

Health Impacts

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Health Impacts from HABs

- ◆ Health impacts associated with microalgal blooms (cyanobacteria, dinoflagellates, diatoms etc) include:
 - ✧ self-limiting symptoms following environmental exposure (e.g. eye and skin irritation). Symptoms typically resolve when exposure to the source is stopped
 - ✧ toxin-specific impacts including gastro-intestinal and neurological symptoms and liver damage. Impacts range from self-limiting to severe.
 - ✧ compromised mental wellness (anxiety, sadness) e.g. due to death of marine life and loss of recreational access

Environmental Exposure to *Karenia*

- ◆ Direct contact with the bloom or exposure to sea spray aerosols carrying algal particles and brevetoxin can cause:
 - ✧ Eye and respiratory irritation including coughing and shortness of breath and to a lesser extent skin rashes with symptoms exacerbated by on-shore winds
 - ✧ Symptoms self-limited and resolved by moving away from impacted beaches. Repeated occurrence in coastal residents
 - ✧ Those with known asthma or other chronic lung diseases may be more vulnerable to respiratory symptoms
 - ✧ Blooms of other human toxic and non-toxic micro-algae such as *Ostreopsis*, *Akashiwo*, *Vulcanodinium*, various diatoms and cyanobacteria cause some or all of these symptoms

Ingestion of Brevetoxins

- ◆ Brevetoxins are characterised as neurotoxic shellfish poisons. They can be retained and concentrated by filter feeding bivalve molluscs.
- ◆ About 300 NSP cases worldwide typically from consumption of contaminated wild caught shellfish
- ◆ Symptoms include vomiting, diarrhoea, stomach cramps, headaches, fatigue, joint and muscle pain, tingling of the mouth, fingers and toes, burning sensation or skin pain and extreme itchiness
- ◆ Symptoms self-limiting (24-72hrs) - severe illness uncommon

Public Health Advice - Environmental

💧 Public advised to:

- ✳️ Avoid beaches impacted by abnormally discoloured water and foams
- ✳️ Leave beaches and foreshore areas if experiencing symptoms
- ✳️ Coastal residents advised to shut doors and windows if experiencing symptoms

💧 Additional advice to asthmatics

- ✳️ carry reliever medication while on beaches
- ✳️ take their preventive medication as prescribed
- ✳️ check their asthma management plan is up-to-date

Public Health Advice - Seafood

- ◆ All commercially available seafood is safe to eat with bivalve molluscs (oysters, cockles, mussels, pipis and scallops) subject to frequent testing to ensure safety
- ◆ Fish, crabs, prawns, lobsters, or squid caught live by recreational fishers are safe to eat if gutted and cleaned thoroughly before cooking
- ◆ Self-collected bivalve molluscs or abalone should not be consumed with the exception of pipis from Goolwa Beach when testing showed that they were safe to eat

Public Health Investigations

- Information from Local Health Networks and primary care providers is that there has been little evidence of presentations associated with the bloom.
- In addition, SA Health is undertaking a systematic review of presentations to emergency departments/hospitals from areas impacted by the bloom (e.g. Southern Fleurieu, Metropolitan Coast and Yorke Peninsula).
- Will compare periods when the bloom was present & absent
- Other data examined will include cell concentrations, wind direction, sea conditions and air particulate concentrations

Public Health Surveillance System

- ◆ SA Health is working with Surf Life Saving SA to develop a notification system including symptoms and beach conditions
- ◆ Trials are progressing with data being collected from metropolitan beaches to gather responses during a control period in the absence of the bloom (e.g. will symptoms be reported)

Knowledge Gaps

There are a number of knowledge gaps including:

- ◆ the cause of health impacts (e.g. cells, cell particles and toxins)
- ◆ the relationship between cell concentrations and health impacts and the interplay between wind, wave action and other environmental factors
- ◆ whether different combinations of *Karenia* species cause the same impacts
- ◆ uptake and persistence of brevetoxins in various types of seafood including viscera