

## Public Health Considerations for Potentially Contaminated Surface Water

While it is understandable that the public will want to access recreational water as soon as possible, the reality is that it may take several days before the lake, pond or other surface water will be safe for use.

After heavy rain and flooding, beaches and other recreational waters can become polluted by sewage, animal wastes, petroleum products, fertilizers and other contaminants. These wastes can be transferred into lakes and ponds via storm water drainage systems, creeks, rivers and run-off from paved surfaces. The vast majority of beach closings that occur in the United States are due to harmful microorganisms found in untreated or partially treated sewage discharged to the environment.

Once flood water levels subside, it is important to monitor surface water. Monitoring can be done by individuals living on the lake, lake association members, local health and others. Initial monitoring consists primarily of a visual assessment. Those who assess the safety of surface water for recreational activities such as swimming, fishing and boating should consider the following:

- **Sewage Contamination:** Excessive rain can cause a substantial increase in flow to a wastewater treatment facility, resulting in an overflow or bypass of untreated or partially treated wastewater to the environment. Sewer lines can also break or overflow during excessive rainfall. Private septic systems may be compromised during heavy rain, which will also result in the introduction of human waste to surface water. The best way to determine the water's safety is to conduct bacteriological testing. For entities that have not conducted water testing in the past this may be something to now consider. Please refer to the guidance found at the Flood Tool Kit on the Health Alert Network for instructions on surface water testing ([https://www.han.wisc.edu/mod\\_news/news\\_view.jsp?id=21386](https://www.han.wisc.edu/mod_news/news_view.jsp?id=21386) – limited access website).
- **Other Waste Sources:** Bacteria from soils, decaying vegetation, wildlife, and birds can also contaminate recreational waters--especially when there is heavy rainfall. These sources will elevate bacteria levels in recreational waters, particularly those with poor water circulation.
- **Chemicals:** It is possible that surface water will be impacted by agricultural and industrial run-off or other sources such as household chemicals, fuel oil, gasoline, etc. Typically these chemicals will be diluted to a level where there should not pose a health risk. There is also natural attenuation of chemicals in the environment by microbes and the sun (ultra-violet). If there is reason to believe that a chemical spill from a known source has occurred, further investigation will be necessary. This may be evident by a chemical odor, water discoloration or sheen. This should be reported to the DNR Spills Program at 800-943-0003. This is a 24-hour number.
- **Blue-green algae:** Algae is typically found in backwater or protected areas of natural waters, especially after a period of warm weather. Run-off into lakes often contains excess nutrients such as nitrates and phosphates. Algae feed on these

nutrients and grow at high rates known as “blooms.” As they grow, algae produce toxic materials that may cause gastrointestinal illness. Please refer to the blue-green algae fact sheets found in the Flood Tool Kit on the Health Alert Network (see above for address) for more information.

- **Physical Hazards:** Foreign objects which can cause puncture wounds and cuts might wash into surface water. Swimming beaches and other areas where the public enters the water should be visually inspected for hazards. Persons removing hazards should be wearing appropriate personal protective equipment including: boots or waders, protective gloves and eye protection. These workers should also be up-to-date with their tetanus immunization.
- **Fish Consumption:** Flood events are not expected to change existing fish advisories; fish that are commonly safe to eat will continue to be safe. Fish should be rinsed in clean water prior to being filleted and cooked thoroughly. Continue to follow any existing fish consumption advisories for that water body. Most fish are healthy to eat and are an excellent source of low-fat protein because they reduce the risk of heart disease, diabetes and other chronic illnesses. Fish advisories list fish (store-bought or sport-caught) that could contain contaminants such as mercury and PCBs that can harm human health - especially the development of children and fetuses. Wisconsin fish advisory information can be found at <http://dhfs.wisconsin.gov/eh/Fish/>.

General recommendations for the public regarding the recreational use of surface water:

- If possible, choose beaches that are next to open waters or away from urban areas. They typically pose less of a health risk than beaches in developed areas or in enclosed bays and harbors with little water circulation.
- Look for pipes along the beach that drain storm water runoff from the streets, and don't swim near them.
- Avoid swimming in beach water that is cloudy or smells bad.
- Keep your head out of the water.
- Wash up or shower thoroughly with soap and clean water after contact or swimming in flooded surface waters.
- Avoid swimming or other contact with surface water until sufficient time has passed after the event for water levels to return to normal. This may take anywhere from 24 hours to several days.

If you suspect beach water contamination is an issue, please contact your local health department so appropriate follow-up can be taken.

If you have concerns about exposure to a specific chemical, you can contact the State Division of Public Health, Bureau of Environmental and Occupational Health at 608-266-1120. Ask to speak to a toxicologist or other environmental health professional.