

Lake Hopatcong Harmful Algal Bloom: Field Sampling Locations, Results and Aircraft Remote Sensing Information

10/11/19

Based on data from the monitoring on 10/10, the DEP has lifted the advisory at Mt. Arlington Beach and Knolls Beach. At this time, approximately 87% of the waters of the lake have had the advisory lifted.

As of 10/11, the advisory remains in effect for the Prospect Point and Wood Port Bay area in the northeastern portion of the lake (see advisory status map below).

On 10/4, the DEP lifted the advisory at Mid-Lake, in the lower-central portion of the lake.

On 9/27, the DEP lifted the advisory at Crescent Cove River Styx and the open water area adjacent to Hopatcong State Park.

On 9/20, DEP lifted the advisory at the mouth of Wood Port Bay, east of Davis Cove Mid-Lake and the Bertrand Island.

Beach sampling results are included in the tables below. As per the DEP/DOH Harmful Algal Bloom (HAB) Freshwater Recreational Response Strategy, two subsequent samples below the health advisory guidance thresholds are required for reopening of a regulated Public Recreational Bathing facility. Based on the data, DEP/DOH has approved the local health department to re-open the following beaches: as of 8/13 Pebble Beach, Sand Harbor, Bass Rock Beach, Sperry Springs Beach, Beck Lane Beach and CAPP Beach, as of 8/16, Byram Bay Community Club Beach and Clearwater Beach, as of 9/27, Hopatcong State Park beach, East Shore Beach, Hopatcong Homestead Beach, Ingram Cove, and Shore Hill's Beach, and as of 10/11 Mt. Arlington Beach and Knolls Beach.

The DEP urges the public to avoid swimming or water sports that may result in contact with the water, such as water-skiing, tubing, canoeing, paddle boarding and kayaking. There is no recommended limitation on fishing or passive recreational boating that does not have the potential for splashing. However, fish caught should not be eaten. The public is further advised that pets should not be allowed in the water or to drink it.

Since the initial report of an algal bloom on 6/17/19, the DEP Bureau of Freshwater and Biological Monitoring has been sampling and analyzing the waters in Lake Hopatcong to identify the algal species and to determine whether cell count levels or cyanotoxins are present above NJ Health Advisory Guidance Levels. HAB response has been conducted in accordance with [NJ's Cyanobacterial Harmful Algal Bloom \(HAB\) Freshwater Recreational Response Strategy](#), which is a unified interagency approach for responding to HABs. Sampling will be conducted on Tuesdays and Thursdays with results posted on the following days. Flights will continue once a week.

Due to the widespread nature of this bloom, based on field sampling, laboratory results and aircraft remote sensing, on 6/27, 7/3 and 7/12 DEP issued press releases advising the public to avoid swimming in or contact with Lake Hopatcong water. In addition to some beaches already being closed due to visual, field or lab results, as a precaution, DEP recommended that local health authorities close all public swimming beaches along the lake. On 7/26, DEP issued a press release lifting the advisory in the Indian Harbor area of the lake. On 8/1, DEP lifted the advisory in Henderson Cove, on 8/9 the advisory was lifted in Byram Cove, and as of 8/13 and 8/16 the advisory in Pebble Beach, Sand Harbor, Bass Rock Beach. Sperry Springs Beach, Beck Lane Beach and CAPP Beach was lifted. On 9/20, DEP issued a press release lifting the advisory at the mouth of Wood Port Bay, east of Davis Cove Mid-Lake and the

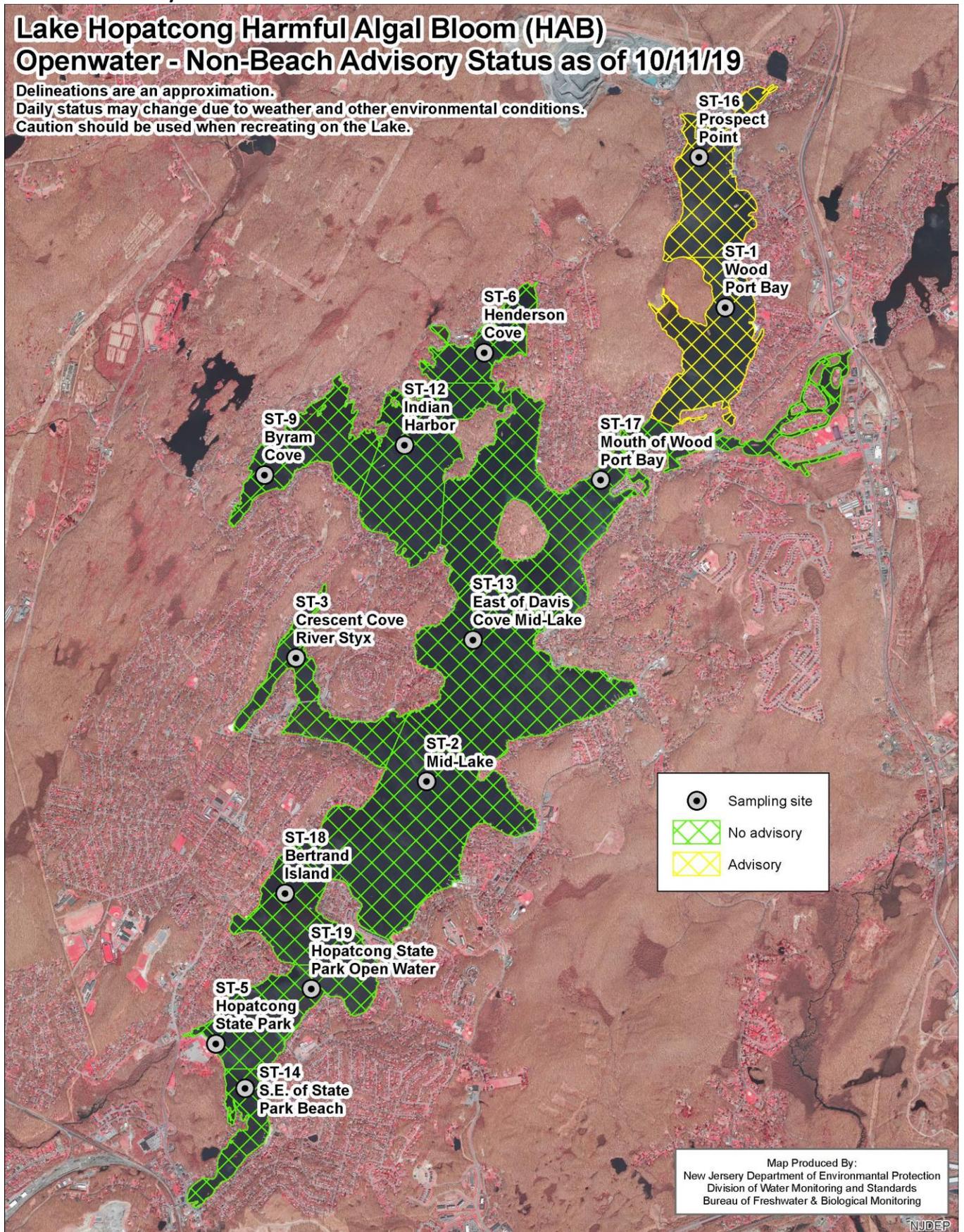
Bertrand Island area - see advisory status map below. Press releases are available [here](#).

Bloom reports and sampling locations, as well as the results from sampling events can be found in the sampling locations map and results tables below. NJ Health Advisory Guidance Levels include cell counts $\geq 20,000$ cells/ml and microcystin levels $\geq 3\mu\text{g/L}$. While many HAB cell counts in Lake Hopatcong have been above NJ Health Advisory Guidance Levels, measurable microcystin levels have been below the guidance. DEP will continue to monitor the lake until the HAB subsides to levels below all NJ Health Advisory Guidance triggers.

Non-Beach Advisory Status

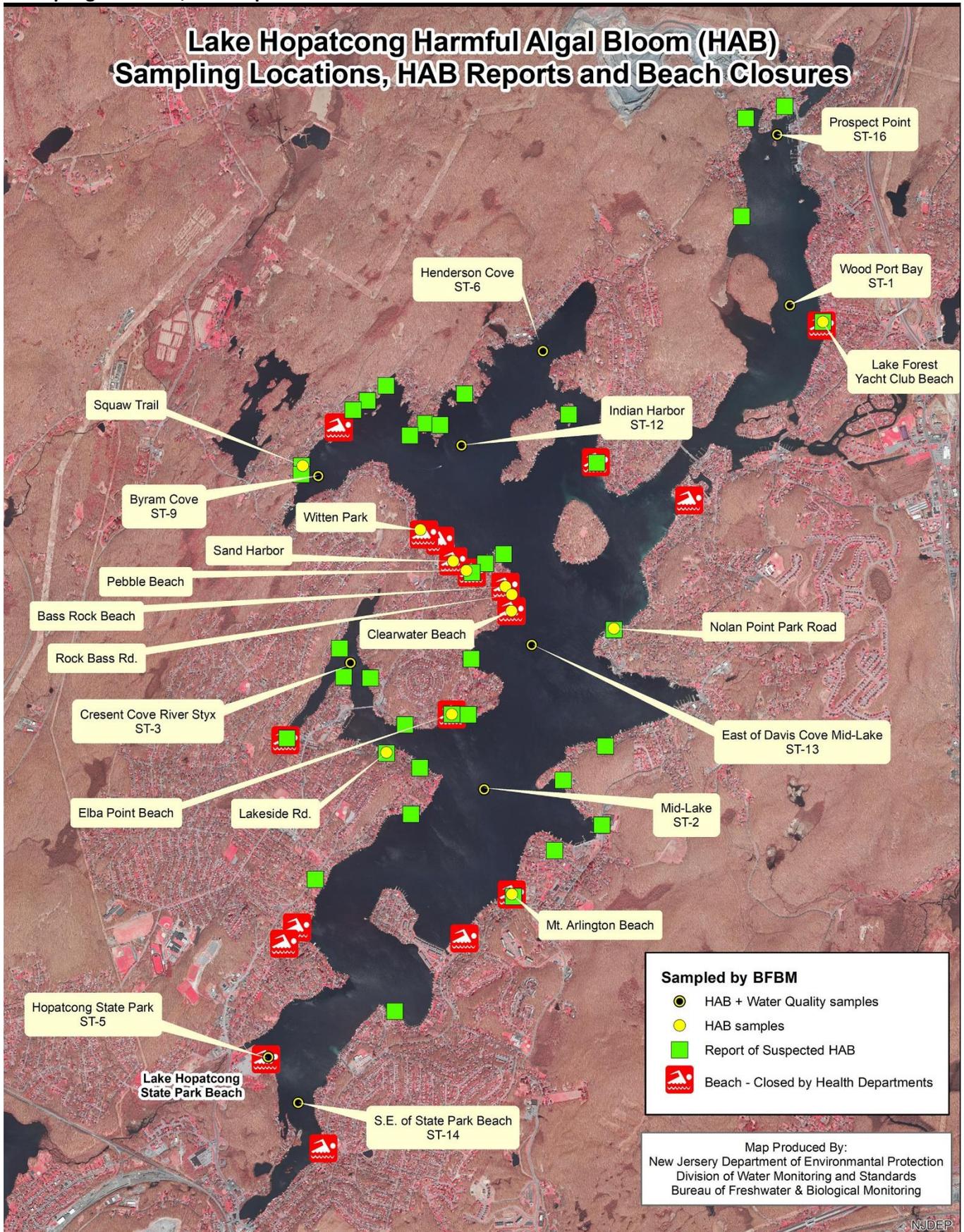
Lake Hopatcong Harmful Algal Bloom (HAB) Openwater - Non-Beach Advisory Status as of 10/11/19

Delineations are an approximation.
Daily status may change due to weather and other environmental conditions.
Caution should be used when recreating on the Lake.



Sampling Locations, HAB Reports and Beach Locations

Lake Hopatcong Harmful Algal Bloom (HAB) Sampling Locations, HAB Reports and Beach Closures



Potential Health Effects and Results

Exposure to cyanobacteria can cause a range of health effects, including rashes, allergy-like reactions, flu-like symptoms, gastroenteritis, respiratory irritation and eye irritation. Exposure to a HAB which is actively producing cyanotoxins may result in more serious health effects including liver toxicity and neurological effects. HABs may begin to produce cyanotoxins at any time.

In order to be classified as a harmful algal bloom, NJ first identifies the presence of cyanobacterial species and then performs analyses for cell counts and/or toxins. The tables below detail the sampling that has occurred since 6/18/2019, as well as the results to date. Due to the characteristics of the lake, as the bloom progresses, some areas may test higher on some days than previous days. This variability is expected due to the shift in cyanobacteria populations, wind or water currents moving the blooms around the lake.

Results from sampling conducted on 10/10/19 show continued cell counts above advisory levels for locations as highlighted in the first set of tables below. Toxin levels are shown in the second set of tables.

Cell Counts – September and October

| Site name | Station# (where applicable) | Cyanobacteria Counts cells/mL* | | | | | | | | | | | |
|--|--------------------------------|--------------------------------|-------------------|-------------------|---------------------|------------------|---------------------|-------------------------------------|-------------------|-------------------------------------|-------------------|----------|----------|
| | | Date Sampled | | | | | | | | | | | |
| | | 9/3/19 | 9/5/19 | 9/10/19 | 9/12/19 | 9/17/19 | 9/19/19 | 9/24/19 | 9/26/19 | 10/1/19 | 10/3/19 | 10/08/19 | 10/10/19 |
| Bathing Beach Sites | | | | | | | | | | | | | |
| Pebble Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sand Harbor | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Clearwater Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bass Rock Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lake Forest Yacht Club Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Elba Point Beach | | --- | --- | --- | --- | --- | --- | --- | --- | 15250 | 16500 | --- | --- |
| Mt. Arlington Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 14500 | 18000 |
| Hopatcong State Park | ST-5 | 15625 | 35000 | 16500 | 24000 | 32750 | 17500 | 14250 | --- | --- | --- | --- | --- |
| Sperry Springs Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byram Bay Community Club Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Beck Lane Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CAPP Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| East Shore Beach | | --- | --- | --- | --- | --- | --- | Present, Below quantification | 5500 | --- | --- | --- | --- |
| Hopatcong Homestead Beach | | --- | --- | --- | --- | --- | --- | Present, Below quantification | 13625 | --- | --- | --- | --- |
| Ingram Cove | | --- | --- | --- | --- | --- | --- | 18500 | 1000 | --- | --- | --- | --- |
| Crescent Cove Beach | | --- | --- | --- | --- | --- | --- | --- | --- | Present, Below quantification | 6750 | --- | --- |
| Shore Hills Beach | --- | --- | --- | 20250 | 32500 | 21625 | 106000 | 19500 | 15750 | --- | --- | --- | --- |
| Knolls Beach | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8125 | 17250 |
| Other Lake Sites | | | | | | | | | | | | | |
| Nolan Point Park Road | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Bass Rd. | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Squaw Trail | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lakeside Rd. | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Witten Park | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Wood Port Bay | ST-1 | 87500 | 95250 | 91375 | 136375 | 51000 | 39000 | 25000 | 25875 | 24000 | 22000 | 35875 | 29775 |
| Mid-Lake (collected at surface, 0.5, 1.0, and 2 meters. Highest results listed) | ST-2 | 23750 at 0.1 meters | 27500 at 1 meters | 25500 at 1 meters | 22375 at 0.1 meters | 33500 at 1 meter | 25000 at 0.1 meters | 27375 at 1 meters | 25750 at 2 meters | 15800 at 0.1 meters | 16250 at 1 meters | --- | --- |
| Crescent Cove River Styx | ST-3 | 28250 | 31000 | 19125 | 32625 | 6000 | 21625 | 18500 | 6500 | --- | --- | --- | --- |
| Henderson Cove | ST-6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byram Cove | ST-9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Indian Harbor | ST-12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| East of Davis Cove Mid-Lake | ST-13 | 25000 | 18750 | 30500 | 23250 | 17250 | 14000 | --- | --- | --- | --- | --- | --- |
| S.E. of State Park Beach | ST-14 | 9500 | 17750 | --- | --- | --- | --- | 17250 | --- | --- | --- | --- | --- |
| Prospect Point | ST-16 | 55250 | 49750 | 72500 | 53500 | 32400 | 40250 | 33500 | 35000 | 23000 | 24250 | 25750 | 33000 |
| Mouth of Wood Port Bay | ST-17 | 29750 | 45500 | 35000 | 24750 | 13500 | 16750 | --- | --- | --- | --- | --- | --- |
| Bertrand Island | ST-18 | 21750 | 22375 | 19000 | 29250 | 19375 | 19250 | --- | --- | --- | --- | --- | --- |
| Hopatcong State Park Open Water | ST-19 | --- | --- | --- | --- | --- | --- | 12500 | 12000 | --- | --- | --- | --- |

*NJ Health Advisory Guidance Levels
 Cell Count ≥ 20,000 cells/ml;
 Microcystins ≥ 3µg/L
 Indicates > than advisory levels

Toxins – June, July and August

| Site name | Station# (where applicable) | Microcystins µg/l (lowest Reporting Level 0.15µg/l)* | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------|--|----------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|------------------|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|-------------------|------------------|------------------|
| | | Date Sampled | | | | | | | | | | | | | | | | | | | | | | | |
| | | 06/18/19 | 06/21/19 | 06/26/19 | 06/27/19 | 06/28/19 | 07/01/19 | 07/02/19 | 07/05/19 | 07/09/19 | 07/11/19 | 07/16/19 | 07/19/19 | 07/23/19 | 07/25/19 | 07/25/19 | 08/01/19 | 08/06/19 | 08/08/19 | 08/12/19 | 08/15/19 | 08/20/19 | 08/22/19 | 08/27/19 | 08/29/19 |
| Bathing Beach Sites | | 0.83 | --- | --- | --- | --- | 0.15 | 0.16 | --- | 0.17 | --- | --- | --- | 0.25 | --- | --- | --- | 0.29 | 0.23 | --- | --- | --- | --- | --- | |
| Pebble Beach | | 1.35 | --- | --- | --- | --- | 0.17 | < Reporting Level | --- | 0.21 | --- | --- | --- | 0.22 | --- | --- | --- | 0.26 | 0.15 | --- | --- | --- | --- | --- | |
| Sand Harbor | | --- | 0.16 | --- | --- | --- | < Reporting Level | 0.18 | --- | 0.24 | --- | --- | --- | 0.23 | --- | --- | --- | 0.23 | 0.29 | 0.12 | --- | --- | --- | --- | |
| Clearwater Beach | | --- | 0.21 | --- | --- | --- | 0.08 | 0.16 | --- | 0.23 | --- | --- | --- | 0.25 | --- | --- | --- | 0.30 | 0.18 | --- | --- | --- | --- | --- | |
| Bass Rock Beach | | --- | --- | 0.38 | --- | --- | 0.24 | 0.35 | --- | 0.29 | --- | --- | --- | 0.42 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Lake Forest Yacht Club Beach | | --- | --- | < Reporting Level | --- | --- | 0.19 | < Reporting Level | --- | 0.19 | --- | --- | --- | 0.34 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Elba Point Beach | | --- | --- | --- | 0.15 | --- | < Reporting Level | 0.16 | --- | 0.32 | --- | --- | --- | 0.18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Mt. Arlington Beach | | --- | --- | --- | --- | < Reporting Level | < Reporting Level | 0.15 | < Reporting Level | 0.24 | 0.24 | 0.24 | 0.39 | 0.42 | 0.36 | 0.61 | 0.375 | 0.30 | 0.36 | 0.60 | 0.22 | 0.47 | 0.26 | 0.6 | 0.6 |
| Hopatcong State Park | ST-5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.16 | 0.17 | --- | --- | --- | --- | --- | |
| Sperry Springs Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.26 | 0.19 | 0.17 | --- | --- | --- | --- | |
| Byram Bay Community Club Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.17 | 0.16 | --- | --- | --- | --- | --- | |
| Back Lane Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.27 | 0.19 | --- | --- | --- | --- | --- | |
| CAPP Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| East Shore Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Hopatcong Homestead Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Ingram Cove | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Crescent Cove Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.62 | 1.29 | --- | 1.947 | --- | --- | --- | --- | --- | --- | --- | |
| Shore Hills Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Knolls Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Other Lake Sites | | < Reporting Level | --- | --- | --- | --- | < Reporting Level | < Reporting Level | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Nolan Point Park Road | | < Reporting Level | --- | --- | --- | --- | < Reporting Level | < Reporting Level | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Rock Bass Rd. | | --- | 0.23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Squaw Trail | | --- | 0.16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Lakeside Rd. | | --- | 0.17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Witten Park | | --- | --- | --- | < Reporting Level | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Wood Port Bay | ST-1 | --- | --- | --- | --- | 0.34 | --- | 0.38 | 0.42 | 0.41 | 0.41 | 0.38 | 0.59 | 0.65 | 0.41 | 0.33 | 0.366 | 0.30 | 0.30 | 0.37 | 0.34 | 0.36 | 0.38 | 0.38 | 0.48 |
| Mid-Lake (collected at surface, 0.5, 1.0, and 2 meters. Highest results listed) | ST-2 | --- | --- | --- | --- | 0.15 | --- | 0.16 | 0.15 | 0.22 at 0.1 meters | 0.19 at 0.1 meters | 0.23 at 4 meters | 0.36 at 0.1 meters | 0.30 at 1 meters | 0.32 at 1 meters | 0.24 at 1 meters | 0.169 at 1 meter | 0.22 at 1 meters | 0.23 at 1 meters | 0.36 at 0.1 meters | 0.94 at 0.1 meters | 0.32 at 0.1 meters | < Reporting Level | 0.19 at 1 meters | 0.26 at 1 meters |
| Crescent Cove River Styx | ST-3 | --- | --- | --- | --- | 0.18 | --- | < Reporting Level | < Reporting Level | 0.26 | 0.29 | 0.32 | 0.48 | 0.25 | 0.39 | 0.42 | 0.28 | 0.30 | 0.49 | 0.54 | 0.43 | 0.41 | 1.24 | 0.63 | 0.60 |
| Henderson Cove | ST-6 | --- | --- | --- | --- | < Reporting Level | --- | 0.15 | 0.18 | < Reporting Level | < Reporting Level | 0.18 | 0.25 | 0.25 | 0.35 | 0.22 | 0.185 | 0.22 | 0.25 | 0.25 | --- | --- | --- | --- | |
| Byram Cove | ST-9 | --- | --- | --- | --- | 0.2 | --- | < Reporting Level | 0.16 | 0.18 | < Reporting Level | 0.18 | 0.18 | 0.37 | 0.24 | 0.19 | 0.244 | 0.44 | 0.22 | 0.15 | --- | --- | --- | --- | |
| Indian Harbor | ST-12 | --- | --- | --- | --- | < Reporting Level | --- | 0.32 | 0.16 | 0.19 | 0.15 | 0.26 | 0.24 | 0.29 | 0.23 | 0.21 | 0.253 | 0.16 | 0.29 | 0.17 | --- | --- | --- | --- | |
| East of Davis Cove Mid-Lake | ST-13 | --- | --- | --- | --- | < Reporting Level | --- | < Reporting Level | 0.28 | 0.45 | 0.17 | 0.18 | 0.32 | 0.18 | 0.13 | 0.23 | 0.162 | 0.16 | 0.23 | 0.42 | 0.31 | 0.22 | 0.22 | 0.22 | 0.16 |
| S.E. of State Park Beach | ST-14 | --- | --- | --- | --- | 0.16 | --- | < Reporting Level | < Reporting Level | --- | 0.22 | 0.25 | 0.22 | 0.34 | 0.24 | 0.32 | 0.476 | 0.53 | 0.41 | 0.44 | 0.44 | 0.23 | 0.54 | 0.53 | 0.57 |
| Prospect Point | ST-16 | --- | --- | --- | --- | --- | --- | 0.35 | 0.31 | 0.28 | 0.45 | 0.57 | 0.43 | 0.61 | 0.43 | 0.3 | 0.192 | 0.37 | 0.40 | 0.39 | 0.31 | 0.23 | 0.31 | 0.26 | 0.26 |
| Mouth of Wood Port Bay | ST-17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.20 | 0.21 | < Reporting Level | 0.24 | 0.24 |
| Bertrand Island | ST-18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.21 | 0.26 | < Reporting Level | 0.19 | 0.24 |
| Hopatcong State Park Open Water | ST-19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

* NJ Health Advisory Guidance Levels
 Cell Count ≥ 20,000 cells/ml;
 Microcystins ≥ 3µg/L
 Indicates > than advisory levels

Toxins – September and October

| Site name | Station# (where applicable) | Microcystins µg/l (lowest Reporting Level 0.15µg/l)* | | | | | | | | | | | |
|--|--------------------------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|------------------|-------------------|-------------------|---------|----------|
| | | Date Sampled | | | | | | | | | | | |
| | | 9/3/19 | 9/5/19 | 9/10/19 | 9/12/19 | 9/17/19 | 9/19/19 | 9/24/19 | 9/26/19 | 10/1/19 | 10/3/19 | 10/8/19 | 10/10/19 |
| Bathing Beach Sites | | | | | | | | | | | | | |
| Pebble Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sand Harbor | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Clearwater Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bass Rock Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lake Forest Yacht Club Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Elba Point Beach | | --- | --- | --- | --- | --- | --- | --- | --- | < Reporting Level | 0.2 | --- | --- |
| Mt. Arlington Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.23 | 0.38 |
| Hopatcong State Park | ST-5 | 0.4 | 0.35 | 0.36 | 0.41 | 0.37 | 0.21 | 0.39 | --- | --- | --- | --- | --- |
| Sperry Springs Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byram Bay Community Club Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Beck Lane Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CAPP Beach | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| East Shore Beach | | --- | --- | --- | --- | --- | --- | 0.16 | 0.29 | --- | --- | --- | --- |
| Hopatcong Homestead Beach | | --- | --- | --- | --- | --- | --- | < Reporting Level | 0.2 | --- | --- | --- | --- |
| Ingram Cove | | --- | --- | --- | --- | --- | --- | 0.35 | 0.23 | --- | --- | --- | --- |
| Crescent Cove Beach | | --- | --- | --- | --- | --- | --- | --- | --- | 0.2 | 0.19 | --- | --- |
| Shore Hills Beach | --- | --- | --- | 0.47 | --- | 0.36 | 2.3 | 0.16 | 0.41 | --- | --- | --- | --- |
| Knolls Beach | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.2 | 0.18 |
| Other Lake Sites | | | | | | | | | | | | | |
| Nolan Point Park Road | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Bass Rd. | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Squaw Trail | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lakeside Rd. | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Witten Park | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Wood Port Bay | ST-1 | 0.23 | 0.26 | 0.27 | 0.23 | 0.17 | 0.16 | 0.22 | 0.22 | 0.17 | 0.19 | 0.2 | 0.31 |
| Mid-Lake (collected at surface, 0.5, 1.0, and 2 meters. Highest results listed) | ST-2 | < Reporting Level | 0.17 at 13 meters | 0.18 at 1 meters | 0.19 at 13 meters | 0.15 at 1 meters | < Reporting Level | 0.22 at 0.1 meters | 0.28 at 1 meters | 0.18 at 1 meters | 0.25 at 13 meters | --- | --- |
| Crescent Cove River Styx | ST-3 | 0.55 | 0.51 | 0.18 | 0.4 | < Reporting Level | 0.18 | 0.2 | 0.32 | --- | --- | --- | --- |
| Henderson Cove | ST-6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byram Cove | ST-9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Indian Harbor | ST-12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| East of Davis Cove Mid-Lake | ST-13 | < Reporting Level | < Reporting Level | < Reporting Level | 0.34 | < Reporting Level | 0.15 | --- | --- | --- | --- | --- | --- |
| S.E. of State Park Beach | ST-14 | 0.41 | 0.35 | --- | --- | --- | --- | 0.5 | --- | --- | --- | --- | --- |
| Prospect Point | ST-16 | 0.23 | 0.20 | 0.23 | 0.34 | < Reporting Level | < Reporting Level | 0.18 | 0.27 | 0.15 | 0.23 | 0.18 | 0.21 |
| Mouth of Wood Port Bay | ST-17 | < Reporting Level | < Reporting Level | < Reporting Level | 0.17 | < Reporting Level | 0.16 | --- | --- | --- | --- | --- | --- |
| Bertrand Island | ST-18 | < Reporting Level | 0.21 | 0.18 | < Reporting Level | 0.16 | 0.19 | --- | --- | --- | --- | --- | --- |
| Hopatcong State Park Open Water | ST-19 | --- | --- | --- | --- | --- | --- | 0.29 | 0.38 | --- | --- | --- | --- |

*NJ Health Advisory Guidance Levels
 Cell Count ≥ 20,000 cells/ml;
 Microcystins ≥ 3µg/L
 Indicates > than advisory levels

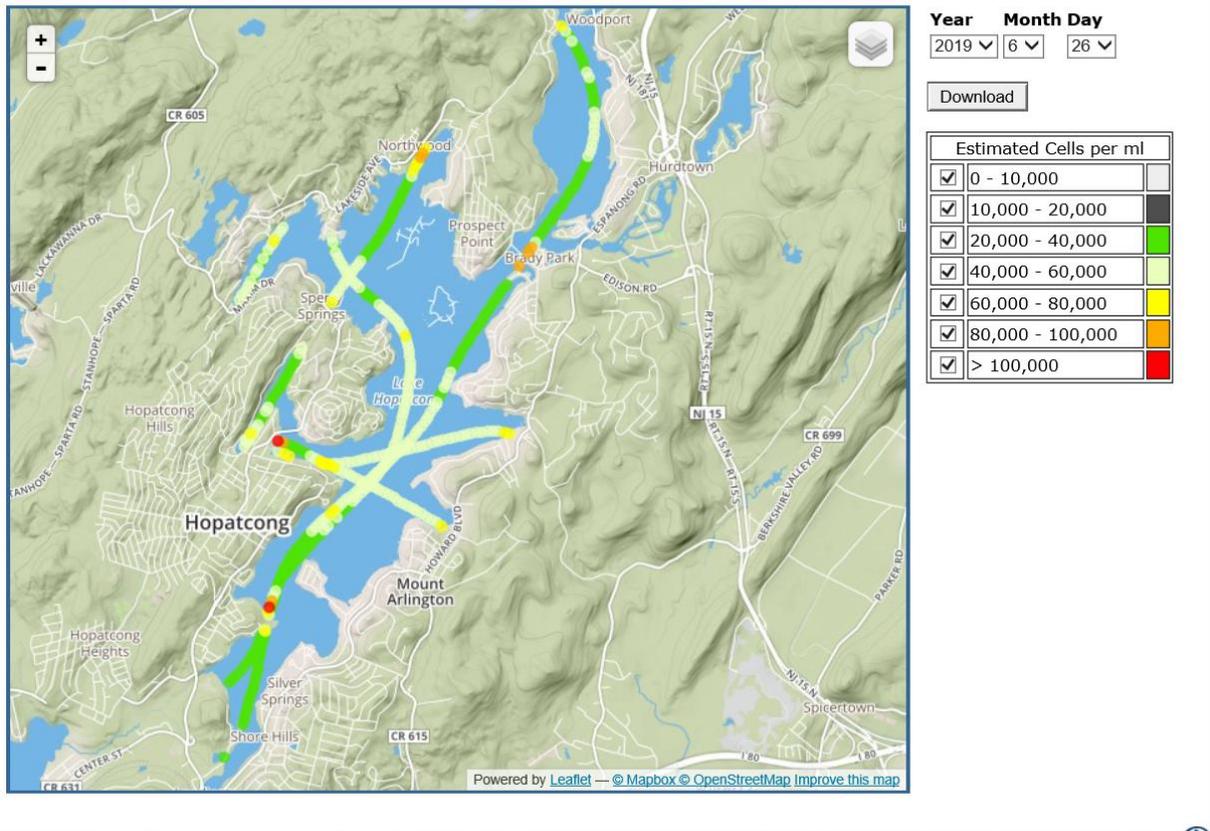
Aircraft Remote Sensing Information and Results

In addition to the response to Harmful Algal Bloom visual reports, field sampling and laboratory analyses described above, the DEP has developed aircraft remote sensing capabilities for general cyanobacteria detection and tracking. A sensor is used to pick up wavelengths of light specific to the cyanobacteria pigment phycocyanin in a waterbody. This advanced monitoring method provides immediate feedback on the presence and relative cyanobacteria cell counts and can serve as a screening method to target waters for sample collection. While laboratory analyses serve as the definitive determination of whether results exceed NJ Health Advisory Guidance levels, remote sensing data provides useful information on the general extent and trends of a bloom.

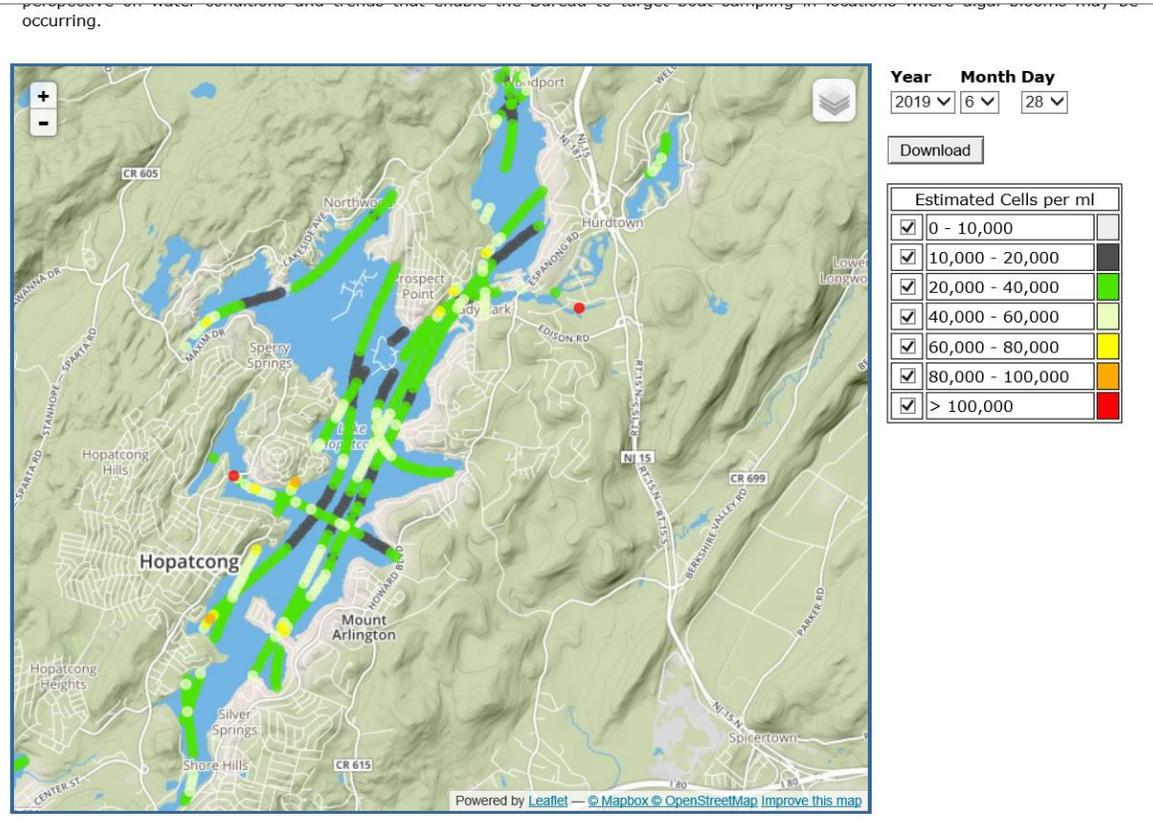
Remote sensing flights were conducted over Lake Hopatcong on 6/26, 6/28, 6/30, 7/3, 7/10, 7/17, 7/24, 7/30, 8/9, 8/20, 8/27, 9/3, 9/11, 9/17 and 9/24. The scale below estimates the pigment concentrations and cell counts; the bright yellow to red is estimated to be over 20,000 cells/ml or higher, light green denotes an area of concern where cell counts may be near 20,000 cells/ml and dark gray denotes low levels or non-detect. Images are available below for the flights. Samples results are needed to confirm sensor estimates.

On 6/26/2019, the flight data shows elevated levels of the phycocyanin pigment covering almost the entire lake.

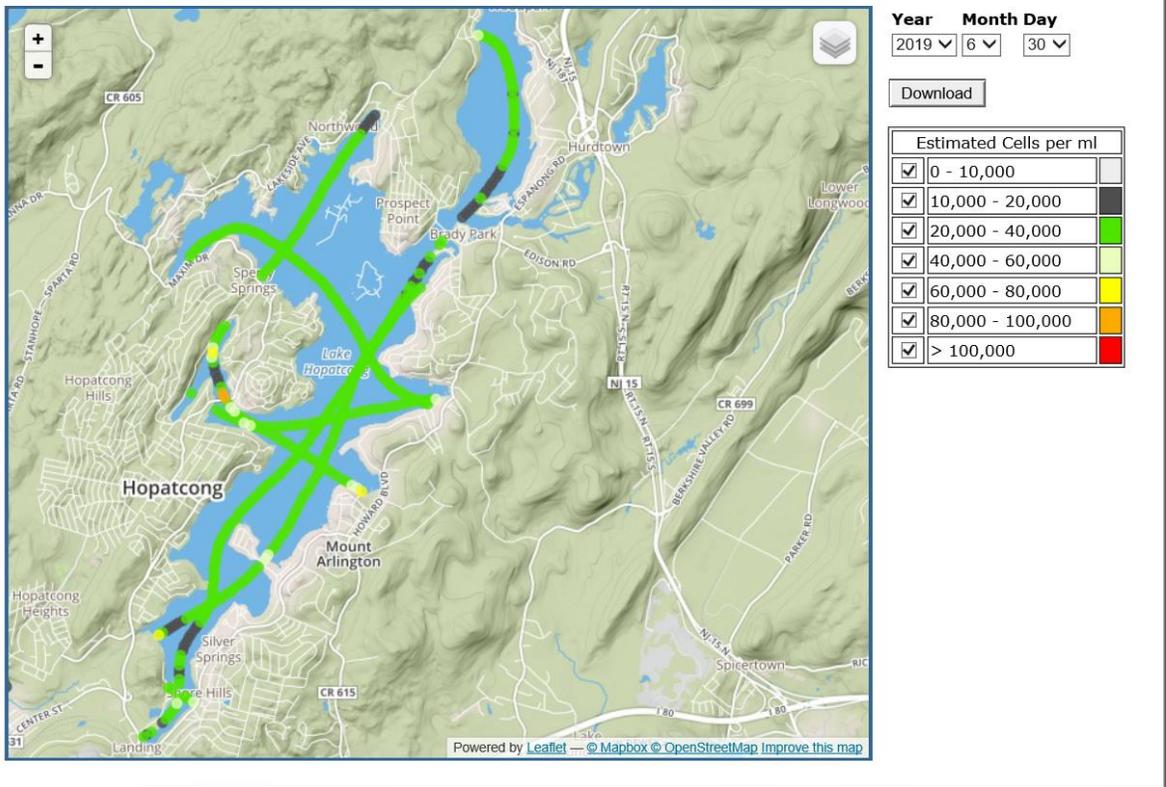
occurring.



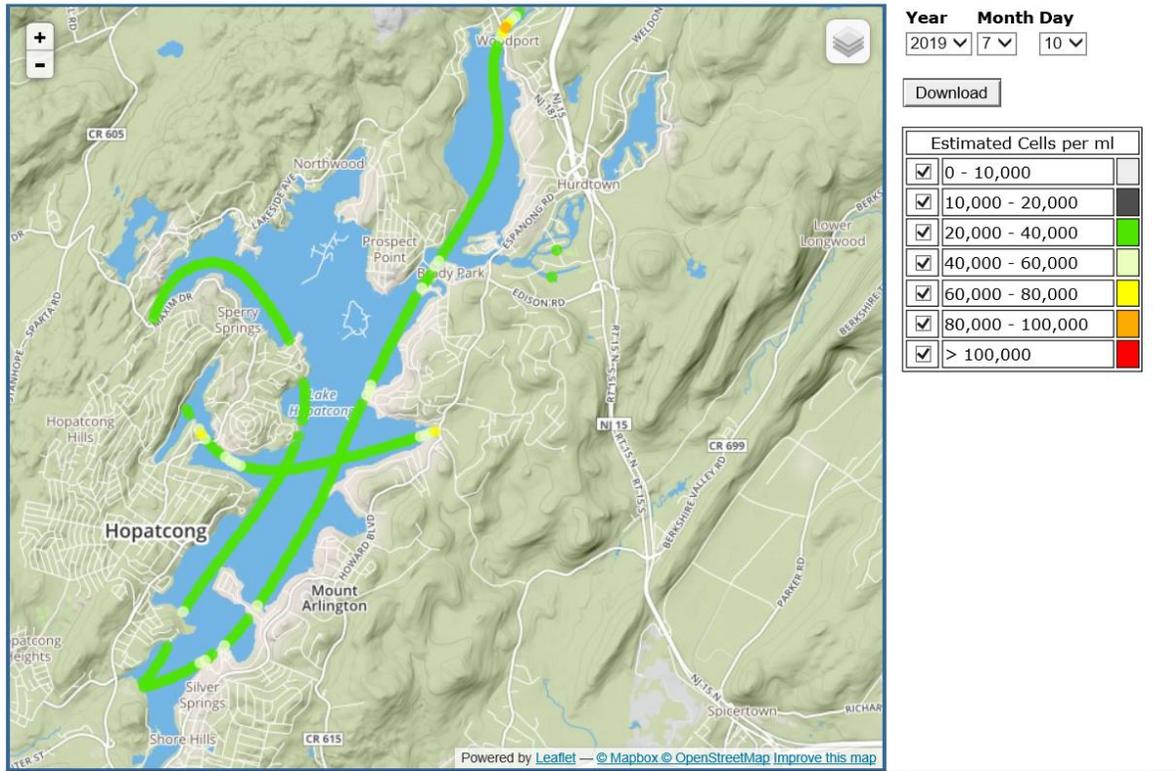
On 6/28/2019, the bloom still covers a large section of the lake, with the coves to the north showing signs that the bloom was diminishing.



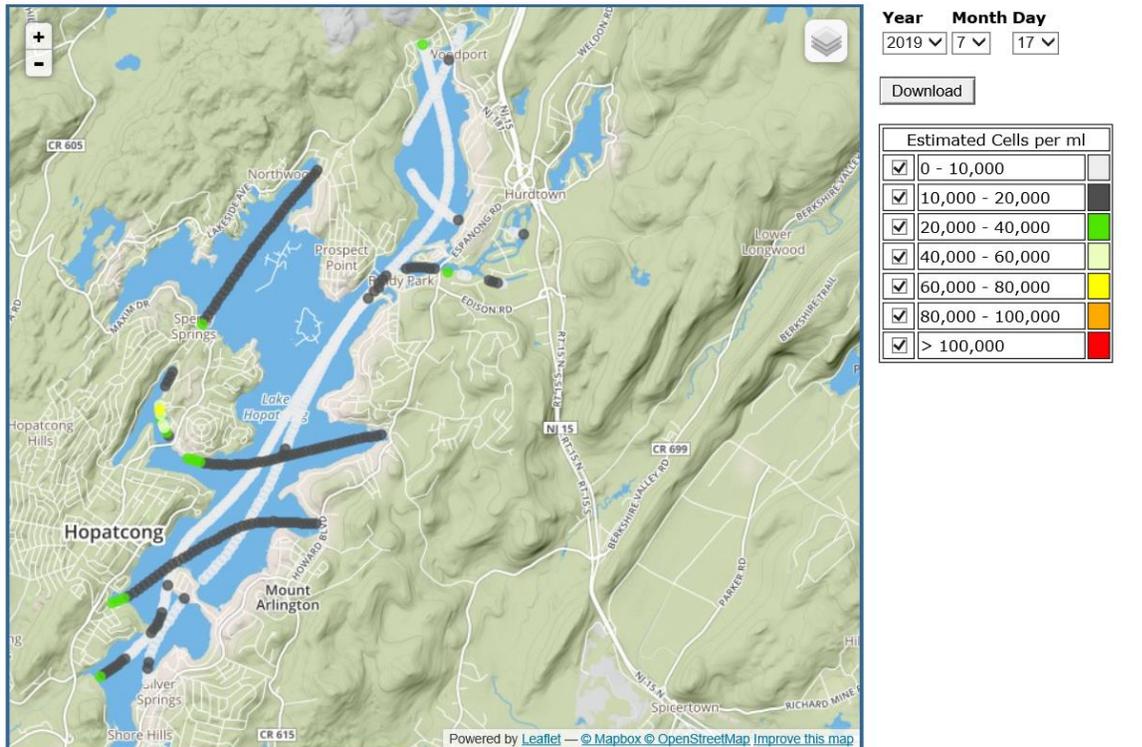
On 6/30/2019, the intensity of the bloom appears to be diminishing, but there are still areas of concern in many coves and by the State Park Beach.



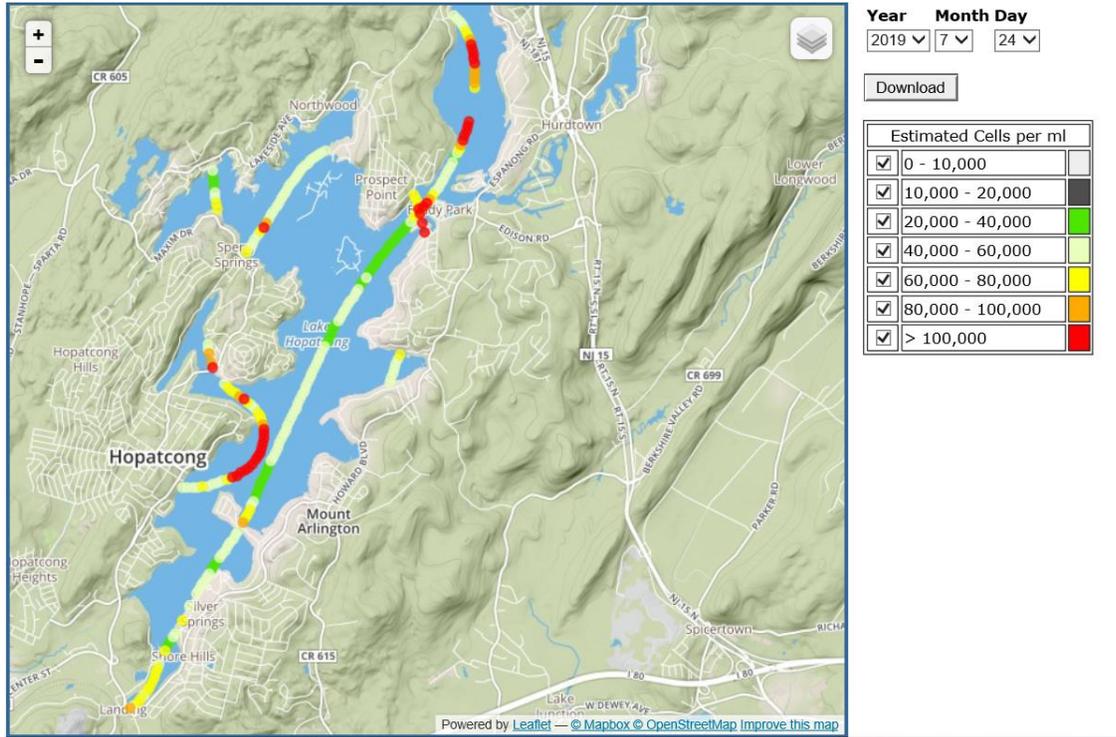
On 7/10/19, phycocyanin levels have increased over a large portion of the lake.



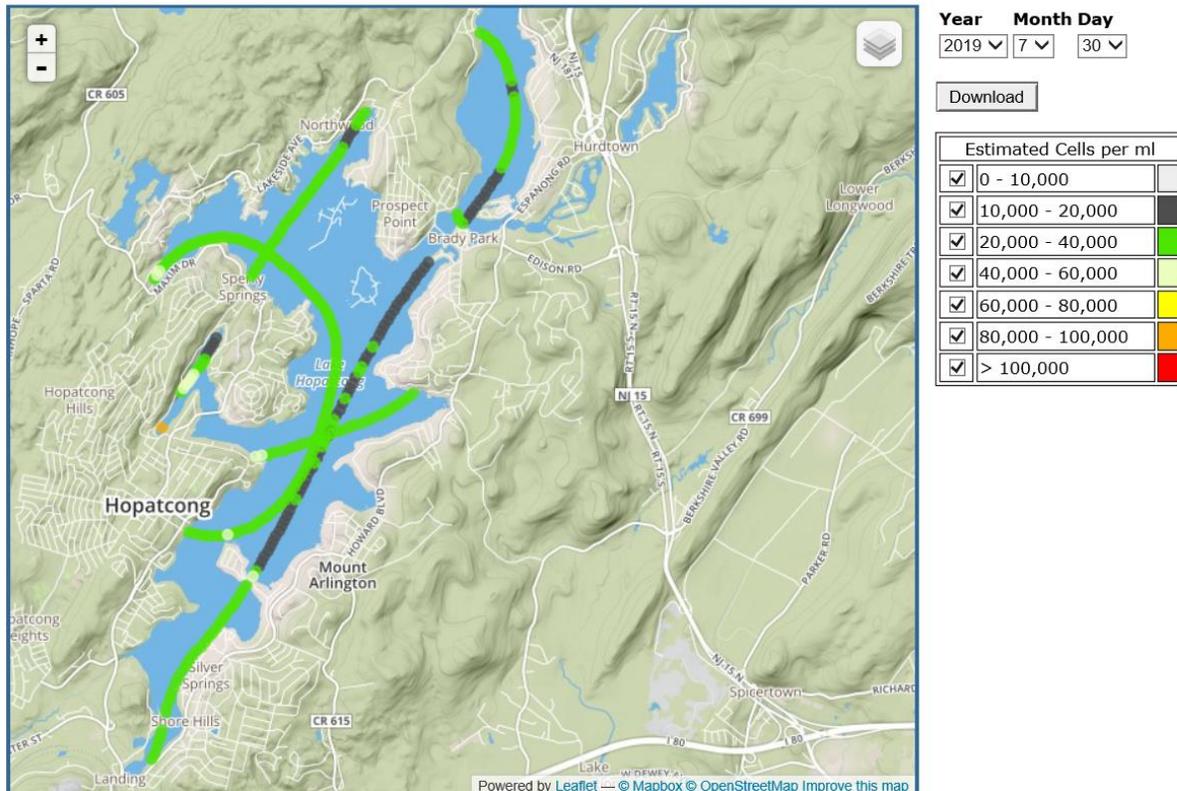
On 7/17/19, the flight shows the phycocyanin levels seem to have significantly decreased in spatial coverage. The highest levels are in River Styx.



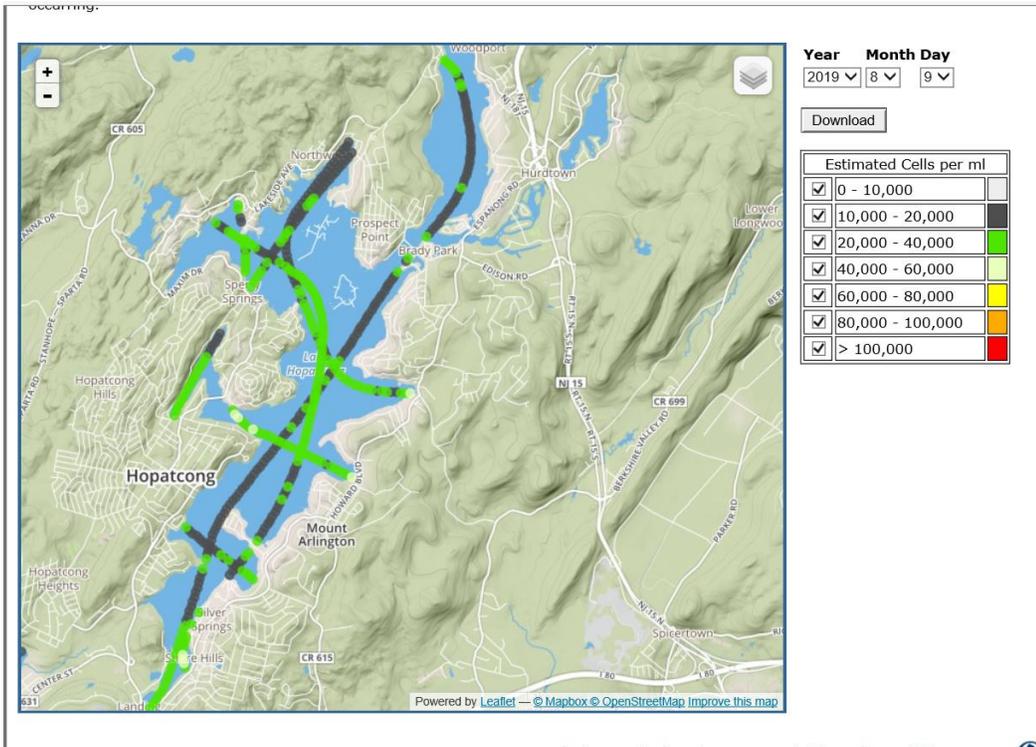
The 7/24 flight shows that the phycocyanin levels seem to have significantly increased in intensity and spatial coverage. The bloom appears to be lake wide.



On 7/30 the phycocyanin levels seem to have decreased in intensity and spatial coverage. The bloom is still present in pockets with one near the buoy at ST-14.

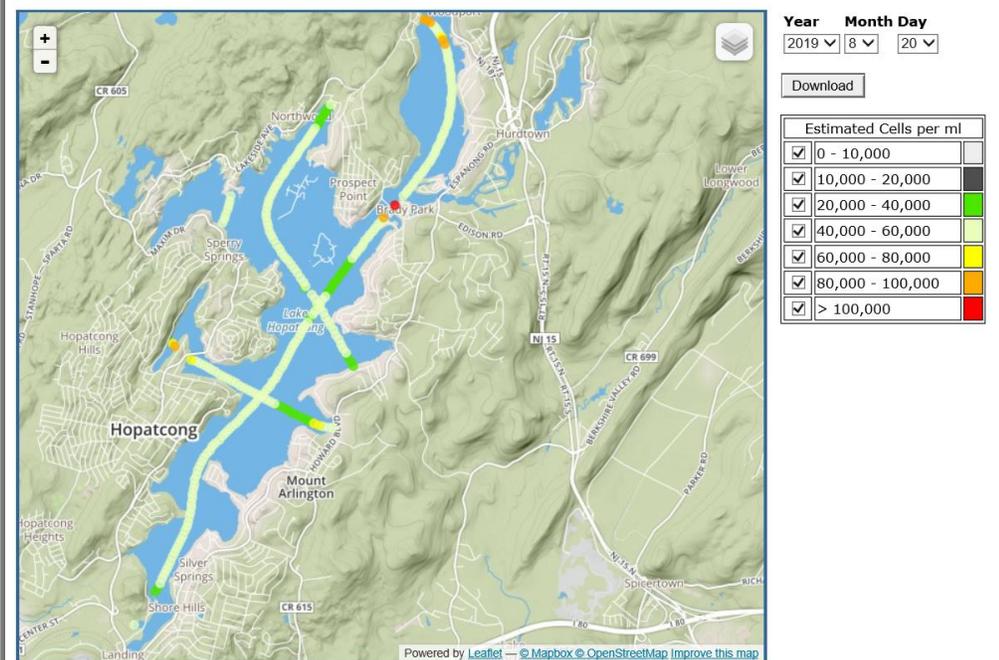


On 8/9, the Lake Hopatcong the phycocyanin levels seem to have remained at the same intensity but the spatial coverage seems to be diminishing. The bloom is still present in pockets with higher levels in the south near the buoy at station ST-14.

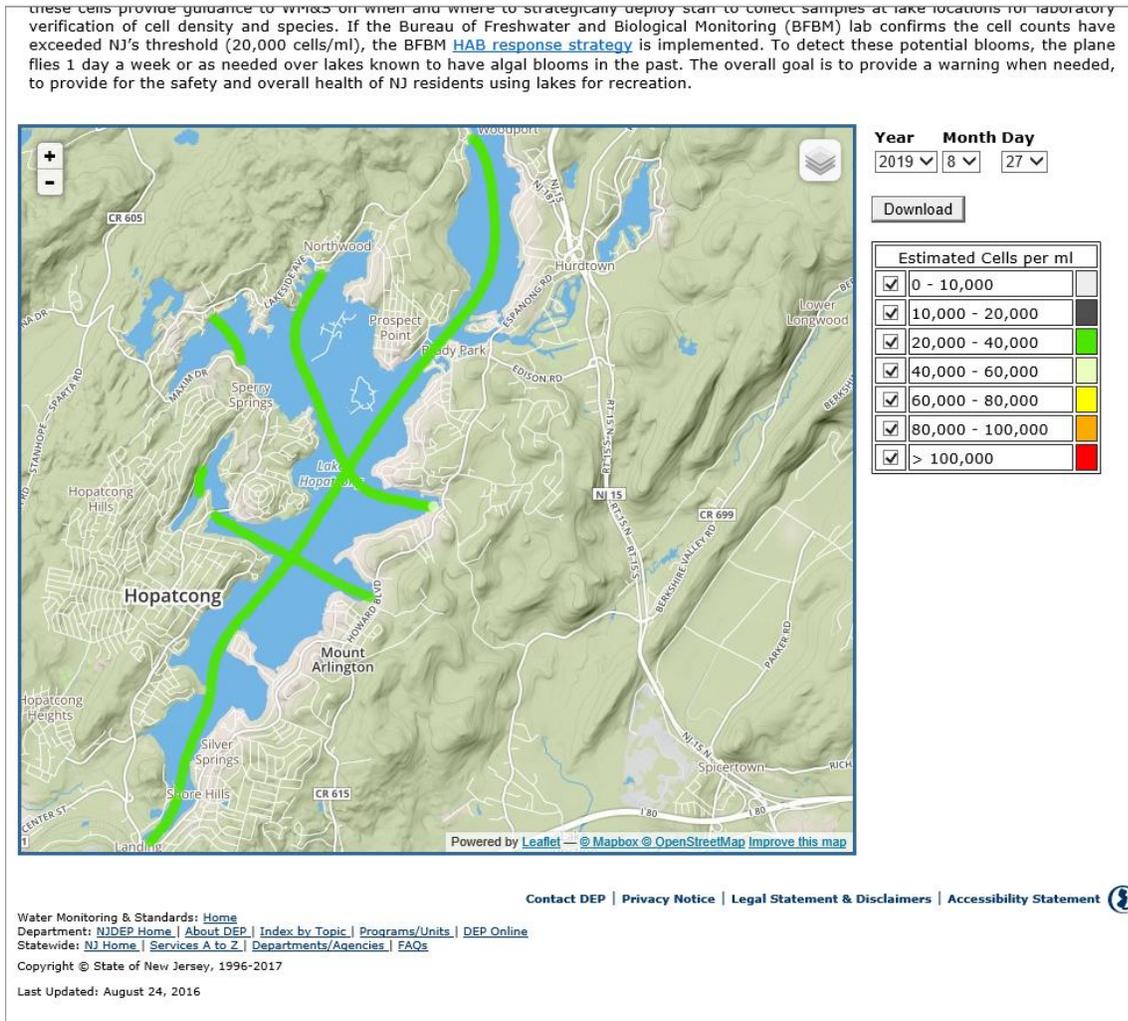


On 8/20, the phycocyanin levels were elevated lake wide, above 20,000 cells/ml. The flight confirmed the decrease in the bloom at the 2 buoy stations mid lake and in the south, but the bloom was still present lake wide with higher levels in the River Styx Crescent Cove area and in the extreme northern section. This flight shows an increase in intensity from the last flight on 8/9/2019.

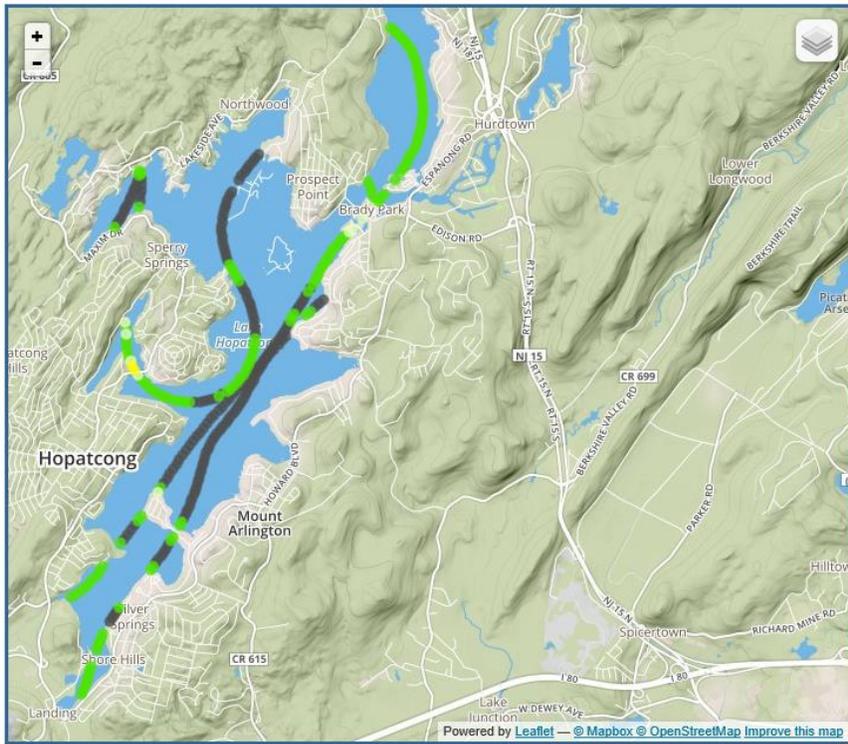
during the summer months, in favorable weather conditions, over the coastal waters of New Jersey. These flights provide a valuable perspective on water conditions and trends that enable the Bureau to target boat sampling in locations where algal blooms may be occurring.



On 8/27, the phycocyanin levels were elevated lake wide, above 20,000 cells/ml. The flight data showed a general decrease in the intensity since last week, but the bloom was still present lake wide. Cloud cover may have been limiting the cyanobacteria to deeper depths and not at the surface where the aircraft sensor detects the reflectance.



On 9/3, the phycocyanin levels were elevated in the northern and southern sections and were the highest in River Styx - all of those areas were above 20,000 cells/ml. The flight data shows a general decrease in the intensity and spatial distribution since last week, but the bloom is still present in areas. However, large areas were estimated to be below 20,000 cells/ml.



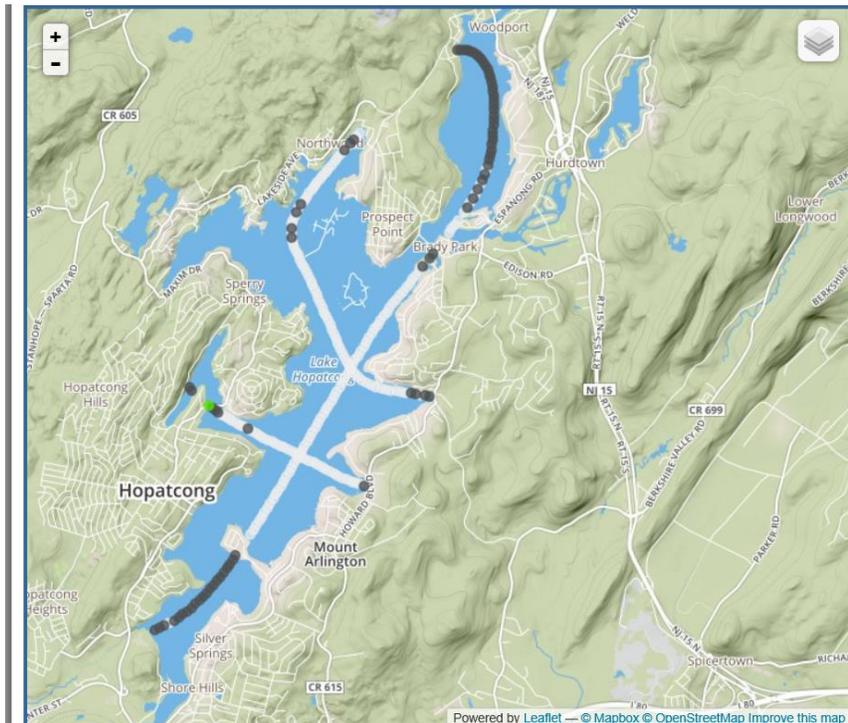
Year Month Day
 2019 9 3

Download

| Estimated Cells per ml | |
|-------------------------------------|------------------|
| <input checked="" type="checkbox"/> | 0 - 10,000 |
| <input checked="" type="checkbox"/> | 10,000 - 20,000 |
| <input checked="" type="checkbox"/> | 20,000 - 40,000 |
| <input checked="" type="checkbox"/> | 40,000 - 60,000 |
| <input checked="" type="checkbox"/> | 60,000 - 80,000 |
| <input checked="" type="checkbox"/> | 80,000 - 100,000 |
| <input checked="" type="checkbox"/> | > 100,000 |

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On 9/11, the phycocyanin levels have significantly declined. The flight data shows a general decrease in the intensity and spatial distribution since last week, with large areas estimated to be below 20,000 cells/ml. Confirmation will come from sample collection.

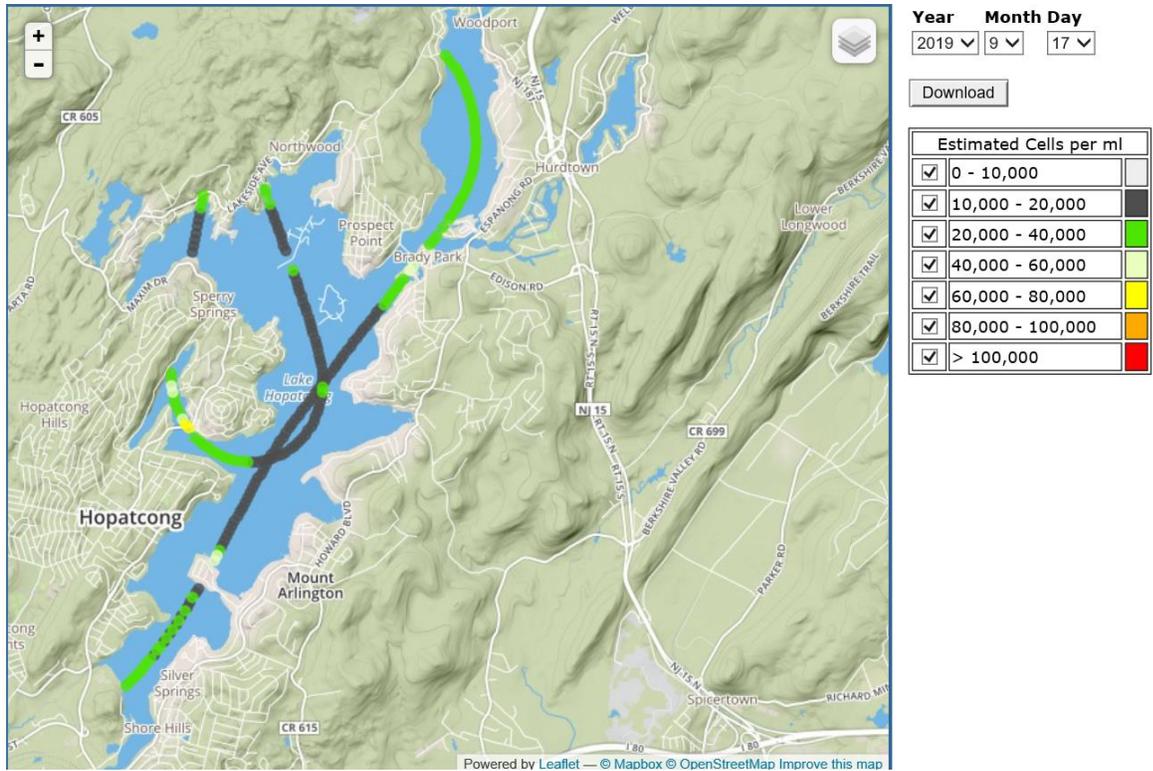


Year Month Day
 2019 9 11

Download

| Estimated Cells per ml | |
|-------------------------------------|------------------|
| <input checked="" type="checkbox"/> | 0 - 10,000 |
| <input checked="" type="checkbox"/> | 10,000 - 20,000 |
| <input checked="" type="checkbox"/> | 20,000 - 40,000 |
| <input checked="" type="checkbox"/> | 40,000 - 60,000 |
| <input checked="" type="checkbox"/> | 60,000 - 80,000 |
| <input checked="" type="checkbox"/> | 80,000 - 100,000 |
| <input checked="" type="checkbox"/> | > 100,000 |

The phycocyanin levels have significantly declined over the last month. The 9/17 flight data shows a bloom is still present in areas and large areas are estimated to be below 20,000 cells/ml. The River Styx area has higher estimated levels.



The flight data from 9/24 shows that a bloom is still present in some areas while large areas are now estimated to be below 20,000 cells/ml.

