An aerial photograph of a lake with a residential development. The lake is dark blue, and the surrounding area is filled with houses, trees, and a sandy beach. In the background, there are mountains under a clear blue sky.

Tahoe Keys Lagoons Aquatic Weeds Control Methods Test : Certify Environmental Impact Statement: Approval of Project

**TRPA Governing Board Meeting
January 26, 2022**

**Joanne S. Marchetta, TRPA
Dennis Zabaglo, TRPA
Jim Good, ESA
Dr. Lars Anderson, TKPOA
Kimberly Caringer, TRPA**



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**Aquatic Invasive Species
prevention and control
has been a top priority
initiative for more than a
decade**



This decision comes to you differently than a typical land use or natural resource planning process

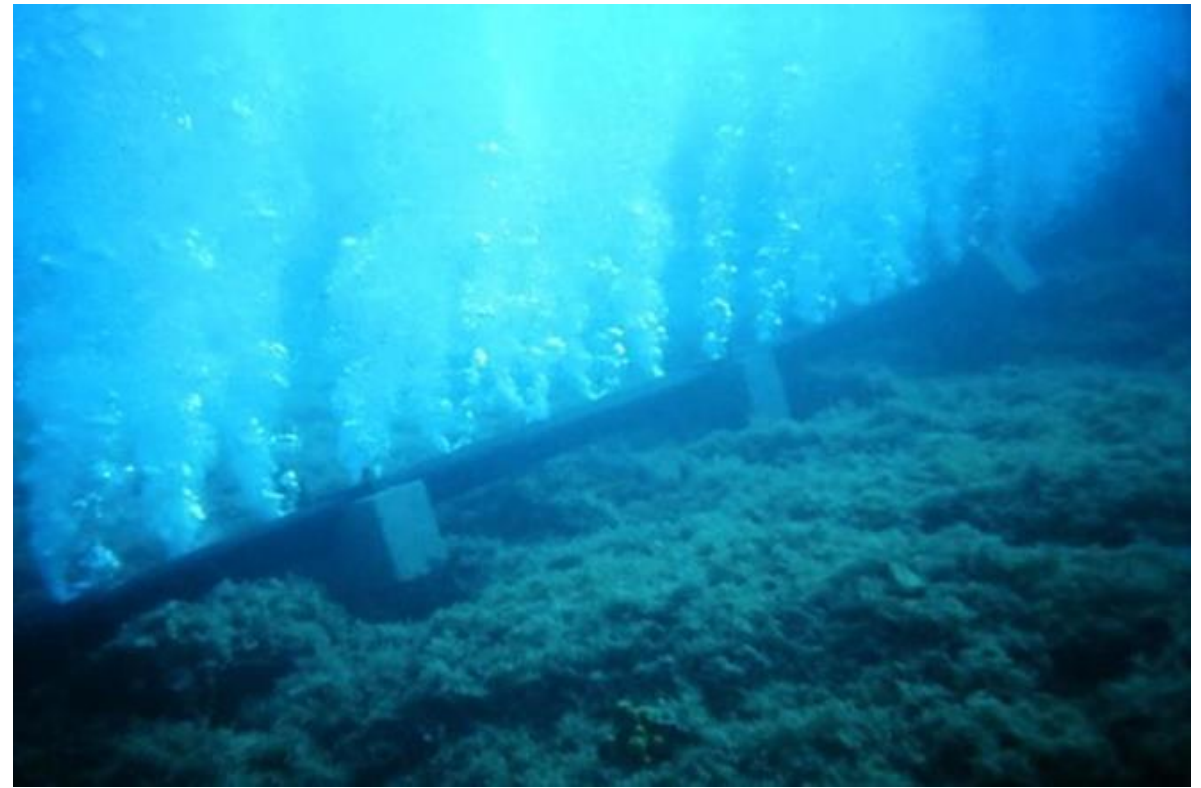


**Tahoe Keys
homeowners
have been
fighting the
weeds problem
for decades**



**To break the log jam,
we regrouped around a more collaborative approach.**






**The stakeholders agreed to address unknowns
with a carefully designed test**

The Question before us today



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Today's Presentation



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- **Dennis Zabaglo, TRPA AIS Program Lead**
- **Jim Good, ESA Technical Lead**
- **Dr. Lars Anderson, TKPOA Consulting Scientist**
- **Kimberly Caringer, TRPA EIP Division Manager**
- **Decision on EIS certification and the proposed project**



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Milestones

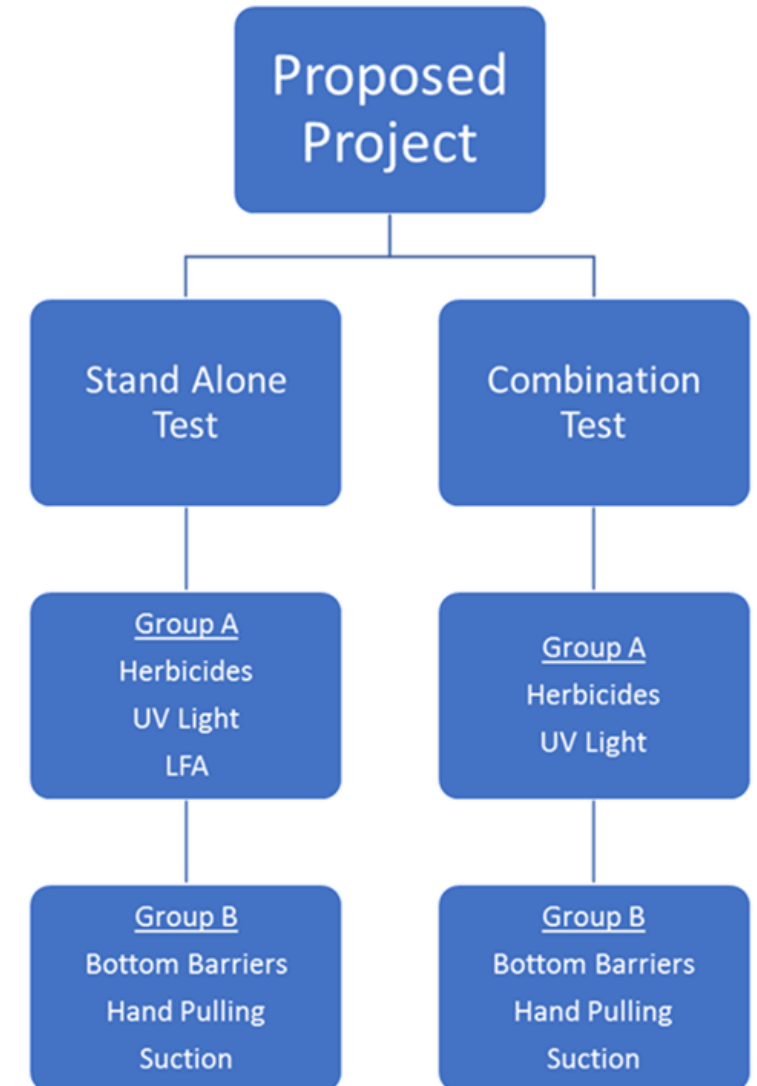


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- Public Scoping: Summer 2019
- Draft EIS: Summer 2020
- Final EIS: December 2021
- Lahontan Board approval: January 2022
- APC recommends certification of EIS: January 2022
- Governing Board Packet
 - Draft Permit
 - Findings
- Implementation proposed: Spring 2022

Proposed Test Project Description

- Initial treatment to provide **knockback**
 - Group A- Ultraviolet light (UV), targeted aquatic herbicides, Laminar Flow Aeration (LFA)
 - One time treatment of herbicides
- Follow-up methods that can be used to **maintain** manageable levels
 - Group B- UV, bottom barriers, hand pulling and diver suction
- Goals of the test
 - What methods can achieve 75% reduction in biomass
 - Can non-herbicide methods control the infestation over time?







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Test Development



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- **Public Engagement**
 - Above and beyond the typical EIS process
 - Extensive feedback shaped the project
 - Action Alternatives
 - No Project Alternative

Proposed Project
Test of all methods

Action Alternative 1
No herbicide test

Action Alternative 2
Dredge test

No Project Alternative
Unavoidable impacts



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Scientific Foundation and Expertise



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- Extensive data collection
- Weeds are the primary source of nutrients
- Lead agency expertise
- Independent technical team
- Environmental Protection Agency
- Tahoe Science Advisory Council
 - “Thorough and comprehensive”



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Environmental Protections



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- TRPA Permit- protection of Lake Tahoe
 - Mitigations and resource protection measures
 - Timing of treatment
 - Double turbidity curtains
 - EPA approved targeted herbicides
 - Aeration
 - Tracer dye
 - Extensive monitoring program
 - Regular reporting



Path to Finding Solutions

- Success of AIS Program
 - Pilot projects
 - History of innovation
- The Test follows the AIS Program's history of success
- Test is needed to achieve our long-term goals

Implementation Plan for the
Control of Aquatic Invasive Species within Lake Tahoe

by

Marion E. Wittmann, Ph.D. & Sudeep Chandra, Ph.D.

University of Nevada Reno
Department of Biology

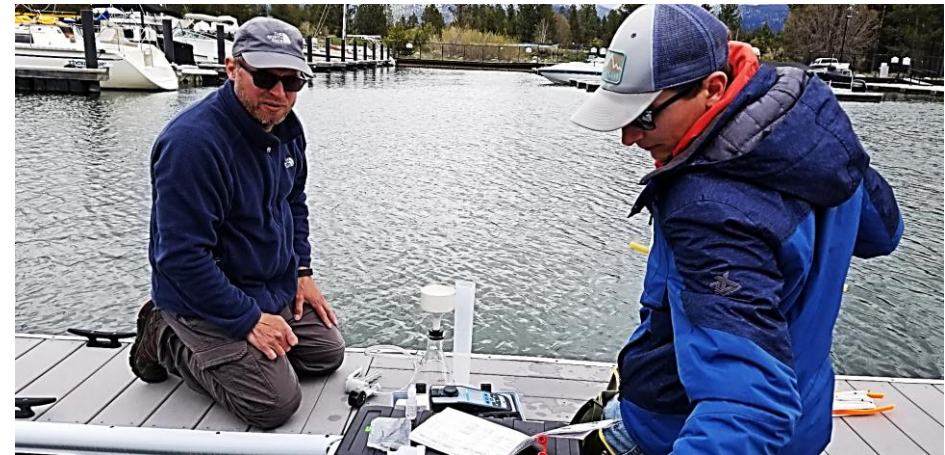


In collaboration with

The Lake Tahoe Aquatic Invasive Species Coordination Committee

Environmental Impact Evaluation Process

- Initial Study and Environmental Checklist
 - Reviewed existing information
 - Identified potential issues, need for EIS and EIR
- 2019 Baseline Study
- Team of 5 PhD specialists evaluated aquatic impacts:
 - Environmental Toxicologist
 - Limnologist
 - Aquatic Plant Specialist
 - Fisheries Biologist
 - Hydrologist
- Nutrient loading/nutrient cycling model



Study of Environmental Impact Issues

- 43 potential issues were identified and evaluated
 - Most issues in the lagoons where the activities would occur
 - 6 Environmental Health (people, aquatic life)
 - 1 Hydrology
 - 7 Water Quality
 - 9 Aquatic Ecology
 - Also evaluated Earth Resources, Air Quality, Greenhouse Gas Emissions, Terrestrial Ecology, Land Use, Recreation, Utilities, Traffic/Transportation, Noise, and Cultural
- Except for No Action, impacts can be mitigated to be less than significant for each issue

Environmental Impacts of Control Methods Test

- Resource protection measures addressed many issues
 - Less than significant risk of impacts to drinking water
- 10 Issues were Potentially Significant without mitigation
 - Increased harmful algal blooms (HABs)
 - Lagoon water quality (nutrients, DO)
 - Effects on non-target aquatic plants, including sensitive species
- Impacts for all issues were Less Than Significant with mitigation

Mitigation for Control Methods Test

- Herbicides
 - Applicator training and licensing
 - Spill prevention & response plan requirements to prevent excess concentrations
 - Aeration to accelerate aerobic degradation
- Aluminum – best management practices to minimize sediment disturbance
- Phosphorus, nitrogen, and harmful algal blooms
 - Timing and size of treatments minimize decomposing plant tissue
 - Lanthanum-modified clay if indicated from monitoring results
 - Aeration to make conditions less favorable for HABs

Mitigation for Control Methods Test (cont.)

- **Dissolved oxygen**
 - Timing and size of treatments minimize decomposing plant tissue
 - Aeration if real-time DO monitoring indicates the need
- **Spring macrophyte surveys to adjust test site boundaries**
 - Concentrate on target species
 - Avoid impacts to non-target plants, including sensitive species
 - Avoid adverse impacts to aquatic plant community composition

Environmental Impacts for No Action Alternative

- Long-term risks of water quality impacts from growing aquatic invasive weed problem
 - Increased water temperature
 - Lower dissolved oxygen
 - Increased changes in pH
 - Increased floating weed fragments
 - Increased phosphorus and nitrogen cycling from sediments into the water with increased risk of HABs
 - Increased turbidity = reduced water clarity
 - Potential long-term impacts to drinking water at Lake Tahoe

Environmental Impacts for No Action Alternative (cont.)

- Long-term impacts to aquatic ecology
 - Displacement of native plant species with invasive species
 - Shifts in aquatic plant communities
 - Reduced health of benthic invertebrate community
 - Increased risks to special status fish species
 - Reduced suitability of habitat for native or recreationally important fish species
 - Increased spread of aquatic invasive species
- Reduced quality of recreational boating in Lake Tahoe
- Long-term impacts to TRPA recreation thresholds

CMT Monitoring Working Group: *Meets Weekly*

- Coordination with lead agencies
- Developed consistent monitoring methods
- Developed master schedule
- On-going Technical review

Collaborative, Adaptive Process:
Refines CMT Monitoring
Methods and Helps Coordinate
Implementation

How Will Efficacy of CMT Treatments be Determined?

Methods of Assessment

- Hydroacoustic Scans
- Physical Sampling
(GPS referenced “points”)
- Videography
(At each physical sampling site)

What it Tells Us

Biovolume (Biomass)
Percent Cover
Plant height (Vessel Hull Clearance)

Species Composition (% target and native plants)
Condition of plants (health)
(Rating Scale (5= healthy; 1=dead/decomposing))

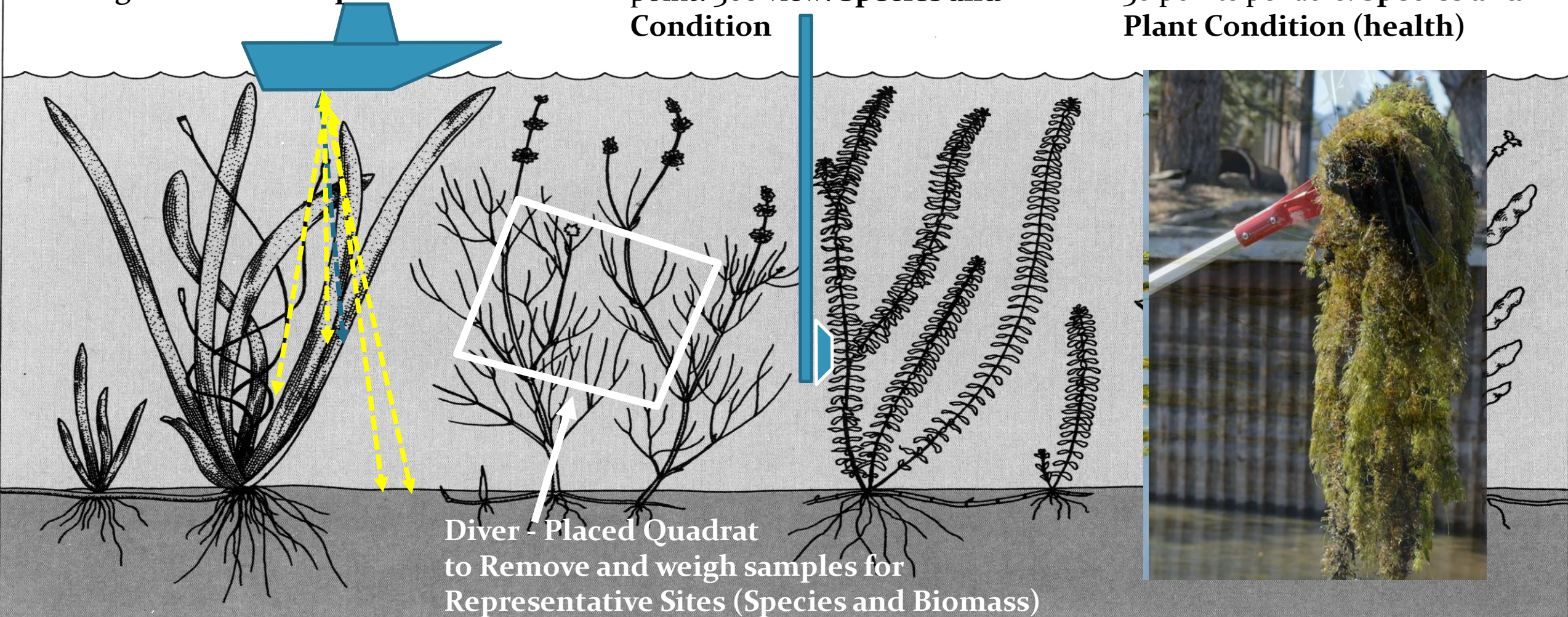
Plant Height (Vessel Hull Clearance)
Plant Condition
Estimate of Plant Composition

Representation of Efficacy Sampling Methods Used in Each CMT Site

Hydroacoustic scan (“sonar beams”)
**Biovolume, Percent Cover, Plant
height >> “Heat Maps”**

GPS Referenced Digital Video
Recording at Each Sampling
point: 360 view: **Species and
Condition**

GPS Referenced
Sampling with Rakes
30 points per acre: **Species and
Plant Condition (health)**



Stakeholder Committee Shared Perspectives:

The Tahoe Keys aquatic weeds infestation is accelerating and poses a serious threat to Lake Tahoe if not controlled.

The development of the proposed project has been a thorough, scientifically rigorous, and inclusive process.

The environmental analysis determined that Lake Tahoe is not at risk from this proposed test of mixed methods.


Credit: Sierra Overhead Analytics

Collaboration

- Collaborative learning
- Region-wide engagement
- Building lasting relationships and trust

Credit: Sierra Overhead Analytics





Thank You!
www.TahoeKeysWeeds.org

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