APPENDIX A:

HARMFUL ALGAL BLOOM STANDARD OPERATION PROCEDURES

Harmful Algal Bloom Monitoring

Standard Operating Procedures

Prepared by:

State of Nevada

Department of Conservation and Natural Resources

Division of Environmental Protection

Bureau of Water Quality Planning

Carson City, Nevada

April 2024

APPROVALS:

Jason Kuchnicki

NDEP BWQP Chief: **Date:**

Weston Fettgather

NDEP BWQP Quality Assurance Officer: **Date:**

1.0 Purpose and Applicability

The Harmful Algal Bloom (HAB) Standard Operating Procedure (SOP), prepared by Nevada Division of Environmental Protection (NDEP), Bureau of Water Quality Planning (BWQP), will be used by any entity participating in HAB monitoring activities. The purpose of the HAB monitoring and sampling program is to protect the public from health risks associated with exposure to cyanobacteria and related toxins.

This document includes sampling safety when handling HABs, sampling location selection, test/sample collection procedures, and test/sampling processing procedures. Monitoring and measuring the presence of HABs and the concentration of cyanotoxins is critical to assessing human health risks and making decisions about posting health advisories at lakes and reservoirs. This SOP provides protocols for the following cyanobacteria monitoring, testing, and sampling methods:

- Satellite monitoring;
- Visual monitoring;
- Jar Test;
- Stick Test;
- Grab samples for cyanotoxin analysis;
- Grab samples for eDNA analysis;
- Procedures for conducting toxin analyses using the HACH LightDeck Mini;
- Procedures for sending samples to analytical laboratory for further analysis

2.0 Safety

Exposure to cyanotoxins, even at very low doses, can present potential risks including skin rashes (contact dermatitis), upper respiratory irritation, and other effects from recurring low level (chronic) exposures. Samplers should have training for cyanobacteria sampling in accordance with federal, state, and local requirements, including (but not limited to) safety protocols and appropriate use of personal protective equipment (PPE) such as the selection and use of appropriate gloves to reduce skin exposure while sampling. Occupational exposure risk prevention is the responsibility of each monitoring entity.

Samplers are encouraged to wear appropriate PPE throughout sample collection and processing. Because cyanobacteria may be toxic, avoid having sample water contact the skin; always wear gloves and avoid splashing or other indirect contact with the face. Safety plans are recommended to be developed and reviewed prior to each sampling event. Suggested items for inclusion in the safety plan may include nearest emergency facilities, phone numbers of emergency contacts, potential hazards, such as weather, animals, flow/discharge schedules, etc.

3.0 Site Selection

HABs typically occur during the warmer summer months after spring rainfall and snowmelt runoff have accumulated high nutrient loads from animal waste, agricultural fertilizers, sewage effluent, and urban stormwater runoff into surface waters. However, the precise time of year and location of HABs occurrences varies. Regularly utilizing visual monitoring, satellite monitoring, and communicating across agencies, particularly in spring and early summer, will allow the State to effectively protect public health from cyanotoxin exposure. Sites are evaluated via desktop and visual monitoring in the field to determine where HAB monitoring resources will be deployed. Desktop evaluations of satellite imagery

will be completed by BWQP. The satellite tool reports daily and weekly cyanobacteria concentrations in response to the Ocean and Land Color Instruments (OCLI) satellite sensors and displays concentrations on an interactive map desktop application. BWQP will evaluate satellite tool data and communicate findings to any entity participating in HAB monitoring activities including, but not limited to, Nevada Division of State Parks (NDPS), Nevada Office of State Epidemiology (OSE), Nevada Department of Wildlife (NDOW), Nevada Department of Health and Human Services (DHHS), and Nevada Department of Agriculture (NDA) to proceed with appropriate testing, sampling, and health advisory procedures.

The public and participating entities may report suspected HABs to BWQP through the BWQP HABs reporting tool. BWQP will conduct desktop evaluations of reported HABs via submissions and satellite tool data. BWQP will use professional knowledge of HABs to determine the potential and/or severity of a bloom and report these findings across participating entities to proceed with appropriate testing, sampling, and health advisory procedures.

Where feasible, regular visual monitoring will be completed in the field by state personnel. State personnel that may complete visual monitoring in the field include NDEP, NDSP, and NDOW. Visual monitoring includes scanning lake or reservoir shorelines, docks, and other public access areas for the potential presence of a HAB. If there is time and it is safe, it is advised to conduct a visual inspection of the lake or reservoir by either navigating the perimeter of the waterbody by boat, or, if possible, by driving around the lake in a vehicle. If during regular visual monitoring a suspected HAB is observed, it is advised that state personnel take photos of affected water and report findings to NDEP through the HABs reporting tool to proceed with appropriate testing, sampling, and health advisory assessment procedures.

4.0 Site Activities

4.1 Documenting Field Conditions

Field conditions and observations should be documented at the time of sample collection. To prevent incorrect or incomplete information, do not postpone making field notes. Additionally, all photos taken should be documented in the field notes.

If a potential HAB is being documented using the BWQP field data tablets, providing information in all fields will be sufficient for proper data submission. If, however, the BWQP tablets are not being used, the following procedures should be followed.

Field measurements to be recorded should include the following for each sample collected:

- Sampling date & time
- sample location, using GPS where possible, and at a minimum location information that can be converted as accurately as practically feasible into degrees, minutes, seconds, and fractions of seconds of latitude and longitude;
- field-measured water quality parameters, where collected; and
- samplers names and roles.

Station description observations should be noted and may include:

- water level, color and the presence of any visible cyanobacteria or accumulations near the surface;

- the location and extent of surface accumulations;
- any odors that may be associated with cyanobacteria accumulations;
- description of the weather (sunny, percent cloud cover, wind speed, etc);
- evidence of unusual conditions or disturbances (e.g., recent fires, sediment loading);
- changes to water flow conditions (such as those from recent rainfall); and
- the dominant land use and land cover in the area surrounding the sampling locations.

Photo documentation allows later evaluation and comparison over time. At the initial sampling event, or before, establish locations to be used for future photos. Create a photo record of the site by taking photos of the surroundings from several angles to document the area around the sampling site. Capture images of any algal distribution present at the time of sampling by photographing from several angles. These photographs will provide documentation of physical influences and changes that could impact water quality. Note and describe all photos taken in field notes, including time, location, camera, photo ID number, so that photos can later be labeled accordingly. Take photos of any significant factors in the area (e.g., burn areas, erosion). Include an object in photos to show scale.

4.2 Field Activities

The methods described here are designed to be completed in one site visit. Field methods include two levels of HAB monitoring: routine sampling and strategic response sampling. Routine sampling includes visual monitoring and collection of water samples for cyanotoxin and eDNA analyses. Strategic response sampling includes jar test, stick test, and/or water sampling for cyanotoxin and eDNA analyses.

Depending on each sampling location and situation, samplers should wear at a minimum:

1. Gloves, latex or nitrile;
2. Waders, hip boots, or muck boots;
3. If splashing or spray from wind or waves is a concern, eye protection should be worn.

General Sampling precautions:

1. Do not allow the water to come in contact with exposed skin;
2. Do not touch hands to mouth, eyes, or other exposed areas of the body before washing;
3. Avoid contamination of vehicle and common use items (e.g., steering wheel, clipboards, pens);
4. Hands should be washed thoroughly with soap and clean, fresh/potable water immediately after sampling;
5. Remove any rings, watches or other jewelry that might have been exposed to algae contaminated water and wash skin surface area and items;
6. All equipment, gloves, and waders should be rinsed with clean water (not lake water) after sampling and before storage;
7. Used disposable gloves should be removed to avoid contamination;
8. Do not inhale spray from boats, wind, other water surface disturbances or irrigation water from areas with harmful algal blooms; and
9. Do not ingest affected water.

Different species of algae can produce different toxins such as neurotoxins, liver toxins, and skin irritants. It is important that field staff can recognize exposure indicators associated with algal blooms and report

to their supervisors if they begin to experience potential symptoms and seek medical care if needed. Symptoms can occur immediately or within days of exposure. Those symptoms can include:

1. Skin irritation – visible rash, hives, or blisters.
2. Respiratory problems – runny eyes and nose, sore throat, headache, and asthma-like symptoms.
3. Kidney toxicity – acute, severe gastroenteritis (including diarrhea and vomiting).
4. Liver toxicity – abdominal pain, diarrhea, and vomiting, may take hours or days for symptoms to appear in humans.
5. Neurotoxicity – numb lips, tingling fingers and toes, or dizziness, often appear within 15 to 20 minutes of exposure.

4.3 Clean Sampling Procedures

Sampling protocols require the use of clean sampling procedures. These sampling procedures help to reduce (to the extent feasible given current resources) the amount of contamination introduced when collecting water-quality samples in the field. “Clean” sampling procedures involve (1) using equipment that is constructed of non-contaminating materials and that has been cleaned rigorously before field work and between field sites; (2) handling equipment in a manner that minimizes contamination; (3) collecting, processing, and handling samples in a manner that prevents contamination; and (4) routinely collecting quality-control (QC) samples.

4.4 Sample Location

When feasible, routine HAB sampling will be conducted by BWQP. If collecting cyanobacteria samples as part of a routine lake monitoring sampling event, samples will be collected at the index point where routine sampling is occurring. If there is time and it is safe, time may be taken to conduct a visual inspection of the lake or reservoir by either navigating the perimeter of the waterbody by boat, or, if possible, by driving around the lake in a vehicle. If a potential bloom is observed, another cyanobacteria sample may be collected from the densest portion of the bloom following the sample collection protocols and findings will be communicated with OSE, DHHS, NDSP, NDOW, and NDA.

If responding to a report of a potential bloom, attempt to conduct a visual inspection of the area where the bloom was observed. If a potential bloom is observed, you may begin with a jar and stick test to confirm whether the bloom is likely to be harmful. Proceed to the jar test and stick test methods within the densest portion of the bloom. If the jar test and/or stick test confirms a HAB is likely present, upon recommendation from NDEP, a cyanobacteria sample may be collected from the densest portion of the bloom following sample collection protocols below. If no bloom is visible, time should be taken to conduct a visual inspection of the lake or reservoir by either navigating the perimeter of the waterbody by boat, or, if possible, by driving around the lake in a vehicle. If after a thorough visual inspection no bloom is visible, collect samples at a point of high recreational use, such as a boat ramp, beach, or dock. Cyanotoxins can be present in water during low density blooms that do not produce scum or after bloom material has decayed.

A site ID should be printed on the sample container and on the chain of custody form (Section 5.2). If samples are being collected at a predetermined index point, use the Site ID assigned by NDEP. If samples are being collected at targeted locations, or otherwise being collected at non-predetermined index

points, the following naming convention should be applied to each sample consecutively: waterbody-name_1; waterbody-name_2, etc. (Ex. Lahontan_1; Lahontan_2; etc.)

4.5 Visual Assessment

Cyanobacteria typically have a distinct appearance that can make visual assessment a useful method for HAB surveillance. See Attachment 1 for images and descriptions of the different visual forms HABs can take.

A visual assessment will be performed routinely by trained personnel and/or upon initial reporting of a suspected HAB. When conducting a visual assessment, the following characteristics are used:

It is NOT cyanobacteria if:

- You can see leaf-like structures or roots;
- The material is long and stringy, or can be lifted out of the water on a stick;
- If it is firmly attached to plants, rock, or the bottom (e.g. you can't lift it out).

It MAY be potentially hazardous cyanobacteria if:

- The material consists of small particles that are pinhead size or smaller;
- The material is collecting in a layer at the surface or along the shoreline;
- The water is murky and colored a brownish green, milky green, bright green or blue.

4.6 Field Test Methods

Jar Test

A. With gloves on, fill any clear jar with a screw top lid with water from just below the surface. Fill the jar to about three-quarters full.
B. Wipe any scum off the outside of the jar and screw the lid on.
C. Clearly label the jar with waterbody, date, and time collected.
D. Allow the jar to stand in a sunny place for approximately 15 to 30 minutes;
E. If the algae have formed a green ring at the top of the water, it is likely that a harmful algal bloom is present.

Stick Test

If a mat of algae is floating on the surface of a water body:

A. Using a sturdy stick (long enough to reach into the water without the water contacting bare skin) push into the surface mat and slowly lift the stick out of the water.
B. If the stick comes out looking as if it were dipped into a can of paint, it is likely that a harmful algal bloom is present.
C. If the stick comes out with green strands, the material is likely filamentous green algae, which may be a nuisance but is likely not a health hazard.

4.7 Sample Collection

To avoid disturbing the water at each sampling location; shoreline and river grab samples should be obtained prior to other activities that would disturb the water.

Water samples for public health assessment should be collected as grab samples, using the same sampling protocol at all locations, to maximize consistency of samples collected. The grab sampling technique described below is recommended for the purpose of public health assessments; use of this approach will provide comparable and consistent sampling techniques for samples collected by various monitoring entities.

For grab samples collected by hand-held methods, the sampler should boat or wade to where the sample will be collected (Section 4.4), and that sample should be collected before other work is done at that location to minimize collection from a disturbed water column. **Care must be taken to avoid collecting particulates that are re-suspended as the result of accessing the sampling location**.

Using the protocol described below, collect a grab sample from the upper 4-6 inches of the water column. The sample collection depth should be noted on the sample container and in the field notes.

Grab Sample for Cyanotoxin and eDNA Analysis

A. Use clean amber glass bottles – 40 mL for cyanotoxin sample, and 250 mL for eDNA sample (See Attachment 2 for a sampling supplies checklist).

B. Open bottle. Tip the opening of the bottle towards the water (at approximately a 45 angle) and slowly break the water surface and begin to dip bottle into the water. Turn the sampling container so that the bottom side of bottle is below and horizontal to the surface. In other words, the bottle will fully enter the water, but the top rim and side will not go below the surface (see figure). If collecting from a boat, angle the mouth of the sampler container away from the boat. If in flowing water, when turning the bottle upright, turn it so that the opening faces upstream. The sampling bottle should not be moved along the surface to fill. If present, include any surface scum in the sample collection.

C. Tilt the full bottle upright as it is slowly removed.

D. Carefully raise the full bottle from the water.

E. The cyanotoxin bottle should only be filled halfway. The eDNA bottle should be filled to the shoulder. Remove water from the sample bottles to achieve these volumes.

F. Clearly label the sample bottles so that each sample is uniquely identified. A waterproof adhesive label and indelible pen (Sharpie) should be used may be used. At minimum, bottles should be labeled with:
    a. Date collected;
    b. If known, an index site ID, otherwise, the waterbody name;
    c. If more than one site on a waterbody is sampled on the same day, append waterbody name with a hyphen and sequential numbering (e.g. Lahontan-1, Lanontan-2, …)

G. Promptly place the labeled cyanotoxin and eDNA sample bottles in a cooler with ice to minimize exposure to light and begin chilling the samples. (See Post-Sampling Procedures below)

5.0 Post-Sampling Procedures

5.1 Decontamination of Sampling Equipment and Supplies

- After exiting the waterbody, immediately remove any personal gear that came in contact with water. Make sure the wetted personal gear and sampling equipment does not come in contact with other equipment.
- Thoroughly inspect the wetted personal gear and sampling equipment.
- Before leaving the sample site area, remove conspicuous mud, debris, and plant material from wetted personal gear and sampling equipment using a stiff-bristled brush. If any material is removed, either throw it in a trashcan or dispose of it on high, dry ground. Do not put it back into the waterbody or along the waterline.
- If equipment will not be put into immediate use it can be placed out to air-dry in a low-humidity environment for at least 72-hours after all mud and debris has been removed. All surfaces of air-dried equipment should remain free of surface contact, allowing for maximum airflow across all surfaces. Drying is the preferred treatment.
- Alternatively, if gear will be used immediately following sampling, thoroughly spray all wetted personal gear and sampling equipment with 5% bleach solution, white vinegar, or other approved decontamination solution.
- Re-inspect the personal gear and sampling equipment for attached organisms or propagules, making sure to examine all crevices. If necessary, use a stiff bristled brush to remove any remaining debris and mud.
- After re-inspection, spray the personal gear and sampling equipment with clean rinse water. DO NOT USE WATER FROM THE INFECTED SOURCE. This may reintroduce invasive species to the personal gear and sampling equipment.
- After personal gear and sampling equipment are decontaminated, ensure that they remain clean when leaving the site.

5.2 Sample Handling, Chain of Custody, and Shipping Requirements

Sample Handling

Immediately upon collection, water samples should be chilled (on ice or refrigerated) and kept in the dark (e.g., closed cooler) until shipped and throughout shipping.

Once samples have been collected and labels completed,

- Place sample container in a zip-lock bag and seal; this prevents shipping ice from rendering sample label un-readable.
- Promptly place the bag with sample container in a cooler with bagged wet ice or blue ice, to both protect from sunlight, and chill, until shipped. **Samples should be maintained at or below a maximum temperature of 4°C**. Block ice is discouraged to protect sample bottles from breaking during shipping.
- Replenish ice supply as often as needed to maintain samples at or below 4° C. Refresh ice supply prior to shipping sample coolers to NDEP.

Chain of Custody (COC)

The COC (Attachment 3) should be filled out by the collector and included with the shipment of cyanotoxin samples. If samples are frozen prior to shipping, the chain of custody should clearly state that samples were frozen. All samples collected in the field require Chain of Custody (COC). Chain-of-custody (COC) sheets will serve to document the handling of the samples from the time of collection through the time of laboratory analysis.

After collection, samples are in the custody of the sampling team; the COC forms should clearly document all the samples collected during that sampling day, associated sample identification name/numbers, the samplers' names, and the date and time of collection for each sample. The COC form may be completed at the end of the day when sampling is finished. The COC form is shipped with the samples (in the cooler) to the analytical laboratory.

Custody is transferred when coolers are accepted by the shipper or transferred to a courier. At that point the COC form is signed by the samplers (as surrendering the container) and the recipients (either the receiving laboratory or the courier, where the bill of lading serves as COC transfer until received by the laboratory). **Appropriate sample documentation should be placed in a separate re-sealable plastic bag and attached to the inside lid of the shipping cooler**.

Shipping

Samples are typically placed in a cooler, with sufficient double-bagged wet ice or blue ice to maintain samples at ≤ 6° C and shipped using priority overnight mail to arrive at the analyzing laboratory or NDEP the next morning. Whenever possible, samples should be shipped on the same day they are collected. Every effort must be made to deliver samples to the designated certified independent analytical laboratory within a reasonable amount of time to make necessary health advisory decisions. However, due to the remoteness of many of the lakes and reservoirs throughout Nevada, delivery time to the analytical laboratory may vary.

Samples must be shipped within 2 days, or hand delivered to NDEP Bureau of Water Quality Planning within 5 days of sampling to ensure that there is sufficient time to analyze them within the holding time. Shipped samples should be scheduled to be delivered Monday-Friday. Samples should not be shipped on Fridays.

If shipping samples directly to NDEP Bureau of Water Quality planning please ship to BWQP HABs at 901 S. Stewart Street, Suite 4001 Carson City, NV 89701.

6.0 Sample Analysis

6.1 eDNA Analysis

If taxonomic enumeration is required, eDNA samples should be submitted to a laboratory for ELISA analysis following their respective handling and shipping protocols. Samples for ELISA analysis may be shipped to Bend Genetics in Sacramento, CA however there other laboratories that conduct ELISA analysis that agency representatives may use.

6.2 LightDeck-Mini

The LightDeck-Mini will be used for toxin analysis of Cylindrospermopsin and Microcystin. See manufacturer's documentation for operating procedures.

Dilutions for LightDeck-Mini Analysis

Due to the narrow analytical window of the LightDeck Mini, and since we are interested in analyzing for a wide range of concentrations, sample dilution may be necessary. If after running the initial analysis on the LightDeck Mini the result is above the maximum detection limit, a dilution will be needed. This process will continue until either the result is within the analytical window of the Lighdeck Mini, or the result is above the threshold value for an advisory level of **DANGER**. The analytical window can fluctuate due to temperature and other factors, so staff running the analysis will need to review the results to determine if they exceed the maximum detection limit.

If the microcystin results are above the maximum detection limit, dilution(s) will need to be carried out until the result is within the detection window (**Table 1**). If after the third dilution the result is still above the maximum detection limit, the actual toxin concentration is above the threshold for the recreational advisory level of **DANGER**, and no further dilutions are needed. The dilutions may be carried out as follows:

Table 1. Dilution table for Microcystin

Dilution	Amount Sample	Amount DI Water	Dilution Multiplier
First	10 µL	70 µL	8
Second	10 µL	560 µL	57
Third	10 µL	4.48 mL	449

If the cylindrospermopsin results are above the maximum detection limit, dilution(s) will need to be carried out until the result is within the detection window (**Table 2**). If after the second dilution the result is still above the maximum detection limit, the actual concentration is above the threshold for the recreational advisory level of **DANGER**, and no further dilutions are needed. The dilutions may be carried out as follows:

Table 2. Dilution table for Cylindrospermopsin

Dilution	Amount Sample	Amount DI Water	Dilution Multiplier
First	10 µL	30 µL	4
Second	10 µL	150 µL	16

After dilutions have been completed, multiply the resultant concentration by the dilution multiplier to find the actual concentration of toxin. Record the dilution factor in the analysis notes of the Lightdeck Mini as well as in the notes for the results imported into the database.

Table 3. HACH LightDeck-Mini Detection Limits

Analyte	Minimum Detection Limit	Maximum Detection Limit
Microcystin	0.5 µL	5 µL
Cylindrospermopsin	0.7 µL	3 µL

Attachment 1

Harmful Algal Bloom Guide

These images highlight the range of colors and textures of cyanobacteria when accumulating on the water surface and near shorelines, and other types of floating plants that can be distinguished from cyanobacteria blooms by color and texture.

- Figures 1-4 show common *Microcystis* species. When *Microcystis* blooms are observed at low abundance (figs 15;p 13), the material can appear like small flakes of lettuce, while at higher abundance, this same genera can look like floating paint (fig 18;p 14).
- Figures 5-8 show a close-up of *Dolichospermum* (*Anabeana*) and the range of green shades the material can appear as in the field.
- Figure 9 shows *Aphanizomenon flos-aquae*; the filamentous material appears like short grass clippings that can grow from individual filaments into dense, clumpy blooms.
- Figure 10 shows *Woronichinia*; its material can appear gelatinous and ranges from blue-green to brown-green.
- Figures 11-13 show how mixed cyanobacteria blooms can appear in contrast to blooms characterized from a single dominant genera.
- Figures 14-16 shows green algae species that can be mistaken for a cyanboacteria bloom. Green algae is a non-toxic algae that is typically grass-green color and often consist of filamentous material.
- Figures 17-18 shows *Wolffia columbiana* (or Duckweed); this floating plant may be mistaken as algae but with closer inspection can identify individual plants.
- Figures 19-20 shows rooted macrophytes (aquatic plants).

Figure 1. *Microcystis aeruginosa* detail (Photograph: Ann St. Amand; Rosen et al., 2015)

Figure 2. *Microcystis aeruginosa* (Photograph: Ann St. Amand; Rosen et al., 2015)

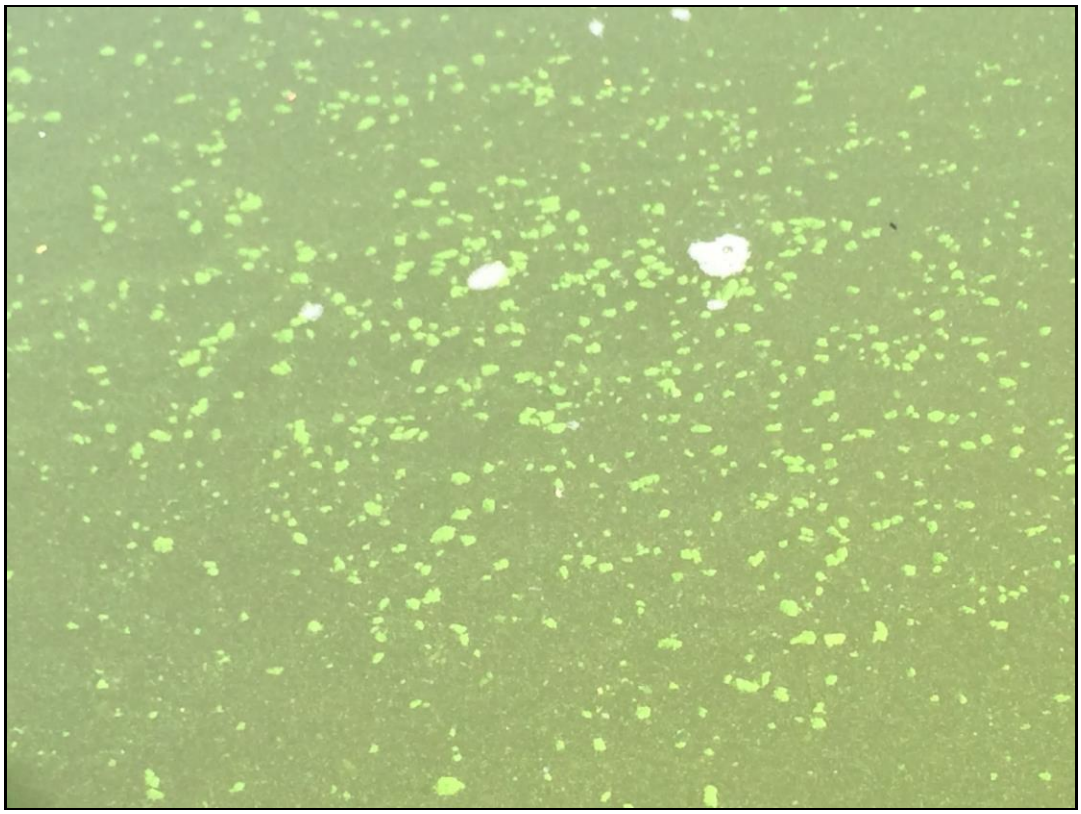

Figure 3. *Microcystis sp.* floating colonies (Photograph: SWAMP)

Figure 4. *Microcystis sp.* (Photograph: Jacob Kann)

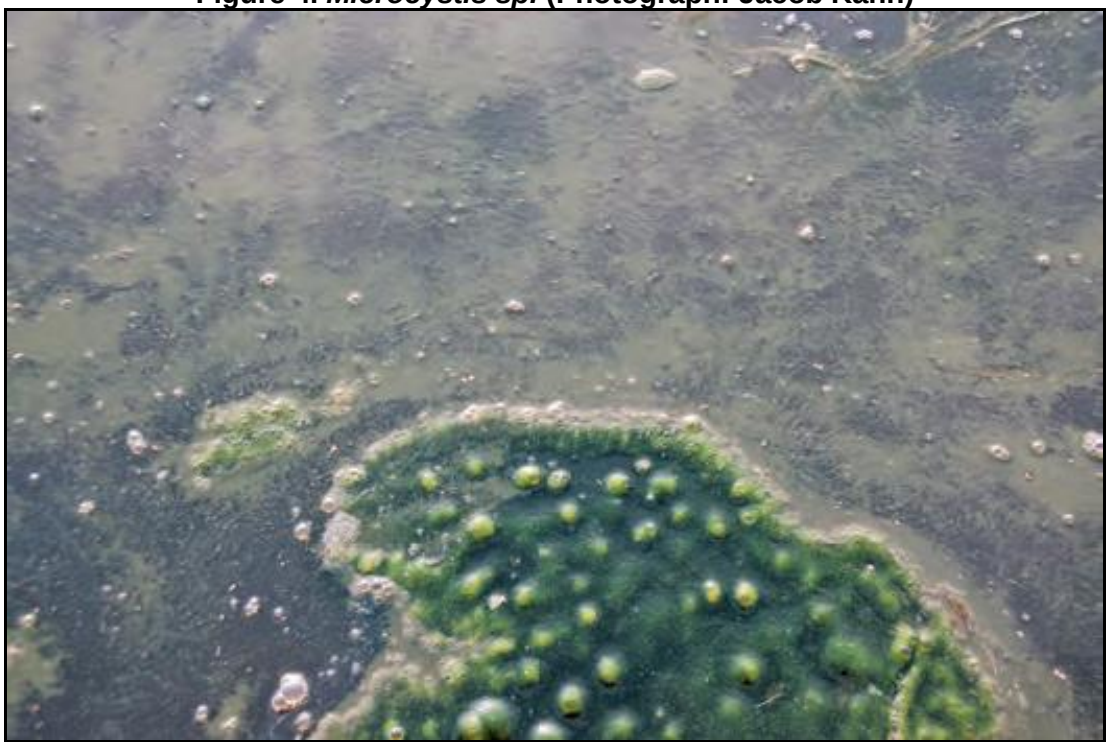

Figure 5. *Dolichospermum lemmermannii* (Photograph: Ann St. Amand; Rosen et al., 2015)

Figure 6. *Dolichospermum lemmermannii* (Photograph: Ann St. Amand; Rosen et al., 2015)

Figure 7. *Dolichospermum lemmermannii* (Photograph: Ann St. Amand; Rosen et al., 2015)

Figure 8. *Dolichospermum mendotae* (Photograph: Ann St. Amand; Rosen et al., 2015)

Figure 9. *Aphanizomenon flos-aquae* (Photograph: Jacob Kann; Rosen et al., 2015)

Figure 10. *Woronichinia naegeliana* (Photograph: Ann St. Amand; Rosen et al., 2015)

Figure 11. Mixed genera CyanoHAB, slow moving channel (Photograph: SWAMP)

Figure 12. Mixed genera CyanoHAB, lake (Photograph: SCCWRP)

Figure 13. Mixed genera CyanoHAB, lake shoreline (Photograph: SCCWRP)

Figure 14. Green algae, *Mougeotia sp.* (Photograph: Steve Heiskary, Minnesota Pollution Control Agency)

Figure 15. Green algae, *Spirogyra sp.* (Photograph: Ken Wagner)

Figure 16. Green algae, *Mougeotia sp.* (Photograph: Steve Heiskary, Minnesota Pollution Control Agency)

Figure 17. Duckweed: *Wolffia Columbiana* (also called watermeal). (Photograph: Ann St. Amand)

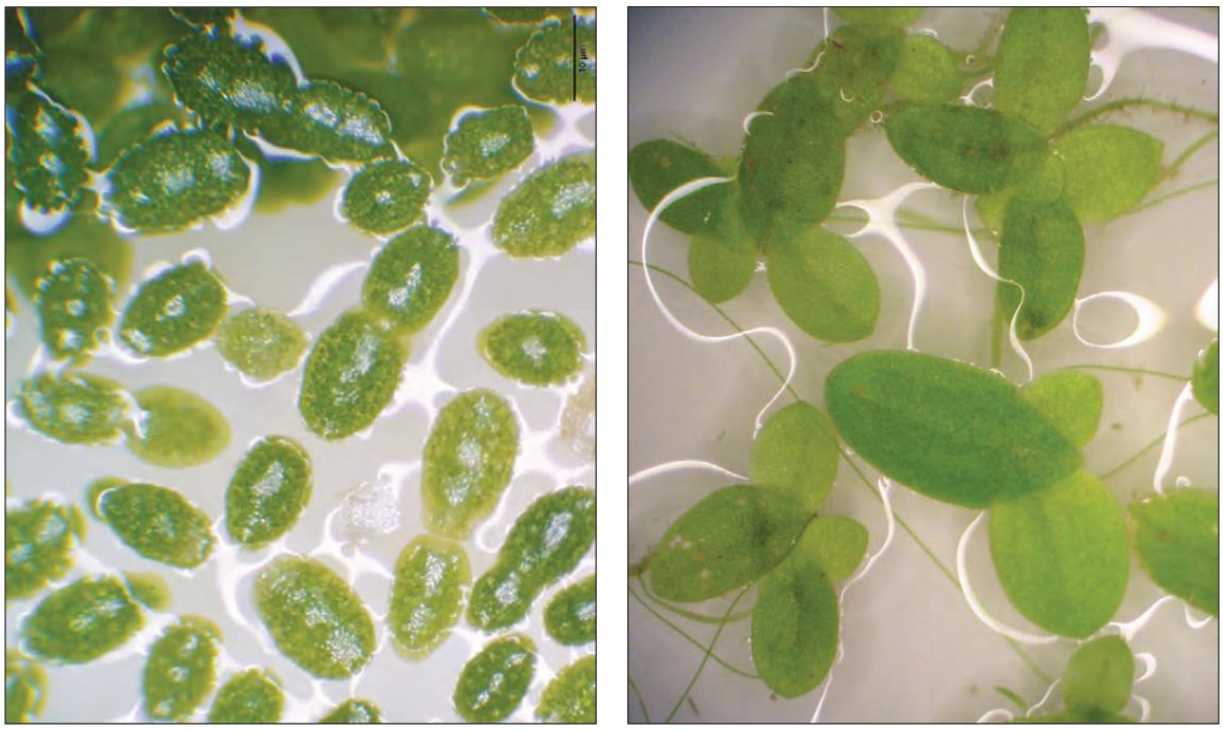

Figure 18. Duckweed: Left, *Wolffia Columbiana;* Right: *Lemna minor* (Photographs: Barry H. Rosen)

Figure 19. Charophyta, *Chara sp.* (Photograph: Barry H. Rosen)

Figure 20. Rooted macrophytes. (Photograph: Ann St. Amand)

Attachment 2 HABs

Sampling Checklist

HABs Sampling Checklist

Paperwork:	Bottle Set per Site:
☐ Clipboard ☐ Sample labels ☐ Lab Chain of Custody form ☐ Pencils/Pens/Sharpies ☐ GPS device or Cell phone for coordinates	☐ Amber glass bottles (provided by NDEP) ☐ Take a bottle set for each site + 1 ☐ Bottle sets go in ice chests, leave room for ice

Equipment:	Field Box:
☐ Coolers with ice ☐ Waders/Boots ☐ Boat (if applicable) ☐ Anchor ☐ Paddles ☐ Personal floatation devices	☐ Nitrile gloves ☐ Eye protection ☐ Portable eyewash bottle ☐ Paper towels

Attachment 3

Chain of Custody

2024 Harmful Algal Bloom Chain of Custody	**Agency:**
Nevada Division of Environmental Protection, Bureau of Water Quality Planning	Address:
Weston Fettgather, Bioassessment Branch Supervisor (wfettgather@ndep.nv.gov)	
901 S Stewart Street, Suite 4001 Carson City, NV 89701	Contact:
775-687-9453	

StationID	WaterbodyName	County	Lat_Dec	Long_Dec	Date Collected	Number of Jars	Notes

Relinquished by: _____ name _____ signature _____ date

Received by: _____ name _____ signature _____ date