

NONPOINT SOURCE WATER QUALITY MANAGEMENT PLAN FOR THE TAHOE KEYS PROPERTY OWNERS ASSOCIATION

PREPARED PURSUANT TO
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION BOARD ORDER NO. R6T-2014-0059

Prepared by
Tahoe Keys Property Owners Association



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1.0 INTRODUCTION

TKPOA implemented the Nonpoint Source (NPS) Plan in 2016 to address both a finding of Waste Discharge Requirements (WDR) Order No. R6T-2014-0059 adopted by the Lahontan Regional Water Quality Control Board (Lahontan) on July 17, 2014 (Lahontan 2014), and as an aquatic invasive plant control method in the Integrated Management Plan for Aquatic Weeds for the Tahoe Keys Lagoons (IMP). Findings in the WDR specified the following two objectives of the NPS Plan:

- To identify and evaluate land-based activities being conducted in the Tahoe Keys community that may be sources of pollution (including nutrients) that have the potential to be discharged into surface waters.
- To identify and implement site-specific management practices to reduce or prevent pollutants (including nutrients) associated with activities being conducted in the Tahoe Keys community from discharging into surface waters.

This NPS Plan evaluates and addresses the land-based activities occurring in the Tahoe Keys development that could contribute to NPS pollution of the lagoons and describes how TKPOA will inform and educate its employees and member homeowners about how to reduce NPS pollution emanating from the Tahoe Keys Property Owners Association (TKPOA) common areas and private properties. This NPS Plan is linked to the IMP and fulfills a requirement of the 2014 Lahontan Order that supports the aquatic plant control work that is being completed under the IMP. Please refer to the 2024 IMP for an update to the IMP activities (TKPOA 2025).

2.0 2024 NPS SAMPLING AND RESEARCH

2.1 FIRST-FLUSH STORMWATER SAMPLING

To evaluate the water quality runoff from TKPOA-owned facilities and the quality of runoff entering the Keys lagoons from City of South Lake Tahoe (CSLT)-owned storm drains and upgradient properties for which CSLT is responsible for stormwater runoff, TKPOA annually conducts a “first-flush” stormwater sampling late in the year, just after the first precipitation event of fall / winter. Water samples are collected from surface water drainages, within storm drain drop inlets, or from the outlet of storm drains where accessible and above water level in the lagoons.

Mild precipitation for the beginning of winter pushed the 2024 first flush sampling into January 2025. Results will be included and analyzed in the 2025 NPS Report. Therefore, to provide context and continuity with prior reports, the 2023 first flush sampling results are discussed in Section 2.1.2 below.

2.1.1 First Flush Site Expansion

In 2023 TKPOA expanded the number of first flush sampling sites from 11 to 17, to include areas that enter directly into Pope Marsh, the Upper Truckee River and Trout Creek before it merges with the Upper Truckee River (see Figure 1). Understanding the direct sources of nutrients flowing into these locations combined with the data from inside the marshlands will help identify where the biggest nutrient loads are and how the marshland ecosystem contributes to the nutrient cycle. Another factor of consideration is the groundwater table influence. Lake Tallac is a separate water body from the West and East Lagoons. It is directly affected by the rise and fall of groundwater levels and collects the majority of CSLT stormwater runoff that enters the Tahoe Keys. It essentially buffers the West and East Lagoon from stormwater influences outside of the Tahoe Keys property and allows the runoff to be directed into Pope Marsh giving a more natural period of time and flow through the marshland before entering Lake Tahoe. Therefore, adding these sites will provide a more comprehensive view of the nutrient cycle in not just the Tahoe Keys area, but surrounding areas as well.

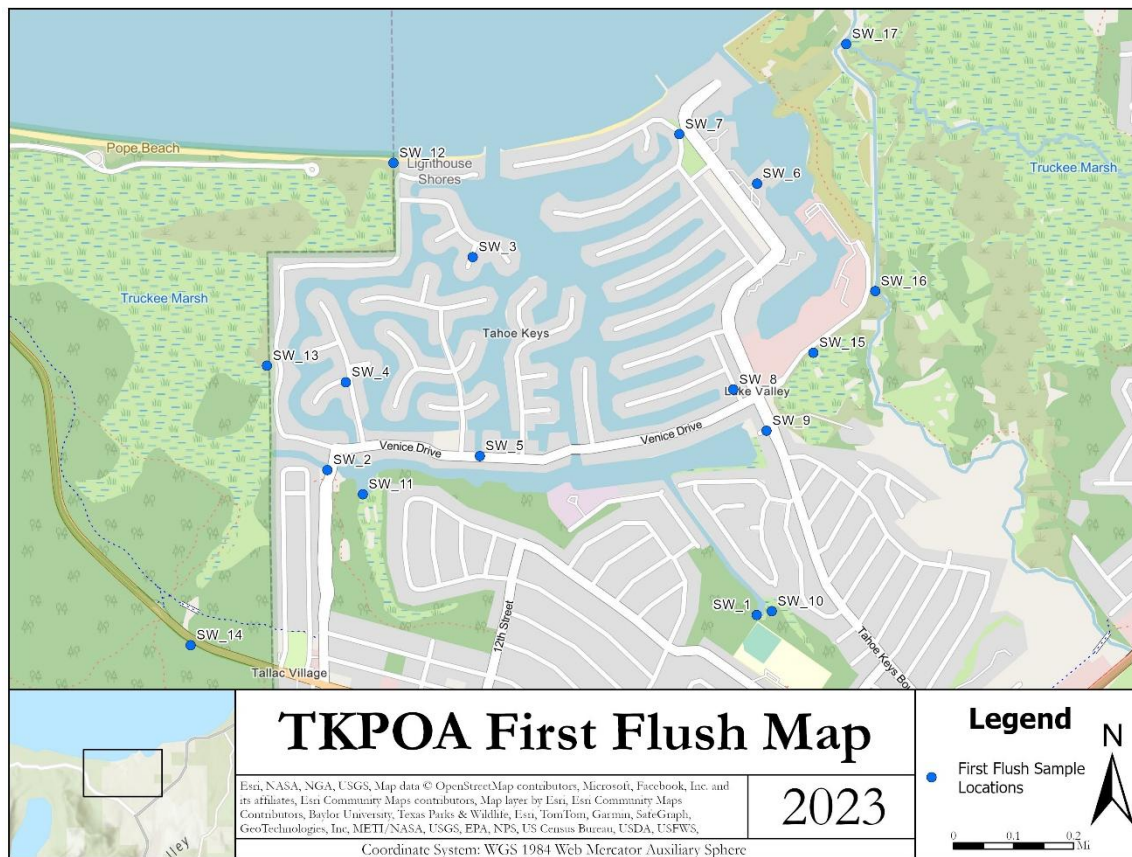


Figure 1. Map of First Flush Stormwater Sampling Sites

2.1.2 2023 First Flush Data Analysis

Data analysis of first flush samples taken on December 20, 2023, indicated that the highest total phosphorus levels were present at SW-3, SW-5, SW-9 through SW-12, and SW-14, while the highest total nitrogen levels were present at SW-3, SW-5, SW-11, and SW-12 (see Table 1). SW-3 and SW-5 are storm drains within the Tahoe Keys where substantial accumulations of pine needles, leaves, and other similar organic debris had accumulated (see Figure 2). SW-9 through SW-11 are areas where storm water runoff from the Tahoe Island Park neighborhood within the CSLT drains into Lake Tallac. SW-12 is the point where Pope Marsh drains into Lake Tahoe while SW-14 represents upslope runoff into Pope Marsh from Tahoe Mountain. Thus, the locations with the highest nutrient levels either have significant accumulations of organic debris at the storm drains or are associated with storm water runoff that is not related to the Tahoe Keys.

Table 1. Results from 2023 First Flush Samples

Site	Total Phosphorus (mg/L)	Nitrate-Nitrite Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Iron (mg/L)	Turbidity (NTU)
SW-1	0.062	0.22	0.52	0.74	1.1	8.8
SW-2	0.30	0.032	0.52	0.55	0.12	3.8
SW-3	2.0	0.12	4.3	4.4	6.9	76
SW-4	0.16	0.17	0.79	0.95	0.60	4.0
SW-5	0.50	0.031	1.4	1.4	3.9	60
SW-6	0.041	0.038	0.21	0.25	0.51	10
SW-7	0.020	ND	ND	ND	0.70	3.8
SW-8	0.075	0.088	ND	0.22	0.67	25
SW-9	0.19	0.066	0.62	0.68	0.44	30
SW-10	0.16	0.030	0.25	0.28	4.9	26
SW-11	0.18	ND	1.7	1.7	0.21	1.7
SW-12	0.16	ND	1.4	1.4	1.5	4.2
SW-13	0.080	ND	0.63	0.64	1.8	7.7
SW-14	0.20	ND	0.55	0.56	0.67	33
SW-15	0.091	ND	0.47	0.47	1.3	1.8
SW-16	0.025	0.036	ND	ND	0.41	2.8
SW-17	0.048	ND	ND	ND	0.57	2.4

2.2 COMPREHENSIVE NUTRIENT DATA ANALYSIS

TKPOA hired an outside consultant, EMKO Environmental, to conduct additional analysis of nutrient distribution within the Tahoe Keys Lagoons hydrological system, including surrounding areas of Pope Marsh and Upper Truckee River as part of the parallel Water Quality Improvements Project (EMKO, 2025a and 2025b). This study initially focused on Phosphorus because it is the limiting nutrient for plant growth in Lake Tahoe. The analysis integrated nutrient data derived from a variety of sources, including peer-reviewed papers, TKPOA and contracted out research, and numerous other studies, focusing on historical and current data from groundwater, surface water, and sediment samples.

The findings indicated that if a nutrient removal project were to focus on only the water column through a “treatment plant” style process, results would yield almost no difference because the fraction of nutrients within the water column itself are only about 0.1% of the entire system. The predominant source of nutrients is stored in the organic sediment layer and the aquatic vegetation. Nutrient cycling occurs seasonally, with an approximate 50/50 distribution

between the sediment and aquatic vegetation during peak summer months, while in the winter, virtually all nutrients are retained in the organic sediment.

Further analysis of nutrient removal efficacy was conducted by comparing the biovolume within the entire lagoons system to the biovolume removed during the season. With this ratio we can see that harvested weeds only account for about 1% of nutrient removal each year. Therefore, current harvesting operations do not remove a significant volume of nutrients and have minimal impact on overall nutrient levels.

With this new level of understanding, TKPOA is exploring alternative solutions to address the nutrient levels in the organic sediment layer, parallel to the AIP removal effort. Nutrients are a food source for plants and algae, and without addressing the organic sediment layer, it would be easy for plants to repopulate, after removal, in this nutrient-rich sediment. Therefore, by pursuing these dual approaches (Water Quality Improvements Project and Large Scale Weed Removal Project), which complement each other, there is a strong potential for making impactful changes.

Continuing first flush samples and exploring where the nutrient sources are and how they cycle through the waterways is a main priority for TKPOA in 2025.



Figure 2. Examples of Debris Buildup at Storm Drains within Tahoe Keys

3.0 2024 ACTIVITIES AND PROGRAMS

3.1 STORMWATER

TKPOA is currently working with the Tahoe Regional Planning Agency (TRPA), CSLT, landscape architects at Design Workshop, and the EPA on a new stormwater drainage design for the Tahoe Keys using green infrastructure. TKPOA is in phase 1 of the project and met with TRPA twice in 2024 to discuss design ideas. The project would remove about 100,000 sqft of turf, install green infrastructure along Ala Wai Blvd, around Lake Tallac, areas near Pope Marsh and other common area locations throughout the Association, and then replace any remaining turf with low maintenance vegetation to reduce water needs. TRPA is currently working on GIS mapping of locations and areas of interest and will work with TKPOA throughout 2025 to make progress on this project.

TRPA also has a Best Management Practices (BMP) Action Plan, found in the TRPA Code of Ordinances, where BMP and Source Control Certificates are issued to properties that are in full compliance with TRPA Stormwater and Water Quality BMPs. Full details on TRPA's BMP Action Plan can be found on this website : <https://www.trpa.gov/programs/environmental-improvement-program/stormwater-bmps/>. For details on TKPOA homeowner's BMP Certification status, refer to Appendix A.

3.2 COMMON AREA BEST MANAGEMENT PRACTICES

TKPOA continued to conduct NPS required standard maintenance and landscaping in 2024. Each activity adhered to its BMP protocols, defined in Appendix A.

3.2.1 Common Area Landscaping and Maintenance

Landscaping and maintenance in the common areas were conducted routinely and in accordance with established standards throughout the year. The maintenance staff and contracted landscapers followed the operational rules established by TKPOA, which are outlined in a comprehensive training manual prepared in 2017. This manual, included in the NPS Plan in 2018, draws from the TRPA's Best Management Practices Guidebook (2014). There were no changes in landscaping contractors in 2024, ensuring continuity in the quality and standards of landscape maintenance.

3.2.2 Infrastructure Improvements and Access Control

There were sizable infrastructure improvements in common areas within the Tahoe Keys. These included:

- Landscaping Renovation: The TMS and Cove 3c areas had major landscaping overhauls coupled with updates to the irrigation systems to change it from turf to native landscapes.

- Bulkhead Replacement: In Cove 3c, bulkheads were replaced according to permit requirements, with plans for further replacements in two additional sections scheduled for 2025.

Additionally, access to Pope Marsh via Lighthouse Shores was restricted using a new card system, which now limits entry specifically to homeowners. This measure aims to minimize human impact on Pope Marsh, enhancing bird migration awareness and overall marsh health, which in turn supports the natural drainage into Lake Tahoe.

3.3 SINGLE-FAMILY HOMES BEST MANAGEMENT PRACTICES

In 2024, the Architectural Control Committee (ACC) continued to uphold stringent regulations, guided by BMPs, aimed at promoting sustainable landscaping and water conservation among single-family homeowners.

3.3.1 Compliance and Enforcement

The ACC enforced water conservation rules and a ban on the use of phosphorus-containing fertilizers (established in 2015) across both common areas and individual properties. The BMPs specific to single family homes can be found in Appendix A. TKPOA provides a sample agreement template to assist homeowners in ensuring their landscape maintenance companies adhere to these BMPs. The agreement explicitly lists financial consequences for violations and that the landscape company will be held accountable to the property owner if any occur. Homeowners found in violation of these rules are subject to member discipline and fines, as outlined in the TKPOA Disclosure Document (2016). However, in 2024, no warnings or fines were issued, indicating strong compliance among property owners.

In addition to landscape and fertilizer regulations, the ACC also enforced the TKPOA Covenants, Conditions and Restrictions (CC&Rs) regarding the washing of boats within the Tahoe Keys Lagoon Channels. This enforcement is part of the Wastewater Rules and Protocol Operating Rules adopted in July 2020. The specific CC&R covers regulations for boat cleaning in the waterways, and the cleaning of boats and vehicles on streets, as well as wastewater discharge from jacuzzies. It is designed to protect the waterways from chemicals via both point and nonpoint sources, by requiring that homeowners and renters use only water (no additional cleaning agent) to clean boats while in the Tahoe Keys Lagoons. Furthermore, any products used for cleaning watercrafts and vehicles in driveways, roads, or yards must be environmentally safe, phosphate-free, biodegradable, and water-based (TKPOA 2020b).

3.3.2 Landscape Modifications and Guidance

In 2024, there was significant engagement from homeowners in sustainable landscaping practices:

- Lagoon-Friendly Landscaping: This year, TKPOA updated landscaping rules and BMPs to include turf reduction. These regulations restrict the addition of new sod or reseeding

to a maximum of 25% of a property's total landscaped area, encouraging less water-intensive landscaping solutions. A total of 102 applications to modify landscapes to be more lagoon-friendly were approved, following these new restrictions.

- Educational Resources: TKPOA distributed landscape guidebooks to both homeowners and contractors. These guidebooks are designed to assist in implementing sustainable practices and are available both in the office and the TKPOA website.

3.4 IRRIGATION

In compliance with the TKPOA Water Conservation Operating Rule Section 10, all landscaping within the Tahoe Keys, including common areas and townhomes, adheres to strict irrigation schedules. These measures, effective from April through October, are due to the limited capacity of the drinking water wells and aim to conserve water.

In 2024, TKPOA lost over 160 trees with more to be removed in 2025. An observation from a contracted arborist found that this is a twofold issue. The soil composition does not allow the trees to deepen their main tap root past the sandy layer and a lack of irrigation does not allow the roots to spread out far enough to create a stable base. The compromised root systems have made trees more vulnerable during high winds, posing significant risks within the community. If irrigation is in fact a main contributor, a possible solution would be for the Association to manage all landscape irrigation using lagoon water rather than relying on the drinking water supply. This change could completely alter irrigated landscapes within the Tahoe Keys, reducing the demand for the drinking water supply, and improving the health and stability of the trees. Further investigation into the causes and feasibility of potential solutions will be explored in 2025.

3.5 FIREWISE COMMUNITY

In 2024, TKPOA was recognized as a Firewise community. This program has lagoon friendly benefits as it encourages residents to modify landscaping and remove debris from around their property. This messaging mirrors the landscaping guidelines already in place.

3.6 CIGARETTE BUTT COLLECTION AND MONITORING

In 2019, TKPOA volunteered to participate in The League to Save Lake Tahoe's (LTSLT's) program for cigarette butt collection and monitoring. Cigarette butts contain carcinogenic chemicals and potential nutrients that can be harmful to the environment if not properly disposed. There are seven canisters around the Tahoe Keys (Figure 3 and Figure 4). In 2024 canisters were emptied and contents disposed of according to the LTSLT guidelines. A missing canister near the entrance to the beach was replaced in November. TKPOA will continue the collection and disposal of cigarette butts in 2025.



Figure 3. Tahoe Keys Cigarette Butt Canister
Photo Credit: TKPOA



Figure 4. Locations of Cigarette Butt Canisters (2022)

4.0 2024 OUTREACH

4.1 HOMEOWNER OUTREACH

In 2024, TKPOA continued homeowner outreach activities to give information, updates and reminders regarding water-based activities, best management practices and educational or community events.

4.1.1 Digital Communications

- *E-Blasts:* Weekly email notifications to all homeowners regarding updates of current projects. Details included completion of a project or the status of an ongoing project. In 2024 E-Blasts consisted primarily of updates surrounding the implementation of the Control Methods Test (CMT) Year 3. All E-Blasts are available on the website.
- *Websites:* TKPOA maintains two websites: 1) the TKPOA association website (www.tkpoa.org), and 2) its AIS management website (www.keysweedsmanagement.org). These websites contain information for TKPOA residents and renters about education and training events, lagoon water quality, and water quality friendly landscaping, BMPs, and water conservation. TKPOA's AIS management website continued providing information on ongoing and proposed/future projects with information on harvesting schedules and all past reports for easy reference.

4.1.2 Printed and Physical Materials

- *Monthly Newsletters:* Information, updates, and reminders regarding water-based activities were also distributed to homeowners in the Associations monthly newsletter. A digital version is also available on each website.
- *Educational Display and Brochures:* The program displays (e.g., poster) information and supplies informational brochures in the TKPOA Pavilion lobby. The educational brochures address landscaping, existing aquatic invasive species within the Tahoe Keys Lagoons, and information on the CMT. The displays are updated regularly with new and updated information regarding all activities within the waterways and ways the homeowners can participate.
- *Educational Rack Cards:* Informational rack cards were distributed to homeowners and the Suntex Marina warning boaters of dive work that commenced throughout the season as part of CMT Year 3 and supplying information on the Aquatic Invasive Species (AIS) Program (Figure 5).

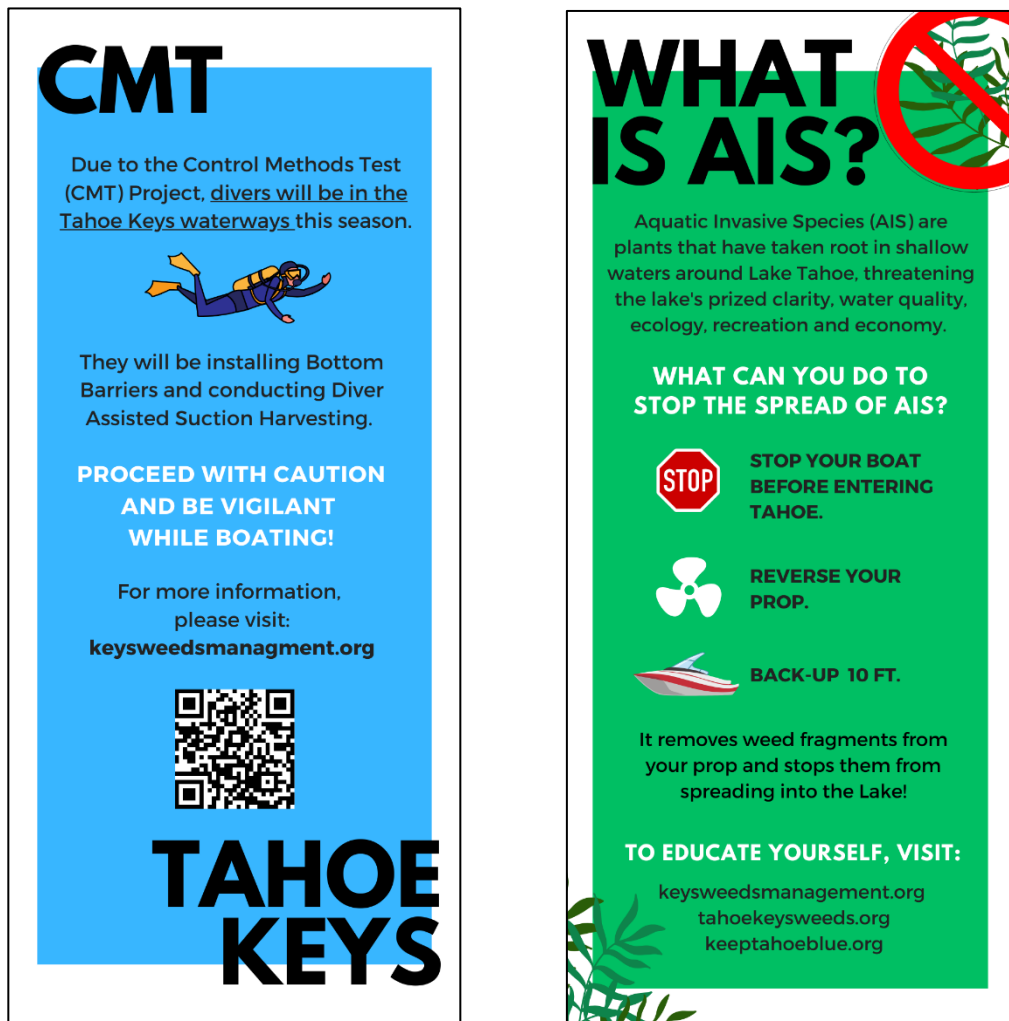


Figure 5. Educational Rack Cards

4.2 COORDINATED COMMUNITY OUTREACH EVENTS

4.2.1 Training Events

- *Eyes on the Lake Training:* TKPOA hosted an Eyes on the Lake Training for The League to Save Lake Tahoe on July 13, 2024.
- *New Zealand Mudsnail (NZMS) Training:* After the finding of the invasive NZMS in Lake Tahoe, TKPOA hosted a NZMS Training for identification and eradication methods with TRPA for all contractors working around the Tahoe Keys including the Marina and Pope Marsh on April 4, 2024.

4.2.2 Educational Outreach

- *Local Schools Outreach Event:* TRPA, LTSLT and TKPOA collaborated on an outreach event for local school children to discuss how invasive species have impacted the waterways and the different methods being used to try and reduce the infestation. The event also included presentations and displays for lake-wide issues including mussels, snails, and the importance of boat and gear washing stations. TKPOA hopes to collaborate more with these events for 2025.
- *Town Hall Forums:* TKPOA did hold any town hall forums this year. Presentations and updates to the homeowners were done regularly in open board meetings. Town Hall Forums will be held on an as needed basis when projects develop, and new information needs to be shared with the homeowners.
- *Webinars:* TKPOA, TRPA and the LTSLT hosted an informational webinar on June 5, 2024, open to the public, to provide updates and progress on CMT Year 3. Public webinars will be held on an as needed basis as updates on surrounding projects become available.

4.2.3 Media Engagement

- *News Articles:* Two news articles were published on November 23, 2024, in South Tahoe Now and Tahoe Daily Tribune, highlighting some of the achievements and status update for the completion of the CMT project.

5.0 NONPOINT SOURCE WATER QUALITY MANAGEMENT PLAN FOR 2025

5.1 WATER QUALITY IMPROVEMENTS PROJECT EIP

TKPOA will begin the development of an Environmental Improvement Project (EIP), coordinated with TRPA, focused on lagoon water quality. This program will run parallel to the Large Scale Weed Removal Project. The goal of the Water Quality Improvements Project EIP is to find solutions that address physical water quality issues around the lagoons such as stagnation, algae growth and excessive nutrients. Working with neighboring entities and partnering agencies, goals for this project will be pursued over the next two years to find approaches to begin to address specific water quality issues.

5.2 LANDSCAPING

- Continue to encourage homeowners to modify their landscaping to comply with TRPA BMP program and receive the Source Control Certificate.
- Promote incentivizing programs from other agencies such as green lawn buybacks and continue to inform homeowners of these programs.
- Maintain established programs and continue monitoring for compliance for fertilizer phosphorus ban.
- Encourage homeowners to participate in Firewise programs.
- Continue training programs for contractors regarding best practices.
- Continue tree removal and identify causes.

5.3 STORMWATER

- Continue TRPA collaboration on Green Infrastructure program.
- Advocate for greater city support in drain cleaning and maintenance. TKPOA will reach out to the CSLT for support in getting regular street sweeping around the community to prevent clogged storm drains and nutrient runoff into the lagoons.
- Continue first flush sampling and compare findings with data from past and other city-established sites.

5.4 OUTREACH

- Strengthen ongoing outreach to both homeowners and the public, with updates to the website and other channels.
- Hold Town Hall Forums and give presentations as appropriate or needed to the homeowners as projects develop as well as regular updates via E-Blasts and articles in the association newsletter to provide reminders updates and changes to waterways items.
- Prepare articles for news media and hold webinars for the public on an as needed basis as new information and updates on projects become available.

5.5 COLLABORATION

- Continue collaboration with the LTSLT with initiatives like cigarette butt collection and water vessel cleaning stations.
- Collaborate on innovative technologies such as beach cleaning robots as they become available.
- Engage with Suntex Marina, Tahoe Keys Beach and Harbor Association, and the Tahoe Keys Village to align water quality efforts across jurisdictions.

6.0 LIST OF PREPARERS

The following individuals prepared the text presented in this report.

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7.0 APPENDIX A - BEST MANAGEMENT PRACTICES DEFINITIONS

7.1 TKPOA STORMWATER AND EROSION CONTROL BEST MANAGEMENT PRACTICES

Stormwater and erosion control BMPs are retrofit measures required on all private properties in the Lake Tahoe Region to control erosion and infiltrate stormwater before it leaves the property. This applies to both TKPOA Common Area properties as well as private residential properties. BMPs are proven to prevent sediment, nutrients, and other pollutants from entering waterways. BMPs include pollutant source control measures, which reduce the amount of pollutants present, and hydrological source control measures to direct stormwater and snowmelt runoff so that pollutants are filtered out and prevented from entering surface water.

BMPs are a requirement of the 2014 Lahontan Order issued to TKPOA in 2014. As part of the NPS Plan requirement, the development and implementation of BMPs are specified to help achieve the plan objectives. TKPOA landscape BMPs¹ to minimize controllable NPS nutrient loading include the following:

- Installation of TRPA-approved runoff control BMPs at TKPOA Common Areas and outreach to encourage a goal of 100% BMP compliance by single-family properties.
- Ban of the use of phosphorus-containing fertilizer.
- Management of Common Areas irrigation and townhouse landscaping to limit runoff and promote infiltration/percolation.
- Education and outreach to staff and members regarding the effects on water quality from over fertilizing and over watering through staff trainings and articles in the Keys Breeze newsletter.
- Implementation of a water conservation program where landscape irrigation on Common Areas and single-family properties is limited to three days per week.

Attachment D of the 2014 WDR lists management practices to be considered for control and reduction of pollutants from the Tahoe Keys Common Areas, with additional considerations for private residential neighborhoods (Lahontan 2014).

7.2 COMMON AREA DEFINED

TKPOA is responsible for maintaining areas of recreational turf and accent plantings for TKPOA Common Areas. TKPOA Common Areas include townhouse subdivisions, TKPOA Pavilion and administrative offices, parking lots, open space parks, playgrounds, tennis courts, pools, and the Tahoe Keys Water Company (TKWC) facilities. TKPOA contracts with various landscape maintenance companies, in addition to using in-house staff, to maintain these Common Areas.

¹ In 2019 TKPOA adopted “Rules and Regulations for Water Service” and included its “Landscape Irrigation Rules to Protect Water Quality” in the adopted regulations. Previously, TKPOA’s Landscape Irrigation Rules to Protect Water Quality were included as part of the Associated Operating Rules.

The Common Area BMP's are as follows:

1) Water Conservation

- Implementing irrigation schedules to limit water use during drought conditions or according to local regulations.
- Using drought-resistant plants in landscaping to reduce the need for watering.
- Maintaining irrigation systems to prevent leaks and overwatering.

2) Nutrient Management

- Prohibiting the use of phosphorus-containing fertilizers, which can lead to algal blooms in nearby water bodies.
- Encouraging the use of organic or slow-release fertilizers to minimize nutrient runoff.
- Regular soil testing to tailor nutrient applications to actual landscape needs.

3) Sediment Control

- Installing silt fences or similar barriers to prevent sediment from entering waterways during construction activities.
- Maintaining vegetation along shorelines to stabilize soil and absorb runoff.
- Regularly cleaning and maintaining drainage systems to prevent sediment build-up and ensure efficient water flow.

4) Waste Management

- Providing and promoting the use of proper waste disposal facilities, including pet waste stations, to prevent contamination of common areas.
- Encouraging composting and proper yard waste disposal to reduce organic waste runoff.

5) Pest and Weed Control

- Using integrated pest management (IPM) practices to reduce reliance on chemical pesticides.
- Promoting manual or mechanical removal of weeds where possible to avoid herbicide use.
- Educating homeowners about non-toxic alternatives for pest and weed control.

6) Habitat Enhancement

- Planting native species to promote biodiversity and provide habitat for local wildlife.
- Restoring eroded areas and implementing shoreline stabilization projects to improve habitat quality.
- Designating and protecting natural areas within common spaces.

7) Public engagement

- Engaging community members in volunteer opportunities for local environmental projects.

8) Monitoring and Reporting

- Regularly assessing the effectiveness of implemented BMPs through monitoring water quality and other environmental indicators.
- Reporting findings to local water boards or environmental agencies as required.
- Adjusting BMPs based on monitoring results and new environmental research or regulations.

7.3 SINGLE-FAMILY HOMES DEFINED

Most landscaped areas within the Tahoe Keys are under the control of individual homeowners who may maintain their properties or may contract private landscaping companies for maintenance. TRPA acknowledges and tracks BMP installation by inspecting and issuing a BMP Certification or Source Control Certificate (SCC) letter to the property owners. A BMP Certificate certifies that the BMPs are properly installed and functioning on a property. A SCC is for site-constrained properties that cannot infiltrate stormwater on site, but that have otherwise met all sediment source control requirements. Homeowners are requested to inform TKPOA of their certification so that acreage protected by BMPs can be readily tracked and reported. TRPA tracks BMP installations on the publicly available TRPA website

<https://gis.trpa.org/bmpmappingtool/>.

Based on analysis of parcel data collected by TRPA (<https://gis.trpa.org/bmpmappingtool/>), a total of 35% of TKPOA parcels have BMP Certifications or Source Control Certifications as of December 2023, which is a 2% increase from the prior year. Combined, these certifications cover approximately 36% (88 acres) of an estimated 243 acres of land area owned by TKPOA and association members². Figure 6 shows the BMP status of properties within the association. As of January 2024, the data has not changed since 2023.

To promote installation of BMPs and compliance with TRPA BMP requirements, TKPOA supplies the following information to property owners:

- A Basic Guide to Fertilization and Irrigation Scheduling for Single-Family Homeowners and Property Managers available on TKPOA's webpage.
- Informational displays with rack cards in the lobby of TKPOA's Administrative Office.
- Informational brochures about TRPA-approved BMPs to encourage BMP Certification.
- Reference to the Tahoe Keys Landscape Conservation Idea Book.

² This analysis is based on identifying the total acreage of all TKPOA parcels and then calculating the total acreage that is above water using GIS (ArcView 10.7) and aerial imagery from ESRI (esri.com) base maps in 2015. Many TKPOA and residential parcels include acreage that is permanently covered with water (e.g., land beneath the lagoons), and is not landscaped.

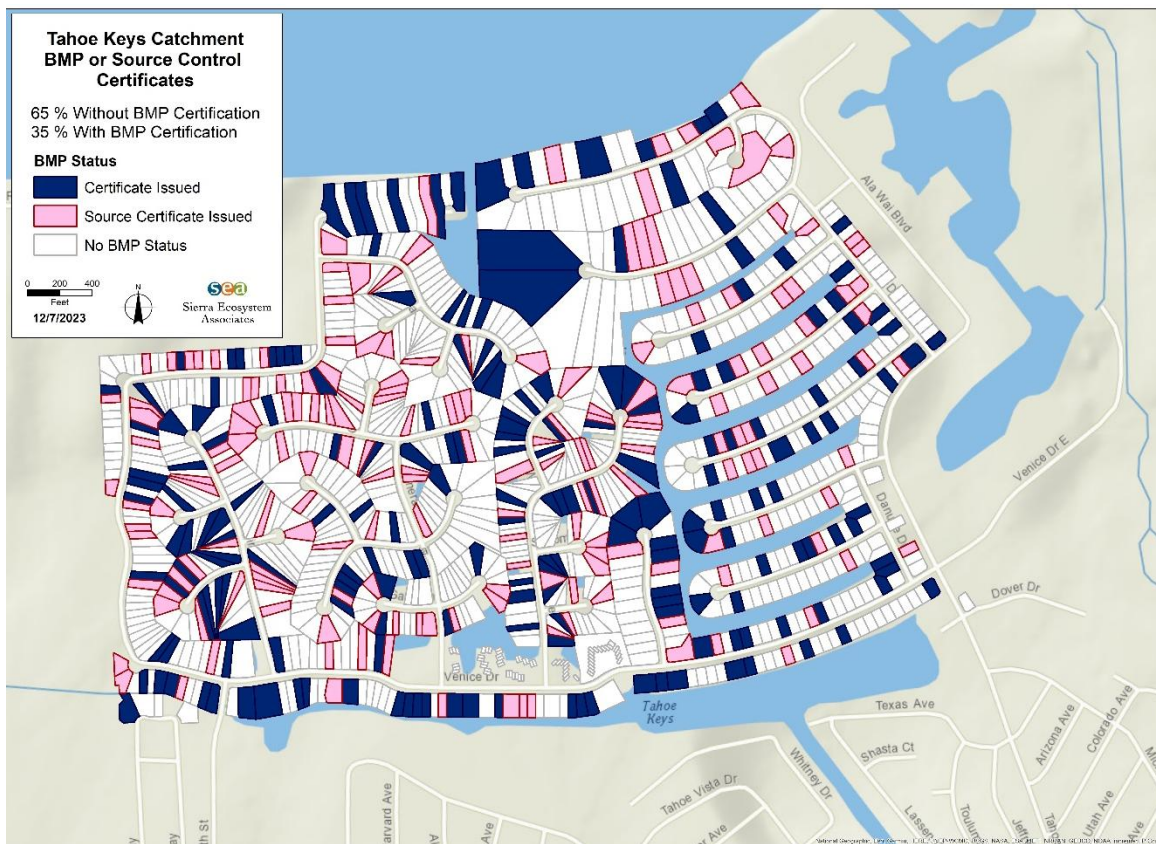


Figure 6. TKPOA Parcels with BMP or Source Control Certificates

7.4 BMPS IN THE TAHOE KEYS EDUCATION CAMPAIGN

In 2017 and in coordination with TRPA, TKPOA initiated a second annual educational campaign that laid out the extensive rules and guidelines for BMPs applicable for the Tahoe Keys. Key points of this campaign include the following:

- Soil protections along driveway and under driplines of structures.
- Create a five-foot-wide defensible space zone area around all structures.
- BMP benefits for the environment and for the Tahoe Keys.
- BMP benefits to property values.
- BMP requirement for remodel or addition.
- BMP value in resale.
- Possibility of non-compliance fines.
- Educational materials on how to get a BMP Certificate from TRPA.

8.0 APPENDIX B – DISCONTINUED NPS ACTIVITIES

8.1 LUNCH AND LEARN

In 2017, TKPOA organized the first annual “Lunch and Learn,” and informational event designed to educate property managers, landscape companies, pest control companies, hot tub companies, and nursery company employees on TKPOA’s AIS management plans, landscaping policy and procedures, rules, and regulations. The event includes a TKPOA hosted presentation followed by a free lunch for those in attendance.

The first “Lunch and Learn” had limited attendance. The second, hosted in 2018, had only four representatives from different companies in attendance. TKPOA increased outreach in 2019 to garner additional attendance; however, attendance was limited to three individuals despite the additional outreach. In both 2020 and 2021, while prepared to engage in outreach for “Lunch and Learn,” both events were postponed due to restrictions and social distancing requirements associated with the COVID-19 pandemic.

In 2022, a combination of limited resources and the implementation of CMT Year 1 resulted again in the postponement of the “Lunch and Learn” event. In 2023, TKPOA decided to discontinue the Lunch and Learn event due to limited staff resources and availability through CMT Year 2.

8.2 LAKE TAHOE COMMUNITY COLLEGE

In 2019, TKPOA began collaborating with the Lake Tahoe Community College (LTCC) to allow students access to the TKPOA Waterways for classroom and lab instruction. Specific courses included in this collaboration included: Biology, Ecology, Aquatic Ecology, Environmental Science, and Hydrology. Water Quality Staff provide background and ongoing program information for each of the classes regarding TKPOA Aquatic Weed management activities.

Collaboration with the local community college has not occurred in recent years, but TKPOA plans to resume a cooperative relationship with LTCC in the future.

9.0 APPENDIX C - CALIFORNIA'S MODEL WATER EFFICIENCY LANDSCAPING ORDINANCE

In 2022, CSLT updated the City's development standards to incorporate [California's Model Water Efficiency Landscaping Ordinance](#) (MWELO), to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, onsite stormwater capture, and by limiting the portion of landscape that can be covered in turf. Specifically, items addressed by the CSLT in its update include:

- MWELO requirements apply to any landscape project greater than 500 sqft that requires a permit, plan check, or design review.
- Landscape area means all the planting areas, turf areas, and water features in a landscape design plan. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
- For new and rehabilitated landscapes subject to MWELO and less than 2,500 sqft, the streamlined Prescriptive Compliance form may be used. The Prescriptive Compliance form is a checklist of landscape standards that are met and documented on the Landscaping Plan.
- For landscaping of any size subject to MWELO, the Performance Compliance Approach can be used. The Performance Compliance approach must be used for landscapes greater than 2,500 sqft. The Performance Compliance approach has additional requirements beyond the Prescriptive Compliance form option. The Performance Compliance approach must include a soil management report, landscape design plan, irrigation design plan, and a grading design plan.

The CSLT passed its MWELO (Ordinance 1167) on October 4, 2022, which includes provisions that are applicable to TKPOA's Common Area landscaping and other plans.

10.0 APPENDIX D – ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

ACC	Architectural Control Committee
AIS	Aquatic Invasive Species
BMPs	Best Management Practices
CC&Rs	Covenants, Conditions and Restrictions
CSLT	City of South Lake Tahoe
EIP	Environmental Improvement Project (TRPA)
IMP	Integrated Management Plan for Aquatic Weeds for the Tahoe Keys Lagoons
GIS	Geographic Information System
Lahontan	Lahontan Regional Water Quality Control Board
LTCC	Lake Tahoe Community College
LTSLT	The League to Save Lake Tahoe
MWEL	Model Water Efficient Landscaping Ordinance
NPS	nonpoint sources
NPS Plan	Nonpoint Source Water Quality Management Plan for the Tahoe Keys Property Owners Association
NZMS	New Zealand Mud Snail
SCC	Certification or Source Control Certificate
The League	The League to Save Lake Tahoe
TKPOA	Tahoe Keys Property Owners Association
TMS	Tahoe Marina Shores
TRCD	Tahoe Resource Conservation District
WDR	Waste Discharge Requirements

11.0 REFERENCES

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