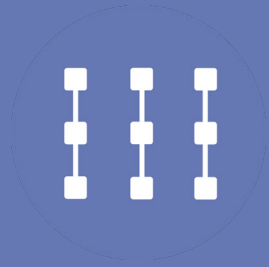


Microplastic Sampling Methods



Beach Audits

(Method used in Clean Bay Blueprint)

- Recording visible microplastics in selected quadrats within selected transects of a beach
- Transects include the widest, central, and narrowest sections of a beach

- Engage the community
- Can raise public awareness
- Last under 1 hour
- Cost-effective
- Can provide information about catchments and pollution patterns
- Provides data from the top, middle, and bottom water columns

- Can't provide direct MP concentration data for water

EcoCentre's beach audits should be used to raise public awareness, engage the community, and gain valuable information on catchment pollution and pollution patterns throughout the Port Phillip Bay area.



Water Trawls

- Collecting particle debris from the water's surface by towing a large net
- Particle debris is analyzed for microplastics quantities
- Allow for large water samples which yield more representative results of microplastic concentrations

- Cover a large area
- Direct sample of the water
- Remove plastic from the environment
- Provides data from the top of the water column

- Removes organic material and organisms
- Influenced by environment conditions
- Cannot be used in shallow water
- Requires experienced personnel and a lot of equipment

Water trawls should be used for accurately sampling large volumes of surface water for positively buoyant microplastic pollution.



Bioindicators

(Method used by the U.S. Mussel Watch Program)

- Species such as mussels can be used to measure microplastics in the environment
- Most appropriate bioindicator species for Port Phillip Bay is the native Blue Mussel
- Involves submerging mussel cages and then analyzing their tissues for microplastics

- Mussels help filter and clean the environment they live in
- Provides accurate measurements
- Provides data from the middle of the water column

- Sampling and analysis can take a long time (up to 3 months underwater)
- Certain species of Freshwater Mussels are endangered in Australia

Bioindicators should be used because they provide reliable data on the environment in which they live in. They can be used to sample the middle of the water column, and should also be used to help filter microplastics from the environment.



Sediment Sampling

(Method used by U.S. EPA)

- Scooping sediment from the bottom of the water body to quantify the amount of microplastic particles present

- Sampling with a coring device can show historical microplastic data
- Provides data from the bottom of the water column

- Can't provide direct MP concentration data for water
- Requires experienced personnel and a lot of equipment

Sediment sampling should be used to obtain baseline data about the state of the bed of the bay and not for regular condition sampling. It should also be used to fill in gaps in historical data.

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