BLUE WATER TASK FORCE

HAWAIʻI WATER QUALITY REPORT

2024

SURFRIDER FOUNDATION
HAWAIʻI REGION

BLUE WATER TASK FORCE

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INTRODUCTION

The Blue Water Task Force (BWTF) is the Surfrider Foundation's volunteer water quality monitoring program that provides critical information to protect public health at our beaches.

In 2024, the BWTF programs collected 1086 water samples at 83 sites throughout the islands of Kaua'i (18), Maui (39), and O'ahu (26). Our BWTF Teams are composed of trained volunteers who sample biweekly on O'ahu and once a month on Kaua'i and Maui.

Water quality samples are tested for the presence of enterococcus, a fecal bacteria that indicates the presence of human or animal waste in the water. Elevated levels of enterococcus increase the likelihood that other pathogens that can make people sick may be present.

The goal of BWTF is to fill in monitoring gaps and quickly communicate with the public where it is safe to swim and where bacteria levels are elevated. Water quality results are compared to the standards used by the Hawai'i Department of Health (HDOH) to issue swim advisories. Known as the Beach Action Value (BAV), this threshold is 130 colony forming units of enterococcus per 100mL sample (130 cfu/100mL).

The water quality information generated by the BWTF augments data that the HDOH provides through its beach water quality monitoring program. HDOH tests a limited number of beaches on each island, primarily those with lifeguards and in popular tourist areas. The BWTF, meanwhile, covers a variety of areas popular with local families and recreational users including surf spots and local swimming beaches.

Our data is also important in identifying chronically polluted sites that should continue to be prioritized for ongoing monitoring, as well as potential investigation into the sources of pollution.

Beachgoers should take precautions swimming, surfing, or recreating after heavy rain events for 24-48 hours. Do not enter brown water areas or where there is a warning sign for high bacteria levels. Community members are encouraged to check water quality results posted online before they head to the beach at bwtf.surfrider.org. Current and historic data are available.

ACCESSING DATA

BWTF data is posted online 24-hours after it is collected (see websites below). If you have questions about a specific island's data, please reach out to the below coordinators. You can also direct questions to Hanna Lilley (hlilley@surfrider.org), Surfrider Foundation's Hawai'i Regional Manager. The BWTF would not be possible without the dedication of our many volunteers and program coordinators (who are also volunteers) on each island. We appreciate our volunteers tremendously.

KAUA'I

Program Coordinator:

- Rob Brower (chair@kauai.surfrider.org)

View Data: https://bwtf.surfrider.org/explore/23

O'AHU

Program Co-Coordinators:

- Dr. Dan Amato (bwtf@oahu.surfrider.org)
- Arleen Velasco (chair@oahu.surfrider.org)

View Data: https://bwtf.surfrider.org/explore/44

MAUI

Program Co-Coordinators:

- Greg Masessa (bwtf@maui.surfrider.org)
- Kristina McHugh (bwtf@maui.surfrider.org)

View Data: https://bwtf.surfrider.org/explore/51

KAUA‘I DATA SUMMARY

This report provides an analysis of water test results for 18 Kauai sites (Map 1) monitored in 2024. Our water quality results indicate that certain sites frequently experience high bacteria levels that exceed state health standards (Table 1). Note that the Kaua‘i BWTF program tests at the actual surf break, unless otherwise noted as a stream or river mouth. BWTF results are recorded as Most Probable Number (MPN/100 mL), due to our testing methods.

Map 1. Blue Water Task Force sites on Kaua‘i that were sampled once per month in 2024.

KAUA'I DATA SUMMARY

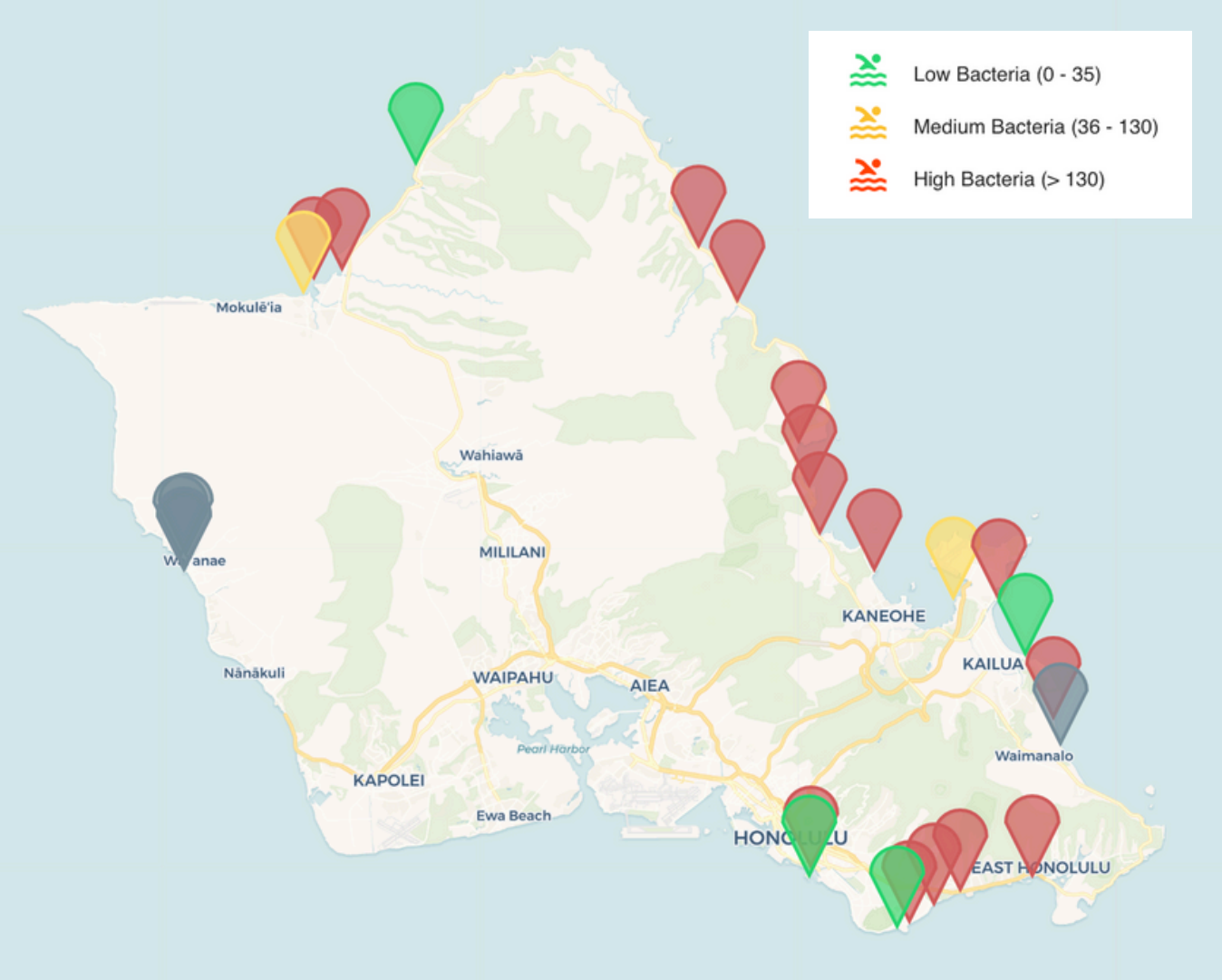
TABLE 1: PERCENT OF KAUA'I SAMPLES EXCEEDING HEALTH STANDARDS (>130 MPN/100ML)

SITE NAME	TOTAL SAMPLES	% HIGH BACTERIA (>130 MPN/100ML)
Waiohai Surf, Poipu	8	0%
Anahola Bay Surf	121	3%
Kalapakī Bay Surf	11	9%
Keālia Surf	11	9%
Middles Surf, Hanalei	11	27%
Rock Quarry Surf, Kilauea	11	27%
Waikoko Surf, Hanalei	11	27%
Wailua River mouth	10	30%
Kalihiwai Surf	12	33%
Pakalas Surf	10	40%
The Bowl, Surf, Hanalei	11	55%
Hanamā'ulu Beach	11	64%
Moloa'a Stream mouth	10	90%
Waikomo Stream - Koloa Landing	10	90%
Wainiha Stream mouth	11	91%
Hanalei River at Weke Rd.	11	100%
Hanamā'ulu Stream Mouth	10	100%
Nāwiliwili Stream	10	100%

Table 1. Indicates the percentage of total samples taken at respective sites that exceeded HDOH health standards for enterococcus bacteria (>130 mpn/100mL). Note that the number of total samples is not consistent across sites.

O‘AHU DATA SUMMARY

Please find an analysis of water test results below for 26 O’ahu sites (Map 2) that were monitored in 2024. Our water quality results indicate that certain sites frequently experience high bacteria levels that exceed state health standards (Table 2). Note BWTF results are recorded as Most Probable Number (MPN/100 mL), due to our testing methods.



Map 2. Blue Water Task Force sites on O‘ahu that were sampled bi-weekly in 2024.

O'AHU DATA SUMMARY

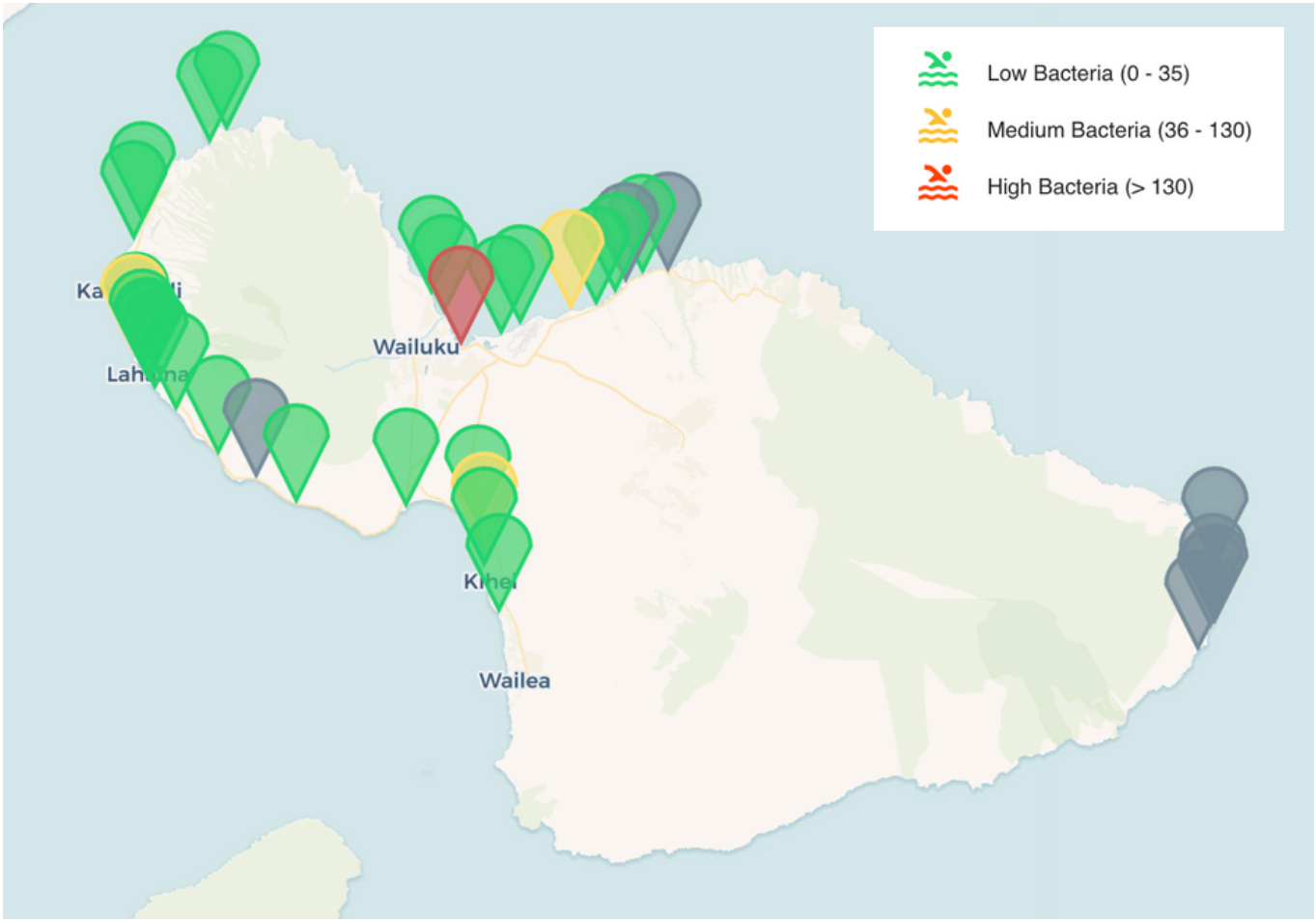
TABLE 2: PERCENT OF O'AHU SAMPLES EXCEEDING HEALTH STANDARDS (>130 MPN/100ML)

SITE NAME	TOTAL SAMPLES	% HIGH BACTERIA (>130 MPN/100ML)
North O'ahu: Kahaone Place	15	0%
West O'ahu: Pōka'i Bay- outside	20	0%
West O'ahu: Pōka'i Bay- Inside	20	5%
North O'ahu: Pūpūkea Tidepools	16	6%
East O'ahu: Kailua Beach Park	25	8%
South O'ahu: Ka'alāwai (Black Point/Cromwells)	25	8%
South O'ahu: Magic Island Bowls	23	9%
West O'ahu: Pililā'au	20	15%
South O'ahu: Waialae Beach Park	24	21%
South O'ahu: Wailupe Beach Park	25	24%
East O'ahu: Mākao	8	25%
South O'ahu: Magic Island Canoe Launch	23	26%
East O'ahu: Waimanalo Stream	11	27%
East O'ahu: Kaimalino	25	32%
East O'ahu: He'eia Stream	20	35%
East O'ahu: Inoaole Stream	14	36%
South O'ahu: Ka'alāwai (Black Point-East)	23	39%
East O'ahu: South Kaneohe Bay	25	44%
North O'ahu: Kaiaka Bay	15	47%
North O'ahu: Chocolates	15	60%
East O'ahu: Waiāhole Beach Park	25	68%
East O'ahu: Hakipu'u Boat Ramp	21	71%
South O'ahu: Kuli'ou'ou Stream	25	72%
West O'ahu: Kaupuni Stream	20	80%
East O'ahu: Kahalu'u Beach	24	92%
East O'ahu: Chings	8	100%

Table 2. Indicates the percentage of total samples taken at respective sites that exceeded HDOH health standards for Enterococcus bacteria (>130 mpn/100mL). Note that the number of total samples is not consistent across sites.

MAUI DATA SUMMARY

Please find an analysis of water test results below for 39 sites on Maui (Map 3) that were monitored in 2024. Overall, coastal water quality in the areas tested by the Maui BWTF meet state health standards more often than on Kaua'i and O'ahu (Table 3). Note that BWTF results are recorded as Most Probable Number (MPN/100 mL), due to our testing methods.



Map 3. Blue Water Task Force sites on Maui that were sampled once per month in 2024.

MAUI DATA SUMMARY

TABLE 3: PERCENT OF NORTH MAUI SAMPLES EXCEEDING HEALTH STANDARDS (>130 MPN/100ML)

SITE NAME	TOTAL SAMPLES	% HIGH BACTERIA (>130 MPN/100ML)
East Maui: Hāmoa Beach	3	0%
East Maui: Hāna Bay	3	0%
East Maui: Hāneoʻo Fish Pond	3	0%
East Maui: Kōkī Beach at Kaholopoʻo Rivermouth	2	0%
North Maui: Baby Beach	12	0%
North Maui: Kanahā Beach	12	0%
North Maui: Kūʻau Cove (Mama's Beach)	12	0%
North Maui: Paia Bay	12	0%
North Maui: Waiehu Stream	11	0%
South Maui: Kalepolepo Beach Park	12	0%
South Maui: Waipuilani	10	0%
West Maui: Breakwall	8	0%
West Maui: Honokowai Beach Park	12	0%
West Maui: Lāhainā Harbor	10	0%
West Maui: Olowalu Surf Spot	12	0%
West Maui: Polanui-Uhailio (Shark Pit)	10	0%
West Maui: Punalau (windmills)	12	0%
West Maui: Ukumehame/Thousand Peaks	12	0%
West Maui: DT Fleming	1	0%
West Maui: Napili Bay	7	0%
West Maui: Pāpalaua Wayside Park (Grandmas)	7	0%
North Maui: Wailuku Stream	11	4%
North Maui: Hoʻokipa Beach Park East	12	8%
North Maui: Tavares Beach	12	8%
South Maui: Maʻalaea Bay	12	8%
West Maui: Guard Rails	12	8%
West Maui: Pōhaku Park (S Turns)	12	8%
West Maui: Olowalu Mile Marker 14	12	8%
North Maui: Kanahā - Kalialinui Stream	11	9%
West Maui: Pāpalaua Street	8	13%
West Maui: 505 Front Street	7	14%
South Maui: Kihei Canoe Club	12	17%
North Maui: Kahului Harbor	11	18%
South Maui: The Cove	12	25%
West Maui: Front Street Park	11	27%
West Maui: Honolua Bay	12	33%
North Maui: Māliko Bay	11	36%
West Maui: Mala Ramp	11	36%
East Maui: Waioka	2	50%

Table 3. Indicates the percentage of total samples taken at respective sites that exceeded HDOH health standards for Enterococcus bacteria (>130 mpn/100mL).

KEY OUTCOMES

2024 BWTF results are consistent with water quality trends from previous years. Across Hawai'i, sites located at stream mouths, beaches with freshwater outlets, or in bays without much circulation are typically characterized by higher bacteria levels than at ocean sites with better circulation and more mixing. Streams located at many of the most contaminated sites can carry runoff from cesspools and other pollution sources in the watershed such as animal waste from pets, agriculture, and wildlife.

Seven sites on O'ahu and eight on Kaua'i had more than 50% of their samples exceed health standards. Kahalu'u on O'ahu and Nāwiliwili, Moloa'a, and Hanamā'ulu on Kaua'i are located in Priority 2 Cesspool areas, meaning that the cesspools pose significant hazard to human health and the environment. The chronic pollution documented at these sites by the BWTF, as well as the findings of the Kaua'i sucralose stream study, indicate the potential impact of sewage pollution in these areas.

BWTF data from sampling sites in Hawai'i also indicate that locations have elevated levels of fecal indicator bacteria during and following wet weather and brown water events. Beginning in November, the rainy season is characterized by large storm events with heavy rainfall. Particularly in the early part of the season, these storms serve to "flush" the islands and can result in large amounts of water, sediment, wastewater, and pollutants flowing downhill into the ocean.

Families, ocean users and the public should be aware of the poor water quality conditions and avoid any contact with these freshwater flows. The public should be particularly cautious after heavy rain events that lead to increased runoff and can prompt Brown Water Advisories. Even if you don't see a public notice posted, avoid brown water until conditions clear.

More exposed beaches and those that do not have direct freshwater inputs from streams or rivers generally test clean. These sites seldom show high bacteria levels because of the high volumes of water exchange and mixing that occurs at these sites. Bacteria at these sites, however, can be elevated after rainfall or other heavy storm events.

Note that not all high bacteria spikes were detected during brown water (for example, spikes on O'ahu and Kaua'i in the summer). This demonstrates the importance of regular water quality monitoring programs. Before going to the beach, check out current water quality conditions at www.bwtf.surfrider.org and water quality advisories issued by HDOH.

KEY OUTCOMES

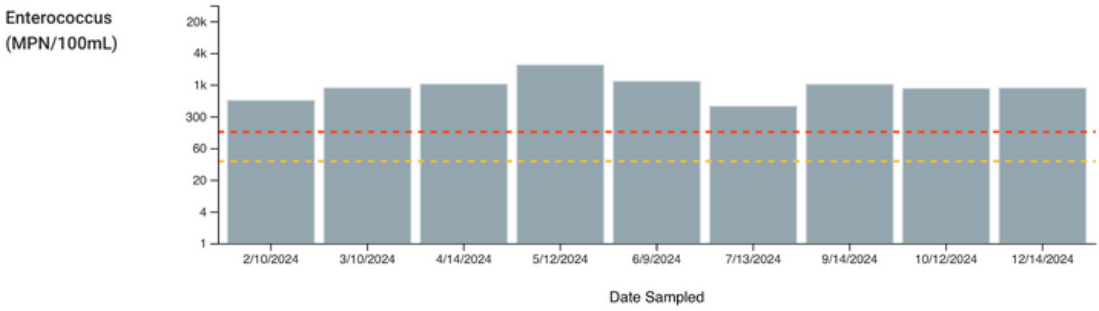
PRIORITY SAMPLE SITES: NĀWILIWILI STREAM, KAUA'I

Nāwiliwili Stream feeds into Kalapakī Bay and is influenced by cesspools and urban runoff. In 2024, the average bacteria count (geomean) measured at Nāwiliwili Stream was 1004.4 MPN, and every single sample collected by the Kaua'i Chapter since 2016 has failed to meet state health standards. This polluted water is not safe for recreation. In 2024, Kaua'i Chapter posted a sign warning people that regularly swim and play in the mouth of this stream of the high bacteria levels measured in the water.

100%

OF NĀWILIWILI STREAM SAMPLES IN 2024 EXCEEDED HEALTH STANDARDS FOR BACTERIAL COUNTS

Nāwiliwili Stream Results 2024



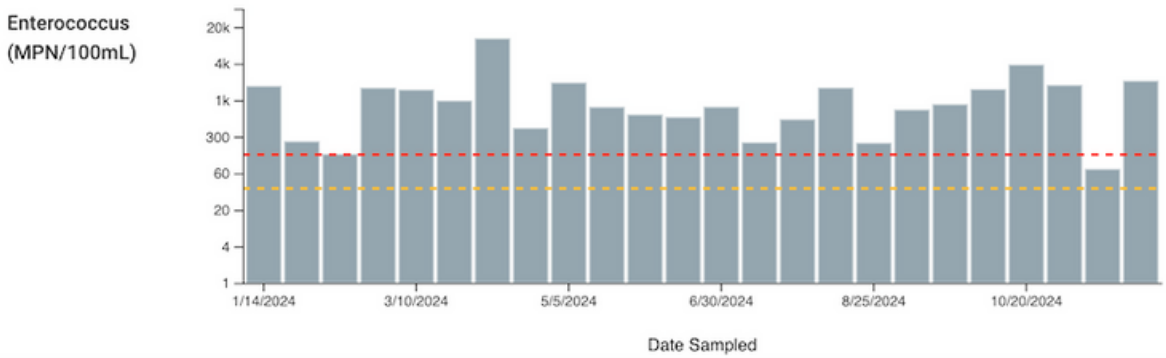
PRIORITY SAMPLE SITES: KAHALU'U, O'AHU

Since 2018, O'ahu BWTF test results have indicated chronically high bacteria levels at Kahalu'u. In 2024, 92% of the samples collected at Kahalu'u exceeded health standards. High bacteria readings are likely related to the high density of coastal cesspools in this area, as well as the fact that Kahalu'u is located at the mouth of a river and receives large amounts of land-based runoff. Previous studies by the University of Hawai'i also indicate the impact of wastewater contamination from cesspools at Kahalu'u.

92%

OF KAHALU'U SAMPLES IN 2024 EXCEEDED HEALTH STANDARDS FOR BACTERIAL COUNTS

Kahalu'u Results 2024



LEGISLATIVE ACTION

In addition to filling in water quality gaps across the state and informing beach goers about the safety of coastal waters, the Hawai'i Blue Water Task Force programs and their data also help drive important policy changes.

FEDERAL LEVEL ADVOCACY

In March 2024, five Surfrider Hawai'i volunteers met virtually with federal representatives to advocate for sufficient funding and proper implementation of the BEACH Act grants program administered by the Environmental Protection Agency (EPA). Each of the volunteers, representing their respective chapters, shared annual water quality reports highlighting the chronic pollution along their respective coastlines, and the need for cesspool upgrades to address wastewater pollution.

IMPROVING STATE WATER QUALITY MONITORING PROGRAM

Surfrider's Blue Water Task Force (BWTF) programs on O'ahu, Kaua'i, and Maui have long measured high bacteria levels where people enjoy a wide range of recreational activities in the water, but many of these sites are not tested by the beach program run by the Hawai'i Department of Health (HDOH). For many years, Surfrider has worked on building support in the Hawai'i State Legislature to mandate more robust testing coverage of beaches by the state's program. While the bill we supported last year did not pass, we were able to negotiate a compromise with the DOH that meets the bill's intent to sample beaches during both wet and dry weather. Previously, all sampling was suspended while Brown Water Advisories were in place.

REDUCING THE IMPACT OF CESSPOOL POLLUTION

Hawaii's 88,000 cesspools are one of the biggest threats to water quality across the state, discharging 53 million gallons a day of sewage into coastal waters. In recent years, Surfrider has played a key role in successfully urging the state government to finally move away from relying on these antiquated and ineffective systems for managing household wastewater. While this work is ongoing, each year Surfrider has been supporting new legislation to further the state's progress towards meeting the 2050 goal. In 2024 we helped pass legislation that will help identify priority areas where sewers and central wastewater infrastructure can replace cesspools (HB2743).

IMPROVING PUBLIC SIGNAGE

'BROWN WATER ADVISORY' SIGNAGE

The HDOH issues preemptive BWA warnings to the public to avoid coastal waters that are brown or have runoff due to potential health risks. BWAs, however, are only posted online and via local news outlets. In an effort to alert beachgoers to the potential threat of pollution, we received permission from the state and County Ocean Safety Bureau to provide Brown Water Advisory signs for the lifeguards on Maui to use to warn beachgoers of polluted conditions directly on the beach. Surfrider Kaua'i is now working to bring these signs to their island as well.

HIGH BACTERIA SIGNS ON KAUA'I

For over a decade, the Kaua'i Chapter's BWTF has tested surf breaks and stream mouths to complement the beach water quality monitoring program conducted by HDOH. The Chapter's data clearly demonstrates that while the surf breaks typically test clean, many of the streams they test are chronically polluted with extremely high levels of enterococcus bacteria.

One of their worst offenders, Nāwiliwili Stream at Kalapakī Bay, has failed every water test performed since 2016, landing this site on the Surfrider Foundation's national list of polluted beaches.This is concerning because children are often seen wading and playing in the shallow stream mouth, parents completely unaware of the polluted conditions.

In 2024 Kaua`i chapter finally received permission to hang a sign at Nāwiliwili Stream at Kalapakī Bay that warns of high bacteria levels and directs people to view the chapter's BWTF water quality data so they can make informed decisions on where it is safe to get into the water and where pollution could put them at risk of getting sick.

O‘AHU COMMUNITY SCIENCE

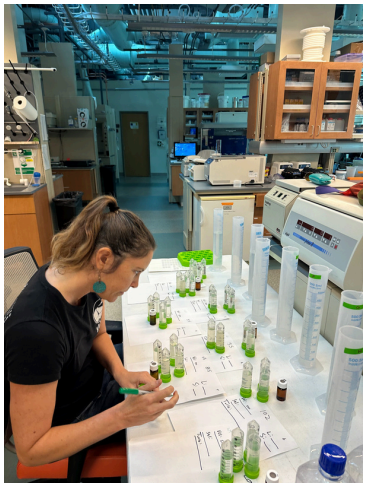
PŌKAʻĪ BAY AND WAIʻANAE LAB

In the summer of 2022, Carmen Guzman-Simplicano was pushing her elected officials to undertake water quality studies in Pōkaʻī Bay on West O‘ahu. Out of concern for her family and fellow community members developing rashes and other symptoms after swimming in Pōkaʻī Bay, Carmen and other West O‘ahu residents have been sampling four Blue Water Task Force sites in Pōkaʻī Bay and Kaupuni Stream. In 2024, 80% of the samples collected from Kaupuni stream exceeded state health standards.

In late 2023, Surfrider Foundation O‘ahu Chapter and Waiʻanae High School were awarded funding to set up a BWTF lab at Waiʻanae High School. Not only does this lab cut down on driving time for volunteers but it also allows the community to expand testing to additional sites along West O‘ahu coastline and provides a valuable hands on learning experience for high school students processing water samples in their school lab. In 2024, community volunteers and Waiʻanae High School students conducted 20 sampling events at four sites in Waiʻanae.

O‘AHU XSTREAM TEAMS

In partnership with Sea Grant, the University of Hawaii and PacIOOS (Pacific Islands Ocean Observing System) the O‘ahu Chapter is leading ‘Surfrider Xstream Teams’. This four year study, funded by a federal grant from the U.S. Coastal Research Program, supports cutting edge research on O‘ahu to advance rapid testing methods and develop predictive models to forecast pollution events in coastal waters.



Surfrider Xstream Teams is working to address the following questions:

- How polluted is the water during large rain events?
- When is it safe to go back in the water?
- Where in the watersheds are pollutants entering the system?

Surfrider O‘ahu BWTF coordinator, Daniel Amato is leading the study with 75 community volunteers who sample at 5 different watersheds on O’ahu (50 sites) during extreme rain events testing for fecal indicator bacteria (enterococcus), nutrients (nitrogen and phosphorus), wastewater indicators (sucralose and optical brighteners), microbial community structure, turbidity, salinity, and dissolved organic matter (DOM). As of April, 2025 - approximately 220 samples over 10 sample days and two extreme storm events have been processed in the first 2 years of this study. This data will provide us with a better understanding of the impacts that large rain and tide events have on water quality and public safety. We expect preliminary data to be available by the end of 2025.

MAUI POST-FIRE COASTAL WATER QUALITY MONITORING

The August 8 Maui fires proved a significant turning point for the Maui Chapter. This unprecedented tragedy and environmental disaster raised ongoing concerns about coastal water quality along West Maui.

IS THE OCEAN SAFE ON WEST MAUI?

In the months after the fire, many research scientists received funding to test for fire contaminants in the oceans around Lāhainā. However, the focus was largely on marine ecosystem and reef health, leaving a large gap in public information regarding human health impacts.

In response to this, Surfrider's Maui Fire Response Coordinator and the Maui Chapter initiated a Maui Post-Fire Monitoring Program to address community concern regarding coastal water quality and ocean recreation safety. We developed a network of water quality and public health experts including HDOH and research scientists collecting post-fire water quality and sediment data.

OCEAN SAFE FOR RECREATION

We conducted two sampling events in the Lāhainā burn zone and surrounding area- the first in early January 2024 during a big rain event and the second in June 2024 during dry weather. Samples were sent to Physis labs in CA for analysis.

Our results garnered significant local, national, and international media coverage and prompted a HDOH press release. The first round of samples were analyzed for the most probable fire-related toxic contaminants in the ocean - heavy metals and Polycyclic Aromatic Hydrocarbons (PAH) (link to results) We did not find evidence of fire-related contamination that would put human health at risk from recreation in the ocean.

In our second and final round of testing, we only sampled for metals, and again found no evidence of fire-related contamination that would put human health at risk from recreation in the ocean (link to results). In both sampling events, we didn't see any dissolved metal concentrations besides copper and zinc that stood out as elevated above typical background levels. Even the elevated copper and zinc levels were considerably lower than concentrations that could pose a threat to human health.

CONTINUED WATER QUALITY MONITORING EFFORTS

We were fortunate to mobilize fire relief donations quickly to provide critical water quality data in the early months following the fires. HDOH has since set up a comprehensive quarterly post-fire coastal water quality monitoring program, in close consultation with our efforts, to sample for metals, nutrients, and other potential indicators of wildfire impacts. Consistent with our data, their efforts are confirming that coastal waters around Lāhainā are safe for recreation. Click here to visit their Maui Wildfire Data website.

This report is brought to you by the
Surfrider Foundation Hawai'i Region.

hawaii.surfrider.org

Photo by Monica Andrea Photography