

Investigation of *Lyngbya majuscula* Wailau Point, O'ahu



Prepared By:

Division of Aquatic Resources
Aquatic Invasive Species Team
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Field Report

Executive Summary

On June 20th, 2025, the Division of Aquatic Resources (DAR) received a report of a potential algal bloom along the shoreline of Wailau Point. Wailau Point is located in the residential neighborhood of Kahalu'u, in the northern half of Kāne'ohe Bay. Photographs and approximate coordinates of the bloom were provided by a community resident. Residents also expressed concern of a foul smell coming from the area. On July 8th, 2025, the DAR AIS Team responded to the report to determine the location and species identification of the reported algae. After investigating the site, the AIS Team was able to confirm a small *L. majuscula* growth along the southern shore of Wailau Point.

Introduction

Lyngbya majuscula is a filamentous, marine cyanobacterium that inhabits estuarine and coastal waters throughout the tropics and subtropics (Watkins et al., 2005). It grows in fine strands loosely attached to seagrass beds, and has been observed in a wide variety of colors (Osborne et al., 2001). While native throughout most of the tropics, including in Hawai'i, eutrophication and nutrient loading have been linked to increased severity of blooms across its native range (Watkinson et al., 2005). Studies have shown that higher concentrations of Iron (Fe), Phosphorus (P), and Nitrogen (N₂), in particular, have led to larger blooms of *L. majuscula* in the marine environment (Elmetri & Bell, 2004). When present in higher concentrations, *L. majuscula* has been identified as toxic to human health (Osborne et al., 2001). According to the Hawai'i State Department of Health, the most common symptoms of exposure to *L. majuscula* are irritation of the skin, rash formation, and possible blistering. However, exposure to increased levels can cause irritation of the nose and throat, oral and intestinal irritation, headache, fatigue, and fever (Hawai'i Department of Health, 2019). Symptoms may begin as soon as several minutes after exposure, and can last anywhere from a few hours to several days. In Hawai'i, increased reports of *L. majuscula* often occur during the summer months.

Field Operations

On July 8th, 2025, the DAR AIS team responded to a report of a potential algal bloom along the shoreline of Wailau Point. The results from the investigation confirmed the location and identification of *L. majuscula* off the southern end of the point (Figure 1). Algal growth extended approximately 100 m along the shoreline and 2 m into the bay. *Lyngbya majuscula* was observed washed up against a stone wall at the high tide mark, indicating that part of the algal bloom was exposed during the low tide (Figure 2). *Lyngbya majuscula* dissipated around the eastern end of the point and tapered off on the western end towards Laenani Neighborhood Park.



Fig. 1 Map of Wailau Point, Kahalu'u, Hawai'i. Area highlighted in red indicates the shoreline surveyed by the AIS team to delineate the extent of the growth. Blue star indicates the location of the local WWPS.

In addition to the algal report, residents complained of a foul smell in the vicinity of the algal bloom. The odor was initially attributed to the excess cyanobacteria and potential fish bycatch. Upon investigating, AIS Team members did detect an odor in the vicinity of the algae, although it did not appear to be from the algal bloom itself. A wastewater pumping station (WWPS) is located directly adjacent to the bloom at the neighborhood park (Figure 1). The DAR AIS Team confirmed that the WWPS seemed to be the source of the odor in the neighborhood and the vicinity of the algal bloom. Basic environmental measurements were taken at the site. The water temperature was 25.4°C and the salinity was 25 ppt.



Figure 2. Southern side of Wailau point, at the location of the reported *Lyngbya majuscula* bloom. A) Shoreline with *L. majuscula* both in the water and along the stone wall at the high tide mark. B) Shoreline showing growth of *L. majuscula* extending approximately 100m down the beach. C) *L. majuscula* mixed with other native algae washed up on the shore.

Conclusions

On July 8th, 2025, the DAR AIS team responded to a report of an algal bloom along the shoreline of Wailau Point. Results from this investigation confirmed the identification of a small *L. majuscula* bloom along the southern shore of the point. The outbreak appears to be naturally occurring and has precedent in the State. While increased algal growth could be cause for concern, *L. majuscula* is native to Hawai'i. Physical removal would only be a temporary solution. The algal bloom is likely due to increased nutrient input and favorable environmental conditions. It is possible that the nearby WWPS is the source of the nutrient loading, although water quality samples would be needed to confirm this assumption.

References

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