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***Microcystis* and *Anabaena* Algae Blooms: Frequently Asked Questions Concerning Health Impacts**

Q: What is *Anabaena*? What is *Microcystis*?

A: *Anabaena* and *Microcystis* are types of cyanobacteria (commonly known as blue-green algae) that grow naturally in many waterbodies. Under certain conditions (such as warm weather and an abundance of nutrients in the water) the algae may undergo an explosive type of growth that results in dense, floating mats of algae. This is commonly referred to as an "algae bloom."

Q: Can exposure to *Anabaena* and *Microcystis* cause health effects?

A: Yes. *Anabaena* and *Microcystis* are different from most other types of algae because they can produce toxins. There are two ways to be exposed to these toxins. During a bloom, the toxins are contained within the algae cells. If these cells are ingested, they break open in the stomach and the toxins are released. Alternatively, after an algae bloom ends and the algae die, the toxins are released into the water where they can be directly ingested. The toxins can be potentially harmful to people and animals.

Q: What types of health concerns are associated with exposure to toxins from *Anabaena* and *Microcystis*?

A: Health concerns vary depending on the type of exposure (e.g., contact, ingestion) and the concentrations of toxins present. *Microcystis* produces the toxin microcystin. *Anabaena* may produce a few different toxins, including anatoxin and microcystin. Ingestion of small amounts of toxin can cause gastrointestinal distress. If elevated levels of the algal toxin anatoxin are

present in the water and ingested, serious neurological damage can result. Symptoms of anatoxin poisoning include numb lips, tingling fingers and toes, and dizziness. If elevated levels of the algal toxin microcystin are present in the water and ingested, serious liver damage can result. Symptoms of microcystin poisoning include abdominal pain, diarrhea, and vomiting. Contact with high levels of *Anabaena* and *Microcystis* has also been found to contribute to eye, ear, and skin irritation.

Q: How can I reduce my risk of health effects associated with exposure to *Anabaena* and *Microcystis*?

A: Do not come into contact with water near an algae bloom or any algal scum onshore. This also applies to pets.

Q: How long do blooms last?

A: It depends on several factors, most importantly the weather. Since algae benefit from warm, sunny weather, as the days get shorter and cooler, the algae die off. Any rainfall will help to circulate the water and break up the bloom. In addition, over time, algae may deplete the nutrients in the water so they are unable to grow further. As algae die off, they may release toxins into the water. Thus, it is important to refrain from recreating in the area of a bloom for two weeks after it has ended.

Q: If I have had contact with an algae bloom, what should I do?

A: For questions related to health concerns, contact your health care provider, local board of health, or the Massachusetts Department of Public Health, Bureau of Environmental Health at (617) 624-5757.