NSW Algal Management Strategy – a review

Finding the X factor in algae!

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Team Leader
Statewide Resource Condition
NSW Algal Management Program

- 18 year history – established as a response to the Darling River Bloom by the BGA Task Force
- 5 year program (high level Cabinet support and funding that included a range of Incentives)
NSW Algal Management Strategy

- Post 1997 the program funding
- Lack of major blooms & interest
- Several department name changes and restructures, centralisation, regionalisation, decentralisation
- Change in major legislative framework, NSW Water & Vegetation Reforms change agenda
- ARMCANZ National Algal Manager sustains some integration and state direction
NSW Algal Management – A review and Improvements

- The Trigger – A major bloom, multi-jurisdictional and multi-government involvement, another dept restructure (water utility & NRM)

- An evaluation of management responses to the 2009 Murray Algal Bloom and a review of strategic and regional frameworks within NSW

- Implementation of Improvements

- Another major bloom in 2010 and a post season de-brief

- What have we learnt?

MERI
The Keys to Managing Risk Efficiently & Effectively

- Effective documentation is key to stakeholders understanding their agency role (assists in managing expectations)
- Adequate spatial analysis and up to date spatial information to assist understanding area involved
- Effective communication strategies between stakeholders and within the public arena, and regular updates
- Common FAQs (Speaking notes – media) prevents forum shopping & channels media
- Effective networks (state and federal) of taxonomists / scientists and expertise
- Embracing technology to improve efficiencies & reporting
Algal information

Algal management
The NSW Algal Management Strategy is administered by the NSW State Algal Advisory Group and the nine regional algal coordinating committees.

The State Algal Advisory Group provides the overarching policy advice and framework for the management of fresh water and marine blooms. Membership of the State Algal Advisory Group is made up of the relevant NSW State agencies, NSW local government and the Murray Darling Basin Authority.

While each member is responsible for a specific area of management and technical information, the NSW Office of Water is the lead agency for water management in NSW and coordinates both the State Algal Advisory Group and the Regional Algal Coordinating Committees.

Algal alerts
Algal blooms can cause waters to be unsafe for recreation in both freshwater and marine water environments. Algal alerts are issued by Regional Algal Coordinating Committees (RACCs) who are responsible for local management of algal blooms.

For information on current alerts view the status reports on this page, call the NSW algae hotline on 1800 999 457, or view the media releases.

Latest reports
The summary report below provides the most recent algal data collated by the RACCs from across NSW. Algal blooms may be present and not reported to the RACCs. Locations identified below were experiencing algal blooms at the date of the report. This report does not contain data from water storages managed by Water Supply Authorities where there is no public access.

NSW Health advises that any domestic use (including drinking) of surface water without appropriate treatment should be avoided at all times.

Map of algal alerts in New South Wales
Map of alerts – table info

Recreational ‘red alert’ algal status report: updated 26 July 2010

The summary below is based on the most recent algal data available from the NSW Office of Water laboratory and other sources. To sort this table alphabetically click on the column heading.

<table>
<thead>
<tr>
<th>Coordinating area</th>
<th>Location</th>
<th>Major use</th>
<th>Trend</th>
<th>Management action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunter</td>
<td>Lake Liddell</td>
<td>Recreation, Stock and domestic</td>
<td>Steady</td>
<td>Continued surveillance by Macquarie Generation</td>
</tr>
<tr>
<td></td>
<td>Wallis Creek near Maitland</td>
<td>Irrigation</td>
<td>Steady</td>
<td>Warning issued by Maitland City Council, Continued surveillance by Hunter Water Corporation</td>
</tr>
<tr>
<td></td>
<td>Fishery Creek downstream of Parry</td>
<td>Stock and domestic</td>
<td>Steady</td>
<td>Continued surveillance by Hunter Water Corporation, Landfields</td>
</tr>
</tbody>
</table>
Web Links to Other Agency Info

Blue-green algae

About blue-green algae
Blue-green algae, or cyanobacteria, are the most abundant of all photosynthetic organisms. Some produce poisons harmful to humans and possibly fatal to domestic animals and fish - neurotoxins and liver toxins, and skin allergies.

Algal blooms can cause waters to be unsafe for all users of water including agriculture, irrigation and recreation.

It is essential that all persons affected by blue-green algae understand what it is, and what the potential impacts of the algae may be to them or their business or recreational activities.

Current situation
The NSW Office of Water website provides up-to-date information for NSW on the algae situation. This site also includes tips for identifying algae, key contacts for more information, impacts of blue-green algal blooms, and locations where a red or amber alert is in place.

Information updates about blue-green algal blooms and red alert warning areas can be obtained from the Regional Algal Coordinating Committee, Freecall Algal Information Hotline on 1800 599 457.

Information for landholders
- Managing blue-green algae in farm dams
- Subsidies for control of water to areas affected by blue-green algae
- Farm water quality and testing
- Water requirements for sheep and cattle
- Preventing animal health problems during drought
- Irrigation using blue-green algae contaminated water
Web Links Tourism Info
Recreational harvest of seafood

On this page

- Safety tips
- Cooking seafood will not kill toxins
- Things to avoid
- Raw shellfish
- Commercial harvest safety programs

Many people enjoy recreational catching or collecting shellfish or bivalve molluscs such as mussels, oysters, pipe, and cockles; crustacea such as yabbies, prawns and crayfish; and flounder.

There are some important tips to follow to be able to enjoy your harvest and avoid causing illness if you eat the bounty.

Safety tips

Like all fresh food from animals, seafood needs to be handled well to minimise the risk of food poisoning. Important tips for recreationally caught or collected seafood include:

- only catch or collect seafood when water quality is good. Remember that water quality changes and not all harmful things can be seen with the naked eye.
  Check the current waterway status for:
  - known algal ‘red alerts’ via signs, local media and NSW Office of Water website (includes alert definitions) or telephone 1800 999 457. To report a new algal bloom, phone the Environment Hotline 131 555
  - fishing diversions issued by Industry & Investment via its website or telephone 1300 550 474

- keep fresh seafood cold and covered by putting in ice or a refrigerator straight away
- keep equipment clean using uncontaminated water
- don’t let recreational seafood or bait dry on other food
- view New South Wales Food Authority website for more information on food handling

NSW Department of Environment, Climate Change and Water
Architecture

Hydstra integration

An exciting initiative
Accessing data via map

ArcGIS engine
- ESRI product
- Object selection
- Integrated operations
  - data access
  - statistics
  - ect.
# Introduction of taxonomic tree

## Ecological parameter
- **Number**
- **Long name**
- **Unit**
- **Short name**
- **Alias**

## Example
- **Number**: 12345
- **Long name**: Cyanobacteria
- **Unit**: cells/mL
- **Short name**: Anabaena
- **Alias**: Anabaena circinalis

## Taxonomic tree
- **Kingdom**: Protista
- **Phylum**: Cyanobacteria
- **Class**: Cyanophyceae
- **Order**: Nostocales
- **Family**: Nostocaceae
- **Genus**: Anabaena
- **Species**: Circinalis

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**BOM Standards**
National Standard ?

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*Caddy larvae*
Introduction of taxonomic tree

Taxonomic tree functionality
- Flexible configuration of tree levels and branches
- History of tree
- Assignment of taxa to each level and branch
- Automatic derivation/summary functions
Biological module (enhancement)

- Introduction of polygon and transect objects

Enhancement of existing structure by
- spatial and line objects
- interaction with ArcGIS engine
Biological module (enhancement)

- Introduction of new parameter types
  - Invertebrates and vertebrates
  - Algae
  - Fish
  - Vegetation
  - Animal movements

First step: Algae module
- introduction of flexible parameter framework
- parameter with definable result columns
  (e.g. Count, Mean Cell Volume, Biovolume etc.)
- result fields allow all data types (number, float, string)
- analysis functionality (assess matrices, abundances, indices, etc.)
- import/export functionality (flexible csv importer/exporter)
- report functionality (applying KiScript)
The keys for maintaining Executive and Manager support

- Resource neutrality…. WOG approach
- Programs embedded in core business areas with effective business drivers (state and federal)
  - * NSW State Plan NRM Riverine Target & NSW MER Strategy (Riverine Condition & Trend)
  - * Basin Plan WQ & Salinity Mgt Plan Targets
- Advocacy & of course a contentious bloom
- BOM Environmental Account (National Knowledge Strategy) – we are lacking Federal Drivers & state integration for algal management.. Why?
  (It's complicated – Multiple Policy Areas)

(Health & NRM – Water supply / recreation / S&D / Farm use / Food Safety health / ecological )