

DEBRIS IN SOUTHERN CALIFORNIA: FROM THE RIVERS TO THE SEA



BACKGROUND

DEBRIS HAS BECOME A MANAGEMENT FOCUS

- Local Municipality Bans
 - Bag bans
 - Styrofoam bans
 - Cigarette bans
- TMDLs
- Statewide Trash Policy

LACK OF MONITORING

- No regional assessments
 - Local scale
 - Individual surveys lack common protocols
- Best data sets are non-quantitative
 - Clean up days
 - Trash on the beach
- Most focus on large stuff

THREE HABITATS

- Rivers and Streams
- Ocean Seafloor Surface
- Ocean Seafloor Sediments

APPROACH TO RIVERS AND STREAMS

- 273 sites were surveyed from 2011-2013
- Stratified Random Design
- 100 foot swath
- All trash was counted and classified into categories

APPROACH TO SEAFLOOR SURFACE

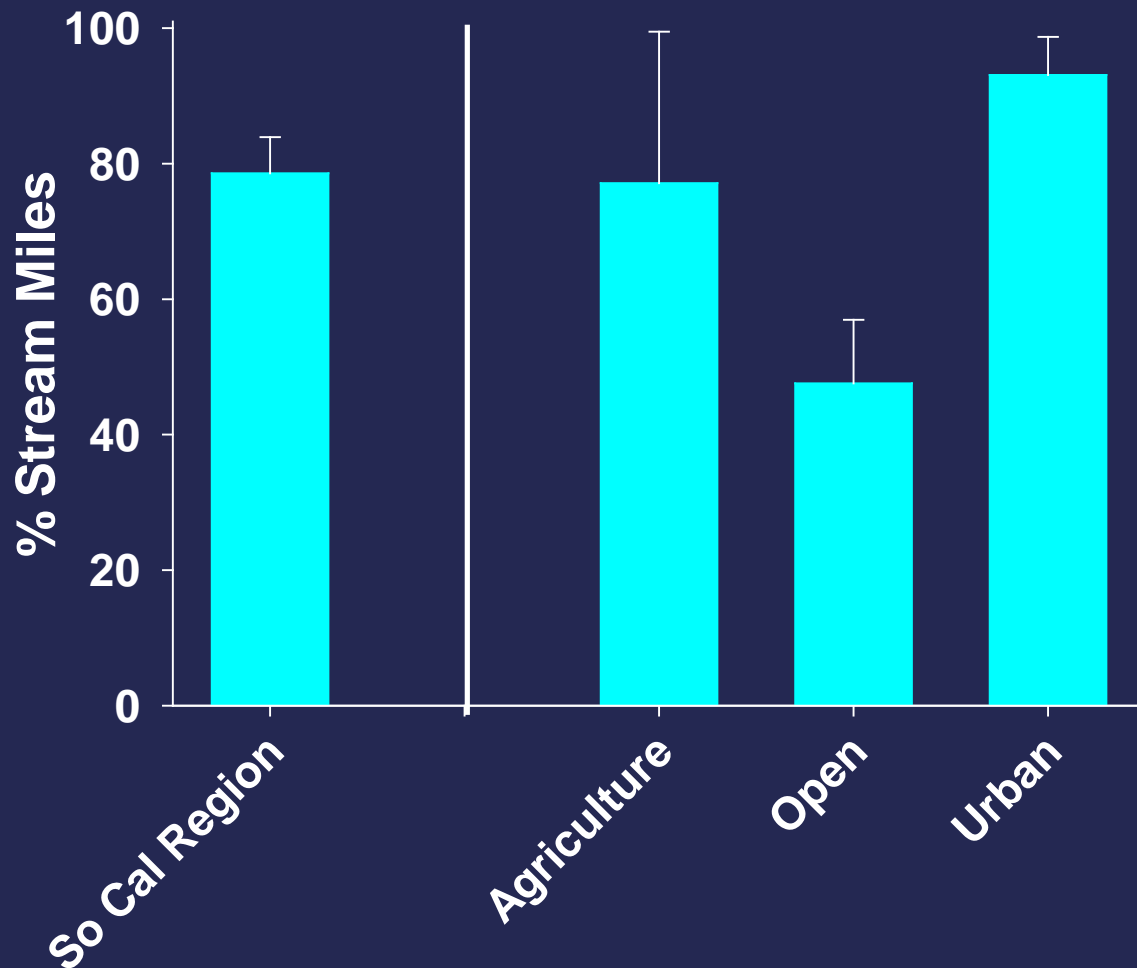
- 164 sites were surveyed by trawl
- Stratified Random Design
- Net with 3.8 cm body mesh and 1.3 cm cod-end mesh towed for 10 minutes
- Debris was categorized and enumerated

APPROACH TO SEAFLOOR SEDIMENT

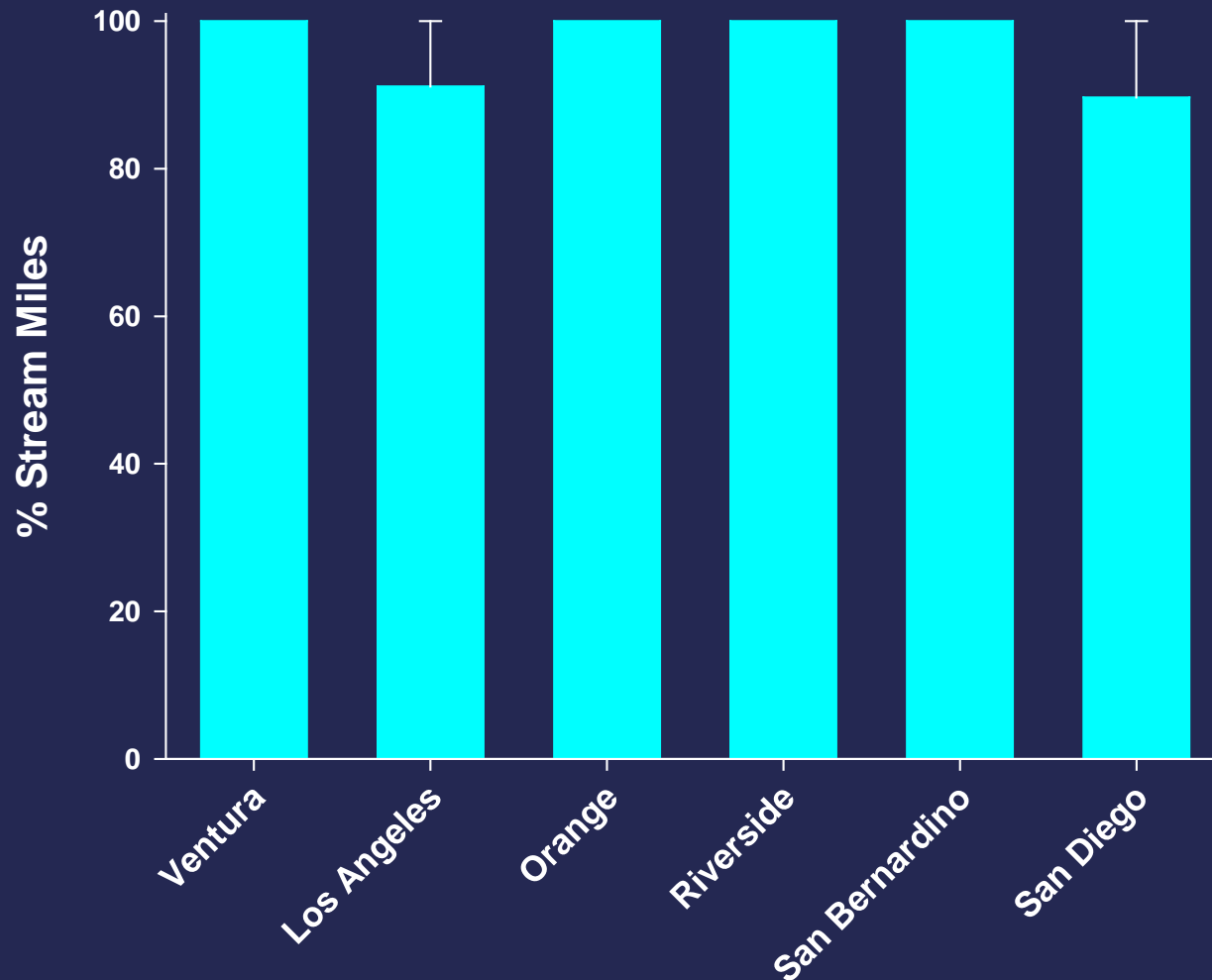
- 358 sites
- Stratified Random Design
- Sediment Grab
- Plastic debris between 1 and 4.75mm was enumerated



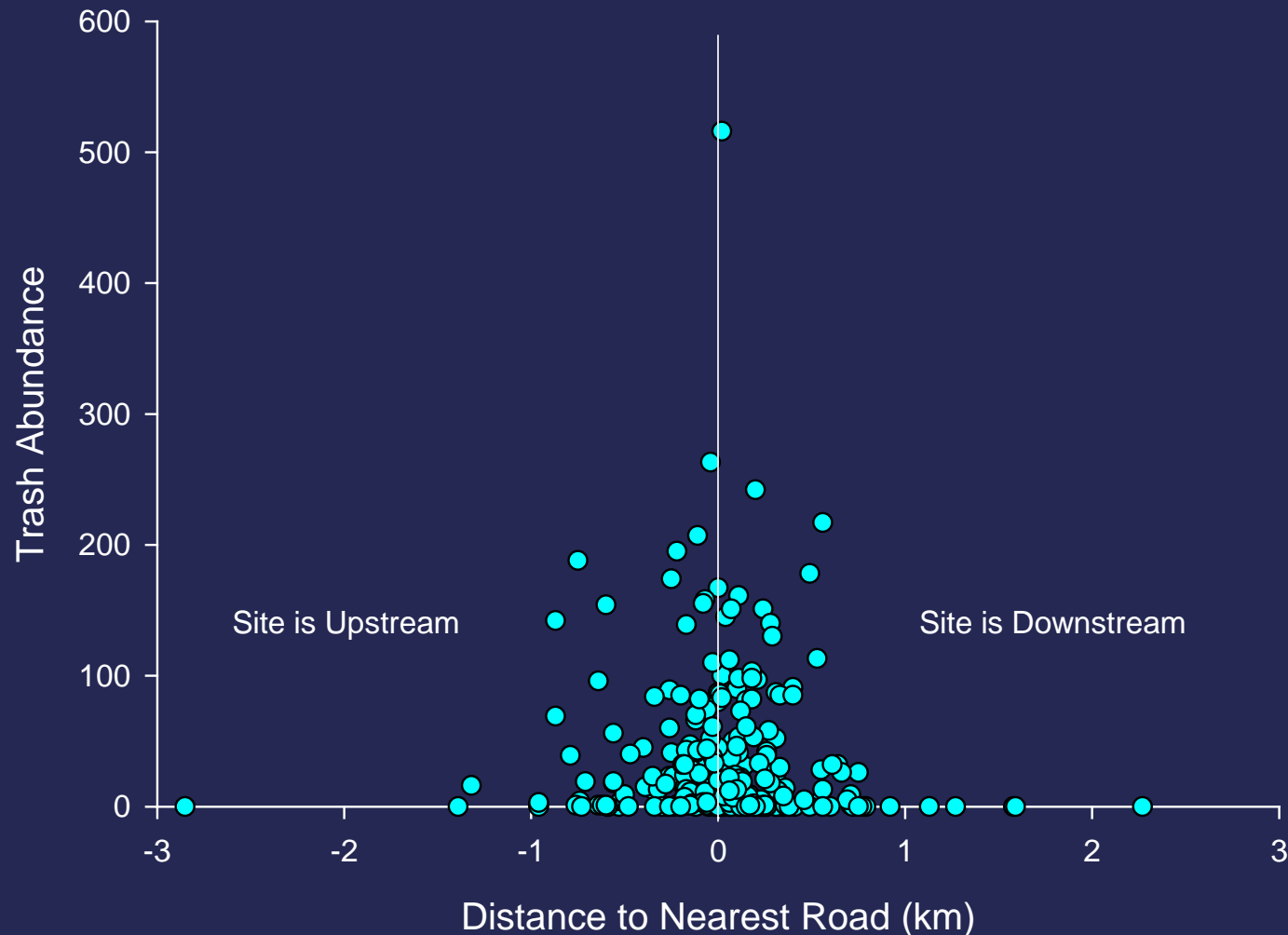
80% CHANCE OF FINDING DEBRIS IN A RIVER OR STREAM



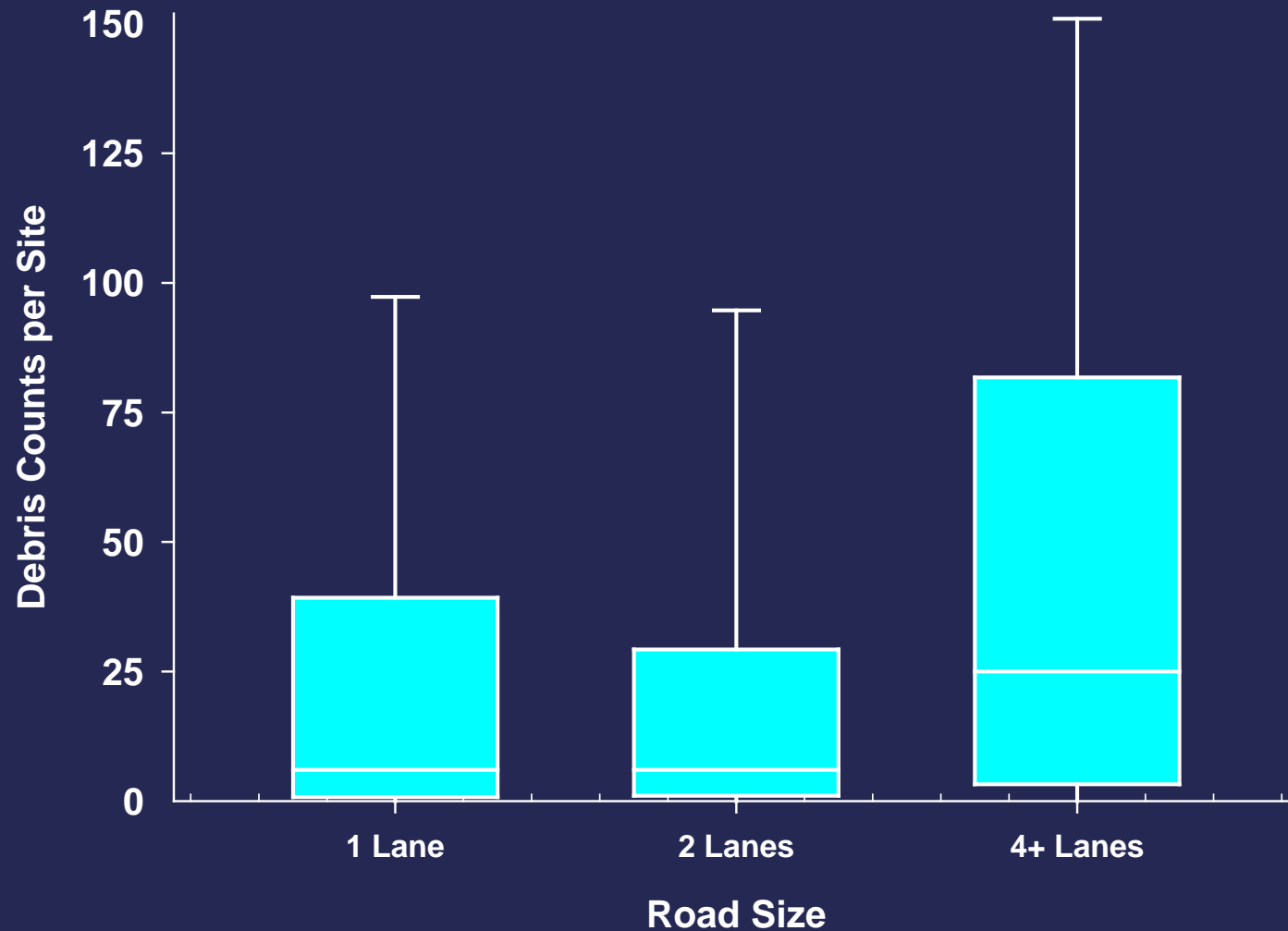
DEBRIS EVERYWHERE IN URBAN AREAS



HIGHER DEBRIS COUNTS CLOSER TO ROADS



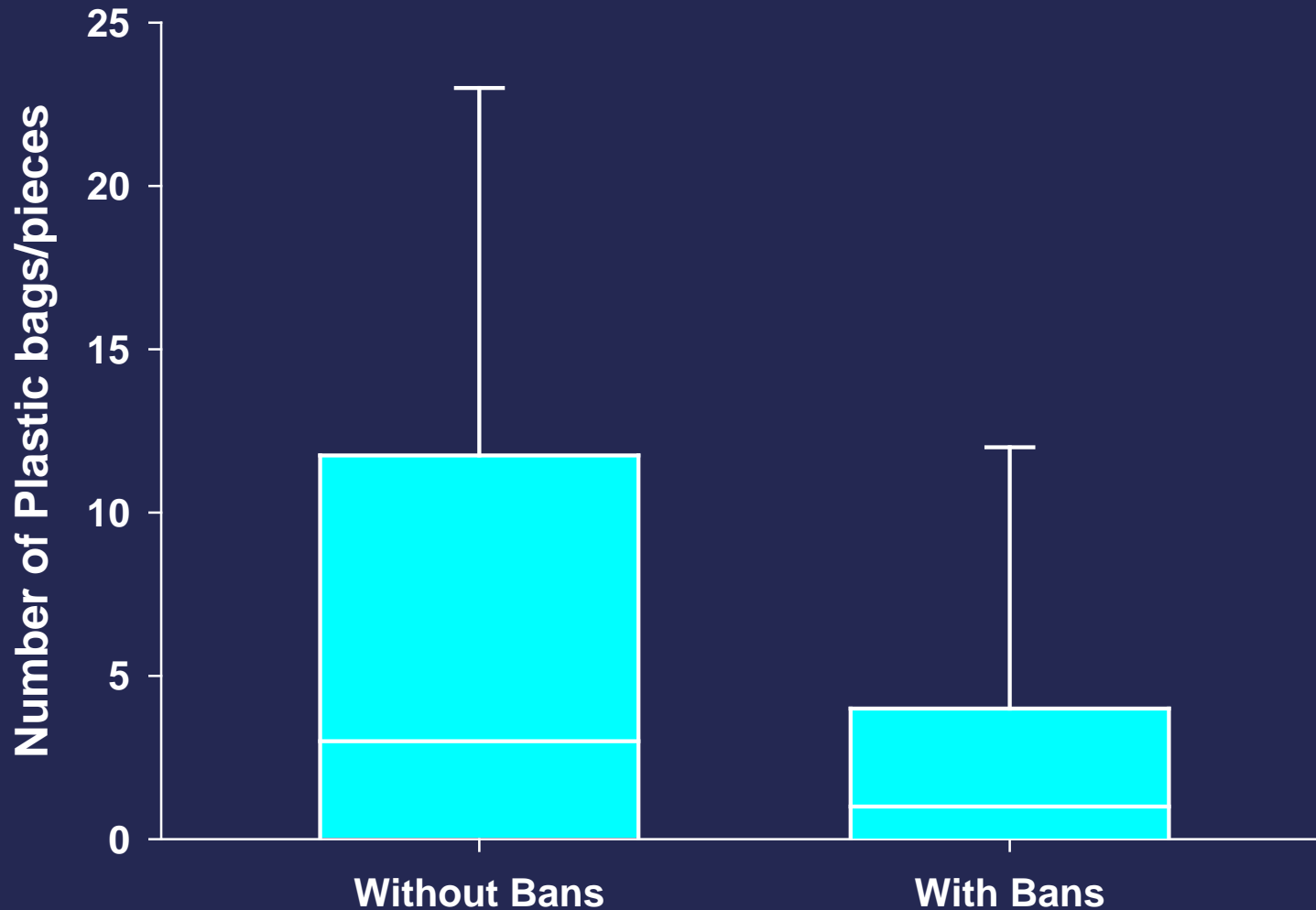
HIGHER DEBRIS COUNTS NEAR LARGER ROADS



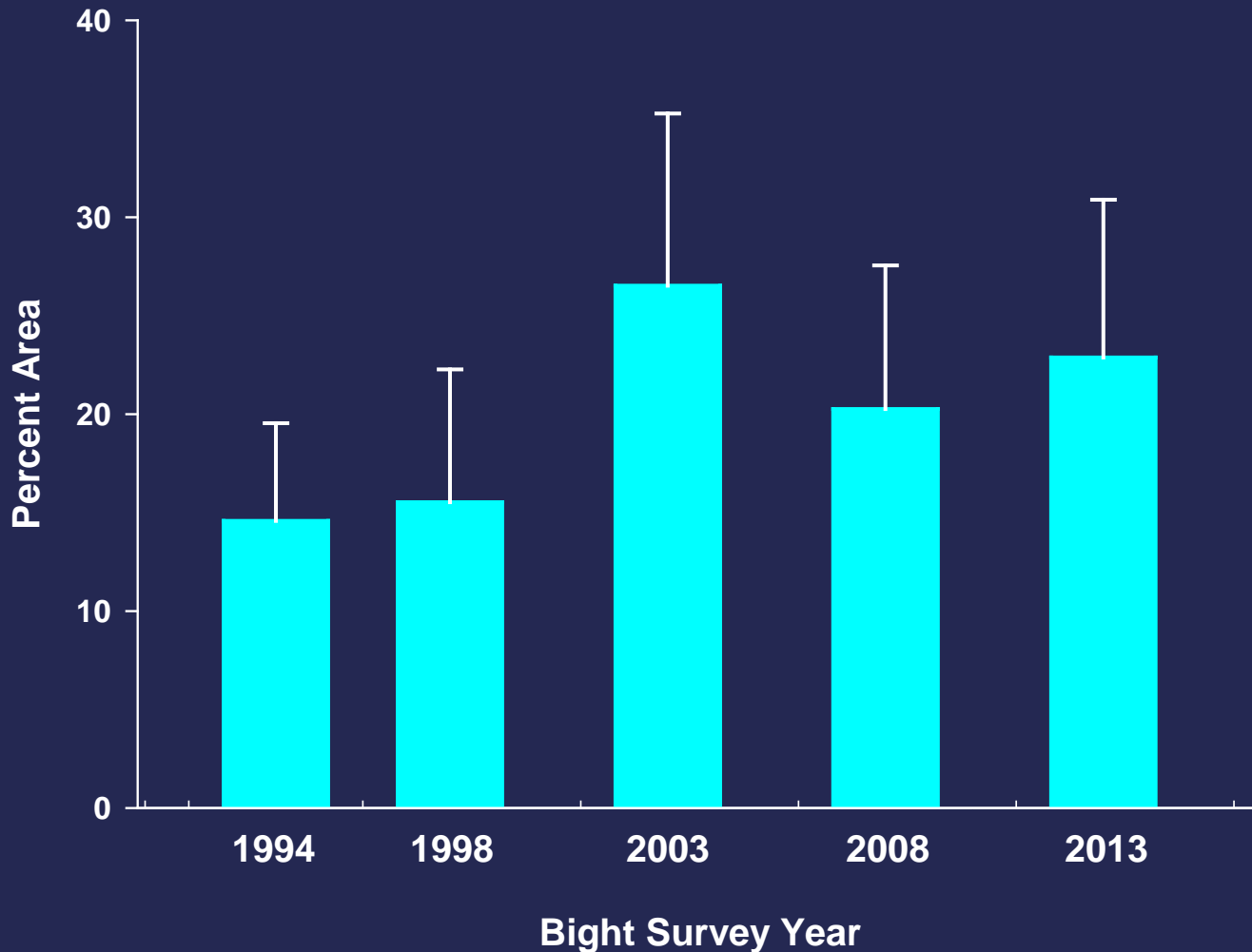
MOST PREVALENT ITEMS

Rank	Debris Item	% Total	% Cumulative
1	Wrappers	14.8	14.8
2	Bags	14.1	28.9
3	Fragments/pieces	9.0	37.9
4	Styrofoam pieces	8.8	46.6
5	Glass pieces	6.7	53.3
6	Sports balls	6.1	59.4
7	Cigarette Butts	5.3	64.7
8	Paper and cardboard	5.2	69.8
9	Plastic Bottles	3.7	73.5
10	Concrete/Asphalt debris	2.1	75.7

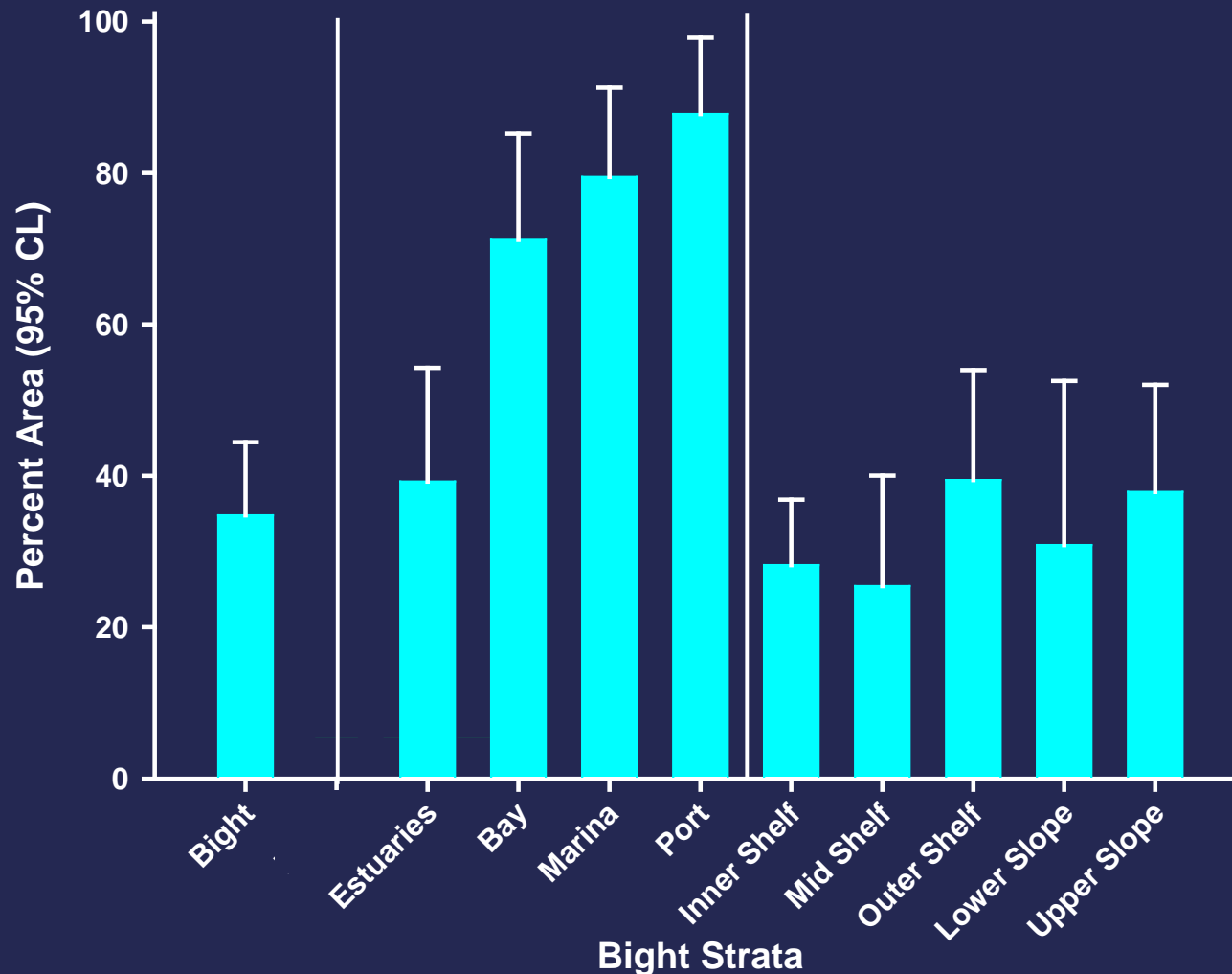
NUMBER OF BAGS/PIECES LOWER IN AREAS WITH BANS



BIGHT SEAFLOOR SURFACE DEBRIS NOT GETTING BETTER



HIGHEST CHANCE OF FINDING MICRO-PLASTICS IN SEAFLOOR SEDIMENTS IS IN THE EMBAYMENTS



OPPORTUNITIES

- Hopefully the path we just provided is useful
 - Regional assessment
 - Helps put local data in a regional context
- We now have standardized methods
 - 20+ organizations know how to measure debris in three habitats
- Baseline for the future