GUIDANCE NOTE

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

SWAN CANNING RIVERPARK

Algal sampling when using a silt curtain

Certain types of algae (e.g. Alexandrium) that are present in the Swan Canning River system may be harmful and pose a threat to public health in the event of an algal bloom.

The conditions created within a silt curtain – still water, a (minor) increase in water temperature and sediment disturbance – may promote algal bloom formation.

This document aims to prevent the spread of algal blooms into the river system. Guidance is provided on monitoring and sampling when conducting works within a silt curtain and/or works that disturb riverbed sediment.

1 Background

For in-water construction works, surface water sampling is required to be undertaken inside a silt curtain if:

- the works are likely to involve the disturbance of riverbed sediment greater than 10m^3
- a silt curtain will be installed for more than one (1) month between October to June
- an algal bloom is detected within a silt curtain or
- conditions may promote algal bloom formation (as determined by DBCA).

The intention of the monitoring is to provide early warning of harmful algae within the area enclosed by the silt curtain, allow comparison with conditions in the local estuarine environment, and to guide determination of any necessary mitigation / control measures.

It should be noted that "blooms" or concentrations of harmful algae that require management are not visible to the naked eye (i.e. no discolouration or scums).

2 Sampling frequency and method (normal conditions)

Sampling is required fortnightly during which three (3) integrated water samples (over the depth of the water column, surface to 0.5m from the riverbed) must be taken randomly within the silt curtain, then combined by the analytical lab to create one sample for lab analysis. One of the 3 samples should target the leeward edge of the enclosed area. The Department of Biodiversity, Conservation and Attractions (DBCA) should be contacted for advice if sampling will not be undertaken by a water-quality consultant.

If *Alexandrium* is detected, individual samples will need to be analysed and sampling increased to weekly (see **Section 3**).

Results, including species identification and cell counts, should be submitted to DBCA in a timely manner to allow for review and consideration of potential management options. Timeframes for supply of lab results should be discussed with DBCA prior to undertaking any sampling.

3 Sampling frequency and method, and management response (algal bloom event)

If *Alexandrium* or *Karenia* spp are detected (trigger value is **1 cell/mL**), the silt curtain needs to remain in place until *Alexandrium* or *Karenia spp* are no longer detected or until DBCA determines that there is no longer a threat. In addition, the following additional measures are to be implemented:

- DBCA must be notified (DBCA may also notify the Department of Health (DoH) if necessary).
- Additional sampling to include one (1) depth-integrated sample collected outside the silt curtain. Sampling frequency for all samples is to increase to weekly.
- Installation of an additional silt curtain may be required to help contain the algal bloom. For *Alexandrium* this is triggered at 10 cells/mL or if concentrations within the curtain are significantly higher than nearby waters.

DBCA will assist to develop and oversee a suitable solution and can provide further advice on the additional water monitoring and sampling requirements.

In-water construction works can continue as long as silt curtains are in place and functional (i.e. no breaches in the silt curtain).

Response to other harmful or nuisance algae detected at levels elevated above background will be assessed on a case-by-case basis.

4 Additional considerations

Should an algal bloom originate from outside the project area and enter the silt curtain area, the monitoring and control measures as

aforementioned are to be implemented in coordination with DBCA.

Alexandrium is not known to cause skin irritation, but it is recommended to avoid discoloured water in the affected area or where surface scums are evident.

More information on *Alexandrium* and other harmful algae can be found on the DBCA and Department of Health websites.

Supporting resources and contacts

Department of Biodiversity, Conservation and Attractions Statutory Assessments Unit:
rivers.planning@dbca.wa.gov.au

Department of Health:
algalblooms@health.wa.gov.au

Alexandrium algal blooms in the Swan and Canning rivers (Department of Biodiversity, Conservation and Attractions, n.d.)

Algal Blooms (Department of Health, 2024)