Risk and Regulation in Environmental Toxicology: Application to Cyanobacterial Toxins
Australian Drinking Water Guidelines

- Framework for the management of drinking water quality
- Hazard identification and risk assessment
- A hazard has the potential to cause harm
- A risk is the likelihood of causing harm
Why are cyanobacteria a hazard in drinking water?

- They have the potential to cause harm
- Known to cause livestock poisoning
- Known to cause human poisoning
- Suspected to contain carcinogens
What is the risk from cyanobacteria?

- Risk assessment a key part of Australian Drinking Water Guidelines
- Can also be applied to source waters
- Re-used waters
- Wastewater
What is the risk?
Qualitative assessment

• Likelihood, observed occurrence, factors known to increase occurrence
• Consequences, level of harm observed or predicted
• Can be considered as an economic risk or a health risk
Quantitative assessment

- Establishment of safety criteria for risk
- Monitoring of contaminant levels
- Comparison with accepted criteria
- Acceptable level of risk
Guideline values

• Safe concentrations of potentially harmful agents in potable water (or recreational, irrigation, industrial waters)

• Agents with a safe threshold, most cyanobacterial toxins, pesticides, heavy metals

• Agents with no threshold level, carcinogens
‘Grey areas’

• Regulations or guidelines
• Monitoring or not, costs
• Perception of risk – balance of cost of mitigation to perceived benefit
• Reporting of ‘exceedences’
• Public impacts, industry impacts
Thank you

Ian R. Falconer
Pharmacology, Medical Sciences,
University of Adelaide