use times.	40,000.00	40,000.00
5	Improve education through outreach events, digital, radio, video PSA distribution, printed materials and other formats.	19,900.00	19,900.00
6	Maintain the digital screening & inspection system by replacing broken hardware, accessories and support training and troubleshooting.	32,600.00	32,600.00
	TOTAL TASK SUMMARY ($)	399,520.00	399,520.00

Line Item Budget

FOR OFFICE USE ONLY: Version # _____ APP # 706879

	Line Item	Qty	Rate	UOM	Total	DBW QZ Grant Funding
Program Expenses						
1	**Personnel (Applicant)**					
	Accountant	30.0000	34.000	HRS	1,020.00	1,020.00
	Data Entry Admin Support	860.0000	35.000	HRS	30,100.00	30,100.00
	Coordinator Program	60.0000	60.000	HRS	3,600.00	3,600.00
	Technician Program	300.0000	50.000	HRS	15,000.00	15,000.00
	Inspection Staff Ramp Monitor	8000.0000	28.000	HRS	224,000.00	224,000.00
	Ramp Monitor Lead	1800.0000	35.000	HRS	63,000.00	63,000.00
Total for Personnel (Applicant)					336,720.00	336,720.00
Total Program Expenses					336,720.00	336,720.00
Planning / Design / Engineering / Enviro						
1	**Materials / Supplies (Applicant)**					
	Monitoring Supplies	0.0000	0.000		500.00	500.00
	Field Supplies (Clothing and Field supplies for Ramp Monitors and Staff)	0.0000	0.000		3,400.00	3,400.00
	Office Supplies (Office Supplies for Staff)	0.0000	0.000		500.00	500.00
	Reproduction (copies, brochures, fliers, factsheets)	0.0000	0.000		1,000.00	1,000.00
Total for Materials / Supplies (Applicant)					5,400.00	5,400.00

	Line Item	Qty	Rate	UOM	Total	DBW QZ Grant Funding
2	**Equipment (Applicant)**					
	Equipment (Decontamination Unit Accessories and Supplies)	0.0000	0.000		2,000.00	2,000.00
3	**Travel (Applicant)**					
4	**Other Expenses (Applicant)**					
Total Planning / Design / Engineering / Enviro					7,400.00	7,400.00
Implementation						
1	**Personnel - Professional (Consultant / Contractor)**					
	Mussel Dogs (Mussel Sniffing Canines)	40.0000	1000.000	DAY	40,000.00	40,000.00
2	**Materials / Supplies (Consultant / Contractor)**					
3	**Travel (Consultant / Contractor)**					
4	**Other Expenses (Consultant / Contractor)**					
	Social Media Ads (Meta)	0.0000	0.000		400.00	400.00
	Digital, Radio, PSA, Video, Podcast Ads Marketing, Media Consultant	0.0000	0.000		15,000.00	15,000.00
Total for Other Expenses (Consultant / Contractor)					15,400.00	15,400.00
Total Implementation					55,400.00	55,400.00
TOTAL EXPENDITURES					**399,520.00**	**399,520.00**

	Category	Total	DBW QZ Grant Funding	Narrative
Program Expenses				
1	Personnel (Applicant)	336,720.00	336,720.00	
Total Program Expenses		336,720.00	336,720.00	
Planning / Design / Engineering / Enviro				
1	Materials / Supplies (Applicant)	5,400.00	5,400.00	
2	Equipment (Applicant)	2,000.00	2,000.00	
3	Travel (Applicant)	0.00	0.00	
4	Other Expenses (Applicant)	0.00	0.00	
Total Planning / Design / Engineering / Enviro		7,400.00	7,400.00	
Implementation				
1	Personnel - Professional (Consultant / Contractor)	40,000.00	40,000.00	
2	Materials / Supplies (Consultant / Contractor)	0.00	0.00	
3	Travel (Consultant / Contractor)	0.00	0.00	
4	Other Expenses (Consultant / Contractor)	15,400.00	15,400.00	
Total Implementation		55,400.00	55,400.00	
TOTAL EXPENDITURES		**399,520.00**	**399,520.00**	

Other Information

FOR OFFICE USE ONLY: Version # _____ APP # 706879

a. Provide a list of all permits and approvals required for the project

It is the responsibility of the Applicant to obtain any and all permits. Provide a list of required permits with the application.

NOTE: If additional permits other that the ones listed are not applicable, please do not select 'No' as a response for 'Others-1', 'Others-2' and 'Others-3'. If you select either 'Yes' or 'No' as a response, an additional description will have to be entered.

Permit	Required	Status	Attachment
U.S. Army Corps of Engineers Section 404 Permits	○ Yes ◉ No		
California Department of Fish and Wildlife 1600 Permits	○ Yes ◉ No		
California Regional Water Quality Control Board Certifications	○ Yes ◉ No		
U.S. Fish and Wildlife Service and National Marine Fisheries Service	○ Yes ◉ No		
California Coastal Commission or the San Francisco Bay Conservation and Development Commission	○ Yes ◉ No		
Others-1	○ Yes ○ No		
Others-2	○ Yes ○ No		
Others-3	○ Yes ○ No		

Are there permits that have not been secured? ○ Yes ◉ No

If so, explain how they will be secured and the timeline for securing them.

b. Provide a copy of all Ordinances that apply to boating activities in the reservoir

Attachment Title	Attachment
Lake County Ordinance Article 1X Water Vessel Inspection Program	461_Ordinance ARTICLE_IX.___WATER_VESSEL_INSPECTION_PROGRAM.pdf
Lake County Ordinance Article 1 Boats and Boating	645_Ordinance ARTICLE_I.___BOATS_AND_BOATING.pdf

c. Maps, Facility Designs, and Organizational Charts

Attachment Title	Attachment
Map 2 Boating Map	223_Map 2 Boating Map.pdf
Lake County Department Organizational Chart: Water Resources & District	687_Lake County Department Organizational Chart_2025.pdf
Map 1 Clear Lake Location Map	186_Map 1 Clear Lake Location Map.pdf

d. Letters of Support

Attachment Title	Attachment
LOS from IRWMP Westside	720_LOS_LCWPD_DBW_2025_signed.pdf

e. Other Information

Indicate the response to the questions in the application box provided, and submit copies of related MOAs, Ordinances, lease agreements, contracts etc. regarding the control and operation of the project site.

Does the applicant/designated representative(s) control/manage the program site solely as part of a joint power authority arrangement? ○ Yes ◉ No

Does the applicant/designated representative(s) hold a long-term lease agreement on the program site? ○ Yes ◉ No

Does the applicant operate the site through a concessionaire? Applicant/designated representative(s) must own or have authority to control the program area and have right of way to and from the project area. ○ Yes ◉ No

Provide copies of any related MOAs' lease agreements, right of ways concerning the control and operation of the project site.

MOUs' Lease Agreement and/or Right of Way Description	Attachment

f. Submit either a draft or final Resolution or a final Letter of Approval: 691_Resolution FY 2025-2026 QZ Implementation DRAFT.pdf

Templates are available for the Resolution and Letter of Approval, under "Show Documents" in the top right-hand screen.

Resolution:

If your agency is a local government agency with a governing board, you are required to submit a Resolution adopted by your governing board which authorizes the applicant entity to apply for funding from the Department of Parks and Recreation Division of Boating and Waterways (DBW), and provides the necessary authorities, see template. A draft Resolution, at a minimum, is required at the time of application. Grant award is contingent upon DBW receiving a signed Resolution before the grant agreement is executed.

Ownership/management authority documentation is required at the time of grant application. The applicant is also required to identify the specific page and/or paragraph number within the documents provided that identifies the applicant's ownership or management authority over the reservoir.

Letter of Approval:

If you do not have a governing board, as is the case for a federal agency for example, you are required to submit with the application a Letter of Approval, which authorizes the applicant entity to apply for funding from the Department of Parks and Recreation Division of Boating and Waterways (DBW), and provides the necessary authorities, see template. The Letter of Approval shall be on agency letterhead. A signed Letter of Approval is required at the time of grant application, as well as ownership/management authority documentation.

The applicant is also required to identify the specific page and/or paragraph number within the documents provided that identifies the applicant's ownership or management authority over the reservoir.

g. Has the applicant/designated representative(s) retained an outside consultant for the program ○ Yes ◉ No

If Yes, please provide the following information:

Name

Title

Company

Address

Telephone

Email

Provide information for second consultant (if applicable)

Name

Title

Company

Address

Telephone

Email

Certifications

FOR OFFICE USE ONLY:	Version # _____	APP # 706879

1. Applicant Acknowledgement and Signature

☑ Under penalty of perjury, I hereby certify that I am an authorized representative of the Applicant, and that I have been authorized by the Applicant to execute this Application for funding.

PRINT NAME: Angela De Palma-Dow

TITLE: Invasive Species Program Coordinator

DATE: 03/27/2025

Attachments Index

FOR OFFICE USE ONLY: Version # _____ APP # 706879

#	Section	Title	File Name
1	Clear Lake Mussel Prevention Project	513_Lake County QZ 2019 PPP and APPENDICES.pdf	45533_0_513_Lake County QZ 2019 PPP and APPENDICES.pdf
2	Statement of Eligibility	540_ClearLake Manager Justification_S1973_Ch639_SB1136.pdf	45593_0_540_ClearLake Manager Justification_S1973_Ch639_SB1136.pdf
3	Statement of Eligibility	480_Clear Lake Monitoring _ Surface Survey 2024.pdf	45585_0_480_Clear Lake Monitoring _ Surface Survey 2024.pdf
4	Statement of Eligibility	51_Clear Lake Monitoring _ Substrate Survey 2024.pdf	45585_1_51_Clear Lake Monitoring _ Substrate Survey 2024.pdf
5	Statement of Eligibility	572_Clear Lake Monitoring _ Veliger Tow Survey 2024.pdf	45585_2_572_Clear Lake Monitoring _ Veliger Tow Survey 2024.pdf
6	District and County Information	211_Location Map Lake County Watershed Protection District.pdf	45558_0_211_Location Map Lake County Watershed Protection District.pdf
7	Narratives / CEQA / NEPA	626_QZ Narrative Implementation Lake County 2025_2027.pdf	45609_0_626_QZ Narrative Implementation Lake County 2025_2027.pdf
8	Narratives / CEQA / NEPA	682_QZ 2025_2026 Lake County SOW _ Deliverables.pdf	45611_0_682_QZ 2025_2026 Lake County SOW _ Deliverables.pdf
9	Narratives / CEQA / NEPA	40_CE PL-25-74 Quagga Zebra Messel Grant Program FY 25-27.pdf	45617_0_40_CE PL-25-74 Quagga Zebra Messel Grant Program FY 25-27.pdf
10	Other Information	461_Ordinance ARTICLE_IX.___WATER_VESSEL_INSPECTION_PROGRAM.pdf	45634_0_461_Ordinance ARTICLE_IX.___WATER_VESSEL_INSPECTION_PROGRAM.pdf
11	Other Information	645_Ordinance ARTICLE_I.___BOATS_AND_BOATING.pdf	45634_1_645_Ordinance ARTICLE_I.___BOATS_AND_BOATING.pdf
12	Other Information	223_Map 2 Boating Map.pdf	45636_0_223_Map 2 Boating Map.pdf
13	Other Information	687_Lake County Department Organizational Chart_2025.pdf	45636_1_687_Lake County Department Organizational Chart_2025.pdf
14	Other Information	186_Map 1 Clear Lake Location Map.pdf	45636_2_186_Map 1 Clear Lake Location Map.pdf
15	Other Information	720_LOS_LCWPD_DBW_2025_signed.pdf	45638_0_720_LOS_LCWPD_DBW_2025_signed.pdf
16	Other Information	691_Resolution FY 2025-2026 QZ Implementation DRAFT.pdf	45646_0_691_Resolution FY 2025-2026 QZ Implementation DRAFT.pdf

LAKE COUNTY
Watershed Protection District

Lake County

Quagga and Zebra Mussel Prevention Plan

March 2019

STOP AQUATIC HITCHHIKERS!
Be A Good Steward. Clean. Drain. Dry.
StopAquaticHitchhikers.org

SPREAD THE MESSAGE NOT THE MUSSELS

CALIFORNIA STATE PARKS BOATING AND WATERWAYS

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

Table of Contents

Table of Figures

Table of Tables

Purpose

This document was developed to guide the implementation and maintenance of the Lake County Quagga and Zebra (herein "Q/Z mussels") Invasive Mussel Program. The purpose of this program is to prevent the introduction and establishment of invasive mussels in Lake County waterbodies, including Clear Lake, Indian Valley Reservoir, Blue Lakes, Hidden Valley Lake, Highland Springs Reservoir, and Lake Pillsbury (herein "Lake County waterbodies") (Figure 1). These waterbodies are located within Lake County and are wholly or partially managed by the Lake County Watershed Protection District and their affiliated partners.

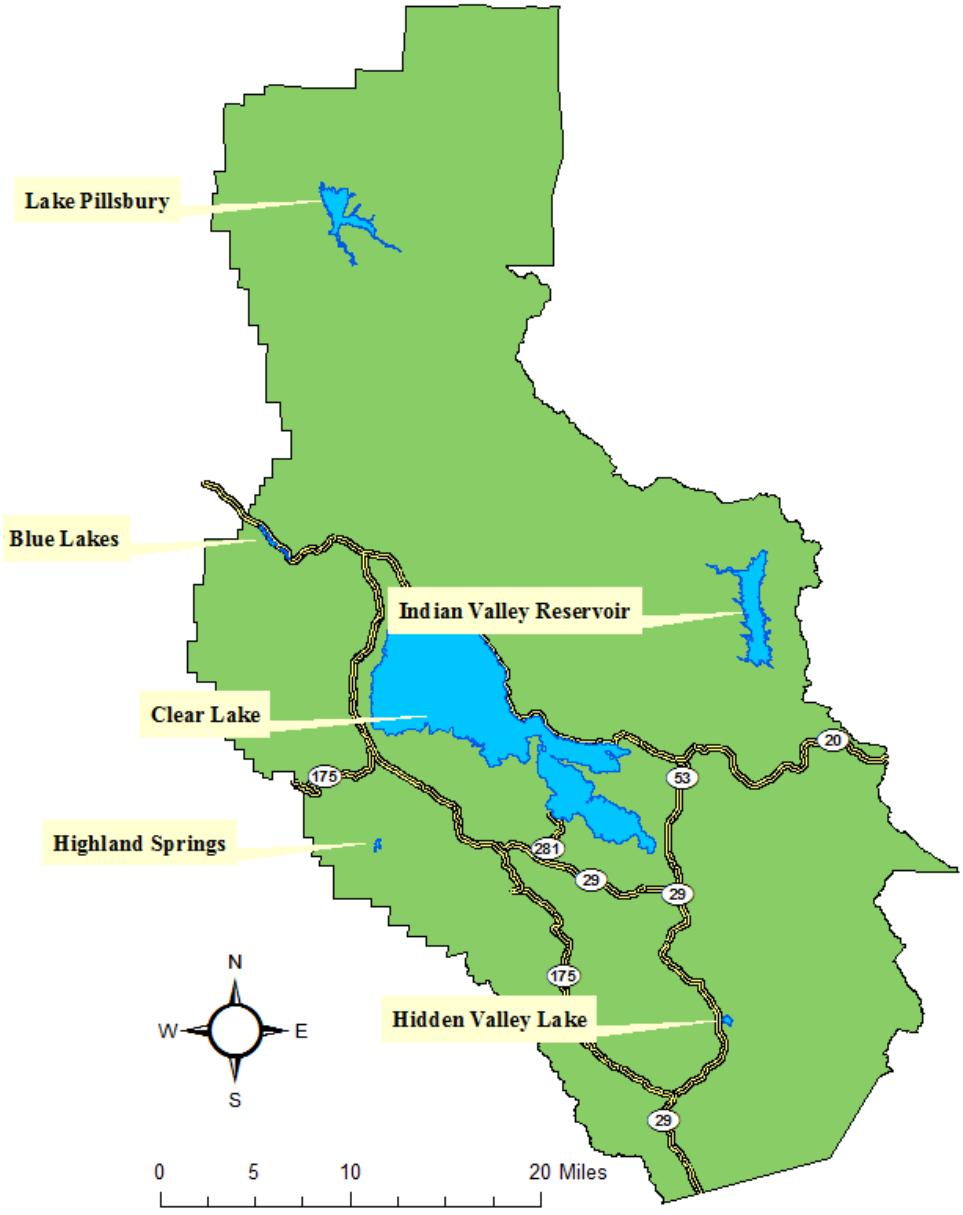


Figure 1 Lake County waterbodies included in some aspect of the Lake County Quagga and Zebra Mussel Prevention Plan.

Introduction

On January 6, 2007, quagga mussels (*Dreissena rostriformis bugensis*), a type of invasive mussel closely related to invasive zebra mussels (*Dreissena polymorpha*), and also referred to as "dreissenid mussels", were discovered in Lake Mead, Nevada. Since that time, quagga mussel infestations have been discovered in a growing number of western lakes and reservoirs, including 43 locations in California (CDFW January 2019). On January 16, 2008, zebra mussels were discovered in San Justo Reservoir, San Benito County, California.

Based on the most recent monthly monitoring surveys (October 2018), Clear Lake, Indian Valley Reservoir, and Lake Pillsbury, the three largest of Lake County's waterbodies with public access, currently have not had a positive detection of Q/Z mussels. However, if introduced, Q/Z mussels pose a major threat to all Lake County waterbodies. Experts fear that mussels could spread quickly through the watershed and potentially be transported and establish themselves in other water systems connected to Clear Lake, such as the Sacramento River Basin and eventually the San Joaquin Delta. If Q/Z mussels were to infest Clear Lake, they could:

- Disrupt the food chain and negatively impact Clear Lake fisheries
- Negatively impact infrastructure like docks and ramps
- Encrust boats and clog engines
- Litter beaches with sharp shells
- Decrease performance and increase maintenance costs when drinking water intake pipes and infrastructure are clogged, fouled, or contaminated.
- Lead to severe boating restrictions
- Lead to severe fishing contest restrictions

Q/Z mussels were first discovered in the Great Lakes in 1988 and 1989, respectively. Since that time, Q/Z mussels have spread at an alarming rate through much of the Eastern US and to the Western US, by moving with the flow of water and in or on water vessels. The USGS generates maps of known locations of known populations of Q/Z mussels in the United States and California. Current species information and distribution can be found at:

Quagga Mussels: https://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=95

Zebra Mussels: https://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=5

Figure 2 Quagga mussels at Lake Mead National Recreation Area, Photo taken in 2017.

Aquatic nuisance species, such as Q/Z mussels, present a growing worldwide problem. Impacts from aquatic nuisance species can be extreme and affect ecosystems, recreation, and economics. Aquatic nuisance species infestations are generally permanent; prevention is the best strategy to combat them. Education is a critical piece to prevention as aquatic nuisance species generally need humans to move anywhere but downstream.

The primary agency responsible for managing the Q/Z mussel program in Lake County is the Lake County Watershed Protection District ("District"). The Lake County Watershed Protection District, was originally created as the Lake County Flood Control and Water Conservation District as a political subdivision of the State of California established under the Lake County Flood Control and Water Conservation Act, of the State Water Code in 1951. The District is administered by the Director of Water Resources who reports to the County Board of Supervisors, which acts as its Board of Directors. The District functions to plan, manage, maintain, implement, evaluate, and expand all aquatic invasive species programs such as the Aquatic Plant Management Program and the Q/Z Mussel Prevention Program. The District relies on several partners to maintain the program. The California Department of Fish and Wildlife (CDFW) conducts veliger tows 2-3 times a year at multiple sites in Lake County including Clear Lake and Indian Valley Reservoir, with PG&E conducting tows in Lake Pillsbury. The District performs substrate monitoring in Blue Lakes, Lake Pillsbury, and Hidden Valley Lake. The California State Parks Division of Boating and Waterways provides Q/Z grant funds to support the County's boat ramp monitor network for Clear Lake, inspection training and equipment, and all essential educational materials.

Vulnerability Assessment and Risk Management

Lake County has always been especially susceptible to the risk of invasive mussel invasion because of Clear Lake, the largest natural freshwater lake located entirely within California. Clear Lake is open year-around with access for trailered vessels in all seasons, except extreme times of drought when the water level becomes extremely low. Clear Lake is a fishing destination, hosting more than 100 tournaments annually from local club contests to large-scale commercial events with over 1000 entries. The shallow, calm, and productive water along the littoral zone of Clear Lake attracts professional bass fishermen from all over the country and was rated within the top three best bass fishing lakes in the continental US by Bassmaster Magazine in 2016. The lake is also a water recreationists paradise, popular for tubing, swimming, sailing, kayaking, paddle boarding, water skiing, jet skiing, and leisure boating. Due to the popularity of Clear Lake, Lake County receives thousands of visitors -- and their watercraft -- annually. For example, during 2017, based on the County's Q/Z mussel mandatory boater sticker program, over 6,000 vessels on the water belonged to residents and approximately 9,000 vessels belonged to non-residents. Because invasive mussels are primarily spread by boaters, the probability of an invasive mussel introduction via one of at least 500 public or private boat ramps from a visiting vessel on the lake is high. Figure 2 provides eleven of the most popular public access boat ramps.

In addition, environmental conditions in Clear Lake and some other water bodies in Lake County, such as water temperature, calcium, pH, dissolved oxygen, turbidity, and salinity, are well within the ranges preferred by both Q/Z mussels. (*Pucherelli et al. 2016*, Whittier et al. 2008; *Cohen 2005*) (Table 1). The single most important water characteristic that indicates a high risk of colonization is a calcium level of 15 mg/L or greater. Clear Lake has an average 25 mg/L calcium level (DWR Water Data Library 2019). With preferable environmental conditions well-suited to an invasive mussel establishment, preventing and managing all vulnerable introduction pathways is going to be the best strategy for preventing an invasion.

Figure 3 Public launch areas as advertised through fishing guide services. Map provided by: http://www.clearlakeguideservice.com/clear-lake-fishing.php

The vulnerability of Clear Lake was assessed by evaluating the environmental conditions of the lake and the human activities that may serve as pathways by which dreissenid mussels may be introduced into the waterbody. Information used in this vulnerability assessment was gathered from a variety of sources, some are listed here:

a) A report by Andrew Cohen, San Francisco Estuary Institute, for the California Department of Fish and Wildlife, *Potential Distribution of Q/Z Mussels in California*, August 2007, found Clear Lake to be a medium priority waterbody for colonization by mussels. This report grouped lakes into four priority classes for management actions, Clear Lake was placed in class 2 (out of four).

b) A report by RNT Consulting for the CA Department of Water Resources, *Examination of Water Quality in Clear Lake, California for Dreissenid Mussel Suitability*, Jan 2012, found calcium and pH conditions suitable for supporting long-term dreissenid populations.

c) A report by the Lake County Fish and Wildlife Advisory Committee presented to the Board of Supervisors, February 10, 2009, addressed AB 2065 (Hancock). This legislation required every public reservoir in the state to complete a risk assessment for mussel invasion and to develop and implement a program to prevent mussel introduction. This report is available in Appendix 1 to this plan. The report states "Clear Lake is at a high risk of introduction of these exotic mussels due to (1) the lake's reputation as a blue ribbon warm water fishery; (2) its multiple, free, access points for visiting boaters and (3) the Lake's water chemistry which is highly favorable to both mussel species."

Identification of potential mussel-introduction routes, defined as pathways, include all movement of water and contact with the water, and are defined at a level of detail appropriate to identify actions necessary to avoid or mitigate the introduction of dreissenid mussels. The following Tables 2-7, identify each pathway, based on the specific waterbody, describes the features that influence risk level to Q/Z mussel introduction and identifies possible management actions that have been or can be taken to address them. Selected management actions that have been implemented within the County are identified in the section titled "Prevention Plan Components" located below the pathways tables.

Table 1 Average water quality measurements from Clear Lake and Indian Valley Reservoir (2016-2018) and parameter ranges shown to be suitable for the growth and establishment of (Adult) Q/Z mussels. All data is provided by A. Montalvo (CDFW) unless otherwise noted.

Year	Temp (°C)	Conductivity (uS/cm)	pH	D.O. (mg/l)	Total Hardness[1] (mg/L CaCo3)	Salinity (ppm)	Total Calcium[1] (mg/L)
Clear Lake							
2016 May	22.3	400.0	8.7	6.6	173.0	0.2	30.0
2016, Nov	16.7	243.0	9.5	3	131.0	0.1	23.0
2017, April	14.4	300.0	8.3	1.2	113.0	0.1	21.0
2017, July	26.0	263.0	10	7.0	123.0	0.1	22.0
2017, Oct	17.4	257.1	9.1	2.9	127.0	0.1	23.0
2018, April	16.0	243.3	8.6	1.6	N/A	0.1	N/A
2018, Oct	18.5	304.9	7.5	6.2	N/A	0.2	N/A
Indian Valley Reservoir							
2016, Dec	10.7	0.3	7.9	10.1	N/A	0.2	N/A
2017, June	22.8	223.4	8.7	6.9	N/A	0.1	N/A
2017, Oct	18.9	222.5	8.4	3.5	N/A	0.1	N/A
2018, Oct	19.9	253.7	8.1	6.3	N/A	0.1	N/A
Preferred Range for Q/Z mussels	6-32[2]	>22µS/cm[3]	6.5-9.5[2]	>2-6[2]	100-420[2]	0-12[3]	>12[2]

[1] Data provided by DWR (Surface 0.5 m) Water Data Library http://wdl.water.ca.gov/waterdatalibrary/

[2] Data provided by *Pucherelli et al. 2016 (BLM)*

[3] Data provided by *Cohen 2005 (prepared for CDWR*)

Table 2 Pathway assessment for Clear Lake

Who:	The public
What:	Boaters come from throughout the continent for day-use boating, fishing, fishing derbies/tournaments, recreation, wildlife viewing; visitors renting properties on the lake, many lake-users are both non-residents and local residents.
Where:	Clear Lake, 500 public & private ramps, 10+ public parks, and at least 25 public and private beaches.
When:	Open for boating and fishing year-round; fishing visitation highest during March – September, based on tournament data and preliminary ramp surveys.

Current efforts to prevent or mitigate an introduction:

- Lake County sticker program includes screening, inspection, and decontamination, if needed, of resident and visiting watercraft. Ramp monitors are established at the most popular ramps to check stickers and track usage. On-site AIS education and outreach is also provided by ramp Monitors.

All current or proposed management options to prevent or mitigate an introduction:

- Expand ramp monitor program (to an additional 5 ramps by 2021) to provide more coverage at more ramps during more times.
- Expand participating sticker vendors within the county and in strategic locations in neighboring counties.
- Radio PSAs are being distributed regionally during fishing seasons to promote the sticker / screening program and regulations in place in the County.
- Perform inspections and decontaminations on appropriate boats based on determined risk-levels after screening.
- Distribute requirements for all fishing tournaments to get boats stickered / inspected / decontaminated when applicable before start day of tournament, and most cases before pre-fishing occurs.
- Distribute and enforce requirements for all vessels to get stickered / inspected / decontaminated.

Current and proposed Education and outreach opportunities:

- Conduct ramp surveys with all waterbody users to identify current level of AIS education.
- Installation of FIVE AIS kiosks around Clear Lake to provide education & outreach (occurring in 2019)
- Present to county schools about AIS and the AIS program.
- Maintenance and replacement of signs along major roadways and highways coming into the county, (as needed).
- Present to county schools about AIS and the Q/Z mussel prevention program.

Table 3 Pathway assessment for Indian Valley Reservoir

Who:	The public
What:	Campers, fishers, and boaters come from throughout the region for day use, such as boating, fishing, recreation and wildlife viewing. No motor restrictions and water quality conditions make this waterbody highly susceptible to Q/Z mussel establishment, if introduced. The Bureau of Land Management and Berryessa Snow Mountain National Monument manage and maintain the land adjacent and surrounding Indian Valley and Yolo Irrigation District controls the dam and water levels of the reservoir.

Where:	Indian Valley with one developed boat ramp and 2 shoreline launch areas.
When:	Open year-round, however road access becomes restrictive during winter and storm seasons.

Current efforts to prevent or mitigate an introduction:

- Motor restrictions (10mph or less) and remote access can help reduce likelihood of introduction.
- Prominent signage at the road access off highway 20 and at water access point adjacent to ramp, provide outreach and education to any visitors using the lake or nearby grounds (Figure 4)

All current or proposed management options to prevent or mitigate an introduction:

- None at this time.

Current and proposed Education and outreach opportunities:

- Maintenance and replacement of signs along major roadways and highways coming into the county (as needed) and to raise awareness of Q/Z mussels and AIS to visiting water users.

Table 4 Pathway assessment for Lake Pillsbury

Who:	The public
What:	Campers, fishers, and boaters come from throughout the region for day use such as boating, fishing, recreation and wildlife viewing. The lake and the water level are managed and regulated by PG&E and the surrounding land is managed by National Forest Service and several private resorts and campgrounds.
Where:	Lake Pillsbury has five trailered-boating access points, and 31 miles of shoreline accessible to kayaks and canoes.
When:	Open for fishing and boating year-round, most visitors are campers.

Current efforts to prevent or mitigate an introduction:

- Two locations near the lake, a store and a resort, participate in the County Sticker program.
- Ramp monitor/ screener lives nearby and is available on an on-call basis.

All current or proposed management options to prevent or mitigate an introduction:

- None at this time.

Current and proposed Education and outreach opportunities:

- Maintenance and replacement of signs along major roadways and highways coming into the county (as needed) and to raise awareness of Q/Z mussels and AIS to visiting campers / water users.

Table 5 Pathway assessment for Blue Lakes

Who:	The public and resort visitors
What:	Boaters come from throughout the region for day use, quiet water activities such as kayaking, paddle boarding, or lounging. No public access and motor restrictions limit the number of visiting vessels gaining access to the lakes. Some fishing from boats, but mostly shore fishing occurs on the lake.

Where:	Blue Lakes with three (3) private ramps, and some unmonitored roadside access points.
When:	Highest visitation coincides with summer resort use, mostly May-September

Current efforts to prevent or mitigate an introduction:

- Currently no ramp monitors stations at Blue Lakes and not all resorts or businesses on or around the lake participate in the County sticker/screening program.
- Motor/horsepower restrictions (5 mph and no personal watercraft) on Blue Lakes do reduce the number of high-risk vessels visiting the lake.

All current or proposed management options to prevent or mitigate an introduction:

- Work with resort owners to get more AIS outreach materials to visitors and increased participation in county sticker / screening program.
- Perform inspections and decontaminations on appropriate boats based on screening.

Current and proposed Education and outreach opportunities:

- Work with lake visitors and business owners to report vessels in Blue Lakes without current mussel stickers, and to educate visitors about the sticker program and Q/Z mussel prevention program.
- Maintenance and replacement of signs along major roadways and highways coming into the county, including any additional locations near Blue Lakes.

Table 6 Pathway assessment for Hidden Valley Lake

Who:	The Hidden Valley Community and their visitors
What:	Boaters come from throughout the region for day use, quiet water activities such as kayaking, paddle boarding, swimming, or lounging. No public access and motor restrictions, and locked gate w/ residence access code limit the number of visiting vessels gaining access to the lakes. Some fishing occur from boats and shorelines.
Where:	Hidden Valley has one marina with attached ramp and two beach/ park areas.
When:	Highest use coincides with summer, mostly May-September, but some fishing occurs year around.

Current efforts to prevent or mitigate an introduction:

- Currently no ramp monitors station at Hidden Valley Lake.
- Small size and private nature of the lake make this a very-low risk to Q/Z mussel introduction from visiting vessels, although visitors to the area with residential access code can enter / exit the lake at their discretion and without detection.

All current or proposed management options to prevent or mitigate an introduction:

- None at this time, unless directed by the Hidden Valley Community Services District.

Current and proposed Education and outreach opportunities:

- None at this time, unless directed by the Hidden Valley Community Services District.

Table 7 Pathway assessment for Highlands Springs Reservoir

Who:	The Public
What:	Boaters come from throughout the region for day use, quiet water activities such as kayaking, paddle boarding, or lounging. Lake size and motor restrictions limit the number of visiting vessels using the lakes. Some fishing from trolling boats, but mostly shore fishing occurs on the lake.
Where:	Highland Springs has one undeveloped ramp access and one beach/ park area.
When:	Highest use coincides with summer, mostly May-September.

Current efforts to prevent or mitigate an introduction:

- Motor restrictions (no motors) keeps visiting boaters at a minimum and introduction probability low.
- Currently no ramp monitors stations at Highland Springs, however park caretaker lives adjacent to water access point.
- Small size and private nature of the lake make this a very-low risk to Q/Z mussel introduction from visiting vessels.

All current or proposed management options to prevent or mitigate an introduction:

- None at this time.

Current and proposed Education and outreach opportunities:

- Additional Q/Z mussel and AIS educational materials will be added (2019) to the park kiosk located near the water access points.

Figure 4 Signage present at Indian Valley Reservoir (left) at the entrance to the road turnoff of Hwy 20 and (right) near water access.

Monitoring Program for Adult and Juvenile Dreissenid Mussels

Monitoring efforts in Lake County is completed by a partnership between The District and the California Department of Fish and Wildlife (CDFW) and Pacific Gas and Power (PG&E). The monitoring program includes artificial substrate monitoring, infrastructure / surface structure surveys, and veliger tows (Table 8)

Water quality monitoring accompanies some of the sampling to identify environmental conditions of the waterbody. All monitoring protocols are provided by the CDFW and are available in the Appendix (2a, b, c) and online at:

https://www.wildlife.ca.gov/Conservation/Invasives/Quagga-Mussels

Table 8 Type of trailered watercraft access and monitoring for Lake County waterbodies.

Lake Name	Vessel Accessibility Type (Public vs. Private)	Type of Q/Z Mussel Monitoring			
		Veliger Tows (CDFW or PG&E)	Artificial Substrate Monitoring Stations (LCWRD)	Infrastructure / Surface Monitoring	None
Blue Lakes	Private		✓		
Clear Lake	Public	✓ (CDFW)	✓	✓	
Hidden Valley Lake	Private		✓		
Highland Springs	Public*				✓**
Indian Valley	Public	✓ (CDFW)			
Lake Pillsbury	Public	✓ (PGE)			

*Restricted to 5mph/ non-personal watercraft vessels.
**Q/Z mussel signage is being added 2019 along with a substrate monitoring station.

a) Artificial Substrate Monitoring. The District performs monthly artificial substrate monitoring according to the methods and procedures provided by the CDFW (Appendix 2a). Artificial substrates are a series of submerged PVC plates suspended from a dock, bridge, or buoy (Figure 5). Placement of the substrates is based on proximity to a potential introduction pathway, mostly located near popular public ramps and access points, but also located in an area where they can remain undisturbed but also easily accessible for monitoring by staff. The district staff monitor and record results of artificial substrates monthly, except for the months of December and January, however the substrates remain in the water year-round. Current results of artificial substrate monitoring indicate that all substrates are clean and the county currently does not have any detections of invasive mussels established on artificial substrates (Table 9).

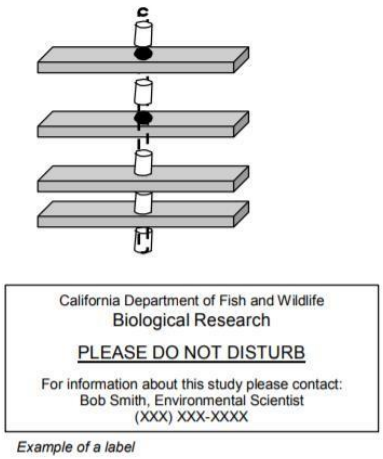


Figure 5 Artificial substrate example provided by the CDFW.

Table 9 Results of artificial substrate inspections – 2017 & 2018.

Waterbody	Site	Material	2017	2018
Clear Lake	3rd Street, Lakeport - new	Square plastic plates	Clean	Clean
	3rd Street, Lakeport	Concrete discs	Clean	Clean
	5th Street, Lakeport - new	Square plastic plates	Clean	Clean
	Redbud Launch ramp	Square plastic plates	Clean	Clean
	Redbud Launch ramp - new	Square plastic plates	Clean	Clean
	Clearlake Oaks	Concrete discs	Clean	Clean
	Clear Lake State Park	Square plastic plates	Clean	Clean
	Clear Lake State Park - new	Square plastic plates	Clean	Clean
	Keeling Park	Concrete discs	Clean	Clean
	Lakeside Park - new	Square plastic plates	Clean	Clean
	Konocti Vista Casino Resort	Concrete discs	Clean	Clean
	Braito's Marina	Concrete discs	Clean	Clean
	Lucerne Harbor	PVC pipe	Clean	Clean
Blue Lakes	Narrows Resort	Concrete discs	Clean	*
Lake Pillsbury	Pillsbury Resort	Square plastic plates	Clean	*
	Fullers campground	PVC pipe	Clean	*
Hidden Valley**	Fishing dock at Big Beach Pier	Square plastic plates	Clean	Clean
	Marina Rental Pier	Square plastic plates	Clean	Clean

*No Access to this site due to the Mendocino Complex Fire Event and resulting closure.
** Artificial substrate data collected by volunteer citizen scientist S. D'Agostini.

b) Infrastructure / Surface structure surveys are also performed by the District at the end of summer season when temporary docks and associated infrastructure are removed from Clear Lake and placed in dry, storage areas. Additional survey inspections have occurred when buoys have been removed from Grebe nesting areas in late summer. During this process, submerged chains and buoy bodies are inspected for any attached mussels. To date there have been no findings of invasive mussel presence or establishment from these surface surveys. Prior to 2019, the protocol for this monitoring did not follow the recommended CDFW protocols in regards to Minimum Sample size (page 3), however, starting in 2019, Lake County staff will be implementing a revised surface survey protocol that will match the CDFW requirements (Appendix 2b).

c) Veliger tows are performed by CDFW Region 2 Environmental Scientist Angie Montalvo. CDFW conducts Q/Z mussel veliger monitoring across the state according to the protocols outlined in Appendix 2c. CDFW started monitoring Clear Lake in 2007. Within Lake County, CDFW collects drag tows in Indian Valley Reservoir and Clear Lake. The veliger monitoring in Lake Pillsbury is completed by PG&E. Results from the most recent tow events are provided in Table 10. There are currently no positive detections for invasive mussel veligers in Lake County.

d) Special Districts Water intake monitoring. Lake County Special Districts operates or oversees approximately 2 water intakes on Clear Lake. Because fish screens in intake sites, and the intake themselves are constructed of materials that pose risk for colonization, Special Districts is aware of the importance of monitoring for maximized AIS prevention. Each water district has been alerted to the possibility of mussel's introduction and establishment and they monitor for any mussel presence when regular maintenance is performed on inlet pipes, screens and filters. Current contacts for special district includes Jan Coppinger at Janet.Coppinger@lakecountyca.gov or Will Evans at Will.Evans@lakecountyca.gov

Table 10 Results of veliger tows in Lake County waterbodies provided by CDFW (site results are aggregated)

Year	Waterbody	Month	Result
2016	Clear Lake	May	ND
		Nov	ND
	Indian Valley Reservoir	Dec	ND
	Lake Pillsbury	May	ND
		July	ND
2017	Clear Lake	April	ND
		July	ND
		October	ND
	Indian Valley Reservoir	June	ND
		August	ND
		October	ND
	Lake Pillsbury	May	ND
		July	ND
		September	ND
2018	Clear Lake	April	ND
		August	*
		September	ND
	Indian Valley Reservoir	June	*
		October	ND

*No sampling was conducted these months due to the Pawnee Fire (June 2018) and Mendocino Fire Complex (July – Sept, 2018)

Prevention Plan Components

This section will identify the specific management and prevention actions that are applied to each potential pathway where invasive mussels can be introduced into Lake County. Most of the listed components and related actions are currently in place and a part of the prevention program, but continued work and effort by The District is focused on maintaining and expanding these efforts and identifying additional ways where prevention can be effective, efficient, and maintained. Currently the Clear Lake Prevention Plan includes the following strategic components:

1. Public Education and Outreach
2. Physical Preventative Procedures
3. Special Interest and Stakeholder Notifications and Procedures
4. Adaptive Management and program readiness
5. Develop and preserve partnerships and collaborations
6. Reporting

1. Public Education and Outreach

Lake County and its partners continue to highlight the threat of Q/Z mussels with the media and its stakeholders at every available opportunity. Throughout the duration of the program, technology and outreach methods have evolved and the District attempts to keep up with any available tools that are helpful in distributing not only the message focused on AIS species prevention and management, but also the message about the ongoing efforts being conducted in the county to address the threat of invasive mussels.

There are multiple ways in which the District provides information through educational and outreach pathways. The District aims to broadcast the message, from websites and social media posts, to brochure distributions, presentations, and educational displays.

a) The below educational materials are available in hard copy at information counters at City of Lakeport, City of Clearlake, County courthouse in Lakeport, Visitors Center in Lucerne, Chambers of Commerce in Lakeport and Clearlake, Clear Lake State Park entrance, the Lakeport DMV, Real Estate and rental offices, all marinas and bait shops, motels and hotels, and Lakeport AAA. Invasive mussel information has been distributed by the Water Resources Department at the invasive species display for Kids-in-the- Creek, Boy Scouts, Sea Scouts, Cache Creek Watershed Forum, Heron Days at the Clear Lake State Park, Lake Pillsbury Homesites Annual Meeting, Hidden Valley Lake's "Opening Day on the Lake" event, Service Clubs, homeowners' associations and other events. It is also distributed at the County Fair booths, the State Fair, and the Sacramento Boat Show. They are also available as digital versions online or can be shared via email or social media. Some of these materials are listed below:
   i. The County uses the CDFW "Zap the Zebra Mussel" brochures, and "Quagga Mussel" cards in English and Spanish, and "Don't Move a Mussel" posters, and pdf versions of these and other outreach materials that can be reprinted as needed. These informative, full-color brochures, posters and cards have been distributed at locations throughout the county. The cards have been used as stuffers in the annual lakebed lease bill, and tax bills to lakefront property owners. All bait and tackle businesses and fishing license outlets including Wal-Mart, and lakeshore resorts have the outreach material for the public.
   ii. "It Only Takes One" mussel inspection training DVD's have been copied and distributed to businesses and organizations that need to educate employees, like businesses selling mussel stickers. More recently Lake County acquired a boat that had been submerged in Lake Mead. This boat was sealed and is now used as an educational tool to demonstrate the physical impact mussels can have on boating and recreation. The county applied for and was granted a Possession Permit (Form 1040) to possess and store the "quagga boat" and it is used within CDFW Regions 2 and 3 to raise awareness for QZM and other AIS prevention.
   iii. "Quashing the Quagga: Protecting Lake County from Invasive Quagga and Zebra Mussels" trifold, color, brochure produced by the Lake County Invasive Species Council distributed to all Lake County outlets servicing the tourist industry.

b) District staff provide any needed information and outreach for the media. Several front page and editorial articles have been printed in the Lake County Record Bee. The fishing correspondent of the Record Bee, Mr. Terry Knight, is very supportive of the County Mussel Prevention Program and writes articles mentioning the program regularly.

c) The District and partners have also installed informational signage at critical locations throughout the county. Attention grabbing signs are placed at road entrances into the county and at every major launch facility and many of the private boat launching facilities. The list provided in Table 11 provides an inventory of all the current signage locations. The signs are maintained and updated when necessary.

d) County web pages under the District direct persons to the exclusive Lake County mussel website www.nomussels.com . State Departments of Fish and Wildlife, and Parks and Recreation, Boating and Waterways, have links to the Lake County website. The website describes the Lake County Invasive Mussel Prevention Program for residents and visitors, has a list of the current locations for boaters to be screened by trained personnel, cleaning instructions for vessels that are not yet clean, drained and dry, and links to other websites such as the Wildlife Forever and 100th Meridian Initiative.

Table 11 Types and locations of AIS signage in Lake County

Major Roadway	Major Boat Ramps	Private / Minor boat ramps
Hwy 175 at Hwy 29 (Lakeport)	1st Street (Lakeport)	Clearlake Marina (Lakeport)
Hwy 29 at Grange Rd. (Middletown)	3rd Street (Lakeport)	Shady Acres Resort (Clearlake)
Hwy 20 East Bound Lake/Mendocino County Line (Blue Lakes)	5th Street (Lakeport)	Clearlake Resort (Clearlake)
Hwy 175 at Lake / Mendocino County Line	Clearlake Avenue at Skylark Motel (Lakeport)	Kono Tayee Association (Lucerne)
Hwy 29 North Bound at Napa / Lake County Line	Keeling Park (Nice)	World Mark Resort (Nice)
Hwy 20 West Bound Lake/ Colusa County Line	Holiday Harbor (Nice)	Fuller Launch Ramp (Lake Pillsbury)
Elk Mountain Road, north bound to Lake Pillsbury	Lucerne Harbor (Lucerne)	Numerous USFS camp ground ramps in Mendocino National Forest (Lake Pillsbury)
Potter Valley Road at Pillsbury Exit	Clear Lake Oaks Park (Clear Lake Oaks)	Pine Acres (Blue Lakes)
Walker Ridge Road at Hwy 20, to Indian Valley Reservoir	Redbud Park (Clearlake)	Blue Lake Lodge (Blue Lakes)
	Richmond Park (Clearlake)	Narrows Resort (Blue Lakes)
	Braito's Marina (Kelseyville)	Le Trianon (Blue Lakes)
	Clear Lake Vista Resort (Kelseyville)	
	Edgewater Resort (Kelseyville)	
	Clear Lake State Park (Kelseyville)	
	Lakeside County Park (Kelseyville)	
	Konocti Vista Casino (Lakeport)	
	Lake Pillsbury Resort (Pillsbury)	
	Hidden Valley Lake (Hidden Valley)	
	The Narrows, Blue Lakes (Blue Lakes)	
	Rodman Slough (North Lakeport)	
	Indian Valley Reservoir Boat Ramp	

e) Social Media has also provided additional methods for educational information to be shared. The District shares information via the Water Resources Department County Facebook Page. Social Media is a great way to interact with people that may or may not be currently located within the county or may not otherwise be aware of the mussel sticker program. The Facebook page also provides an additional outlet for the public to contact Project staff and gain access to informational links and other resources. Trends in some recent posting activity is provided in Table 12. The Facebook page can be found @lakecountywater or by searching for "Lake County Water Resources Department" on Facebook pages.

Table 12 Example of mussel-related posts on Water Resource Department Facebook page during summer 2018.

FACEBOOK POST TOPIC	DATE POSTED	REACH	ENGAGEMENTS	SHARES
Clean, Drain Dry	9/5/2018	61	9	2
Outreach Event Advert - Lake County Fair	8/31/2018	93	17	3
Clean Drain Dry sign post fire	8/17/2018	61	2	0

Lake County Invasive Mussels Prevention Program link to nomusssels.com	8/14/2018	81	15	2
Article on Idaho-bound barges with mussel infestations (From the Reader July 9th)	8/14/2018	148	26	2
Outreach event Advert - concert in the park	7/27/2018	156	57	5
Article from Record-Bee on the Clear Lake Mussel Prevention Program	7/13/2018	3739	288	6
Clean, Drain, Dry and link to nomussels.com	6/4/2018	35	2	0
Article about mussel sniffing dogs at Lake Mendocino	6/4/2018	30	3	0
Totals		**4404**	**419**	**20**
Grand Total (for period 6/1 – 9/5/2018)			**4843**	

2. Physical Preventative Procedures

In March 2008, The Lake County Board of Supervisors passed an emergency ordinance establishing an inspection program for all water vessels launched in Lake County. This program, in its emergency form introduced a mussel sticker program based on the honor system. Eventually the emergency ordinance was replaced by Ordinances 2936 (2011), 2976 (2012), 2915 (2009), Appendix 3 that established a fee-based inspection program for all water vessels launched in the County of Lake. The mussel ordinance is also located in Lake County Code Article IX of Chapter 15. The physical prevention program is a three-tiered system based on the risk level of the vessel for transporting invasive mussels to Lake County. The first tier is screening, the second tier is inspection, and the third is decontamination.

Screening

Employees of participating companies, shops, resorts and agencies in the County, called “screeners”, are trained by county staff to determine the risk level of an incoming vessel. When properly trained by Certified County staff, “screeners” sign an agreement (Appendix 4) that upholds the intent of the ordinances.

Before launching, each vessel owner must fill out an application form (Appendix 5) that allows the “screener” to determine whether a vessel is at risk for harboring adult or the veliger forms of mussels. Risk assessment is made by reading the answers to the questions on the application form. Some of the responses to these questions indicating a high-risk level might include a vessel being in another body of water recently (<30 days) or from a county/state where invasive mussels are present. When a “screener” is confident that a vessel is of a low risk for transporting mussels to Lake County, the vessel owner is sold a set of stickers to identify the vessel as “low risk”.

Resident boaters, who register, keep, or use their boat only within Lake County are granted an annual “resident” sticker, and not obligated to participate in the program unless they leave and return the county with their boat, and then they are required to an inspection and decontamination if applicable. Resident stickers are valid for the calendar year and traditionally are burgundy and gold. Owners of vessels not at risk who are visitors to Lake County can purchase a set of visitor stickers with a blue and white logo. Visitor stickers are valid for the calendar month. Stickers are sold in sets of three, two stickers are affixed to the boat on each side near the registration letters and numbers, the third sticker is affixed to the rear of the trailer.

Launching any vessel, excluding kayaks, canoes, rafts, float tubes, car-top boats, wind surfers/boards, boogey boards, non-motorized paddle boats, and non-motorized sail boats 8’ or less in length, in any Lake County water body without a sticker is in violation of the Lake County Code with fines reaching up to

$1000. Vessel owners receive invasive mussel outreach material with their stickers with a request to let other people know of the Lake County invasive mussel program. In addition, they are given a factsheet about how to "clean equipment" that contains the latest agency- approved recommendations using hot water, completely drying, or freezing (Appendix 6).

Inspection

If a boat is found to be at risk by a screener then a hands-on inspection is required. Inspectors are trained and certified by Pacific States Marine Fisheries Commission and Western Region Panel on Aquatic Nuisance Species Watercraft Inspection Program and are capable of physically inspecting any water vessel. Inspections proceed only after obtaining the permission of the boat owner to board his/her boat. Inspections are recorded by the inspector by filling out an inspection form (Appendix 7). The inspector will determine whether a decontamination is required.

Decontamination

Lake County Water Resources have three mobile, self-contained decontamination units. Decontamination is free and is performed by The District personnel according to the protocols outlined in the Uniform Minimum Protocols and Standards for Watercraft Inspection and Decontamination Programs for Dreissenid Mussels in the Western United States. Decontamination is performed after the boat owner signs a hold harmless form for liability purposes, Appendix 8.

3. Special Interest and Stakeholder Notifications and Procedures

Lake County draws many annual special events to enjoy the many beneficial uses of the waterways such as sport fishing tournaments and water sport events. There are several boat racing events and at least 100 fishing tournaments on Clear Lake each year. Participating boaters entering the county are particularly susceptible to being contaminated because often they are involved in events all over the United States. Because there is especially high risk in launching out-of-state boats, additional monitoring by ramp monitors and more stringent decontamination requirements are sometimes a requirement for event organizers. All visiting watercraft for any special event must follow the County ordinances and follow all mussel prevention program requirements including acquiring stickers and any state-mandated requirements. District staff are available to provide guidance and assistance as needed to any event organizers during and prior to the event.

4. Adaptive Management and Program Readiness

The Lake County invasive mussel prevention program is intended to be flexible and adaptable. The program is intended to be capable of responding to new information, new issues, or new opportunities. While there are significant challenges, many avenues exist to respond to changing information or levels of capability. To be ready to respond to any situation that may arise, program coordinating staff stay current on new developments and technologies in aquatic invasive species management, prevention, education, and outreach. Additionally, the program staff strive to be kept abreast of the national and local movement of invasive mussels, and new State and Federal regulations, changes required to Lake County laws and procedures to keep up with any new research and changing dynamics of invasive mussels in CA. This is accomplished by:

a) Keeping WIT I, II, and III training current for all applicable program personnel
b) Maintaining regular contact and communication with the WIT trainer, "Quagga D" Davis
c) Subscription and review of relevant AIS news and information such as the Pacific State Marine Fisheries Commission Aquatic Invasive Species News monthly email blast and North American Lake Management Society Newsletters.
d) Attendance and participation in relevant societies and associations such as the Western Regional Panel on Aquatic Nuisance Species, California Lake Management Society, and Society for Freshwater Science.
e) Well-developed and maintained relationships with local stakeholders such as municipalities, drinking water departments and utilities, tribes, NGOs, boating and fishing communities, state and

federal agencies (see section 4: Partnerships and Collaborations).

5. Develop and Preserve Partnerships and Collaborations

Lake County works closely with partners: at California Department of Fish and Wildlife, California Department of Food and Agriculture, California Department of Water Resources, California Parks and Recreation Division of Boating and Waterways, surrounding counties, Westside Sacramento Integrated Regional Water Management Plan Committee, other states, the U.S. Fish and Wildlife Service, Bureau of Reclamation, and USGS. Local partners include Big Valley Band of Pomo Indians, Hebematolel Pomo of Upper Lake, Lake County Resource Conservation District, and the UC Davis Extension Lake County Office. In addition, this program relies on three valuable informational resources are the 100th meridian initiative at www.100thmeridian.org and Protect Your Waters at www.protectyourwaters.net and Stop Aquatic Hitchhikers at http://www.wildlifeforever.org/invasive-species.

6. Reporting

Several annual reports are required depending on the development, resource needs and funding sources of the program. For grant funding received by the California State Parks Division of Boating and Waterways Q/Z Mussel Prevention Program, quarterly progress reports, annual reports, final project summaries and final project reports. Program specifics can be found at the DBW Q/Z Mussel Infestation Prevention Grant Program webpage.

Additionally, an annual report will be submitted to CDFW by March 31 of each year. This is required by CCR Title 14 Section 672.1 (b)(5) to demonstrate the prevention program's implementation and identify any area of improvement. Reports for this requirement will follow the template provides on the CDFW Q/Z Mussel webpage.

References

California Department of Water Resources (DWR) Water Data Library. Available at: http://wdl.water.ca.gov/waterdatalibrary/ Accessed January 2019.

Cohen, A.N. (2005). A review of Zebra Mussels' Environmental Requirements. A Report for the California Department of Water Resources. San Francisco Estuary Institute. Accessible: https://www.sfei.org/sites/default/files/biblio_files/No420_2005-ZebraMusselRequirements.pdf

Pucherelli, S.,S.O.Meara, K. Bloom, J.Kirsch (2016). Habitat Suitability Parameters for Quagga Mussels in the Lower Colorado River System and at Reclamation Managed Facilities. Final report ST-2015-754F-01. Bureau of Reclamation Research and Development Office. Accessible at: https://www.usbr.gov/research/projects/download_product.cfm?id=1552

Whittier TR, PL Ringold, AT Herlihy, and SM Pierson. 2008. *A Calcium-based invasion risk assessment for zebra and quagga mussels (*Dreissena *spp*). Frontiers in Ecology and the Environment 2008:6 doi:10.1890/070073.

List of Appendices

APPENDIX 1
Giusti et al. 2009. Identifying Risk Factors to Strengthen Current Strategies Aimed at Minimizing the Introduction of Quagga and Zebra Mussels to Lake County, California.

APPENDIX 2
a. CDFW 2017 Quagga / Zebra Mussel Artificial Substrate Protocols
b. CDFW 2017 Quagga / Zebra Mussel Surface Survey protocols
c. CDFW 2017 Quagga / Zebra Mussel Plankton Tow Sampling Protocol

APPENDIX 3
Ordinance 2936, Article IX of Chapter 15 of the Lake County Code. Water Vessel Inspection Program.

APPENDIX 4
Agreement to Participate in Water Vessel Inspection Program as a Screener

APPENDIX 5
County of Lake Inspection Sticker Application Form-2018

APPENDIX 6
CDFW Aquatic Invasive Species Decontamination Protocol

APPENDIX 7
Lake County Invasive Species Boat Inspection Report Form – 2018

APPENDIX 8
Hold Harmless Agreement for Vessel Decontamination Form – 2019

IDENTIFYING RISK FACTORS TO STRENGTHEN CURRENT STRATEGIES AIMED AT MINIMIZING THE INTRODUCTION OF QUAGGA AND ZEBRA MUSSELS TO LAKE COUNTY, CALIFORNIA.

A Report Prepared by the Lake County Fish and Wildlife Committee

January 2009

Lake County Fish and Wildlife Committee Membership

Gregory A. Giusti – Chair

Fred Gaul – Vice Chair

Jonathan Ambrose – Secretary

Victoria Brandon – Member

Diana Hershey – Member

Sandie Elliott – Member

Dennis Reynolds – Member

Doug Eastley – Member

Richard Hinchcliff – Member

Edwin Groves - Member

Summary

The Lake County Fish and Wildlife Committee have developed a risk assessment proposal regarding the current threat posed by both the quagga mussel (*Dreissena bugensis*) and zebra mussel (*D. polymorpha*). This report identifies a number of positive actions already undertaken by the County of Lake and encourages their continued support. Secondly, this report attempts to prioritize the various risk factors associated with each Lake County waterbody with public access, and provides organizational and management guidance to direct preventative measures against mussel introduction. Lastly, the Committee, through this report, is providing support and advice to assist the County in addressing AB 2065 (Hancock) which takes affect January 1, 2009. The newly passed legislation requires "all public reservoirs allowing recreation, boating and/or fishing to assess their vulnerability to mussel infestation and develop and implement a program to prevent their introduction".

Specifically this reports states:

1. Three primary locations exist within the boundaries of Lake County where mussels would significantly adversely affect the waters of California;
2. The large number of access points into Clear Lake presents numerous challenges to the development of an effectual prevention program. These challenges demands development of a systematic strategy that makes any program reasonable, manageable, and affordable;
3. Not all access points entering Clear Lake pose equal levels of risk for mussel introduction. A coordinated program that recognizes risk levels will assist in the prioritization of limited resources to address the threat;
4. The management of Lake Pillsbury and Indian Valley Reservoir will require close coordination and inclusion of the responsible land and facility management agencies if the County is to develop a comprehensive mussel planning and prevention program;
5. Any outreach effort to keep both the local citizenry and visitors engaged and informed must be on-going to minimizing a sense of complacency that the threat has been alleviated;

6. Improved and strengthened political efforts must be aimed at increasing broader statewide coordination. Coordination is necessary to minimize duplicated local efforts that are beyond the resource capabilities of Lake County; and
7. Finally, not all Clear Lake user-groups, points of access, and associated waters (Highland Springs and Adobe Spring Reservoirs) pose equal levels of risk for mussel introduction. Programs aimed at increasing boater awareness should recognize the risks associated with each group and site and use appropriate communication tools to improve transfer and transparency of program activities and goals.

Fig. 1. Free public boat access points on Clear Lake.

IDENTIFYING RISK FACTORS TO STRENGTHEN CURRENT STRATEGIES AIMED AT MINIMIZING THE INTRODUCTION OF QUAGGA AND ZEBRA MUSSELS TO LAKE COUNTY, CALIFORNIA.

Introduction

The recent finding of both quagga (*Dressenia bugensis*) and zebra (*D. polymorpha*) mussels in the western United States (and most importantly California) has created a sense of urgency among many interests groups to this threat of water resources. Both the public and private sectors have responded by trying to develop strategies that limit the spread of these very aggressive pest species. The threat to California business and environmental interests, measured both in terms of costs and adverse impacts, can not be overstated. The 2007 report entitled *California's Response to the Zebra/Quagga Mussel Invasion in the West* states:

> "Direct economic costs are on the order of $100 million a year in eastern North America; unquantified secondary and environmental costs could be substantially larger. Impacts in California and the West could be as great or greater than those in the East. California cities, industries and farms depend on the transport of huge quantities of water across very large distances through a complex and vulnerable system of canals, pipes, reservoirs and pumping stations. It is thus critical that aggressive, concerted efforts be undertaken immediately to *eradicate, contain and monitor* the zebra mussel infestation in the lower Colorado River system".

This report further argues that coordinated efforts between local, state and Federal programs, to ensure successful monitoring and prevention, are critical to preventing the mussel's spread.

Lastly, the Committee, through this report, is providing support and advice to assist the County in addressing AB 2065 (Hancock) which takes affect January 1, 2009. The newly passed legislation requires "all public reservoirs allowing recreation, boating and/or fishing to assess their vulnerability to mussel infestation and develop and implement a program to prevent their introduction".

Who and what is at risk?

Native to the Baltic region of Europe the mussels are thought to have been introduced into the Great Lakes via ballast water from trans-oceanic freighters. The resultant impacts to fisheries, water conveyance systems and recreation has been reported in the millions of dollars.

The mussel(s) threaten the water transport system that is vital to California's urban, residential and agricultural infrastructure. The additive co-concurrent threat to the recreational and ecological resources associated with California's waters suggests a worse case scenario for the State. Experience in the eastern United States has demonstrated that equipment important in the conveyance of water (*i.e.,* pumps, screens, pipes, *etc*.) can be negatively impacted by the mussels. Furthermore, the possibility of exorbitant numbers of mussels (a likely scenario in Clear Lake) in a small area can impact water clarity and quality and disrupt current ecological conditions.

Brief overview of quagga/zebra biology.

Both the quagga and zebra mussels are prolific breeders. Sexual reproduction occurs (male and female) with external fertilization. A fully mature female mussel is capable of producing up to one million eggs per season. After fertilization, free floating microscopic larvae, or veligers, develop within a few days. Free-swimming veligers drift with the currents for three to four weeks while trying to locate suitable substrate to settle and become secure. Depending on environmental conditions the time between fertilization to settlement can vary between 18 to 90 days. Young mussels can become reproductively active in their first year.

The mussels are filter feeders. Each adult mussel is capable of filtering one or more quarts of water each day, where they remove phytoplankton, zooplankton, algae, and even their own veligers. Any undesirable particulate matter is bound with mucus, known as pseudofeces, and ejected. This waste material is known to negatively impact water quality.

Overview of principle mechanisms of spread.

Since the larval stage of the both species are free floating forms they are easily transported in water. They can readily be taken up and spread by pumps; and transported in any vessel capable of holding water (*e.g.*, boats, bait boxes, bilges, live wells, ballast tanks, *etc.*). The adults have the ability to adhere to most solid objects and can be transported on boat hulls, trailers, motors, buoys, docks, barges, pontoons, *etc*. Both adults and veligers can readily be transported on or in containers holding live aquatic plants, fish or other sources of water coming from infested sites.

The opportunities for infestation are significant due to the large number of out-of-county boaters that enter the County. Clear Lake in particular is at a high risk of introduction of these exotic mussels due to (1) the Lake's reputation as a blue ribbon warm water fishery; (2) it multiple, free, access points for visiting boaters and (3) the Lake's water chemistry which is highly favorable to both mussel species. The potential from boaters arriving from infested waterways has been well documented since the County initiated its current program.

Locations of Concern for Lake County.

There currently exist three primary locations of concern located within the boundaries of Lake County where if established the mussels would significantly impact the waters of California.

1) **Clear Lake.** Because of its size and relative ease of access Clear Lake poses the biggest challenge to the County of Lake in their efforts to prevent the introduction of the mussels. The lake is open to boating year-round and accessible to trailered vessels in all seasons except in very rare and extreme periods of drought. The primary exit point of water leaving Clear Lake is through Cache Creek into the Sacramento River system. The Lake is known to have at least 523 privately owned lakeside parcels with boat ramps (this number does not include areas of Clear Lake Keys, Corinthian Bay, Lands End, Pier 1800 and Pier 1900 in Lakeport, Sunrise Shores and Cache Creek.) In addition to private access points

there also exists public boat ramps at Keeling Park in Nice, Lucerne Harbor in Lucerne, Clearlake Oaks Beach in Clearlake Oaks, Thompson Harbor (Redbud) in Clearlake, Clear Lake State Park in Kelseyville, Lakeside County Park in Kelseyville, Crystal Lake Way (Hamilton Park) in North Lakeport, and in the City of Lakeport First Street, Third Street, Fifth Street and Clear Lake Avenue.

2) **Lake Pillsbury.** Located in the Mendocino National Forest, Lake Pillsbury is a reservoir formed by Scott's Dam on the Middle Fork of the Eel River. Water is diverted downstream of Scott's dam through the Van Arsdale dam down Potter Valley and into the Russian River system. There are currently two public boat ramps on the lake. The boat ramps are managed by the Pacific Gas and Electric (PG&E) company. Both the Eel and Russian River systems are at risk if the mussels should become established in this lake.

3) **Indian Valley Reservoir.** This water body is found in the eastern portion of the County and drains through Cache Creek into the Sacramento River system. The Reservoir is located on lands managed by the USDI Bureau of Land Management but the lake is managed by the California Department of Fish and Game. There are currently two public boat ramps on the lake. The Sacramento River system is at risk if the mussels should be established in this reservoir.

Addressing risk associated with access points is key to program success.

1) Access Sites on Clear Lake. The large number of access points into Clear Lake demands that a systematic approach be considered as a means of assisting in the development of a strategy that makes any program reasonable, manageable and affordable. [Since Highland Springs and Adobe Spring reservoirs deposit water in Clear Lake they should be included in any considerations for protecting Clear Lake.]

2) Access to Lake Pillsbury and Indian Valley Reservoir. The management of these waterbodies require that the responsible land and facility management agencies be included in any County mussel planning and prevention efforts.

Understanding and Managing Risk-

Both Indian Valley and Lake Pillsbury posed little or no risk of infestation once their waters recede beyond access for trailered vessels late in the summer season. The primary seasons where infestation is a threat are the winter and spring seasons. The County has no direct responsibility on the management and access to these reservoirs, therefore it is critical the managers of these sites be included in any preventative plans adopted and implemented.

Clear Lake, being a natural lake, is a different matter. Because of year round access, the large size of the lake and the relative ease of access to the water, Clear Lake is at the highest risk of infestation of any of the at risk water bodies found within the county. The sheer number of access points warrants a discussion of risk factors associated with each type as a means to identify those potential access points that pose the highest risk of introduction and where limited resources can be targeted.

Clear Lake

1. **Public improved trailered vessel access.** Keeling Park in Nice, Lucerne Harbor in Lucerne, Clearlake Oaks Beach in Clearlake Oaks, Thompson Harbor (Redbud) in Clearlake, Clear Lake State Park in Kelseyville, Lakeside County Park in Kelseyville, Crystal Lake Way (Hamilton Park)* in North Lakeport, and in the City of Lakeport First Street*, Third Street, Fifth Street and Clear Lake Avenue*. These are the most heavily accessed points of entry into the Lake. Each facility (except for the Clear Lake State Park) provides free launch, with modern facilities and nearby parking. These sites are used most often by resident and non-resident anglers/boaters, whether as individuals or as part of an organized event. ***Without question, these sites pose the greatest risk for the introduction of mussels.*** (Table 1).

Table 1. Access Points and Risk Assessment of Each type on Clear Lake.

Public improved trailered vessel access.	**Public ramp access.**	**Private, improved trailer vessel access (resorts)**	**Private (homeowner) boat access**
Keeling Park in Nice; Lucerne Harbor in Lucerne; Clearlake Oaks Beach in Clearlake Oaks; Thompson Harbor (Redbud) in Clearlake; Clear Lake State Park in Kelseyville; Lakeside County Park in Kelseyville; Crystal Lake Way (Hamilton Park)* in North Lakeport; City of Lakeport First Street*; Third Street; Fifth Street; Clear Lake Avenue*.	Crystal Lake Way (Hamilton Park)* in North Lakeport, and in the City of Lakeport First Street*, and Clear Lake Avenue*	The total number of resort/business access points to the water is 66. Two launches in particular Konocti Spa & Resort and Konocti Vista Casino deserve special attention because between the two, they are host to the majority of the larger bass tournaments and other events and both allow public launch.	Though by far the most common type of access (457) these ramps/docks have very limited access to the general public.

2. ***Public ramp access.** The public access points at Crystal Lake Way (Hamilton Park)* in North Lakeport, and in the City of Lakeport First Street*, and Clear Lake Avenue* provide improved boat ramp access at the end of public streets. They are not monitored and lack the facilities to monitor their use. ***Except in those cases where a local business may be directly impacted, these points of access could be permanently***

barricaded and closed to trailered vessels to limit the points of public access to facilitate improved public access monitoring efforts.

3. **Private, improved trailer vessel access (resorts)** – The total number of resort/business access points to the water is 66 (this number includes Mobile home Parks, Homeowners Associations and Resorts). Access is limited to registered guests or guests who must pay a launch fee. These access points provide a readily available screening/inspection "choke point" for each vessel using their facility. Though a moderate risk exists from boats entering from out of the area, the facility owner/managers provide a controlled and monitored environment that can greatly reduce the chance of unchecked access. Two launches in particular Konocti Spa & Resort and Konocti Vista Casino deserve special attention because between the two, they are host to the majority of the larger bass tournaments and other events and both allow public launch. ***These facilities arguably pose a moderate risk of infestation and the owner/managers should be viewed as a key link in informing their guests of the requirements prior to boat launching.***
4. **Private (homeowner) boat access** – Though by far the most common type of access (approximately 457) these ramps/docks have very limited access to the general public. Typically, these points are accessed by residences that are already identified by County AP numbers that can receive mail and notices informing them about changes in policies or procedures regarding boat inspection programs. ***In most instances boats that are associated with these parcels are moored, trailed or stored on site and rarely leave the area posing little or no risk of introducing the mussels.***

Using Risk Factors to Direct Local, Regional and Statewide Outreach Programs.

Low vs. High Risk Audiences-

1) **Public improved trailered vessel access.** ***Without question, these sites pose the greatest risk for the introduction of mussels.***
2) **Public ramp access.** ***Except in those cases where a local business may be directly impacted, these points of access could be permanently barricaded and closed to trailered vessels to limit the points of public access to facilitate improved public access monitoring efforts***.
3) **Private, improved trailer vessel access (resorts).** ***These facilities arguably pose a moderate risk of infestation and the owner/managers should be viewed as a key link in informing their guests of the requirements prior to boat launching.***
4) **Private (homeowner) boat access.** ***In most instances boats that are associated with these parcels are moored, trailed or stored on site and rarely leave the area posing little or no risk of introducing the mussels.***

As discussed in the Introduction, the Interagency Science Report, states a collaborative effort will be needed to limit the spread of the mussels in a State as large and diverse as California. By identifying potential risks associated with each type of access point, Lake County can begin to effectively address the multifaceted approach needed to engage various user groups, agencies and members of the public in their attempt to minimize the likelihood of mussel introduction.

Who and what are the audiences to be identified?

- **Local efforts.** Recent efforts undertaken by Lake County's government and business interests have demonstrated strong vision and leadership. Their efforts have made it obvious that any successful effort to prevent the introduction of the mussels will require assistance from more than the good will of its local citizenry. Educational and outreach programs identifying local residents, though important, must be kept in context of the risk posed by local people. Local media has been very supportive in keeping the local populace informed of emerging policies and laws governing the use of the Lake. Though it is important to include local

residents, efforts to engage them should focus on low cost projects (*i.e*., using local media, using existing mechanisms of communications such as newsletters, *etc*.) to keep people informed and able to contact sources of information. Programs addressing local school children, service organizations *etc*., though important, are not delivering information to high risk constituents. As with any outreach effort care must be taken to keep the local citizenry engaged and informed on a regular basis in order to minimize a sense of complacency that the threat has been alleviated.

- **Regional vs. Statewide efforts.** Addressing non-resident individuals and groups pose both the greatest risk and greatest challenge for developing an effective outreach program. An effective outreach program must be aimed at increasing the awareness of non-residential users regarding the threat and engaging them to implement preventative measures. It is imperative that the County engage in collaborative efforts within existing programs and work to develop innovative new programs. The focus of these efforts requires outreach to the largest possible constituency of stakeholders to address outreach to potential non-residential visitors.

  Important considerations to insure the maximum amount of program acceptance and compliance should include:

  - Visible signage informing visitors of inspection programs and requirements;
  - Outreach to websites, out of area boating organizations, fishing organizations and associated media, to inform potential visitors prior to traveling into Lake County;
  - Contact information that provides timely sources of screening/inspection services on a 24/7/365 basis;
  - Contact information that provides timely information regarding the availability of screening/inspection stickers; and
  - Decontamination services for those boats requiring this service on a 24/7/365 basis.

- **User Group Risk Factors.** Just as certain types of access points pose varying levels of risk so do the various user groups. With an estimated 30-40,000 boats (≈100,000 user days) a year on Clear Lake, identifying high-risk user groups is imperative to preventative efforts.
    - **Organized Groups –** many groups that enjoy the benefits of Clear Lake are well organized. Tournament and Club anglers, Xtreme Sports enthusiasts, float-plane pilots, and other organized groups are easily identifiable and accessible through permitting processes, media outlets, internal news letters, web blogs, e-mail, *etc*. These groups need to be fully engaged in policy and procedure updates using communication tools commonly used by the group(s).
    - **Individuals –** by their very nature of not belonging to an organized group this vast and diverse group of Lake users pose the greatest risk and the greatest challenge when trying to engage them in screenings, re-inspections, and general outreach/educational efforts. This group is represented by those recreationalists who simply want to "enjoy" the Lake and may not be engaged in any discussions or interactions process that can transfer information among them.

- **Strategies to consider for various user groups-**
    - **Organized Groups –** most organized groups wishing to use the Lake are required to obtain a permit from an oversight organization. This obvious "choke point" provides an opportunity to get information in the hands of those individuals who can share it with their members. To date, the approach being used for the above mentioned groups seems to enjoy broad support as they have worked with the County to insure that their members/participants are aware of the threat posed by the mussel.
    - **Individuals –** this is the user group that is stretching the County beyond its organizational and financial capacities. It has proven nearly impossible for the County to re-inspect returning out-of-county boats once they have obtained an inspection sticker. It has become glaringly apparent, that in

the absence of an external system of assistance, the County's efforts at addressing this risk are inadequate.

- **Programs that appear to be working-**
  - The sticker program for local residents has proven successful. The only suggestion is to consider offering two stickers for each vessel to assist in ready identification of screened vessels.
  - The current system of the current border station inspections administered by the California Department of Food and Agriculture (CDFA) is a good example of the type of cooperative assistance that is needed to assist local efforts in indentifying and monitoring boats coming from outside the immediate area. Continued collaboration between County and State programs will be key to continued success.

- **Where Improvement is needed -**
  1) The out-of-county sticker program must be improved. Current challenges include:
     - Assuring re-inspection of returning visitors is nullified once a visitor is provided a permanent sticker;
     - many out-of-town boaters have repeatedly expressed their frustration in locating sources of sticker distribution centers upon arriving on a weekend; and
     - sticker distribution centers must keep a supply on-hand for timely distribution when a visitor needs one.
     - Owners, managers and users of minor water bodies need to be better incorporated into mussel prevention programs.

- **Suggestions for improvement -**
  1) As with other invasive species (medfly, gypsy moth, Hydrilla, pitch canker, sudden oak death and others) a statewide system of identifying zones of infestation has greatly assisted local efforts in their attempts

to focus their inspection programs. Establishing such zones would allow the development of a geographically appropriate vessel identification programs wherein registered boats and trailers in known areas of mussel occurrence can be identified at the source or within the zone vastly assisting local efforts identifying those vessels posing the greatest risk.

2) Limiting the days that an out-of-county sticker is valid will require returning visitors to obtain secondary screenings and a new sticker. This can be accomplished by:
   - designing a new temporary sticker/identification or;
   - simply using permanent ink and writing the date of issue and length of stay on the sticker a person would have to seek a re-inspection the next time the boat entered the county. The proposed system is similar to the system used by the State Park system for its visitors. Anyone found with an un-dated or out-of-date sticker would be out of compliance.

Needed programs outside of Lake County to support local efforts-

1. It is apparent to the Lake County Fish and Wildlife Advisory Committee that the magnitude of this threat is too complex, expansive and expensive for the State of California to expect counties to develop local programs while State efforts are limited to "providing guidance and technical assistance". However, this appears to be the approach currently advocated by the California Department of Fish and Game. Additionally, the current statewide strategy of expecting local jurisdictions to develop site-specific programs will lead to a highly disconnected, incoherent and disorganized system of individual programs. This uncoordinated approach will lead to criticism and cynicism by the public further degrading the good intentions of local groups and governments, and ultimately prove ineffective at spreading the invasion of these exotic species.

2. A statewide sticker (or other appropriate identification system) identifying vessels registered, located or moored in or near waters of known mussel populations is a first step in assisting local jurisdictions direct their limited resources. This can be implemented by using the "ZONE OF INFESTATION" approach discussed above. A permanent identification marker, widely known to interested groups/organizations would facilitate and focus inspection to high risk groups.

3. A State lead agency must be established. Though the Department of Fish and Game has proven to be accessible, supportive and cooperative, experience has demonstrated that their resources and capacity to address these highly invasive species are very limited. Nonetheless, State agencies are better equipped to address the multifaceted complexities of managing an effective prevention program (as they have demonstrated on other food or water issues) In light of the risk factors that have been identified in this report, the Committee suggests that the role of the Department of Fish and Game as "Lead Agency" be re-evaluated to ensure that the Department has the necessary capacity to address this threat at numerous locations throughout the State.

Need for Collaborative Efforts-

4. The County's Quagga Mussel Task Force is a positive start. However, this committee report identifies other state and Federal groups that need to become included its activities. Specifically, the US Forest Service and PG &E (Lake Pillsbury) and the DFG (Indian Valley Reservoir) should be included to ensure a comprehensive and coordinated approach to addressing all of the major boating waterbodies.

5. The County has made a sincere effort in communicating with all the various interest and business groups potentially impacted. These activities should continue and be strengthened where needed, particularly in the direction of high risk groups (non-resident users).

6. Interagency discussions need to expand beyond the County and DFG. A dialog should take place between the County, DFG, CDFA and the Department of Motor Vehicles (DMV) to explore the possibility of developing a recognizable identification program that assist local jurisdictions in focusing inspections on those vessels coming from areas of highest risk.

7. Similarly, regular discussions/updates between state, Federal and local jurisdictions involved in mussel quarantine programs should be included as part of the Quagga Task Force meetings.

8. Political efforts should be targeting improved and increased levels of State and Federal financial support to continue and expand local preventative efforts. The magnitude of the threat is too great for Lake County to address effectively.

Sources of Information

Cal Dept. of Fish and Game http://www.dfg.ca.gov/invasives/quaggamussel/
U.S. Geological Survey http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/
100th Meridian Initiative http://www.100thmeridian.org/zebras.asp
Southern Nevada Water Authority http://www.snwa.com/html/env_quagga_mussel.html

Quagga/Zebra Mussel Artificial Substrate Monitoring Protocol*
California Department of Fish and Wildlife

*This protocol was adapted from the California Department of Water Resources *Monitoring Instructions for Zebra/Quagga Mussel Plate Samplers,* April 2, 2008.

Description of Quagga and Zebra Mussels

The quagga mussel, *Dreissena rostriformis bugensis*, and the zebra mussel, *Dreissena polymorpha*, are small mussels found only in freshwater. They look very similar to each other. They commonly have alternating light and dark brown stripes, but can also be solid light brown or dark brown. They have 2 smooth shells that are shaped a little bit like the letter "D". These mussels are usually less than 2 inches in length. In new populations, most mussels are young and therefore very small (under ¼ -inch long).

Quagga Mussel
Dreissena bugensis

- Shell: D-shaped and triangular; thin, fragile; smooth or shallowly ridged; solid light to dark brown or dark concentric rings; paler near hinge
- Attaches to hard and soft surfaces

Zebra Mussel
Dreissena polymorpha

- Shell: D-shaped and triangular; thin, fragile; smooth or shallowly ridged; solid light to dark brown or striped
- Attaches to hard surfaces

Color variation in quagga and zebra mussels

Quagga and zebra mussels are freshwater mussels that can physically attach onto hard substrates. Like the mussels found clinging to the rocks along the California coastline, quagga and zebra mussels attach onto hard surfaces (e.g. pipes, screens, rock, logs, boats, etc.). They form colonies made up of many individuals attached onto an object and even onto each other. Small newly settled mussels feel like gritty sandpaper when attached to a smooth surface. Larger mussels will feel coarser (like a small pebble or sunflower seed) or be visually apparent.

Other Organisms Mistaken for Quagga/Zebra Mussels

Asian clam, Corbicula fluminea

People often mistake the very common Asian clam (also introduced) for quagga or zebra mussels. The Asian clam is widespread and abundant in California. It is brown and has ridges in concentric rings on its shells. The shells of older clams or of dead clams are white at the hinge (where the two shells join together). These clams do not attach onto surfaces. They live in mud or sand.


Asian clam

Snails and Freshwater Limpets

Small snails and freshwater limpets cling to hard substrates and can be mistaken for small juvenile mussels. They are similar in color and size to small quagga and zebra mussels. Snails have a spiral shape. Limpets have one shell and are flat. Quagga and zebra mussels attach on the edge of their shell and stick up and away from the surface.


Snail


Snails


Limpets

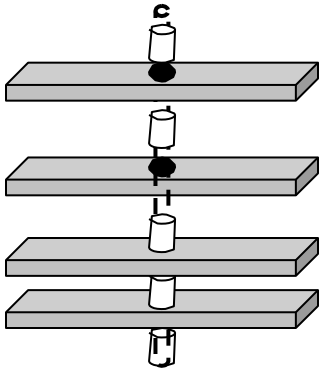
Artificial Substrate Construction and Assembly

To construct the artificial substrate you will need the following materials cut to size:

(4) 6” x 6” x 0.25” black/grey PVC with 1” hole through center
(5) 1.5” x 1.375” (35mm) exterior diameter PVC or ABS tube
(1) 8.5” x 0.8125” (21 mm) exterior diameter PVC or ABS tube

~25 ft plastic coated cable or rope
Some form of attachment to keep plates from floating up
Weight
Laminated label with your contact information

To assemble the substrate, run the cable or rope through the 8.5" tube and secure at one end. From the loose end of the rope string on the remaining pieces, alternating between the short segments of tube and the plates, beginning and ending with the short tubes (see figure). Secure the top tube to the rope to prevent the pieces from floating up. If necessary, attach a weight to the bottom of the assembly. Attach the label to the cable where the cable is secured to the structure.



California Department of Fish and Wildlife
Biological Research

PLEASE DO NOT DISTURB

For information about this study please contact:
Bob Smith, Environmental Scientist
(XXX) XXX-XXXX

Example of a label

Selection of Monitoring Site

Quagga and zebra mussels are transported between waterbodies by watercraft (e.g., boats, wave runners, etc.), water diversions, and the natural downstream flow of a river system. Monitoring sites are selected with these factors in mind. Prime sites are areas with high boat traffic and downstream of source water. If you are sampling at a waterbody that allows boating, select a site that has a lot of boat traffic. Examples are boat ramps, gas docks or dockside marina stores. Then find a location with low flow and protection from vandalism. Marinas often offer all of these features. Within a marina, find a location with restricted public access. Avoid placing the artificial substrate at unsupervised boat ramps because of tampering by the general public and entanglement with the dock cabling system when the water level changes or the ramp is moved. If these types of structures are not available, find a site downstream of the boat traffic that offers as much protection from vandalism as possible. Examples include water quality monitoring stations or towers and government agency boathouses. Always ask for permission before attaching artificial substrates to structures. Again, find a location that

offers protection from vandalism and has low flow.

Deployment and Inspection of the Artificial Substrate

Depending on water clarity and depth, the artificial substrate should be set below the euphotic zone (below the depth of light penetration) or 6 feet, whichever is deeper, and at least two few feet above the bottom. One to two substrates are deployed per site. If the site is shallower than 2 m, then raise the substrate about 0.5 m (2 ft) off of the bottom. Record the actual sampling depth. At sites that are deep and have little vertical mixing, a second substrate is installed at a depth of approximately 15 meters (50 feet) below the surface (or 1 meter off the bottom if the depth is less than 15 meters).

A visual and tactile examination of the artificial substrate is conducted every month for attached quagga and zebra mussels. When mussels first attach they are very small (invisible to the naked eye) and are very delicate (shells are thin and easily crushed). A single mussel may feel like a grain of sand. If many mussels cover a surface, the surface feels gritty like sandpaper. In approximately 1 to 2 months a mussel grows large enough (1/4 inch) to be seen upon close inspection, but the shell is still very delicate. At this size it feels like a small pebble or sunflower seed.

To check an artificial substrate, first carefully lift it out of the water and place it in a large plastic tub (the tub will capture any mussels that fall off). Avoid knocking the substrate as you pull it out of the water because you may dislodge or crush any attached mussels. First visually inspect each plate (top, bottom, and sides), the spacers, the cable and the weight. After looking closely, attempt to gently push any attached organism that might be a mussel. Freshwater limpets and snails easily move or slide across the plate. Quagga and zebra mussels stick in place or are more securely attached. In all cases, if in doubt, bag it.

If no mussels are detected, lower the substrate back into the water and check again in a month. Quagga and zebra mussels are more likely to attach to a substrate that has some algal growth, however if the substrate becomes too heavily coated it may be unsuitable for mussel settlement. As necessary, gently remove heavy accumulations of algae to maintain suitable conditions for settlement.

Specimen Collection

If you suspect you have found a mussel immediately contact the appropriate CDFW regional mussel contact. To aid identification, first take a close-up digital photograph of each specimen. Next, collect the specimen(s) and place in a vial with 70% ethanol. Label the vial with location, date, and name of collector. If ethanol is not available, place the sample in a rigid container (to prevent crushing) without water, label, and refrigerate. E-mail the photos to the CDFW contact and they will attempt to

identify the specimens from the photographs, but may request the actual specimen(s) to make a positive identification.

If the entire artificial substrate needs to be retained for laboratory processing, place the entire unit in a large Ziplock bag or small garbage bag and keep it in a cooler with ice while in the field. Store the substrate in the freezer until ready to mail. Mail it “overnight delivery” on ice.

Replacement of Artificial Substrate

Replace a missing or broken artificial substrate with a new one. If the substrate is repeatedly lost or damaged look for a new deployment site that offers more protection. Report any incidents and the action(s) taken.

To prevent any possibility of contamination between monitoring sites (should mussels be present and not yet detected), never take a substrate from one site and place it at a different site (even within a single waterbody).

Data Recording and Reporting

Every time an artificial substrate is checked the data must be recorded on a datasheet before leaving the field. Absence data is as important to document as presence, so complete and submit a datasheet even if no mussels were found. Send datasheets to the appropriate CDFW regional contact. All data will be entered into a data reporting system and the datasheets will be retained on-site.

CDFW Regional Scientist Contacts

For the current list of CDFW’s Regional Quagga/Zebra Mussel Scientists and their contact information, please visit CDFW’s quagga/zebra mussel webpage at www.wildlife.ca.gov/mussels, or download the contact list here: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4955.

Artificial Substrate Datasheet

California Department of Fish and Wildlife

(One datasheet for each artificial substrate)

Collection Information		
Date:		
Waterbody:		
Substrate location (GPS or site description):		
Substrate depth (meters):		
Collector(s):	Affiliation:	
Contact information (email or phone # if not CDFW):		
Substrate		
Substrate (circle one): Present Missing		
Condition (circle one): Intact Damaged		
Comments:		
Mussels		
Mussels (circle one): Present Absent	Species (circle one): Quagga Zebra Unknown	
Where (circle all that apply): Plate surface Plate edge Spacers Rope (depth _____) Other (_____)	Total # of mussels on each part of substrate _____ _____ _____ _____ _____	
Plate dimensions (units): ____ x ____(__)	Plate area (multiply plate dimensions):	
Plates:	Number of mussels	Density (# of mussels ÷ area)
Side 1 (top side of top plate)		
Side 2 (bottom side of top plate)		
Side 3 (top side of second plate)		
Side 4 (bottom side of second plate)		
Side 5 (top side of third plate)		
Side 6 (bottom side of third plate)		
Side 7 (top side of bottom plate)		
Side 8 (bottom side of bottom plate)		
Additional Information		
Other organisms present:		
Comments:		

Return completed datasheets to the appropriate California Department of Fish and Wildlife Regional office.

Quagga/Zebra Mussel Surface Survey Protocol*
California Department of Fish and Wildlife

*This protocol was adapted from the California Department of Water Resources *Zebra/Quagga Mussel Surface Survey Protocol*.

Description of Quagga and Zebra Mussels

The quagga mussel, *Dreissena rostriformis bugensis*, and the zebra mussel, *Dreissena polymorpha*, are small mussels found only in freshwater. They look very similar to each other. They commonly have alternating light and dark brown stripes, but can also be solid light brown or dark brown. They have 2 smooth shells that are shaped a little bit like the letter "D". These mussels are usually less than 2 inches in length. In new populations, most mussels are young and therefore very small (under ¼ inch long).

Quagga Mussel *Dreissena bugensis*	**Zebra Mussel** *Dreissena polymorpha*
	
• Shell: D-shaped and triangular; thin, fragile; smooth or shallowly ridged; solid light to dark brown or dark concentric rings; paler near hinge • Attaches to hard and soft surfaces	• Shell: D-shaped and triangular; thin, fragile; smooth or shallowly ridged; solid light to dark brown or striped • Attaches to hard surfaces

Color variation in quagga and zebra mussels

Quagga and zebra mussels are freshwater mussels that can physically attach onto hard substrates. Like the mussels found clinging to the rocks along the California coastline, quagga and zebra mussels attach onto hard surfaces (e.g. pipes, screens, rock, logs, boats, etc.). They form colonies made up of many individuals attached onto an object and even onto each other. Small newly settled mussels feel like gritty sandpaper when attached to a smooth surface. Larger mussels will feel coarser (like a small pebble or sunflower seed) or be visually apparent.

Other Organisms Mistaken for Quagga/Zebra Mussels

Asian clam, Corbicula fluminea

People often mistake the very common Asian clam (also introduced) for quagga or zebra mussels. The Asian clam is widespread and abundant in California. It is brown and has ridges in concentric rings on its shells. The shells of older clams or of dead clams are white at the hinge (where the two shells join together). These clams do not attach onto surfaces. They live in mud or sand.


Asian clam

Snails and Freshwater Limpets

Small snails and freshwater limpets cling to hard substrates and can be mistaken for small juvenile mussels. They are similar in color and size to small quagga and zebra mussels. Snails have a spiral shape. Limpets have one shell and are flat. Quagga and zebra mussels attach on the edge of their shell and stick up and away from the surface.


Snail


Snails


Limpets

Visual and Tactile Search for Quagga and Zebra Mussels

Gently run fingers over smooth surfaces, checking for gritty feeling or small “seed-like” or “pebble-like” objects. Areas likely to harbor mussels, if they are present, include:

- Dock flotation, buoys, mooring line, cables, rocks, concrete, logs/drift wood, vegetation, and anything that has been in the water for a long time.

- Pull up and inspect any substrate that is under water.
- Trap lines and any line or cable hanging in water.

Visually inspect all hard and soft substrates. Fan areas covered with silt to expose mussels.

Inspect dark areas (dark substrates and low light/shaded areas). Do not disturb private vessels or property.

Prime Areas to Search

Quagga and zebra mussels prefer dark substrates and low light/dark areas. They prefer concrete over other substrates. Search areas at or near boat ramps, gas dock, dock near marina store, other docks in high traffic areas, all concrete structures, and low flow areas.

Minimum Sample Size

The minimum number of linear feet to be searched per substrate is defined below. You can stop before meeting the minimum linear feet if quagga/zebra mussels are found in 3 or more locations within the survey location, or if all available substrate has been searched.

- Boat ramp bottom – 100ft if the ramp is at a marina, 200ft if the ramp is the only structure at the survey location.
- Shoreline - 100ft if at a marina, 200ft if at a survey location with only a boat ramp
- Dock - 200ft
- Mooring/dock lines (portion hanging in water) - 200ft
- Anchor/dock cable or chain (portion under water) - 100ft
- Concrete structures - 100ft
- Logs and woody debris – 100ft
- All accessible buoys

Make a notation in “Comments” section if minimum sample size requirements could not be met.

If Mussels are Found

Record the lat/long (in decimal degrees and use WSG 84) of the mussels’ location(s) and mark/describe location(s) on the back of the datasheet. Record the type of substrate(s) the mussel(s) was found on (for example, concrete, plastic, rope, chain, buoy, etc).

Make counts of mussels at up to 3 locations within the survey site. If more locations are found, make a note in the “Comments” section.

At each of the 3 mussel locations, take density estimates using one or both methods:

- Petri dish: place Petri dish over surface. Count all mussels within circle.
- Ruler: place ruler adjacent to mussels. Count all mussels within one inch of ruler.
- If you cannot see the mussels, count the mussels using touch. If entire ruler cannot be placed on surface, record the length of the ruler used.
- Collect 5 density estimates per mussel location.

Collect specimens (4-5). Place in Ziploc bag with label. Label should include location, lat/long, date, and name of collector. Seal and keep dry or put in freezer. Do not put water in the bag.

If other species of clams or mussels are found, collect specimens (1-2) and place in bag with collection label. Seal and keep dry or put in freezer. Do not put water in the bag.

Data Recording and Reporting

Datasheets are available at:
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4949

If mussels are found, immediately contact the appropriate CDFW regional mussel contact.

Every time a survey is made the data must be recorded on a datasheet before leaving the field. Absence information is as important to document as presence, so complete and submit a datasheet even if no mussels were found. Send datasheets to the appropriate CDFW regional contact. All data will be entered into a data reporting system and the datasheets will be retained on-site.

CDFW Regional Scientist Contacts

For the current list of CDFW's Regional Quagga/Zebra Mussel Scientists and their contact information, please visit CDFW's quagga/zebra mussel webpage at www.wildlife.ca.gov/mussels, or download the contact list here: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4955.

Quagga/Zebra Mussel Surface Survey Data Sheet

(Use Pencil Only)

Waterbody ______________________ **Date** __ __ / __ __ / __ __

Location ______________________ **Crew** [ ]

GPS ______________________ **(Decimal Degrees, WSG 84)**

Secchi Depth [| |] **Wave Chop** [ ]

 # Linear Meters of:

Boat Ramp Bottom (30 m at marina, 60 m at ramp only) [| |]

Shoreline (30 m at marina, 60 m at ramp only) [| |]

Dock (60 m) [| |]

Concrete Structures (30 m) [| |]

Mooring Line (60 m) [| |]

Logs/Woody Debris (30 m) [| |]

Anchor/Dock Cable (30 m) [| |]

Other ____________ [| |]

% of Dock/Marina/Boat Ramp Searched [ ]

Quagga/Zebra Mussels Present? Y / N **Specimens Collected?** Y / N

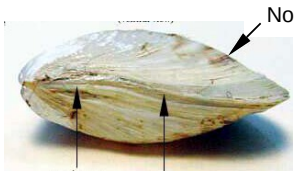
	Exact GPS Location (if isolated occurrences):	Mussel Density (# of mussels):					Method (circle one):
1							Ruler / Petri
	Ruler Length (if < 0.5 m)	______	______	______	______	______	
	Substrate Type						
2							Ruler / Petri
	Ruler Length (if < 0.5 m)	______	______	______	______	______	
	Substrate Type						
3							Ruler / Petri
	Ruler Length (if < 0.5 m)	______	______	______	______	______	
	Substrate Type						

Corbicula Clams Present? Y / N **Snails Present?** Y / N

Other Mussel/Clam Species Present? Y / N **Specimens Collected?** Y / N

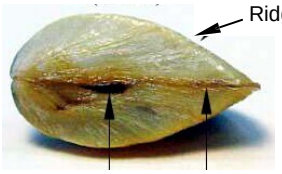
Quagga Mussel
Dreissena rostriformis bugensis

• Shell: D-shaped and triangular; thin, fragile; smooth or shallowly ridged; solid light to dark brown or dark concentric rings; paler near hinge
• Attaches to hard and soft surfaces



Zebra Mussel
Dreissena polymorpha

• Shell: D-shaped and triangular; thin, fragile; smooth or shallowly ridged; solid light to dark brown or striped
• Attaches to hard surfaces



Asian Clam
Corbicula fluminea

• Shell: fan-shaped and symmetrical; thick, hard; deep ridges; solid light to dark brown; may have a white patch near hinge
• Burrows into sand or mud; never attaches to structures
• Dead shells often found along shoreline

Map of sampling location:

Place empty circles (◯) in areas that were surveyed but no mussels were found. Place circles with plus sign (⊕) where mussels were found, and number 1, 2, or 3 to correspond to GPS coordinates.

Did weather conditions negatively affect sampling conditions? Y / N

Comments _____

_____

_____

California Department of Fish and Wildlife

Quagga/Zebra Mussel Plankton Tow Sampling Protocol

Purpose of Sampling:

Plankton tow sampling is a form of early-detection monitoring for quagga and/or zebra mussel veligers, the planktonic, larval life stage, whereby small organisms (plankton) are collected by pulling a fine-mesh net through the water column (referred to as a "tow"). The plankton collected is then analyzed in a laboratory for the presence of veligers using cross-polarized light microscopy (CPLM) and/or DNA using polymerase chain reaction (PCR) analysis. To optimize the potential for detecting veligers, if present, plankton tows should follow a standardized sampling method, sample a large volume of water, and target the months (water temperatures) and locations where veligers are most likely to occur. Of equal importance, samples must be preserved and handled properly in order to maintain their integrity so analysis yields accurate results.

To enhance early-detection, monitoring for adult mussels should be conducted along with plankton tow sampling. Monitoring for adult mussels can be conducted through monthly inspections of artificial substrate samplers and by surveying surfaces of shoreline, multiple habitat types, and structures located in high use areas. Separate protocols for these methods are available at www.wildlife.ca.gov/mussels.

When and Where to Sample:

Water Temperature

Plankton monitoring is typically conducted when water temperatures are between 9°C - 18°C (48°F - 64°F), when spawning is occurring. In warmer regions, where water temperatures remain within this range throughout the year, mussels can spawn year round. It is recommended tows be conducted monthly when temperatures are conducive to spawning.

Locations

Veliger distribution can be highly localized; therefore sampling should occur at multiple sites throughout the waterbody to increase the potential for detection. Sampling sites should include areas of high use and likely sites of mussel introductions, such as around docks, boat launch ramps, floating restrooms, marinas, at inlets and outlets of the waterbody (mouths of tributaries; dams), and in downwind areas and eddies (which can be identified by accumulation of leaves, pollen, and debris on the surface of the water).

Depth

To increase the probability of capturing veligers if they are present, tows from depths of 15 meters are recommended.

Number of Sites and Number of Tows

The number of sites within a waterbody should be based on the size of the waterbody, but a minimum of three sites is recommended. A **minimum** total volume of 1000 liters of water should be filtered through the net per site. Therefore, the number of tows needed at each site should be determined by the diameter of the net used and the depth of each tow. Based on the diameter of the net, corresponding plankton net area (m^2) (Table 1, Appendix B), and the depth of each tow, the number of tows needed per site to filter 1000 liters can be calculated using the equation provided in Appendix B.

Summary of Sampling Recommendations

Parameter	Recommendation
Water temperature	9°C - 18°C (48°F - 64°F)
Locations	Around floating structures, marinas, inlets and outlets, coves, down-wind areas and eddies
Depth	0 – 15 m (0 – 50')
Number of sampling sites per waterbody	Variable; based on size of waterbody, minimum of 3
Number of tows per sampling site	Variable; based on depth and net size
Total volume sampled	Minimum 1000 liters (264 gallons) per site

Disclaimer: recommendations of equipment and supplies by brand or vendor are made only for the convenience of the user. Recommendations are not an endorsement and equipment or supply items of other brands that are offered by vendors may work just as well.

Equipment and Supplies:

- Plankton tow net – 63 or 64 micron mesh size
  - 8 inch diameter (WildCo part number 426-A28 recommended)
  - 12 inch diameter (Aquatic Research Instruments simple plankton net recommended)
- Tow rope – 100 foot minimum with 1 or 5 meter graduation marks
- Ballast weight – optional, use if needed
- Collection/sample bottles – plastic wide mouth 250 or 500 mL capacity
- Sample labels – Environmental Sampling Supply 2 X 3 inches, part no. 0203-5000 recommended (labels are sometimes provided with a bottle order)
- Ink pen/pencil
- Plankton Sample Datasheets; Appendix D (for internal data collection/management)
- CDFW Shellfish Health Lab sample submission/chain of custody (COC) form; Appendix E (for samples being submitted CDFW's Shellfish Health Lab)
- Notebook/ notepad
- Sharpie-type marker
- Hand calculator
- Spool for tow rope
- Carabineer
- Eighteen (18) gallon Rubbermaid tote with lid – 23.9 X 15.9 X 16.5 inch
- White vinegar (approximately 5% acetic acid)
- Household bleach (approximately 6% hypochloride)
- Spray bottle 32 oz. (grey Spraymaster type recommended)
- Measuring cup with graduations for milliliters or ounces
- Zip lock bags – 1 gallon
- Ruler with 1 mm graduations
- Non-denatured ethanol (200 proof)
- Baking soda, 4% solution in distilled water (W/V)
- pH paper (Whatman type CF pH range 4.5 – 10 recommended)
- Blue ice or gel packs
- Cooler – large enough to retain all samples
- Boat

Optional Equipment and Supplies:

- Bucket, 1-5 gallons
- Tools and tool box
- Camera
- Depth finder
- Multi-parameter water quality meter
- GPS unit
- Write-in-the-rain paper
- Clip board
- Cell phone
- Personal floatation devices
- First aid kit
- Fire extinguisher
- Batteries, all size

Equipment Preparation Prior to Collection

1. Decontaminate nets and related equipment before use. The decontamination protocol is provided in Appendix A.
2. If necessary affix a ballast weight to the net assembly.
3. Options for marking the tow rope:
    A. Measure the tow rope in 1 or 5 meter intervals
    B. Using a Sharpie type marker or labeling tape mark the rope at 1 or 5 meter intervals (markers can bleed or run during the decontamination process).
    C. Or, electrical shrink wrap can be used to mark the rope at 1 or 5 meter intervals.
        a. To do this obtain electrical shrink wrap slightly larger than the rope's diameter
        b. Cut the shrink wrap in inch segments
        c. Measure and mark the rope with a pen at 1 or 5 meter intervals
        d. Slide the appropriate number of shrink wrap segments on the rope
        e. Place one over each marked meter
        f. Heat the shrink wrap with a blow torch or hair dryer (the heat will shrink the wrap in place)
4. It is highly recommended that the tow rope be loaded onto a spool.
5. Blue ice / gel packs need to be frozen.
6. A refrigerator must be available for storage after collection.
7. Prepare 4% baking soda solution per Appendix B.

Vertical Tow Protocol

Note: A minimum of 1000 liters should be filtered from a given site. See Appendix B for example calculations.

1. If using a net with a valve, make sure the valve is closed; lower the net off the side of the boat perpendicular to the surface of the water.
   - Lower the net 15 meters or 1 meter above the bottom, whichever is deeper.
2. Count the graduation marks and record the depth of the net. Depth distance information is needed to determine the volume of water sampled.
3. **Do not allow the net to contact the bottom of the water body.** Touching the bottom will clog the net. If this happens, draw the net back up to the surface and thoroughly wash all of the material off. Do not dispense any of the bottom material into the sample bottle.
4. Pull the net up at a rate of about ½ meter per second. Pulling at a faster rate will create a wave in front of the net that will reduce filtering efficiency and may also damage veligers.
5. As the net is drawn towards the surface, maintain vertical alignment so that the center axis of the net is perpendicular to the surface of the water.
6. After the net is drawn above the water line slowly dip the net in and out of the water several times while maintaining vertical alignment to wash any material clinging to the inner surface of the net into the cod end. Do not submerge the bridle ring while dipping the net.
7. Depending on how the cod end is configured, dispense or decant the tow material into the sample bottle.
   Repeat steps 1-7 until a minimum of 1000 liters of water has been filtered through the net.
8. Label the bottle with the waterbody, site name, date/time and name of collector, preservation type, analysis type, and agency.
9. Complete the Plankton Sample Datasheet in Appendix D for internal collection/maintenance of field data.
10. Complete the Lab Submission Form located at the end of Appendix E for all samples being submitting to CDFW's Shellfish Health Lab. This form is not required for samples submitted to external labs.
11. Place the bottle in a cooler with gel packs or blue ice.
12. Continue to the next site.

Samples must remain chilled to prevent degradation. Samples should be preserved in the parking lot per the preservation protocol found in Appendix C.

Horizontal Tows

Vertical tows are preferred over horizontal tows. However, horizontal tows may be required when sampling shallow water.

1. If the water is stagnant or the flow rate is slow, the net can be pulled in a horizontal direction with the net below the surface. A ballast weight may have to be attached to keep the net submerged.
2. The total length of the tow can be determined using the graduation marks on the tow rope.
3. See Appendix B for example calculations.
4. Complete the Plankton Sample Datasheet in Appendix D for internal collection/maintenance of field data.
5. Complete the Lab Submission Form located at the end of Appendix E for all samples being submitting to CDFW's Shellfish Health Lab. This form is not required for samples submitted to external labs.

Sample Identification

1. Samples need to be marked for identification when received at the Shellfish Health Lab. Adhesive labels should be used and information should be recorded with permanent ink. Ethanol used for preservation will cause ink to run; therefore, ethanol must be kept off any labels or identification markings. It is recommended that bottles be marked with a waterbody and site name (use of abbreviations is ok), preserved, and then have the label, with more detail, placed on each bottle.
2. **Include a lab sample submission/chain of custody (COC) form with all shipments and deliveries.**
   A copy of the CDFW Shellfish Health Lab submission form is included in this document at the end of Appendix E. Important information to include is: date of collection, the collector's name, waterbody name, description of locations, GPS data or waypoint, total tow depth, water depth, net hoop diameter, time and means of preservation, and both storage condition and storage location prior to shipment.

CDFW Regional Scientist Contacts

For the current list of CDFW's Regional Quagga/Zebra Mussel Scientists and their contact information, please visit CDFW's quagga/zebra mussel webpage at www.wildlife.ca.gov/mussels, or download the contact list here: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=4955.

Appendices

A. **Decontamination protocol for equipment used to collect plankton samples for quagga and zebra mussel larvae detection analysis**

B. **Reagent preparation and plankton tow calculations**

C. **Plankton tow preservation protocol for the detection of quagga and zebra mussel veliger larvae**

D. **Plankton sample datasheet**

E. **Sample submission guidelines and sample submission form**

Appendix A

Decontamination protocol for equipment used to collect plankton tow samples for quagga and zebra mussel larvae detection analysis

After the tow samples have been collected from a water body all equipment coming into contact with the water must be decontaminated prior to use elsewhere. For thorough decontamination, equipment will have to be soaked in an acetic acid solution (vinegar) and then sprayed with a 10% bleach solution. The vinegar dissolves the veliger's shell but will not denature DNA. The bleach will denature DNA but will not dissolve shells. Therefore, the vinegar must be used before the bleach so DNA will be exposed to the denaturing bleach. Vinegar and bleach can present safety hazards if not used properly. Material Safety Data Sheets (MSDS) are included at the end of this appendix for both vinegar and bleach. Heed all MSDS precautions and follow all MSDS procedures, practices, safeguards and requirements when using vinegar and bleach.

Protocol:

1. Place items to be decontaminated in the 18 gallon Rubbermaid tote.
2. Fill the tote with enough household vinegar to completely cover all of the items.
3. Soak the items in vinegar for a minimum of 2 hours (24 hours is preferred).
4. After soaking in vinegar thoroughly rinse the items in tap water.
5. Spray the items with a 10% bleach solution and allow the items to sit for 15 minutes.
6. Alternatively, a 10% bleach solution can be prepared in a Rubbermaid tote or a similar type of container and used to soak items for 15 minutes following the vinegar soak.
7. After the bleach treatment, thoroughly rinse all of the items off with tap water and allow them to air dry.

The vinegar can be reused multiple times. It's recommended that vinegar be poured back into the original container for storage. The vinegar should be periodically checked with pH test strips to make sure the pH level remains at approximately 2 to 3.

The Clorox Company
1221 Broadway
Oakland, CA 94612
Tel. (510) 271-7000

Material Safety Data Sheet

I Product:
CLOROX REGULAR-BLEACH

Description:
CLEAR, LIGHT YELLOW LIQUID WITH A CHARACTERISTIC CHLORINE ODOR

Other Designations	Distributor	Emergency Telephone Nos.
Clorox Bleach EPA Reg. No. 5813-50	Clorox Sales Company 1221 Broadway Oakland, CA 94612	For Medical Emergencies call: (800) 446-1014 For Transportation Emergencies Chemtrec (800) 424-9300

II Health Hazard Data

DANGER: CORROSIVE. May cause severe irritation or damage to eyes and skin. Vapor or mist may irritate. Harmful if swallowed. Keep out of reach of children.

Some clinical reports suggest a low potential for sensitization upon exaggerated exposure to sodium hypochlorite if skin damage (e.g., irritation) occurs during exposure. Under normal consumer use conditions the likelihood of any adverse health effects are low.

Medical conditions that may be aggravated by exposure to high concentrations of vapor or mist: heart conditions or chronic respiratory problems such as asthma, emphysema, chronic bronchitis or obstructive lung disease.

FIRST AID:

Eye Contact: Hold eye open and rinse with water for 15-20 minutes. Remove contact lenses, after first 5 minutes. Continue rinsing eye. Call a physician.

Skin Contact: Wash skin with water for 15-20 minutes. If irritation develops, call a physician.

Ingestion: Do not induce vomiting. Drink a glassful of water. If irritation develops, call a physician. Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If breathing is affected, call a physician.

III Hazardous Ingredients

Ingredient	Concentration	Exposure Limit
Sodium hypochlorite CAS# 7681-52-9	5 - 10%	Not established
Sodium hydroxide CAS# 1310-73-2	<1%	2 mg/m^3 [1] 2 mg/m^3 [2]

[1]ACGIH Threshold Limit Value (TLV) - Ceiling

[2]OHSA Permissible Exposure Limit (PEL) – Time Weighted Average (TWA)

None of the ingredients in this product are on the IARC, NTP or OSHA carcinogen lists.

IV Special Protection and Precautions

No special protection or precautions have been identified for using this product under directed consumer use conditions. The following recommendations are given for production facilities and for other conditions and situations where there is increased potential for accidental, large-scale or prolonged exposure.

Hygienic Practices: Avoid contact with eyes, skin and clothing. Wash hands after direct contact. Do not wear product-contaminated clothing for prolonged periods.

Engineering Controls: Use general ventilation to minimize exposure to vapor or mist.

Personal Protective Equipment: Wear safety goggles. Use rubber or nitrile gloves if in contact liquid, especially for prolonged periods.

KEEP OUT OF REACH OF CHILDREN

V Transportation and Regulatory Data

DOT/IMDG/IATA - Not restricted.

EPA - SARA TITLE III/CERCLA: Bottled product is not reportable under Sections 311/312 and contains no chemicals reportable under Section 313. This product does contain chemicals (sodium hydroxide <0.2% and sodium hypochlorite <7.35%) that are regulated under Section 304/CERCLA.

TSCA/DSL STATUS: All components of this product are on the U.S. TSCA Inventory and Canadian DSL.

VI Spill Procedures/Waste Disposal

Spill Procedures: Control spill. Containerize liquid and use absorbents on residual liquid; dispose appropriately. Wash area and let dry. For spills of multiple products, responders should evaluate the MSDS's of the products for incompatibility with sodium hypochlorite. Breathing protection should be worn in enclosed, and/or poorly ventilated areas until hazard assessment is complete.

Waste Disposal: Dispose of in accordance with all applicable federal, state, and local regulations.

VII Reactivity Data

Stable under normal use and storage conditions. Strong oxidizing agent. Reacts with other household chemicals such as toilet bowl cleaners, rust removers, vinegar, acids or ammonia containing products to produce hazardous gases, such as chlorine and other chlorinated species. Prolonged contact with metal may cause pitting or discoloration.

VIII Fire and Explosion Data

Flash Point: None

Special Firefighting Procedures: None

Unusual Fire/Explosion Hazards: None. Not flammable or explosive. Product does not ignite when exposed to open flame.

IX Physical Data

Boiling point..... approx. 212°F/100°C
Specific Gravity (H_2O=1) ..... ~ 1.1 at 70°F
Solubility in Water ..... complete
pH ..... ~11.9

DATA SUPPLIED IS FOR USE ONLY IN CONNECTION WITH OCCUPATIONAL SAFETY AND HEALTH DATE PREPARED 08/09

Fisher Science Education

Fisher Science Education
6771 Silver Crest Road, Nazareth, PA 18064 (800) 955-1177
Emergency Number: (800) 255-3924

Material Safety Data Sheet

Section 1 – Chemical Product and Company Identification

Catalog Numbers: S25623
Product Identity: Distilled White vinegar 5%

Chemical Family: Not Applicable
Synonyms: No Information Available
Recommended Use: Laboratory chemicals

Manufacturer's Name: AquaPhoenix Scientific, Inc., 9 Barnhart Dr., Hanover, PA 17331, (866) 632-1291
Emergency Contact Number (24hr): Chemtel (800) 255-3924

Issue Date: 01/03/07
Revision Date: 02/19/12, 08/03/12

Section 2 – Hazard Identification

Emergency Overview: If ingested give large quantities of water. Get medical attention. Wash areas of contact for at least 15 minutes.
Appearance: Clear, colorless liquid **Odor:** Vinegar-like
Target Organs: Eyes, skin, respiratory system, teeth.
Potential Health Effects/ Routes of Exposure:
Eyes: Causes irritation, redness, pain, tearing.
Skin: Causes irritation, redness and pain.
Ingestion: May cause irritation of the digestive tract.
Inhalation: Not likely to be a hazard by inhalation.
Chronic Effect / Carcinogenicity: None (IARC, NTP, OSHA)
Aggravated Medical Conditions No information Available.
These chemicals are considered hazardous by OSHA.
See section 11 for toxicological information. See section 12 for potential environmental effects.

Section 3 – Composition, Information on Ingredients

Acetic Acid, CAS# 64-19-7, 5% v/v
Water, purified, CAS# 7732-18-5, 95% w/v

Section 4 – First Aid

Eyes: Immediately flush eyes with water for at least 15 minutes. Get medical assistance immediately.
Skin: Flush with water for 15 minutes. Get medical assistance if irritation develops.
Ingestion: DO NOT induce vomiting. Dilute with water or milk. Get medical assistance.
Inhalation: Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.
Notes to Physician Treat symptomatically.

Section 5 – Fire Fighting Measures

Flash Point: No information Available **Autoignition Temperature:** No information Available
Explosion Limits Upper No Information Available **Lower** No Information Available

Extinguishing Media: Any means suitable for extinguishing surrounding fire.
Unsuitable Extinguishing Media: No information available
Fire & Explosion Hazards: Not considered to be a fire or explosion hazard
Fire Fighting Instructions / Equipment: Use normal procedures. Use protective clothing. Use NIOSH-approved breathing equipment.
Hazardous Combustion Products: No information Available.
Sensitivity to mechanical impact No information available.
Sensitivity to static discharge No information available.
Specific Hazards Arising from the Chemical: No information available
NFPA Rating: (estimated) Health: 2; Flammable: 0; Reactivity: 0

Section 6 – Accidental Release Measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Remove from all sources of ignition.
Environmental Precautions Should not be released into environment.
Methods for Containment and Clean Up Soak with inert material. Keep in suitable and closed containers for disposal. Always obey local regulations.

Section 7 – Handling and Storage

Handling: Wash hands after handling. Avoid contact with skin and eyes. Wear personal protective equipment.
Storage: Keep container tightly closed. Store in a cool, dry, well-ventilated area. Protect from freezing.

Section 8 – Exposure Controls, Personal Protection

Acetic Acid, CAS# 64-19-7, ACGIH TLV: 25mg/m3, OSHA PEL: 25mg/m3
Water, purified, CAS# 7732-18-5, ACGIH TLV: NA, OSHA PEL: NA
Engineering Measures/ General Hygiene: Normal ventilation is adequate
Personal Protection Equipment: **Skin Protection:** Chemical resistant gloves.
Eye/Face Protection: Safety Glasses or goggles. **Respiratory Protection:** Normal ventilation is adequate

Section 9 – Physical and Chemical Properties

Appearance/Physical State: Clear, colorless liquid
Odor: Vinegar-like
Boiling Point: 117-118C
Melting Point: 16.6C
Vapor Density: 2.07
Evaporation Rate: No information Available
pH: Acidic
Flammability: No Information Available
Solubility: Infinite
Relative Density: No Information Available
% Volatility: No Information Available
Specific Gravity: No Information Available
Vapor Pressure: No Information Available
Flash Point: No information Available
Coefficient of water/oil distribution: Not Available
Odor Threshold: Not Available
Decomposition Temperature: No Information Available
Partition Coefficient n-octanol/water: Not Available
Molecular Weight: 60.05

Section 10 – Stability and Reactivity

Chemical Stability: Stable under normal conditions of use and storage.
Incompatible Materials: Strong bases
Conditions to Avoid: No information Available
Hazardous Decomposition Products: irritating fumes
Hazardous Polymerization: Does not occur
Hazardous Reactions: None under normal processing.

Section 11 – Toxicological Information

Routes of Exposure/Symptoms/Corrosiveness – See Section 2
LD50 orl-rat: 3310 mg/kg (Acetic Acid)
LC50 inhalation-rat: 5620 ppm/ 1hr. (Acetic Acid)
Irritation: No information Available

Toxicologically Synergistic: No Information Available
Chronic Exposure
Carcinogenicity No known carcinogenic chemicals.
Sensitization No information available.
Mutagenic Effects not mutagenic in AMES test.
Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals for acetic acid.
Developmental Effects (Immediate/Delayed) No information available.
Teratogenicity No information available.
Other Adverse Effects No information available.
Endocrine Disruptor Information No information available.

Section 12 – Ecological Information

Ecotoxicity: Acetic Acid has high biochemical oxygen demand, and a potential to cause oxygen depletion in aquatic systems.
Persistence and Degradability: Expected to be biodegradable **Mobility:** No Information Available
Bioaccumulation/ Accumulation: No Information Available

Section 13 – Disposal Considerations

Chemical waste generates must determine whether a discarded chemical is classified as a hazardous waste. Comply with all local, state, and federal regulations.

Section 14 – Transport Information

DOT – Not Regulated

Section 15 – Regulatory Information (not meant to be all inclusive)

OSHA Status: These chemicals are considered hazardous by OSHA.
Canada DSL: This chemical is listed on Canada's DSL list.
TSCA: These chemicals are listed on the TSCA Inventory.
SARA Title III Section 313: Not Applicable
RCRA Status: Not Applicable
CERCLA Reportable Quantity: Acetic Acid – 5000lbs.
WHMIS: Not-controlled

Section 16 – Additional Information

Disclaimer: The information on this MSDS applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to determine the suitability and completeness of this information for his own particular use. No warranty is implied regarding the accuracy of the data or the results to be obtained form the products use.

Appendix B

Reagent preparation and plankton tow calculations

A. Conversions

- To convert feet to meters multiply by 0.3048
- To convert inches to centimeters multiply by 2.54
- To convert cubic meters to liters multiply by 1000
- Conversions if a measuring cup is used:
  - 1 ounce = approximately 30 milliliters
  - 1 cup = 8 ounces
  - 1 cup = approximately 250 milliliters

B. Preparation of a 4% baking soda (sodium bicarbonate) solution

- Use the following formula to prepare a 4 % by weight (W/V) solution:

desired volume in ml x 0.04 g baking soda = grams of baking soda to add

- Example: to make a 1 liter solution of 4% baking soda solution, add 40 grams of baking soda to 1000 milliliters (1 L) of deionized water. A standard 28 mm soda bottle cap holds about 5 grams of baking soda and ½ teaspoon of baking soda is about 3 grams. These values can be used to prepare a solution that is approximately 4% baking soda. For example, adding a level soda bottle capful of baking soda to a 250 ml Nalgene container that is approximate ½ full with water would provide a solution of baking soda close enough to 4% that it could be used to adjust the pH of plankton tow samples per the protocol described in Appendix A.

C. Preparation of a 10% bleach (sodium hypochlorite) solution

- Use the following formula to prepare a 10% bleach solution

total volume of solution desired x 1.1 = volume of bleach to add

- Example: Add 50 milliliters of bleach to 450 milliliters to prepare a 10% bleach solution (V/V). A measuring cup can be used to measure the bleach and water at a 1:10 proportion. It's recommended that the bleach solution be prepared in a 32 oz. Spraymaster (gray) spray bottle. The gray bottle will help protect the bleach from degradation.

D. Determination of a vertical tow volume in liters

- To determine a vertical tow volume multiply the area of the plankton net hoop by the total depth of all the tows in the sample bottle and then multiply by 1000. Round the value to 2 significant figures.

Area of the net hoop (m^2) x tow depth (m) x 1000 liters/m^3 = total tow volume (L)

Table 1. Plankton net diameter and the corresponding area (m^2) of the net hoop, used to determine the minimum tow depth required to achieve a 1000 liter tow volume.

Net Diameter	Area of Plankton Net Hoop (m^2)	Minimum Tow Depth to get 1000 Liters Total Volume
5 inches (13 cm)	0.01square meters	100 meters
8 inches (20 cm)	0.03 square meters	33.4 meters
12 inches (30 cm)	0.07 square meters	14.3 meters
20 inches (50 cm)	0.20 square meters	5.3 meters

- Example: A 30 cm net is used to collect 3 x 20 meter tows. All 3 of the tows are dispensed into the sample collection bottle.

0.07 m^2 x 60 m x 1000 L/m^3 = 4200 liters of source water represented in the bottle

E. Determination of horizontal tow volume in liters

- It is difficult to determine horizontal volume. An estimate can be made in the same way vertical tow volume is calculated. That is, the length of the tow in meters multiplied by the hoop area in square meters then multiplied by 1000 L/m^3.

Horizontal tows do not account for veliger depth distribution and there is often a lot of sediment in horizontal tows. For these reasons horizontal tows are discouraged.

Appendix C

Plankton tow preservation protocol for the detection of quagga and zebra mussel veliger larvae

Objective: Preserve the integrity of veliger shells and tissues in plankton tow samples so that veligers are amenable to PCR and CPLM analyses.

Summary: Add 5 ml of a 4% (W/V) baking soda solution per 100 ml plankton tow sample then bring the volume to 20% absolute ethanol (V/V).

Protocol:

1. After tows have been poured into the collection bottle, mark the level with a Sharpie and measure the height of the liquid using a ruler with millimeter graduations.
2. Divide the height measurement by 0.95
3. The quotient is the level to which the 4% baking soda solution is added. This will be a relatively small quantity. A small cup should be used to pour the solution into the tow.
4. Divide the measurement in step 1 by 0.76.
5. The quotient is the level to which absolute ethanol is added.
6. The sample is now preserved. Store the sample under refrigeration conditions until shipping.

Note: After the addition of baking soda and ethanol the pH of the sample should be 8.0 or slightly higher. The pH can be measured in the field with pH test strips. If the pH is below 8.0, add more baking soda solution. The pH of the sample will also be measured in the laboratory at the time of analysis and reported with results. A pH below 8.0 at the time of analysis means that more baking soda solution should be added at the time of preservation.

Example preservation calculations:

Tow samples are collected and dispensed into a 250 ml Nalgene container. The tow sample level is measured at 65 mm.

65 mm / 0.95 = 68.4 mm (~ 68 mm)
mark 68 mm on the bottle and add the baking soda solution to this level.

65 mm / 0.76 = 85.5 mm (~ 86 mm)
mark 86 mm on the bottle and add absolute ethanol to this level.

Note: Samples must remain chilled. All samples should be placed in a cooler with gel or blue ice packs immediately after collection so they do not warm up and begin to degrade. Do not freeze the samples. Freezing damages shells and reduces detection sensitivity. Samples need to be preserved as soon as possible after collection (no more than 3 hours after collection).

Appendix D
Plankton Sample Datasheet

Collection Information			
Waterbody:	Date:	Collector:	
Collector Affiliation:		Phone #:	

Net Information			
Mesh Size (µm):	Net Diameter (cm):	Net #:	Reel #:
Calculations for volume: V = (area of net)(total depth in m)(1000L/m^3) feet to meter x .3048			
8in net V= (.03m^2)(total depth in m)(1000L/m^3)	12in net V= (.07m^2)(total depth in m)(1000L/m^3)		

Tows

Sample ID: ____________ Total # of Tows: ______________________________ Preservation: pH Buffer: ____/.95 = ______ Ethanol:____/.76 =

Total Depth of Tows: Volume = Time: ______

Location Description	V/H Tow	Tow Depth (m)	Water Q. Depth (m)	Temp °C	pH	HDO %	HDO mg/l	Turb. NTU	Sp. Cond. (µS/cm)

Sample ID: ____________ Total # of Tows: ______________________________ Preservation: pH Buffer: ____/.95 = ______ Ethanol:____/.76 =

Total Depth of Tows: Volume = Time: ______

Location Description	V/H Tow	Tow Depth (m)	Water Q. Depth (m)	Temp °C	pH	HDO %	HDO mg/l	Turb. NTU	Sp. Cond. (µS/cm)

Sample ID: ____________ Total # of Tows: ______________________________ Preservation: pH Buffer: ____/.95 = ______ Ethanol:____/.76 =

Total Depth of Tows: Volume = Time: ______

Location Description	V/H Tow	Tow Depth (m)	Water Q. Depth (m)	Temp °C	pH	HDO %	HDO mg/l	Turb. NTU	Sp. Cond. (µS/cm)

Samples preserved to 20% with 200 proof non-denatured ethanol, buffered with 5 ml of a 4% baking soda solution per 100 ml ☐ Time:__________

Appendix E

Sample submission guidelines and submission form

Note: The California Department of Fish and Wildlife (CDFW) Shellfish Health Laboratory (SHL) is located at the UC Davis Bodega Marine Laboratory. As per the instructions below, samples need to be mailed to the Bodega Marine Laboratory where they will be routed to the Shellfish Health Laboratory. Samples may also be hand delivered to the Shellfish Health Lab per the instructions below.

Authorized Submissions:

Samples submitted to the Bodega Marine Laboratory SHL are usually collected by CDFW personnel or individuals working with CDFW personnel. The SHL accepts samples from any California State, out-of-state, or federal personnel qualified to collect samples. The SHL will also accept samples from water management personnel and academic institutions. Laboratory capacity is limited. First priority will be given to CDFW submissions. Compromised samples will not be tested. It is recommended that sample collection follow the **CDFW Quagga/Zebra Mussel Plankton Tow Sampling Protocol.**

Sample Delivery Options:

Properly preserved and maintained plankton tow samples collected for lab analysis may be either hand delivered or shipped to the SHL. Include a sample submission form with each set of samples. Make sure samples are clearly marked for identification. Samples should be delivered or shipped to the SHL within 1 week of collection.

Contact Information:

Contact Jim Snider at the SHL for any questions regarding quagga/zebra mussel testing.
Phone: (707) 785-2066
Email: James.Snider@wildlife.ca.gov

Hand Delivered Samples:

Hand delivered samples should be transported in a cooler and maintained at refrigeration temperature during transport. Samples may be hand delivered during normal business hours; Monday through Friday, 9:00 am to 5:00 pm. The lab is closed on weekends and holidays. Call Jim Snider prior to delivery to make sure personnel will be available to receive samples. Arrangements may be made for afterhours deliveries, contact Jim Snider for arrangements.

Shipping Samples:

Shipped samples should be packaged in a styrofoam packer (or a similar type cold packer) contained secondarily in a cardboard box. Use gel packs to keep samples chilled. Do not use wet ice. The Bodega Marine Lab (BML) shipping and receiving department is open Monday through Thursday and closed on Fridays, weekends, and holidays. All freight must be received no later than Thursday in any given week. Samples should be shipped for next day delivery. Samples that are held over the weekend by the courier service will be considered compromised and will not be tested. Samples collected late in the week may be held over the weekend if properly preserved and refrigerated and shipped the following week.

Location:

The location of the BML can be found at:

http://maps.google.com/maps/myplaces?hl=en&ll=38.31905,-123.055509&spn=0.090101,0.153637&ctz=420&t=m&z=13

The CDFW Shellfish Health Lab is located in rooms N307 and N310. Entrance to the BML is gated. The gate closes at 5:00 pm.

Shipping Address:

Bodega Marine Laboratory
Shellfish Health
Attention: Jim Snider
2099 Westside Road
Bodega Bay, CA 94923

Reporting Results:

Results will be reported in letter or memo format and will be emailed to designated contacts.

Laboratory Fees:

Currently there is no fee for quagga/zebra mussel plankton tow testing at the SHL.

CDFW Shellfish Health Laboratory Submission Form
Quagga/Zebra Mussel Plankton Tows

Name: _____

Agency: _____ Title: _____

Phone #: _____ Email: _____

Mailing Address: _____

Waterbody: _____

Site Location: _____

Was the sample preserved at the time of collection with baking soda and 20% absolute ethanol and stored at refrigeration temperature as per Appendix A: Plankton tow preservation protocol for the detection of quagga and zebra mussel veliger larvae in this document?

☐ Yes ☐ No If no, please specify the preservation method used:

Plankton Net Diameter (include units): _____

Plankton Net Mesh Size (include units):

Sample No.	Collection Date	Sample Description	Indicate Horizontal or Vertical Tow (H or V)	Total Tow Depth in Container (indicate feet or meters)

BOARD OF SUPERVISORS, COUNTY OF LAKE, STATE OF CALIFORNIA

ORDINANCE NO. 2936

AN ORDINANCE AMENDING ARTICLE IX TO CHAPTER 15 OF THE LAKE COUNTY CODE ESTABLISHING A FEE-BASED INSPECTION PROGRAM FOR ALL WATER VESSELS LAUNCHED IN THE COUNTY OF LAKE

THE BOARD OF SUPERVISORS OF THE COUNTY OF LAKE ORDAINS AS FOLLOWS:

Section 1: Article IX of Chapter 15 of the Lake County Code is hereby amended to read as follows:

"ARTICLE IX. WATER VESSEL INSPECTION PROGRAM

Sec. 15-52. Findings.

52.1 The County of Lake holds the waters of Clear Lake in trust for the benefit of all citizens pursuant to legislation enacted in 1973 which conveyed in trust to the County of Lake the submerged lands of Clear Lake for the furtherance of navigation, commerce, fishery, recreation, and wherever possible and appropriate, preservation of the land and waters in their natural state. Clear Lake, as well as all other water bodies within the County of Lake represent a significant environmental resource to our citizens and are interrelated to the distribution systems of the County's water purveyors.

52.2 The aquatic invasive species of Dreissenid mussels such as Quagga and Zebra mussels pose a significant and imminent threat to the water bodies within the County of Lake. Dreissenid mussels have already created serious and irreparable harm to bodies of water located in other locations in the United States and California. Once introduced into a water body, these mussels proliferate at an alarming rate, drastically altering the ecosystem of that water body, harming and/or consuming native species and food resources within the ecosystems they infest. Dreissenid mussels additionally pose a significant and imminent threat to the water distribution systems of Lake County which draw water from Clear Lake and other water bodies within the County. These mussels attach to inside water treatment intake structures, pipes, and facilities to such a significant degree that the ability to distribute water through the County's existing, and in some cases, antiquated infrastructure, will be severely compromised.

52.3 Presently, it does not appear that any water body in Lake County has been infested with Dreissenid mussels. However, Water Vessels entering Lake County from other areas of the state and country may have recently been launched in infested counties or waters, making those vessels at high risk to carry mussels (adults and larvae) into Lake County waters.

52.4 A screening and inspection program is integral to the preservation of the water bodies and water distribution systems within the County of Lake, and to the drainages from Lake County.

52.5 This Ordinance is enacted under the police power of the County pursuant to Article XI, Section 7 of the California Constitution which authorizes the County to adopt and enforce regulations for the protection of the public health, safety, and welfare that are not in conflict with general laws.

Sec. 15-53. Definitions.

53.1 For purposes of this Article, the following words and phrases shall have the following meanings:

(a) "Affidavit of Compliance" means a declaration to be executed by all Water Vessel owners and operators who wish to launch said vessels in a water body in the County of Lake which attests to the responsibility of that owner/operator to ensure that his/her Water Vessel is properly screened and, if necessary, inspected and/or decontaminated prior to launching.

(b) "Authorized Screener" means an individual authorized by the Lake County Department of Water Resources to conduct the screening process necessary to determine whether a Water Vessel is at high risk to carry any Dreissenid mussel such as Quagga and Zebra and any other aquatic, non-native invasive species.

(c) "Authorized Inspector" means an individual who has received the necessary training approved by the Lake County Department of Water Resources to conduct inspections of Water Vessels for the purpose of determining whether said vessels are contaminated with any Dreissenid mussel such as Quagga and Zebra and any other aquatic, non-native invasive species.

(d) "Launch" means the introduction or placing of any trailered Water Vessel into a water body within the County of Lake.

(e) "Live bait" means any fish, or other organisms used in conjunction with fishing the waters of Lake County.

(f) "Mussel Sticker" means the stickers issued by an Authorized Screener/ Inspector evincing the fact that the vessel to which the stickers are affixed has been screened and found to be at low risk to carry any Dreissenid mussel such as Quagga and Zebra and any other aquatic, Non-native invasive species.

(g) "Non-native invasive species" means species identified by the State of California that establish and reproduce rapidly and which may threaten native species through competition, predation, parasitism, introduction of pathogens, or physically or chemically alter the habitat. Such species include, but are not limited to, New Zealand Mud Snails and non-native aquatic plants as defined in Chapter 26A of the Lake County Code.

(h) "Non-resident water vessel" means a vessel that does not meet the definition of a Resident water vessel.

(i) "Resident water vessel" means:

1. A vessel that has been issued a DMV registration that identifies its owner as being physically located within the borders of Lake County.

2. A vessel whose owner can demonstrate that it is moored or stored at a commercial facility located in Lake County.

3. Any other means deemed acceptable by the Director of Water Resources as to proof of residency in Lake County providing that the vessel is on the Lake County Assessor's current unsecured taxroll for boats.

(j) "Screening and Inspection Program" means the program of screening and inspection required by this Ordinance to ensure that all Water Vessels launching into water bodies in Lake County are free from contamination from adult and larval Dreissenid mussels and other aquatic, non-native invasive species.

(k) "Water Vessel" means any trailered watercraft, or jet ski, or float plane capable of being launched into a water body within the County of Lake except as specifically exempted herein. Canoes, kayaks, car-top boats, float tubes, rafts, wind surfers/boards, boogey boards, nonmotorized paddle boats, and nonmotorized sail boats that are eight feet or less in length are not considered water vessels for purposes of this ordinance and are thereby exempt from the provisions herein.

(l) "Water Vessel Inspection" means a physical inspection, using the training approved by the Lake County Department of Water Resources, of a vessel known or suspected to have been in water in an infested county or which bears a DMV registration in a county, either within or outside the State of California, which is known to be infested with Dreissenid mussels and other aquatic, non-native, invasive species.

(m) "Water Vessel Screening" means the process used to verify that a vessel and its trailer have not been in contact with a body of water in a county infested with Dreissenid mussels and/or is registered in a county, either within or outside the State of California, which is known to be infested with Dressenid mussels and other non-native, invasive species.

Sec. 15-54. Applicability.

This Ordinance shall be applicable to any trailered Water Vessel intending to launch in a water body within the County of Lake.

Sec. 15-55. Mussel Stickers for Resident Water Vessels.

Because the weight of scientific evidence presently available strongly indicates, the greatest risk of contamination to our water bodies is by Water Vessels entering Lake County from other jurisdictions, the following program shall be applicable to all Resident Water Vessels:

55.1 Owners and operators of Resident Water Vessels, having submitted to screening and inspection, as applicable, shall receive Resident Mussel Stickers designating the vessel as a Resident Water Vessel and absent an event necessitating re-screening and/or re-inspection as specified in 15-57.1, these Mussel Stickers shall expire at the end of each calendar year.

55.2 Every Resident Water Vessel and its trailer must be affixed with Resident Mussel Stickers prior to launching that vessel in any water body in the County of Lake.

55.3 Resident Mussel Stickers shall be issued according to a color code that will change annually.

55.4 Upon expiration of the annual Resident Mussel Stickers, at the end of the calendar year, the resident vessel must undergo the necessary screening/inspection requirements to obtain next year's valid Mussel Stickers.

Sec. 15-56. Mussel Stickers for Non-resident Water Vessels.

56.1 All Non-resident Water Vessels and their trailers must be affixed with color-coded, monthly, Non-resident Mussel Stickers after screening and prior to launch in any water body in the County of Lake. Stickers are not transferable between vessels.

56.2 Non-resident Mussel Stickers shall be issued according to a color-code that will change monthly.

56.3 Upon expiration of the Non-resident Mussel Stickers, the Non-resident Water Vessel must undergo the necessary screening/inspection requirements to obtain valid Mussel Stickers for the next calendar month.

Sec. 15-57. Screening/Inspection Requirements.

57.1 Screening Requirements.

Screening shall be required of:

(a) All Resident trailered Water Vessels prior to their first launch in every calendar year, or

(b) All Non-resident trailered Water Vessels prior to their first launch in every calendar month, or

(c) All trailered Water Vessels, Resident or Non-resident, that have been launched in a body of water outside of the County of Lake pursuant to the executed Affadivit of Compliance.

57.2 Screening Process.

(a) The screening process shall be conducted by an Authorized Screener or Authorized Inspector and shall consist of:

(1) A series of questions concerning the past location of the Water Vessel prior to launching in a water body in the County of Lake, designed to determine whether said past location constitutes an appreciable risk that said Water Vessel may be infested with Dreissenid mussels. Said questions shall be answered on the County of Lake Screening Application Invasive Species Inspection Program form, and

(2) May require a visual verification by the Authorized Screener that the Water Vessel and trailer are clean, drained and dry.

(b) Water Vessels which, as a result of the screening process, are found to be clean, drained and dry, and do not pose an appreciable risk to the water bodies of Lake County shall be affixed with Mussel Stickers in a location as designated in the instructions accompanying the Mussel Stickers which signifies that the vessel may be launched into a water body in the County.

(c) Water Vessels which, as a result of the screening process, are not clean, drained and dry, or do appear to pose an appreciable risk to the water bodies of Lake County shall be required to undergo an inspection by an Authorized Inspector. The County of Lake Screening Application Invasive Species Inspection Program form shall identify that vessel as requiring authorized inspection.

(d) Affidavit of Compliance: At the time of the screening, the vessel owner/operator shall be required to execute an affidavit which attests to the responsibility of that owner/operator to ensure that his/her Water Vessel is clean, drained and dry and properly screened, re-screened, inspected, and, if necessary, decontaminated prior to launching in a water body in the County of Lake. The Affidavit shall be signed under penalty of perjury.

(e) If the Screening Application Form is filled out falsely this shall be a violation of this Ordinance.

(f) A Water Vessel owner or operator may refuse to consent to said screening. If the Water Vessel owner or operator refuses to consent to screening, that Water Vessel shall not be allowed to launch in any water body within the County of Lake and shall be in violation of this Ordinance if he/she should nonetheless attempt to do so.

57.3 Inspection Requirements

(a) All Water Vessels determined as a result of the screening process to constitute an appreciable risk of contamination due to the possible presence of Dreissenid mussels shall submit to an inspection by an Authorized Inspector prior to launching in a water body in the County of Lake.

(b) Said inspection shall consist of a thorough search of the exterior and interior of the Water Vessel, including but not limited to bilge pumps, motors, and live wells, bait wells, ballast tanks, bladders, and all areas of standing water.

(c) A Water Vessel owner or operator may refuse to consent to said inspection. If the Water Vessel owner or operator refuses to consent to inspection, that Water Vessel shall not be allowed to launch in any water body within the County of Lake and shall be in violation of this Ordinance if he/she should nonetheless attempt to do so.

(d) At the time of the inspection, if any Water Vessel is found to contain other aquatic, non-native invasive species, the Water Vessel owner or operator shall be required to remove said invasive species prior to launching in a water body within the County of Lake.

(e) If, pursuant to the required inspection, a Water Vessel is found to be clean, drained and dry, and free of any possible Dreissenid mussel infestation and any other aquatic, non-native invasive species is either not found or removed from the Water Vessel, the Authorized Inspector shall certify that the Water Vessel can be launched in Lake County after receiving the appropriate Mussel Stickers from an Authorized Screener.

(f) Affidavit of Compliance: At the time of the inspection, the vessel owner/operator shall be required to execute an affidavit which attests to the responsibility of that owner/operator to ensure that his/her Water Vessel is properly inspected and, if necessary, decontaminated prior to launching in a water body in the County of Lake. The Affidavit shall be signed under penalty of perjury.

(g) If, pursuant to the required inspection, a Water Vessel is found to be infested with adult Dreissenid mussels, the vessel owner shall be informed that his/her Water Vessel shall be quarantined by the California Department of Fish and Game. If the vessel is found to possibly be infested with Dreissenid mussels, the vessel owner may not launch his/her vessel until such time as that vessel has been decontaminated and re-inspected by an Authorized Inspector. The vessel owner shall be directed to a decontamination station where the vessel will undergo a decontamination process. Once the vessel has been decontaminated, reinspected and found to be at no risk of contaminating Lake County waters, the vessel can be affixed with Mussel Stickers as described hereinabove.

57.4 Decontamination

Decontamination stations shall be operated by the County of Lake, Department of Water Resources. Said stations shall be open to all owner/operators of Water Vessels. There shall be

no fee associated with decontamination.

Decontamination shall be required of all vessels that have been determined to be at high risk of being infested with Dreissenid mussels. Such determination shall be made if the vessel is not clean , drained and dry, OR was last in the water of an infested county, less than 30 days ago.

Sec. 15-58. Screening/Inspection Stations.

58.1 Designated locations are available within the County. The current list of Authorized screeners is available at www.co.lake.ca.us/mussels.

58.2 Inspections shall be carried out by County personnel at any time. Vessel owners shall be referred to the nearest Authorized Inspector when required. Inspections may be scheduled by calling the Department of Water Resources, (707) 263-2344.

58.3 Nothing in this Ordinance precludes screening and/or inspections at other locations within the County which may be offered by private persons and/or organizations if such screenings are performed by Authorized Screeners and such inspections are performed by Authorized Inspectors.

Sec. 15-59: Fees.

The following fees are hereby established for County-operated screening and inspection services:

(a) The fee for each screening and/or inspection performed by the County of Lake shall be ten dollars ($10.00).

(b) Fees collected for screening and /or inspection, that are not otherwise encumbered, shall be used to fund the Water Vessel Inspection Program.

Sec. 15-60. Disposing of Live Bait into a Water Body in Lake County is Prohibited.

It shall be unlawful to dispose of any live bait and/or any liquid containing live bait or any liquid which previously contained live bait in a water body in Lake County.

Sec. 15-61. Criminal Penalties.

(a) Any person violating any provision of this Ordinance shall be guilty of a misdemeanor. Such individual shall be deemed guilty of a separate offense for each launch in a water body in the County of Lake.

(b) Any individual convicted of a violation of this chapter shall be punishable by a fine of not less than one thousand dollars ($1,000.00) and/or up to six months in the county jail or both.

(c) A Water Vessel unlawfully launched in a water body in the County of Lake shall be subject to impound if, pursuant to a misdemeanor arrest for violation of this Ordinance, a law enforcement officer determines that circumstances necessitate law enforcement custody of the Water Vessel.

(d) Payment of any penalty herein shall not relieve any individual from the responsibility of correcting the violations as found by the law enforcement officer.

(e) Any person found not in compliance with this ordinance is subject to citation, shall be escorted off the water body, and shall be subject to any other legal action as deemed necessary by the enforcement officer including but not limited to detaining said person and water vessel until inspected as required under this chapter.

(f) Fines collected as a result of violating this Ordinance, that are not otherwise encumbered, shall be used to fund the Water Vessel Inspection Program.

Sec. 15-62. Public Nuisance Declaration.

Any violation of this chapter is hereby declared to be unlawful and a public health nuisance and may be abated by authorized County personnel, irrespective of any other remedy provided in this Ordinance.

Section 2: It can be seen with certainty that there is no possibility that this Ordinance may have a significant effect on the environment. However, even if the proposed action is determined to be a "project", the proposed action would be categorically exempt from CEQA under CEQA Guidelines Section 15307 as a Class 7 Categorical Exemption which, "consists of actions taken by regulatory agencies as authorized by State law or local ordinance to assure the maintenance, restoration

or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment."

Section 3: All ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of such conflict and no further.

Section 4: This Ordinance shall take effect on the 24th day of February, 2011, and before the expiration of fifteen (15) days after its passage, it shall be published at least once in a newspaper of general circulation printed and published in the County of Lake.

The foregoing ordinance was introduced before the Board of Supervisors on the 18th day of January, 2011, and passed by the following vote on the 25th day of January, 2011.

AYES: Supervisors Smith, Rushing, Farrington, Brown and Comstock

NOES: None

ABSENT OR NOT VOTING: None

COUNTY OF LAKE

Chair, Board of Supervisors

ATTEST: KELLY F. COX
Clerk of the Board of Supervisors

By: Deputy

APPROVED AS TO FORM:
ANITA L. GRANT

By:

BOARD OF SUPERVISORS
LAKE COUNTY, CAL

AGREEMENT TO PARTICIPATE IN THE WATER VESSEL SCREENING/INSPECTION PROGRAM

This Agreement is hereby entered into between the County of Lake, by and through the Department of Water Resources, hereinafter referred to as "COUNTY", and _____, hereinafter referred to as "PARTICIPANT".

RECITALS

In order to protect the water bodies within the County of Lake from aquatic invasive species which pose a significant and imminent threat to the water bodies within the County of Lake, the County has enacted an ordinance requiring all Water Vessels launching into water bodies in Lake County be affixed with screening stickers prior to launching that vessel in any water body in the County of Lake.

WHEREAS, PARTICIPANT desires to assist in ensuring the success of the above-described mussel prevention program by conducting screening and/or inspection services at PARTICIPANT's business location which practice PARTICIPANT acknowledges will also provide an economic benefit to PARTICIPANT ; and

WHEREAS, COUNTY wishes to secure the services of private organizations such as PARTICIPANT in order that the screening/inspection program is readily accessible by persons wishing to launch water vessels in water bodies in the County of Lake; and

WHEREAS, in order to effectuate this public and private partnership in furtherance of the goals of the mussel prevention program, the COUNTY will agree to advance screening stickers to PARTICIPANT to be provided for those water vessels which upon screening and/or inspection are determined to be eligible under Lake County Ordinance No. 2936 to receive them; and

WHEREAS, the COUNTY's willingness to advance these screening stickers is predicated upon PARTICIPANT's agreement to each and every condition enumerated herein below.

NOW THEREFORE, in recognition of the foregoing, the parties agree as follows:

1. Receipt of Screening Stickers

Upon receipt, PARTICIPANT shall reimburse the COUNTY at COUNTY's cost for all screening stickers advanced to PARTICIPANT pursuant to this agreement.

2. Screening and Inspection Requirements

All screenings and/or inspections shall be conducted in accordance with Lake County Ordinance No. 2936 and all County procedures developed in regard to the implementation of said ordinance.

Only an Authorized Screener, as defined in Lake County Ordinance No. 2936, shall conduct screenings at a PARTICIPANT's location.

Only an Authorized Inspector, as defined in Lake County Ordinance No. 2936, shall conduct screenings and/or inspections at a PARTICIPANT's location.

Screening stickers shall be issued only by such an Authorized Screener or Authorized Inspector.

3. Recordkeeping

PARTICIPANT shall be required to maintain the following records:

Original, complete, signed, Screening Application Form.

Such forms will be returned to COUNTY at regular intervals.

4. Monitoring

COUNTY reserves the right to monitor and inspect PARTICIPANT's screening/inspection operation at any reasonable time to insure compliance with Ordinance No. 2936 and COUNTY procedures.

COUNTY will review each completed Screening Application Form for accuracy and compliance with Ordinance No. 2936.

5. Independent Contractor Status

It is specifically understood and agreed that, in the making and performance of this Agreement, PARTICIPANT is an independent contractor and is not an employee, agent, or servant of COUNTY. PARTICIPANT is solely responsible for the payment of all federal, state, and local taxes, charges, and fees, or contributions required or resulting from PARTICIPANT's employees and agents engaging in the performance of the screening and inspections described in this Agreement (including without limitation, unemployment insurance, social security, and payroll tax withholding).

6. Insurance Requirements

PARTICIPANT attests and agrees that it maintains and shall continue to maintain insurance coverage of the following types during the time PARTICIPANT engages in the above-described screening and inspections:

Compensation Insurance. PARTICIPANT shall procure and maintain as applicable, at its own expense during the term hereof, Workers' Compensation Insurance and Employer's Liability Insurance as required by the State of California, for all employees to be engaged in work. In any case of such work sublet, Participant shall require subcontractor similarly to provide Employer's Liability Insurance and Workers' Compensation Insurance for all of the latter's employees to be engaged in such work, unless such employees are covered by the protection afforded by Contractor's Workers' Compensation Insurance and Employer's Liability Insurance. Employer's Liability Insurance shall be in an amount not less than One Million Dollars ($1,000,000.00) per occurrence.

Commercial General Liability. PARTICIPANT shall procure and maintain, at its own expense during the term hereof, upon itself and its employees at all times during the course of this Agreement, Commercial General Liability Insurance (Occurrence Form CG 0001) for bodily injury, personal injury, and broad form property damage, in an amount of not more than One Million dollars ($1,000,000.00) combined single limit coverage per occurrence, including but not limited to endorsements for the following coverages: Personal and advertising injury, Premises-operations, Products and completed operations, Blanket contractual, and Independent contractor's liability.

7. Indemnification/Hold Harmless

PARTICIPANT shall indemnify and hold harmless COUNTY from any and all claims, demands, actions, liability or loss which may arise from or be incurred as a result of the negligent performance of this Agreement by PARTICIPANT.

8. Termination

This Agreement may be terminated by either party upon written notice thereof.

At the time the Agreement is terminated, PARTICIPANT shall return all unissued screening stickers and all Screening Forms (completed and otherwise) to COUNTY pursuant to its operation.

SIGNATURES

THIS AGREEMENT was executed on _____, _____, in Lake County, California.

PARTICIPANT

I have read and understand the above paragraphs.

_____ Date: _____
Signature

Printed Name

Address

COUNTY OF LAKE
Department of Water Resources

By: _____ Date: _____
Water Resources Director

APPROVED AS TO FORM

ANITA L. GRANT
County Counsel

By:_____

W:/Quagga Mussel Program/Agreements/ 2013 Agreement.doc

County of Lake Screening Application
Invasive Species Prevention Program

Note: Shaded areas for office use only.
4/20/18

Screener	Inspection required
_____ Date issued:_____	☐ Yes ☐ No
_____ Date re-screened:_____	☐ Yes ☐ No
_____ Date re-screened:_____	☐ Yes ☐ No
_____ Date re-screened:_____	☐ Yes ☐ No
_____ Date re-screened:_____	☐ Yes ☐ No
_____ Date re-screened:_____	☐ Yes ☐ No
_____ Date re-screened:_____	☐ Yes ☐ No

- All vessels must be **CLEAN, DRAINED and DRY** for screening.
- All vessels must display mussel screening stickers **prior** to launching.
- Disposal of live bait and/or bait waters into Lake County waters is **strictly prohibited**.
- Copy of this application **MUST BE KEPT ON BOARD VESSEL**.

INFORMATION AT WWW.NOMUSSELS.COM

VESSEL OWNER/OPERATOR INFORMATION

Last Name: _____ **First Name:** _____
Mailing Address: _____ **Telephone:** _____
City: _____ **State:** ___ **Zip:** _____ **E-mail Address:** _____

VESSEL 1:

What county and state is vessel kept? _____

Registration # (CF#): _____ County where registered: _____
Date last in water (mm/dd/yyyy): _____ Waterbody: _____ County: _____
Does vessel have ballast tank/bladder? ☐ Yes ☐ No Does vessel have live/bait well(s)? ☐ Yes ☐ No

Sticker no.
☐ Resident ☐ Visitor

VESSEL 2:

What county and state is vessel kept? _____

Registration # (CF#): _____ County where registered: _____
Date last in water (mm/dd/yyyy): _____ Waterbody: _____ County: _____
Does vessel have ballast tank/bladder? ☐ Yes ☐ No Does vessel have live/bait well(s)? ☐ Yes ☐ No

Sticker no.
☐ Resident ☐ Visitor

Please read then check the box

1) **As a boat owner I understand that mussels can travel on and in boats.** ❑
2) **I know that mussels can harm wildlife, and ruin docks, ramps, water pumps and intakes.** ❑
3) **Wet vessels can be transporting the microscopic larval form of mussels.** ❑
4) **When I take my boat to an out-of-county lake I need to have it re-screened before I launch in Lake County.** ❑
5) **I understand that cleaning, draining and drying my boat between launches is the best safeguard against transporting mussels and other invasive species.** ❑
6) **I understand that the introduction of these mussels would be devastating to the county's economy.** ❑
7) **As a boat owner I want to do my part to keep Lake County "mussel free".** ❑
8) **I understand that the stickers are good only for the calendar month and/or year specified** ❑

- I, hereby, swear that the information I provide in the screening process is true. I understand that if my vessel is found to be responsible for such invasive species entering Lake County waters, I will be held legally and financially responsible to the full extent of the law. By signing this and displaying the required stickers on my watercraft, I agree to the statements above, and agree to follow all required procedures prior to using any Lake County waterways.

Signature of Vessel Owner/Operator: _____ **Date:** _____

Location Issuing Stickers: _____ Signature of Screener: _____

California Department of Fish and Wildlife
Aquatic Invasive Species Decontamination Protocol

The California Department of Fish and Wildlife (CDFW) is committed to protecting the state's diverse fish, wildlife, and plant resources, and the habitats upon which they depend. Preventing the spread of aquatic invasive species (AIS) in both CDFW's activities, as well as those activities CDFW permits others to conduct is important to achieving this goal. The protocols outlined below are a mandatory condition of your CDFW authorization to work in aquatic habitats. They are intended to prevent the spread of AIS, including New Zealand mudsnail (*Potamopyrgus antipodarum*), quagga mussel (*Dreissena rostriformis bugensis*) and zebra mussel (*Dreissena polymorpha*). Information about New Zealand mudsnails and quagga and zebra mussels is summarized in Attachments A and B. For complete information on the threats of AIS and aids to their identification, please visit the Department's Invasive Species Program webpage at www.dfg.ca.gov/invasives or call (866) 440-9530.

Many AIS are difficult, if not impossible to see in the environment and can be unknowingly transported to new locations on equipment. Therefore, decontamination is necessary to prevent the spread of AIS between collection locations. Equipment shall be decontaminated between each use in different waterbodies. All equipment, including but not limited to, wading equipment, dive equipment, sampling equipment (e.g., water quality probes, nets, substrate samples, etc.), and watercraft, must be decontaminated using one or more of the protocols listed below. As an alternative to decontaminating on-site, you may wish to have separate equipment for each site and to decontaminate it all at the end of the day. Listed below are three options for equipment decontamination. Use your judgment and field sampling needs to select the method(s) that are appropriate for your equipment and schedule. **Because there are currently no molluscicides registered with the California Department of Pesticide Regulation that have been demonstrated to be effective for these three species, CDFW cannot recommend chemical decontamination.** If you would like training on implementing these protocols please contact the Invasive Species Hotline at (866) 440-9530 or e-mail invasives@wildlife.ca.gov

General field procedures to prevent the spread of AIS:

- If decontamination is not done on site, transport contaminated equipment in sealed plastic bags and keep separate from clean gear.
- When practical, in flowing water begin work upstream and work downstream. This avoids transporting AIS to non-infested upstream areas.
- For locations know to be infested with AIS, use dedicated equipment that is only used in infested waters. Store this equipment separately.

Equipment Decontamination Methods

Option 1: Dry

- Scrub gear with a stiff-bristled brush to remove all organisms. Thoroughly brush small crevices such as boot laces, seams, net corners, etc.
- Allow equipment to thoroughly dry (i.e., until there is complete absence of moisture), preferably in the sun. Keep dry for a minimum of 48 hours to ensure any organisms are desiccated.

Option 2: Hot water soak

- Scrub gear with a stiff-bristled brush to remove all organisms. Thoroughly brush small crevices such as boot laces, seams, net corners, etc.
- Immerse equipment in 140° F or hotter water. If necessary, weigh it down to ensure it remains immersed.
- Soak in 140° F or hotter water for a minimum of five minutes.

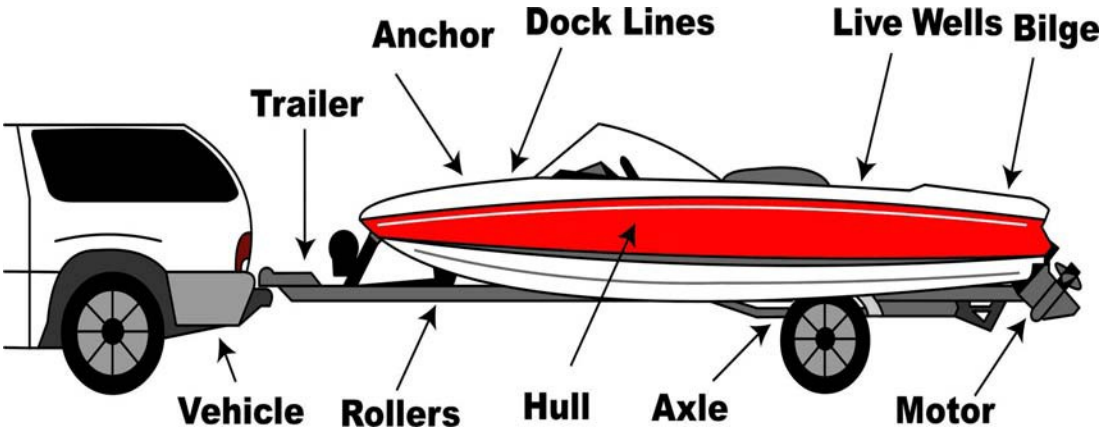
Option 3: Freeze

- Scrub gear with a stiff-bristled brush to remove all organisms. Thoroughly brush small crevices such as boot laces, seams, net corners, etc.
- Place in a freezer 32°F or colder for a minimum of eight hours.

Watercraft Decontamination

- Prior to leaving the launch area, remove all plants and mud from your watercraft, trailer, and equipment. Dispose of all material in the trash.
- Prior to leaving the launch area drain all water from your watercraft and dry all areas, including motor, motor cooling system, live wells, bilges, and lower end unit.
- Upon return to base facilities, pressure wash the watercraft and trailer with 140° F water*, including all of the boat equipment (i.e. ropes, anchors, etc.) that came into contact with the water.
- Flush the engine with 140° F water for at least 10 minutes and run 140° F water through the live wells, bilges, and all other areas that could contain water.

*To ensure 100% mortality the water needs to be 140° F at the point of contact or 155° F at the nozzle.



Reporting Aquatic Invasive Species

If you suspect you have found New Zealand mudsnail, quagga and zebra mussels, or other AIS, please immediately notify the CDFW Invasive Species Program at (866) 440-9530 or e-mail invasives@wildlife.ca.gov. Please provide your contact information, specific location of discovery, and digital photographs of the organisms (if possible).

Attachment A

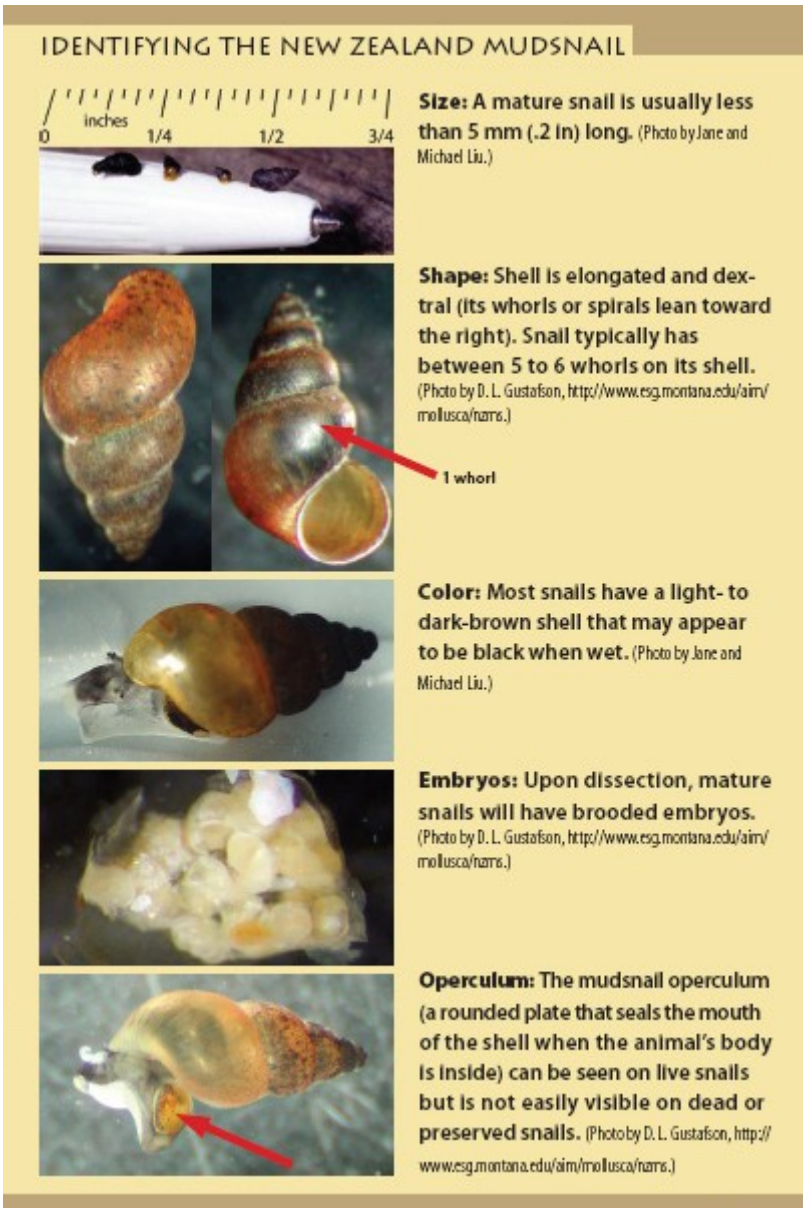
New Zealand Mudsnail

The threat posed by New Zealand mudsnails (NZMS):

- NZMS reproduce asexually therefore it only takes a single NZMS to colonize a new location.
- NZMS are prolific, and a single NZMS can give rise to 40 million snails in one year.
- Densities of over 750,000 NZMS per square meter have been documented.
- NZMS out-compete and replace native invertebrates that are the preferred foods of many fish species and alter the food web of streams and lakes.

Identifying NZMS:

- NZMS average 1/8 inch in length, but young snails may be as small as a grain of sand. Adults bear live young.
- See the photos, below, for assistance identifying NZMS. Expert identification will be necessary to confirm identification.



NZMS Habitat:

- NZMS can live in most aquatic habitats, including silted river bottoms, clear mountain streams, reservoirs, lakes and estuaries.
- NZMS have a temperature tolerance of 32-77° F.
- NZMS can survive out of water for more than 25 days in cool, moist environments, and have been found over 40 feet from water.

Current known locations of NZMS in California can be found at http://nas.er.usgs.gov/taxgroup/mollusks/newzealandmudsnaildistribution.aspx

Attachment B

Quagga and Zebra Mussels

The threat posed by quagga and zebra mussels (Dreissenid mussels):

- Dreissenid mussels multiply quickly and out-compete other species for food and space.
- Their presence can alter food webs and alter environments, negatively affecting native and game fish species.
- Dreissenid mussels attach to hard and soft surfaces, and negatively impact water delivery systems, hydroelectric facilities, agriculture, recreational boating and fishing.
- Adults can survive up to 30 days out of water in cool, humid conditions.
- Produce microscopic larvae that can be unknowingly transported in water, including live-wells, bilges, and motors.

Identifying Dreissenid mussels:

- Typically the same size as a fingernail but can grow up to about 2 inches long.
- Variable, usually dark and light alternating stripes. May also be solid cream, brown, or black.

Dreissenid mussel habitat:

- Variable, including both hard and soft surfaces in freshwater.
- From surface depth to more than 400 feet in depth.

Current known locations of Dreissenid mussels in California can be found http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/maps/CaliforniaDreissenaMap.jpg

Invasive Species Boat Inspection Report

Please DO NOT remove any species until photographed

Please print clearly

Date:	Time:	Location:	Inspector:
CF #		Owner:	
Last Time in the Water:			
Where: State:	City:		County:
Water Body:			
Conditions Vessel has been in since last removed from water: Check all that apply			
Wet ☐	Moist ☐	Dry ☐	Hot ☐ Cold (Freezing) ☐
Overall Appearance: Polished ☐	Clean ☐	Encrusted ☐	Covered in Weeds ☐
DETAILED INSPECTION:			
☐ INTERIOR COMPARTMENTS: Bilge, Bait & Live Well, Lockers, Anchor, Cushions, Skis & Ropes, PFDs & Toys, Interior Ballast Tanks (ask owner to activate all pumps?) ANY WATER FOUND			
FINDINGS:			
☐ VESSEL EXTERIOR: Hull, Transom, Motor Well, Trim Tabs, Transducers, Recessed Bolts, Cavitation Plates, Pilot tubes, Lights, Water Intake Ports, ALL Through Hull Fittings			
FINDINGS:			
☐ MOTOR: Exterior Housing, Mounting Assembly, Propeller Shaft & Assembly, Lower Unit, Water Intake/Output Ports, and Propulsion System other than Prop. (Jet drive) ASK OWNER TO LOWER MOTOR			
FINDINGS:			
☐ TRAILER: Rollers, Bunks Pads, Trailer Springs, Fenders, Lights, Wiring, Axels, Wheels & Tires, License Plate			
FINDINGS:			
☐ Vessel Thoroughly Drained?			
☐ Plant Fragments?			
ADDITIONAL COMMENTS:			
Is Decontamination Necessary?			

COUNTY OF LAKE
WATER RESOURCES DEPARTMENT
255 North Forbes Street
Lakeport, California 95453
Telephone 707/263-2344
Fax 707/263-1965

David Cowan
Water Resources Director

DECONTAMINATION AGREEMENT

Date: _____

Vessel registration number:_____

This Agreement, made this _____ day of _____, 2019, between _____, et al, hereinafter referred to as "OWNER" and the Lake County Department of Water Resources, hereinafter referred to as the "COUNTY." In consideration of the covenants and conditions hereinafter written, the OWNER agrees to allow the COUNTY access to the above-referenced vessel for the purpose of decontaminating this vessel to eliminate quagga and zebra mussels from the vessel.

COUNTY agrees to use accepted mussel decontamination procedures including application of heated water to kill mussels in all parts of the vessel and the addition of Potassium Chloride solution to waters within any confined spaces within the vessel including any bilges and/or bladders and/or bait or holding wells. Only a COUNTY employee who has been specifically trained for this type of decontamination shall operate the decontamination equipment.

After decontamination, OWNER shall receive a copy of this document as proof of the decontamination service. This decontamination service is voided if the vessel is moved from Lake County. This vessel must be re-screened for mussels if it leaves Lake County and then returns.

In addition, OWNER and COUNTY agree as follows:

INDEMNIFICATION-HOLD HARMLESS AGREEMENT

1. COUNTY agrees to indemnify OWNER against loss or damage caused by any wrongful, negligent act or omission of COUNTY, its agents or employees in the course of their employment as may be provided for in the California Entity Tort Claims Act.

2. COUNTY further indemnifies and holds harmless OWNER from any and all claims, lawsuits, losses and damages, brought for, or on account of, injuries to or death of any person or persons, arising out of, or alleged to arise out of, or resulting from, the decontamination procedure by COUNTY, its agents or employees on the vessel referenced herein, provided, however, that the active negligence of OWNER, its agents or employees is excluded from this indemnity and hold harmless agreement.

This Agreement is part of the Lake County Invasive Species Program and Ordinance No. 2936, an Ordinance Amending Article IX to Chapter 15 of the Lake County Code Establishing a Fee-based Inspection Program for all Water Vessels launched in the County of Lake that protects all Lake County water bodies from infestation by quagga and zebra mussels.

By:_____ _____

Vessel Owner Department of Water Resources

CHAPTER 639

An act to convey in trust the submerged lands in Clear Lake to the County of Lake, and to its successors, in furtherance of navigation and commerce and the fisheries and to provide for the government, management and control thereof, and to reserve certain rights to the state.

[Approved by Governor September 21, 1973 filed with Secretary of State September 21, 1973]

The people of the State of California do enact as follows:

SECTION 1. There is hereby granted and conveyed in trust to the County of Lake, and to its successors, subject to the provisions of Section 16 of this act, all the right, title, and interest of the state held by the state by virtue of its sovereignty and in and to the submerged lands in Clear Lake. The low water mark for Clear Lake has not been determined, and such determination may have to be made by judicial adjudication. Subject to such later determination, and for the purpose of the administration of this grant only, the low water mark shall be considered by the parties to this grant as being zero on the Rumsey Gauge.

SEC. 2. The submerged lands granted and conveyed pursuant to this act shall be forever held by such county and by its successors in trust for the uses and purposes, and upon the express conditions following, to wit:

(a) That the lands shall be used by the county and its successors for purposes in which there is a general statewide interest as follows:

(1) For the protection of wildlife habitats, the improvement, protection, and conservation of the wildlife and fish resources and the ecology of the area, the providing of open-space areas and areas for recreational use with open access to the public, the enhancement of the aesthetic appearance of the lake and the area, control of dredging or filling of the lake, or both, and prevention of pollution of the lake.

(2) For the establishment, improvement and conduct of small boat harbors, marinas, aquatic playgrounds and similar recreational facilities, and for the construction, reconstruction, repair, maintenance and operation of all works, buildings, facilities, utilities, structures and appliances incidental, necessary or convenient for the promotion and accommodation of any of such uses, including but not limited to snackbars, cafes, restaurants, motels, launching ramps and hoists, storage sheds, boat repair facilities with cranes and marine ways, administration buildings, public restrooms, bait and tackle shops, chandleries, boat sales establishments, service stations and fuel docks, yacht club buildings, parking areas, roadways, pedestrian ways and landscaped areas.

(3) For the construction, reconstruction, repair, maintenance and operation of public buildings, public assembly and meeting places, convention centers, parks, playgrounds, bathhouses and bathing facilities, recreation and fishing piers, public recreation facilities, including but not limited to public golf courses, and for all works, buildings, facilities, utilities, structures and appliances incidental, necessary or convenient for the promotion and accommodation of any such uses.

(4) For the construction, reconstruction, repair and maintenance of highways, streets, roadways, bridges, belt line railroads, parking facilities, power, telephone, telegraph or cable lines or landings, water and gas pipelines, and all other transportation and utility facilities or betterments incidental, necessary or convenient for the promotion and accommodation of any of the uses set forth in this section.

(b) The county, or its successors, shall not at any time grant, convey, give or alienate such lands, or any part thereof, to any individual, firm or corporation for any purposes whatever; provided, that the county, or its successors, may grant franchises thereon for limited periods, not exceeding 66 years, for wharves and other public uses and purposes, and may lease the lands, or any part thereof, for limited periods, not exceeding 66 years, for purposes consistent with the trusts upon which the lands are held by the state, and with the requirements of commerce and navigation, and collect and retain

rents and other revenues from such leases, franchises and privileges. Such lease or leases, franchises and privileges may be for any and all purposes which shall not interfere with commerce and navigation. Nothing contained in this paragraph (b) shall be deemed to affect the validity or term of any franchise granted by said county under the Franchise Act of 1937, and any such franchise shall be effective with respect to the lands. Nothing contained in this act is intended to affect the rights, including riparian rights, of landowners adjacent to Clear Lake.

(c) Within 10 years from the effective date of this act, the lands shall be substantially improved within the meaning of subdivision (a) of this section by the county without expense to the state, and if the State Lands Commission determinates that the county has failed to improve the lands as herein required, all right, title, and interest of the county in and to all lands granted by this act shall cease and the lands shall revert and rest in the state.

Nothing contained in this act, however, shall preclude expenditures for the development of the lands for any public purpose not inconsistent with commerce, navigation and fishery, by the state, or any board, agency or commission thereof, when authorized or approved by the county, nor by the county of any funds received for such purpose from the state or any board, agency or commission thereof.

(d) In the management, conduct, operation and control of said lands or any improvements, betterments, or structures thereon, the county or its successors shall make no discrimination in rates, tolls or charges for any use or service in connection therewith.

(e) The state shall have the right to use without charge any transportation, landing or storage improvements, betterments or structures constructed upon the lands for any vessel or other watercraft, aircraft, or railroad owned or operated by the state.

(f) There is hereby reserved to the people of the state the right to fish in the waters on the lands with the right of convenient access to the water over the lands for such purpose.

(g) There is hereby excepted and reserved in the state all deposits of minerals, including oil and gas and geothermal resources, in the lands, and to the state, or persons authorized by the state, the right to prospect for, mine, and remove such deposits from the lands.

(h) Such lands are granted subject to the express reservation and condition that the state may at any time in the future use the lands or any portion thereof for highway purposes without compensation to the county, its successors or assigns, or any person, firm or public or private corporation claiming under it, except that in the event improvements, betterments or structures have been placed upon the property taken by the state for such purposes, compensation shall be made to the person entitled thereto for the value of his interest in the improvements, betterments or structures taken or the damages to such interest.

SEC. 3. The county shall establish a separate trust fund or funds

in such manner as may be approved by the State Lands Commission and the county shall deposit in the fund or funds all moneys received directly from, or indirectly attributable to, the granted lands. An annual statement of financial condition and operations, to conform with such requirements as the State Lands Commission may prescribe, shall be submitted to the State Lands Commission each year by the county on or before September 30th of each year for the preceding fiscal year.

SEC. 4. Notwithstanding any other provision of law to the contrary, the county, acting either alone or jointly with another local or state agency, may use revenues accruing from or out of the use of the granted lands for any or all of the following purposes; provided, that they comply with the terms of the trust and are matters of statewide, as distinguished from local or purely private, interest and benefit:

(a) For the protection of wildlife habitats, the improvement, protection, and conservation of the wildlife and fish resources and the ecology of the area, the providing of open-space areas and areas for recreational use with open access to the public, the enhancement of the aesthetic appearance of the lake and the area, control of dredging or filling of the lake, or both, and prevention of pollution of the lake

(b) For the establishment, improvement and conduct of small boat harbors, marinas, aquatic playgrounds and similar recreational facilities, and for the construction, reconstruction, repair, maintenance and operation of all works, buildings, facilities, utilities, structures and appliances incidental, necessary or convenient for the promotion and accommodation of any of such uses, including but not limited to snackbars, cafes, cocktail lounges, restaurants, motels, hotels, and other forms of transient living accommodations open to the public, launching ramps and hoists, storage sheds, boat repair facilities with cranes and marine ways, administration buildings, public restrooms, bait and tackle shops, chandleries, boat sales establishments, service stations and fuel docks, yacht club buildings, parking areas, roadways, pedestrian ways and landscaped areas and other compatible commercial and recreational activities and uses.

(c) For the construction, reconstruction, repair, maintenance and operation of public buildings, public assembly and meeting places, convention centers, public parks, public playgrounds, public bathhouses and public bathing facilities, public recreation and public fishing piers, public recreation facilities, including but not limited to public golf courses, and for all works, buildings, facilities, utilities, structures and appliances incidental, necessary or convenient for the promotion and accommodation of any such uses.

(d) For the construction, reconstruction, repair and maintenance of highways, streets, roadways, bridges, belt line railroads, parking facilities, power, telephone, telegraph or cable lines or landings, water and gas pipelines, and all other transportation and utility facilities or betterments incidental, necessary or convenient for the

promotion and accommodation of any of the uses set forth in this section.

(e) For the promotion, by advertising and such other means as may be reasonable and appropriate, of maximum public use of such granted lands or to encourage private investment in development of such granted lands for the highest and best use in the public interest.

(f) For any other uses or purposes of statewide, as distinguished from purely local or private, interest and benefit which are in fulfillment of those trust uses and purposes described in this act.

(g) For the acquisition of property and the rendition of services reasonably necessary to the carrying out of the uses and purposes described in this section, including the amortization or debt service of any capital improvement funding program which is consistent with the terms and conditions set forth in this act.

SEC. 5. Such revenues may be deposited in one or more reserve funds for use in accordance with the terms and conditions set forth in this act.

SEC. 6. As to the accumulation and expenditure of revenues for any single capital improvement on the granted lands involving an amount in excess of two hundred fifty thousand dollars ($250,000) in the aggregate, the county shall file with the State Lands Commission a detailed description of such capital improvement not less than 90 days prior to the time of any disbursement therefor or in connection therewith, excepting preliminary planning. The State Lands Commission may, within 90 days after the time of such filing, determine and notify the county that such capital improvement is not in the statewide interest and benefit or is not authorized by the provisions of Section 4 of this act. The State Lands Commission may request the opinion of the Attorney General on the matter, and if it does so, a copy of such opinion shall be delivered to the county with the notice of its determination. In the event the State Lands Commission notifies the county that such capital improvement is not authorized, the county shall not disburse any revenue for or in connection with such capital improvement, unless and until it is determined to be authorized by a final order or judgment of a court of competent jurisdiction. The county is authorized to bring suit against the state for the purpose of securing such an order or adjudication, which suit shall have priority over all other civil matters. Service shall be made upon the Executive Officer of the State Lands Commission and the Attorney General, and the Attorney General shall defend the state in such suit. If judgment be given against the state in such suit, no costs shall be recovered against it.

SEC. 7. At the end of every third fiscal year, beginning June 30, 1975, that portion of the county trust revenues in excess of two hundred fifty thousand dollars ($250,000) remaining after current and accrued operating costs and expenditures directly related to the operation or maintenance of trust activities have been made, shall be deemed excess revenues; provided, that any funds deposited in a

reserve fund for future capital expenditures or any funds used to retire bond issues for the improvement or operation of the granted lands shall not be deemed excess revenue. Capital improvements of the granted lands for purposes authorized by this act may be considered as expenditures for the purpose of determining net revenues; provided, however, that if made after the effective date of this act they may be so considered only if made in accordance with Section 6 of this act.

The excess revenue, as determined pursuant to this section, shall be divided as follows: 85 percent to the General Fund in the State Treasury, and 15 percent to the county to be deposited in the trust fund and used for any purpose authorized by Section 4 of this act; provided, however, that, of the first such excess revenues which would otherwise be allocated to the county, an amount equal to the cost of the State Lands Division survey conducted at Clear Lake during the period from November 5, 1962, to December 31, 1972, shall be deducted from the county's share and deposited in the General Fund in the State Treasury.

SEC. 8. The State Lands Commission, at the request of the county, shall grant an extension of time, not to exceed 30 calendar days, for filing any report or statement required by this act which was not filed due to mistake or inadvertence.

SEC. 9. In the event that the county fails or refuses to file with the State Lands Commission any report, statement, or document required by any provision of this act within the time period specified by this act, or any extension period granted pursuant to this act, or fails or refuses to carry out the terms of this act, the Attorney General shall, upon the request of the State Lands Commission, bring such judicial proceedings for correction and enforcement as are appropriate, and shall act to protect any improvements to, or assets situated upon, the granted lands or derived therefrom. The State Lands Commission shall notify the Chief Clerk of the Assembly and the Secretary of the Senate within 30 days of the occurrence of such failure or refusal and of actions taken as a result thereof.

SEC. 10. The County of Lake and the State Lands Commission, on behalf of the state, are authorized to enter into boundary agreements with private parties to settle existing boundary disputes. Any such agreement shall not be a precedent for the determination of any subsequent boundary line dispute; however, any subsequent survey shall incorporate the boundary agreement entered into by the commission, the county, and a private party.

SEC. 10.1. The County of Lake, with the approval of the State Lands Commission, is hereby authorized to settle, by agreement, exchange, or quitclaim, any dispute concerning whether or not particular land within the Clear Lake area constitutes land in private or proprietary ownership by reason of title traceable to a state or federal patent or other valid source, or rather constitutes lands granted by this act. In settlement of such disputes, the county, with approval of the State Lands Commission, may, by such agreement,

exchange or quitclaim, establish boundary or compromise boundary lines between the lands granted by this act and bordering private or proprietary lands.

SEC. 10.5. The county shall identify past and future trespasses upon the lands granted by this act and take appropriate steps to terminate such trespasses.

SEC. 11. The State Lands Commission shall, from time to time, recommend to the Legislature such amendments as it may deem necessary in the terms and conditions of this act.

SEC. 12. The State Lands Commission shall, from time to time, institute a formal inquiry to determine that the terms and conditions of this act, and amendments thereto, have been complied with, and that all other applicable provisions of law concerning these specific granted lands are being complied with in good faith.

SEC. 13. The State Lands Commission shall, on or before December 31st of each year, report to the Chief Clerk of the Assembly and to the Secretary of the Senate, the full details of any transaction or condition reported to the commission pursuant to this act which it deems in probable conflict with the requirements of this act, or with any other provision of law.

SEC. 14. The Legislature reserves the right to amend, modify, or revoke, in whole or in part, the submerged lands granted and conveyed in trust pursuant to this act; provided, that the state shall thereupon assume and be bound by all lawful transactions and obligations related to such lands entered into or created by the county during its holding of such lands.

SEC. 15. The Attorney General, on request by resolution of either house of the Legislature, or upon formal request of the State Lands Commission made only after a noticed public hearing at which the grantee has been given an opportunity to fully express any disagreement with the commission's findings or to describe any extenuating circumstances causing the violation, shall bring an action in the Superior Court in the County of Lake to declare that the grant under which the county holds such submerged lands is revoked for gross and willful violation of the provisions of this act or other legislative enactment, or to compel compliance with the terms and conditions of the grant and any other provision of law, including, but not limited to, this act.

SEC. 16. The grant and conveyance in trust of submerged lands to the county provided for by this act shall become effective only upon the written acceptance of such grant and conveyance by the county prior to September 1, 1974.

SEC. 17. If any provision of this act or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the act which can be given effect without the invalid provision or application, and to this end the provisions of this act are severable.

SB-1136 Lake County Flood Control and Water Conservation District. (2003-2004)

Senate Bill No. 1136

CHAPTER 108

An act to amend Section 21180 of the Public Contract Code, to amend Sections 12741 and 12742 of the Water Code, and to amend Sections 1, 2, 4, 5, 6, and 41 of the Lake County Flood Control and Water Conservation District Act (Chapter 1544 of the Statutes of 1951), relating to the Lake County Flood Control and Water Conservation District.

[Filed with Secretary of State July 06, 2004. Approved by Governor July 05, 2004.]

LEGISLATIVE COUNSEL'S DIGEST

SB 1136, Chesbro. Lake County Flood Control and Water Conservation District.

Under existing law, the State Water Resources Control Board and the California regional water quality control boards prescribe waste discharge requirements for the discharge of storm water by municipalities and industries in accordance with the federal national pollutant discharge elimination system (NPDES) permit program established by the Clean Water Act, and the Porter-Cologne Water Quality Control Act. Existing law, the Lake County Flood Control and Water Conservation District Act, prescribes the powers and purposes of the Lake County Flood Control and Water Conservation District.

This bill would change the name of the district to the Lake County Watershed Protection District and would make related conforming changes. The bill would authorize the district to participate alone, or jointly with Lake County, or cities or districts within Lake County, in the NPDES permit program in accordance with the Clean Water Act. The bill would authorize the district to impose and collect fees to carry out the purposes of the district.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 21180 of the Public Contract Code is amended to read:

21180. This article applies to contracts by the Lake County Watershed Protection District, which is governed in accordance with Chapter 1544 of the Statutes of 1951, as amended.

SEC. 2. Section 12741 of the Water Code is amended to read:

12741. The Lake County Watershed Protection District shall give assurances satisfactory to the Secretary of the Army that the local cooperation, required by the Act of Congress approved October 27, 1965 (Public Law 89-298, 79 Stat. 1083, Title II, the Flood Control Act of 1965), will be furnished by the district in connection with the project for flood protection adopted and authorized in Section 12740.

SEC. 3. Section 12742 of the Water Code is amended to read:

12742. The Lake County Watershed Protection District, in conjunction with the Department of the Army, shall execute the plans and projects referred to in Section 12740, and may make modifications and amendments to the plans as may be necessary to execute them for the purposes of Chapters 1 (commencing with Section 12570) and 2 (commencing with Section 12639) of this part.

SEC. 4. Section 1 of the Lake County Flood Control and Water Conservation District Act (Chapter 1544 of the Statutes of 1951) is amended to read:

Section 1. The Lake County Watershed Protection District is hereby established. The territory of the district is that of Lake County.

SEC. 5. Section 2 of the Lake County Flood Control and Water Conservation District Act (Chapter 1544 of the Statutes of 1951) is amended to read:

Sec. 2. For the purposes of this act, "district" means the Lake County Watershed Protection District.

SEC. 6. Section 4 of the Lake County Flood Control and Water Conservation District Act (Chapter 1544 of the Statutes of 1951) is amended to read:

Sec. 4. (a) The objects and purposes of this act are to provide for the control, impounding, treatment, and disposal of the flood and storm waters of the district, the conservation and protection of all waters within the district, including both surface water and groundwater, and the control of flood and storm waters of streams that have their source outside of the district, but which streams and the flood waters thereof flow into the district, to protect from flood or storm waters the watercourses, lakes, groundwater, watersheds, harbors, public highways, life, and property in the district, to develop and improve the quality of all waters within the district for all beneficial uses, including domestic, irrigation, industrial and recreational uses, and to protect and improve the quality of all waters within the district.

(b) The objects and purposes of this act are also to provide for the participation of the district in the national pollutant discharge elimination system (NPDES) permit program in accordance with the Clean Water Act (33 U.S.C. 1251 et seq.).

SEC. 7. Section 5 of the Lake County Flood Control and Water Conservation District Act (Chapter 1544 of the Statutes of 1951) is amended to read:

Sec. 5. The district is hereby declared to be a body corporate and politic and may do all of the following:

1. Have perpetual succession.

2. Sue and be subject to suit in the name of said district.

3. Adopt a seal.

4. Acquire by grant, purchase, lease, gift, devise, contract, construction, or otherwise, and hold, use, enjoy, let, and dispose of real and personal property of every kind, including lands, structures, buildings, rights-of-way, easements, water and water rights, and privileges and construct, maintain, alter, and operate any and all works or improvements, within or outside the district, necessary or proper to carry out any of the objects of purposes of this act and convenient to the full exercise of its powers, and complete, extend, add to, alter, remove, repair or otherwise improve any works, or improvements, or property acquired by it as authorized by this act.

5. Conserve all waters within the district, and control the flood and storm waters of the district and the flood and storm waters of streams that have their sources outside the district, but which streams and floodwaters thereof, flow into the district, and protect from damage from those flood or storm waters the watercourses, watersheds, harbors, public highways, life and property in the district, and the watercourses outside the district of streams flowing into the district, and to develop waters within or outside the district for domestic irrigation, industrial, and recreational uses, and construct works therefor, including works for the storage and delivery of water; provided further, that none of the provisions of this act shall preclude the exercise by any other political subdivision that may now or hereafter exist, wholly or in part, within the district from exercising its powers, although the powers may be of the same nature as the powers of the district. Any other political subdivision may, by written agreement with the district, provide for the use, or joint use, of property or facilities in which that other political subdivision has an interest, or for the use, or joint use, of property or facilities in which the district has an interest.

6. Cooperate and act in conjunction with the federal government, the state, or any of their engineers, officers, boards, commissions, departments or agencies, or with any public or private corporation, or with the County of Lake or adjacent counties, or with any other agencies, in the construction of any work for the storage or delivery of all waters within or outside the district for domestic, irrigation, industrial, and recreational uses and for the conservation of waters within the district, for the controlling of flood or storm waters of or flowing into the district, or for the protection of life or property in the district.

7. Carry on technical and other investigations of all kinds, make measurements, collect data and make analyses, studies, and inspections pertaining to the beneficial use of waters within or outside the district, including domestic, irrigation, industrial, and recreational uses and the conservation of water and the control of floods both within and outside the district, and for those purposes the district shall have the right of access through its authorized representatives to all properties within the district. The district, through its authorized representatives, may enter upon those lands and make examinations, surveys, and maps thereof.

8. Enter upon any land, to make surveys and locate the necessary works of improvement and the lines for channels, conduits, canals, pipelines, roadways and other rights-of-way; acquire by purchase, lease, contract, gift, devise, or other legal means all lands and other property necessary or convenient for the construction, use, supply, maintenance, repair and improvement of the works, enter into and do any acts necessary or proper for the performance of any agreement with the United States, or any state, county, district of any kind, public or private corporation, association, firm or individual, or any number of them for the joint acquisition, construction, leasing, ownership, disposition, use, management, maintenance, repair or operation of any rights, works or other property of a kind which might be lawfully acquired or owned by the district.

9. Incur indebtedness and issue bonds in the manner provided in this act.

10. In compliance with Article XIII C and Article XIII D of the California Constitution, cause taxes, fees, or assessments to be levied and collected for the purpose of paying any obligation of the district, and to carry out any of the purposes of this act, in the manner provided in this act.

11. Make contracts, and employ labor, and do all acts necessary for the full exercise of all powers vested in the district or any of the officers thereof by this act.

12. Exercise the right of eminent domain, either within or outside the district, to take any property necessary to carry out any of the objects or purposes of this act. The district in exercising that power shall, in addition to the damage for the taking, injury, or destruction of property, also pay the cost of removal, reconstruction, or relocation of any structure, railways, mains, pipes, conduits, wires, cable, poles, of any public utility that is required to be moved to a new location.

The district shall not condemn property outside the County of Lake unless the consent of the governing board of the county, in which the property to be condemned is located, has first been obtained.

Nothing in this act contained shall be construed as in any way affecting the plenary power of any existing city and county or municipal utility district to provide for a water supply for that city and county or municipal utility district, or as affecting the absolute control of any properties of that city and county or municipal utility district necessary for that water supply and nothing herein contained shall be construed as vesting any power of control over those properties in the district or in any officer thereof, or in any person referred to in this act.

13. Provide for the operation and maintenance of any works of any kind or channelways, that may be built or operated by the state or the federal government without cost to the district, for the control or disposition of flood and storm waters within the district whether those waters originate within or outside the district.

14. Contract with the County of Lake, because of the interest of the County of Lake in the general welfare and preservation and promotion of land values in the county and in the maintenance, construction and improvement of public roads, bridges and other county property within any zone that may be damaged or destroyed by those flood and storm waters and that will be protected by proper control and disposition of those waters, for the participation by that county, on a percentage or other appropriate basis, in the amount or amounts that may be taxed or assessed from time to time against any lands in any zone by any taxing or assessing agency or authority, including the district, to provide funds for the operation and maintenance of any works of any kind or channelways which may be built, maintained or operated by the state or the federal government or the district for the benefit of that zone; and the County of Lake may enter into that contract with the district.

15. Levy assessments in any zone, on the basis of benefits as provided in Section 13 or 13.1 of this act, to raise funds for payment of expenses of operation and of works or channelways in that zone and the cost of levying and collecting those assessments.

16. Levy and collect special taxes in the district or any zone in accordance with Section 13 of this act.

17. Levy and collect benefit assessments in the district or any zone in accordance with Section 13 of this act.

18. Participate alone, or jointly with Lake County, or cities or districts within Lake County, in the national pollutant discharge elimination system (NPDES) permit program in accordance with the Clean Water Act (33 U.S.C. 1252 et seq.), and undertake necessary acts in connection with that program.

SEC. 8. Section 6 of the Lake County Flood Control and Water Conservation District Act (Chapter 1544 of the Statutes of 1951) is amended to read:

Sec. 6. (a) The Board of Supervisors of Lake County shall be and is hereby designated as, and empowered to act as, the ex officio Board of Directors of the Lake County Watershed Protection District. For the purposes of this act, the terms "board" and "board of supervisors" means the Board of Directors of the Lake County Watershed Protection District.

(b) Each member of the board of directors of the district shall receive as compensation for his or her services one hundred fifty dollars ($150) per month, and his or her actual and necessary expenses in the performance of official duties under this act, payable from the funds of the district in addition to his or her salary as county supervisor.

(c) All ordinances, resolutions, and other legislative acts of the district shall be adopted by the board of directors, and certified to, recorded and published, in the same manner, except as otherwise expressly provided in this act, as are ordinances, resolutions, or other legislative acts of the County of Lake.

SEC. 9. Section 41 of the Lake County Flood Control and Water Conservation District Act (Chapter 1544 of the Statutes of 1951) is amended to read:

Sec. 41. This act shall be known and may be cited as the Lake County Watershed Protection District Act.

Infrastructure Survey - Clear Lake / Lake County By LCWPD

Survey Location	Structure Type	Survey Length (m)	Mussel Status	Other Organisms Present	Other Species	Survey Date	Creator	X	Y
Lucerne Harbor	Boat Ramp	50	Absent	Yes	ChineseMysterySnail,CorbiculaClams	1/9/2024	LCWRD	-122.797196	39.09045
Keeling Park	Boat Ramp	46.87	Absent	Yes	CorbiculaClams,NativeSnails,ChineseMysterySnail	1/12/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Boat Ramp	43.02	Absent	Yes	OtherMussels	1/12/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	14.7	Absent	Yes	OtherMussels,NativeSnails	1/12/2024	LCWRD	-122.674063	39.01917
Redbud	Boat Ramp	11.31	Absent	Yes	NativeSnails,OtherMussels	1/12/2024	LCWRD	-122.637792	38.94851
Clear Lake SP1	Boat Ramp	12.44	Absent	No		1/12/2024	LCWRD	-122.813203	39.02017
Clear Lake SP2	Boat Ramp	12.21	Absent	No		1/12/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	9.45	Absent	No		1/12/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	24.26	Absent	No		1/12/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	24.31	Absent	No		1/12/2024	LCWRD	-122.912904	39.04533
Robinson Property CL	Shoreline	33	Absent	No		1/16/2024	LCWRD	-122.871406	39.12274157
Clearlake Campground	Shoreline	83.94	Absent	no		1/30/2024	LCWRD	-122.616723	38.92570754
Blue Lake Narrows	Shoreline	139.38	Absent	no		2/28/2024	LCWRD	-123.016261	39.17436123
Davis Beach	Boat Ramp	70	Absent	yes	Native Snails	3/12/2024	LCWRD	-122.782762	39.06972689
Redbud	Boat Ramp	64.23	Absent	no		3/18/2024	LCWRD	-122.637792	38.94851
Clearlake Oaks	Boat Ramp	12.13	Absent	no		3/18/2024	LCWRD	-122.674063	39.01917
Lucerne Harbor	Shoreline	61.55	Absent	no		3/18/2024	LCWRD	-122.797196	39.09045
Keeling Park	Shoreline	91.89	Absent	yes	Native Snails	3/18/2024	LCWRD	-122.855103	39.12113
5th Street	Boat Ramp	56.24	Absent	yes	Corbicula Clams, Native Snails	3/18/2024	LCWRD	-122.912904	39.04533
3rd Street	Boat Ramp	22.77	Absent	yes	Corbicula Clams, Native Snails	3/18/2024	LCWRD	-122.91299	39.04394
Davis Beach	Shoreline	65.4	Absent	yes	Corbicula Clams, Native Snails Chinese Mystery Snail	3/26/2024	LCWRD	-122.782762	39.06972689
Keeling Park	Shoreline	37.19	Absent	yes	Native Snails	4/9/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Shoreline	15.28	Absent	yes	Native Snails	4/9/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	19.14	Absent	no		4/9/2024	LCWRD	-122.674063	39.01917
Redbud	Boat Ramp	56.64	Absent	yes	Native Snails, Corbicula Claims	4/9/2024	LCWRD	-122.637792	38.94851
Braitos Marina	Boat Ramp	5.82	Absent	no		4/9/2024	LCWRD	-122.813203	39.02017
Clear Lake State Park	Boat Ramp	29.81	Absent	no		4/9/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	9.93	Absent	no		4/9/2024	LCWRD	-122.847627	39.02934
Konocti Vista Casino	Boat Ramp	21.84	Absent	no		4/9/2024	LCWRD	-122.91299	39.04394
3rd Street	Boat Ramp	26.1	Absent	no		4/9/2024	LCWRD	-122.912904	39.04394
5th Street	Boat Ramp	15.26	Absent	yes	Native Snails	4/9/2024	LCWRD	-122.912904	39.04533
Keeling Park	Shoreline	95.69	Absent	yes	Native Snails	4/24/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Shoreline	143.29	Absent	no		4/24/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	148.51	Absent	no		4/24/2024	LCWRD	-122.674063	39.01917
Redbud	Boat Ramp	61.5	Absent	yes	Native Snails	4/24/2024	LCWRD	-122.637792	38.94851
Braitos Marina	Boat Ramp	19.29	Absent	no		4/24/2024	LCWRD	-122.813203	39.02017
Clear Lake State Park	Boat Ramp	22.45	Absent	no		4/24/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	20.51	Absent	no		4/24/2024	LCWRD	-122.847627	39.02934
Konocti Vista Casino	Boat Ramp	32.08	Absent	yes	Native Snails	4/24/2024	LCWRD	-122.91299	39.04394
3rd Street	Boat Ramp	19.48	Absent	yes	Native Snails	4/24/2024	LCWRD	-122.912904	39.04533
5th Street	Boat Ramp	13.98	Absent	no		4/24/2024	LCWRD	-122.912904	39.04533
Library Park Parking Lot	Boat Docks	0	Absent	no		4/24/2024	LCWRD	-122.912904	39.04533
Highland Springs	Shoreline	19.9	Absent	no		5/10/2024	LCWRD	-122.905913	38.94068603
Keeling Park	Shoreline	12.69	Absent	yes	Native Snails	5/13/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Shoreline	17.27	Absent	no		5/13/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	13.25	Absent	yes	Corbicula Clams	5/13/2024	LCWRD	-122.674063	39.01917

Survey Location	Structure Type	Survey Length (m)	Mussel Status	Other Organisms Present	Other Species	Survey Date	Creator	X	Y
Redbud	Boat Ramp	52.87	Absent	yes	Corbicula Clams	5/13/2024	LCWRD	-122.637792	38.94851
Braitos Marina	Boat Ramp	26.7	Absent	no		5/13/2024	LCWRD	-122.813203	39.02017
Clear Lake State Park	Boat Ramp	20.23	Absent	no		5/13/2024	LCWRD	-122.813203	39.02017
Konocti Vista Casino	Boat Ramp	24.48	Absent	yes	Native Snails	5/13/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	9.61	Absent	yes	Native Snails	5/13/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	9.5	Absent	no		5/13/2024	LCWRD	-122.912904	39.04533
Blue Lake Narrows	Shoreline	50.4	Absent	no		5/22/2024	LCWRD	-123.016261	39.17436123
Keeling Park	Shoreline	62.68	Absent	No		6/11/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Boat Ramp	28.72	Absent	Yes	NativeSnails,ChineseMysterySnail	6/11/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	14.64	Absent	Yes	NativeSnails	6/11/2024	LCWRD	-122.674063	39.01917
Redbud	Boat Ramp	11.92	Absent	Yes	NativeSnails	6/11/2024	LCWRD	-122.637792	38.94851
Clear Lake SP	Boat Ramp	18.39	Absent	No		6/11/2024	LCWRD	-122.813203	39.02017
Braitos Marina	Boat Ramp	11.25	Absent	No		6/11/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	143.6	Absent	Yes	NativeSnails	6/11/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	83.71	Absent	No		6/11/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	23.79	Absent	No		6/11/2024	LCWRD	-122.912904	39.04533
Clear Lake Campground	Shoreline	86.09	Absent	No		6/17/2024	LCWRD	-122.615832	38.92570754
Lake Pillsbury Resort	Shoreline	63.77	Absent	No		6/24/2024	LCWRD	-122.958139	39.42127726
Blue Lake Narrows	Shoreline	62.62	Absent	No		6/25/2024	LCWRD	-123.016	39.17436
Keeling Park	Shoreline	51.49	Absent	Yes	NativeSnails	7/9/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Boat Ramp	14.5	Absent	Yes	NativeSnails	7/9/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	19.47	Absent	Yes	NativeSnails	7/9/2024	LCWRD	-122.674063	39.01917
Redbud	Boat Ramp	13.92	Absent	Yes	NativeSnails	7/9/2024	LCWRD	-122.637792	38.94851
Clear Lake SP	Boat Ramp	50	Absent	No		7/9/2024	LCWRD	-122.813203	39.02017
Braitos Marina	Boat Ramp	19.99	Absent	No		7/9/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	15.39	Absent	Yes	NativeSnails	7/9/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	9.97	Absent	Yes	NativeSnails,CorbiculaClams	7/9/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	84.39	Absent	No		7/9/2024	LCWRD	-122.912904	39.04533
Keeling Park	Shoreline	58.96	Absent	Yes	NativeSnails,CorbiculaClams,ChineseMysterySnail	8/22/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Boat Ramp	12.67	Absent	No		8/22/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	63.63	Absent	Yes	NativeSnails	8/22/2024	LCWRD	-122.674063	39.01917
Redbud	Boat Ramp	23.16	Absent	Yes	NativeSnails,ChineseMysterySnail	8/22/2024	LCWRD	-122.637792	38.94851
Clear Lake SP	Boat Ramp	19.91	Absent	No		8/22/2024	LCWRD	-122.813203	39.02017
Braitos Marina	Boat Ramp	9.05	Absent	No		8/22/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	10.69	Absent	No		8/22/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	19.13	Absent	Yes	ChineseMysterySnail,NativeSnails	8/22/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	10.47	Absent	Yes	NativeSnails	8/22/2024	LCWRD	-122.912904	39.04533
Keeling Park	Shoreline	105.25	Absent	No		9/10/2024	LCWRD	-122.855103	39.12113
Lucerne Harbor	Boat Ramp	30.5	Absent	Yes	NativeSnails	9/10/2024	LCWRD	-122.797196	39.09045
Clearlake Oaks	Boat Ramp	20.54	Absent	Yes	CorbiculaClams	9/10/2024	LCWRD	-122.674063	39.01917
Redbud	Boat Ramp	59.81	Absent	No		9/10/2024	LCWRD	-122.637792	38.94851
Clear Lake SP	Boat Ramp	13.55	Absent	No		9/10/2024	LCWRD	-122.813203	39.02017
Braitos Marina	Boat Ramp	30.42	Absent	No		9/10/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	14.44	Absent	Yes	NativeSnails	9/10/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	23.26	Absent	Yes	NativeSnails	9/10/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	7.27	Absent	No		9/10/2024	LCWRD	-122.912904	39.04533
Keeling Park	Shoreline	81.2	Absent	Yes	NativeSnails,ChineseMysterySnail,CorbiculaClams	10/15/2024	LCWRD	-122.855103	39.12113
Clearlake Oaks	Boat Ramp	63.55	Absent	Yes	NativeSnails,CorbiculaClams	10/15/2024	LCWRD	-122.797196	39.09045
Redbud	Boat Ramp	14.62	Absent	Yes	NativeSnails	10/15/2024	LCWRD	-122.674063	39.01917

Survey Location	Structure Type	Survey Length (m)	Mussel Status	Other Organisms Present	Other Species	Survey Date	Creator	X	Y
Braitos Marina	Boat Ramp	60.67	Absent	Yes	NativeSnails,CorbiculaClams,ChineseMysterySnail	10/15/2024	LCWRD	-122.637792	38.94851
Clear Lake State Park	Boat Ramp	12.14	Absent	No		10/15/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	22.1	Absent	Yes	NativeSnails	10/15/2024	LCWRD	-122.813203	39.02017
Konocti Vista Casino	Boat Ramp	9.25	Absent	Yes	NativeSnails	10/15/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	8.75	Absent	Yes	NativeSnails	10/15/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	19.08	Absent	Yes	NativeSnails	10/15/2024	LCWRD	-122.912904	39.04533
Blue Lakes Narrows	Shoreline	113.4	Absent	Yes	NativeSnails	10/22/2024	LCWRD	-123.016261	39.17436123
Keeling Park	Shoreline	82.44	Absent	yes	NativeSnails,CorbiculaClams	11/19/2024	LCWRD	-122.855103	39.12113
Clearlake Oaks	Boat Ramp	18.19	Absent	No		11/19/2024	LCWRD	-122.797196	39.09045
Redbud	Boat Ramp	48.32	Absent	Yes	CorbiculaClams,NativeSnails	11/19/2024	LCWRD	-122.674063	39.01917
Braitos Marina	Boat Ramp	8.01	Absent	No		11/19/2024	LCWRD	-122.637792	38.94851
Clear Lake State Park	Boat Ramp	25.15	Absent	No		11/19/2024	LCWRD	-122.813203	39.02017
Lakeside CP	Boat Ramp	13.17	Absent	No		11/19/2024	LCWRD	-122.813203	39.02017
Konocti Vista Casino	Boat Ramp	10.67	Absent	Yes	NativeSnails	11/19/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	22.83	Absent	Yes	NativeSnails,CorbiculaClams	11/19/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	14.08	Absent	Yes	NativeSnails,CorbiculaClams	11/19/2024	LCWRD	-122.912904	39.04533
Bue Lakes Narrows	Shoreline	83.62	Absent	Yes	Native Snails	12/2/2024	LCWRD	-123.016261	39.17436123
Lucerne Harbor	Shoreline	68.7	Absent	No		12/10/2024	LCWRD	-122.847627	39.02934
Keeling Park	Shoreline	85.24	Absent	Yes	CorbiculaClams,NativeSnails	12/10/2024	LCWRD	-122.855103	39.12113
Lakeside CP	Boat Ramp	6.66	Absent	No		12/10/2024	LCWRD	-122.813203	39.02017
Konocti Vista Casino	Boat Ramp	11.39	Absent	No		12/10/2024	LCWRD	-122.847627	39.02934
3rd Street	Boat Ramp	20.78	Absent	No		12/10/2024	LCWRD	-122.91299	39.04394
5th Street	Boat Ramp	18.83	Absent	No		12/10/2024	LCWRD	-122.912904	39.04533
Clearlake Oaks	Boat Ramp	63.68	Absent	No		12/10/2024	LCWRD	-122.797196	39.09045
Redbud	Boat Ramp	16.5	Absent	Yes	Corbicula Clams, Native Snail	12/10/2024	LCWRD	-122.674063	39.01917
Braitos Marina	Boat Ramp	8.01	Absent	No		12/10/2024	LCWRD	-122.637792	38.94851
Clear Lake State Park	Boat Ramp	25.15	Absent	Yes	Native Snails	12/10/2024	LCWRD	-122.813203	39.02017

Substrate Survey Clear Lake / Lake County by LCWPD

ObjectID	Survey Date	Crew	Collector Affiliation	Waterbody	Substrate Location	Mussel Status	Describe Findings	x	y
1	1/9/2024 20:03	JB	LCWRD	Clear Lake	Lucerne Harbor	Absent		-122.797196	39.09045
2	1/25/2024 15:46	FM	LCWRD	Clear Lake	Keeling Park	Absent	Snail eggs	-122.855103	39.12113
3	1/25/2024	FM	LCWRD	Clear Lake	Lucerne Harbor	Absent	Worms	-122.797196	39.09045
4	1/25/2024 0:00	FM	LCWRD	Clear Lake	Clealake Oaks	Absent	Worms	-122.674063	39.01917
5	1/25/2024 0:00	FM	LCWRD	Clear Lake	Redbud	Absent	Worms	-122.637792	38.94851
6	1/25/2024 0:00	FM	LCWRD	Clear Lake	Braitos Marina 1	Absent	Snail eggs and worms	-122.751612	39.02159
7	1/25/2024 0:00	FM	LCWRD	Clear Lake	Braitos Marina 2	Absent	Worms	-122.75189	39.02152
8	1/25/2024 18:27	FM	LCWRD	Clear Lake	Clear Lake SP1	Absent	Snail eggs	-122.813203	39.02017
9	1/25/2024 18:29	FM	LCWRD	Clear Lake	Clear Lake SP2	Absent	Snail eggs	-122.81335	39.02
10	1/25/2024 19:16	FM	LCWRD	Clear Lake	Lakeside CP	Absent	Worms	-122.847627	39.02934
11	1/25/2024 19:42	FM	LCWRD	Clear Lake	Konocti Vista Casino	Absent	Worms	-122.887757	39.02216
12	1/25/2024 20:34	FM	LCWRD	Clear Lake	3rd Street	Absent	Worms	-122.91299	39.04394
13	1/25/2024 20:36	FM	LCWRD	Clear Lake	5th Street	Absent	Worms	-122.912904	39.04533
14	2/21/2024 18:03	CH	LCWRD	Clear Lake	Keeling Park	Absent	Native Snail	-122.855103	39.12113
15	2/21/2024 18:16	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent	Native snails	-122.797196	39.09045
16	2/21/2024 18:43	CH	LCWRD	Clear Lake	Clealake Oaks	Absent	Snail eggs	-122.674063	39.01917
17	2/21/2024 19:17	CH	LCWRD	Clear Lake	Redbud	Absent		-122.637792	38.94851
18	2/21/2024 20:12	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent	Snail eggs	-122.75189	39.02152
19	2/21/2024 20:19	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent		-122.751612	39.02159
20	2/21/2024 20:46	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent		-122.813203	39.02017
21	2/21/2024 20:51	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent		-122.81335	39.02
22	2/21/2024 21:07	CH	LCWRD	Clear Lake	Lakeside CP	Absent	Snail eggs native snails	-122.847627	39.02934
23	2/21/2024 21:33	CHaA	LCWRD	Clear Lake	Konocti Vista Casino	Absent	Native snails snail eggs	-122.887757	39.02216
24	2/21/2024 21:52	CH	LCWRD	Clear Lake	3rd Street	Absent		-122.91299	39.04394
25	2/21/2024 21:55	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
26	2/28/2024 21:34	CH	LCWRD	Blue Lakes	Narrows Resort	Absent		-123.015885	39.17366
27	3/13/2024 17:29	CH	LCWRD	Clear Lake	Redbud	Absent		-122.637792	38.94851
28	13:30.1	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent	Native snails snail eggs	-122.75189	39.02152
29	3/13/2024 18:15	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Native snails snail eggs	-122.751612	39.02159
30	3/13/2024 18:36	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent	Native Snails	-122.813203	39.02017
31	3/13/2024 18:38	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent		-122.81335	39.02
32	3/13/2024 18:53	CH	LCWRD	Clear Lake	Lakeside CP	Absent	Native snails	-122.847627	39.02934
33	3/13/2024 19:06	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent	Snail eggs native snails	-122.887757	39.02216
34	3/18/2024 18:43	CH	LCWRD	Clear Lake	Redbud	Absent		-122.637792	38.94851
35	3/18/2024 19:15	CH	LCWRD	Clear Lake	Clealake Oaks	Absent		-122.674063	39.01917
36	3/18/2024 19:43	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent	Native snails	-122.797196	39.09045
37	3/18/2024 20:09	CH	LCWRD	Clear Lake	Keeling Park	Absent		-122.855103	39.12113
38	3/18/2024 20:51	CH	LCWRD	Clear Lake	5th Street	Absent	Native snails	-122.912904	39.04533
39	3/18/2024 21:05	CH	LCWRD	Clear Lake	3rd Street	Absent	Native snails	-122.91299	39.04394
40	4/17/2024 17:00	CH	LCWRD	Clear Lake	Keeling Park	Absent	Native snails	-122.855103	39.12113
41	11:42.9	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent		-122.797196	39.09045
42	4/17/2024 17:31	CH	LCWRD	Clear Lake	Clealake Oaks	Absent	Native snails snail eggs	-122.674063	39.01917
43	4/17/2024 18:00	CH	LCWRD	Clear Lake	Redbud	Absent		-122.637792	38.94851
44	4/17/2024 18:49	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent	Native snails snail eggs	-122.75189	39.02152
45	4/17/2024 18:54	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Native snails snail eggs	-122.751612	39.02159
46	4/17/2024 19:24	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent	Native snails	-122.813203	39.02017
47	4/17/2024 19:25	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent	Native snails snail eggs	-122.81335	39.02
48	4/17/2024 19:38	CH	LCWRD	Clear Lake	Lakeside CP	Absent		-122.847627	39.02934
49	4/17/2024 20:02	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent		-122.887757	39.02216
50	4/17/2024 20:18	CH	LCWRD	Clear Lake	3rd Street	Absent		-122.91299	39.04394
51	4/17/2024 20:19	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
52	5/13/2024 17:03	CH AS	LCWRD	Clear Lake	Keeling Park	Absent		-122.855103	39.12113
53	5/13/2024 17:16	CH AS	LCWRD	Clear Lake	Lucerne Harbor	Absent		-122.797196	39.09045
54	5/13/2024 18:02	CH AS	LCWRD	Clear Lake	Clealake Oaks	Absent	Native snails snail eggs	-122.674063	39.01917
55	5/13/2024 18:41	CJh AS	LCWRD	Clear Lake	Redbud	Absent	Snail eggs	-122.637792	38.94851
56	5/13/2024 19:44	CH AS	LCWRD	Clear Lake	Braitos Marina 2	Absent	Native snails snail eggs	-122.75189	39.02152
57	5/13/2024 19:48	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Snail eggs native snails	-122.751612	39.02159

ObjectID	Survey Date	Crew	Collector Affiliation	Waterbody	Substrate Location	Mussel Status	Describe Findings	x	y
58	5/13/2024 20:17	CH AS	LCWRD	Clear Lake	Clear Lake SP1	Absent	Native snails	-122.813203	39.02017
59	5/13/2024 20:23	CH AS	LCWRD	Clear Lake	Clear Lake SP2	Absent		-122.81335	39.02
60	5/13/2024 20:37	CH AS	LCWRD	Clear Lake	Lakeside CP	Absent		-122.847627	39.02934
61	5/13/2024 21:03	CH AS	LCWRD	Clear Lake	Konocti Vista Casino	Absent		-122.887757	39.02216
62	5/13/2024 21:18	CH AS	LCWRD	Clear Lake	3rd Street	Absent	Agustin insects	-122.91299	39.04394
63	5/13/2024 21:25	CH AS	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
64	5/22/2024 16:12	CH	LCWRD	bluelakes	Narrows Resort	Absent		-123.015885	39.17366
65	3/28/2024 20:35	JB TW	LCWRD	highlandspring	Floating Buoy Near Dam	Absent	Chronimids	-122.904278	38.945906
66	5/22/2024 17:51	JB TW	LCWRD	highlandspring	Floating Buoy Near Dam	Absent	Native snails Chinese mystery snail	-122.904278	38.945906
67	6/11/2024	CH	LCWRD	Clear Lake	Keeling Park	Absent	Native snails snail eggs	-122.855103	39.12113
68	6/11/2024	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent		-122.797196	39.09045
69	6/11/2024	CH	LCWRD	Clear Lake	Clealake Oaks	Absent		-122.674063	39.01917
70	6/11/2024	CH	LCWRD	Clear Lake	Red bud	Absent		-122.637792	38.94851
71	6/11/2024	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent		-122.813203	39.02017
72	6/11/2024	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent	Native snails snail eggs	-122.81335	39.02
73	6/11/2024	CH	LCWRD	Clear Lake	Lakeside CP	Absent	Native snails snail eggs	-122.847627	39.02934
74	6/11/2024	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent	Native snails	-122.887757	39.02216
75	6/11/2024	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent		-122.75189	39.02152
76	6/11/2024	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Native snails	-122.751612	39.02159
77	6/11/2024	CH	LCWRD	Clear Lake	3rd Street	Absent		-122.91299	39.04394
78	6/11/2024	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
79	6/25/2024	CH	LCWRD	Blue Lakes	Blue Lakes Narrows Reso	Absent	Native Snails Chronimids	-123.016	39.17366
80	7/8/2024	JB TW	LCWRD	highlandspring	Floating Buoy Near Dam	Absent	Native Snails	-122.904278	38.945906
81	7/9/2024	CH	LCWRD	Clear Lake	Keeling Park	Absent	Native snails	-122.855103	39.12113
82	7/9/2024	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent	Chironomids native snails	-122.797196	39.09045
83	7/9/2024	CH	LCWRD	Clear Lake	Clealake Oaks	Absent		-122.674063	39.01917
84	7/9/2024	CH	LCWRD	Clear Lake	Red bud	Absent		-122.637792	38.94851
85	7/9/2024	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent	Native snails	-122.75189	39.02152
86	7/9/2024	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent	Native snails chironomids	-122.751612	39.02159
87	7/9/2024	CH	LCWRD	Clear Lake	Lakeside CP	Absent		-122.813203	39.02017
88	7/9/2024	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent		-122.81335	39.02
89	7/9/2024	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent		-122.847627	39.02934
90	7/9/2024	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent		-122.887757	39.02216
91	7/9/2024	CH	LCWRD	Clear Lake	3rd Street	Absent	Native snails chironomids	-122.91299	39.04394
92	7/9/2024	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
93	8/19/2024	CH	LCWRD	Clear Lake	Keeling Park	Absent	Native snails snail eggs chinese myst	-122.855103	39.12113
94	8/19/2024	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent	Native snails heavy algae	-122.797196	39.09045
95	8/19/2024	CH	LCWRD	Clear Lake	Clealake Oaks	Absent	Native snails chinese mystery snail	-122.674063	39.01917
96	8/19/2024	CH	LCWRD	Clear Lake	Red bud	Absent	Native snails	-122.637792	38.94851
97	8/19/2024	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent	Native snails	-122.75189	39.02152
98	8/19/2024	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent	Native snails	-122.751612	39.02159
99	8/19/2024	CH	LCWRD	Clear Lake	Lakeside CP	Absent	Native snails snail eggs	-122.813203	39.02017
100	8/19/2024	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent	Natove snails brotozans	-122.81335	39.02
101	8/19/2024	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent		-122.847627	39.02934
102	8/19/2024	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Native snails chinese mystery snail	-122.887757	39.02216
103	8/19/2024	CH	LCWRD	Clear Lake	3rd Street	Absent	Native snails snail eggs chinese myst	-122.91299	39.04394
104	8/19/2024	CH	LCWRD	Clear Lake	5th Street	Absent	Native snails chinese mystery snail	-122.912904	39.04533
105	9/10/2024	CH	LCWRD	Clear Lake	Keeling Park	Absent		-122.855103	39.12113
106	9/10/2024	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent		-122.797196	39.09045
107	9/10/2024	CH	LCWRD	Clear Lake	Clealake Oaks	Absent		-122.674063	39.01917
108	9/10/2024	CH	LCWRD	Clear Lake	Red bud	Absent		-122.637792	38.94851
109	9/10/2024	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent		-122.75189	39.02152
110	9/10/2024	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent		-122.751612	39.02159
111	9/10/2024	CH	LCWRD	Clear Lake	Lakeside CP	Absent	Bryozoan native snail	-122.813203	39.02017
112	9/10/2024	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent	Bryozoan native snails	-122.81335	39.02
113	9/10/2024	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent		-122.847627	39.02934
114	9/10/2024	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Bryozoan native snails	-122.887757	39.02216
115	9/10/2024	CH	LCWRD	Clear Lake	3rd Street	Absent		-122.91299	39.04394

ObjectID	Survey Date	Crew	Collector Affiliation	Waterbody	Substrate Location	Mussel Status	Describe Findings	x	y
116	9/10/2024	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
117	10/15/2024	CH	LCWRD	Clear Lake	Keeling Park	Absent	Native snails snail eggs	-122.855103	39.12113
118	10/15/2024	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent	Native snails Algae mats	-122.797196	39.09045
119	10/15/2024	CH	LCWRD	Clear Lake	Clealake Oaks	Absent		-122.674063	39.01917
120	10/15/2024	CH	LCWRD	Clear Lake	Red bud	Absent		-122.637792	38.94851
121	10/15/2024	CH	LCWRD	Clear Lake	Clear Lake SP1	Absent		-122.75189	39.02152
122	10/15/2024	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent		-122.751612	39.02159
123	10/15/2024	CH	LCWRD	Clear Lake	Lakeside CP	Absent		-122.813203	39.02017
124	10/15/2024	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent		-122.81335	39.02
125	10/15/2024	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent		-122.847627	39.02934
126	10/15/2024	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Native snails	-122.887757	39.02216
127	10/15/2024	CH	LCWRD	Clear Lake	3rd Street	Absent	Native snails	-122.91299	39.04394
128	10/15/2024	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
129	10/22/2024	CH	LCWRD	Blue Lakes	Blue Lakes Narrows Reso	Absent	Native Snails	-123.016	39.17366
130	11/19/2024	CH	LCWRD	Clear Lake	Keeling Park	Absent		-122.855103	39.12113
131	11/19/2024	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent	Dock is blocked off due to dredging	-122.797196	39.09045
132	11/19/2024	CH	LCWRD	Clear Lake	Clearlake Oaks	Absent		-122.674063	39.01917
133	11/19/2024	CH	LCWRD	Clear Lake	Redbud	Absent		-122.637792	38.94851
134	11/19/2024	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent		-122.75189	39.02152
135	11/19/2024	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Chrominids	-122.751612	39.02159
136	11/19/2024	CH	LCWRD	Clear Lake	Clear Lake SP 1	Absent	Brotizan	-122.813203	39.02017
137	11/19/2024	CH	LCWRD	Clear Lake	Clear Lake SP2	Absent		-122.81335	39.02
138	11/19/2024	CH	LCWRD	Clear Lake	Lakeside CP	Absent		-122.847627	39.02934
139	11/19/2024	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent		-122.887757	39.02216
140	11/19/2024	CH	LCWRD	Clear Lake	3rd Steet	Absent		-122.91299	39.04394
141	11/19/2024	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
142	12/2/2024	CH	LCWRD	Clear Lake	Blue Lakes Narrows Reso	Absent	Native Snails	-123.016	39.17366
143	12/10/2024	CH	LCWRD	Clear Lake	Lucerne Harbor	Absent	Dock is blocked off due to dredging	-122.797196	39.09045
144	12/10/2024	CH	LCWRD	Clear Lake	Keeling Park	Absent		-122.855103	39.12113
145	12/10/2024	CH	LCWRD	Clear Lake	Lakeside CP	Absent		-122.847627	39.02934
146	12/10/2024	CH	LCWRD	Clear Lake	Konocti Vista Casino	Absent	Native snails	-122.887757	39.02216
147	12/10/2024	CH	LCWRD	Clear Lake	3rd Street	Absent		-122.91299	39.04394
148	12/10/2024	CH	LCWRD	Clear Lake	5th Street	Absent		-122.912904	39.04533
149	12/10/2024	CH	LCWRD	Clear Lake	Clear Lake Oaks	Absent		-122.674063	39.01917
150	12/10/2024	CH	LCWRD	Clear Lake	RedBud	Absent		-122.637792	38.94851
151	12/10/2024	CH	LCWRD	Clear Lake	Braitos Marina 2	Absent		-122.75189	39.02152
152	12/10/2024	CH	LCWRD	Clear Lake	Braitos Marina 1	Absent	Native snails	-122.751612	39.02159
153	12/10/2024	CH	LCWRD	Clear Lake	Clear Lake State Park 1	Absent	Native snails	-122.813203	39.02017
154	12/10/2024	CH	LCWRD	Clear Lake	Clear Lake State Park 2	Absent	Native snails	-122.81335	39.02

Veliger Tow Data - Clear Lake / Lake County by LCWPD

ObjectID	Waterbody	Site Number	Creation Date	Collectors	Collector Affiliation	Mussel Status	Location Description	Tow Method	Max Depth (ft)	Max Depth (m)	Tow Depth (m)	Secchi (ft)	Secchi (m)	Number of Tows	Sample Time	Water Quality Depth (m)	Temp (C°)	DO mg/L	Conductivity (µS/cm)	TDS (mg/L)	pH	Turbidity (NTU)	x	y
	Clear Lake	1	3/13/2024	JB TW AS	LCWRD	Absent	Clear Lake Upper Arm	Boat	42	14	5	5.5	1.68	3	21:30	1	10.2	12.06	314.8	205	8.29	5.58	-122.865036	39.06618
	Blue Lakes	1	3/19/2024	CH	LCWRD	Absent	Blue Lake Lodge	Hand	19.5	5.94	5	7	2.13	1	9:25	1	12.5	11.24	207.6	135	7.69	4.3	-123.007211	39.16951521
	Blue Lakes	2	3/19/2024	CH	LCWRD	Absent	Blue Lakes Pine Acres	Hand	19.7	6	5	7.5	2.29	1	9:58	1	12.4	10.17	209.2	136	7.62	4.95	-123.0100573	39.16905722
	Blue Lakes	3	3/19/2024	CH	LCWRD	Absent	Blue Lake Narrows	Hand	32	9.75	5	8	2.44	1	10:31	1	12.3	11.2	206.3	134	7.81	3.46	-123.015752	39.17419
	Indian Valley Reservoir	1	5/8/2024	CH AS	LCWRD	Absent	Indian Valley Reservoir	Boat	28.5	8.69	5	8.5	2.59	1	11:40	3	14.6	9.24	253.5	165	8.1	31.4	-122.5348454	39.08308783
	Indian Valley Reservoir	2	5/8/2024	CH AS	LCWRD	Absent	Indian Valley Reservoir	Boat	49.5	15.09	5			1	11:40	3	14.7	9.3	253.5	165	8.16	35.2	-122.5347036	39.08226894
	Indian Valley Reservoir	3	5/8/2024	CH AS	LCWRD	Absent	Indian Valley Reservoir	Boat	35.5	10.82	5	9.5	2.9	1	11:40	3	14.8	9.37	253.7	165	8.2	29.7	-122.5322763	39.08297261
	Blue Lakes	1	5/20/2024	CH	LCWRD	Absent	Blue Lakes Lodge	Hand	18.6	5.67	5	9.5	2.9	1	11:46	1	20.1	9.01	218.5	142	8.32	2.83	-123.0071915	39.16956692
	Blue Lakes	2	5/20/2024	CH	LCWRD	Absent	Blue Lakes Pine Acres	Hand	18.4	5.61	5	13	3.96	1	12:22	1	20.2	9.21	217.3	149	8.29	2.13	-123.0103003	39.16922992
	Blue Lakes	3	5/20/2024	CH	LCWRD	Absent	Blue Lake Narrows	Hand	30	9.14	5	12	3.66	1	12:43	1	20	9.22	217.8	142	8.36	1.37	-123.015752	39.17419
	Clear Lake	1	5/28/2024	CH AS	LCWRD	Absent	Clear Lake KVC	Boat	14.5	4.42	4	5	1.52	1	11:20	1	21.4	8.74	301.4	196	8.19	9.89	-122.887757	39.02216
	Clear Lake	2	5/28/2024	CH AS	LCWRD	Absent	Clear Lake 3rd Street	Boat	16	4.88	4	5.5	1.68	1	11:35	1	21.8	10.27	298.2	194	8.49	4.65	-122.91299	39.04394
	Clear Lake	3	5/28/2024	CH AS	LCWRD	Absent	Clear Lake Upper Arm	Boat	16.5	5.03	5	5.5	5.5	1	11:45	1	22.1	10.76	297.3	193	8.54	6.47	-122.9057623	39.05044469
	Clear Lake	1	5/29/2024	CH TW	LCWRD	Absent	Clear Lake Rodman Slough	Boat	17	5.18	5	7.5	2.29	1	11:00	1	19.2	6.92	301.3	196	7.94	4.42	-122.8631234	39.10767789
	Clear Lake	2	5/29/2024	CH TW	LCWRD	Absent	Clear Lake World Market	Boat	18.8	5.73	5	8.5	2.59	1	11:15	1	19.6	7.38	301.6	196	8	4.3	-122.8425107	39.10308217
	Clear Lake	3	5/29/2024	CH TW	LCWRD	Absent	Clear Lake Keeling Park	Boat	17	5.18	5	8.5	8.5	1	11:35	1	19.7	7.45	301.4	196	8.03	4.18	-122.854815	39.1147511
	Clear Lake	1	6/5/2024	JB TW AS	LCWRD	Absent	Clear Lake Oaks Arm	Boat	42	14	5	5.5	1.68	1	9:05	1	21.1	9.39	302.1	196	8.38	6.79	-122.701836	39.01398
	Clear Lake	2	6/5/2024	JB TW AS	LCWRD	Absent	Clear Lake Lower Arm	Boat	41	13.66	5	7.5	2.29	1	10:05	1	22.3	8.33	316	206	8.05	5.22	-122.680822	38.96621
	Clear Lake	3	6/5/2024	JB TW AS	LCWRD	Absent	Clear Lake Narrows	Boat	38	9.5	5	7.5	2.29	1	10:45	1	22.1	11.68	287.4	194	8.66	5.74	-122.865036	39.06618
	Blue Lakes	1	7/9/2024	CH	LCWRD	Absent	Blue Lakes Lodge	Hand	17.7	5.39	5	15	4.57	1	14:00	1	24	8.86	227.8	148	8.57	3.58	-123.0079994	39.16982954
	Blue Lakes	2	7/9/2024	CH	LCWRD	Absent	Blue Lakes Pine Acres	Hand	18.1	5.52	5	18	5.49	1	14:20	1	24.6	8.62	229.2	149	8.55	2.73	-123.0103	39.16924954
	Blue Lakes	3	7/9/2024	CH	LCWRD	Absent	Blue Lake Narrows	Hand	27	8.23	5	18	5.49	1	14:35	1	25.3	8.6	229.5	149	8.54	4.1	-123.015752	39.17419
	Indian Valley Reservoir	1	9/18/2024	CH TW ET	LCWRD	Absent	Indian Valley Reservoir	Hand	3	1	2.5	5	1.52	2	10:20	1	21.7	7.87	285.5	186	9.24	23.8	-122.537201	39.08286
	Indian Valley Reservoir	2	9/18/2024	CH TW ET	LCWRD	Absent	Indian Valley Reservoir	Hand	3	1	1	3	0.91	2	10:46	1	21.7	7.95	285.6	186	8.41	7.88	-122.538889	39.08482
	Indian Valley Reservoir	3	9/18/2024	CH TW ET	LCWRD	Absent	Indian Valley Reservoir	Hand	3	1	1	3	0.91	2	11:22	1	21.9	8.18	285.3	185	8.4	2.85	-122.5337398	39.08198941
	Clear Lake	1	10/23/2024	CH CC TW	LCWRD	Absent	Clear Lake Oaks Arm	Boat	40	12.19	5	2.5	0.76	1	9:56	1	19.4	6.24	342.9	223	8.06	5.68	-122.701836	39.01398
	Clear Lake	2	10/23/2024	CH CC TW	LCWRD	Absent	Clear Lake Lower Arm	Boat	31	9.45	5		1	1	11:05	1	19.2	2.61	355.7	231	7.65	6.23	-122.680822	38.96621
	Clear Lake	3	10/23/2024	CH CC TW	LCWRD	Absent	Clear Lake Upper Arm	Boat	23	7.01	5		2.4	1	12:05	1	19.6	10	335.7	218	8.65	7.64	-122.865036	39.06618
		1	12/2/2024	CH CC TW	LCWRD	Absent	Blue Lakes Lodge	Hand	17	5.18	5	3	0.91	1	10:33	1	11.3	5.77	234.8	153	7.14	5.62	-123.0079994	39.16982954
		2	12/2/2024	CH CC TW	LCWRD	Absent	Blue Lakes Pine Acres	Hand	17	5.18	5	3	0.91	1	10:48	1	11.4	6.14	235.7	153	7.45	6.13	-123.0103	39.16924954
		3	12/2/2024	CH CC TW	LCWRD	Absent	Blue Lake Narrows	Hand	30	9.14	5	2.5	0.76	2	11:02	1	11.4	6.05	234.8	153	7.43	6	-123.015752	39.17419
		1	12/10/2024	CH CC TW	LCWRD	Absent	Clear Lake Oaks Arm	Boat	41	12.5	5	1.46	0.45	1	9:15	1	11.5	6.88	343.5	223	7.67	5.68	-122.701836	39.01398
		2	12/10/2024	CH CC TW	LCWRD	Absent	Clear Lake Lower Arm	Boat	34.4	10.49	5	1.28	0.39	1	10:41	1	11.2	5.59	346.3	225	7.47	6.23	-122.680822	38.96621
		3	12/10/2024	CH CC TW	LCWRD	Absent	Clear Lake Upper Arm	Boat	27	8.23	5	0.94	0.29	1	12:43	1	11.1	10.86	322.9	210	8.37	7.64	-122.865036	39.06618

LOCATION MAP

APPLICATION YEAR:
2025/2026

APPLICANT NAME:
Lake County Watershed Protection District

INSTRUCTIONS: *Click on the 'Applicant's Location' box and enter your agency's name in the box (deleting 'Applicant's Location'). Then click on the arrow and drag the arrow to point to your agency's general location (i.e., Headquarters, Field/District Office, etc.). Save the Location Map to your desktop or other appropriate location, then click the 'Browse…' button in OLGA to attach the Location Map and enter a title in the 'Attachment Title' field (e.g., Location Map - Grant Year).*

LAKE COUNTY
Watershed Protection District

Clear Lake Mussel Prevention Project Narrative 25/26

Section A. <u>Reservoir, Project Area Description and Prevention Program</u>

<u>A.1. Reservoir and Project Area Description</u>

The location for the Clear Lake Mussel Infestation Prevention Implementation Project [herein referred to as "The Project" where appropriate], will be focused on Clear Lake, Lake County, CA. The agency managing and administering The Project will be the Lake County Watershed Protection District [herein referred to "The District" where appropriate]. Clear Lake is the largest, natural freshwater lake located entirely within California with around 63 square miles of surface area. Clear Lake is located in the North Coast mountain range approximately 70 miles north east of Sacramento (Figure 1). Some form of a lake has existed at the Clear Lake site for at least 500,000 years, making it the oldest lake in North America. The Clear Lake watershed makes up 520 square miles of landscape that flow into Clear Lake. Eighty percent of the water flowing into Clear Lake enters at the north and west of the lake through Middle Creek, Scotts Creek and Kelsey Creek. The single outflow from Clear Lake is Cache Creek, which flows through the Cache Creek dam to the Sacramento River and the Delta. The total water capacity of Clear Lake is 1,155,000 acre feet, the usable water capacity is 150,000 acre feet. The water from Clear Lake flows downstream through Cache Creek and is used to irrigate a majority of the Yolo County and Central Valley agriculture industry until flowing into the San Joaquin Delta.

Blue Lakes, two naturally formed deep lakes are connected to Clear Lake upstream of Scotts Creek to the North West. Blue Lakes has no public access by boat and connects to Clear Lake during times of high water or flood events. Two small flood control reservoirs, Adobe Creek and Highland Springs, flow into Clear Lake from the South West and are also managed by the District. Only Highland Springs has public access by boat, but motors are prohibited. The nearest largest public access motor-boat accessible reservoir, Indian Valley, does not flow into Clear Lake, but into Cache Creek downstream of the Clear Lake Dam, and is managed by the Yolo County Flood Control and Water Conservation District.

Clear Lake's shoreline is over 120 miles with 3,700 lakeshore property owners. The two incorporated cities in Lake County, Clearlake and Lakeport, are both situated on the lakeshore at opposite sides of the lake. Within the last ten years, ~475 Lakebed Encroachment Permits

have been issued for private Clear Lake improvements such as construction of floating and rigid docks and installation and improvements to seawalls and other erosion prevention measures. The history of lakebed improvements shows a sharp decrease over the years with most recent improvements being for repair and replacement of old structures.

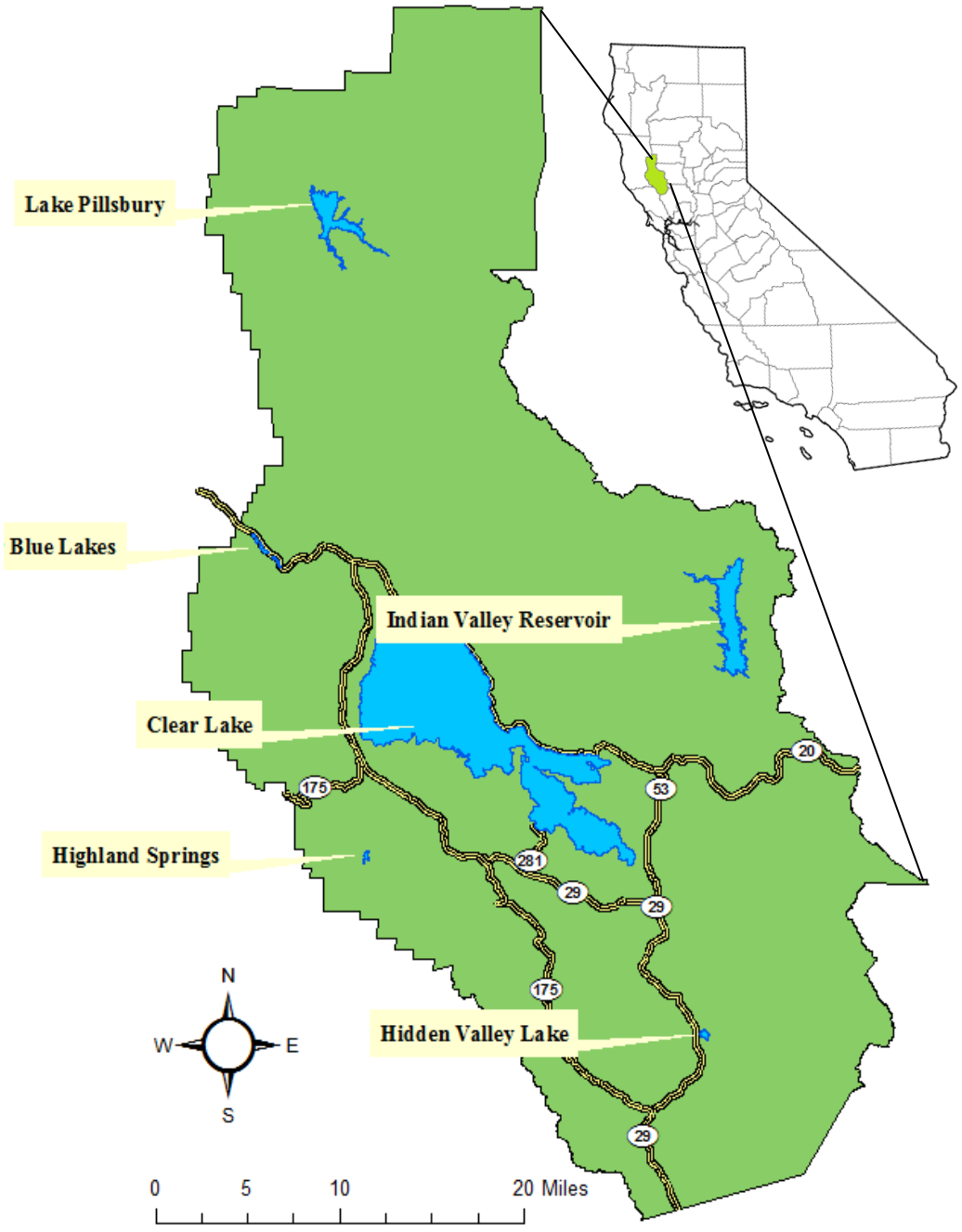


Figure 1 Lake County map showing location within the state of California (see inset) and the major waterbodies located within the county. Clear Lake is the focus of this application.

The California Department of Boating and Waterways funded infrastructure upgrades for both public boat access on Clear Lake (Table 1) and for the Q/Z mussel prevention program (Table 2).

Table 1 Division of Boating and Waterways Funded Infrastructure Projects on Clear Lake.

Upgrades	Location	Amount Funded	Year Funded	Year Completed
Lower Arm				
Construction of boat launching facility with 4 boat ramps, 4 docks and a pier	Redbud Park, Clearlake	$240,000	1978-1979	1979
Improvement to 4 boat ramps	Redbud Park, Clearlake	$150,000	1981-1982	1982
Improvement to boat launching facility	Redbud Park, Clearlake	Unknown	1997	2005
Redesign and improvement of current boat launching facility	Redbud Park/Thompson Harbor, Clearlake	$945,000	2013	2015
Oaks Arm				
Construction of boat launching facility	Clearlake Oaks	Unknown	1991	1993
Upper Arm				
Construction of boat launching facility and marina	Clear Lake State Park	Unknown	Unknown	Unknown
Construction of boat launching facility, 2 lanes	Lakeport 3rd St.	$178,000	1975-76	1976
Enlarging existing facility and addition of riprap sea wall	Lakeport 3rd St.	$139,000	1988-1989	1989
Improvement to launching facility	Lakeport 3rd St.	Unknown	1991	1996
Construction of boat launching facility	Lakeport 5th St.	Unknown	Unknown	Unknown
Construction of boat launching facility, 2 lanes	Lakeside Park, Lakeport	$140,000	1974-1975	1975
Construction of boat launching facility, 2 boat lanes	Lucerne Harbor	$44,530	1963-1964	1964
Construction harbor protection	Lucerne Harbor	$40,470	1966-1967	1967
Construction harbor protection	Lucerne Harbor	$100,000	1976-1977	1977
Improvement to harbor	Lucerne Harbor	$50,000	1979-1980	1980

Table 2 Programmatic upgrades to the Lake County Q/Z Mussel Prevention Program

Upgrades	Location	Agency	Amount funded	Year funded	Year completed
Clear Lake Mussel Infestation Prevention Project 2023/2024 supports maintenance ramp monitoring and inspection staff, early detection monitoring, outreach activities, Mussel Dogs to enhance boat inspections and distribution of digital, radio, and video PSAs and maintenance of data entry into digital WID system for ramp contracts.	Clear Lake	DBW	$330,755.00	2023	Will be 2025
Clear Lake Mussel Infestation Prevention Project 2022/2023 supported continued ramp monitoring and inspection staff, early detection monitoring, outreach activities, Mussel Dogs to enhance boat inspections and outreach and distribution of digital, radio, and video PSAs and continued training and transition to digital WID system for ramp contracts.	Clear Lake	DBW	$399,780.00	2022	Will be 2024
Clear Lake Mussel Infestation Prevention Implementation Program 2021/2022 used DBW grant funding to continue staffing, contracting with Mussel Dogs, continue monitoring, improve outreach through the distribution of digital, radio, and development of a video PSA.	Clear Lake	DBW	$399,861	2021	Will be 2023
Response Preparation Planning and Enhanced Capacity and Outreach to Improve the Clear Lake Invasive Mussel Prevention Program. Provides support to funds already provided by DBW, for mussel dog inspections and some staff labor. Additional upgrades include development of a response plan should Clear Lake have a mussel introduction, and funds for an outreach intern to conduct and outreach assessment and develop improved outreach materials.	Lake County	US FWS	$354,136.37	2021	Will be 2024
Clear Lake Mussel Infestation Prevention Implementation Program 2019/2020 used DBW grant funding to continue staffing and training ramp monitors, contracting with Mussel Dogs, continue monitoring, improve outreach through the distribution of digital and radio PSAs and development of an educational video. **Some grant deliverables interrupted by COVID-19 travel and gathering restrictions combined with drought-induced low water levels.*	Clear Lake	DBW	$399,590.00	2020	2022

QZM Mussel Infestation Prevention Grant Program 2018/2019 continued funding and training ramp monitors, upgraded outreach signage at roadways coming into the County, and initiated the transition into a digital boater tracking system to better identify boats from infested waterbodies. **Some grant deliverables interrupted by COVID-19 travel and gathering restrictions.*	Clear Lake	DBW	$399,996.35	2019	2021
QZM Mussel Infestation Prevention Grant Program, 5-10 ramp monitors, monitor & program coordinators, radio PSAs and outreach kiosks	Clear Lake	DBW	$299,880.90	2017	2020
QZM Infestation Prevention 2016/17, continue the 8 boat ramp monitors and two ramp monitor supervisors for another two years, WIT training at Lake Mead	Clear Lake	DBW	$312,606.06	2017	2019
QZM Infestation Prevention 2015/16, Ramp gate feasibility study	Clear Lake	US FWS	$171,140.51	2016	2018
QZM Infestation Prevention 2015/16, two decon units, 15,000 brochures, four ramp banners, pop-up style canopy, Sac river watershed advertising	Clear Lake	DBW	$45,568.69	2016	2018
QZM Infestation Prevention 2015/16, replace four trailered hwy signs, six Caltrans easement signs, DVD player, screen, DVDs & PSAs, five ramp monitors	Clear Lake	DBW	$140,700.00	2016	2018
QZM Infestation Prevention 2014/15, Eight ramp monitors, Two monitor supervisors.	Clear Lake	DBW	$189,649.60	2015	2017

A.2. Description of the Recreational Activities and Risk for Quagga and Zebra Mussel introduction

Boating in Clear Lake

Clear Lake's draw for tourism is vital to Lake County's economy. Clear Lake is a boating destination for water users from around the region, state and continent. Sailboats, jet skis, canoes, kayaks, paddle boats, and power boats are available to rent at numerous local shops around the lake. There are currently about 11 free public boat launches and five marinas and harbors are open year-round to trailered vessels (Figure 2). Lake County Public Services maintains thirteen free public swim beaches on Clear Lake. California State Parks owns and operates the Clear Lake State Park that has both beach access and boater launch facilities, and Anderson Marsh State Historic Park, which boasts non- motorized water trails. Both of these parks are big draws for visitors to the lake. In addition to 12 local and state public access facilities, there are at least 20 private resorts with launch ramps, and numerous private access points, totaling about 749 private or public boat ramps on Clear Lake.

Figure 2 Public launch areas as advertised through a fishing guide services webpage available at: http://www.clearlakeguideservice.com/clear-lake-fishing.php

Clear lake is open to the public year-round; there is no specific boating season on Clear Lake. However, there is increased boating activity during the months of March through November and coincide with spring and fall fishing contest seasons. Some of the annual events that require permitting activity through Lake County are the Sea Plane Splash-in, Wood and Glory (old wooden boat regatta), Buckingham Test & Tune, Konocti Cup (sailing regatta), old boat shows and races, and the Nor Cal Ski Races. Watercraft usage information on Clear Lake, due to its many, unrestricted, access points, is difficult to obtain. Public access to Clear Lake is free so usage cannot be tracked by access fees, however the Lake County QZ Invasive Mussel Prevention Plan uses the number of mussel prevention stickers sold and tallies of ramp contacts as a unique way to estimate the number of boats using Clear Lake and other water bodies in Lake County (Table 3).

Fishing in Clear Lake

Clear Lake is a fishing destination, hosting more than 100 tournaments annually from local club contests with 10-25 participants to large-scale commercial events with over 1,000 entries. Other tourists fish on their own or opt for guided fishing tours and lessons. The shallow, calm, and productive water along the littoral zone of Clear Lake attracts professional bass fishermen from all over the country and was rated within the top five best bass fishing lakes in the

continental US, was listed at #3 Bass Lake to visit by In-Fishermen Magazine in 2024 (https://www.in-fisherman.com/editorial/best-bass-lakes/153403), and was rated the number one Best Bass Lake of the Decade according to Bassmaster (2020). Clear Lake supports large populations of bass, crappie, bluegill, carp and catfish. Clear Lake has, in the past, been stocked both intentionally and unintentionally. Twenty five non-native fish have been introduced to Clear Lake since 1860, of which twenty one are still present. Successful fish stocking includes black crappie introduced in 1909, bluegill 1909, brown bullhead 1880 and 1961, brown trout 1924, common carp 1880, channel catfish 1900 and 1969, fathead minnow 1950s, Florida black crappie 1985, Florida largemouth bass 1969-1971, golden shiner 1950, goldfish 1860s, green sunfish 1909, Mississippi silverside 1967, northern largemouth bass 1888, 1969 and 1975, pumpkinseed, redear sunfish 1963, smallmouth bass 1895, threadfin shad 1985 and 1997, western mosquitofish 1925, white catfish 1923 and 1961, and white crappie 1925. The fish stocking has been performed by multiple diverse agencies, including Department of Fish & Wildlife (CDFW), as well as by a few misinformed individuals over the years. No fish stocking has occurred since the illegal introduction of threadfin shad in 1997. The natural fishery includes the Clear lake hitch, *Lavinia exilicauda chi*, recently placed on the California Threatened and Endangered Species list and proposed for Federal Endangered Species Act listing in January of 2025.

Two-thirds of the fish caught in Clear Lake are largemouth bass, with a record of 17.52 pounds. The major national bass tournaments stop at Clear Lake annually, including Western Outdoor News (WON Bass) and Wild West Pro/AM. The CDFW requires all fishing contests and events to receive a permit to hold their events. The list of permitted contests and tournaments is continually updated and found at www.wildlife.ca.gov.

The use of live bait is allowed on Clear Lake. The major distributor of live bait to the retail market around Clear Lake is Golden State Bait, Sacramento.

Table 3 Use information for Clear Lake based on QZ mussel sticker program data.

Name/Location of Launch Site	Vessels Allowed* Yes		Outside Usage Yes		Activities
	Motorized	Non-motorized	Public	Private	
Clear Lake, all sites 2010	15,367	Yes	Yes	Yes	Boating, fishing, sailing, kayaking, canoeing, skiing, application of aquatic herbicides, surveying aquatic plants, pile
Clear Lake, all sites 2011	13,522	Yes	Yes	Yes	
Clear Lake, all sites 2012	13,138	Yes	Yes	Yes	
Clear Lake, all sites 2013	14,771	Yes	Yes	Yes	
Clear lake, all sites 2014	12,757	Yes	Yes	Yes	

Clear Lake, all sites 2015	13,857	Yes	Yes	Yes	driving barges, scientific survey vessels, rental equipment.
Clear Lake, all sites 2016	16,548	Yes	Yes	Yes	
Clear Lake, all sites 2017	15,257	Yes	Yes	Yes	
Clear Lake, all sites 2018	13,612	Yes	Yes	Yes	
Clear Lake, all sites 2019	15,156	Yes	Yes	Yes	
Clear Lake, all sites 2020**	14,273	Yes	Yes	Yes	
Clear Lake, all sites 2021***	13,766	Yes	Yes	Yes	
Clear Lake, all sites 2022***	10,102	Yes	Yes	Yes	
Clear Lake, all sites 2023	13,882	Yes	Yes	Yes	

**The usage numbers in Table 3 above do not reflect the number of individual launches into Clear Lake, since mussel stickers are issued to visitors for a calendar month and to residents for a calendar year.*
***Part of the year the lake was closed due to COVID-19 travel restrictions*
****Drought-induced low water level closed all but two public access boat ramps by August / July of this year.*

The Boat Patrol division of the Lake County Sheriff's Department enforces the laws pertaining to the Lake's recreational activities. It expends ~5,000 hours annually on the Lake with five part-time and one full-time personnel. The nine boats used by Clear Lake's boat patrol are funded by the Division for Boating and Waterways, and currently have an insured value of at least $450,000.00.

Other boat launching facilities within 10 miles of Clear Lake include facilities on Blue Lakes (three private access facilities), Indian Valley Reservoir (two public facilities – closed during low water levels), Cache Creek (multiple facilities), Hidden Valley Lake (one private facility only accessible by residents) and Highland Springs Reservoir (one public, non-motorized access facility). Figure 1 showcases the location and proximity of these other waterbodies to Clear Lake within Lake County. Lake Pillsbury, located north of Clear Lake, in the Mendocino National Forest is currently managed by PG&E and drains into the headwaters of the Eel River Watershed through Scotts Dam. None of these waterbodies are infested with Quagga or Zebra mussels and they are monitored at least multiple times a year following CDFW protocols.

Description of risk of introduction/establishment of quagga/zebra mussels.
The risk level of Clear Lake to the introduction of quagga and zebra mussels is **HIGH**. This risk determination is explained by 1) the temporal and spatial accessibility of Clear Lake, 2) it's desirability as a continental fishing destination, and 3) the water quality conditions that make a suitable habitat for any QZ mussels that are introduced.

1) *Temporal Accessibility*. Clear Lake is open year-around with access for trailered vessels in all seasons, except extreme times of drought when the water level becomes extremely low, although there is usually several public ramps still able to launch vessels. Recreational activities on Clear Lake are largely unmanaged since anyone can access and use the lake's 754+ public or private access points anytime on a 24 hr/365 days basis. Local ordinances do not exclude two stroke motors, but do restrict length of vessels on the lake to 50 ft or less.
2) *Spatial Accessibility*. Clear Lake is situated in Lake County, which is within an hour drive from several large, popular and Caltrans-maintained highways such as Interstate 5 and 101. These major interstates are connected by the Caltrans highways 20, 53, and 29, which surround Clear Lake, making access to a suitable launch from a major metropolitan hub (such as Sacramento or San Francisco) launch fairly easy. Clear Lake is also very easily accessible by those who could have recently been recreating in infested water bodies. For example, Clear Lake is within a 4-hour 41 min drive from Lahontan Reservoir in Nevada, a 7-hour drive from Lake Piru, Ventura County, a 7-hour drive from Castaic Lake, Los Angeles County, which are some of the closest infested water bodies with public access in the state of California.

   Due to the inability of mussel species to walk, fly, or be transported among non-hydrologically connected waterbodies, the main source of distribution across long, terrestrial distances is through transport on trailers and/or boats or boating equipment (Cohen 1998; Dalton & Cottrell 2013). Additional research by Collas et al. (2021) has found that even when exposed to air and wind speeds over 50km per hour, a quagga mussel can survive attached to a boat hull for up to 18 hours. Infested waterbodies exist within that range of Clear Lake, making the likelihood of an introduction via boat likely. Compounding onto this risk is the fact that watercraft owners regularly come to Clear Lake from infested counties in southern California, but there are no AIS check stations located on interstates within the state or between counties, contributing to the high risk of a QZ infestation into Clear Lake.

   Additionally, the California boarder stations are not reliable at enforcing the quarantine of mussel-infested boats coming from out of state. This is demonstrated by the movement of a 26-boat Bayliner with visible Zebra mussel infections, that was moved from Ohio, across a CDFA California-Nevada Border Station, and although placed with a plastic seal, was allowed to travel to Clearlake and await a physical decom (Figure 3). At any point on this journey, adult mussels could have fallen off into, adjacent, or near aquatic water bodies, impacting monitoring efforts and management, or the boat owner

could have been dishonest and cut their seal and launched into mussel-free waters regardless.

Thanks to the mussel prevention program currently in place on Clear Lake, the awareness of the public to this program, and the fast response and involvement of the regional CDFW AIS Biologists, the Bay liner was successfully decontaminated through several rounds of motor deconstructions, cleaning, and hot water flushing.

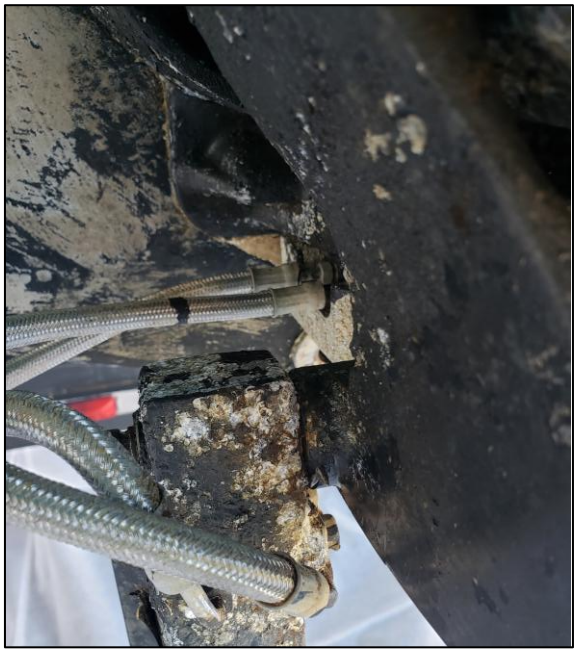


Figure 3. Close up image of the Zebra-infested in board / out board motor of the 26 foot Bayliner, originating from Ohio, that was allowed through CDFA Border station and make its way to Lake County. Luckily, the owner was cautious and reached out to the County for decontamination assistance before launching the vessel. *Can you find all the adult mussels?*

3) *Desirability as a fishing destination.* Clear Lake is a fishing destination, hosting more than 100 tournaments annually from local club contests to large-scale commercial events with over 1,000 entries. The shallow, calm, and ecologically productive water along the littoral zone of Clear Lake attracts professional bass fishermen from all over the country and was rated number 6 in the Top Ten Best Bass Lakes of 2022 and rated the best Bass fishing lake of the decade by Bassmaster in 2020. Figure 2 provides eleven of the most popular public access boat ramps used by visiting fishermen and contests.
4) *Water Quality conditions.* The environmental conditions in Clear Lake, and some other water bodies in Lake County, including variables such as water temperature, calcium, pH, dissolved oxygen, turbidity, and salinity, are well within the ranges preferred by both Quagga and Zebra mussels. (Table 4). The single most important water characteristic that indicates a high risk of colonization is a calcium level of 15 mg/L or greater. Clear Lake has an average 25 mg/L calcium level (DWR Water Data Library 2019). With preferable environmental conditions well-suited to an invasive mussel establishment, preventing and managing all vulnerable introduction pathways is going to be the best strategy for preventing a mussel introduction and invasion event in Clear Lake.

Table 4: Average water quality measurements for Clear Lake (2016-2023) and parameter ranges shown to be suitable for the growth and establishment of adult Q/Z mussels. All WQ sonde samples reported here are collected at same depth as tow (~5m max). Chemical analysis are collected from surface grab at 0.5 m. All WQ data collected by Lake County Water Resources Department and publicly available through CEDEN Clear Lake Ambient Monitoring Program (*until 2022, CEDEN upgraded in 2024 and data has not yet been transferred*).

Year, Month	Temp (°C)	Conductivity (uS/cm)	pH	D.O. (mg/l)	Hardness[1] (mg/L CaCo3)	Salinity (ppm)	Calcium[1] (mg/L)
Clear Lake							
2020, Jan	12.3	289.0	7.8	9.3	114[1]	N/A	21
2020, June	26.0	312.0	8.8	11.56	N/A	N/A	N/A
2020, Dec	9.3	378.7	7.8	9.24	138	N/A	26
2021, May	19.4	368.6	8.3	7.57	162	N/A	30
2021, June	21.2	376.4	8.4	6.37	N/A	N/A	N/A
2021, Oct	17.0	403.9	8.9	6.92	N/A	N/A	N/A
2021, November	17.6	372.4	8.2	6.22	201	N/A	38
2022, May 10	15	403.8	8.2	11.29	N/A	N/A	N/A
2022, May 13	14.7	384.8	7.91	9.34	177	ND*	32
2022, Oct 25	16.6	442.5	8.94	7.53	206	ND*	38
2022, Dec 2	10.6	455	8.36	9.33	N/A	N/A	N/A
2023, April 6	9.6	357.9	9.21	13.55	N/A	N/A	N/A
2023, May 21	22.2	354.6	8.05	6.11	145	N/A	27
2023, June 27	21.4	349.5	8.05	5.92	N/A	N/A	N/A
2024, April 3	13.4	327	8.34	10.78	N/A	N/A	24
2024, June 5	21	301.6	8.37	9.7	N/A	N/A	N/A
2024, September 4	24.4	319.6	9.09	12.87	N/A	N/A	N/A
Preferred Range for Q/Z mussels	6-32[2]	>22µS/cm[3]	6.5-9.5[2]	>2-6[2]	100-420[2]	0-12[3]	>12[2]

* Sampled, non-detect salinity at DL and RL of 2.0 g/kg method SM2520B.

[1] Hardness and Calcium measured in Dissolved Species

[2] Data provided by *Pucherelli et al. 2016 (BLM)*

[3] Data provided by *Cohen 2005 (prepared for CDWR*)

Additionally, Clear Lake is also a water recreationists paradise, popular for tubing, swimming, sailing, kayaking, paddle boarding, water skiing, jet skiing, and leisure boating. Due to the popularity of Clear Lake, Lake County receives thousands of visitors -- and their watercraft – annually from all over the country (Figure 4). For example, during 2022, based on the County's Q/Z mussel mandatory boater sticker program, over 3,755 vessels on the water belonged to residents and approximately 6,347 vessels belonged to non-residents. Because invasive mussels are primarily spread by boaters, the probability of an invasive mussel introduction via one of at least 749 public or private boat ramps from a visiting vessel on the lake is high.

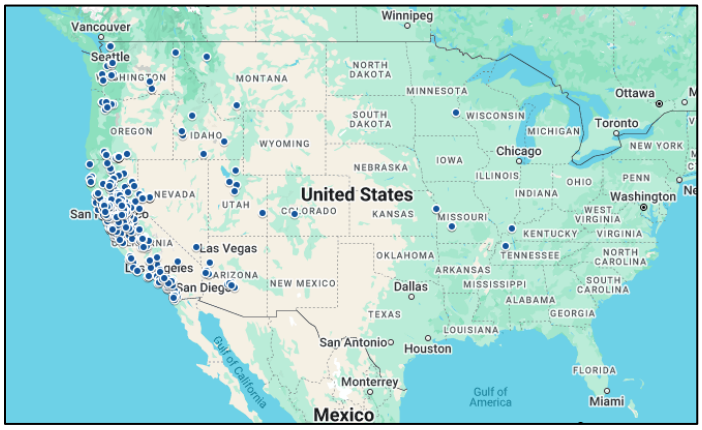


Figure 4. Distribution of zip codes of boats visiting Clear Lake in 2024. The blue dots represent the zip codes where boats visiting Clear Lake are registered. The overlap in these areas and where QZ infested water bodies are located, is significant.

A.3. Management Activities Including Prevention Program & Plans.

Management Activities

Management of recreational activities related to the prevention of quagga and zebra mussels in Clear Lake is found in the Lake County QZ Mussel Prevention Plan and Appendices (updated and approved by CDFW in May 2019). This Plan is available online at: http://www.nomussels.com/PreventionPlans_Reports.htm and submitted with this Grant Application. The specific Lake County ordinances within Chapter 15 Title IX, include sections 2936 (2011), 2976 (2012), 2915 (2009), that relate to QZ management have also been uploaded and submitted with this grant application. Management of recreational activities on Clear Lake is well defined in a number of ordinances that have enforcement provisions. Other general boating restrictions, such as maximum allowed boat length (50ft) and shoreline speed (3mph), are common to all water bodies and are detailed in Lake County's Boats and Boating Ordinance, a copy of all these relevant ordinances are submitted with this application.

In 2008, following the 2007 Lake Mead mussel discovery, Lake County enacted an emergency ordinance establishing an inspection program for all water vessels launched in Lake County. This ordinance was soon replaced by a detailed, fee-based inspection program, Article IX of Chapter 15 of the Lake County Code, otherwise known as Ordinance 2936, that has since been amended three times reflecting continuing improvements from operating experience. The launch of a trailered vessel into any water body in Lake County including Clear Lake is allowed only after a screening risk assessment is accomplished. Screening is tier 1 of the Lake County Invasive Mussel Prevention Plan. The second and third tiers of the Plan are inspection, and decontamination or quarantine, respectively.

The boat screening, performed by approximately thirty verified persons or "vendors" such as trained staff at businesses, resorts or program staff in Lake County, results in the sale of a set of local mussel prevention sticker for each vessel that is determined to be at no risk for transporting mussels to Lake County waters. The stickers clearly identify a vessel as having been screened, inspected, and decontaminated and safe to launch (Figure 5). However, currently the

screening application is based on the boat owner/operator honor system to indicate where the boat is from, and last water body visited. Currently ramp monitors provide verification using tablets / smart phone with the Colorado State Parks Digital Watercraft Inspection Database (WID). However, boat checks in WID only reflect when boats have been at infested waterbodies or participating WID water bodies, but it does provide another layer of boater verification within the Lake County Invasive Mussel Prevention System.

Thanks to DBW funds provided in 2020 – 2024, contact and inspection ramp monitor staff have been able to further train, supplement, and strengthen the screening and inspection verification by utilizing tablets connected to the Colorado State Parks Watercraft Inspection Database (i.e. WID). Additionally, trainings were provided, along with Wi-Fi units so connect tablets to the internet to allow monitors to access the online WID version to quickly identify a boat's recent infested water body status – if it has one.

One of the tasks (Task 6.0) included in this current grant application includes the maintenance of the program's participation in the Colorado State Parks Watercraft Inspection Database (i.e. WID) to help digitally track visiting boaters between water bodies. Task 6 also includes small funds to support continued training and target troubleshooting to improve digital inspection protocols and use. Some screening and inspection locations and vendors cannot transition to this system and will continue to complete paper screening forms, therefore data entry support is still also included in this grant. Overall, the digital tool makes inspections more accurate, increasing the probability of detecting a potentially contaminated boat coming into the county.

Figure 5 Mussel stickers indicate a vessel has been screened, inspected, and / or decontaminated so that it is safe to launch into Clear Lake. Visitors receive a blue and white sticker (left) and residents receive a maroon and red sticker (right). ***Funds from DBW grants are not used to implement the sticker program.***

Decontamination is mostly provided for free by the District, the only exception being if the boat being contaminated is encrusted and requires part removal, but costs then will be mostly supported by the boat owner. This was the case with a previously infested 26-foot Bayliner that travelled to Clear Lake encrusted with Zebra Mussels from Ohio (Figure 3). Whether decontamination is necessary is determined by a Pacific States Marine Fisheries Commission certified Watercraft Inspection Trained inspector (PSMFC WIT I) following a screening evaluation. Currently the program has 11 certified WIT I inspectors and 10 certified WIT II decontamination certified staff, both part-time and full time. Part of the current grant application is to support and maintain staffing at a maximum of 3 ramp monitor leads and maximum 20 ramp monitors throughout the duration of the project (*Task 3*). This is the minimum amount of staff is needed to maintain the program, and while the grant application

includes funds to recruit hire and train these staff to be screeners, and monitors, the District will provide advanced training for them to become inspector and decon certified, as needed.

In 2025, the current program manager, Angela De Palma-Dow will be leaving the County/ District, but the current program technician, Corey Hustead, is trained and certified for PSMFC WIT Level I, II, and III inspector/decontaminator/trainers and has been conducting field-based inspection training and decontamination since 2021. Efforts to house larger regional, local training events, although desired, has not been possible with current staff and program resources. Additional challenges to this include a lack of a single physical space within the County that can house WIT training and provide outdoor space to conduct the needed field training. In the interim, Pacific States Marine Fisheries Commission, with support for Western Regional Panel on Aquatic Nuisance Species, providing online WIT I, II and III training opportunities (led by Elizabeth Brown) with field-based training and testing provided by the District.

The District currently has three mobile decontamination units with diesel generator heated water and high-pressure capacity. One unit is a Hydroblaster, one is a Lamda, and the last one is a custom manufactures unit from Industrial Equipment Company from Chico, CA. The mobility of the decon units allows the District staff to bring the unit to the area of the lake where the decon is needed. When a decon is performed, it is completed at a location that either drains into treatment bound drain (such as a verified car wash facility or public works yard) or in a gravel/concrete yard / lot that has no drainage to a lake, creek, stream or storm drain system. Some funds are included in this grant proposal to support the replacement materials and accessories needed to update the decon units and to conduct any required maintenance and tune-ups.

Long term plans include the design and installation of a permeant decontamination station, such as a single or double dip tank, to welcome visiting boaters as they enter Lake County. One of the preferred facilities would be a dip tank. Specifically, referencing the Clear Lake Integrated Preparedness and Resilience Plan for Invasive Mussel Management: A Rapid Response and Transition to Containment Plan (page 43) *"Dip Tank ($800,000)—Clean Wake LLC (https://www.cleanwake.net/) developed a dip tank that lowers a boat into the tank and fills and empties the ballast tank while the watercraft engine is running. This type of system was first used in Utah in 2021, and decontaminates vessels faster than manual decontamination, including those with complex systems."* Current staff are pursuing funding to support the planning, engineering, and installation and maintenance of this facility.

More information on the mussel screening, inspection, and decontamination procedures are provided in the Lake County QZ Mussel Prevention Plan and Appendices and at www.nomussels.com in the "Prevention Plans & Reports" tab to the left. Visiting boaters to Lake County are encouraged to familiarize themselves with the screening, inspecting, and decontamination process by visiting the www.nomussels.com website.

Restricted Use

Clear Lake operates on a 24 hour / 365 days a year season, with little use restrictions (Table 4). Houseboats are not allowed on Clear Lake and the maximum length of any boat launching on Clear lake is 50ft. Limited areas of Clear Lake can be closed for day long or partial day events that would constitute a navigational hazard such as sea plane event or boat racing sporting events, but these require a Lakebed Encroachment / Use permit and fee prior to their event. Clear Lake may also impose wake restrictions or partial closure during an emergency declaration period due to flooding, low water levels or a global pandemic.

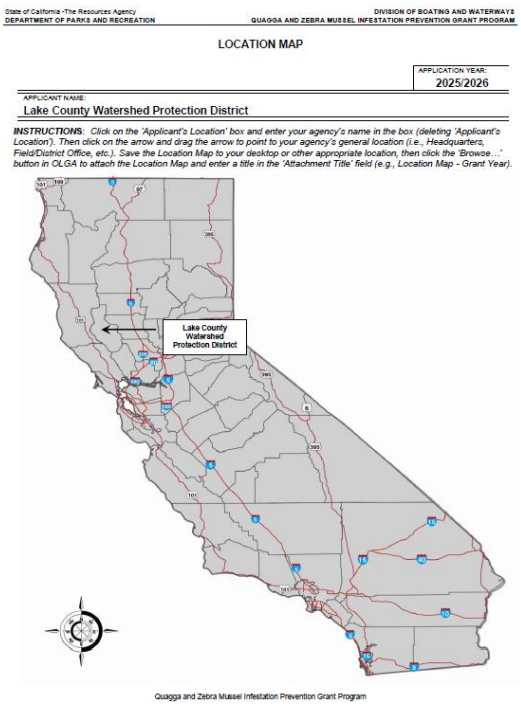
Table 4 Clear Lake Use Restrictions, check mark denotes allowed activities

Clear Lake	**Season Dates**	**Activities**						
		Motorized	Non-motorized	Live Bait	Fishing	Sea Planes	Body contact	Other
	All year	√	√	√	√	√	√	*

**Depends on activity and some require permit prior to events such as Sea Plane splash in, boat races, or duct tape boat derby's.*

Maps

Please find uploaded in the grant application materials the following maps:


State of California -The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

DIVISION OF BOATING AND WATERWAYS
QUAGGA AND ZEBRA MUSSEL INFESTATION PREVENTION GRANT PROGRAM

LOCATION MAP

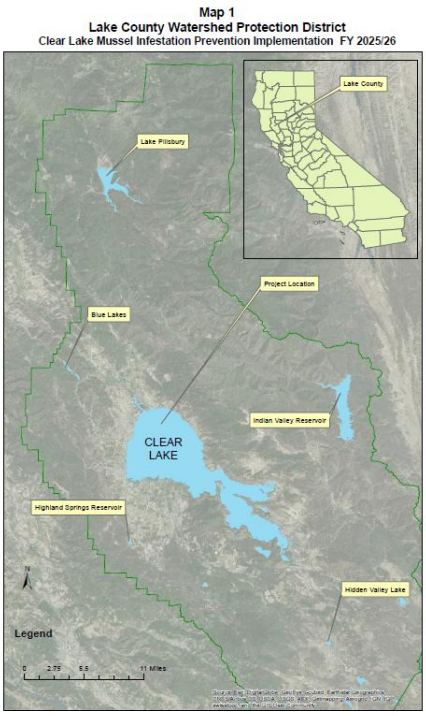
APPLICATION YEAR: 2025/2026

APPLICANT NAME:
Lake County Watershed Protection District

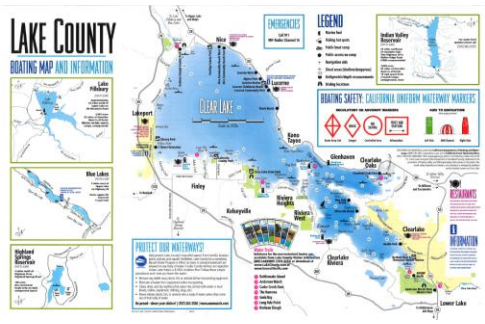
INSTRUCTIONS: Click on the 'Applicant's Location' box and enter your agency's name in the box (deleting 'Applicant's Location'). Then click on the arrow and drag the arrow to point to your agency's general location (i.e., Headquarters, Field/District Office, etc.). Save the Location Map to your desktop or other appropriate location, then click the 'Browse...' button in OLGA to attach the Location Map and enter a title in the 'Attachment Title' field (e.g., Location Map - Grant Year).

Quagga and Zebra Mussel Infestation Prevention Grant Program

1) Location Map 2023_2024_Clear Lake (uploaded into OLGA under "location map" tab.)



2) Map 1 Clear Lake Location Map (uploaded into the "Other Information" tab).



3) Map 2 Boating Map (uploaded into the "other Information" tab).

Prevention Plan

The Lake County QZ Mussel Prevention Plan [referred to "the plan" within this section] is consistent with the Natural Resources Agency's Invasive Species Management Plan (2008) and the Natural Resources Agency's Invasive Mussel Guidebook for Recreational Water Managers and Users, 2010 and follows the guidelines set forth in the 2017 CDFW Guidance for Developing a Dressenid Mussel Prevention Program. While the County's plan specifies its purpose to "prevent the introduction and establishment of invasive mussels in Lake County waterbodies…."(pg.3) the plan does specify a specific assessment pathway for identification of risk and appropriate prevention and management for each water body individually, including Clear Lake (pg. 8). This plan was distributed among staff at the District, posted online at the county's mussel-specific website, www.nomussels.com, and was approved by our CDFW regional AIS biologist, Angie Montalvo in 2019. A CDFW approval letter is submitted with the plan in the application materials as required OLGA. Additionally, the plan was directly send via

email to a variety of stakeholders including those at the state water boards, federal agencies, researchers, tribes, other county departments, and interested citizens.

Specific components of the plan, such as training and procedure, are communicated during bi-annual training meetings with program staff including the project manager, lead ramp monitors, and ramp monitors and inspectors. For example, once a year in Feb/March, a refresher screening and inspection is conducted on a District or volunteer boat. Sometimes these boats are bass boats, wake boats, or personal watercraft (Figure 6a, b & c). The staff go through mock screening scenarios, inspections, and decontaminations using one of the units purchased under previous DBW grants. Once a year, screeners are asked to renew their participation in the program and once a month program administrative or management staff visit with screeners to ensure they are complying with the program properly, understand the infested and high-risk regions, counties, and lakes. Daily communication among program staff is conducted through phone calls or group text chats, or emails. Prior to peak seasonal periods or large tournaments, staff are scheduled to coordinate mass inspections or decontaminations, so that tournament participants can maximize their time on the water while fully complying with the local prevention program.

Figure 6a. March 2021 refresher for Clear Lake Ramp Monitor Crew of a wake boat. Here the crew sees the remaining water in a ballast tank after the pumps shuts off; furthering the need for thorough inspections.

Figure 6b. March 2022 Ramp Monitor and Inspector refresher to demonstrate how to inspect a personal watercraft. Personal watercraft are hard to inspect because water can get into every part of the vessel and be easily transported from water body to water body.

Figure 6c. March 2024 Kick-Off Ramp Monitor Team Refresher and Training event at local boat dealership, *Hillside Honda* in Lakeport, CA. Ramp monitors got to look at various new boats to become familiar with intakes and ballast designs.

The Lake County QZ Mussel Prevention Plan incorporates much of the Quagga-Zebra Mussel Action Plan for Western U.S. Waters(2010) and the Pacific States Marine Fisheries Commission, Recommended Uniform Minimum Protocols and Standards (UMPS) for Watercraft Interception Programs for Dreissenid Mussels in the Western United States (UMPS III, 2016) and the Early Detection Monitoring Manual for Quagga and Zebra Mussels(2009). An integral part of the Lake County QZ Mussel Prevention Plan includes monitoring and reporting. The 2018 - 2023 QZ monitoring reports are is also provided online at www.nomussels.com at http://www.nomussels.com/PreventionPlans_Reports.htm.

Section B. Project Description

The Clear Lake Mussel Prevention Project FY25/26, proposed by the Lake County Watershed Protection District ("the District"), will provide for the continuation and maintenance support of the Lake County QZ Mussel Prevention Plan and associated program. The District, with support from the California State Parks Division of Boating and Waterways (DPW) QZ grant program, since 2014, has been able to successfully prevent the introduction of QZ mussels in Clear Lake. The objective of the current proposal is to continue this successful trend, through improvement and maintenance as the program while supporting and increasing staff capacity and community outreach and education. As in previous years, the District has the expertise and labor to successfully accomplish these goals, but due to some staff turnover, and a full lake with all possible access and no restrictions, the current application is targeted at building capacity and recruiting, hiring, and maintaining the needed staffing levels to perform the program as designed.

The major tasks of the 2025/2026 proposed implementation project are to:

1) Project Management - Administration: Provide for adequate management and coordination of the program, including coordination of ramp monitors, monitor leads, program technician and accountant, reporting, and program tracking;

2) Early Detection Mussel Monitoring: Provide support for supplies and staff to conduct early detection mussel monitoring in Clear Lake including substrates, surface, and veliger tows, and chemical monitoring;

3) Continue to fund and support up to 3 ramp monitor leads and 20 ramp monitors: Provide the District with funding to recruit, retain, train, and support and schedule needed staff to maintain the program;

4) Incorporate boat inspection support by mussel detection canine teams (i.e. Mussel Dogs) throughout the 2-year project period during peak lake-use times;

5) Improve education: Provide outreach and education to water users and the public through outreach events, digital, radio, video PSA distribution, targeted program ads during relevant fishing and boater-related podcasts, printed materials and other formats, and include distribution and analysis of program evaluation with a digital outreach survey;

6) Maintain digital screening and inspection system by maintaining WID use within the program; Replace tablets, accessories, wi-fi units, and broken hardware, provide training and troubleshooting Western Boats database system, and enter remaining paper screening, contact and inspection forms.

The anticipated outcomes will emphasize consistent support for ramp monitoring staff and coordinating staff to maintain the staffing level up to twenty (20) part-time (900 hours per year) boat ramp monitors with up to three (3) lead monitors (Task 3.0) that also serve as ramp monitors when and where needed, to help coordinate monitors on the North and South shores. Clear Lake is so large (100 miles of shoreline), that reaching a screener or inspector located on the other side of the lake can be difficult, and a regionally located monitor coordinator can help program staff use their time more efficiently and effectively.

With a full lake expected for 2025-2026, the need to maintain fully trained staff levels is imperative. The goal of this current application, for Task 3.0, is to boost the current monitor staffing and maintain the level so that current staff have the support to perform their jobs and provide the necessary coverage to ensure the program is being executed as designed. If DBW grant funds don't fully fund the staff needed to provide for the program, additional internal District funds can be allocated, if budgets allow. Additional funding sources for the Lake County Invasive Mussel Program are always being researched and sought after.

Granting this proposal in full will ensure that all ramp monitors and supervisors will continue to perform their work with the necessary materials and supplies (Task 3.0) and continue maintenance and use of the digital entry database system with immediate inspection notification (Task 6.0), and improve outreach and educational reach (Task 5.0). The proposal also simultaneously boosts education, outreach and inspection capacity through the incorporation of mussel-sniffing detection canines (i.e. Mussel Dogs) during peak lake-use times and during busy pre-fishing tournament periods (Task 4.0). The visuals of Mussel Dogs

completing their fast inspections increase awareness of the program, to both locals and visitors, and improved outreach of the program as lake users and non-lake users see the dogs and inquire about their purpose and role for protecting Clear Lake.

This project also provides funds to support program staff to complete needed early detection mussel monitoring of surfaces, substrates, and through veliger tows in Clear Lake (Task 2.0). Previous grants helped absorbed this task, but this proposed project highlights this as an important feature of any prevention program and dedicates a standalone task to this objective. This task will provide staff funds to conduct monitoring, materials needed to conduct accompanying water quality chemistry monitoring and enter monitoring data.

This Project strengthens the Lake County Q/Z Mussel Prevention Plan by continuing the most successful educational component of the program; continuing to fund boat ramp monitors. Not only do these boat ramp monitors provide essential inspection and decontamination of high-risk boats when needed, but ramp monitors are the glue of our program's educational foundation, providing the right information directly to the boaters and water users at the resource. The highlight of this grant proposal, in addition to the staff support, is the continuation and maintenance of the digital boater tracking screening and inspection system (Task 6.0). The proposed funding in this grant will provide needed resources to replace hardware, purchase additional Wi-Fi hot spots to maintain connectivity, and troubleshoot and improve any customization issues that have been overlooked in previous grants or prove to be needed to increase use and effectiveness.

In addition to protecting Clear Lake from a mussel introduction, the long-term overarching goal of the Prevention Program is to educate the public about the consequences of recreating in infested water bodies irresponsibly or unknowingly. Despite the County's significant investment in outreach and education programs, there are some members of the public still unfamiliar with the issue or how the prevention program really works or realizes it's importance (11.3% based on 2024 outreach survey data). Prevention and containment will happen when recreational water users realize how easy it is to ensure that they are not moving mussels among waterbodies. Education of the boating public at Clear Lake includes a speedy, fun, informative and interactive contact and exchange with our educated ramp monitors. Sometimes brochures are distributed, or stickers, or factsheets. As part of the previous grant (C19Q0806) a clever, relevant and catchy 90-second education video was produced and distributed with another previous grant (C22Q0804) on social media and websites to best share the message about the program and preventing invasive mussels from getting into Clear Lake.

Check out the video PSA here on the Lake County Water Resources Facebook Page! (https://www.facebook.com/lakecountywater/posts/pfbid02on3Cvn9Pmp8YWdiuMzdCtR74SXEUtvR4rFydz24vLfDWwWLsYC45tLUYQWpDpeosl)

This Project is not part of a regional-scale Prevention Program, although prevention activities occurring in Clear Lake in terms of mussel prevention reverberates around the region because Clear Lake receives a large portion of the boating traffic from the region. For example, in 2019 about 15% of boaters visiting Lake Berryessa in neighboring Solano County had previously visited Clear Lake. Therefore, ensuring vessels coming into Lake County are clear of mussels, and keeping Clear Lake mussel-free, will protect the greater northern California regional waterways.

The Mussel Prevention Plan has been adaptively managed since its adoption, and the county is committed to preventing a mussel introduction and infestation in Clear Lake. In the unfortunate event that the state support is no longer a funding mechanism option, or the project continues once the state QZ program expires, the District will attempt to identify alternative funding and support mechanisms. One option will be to return to a volunteer-based monitor system, with coordinating support being funded by the current county "rainy-day fund" or funds generated by the local sticker-sale program. However, the level of prevention protection that is possible now, with funds and support from DBW, would probably not be met in the unfortunate event that that support system was to expire, especially in light of Lake County being a state-recognized disadvantaged community. Additionally, the local property tax base having been depleted since the numerous, sequential natural disasters, such as fires and floods, that occurred every year between 2014-2019 and a global pandemic in 2020. Recurring drought years for 2020-2022 further reduced lake access and use and led to cancelled fishing events, further reducing tourism revenue and sales tax revenue.

It has been proposed that local sticker costs can be increased in the event that state funding expires, however the initial backlash from the public, both local and visiting, has dissuaded any similar actions in recent years. The reason that the program has been so successful is that it's relatively easy, fast, and affordable for a boater to get on the water, even if they come from an infested lake, state, or county. Making stickers prices higher would likely decrease participating boaters and allow more potential mussel-vector boats to "sneaky" launch onto the lake. Or more sticker theft, which has also been observed periodically in some instances. The ideal scenario to maintain the program, and the mussel-free status of Clear Lake, is to continue the current DBW state support, matched with local sticker revenue (fringe, overhead, additional staff and labor, and outreach materials), and supplement with additional grants and awards as available.

Section C. Regional Impacts from a Potential Quagga and Zebra Mussel Infestation

As set forth in the Quagga-Zebra Mussel Action Plan for Western U.S. Waters, (2010), "In terms of ecological and economic impacts quagga and zebra mussels are two of the most devastating aquatic species to invade North American fresh waters. The arrival of these species to Western waters brings the potential to extend devastating impacts into an area already severely challenged with water-related issues. The spread of quagga and/or zebra mussels threatens the

natural environment, water delivery systems, hydroelectric facilities, agriculture, and recreational boating and fishing."

Clear Lake's value in terms of ecosystem, habitat, and heritage is priceless. Its importance to local industries such as tourism and agriculture, is significant. Clear Lake provides drinking water to a population of about 40,000 among 17 different public and private drinking water systems on the lake. Of those, 35,000 persons receiving drinking water from Clear Lake are residing in severely disadvantaged community areas (DWR 2016), which equates to about 55% of the Lake County's population.

An infestation of Dreissenid mussels in Clear Lake would mean infestation of the Sacramento River and the Delta because of the natural flow of water through Cache Creek, and the artificial flow of water through the Yolo Bypass and Sacramento Ship Channel (Figure 7). An infestation in Clear Lake would also mean possible infestation of other water bodies in the region such as Lake Mendocino, Lake Sonoma, Lake Berryessa, Folsom, Oroville, and Shasta through transportation on recreational water vessels.

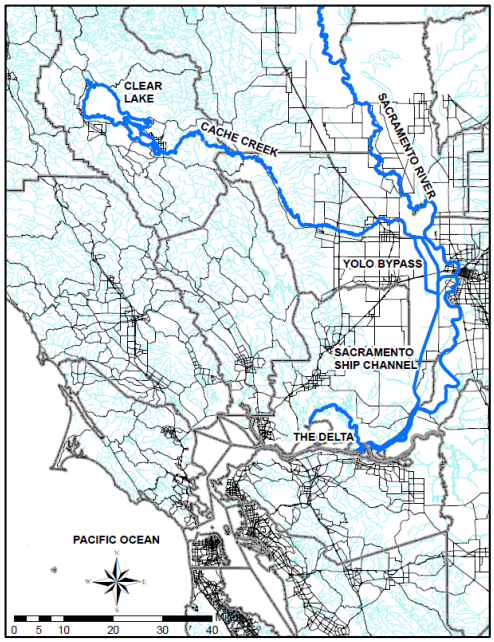


Figure 7 Natural flow pathways of water through Clear Lake, Cache Creek, and into the hydromodified system of Yolo Basin, Sacramento River and eventually into the Delta. The impacted areas are managed by members of the Sacramento Westside Integrated Regional Water Management Group or Westside IRWM. The Westside IRWM has written a letter of support for the continued funding and support of the Clear Lake Mussel Prevention Program by DBW.

The fact of regional impact is demonstrated in an included letter of support (attached in the grant portal) from the Sacramento Region Westside Integrated Region Water Management Group (Westside IRWM). Members of Westside IRWM include Yolo County Government, Yolo County Subbase Groundwater Agency, Lake County Watershed Protection District, Napa County, and Solano County Water Agency. These agencies, all charged with managing water resources and infrastructure located downstream of Clear Lake within the watershed, are reliant on the continued support and function of the Lake County QZ Prevention Program. If mussels were to become introduced in Clear Lake, they would be transported downstream,

introducing significant and expensive problems for flood and dam managers, drinking water systems, agriculture irrigation providers and managers, and reservoir managers. Therefore, it is in the best interest, ecologically and economically, to the entire Cache and Putah Creek Watershed Basins, and surrounding regions, for Clear Lake to be able to maintain the current prevention program with support from DBW.

1. Economic impacts.
Prevention is cost-effective. An analysis of the economic impact of Zebra mussels, given a range of public management options, shows that the benefit-cost ratio for prevention equates to 70:1. In *The Economic Impact of Zebra Mussels in Florida (* Lee, Adams, & Rossi 2007), August 2007 stated that "The likely arrival of zebra mussels and their potential to induce economic and environmental damage provides strong support for prevention as a management option that is both sensible and economically justifiable."

Few state-level economic studies projecting water delivery costs from a mussel invasion have been conducted. None have been conducted on Clear Lake. In November 2018, a study on the Invasive Species Impacts on Federal Infrastructure (2018) indicated that power, water, and transportation systems will be impacted by invasive mussels, and that mussel related costs at the Hoover, Davis, and Parker Dams cost over $6,026,100 in 2016 alone.

Local impacts of a mussel infestation could extend beyond cost to treatment and physical infrastructure as once Clear Lake becomes infested, it acts a source population that could jeopardize other lakes in the region. According to Fish and Game Code 2301, if Dreissenid mussels are found in a lake, CDFW may order the lake closed to conveyances. The tourism industry in Lake County would essentially collapse, since the tourist industry is, to a large part, driven by recreational activities on Clear Lake. It has been estimated that the fishing tourism industry alone brings at least $1 Million in revenue to Lake County (Giusti 2016) and a loss of that magnitude would have significant impacts to local economies, businesses, and livelihoods.

Other critical impacts of infestation include interference with drinking and agricultural uses of Clear Lake's water. QZ mussels foul drinking water delivery systems and pipes, power plant intakes, and agricultural and industrial facilities that use raw surface water, dramatically increasing maintenance and water delivery system costs across industries. QZ mussels latch inside pipes, valves and on dam surfaces, constricting and blocking pipes, decreasing water flow and creating a maintenance nightmare for water delivery systems, electricity-generating dams, water treatment plants, and agricultural producers. Considering the insidious nature of this pest, and the unlikeliness that it can be eradicated from a large waterway once introduced, the ongoing costs to repair damage to water delivery infrastructure will be staggering, especially to a small, poor, disadvantaged community like Lake County. It is unsure of the cost to mitigate invasive mussels could be afforded by the private water purveyor systems on Clear Lake.

Washington State Invasive Species Council estimates that quagga mussel infestation would cost $128 million annually to the Washington hydroelectric power industry alone.
Within California, the Metropolitan Water District, which provides water to the Southern California region, allocated nearly $6 million dollars of emergency response funding after the quagga mussel was found in Nevada's Lake Mead in January 2007. The East Bay Regional Municipal Water District in Northern California budgeted $1.8 million dollars of emergency funding after the zebra mussel was found in nearby San Justo Reservoir in San Benito County in January 2008. The County of Santa Clara Parks and Recreation's vessel inspection program to protect local waterways has potential ongoing operational costs of $1 million dollars per year.

An infestation requires reoccurring, costly mechanical removal of mussels, and the construction of a second water line to ensure that there is always one mussel-free line. Additionally, the decaying dead mussels can corrode steel and cast-iron pipelines increasing maintenance costs. It is evident that all water intakes in Clear Lake would incur huge construction and maintenance costs and the 18 public and private water companies using Clear Lake water would pass that cost onto their customers who are already severely disadvantaged. A peer-reviewed research article in the Journal for the American Water Works Association, identified average costs for small drinking water systems based on 10 case studies from across North America. The results indicated that costs for control and treatment ranged from $25-$113 per gal through the system depending on the size of the plant (Chalraborti, Madon & Kaur 2016). These additional costs would bankrupt Lake County, as the residents, many on limited or low incomes, are unable to bear the burden of those extra costs and already pay the highest drinking water rates in the state according to a 2021 public drinking water system analysis (Kennard 2021).

2. Ecological impacts.
To date, economic studies projecting water delivery costs from a mussel invasion have omitted the expense of lost ecosystem function. The ecological ramifications of these mussels include: reduced aquatic biodiversity; reducing food sources for native shellfish, fish larvae, and zooplankton; and changing water quality. Invasive mussels consume large portions of the microscopic plants and animals that form the base of the food web. Their consumption of significant amounts of phytoplankton decreases zooplankton populations which can cause a shift in native species and a disruption of the ecological balance of entire bodies of water. As mussels encrust lake and river bottoms, they can displace native aquatic arthropods that need soft sediments for burrowing. In the Great Lakes this had led to the collapse of amphipod populations that fish rely on for food and the health of fish populations has been severely affected. A mussel infestation leaves little food for other species, and can result in the displacement of native, often threatened or endangered species, and recreationally important sport fish. Many of the potential impacts of Dreissenid mussels are unclear due to the limited time scale of North American colonization.

In 2024, The Clear Lake hitch, a medium-sized minor that feeds on phytoplankton and zooplankton, was placed on the CA Threatened and Endangered Species list pursuant to the California Endangered Species Act and was proposed for Federal Endangered Species Act listing

in January 2025. Competition is listed as one of the reasons for this fish being endangered and mussel infestation would certainly aggravate this fish's tenuous existence. Recovery efforts for razorback suckers, humpback chub, several salmon species, and other threatened and endangered western fish would be significantly hindered by the establishment of zebra and quagga mussels in Clear Lake since they are just a river's flow away from the Sacramento River and the Delta where populations of these sensitive species reside. For example, Lake Ontario has experienced a 95% reduction in trout population from the late 1980's to 1996 in large part due to QZ mussels.

With their ability to filter large volumes of water combined with extremely high densities, these mussels can significantly reduce the amount of nutrients and particles in the water, resulting in increased water clarity. This increased clarity allows for greater light penetration, resulting in increased algae and vegetation growth. QZ mussels also selectively feed on green-algae and may increase the proportion of foul-smelling and toxic blue-green algae (cyanobacteria) in water systems (Sarnelle et al. 2005). Clear Lake has always suffered from extensive and severe cyanobacteria bloom events, leading to high costs in drinking water treatments and lost tourism dollars and revenues. Any increase in the ease with which cyanobacteria can bloom will be devastating to Clear Lake ecologies and economies.

QZ mussels have been associated with avian botulism outbreaks in the Great Lakes which have caused the mortality of tens of thousands of birds. Because of their filter feeding habit, it has been estimated that these mussels can bio-accumulate organic pollutants in their tissues by as much as 300,000 times when compared to concentrations in the water in which they are living. Consequently, these pollutants can bio-magnify as they are passed up the food chain if contaminated mussels are eaten by predators (of which there are currently very few), who in turn are eaten by human beings (e.g., tribal communities who eat contaminated fish.) Clear Lake is already impaired by mercury resulting in a, Office of Environmental Health Hazard Assessment (OEHHA) fish consumption advisory. Mussels may aggravate the bioaccumulation of mercury.

3. Recreational impacts.
QZ mussels can negatively impact recreation and commercial fishing and, thus, local economies that focus on recreation. When mussels attach to boat hulls, they can increase drag on the bottom of watercraft, reducing speed, wasting fuel, and requiring scraping and repainting of the watercraft's exterior. Mussels attached in and around the boats steering components and engine outdrives can jam equipment and can block the water-cooling system in engines causing them to overheat. Mussels in or around the shafts and propellers of recreational boats can cause drivetrain wear. Degraded habitats also reduce sport fishing opportunities, which affect recreation opportunities and tourism – the main economic driver for Lake County.

Dreissenid mussel presence or risk of spread can result in temporary and even permanent closure of waterways to recreational boating. If mussels are detected, CDFW can order the closure of water system facilities, and recreational boating, until system operators have

implemented an approved management or eradication plan depending on the size of the infestation. If funding is not available to implement an approved plan, recreational boating could be permanently banned thus affecting local businesses and markets tied to the local boating and recreation industry. A current grant held by the District has been able to support the creation of the QZ Response and Containment Plan (found https://www.lakecountyca.gov/1257/Prevention-Plans-Reports). This project is to prepare the County for an QZ introduction, so that the activities, tasks, ordinances, and funds are identified now, before an introduction should occur, therefore minimizing the restrictions on access to Clear Lake and limiting the economic and ecologic impact to the local and regional community.

Smaller man-made structures are also vulnerable to invasive mussel infestation. QZ mussels have caused increased maintenance costs for waterfront property owners, recreational boaters, and fishermen. Docks, seawalls, boats, boat lifts, and ladders all provide hard substrates for mussels to settle on. Owners must scrape these substrates annually to remove mussels that could otherwise impede function and damage structural integrity. QZ mussels may colonize fishing nets and navigational buoys. The added weight of mussel colonization can render them useless by dragging them under the water. The cost of retrieving, cleaning, and deploying additional buoys and nets can be a further expense.

Along shorelines, dunes of mussels and mussel shells can destroy beaches and the decaying mussels produce an extremely foul smell. The sharp shells of QZ mussels are razor-like and are a hazard to barefoot swimmers and beachcombers. This combination spoils the most pristine of locations and prohibits shoreline -based recreational activities.

Section D- Technical and Feasibility Approach

1. Scientific/technical approach.
The proposed Project has a sound scientific and technical basis, reinforced by operating experience, at the local, state, and national levels. Lake County has had a QZ Mussel Prevention Plan in place since 2008, and was recently been updated in 2019. The District plans to update the plan in 2025-2026 when new Invasive Coordinator Program Staff are hired (to replace Angela De Palma-Dow who held the position from 2018-2025). The Project will strengthen the current QZ Mussel Prevention Plan by continuing to fund its most successful educational component – staffing boat ramp monitors, increasing inspection capacity through Mussel Dogs and digital inspection notification and providing needed education and outreach. The Invasive Mussel Guidebook for Recreational Water Managers and Users (2010), details the justification for our approach:

- ✓ “In order to be most effective, all watercraft and vehicles entering a waterway should be subject to inspection prior to launching”.
- ✓ “There is no better prevention technique than proper education of and outreach to water body users”.

- ✓ "It is recommended that educational materials be distributed at any point of entry to a water body".

More justification comes from the Assessment of Sport Fishing as a Vector for the Spread of Quagga Mussels (*Dreissena rostriformis bugensis*)(CDFW 2010):
Conclusions include:

- Anglers and boaters frequently travel between infested and uninfested waterbodies
- 18% do not clean watercraft/equipment after every use
- 71% had not inspected boat or equipment that day before use
- 17% have not heard of quagga/zebra mussels
- Signs and lake staff play an important role in educating the public.

Most anglers and boaters would do the right thing and be sure that their vessel is not transporting mussels if their experience prior to launching on Clear Lake is easy and quick and affordable (~ $20.00).

The technical and feasibility approach to improving the QZ Mussel Prevention Plan is clearly one of the best use of state and local resources in order to optimize timing and frequency of public contact. Continuing to fund monitors will ensure that the current level of coverage at boat access sites around the lake will sustain the opportunities for QZ mussel education. More inspectors/decontaminators and increased inspection capacity will improve the ability to conduct easy, fast, and reliable inspections. More education in different forms and with different media will reach a much wider audience. (More education and outreach information is provided in Section G).

2. Project consistency with Fish and Game Code, Section 2302 and CCR, Title 14, section 672.1 (b).

Fish and Game Code Section 2302 orders all water bodies in the State that are used for recreational purposes by the general public to produce a vulnerability assessment and a program to prevent the introduction of nonnative Dreissenid mussel species. The proposed project results from adaptive management of the Lake County QZ Mussel Prevention Plan revised in 2019 and the 2015 Lake County Vulnerability Assessment, Identifying Risk Factors To Strengthen Current Strategies Aimed at Minimizing the Introduction of Quagga and Zebra Mussels to Lake County. The latter document was assembled by the Lake County Fish and Wildlife Committee in 2009, and was amended with addendums added in 2015.

Lake County realized the need to have a mussel prevention plan and developed such a plan two years before the State regulated this requirement with Fish and Game Code 2302. Lake County's vulnerability to invasion is high, especially when considering water quality condition (Table 4) and also considering Clear Lake's recreational value, being one of the most desirable of fishing lakes in the US, combined with its plethora of free, public access points. In 2009 Lake County formalized its vulnerability assessment by authoring the above vulnerability assessment in response to Fish and Game Code 2302. The Lake County Vulnerability assessment was revised with an addendum in June 2015 in a separate document. Lake County's vulnerability

can only increase as more California lakes and lakes in neighboring states become infested. The number of infested lakes in the western US is increasing.

California Code of Regulations, Title 14, Section 672.1 (b) Prevention Program states that:
(1) Dreissenid mussel prevention programs shall include at a minimum:
(A) An assessment of the vulnerability of the reservoir …. See A. 3. Vulnerability assessment.
(B) A Monitoring program …. See Lake County Invasive Mussel Prevention Plan, Monitoring Section and Section F of this proposal, which describes how and where staff conduct adult and veliger (juvenile) quagga mussels. Additionally, the results of the District's 2022 monitoring efforts is provided in the Lake County 2022 Annual Report: Dressenid Mussel Prevention Program Early Detection Monitoring, monitoring results excerpts are uploaded in our application package in OLGA.
(C) Management of recreational boating or fishing activities to prevent the introduction of mussels and to keep them from being moved from the waterbody if present, that includes public education and outreach. See A.3. Prevention Program. Our prevention program includes the identification of high-risk vessels and includes mandatory inspections, by WIT-trained staff or mussel dogs, and decontaminations when inspections fail to pass. Quarantine or dry times only apply when adult mussels are discovered and based on direction provided by our regional AIS biologist.

The proposed implementation project is consistent with management of recreational activities on Clear Lake and public outreach and education to prevent introduction of QZ mussels to Clear Lake and other water bodies in Lake County.

Since adoption of the Lake County QZ Mussel Prevention Plan, adaptive management has been the key to keeping the Plan current, relevant and successful. The Lake County QZ Mussel Prevention Plan has been changed and improved upon six times since its inception. The proposed project continues to improve the Lake County QZ Mussel Prevention Plan by continuing to fund ramp monitors who are performing QZ mussel education and checking vessels for compliance with the Plan. Current process of the Lake County QZ Mussel Prevention Plan includes any decontamination activity if a boat that has been out of the county reaches the ramp monitor and is not clean, drained, or dry, contains unverified water or came directly from an infested lake with less than the 7 day dry time (30 days or less automatically require an inspection), and for some reason cannot be verified that it went through an exit inspection (i.e. seal or tag broken, or paperwork unclear or questionable). In any case, program staff are required to call the CDFW wardens and the CDFW regional AIS regional biologist.

3. Assessment, data or planning gaps.
Throughout the past grant cycles, the District has been successful in collecting needed data from incoming vessels that are screened, inspected, or decontaminated, and contact data directly from ramp monitors that interact with boaters and other water users at the ramps using hard copy contact sheets (Figure 8). These contact forms are a very easy way to track information and water body use and type.

All of the current monitors and supervisors are excellent at providing essential education at the ramps and filling out a paper contact form, but find inputting the contact data into a computer database from the contact form tedious or even difficult if they are located at a location on the other side of a large lake. This has presented a large data gap, from getting the contact information from the paper copies into a digital form that can be summarized and trends be identified. Until the team can identify the best way to streamline and enter this information, this aspect remains a challenge, and requires the need for data entry support staff, which is included in this current grant request (Task 6).

RAMP MONITOR CONTACTS – *Revised April 2019*

Name:		Time at ramp / Shift:				Ramp Name / Location:			
Date: Su M Tu We Th Fr Sa						In Parking Lot # of trailers w/ stickers:		# of warning cards issued:	
NOTES:									
Water Use Type Tally (Use tally marks to indicate what type of activity is using the ramp)									
Motorized Boat (fishing): Daily Total:		Motorized boat (recreation or other): Daily Total:		Personal watercraft /jet ski: Daily Total:		Swimmer, Kayak, Canoe, or other: Daily Total:			
Contact / Interaction Data – Only record data where you made contact									
Resident / Visitor	Compliant w/ Mussel Sticker Program?			If you provided education, what was the topic? Check all that apply			Other or Notes:		
R or V	Y	N	If NO, what action did you take?	Mussels	AIS general	Cyano / Algae			
R= V=			DAILY TOTALS				DAILY TOTALS		

Figure 8 Example contact form, updated during 2019 and remains the standard form as of 2024, is used to collect data on type and content of interactions completed between ramp monitors and water users on Clear Lake. This form is expected to slowly be out phased as the digital tracking system is implemented.

Additionally, screener forms are also traditionally on paper hardcopy and are entered by our data entry part-time staffer, but until they can be entered this information is unavailable for project coordinator to summarize and identify any trends or issues. These data gaps can be remedied by the completion and troubleshooting of the transition from paper data collection systems to digital entry, including the customization of the Colorado Park Western Boater Database. During 2022 and into 2023, staff were trained and started to utilize the tablets and Database system when conducting inspections and some screenings, but additional training and troubleshooting is needed as new staff join the team, or additional screeners and vendors participate in the program.

Section E. <u>Performance Monitoring (Tracking of the Project)</u>

1. Monitoring.
The proposed planning project will be tracked by a number of reports.

Reports:

a. Early Detection Adult and Veliger Monitoring and Water Chemistry Monitoring data, submitted in quarterly, annual and final reports.
b. Quarterly Progress reports – includes activities towards grant tasks and staff/funding activities.
c. Draft report
d. Final Report

2. Tracking

The proposed planning project will be tracked by a number of deliverables.
Deliverables:

a. Ramp monitor hiring status - any new hires will be documented in progress reports.
b. Any training events, refresher meetings, or team events will be reflected in quarterly progress reports.
c. Work Purchase order or Contract between the District and Canine Inspection Company (i.e. Mussel Dogs) for year 1 & 2.
d. Any generated education and outreach materials such as social media posts, articles, video links demonstrating the monitoring and canine inspection team working on the ramps.
e. Work purchase order and Contract between the District and any media or outreach consultants (e.g. PSA radio distributor), contract is expected this year.
f. List & proof of play or reach statistics for radio/digital PSA outreach marketing for duration of project period – reported in quarterly progress reports.
g. Reach and insight statistics for online educational video outreach marketing for duration of project period – reported in progress reports, when applicable.
h. Participation, photos and outreach contacts on any attended outreach events / activities will be captured in quarterly progress reports and annual reports.
i. DBW-approved outreach survey questions and format.
j. Results of outreach survey of water users in final report.
k. Purchase order/ receipts for any purchases, equipment, supplies, including clothing, office supplies, and mobile decon accessories, digital tables, Mobile Wi-Fi units, and accessories for replacement hardware.

Tracking of the project will be documented in the Clear Lake Mussel Prevention 2025/26 grant program, quarterly progress reports and draft and final reports.

3. Assessment of Project Success and Outcomes.

The Project's performance will be measured by the reports and by the timely completion of the milestones and production of deliverables. The proposed implementation project will be complete in the specified two-year project period. Milestones will be tracked for completion and timeliness. Any challenges or delays in achieving desired outcomes will be communicated with the DBW grant administrative staff and team.

Section F. Early Detection Quagga and Zebra Mussel Monitoring

Monitoring efforts in Lake County is completed by The District, with monitoring support and lab analysis provided by the CDFW, Lake Pillsbury monitoring provided by Pacific Gas and Power (PG&E), and substrate monitoring provided by volunteer citizens at Hidden Valley Lake. Monitoring and the data collected is part of a county-wide prevention effort as described in the Lake County QZ Invasive Mussel Prevention Plan. Monitoring is conducted in six waterbodies within the county including Clear Lake, Blue Lakes, Hidden Valley Lakes, Highland Springs, Indian Valley Reservoir, and Lake Pillsbury. While this grant is solely going to support efforts to monitor Clear Lake, the county and partners monitor other regional county water bodies as their mussel status is interconnected to the status of Clear Lake. The monitoring program includes monthly monitoring of artificial substrate monitoring, infrastructure / surface structure surveys, and Spring and fall veliger tows on Clear Lake (Table 5). Veliger tows on Clear Lake during peak summer periods are sometimes not possible due to the high algae / cyanobacteria colonies that occupy the open water, clogging the mesh and making tows nearly impossible to collect. Water quality monitoring accompanies some of the sampling to identify baseline environmental conditions of the waterbody. All monitoring protocols are provided by the CDFW and are available and online at: https://www.wildlife.ca.gov/Conservation/Invasives/Quagga-Mussels

Table 5 Type, frequency, and agency responsible for the monitoring being conducted in Lake County. This table reflects five waterbodies within Lake County, but Clear Lake is the only lake that is included in this grant project.

Agency conducting monitoring & Frequency	Type of Mussel Monitoring				
	Artificial substrate	Infrastructure / Surface	Veliger tows	Water Quality Monitoring	Vessel Screening
Lake County Watershed Protection District	Monthly	At least 10x a year	April/May, July[1], October[1]	Monthly (10x year)	As needed
CDFW			Lab Analysis Only		
PG&E[2]			April, July, October		
Private Citizens[3]	Monthly (10X year)	Monthly (10 x year)			

[1] *Sometimes summer and early fall tows are unable to be collected due to the high algal biomass in the water during these warmer months, although the goal is to have at least two tow sampling periods in Clear Lake that include sampling over 10 sites.*

[2] *Only for Lake Pillsbury*

[3] *Citizen Scientist at Hidden Valley Lake checks substrates and surfaces for mussels and reports to staff at Lake County Watershed Protection District.*

During 2022-2025 years, additional funds provided by a Federal USFWS grant have provided monitoring support for staff time and materials to conduct early detection monitoring and water chemistry monitoring in water bodies other than Clear Lake. In December 2024, General

Fund emergency stop grant funds ($20,000) were provided by the County of Lake Board of Supervisors to maintain water monitoring in Lake County for both QZ and Golden Mussels.

Monitoring data is managed by The District (Supported by The County of Lake Water Resources Department) and shared with CDFW via monthly and annual reports, which are also available online at https://www.lakecountyca.gov/1257/Prevention-Plans-Reports. Additionally, the monitoring data is shared with the public at QZ mussel presentations provided to the many service clubs in the County of Lake, to the Board of Supervisors, to schools, to tribal partners, non-profit organizations, fishing tournaments and other annual events as requested. Data is also shared with media partners, such as the field editor of the Lake County Record Bee newspaper, Lake County News Online Newspaper, and via the department webpage. (https://www.lakecountyca.gov/407/Water-Resources) and through social media on the Water Resource Department facebook page (@lakecountywater).

Section G. Education and Outreach

This Project will continue giving boaters a better chance of meeting face-to-face with a boat ramp monitor and experience more visual cues to the Lake County mussel prevention experience. If boaters are given cues and have a pleasant and rewarding launch experience, the boater is more willing to do the right thing and accepting of the education that comes with launching. The boater will be educated to factor in possible decontamination to the routine of launching at Clear Lake when they have been in an infested lake.
In the Uniform Minimum Protocols and Standards (UMPS) for Watercraft Interception Programs for Dreissenid Mussels in the Western United States (UMPS III, 2021), Pacific States Marine Fisheries Commission confirms the Project's technical and scientific feasibility:
"While watercraft interception programs are an important public outreach and education vehicle in their own right, all agencies and organizations must also recognize the need to use other outreach strategies to make boaters more aware of the importance of preventing the spread of aquatic nuisance species such as zebra and quagga mussels and what role they can play in those prevention efforts. A watercraft interception program by itself is not sufficient to gain public involvement, support and cooperation. *Public outreach and education should be the cornerstone of all state, federal and local mussel prevention programs,"*

Despite the District's significant investment in outreach and education programs, there are many relevant audiences still unfamiliar with the issue. New opportunities for distributing the "Spread the Message, Not the Mussel" and "Clean, Drain, Dry" concepts are being continuously sought from within our organization and program, online sources, from partners, and other collaborating parties familiar with AIS prevention. Hence the further distribution of digital and radio PSAs, social media blasts, and the previously created 90-second educational video about the importance of mussel prevention in Clear Lake (and Northern California) is an essential part of reaching these unfamiliar yet vital audiences. Additionally, we are continuing the evaluation and enhancement of our outreach and education efforts, with additional support from the USFWS.

Section H. Key Officers and Oversight Bodies

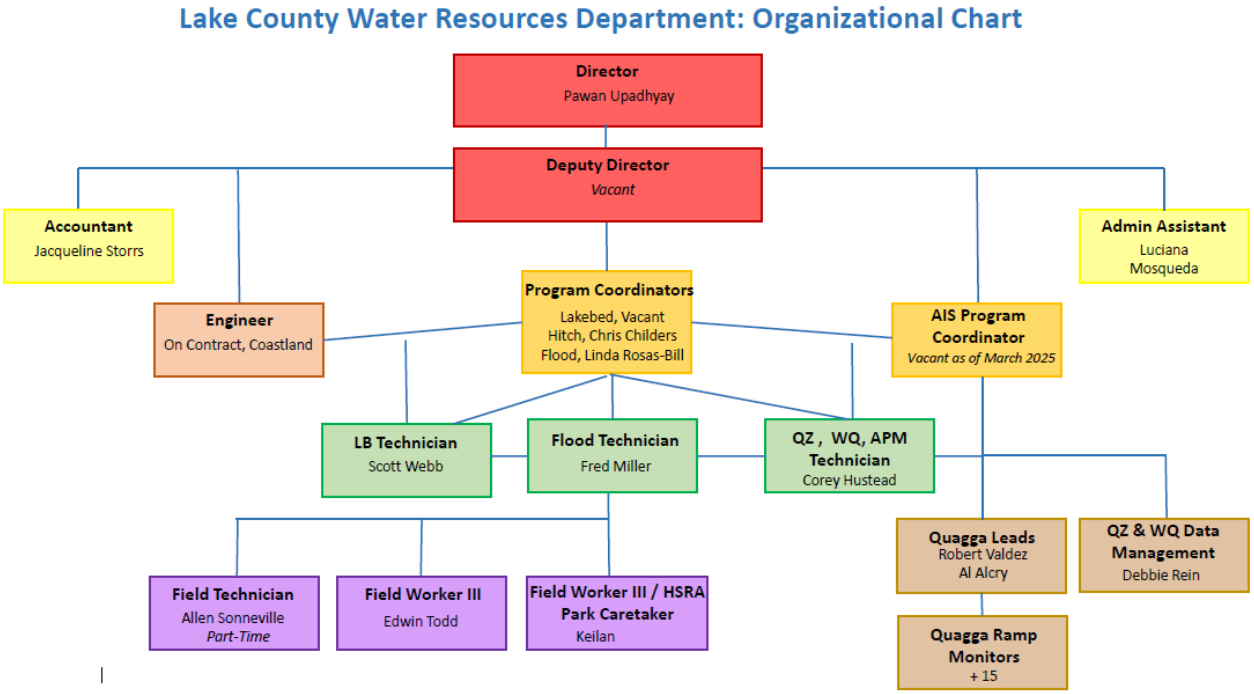
*1. Name, title, responsibilities (*Not included in grant budget)*

a. *Pawan Upadhyay, Director of Water Resources, Lake County; operational responsibility for the Lake County Watershed Protection District and the Lake County Department of Water Resources.
b. Vacant (to be hired April-May 2025), Invasive Species Program Coordinator; will serve as project coordinator for the QZ prevention implementation project grant, operational responsibility for the administration, maintenance, reporting and direct oversight of the Lake County QZ Mussel Prevention Plan. *This position used to be filled by Angela De Palma-Dow.*
c. Corey Hustead, Technician / Monitor Coordinator; responsible for technical operation, including monitoring and screening/inspection/decontamination coordination, of the Lake County QZ Mussel Prevention Plan along with the Invasive Species Program Coordinator.
d. Robert Valdez, North Shore Lead Monitor and Inspector, responsible for boots-on-the ground ramp north shore monitor coordination and support, reports to Corey and the Invasive Species Program Coordinator.
e. Al Acry, South Shore Lead Monitor and Inspector, responsible for boots-on-the ground ramp south shore monitor coordination and support, reports to Corey and Invasive Species Program Coordinator.
f. Jacqueline Storrs, Accountant; responsible for subcontractor's costs and all billing issues related to the proposed project including payroll and reimbursement packages.
g. Debbie Rein, Database / Data entry specialist; provides screener and contact form database entry and digital data entry troubleshooting and remote assistance when applicable.

2. Oversight Bodies

Greg Giusti, Chair, Lake County Invasive Species Council and Chiar, Lake County Fish & Wildlife Committee; U.C. ANR Cooperative Extension Director – Lake/Mendocino Counties, 883 Lakeport Blvd., Lakeport, CA 95453; 707-263-6838 www.nomussels.com

Angie Montalvo, QZM-AIS Regional Coordinator | Emergency Incident Response Coordinator | Health & Safety Regional Coordinator | Fisheries Boater Safety Officer
Bass Tournament & TGC Permits. CA Department of Fish & Wildlife Region 2 - North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670. C: 530.333.7749
angie.montalvo@wildlife.ca.gov



Section I. <u>Project Members/Entities, Administration and Partners</u>

<u>Project Coordinator will be determined when hired by District April / May 2025</u>

<u>Technician / Coordinator: Corey Hustead</u>
Corey is the Program Technician and assists the Invasive Species Program Coordinator in the management of program activities such as inspections, decontamination, monthly mussel monitoring and water quality collection, and outreach distribution and analysis. Corey is certified in WIT I, II, and WIT III and has completed numerous inspections and decons while being employed with the District for the four years as extra help and field technician. With minimal direction from supervisors, Corey manages day to day activities of the ramp monitor program, including coordinating with both monitor leads to fill schedules, plan for tournaments or other large events, and communicates with stakeholders around the lake. He communicates on a regular basis with the boating public, participating members of the <u>Lake County QZ Mussel Prevention Plan</u> including screeners and inspectors, fishing tournament personnel, other water agency personnel, inside and outside of the County and State. Corey is also responsible for conducting, and training other staff in use of the WID system, and to conduct any monitoring related to the program. Corey communicates and represents the County with agencies during their monitoring when supervisory staff is unavailable.

North and South Shore Monitor Leads / Coordinators: Robert Valdez and Al Acry
Robert (Bob) and Al Acry have both been assisting previous program coordinator Mark Miller and previous program manager Angela with on-the-ground monitor needs for several years. Bob and Al are both trained, certified and fluent in WIT I & WIT II for inspections and decontaminations and are locally familiar with the types of vessels most common to Lake County. Both coordinate day-to-day activities like schedules and coverage of ramp monitors throughout the spring, summer, and fall seasons. Robert and Al can provide any necessary support to ramp monitors, and vessel screeners, located anywhere on the lake when technical or coordination staff are unable to respond or be available. They provide valuable service as liaisons between ramp monitors and the project coordinators, and the public!

Project Accountant: Jacqueline Storrs
Jackie is the accountant for the District/ Department of Water Resources. She has four years direct experience working within the County in accounting, and 2 years working with the District. Jacqueline has currently been managing all the finances and invoicing and billing for the District's current two DBW grants, as well as the additional grants that the District manages.

Debbie Rein: Database management
Debbie has been involved with the District's data entry for about 5.5 years. She is fluent in Excel and online survey techniques and has helped Corey and District staff develop a web-based data entry to collect Outreach survey information that can easily be accessed and analyzed. Debbie is excited to continue helping the program transition into digital format, and not just because she will have less numbers to enter from tall stacks of paper, but she is excited to have quick identification of problem boaters and is exited to help improve the way we protect Clear Lake. Debbie has been conducting database activities for part of three previous DBW QZ grants for Clear Lake and is very familiar with all the data this program generates.

Mussel Dogs
Mussel Dogs have been providing mussel-detection canine services since 2008 in the Western US. Mussel Dogs provides consulting and inspection services for water agency and lake management professionals seeking comprehensive plans to inspect for the presence of quagga and zebra mussels. According to the Mussel Dogs website and services portfolio, the founder of Mussel Dogs, Debi Deshon, is passionate about animals and the environment. Ms. DeShon received a Bachelor's degree in Agricultural Business and Management from UC Davis in 1987. Afterwards, she attended Moorpark College and earned an Associate's degree in Exotic Animal Training and Management in 1989. Mrs. DeShon then launched her career in Hollywood training dogs for television and such iconic movies as "Beethoven". Subsequently she began working with Interquest Detection Canines as a canine handler in 1996. She has operated four Interquest Detection Canines franchises since 1999, and has been successfully training and managing canine teams in the detection of illegal drugs and contraband. Ms. DeShon has trained detection dogs and service dogs in collaboration with Greendog Project Rescue (GDRP).

Mussel Dogs use best practices to achieve efficient, boater-friendly inspections for quagga and zebra mussels. Mussel Dogs partner with federal, state and municipal agencies to utilize the most current and effective methods to keep aquatic invasive species out of our waterways. Since 2020, Mussel Dogs have been working with the District to provide enhanced inspection services to boost inspection and program capacity. In addition to provided fast, easy, and effective inspections, Mussel Dogs also provide vital outreach about Mussel Prevention Programs at Clear Lake and regional Lakes. Mussel Dogs has committed to provided services to Clear Lake now and into the future, and has even in invested in property in close proximity to Clear Lake and Mendocino Lake, as their management agencies have both employed the services of Mussel Dogs for ramp inspections.

More information about Mussel Dogs can be found https://www.musseldogs.info/more-about-us.

Partners

The District works closely with partners at: California Department of Fish and Wildlife, California Department of Food and Agriculture, California Department of Water Resources, California Parks and Recreation Division of Boating and Waterways, surrounding counties, Westside Sacramento Integrated Regional Water Management Plan Committee, other states, the U.S. Fish and Wildlife Service, Bureau of Reclamation, and USGS. Local partners include Big Valley Band of Pomo Indians, Hebematolel Pomo of Upper Lake, Robinson Rancheria, Lake County Resource Conservation District, the UC Davis Extension Lake County Office, the Great Lakes Mussel Collaborative, the California Chapter of The Society of Freshwater Science, and Bioassessment arm of the California Surface Water Ambient Monitoring Program and the Lake County Fish and Wildlife Committee. The District also relies on training expertise and resources provided by the Pacific States Marine Fishing Commission, AIS Western Regional Panel and Creative Resources Strategies. In addition, this program relies on the valuable informational resources provided by the 100th meridian initiative at www.100thmeridian.org and Protect Your Waters at www.protectyourwaters.net and Stop Aquatic Hitchhikers at http://www.wildlifeforever.org/invasive-species.

Section J. Readiness to Proceed

The proposed implementation project is ready to proceed and continues the goals outlined in two existing grants; C22Q0804 & C23Q0805 in addition to the current Lake County Quagga and Zebra Mussel Prevention Plan. No additional permits, data, or studies are needed to commence for this proposed project to move forward. Outside funding is not necessary for the proposed project, however to cover expenses and monitoring needs that fall outside of the funding eligibility for this granting program, revenues from the Lake County Quagga Sticker Program are used, however those funds slimly cover overages and general Watershed Protection District funds are sometimes needed to support prevention efforts. As needed, the District is willing and able to provide the support services necessary to progress the most important aspects of the proposed project if needed.

References

California Department of Water Resources (DWR) Water Data Library. Available at: http://wdl.water.ca.gov/waterdatalibrary/ Accessed January 2019.

California Natural Resources Agency. (2010) Invasive Mussel Guidebook for Recreational Water Managers and Users: Strategies for Local Government. CDFW Aquatic Invasive Species Documents. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=23289

Collas, F.P.L., E. Arends, M. Buuts, and R.S.E.W. Leuven. (2021). Effect of airflow on overland transport potential of the invasive quagga mussel (Dreissena bugensis). Management of Biological Invasions 12(1):165-177. https://www.reabic.net/journals/mbi/2021/1/MBI_2021_Collas_etal.pdf

Dalton, L.B. & S. Cottrell (2013) Quagga and zebra mussel risk via veliger transfer by overland hauled boats. Management of Biological Invasions 4(2):129-133 http://www.reabic.net/journals/mbi/2013/2/MBI_2013_2_Dalton_Cottrell.pdf

Chakraborti, R, S. Madon, J. Kaur. (2016) Costs for Controlling Dreissenid Mussels Affecting Drinking Water Infrastructure: Case Studies. Journal of American Water Works Association 108(8):442-453. https://awwa.onlinelibrary.wiley.com/doi/abs/10.5942/jawwa.2016.108.0104

Cohen, A.N. (2005). A review of Zebra Mussels' Environmental Requirements. A Report for the California Department of Water Resources. San Francisco Estuary Institute. Accessible: https://www.sfei.org/sites/default/files/biblio_files/No420_2005-ZebraMusselRequirements.pdf

De Palma-Dow, A, J. Curti, and E. Fergus (2020) It's a Trap! An evaluation of different passive trap types to effectively catch and control the invasive red swamp crayfish (Procambarus clarkii) in streams of the Santa Monica Mountains. Management of Biological Invasions 11(1):44-62 https://www.reabic.net/journals/mbi/2020/1/MBI_2020_DePalmaDow.pdf

Elwell LC and S Phillips, editors. (2021). Uniform Minimum Protocols and Standards for Watercraft Inspection and Decontamination Programs for Dreissenid Mussels in the Western United States (UMPS III). Pacific States Marine Fisheries Commission, Portland, OR. Pp 55. Available at: https://invasivemusselcollaborative.net/wp-content/uploads/2018/11/UMPS-III-7-14-2016.pdf

Kennard, R. (2021). Safe and Affordable Drinking Water For Sources Impaired by Harmful Algal Blooms: Clear Lake, California. 2021. A Thesis Available at: http://watermanagement.ucdavis.edu/files/3816/3364/0833/Kennard_Thesis.pdf

Lake County Fish & Wildlife Committee (2009) Identifying Risk Factors to Strengthening Current Strategies Aimed at Minimizing the Introduction of Quagga and Zebra Mussels to Lake County, California. Report submitted to the Board of Directors of the Lake County Watershed Protection District 2009. Available at: https://ucanr.edu/sites/ClearLakeAquaticWebsite/Clear_Lake_Ecology_/

Lake County Water Resources Department (2019) Lake County Quagga and Zebra Mussel Prevention Plan. Submitted and Approved by the CDFW May 2019. Available at

http://www.nomussels.com/Assets/Departments/WaterResources/Mussels/Website+Docs/Prevention+Plan+Cover1.pdf

Lee, D.J., D.D. Adams, F.J. Rossi. (2010) The Economic Impact of Zebra Mussels in Florida. EDIS document FE693, a publication of the Food and Resource Economics Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. Available from: https://www.researchgate.net/publication/253899144_The_Economic_Impact_of_Zebra_Mussels_in_Florida [accessed May 15 2020].

Pucherelli, S.,S.O.Meara, K. Bloom, J.Kirsch (2016). Habitat Suitability Parameters for Quagga Mussels in the Lower Colorado River System and at Reclamation Managed Facilities. Final report ST-2015-754F-01. Bureau of Reclamation Research and Development Office. Accessible at: https://www.usbr.gov/research/projects/download_product.cfm?id=1552

Sarnelle, O., A.E. Wilson, S.K. Hamilton, L.B. Knoll, D.F. Raikow. (2005) Complex interaction between the zebra mussel, *Dressena polymorpha*, and the harmful phytoplankter, *Microcystis aerginosa.* Limnology and Oceanography. 50(3) 896-904.
DOI https://www.wilsonlab.com/publications/2005_LO_Sarnelle_et_al.pdf

Western Regional Panel of Aquatic Invasive Species (2010) Quagga-Zebra Mussel Action Plan for Western U.S. Waters. Submitted to the Aquatic Nuisance Species Task Force. Available at: https://anstaskforce.gov/QZAP/QZAP_FINAL_Feb2010.pdf

Whittier TR, PL Ringold, AT Herlihy, and SM Pierson. 2008. A Calcium-based invasion risk assessment for zebra and quagga mussels (*Dreissena spp*). Frontiers in Ecology and the Environment 2008:6 doi:10.1890/070073.

Scope of Work (SOW) and Table of Deliverables

Purpose for funding request

The proposed project will continue to improve and maintain the currently successful Clear Lake Invasive Mussel Prevention Program. Overall this project will support program staff to complete project coordination and administration, support boat monitoring and inspection staff at public high-use ramps, including the use of mussel-detection canines, conduct required early detection monitoring, conduct in-person outreach activities, distribute outreach messaging via multiple formats such as radio/digital, video PSAs, and hard copy educational materials. Lastly, to build off progress from previous grants, this project will continue to support the inclusion of inspection and detection capacity by maintaining program participation in the Colorado parks WID database, and increase the support for 30 – 35 boat screening vendors around the lake.

Scope of Work (SOW) tasks

Task 1: Project Management – Administration

1.1 Project Administration and Coordination
1.2 Quarterly Reports and Invoices
1.2 Draft Project Report
1.3 Final Project Report
1.4 Final Project Summary

Deliverables: Attendance list and dates of program and staff meetings, Signed Resolution, Monitoring Results, Quarterly Reports and Invoices, Draft Project Report, Final Project Report, Final Project Summary. Coordination tasks completed by staff and mileage collection logs for program staff for local travel will be submitted with the quarterly reimbursement packages.

Task 2: Early Detection Mussel Monitoring

2.1 Early Detection Monitoring of substrates
2.2 Early Detection Monitoring of artificial surfaces
2.3 Early Detection Monitoring using Veliger Tow
2.4 Water Quality chemical monitoring

Deliverables: Progress reporting of detection and water quality data and results.

Task 3: Continue to fund and support up to 3 ramp monitor leads and up to 20 ramp monitors.

3.1 Advertise position(s) to replace any monitors or monitor lead positions that need to be filled for year 1 or year 2, to ensure staffing does not exceed 20 boat ramp monitors and three leads throughout the project.
3.2 Interview candidates where needed.
3.3 Bring candidates through Lake County Human Resources system for approval and hiring.
3.4 Provide new and returning ramp monitors and leads with any replacement clothing, badges, and supplies.
3.5 Train any new ramp monitors and provide at least one annual (2 total) refresher meeting for all ramp monitor staff.
3.6 Schedule new and returning ramp monitors/leads by location and time.

Deliverables: Ramp monitors and lead hours worked and materials purchased will be included in reimbursement packages. Clothing, material purchases for ramp monitors will be included in payment requests. Training records and annual meeting refresher meetings will be included in appropriate progress reports.

Task 4: Incorporate boat inspection support by mussel detection canine teams (i.e. Mussel Dogs) during peak lake-use times.

4.1 Create and approve agreement / contract with mussel detection/ inspection canine company.
4.2 Create and agree upon a rough schedule for year 1 for canine team presence on the lake, to include at least 1-2 of the most popular public ramps.
4.3 Create and agree upon a schedule for year 2 for canine team presence on the lake, to include at least 1-2 of the most popular public ramps.
4.4 Include presence of mussel inspection canines into public outreach efforts on social media and evaluation.
4.5 Record inspections conducted by mussel detection canine teams.

Deliverables: Final agreement / contract, year 1 & year 2 schedules between Applicant (the District) and the mussel canine inspection company and any generated outreach posts, articles, or video links demonstrating the canine teams working on Clear Lake and submitted in progress reports. Total number of canine inspections will be included in annual reports.

Task 5. Improve education through outreach events, digital, radio, video PSA distribution, printed materials and other formats.

5.1 Project staff participate in at least 3 outreach events in the community.
5.2 Schedule digital PSA & video distribution for Year 1 & 2, using same PSA & video as created in previous grants.
5.3 Track digital PSA & video distribution and radio PSA proof of play for grant period.

5.4 Create social media educational content and distribute at least 4 “boosts” or digital adverts during grant period.
6.5 Track social media and digital adverts outreach reach statistics.
6.6 Create, print and distribute any hard copy outreach flyers or brochures for in-person outreach events.
6.7 Design QZ outreach survey / evaluation in either digital / hard copy format and submit to CA State Parks DBW for approval.
6.8 Distribute QZ outreach survey / evaluation and receive responses from the public.
6.9 Consolidate, validate, analyze, and summarize QZ outreach survey results and create outreach report to be submitted in final grant report.

Deliverables: Proof of outreach event attendance and contact numbers. PSA proof of play/ performance. Summary of Social Media posts and viewing statistics. Educational video summary of distribution and viewing statistics. Include copies of any hard copy outreach materials and numbers distributed at qualifying required outreach events. QZ outreach evaluation survey approved survey, results for QZ outreach surveys, QZ outreach survey reports.

Task 6: Maintain the digital screening & inspection system by replacing broken hardware, accessories and support training and troubleshooting.

5.1 Purchase of replacement of tablet hardware, accessories, and supplies
5.2 Include digital training to any new program staff and participating partners.
5.3 Update any training documents with any updated database features.
5.4 Conduct any screening or contact form data entry needed to supplement digital system.

Deliverables: Purchase orders / invoices for digital tablet and accessories purchases, any updated training documents / protocols. Hours for supplemental data entry will be included in reimbursement packages.

Scope of Work
Clear Lake Mussel Infestation Prevention Implementation Program FY 25/26

Table of Deliverables – Tier 2 Implementation

PART A – SCOPE OF WORK TO BE PERFORMED			
SECTON 1 – GENERAL COMPLIANCE REQUIREMENTS			
ITEM	**DESCRIPTION**	**Due Date**	**WHERE TO REPORT INFORMATION**
GENERAL COMPLIANCE REQUIREMENTS			
1.	Final Resolution	Prior to Grant Execution	Provide to DBW Grant Administrator
2.	Evidence of Insurance With Endorsement	Prior to Grant Execution	
3.	Contractor Certification Clauses form (CCC 04/2017)	Prior to Grant Execution	
4.	Early-Detection Mussel Monitoring Data: Report data with each Quarterly Progress Report submission during the grant term. (Refer to the Grant Agreement Exhibit A, Section A, subsections 4-5 for the frequency of data collection and protocol.)	Due date is the same as the Quarterly Reports	Provide with the Quarterly Reports, the Annual Report and the Draft/Final Report
5.	Inspection/decontamination, ramp monitor contacts data submission to DBW (required for Implementation Projects where DBW is funding these activities)	Due date is the same as the Annual and draft Final Reports	
6.	Copy of final CEQA/NEPA Documentation, as applicable (Non-Exempt Filing for this project)	Before Project Start Date	To DWB grant administrator
7.	Public Agency Approvals, Entitlements or Permits, as applicable	As needed	
8.	Photo Proof of DBW Funding Sign Installed	Due Date is the same as the annual report	Provide with the annual report
9.	Proof of DBW Funding Language on Grantee's Website. The required contents of the sign (logo and statement) shall be posted on the Grantee's website or on any of the Grantee's web page(s) associated with the Project (per Exhibit A, Section A, Number 9(d)).	Due Date is the same as the annual report	Provide with the annual report
9.	If the Project included outreach materials and/or media buys (such as print, digital, social media, TV, or radio ads) the information must be submitted to DBW for review prior to purchase	Draft materials are due no later than the Draft Final Project Report	Provide to DBW Grant Administrator
SECTION 2 - PROJECT SPECIFIC REQUIREMENTS			
Outreach Survey			
1.	Survey Plan and Survey Results	Approved survey plan is due with annual report Due date is the same as the Annual, draft and Final Reports	Provide with the annual report Provide with the draft final report
Outreach Events			

2.	Shigom Days, Robinson Rancheria Lakeshore	Spring 2026	Quarterly Progress Report, as applicable, and Draft Final Report
3.	4th of July Event, Lakeport	Summer 2026	
4.	Field Days / Kids in the Creek, Middletown	Spring 2027	
Project Tasks from Scope of Work			
1.	**Task 1:** Project Management - Administration	Throughout entire project, Due Fall 2027	Quarterly progress reports, Draft Final Project Report, as applicable.
2.	**Task 2:** Early Detection Mussel Monitoring	Fall 2027	
3.	**Task 3:** Continue to fund and support up to 3 ramp monitor leads and up to 20 ramp monitors.	Fall 2027	
4.	**Task 4:** Incorporate boat inspection support by mussel detection canine teams (i.e. Mussel Dogs) during peak lake-use times.	Fall 2027	
5.	**Task 5:** Improve education through outreach events, digital, radio, video PSA distribution, printed materials and other formats.	Fall 2027	
6.	**Task 6:** Maintain the digital screening & inspection system by replacing broken hardware, accessories and support training and troubleshooting.	Fall 2027	

PART B – INVOICING, BUDGET DETAIL, AND REPORTING PROVISIONS			
SECTION 1 - INVOICING			
1.	Payment Requests: A Payment Request must reflect the same reporting period as the corresponding Quarterly Progress Report	Provide within 30 days of the due date of the corresponding Quarterly Progress Report	Provide to DBW Grant Administrator
2.	Final Payment Request / Final Invoicing	Filled in by DBW Grant Administrator	
	SECTION 2 - REPORTS		
1.	Quarterly Progress Reports	Dates to be filled in by DBW Grant Administrator	Provide to DBW administrator
2.	Annual Report		
3.	Draft Project Final Report		
4.	Final Project Report		
5.	Final Project Summary		
6.	Final Project Inspection & Certification(s) • Project Completion Certification • Contractor's Release Form, if applicable		

NOTICE OF EXEMPTION

TO:

County Clerk
County of Lake
Lakeport, CA 95453

Office of Planning & Research
1400 Tenth Street, Room 222
P.O. Box 3044
Sacramento, CA 95812-3044

FROM:

Community Development Dept
Planning Division, County of Lake
255 North Forbes Street
Lakeport, CA 95453

PROJECT TITLE: Clear Lake Quagga/Zebra Mussel Prevention Implementation Grant FY 2025-2027 (CE PL-25-74)

PROJECT LOCATION: Centered on Clear Lake, Lake County, CA but benefits will be regional. GPS location for the center of Clear Lake, CA is 122º 43.115'W 38º 58.941'N (38.982350, -122.718583)

DESCRIPTION OF PROJECT: The County of Lake seeks additional grant funding from the State for continued operation of the Quagga/Zebra Mussel Prevention Implementation Program (Project). The project will continue to improve the current Lake County Invasive Mussel Prevention Plan by funding another two years of boat ramp monitors, provide education, and improve local and state law compliance with persons recreating on Clear Lake. The project will also improve mussel prevention outreach and education via digital, radio, and social media outlets. Lastly, the project will complete the transition and continue maintenance of the digital screening and monitoring of boaters to improve inspection processes. These technologies allow Lake County to connect, in real-time, with other AIS managers using digital systems to track incoming vessels, enhancing our ability to successfully detect a potential mussel introduction more effectively. This project does not involve any construction, building, or alteration of natural features, biological, cultural or tribal cultural resources, and does not include the use of hazardous materials; this is strictly an outreach and education project.

NAME OF PUBLIC AGENCY APPROVING PROJECT: County of Lake

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: Lake County Watershed Protection District

EXEMPT STATUS: Categorical Exemption, Section 15307, Class 7 (Actions by Regulatory Agencies for Protection of Natural Resources); Categorical Exemption, Section 15308, Class 8 (Actions by Regulatory Agencies for Protection of the Environment); Categorical Exemption, Section 15322, Class 22 (Educational or Training Programs Involving No Physical Changes)

REASONS WHY PROJECT IS EXEMPT: Class 7 and Class 8 - The project is consistent with the Class 7 and Class 8 exemptions which allow for the maintenance, restoration or enhancement of a natural resource or of the environment where the regulatory process involves procedures for protection of the environment. Class 22 – The project is consistent with the Class 22 exemption which allows the adoption, alteration or termination of educational or training programs which involve no physical alteration in the area affected.

CONTACT PERSON: Michelle Irace, Resource Planner 707-263-2221
Resourceplanning@lakecountyca.gov

Date: March 26, 2025

Signature: *Michelle Irace*
Title: Resource Planner

ARTICLE IX. - WATER VESSEL INSPECTION PROGRAM[3]

Footnotes:

--- (**3**) ---

Editor's note— Ord. No. 2936, § 1, adopted Jan. 25, 2011, effective Feb. 24, 2011, amended Art. IX in its entirety to read as herein set out. Former Art. IX, §§ 5-52—15-62, pertained to similar subject matter and derived from Ord. No. 2915, § 1, 1-5-2010; Ord. No. 2866, § 1, 5-20-2008.

Sec. 15-52. - Findings.

52.1 The County of Lake holds the waters of Clear Lake in trust for the benefit of all citizens pursuant to legislation enacted in 1973 which conveyed in trust to the County of Lake the submerged lands of Clear Lake for the furtherance of navigation, commerce, fishery, recreation, and wherever possible and appropriate, preservation of the land and waters in their natural state. Clear Lake, as well as all other water bodies within the County of Lake represent a significant environmental resource to our citizens and are interrelated to the distribution systems of the County's water purveyors.

52.2 The aquatic invasive species of Dreissenid Mussels such as Quagga and Zebra Mussels pose a significant and imminent threat to the water bodies within the County of Lake. Dreissenid Mussels have already created serious and irreparable harm to bodies of water located in other locations in the United States and California. Once introduced into a water body, these mussels proliferate at an alarming rate, drastically altering the ecosystem of that water body, harming and/or consuming native species and food resources within the ecosystems they infest. Dreissenid Mussels additionally pose a significant and imminent threat to the water distribution systems of Lake County which draw water from Clear Lake and other water bodies within the County. These mussels attach to inside water treatment intake structures, pipes, and facilities to such a significant degree that the ability to distribute water through the County's existing, and in some cases, antiquated infrastructure, will be severely compromised.

52.3 Presently, it does not appear that any water body in Lake County has been infested with Dreissenid Mussels. However, water vessels entering Lake County from other areas of the state and country may have recently been launched in infested counties or waters, making those vessels at high risk to carry mussels (adults and larvae) into Lake County waters.

52.4 A screening and inspection program is integral to the preservation of the water bodies and water distribution systems within the County of Lake, and to the drainages from Lake County.

52.5 This article is enacted under the police power of the County pursuant to Article XI, Section 7 of the California Constitution which authorizes the County to adopt and enforce regulations for the protection of the public health, safety, and welfare that are not in conflict with general laws.

(Ord. No. 2936, § 1, 1-25-2011)

Sec. 15-53. - Definitions.

53.1 For purposes of this article, the following words and phrases shall have the following meanings:

(a) *Affidavit of Compliance* means a declaration to be executed by all water vessel owners and operators who wish to launch said vessels in a water body in the County of Lake which attests to the responsibility of that owner/operator to ensure that his/her water vessel is properly screened and, if necessary, inspected and/or decontaminated prior to launching.

(b) *Authorized Screener* means an individual authorized by the Lake County Department of Water Resources to conduct the screening process necessary to determine whether a water vessel is

at high risk to carry any Dreissenid Mussel such as Quagga and Zebra and any other aquatic, non-native invasive species.

(c) *Authorized Inspector* means an individual who has received the necessary training approved by the Lake County Department of Water Resources to conduct inspections of water vessels for the purpose of determining whether said vessels are contaminated with any Dreissenid Mussel such as Quagga and Zebra and any other aquatic, non-native invasive species.

(d) *Launch* means the introduction or placing of any trailered water vessel into a water body within the County of Lake.

(e) *Live bait* means any fish, or other organisms used in conjunction with fishing the waters of Lake County.

(f) *Mussel Sticker* means the stickers issued by an Authorized Screener/Inspector evincing the fact that the vessel to which the stickers are affixed has been screened and found to be at low risk to carry any Dreissenid Mussel such as Quagga and Zebra and any other aquatic, non-native invasive species.

(g) *Non-native invasive species* means species identified by the State of California that establish and reproduce rapidly and which may threaten native species through competition, predation, parasitism, introduction of pathogens, or physically or chemically alter the habitat. Such species include, but are not limited to, New Zealand Mud Snails and non-native aquatic plants as defined in Chapter 26A of the Lake County Code.

(h) *Non-resident water vessel* means a vessel that does not meet the definition of a resident water vessel.

(i) *Resident water vessel* means:

1. A vessel that has been issued a DMV registration that identifies its owner as being physically located within the borders of Lake County.

2. A vessel whose owner can demonstrate that it is moored or stored at a commercial facility located in Lake County.

3. Any other means deemed acceptable by the Director of Water Resources as to proof of residency in Lake County providing that the vessel is on the Lake County Assessor's current unsecured tax roll for boats.

(j) *Screening and Inspection Program* means the program of screening and inspection required by this article to ensure that all water vessels launching into water bodies in Lake County are free from contamination from adult and larval Dreissenid Mussels and other aquatic, non-native invasive species.

(k) *Water vessel* means any trailered watercraft, or jet ski, or float plane capable of being launched into a water body within the County of Lake except as specifically exempted herein. Canoes, kayaks, car-top boats, float tubes, rafts, wind surfers/boards, boogey boards, nonmotorized paddle boats, and nonmotorized sail boats that are eight (8) feet or less in length are not considered water vessels for purposes of this article and are thereby exempt from the provisions herein.

(l) *Water Vessel Inspection* means a physical inspection, using the training approved by the Lake County Department of Water Resources, of a vessel known or suspected to have been in water in an infested county or which bears a DMV registration in a county, either within or outside the State of California, which is known to be infested with Dreissenid Mussels and other aquatic, non-native, invasive species.

(m) *Water Vessel Screening* means the process used to verify that a vessel and its trailer have not been in contact with a body of water in a county infested with Dreissenid Mussels and/or is registered in a county, either within or outside the State of California, which is known to be infested with Dreissenid Mussels and other non-native, invasive species.

(n) *Attempted Launch* means an effort to launch a water vessel into a water body within the County of Lake as defined herein which, within one hundred fifty (150) feet of a water body and on a public launch ramp, evinces an endeavor to accomplish the launching of a water vessel, carried beyond mere preparation, but falling short of the ultimate execution of launching. In addition to any and all indicia of such attempts, directing a water vessel to within fifty (50) feet of a water body within the County of Lake shall be deemed to be an attempted launch.

(Ord. No. 2936, § 1, 1-25-2011; Ord. No. 2946, § 1, 4-26-2011)

Sec. 15-54. - Applicability.

This article shall be applicable to any trailered water vessel intending to launch in a water body within the County of Lake.

(Ord. No. 2936, § 1, 1-25-2011)

Sec. 15-55. - Mussel Stickers for Resident Water Vessels.

Because the weight of scientific evidence presently available strongly indicates, the greatest risk of contamination to our water bodies is by water vessels entering Lake County from other jurisdictions, the following program shall be applicable to all resident water vessels:

55.1 Owners and operators of resident water vessels, having submitted to screening and inspection, as applicable, shall receive Resident Mussel Stickers designating the vessel as a Resident Water Vessel and absent an event necessitating re-screening and/or re-inspection as specified in [Section] 15-57.1, these Mussel Stickers shall expire at the end of each calendar year.

55.2 Every resident water vessel and its trailer must be affixed with Resident Mussel Stickers prior to launching that vessel in any water body in the County of Lake.

55.3 Resident Mussel Stickers shall be issued according to a color code that will change annually.

55.4 Upon expiration of the annual Resident Mussel Stickers, at the end of the calendar year, the resident vessel must undergo the necessary screening/inspection requirements to obtain next year's valid Mussel Stickers.

(Ord. No. 2936, § 1, 1-25-2011)

Sec. 15-56. - Mussel Stickers for Non-resident Water Vessels.

56.1 All non-resident water vessels and their trailers must be affixed with color-coded, monthly, Non-resident Mussel Stickers after screening and prior to launch in any water body in the County of Lake. Stickers are not transferable between vessels.

56.2 Non-resident Mussel Stickers shall be issued according to a color-code that will change monthly.

56.3 Upon expiration of the Non-resident Mussel Stickers, the non-resident water vessel must undergo the necessary screening/inspection requirements to obtain valid Mussel Stickers for the next calendar month.

(Ord. No. 2936, § 1, 1-25-2011)

Sec. 15-57. - Screening/Inspection Requirements.

57.1 *Screening Requirements.* Screening shall be required of:

(a) All resident trailered water vessels prior to their first launch in every calendar year; or

(b) All non-resident trailered water vessels prior to their first launch in every calendar month; or

(c) All trailered water vessels, resident or non-resident, that have been launched in a body of water outside of the County of Lake pursuant to the executed Affidavit of Compliance.

57.2 *Screening Process.*

(a) The screening process shall be conducted by an Authorized Screener or Authorized Inspector and shall consist of:

(1) A series of questions concerning the past location of the water vessel prior to launching in a water body in the County of Lake, designed to determine whether said past location constitutes an appreciable risk that said water vessel may be infested with Dreissenid Mussels. Said questions shall be answered on the County of Lake Screening Application Invasive Species Inspection Program form; and

(2) May require a visual verification by the Authorized Screener that the water vessel and trailer are clean, drained and dry.

(b) Water vessels which, as a result of the screening process, are found to be clean, drained and dry, and do not pose an appreciable risk to the water bodies of Lake County shall be affixed with Mussel Stickers in a location as designated in the instructions accompanying the Mussel Stickers which signifies that the vessel may be launched into a water body in the County.

(c) Water vessels which, as a result of the screening process, are not clean, drained and dry, or do appear to pose an appreciable risk to the water bodies of Lake County shall be required to undergo an inspection by an Authorized Inspector. The County of Lake Screening Application Invasive Species Inspection Program form shall identify that vessel as requiring authorized inspection.

(d) Affidavit of Compliance. At the time of the screening, the vessel owner/operator shall be required to execute an affidavit which attests to the responsibility of that owner/operator to ensure that his/her water vessel is clean, drained and dry and properly screened, re-screened, inspected, and, if necessary, decontaminated prior to launching in a water body in the County of Lake. The Affidavit shall be signed under penalty of perjury.

(e) If the Screening Application Form is filled out falsely this shall be a violation of this article.

(f) A water vessel owner or operator may refuse to consent to said screening. If the water vessel owner or operator refuses to consent to screening, that water vessel shall not be allowed to launch in any water body within the County of Lake and shall be in violation of this article if he/she should nonetheless attempt to do so.

57.3 *Inspection Requirements.*

(a) All water vessels determined as a result of the screening process to constitute an appreciable risk of contamination due to the possible presence of Dreissenid Mussels shall submit to an inspection by an Authorized Inspector prior to launching in a water body in the County of Lake.

(b) Said inspection shall consist of a thorough search of the exterior and interior of the water vessel, including but not limited to bilge pumps, motors, and live wells, bait wells, ballast tanks, bladders, and all areas of standing water.

(c) A water vessel owner or operator may refuse to consent to said inspection. If the water vessel owner or operator refuses to consent to inspection, that water vessel shall not be allowed to launch in any water body within the County of Lake and shall be in violation of this article if he/she should nonetheless attempt to do so.

(d) At the time of the inspection, if any water vessel is found to contain other aquatic, non-native invasive species, the water vessel owner or operator shall be required to remove said invasive species prior to launching in a water body within the County of Lake.

(e) If, pursuant to the required inspection, a water vessel is found to be clean, drained and dry, and free of any possible Dreissenid Mussel infestation and any other aquatic, non-native invasive species is either not found or removed from the water vessel, the Authorized Inspector shall certify that the water vessel can be launched in Lake County after receiving the appropriate Mussel Stickers from an Authorized Screener.

(f) Affidavit of Compliance. At the time of the inspection, the vessel owner/operator shall be required to execute an affidavit which attests to the responsibility of that owner/operator to ensure that his/her water vessel is properly inspected and, if necessary, decontaminated prior to launching in a water body in the County of Lake. The Affidavit shall be signed under penalty of perjury.

(g) If, pursuant to the required inspection, a water vessel is found to be infested with adult Dreissenid Mussels, the vessel owner shall be informed that his/her water vessel shall be quarantined by the California Department of Fish and Game. If the vessel is found to possibly be infested with Dreissenid Mussels, the vessel owner may not launch his/her vessel until such time as that vessel has been decontaminated and re-inspected by an Authorized Inspector. The vessel owner shall be directed to a decontamination station where the vessel will undergo a decontamination process. Once the vessel has been decontaminated, reinspected and found to be at no risk of contaminating Lake County waters, the vessel can be affixed with Mussel Stickers as described hereinabove.

57.4 *Decontamination.* Decontamination stations shall be operated by the County of Lake, Department of Water Resources. Said stations shall be open to all owner/operators of water vessels. There shall be no fee associated with decontamination. Decontamination shall be required of all vessels that have been determined to be at high risk of being infested with Dreissenid Mussels. Such determination shall be made if the vessel is not clean, drained and dry, OR was last in the water of an infested county, less than thirty (30) days ago.

(Ord. No. 2936, § 1, 1-25-2011)

Sec. 15-58. - Screening/Inspection Stations.

58.1 Designated locations are available within the County. The current list of Authorized Screeners is available at www.co.lake.ca.us/mussels.

58.2 Inspections shall be carried out by County personnel at any time. Vessel owners shall be referred to the nearest Authorized Inspector when required. Inspections may be scheduled by calling the Department of Water Resources, (707) 263-2344.

58.3 Nothing in this article precludes screening and/or inspections at other locations within the County which may be offered by private persons and/or organizations if such screenings are performed by Authorized Screeners and such inspections are performed by Authorized Inspectors.

(Ord. No. 2936, § 1, 1-25-2011)

Sec. 15-59. - Fees.

The following fees are hereby established for County-operated screening and inspection services:

(a) The fee for each screening and/or inspection performed by the County of Lake shall be ten dollars ($10.00).

(b) Fees collected for screening and/or inspection, that are not otherwise encumbered, shall be used to fund the Water Vessel Inspection Program.

(Ord. No. 2936, § 1, 1-25-2011)

Sec. 15-60. - Disposing of Live Bait into a Water Body in Lake County is Prohibited.

60.1 It shall be unlawful in the unincorporated areas of the County of Lake to launch or to attempt to launch a water vessel in a water body in the County of Lake in violation of the requirements of this article.

60.2 *Live Bait.* It shall be unlawful to dispose of any live bait and/or any liquid containing live bait or any liquid which previously contained live bait in a water.

(Ord. No. 2936, § 1, 1-25-2011; Ord. No. 2946, § 2, 4-26-2011)

Sec. 15-61. - Criminal Sanctions.

61.1 *Criminal Penalties.*

(a) Any person violating any provision of this article shall be guilty of an infraction or misdemeanor as hereinafter specified. Such individual shall be deemed guilty of a separate offense for each launch in a water body in the County of Lake. The Lake County Sheriff is authorized to enforce this article and that power may be exercised by any deputy of the sheriff and/or by any person so authorized by law.

(b) Any individual convicted of a violation of this chapter shall be:

1. Guilty of an infraction and punished by a fine of one hundred dollars ($100.00) for the first offense;

2. Guilty of an infraction and punished by a fine of two hundred dollars ($200.00) for the second offense;

3. The third and subsequent offenses shall constitute a misdemeanor and shall be punishable by a fine of not less than five hundred dollars ($500.00) but not to exceed one thousand dollars ($1,000.00) and/or up to six (6) months in the county jail or both.

(c) Notwithstanding sections (a) and (b) of Section 61.1 hereinabove, the first or second offense may be charged and prosecuted as misdemeanor.

61.2 *Impound.* A water vessel unlawfully launched or which is attempted to be unlawfully launched in a water body in the County of Lake may be subject to impound pursuant to a misdemeanor arrest or issuance of a misdemeanor citation by a peace officer for violation of this article.

(a) Any water vessel which is operated, managed, controlled, or otherwise used in violation of the provisions of this code may forthwith be impounded by any authorized officer and held pending determination of the charge of the violation pursuant to which the water vessel was impounded.

(b) When a water vessel is impounded from the immediate possession of any person, the authorized officer shall immediately deliver to said person a notice in writing signed by the authorized officer which shall state:

1. The fact of such impound;

2. The name of the owner of the water vessel;

3. The name of the person from whom possession was taken;

4. A description of the water vessel sufficient for identification;

5. Any identification number of the water vessel;

6. The particular location at which the impounded water vessel will be stored; and

7. A statement of the charge of violation pursuant to which the water vessel has been impounded.

(c) Upon conviction of any person for any said charge of violation pursuant to which the water vessel is impounded, any person lawfully entitled to the possession of said vessel who demands possession shall pay to the County all storage charges as well as all charges incident to the impoundment of said vessel.

(d) In the event any person is acquitted of the charge of violation pursuant to which the water vessel is impounded, said vessel shall be released to any person entitled to possession thereof and the costs of storage shall be a County charge.

61.3 *Lien and Sale of Impounded Water Vessels.*

(a) The County shall have a lien upon any impounded water vessel and the proceeds of any sale thereof for the payment of impound and storage charges incurred pursuant to the provisions of this article.

(b) Irrespective of the disposition of any criminal charge against a person for a violation of this article pursuant to which a water vessel is impounded and stored, if possession of said water vessel is not obtained by a person lawfully entitled to such possession within thirty (30) days of such disposition, the County is empowered to sell the water vessel at public auction in satisfaction of its lien for impound and storage charges. For California registered vessels, the California Boaters Lien Law shall apply.

61.4 Payment of any penalty herein shall not relieve any individual from the responsibility of correcting the violations as found by the authorized officer.

61.5 Any person found not in compliance with the provisions of this article shall be ordered off the water body, and shall be subject to any other legal action as deemed necessary by the authorized officer.

61.6 *Forfeiture.* Whenever any person is convicted of a misdemeanor violation of this article, the judge may, upon the conviction of the person, order the forfeiture of the water vessel that was used in committing the offense charged.

(Ord. No. 2936, § 1, 1-25-2011; Ord. No. 2946, § 3, 4-26-2011; Ord. No. 2976, § 1, 6-19-2012)

Sec. 15-62. - Public Nuisance Declaration.

62.1 *Declaration.* Any violation of this article is hereby declared to be unlawful and a public health nuisance and may be abated by an Enforcement Official as defined in Chapter 13 of the Lake County Code irrespective of any other remedy provided herein.

62.2 *Summary Abatement.* A violation of this article constitutes an immediate threat or danger to the health, safety, or welfare of the public and may, therefore, be summarily abated pursuant to Lake County Code Section 13-9.1 and Section 5-37, excepting that the notice provisions of Section 5-37.2 shall not apply. The Enforcement Official may require the immediate abatement of a violation of this article, including the impoundment of water vessels which were launched or attempted to launch in violation of this article as provided in Section 61.2 herein.

(a) The owner/operator of the water vessel launched or attempted to be launched in a Lake County water body shall be responsible for all costs associated with the summary abatement, which shall be confirmed in accordance with Sections 13-41 and 13-42 of Chapter 13 of Lake County Code, including but not limited to a post-abatement Hearing on Account and Proposed Assessment. In addition to any evidence required to be presented at the Hearing on Account and Proposed Assessment, the owner/operator shall have the right to present evidence to prove that a nuisance did not exist at the time of the summary abatement. In the event the Board of

Supervisors finds that such evidence satisfactorily proves a nuisance did not exist at the time of the summary abatement, the costs of the summary abatement shall be a County charge.

(b) If the Board of Supervisors confirms the costs of a summary abatement, any water vessel(s) impounded consequent to said abatement shall not be released by the Enforcement Official until the costs of the abatement have been paid in full.

(c) The amount of the unpaid costs of a summary abatement may be declared a special assessment against any real property owned by the owner/operator pursuant to the requirements of Section 63-11 of this article. The Board of Supervisors may impose the special assessment on one (1) or more parcels. The amount of the assessment may not exceed the amount of the confirmed costs of the summary abatement.

(Ord. No. 2936, § 1, 1-25-2011; Ord. No. 2976, § 2, 6-19-2012)

Sec. 15-63. - Administration Citations—Fines.

63.1 *Findings and Purpose.* The Lake County Board of Supervisors finds there is a need for an additional method of enforcement for violations of this article and further finds an appropriate method of enforcement is an Administrative Citation because it will reduce the burden on the judicial system while providing full due process for those cited and promote and protect the public health safety and welfare of the residents of the County of Lake by minimizing potentially extremely harmful County code violations. The procedures set forth in this article may be used to impose a penalty on violators and shall be in addition to criminal, civil or any other legally established procedures that may be pursued to address violations of this Code.

63.2 *Administrative Citations.* Whenever an Enforcement Official who has authority to enforce a violation of any of the provisions of this article determines that a violation has occurred, the Enforcement Official shall have the authority to issue an Administrative Citation to any responsible party. For purposes of this article, "responsible party" means the person or entity responsible for the violation and may include the person or persons who owns the water vessel which is the subject of the violation, the person or persons in charge of the water vessel which is the subject of the violation and/or the person or persons using the water vessel which is the subject of the violation. If any of those persons are minors, the parent or guardians of such minor(s) shall be the responsible party. If the person or persons is a business entity, the manager or on-site user of the water vessel which is the subject of the violation shall be the responsible party.

(a) A civil fine shall be assessed by means of an administrative citation issued by the Enforcement Official and shall be payable directly to the Lake County Treasurer-Tax Collector. Each and every day a violation of this article exists constitutes a separate and distinct offense.

(b) Administrative fines for the violation of this article shall be assessed as follows:

1. Administrative fines for the violation of this article which would be punishable as an infraction shall be assessed as follows: A fine of one hundred dollars ($100.00) for a first violation; a fine of two hundred dollars ($200.00) for a second violation of this article within one (1) year from the date of the first violation; and a fine of five hundred dollars ($500.00) for each additional violation of this article within one (1) year from the date of the first violation.

2. Administrative fines for the violation of this article which would be punishable as a misdemeanor shall be assessed as follows: A fine of one thousand dollars ($1,000.00) per violation.

63.3 *Service of Citation.*

(a) *Personal Service.* The Enforcement Official shall attempt to locate and personally serve the responsible party and obtain the signature of the responsible party on the administrative citation If the responsible party served refuses or fails to sign the administrative citation the failure or

refusal to sign shall not affect the validity of the administrative citation or subsequent proceedings.

(b) *Service of Citation by Mail.* If the Enforcement Official is unable to locate the responsible party, the administrative citation shall be mailed to the responsible party by certified mail postage prepaid with a requested return receipt. Simultaneously the citation may be sent by first class mail. If the citation is sent by certified mail and returned unsigned then service shall be deemed effective pursuant to first class mail provided the citation sent by first class mail is not returned.

63.4 *Contents of Notice.*

(a) Each administrative citation shall contain the following information:

1. Date, approximate time, and address or definite description of the location where the violation was observed;
2. The Code sections or conditions violated and a description of the violation;
3. An order to the responsible party to correct the violations within the time specified and an explanation of the consequences of failure to correct the violation;
4. The amount of the fine for the violation;
5. An explanation of how the fine shall be paid and the time period by which it shall be paid;
6. Identification of rights of appeal including the time within which the citation may be contested and the place to obtain a request for hearing form to contest the administrative citation; and
7. The name and signature of the Enforcement Official and, if possible, the signature of the responsible party.

(b) Failure of the citation to contain all the required information shall not affect the validity of the citation or any subsequent proceedings related to the citation.

63.5 *Satisfaction of Administrative Citation.* Upon receipt of an administrative citation the responsible party must either correct the violation, pay the corresponding fine, and contact the County to request an inspection prior to the compliance date specified in the citation or file an appeal pursuant to the requirements of Section 63.6 herein.

63.6 *Appeal of Administrative Citation.* Any recipient of an administrative citation may contest that there was a violation of this article or that he or she is the responsible party or the amount of any fine imposed by completing a Request for Hearing form and returning it to the County Clerk within ten (10) days from the date of the administration citation together with an advanced deposit of the fine imposed. Any administrative citation fine which has been deposited by that responsible party shall be refunded if it is determined after a hearing that the person charged in the administrative citation was not responsible for the violation or that there was no violation as charged in the administrative citation. The failure of any responsible party to file an appeal in accordance with the provisions of this section shall constitute a waiver of that responsible party's rights to administrative determination of the merits of the administrative citation and the amount of the penalty. If no appeal is filed or if the appeal is abandoned in writing or by failure to appear at a hearing without being excused the administrative citation shall be deemed a final administrative order, a forfeiture of the fine and a failure to exhaust the responsible party's administrative remedies.

63.7 *Hearing Procedure.* No hearing to contest an administrative citation before the Board of Supervisors shall be held unless and until a request for hearing form has been completed and submitted and the amount of the fine has been deposited in advance.

(a) A hearing shall be set for a date that is not less than fifteen (15) and not more than sixty (60) days from the date that the request for hearing is filed. The person requesting the hearing shall be notified of the time and place set for the hearing at least ten (10) days prior to the date of the hearing.

(b) The Board of Supervisors shall only consider evidence that is relevant to whether the violation occurred, whether the responsible party has caused or maintained the violation of this article on the date specified in the administrative citation and regarding the amount of the fine imposed.

(c) The responsible party contesting the administrative citation shall be given the opportunity to testify and present witnesses and evidence concerning the administrative citation.

(d) The administrative citation and any additional documents submitted by the Enforcement Official shall constitute prima facie evidence of the respective facts contained in those documents.

(e) The Board of Supervisors may continue the hearing from time to time for good cause and may request additional information from the Enforcement Official or the recipient of the administrative citation prior to issuing a decision.

63.8 *Decision of the Board.* The decision of the Board of Supervisors shall be final. If the Board of Supervisors dismisses the administrative citation all fines paid consequent to the issuance of the subject citation shall be refunded to the responsible party within thirty (30) calendar days.

63.9 *Failure to Pay Fines.*

(a) The failure of any person to pay a fine assessed by administrative citation within the time specified on the administrative citation constitutes a debt to the County of Lake. To enforce that debt, the County may file a civil action impose a special assessment as set forth below or pursue any other legal remedy to collect such debt including reasonable costs of collection and attorneys fees.

(b) The Board of Supervisors may impose a special assessment against property owned by the responsible party. The County shall record a notice of lien in the office of the county recorder of the county in which the property is located when the special assessment procedure is used. When so made and confirmed, the cost shall constitute a lien on that property for the amount of the assessment.

(c) After confirmation and recordation, a copy shall be turned over to the tax collector for the county in which the property is located. At that point it will be the duty of the tax collector to add the amounts of the respective assessments to the next regular property tax bills levied against the lots and parcels of land for municipal purposes. Those amounts shall be collected at the same time and in the same manner as ordinary property taxes are collected and shall be subject to the same penalties and procedures under foreclosure and sale as provided for with ordinary municipal taxes. In the alternative, after recording the lien may be foreclosed by judicial or other sale in the manner and means provided by law in the county and state in which the property is located.

(d) Nonpayment of fines which the County has made reasonable effort to collect may be deemed a misdemeanor for which the Responsible Party may be prosecuted.

(e) Administrative citation fines collected pursuant to this shall be deposited into an appropriate fund to be administered in furtherance of the purposes of this article to fund such actions and proceedings consistent with the goals of this article.

63.10 *Right to Judicial Review.* Notwithstanding the provisions of Section 1094.5 or 1094.6 of the Code of Civil Procedure, within twenty (20) days after service of the final administrative order or decision of the Board of Supervisors, a person contesting that final administrative order or decision may seek review by filing an appeal to be heard by the superior court, where the same shall be heard de novo, pursuant to Government Code Section 53069.4.

63.11 *Civil or Criminal Actions Not Affected.* Any administrative citations pursuant to this Part shall not prejudice or adversely affect any other action civil or criminal that may be brought to abate the public nuisance or violation or to seek compensation for damages suffered. A civil or criminal action may be brought concurrently with any other process regarding the same public nuisance or violation.

(Ord. No. 2976, § 3, 6-19-2012)

Sec. 15-64. - Administrative Costs.

An Enforcement Official is authorized to assess any reasonable administrative or legal costs arising out of or related to a nuisance abatement and/or administrative citations issued pursuant to this article. Administrative or legal costs may include scheduling and processing of the administrative hearing and all subsequent actions related to the administrative hearing, or judicial actions. Administrative costs may include assessments recorded on the tax rolls collected by the Lake County Tax Collector-Treasurer and the costs of such recording.

(Ord. No. 2976, § 3, 6-19-2012)

Sec. 15-65. - Nonexclusive Remedies.

The remedies provided in this article are cumulative and shall be in addition to any other remedies provided by law.

(Ord. No. 2976, § 3, 6-19-2012)

Sec. 15-66. - Use of Fines Collected.

Fines collected as a result of violating this article, that are not otherwise encumbered, shall be used to fund the Water Vessel Inspection Program.

(Ord. No. 2976, § 3, 6-19-2012)

Secs. 15-67—15-69. - Reserved.

ARTICLE I. - BOATS AND BOATING

Sec. 15-1. - Definitions.

1.1 For the purposes of this article, the following words and phrases shall have the following meanings:

(a) *Blue Lakes* , as used herein, includes that body of water known commonly as Laurel includes that body of water known commonly as Laurel Dell Lake and all lakes situated in Section 6, 7, or 8 of Township 15 North, Range 101 West, M.D.M. and Section 1 of Township 15 North, Range 11 West, M.D.M.

(Ord. No. 223, § 3, 1939)

(b) *Boat* is a vessel or other device for boating or sailing as defined by the Harbors and Navigation Code.

(Ord. No. 2430, § 1, 5-12-98)

(c) *Motor Boat* is any device or vessel, in or upon which any person or property is or may be transported or drawn upon the waters in the County of Lake, excluding aquaplanes, water skis, and devices moved solely by human power, wind or gravity.

(Ord. No. 223, § 1, 1939; Ord. No. 2430, § 1, 5-12-98)

(d) *Person* as herein used, includes every natural person, firm, copartnership, association or corporation.

(Ord. 223, § 2, 1939; Ord. No. 2430, § 1, 5-12-98)

(e) *Aquaplane* shall mean any device, including water skis, used for the transportation of one or more persons upon the surface of the water, and which is pulled or towed by any boat, vehicle, or other motive power by means of a rope, chain, cable, wire or other connection.

(Ord. No. 485, § 2, 1966; Ord. No. 2430, § 1, 5-12-98)

(f) *Race* shall mean beth ski races and motor boat races.

(Ord. No. 485, § 2, 1966)

(g) *Personal watercraft* means a vessel of thirteen (13) feet in length or less, propelled by machinery, that is designed to be operated by a person sitting, standing, or kneeling on the vessel, rather than in the conventional manner of sitting or standing inside the vessel.

(Ord. No. 2733, § 2, 5-7-2005)

Sec. 15-2. - General Rules of Operation.

2.1 Every operator of a motor boat upon the water of Clear Lake or Blue Lakes shall at all times navigate the same in a careful prudent manner and at such rate of speed so as not to endanger the life, limb, or property of any person.

(Ord. No. 223, § 5, 1939; Ord. No. 419, § 1, 1958; Ord. No. 763, § 1, 9-4-73)

2.2 Reckless navigation of a motor boat shall include operating the same in a manner which unnecessarily interferes with the free and proper use of the waters of Clear Lake, Blue Lakes, or the navigable waters of Cache Creek, or unnecessarily endangers other boats thereon, or the life and limb of any person.

(Ord. No. 223, § 5, 1939; Ord. No. 419, § 1, 1958)

2.3 No person shall operate any motor boat on the waters of Clear Lake, Blue Lakes, or the navigable waters of Cache Creek at a rate of speed greater than will permit him in the exercise of reasonable care to bring the motor boat to a stop within the assured clear distance ahead.

(Ord. No. 223, § 5, 1939; Ord. No. 419, § 1, 1958)

2.4 Nothing in the above provisions shall be construed to mean that the operator of a motor boat actually competing in a race or regatta sanctioned as described below, by the appropriate governing body shall not attempt to attain high speeds on a marked racing course.

(Ord. No. 419, § 1, 1958)

2.5 Any person who violates any provision of this section shall be deemed guilty of a misdemeanor and punished by a fine not to exceed five hundred dollars ($500.00) or by imprisonment in the county jail for not to exceed six (6) months, or by both such fine and imprisonment.

(Ord. No. 223, § 6, 1939; Ord. No. 419, § 3, 1958)

Sec. 15-3. - Liquor and Narcotic Drugs.

3.1 It shall be unlawful for any person who is under the influence of intoxicating liquor or a narcotic drug to operate, propel, or be in actual physical control of any motor boat of the waters of Clear Lake, Blue Lakes, or the navigable waters of Cache Creek.

(Ord. No. 223, § 4, 1939; Ord. No. 419, § 2, 1958)

3.2 It shall be unlawful for the owner of any boat or any person in charge or control of such boat to authorize or knowingly permit such boat to be propelled or operated on the waters of Clear Lake or the navigable waters of Cache Creek by any person under the influence of intoxicating liquor or narcotic drugs.

(Ord. No. 419, § 2, 1958)

3.3 Any person who violates any provision of this section shall be deemed guilty of a misdemeanor and punished by a fine not to exceed five hundred dollars ($500.00) or by imprisonment in the county jail for not to exceed six (6) months, or by both such fine and imprisonment.

(Ord. No. 223, § 4, 1939; Ord. No. 419, § 3, 1958)

Sec. 15-4. - Excessive Noise.

4.1 It shall be unlawful for any person to drive or operate, or permit to be driven or operated, any motor boat upon the waters of Lake County with an internal combustion engine emitting an exhaust noise exceeding the following limits, as measured at a distance of fifty (50) feet:

(a) 90 dbA to and including July 1, 1974;

(Ord. No. 223, § 6, 1989; Ord. No. 741, § 1, 5-1-73)

(b) After July 1, 1974, to and including July 1, 1975, 88 dbA;

(Ord. No. 741, § 1, 5-1-73)

(c) After July 1, 1975, 86 dbA.

(Ord. No. 741, § 1, 5-1-73)

4.2 Notwithstanding any provisions of this Section, any motor which is being operated in accordance with Section 15-4 of this Code is exempted from the noise emission standards.

(Ord. No. 223, § 6, 1939; Ord. No. 741, § 2, 5-1-73)

4.3 *Penalty.* Any person who violates the provisions of this Section shall be deemed to be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not more than five hundred dollars ($500.00) or by imprisonment in the county jail for a period of not more than six (6) months, or by both such fine and imprisonment.

(Ord. No. 741, § 3, 5-1-73)

Sec. 15-5. - Restricted Areas.

5.1 No person shall use or operate any motor boat on the waters impounded by the Highland Creek and Adobe Creek dams.

(Ord. No. 452, § 1, 1963)

5.2 No person shall operate or permit to be operated any motor boat in excess of five (5) nautical miles per hour in any of the following areas:

(a) All that portion of the Eel River tributary to Lake Pillsbury, lying southerly of the south line of the north half of the north half of Section 19, Township 18 North, Range 9 West, M.D.B.&M.

(Ord. No. 469, § 1, 1965)

(b) That portion of the Rice Fork of the Eel River lying southerly of the south line of the north half of the north half of Section 23, Township 18 North, Range 10 West, M.D.B.&M.

(Ord. No. 469, § 1, 1965; Ord. No. 665, § 1, 1971)

(c) The waters of Cache Creek or any tributary thereto.

(Ord. No. 763, § 2, 9-4-73)

(d) The waters within the Clear Lake Keys Subdivision One through Seven.

(e) Blue Lakes.

(Ord. No. 1068, § 2, 4-17-79; Ord. No. 2109, § 1, 8-25-92)

(f) Within four hundred (400) feet of the outermost portion of the outer most dock at the Konocti Harbor Resort boat dock facility.

(Ord. No. 2478, § 2, 8-3-99)

(g) Within three hundred (300) feet of the outermost portion of the outermost dock adjacent to Clearlake Avenue on the North to Willow Point on the South along the shoreline in Lakeport.

(Ord. No. 2562, § 2, 6-5-2001)

5.3 *Penalty.* Any violation of the above provision shall constitute a misdemeanor and shall be punishable by a fine not to exceed five hundred dollars ($500.00), or by imprisonment in the county jail for a period not to exceed six (6) months.

(Ord. No. 452, § 1, 1963; Ord. No. 469, § 1, 1965)

5.4 No person shall operate or permit to be operated any motor boat in excess of ten (10) miles per hour in any of the following areas:

(a) In any part of Clear Lake that is northerly of Rodman Bridge.

(Ord. No. 439, § 1, 1962)

(b) In any part of Indian Valley Reservoir.

(Ord. No. 1068, § 1, 4-17-79)

5.5 *Penalty.* Any violation of Section 5.4 shall constitute a misdemeanor and be punishable by a fine not to exceed three hundred (300) dollars, or by imprisonment in the county jail for a period not to exceed six (6) months.

(Ord. No. 439, § 2, 1962)

5.6 Reserved.

(Ord. No. 223, § 5, 1939; Ord. No. 2109, § 2, 8-25-92)

5.7 Reserved.

(Ord. No. 223, § 5, 1939; Ord. No. 2109, § 2, 8-25-92)

5.8 Aquaplaning and water skiing shall be unlawful in any of the following areas:

(a) Any part of Clear Lake that is northerly of Rodman Bridge.

(Ord. No. 439, § 2, 1962)

5.9 *Penalty.* Any violation of Section 5.8 of this article shall constitute a misdemeanor and shall be punishable by a fine not exceeding three hundred (300) dollars or by imprisonment in the county jail for not to exceed six (6) months.

(Ord. No. 439, § 2, 1962)

5.10 No person shall operate or permit to be operated any personal watercraft on Blue Lakes.

(Ord. No. 2733, § 3, 6-7-2005)

5.11 Any violation of subsection 5.10 of this section shall constitute a misdemeanor and shall be punishable by a fine not to exceed five hundred dollars ($500.00), or by imprisonment in the County Jail for a period not to exceed six (6) months.

(Ord. No. 2733, § 3, 6-7-2005)

Sec. 15-6. - Sirens Prohibited.

6.1 It shall be unlawful for any person to operate or permit to be operated, any siren or sirens in or upon any boat on the waters of Clear Lake, except those used by Federal, State or Local law enforcement agencies.

(Ord. No. 244, § 1, 1942)

6.2 *Penalty.* Any person violating this section shall be guilty of a misdemeanor and shall be punished by a fine not to exceed two hundred fifty (250) dollars or by imprisonment in the county jail for not more than ninety (90) days or by both such fine and imprisonment.

(Ord. No. 244, § 1, 1942)

Sec. 15-7. - Motor Boat and Ski Races.

7.1 No person, club, organization, or group shall hold or engage in a motor-propelled speedboat race or ski race wherein skiers are towed by motor-propelled boats on the waters of Clear Lake unless and until a permit therefor shall have been issued by the Office of Sheriff, County of Lake.

(Ord. No. 485, § 3, 1966)

7.2 Any person, club, organization or group sponsoring or holding a motorboat speed race or ski race on the navigable waters of Clear Lake must first make application to the Sheriff of Lake County for a permit to hold such race. Any individual, person, group, or corporation may, even though no race is to be immediately held, apply to said Sheriff for a permit to make trial runs or to tune-up a motor or motors of boats being built up for such races, or for trial runs, private or official, which may be made preparatory to entry of such boat in such organized races.

(Ord. No. 485, § 4, 1966)

7.3 The said application for said permit shall set forth:

(a) The name and address of the applicant.

(Ord. No. 485, § 4, 1966)

(b) The date, time, and place the proposed race is to be held.

(Ord. No. 485, § 4, 1966)

(c) A diagram of the area in which the said race or races are proposed to be held.

(Ord. No. 485, § 4, 1966)

7.4 The said application must be submitted to said Sheriff at least five (5) days prior to the date on which the applicant intends to hold said race or races, make official or unofficial trial runs of a boat or boats, or where said applicant desires to make runs for the purpose of tuning up or adjusting the engine, or skiing trial runs, preparatory to the entry of said boat in such races.

(Ord. No. 485, § 4, 1966)

(a) The said five (5) day period hereinabove required for filing of applications for permits may, in the discretion of said Sheriff, be shortened.

(Ord. No. 485, § 4, 1966)

7.5 Motor speedboat races, ski races, motor boats while on trial runs, motor boats competing in an official or unofficial trial runs, with or without skiers, for speed records and for trial runs made by individuals for the purpose of preparing boats for entry in the event or events herein enumerated, shall be allowed only between the hours of nine (9) o'clock A.M. and six-thirty (6:30) o'clock P.M. on such days and at such times as shall be designated by said Sheriff and set forth in a permit or permits heretofore referred to.

(Ord. No. 485, § 4, 1966)

7.6 All trial practice, or tune-up runs for which permits may be issued shall have reference to some specific event for which such trial or practice run is to be made. If such activity is for the purpose of entering persons or equipment in events to be held other than in waters of Clear Lake, then the issuance of such permit shall be discretionary with the Sheriff.

(Ord. No. 485, § 7, 1966)

7.7 Any person, club, or group applying for permits as hereinabove set forth shall, in the event they are dissatisfied with the decision of the Sheriff, have the right to appeal to the local authority.

(Ord. No. 485, § 8, 1966)

(a) Such appeal may be taken by filing with the Clerk of the Board of Supervisors an "Intention to Appeal" from said decision of said Sheriff, within ten (10) days from the time that said Sheriff shall have rendered his decision, issued the permit or denied the issuance of said permit.

(Ord. No. 485, § 8, 1966)

(b) The Clerk of said Board shall notify the Sheriff's Department of such pending appeal; thereafter the Board shall set a date, time and place of hearing of the appeal and the applicant and all interested parties shall be notified of the time and place of hearing such appeal; the decision of said Board with respect thereto shall be final and conclusive.

(Ord. No. 485, § 8, 1966)

7.8 Each permit issued for trial and practice runs must designate the area where the permittee may conduct the activity for which the permit is issued.

(Ord. No. 485, § 7, 1966)

(a) The permittee shall proceed directly to such area using the shortest possible route, having in mind other traffic then present on the lake and along the shoreline, at a safe speed and in a reasonable manner.

(Ord. No. 485, § 7, 1966)

7.9 (a) All courses, whether for speed boat races, ski races, trial runs, official trials for speed records, or trial runs for adjustment and tuning of engines, shall be adequately marked with buoys and patrol boats. The adequacy of such marking shall be determined by the Sheriff.

(Ord. No.485, § 4, 1966)

(b) All race courses used for races trial runs, tuneup runs, or other events shall be so marked and situated so as to allow at least two hundred (200) feet of unobstructed navigable waters between such boats and the farthest- extended pier along the shoreline adjacent to such events.

(Ord. No. 485, § 4, 1966)

7.10 The Sheriff shall inspect or cause to be inspected all courses and markings to determine whether the same comply with the requirements of this section and with the requirements of the permit issued by said Sheriff pursuant to this section.

(Ord. No. 485, § 4, 1966)

7.11 Motor propelled boats engaging in any activity or event set forth in this section, may subject to the regulations herein set forth, so engage in such events with boats not equipped with muffler system.

(Ord. No. 485, § 5, 1966)

7.12 *Penalty.* Any person owning, possessing, or in charge of any boat who knowingly operates or permits to be operated such boat in violation of any provision of this section shall be guilty of a misdemeanor and shall be punished by a fine not to exceed five hundred (500) dollars or by imprisonment in the county jail for not to exceed six (6) months, or by both such fine and imprisonment.

(Ord. No. 485, § 9, 1966)

7.13 The County of Lake, its agents, servants, and employees herein charged with the administration and enforcement of any and all provisions of Section 7 of this article, shall not be liable for any injury of

any kind whatsoever, to persons or properties, which may arise out of any act or omission of the County, its agents, servants, or employee or any other person, nor by reason of any document, writing, or permit which may be issued pursuant to this section.

(Ord. No. 485, § 12, 1966)

Sec. 15-8. - Miscellaneous Regulations.

8.1 No person may moor, dock, or otherwise attach any ship, boat, barge or other vessel or any structure of any kind to any buoy, beacon, permanent waterway marker or navigational aid emplaced by the County of Lake in the waters of Clear Lake. The prohibition of this subsection shall not apply to a mooring, docking or attachment in the event of an emergency declared by the person in command or control of the above-described vessels or structures.

(Ord. No. 485, § 6, 1966; Ord. No. 1367, § 1, 3-6-84)

8.2 No person may moor, dock, or otherwise attach any ship, boat, barge or other vessel or any structure of any kind at any public marina or facility located in the waters of Clear Lake beginning at midnight and continuing to 6:00 a.m. for a period of not in excess of fifteen (15) minutes. The prohibition of this subsection shall not apply to: (1) the mooring, docking or attachment in the event of an emergency declared by the person in command or control of the above-described vessels or structures; or (2) the mooring, docking or attachment which has been authorized by an Administrative Encroachment permit issued by Lakebed Management Division of the County of Lake pursuant to the provisions of Chapter 23 of this code. For this subsection only, a public facility or marina is defined as any facility owned, maintained or operated by the County of Lake, any city or special district.

(Ord. No. 1367, § 1, 3-6-84; Ord. No. 2430, § 2, 5-12-98)

8.3 The owner of a vessel or structure in violation of this section as described in subsections 8.1 and 8.2 shall be liable to the County of Lake for all costs incurred for removal and storage of such vessels or structures.

(Ord. No. 1367, § 1, 3-6-84)

8.4 No boat or vessel, private or commercial, shall be allowed to operate, moor or dock in or upon the waters of Clear Lake that is in excess of fifty-five (55) feet in length, unless authorized by an Administrative Encroachment permit issued by Lakebed Management Division pursuant to the provisions of Chapter 23 of this Code. All such boats or vessels shall be seaworthy as defined by the U. S. Coast Guard and satisfy all State and Local Public Health and Sanitation requirements.

(Ord. No. 2430, § 4, 5-12-98)

8.5 Any violation of the above provisions shall constitute a misdemeanor and shall be punishable by a fine not to exceed five hundred dollars ($500.00) or by imprisonment in the County jail for a period not to exceed six (6) months.

(Ord. No. 1367, § 1, 3-6-84; Ord. No. 2430, § 3, 5-12-98)

Sec. 15-9. - Swim Areas.

9.1 No person shall operate or permit to be operated any motorboat or sailboat in those areas posted "SWIM AREA" in the following County parks:

(a) Keeling Park located in Nice, California.

(Ord. No. 1095, § 1, 8-28-79)

(b) Nice Community Beach located in Nice, California.

(Ord. No. 1095, § 1, 8-28-79)

(c) Alpine Park located in Lucerne, California.

(Ord. No. 1095, § 1, 8-28-79)

(d) Lucerne Harbor Park located in Lucerne, California.

(Ord. No. 1095, § 1, 8-28-79)

(e) Lucerne Clubhouse Park located in Lucerne, California. (Oat. No. 1095, § 1, 8-28-79)

(f) Oaks Beach in Clearlake Oaks, California.

(Ord. No. 1095, § 1, 8-28-79)

(g) Austin's Park located in Clearlake Highlands, California.

(Ord. No. 1095, § 1, 8-28-79)

(h) Redbud Park located in Clearlake Highlands, California.

(Ord. No. 1096, § 1, 8-28-79)

(i) Lakeside Park located in Kelseyville, California.

(Ord. No. 1095, § 1, 8-28-79)

9.2 *Penalty.* Any violation of the above provisions shall constitute a misdemeanor and shall be punishable by a fine not to exceed five hundred dollars ($500.00) or by imprisonment in the county jail for a period not to exceed six (6) months.

(Ord. No. 1095, § 2, 8-28-79)

Sec. 15-10. - Restricted Diving and Swim Areas.

10.1 It shall be unlawful for any person to dive, jump or swim from any piers or launching ramp boarding floats posted "No Diving or Swimming" in the following County parks:

(a) Keeling Park located in Nice, California.

(Ord. No. 1096, § 1, 8-28-79)

(b) Lucerne Harbor Park located in Lucerne, California.

(Ord. No. 1096, 1, 8-28-79)

(c) Redbud Park located in Clearlake Highlands, California.

(Ord. No. 1098, § 1, 8-28-79)

(d) Lakeside Park located in Kelseyville, California.

(Ord. No. 1098, § 1, 8-28-79)

(e) Oaks Beach Park located in Clearlake Oaks, California.

(Ord. No. 1096, § 1, 8-28-79)

10.2 Penalty. Any violation of the above provisions shall constitute a misdemeanor and shall be punishable by a fine not to exceed five hundred dollars ($500.00) or by imprisonment in the county jail for a period not to exceed six (6) months.

(Ord. No. 1096, § 2, 8-28-79)

Sec. 15-11. - Speed limitations.

11.1 Fish Areas. The speed and distance from the shoreline limitations set forth below shall apply to the respective fish areas as described in this section.

(a) No person shall operate or permit to be operated any vessel, motorboat, water skis, aquaplane, or similar device in excess of five (5) nautical miles per hour within 400 feet of the shoreline in any of the following areas posted as "Fish Area":

(1) *Rodman Bridge Area.* All that portion of Section 29, T.15N., R.9W., M.D.B.&M., lying Southeasterly of the County road commonly known as Nice-Lucerne Cutoff and lying between the West end of Rodman Bridge and the East line of said Section 29, saving and excepting therefrom that portion of Tule Island.

(2) *Rumsey Slough Area.* The outfall of Rumsey Slough thence Westerly to the outfall of Manning Creek.

(3) *Long Tule Point Area.* Long Tule Point thence Southwesterly to the outfall of McGaugh Slough.

(4) *Quercus Point Area.* Quercus Point thence Southeasterly to four hundred (400) feet west of Gaddy Beach.

(5) *Dorn Cove Area.* The most Southerly boundary of the State Park swim area thence Southeasterly to the most Southerly point of Dorn Cove.

(6) *Horseshoe Bend Area.* Southeasterly two hundred (200) yards from the Riviera Heights Marina thence South-easterly and Northeasterly to the South line of Lot 7, Block P, Buckingham Park Sub. 1.

(7) *Rattlesnake Island.* The Northeasterly, Southwesterly, and the Westerly portion of said island, and the Easterly end and mainland being a portion of the N.W. ¼ of Section 6, T.13N., R.7W., M.D.B.&M., commonly known as Sulphur Bank Rancheria.

(Ord. No. 2253, § 1, 10-25-94)

(8) *Barnes Area.* The outfall of Elliott Creek thence Northwesterly to the intersection with the West line of Section 36, T.15N., R.9W., M.D.B.&M.

(b) No person shall operate or permit to be operated any vessel, motor boat, water skis, aquaplane or similar device in excess of five (5) nautical miles per hour within 200 feet of the shoreline in any of the following areas posted as "Fish Areas":

(1) Southerly portion of Indian Island also known as Honkoyemdon Island, also known as Island No. 3 more specifically described as a portion of the Northeast one-quarter of the Northwest one-quarter of the Northwest one-quarter and a portion of the Northwest one-quarter of the Northeast one-quarter of the Northwest one-quarter of Section 33, Township 13 North, Range 7 West, M.D.B.&.M.

(Ord. No. 1185, § 1, 2-24-81; Ord. No. 1298, § 1, 2-22-83; Ord. No. 1468, § 1, 5-7-85)

11.2 *5 MPH Areas.* No person shall operate or permit to be operated any vessel, motor boat, water skis, aquaplane or similar device in excess of five (5) nautical miles per hour in Clear Lake in the following areas posted as "5 MPH AREAS":

(a) In the Lucerne Riviera area described as follows:

Beginning at a point of intersection of the Southwesterly corner of Laurel Del Drive and the North line of State Highway No. 20, being a portion of Section 18, T. 14 N., R. 8W., M.D.B.&M., thence Westerly 300 feet from the Point of Beginning lakeward into Clear Lake, thence Southerly and Westerly and parallel to the North line of the State Highway No. 20, 1200 feet to the intersection with the Westerly extension of Station 22 + 08, thence Easterly from said point of intersection and landward from Clear Lake to the intersection of the North line of the State Highway No. 20 and Station 22 + 08, thence Easterly and Northerly along said State Highway No. 20 to the Point of Beginning.

(Ord. No. 1298, § 1, 2-22-83)

(b) In the Stubbs Channel and the Dollar Island area described as follows:

Being a portion of the Northwest one-quarter of Section 5, T. 13 N., R. 7 W, M.D.B. & M. and a portion of the Southwest one-quarter of Section 32, T. 14 N., R. 7 W., M.D.B. & M.

(Ord. No. 1631, § 1, 3-10-87)

11.3 *Penalty.* Any violation of the above provisions is punishable as an infraction by a fine not exceeding one hundred dollars ($100.00); or as a misdemeanor by a fine of not more than five hundred dollars ($500.00), or by imprisonment in the County Jail for a period of not more than six (6) months, or by both such fine and imprisonment.

(Ord. No. 1185, § 1, 2-24-81; Ord. No. 1298, § 1, 2-22-83)

Sec. 15-12. - Arrest and Citation Powers Given to Boat Patrol Personnel.

12.1 Pursuant to Section 836.5 of the Penal Code, Boat Patrol Officers of the Lake County Sheriff's Department are hereby given arrest and citation powers.

The above-named officers and employees shall enforce all provisions of this article and all laws of the State of California relating to boating and navigation.

(Ord. No. 2289, § 1, 6-27-95)

Sec. 15-13. - Idle Speed Required During Period of High Lake Levels on Clear Lake.

13.1 It shall be unlawful for anyone operating a motor boat on the waters of Clear Lake to exceed idle speed when operating said motor boat one-quarter mile or less from the shore of Clear Lake if the lake is at a level of eight (8.0) Rumsey or higher for a twenty-four (24) hour period.

13.2 The above-described idle speed requirements shall remain in full force and effect until such time as Clear Lake reaches a level of seven and nine-tenths (7.9) Rumsey or lower for a twenty-four (24) hour period.

13.3 On-duty boats of the Lake County Sheriffs Office and on-duty boats of the State Department of Fish and Wildlife are exempt from these idle speed requirements.

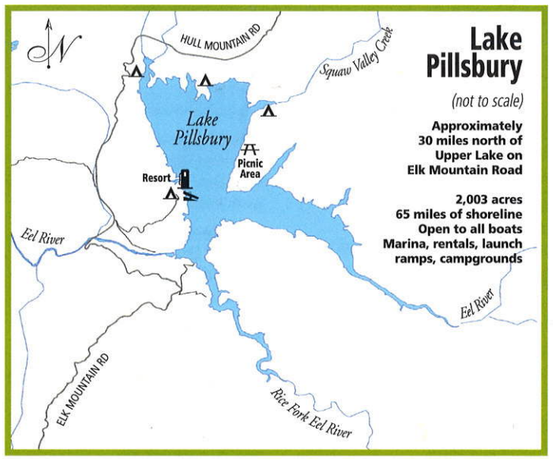
13.4 Penalty. Any violation of subsection 13.1 of this section shall constitute a misdemeanor and shall be punishable by a fine not to exceed five hundred dollars ($500.00), or by imprisonment in the County Jail for a period not to exceed six (6) months.

(Ord. No. 3065, § 1, 8-15-2017)

Sec. 15-14. - Reserved.

LAKE COUNTY

BOATING MAP AND INFORMATION

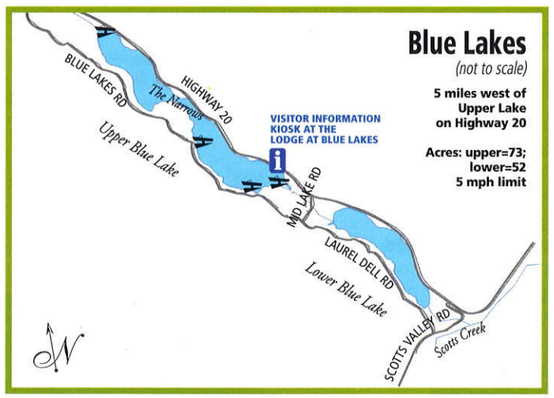


Lake Pillsbury

(not to scale)

Approximately 30 miles north of Upper Lake on Elk Mountain Road

2,003 acres
65 miles of shoreline
Open to all boats
Marina, rentals, launch ramps, campgrounds

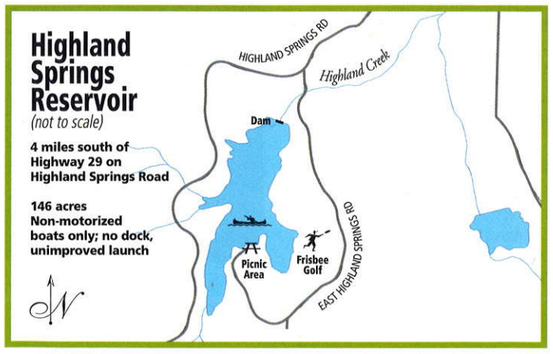


Blue Lakes

(not to scale)

5 miles west of Upper Lake on Highway 20

Acres: upper=73; lower=52
5 mph limit



Highland Springs Reservoir

(not to scale)

4 miles south of Highway 29 on Highland Springs Road

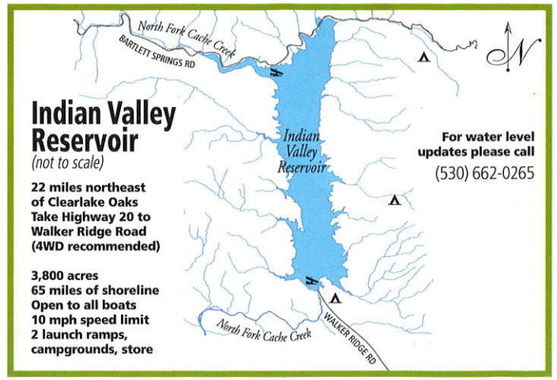
146 acres
Non-motorized boats only; no dock, unimproved launch

EMERGENCIES

Call 911
VHF Radio: Channel 16

LEGEND

- Marine fuel
- Fishing hot spots
- Public boat ramp
- Public access no ramp
- Navigation aids
- Shoal areas (shallow/dangerous)
- Bathymetric/depth measurements
- Birding locations



Indian Valley Reservoir

(not to scale)

22 miles northeast of Clearlake Oaks
Take Highway 20 to Walker Ridge Road (4WD recommended)

3,800 acres
65 miles of shoreline
Open to all boats
10 mph speed limit
2 launch ramps, campgrounds, store

For water level updates please call
(530) 662-0265

BOATING SAFETY: CALIFORNIA UNIFORM WATERWAY MARKERS

REGULATORY OR ADVISORY MARKERS

Boats Keep Out · Danger · Controlled Area · Information

AIDS TO NAVIGATION
(when going upstream)

Left Side · Mid-Channel · Right Side

FOR MORE INFORMATION, contact the **California Department of Boating and Waterways**, (888) 326-2822 | www.dbw.ca.gov, or the **California Coast Guard Auxiliary**, (707) 278-0553, (800) 869-7245 | www.cgaux.org, which is the Voluntary Civilian Arm of the US. Coast Guard and part of the Department of Homeland Security, dedicated to the promotion of boating safety, and offering boating safety classes to the public, free vessel safety inspections to boaters, and assistance in emergency situations and to disabled boaters on Clear Lake.

RESTAURANTS

RESTAURANTS ACCESSIBLE BY WATER ARE LISTED ON THE FLIP SIDE, AND SHOWN ON THIS MAP ALONG WITH THOSE WITHIN EASY WALKING DISTANCE OF THE LAKE. OTHER RESTAURANTS ARE AVAILABLE IF YOU'RE WILLING TO WALK A BIT FURTHER FROM THE LAKE.

INFORMATION

FOR MORE COMPLETE LISTINGS, SEE DESTINATIONS MAGAZINE AVAILABLE FROM THE LAKE COUNTY CHAMBER OF COMMERCE IN LAKEPORT OR AT A LAKE COUNTY VISITOR INFORMATION KIOSK LOCATED AT BLUE LAKES, IN LUCERNE AND MIDDLETOWN.

PROTECT OUR WATERWAYS!

Help protect Lake County's beautiful waters from harmful invasive plants, animals, and aquatic hitchhikers. Lake County has a mandatory Mussel Sticker Program in effect: no boats or personal watercraft are allowed on any body of water in Lake County without an inspection sticker–and there's a $1000 violation fine! Follow these simple procedures each time you leave the water:

- Remove any visible mud, plants, fish or animals before transporting equipment.
- Eliminate all water from equipment before transporting.
- Clean, drain, and dry anything that came into contact with water or mud (boats, trailers, equipment, clothing, dogs, etc.)
- Never release plants, fish, or animals into a body of water unless they came out of that body of water.

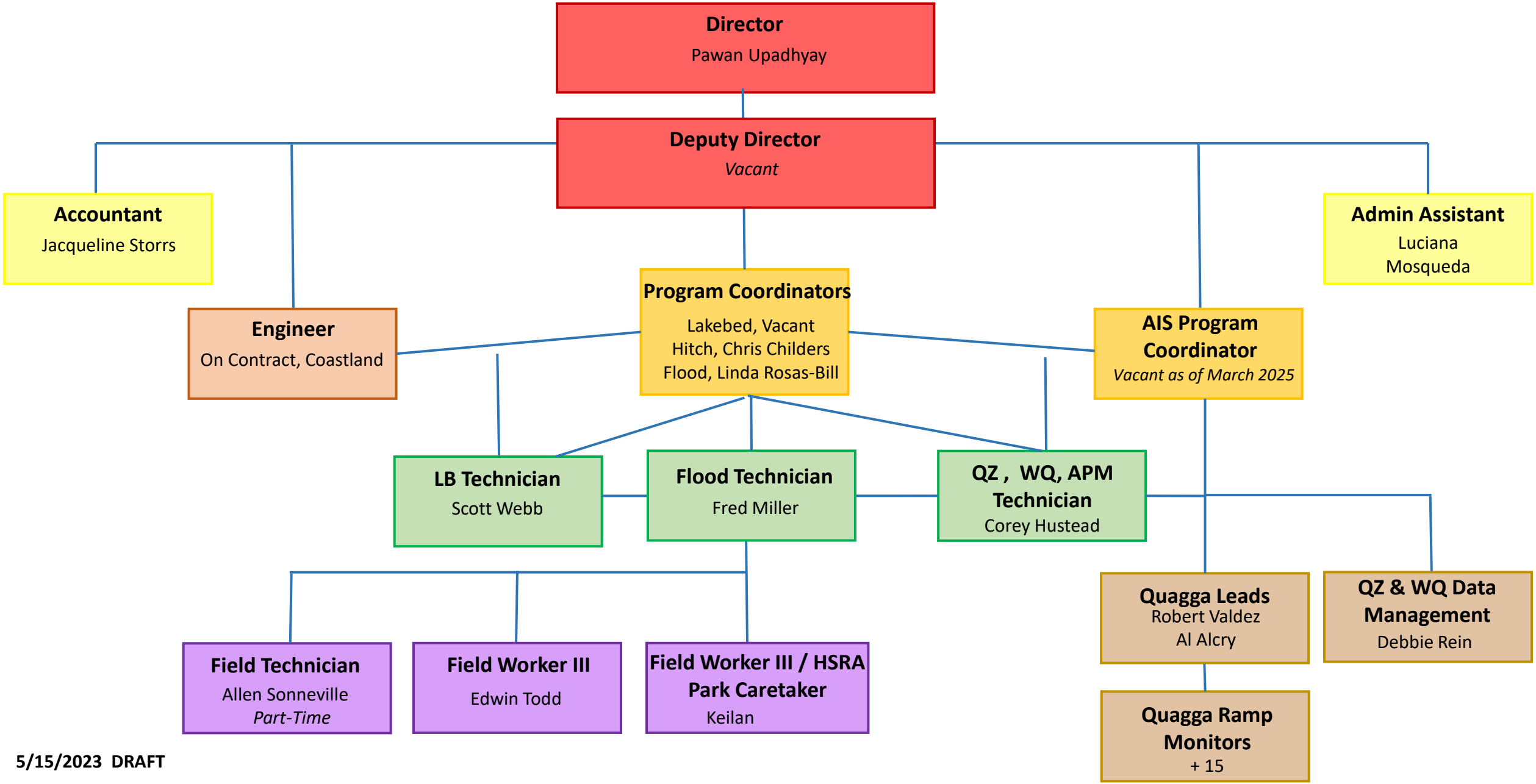
Be proud—show your sticker! | (707) 263-2556 | www.nomussels.com

Water Trails
brochures for the non-motorized boater are available from Lake County Visitor Information (800) LAKESIDE | (525-3743) or download at *www.LakeCounty.com* or *www.konoctitrails.com*

1. Rattlesnake Island
2. Anderson Marsh
3. Cache Creek Dam
4. The Narrows
5. Soda Bay
6. Long Tule Point
7. Rodman Slough

 06/15

Lake County Water Resources Department: Organizational Chart

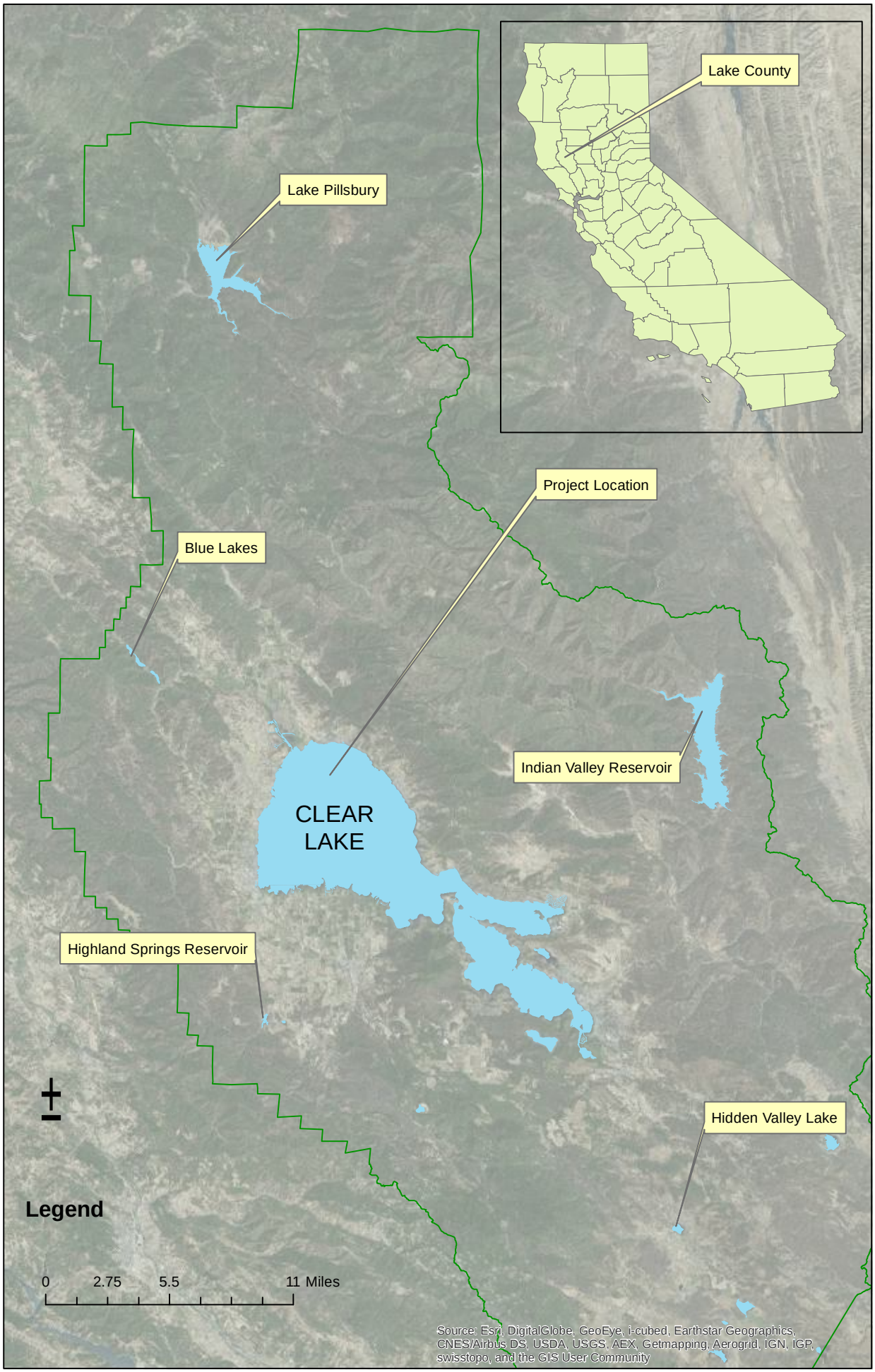


5/15/2023 DRAFT

Map 1

Lake County Watershed Protection District

Clear Lake Mussel Infestation Prevention Implementation FY 2025/26



WESTSIDE SAC IRWM

Integrated Regional Water Management Plan

March 12, 2025

Attn: Cara Rodrick and Timothy Giles
California State Parks
Division of Boating and Waterways
Aquatic Invasive Species Branch/QZ Prevention
One Capital Mall, Suite 500
Sacramento, CA 95814

Subject: Westside Sacramento Integrated Regional Water Management support for the application of the Lake County Quagga and Zebra Invasive Mussel Program for year 2025/2026

Dear Ms. Rodrick and Mr. Giles,

On behalf of the Coordinating members of the West side IRWM group, comprised of agencies from Lake County, Napa County, Solano County, and Yolo County, we write today to support the grant application for the Lake County Quagga and Zebra Invasive Mussel Program (Program) by the Lake County Watershed Protection District to the California State Parks Division of Boating and Waterways.

IRWM groups are unique in that they are a collective of agencies that manage water resources that cross arbitrary boundaries like counties and city lines, and focus on the watershed. The Westside IRWM group is focused on the Upper Cache Creek Watershed and the Putah Creek Watershed that connect and flows together to the Delta. Due to the aquatic connectivity that the IRWM region shares, it's important to all Westside members that the waters within the region remain mussel-free.

Lake County's Clear Lake is at the headwaters of the Upper Cache Creek Watershed, meaning that an invasive mussel introduction in that water body would increase the probability of an infestation throughout the rest of the watershed and impair ability of Westside members to manage water resources in our region, including valuable infrastructure such as dams and irrigation systems that support agriculture and drinking water in the Central Valley to the Delta. The future of the Westside IRWM region, for sustainable and manageable water resources, depends on Clear Lake remaining mussel-free.

LAKE COUNTY WATERSHED PROTECTION DISTRICT

NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
American Canyon • Calistoga • Napa
St. Helena • Yountville • Napa County

SOLANO COUNTY WATER AGENCY

YSGA
YOLOGROUNDWATER.ORG

Members of the Westside IRWM appreciate the past prevention efforts the Division of Boating and Waterways has provided Lake County, and Solano County Water Agency (SCWA), a IRWM member. IRWM small grants provided for the obtainment of a Lake County-SCWA shared educational Mussel Boat (CDFW Dreissenid Mussel Permit#0003) and considers Lake County as an innovative waterbody manager in the realm of mussel prevention.
Thank you for your time and consideration and once again, we value the support DBW has provided to Lake County in the past and we hope this support will continue into the future for the protection of our region and the water resources we all manage.

Sincerely,

Sarah Leicht

Sarah Leicht, Coordinating Committee Chair

LAKE COUNTY WATERSHED PROTECTION DISTRICT

NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
American Canyon • Calistoga • Napa
St. Helena • Yountville • Napa County

SOLANO COUNTY WATER AGENCY

YSGA
YOLOGROUNDWATER.ORG

BOARD OF DIRECTORS
LAKE COUNTY WATERSHED PROTECTION DISTRICT

Quagga and Zebra Mussel Infestation Prevention Grant Program FY 2025
Application and Funding Agreement Resolution
Resolution No._____

WHEREAS, prior to the State of California, Department of Parks and Recreation, Division of Boating and Waterways' (DBW) approval of an executed Grant Agreement, said Board of Directors, Lake County Watershed Protection District (DISTRICT), is required to pass a resolution, authorizing a designated representative(s) to execute said Application, Grant Agreement, amendments, and certifications, designating a representative to approve claims for reimbursement, designating a representative to sign the Reimbursement Claim Form and Quarterly Progress Report, designating a representative to sign Project Completion Certification, and designating a representative to sign the Contractor's Release Form as applicable; and

WHEREAS, the DISTRICT has the legal authority to manage Clear Lake, construct, operate, maintain infrastructure, post signage, prepare prevention plan documentation, monitor for water chemistry and other water quality parameters, monitor for quagga and zebra mussels, conduct and monitor boater inspection and decontamination activities, as applicable, and conduct public/boater outreach; and to apply to DBW for a grant up to the amount of $399,520.00 for the Quagga and Zebra Mussel Infestation Prevention Grant Program; and

WHEREAS, the DISTRICT desires to implement the Lake County Invasive Mussel Prevention Plan which serves to improve and strengthen the inspection component of Article IX of Chapter 15 of the Lake County Code which established the Lake County Water Vessel Inspection Program for the prevention of an infestation of the quagga and zebra mussel; and

WHEREAS, the DISTRICT, pursuant and subject to all of the terms and provisions of the Quagga and Zebra Mussel Infestation Prevention Grant Program, application is hereby made to DBW for funding.

NOW THEREFORE BE IT RESOLVED that the Director of Water Resources for Lake County is responsible for the operational activities of the DISTRICT and is hereby authorized and directed to complete the following acts, including but not limited to:

1. Cause the necessary data to be prepared and application to be signed and filed with DBW; and
2. Sign the DBW Quagga and Zebra Mussel Infestation Prevention Grant Agreement and any amendments thereto; and
3. Approve Claims for Reimbursement; and
4. Execute the Budget and Expenditure Summary; and

5. Sign the Contractor's Release Form; as applicable; and
6. Certify that the project is complete, and ready for final inspection, as applicable.

THIS RESOLUTION was passed by the Board of Directors of the Lake County Watershed Protection District at a regular meeting thereof held on

_____, 2025, by the following vote:

AYES:

NOES:

ABSENT OR NOT VOTING

By: _____ Date: _____
Chair, Board of Directors

ATTEST: SUSAN PARKER
Clerk of the Board

By: _____

APPROVED AS TO FORM:
LLOYD GUINTIVANO
County Counsel

By: _____