Emissions to water from shipping

Source: BONUS SHEBA project



Emission sources

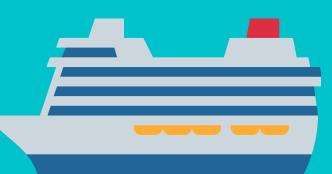
- Antifouling substances
- Ballast water
- Grey water
- Black water
- Bilge water

- Cooling water
- Propeller shaft lubricants
- Scrubber water
- Tank cleaning

Shipping emits a complex mixture of chemicals to water. A mixture can be more toxic than individual chemicals.



Impacts of emissions to water







- can eat,
 outcompete or
 parasite on the
 native species of an
 ecosystem
- may spread diseases to humans

CONTAMINANTS

 highly toxic compounds which are not always biodegradable can lead to adverse effects on marine environments

NUTRIENTS

- stimulate plankton growth & promote algal blooms
- oxygen is needed to biodegrade plankton which results in bottom water with low oxygen (hypoxia)

ACIDIFICATION

 lowered pH in marine waters threatens many organisms with extinction

Over 600 different chemical contaminants emitted from shipping were identified in BONUS SHEBA project.





