



## How Safe Are Natural Waterways?

### Environmental Health Guide

Western Australia has some of the most pristine and beautiful swimming locations in Australia. However as a water user in WA it is important for you to remember that natural water bodies such as rivers, estuaries or oceans can be polluted by a number of different ways e.g. bacteria or algae. This is why you need to be aware of the health risks associated with natural waters because you are the best person to make a judgement if it is safe to swim at a particular swimming spot at a particular time.

### What Are The Common Health Risks In Natural Waterways?

Two of the most common public health risks to water users include microbiological pollution and algal blooms. These are both more of a risk in river and estuarine systems, although they may still occur in our coastal waters.

### Microbiological Pollution

#### What is it?

It is often the things we can't see that we need to be concerned about. Microbiological pollution in water includes bacteria, viruses and protozoans, which are usually associated with human or animal faeces (poo).

#### Where does it come from?

Sources of microbiological pollution include;

- Stormwater runoff.
- Sewage treatment plant malfunctions.
- Boating wastes.
- Malfunctioning septic tanks.
- Farming activities (cattle, sheep).
- Faeces from domestic animals (dogs) and wild animals (birds).
- The recreational population using the water (lack of human hygiene and or/ natural bather shedding).

#### What are the health risks?

Swimming and/or swallowing water that contains high levels of bacteria and other organisms can make you sick. Such illnesses can include:

DISEASE-CAUSING MICROORGANISMS FROM SEWAGE	
Microorganisms	Some illnesses and symptoms
Bacteria (e.g. <i>Salmonella</i> )	Gastroenteritis (includes diarrhoea and abdominal pain)
Viruses (e.g. hepatitis A)	Fever, gastroenteritis, diarrhoea, respiratory infections,
Protozoa (e.g. <i>Cryptosporidiosis</i> )	Gastroenteritis, (including diarrhoea and abdominal cramps, dysentery).



## How do I know if the water is contaminated with bacteria and other organisms?

Because you can not see bacteria it is difficult to know if they are in the water unless the water is tested. This is why you should follow some basic rules to reduce your risk of exposure to bacteria and other organisms.

1. Avoid swimming after heavy rainfall (>10mm).
2. Do not swim in water that looks discoloured, murky, or smells unpleasant.
3. Look for posted warning signs and follow the advice on them.
4. Avoid swallowing water or putting your head under water if you are unsure about its quality.
5. Avoid swimming if you have an open wound or infection.
6. Do not add to the risk; use appropriate toilet facilities.
7. Take children on bathroom breaks regularly.
8. Don't swim if you are feeling ill (diarrhoea or vomiting).
9. Dispose of human waste hygienically when boating.
10. Avoid swimming in warm, slow moving, stagnant water.

## Does anyone test water for bacteria?

During the bathing season (November to April) the Environmental Health Directorate of the WA Department of Health coordinates bacterial water quality monitoring of popular swimming beaches along the metropolitan coastline, and the Swan and Canning Rivers. Some country local governments and Rottnest Island also monitor recreational waters.

Visit the “Healthy Swimming in Western Australian Waterways” website for further details on bacterial levels in WA waterways at [www.healthyswimming.health.wa.gov.au](http://www.healthyswimming.health.wa.gov.au)

## Algal Blooms

### What are they?

At low numbers algae cause no problems and are in fact part of the natural microscopic plankton of water. Occasionally, the algae can grow very fast or “bloom” and accumulate into dense, visible patches near the surface of the water. Such blooms occur in slow moving, warm water that is high in nutrients such as phosphorus and nitrogen, and can be a serious public health and an environmental problem in many waterways throughout Western Australia, particularly in river and estuarine systems.





## What are the health effects?

Contact with an algal bloom (both toxic and non-toxic species) may cause a number of human health problems including;

- Skin rashes.
- Eye irritation and redness.
- Ear aches.
- Itchiness.
- Swollen lips.
- Hayfever symptoms.
- Asthma.
- Possible skin tumours.
- Gastroenteritis.

Some species of algae can also produce toxins that can contaminate shellfish and make them unsafe to eat.

## How will I know if there is an algal bloom in the water?

Some “tell tale” signs which indicate that the water may be polluted with an algal bloom include:

- Brightly coloured water;
- Blue/green scums on the water surface;
- Brown discoloured water; and
- Oily films on the water surface.

If you notice any of these signs it is recommended that you do not go swimming.

## Does anyone test for algal blooms?

The Department of Environment monitor a number of waterways in Western Australia for the presence of algae, including the Swan, Canning, Murray, Serpentine and Vasse Rivers. When an algal bloom of human health concern is detected at potentially harmful levels, the public will be notified and the local council may install warning signs in the area.

For further information on algal blooms visit the Department of Environment website at [www.environment.wa.gov.au](http://www.environment.wa.gov.au).

## Helpful Tips to Assist You in Deciding Where to Swim

Follow the tips below to help you make the right decision about where you would like to go swimming.

### 1. Check the Weather

After heavy rainfall rain collects pollutants from our streets, gardens and farms, before it flushes into our ocean and rivers via the stormwater systems. This can make the water unsafe for swimming, especially if you put your head under or swallow the water.

As a precaution people should avoid swimming:

- 1 day after heavy rainfall (>10mm), in coastal waters.
- 3 days after heavy rainfall (>10mm), in river/estuarine systems.

If there has been no recent heavy rain, then it is likely that the water is safe to swim in.

### 2. Look for Signs of Pollution

Some “tell tale” signs of water pollution to look out for before entering the water include;

<b>Discoloured water</b>	Is the water an odd colour? Look for dirty, murky or coloured water, algal scums or oily films on the waters surface.
<b>Unpleasant odours</b>	Can you smell any unpleasant earthy or sewage odours?
<b>Flowing drains</b>	Can you see any drains actively flowing into the water?
<b>Floating debris</b>	Are there any food wrappers, cigarette butts, general litter or excess leaves floating in the water?
<b>Sick or dead fish</b>	Can you see any dead or sluggish fish or crabs visible in the water?

If you notice any of these “tell tale” signs it is recommended that you find somewhere else to swim.



### 3. Avoid Swimming Next to Stormwater Drains

Stormwater runoff is one of the most common causes of water pollution. People should avoid swimming near stormwater drains, particularly during or after rainfall events.



### 4. Check for Warning Signs

Where pollution is detected in a water body (e.g. after a sewage spill or algal bloom) health warning signs may be installed to warn the public not to use the water. If you notice a health warning sign then follow the advice and do not go swimming.



## Recreational Shellfish Consumption

The Department of Health does **not** support the collection of wild shellfish such as oysters, mussels or scallops from natural waters - particularly from river and estuarine systems. The safety of eating shellfish from such areas can not be guaranteed.

Shellfish are filter feeders; they feed by drawing in water and filtering out the nutrients and contaminants alike. This means if the water is polluted with chemicals, algal toxins or bacteria the shellfish will draw the contaminated water and concentrate these contaminants in their flesh which you will end up eating. Normal cooking processes will not necessarily destroy these contaminants so you could get sick from eating them.

Common illnesses associated with eating contaminated shellfish include:

- Gastroenteritis (vomiting, diarrhoea, abdominal cramps).
- Neurological disorders and memory loss.

## Commercial Shellfish

Commercially available shellfish in Western Australia are managed through a strict quality assurance program to ensure shellfish available in the market place are safe for human consumption at all times.



## Amoebic Meningitis and Water Temperature (Lakes, Rivers And Dams)

During the heat of summer, lakes, estuaries and dams can heat up. High water temperatures between 28°C to 40°C can favour the growth of the amoeba *Naegleria fowleri*. This amoeba can cause the disease known as amoebic meningitis.

Amoebic meningitis can cause inflammation and eventual destruction of the brain and brain linings. It only occurs when water containing the amoebae goes up the nose.

Swimming and skiing in lakes and dams is not recommended when water temperatures are high due to the risk of contracting amoebic meningitis. Seawater is safe, as are estuaries because the amoebae will not grow in water with more than 2% salt content.

For more information refer to the Department of Health brochure on *Amoebic Meningitis*.

### Remember:

1. Avoid swimming after heavy rainfall (>10mm).
2. Do not swim in water that looks discoloured, murky, or smells unpleasant.
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4. Avoid swallowing water or putting your head under water if you are unsure about its quality.
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10. Avoid swimming in warm, slow moving, stagnant water.

## Other Environmental Health Guidelines on Related Topics

Amoebic Meningitis  
Algae: Blooms, scum and recreation  
Keeping your swimming pool and spa healthy  
Giardia infection  
Cryptosporidiosis

### Further Information

For further information, contact an Environmental Health Officer at your local government

Or

Environmental Health Directorate  
Department of Health  
PO Box 8172  
Perth Business Centre WA 6849  
Telephone: (08) 9388 4999  
Facsimile: (08) 9388 4955

[www.healthyswimming.health.wa.gov.au](http://www.healthyswimming.health.wa.gov.au)

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