

What is sediment?

Sediment in waterways refers to the particles of soil, sand, silt, and other organic and inorganic materials that are suspended and transported in water. As water flows through rivers, streams, lakes, and other bodies of water, it carries particles along with it. Very high levels of sediment in waterways can have harmful impacts on ecosystems. Sediment can come from various sources, including erosion of soil from land surfaces, weathering of rocks, and human activities like construction, mining, and agriculture. Sediment in waterways can have various impacts:

1. Water Quality: Excessive sediment can reduce water clarity and quality.

In the Fitzroy Basin Report Card this is measured by turbidity and results tend to fluctuate year-to-year. Turbidity results are strongly correlated with rainfall as runoff transports sediment into waterways. You can learn more about the effect of rainfall on water quality here <https://riverhealth.org.au/factsheets-reports/>

2. Ecosystem Impact: Sediment can disrupt aquatic ecosystems by smothering aquatic plants and benthic organisms, altering habitat structures, and affecting the food chain. Fitzroy Partnership for River Health monitors ecology throughout the Basin.

We keep an eye on the relationship between sediment and ecology in our waterways.

3. Pollutant Transport: Sediment can carry attached pollutants such as heavy metals, nutrients, and pesticides. When these pollutants are deposited along with sediment, they can impact water quality and the health of aquatic organisms.

4. Aesthetic and Recreational Values: Accumulated sediment can reduce the aesthetic appeal of water bodies and impact recreational activities such as swimming, fishing, and boating.

Impacts on the Great Barrier Reef

Sediment can have a significant impact on the Great Barrier Reef, one of the world's most diverse and ecologically important marine ecosystems. The Fitzroy Basin is the largest river systems draining into the Great Barrier Reef, and delivers large sediment loads to the Reef which impacts water quality and ecosystem health. Sediment discharging from the Fitzroy River into the southern Great Barrier Reef lagoon can be seen in this satellite imagery.



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How does sediment impact the reef?

- 1. Water Quality and Clarity:** Sediment runoff from land-based activities, such as agriculture, construction, and deforestation, can lead to increased sedimentation in the waters around the reef. This reduces water clarity and quality, which is crucial for the health of the reef ecosystem. Reduced light penetration can harm the photosynthetic activity of coral and other reef organisms, affecting their growth and survival.
- 2. Coral Health:** Sediment deposition on coral reefs can smother coral polyps, reducing their ability to feed and reproduce. Sediment can also carry pollutants, such as nutrients and chemicals which can lead to increased algae growth known as algal blooms.
- 3. Reef Structure:** Sediment can accumulate on the sea floor, altering the physical structure of the reef. This sediment buildup can bury corals, prevent settlement of new coral larvae, and disrupt the complex interactions among different species that are essential for the reef's ecological balance.
- 4. Habitat Loss:** Sedimentation can lead to habitat degradation, impacting the diverse array of marine life that depends on the reef ecosystem. Coral reefs provide essential habitat for numerous fish species, invertebrates, and other marine organisms.
- 5. Coral Bleaching:** While sediment is not a direct cause of coral bleaching, the increased stress caused by sedimentation can make corals more susceptible to other stressors, including elevated sea temperatures that lead to coral bleaching. Coral bleaching occurs when corals expel the symbiotic algae living in their tissues, which can lead to coral death.
- 6. Tourism and Economy:** The Great Barrier Reef is a major tourist attraction and contributes significantly to the economy of Queensland and Australia. Sediment-related impacts such as reduced water clarity and damaged reef structure can negatively affect the tourism industry and local economies.

Managing sediment

Managing sediment in waterways often involves implementing erosion control measures, such as vegetative cover on bare soils, constructing sediment basins, and stabilizing streambanks. Additionally, proper land use practices, such as minimizing construction activities near water bodies and implementing best management practices in agriculture, creating buffer zones between agricultural areas and water bodies, and promoting sustainable development and tourism practices can help reduce the amount of sediment entering waterways.

Effective sediment management is crucial for maintaining the ecological health, water quality, and overall functioning of aquatic ecosystems ensuring their survival for future generations.



“Fitzroy Partnership for River Health reports on local marine water quality, coral, and seagrass health in the southern Great Barrier Reef every year - https://riverhealth.org.au/report_card/additional-info/marine-condition.”

Dive into the detail at riverhealth.org.au

