



**Position Paper
from
Dunes City's Water Quality Committee
for
The DEQ / DHS Harmful Algae
Workgroup 5-21-10**

Dunes City is a small coastal municipality without a water system that borders on three connected lakes; Little Woahink, Woahink, and Siltcoos. These three lakes are sources of water for most of Dunes City. The City's Comprehensive Plan policies mandate water quality protection. Volunteers supported by City staff are involved in water testing, training, and keeping the public updated on the status of their drinking water sources.

In October of 2007 Siltcoos Lake suffered a significant blue-green algal (BGA) bloom lasting 52 days. With a lack of guidance from county and state governments, unfortunate side effects occurred. The City contracted for a sanitary 18-wheeler tanker truck of potable water to be delivered to City Hall for residents use. Nervous water testers gathered samples for cell counts which ended up costing the City several thousand dollars. These samples were sent to a laboratory in Washington State because labs in Oregon were incapable of doing the tests. For toxicity analysis, several samples were sent to the University of California at significant cost to the City.

A lack of preparedness was evident in that the bloom was first reported as a paint spill. Dunes City and its water quality monitoring team expended thousands of dollars on daily monitoring in the naïve hope that the bloom would be gone in a few days. The City's lack of a scientific BGA sampling protocol made the severity of the bloom difficult to quantify. DHS issued a Health Advisory warning. Signs prominently saying the word "toxic" were posted. Local businesses suffered economic losses. Recreation providers, property owners and others who obtain water from the lake had to change their daily activities. In 2008, Siltcoos suffered another BGA bloom lasting longer, 93 days, during which staff and volunteers again allocated a great deal of time and resources.

Dr. Allen Milligan of Oregon State University has shown that such blooms are increasing in frequency. BGA needs four basic ingredients to flourish: nutrients, lack of movement, weeds and heat. Dunes City's coastal lake conditions of heat and low winds occur in early autumn. Preventing nutrient loading has been our primary concern. Public education has lessened negative reaction and enabled greater participation in prevention measures.

Woahink and Siltcoos lakes are the primary drinking water sources for Dunes City residents and Woahink Lake is the only permitted source of water for Honeyman State Park's estimated 1.7 million annual visitors. While water testing for quality control purposes is seen as the State's ultimate responsibility the City has taken a proactive stance, in adherence with its Comprehensive Plan policies in an effort to mitigate water quality problems.

In spite of several requests, county and state governments did not contribute significantly to local efforts to regularly assess the bloom and keep residents notified of the current status.

Recommendations Based on the City's experience are as follows:

1. Statewide protocols must be created and put in place.
2. Direct communication with each public user is required when shutting down a water source. The three lakes in or around Dunes City include two counties and a federal agency. A means of communicating with everyone requires a cooperative phone, email or direct mail system.
3. DHS must be given funding in order to support local testing and providing alternative emergency water sources. A state laboratory for analyzing samples is suggested.
4. DEQ must be given greater responsibility and authority to reduce the nutrient loading that supports BGA.
5. The public and enterprise groups must be educated to the long-term benefits of sustainable planning using best management practices.
6. Public and private stakeholders who benefit from public resources must be encouraged, if not required, to participate; to share in the efforts of watershed conservation.
7. A state triage-type system must be implemented with the public's participation for BGA and other events, owing to the fact that state, county and city agencies are relatively independent of one another.

In Summary Dunes City has demonstrated that county and state efforts can be supported through voluntary effort. The costs of toxicity analysis are far beyond this City's financial responsibility. It is hoped that DHS / DEQ will set up handling the analysis part of the protocol. We applaud such efforts and look forward to hearing of these agencies collaborative progress of water protection.

Attached to this report are Dunes City protocols and other documents established following the 2007 BGA bloom.

Richard Koehler, Chair
Dunes City Water Quality Committee

PS - Our committee would be pleased to meet with representatives from this group in order to discuss common solutions to shared problems.

Attached: Algal Bloom Monitoring and Reporting Protocol
 CityStaff_Protocol
 CityStaff_Protocol_call_list
 Observance_List

Algal Bloom Monitoring and

Reporting

12-21-08

Goal: To have in place procedures for anticipating and responding to blue-green and other algal blooms in Siltcoos and Woahink Lakes.

- (1) A network of observers around the lakes who report to the designated WQC person will be established.
- (2) If a bloom is reported, the chairperson of the Water Quality Committee (WQC) assembles a team to initiate a survey of the lake to assess the extent and severity of the bloom. This survey will utilize water transparency (Secchi disk and/or turbidity measurements) and/or estimates of chlorophyll-a and cyano pigments and water temperature. (3) If it is a significant bloom, a judgment call by the water monitoring team, water sampling, using worst case sampling techniques (see 4 below) is initiated including an initial enumeration sample.
 - a. Approximately every other day; Shorebased sampling will be done, including Temperature, Secchi disk depth, bottom dissolved oxygen and fluorometric estimates of chlorophyll-a and cyano pigments.
 - b. More in-depth sampling will be scheduled as indicated by the results of sampling done under (3) a. which may include; Nutrients, Chlorophyll-a (on dry ice), and Phytoplankton enumeration. Total Phosphorus and Total Nitrogen samples can be stored frozen, Silica is chilled but not frozen. Chlorophyll and enumeration samples should be sent to their respective labs ASAP as indicated by the Quality Assurance Project Plan (QAPP).
- (4) Worst case sampling defined:
 - a. In areas with the highest levels of algal biomass.
 - b. A few feet away from surface scum.
 - c. Subsurface water, not including the surface layer.
 - d. Primary sample taken in one liter bottle.
 - e. Primary sample shaken well before sub-sampling (algae are buoyant).
 - f. Sub-samples for nutrients, chl-a, and enumeration will be taken, preserved, and shipped as per QAPP.
 - g. All shipping through Shipping Solutions where Dunes City has an account, purchase order numbers must be included with all samples sent for analysis over \$50.

Dependent on the results of the phytoplankton enumeration samples, toxin sampling may be required as per QAPP.

Special bottles are obtained from Oregon Water Services.

- (6) Water monitors are to pass report on to the city recorder of all observations and sampling results.

Procedure to be used by city staff in the event of

A Potential Incident Involving Lake Water Quality

12-21-08

- A. Take report on "Incident Report" form.
- B. Call the Chair of the Water Quality Control Committee and Water Testers from appropriate lake.
- C. Take report from lake monitoring team following their investigation, relay report to mayor.
- D. At the direction of the mayor alert the State Health and Human Services Office of Environmental Health 971-673-0444,

Lane County Environmental Health 541-682-3636, and Oregon Dept. of Environmental Quality, South Coast Basin Specialist 541-687-7345. For incidents on Siltcoos Lake also notify Douglas County Environmental Health 541-440-3578 and U.S. Forest Service, Siuslaw National Forest 902-8526; for incidents on Woahink Lake also notify Oregon State Parks, Honeyman Park 997-3851.
- E. Alert the Water Quality Committee Chair, the Webmaster, and the Communication and Education Chair to assist in getting the word out through the website.
- F. The Mayor (or in his absence the President of the Council) will initiate a press release for distribution to the print and electronic media and staff will post information at city hall and the post office.
- G. Staff response to public inquiry-
 - 1) Give a simple description of what has been reported (An algal bloom for example).
 - 2) Tell callers what's being done about it. (ie. Samples are being taken for analyzing the material).
 - 3) Add any caution statements. As in "Until we know more from the State Health Authorities we suggest you not go in the water, drink it, let your children or pets near it."
- H. Any information from lake monitors will be relayed to the mayor to be released to press and webmaster as deemed necessary by the Mayor, or his designated contact person, even if there's no change.

PROTOCOL_____

In case of harmful Blue Green Algae Bloom contact the following organizations:

Deanna E Conners, PhD
Office of Environmental Public Health
Oregon Department of Human Services
800 NE Oregon Street Suite 640
Portland, OR 97232, USA
Phone: 971-673-0444
Fax: 971-673-0457
[Email: Deanna.E.Conners@state.or.us](mailto:Deanna.E.Conners@state.or.us)

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Environmental Health Specialist
Environmental Toxicology Program
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Karen Kelly
Drinking Water Program
OR Dept of Human Services
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442 A Street
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BLUE GREEN ALGAE

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