



**TWSA BOARD MEETING  
PACKET  
For 12/02/2020**

**Refer to RED page numbers in the TOP left corner.**

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**NOTICE OF MEETING:**

The next regular meeting of the Tahoe Water Suppliers Association (TWSA) is:

**Virtual meeting via GO TO MEETING**

**TWSA 2020 Virtual Board Meeting on Wed., Dec. 2, 2020 / 12:00 PM - 4:00 PM (PST)**

Please join my meeting from your computer, tablet or smartphone.

<https://global.gotomeeting.com/join/745349717>

You can also dial in using your phone.

United States (Toll Free): [1 866 899 4679](tel:18668994679)

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Access Code: 745-349-717

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<https://global.gotomeeting.com/install/745349717>

- A. **Introduction of Guests**
- B. **Public Comment** Conducted in accordance with Nevada Revised Statute (NRS) Chapter 214.020 and limited to a maximum of 3 minutes in duration.
- C. **Presentations** – TKPOA Control Methods Test
  - a. League to Save Lake Tahoe, Jesse Patterson
  - b. Kim Caringer, Tahoe Regional Planning Agency
  - c. Lahontan Water Board Representative (tentative)
- D. **Approval of Agenda** for the December 2, 2020 TWSA Board Meeting
- E. **Approval of Minutes** for the August 26, 2020 TWSA Board meeting
- F. **Reports**
  - a. **Staff Reports** (Outreach, Events, Projects)
  - b. **Current budget** - see attached and Open Gov link for current budget and expenses:  
[https://inclinevillageidnv.opengov.com/transparency#/49095/accountType=revenuesVersusExpenses&embed=n&breakdown=types&currentYearAmount=cumulative&currentYearPeriod=years&graph=bar&legendSort=coa&month=9&proration=true&saved\\_view=180055&selection=471D88E2E2520B4ACC9D5C178C485CB1&projections=null&projectionType=null&highlighting=null&highlightingVariance=null&year=2021&selectedDataSetIndex=null&fiscal\\_start=2021&fiscal\\_end=latest](https://inclinevillageidnv.opengov.com/transparency#/49095/accountType=revenuesVersusExpenses&embed=n&breakdown=types&currentYearAmount=cumulative&currentYearPeriod=years&graph=bar&legendSort=coa&month=9&proration=true&saved_view=180055&selection=471D88E2E2520B4ACC9D5C178C485CB1&projections=null&projectionType=null&highlighting=null&highlightingVariance=null&year=2021&selectedDataSetIndex=null&fiscal_start=2021&fiscal_end=latest)
  - c. **TWSA Chair Report**
- G. **General Business** (for possible action):
  - a. TKPOA Control Methods Test / Antidegradation Analysis – discussion
  - b. Adoption of 2021 Board Dates
  - c. COVID-19 operations roundtable discussion
- H. **Purveyor Updates**
- I. **Public Comment**
- J. **Adjournment**

**2021 TWSA Board Meetings** – First Wednesdays, quarterly, held from 12 to 4 pm; virtual until further notice.

Discuss moving meeting start time back to 1 pm for 2020 meetings.

- March 3
- June 2
- Sept 1
- December 1

**TWSA Board of Directors**

Suzi Gibbons (Chair)	North Tahoe Public Utility District
Andrew Hickman	Round Hill General Improvement District
Richard Robilliard; Phil Ritger (alternate)	Douglas County Systems
Patrick McKay; Mike McKee (alt.)	Edgewood Water Company
Cameron McKay	Glenbrook Water Cooperative
Keith Rudd; Bob Lochridge (alt.)	Incline Village General Improvement District
Cameron McKay; Brandon Garden (alt.)	Kingsbury General Improvement District
Nakia Foskett	Lakeside Park Association
Kim Boyd; Tony Laliotis (alt.)	Tahoe City Public Utility District
Shelly Thomsen(Vice-chair); Lynn Nolan (alt.)	South Tahoe Public Utility District

For more information, please contact: Madonna Dunbar, TWSA Executive Director  
 1220 Sweetwater Road, Incline Village, Nevada 89451  
 (775) 832-1212 office / (775) 354-5086 cell /email: [mod@ivgid.org](mailto:mod@ivgid.org)

**Certification of posting of agenda** = Physical Posting Suspended - Covid-19 restrictions.

Online posting and email delivery of notice provided.

In compliance with State of Nevada Executive Department, Declaration of Emergency Directive 006, 016 and 018, this meeting is closed to the public and attendance is limited to members of the Board of Trustees and essential staff. Public comment is allowed and the public is welcome to make their public comment either via e-mail (please send your comments to [mod@ivgid.org](mailto:mod@ivgid.org) by 5 p.m. on Tuesday, November 24, 2020) or via telephone (775-354-5086) on the day of the meeting.

By, Madonna Dunbar, Executive Director, TWSA

Notes:

Items on the agenda may be taken out of order; combined with other items; removed from the agenda; moved to the agenda of another meeting; moved to or from the Consent Calendar section; or may be voted on in a block. Items with a specific time designation will not be heard prior to the stated time, but may be heard later. Members of the public who are disabled and require special accommodations or assistance at the meeting are requested to call IVGID at 832-1212 at least 24 hours prior to the meeting.

TWSA agenda packets are available at the TWSA website [www.TahoeH2O.org](http://www.TahoeH2O.org) or the TWSA office at 1220 Sweetwater Road, Incline Village, Nevada 89451.



The regular meeting of the Tahoe Water Suppliers Association (TWSA) was held on  
 Wednesday, August 26, 2020, noon to 2:00 pm

GoToMeeting web conference

Minutes

Motions/Actions are in red

**A. Introduction of Guests**

No guests present

**B. Presentations**

No presentations provided

**Roll Call** Members in Attendance: Suzi Gibbons, Brandon Garden, Andrew Hickman, Kim Boyd, Nakia Foskett, Joe Pomroy, Richard Robillard, Shelly Thomsen.

TWSA Staff in attendance: Madonna Dunbar and Sarah Vidra

Regulators: Reginald Lang (NDEP)

**C. Public Comment** Conducted in accordance with Nevada Revised Statute (NRS) Chapter 214.020 and limited to a maximum of 3 minutes in duration.

No public comment given

**D. Approval of Agenda** for the August 26, 2020 TWSA Board Meeting

Motion to approve agenda as submitted made by Shelly Thomsen, second by Nakia Foskett, all in favor; motion carried.

**E. Approval of Minutes** for the June 10, 2020 TWSA Board meeting

Motion to approve minutes from June 10, 2020 as submitted made by Shelly Thomsen, second by Andrew Hickman, all in favor; motion carried.

**F. Reports**

a. **Staff Reports** (Outreach, Events, Projects)

- Staff highlighted several activities from the quarter; a full activity report is available in the Board packet.
- NDEP 319 (h) Pilot Project to Reduce Source Water Plastic Pollution at Lake Tahoe is moving forward. Raley's Klean Kanteen "Drink Tahoe Tap" bottles selling well, the retailer is proposing expansion into additional locations. TWSA will be adding to the next order for internal distribution to members, volunteers and specialty giveaways. The Executive Director is providing grant administration for the collaborative group.
- Water Fill Station Grant and the cigarette butt box projects are still taking place.
- Staff will be starting the *2020 Watershed Control Program Annual Report*. Data requests were sent to purveyors on 8/19/2020, and additional questionnaires will be sent out in the weeks to come.

b. **Current budget** - see attached and Open Gov. link for current budget and expenses.

FY19-20 closed with appx. \$170K in reserves, and membership fees are due to TWSA as soon as possible.

c. **TWSA Chair Report**

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The Chair recognized the untimely and deeply saddening passing of Pam Emmerich. Information on NTPUD's efforts to recognize the accomplishments and legacy of Pam can be found in the NTPUD 08112020 Board packet [here](#).

### G. General Business (for possible action):

#### a. DEIR comment letter(s) review:

##### 1) Lake-Wide Control of Aquatic Plants Project -TWSA letter

The Executive Director provided the Board with a drafted comment letter for the Lake-Wide Control of Aquatic Plants Project. The letter supports the use of non-chemical methods of aquatic plant removal, the DEIR posted a mitigated negative declaration and mitigated finding of no significant impact/effect. Methods to be used in the Lake-Wide project include bottom barriers, hand pulling, diver assisted suction removal, UV-C light boat, suction/mechanical dredging (where previously dredged), and LFA. The full letter is available in the Board packet.

**Motion to approve letter as drafted for the Lake-Wide Aquatic Invasive Plant Project mitigated negative declaration made by Andrew Hickman, Second Brandon Garden, all in favor: motion carried.**

##### 2) TKPOA Control Methods Test (TKPOA CMT) - TWSA Letter

The Executive Director shared the TWSA Comment Letter on the TKPOA CMT DEIR/EIS for review and approval of the Board. Staff also provided the Board with a summary document describing the proposed project, alternatives, and environmental analysis findings. After reviewing the drafted letter, the Board discussed additional mitigation methods, the use of PhosLock, and LFA Lake Tahoe Results. The draft TWSA comment letter is available in the Board packet.

**Motion to approve the TWSA TKPOA CMT DEIR/EIS comment letter as drafted with administrative edits made by Kim Boyd, Second Nakia Foskett, all in favor: motion carried.**

##### 3) WQTS/Chambers - Consulting Group Letter

The Executive Director shared the WQTS/Chambers Group TKPOA CMT DEIR/EIS review.

**Motion to approve submittal of the WQTS/Chambers group TKPOA CMT DEIR/EIS letter (as an attachment to the TWSA TKPOA CMT DEIR/EIS comment letter) as presented; motion made by Andrew Hickman, second Joe Pomroy, motion carried.**

#### b. Clean Up the Lake Sponsorship – project update

Project postponed until 2021.

#### c. COVID-19 operations roundtable discussion

The Board discussed the impacts of recreation facility solid waste service reductions and the impact on Lake Tahoe through litter. The Executive Director is sitting in on regional discussions on this topic. At this time, TWSA will not be taking this on as a project.

### H. Purveyor Updates

Verbal updates provided

IVGID- the District is currently working on replacing 2,000 LF of 6-inch steel water main. The water main project will continue in the fall with slip line of 10-inch fusible PVC pipe into a 14-inch pipe under HW-28, if

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members are interested in observing, contact Joe Pomroy. Water usage in the District is similar to previous years with irrigation demand overshadowing any changes due to impacts of Covid-19 conditions. Initial impacts were a drop in commercial usage, and increase in residential usage that were only seen in prior to irrigation season. All crews are reporting for sewer and water. Construction and Change of ownership are creating additional customer service requests for inspections, final reads and billing changeovers.

NDEP- No update provided.

STPUD- the District is working on implementing an opt-in sewer bill relief program for commercial, multifamily and single family (primary residence) to receive 50% rate reduction for one quarter. Projects include waterline replacements and the final phase of the meeting project. The District laboratory is working to support the TKPOA with their boil order sampling. Field staff is working 3x12hr shifts, with support staff working remotely. Shelly will be rejoining TWSA as STPUD's primary member.

RHGID – The District is installing their new chlorine generation system this week. Work is being done to reconfigure the sewer system to install a meter at the connection with the Douglas Country sewer authority; this will move RHGID away from estimated flows. Water usage remains consistent, with no decrease due to impacts of Covid-19 conditions; there was a slight residential increase in the spring due to people working from home.

TCPUD – The District is ending the commercial sewer rate relief program as well as late fee forgiveness. A financial impact analysis of the COVID-19 programs will be completed and shared with the group on request. Master Plans for Tahoe Cedars and Madden Creek are being completed with an estimate of \$25-30M for project completion. The Board is looking into funding strategies and considering “pay as you go” or financing. TCPUD is in the process of receiving a State Water Revolving Fund grant for the WLTWTP estimated at \$13M, and will be going to bid in the fall of 2020. The Timberland System Rebuild Project will be completed by the end of 2020. The District is currently hiring for an engineering manager and associate engineer.

KGID- the District completed a 1,200 LF water main replacement, upgrading the 4 inch steel to 8-inch. A road repair project is taking place to clean up after the service line project; a vault will also be removed from the roadway. KGID will be replacing the chlorine generator, they are currently working on regulatory approval. The District saw an increase in residential consumption due to Covid-19 impacts, and a reduction in commercial consumption due to Casio closures.

Douglas County – the Cave Rock Water Line Replacement Project Phase I is completed, including 3,600 LF of 10 to 12 inch ductal water main installed. The county has signed with Sierra Nevada Construction for a 3-Year CMAR project to replace the Microfiltration system at Cave Rock to increase capacity by 50%, new intake work, electrical work, and 15,000 feet of piping. The total for the 3-Yr CMAR project is \$15M.

LPA – LPA is working on distribution system maintenance, including fixing leaks and a new commercial tie-in. The main control panel will be upgraded in Spring 2021, after the LPA Board unfroze the CIP budget due to COVID-19 financial impacts. Water usage for March 2020-May 2020 is 70-80% lower than the 2-year average, the system is not metered so there is no distinction as to where the decrease is coming from.

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NTPUD - the District had been experiencing a spike in the water treatment system specialty meter and SCADA read, the problem was solved with a hardware upgrade. The Zone 2 water main loop project was awarded to Reno Tahoe Construction. The Kingwood West Water Tank project is still under construction. During the resurfacing process several pinhole issues were found, reductions will be made to the exterior rehabilitation to make up for the additional cost on the interior project. NTPUD is preparing for a chlorine tank replacement project, they are looking at a new tank material vs. the current tank material which has a flaking issue after 20 years. District staff has also seen an uptick in real estate associated customer service requests. Utility Crews are reporting to the office in staggered shifts, and support staff continues to work remotely.

I. Public Comment

No public comment given.

J. Adjournment

Motion to adjourn made by Brandon Garden, second by Shelly Thomsen, all in favor motion passes Meeting Adjourned at 2:35pm.

TWSA Board of Directors

Suzi Gibbons (Chair)  
Andrew Hickman  
Richard Robilliard; Phil Ritger (alternate)  
Patrick McKay; Mike McKee (alt.)  
Cameron McKay  
Joseph Pomroy; Bob Lochridge (alt.)  
Cameron McKay; Brandon Garden (alt.)  
Nakia Foskett  
Kim Boyd; Tony Laliotis (alt.)  
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North Tahoe Public Utility District  
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Kingsbury General Improvement District  
Lakeside Park Association  
Tahoe City Public Utility District  
South Tahoe Public Utility District



**MEMORANDUM**

TO: TWSA Board  
 CC: Suzi Gibbons, TWSA Chair  
 FROM: Madonna Dunbar, IVGID Resource Conservationist  
 SUBJECT: TWSA – Q4 - 2020 Activities / Events  
 DATE: November 23, 2020

On-site events have been cancelled in 2020 due to COVID-19 restrictions.

From September to December, TWSA staff are deeply engaged in research, data compilation, and editing to produce the *2020 TWSA Annual Watershed Control Program Annual Report*. This 500+ page report is an annual submittal required by the US EPA filtration exemption permits for 6 of the TWSA members. Publication date is slated for December 7, 2020.

The Tahoe Water Suppliers Association was selected by TRPA staff and board members as one of this year's ***Spirit of TRPA Award*** recipients to represent the group of Public Utility Districts and General Improvement Districts who work so hard to protect our lake and provide services to our communities. For nearly 10 years, the Tahoe Regional Planning Agency (TRPA) has recognized individuals in our communities who show exceptional commitment to protecting Lake Tahoe. This year, to celebrate TRPA's 50<sup>th</sup> anniversary, we are reflecting on our own legacy and highlighting the individuals who embody the "Spirit of TRPA." These people worked tirelessly to achieve our agency's vision for a lake environment that is sustainable, healthy, and safe for the community and future generations. All recipients were honored at the virtual TRPA Governing Board meeting on November 18.

<https://www.trpa.org/trpa-awards-recognize-50-years-of-collaboration/>

TWSA was selected as the recipient of the 2020 (national) AWWA Exemplary Source Water Protection Award. Staff issued a press release regionally. <https://www.tahoedailytribune.com/news/tahoe-water-suppliers-association-wins-water-protection-award/>

The TWSA's AWWA national award press release was issued on 7/6/2020:

<https://sourcewatercollaborative.org/highlights/member-awwa-recognizes-three-water-systems-with-2020-exemplary-source-water-protection-awards/>

Staff prepared and submitted public comment letters on:

1) TAHOE KEYS CONTROLS METHODS TEST environmental review documents (CEQA/NEPA)

[https://www.trpa.org/wp-content/uploads/Tahoe-Keys\\_DRAFT-EIR-EIS.pdf](https://www.trpa.org/wp-content/uploads/Tahoe-Keys_DRAFT-EIR-EIS.pdf)

and

2) LAKE-WIDE CONTROL OF AQUATIC INVASIVE PLANTS PROJECT LAKE TAHOE, CALIFORNIA AND NEVADA [https://tahoercd.org/wp-](https://tahoercd.org/wp-content/uploads/2020/08/TRCD_Lakewide_Control_of_AIP_IS_IEC_EA.pdf)

[content/uploads/2020/08/TRCD\\_Lakewide\\_Control\\_of\\_AIP\\_IS\\_IEC\\_EA.pdf](https://tahoercd.org/wp-content/uploads/2020/08/TRCD_Lakewide_Control_of_AIP_IS_IEC_EA.pdf)

This TWSA correspondence is posted at: <https://www.yourtahoeplace.com/public-works/water/source-water-protection/tahoe-keys-iwmp-to-control-weeds>



The Tahoe Keys Integrated Weeds Stakeholder Management Plan (mediated) workgroup held a field trip session that staff attended.

Staff prepared and distributed a comprehensive summary document on the current status of the TKPOA application and review process. This is posted at: [https://www.yourtahoeplace.com/uploads/pdf-public-works/DEIR\\_TKPOA\\_CMT\\_TWSA\\_Staff\\_Summary\\_08142020\\_\(1\).pdf](https://www.yourtahoeplace.com/uploads/pdf-public-works/DEIR_TKPOA_CMT_TWSA_Staff_Summary_08142020_(1).pdf)

These documents were shared with the TWSA Board on 8/26/2020.

Website for current information is: <https://tahoekeysweeds.org>.

Staff met with Tahoe RCD staff to discuss potential AmeriCorps AIS diver team, next steps.

Staff coordinated with “Virtual Vibes - Music on the Beach” (a program of the North Tahoe Business Association) to screen the Drink Tahoe Tap Video during the summer 2020 online performances. Drink Tahoe Tap is also a Klean Kanteen reusable tumbler co-sponsor for the series.

<https://northtahoebusiness.org/music-on-the-beach>

Staff coordinated with “Backyard Boogie – the Best of Concerts on Common’s Beach” (a program of the Tahoe City Downtown Association) to screen the Drink Tahoe Tap Video during the summer 2020 online performances. <https://concertsatcommonsbeach.com/>

The TWSA’s AWWA national award press release was issued on 7/6/2020:

<https://sourcewatercollaborative.org/highlights/member-awwa-recognizes-three-water-systems-with-2020-exemplary-source-water-protection-awards/>

Clean Up the Lake (CUTL) in-kind support was offered for the 6 mile Nevada underwater cleanup: use of zero waste trailer and site support for collected trash sorting / analysis. CUTL/TWSA matching fundraiser (\$5000 max.) project is currently on hold, slated for 2021.

Pilot Project to Reduce Single Use Plastics at Lake Tahoe:

US EPA feature a press release on the project: <https://www.yourtahoeplace.com/news/u.s.-epa-awards-nearly-100000-to-address-microplastic-pollution-in-lake-tahoe>

Staff, submitted the Year 1 grant report for the 2-year NDEP 319h Grant.

This grant supports an educational campaign on reducing micro-plastics pollution.

“Big Problems in Tiny Pieces”, a feature article was drafted by the Tahoe Microplastics Solutions team, for the *Tahoe In Depth* magazine. It will publish in the December issue and details collaborative project activities to date.

Current TWSA activity includes:

- Raley’s bottle expansion: Tahoe Basin stores, Truckee – 7 regional stores slated for endcap bottle display long-term; October 2020
- 2021 April - Earth Month - additional stores will be added as seasonal promotion

- Klean Kanteen future production needs for 2021; 11,000 bottles ordered
- Student engagement with Raley's Sustainability Team – spring 2021

Staff monitored the monthly TRPA Shorezone Project Review Committee Project Application Meetings.

Staff is monitoring the bi-weekly Tahoe Care Marketing and Outreach meetings.

A Drink Tahoe Tap ad is running in the (summer and winter) Tahoe.com regional publication and on the Tahoe.com website.

Staff initiated the TWSA/Tahoe Fund Water Bottle Filling Station Grant Program on Aug. 1, 2019. Tahoe Fund has provided a \$10K match for the project. To date, 9 grants have been issued with 10 applications active.

Media coverage: <https://www.kolotv.com/content/news/Tahoe-business-owners-could-add-water-refill-station-inside-stores--525119571.html>

Water station event use has been temporarily stopped due to Covid-19 crisis.

Staff has prepared a BMP factsheet of enhanced sanitation practices for station maintenance.

Work is also being conducted to bolster the number of available refill stations on the Tap App.

46 fill station locations are logged on the TAP APP, up from 22 in Dec. 2019.

Details are posted at [www.TahoeH2O.org](http://www.TahoeH2O.org)

The 'Cigarette Bin Collection Project' initiated between TWSA, League to Save Lake Tahoe and Keep America Beautiful (KAB) began region-wide bin distribution/installation in June 2019. More than 110 bins are installed now in the Basin. More than 8,000 butts have been recorded for collection (this is from a portion of the distributed containers). KAB has provided 250 metal cigarette filter collection bins to IVGID Waste Not (for TWSA) for distribution and use within the Tahoe Basin. Project is ongoing.

Staff prepared a summary of the current Fire Partnership fuels reduction projects and identified remaining needs. Staff conducted research on this project relative to the 2019 Farm Bill Sourcewater Protection funding options.

A dispenser donation was made to the Reno Initiative for Shelter and Equality (RISE) so they can provide non-bottled water for their client food / service distribution.

Donated were:

- 1 Blue Insulated Cambro Dispenser
- 1 blue rolling 8 gallon refill jug
- 300 refillable blue, polycarbonate bike bottles.

STATEMENT OF OPERATING SOURCES AND USES TAHOE WATER SUPPLIERS ASSOCIATION CURRENT YEAR TO BUDGET COMPARISON

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GL Account Number	GL Account Description	Current Month Budget	Current Month Actual	Month Budget Variance	Current YTD Budget	Current YTD Actual	YTD Budget Variance	Total Budget	Remaining Budget
<b>OPERATING SOURCES</b>									
200-28-990-4417	Service & User Fees	0	0	0	146,800	149,203	2,403	178,800	-29,597
	Sales and Fees	0	0	0	146,800	149,203	2,403	178,800	-29,597
	<b>TOTAL OPERATING SOURCES</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>146,800</b>	<b>149,203</b>	<b>2,403</b>	<b>178,800</b>	<b>-29,597</b>
<b>OPERATING USES</b>									
200-28-990-5010	Regular Earnings	4,529	151	4,378	22,061	17,421	4,641	53,327	35,906
200-28-990-5020	Other Earnings	684	0	684	684	13	670	684	670
	Salaries and Wages	5,213	151	5,062	22,745	17,434	5,311	54,011	36,577
200-28-990-5050	Taxes	351	0	351	1,709	1,324	385	4,132	2,808
200-28-990-5100	Retirement Fringe Ben	794	0	794	3,866	2,887	978	9,344	6,456
200-28-990-5200	Medical Fringe Ben	919	286	633	4,593	3,526	1,067	11,857	8,331
200-28-990-5250	Dental Fringe Ben	79	25	54	393	298	95	942	645
200-28-990-5300	Vision Fringe Ben	9	3	7	47	35	12	113	78
200-28-990-5400	Life Ins Fringe Ben	7	0	7	34	14	20	81	67
200-28-990-5500	Disability Fringe Ben	34	9	25	170	95	75	407	312
200-28-990-5600	Unemployment Fringe Ben	69	0	69	335	259	76	810	551
200-28-990-5700	Work Comp Fringe Ben	115	0	115	559	425	133	1,350	925
	Employee Fringe	2,375	322	2,053	11,705	8,863	2,842	29,037	20,174
	<b>Total Personnel Cost</b>	<b>7,588</b>	<b>473</b>	<b>7,115</b>	<b>34,450</b>	<b>26,297</b>	<b>8,153</b>	<b>83,048</b>	<b>56,751</b>
200-28-990-6030	Professional Consultants	0	0	0	25,000	16,262	8,738	25,000	8,738
	Professional Services	0	0	0	25,000	16,262	8,738	25,000	8,738
200-28-990-7010	Advertising - Paid	1,000	0	1,000	5,000	2,313	2,688	12,500	10,188
200-28-990-7405	Office Supplies	117	0	117	583	0	583	1,400	1,400
200-28-990-7415	Operating	4,509	0	4,509	22,547	2,919	19,628	54,112	51,193
200-28-990-7460	Postage	0	0	0	100	0	100	200	200
200-28-990-7470	Printing & Publishing	792	0	792	3,958	991	2,967	9,500	8,509
200-28-990-7680	Training & Education	1,250	0	1,250	6,250	0	6,250	15,000	15,000
200-28-990-7685	Travel & Conferences	150	0	150	1,250	20	1,230	2,500	2,480
	Services and Supplies	7,818	0	7,818	39,688	6,243	33,446	95,212	88,969
200-28-990-7840	Telephone	0	0	0	135	48	87	540	492
	Utilities	0	0	0	135	48	87	540	492
200-28-990-7980	Central Services Allocation Cs	500	500	0	2,500	2,500	0	6,000	3,500
	Central Services Cost	500	500	0	2,500	2,500	0	6,000	3,500
	<b>TOTAL OPERATING USES</b>	<b>15,906</b>	<b>973</b>	<b>14,933</b>	<b>101,773</b>	<b>51,350</b>	<b>50,423</b>	<b>209,800</b>	<b>158,450</b>
	<b>OPERATING SOURCES(USES)</b>	<b>-15,906</b>	<b>-973</b>	<b>14,933</b>	<b>45,027</b>	<b>97,853</b>	<b>52,826</b>	<b>-31,000</b>	<b>128,853</b>



Does not include Labor  
Reserve as of 11/8/2020 = \$167,925.85

**INCLINE VILLAGE GENERAL IMPROVEMENT DIST**  
G/L TRANSACTION DETAIL

11

From Date: 07/01/2020  
 To Date: 11/09/2020  
 From Account: 200-28-990  
 To Account:  
 Exclude Accounts With No Activity  
 Run Date: 11/09/2020  
 User: mod

G/L#	EFFECTIVE DATE	DESCRIPTION	STP	SOURCE	JE#	DEPOSIT	CHECK	VENDOR	DEBIT	CREDIT	BALANCE
200-28-990-4417		Service & User Fees							Balance	Forward	0
	07/22/2020	IVGID TWSA Membership Dues FYE 6.30.2021	AJ	GL	339783					31,560	31,560 CR
	08/26/2020	Lakeside Park Association	AJ	GL	342815					6,979	38,539 CR
	08/26/2020	North Tahoe Public Utility District	AJ	GL	342815					15,687	54,226 CR
	08/26/2020	South Tahoe Public Utility	AJ	GL	342815					14,920	69,146 CR
	08/26/2020	Round Hill General Improvement District	AJ	GL	342815					7,456	76,602 CR
	08/26/2020	Kingsbury General	AJ	GL	342815					12,682	89,284 CR
	08/26/2020	Glenbrook Water Cooperative	AJ	GL	342815					8,554	97,838 CR
	08/26/2020	Douglas County Nevada	AJ	GL	342815					22,790	120,628 CR
	08/26/2020	Edgwood Companies	AJ	GL	342815					11,138	131,766 CR
	10/08/2020	Tahoe City Public Utility District	AJ	GL	345314					17,437	149,203 CR
		TOTAL							0	149,203	149,203 CR
200-28-990-4510		Operating Grants - State							Balance	Forward	0
	08/13/2020	NDEP MicroPlastics Grant Receipt	AJ	GL	343858					15,000	15,000 CR
		TOTAL							0	15,000	15,000 CR
200-28-990-5016		Accrued Hourly							Balance	Forward	0
	07/02/2020	Daily Payroll Estimate	AJ	GL	338247				232		232
	07/04/2020	Daily Payroll Estimate	AJ	GL	338249				232		464
	07/07/2020	Daily Payroll Estimate	AJ	GL	338283				232		696
	07/09/2020	Daily Payroll Estimate	AJ	GL	338868				232		928
	07/10/2020	Daily Payroll Estimate	AJ	GL	338899				236		1,163
	07/11/2020	Reverse PR Estimate 7/1/20 - 7/11/20 - Hourly	AJ	GL	338981					1,163	0
	07/16/2020	Daily Payroll Estimate	AJ	GL	339253				232		232
	07/17/2020	Daily Payroll Estimate	AJ	GL	339735				232		464
	07/23/2020	Daily Payroll Estimate	AJ	GL	339772				232		696
	07/24/2020	Daily Payroll Estimate	AJ	GL	339816				232		928
	07/27/2020	Daily Payroll Estimate	AJ	GL	339861				232		1,160
	07/28/2020	Daily Payroll Estimate	AJ	GL	339902				232		1,391
	07/31/2020	Reverse PR Estimate 7/12/20 - 7/25/20 - Hourly	AJ	GL	339858					928	464
	07/31/2020	Reverse PR Estimate 7/26/20 - 7/31/20 - Hourly	AJ	GL	341641					464	0
	08/05/2020	Daily Payroll Estimate	AJ	GL	341442				232		232
	08/06/2020	Daily Payroll Estimate	AJ	GL	341555				232		464
	08/07/2020	Daily Payroll Estimate	AJ	GL	341587				232		696
	08/12/2020	Daily Payroll Estimate	AJ	GL	341900				232		928
	08/13/2020	Daily Payroll Estimate	AJ	GL	342073				232		1,160
	08/14/2020	Reverse PR Estimate 8/1/20 - 8/11/20 - Hourly	AJ	GL	341642					696	464
	08/14/2020	Daily Payroll Estimate	AJ	GL	342106				232		696

G/L#	EFFECTIVE DATE	DESCRIPTION	STP	SOURCE	JE#	DEPOSIT	CHECK	VENDOR	DEBIT	CREDIT	BALANCE
12	08/17/2020	Daily Payroll Estimate	AJ	GL	342124				232		928
	08/20/2020	Daily Payroll Estimate	AJ	GL	342410				232		1,160
	08/21/2020	Daily Payroll Estimate	AJ	GL	342493				232		1,391
	08/27/2020	Daily Payroll Estimate	AJ	GL	343027				232		1,623
	08/28/2020	Reverse PR Estimate 8/9/20 - 8/22/20 - Hourly	AJ	GL	342633					1,391	232
	08/28/2020	Daily Payroll Estimate	AJ	GL	342921				232		464
	08/31/2020	Reverse PR Estimate 8/30/20 - 8/31/20 - Hourly	AJ	GL	343530					464	0
	09/01/2020	Daily Payroll Estimate	AJ	GL	343241				232		232
	09/02/2020	Daily Payroll Estimate	AJ	GL	343242				232		464
	09/03/2020	Daily Payroll Estimate	AJ	GL	343391				232		696
	09/04/2020	Daily Payroll Estimate	AJ	GL	343395				232		928
	09/07/2020	Daily Payroll Estimate	AJ	GL	343398				232		1,160
	09/11/2020	Reverse PR Estimate 9/01/20 - 9/05/20 - Hourly	AJ	GL	343531					928	232
	09/11/2020	Daily Payroll Estimate	AJ	GL	343844				232		464
	09/16/2020	Daily Payroll Estimate	AJ	GL	344365				232		696
	09/17/2020	Daily Payroll Estimate	AJ	GL	344366				232		928
	09/18/2020	Daily Payroll Estimate	AJ	GL	344367				232		1,160
	09/22/2020	Daily Payroll Estimate	AJ	GL	345450				245		1,405
	09/23/2020	Daily Payroll Estimate	AJ	GL	345451				238		1,642
	09/24/2020	Daily Payroll Estimate	AJ	GL	345452				241		1,883
	09/25/2020	Reverse PR Estimate 9/6/20 - 9/19/20 - Hourly	AJ	GL	344523					1,160	724
	09/25/2020	Daily Payroll Estimate	AJ	GL	345453				232		955
	09/28/2020	Daily Payroll Estimate	AJ	GL	345456				290		1,245
	09/29/2020	Daily Payroll Estimate	AJ	GL	345457				290		1,535
	09/30/2020	Reverse PR Estimate 9/20/20 - 9/30/20 - Hourly	AJ	GL	345335					0	1,535
	09/30/2020	Daily Payroll Estimate	AJ	GL	345458				290		1,825
	09/30/2020	Daily Payroll Estimate Clearing	AJ	GL	345464					1,825	0
	09/30/2020	Reverse PR Estimate 9/30/20 - Hourly	AJ	GL	345690					0	0
	10/01/2020	Daily Payroll Estimate	AJ	GL	345459				290		290
	10/05/2020	Daily Payroll Estimate	AJ	GL	345426				232		522
	10/06/2020	Daily Payroll Estimate	AJ	GL	345427				238		759
	10/07/2020	Daily Payroll Estimate	AJ	GL	345431				238		997
	10/08/2020	Daily Payroll Estimate	AJ	GL	345432				238		1,235
	10/09/2020	Daily Payroll Estimate	AJ	GL	345433				238		1,473
	10/09/2020	Daily Payroll Estimate Clearing	AJ	GL	345466					290	1,183
	10/16/2020	Daily Payroll Estimate	AJ	GL	345931				238		1,420
	10/20/2020	Daily Payroll Estimate	AJ	GL	346599				238		1,658
	10/21/2020	Daily Payroll Estimate	AJ	GL	346600				238		1,896
	10/22/2020	Daily Payroll Estimate	AJ	GL	346601				238		2,134
	10/23/2020	Daily Payroll Estimate Clearing	AJ	GL	345935					1,420	713
	10/23/2020	Daily Payroll Estimate	AJ	GL	346602				238		951
	10/26/2020	Daily Payroll Estimate	AJ	GL	346605				238		1,189
	10/27/2020	Daily Payroll Estimate	AJ	GL	346606				238		1,426
	10/28/2020	Daily Payroll Estimate	AJ	GL	346607				238		1,664
	10/29/2020	Daily Payroll Estimate	AJ	GL	346608				238		1,902
	10/30/2020	Daily Payroll Estimate	AJ	GL	346609				238		2,139
	10/31/2020	Daily Payroll Estimate Clearing	AJ	GL	346614					2,139	0

G/L#	EFFECTIVE DATE	DESCRIPTION	STP	SOURCE	JE#	DEPOSIT	CHECK	VENDOR	DEBIT	CREDIT	BALANCE
		TOTAL							12,867	12,867	0
200-28-990-5020		Other Earnings							Balance	Forward	0
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162				10		10
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				3		13
		TOTAL							13	0	13
200-28-990-5050		Taxes							Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				118		118
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997				155		273
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895				63		336
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				84		420
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				148		568
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675				96		664
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				54		718
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				150		868
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162				120		988
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				33		1,021
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				152		1,172
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622				152		1,324
		TOTAL							1,324	0	1,324
200-28-990-5100		Retirement Fringe Ben							Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				258		258
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997				328		586
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895				139		725
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				185		910
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				323		1,233
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675				211		1,444
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				117		1,561
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				328		1,889
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162				263		2,152
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				72		2,224
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				332		2,556
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622				332		2,887
		TOTAL							2,887	0	2,887
200-28-990-5200		Medical Fringe Ben							Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135				286		286
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				524		810
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				286		1,096
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				524		1,620
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				286		1,906
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				524		2,430
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				286		2,716
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				524		3,240
	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621				286		3,526
		TOTAL							3,526	0	3,526
200-28-990-5250		Dental Fringe Ben							Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135				25		25
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				43		68
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				25		93
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				43		136
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				25		161
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				43		205
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				25		230
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				43		273
	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621				25		298
		TOTAL							298	0	298
200-28-990-5300		Vision Fringe Ben							Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135				3		3

G/L#	EFFECTIVE DATE	DESCRIPTION	STP	SOURCE	JE#	DEPOSIT	CHECK	VENDOR	DEBIT	CREDIT	BALANCE
14											
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				5		8
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				3		11
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				5		16
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				3		19
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				5		24
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				3		27
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				5		32
	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621				3		35
		TOTAL							35	0	35
200-28-990-5400		Life Ins Fringe Ben							Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				3		3
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				3		7
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				3		10
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				3		14
		TOTAL							14	0	14
200-28-990-5500		Disability Fringe Ben							Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135				8		8
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				11		19
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997				8		28
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				8		36
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				11		47
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				8		55
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				11		67
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				9		75
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				11		87
	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621				9		95
		TOTAL							95	0	95
200-28-990-5600		Unemployment Fringe Ben							Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				21		21
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997				26		47
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895				11		58
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				15		73
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				30		103
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675				20		123
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				11		134
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				31		165
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162				25		190
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				7		196
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				31		228
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622				31		259
		TOTAL							259	0	259
200-28-990-5700		Work Comp Fringe Ben							Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221				38		38
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997				48		86
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895				20		107
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894				27		134
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817				48		182
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675				31		213
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676				17		230
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501				48		278
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162				39		317
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161				11		328
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134				49		376
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622				49		425
		TOTAL							425	0	425
200-28-990-6030		Professional Consultants							Balance	Forward	0
	09/13/2020	CEQA Review for TWSA, per	SYS	AP	344961	774795		Water Quality &	16,262		16,262

G/L#	EFFECTIVE DATE	DESCRIPTION	STP	SOURCE	JE#	DEPOSIT	CHECK	VENDOR	DEBIT	CREDIT	BALANCE
		Proposal dated April 24, 2020.						Treatment Solutions, Inc			
		TOTAL							16,262	0	16,262
200-28-990-7010	09/27/2020	Advertising - Paid SPITSEN LUMBER CO for framing of concrete pad for backflow enclosures - Capital project #3241GC1404	AJ	GL	345388				Balance 250	Forward	0 250
	09/27/2020	SWIMOUTLET.COM Adult lifejackets	AJ	GL	345388				1,000		1,250
	10/10/2020	Business Partner 6th Annual Tahoe Film Fest	SYS	AP	346681	775000		Tahoe Film Fest	1,000		2,250
	10/27/2020	TAHOE.COM TWSA web ads	AJ	GL	346802				63		2,313
		TOTAL							2,313	0	2,313
200-28-990-7405	07/09/2020	Office Supplies BREWER,K1500,SINGLE SERV, BOOK,MEMO,WRBND,TOP, CR,6, Notebook 9.5x6" College	SYS	AP	339308	774247		Office Depot	Balance 249	Forward	0 249
	07/09/2020	Reclass Office Depot inv.104792455001	AJ	GL	342397					249	0
		TOTAL							249	249	0
200-28-990-7415	07/30/2020	Operating Replenish Petty Cash July 2020	SYS	AP	340983	774358		Petty Cash	Balance 36	Forward	0 36
	08/12/2020	NDEP Grant - TERC microplastics display materials - reimbursable expense	SYS	AP	342990	774574		The Regents of the University of California	1,513		1,549
	08/26/2020	Water Fill Station Grant Program -1 outdoor station @ \$1000 Kilner Park	SYS	AP	343096	774573		Tahoe City Public Utility District	1,000		2,549
	08/27/2020	ACROBAT PRO SUBS Adobe Acrobat Distiller software for MD laptop	AJ	GL	344894				180		2,729
	09/21/2020	Reimbursement - Lunch for partnership volunteer team conducting underwater dive trash sort	SYS	AP	345110	3945		MADONNA DUNBAR	69		2,798
	09/27/2020	AMZN MKTP US MV0QE4W20 Sunscreen	AJ	GL	345388				81		2,879
	09/27/2020	SELECTBLINDS LLC Blinds for Marketing office/lactation station.	AJ	GL	345388				40		2,919
		TOTAL							2,919	0	2,919
200-28-990-7470	07/01/2020	Printing & Publishing CN12777-01 PW Copier IN541831-B : BALFWD-Sales Invoice	SYS	AP	343464	3854		Sierra Office Solutions	Balance	Forward 1	0 1 CR
	07/02/2020	CN12777-01 PW Copier Base 07/01/20-07/31/20	SYS	AP	339317	3658		Sierra Office Solutions	63		62
	08/03/2020	CN12777-01 PW Copier Base 08/01/20-08/31/20	SYS	AP	341066	3717		Sierra Office Solutions	63		125
	08/27/2020	STICKER MULE new DTT stickers 1000 units	AJ	GL	344894				691		816
	09/01/2020	CN12777-01 PW Copier Base 09/01/20-09/30/20	SYS	AP	343286	3854		Sierra Office Solutions	63		879



G/L#	EFFECTIVE DATE	DESCRIPTION	STP	SOURCE	JE#	DEPOSIT	CHECK	VENDOR	DEBIT	CREDIT	BALANCE
16	09/25/2020	36 month maintenance contract for PW Admin Xerox effective 1/1/18.	SYS	AP	344958		3954	Sierra Office Solutions	49		928
	10/01/2020	36 month maintenance contract for PW Admin Xerox effective 1/1/18.	SYS	AP	345488		3986	Sierra Office Solutions	63		991
		TOTAL							992	1	991
200-28-990-7685		Travel & Conferences							Balance	Forward	0
	07/27/2020	LOGMEIN GOTOMEETING, toll free number monthly	AJ	GL	341590				5		5
	08/27/2020	LOGMEIN GOTOMEETING	AJ	GL	344894				5		10
	09/27/2020	AMZN MKTP US MV89Z57IOMasks	AJ	GL	345388				5		15
	10/27/2020	LOGMEIN GOTOMEETINGvideo conference call in number	AJ	GL	346802				5		20
		TOTAL							20	0	20
200-28-990-7840		Telephone							Balance	Forward	0
	09/30/2020	1st QTR Stipend 7/1/2020 - 9/30/2020	SYS	AP	345861		4012	MADONNA DUNBAR	48		48
		TOTAL							48	0	48
200-28-990-7980		Central Services Allocation Cs							Balance	Forward	0
	07/31/2020	Record Central Services Cost Allocation for July 2020	AJ	GL	342077				500		500
	08/31/2020	Record Central Services Cost Allocation for August 2020	AJ	GL	342078				500		1,000
	09/30/2020	Record Central Services Cost Allocation for September 2020	AJ	GL	342079				500		1,500
	10/31/2020	Record Central Services Cost Allocation for October 2020	AJ	GL	342080				500		2,000
		TOTAL							2,000	0	2,000
		<b>GRAND TOTAL</b>							<b>46,546</b>	<b>177,320</b>	<b>130,774 CR</b>

## DECEMBER 2020 CHAIRPERSON REPORT

- The Tahoe Water Suppliers Association would like to honor Joe Pomroy for his 13 years of dedicated service on the TWSA Board. Joe has taken a position with the North Tahoe PUD as the Engineering and Operations Manager, replacing Will Stelter who has taken a position with the Tahoe City PUD.

Among one of Joe's many contributions as a member of the TWSA Board was to work with TRPA to revise the Public Works MOU. This was a major accomplishment benefitting member agencies, allowing the agencies to do more work as Exempt or Qualified Exempt activities.

**MEMORANDUM**

TO: TWSA Board  
CC: Suzi Gibbons, TWSA Chair  
FROM: Madonna Dunbar, IVGID Resource Conservationist  
DATE: November 12, 2020

**Tahoe Keys Target Aquatic Weeds Control Methods Test Collaboration  
Immediate Actions for members and member agencies:****Lahontan Public Workshop  
November 19, 2020 at 9:00 am**

Lahontan Regional Water Quality Control Board (Lahontan) will host a public workshop about the Tahoe Keys Control Methods Test Project next Thursday, November 19. This informational workshop will provide an overview of the Basin Plan pesticide prohibition exemption process and NPDES permitting process for the proposed project.

**[Meeting Agenda](#)**

Links for the meeting, including a phone call option, will be posted on [https://www.waterboards.ca.gov/lahontan/board\\_info/remote\\_meeting/](https://www.waterboards.ca.gov/lahontan/board_info/remote_meeting/)

Please note that the link below is for those wishing to watch the webinar using the webcast. For those wishing to comment, please click on the meeting agenda for more information.

**[Join the Webinar](#)**

**Project In Brief:**

Main webpage: [www.tahoekeysweeds.org](http://www.tahoekeysweeds.org)

**TWSA Board Position Statement:**

The TWSA Board continues to support the testing of non-herbicide methods before chemical treatment is considered. (8/27/20)

**Project Executive Summary**

The Tahoe Keys Property Owners Association (TKPOA) is seeking approval for an exemption to the Lahontan Water Board *Basin Plan Amendment* on the prohibition of herbicide use in Lake Tahoe, as presented in the 2018 Aquatic Pesticide Application Plan (APAP). The goal of the project is to reduce aquatic weed biomass by 75% to improve water quality and recreation for beneficial use. The Lead Agency (Lahontan) is requiring full environmental review of the proposed project, due to the proposed

discharge of aquatic herbicides into receiving waters of the Tahoe Keys Lagoons, a Tier III Outstanding National Resource Water (ONRW Tier III) for ecological and recreational value.

After designation of the Tahoe Keys Lagoons as the greatest threat to the environmental health of Lake Tahoe, the TRPA has secured federal funding through the Lake Tahoe Restoration Act (\$3M) to facilitate a solution to the aquatic weed problem at the Tahoe Keys Lagoons.

As part of the California Environmental Quality Act (CEQA) process, the TKPOA has worked with regulators and stakeholders to produce a proposed project for herbicide use, and after an initial public scoping process, three additional project alternatives. The proposed project, and three alternatives underwent review by an independent third party consultants chosen by the lead agencies, and produced the DEIR/EIS. As required by the (CEQA) Process, the DEIR/EIS is not recommending a project action to the lead agencies; it is providing the necessary information for informed decision making, with the required designation of an Environmentally Superior Alternative.

The DEIR/EIS has chosen a project alternative as the **Environmentally Superior Alternative, Action Alternative 1 (Testing of Non-Herbicide Methods Only)**. The Proposed Project, Action Alternative 2 (Tahoe Keys Dredge and Replace Substrate), and the No-Action Alternative would have unavoidable impacts on recreational boating that would not occur under Action Alternative 1 (testing of Non-Herbicide Methods Only). Additionally, the permitting process for the proposed project requires an Antidegradation Analysis, to be released in the spring 2021, as part of the draft National Pollutant Discharge Elimination System (NPDES) permit.

The DEIR/EIS has found that the proposed project and the alternative actions will have **no significant impact** to Environmental Health, Aquatic Biology, Utilities, and all reviewed objectives, that cannot be avoided with mitigation measures including early treatment, real time monitoring, pretreatment surveys, and containment. The non-action alternative has been found to have **potentially significant unavoidable impact** due to the increase infestation of aquatic weeds from the Tahoe Keys Lagoons throughout greater Lake Tahoe.

#### **Winter 2020 Staff Action Items**

- Attended the Interagency Keys field trip on 10/22/2020. Staff notes at end of this document.
- TRPA is scheduling a Non-Point Source (NPS) Plan meeting including representation.
- Staff will monitor and comment on Lahontan Board meeting 11/19/2020.
- Staff is anticipating the following in January 2021:
  - Public release of the draft Lahontan NPDES permit.
  - An updated APAP (project application) will be available in December/January.
  - California legal and regulatory agencies determination on anti-degradation.
- Anticipated Lahontan Board meeting/determination in March 2021.
- Anticipated TRPA Board meeting/determination in March 2021.

Where is the Project at now?

- Draft EIR/EIS for the Tahoe Keys Lagoons Aquatic Weed Control Methods Test: the Lead Agencies and TRC (EIR consultant team) are working on draft responses to each comment; approx. 80% finished.
- While drafting responses, the team is identifying where clarifications and updates can be made in the environmental document in response to comments. So far the team has determined minor clarifications can be added to the selection of Environmentally Superior Alternative and monitoring and mitigation steps in various parts of the proposed project.
- Comments and responses have been sorted by category and will be included in the final environmental document. Some similar comments have been grouped with a "master response."

TKPOA Updates:

- Evaluating phosphorous control methods, including PhosLock and running water through resin or other tanks.
- Floating islands are winterizing, the water is naturally clarifying due to seasonal weed die off, will likely have a better idea of their efficacy in the Spring.

Lahontan Updates:

- Preparing for November 19th 9am workshop, will be the only agenda item.
- Public release of the draft NPDES permit is on track for January.
- An updated APAP will be available in December/January.

Field Trip Debrief Summary:

Greg Hoover (TKPOA WQ manager) did an excellent job of leading the tours. The tours of the Keys were overall effective at showing: the size and extent of the weed infestation, the complexity and variation of topography of the Keys, management efforts by TKPOA, including the LFA test and the bubble curtain. Conversations with stakeholders on the tour and during this meeting indicate opportunities to educate people on upland nutrient contributions and efforts to manage them. They are a different, but related issue to this proposed project as the weeds themselves are now the main source of nutrients.

- TWSA staff pressed the point of upland nutrient runoff. Lots of turf 'butting up' to bulkheads/water. Significant goose feces issues seen. Stormwater outlet drain issues, dead end waterways.
- Comments indicate that despite the issue of NPS nutrients, the weeds will continue to grow as the main source of nutrients feeding the weeds at this point is the weeds themselves. The proposed project is to control the weeds.
- A working sub-group on Non-Point Source (NPS) loading will be formed.
- Suggestion to develop an infographic describing sources of nutrients and control methods to easier for all to understand.
- Suggestion for organizations like TRCD and The League to work with TKPOA homeowners to educate about NPS controls and their importance.
- Comment recognizes the tremendous investment from TKPOA in their employees and consultants that have been working on this problem for decades and that this investment is critical to maintain for the future if this problem is going to be effectively addressed.
- Comment on the variable nature of the problem seasonally, as well as the issue of turions and the lack of current control methods to eradicate them.

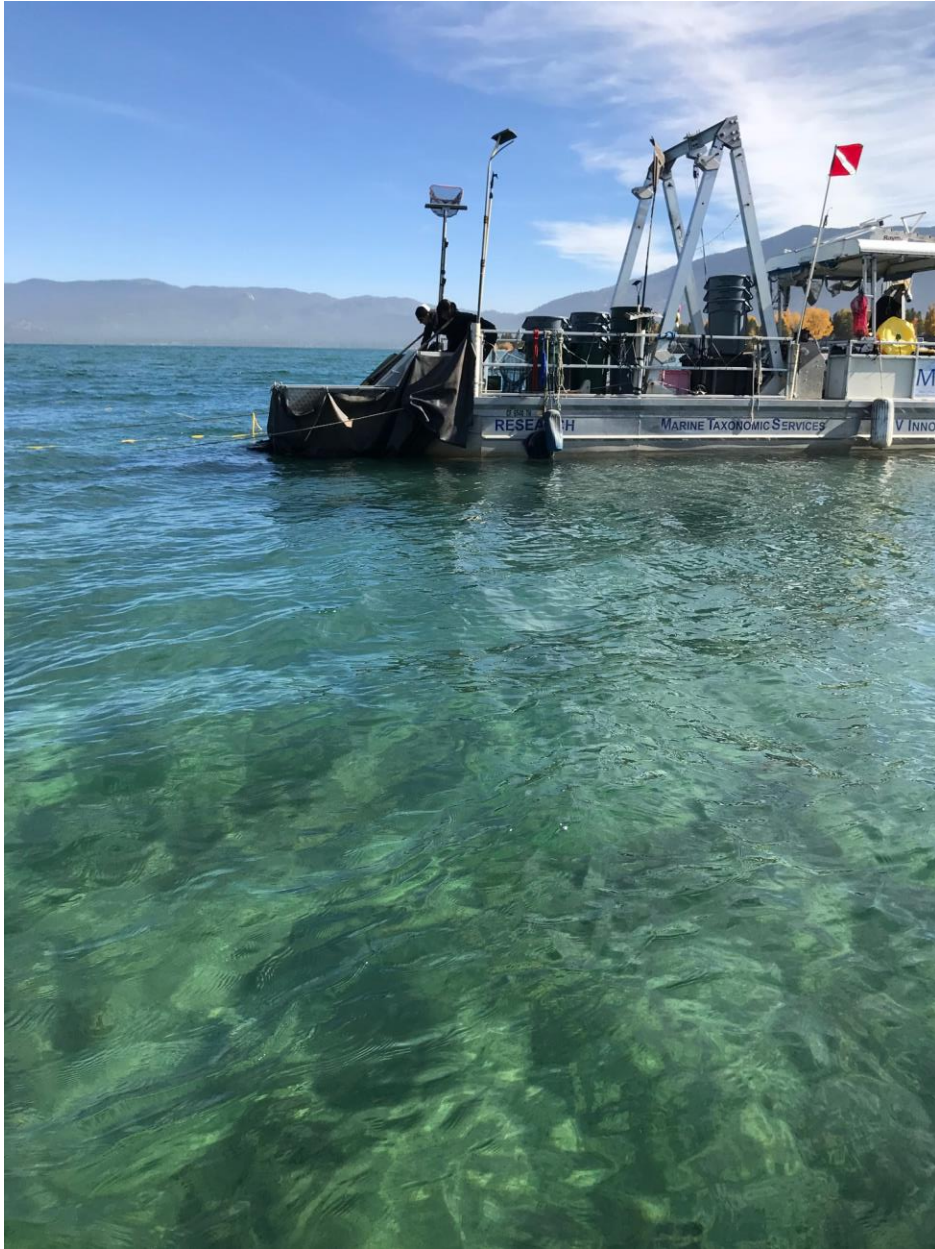
Shoreline weed mat - Tahoe Keys – Oct. 2020



Fragment controlling bubble curtain - Tahoe Keys West Channel



Diver Assisted Suction Harvesting (DASH) project site outside Tahoe Keys – Oct. 2020







1220 Sweetwater Road  
Incline Village, Nevada 89451  
775-832-1212

**TWSA Members:**

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

8/27/2020

Submitted via [tahoekeysweeds@trpa.org](mailto:tahoekeysweeds@trpa.org) on August 27, 2020

To the Lahontan Regional Water Quality Water Board, Tahoe Regional Planning Agency and other interested parties,

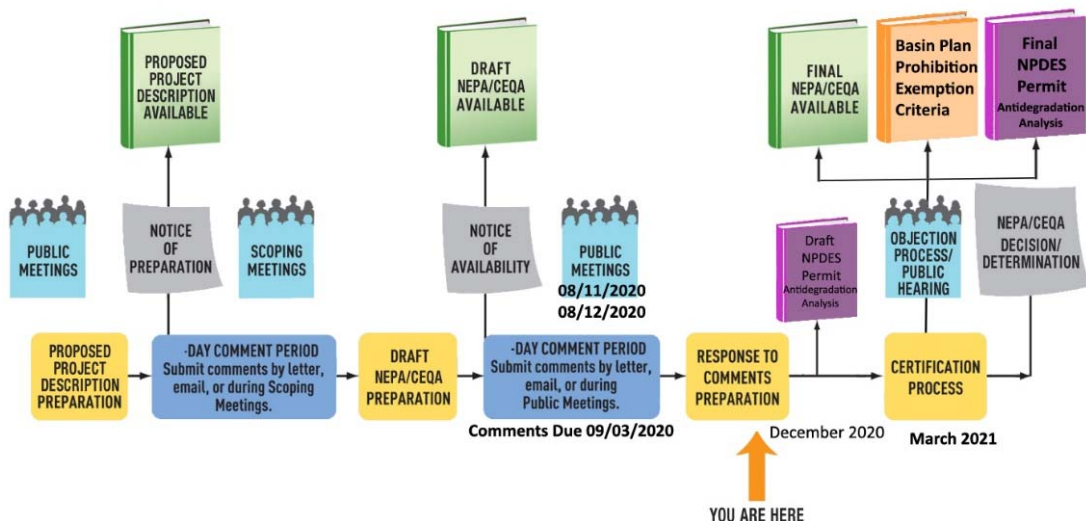
*Re: Tahoe Water Suppliers Association (TWSA) Comments on the Draft Environmental Impact Report (DEIR) / Environmental Impact Statement (DEIS) / {Tahoe Keys Target Aquatic Weed Control Methods Test - Draft Joint TRPA Environmental Impact Report, TRPA File # EIPC 2018-0011, Tahoe Keys, City of South Lake Tahoe, CA Project Number 510-101-00}*

On behalf of the Tahoe Water Suppliers Association (TWSA) Board of Directors, we submit the following comments on the DEIR:

**Statements on Proposed Project and Alternatives:**

1. The TWSA Board continues to support the testing of non-herbicide methods before chemical treatment is considered. The US EPA and Californian EPA both recognize Lake Tahoe as an "Outstanding National Resource Water, Tier 3. (ONRW). There are only two ONRWs within the State of California. The State of Nevada has classified Lake Tahoe as "A Water of Extraordinary Aesthetic or Ecological Value". These designations warrant the thorough testing of non-chemical methods to precede any herbicide testing. The introduction of herbicides (even as a 'one-time' test) into Lake Tahoe, as a Tier 3 Outstanding National Resource Water with 6 filtration exempt water systems (out of 60 nationally), is not appropriate at this time, before non-chemical methods have been tested on a larger scale.
2. We Support (5.7) Action Alternative 1 (AA1 = non-herbicide tests only) which was identified as the "environmentally superior alternative" in the CEQA DEIR. TWSA historical comments have long supported this approach, now clearly defined in the DEIR. Larger scale, well designed, well conducted and properly monitored, non-chemical tests should be tested for (at least) the 3 years proposed.
3. We Support Action Alternative 2 (dredge and replace substrate). TWSA early comments supported this non-chemical alternative, coupled with monitoring and mitigation for turbidity. Strategic site selection will be necessary to avoid disturbing alum concentrations in the sediment, along with strong mitigation and monitoring protocols. Dredging and substrate replacement offer a long-term corrective action on the physical conditions of the lagoons, conditions that support plant growth due to years of nutrient and sediment deposition.

## Tahoe Water Suppliers Association Staff Summary



### Tahoe Keys Lagoons Aquatic Weed Control Methods Test (CMT)

#### Environmental Certification Process

#### Lahontan RWQCB Board Meeting March 2021

**Certify-Final EIR/EIR   Grant-Basin Plan Prohibition Exemption   Adopt-NPDES Permit**

Full Documents: [https://tahoekeysweeds.org/environmental\\_analysis/](https://tahoekeysweeds.org/environmental_analysis/)

### Executive Summary

The Tahoe Keys Property Owners Association (TKPOA) is seeking approval for their exemption to the basin plan amendment on the prohibition of herbicide use in Lake Tahoe, as represented in the 2018 Aquatic Pesticide Application Plan (APAP), the goal of the project is to reduce aquatic weed biomass by 75% to improve water quality and recreation for beneficial use. The Lead Agency (Lahontan) is requiring full environmental review of the proposed project, due to the proposed discharge of aquatic herbicides into receiving waters of the Tahoe Keys Lagoons, a Tier III Outstanding National Resource Water (ONRW Tier III) for ecological and recreational value. After designation of the Tahoe Keys Lagoons as the greatest threat to the environmental health of Lake Tahoe, the TRPA has secured federal funding through the Lake Tahoe Restoration Act (\$3M) to facilitate a solution to the aquatic weed problem at the Tahoe Keys Lagoons. As part of the California Environmental Quality Act (CEQA) process, the TKPOA has worked with regulators and stakeholders to produce a proposed project for herbicide use, and after an initial public scoping process, three additional project alternatives. The proposed project, and three alternatives underwent review by an independent third party consultants chosen by the lead agencies, and produced the DEIR/EIS. As required by the (CEQA) Process, the DEIR/EIS is not recommending a project action to the lead agencies; it is providing the necessary information for informed decision making, with the required designation of an Environmentally Superior Alternative. The DEIR/EIS has chosen a project alternative as the **Environmentally Superior Alternative, Action Alternative 1 (Testing of Non-Herbicide Methods Only)**. The Proposed Project, Action Alternative 2 (Tahoe Keys Dredge and Replace Substrate), and the No-Action Alternative would have unavoidable impacts on recreational boating that would not occur under Action Alternative 1 (Testing of Non-Herbicide Methods Only). Additionally, the permitting process for the proposed project requires an Antidegradation Analysis, to be released in the fall of 2020, as part of the Draft National Pollutant Discharge Elimination System (NPDES) permit.

The DEIR/EIS has found that the proposed project and the alternative actions will have **no significant impact** to Environmental Health, Aquatic Biology, Utilities, and all reviewed objectives, that cannot be avoided with mitigation measures including early treatment, real time monitoring, pretreatment surveys, and containment. The non-action alternative has been found to have **potentially significant unavoidable impact** due to the increase infestation of aquatic weeds from the Tahoe Keys Lagoons throughout greater Lake Tahoe.

**Project Details (Proposed Project)**

The proposed project is a 2 phase, 3 year Control Methods Test (CMT) with a goal of 75% plant biomass reduction. Year 1 includes the testing of Group A Methods: two herbicides, in standalone test sites plus combination UV-C & Herbicide test sites. Additionally, the proposed project will include testing of UV-C Light, LFA, and no action. Years 2/3 will include testing of mechanical methods (Group B) with no herbicide use.

**Year One – 2021**

Group A West Lagoon- 21 Test Sites total. Triplicate use of methods (selection condition dependent).

- 6 herbicide-only (3 sites for 2 herbicides)
- 3 UV-C Light only
- 6 combination Herbicide and UV-C Light
- 3 LFA-only
- 3 Control
- 3 (herbicides only) Lake Tallac

Proposed Group A Treatment Site Details.

Table 2-3 Proposed Test Herbicide Application Treatment Site Details. Site Number/Treatments	Application Rate (ppm)	Plot Size (acres)	Actual Herbicide/ Zone Size (acres)
1 Herbicide (Endothall)	5	1.5	1.5
2 Herbicide (Triclopyr)	0.003	1.5	1.5
3 Herbicide (Triclopyr)	0.003	2.1	2.1
5 Herbicide (Endothall)	5	2.2	2.2
8 Herbicide (Endothall)	5	1.6	1.6
9 Herbicide (Triclopyr)	0.003	1.5	1.5
10 Combo Herb/Ultraviolet (Endothall)	5	2.0	0.7
11 Combo Herb/ Ultraviolet (Triclopyr)	0.003	1.6	0.5
12 Combo Herb/ Ultraviolet (Triclopyr)	0.003	1.9	0.7
13 Combo Herb/ Ultraviolet (Endothall)	5	1.7	0.6
14 Combo Herb/ Ultraviolet (Endothall)	5	2.0	0.7
15 Combo Herb/ Ultraviolet (Triclopyr )	0.003	1.2	0.4
16 Control	N/A	1.8	0.0
17 Control	N/A	2.2	0.0
18 Control	N/A	1.5	0.0
19 Herbicide (Endothall)	2 to 5	1.0	1.0
20 Herbicide (Endothall)	2 to 5	1.0	1.0
21 Herbicide (Endothall)	2 to 5	0.9	0.9



SOURCE: DigitalGlobe, 2016

Tahoe Keys Lagoons Restoration Program EIR/EIS, D180990

### Herbicide Only (10.4 acres in Lagoons, 2.9 acres in Lake Tallac)

The DEIR/EIS reviewed the environmental impacts of three aquatic herbicide, if the proposed project is executed only two herbicides will be used, Endothall and Florpyrauxifen-benzyl or Triclopyr.

Proposed Herbicides, Application Rates, and Application Methods. Herbicide* Active Ingredient (Product Name)	USEPA Reg. No.	Maximum Allowable Rate (ppm)	Application Method (s)	Target Plants per Product Labeling
Endothall (Aquathol K) Contact-type	USEPA Reg. No. 70506- 176	5.0	Drop hoses	Eurasian watermilfoil Coontail Curlyleaf pondweed
Triclopyr (Renovate 3 [liquid] or OTF [granular])	USEPA Reg. No. 67690-42	2.5	Drop hoses (liquid) or granular spreader (solid)	Eurasian watermilfoil
*No adjuvants (i.e., additives to enhance herbicide activity) would be used. Only products approved for use in California would be used.				

Containment- Double Turbidity Curtains, Applicator Control, Monitoring and Reporting Program described in the 2018 Aquatic Pesticide Application Plan (APAP).

### Ultraviolet Light C (UV-C) Stand Alone (4.9 acres)

“The current proposed methodology includes initial ultraviolet light treatments in May and June with the array two to three feet off the lagoon bottom, to stunt growth when the plants are small. A second treatment would occur in July and August, and in the case of curlyleaf pondweed, would target irradiating the crowns of the plants causing mortality before they drop turions. A final round of treatments could occur in September and October, as needed.” (TKPOA CMT, page 2-19)

“The total area proposed for stand-alone tests of ultraviolet light in the CMT is 4.9 acres, which represents less than three percent of the total surface area of the 172-acre lagoon system. Based on the Lakeside Marina and Beach testing and using an average time of 15 minutes for treatment and repositioning of the light array, approximately 640 square feet could be treated per hour and one acre could be treated in 68 hours, using the existing eight-foot by 20-foot array. This information was used to project how long UV light treatment might take for the proposed testing:

- Coverage using the existing ultraviolet light boat would require four to five days of operation at ultraviolet light-only test site. Continuous operations for seven days per week could accomplish a single round of treatment at all three test sites in approximately three weeks using the existing ultraviolet light boat, assuming no down time for cleaning, maintenance, and other activities.
- To complete two rounds of ultraviolet light treatment during the active growing season for target aquatic weeds at all ultraviolet light test sites, including the six ultraviolet light/herbicide test sites described in Section 2.3.5, it is assumed that a mid-sized ultraviolet boat with a 320 square-foot light array would need to be deployed in addition to the existing small ultraviolet boat.
- Working together the two boats could complete one round of treatment in approximately 270 operating hours, or about seven weeks using a normal work schedule.
- Given the plan for two or three rounds of ultraviolet light treatment, it is likely that the two boats could need to work continuously from late May until October if a third round is necessary based on results from the first two rounds.” (TKPOA CMT, Page 2-21)

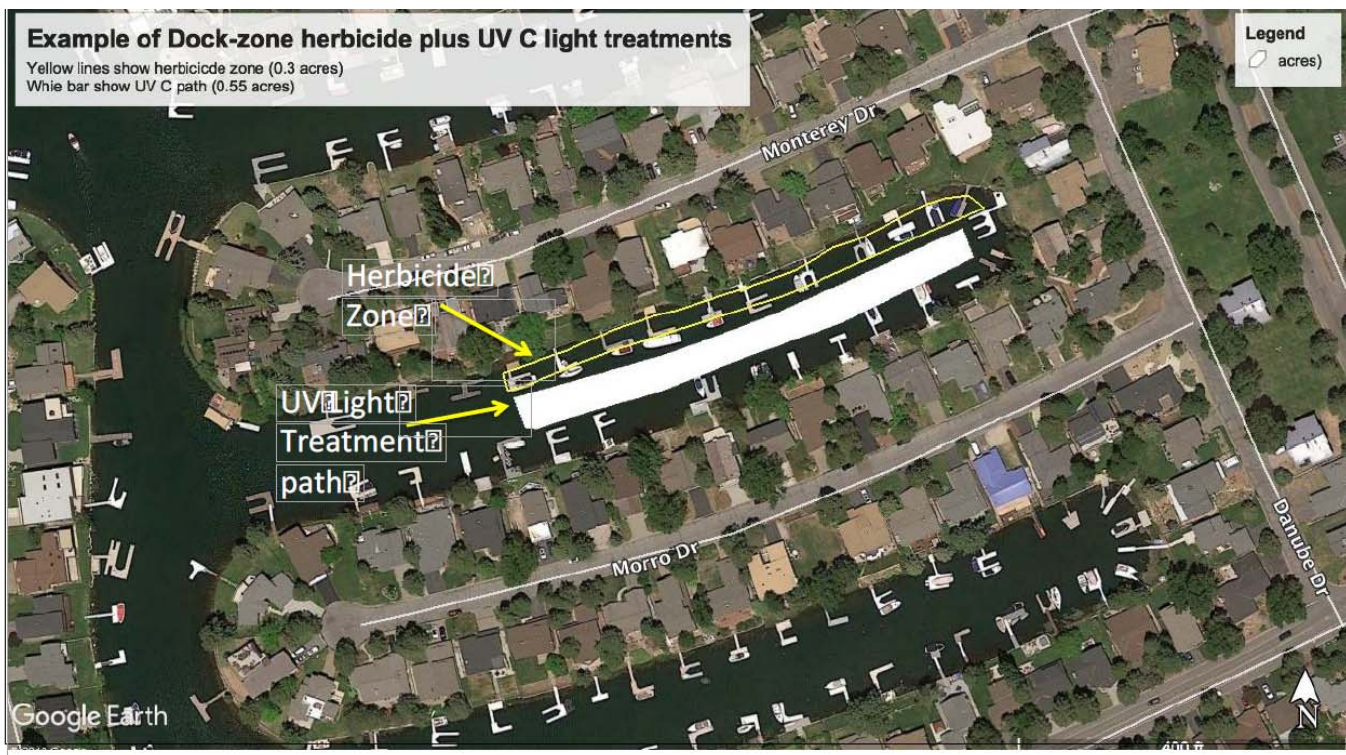
### Laminar Flow Aeration (LFA) – Stand Alone (12.8 acres)

“Three test sites would be treated with LFA. LFA treatment would involve the temporary installation of five to 10 ceramic air diffusers on the bottom of the channel at each treatment site, together with weighted airlines. The diffusers and airlines would be connected to a land-based electrically powered air compressor, which would be placed in a sound-reducing cabinet. TKPOA was issued permits by TRPA, the Army Corps of Engineers (USACE) and Lahontan Water Board to install a six-acre LFA project at Site 26 in the south-central part of the West Lagoon (Figure 2-4) in April 2019. Two additional smaller test sites are planned to begin operation in the spring of 2021, for a total of 12.8 acres of LFA operation during the CMT.

The LFA test would not disrupt existing recreation uses in the Tahoe Keys since all equipment would be located on the bottom of the channel (except for air compressors that would be located within utility enclosures). No modifications to existing uses or structures are proposed, and no barriers would be used to isolate the LFA treatment areas.” (TKPOA CMT, page 2-22)

### Herbicide & UV-C Light combined (10.4 acres)

TKPOA will test three combined Herbicide and UV-C light sites. The combination of the two group a methods “sites would be used to study the efficacy of combining ultraviolet light treatments applied in linear, unobstructed reaches, with herbicide treatments applied in the relatively narrow zone between the dock footprints and the shorelines. The objective of this combination is to optimize ultraviolet light exposure efficiency by combining it with the application of herbicides in generally “obstructed” areas.” (TKPOA CMT, Page 2-22)



### **Year 2 & 3 (2022-2023)**

Group B West Lagoon – methods to be used; Diver-Assisted suction/Hand Pulling, Bottom Barriers (with or without hot water, steam or acetic acid injections), Localized spot treatment with ultraviolet light, localized suction dredging. The Group B method to be used will be dependent on the results of the Group A treatment, the size of the infestation and limitations and constraints to the method type based on lagoon morphology or physical obstructions.

“Group B methods would be implemented following the testing of Group A methods, depending on the target aquatic weeds present, size of infestation, and location of infestation. Where the target plant biovolume reduction does not achieve the 75% reduction goal for Group A methods, that site would be considered a failed test and Group B follow-up maintenance would not be performed. Group B methods are included in the CMT to evaluate their ability to provide sustainable, long-term maintenance options that preclude the need for repeated use of herbicides or other Group A methods. During the Spring of the year following Group A testing at each site, hydroacoustic and macroinvertebrate surveys would be performed to determine the size of the remaining infestation. Group B methods would be implemented during the years following Group A tests.” (TKPOA CMT, page 2- 23/24)

### **Alternative 1 (Testing of non-herbicide methods only):**

Action Alternative 1 would proceed only with tests of non-herbicide methods of aquatic weed control. Under this alternative, no treatments with herbicides would be conducted, and other elements of the test program (i.e., ultraviolet light, LFA, and Group B methods) would be as described above for the Proposed Project. This alternative was identified as the environmentally superior alternative (Section 5.7).

### **Year One – (2021)**

- UV-C Light – Stand Alone Test as described in the proposed project
- LFT – Stand Alone test as described in the proposed project

### **Year 2 & 3 (2022-2023)**

- Group B maintenance as described in the proposed project

### **Alternative 2 (Tahoe keys dredge and replace substrate)**

Action Alternative 2 responds to comments received during public scoping and would consist of hydraulic dredging (i.e., wet excavation or suction dredging) of the bottom layers of organic material and sediment to remove the roots and turions of aquatic weeds at three test sites in the Tahoe Keys lagoons, followed by placement of a new layer of bottom sediment (e.g., coarse sand or gravel). (TKPOA CMT, Page ES-7)

### **No Action Alternative**

The No Action Alternative considers the long-term consequences to the Tahoe Keys lagoons and Lake Tahoe of undertaking no new weed control activities in the Tahoe Keys lagoons. Under this alternative only current control methods would be employed by TKPOA and individual property owners (e.g., voluntary use of bottom barriers, the existing LFA project, mechanical harvesting, and weed fragment control). Because herbicide and ultraviolet light applications would not be tested under this alternative, it is assumed that these methods for target aquatic weed control would not be used in the foreseeable future under a No Action Alternative. (TKPOA CMT, Page ES-7)

## TWSA Staff Draft EIR/EIS Highlights for Purveyors

### No Finding of significant impact to all objectives from proposed project, alt. 1, Alt. 2

- Detectable Concentrations of Herbicides and Degradates in Receiving Waters.** The potential impact of detectable concentrations of herbicides and degradates in receiving waters will be **less than significant** for the Proposed Project, given the timing and limited extent of application. A spill response plan would also be employed, and double turbidity curtains would be used to prevent movement of herbicides toward the West Lagoon connecting channel. LFA or other aeration technology will be used at test sites to accelerate the degradation of herbicide active ingredients and degradates.
- Protection of Drinking Water Supplies.** This issue would have **less than significant** effects for the Proposed Project, given measures to contain the herbicide applications with double turbidity curtains to prevent movement of active ingredients toward the West Lagoon connecting channel and Lake Tahoe. Dye tracing and well monitoring will document herbicide movement, and existing or mobile carbon filtration systems would be activated to remove herbicide residues if they reach wells.
- Effects on Water Supply (Utilities).** No impact to this issue would occur under the Proposed Project or any of the alternatives. **No significant unavoidable environmental effects would occur** for this issue under the Proposed Project and Action Alternatives. Though the degree of potential significance is speculative, the No Action Alternative could result in a potentially significant turbidity-related impact if intakes are located in shallow waters where habitat could support uncontrolled growth of aquatic weeds.

### Significant impact of non-action alternative

Environmental Health as aquatic weed infestations persist and grow in the Tahoe Keys lagoons, conditions may become increasingly favorable for HABs. Past detections of cyanotoxins have reached caution levels at Tahoe Keys, and continuation of the existing programs to monitor and warn people at Tahoe Keys when cyanotoxins are present may continue to be effective in protecting against any additional risks of exposure to cyanotoxins. However, the conditions that cause cyanobacteria to produce cyanotoxins are not well understood, and it is uncertain whether concentrations of these toxins would increase in the future. Given this uncertainty, the impact of HABs may present a **potentially significant unavoidable impact** of the No Action Alternative.

Aquatic Biology The No Action Alternative is expected to lead to expansion of aquatic weed growth in the lagoons and in other nearshore areas of Lake Tahoe, particularly with continued spread of curlyleaf pondweed infestations. Therefore, **significant and unavoidable** impacts would be expected (1) in aquatic macrophyte community composition, (2) in the expansion of curlyleaf pondweed, (3) to further degrade habitat conditions for the larger aquatic BMI community, similar to that for the Tahoe Keys lagoons, and (4) to further degrade habitat conditions for special status fish species and native or recreationally important game fish species, potentially blocking access to spawning habitat.

**Built/Human Environment** Long-term **significant unavoidable impacts** to recreational boating could accumulate for this issue under the No Action Alternative, if the continued harvesting of aquatic weeds as currently practiced by the TKPOA is ineffective in preventing the spread of the weeds to Lake Tahoe.

### Mitigation Measures (Feasible, measureable and specific)

Mitigation measures for the proposed project are provided in the 2018 Aquatic Pesticide Application Plan (APAP), the draft EIR provides the following mitigation measures:

- Applicator qualifications
- Spill response plan
- Dye tracing
- Well monitoring and contingencies
- West Channel monitoring and contingencies
- Public outreach
- Carbon filtration contingency (wells only)
- Double turbidity curtain barriers
- Best management practices
- Timing and size of treatments
- Aeration

### ONRW Tier III Status References

The following federal, state, and local regulatory requirements are listed in the Draft EIR for projects in an ONRW Tier III water.

#### Federal

- USEPA Antidegradation Policy: The Tier III designation of Lake Tahoe (including the West and East lagoons) under the State and federal Antidegradation Policies requires that states may allow some limited activities that result in temporary and short-term changes to water quality, subject to protection of beneficial uses. These changes would not be allowed to adversely affect existing uses or alter the essential character or special uses for which Lake Tahoe was designated as an ONRW. As discussed in Section 1.4.1.1, if detectable concentrations of applied aquatic herbicide active ingredients or select degradation byproducts are present longer than “weeks to months, not years” the discharges would be assessed to cause long-term water quality degradation. The LWB has discretion in determining the allowable time frames for what constitutes long-term and short-term existing water quality degradation within the “weeks to months, not years” guidance from USEPA.

#### State

- California’s antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal antidegradation policy. The requirements for an exemption to the prohibition apply both to proposed aquatic herbicide testing in the West Lagoon, which is part of the Tier Three designation of Lake Tahoe as an ONRW, and to herbicide testing in Lake Tallac, which has Tier Two protection under the antidegradation regulations. If approved for use, detectable concentrations of herbicide active ingredients and degradates above background would be allowed within treatment areas only for a short-term period (i.e., weeks to months, not years). This requirement is described in Section 1.4. In receiving waters outside of treatment areas, short-term detectable concentrations of herbicide active ingredients and degradates are only allowable if beneficial uses are protected and maintained.

#### Local

- **Obstruction of Direct Access to Lake Tahoe for Recreational Boating.** Lake Tahoe offers an exceptional recreational experience as a unique alpine lake known worldwide for the clarity and purity of its outstanding blue waters. The Lake was designated an Outstanding National Resource Water (ONRW) by the State of California and the USEPA in 1980. The recreational quality of Lake Tahoe was a primary attraction in developing the Tahoe Keys, and in the ongoing use of the Lake. The Keys is a boat-oriented



development, and much of the recreation use enjoyed by Tahoe Keys property owners and their guests is mediated by direct access to Lake Tahoe for boat use. The primary potential impact of the Proposed Project and Action Alternatives on recreation occurs through its effects on boat access and displacement of use to nearby marinas and other facilities.

### Filtration Exemption References

**Issue UT-1: Effects on Water Supply.** A primary concern raised by water purveyors sourcing Lake Tahoe has been the potential to affect the quality of water taken at their drinking water intakes, such that they would no longer qualify for the filtration exemption. Of the six treatment requirements listed in Table 3.4.2-1, the only one that could be affected by the Proposed Project would be turbidity. The Proposed Project has no potential to influence microbial contamination or trihalomethanes in Lake Tahoe. This analysis of potential impacts also considers the potential for herbicides or degradates to reach water intakes in detectible concentrations, such that drinking water sourced at these intakes would be rendered contaminated or unsuitable for human use.

No mitigation would be required beyond that proposed for water quality (Section 3.3.4) and designed as part of the Proposed Project, as no impacts to utilities would occur. TKPOA has proposed contingency plans, including monitoring and alert systems (TKPOA 2018e; see also the IEC/IS), that would be implemented if necessary, to remove herbicides and other chemicals to treat the potable water before distribution. The negligible potential for impact forestalls the need for other mitigation.

**No significant unavoidable impacts** to utilities would occur.

### Environmentally Superior Alternative (Requirement & How chosen)

CEQA Guidelines 15126.6 address Alternatives to the Proposed Project, stating that *“an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives,”* and further, *“The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.”*

Sections 15126.6(a) and 15126.6e(2)) require that an EIR’s analysis of alternatives identify the “environmentally superior” alternative among all of those considered. In addition, if the No-Project Alternative is identified as the environmentally superior alternative, then the EIR must also identify the environmentally superior alternative among the other alternatives. Under CEQA, the goal of identifying the environmentally superior alternative is to assist decision makers in considering project approval. CEQA does not require an agency to select the environmentally superior alternative (State CEQA Guidelines Section 15042–15043).

In this case, the No Action Alternative is not the environmental superior alternative; in fact, as shown in Table 5-1, it would have the greatest potentially significant unavoidable impacts of the four alternatives considered.

Action Alternative 1 (Testing of Non-Herbicide Methods Only) was selected as an alternative that might reduce the potentially significant effects of the Proposed Project by avoiding the application of herbicides.

Action Alternative 2 (Tahoe Key Dredge and Replace Substrate) was selected after scoping as an alternative suggested by stakeholders that also might reduce impacts by avoiding the application of herbicides.

As shown in Table 5-1, both the Proposed Project and Action Alternative 2 would have potentially significant unavoidable impacts on recreational boating. In addition, although the Proposed Project and both Action

Alternatives mitigate all other identified environmental issues to less than significant, both the Proposed Project and Action Alternative 2 entail activities (application of herbicides and the dredging, dewatering and disposal of sediment) that would not occur under Action Alternative 1. Although mitigated, these additional activities entail some measure of potential risk and reduced impact. For all these reasons, Action Alternative 1 is the environmentally superior alternative.

### Benthic Macro Invertebrates

**Effects on the Aquatic Benthic Macroinvertebrate Community.** Implementation of the Proposed Project or Action Alternatives would not be expected to result in a substantial change or reduction in the diversity or distribution of the aquatic BMI community and this impact would be less than significant. Continued spread of aquatic invasive weeds under the No Action Alternative has the potential to further change the plant community composition in deeper water areas of the lagoons, and also further spread in nearshore areas of Lake Tahoe proper. This would be expected to further degrade conditions for aquatic BMIs, similar to that for the Tahoe Keys lagoons. If the continued spread of aquatic invasive weeds goes unchecked under the No Action Alternative, the resulting changes to the BMI community composition could be significant.

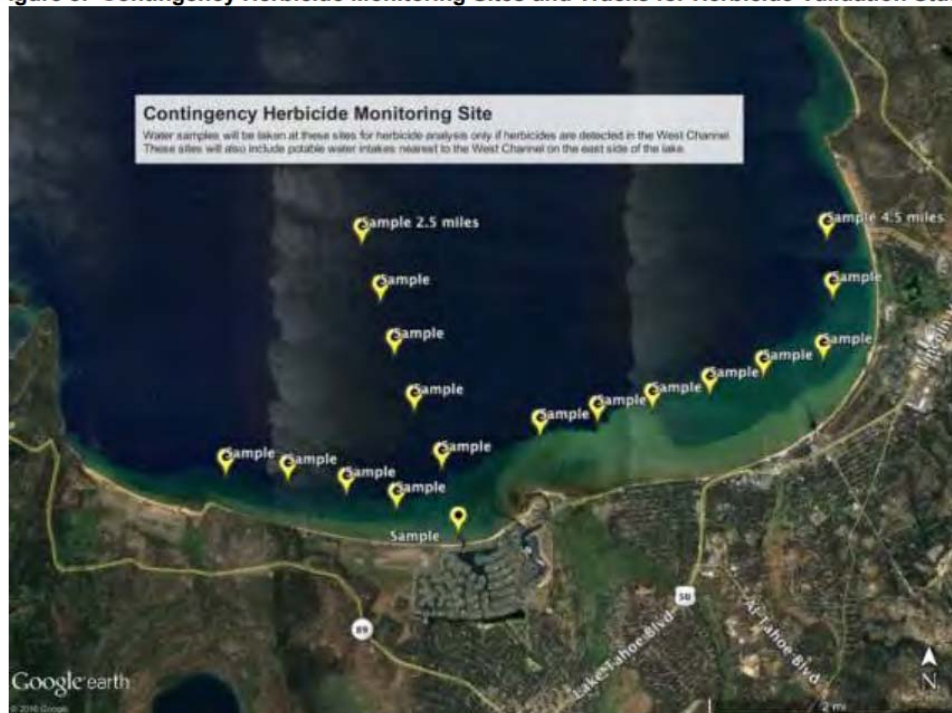
### Competiveness & Regrowth of Curlyleaf Pondweed

**Competitive Exclusion of Aquatic Macrophytes Due to Increased Growth of Curlyleaf Pondweed.** Given the small areas proposed for testing aquatic herbicides under the Proposed Project, and the ability to adjust test site locations to avoid areas dominated by native plant communities, changes or reduction in the diversity or distribution of the non-target macrophyte community or increased growth of curlyleaf pondweed would be less than significant.

### Contingency Monitoring Locations

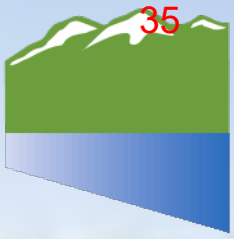
The following locations will be sampled **IF** Rhodamine Aquatic Dye is detected in the west channel lagoon.

**Figure 8: Contingency Herbicide Monitoring Sites and Tracks for Herbicide Validation Study**



NOTE: These sites will only be monitored if herbicide residues are detected in the West Channel.

THE FOLLOWING IS REFERENCE MATERIAL  
FROM THE 11-19-2020  
LAHONTAN WATER BOARD MEETING WEBINAR  
PROJECT UPDATE



**LAKE TAHOE**  
ENVIRONMENTAL  
IMPROVEMENT  
PROGRAM



**TAHOE  
REGIONAL  
PLANNING  
AGENCY**

# Tahoe Keys Lagoons Aquatic Weed Control Methods Test Joint Draft Environmental Document

## *Agenda Item 7*

Lahontan Water Board Meeting  
South Lake Tahoe  
November 19, 2020

Kimberly Caringer, TRPA  
Dennis Zabaglo, TRPA  
Jim Good, ESA

# Draft Environmental Document: Speakers

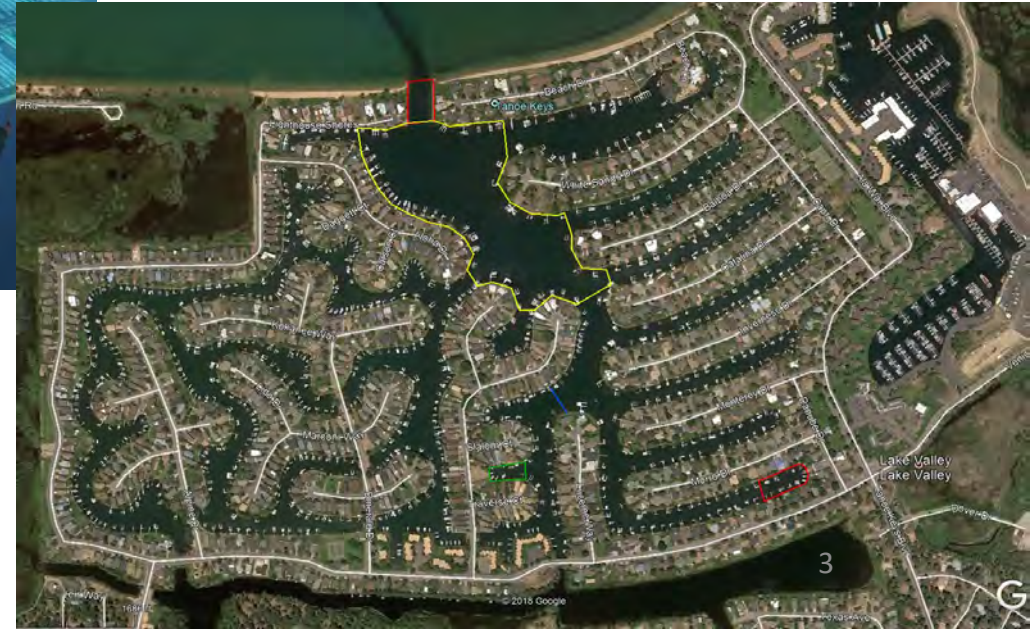
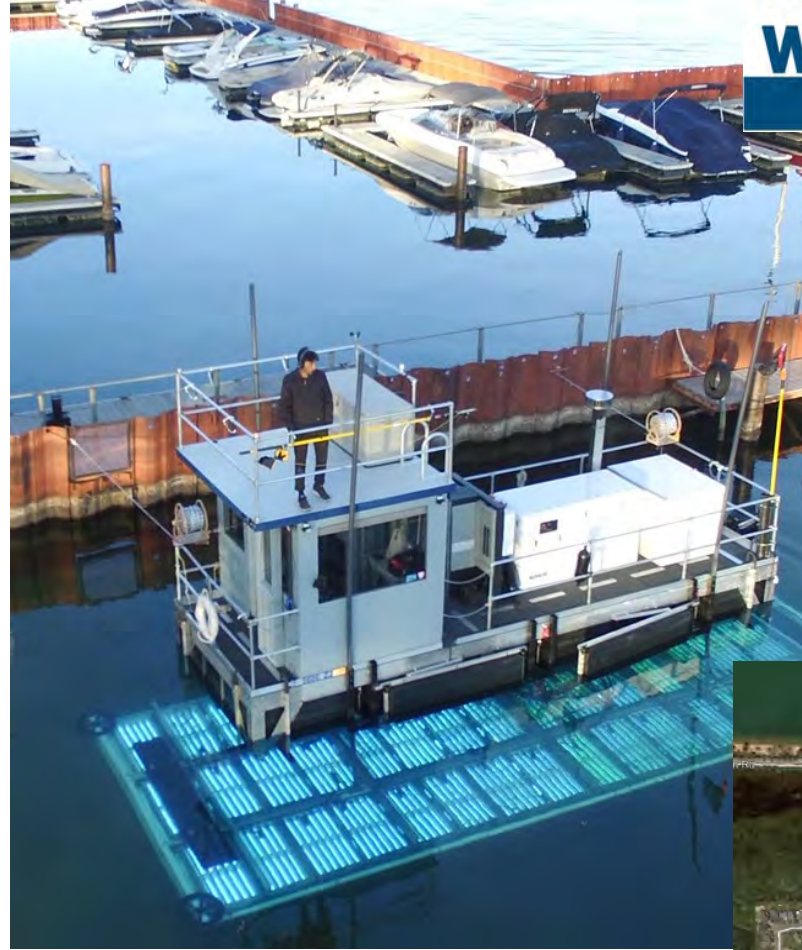
- Project purpose and background – Kim Caringer, TRPA
- Proposed Project and alternatives – Dennis Zabaglo, TRPA
- Environmental review and findings – Jim Good, ESA
- Next steps – Dennis Zabaglo, TRPA



**LAKE TAHOE**  
ENVIRONMENTAL  
IMPROVEMENT  
PROGRAM

# Tahoe Keys Lagoons

- 30x larger than other projects
- New tools are needed
- Multiple and new methods needed



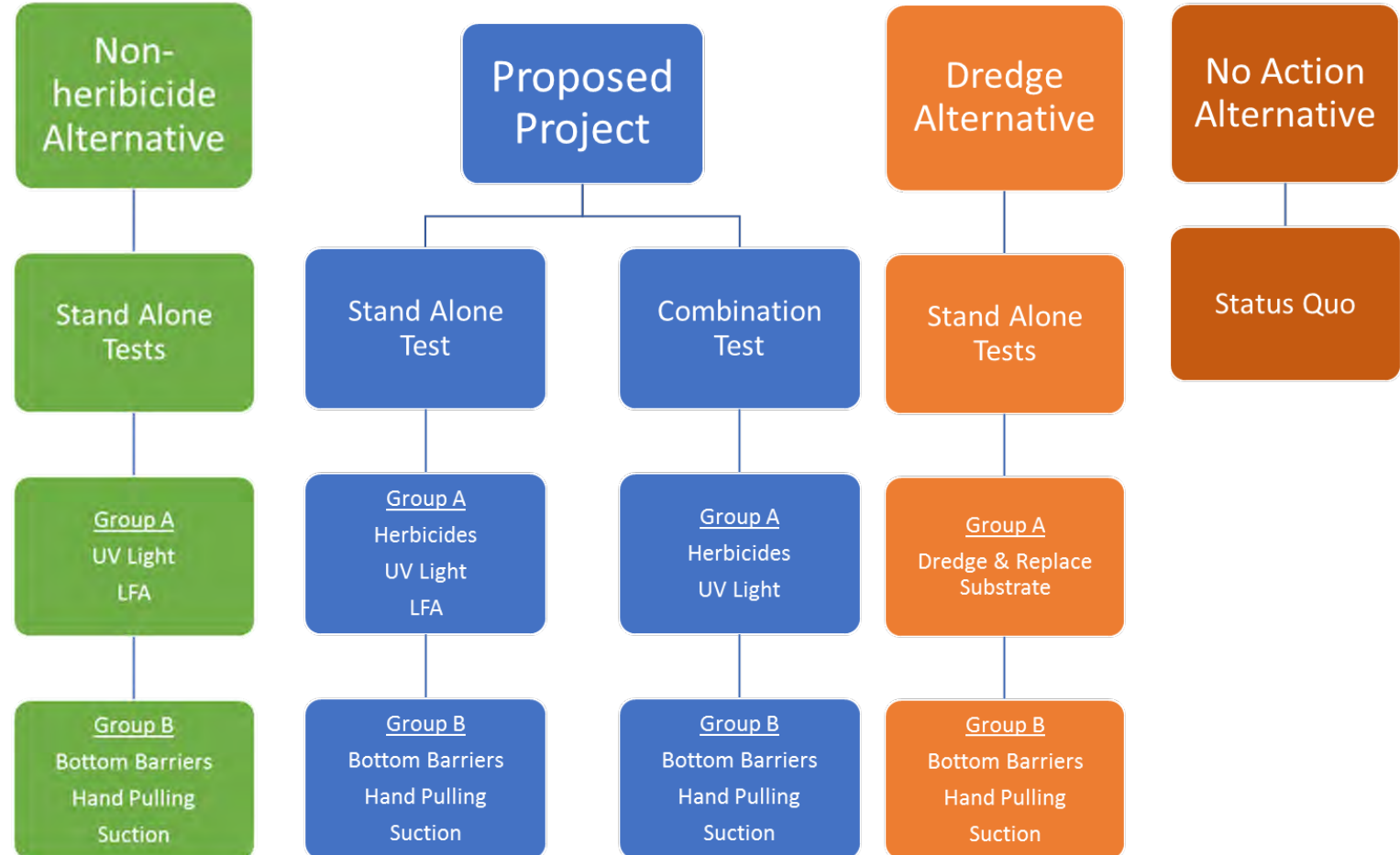
# What has happened

- Water quality studies
- Public engagement and scoping
  - Support for testing, physical modifications, herbicide use, and no herbicide use.
- Alternatives developed in response to comments
- Best management practices

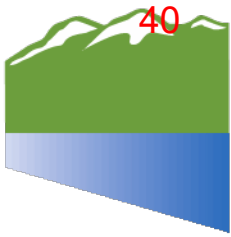


# Proposed Project- Control Methods Test

- Collaboratively developed
- Comprehensive test
- Stand alone and in combination
- Three-year test
  - Group A 2021
  - Group B 2022-2023





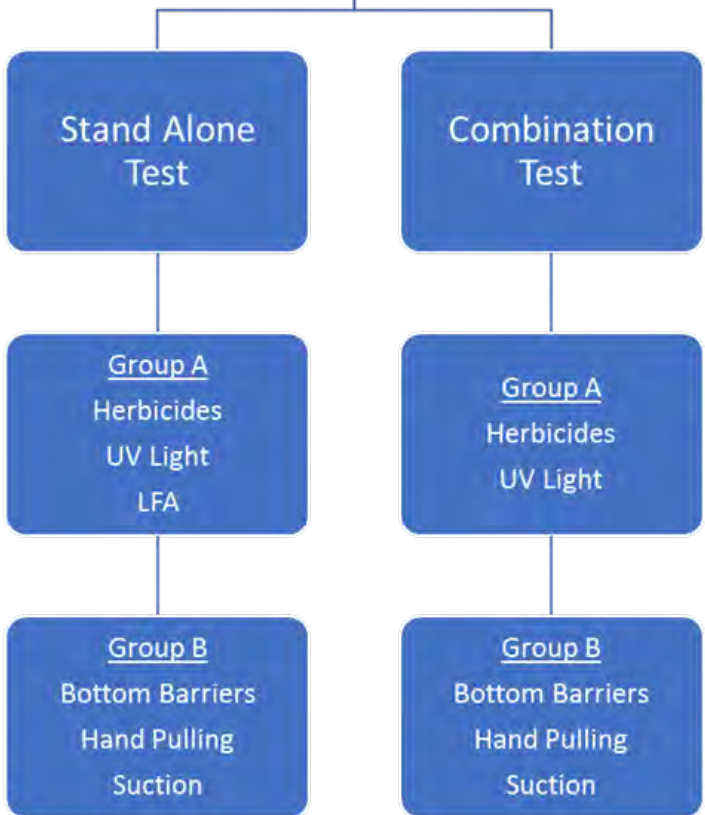


# LAKE TAHOE

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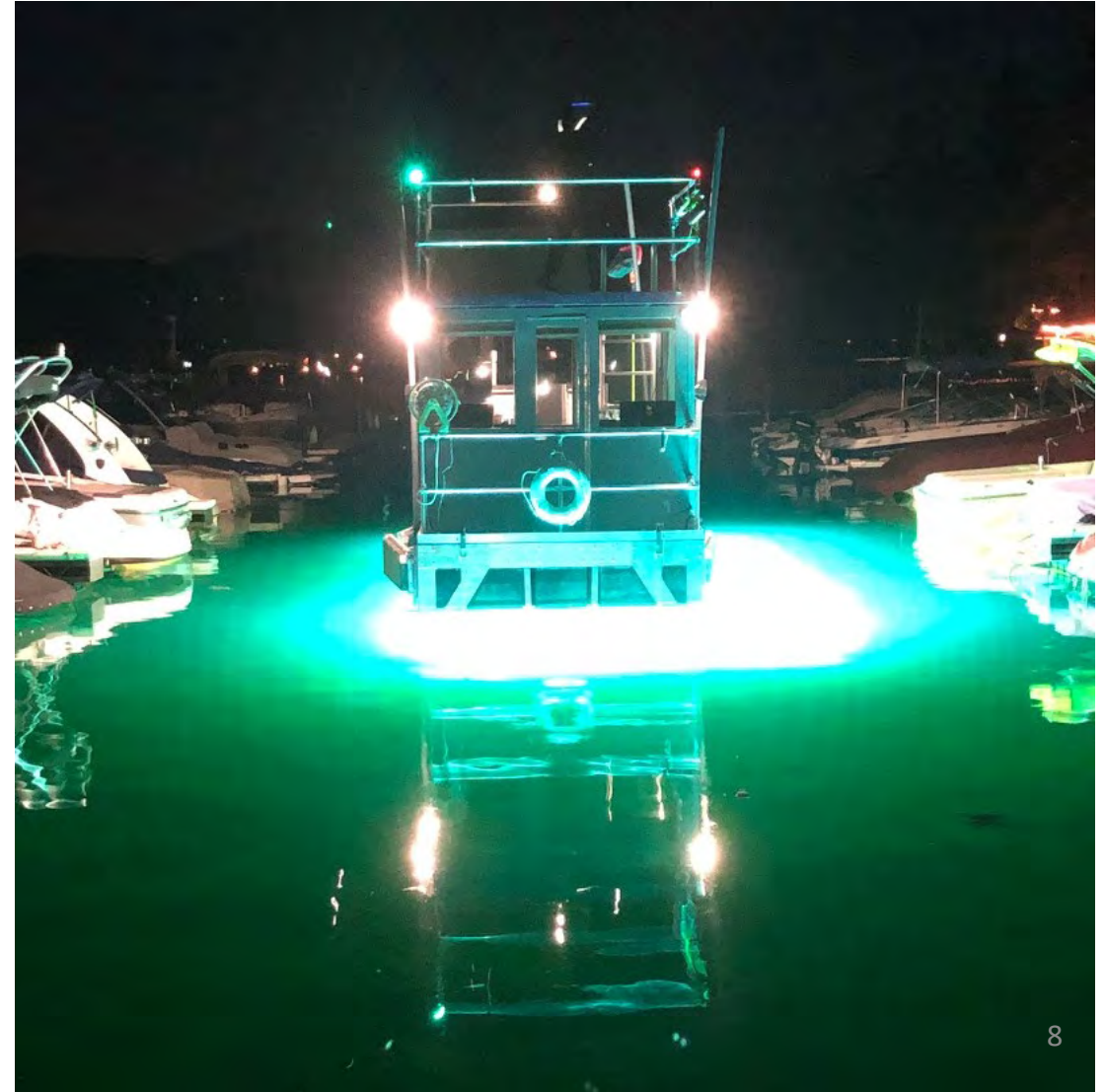
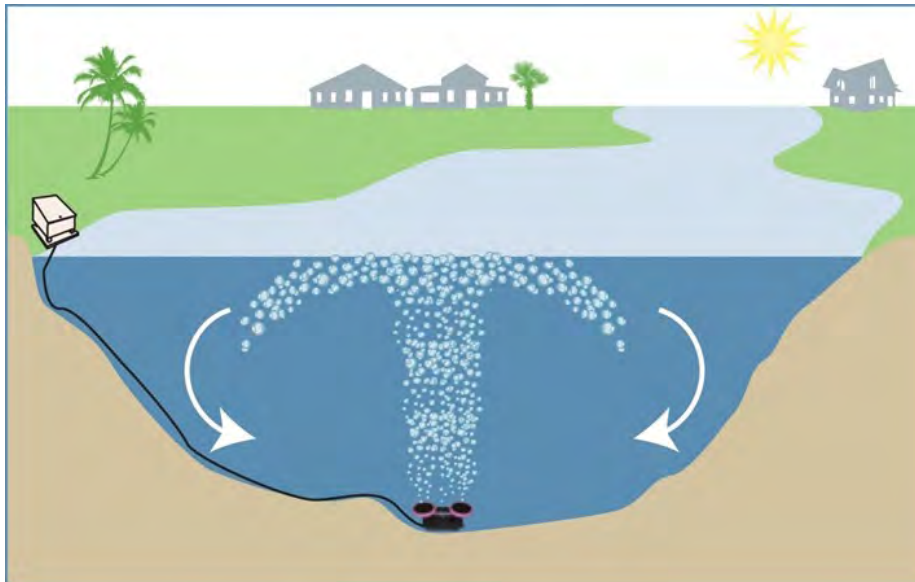
## Proposed Project





# Non-herbicide Alternative

- UV light
- Laminar Flow Aeration





# LAKE TAHOE

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PROGRAM



Non-heribicide  
Alternative

Stand Alone  
Tests

Group A  
UV Light  
LFA

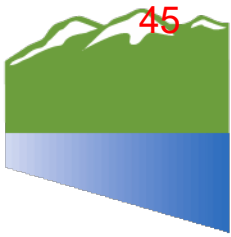
Group B  
Bottom Barriers  
Hand Pulling  
Suction



# Dredge Alternative

- Dredging
  - Remove organic layer, roots and turions
- Substrate replacement
  - Less suitable habitat





# LAKE TAHOE

ENVIRONMENTAL  
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PROGRAM



Dredge  
Alternative

Stand Alone  
Tests

Group A  
Dredge & Replace  
Substrate

Group B  
Bottom Barriers  
Hand Pulling  
Suction



# No Action

- Status Quo
- Risk to Lake?

No Action  
Alternative

Status Quo



# Key Regulatory Considerations

- Proposed Aquatic Herbicide Discharge
  - California Environmental Quality Act (CEQA) –Lahontan Water Board
  - TRPA Environmental Review Process required
  - Joint Environmental Impact Report/ Environmental Impact Statement
- Special Status Water
  - Lake Tahoe and Tahoe Keys Lagoons
  - Designated an Outstanding National Resource Water (ONRW) for **Outstanding Ecological and Recreational Value**



# Key Regulatory Considerations (cont'd)

- Enhanced Permitting and Environmental review
  - Lahontan Basin Plan Prohibition Exemption Required for Pesticide Discharges
  - National Pollutant Discharge Elimination System Permit and Antidegradation Analysis
    - Highest level of protection for ONRW's
    - Outstanding National resource Waters (ONRWs)

## Approach to Evaluating Water Quality Effects

1. What WQ constituents could be affected?
2. What are the existing baseline conditions?
3. Define potential WQ and environmental health issues
4. Evaluate direct and indirect effects
5. Show your work

Team effort that included PhD specialists in hydrology, limnology, aquatic plants, fisheries, and aquatic toxicology/risk assessment.

# 1. WQ Constituents Potentially Affected

Based on IEC/IS and consultation with agency staff:

- Water temperature
- Dissolved oxygen (DO)
- pH
- Turbidity
- Floating materials
- Phosphorus
- Nitrogen
- Harmful algal blooms (HABs)
- Detectable concentrations of herbicides and degradants
- Aluminum

## 2. 2019 Baseline Data Collection



## Baseline Data Collection Activities (App E)

- **Continuous at 15-min intervals May - Oct**
  - Water temperature, DO, pH, 13 stations shallow & deep
  - Precipitation and lagoon water levels
- **Twice monthly**
  - Measure depth to groundwater
  - Lagoon water quality profiles (temp, DO, pH, redox)
- **Monthly**
  - Lagoon water sampling for nutrients, chlorophyll
- **Several times**
  - Groundwater nutrients
  - Turbidity
- **June and October**
  - Fish and BMI surveys (App G)
- **Once in July**
  - Sediment sampling
  - Terrestrial biology and wetland delineation

# Baseline Water and Sediment Quality Locations



### 3. Define potential WQ issues – Environmental Health

(Section 3.2)

- EH-1: Herbicide applicator exposure and health
- EH-2: Herbicide persistence
- EH-3: Protecting drinking water supplies
- EH-4: Toxicity to non-target plants and animals
- EH-5: Aluminum toxicity
- EH-6: Harmful algal blooms

### 3. Define potential WQ issues – Water Quality

(Section 3.3.4)

- WQ-1: Water temperature effects
- WQ-2: Sediment disturbance and turbidity
- WQ-3: Dispersal of aquatic weed fragments
- WQ-4: Changes in pH
- WQ-5: Changes in dissolved oxygen
- WQ-6: Increases in total phosphorus
- WQ-7: Increases in total nitrogen



## 4. Evaluating Direct & Indirect Water Quality Effects

- Methods and assumptions for each issue summarized at the beginning of EH and WQ sections
- Focused on protecting lagoon receiving waters (not relying on lake dilution)
- 3 Key Questions:
  - A. How long would herbicide chemicals be detectable?
  - B. Would water quality standards be met?
  - C. Would beneficial uses be protected?

## A. How Long Would Herbicides be Detectable?

- Started with APAP for aquatic herbicides
  - Eliminated penoxsulam – long persistence
  - Based evaluations on max allowable application rates
- Researched lowest attainable lab reporting limits (1 part per billion)
- Based on degradation rates and assuming no dilution:
  - Endothall <80 days
  - Florpyrauxifen-benzyl 6 to 36 days
  - Triclopyr <120 days
- “...weeks to months, not years”

## B. Would Water Quality Standards Be Met?

- Baseline study showed that standards not met pre-project:
  - Turbidity
  - Dissolved oxygen
  - pH
  - Total phosphorus
  - Total nitrogen
  - Floating materials
- Would they get worse from CMT, alternative project, or no action?

## B. Would Water Quality Standards Be Met?

Things we considered:

- Timing and extent of activities
- Protective measures
- Real-time monitoring and adaptive management
- Additional mitigation
- Monitoring information from other projects



Expected Extent and Duration of Effects

## B. Would Water Quality Standards Be Met?

- Turbidity

- Short-term increases during bottom barrier removal, suction dredging, or discharge of dewatering effluent
- Minimize and control:
  - Turbidity curtains at test sites
  - Spill control and treatment of dewatering effluent
  - Monitor during activity, adjust as needed to meet permit limits

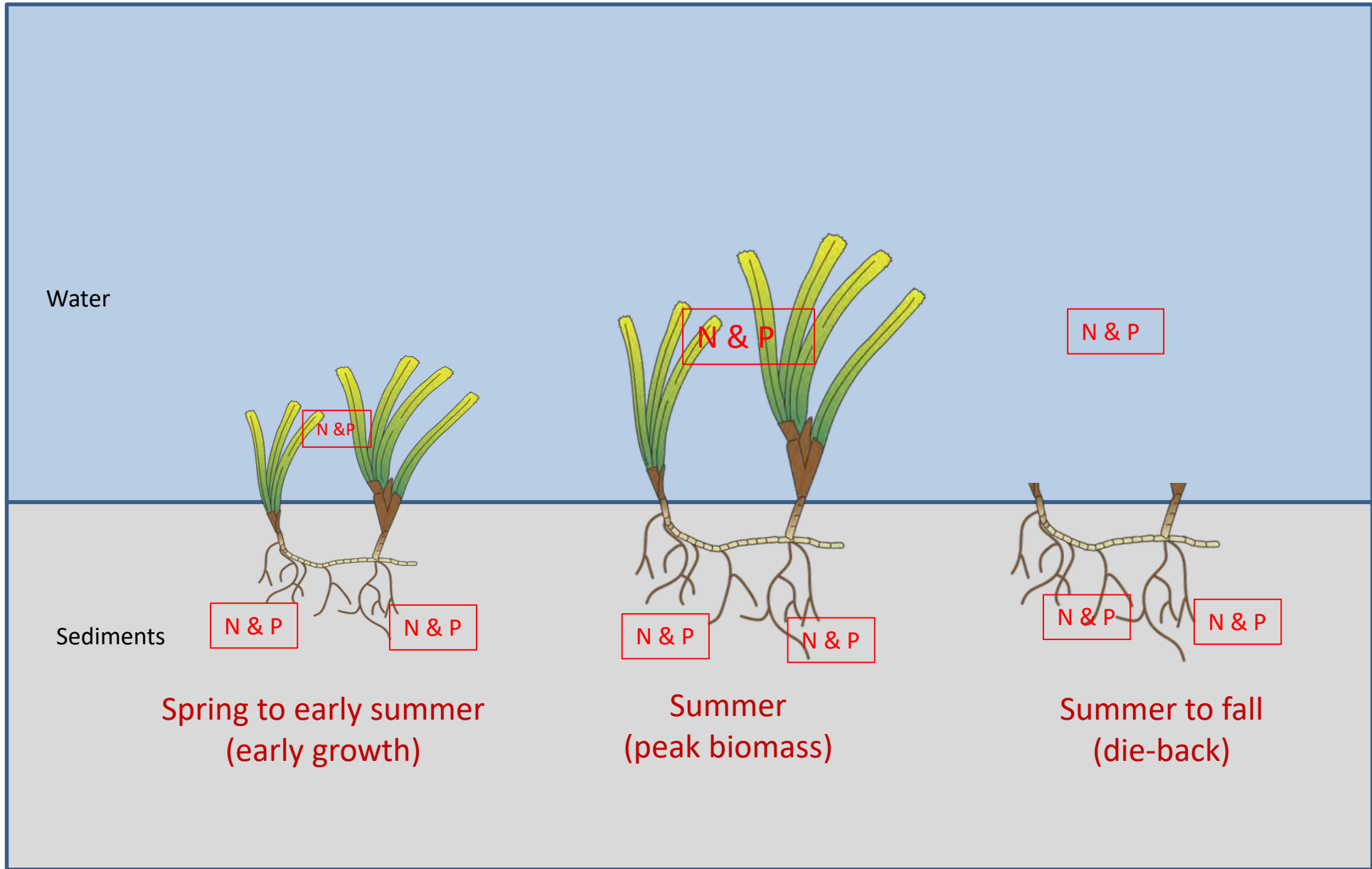
## B. Would Water Quality Standards Be Met?

- Dissolved Oxygen
  - No concern for direct oxygen demand from herbicides
  - Minimize/offset oxygen demand from decomposing plants
    - Treatments when plants are small
    - Deploy aeration during decomposition
- pH
  - No concern for direct pH changes from herbicides

## B. Would Water Quality Standards Be Met?

- Phosphorus & Nitrogen
  - Nutrient cycling model findings: (App F)
    - Most N and P in plant tissues not water
    - Plant decay biggest N and P source in Main Lagoon
    - External > internal sources in Lake Tallac
    - Algal productivity correlated to Main Lagoon water nutrients, not so in Lake Tallac
  - Minimize temporary increase during weeks of plant decay
    - Treatments when plants are small
    - Could apply Phoslock® to inactivate phosphorus

Air





## C. Would Beneficial Uses Be Protected?

- Potential impacts to human health from herbicides?
  - Product registration, Safety Data Sheets, other literature
  - No potential to exceed drinking water standards
  - No acute risk or chronic exposure for applicators
  - Containment, protective measures, monitoring and contingency plans (APAP) provide safety factor
- Potential for increased HABs occurrence at test sites during nutrient release from decomposing plants?
  - Treat plants when small
  - Aeration so surface waters are not stagnant and warm
  - Phosphorus inactivation
  - Ongoing testing and public notice program

## C. Would Beneficial Uses Be Protected?

- Potential impacts to non-target aquatic life from herbicides?
  - Baseline surveys, product registration, Safety Data Sheets, other literature, USEPA risk assessment methods
  - Pre-treatment surveys and adjustments to minimize non-target plant impacts
  - Some loss of individual non-target plants, but negligible impacts to non-target plant communities

## C. Would Beneficial Uses Be Protected?

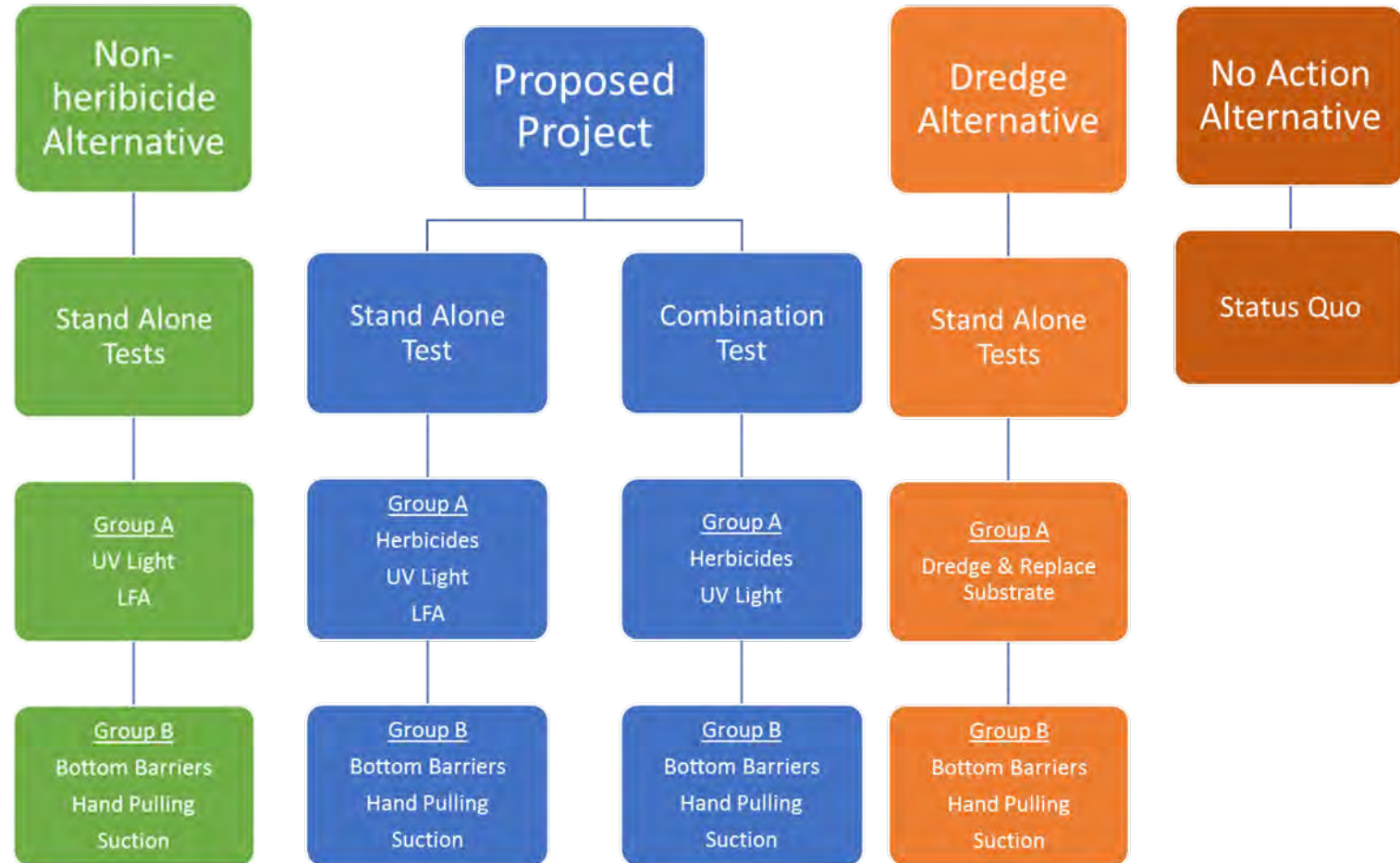
- Other potential impacts to non-target aquatic life?
  - Some non-target individual plants and invertebrates would be burned by UV light or buried by bottom barriers, but negligible impacts to non-target communities
  - Fish and other mobile organisms would swim/crawl away
  - Deoxygenation during plant decomposition managed by aeration
  - Potential aluminum toxicity to fish managed by controlling sediment disturbance and turbidity
  - Rapid recolonization and long-term benefits to native plant and animal communities from aquatic weed control

## 5. Showing our Work

- Summary of Results: Baseline Water Quality in Tahoe Keys Lagoons (App E)
- Draft Nutrient Loading Technical Memorandum (App F)
- 2019 Fish and Benthic Macroinvertebrate Surveys in Tahoe Keys Lagoons (App G)
- Draft EIR/EIS
  - Section 3.2: Environmental Health
  - Section 3.3.4: Water Quality
  - Section 3.3.5: Aquatic Biology and Ecology
- Antidegradation Analysis Report

# Key Points

- An independent analysis has been conducted
- A test can be implemented safely with appropriate protective measures
  - Early season treatment
  - Real-time monitoring
  - Pre-treatment surveys
- We are seeking your input



# Public Comment

- DEIR/DEIS can be found on-line:
- <https://www.trpa.org/document/projects-plans/>
- 60-day comment period ended on September 3, 2020


# Upcoming Milestones

- Final EIR/EIS and response to comments      Winter 2020/2021
- EIS/EIR Certification & public hearings      Spring 2021
- Potential test implementation      2021-2023
  - Group A      2021
  - Group B      2022-2023



# Questions





Thank You!  
[www.TahoeKeysWeeds.org](http://www.TahoeKeysWeeds.org)

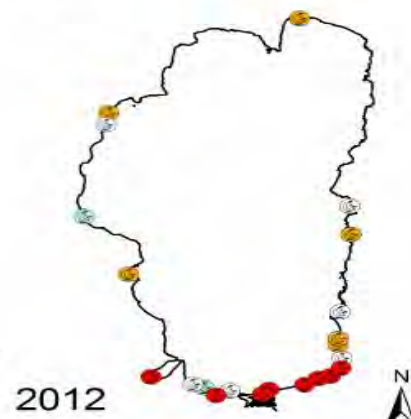
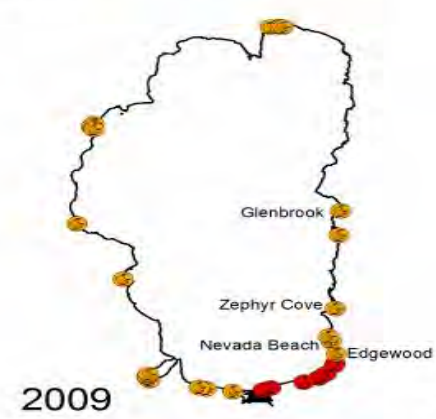
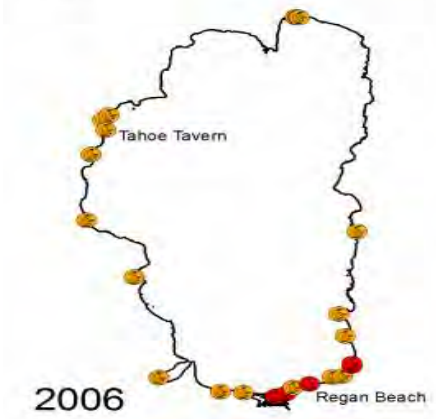
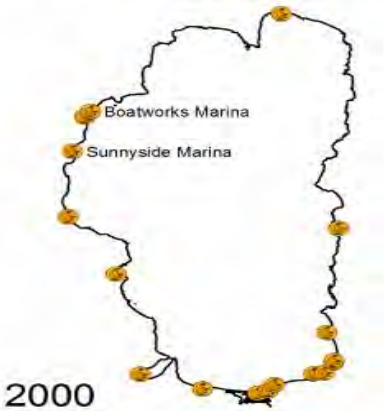
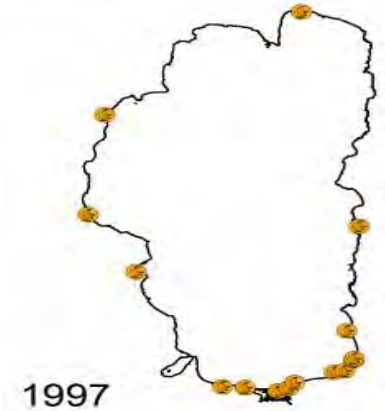
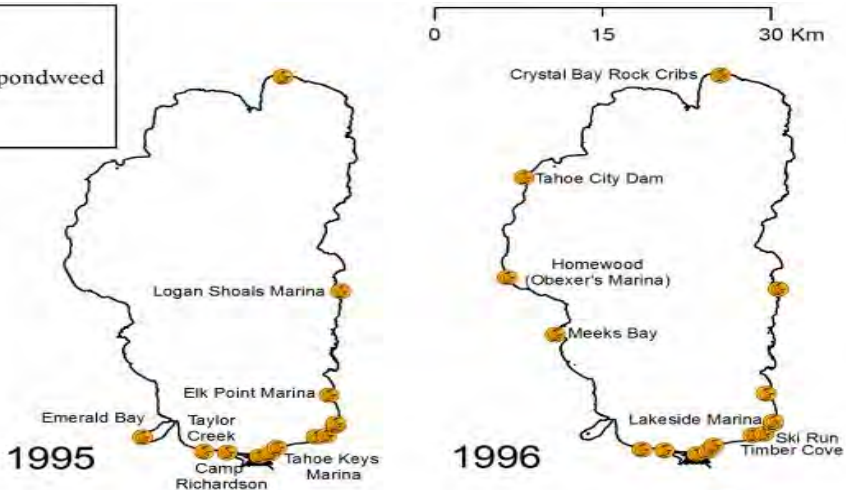
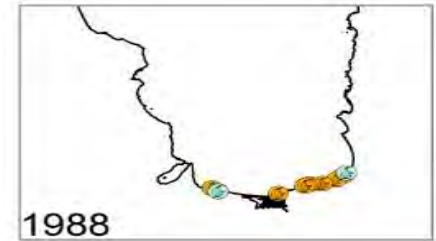
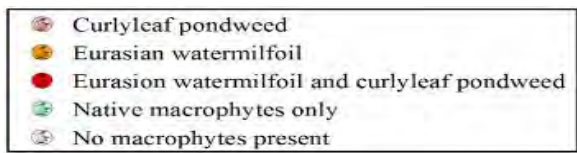
<https://www.trpa.org/document/projects-plans/>

# Exemption to Basin Plan Prohibition for the Use of Aquatic Pesticides for Tahoe Keys Lagoons

Rob Tucker P.E.  
Senior Water Resource Control Engineer

Tahoe Keys has multiple aquatic invasive species and the project will be targeting two primary Aquatic Invasive Plants (AIP)

- Eurasian watermilfoil (1980)
- Curlyleaf pondweed (2003)
- 85-95% of the wetted surface is infested with AIP
- 2015 University Nevada Reno (UNR) Biology Dept. produced an Aquatic Invasive Species Plan (AIS Plan) for the Lake Tahoe Aquatic Invasive Species Coordination Committee



# UNR Biology Dept. AIS Plan

- Ranks Tahoe Keys Lagoons (West) as Number 1 priority.
- Identifies Eurasian watermilfoil and Curlyleaf pondweed to be considered for treatment.
- Recommends an integrated program of non – chemical treatment and herbicide application to reduce plant biomass.

# Why

- Identified in AIS Plan
- Water Board Waste Discharge Requirements (WDRs)
  - Requires TKPOA to have an Integrated Management Plan for AIP
  - Current mechanical measure are not controlling AIP
  - AIP proposal

# Proposal

Tahoe Keys Property Owner Association (TKPOA) is proposing the project.

The goal of the proposed project is to test a range of large scale and localized aquatic weed control methods, suitable for management of target aquatic weeds, to determine what combination of methods within the test area will:

# Project Goals from Draft EIR/EIS

- Reduce target weed infestation as much and as soon as feasible.
- Bring target aquatic weed infestation to a level that can be managed over the long term with localized non-herbicide treatment methods.
- Improve the water quality of the Tahoe Keys Lagoons and reestablish native aquatic habitat.
- Improve navigation, enhance recreational benefits and aesthetic values.
- Reduce the potential for target aquatic weed re-infestation after initial treatment.



# Project Performance Measures/Targets

- Meet all regulatory requirements.
- Achieve and maintain a 75% reduction in Aquatic Invasive Plants (AIP) by biovolume.
- Achieve and maintain a minimum of three feet of vessel hull clearance within Tahoe Keys.

## Two Groups of Treatment

Group A are treatment technologies that may have the ability to rapidly treat AIP; includes two herbicides, ultraviolet light, and laminar flow aeration.

Group B are treatment technologies that may assist in controlling AIP after a rapid reduction in plant biomass.

# Basin Plan Prohibition

- In 2011 the Board adopted a Basin Plan amendment for waste discharge prohibition and exemption criteria for aquatic pesticide use in Lahontan Region
- Only emergency and time sensitive prohibition exemptions have been granted to date.

# Basin Plan Exemption Criteria

Seven criteria are applicable to the proposed project.

- Four criteria under Time Sensitive Projects
- Three additional criteria under Projects that are Neither Emergency nor Time Sensitive.

# 1st Criterion

Demonstration that non-chemical measures were evaluated and found inappropriate/ineffective to achieve the project goals. (Alternatives to pesticide use must be thoroughly evaluated and implemented when feasible (as defined in CEQA Guidance 15364: “feasible” means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.))

# Group A Treatments

## Ultraviolet Light (UV-C)

- UV-C light kills plant tissue may ultimately stress the plants.

## Laminar Flow Aeration (LFA)

- Technology provides air, alters bottom sediments/organic matter, increases dissolved oxygen in the water, mixes the water

# Group A Treatments

(cont.)

## Chemical Evaluation

- Endothall is known to be effective against all Eurasian watermilfoil and Curlyleaf pondweed.
- Triclopyr is known to be effective against Eurasian watermilfoil

# Group B Treatments

- Considered unable to reach 75% reduction target - All Group B
  - Diver-assisted suction with hand pulling
  - Bottom barriers
  - Local/spot dredging



# Summary on Satisfying the 1<sup>st</sup> Criterion

- Testing chemicals with non-chemicals treatments is necessary to compare efficacy of different treatments in similar environmental conditions.

## 2<sup>nd</sup> Criterion

A plan detailing mitigation and management measures must be submitted and implemented. The Plan must incorporate control measures to limit adverse impacts to the shortest time necessary for project success. . .

- Mitigation measure requirements will be in the permit

## 3<sup>rd</sup> Criterion

The planned treatment protocol will result in the minimum discharge of chemical substances that can reasonably be expected for an effective treatment.

- Mesocosm studies have been done by TKPOA and reduced application concentration.

## 4<sup>th</sup> Criterion

Monitoring and reporting program must be submitted and implemented to evaluate impacts and verify restoration of water quality in the treatment area.

- Pre & Post monitoring of water, sediment, biota
- Extensive pre monitoring already done
- During and post application monitoring requirement will be incorporated in the final Permit

## 5<sup>th</sup> Criterion

Demonstrates that the target organism is a primary cause of the problem being addressed and provides evidence that the proposed application of pesticides will accomplish the project goals.

## 5<sup>th</sup> Criterion

- The UNR AIS plans indicates that Eurasian watermilfoil and Curlyleaf pondweed present issue with navigation, increased habitat for warm water fish, and increase nutrient availability.
- The proposed project is a test to determine what will: quickly reduce the AIP biomass, bring infestation to a level that can be managed with non-chemical treatments, improve water quality, improve recreational benefits and reduce re-infestation.

## 6<sup>th</sup> Criterion

A description of the failure of non-chemical measures to effectively address the target organisms

(1) Evidence that non-chemical efforts failed to address target organisms

or

(2) Justification accepted by Regional Board, of why non-chemical methods were not employed or not feasible (CEQA guideline 15364) to achieve the treatment goal

# 6<sup>th</sup> Criterion

## Justification proposed

- The proposed project is to test both chemical and non-chemical means, not chemicals in lieu of non-chemicals.
- Literature indicates that chemical treatments will meet the performance targets.
- The goal of this proposed project is to determine what will: quickly reduce the AIP biomass, bring infestation to a level that can be managed with non-chemical treatments, improve water quality, improve recreational benefits and reduce re-infestation.



# 7<sup>th</sup> Criterion

Additional monitoring requirements

- Specify monitoring sites, analytes, methods, frequencies, schedule, quality assurance
- Biota monitoring pre and post project
- Requires a qualified biologist to assess the non-target aquatic life have recovered.

Conditions will be required as part of the Permit.

# Summary

- The AIP infestation, identified occurrence has only increased over time in the Tahoe Keys Lagoons and Lake Tahoe.
- The Tahoe Keys Lagoons have been identified as the No. 1 AIS threat to Lake Tahoe in the 2015 Implementation Plan for the Control of Aquatic Invasive Species within Lake Tahoe (AIS Plan).
- The AIS Plan recommends use of aquatic pesticides in addition to non-chemical treatment technologies to address AIP in Lake Tahoe.
- The Proposal is not solely using chemical treatment but will also test non-chemical treatments.
- Pesticides have the most literature on effectiveness.

# Summary of Goals

The proposed project goal is a test of different treatments to determine what will:

- Quickly reduce the AIP biomass
- Bring infestation to a level that can be managed with non-chemical treatments
- Improve water quality
- Improve recreational benefits
- Reduce re-infestation

# Summary with Respect to Criteria

- Concurrent testing both chemical and non-chemical treatments will provide the best means to fully evaluate and compare the different technologies effectiveness in similar environmental conditions.
- Mesocosm studies performed, herbicide rates will be lower than label rates.
- Mitigation, monitoring reporting will be required in permit, extensive monitoring already done.
- AIPs are identified by other organizations as an issue. The goals of the test may be met with the use of different technology.
- Multiple treatment methods are being tested, chemicals are not being used in lieu of non-chemicals.

# Questions

# **Tahoe Keys Lagoons Aquatic Weed Control Methods Test**

## **Permitting Considerations Agenda Item 7**

**Lahontan Water Board Meeting  
South Lake Tahoe  
November 19, 2020**

**Russell Norman, Lahontan**

# Permitting Considerations

- Permitting Non-Chemical and Chemical Methods
- Proposed Chemical Discharge Details
- DEIR/DEIS Mitigation Measures
- Individual NPDES Permit Overview
- Antidegradation Analysis
- Next Steps

# Permitting Non-Chemical Methods

- Non-Chemical Methods

## Method

- Ultra Violet Light
- Laminar Flow Aeration (LFA)
- Bottom Barriers
- Diver-Assisted Suction/Hand Pulling
- Spot Suction Dredging

## Regulatory Mechanism

No Water Board Permit

401 Water Quality Cert. (WQC)

Order R6T-2014-0059, 401 WQC

Order R6T-2014-0059

401 WQC



# Permitting Chemical Methods

- Chemical Methods

## Discharge

- Triclopyr Residues
- Endothall Residues
- Modified Lanthanum Clay
- Rhodamine Aquatic Dye
- Acetic Acid
- Thermal (i.e., hot water/steam)

## Regulatory Mechanism

INDIVIDUAL NATIONAL  
POLLUTANT DISCHARGE  
ELIMINATION SYSTEM PERMIT  
(NPDES)

# Proposed Chemical Discharge Detail

- Treatment Areas
- Treatment Duration, Treatment Timing and Chemical Applications
- Proposed Best Management Practices (BMPs)

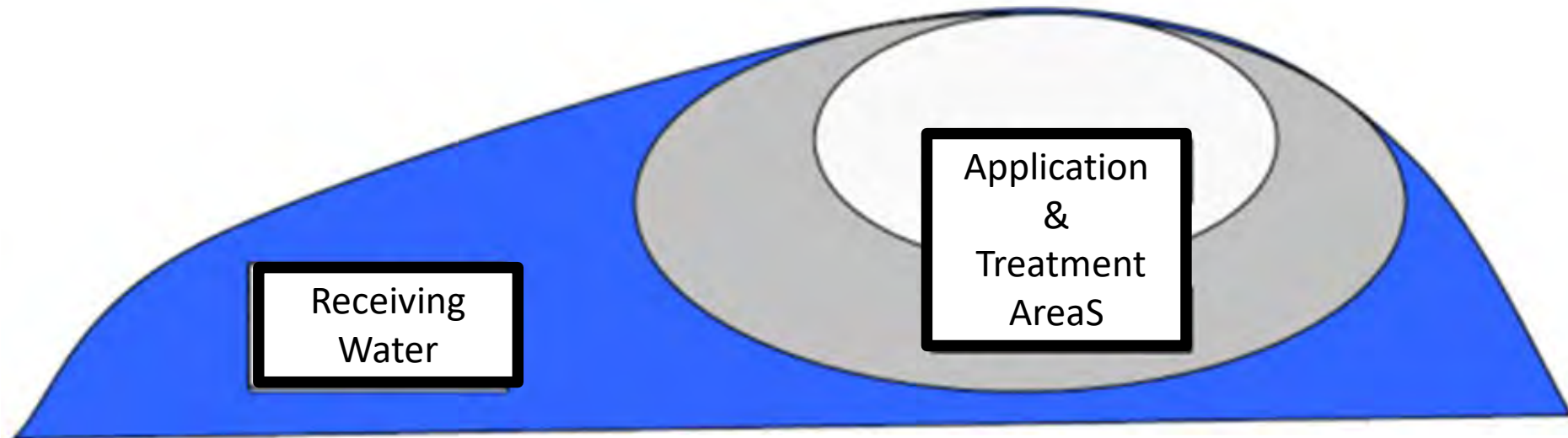
# Treatment Areas

- Main Lagoon

- 12 Test Sites
- 14 Acres Total
- Ave. Area/ Test Site = 1.2 Acre

- Lake Tallac

- 3 Test Sites
- 2.9 Acres Total
- Ave. Area/ Test Site = 0.97 Acre



# Treatment Areas (Cont'd)



# Treatment Duration, Treatment Timing and Chemical Applications

- Treatment Duration

- Time Period Water Quality Objectives (WQOs) Not Met in Treatment Areas

- Treatment Timing

- Season and Plant Growth Phase

- Chemical Applications

- Application Rates

- Application Methods

- ❖ Liquid Formulation
- ❖ Granular Formulations

<b>Chemical</b>	<b>Max. Label Rate</b>	<b>Proposed Rate</b>
Endothall	5 ppm	2 ppm
Triclopyr	2.5 ppm	1 ppm

# Proposed BMPs

- Ensure Appropriate Use
- Spill Prevention
- Herbicide Containment
  - Bubble Curtain at West Channel Entrance
- Herbicide Residue Tracking
  - Rhodamine WT Aquatic Dye Tracing
  - Aquatic Herbicide Residue & Real Time Water Quality Monitoring
- Communications Plan and Contingency Measures
  - Notification – Date of Treatment, Adverse Incidents
  - Drinking Water Well Treatment

# DEIR/DEIS Mitigation Measures

- Aeration of Treatment Areas
  - Applied only if Post Treatment Event Dissolved Oxygen Objective Not Met
- Lanthanum Modified Clay
  - Applied only if Increased Occurrence of Harmful Algal Blooms in Treatment Areas
- Chemical Containment in Treatment Areas
  - Double Turbidity Curtains Separating Treatment Areas from Receiving Waters Adjacent to West Channel

# Individual NPDES Permit Overview

- Discharge Prohibitions
- Effluent and Receiving Water Limits
- Aquatic Pesticide Use Requirements
- Monitoring & Reporting



# Discharge Prohibitions

- Discharging Without a Basin Plan Exemption
- Locations, Aerial Extents, Number of Treatments
- Discharge Timing
- Discharging Adjuvants with Aquatic Herbicides
- Standard Prohibitions
  - Create Nuisance/Pollution/ Contamination
  - Violate Water Quality Objectives

# Effluent and Receiving Water Limits

- Effluent Limits
  - Implement Best Management Practices (BMPs)
  - Meet Applicable Water Quality Standards
  
- Receiving Water Limits

Parameter	Limit	Basis
Endothal	100 ppb	MUN Objective, Drinking Water MCL
Triclopyr	0.8 ppm	2x Recom. Conc. At DW Intake, USEPA, MUN Protective
Rhodamine Aquatic Dye	10 ppb	Color Objective, MUN Protective
Turbidity, Dissolved Oxygen, Etc.	Per Basin Plan	Basin Plan Water Quality Objectives

# Aquatic Pesticide Use Requirements

- Communications and Notification Plan
- Contingency for Protection of MUN Beneficial Use (BU)
- Aquatic Pesticides Application Plan (APAP)
- Algaecide and Aquatic Herbicide Application Log

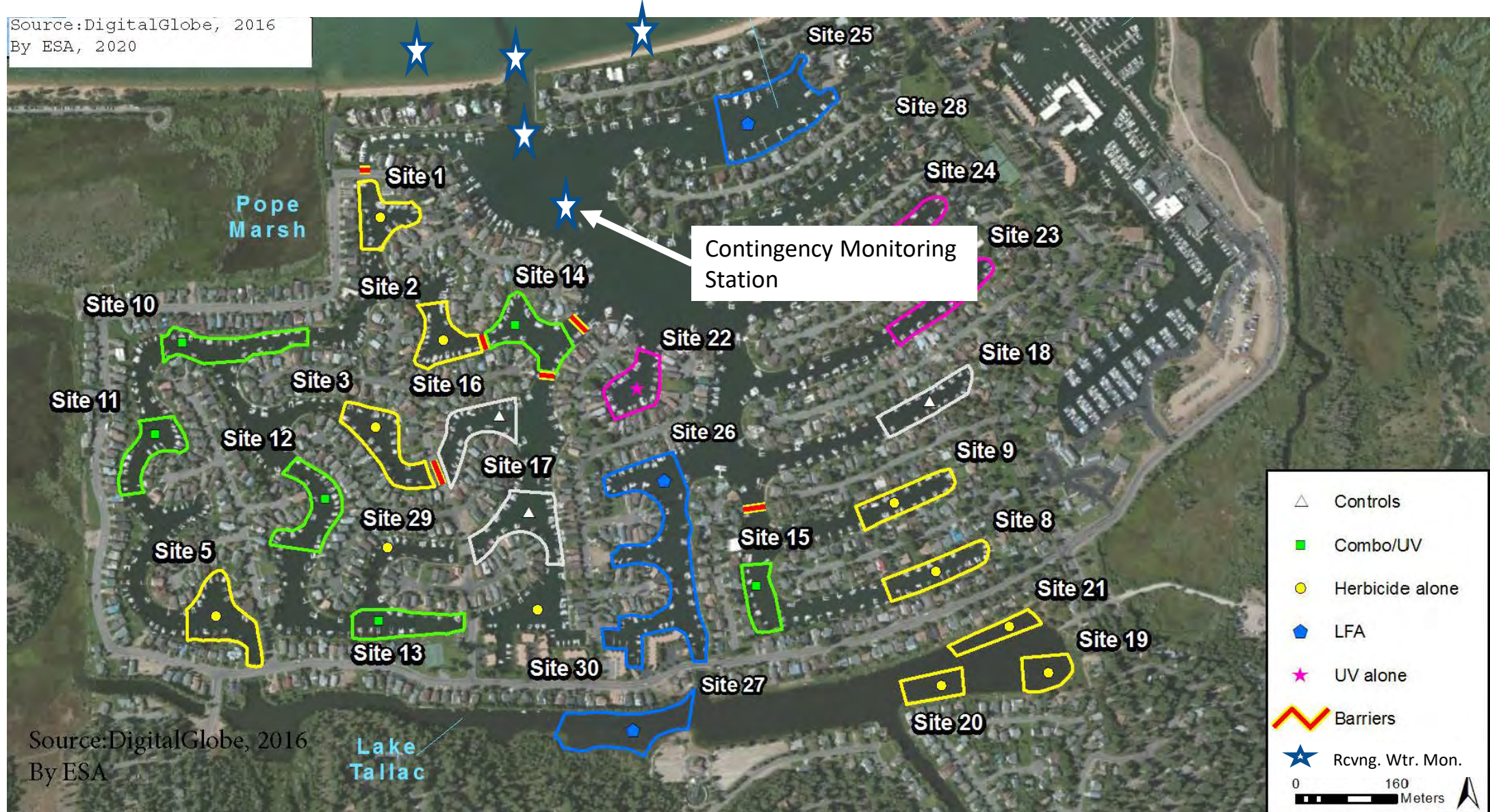
# Monitoring & Reporting

- Background, Event, Post-Event
  - Post-Event at Min. 7-Days After Application
- Receiving Waters, Treatment Areas and TKPOA Drinking Water Wells
- Water Column and Sediment
  - Visual
  - Physical
  - Chemical Monitoring
- Aquatic Herbicide Residues
  - Endothall Acid and Endothall Dipotassium Salt
  - Triclopyr Acid, TCP and 3,6-DCP

# Monitoring & Reporting (Cont'd)

- Basic Water Quality Parameters
- Contingency Monitoring with 24-Hour Residue Breach Notification
- 24-Hour and 5-Day Written Reports
- Adverse Incident Reporting
- Peer Reviewed Monitoring, Reporting and Mitigation Programs
- Interim & Annual Compliance Reports

# Monitoring & Reporting (Cont'd)





# Antidegradation Analysis

- Antidegradation Analysis Overview
- Antidegradation Analysis Key Elements
  - Short Term and Temporary Degradation
  - Maximum Benefit to the People of the State
  - Best Practicable Treatment and Control
- Antidegradation Analysis Summary



# Antidegradation Analysis Overview

- State Antidegradation Policy (State Water Board Resolution 68-16)
  - Whenever the existing quality of water is better than the quality established in policies . . . such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

# Antidegradation Analysis

## Overview (Cont'd)

- State Antidegradation Policy (State Water Board Resolution 68-16)
  - Any activity . . . which proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

# Antidegradation Analysis

## Overview (Cont'd)

- Federal Antidegradation Policy (40 C.F.R. 131.12)
  - Tier 3 Waters- “Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.”
    - ❖ State can allow activities that result in temporary and short-term changes in the water quality of an ONRW (EPA, Water Quality Standards Handbook)
    - ❖ No changes should impact existing uses or alter the essential character or special character or special use that make an ONRW. (EPA, Water Quality Standards Handbook)
    - ❖ Current EPA Guidance: Short-Term is “Weeks to Months, Not Years”

# Antidegradation Analysis

## Key Elements

- Will the Discharge Result in Only Short Term and Temporary Degradation of Water Quality?
  - Parameter-Specific Magnitude, Extent and Duration of Water Quality Degradation.
- Is the Change in Water Quality Consistent with the Maximum Benefit to the People of the State?
- Does the Permit and Required Control Measures Ensure Best Practicable Treatment and Control (BPTC)?
- Antidegradation Policy
  - Requires Existing Water Quality be Maintained Unless Degradation is Justified Based on Specific Findings

# Antidegradation Analysis

## Key Elements (Cont'd)

### Short Term and Temporary or Long-Term Water Quality Degradation?

- Chemical Discharges and Potential WQO and BU Affects:

#### Chemical

#### Potential Affects to

- |                               |   |
|-------------------------------|---|
| ➤ Aquatic Herbicide Residues: | Aquatic Toxicity, Human Health            |
| ➤ Rhodamine WT:               | Aquatic Toxicity, Color WQO, Human Health |
| ➤ Lanthanum Modified Clay:    | Aquatic Toxicity, Human Health, Turbidity |
- Potential Indirect Affects on Water Quality
    - Nutrient Release: Phosphorus and Nitrogen
    - Dissolved Oxygen Depletion

# Antidegradation Analysis

## Key Elements (Cont'd)

### The Proposed Discharge is:

- Chemical Spatially Limited – Limited to Specified Treatment Locations and Areal Extents
- Temporally Limited- One Treatment Event for One Treatment Duration
- Temporally Limited- Herbicide Residue Half-Lives <10 Days
- Limited Magnitude- Maximum Receiving Water Concentrations for Chemical Discharged
- Limited Magnitude- Best Management Practices Required
- Limited Magnitude- Non-Persistent, Non-Bioaccumulative Chemicals
- Limited Magnitude- Maximum ~120 Days to Non-Detect Levels

# Aquatic Herbicide Residues

## Endothall

Proposed Application Rate = 2 ppm

- Endothall Acid Aquatic Toxicity

- Slightly Toxic to Freshwater Fish;
- Ranges from Slightly Toxic to Practically Non-Toxic to Aquatic Freshwater Invertebrates

Test	Rainbow Trout	Water Flea	Mysid Shrimp
Acute LC50 (PPM)	49	92	39
Acute NOAEC (PPM)	-	<2.2	-

- Endothall Dipotassium Salt Aquatic Toxicity

- Ranges from Slightly to Practically Non-Toxic to Freshwater fish

Test	Rainbow Trout	Water Flea	Mysid Shrimp
Acute LC50 (PPM)	9.15	63.8	79
Acute NOAEC (PPM)	1.79	-	-

# Aquatic Herbicide Residues (Cont'd)

## Triclopyr

Proposed Application Rate = 1 ppm

- Triclopyr TEA Aquatic Toxicity

- Practically Non-Toxic to Freshwater fish and Invertebrates

Test	Bluegill Sunfish	Water Flea	Fathead Minnow
Acute 96-Hour, LC50 (PPM)	172	-	-
Acute 48-Hour, EC50 (PPM)	-	554	-
Chronic NOAEC (PPM)	-	57.7	-
Chronic 21-Day, LOAEC (PPM)	-	107	-
Chronic 28-Day, LOAEC (PPM)	-	-	116
Chronic 28-Day, NOAEC (PPM)	-	-	74.4



# Aquatic Herbicide Residues (Cont'd)

## Triclopyr

Proposed Application Rate = 1 ppm

- Triclopyr Acid and TCP (3,5,6-trichloro-2-pyridinol) Toxicity Modelling
  - No Acute or Chronic Risk to Aquatic Animals from Residues of Concern Modelling
  - TCP Formation Modelling Indicates Chronic Risks to Freshwater Fish and Invertebrates at 2.5 ppm Use Rate
- Triclopyr Acid Aquatic Toxicity
  - Practically Non-Toxic to Freshwater fish and Invertebrates

Test	Rainbow Trout	Water Flea
Acute 96-Hour, LC50 (PPM)	117	-
Acute 48-Hour, EC50 (PPM)	-	133

# Aquatic Herbicide Residues (Cont'd)

## Triclopyr

Proposed Application Rate = 1 ppm

- TCP Aquatic Toxicity

- Slightly Toxic on Acute Exposure Basis to Fish and Aquatic Invertebrates

Test	Rainbow Trout	Water Flea
Acute 96-Hour, LC50 (PPM)	12.6	-
Acute 48-Hour, EC50 (PPM)	-	10.4
Chronic 60-Day, LOAEC (PPM)	0.278	-
Chronic 60-Day, NOAEC (PPM)	0.178	-
Chronic 21-Day, LOAEC (PPM)	-	0.13
Chronic 21-Day, NOAEC (PPM)	-	0.058

# Rhodamine WT

Proposed Application Rate = 10 ppb

- Aquatic Toxicity

- Practically Non-Toxic to Freshwater fish and Invertebrates

Test	Rainbow Trout	Water Flea
Acute 96-Hour, LC50 (PPM)	320	-
Acute LC50 (PPM)	-	170

- Color Objective

- Waters Shall Be Free of Coloration that Causes Nuisance or Adversely Affects Water for Beneficial Uses
- <50 ppb Concentration Barely Visible
- 10 ppb Protective of Color Objective

# Rhodamine WT (Cont'd)

Proposed Application Rate = 10 ppb

- MUN Objective - Drinking Water Protection
  - 100 ppb is Maximum Concentration for Surface Water
  - 10 ppb is Maximum Concentration Recommended Near Drinking Water Intakes
  - 0.1 ppb is Maximum Drinking Water Concentration
  - Proximity to Drinking Water Intakes and Dissipation
    - ❖ Ensures <10 ppb Maximum Concentration Near Drinking Water Intakes for 10 ppb Target Concentration in Lagoons Test Areas
  - 10 ppb Rhodamine WT Protective of Drinking Water Supply

# Lanthanum Modified Clay

Typical Application Rate < 150 ppm

- Aquatic Toxicity

- Acute and Chronic LOAECs (ppm) for Benthic Invertebrates > 400 ppm

Test	Rainbow Trout	Water Flea ( <i>C. Dubia</i> )	Water Flea ( <i>D. Magna</i> )
Acute 96-Hour, LOAEC (PPM)	>3,125	-	-
Acute 48-Hour, LOAEC (PPM)	>13,000	-	-
Acute 48-Hour, LOAEC (PPM)	-	>12,500	-
Acute 48-Hour, LOAEC (PPM)	-	>50	-
Acute 48-Hour, LOAEC (PPM)	-	-	>50,000
Chronic 7-Day, LOAEC (PPM)	-	>1	-

- MUN Objective - Drinking Water Protection

- NSF/ANSI Standard 60 Certified For Use in Drinking Water

# Lanthanum Modified Clay (Cont'd)

Typical Application Rate < 150 ppm

- Turbidity
  - Application Elevates Turbidity to Visible Levels
  - Normal Transparency Returns in Less Than 24-Hours
- Acute Impacts at Typical Application Rates when Used Infrequently
- Impacts Limited to Area Treated for Short Time
- Forms Insoluble Mineral Rhabdophane
- Not Considered Hazardous by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFF 12910.1200).
- Not listed on the USEPA Toxic Substances Control Act Inventory List

# Indirect Effects on Water Quality

- Aquatic Plant Decomposition
  - Nutrient Release
  - Dissolved Oxygen Depression
- Similar Effects to Natural Senescence (i.e., Seasonal Die-Back) But Faster Rates
- Harmful Algal Bloom Occurrence in Test Areas Mitigated with Application of Modified Lanthanum Clay
- Dissolved Oxygen Depletion Below WQOs Mitigated with Aeration in Test Areas Post-Treatment

# Water Quality Assessment

- In Summary, the Discharge Results in:
  - Limited, Short-Term Impact to BUs and WQOs
  - No Long-Term Degradation of Existing Water Quality
  - Long-Term Water Quality Improvement



# Antidegradation Analysis

## Key Elements (Cont'd)

### **Benefits Resulting from Short-term and Temporary Change in Water Quality:**

- Tahoe Keys Lagoons is High Priority Area for Lake-Wide Control of AIS
- Correcting Existing Water Quality Degradation and Beneficial Use Impairments
- Current Control Methods Insufficient for Scale of Problem
- Applying Due Diligence to Protect Aquatic Resources - Limited Testing/Validation Versus Full Scale Implementation
- Mitigation Measures and BMPs Reduce Impacts to Short-Term, Localized Water Quality Degradation
- Project is for Ecological Restoration/Environmental Protection

# Antidegradation Analysis

## Key Elements (Cont'd)

### Best Practicable Treatment and Control?

- Compliance with Permit Requirements Will Result in the Use of Best Practicable Treatment and Control of the Discharge
  - Prohibitions and Limits
  - Aquatic Pesticide Use Requirements
  - Best Management Practices
- Incident Reviews for Triclopyr and Endothall Demonstrate Similar Permit Requirements Result in Best Practicable Treatment and Control of Similar Discharges

# Antidegradation Analysis Summary

- Compliance with the Permit Requirements:
  - Will Limit Impacts from the Discharge to the Area Being Treated to a Short Time
  - Result in No Lasting Detrimental Impacts to, or Lowering of, Existing Water Quality
  - Will Result in the use of Best Practicable Treatment or Control of the Discharge

# Antidegradation Analysis

## Summary (Cont'd)

- The Discharge is Expected to Have a Net Benefit:
  - To Water Quality Through the Reduction of Target Aquatic Plants
  - To Aquatic Habitat Through Improvement of Aquatic Habitat for Native Aquatic Plant, Fish and Aquatic Macroinvertebrate Species
  - To the Public Through Protection of Greater Lake Tahoe
  - To the Public By Improving Beneficial Use Attainment
  - To the Public by Providing Information on Feasible Aquatic Weed Control Methods and Associated Water Quality Impacts While Limiting Spatial and Temporal Degradation of Water Quality

# Next Steps

- Notice Draft Individual NPDES Permit in Late December 2020/Early January 2021 for Public Comment
- Bring Draft Individual NPDES Permit Before the Board for Consideration of Adoption in March 2021
- To Be Considered with the Project EIR/EIS and Basin Plan Aquatic Pesticide Discharge Prohibition Exemption Request



**KEEP  
TAHOE  
BLUE**  
*League to Save Lake Tahoe*

**LAKE TAHOE and aquatic weeds at  
the Tahoe Keys**

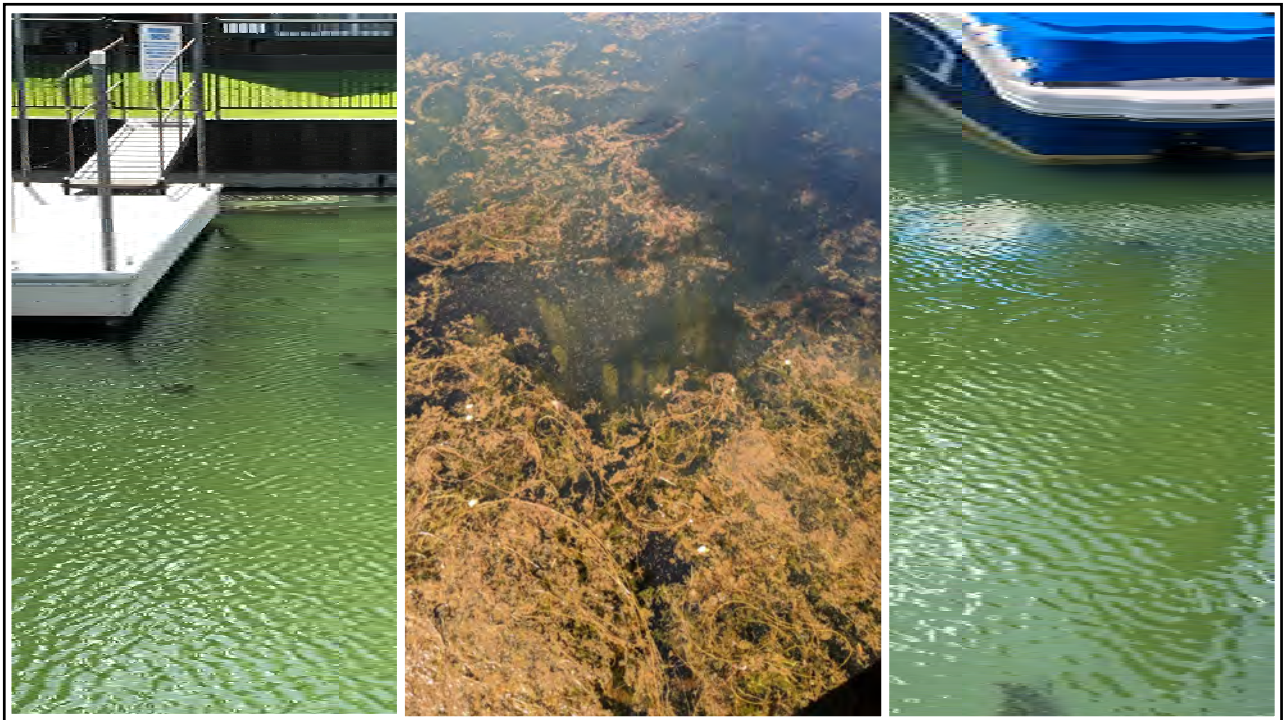
**Jesse Patterson**  
Chief Strategy Officer  
November 19, 2020





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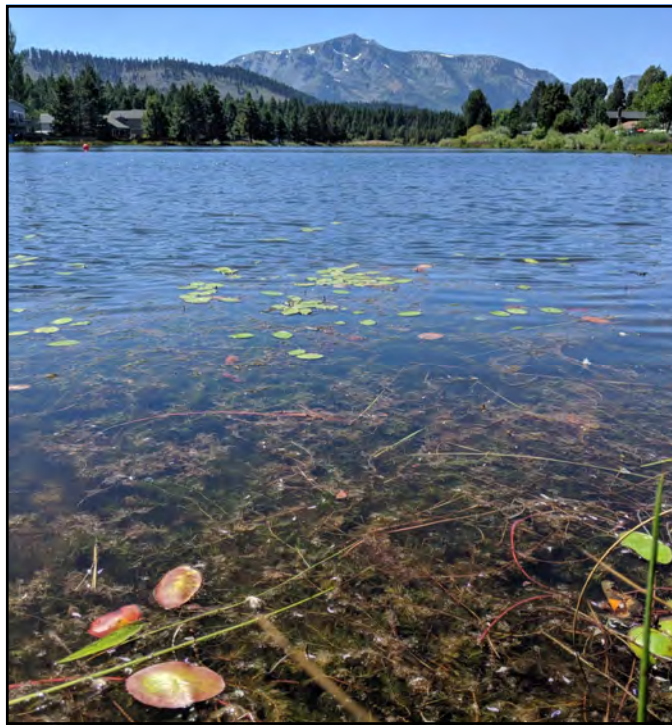




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# Tahoe Keys Initiative

**THREATS TO LAKE TAHOE'S CLARITY**

**Aquatic Invasive Species**

The Tahoe Keys are ground zero for the spread of aquatic invasive species into Lake Tahoe - 98% of its 172 acres of waterways are choked with weeds. Invasives are one of the largest threats to Lake Tahoe's fragile ecology, a threat that's exacerbated by climate change.



**KEEP TAHOE BLUE**  
League to Save Lake Tahoe

**Tahoe Keys Initiative**  
Our holistic approach to TACKLE INVASIVE SPECIES

Protecting Lake Tahoe since 1957  
keoptahoebblue.org | events@keoptahoebblue.org

**SOLUTIONS TO KEEP TAHOE BLUE**

**A Combination of Controls**

Currently available methods for controlling invasive species won't be effective in the Tahoe Keys, so we have to innovate. A three-year testing program, including a combination of methods for long-term efficacy, is currently in the environmental analysis and public input process. If approved, testing will start in April 2021.



**Focusing on Containment**

While environmental analysis is underway, the League is working to stop the spread of invasive species. A bubble curtain installed across plans fragments from passing boats and moves them to be collected in balloons for proper disposal. This innovative approach earned a 2019 Best in Basin Award from the Tahoe Regional Planning Agency.



**Improving Water Quality**

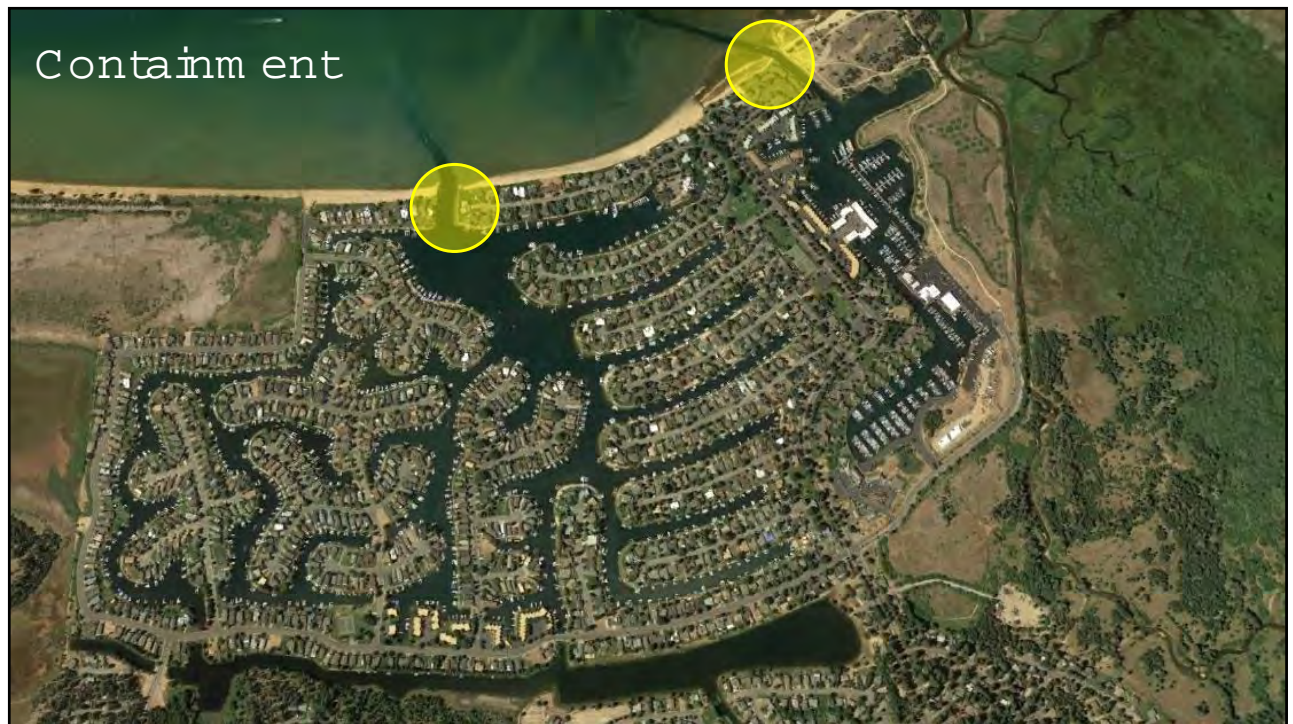
The League funded a project to test new technologies to improve water quality in the Tahoe Keys. Laminar flow injection, or the direct injection of oxygen into the lakebed, makes it harder for aquatic weeds to grow and helps prevent hazardous algal blooms.



**KEEP TAHOE BLUE**  
to Save Lake Tahoe

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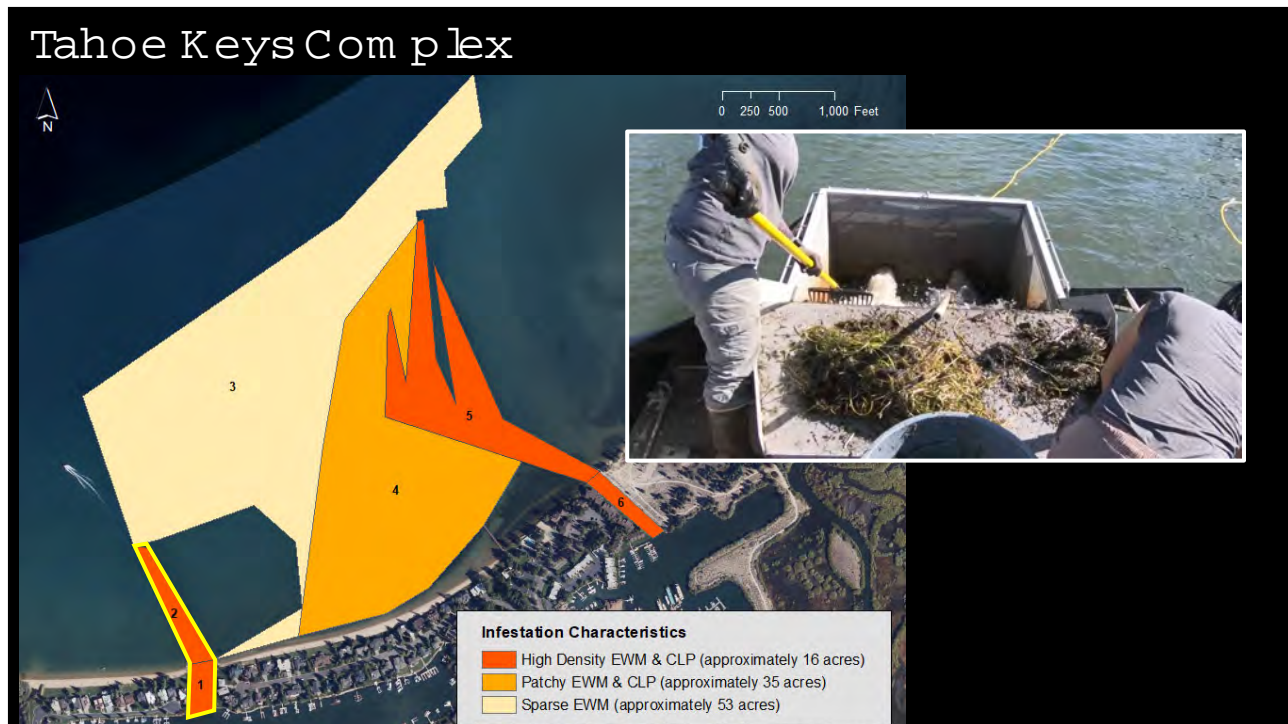






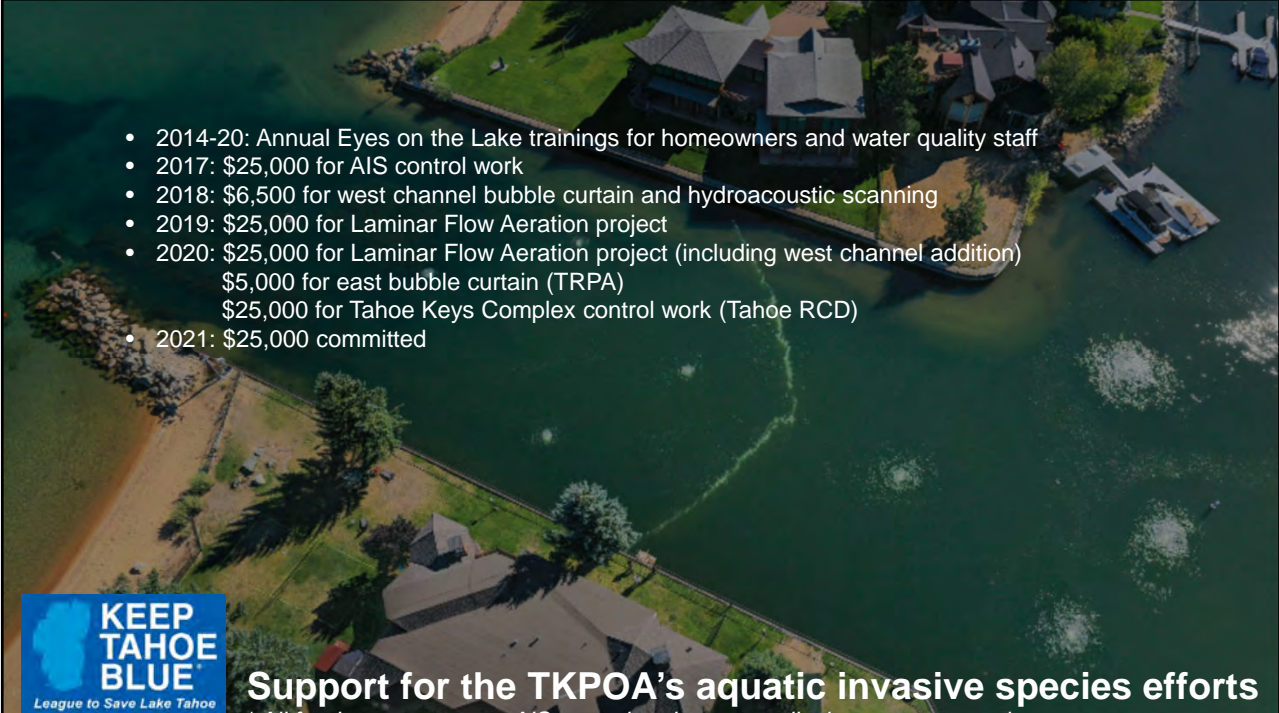
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- 2014-20: Annual Eyes on the Lake trainings for homeowners and water quality staff
- 2017: \$25,000 for AIS control work
- 2018: \$6,500 for west channel bubble curtain and hydroacoustic scanning
- 2019: \$25,000 for Laminar Flow Aeration project
- 2020: \$25,000 for Laminar Flow Aeration project (including west channel addition)  
\$5,000 for east bubble curtain (TRPA)  
\$25,000 for Tahoe Keys Complex control work (Tahoe RCD)
- 2021: \$25,000 committed

**KEEP TAHOE BLUE**  
League to Save Lake Tahoe

**Support for the TKPOA's aquatic invasive species efforts**



# Tahoe Keys Lagoons Restoration Project

Application for Approval to Reduce  
Target Aquatic Weeds  
(Exemption to Lahontan Basin Plan Prohibition)

Historical Perspective and Site-Specific  
Conditions

# Main Points

- This has been an issue for a long time (since the 1970s)
- Size or Scale is THE controlling factor
- Field trials and other studies have been conducted since the 1980s
- Preference is for selective removal of Target Aquatic Weeds, not complete die-off of all species

# Tahoe Keys – Scale and Perspective

- ~170 acres of waterways in the Keys
- Comparison with other marinas around Lake Tahoe
  - ~30 other enclosed marinas - 20-30 acres total (shown in Yellow)
  - Tahoe City (2<sup>nd</sup> largest after Keys): 6 acres
  - 80% of all other marinas are smaller than Keys west channel entrance (1 acre – in Red)
  - 50% are 0.5 acre or less
  - Ski Run (LFA): 0.5 acre (shown in Green)
  - TKPOA (LFA): 6 acres (shown in Blue)
  - Lakeside (UV): 0.9 acre (shown in Orange)
- Difficult to scale between Tahoe Keys and other locations around Lake Tahoe

# Tahoe Keys – Scale and Perspective



Slide 4

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KL1

make outlines bigger

Korman, Laura@Waterboards, 6/24/2019

# Tahoe Keys – Existing Conditions

- April 2018
- Hydro-acoustic scan
- All species





# Tahoe Keys – Existing Conditions

- July 2018
- Hydro-acoustic scan
- All species



# Tahoe Keys – History of Weed Management Actions

**1970** – Water circulation & treatment system to remove P and 1<sup>st</sup> weed harvester purchased

- Permit requirement of CSTL

**1983** – Replaced first harvester

**1988** – Rotovating field trial

**1995** – Applied to LRWQCB for small scale herbicide test

**2000, 2001** – First mesocosm studies

**2000s** – degree of infestation increases appreciably

**2010s** – curlyleaf pondweed becomes established

# Mesocosm Study Tank



# History of Weed Management Actions

## 2014 – Waste Discharge Requirements (WDRs)

- **Non-Point Source (NPS) Plan**
  - Phosphorus fertilizer ban
  - Homeowner education
  - “Lunch and Learn”
- **Integrated Management Plan (IMP)**
  - Evaluation of approved methods (harvesting, barriers, divers)
  - Testing of new methods (LFA, bubble curtains, initial UV)
  - Monitoring and reporting (water quality, sediment)
  - Education and outreach
- **Annual Updates**
- **End of Season Reports –**  
bottom barriers, backup station, harvesting

# History of Weed Management Actions

- **2013-2017** – Significant research and outreach effort
  - Convened expert panel
    - Joel Trumbo – *Sr Env Scientist, Cal Fish & Wildlife*
    - Dr. Kurt Getsinger – *Team Lead, US Army Corps of Engineers (Vicksburg, MS)*
    - Dr. Pat Akers – *Supervising Scientist, Aquatic Weed Eradication, CA Dept of Food & Agriculture*
    - Dr. Sudeep Chandra - *Assoc Prof of Limnology, UNR*
    - Dr. Joe DiTimaso – *Dept of Plant Sciences, UC Davis*
  - **2015** - Presented findings at Public Meeting at STPUD office
    - Stakeholders meetings

# History of Weed Management Actions

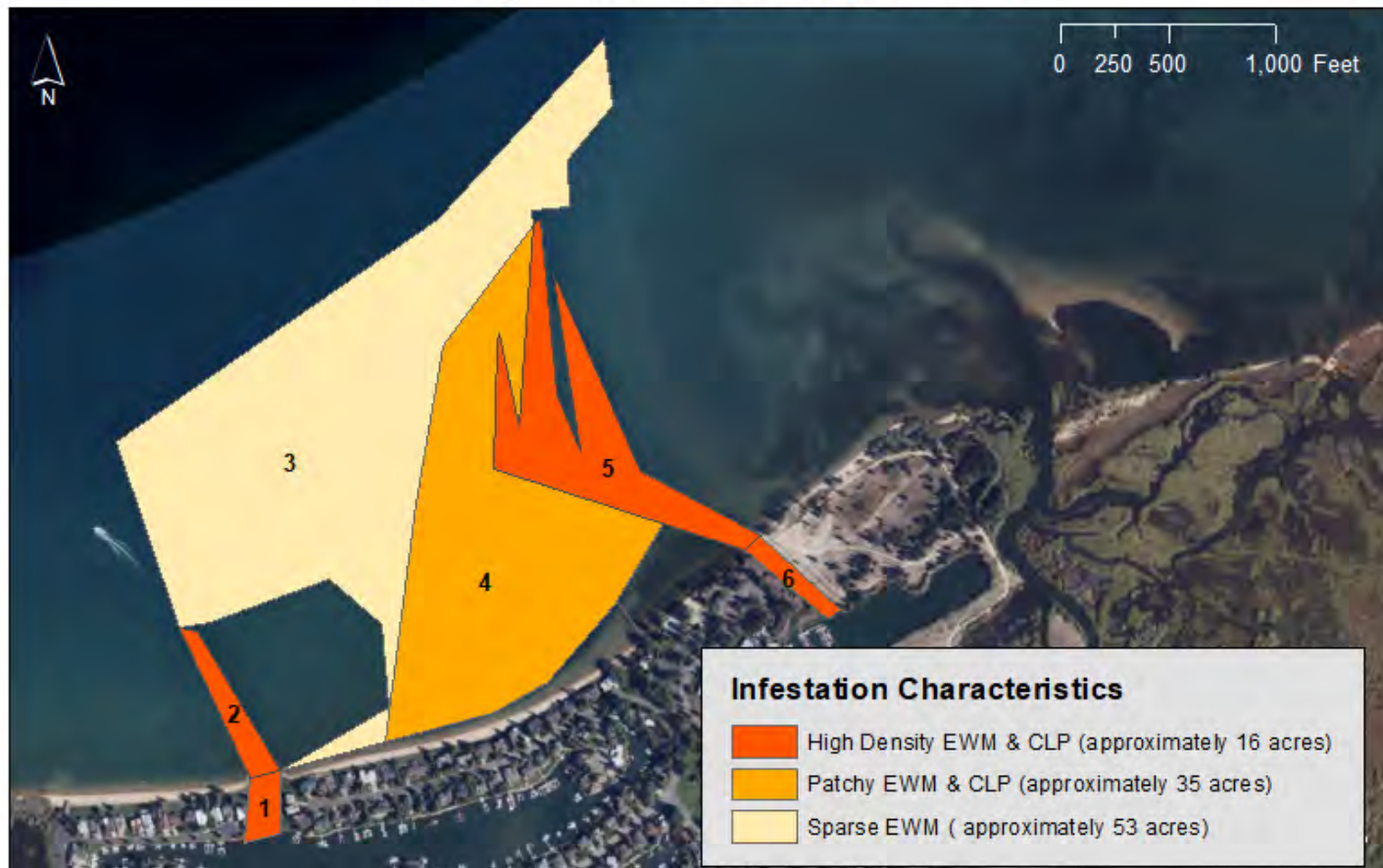
- **2013-2017** – Significant research and outreach effort
  - Bottom barriers
    - Large-scale test
    - Individual homeowners
  - Dye studies (multiple years - began in 2010)
  - Channel dredging
  - Bench and mesocosm studies
  - Additional review of rotovating
  - Greenhouse Gas Emissions study
  - Goose Droppings nutrient study
  - Atmospheric Deposition of nutrients study
  - Benthic Macro-Invertebrates (BMI) study (worms, snails, etc in the sediment)

# History of Weed Management Actions

- **2013-2017** – Significant research and outreach effort
  - Weed fragment production study: pre/post harvesting
  - Seasonal weed surveys
    - Hydro Acoustic Scans
    - Species-specific abundance
  - Water Quality Monitoring
    - 15 parameters, 13 sites, 5 depths
    - At least monthly April-October
  - Boat Backup Station
  - Bubble Curtain and Sea Bins
  - 6-acres Laminar Flow Aeration test
  - Invested over **\$4.5 million** to date (not including harvesting)
  - Special Assessment 3<sup>rd</sup> payment pending (appx. \$1 million more)

# TRCD Mapping of Spread Into Lake Tahoe

Tahoe Keys Offshore Survey June 2020





# Tahoe Keys Lagoons Restoration Project

1. Problem has been developing for over 50 years
2. Testing of alternatives has occurred since at least the 1980s
3. Key to successful restoration is selective treatment and maintenance of native plant species and BMI
4. TKPOA has conducted substantial research and testing
5. Target Aquatic Weed growth has accelerated in the last 15-20 years and has spread into an appreciable area of Lake Tahoe
6. Curlyleaf pondweed presents a new threat
7. There is nothing to be gained and much to be lost by not moving forward now with side-by-side testing of all methods

THE FOLLWING IS REFERENCE MATERIAL FOR  
GENERAL BOARD KNOWLEDGE AND DISCUSSION

# State of the Water Industry



**American Water Works  
Association**

*Dedicated to the World's Most Important Resource®*

# 2020

**EXECUTIVE SUMMARY**



**"I strongly believe in the truth of this data, even though optimism may seem questionable now as the water sector wrestles with the COVID-19 pandemic. Let's remember this survey reflects our feelings in 2019. More importantly, let's remember that even in the face of this year's broad health concerns with COVID-19, utilities continue providing the vital service of keeping safe water flowing 24/7. So, yes, we should be optimistic. Our place in society is essential to the health and prosperity of each community, and we have the expertise, professional collaborations, knowledge, and access to technical resources to solve water's challenges – today and tomorrow. I suspect next year's results will again prove this is the case."**

**● *David LaFrance, AWWA Chief Executive Officer***

# Optimism buoys water sector

## Pre-coronavirus survey shows three-year positive trend

In the months before the coronavirus pandemic hit, the water sector was enjoying a three-year wave of optimism, according to the 2020 State of the Water Industry report, published by the American Water Works Association.

More than 3,300 water professionals responded to the survey by November 2019, just before COVID-19 upended the public health and economic landscapes. AWWA has produced this annual report since 2004, compiling survey responses from utility and non-utility professionals in the United States and Canada.

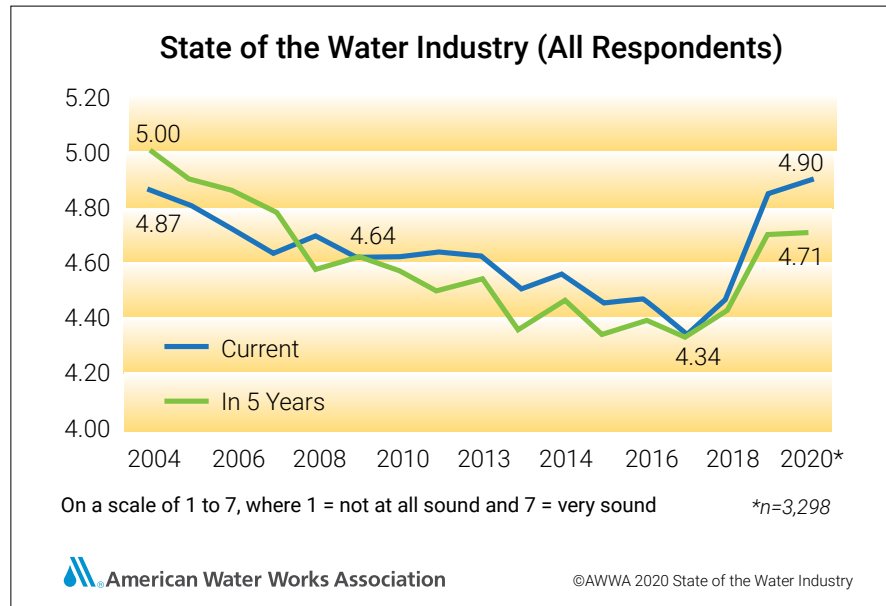
### MEASURING OPTIMISM

Each year participants are asked to rate the current overall health of the water industry on a scale of 1 (not sound) to 7 (very sound). As shown in the graph above:

- The most recent survey responses averaged 4.90, a record high and the third consecutive increase since the low of 4.34 in 2017.

Participants also are asked annually to rate the soundness of the water industry in five years.

- Based on the same scale, the latest survey responses also increased for the third consecutive year to an average of 4.71.



### PREPARATION IS KEY

AWWA publishes the yearly State of the Water Industry Report to help water utilities, service providers, regulators and researchers identify and prepare for challenges, opportunities and trends impacting the water community.

The 2020 report provides insight into issues such as infrastructure renewal and replacement, financing capital improvements, water supply sustainability and regulatory compliance.

It's noteworthy that "emergency preparedness" was ranked as the eighth biggest challenge before the pandemic. For insights on how the water sector responded, see the series of COVID-19 surveys at [awwa.org/coronavirus](http://awwa.org/coronavirus).

Full report available at [awwa.org/SOTWI](http://awwa.org/SOTWI)



“After decades of deferred maintenance, the water sector has a lot of catching up to do regarding renewing and replacing deteriorating and aging infrastructure. Because of the substantial costs involved, long-term financing is needed to manage these investments. AWWA and its volunteers have been instrumental in bringing attention to the challenges of aging infrastructure, limited funding, and impacts of agriculture on drinking water sources. This has supported growth in loan programs through the Water Infrastructure Finance and Innovation Act (WIFIA) and Drinking Water and Clean Water State Revolving Funds (DWSRF and CWSRF). The 2018 Agriculture Improvement Act, known as the Farm Bill, also offers excellent opportunities for drinking water systems to use conservation title funds to protect their source water.”

● *Chi Ho Sham, AWWA Incoming President-Elect*

# Infrastructure, financing top issues

## Focus on recurring concerns paying off

Listed below are the top 20 issues impacting the water sector, as ranked by participants in the 2019 survey prior to the coronavirus outbreak. All utility survey respondents, regardless of the size of their organization, agreed on the top three issues:

1. Renewal and replacement of aging water and wastewater infrastructure
2. Financing for capital improvements
3. Long-term water supply availability

Because of their complexity, the top two issues – renewal and replacement of aging water and wastewater infrastructure and financing for capital improvements – have been ranked highest for eight years running.

The continued focus on these complex issues has led to expanded funding options.

- **WIFIA**—The Water Infrastructure Finance and Innovation Act, which the U.S. Congress passed in 2014 with significant AWWA support, has had ongoing success. Through 2019, WIFIA had closed 14 loans totaling \$3.5 billion in financing, saving borrowers \$1.2 billion.
- **AWIA**—Passage of America's Water Infrastructure Act of 2018 reauthorized WIFIA for two years. It also reauthorized the Drinking Water and Clean Water State Revolving Funds.
- **Farm Bill**—AWWA and its members supported passage of the Agriculture Improvement Act of 2018, which prioritized source water protection and expanded funding to protect drinking water sources through agricultural conservation programs.
- **State Revolving Funds**—In 2020, the U.S. Environmental Protection Agency (EPA) allocated about \$1.07 billion in new federal grant funding for the Drinking Water State Revolving Fund and \$1.6 billion for the Clean Water State Revolving Fund.

### Learn more:

- [AWWA Source Water Protection Justification Toolkit](#)
- [U.S. Dept. of Agriculture Tools to Support Source Water Protection](#)
- [M21 Groundwater](#)
- [AWWA Water Infrastructure Conference proceedings](#)

### Issues Facing the Water Industry in 2020

2020 RANKING	CHALLENGE
1	Renewal and replacement of aging water and wastewater infrastructure
2	Financing for capital improvements
3	Long-term water supply availability
4	Public understanding of the value of water systems and services
5	Watershed/source water protection
6	Public understanding of the value of water resources
7	Aging workforce/anticipated retirements
8	Emergency preparedness
9	Compliance with current regulations
10	Groundwater management and overuse
11	Compliance with future regulations
12	Cost recovery (pricing water to accurately reflect the cost of service)
13	Governing board acceptance of future W/WW rate increase
14	Public acceptance of future water and wastewater rate increases
15	Talent attraction and retention
16	Cybersecurity issues
17	Water conservation/water use efficiency
18	Asset management
19	Improving customer, constituent, and community relationships
19	Data management
20	Drought or periodic water shortages



“During my years as AWWA Treasurer and a Water Utility Council member, I have often heard, and continue to hear, that replacement of aging infrastructure and financing of capital improvements are the biggest challenges our members face. In response, AWWA focused on these concerns two decades ago and has made great strides. The development of Asset Management Planning coupled with AWWA’s leadership in creating WIFIA, advocating for increased SRF funding, and other longstanding practices have provided a robust set of effective tools to manage water infrastructure needs. While the challenges continue, clearly these tools provide a larger and stronger arsenal to handle our aging infrastructure and financing needs more effectively, now and in the future.”

● *Aurel Arndt, AWWA Treasurer, retired chief executive officer at Lehigh County Authority*



# Piecing together infrastructure financing

## Options include rate increases, loans

The pandemic has delayed many capital projects and spawned calls for federal stimulus relief, but prior to the outbreak, ongoing efforts to increase financing for water infrastructure seemed to be paying off.


According to the survey, 54 percent of participants who indicated they played a role in financial management decisions said their utility's access to capital was as good as or better than any time in the past five years. This is up from 46 percent in 2019 and slightly better than the running average of 53 percent.

In addition, 54 percent said their top anticipated capital expenditures for 2020 would address infrastructure needs.

The same group of utility survey participants who played a role in financial management decisions were asked about their sources and strategies for utility capital funding. The table above ranks their funding source choices.

Utility Funding Sources Ranked by % Mentions	
1	Rate increases (25%)
2	Bonds (18%)
3	Grants (14%)
4	Operational savings (13%)
4	Reserves (13%)
4	State Revolving Funds (SRFs) (13%)
5	Water Infrastructure Finance and Innovation Act (WIFIA) (4%)

Responses are from individuals who identified as utility executives/management and financial officers (n = 652)

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### IMPLEMENT ASSET MANAGEMENT FOR RELIABILITY

The infrastructure concern ranked highest by survey respondents is reliability.

AWWA encourages utilities to adopt a proactive, sustainable, solution-oriented approach to manage assets. This allows them to maximize the value of service delivery without compromising future efforts to meet customer needs.

Twenty-nine percent of utility survey participants said they have fully implemented an asset management plan. Another 53 percent are in the process of implementing a plan.

#### Learn more:

- [2019 Water and Wastewater Rates Survey](#)
- [M28 Rehabilitation of Water Mains](#)
- [M77 Condition Assessment of Water Mains](#)
- [M1 Principles of Water Rates, Fees and Charges](#)
- [M54 Developing Rates for Small Systems](#)
- [AWWA Buried No Longer Tool](#)



“We had to find a way to bring surface water into the city because our demands were quickly reaching the amount of physical availability of groundwater in our area. We capitalized on our unused shares of the Colorado River by partnering with the Salt River Project in central Arizona to transport the water across the valley, building a five-mile pipeline, pump station and treatment facility. The surface water project is part of a much larger master plan that calls for aggressive water conservation and reclamation.”

● *Barbara Chappell, Deputy Public Works Director,  
City of Goodyear, Ariz.*

# Meeting current and future water needs

## Planning for growth, climate changes, alternative supplies

Another critical water issue is the ability to meet water supply needs. Survey results reflect growing challenges such as drought, climate variability, reduced snowpack, sea level rise and extreme weather events.

Three of the top water sector issues that were identified by survey participants relate to supply:

- Long-term water supply availability, ranked third
- Watershed/source water protection, ranked fifth
- Groundwater management and overuse, ranked 10th

As shown in the graph below, the survey showed a slight increase in utilities that are very or fully prepared to meet long-term water supplies—57 percent in 2020 compared to 55 percent in 2019.

Twelve percent of survey participants said their utility is not at all or slightly prepared to meet anticipated long-term water supply needs, the same as in 2019 and higher than 6 percent in 2018.

### LONGER-TERM SUSTAINABILITY

Although water restrictions can help manage short-term needs, most utility-sponsored water conservation programs emphasize longer-term improvements in water use efficiency.

The 2020 survey asked participants whether their utilities have water conservation or water shortage planning programs. Thirty-eight percent said they have a fully-developed drought management or water shortage contingency plans and 37 percent have fully implemented water conservation programs.

An additional step in water shortage preparedness is regional water supply sustainability. Utilities and the communities they serve can determine policies and practices for water conservation and alternative water supplies, including desalination of brackish groundwater or seawater, nonpotable and potable reuse, and stormwater capture and reuse.

Seven percent of the utility survey participants reported having or developing some type of desalination project.

#### Learn more:

- [M52 Water Conservation Programs: A Planning Manual](#)
- [G485-18 Direct Potable Reuse Program Operation and Management](#)
- [Potable Reuse 101 report](#)
- [M60 Drought Preparedness and Response](#)

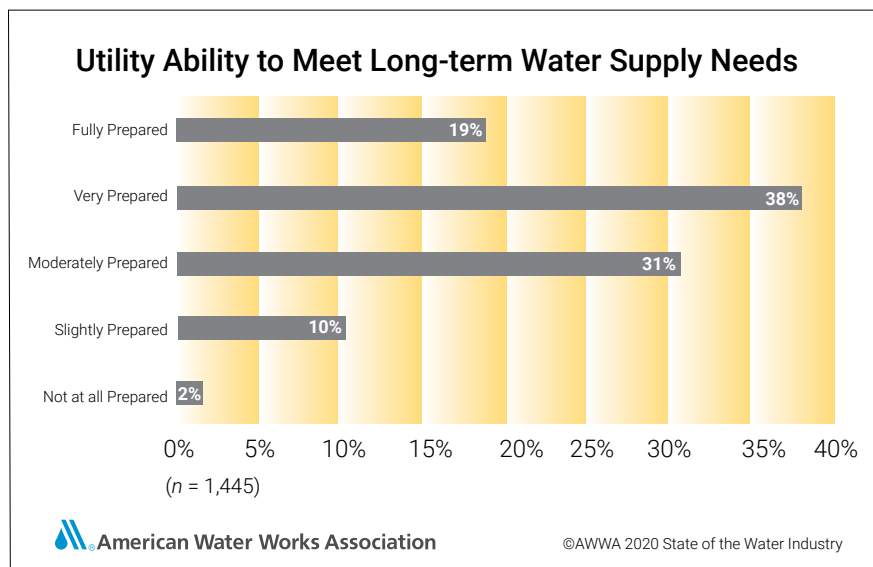




Photo credit, Tahoe Water Suppliers Association



**“We know customers are much more satisfied with their utility’s service when the utility proactively communicates with them, so survey results showing that just over a quarter of utilities have a plan to do this are concerning. Communicating to our customers and our stakeholders requires strategy and planning to ensure that those who rely on you for service, and those who rely on you to be a community partner, get the information they need consistently and in a way that resonates with them. Absent a strong, proactive communications effort, utilities put themselves at risk of a reputational challenge and loss of support for critical infrastructure and funding needs.”**

**● *Melissa Elliott, AWWA President-Elect***

# Community support crucial for utilities

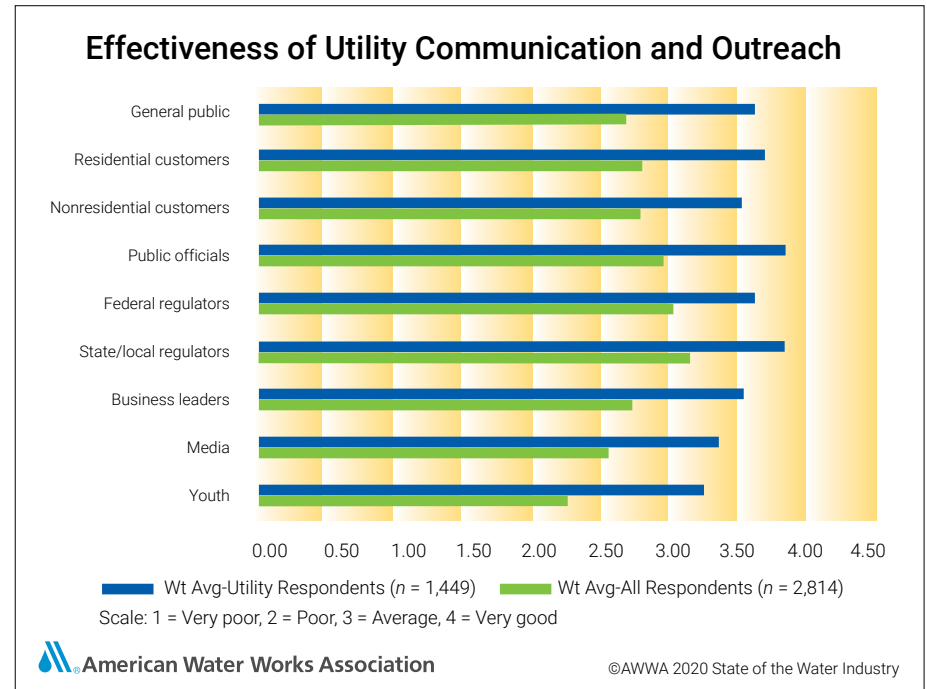
## Education key to building understanding of water's value

A key factor in a water utility's success in attaining needed system investments is how well its stakeholders – including customers, decision makers and the general public – understand the value of their water system and resources. Ultimately, a utility's customers pay for these investments.

While many water utilities routinely inform their communities about the role their agencies play in safeguarding public health, ensuring customer satisfaction and protecting the environment, the public frequently does not understand the need for increased funding to support safe and reliable water service.

The challenge of educating a community about what it takes to safely and reliably deliver and treat water is reflected in three of the top 20 issues listed in the 2020 survey results:

- Public understanding of the value of water systems and services, ranked fourth
- Public understanding of the value of water resources, ranked sixth
- Public acceptance of future water and wastewater rate increases, ranked 14th



Traditionally, water utilities may have carried out their responsibilities with little attention from their communities. In today's decentralized media environment, many utilities are finding they must engage regularly and proactively with their communities to maintain trust, work harder to be more transparent in their operations, and educate their stakeholders about water quality and environmental concerns. This can be difficult to prioritize among many other business needs.

According to the 2020 survey report, 27 percent of utility participants said they had a fully implemented customer communications plan.

The graph above shows the ratings of utility and non-utility survey participants regarding utility communications with various audiences.

**Learn more:**

- [Drinktap.org](https://www.drinktap.org)
- [Lead Communications](#)
- [Trending in an Instant report](#)
- [G420-17 Communication and Customer Relations](#)



“Because our most pressing regulatory issues, such as PFAS and lead, are pervasive across the water sector and each utility’s circumstances are different, there is a significant need for diverse knowledge and resources to facilitate compliance. AWWA is uniquely able to fill this need, drawing on its volunteer corps of 5,500 experienced and committed professionals. Through a wide array of focused committees, they generate the trusted and reliable content that AWWA is widely known for, including manuals of practice, books, standards, articles, educational materials, webinars, and conferences, available in both traditional and digital formats.”

● *Brent Alspach, Director of Applied Research, Arcadis*

# Regulatory compliance a growing issue

## PFAS climbs to top concern

In today's era of mounting concern about water quality issues such as per- and polyfluoroalkyl substances (PFAS) and source water pollution, the water sector faces substantial challenges to comply with current and evolving regulations.

Survey participants reflected this concern in two of the top 20 issues identified in the 2020 report:

- Compliance with current regulations, ranked ninth
- Compliance with future regulations, ranked 11th

These regulatory compliance issues placed higher this year than in the 2019 survey report, in which they placed 12th

and 13th, respectively. In fact, 2020 was the first year that regulatory compliance was mentioned in the top 10 issues.

PFAS rose to the top 2020 regulatory concern after placing second in 2019 and 9th in 2018. The U.S. EPA has proposed setting national drinking water standards for two of the most common and studied types of PFAS chemicals and is seeking comment on potential monitoring requirements and regulatory approaches for the chemicals. In the meantime, numerous states have established or are considering PFAS regulations.

The table below shows how survey participants ranked their top regulatory concerns.

## AWWA HELPING INFORM LEAD AND COPPER REGULATION

Although the EPA's proposed revisions to the Lead and Copper Rule had not been released at the time of this survey, the water sector was managing increased public attention on the issue and anticipating new requirements, such as documenting the location of lead service lines in their communities. Survey participants ranked lead and copper as the seventh-highest regulatory concern.

In addition, the survey asked utility participants whether their organization had considered and/or implemented a lead service line replacement program. Overall, 72 percent indicated their utility has implemented such a program or is in the process of doing so.

In February 2020, AWWA provided testimony before the U.S. House Subcommittee on Environment and Climate Change on the need for a revised Lead and Copper Rule that advances lead service line replacement while strengthening the protection of consumers through proper corrosion control. AWWA also provided comments on the EPA's draft rule.

**Learn more:**

• [AWWA Policy and Advocacy](#)

• [AWWA Briefing on PFAS](#)

• [M58 Internal Corrosion Control in Distribution Systems](#)

### Regulatory Concerns Ranked by All Survey Respondents

RANKING	REGULATORY CONCERNS	WEIGHTED AVERAGE	% CONCERNED
1	Per- and polyfluoroalkyl substances	3.49	22%
2	Non-point source pollution	3.29	15%
3	Point source pollution	3.23	15%
4	Chemical spills	3.18	15%
5	Cyanotoxins	3.12	13%
6	Combined sewer overflows	3.12	14%
7	Lead and copper	3.09	15%
8	Nutrient removals	3.08	12%
9	Pathogens	3.05	15%
10	Perchlorates	2.91	9%
11	Arsenic	2.85	10%
12	Radionuclides	2.83	10%

Scores are on a scale of 1 to 5, where 1 = not at all concerned and 5 = extremely concerned.



**“You’ve heard me before reference the water profession as a ‘vocation of distinction.’ In these difficult times, it is also a vocation of heroism. Rarely seen but always on the job, you are a quiet army protecting our communities in ways they do not fully understand. Whether you are a distribution operator repairing a broken water main in frigid temperatures, or a chemist assuring the community water supply is safe to drink, or a wastewater worker freeing a clogged sewer system, or a customer service representative helping a concerned citizen with a difficult question, or a technology provider developing solutions that make our magnificent water systems even better – you are all essential in keeping our communities safe and healthy.”**

**● Jim Williams, AWWA President, message during COVID-19 pandemic**




# Planning for resilience during emergencies

## Meeting 2020 AWIA requirements

Utility Progress Assessing Risk and Resilience and Emergency Response Planning					
Plan and/or Program	Count (n =)	Fully Implemented	Implementation in Progress	Interested	% Fully implemented and in progress
<b>Emergency response plan</b>					
All utility respondents	1,388	715	540	133	90.4%
Small utilities	241	113	92	36	85.1%
Medium-sized utilities	231	114	90	27	88.3%
Large utilities	584	287	250	47	92.0%
Very large utilities	324	198	104	22	93.2%
<b>Risk and resilience assessment</b>					
All utility respondents	1,111	230	534	347	68.8%
Small utilities	182	25	67	90	40.5%
Medium utilities	191	35	74	82	57.1%
Large utilities	472	93	247	132	72.0%
Very large utilities	259	76	143	40	84.6%

Utility size is based on population served: Small utility (0–3,300); Medium-sized utility (3,301–10,000); Large utility (10,001–100,000); Very large (≥100,000)

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If the survey had been conducted in the spring of 2020, the coronavirus pandemic likely would have dominated concerns about risk and resilience.

However, in fall 2019, survey participants ranked extreme weather events as the most negative large-scale phenomena challenging utility risk and resilience. Recognizing this, they also rated emergency preparedness as the eighth-highest of the top 20 issues identified in the 2020 report.

As shown in the chart above, more than 90 percent of utility respondents said they had implemented or are in the process of developing an emergency response plan. In addition, 69 percent had implemented or are in the process of developing a community risk and resilience assessment.

This finding is consistent with AWWA's March 2020 survey on COVID-19 preparedness, which found that more than 80 percent of utilities either had or were in the process of developing a business continuity plan.

America's Water Infrastructure Act (AWIA) of 2018 requires community water systems serving populations of 3,300 or more to:

- Conduct a risk and resilience assessment
- Prepare or revise an emergency response plan on a prescribed schedule every five years, starting in 2020

AWIA describes resilience as the ability of a community water system or an asset to adapt to or withstand the effects of a malevolent act or natural hazard without interruption or the ability to rapidly return to normal operation condition.

Utility survey participants were asked what stage their organization was in regarding assessing risk and resilience and emergency preparedness. Responses are summarized in the table above.

### Learn more:

- [AWWA Utility Risk & Resilience Certificate Program](#)
- [M19 Emergency Planning for Water and Wastewater Utilities](#)
- [AWWA G440-17 Emergency Preparedness Practices](#)
- [AWWA Coronavirus resources](#)



## **We Make Water Policy A Priority** Together We Protect Public Health

Through AWWA members' collective knowledge, our Government Affairs office informs decision makers on legislative and regulatory issues. We support effective measures that protect public health by advocating for sensible laws, regulations, programs and policies.

**Join AWWA today and let's work together  
on the critical issues facing our industry.**

**[awwa.org](http://awwa.org)**

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