

# Waste Free Waves: Assessing Marine Debris in the Proposed Chumash Heritage National Marine Sanctuary

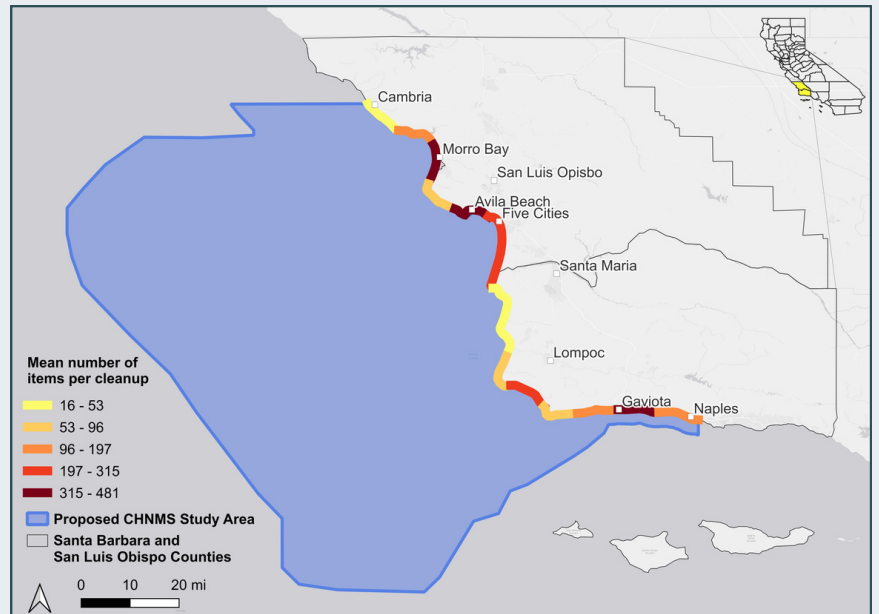
## Executive Summary

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Client: NOAA Office of National Marine Sanctuaries West Coast Regional Office

## Introduction

Marine debris is human-generated material that is discarded and ends up in the marine environment. It has a variety of detrimental impacts on public health, water quality, marine species, and coastal ecosystems globally. California is both a major source of anthropogenic marine debris, and an area particularly vulnerable to its damaging impacts. However, little is known about the quantities and impacts of marine debris in the proposed Chumash Heritage National Marine Sanctuary (CHNMS) along the central coast of California. The proposed sanctuary would become California's fifth National Marine Sanctuary. This sanctuary would recognize and bring important protections to Indigenous lands and cultural heritage sites, as well as to an internationally-significant ecological transition zone with critical habitat for marine mammals, invertebrates, sea birds, and fish. Marine debris has been identified as a threat to sanctuary resources and water quality in the CHNMS's draft management plan.



**Figure 1.** The proposed CHNMS study area along the Central California coast. The yellow and red segments on the coastline indicate debris density, with debris hotspots noted in dark red.

## Project Objectives

1. Conduct a baseline assessment and hotspot analysis of marine debris in the proposed CHNMS.
2. Analyze local management practices, policies, and perspectives through research and interviews to understand community needs.
3. Recommend monitoring and mitigation strategies for marine debris for the proposed CHNMS to NOAA and management partners.

*This holistic assessment helps inform NOAA Sanctuaries and CHNMS management partners in their effort to establish a robust marine debris monitoring and mitigation program for the proposed sanctuary, and it aims to inform regional marine debris management with a focus on local community perspectives.*

## Results

We synthesized community science beach cleanup data from multiple organizations. The five most-frequently found item types were plastic fragments, wrappers, bottle caps, bottles, and glass fragments. The majority of marine debris was plastic, and most debris came from eating, drinking, and smoking.

These local, land-based source activities connect to marine debris hotspots throughout the region, as hotspots were found in urban areas with higher populations and more public beach access. These hotspot areas included Morro Bay, Avila Beach and the Five Cities area, and the Gaviota Coast.

Policy analyses showed that ordinances, such as bans on foam takeout containers or straws, may not always significantly reduce marine debris. However, more data are needed to accurately evaluate these types of policies.

Interviews with Indigenous communities and other stakeholders indicated widespread concern about many of the most common types of marine debris: food wrappers, packaging, and takeout food containers. They recommended many strategies for addressing marine debris, including standardizing data collection and analysis and further developing partnerships between local stakeholders for marine debris engagement.

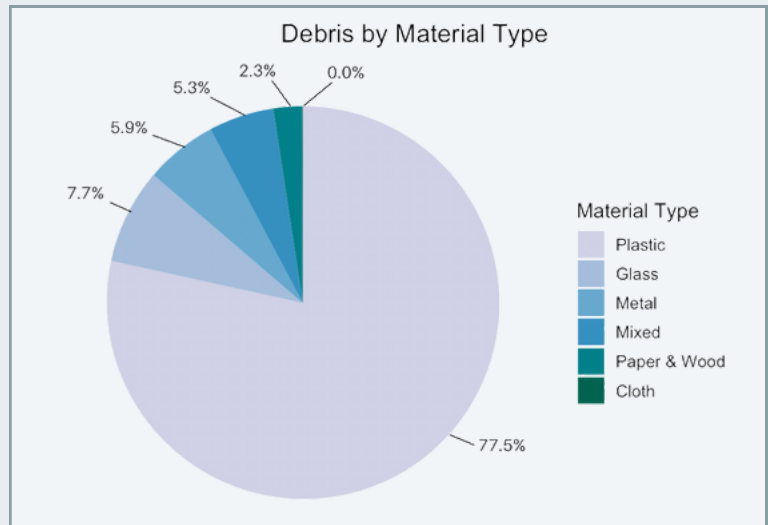


Figure 2. Percentage of debris by material type.

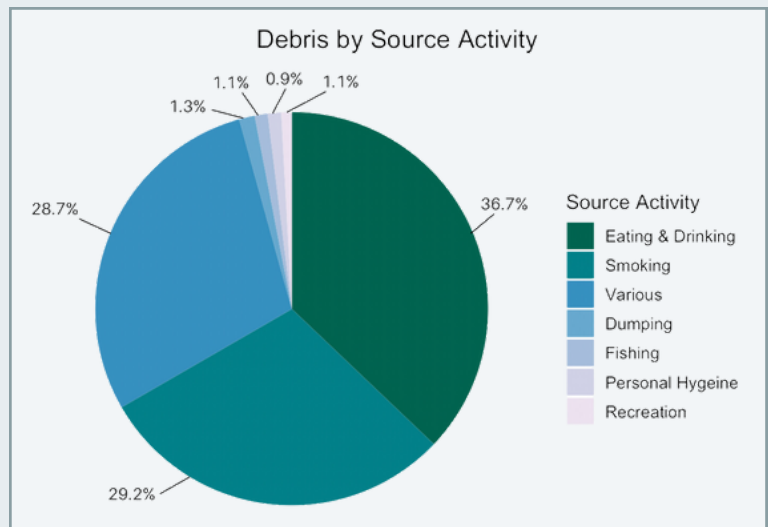


Figure 3. Percentage of debris by source activity.

## Recommendations

### 1. Standardize Data Collection Methodologies

Use standardized debris categories and a distance metric with starting and stopping coordinates for cleanups.

### 2. Develop Strategic Policies

Assess policy effectiveness to inform policies that target debris sources, hotspots, and prevalent items.

### 3. Prioritize Co-Stewardship and Community Engagement

From the start, consult and meaningfully engage with Indigenous groups and stakeholders to inform a community-centered approach to marine debris management.

### 4. Conduct Additional Research

Analyze additional land- and marine-based debris sources to guide management decisions.

***Plastic products and debris from eating, drinking, and smoking should be top priorities for sanctuary management, particularly in urban areas. These items and sources were the most prevalent, and were of the greatest concern to interviewees. Standardizing data collection methodologies, developing related policies, partnering with local stakeholders for management and education, and conducting additional research will support monitoring and mitigation of these priority debris types.***