# 13.01 – Blue Green Algae in District Operating Project Waters – NWP



**Foreword:**
This Standard Operating Procedure (SOP) establishes Portland District's comprehensive blue green algae (BGA) public outreach and education communication program, including internal ad-hoc testing and communication of testing results. In 2014, Operating Projects started informing the public, partners, and stakeholders of the District's shift away from the former policy of routine BGA monitoring, sampling, and testing to a policy promoting public outreach and education with ad-hoc testing performed as resources allow.

BGA is not a true algae, but scientifically known as cyanobacteria. This SOP continues to use the term BGA and Harmful Algal Bloom (HAB) which the public is more familiar with. Some external agencies and state and county health departments continue to use BGA and HAB as well.

Water-based recreational activities are considered the primary route of exposure for cyanotoxins via direct skin contact, inhalation, or inadvertent ingestion of water. The most common complaints after recreational exposure to cyanotoxins are gastroenteritis and epidermal allergic reactions.

This SOP does not apply to Portland District Operating Projects lacking recreation areas.

Questions regarding this document should be directed to Portland District Natural Resource Management.

CENWP-ODT-N
Email: Melissa.J.Rinehart@usace.army.mil

**Review:** This procedure will be reviewed by ODT-N every five (5) years to determine if revisions are warranted. Revisions will also be made when deemed necessary.

**Controlled Version:** If printed, this SOP is no longer the official approved version of this document. Ideagen is the official repository of this document.

## 1.0 Purpose & Applicability

### 1.1 Purpose

The document updates the District BGA policy including the Attachments, Responsibilities, Procedures, and Definitions sections. This SOP clarifies the roles and responsibilities of relevant USACE offices regarding BGA and the recreating public, project purposes, existing water uses, and public health and safety. This is a living document, subject to change as needed to comply with applicable Federal and State water quality standards.

### 1.2 Applicability

This SOP applies to all Portland District (NWP) Operating Projects with recreation areas located in the states of Oregon and Washington.

## 2.0 Attachments & Appendices

Attachments:

- 13.01.A - BGA Permanent Sign (OHA) – NWP
- 13.01.B - BGA Bulletin Board Sign (OHA) – NWP
- 13.01.C - BGA Permanent Sign (Skamania Co.) – NWP
- 13.01.D - BGA Bulletin Board Sign (Skamania Co.) – NWP
- 13.01.E - BGA Permanent Sign (Klickitat Co.) – NWP
- 13.01.F - BGA Bulletin Board Sign (Klickitat Co.) – NWP
- 13.01.G - BGA Permanent Sign (Benton Co.) – NWP
- 13.01.H - BGA Bulletin Board Sign (Benton Co.) – NWP

Appendices:

None

## 3.0 Responsibilities

### 3.1 District Natural Resource Manager (ODT-N)

Responsible for providing support to Operating Projects by reviewing their public outreach and education plans to ensure consistent application of this SOP across the District. Notifies OPM, NRM and ENC-HR when a report of a bloom, or a report of a potential BGA illness, is received. Includes RE on the initial report notification and the follow-up testing notification if the affected waters are located at an outgranted recreation area.

### 3.2 Operation Project Manager (OPM)

Responsible for ensuring that this SOP is applied at recreation areas (and other public

water entry points, if needed) within the jurisdiction of their Operating Project. Per Commander's Policy Memo #7 dated 10 MAR 2023, OPMs may need to send a Critical Commander's Information Requirements (CCIR) to appropriate NWP personnel.

### 3.3 Project Natural Resource Manager (NRM)

Responsible for implementing this SOP at all USACE managed recreation areas (and other public water entry points, if needed) within the jurisdiction of their Operating Project through public outreach and education. Notifies OPM, ODT-N and ENC-HR when a report of a bloom, or a report of a potential BGA illness is received. May coordinate with county health departments to facilitate their ability to perform water sampling.

### 3.4 Real Estate Division (RE)

Responsible for implementing this SOP at all outgranted water-based recreation areas (and other public water entry points, if needed) within NWP. Responsible for notifying outgrantees that manage water-based recreation areas, or that would otherwise be affected, of any positive findings from a toxin analysis above state guidelines.

### 3.5 Public Affairs Office (PAO)

Responsible for developing and communicating District messages regarding BGA to all external and internal audiences using various methods to maximize public outreach in partnership with the ODT-N, OPMs and NRMs.

### 3.6 Safety and Occupational Health Office (SO)

Provides advice and technical consultation to the NRMs, OPMs and ODT-N on the safety implications of this SOP.

### 3.7 Water Quality Program (ENC-HR)

Ensures that water quality, as affected by the project and its operation, is suitable for project purposes and existing water uses, and is compliant with applicable federal and state water quality standards. When a report of a bloom, or a report of a potential BGA illness is received, notifies OPM, NRM, and ODT-N of the initial report and what action ENC-HR may take in response. If testing is done by USACE or an external partner, any testing results above or below state toxin level guidelines will be shared with OPM, NRM, ODT-N and the appropriate state health authority. Includes PAO and SO if testing results are above state toxin level guidelines.

## 4.0 Procedures

### 4.1 Overview

Due to the transitory nature of BGA presence and risk, NWP uses an education and outreach campaign to increase public awareness of the potential presence of BGA and HABs in NWP reservoirs and water bodies so visitors may determine their own risk-informed decisions. NWP does not conduct routine BGA monitoring. In lieu of routine monitoring, educational information on BGA and HABs will be posted at NWP Projects to inform the public of potential risks. Additionally, NWP may perform ad-hoc testing as resources allow. If NWP staff observe an algal bloom or is notified of a reported bloom

or a potential BGA illness, a water sample may be collected by the NWP Water Quality section (ENC-HR) for research purposes and sent for cyanotoxin (toxin) analysis. Any positive findings above or below state guidelines will be shared with the appropriate state health authority. Internal and external communication will occur as defined in Section 3 above.

The Oregon Health Authority (OHA) threshold levels for drinking water and recreational areas can be found at this link:
https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/HARMFULALGAEBLOOMS/Pages/index.aspx
Current algal bloom advisories for the State of Oregon may be found on the OHA website:
https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/HARMFULALGAEBLOOMS/Pages/Blue-GreenAlgaeAdvisories.aspx.
The Washington Department of Ecology threshold levels for recreational areas can be found at this link: https://www.nwtoxicalgae.org/About.aspx
The Washington Department of Health (WDOH) threshold levels for drinking water (developed by U.S. EPA) can be found at this link:
https://www.doh.wa.gov/Portals/1/Documents/Pubs/331-654.pdf
Current algal bloom advisories for the State of Washington may be found through the WDOH website: https://www.nwtoxicalgae.org/

### 4.2 Public Outreach Program

Operation Project Managers (OPMs) and Natural Resource Managers (NRMs) will implement procedures 4.3-4.5 below to ensure recreating public awareness for the potential presence of BGA and HABs in NWP's waters and reservoirs. Outreach materials will provide photo examples of what BGA looks like, alert visitors to precautions they may take to protect themselves from adverse effects caused by cyanotoxins and provide additional resources for more information.

### 4.3 Messaging

A uniform district outreach message of adverse effects of HAB exposure and listing of resources where more information can be obtained will be maintained by ODT-N, NRMs and the Public Affairs Office (PAO), and disseminated to the public, partners, and stakeholders.

#### 4.3.1 Methods

Methods of delivery to the public will consider full use of all available media, including websites, social media, public service venues, park bulletin boards, and printed materials.

#### 4.3.2 Timing

Messaging will occur year-round on bulletin boards and permanent signs where blooms are more common historically, and on the district public website. Verbal messaging and temporary sign postings will increase as needed prior to anticipated heavy recreation visitation, such as before holidays and long weekends.

4.3.3 Webpage
PAO and ODT-N will maintain a webpage for the District public website. The link to the website will be made available to the public in response to inquiries on the topic and posted in appropriate locations such as visitor centers and kiosks where BGA may be found. ODT-N will ensure web content is current.
https://www.nwp.usace.army.mil/Missions/Environmental-Stewardship/Algae/

4.4 Signage
ODT-N and NRMs will maintain signage at recreation areas (and other public water entry points, if needed) where BGA has been historically present. Signs will inform the public of the NWP policy, e.g., “this lake or river is not routinely tested” and include cautionary language, e.g., “when in doubt, stay out.” Signage will be required if toxin levels are reported over the State guidelines. Signage is recommended at any water body where there is a high likelihood of blooms. See Attachments 1-8.

4.4.1 Permanent Signage
Signage referencing routine monitoring and testing in cooperation with OHA is removed. Several permanent advisory signs are now in place where BGA has been historically present. Permanent signs are recommended at water bodies where blooms are consistently present. Any new sign installations shall comply with the standards and requirements of the U.S. Army Corps of Engineers Sign Manual (EP 310-1-6).

4.4.2 Bulletin Boards
ODT-N and NRMs will maintain a master bulletin board poster containing the information identified in 4.4 above and how to identify BGA. The posters will be placed strategically at recreation areas (and other public water entry points, if needed) to inform the recreating public.

4.5 Partners/Stakeholders
OPMs, NRMs, ENC-HR, ODT-N, and PAO may communicate with affected partners, stakeholders, the public, and others who may be affected by the presence of BGA, as appropriate. NWP personnel may encourage partners and stakeholders to monitor state notification systems for current advisories and warnings. Drinking water and irrigation withdrawals typically occur downstream of NWP reservoirs. If a water sample is collected, and if toxins are present above state guidelines, affected stakeholders will be notified by appropriate NWP personnel and the stakeholder may need to implement an appropriate response at their facility.

4.5.1 Outgrants
Real Estate (RE) will contact outgrantees that manage water-based recreation areas or would otherwise be affected by the presence of BGA. If a water sample is collected and toxins are present above state guidelines, outgrantees will be notified by RE and may need to implement an appropriate response at their facility. RE will require outgrantees to post signage when toxins are above state guidelines. RE will recommend posting signage when there is a high likelihood of blooms and/or recommend posting

permanent signage where blooms are consistently present. RE may encourage outgrantees to monitor state notification systems for current advisories and warnings.

### 4.6. Shared Scientific Data and Follow-up Monitoring

ODT-N will coordinate with OPMs, NRMs, and ENC-HR on an ad-hoc basis to ensure the recreating public is informed of the current science regarding the potential for adverse effects to people, pets and wildlife exposed to BGA toxins and, in the case of people and pets, measures they can take that limit those effects. ENC-HR will collect BGA data as part of studies related to ER 1110-2-8154. ENC-HR will disseminate scientific data to interested partners and the public when requested. If a state health authority issues a public health advisory based on shared data from ENC-HR, follow up monitoring may be conducted by ENC-HR with the goal of providing sufficient data to the appropriate state health authority to lift the advisory as soon as practicable. The frequency of follow-up monitoring will depend on available resources, field reports and reservoir history but should strive to occur approximately every other week.

## 5.0 References & Related Procedures

### 5.1 References

Commander's Policy Memorandum #7, Portland District Commander's Critical Information Requirements (CCIR)

Engineer Manual (EM) 1110-1-400, Recreation Facility and Customer Services Standards

Engineer Pamphlet (EP) 1130-2-500, Partners and Support (Work Management Guidance and Procedures), Chapter 6 - Sign Standards Program for Civil Works Projects

EP 310-1-6, U.S. Army Corps of Engineers Sign Standards Manual

Engineer Regulation (ER) 1110-2-8154, Water Quality and Environmental Management for Corps Civil Works Projects

ER 1130-2-550, Recreation Operations and Maintenance Guidance and Procedures

Public Law 108–456, Harmful Algal Bloom and Hypoxia Research and Control Act of 1998

### 5.2 Related Procedures

None

## 6.0 Definitions

| TERM | DEFINITION |
|---|---|
| **Algal bloom** | A visible concentration of algae in a water body or along the shoreline of a water body. |
| **Blue Green Algae** | Term commonly used to describe cyanobacteria. |
| **Cyanobacteria** | A unicellular, photosynthetic organism that often live in colonial aggregates and thrive in slow-moving, warm, and nutrient-rich water. Cyanobacteria blooms can be detrimental by outcompeting beneficial algae, depleting dissolved oxygen needed by aquatic life and producing toxic compounds. Their color led to the more commonly used term “blue-green algae”, However true algae are eukaryotes (membrane enclosed nucleus), and cyanobacteria are prokaryotes (lacking membrane enclosed nucleus). |
| **Cyanotoxin** | Term used to describe toxins produced by certain cyanobacteria that can harm people, pets, and wildlife. The most common toxins produced by cyanobacteria in both Oregon and Washington are Microcystin (liver toxin) and Anatoxin-a (nervous system toxin); additionally, in Oregon they are Cylindrospermopsin (liver toxin) and Saxitoxin (nervous system toxin). Laboratory analysis of a water sample will provide the *Genus species* and potential presence of toxins. |
| **Outgrant** | A written, legal real estate instrument granting either real property interest or permission over a specific period of time, for a specific consideration. |
| **Recreation Area** | A developed area of Corps-owned land either directly managed by the Corps or outgranted to others that provides direct access to a water body for public recreation purposes. |
| **Route of Exposure** | The way in which a substance comes into contact with an organism. |

## 7.0 Records and Repositories

| ARIMS RECORD NUMBER | ARIMS RECORD TITLE | LOCAL RECORD NAME | ARIMS RECORD DESCRIPTION | ARIMS DISPOSITION | ARIMS PERMANENT | RECORD HOLDER | LOCATION |
|---|---|---|---|---|---|---|---|
| 200-1u2 | Natural Resources reports-Offices other than HQ USACE | BGA Reports | Reports on soil and water conservation, forest management, and fish and wildlife management. | KEN, 6+ years after event | No | CENWP-ODT-N | \\nwd\nwp\STAFF\CenwP-OD\NaturalResourceMgntandRec\Harmful Algae Blooms & Management |
| 200-1u2 | Natural Resources reports-Offices other than HQ USACE | Scientific Data related to BGA | Reports on soil and water conservation, forest management, and fish and wildlife management. | KEN, 6+ years after event | No | CENWP-ENC-HR | \\nwd\nwp\ETDS\Engineering_Division\CENWP-EC-H\CENWP-EC-HR\Water_Quality\Reports\HAB |

## 8.0 Document History

| REVISION # | DESCRIPTION | DATE | AUTHOR |
|---|---|---|---|
| 0.0 | Newly Established Procedure, NWPR 200-1-3 | JULY 2008 | Unknown, CENWP-ODT-N |
| 1.0 | NRM Policy 1130-1 replaced NWPR 200-1-3 in its entirety | JULY 2014 | Michelle Hanson, Natural Resource Specialist, CENWP-ODT-N |
| 2.0 | Major revisions to Procedures and Responsibilities; Minor revisions to Purpose and Applicability and Definitions | OCT 2021 | Nicholas Racine, Natural Resource Specialist, CENWP-ODT-N |
| 3.0 | Initial annual review, implemented new KMT SOP format. | MAR 2024 | Nicholas Racine, Natural Resource Specialist, CENWP-ODT-N |

## 9.0 Signatures

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