

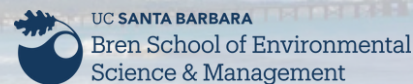
Finding Balance in Our Managed Beaches

Policy Recommendations to Mitigate Emergency Sediment Disposal Impacts in Santa Barbara County

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Environmental Problem

Climate change is increasing Santa Barbara County's vulnerability to coastal erosion and flooding. To mitigate impacts, debris basins have been constructed to intercept sediment in creeks and protect residents in floodplains during extreme weather events. During emergency events, sediment accumulated in the basins has been disposed of at Goleta Beach Park and Carpinteria State Beach as a method to protect eroding coastlines. The main question of this project is: **how should sediments removed for flood control be managed, and is beach disposal a sustainable and equitable option, considering increasing frequency in emergency sediment removal and disposal?** This project can guide future sediment management to minimize ecological harm, protect public health, and ensure equitable access to safe coastal environments.

Objectives



Understand the response of fecal indicator bacteria levels in beach waters to sediment disposal.



Identify who is impacted, and how, by beach closures associated with sediment disposal.



Understand the regulatory permits that guide sediment management activities and recommend actions that mitigate impacts to the public and to the environment.

Methodology



Data analysis of beach water quality from County records and its relationship to various environmental factors and human-induced activities of disposal.



A demographics and activities survey was conducted at Goleta Beach and Carpinteria Beach between January and February 2025.



A review of permit content, in addition to interviews, was completed to understand permit implications and disposal actions.

Major Findings

- Sediment deposition at beaches increases the odds of surf zone exceedances of fecal indicator bacteria (FIB) health standards.
- The median income among Goleta Beach beachgoers was between \$50,000 and \$75,000, which falls below the City of Goleta's median income of \$118,039, highlighting the disproportionate impact of degraded beach water quality on low-income communities at Goleta Beach.
- Individuals may still visit the beach despite awareness of a water quality advisory or closure.

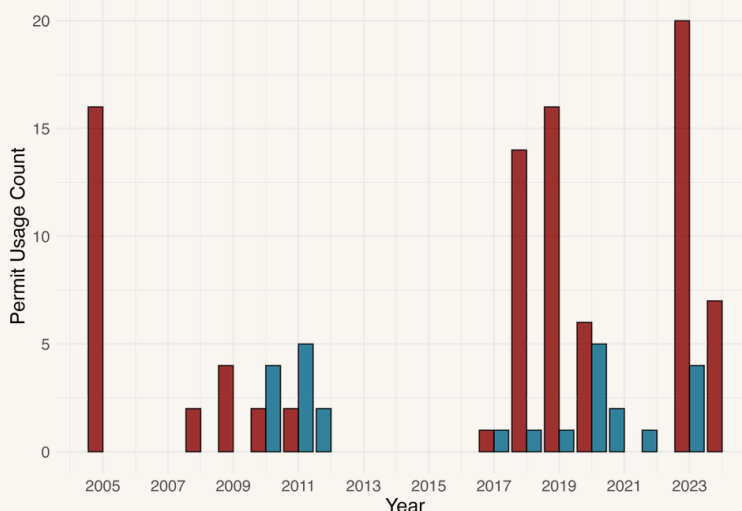


Figure 1. Emergency (red) compared to routine (blue) permit usage for Santa Barbara County sediment management activities since 2005. Data provided by Santa Barbara County Flood Control and Water Conservation District.



Figure 2. San Ysidro Debris Basin (May 2024).

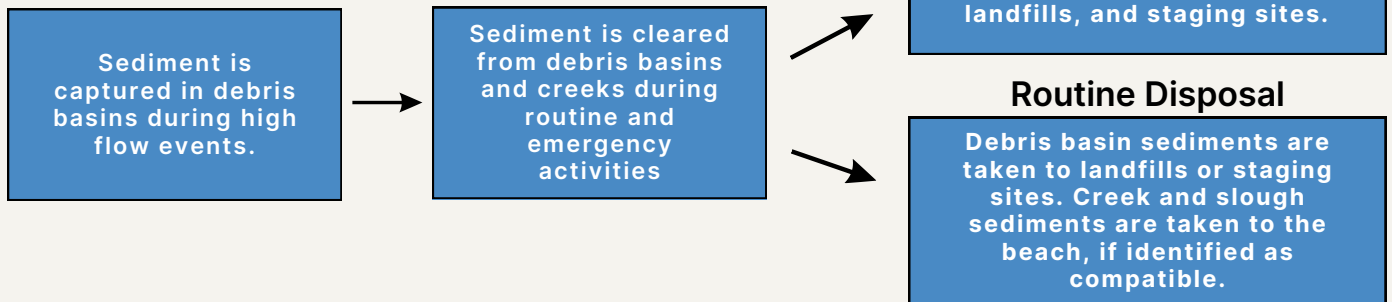
Debris Basin Impacts

Debris basin maintenance has removed about 2 million cubic yards of sediment from creeks since their initial construction. The 18 managed debris basins alter downstream habitat by limiting the transport of sediment to downstream creek reaches and beaches.

Permitting

Debris basin clearing and eventual disposal are guided by environmental permits that aim to minimize impacts to water quality. However, permit conditions change during emergencies and, in some cases, permitting disposal before sediment testing is complete.

What happens to sediments that are cleared from creeks and debris basins?



2018 and 2023 Disposal

68,000 cubic yards

of sediment from creeks and debris basins were taken to Carpinteria Beach and Goleta Beach in 2018. Goleta Beach was closed, or under advisory, for about 200 days due to water quality concerns.

224,352 cubic yards

of sediment were disposed at the beach sites in preparation for, and following, heavy storms in 2023.

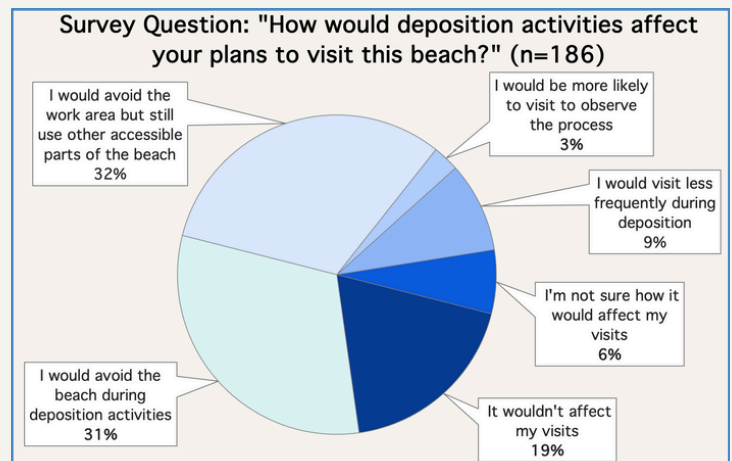


Figure 3. Survey responses for the question that asked, "How would deposition activities affect your plans to visit this beach?" 186 responses were recorded.

Recommendations

- Additional water quality monitoring near deposition sites, even in periods with no deposition, to achieve a more granular understanding of temporal and spatial impacts of disposal.
- Addition of a QR code or link on beach signage guiding the public to water quality monitoring information and educational resources on beach management activities on government websites.
- Assessment of alternatives to beach disposal that increase resilience to sea level rise and reduce reliance on hard infrastructures like debris basin dams for flood control.