

DISTRIBUTION AND AMOUNT OF DEBRIS AND PLASTIC PELLETS ON BEACHES IN CALIFORNIA



BACKGROUND

- SCCWRP conducted a beach debris study in 1998
 - Identified large amounts of plastic pellets and beach debris
 - First study to sift sand
- Led to multiple additional studies
 - Looking at small debris off our coast
 - Runoff from pellet facilities
- Led to multiple management actions
 - Styrofoam bans
 - Pellet manufacturers permits revisited
 - Basis for Los Angeles River TMDL

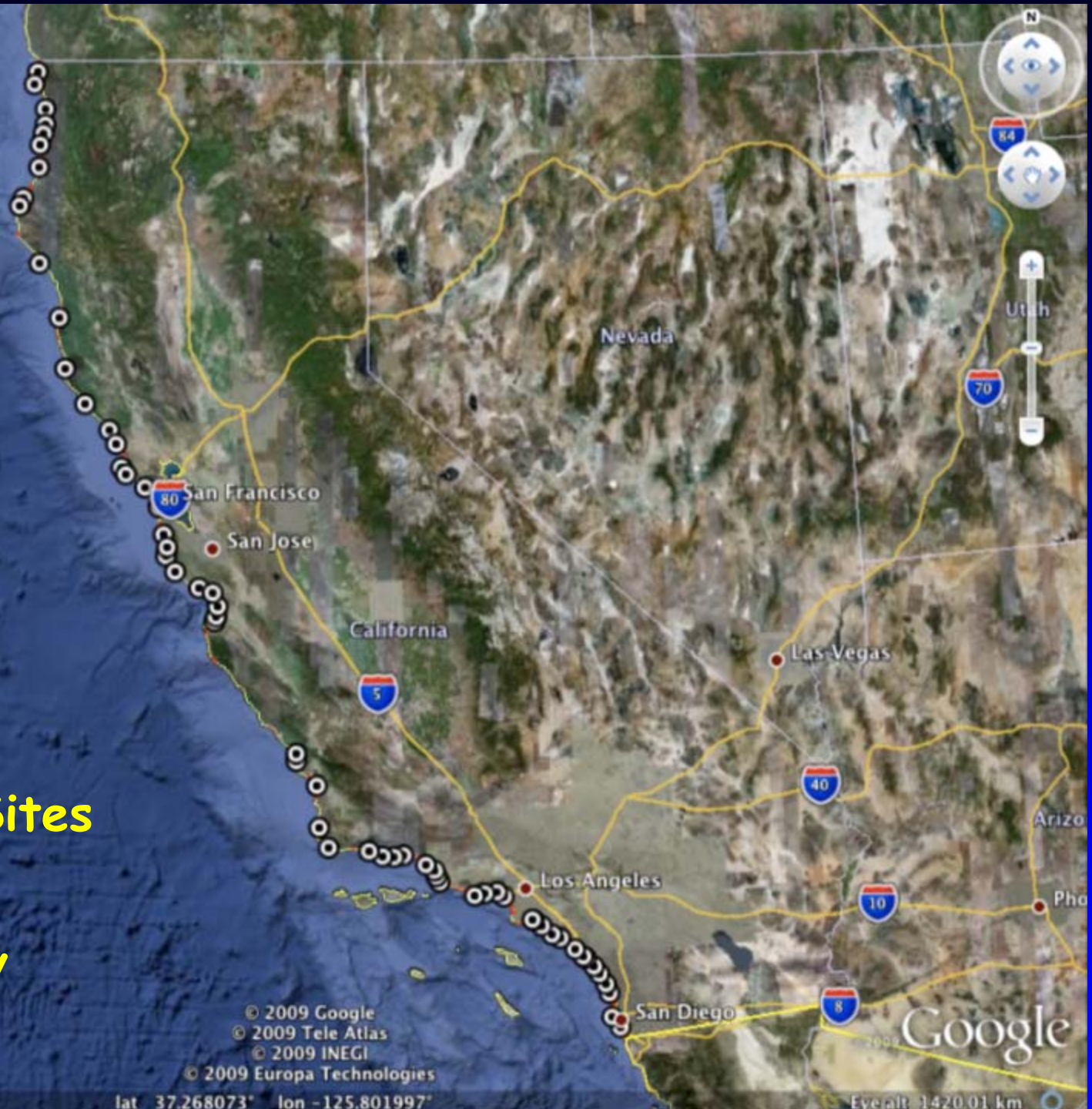
NEED FOR ADDITIONAL STUDIES

- Original study limited to Orange County
 - Interest in assessing how representative OC was of California
 - Want to revisit
- Assembly Bill 258
 - Requires implementation of a program for the control of discharges of preproduction plastic pellets from point and nonpoint sources
 - No baseline information available

APPROACH

- Randomized sampling of 60 sites throughout the state
- Two types of sampling
 - Debris
 - Pellets
- Debris collected by walking a transect
- Pellets collected by sieving 3 plots

60 Random Sites
Open Coastal
Samples Only



SAMPLING METHOD



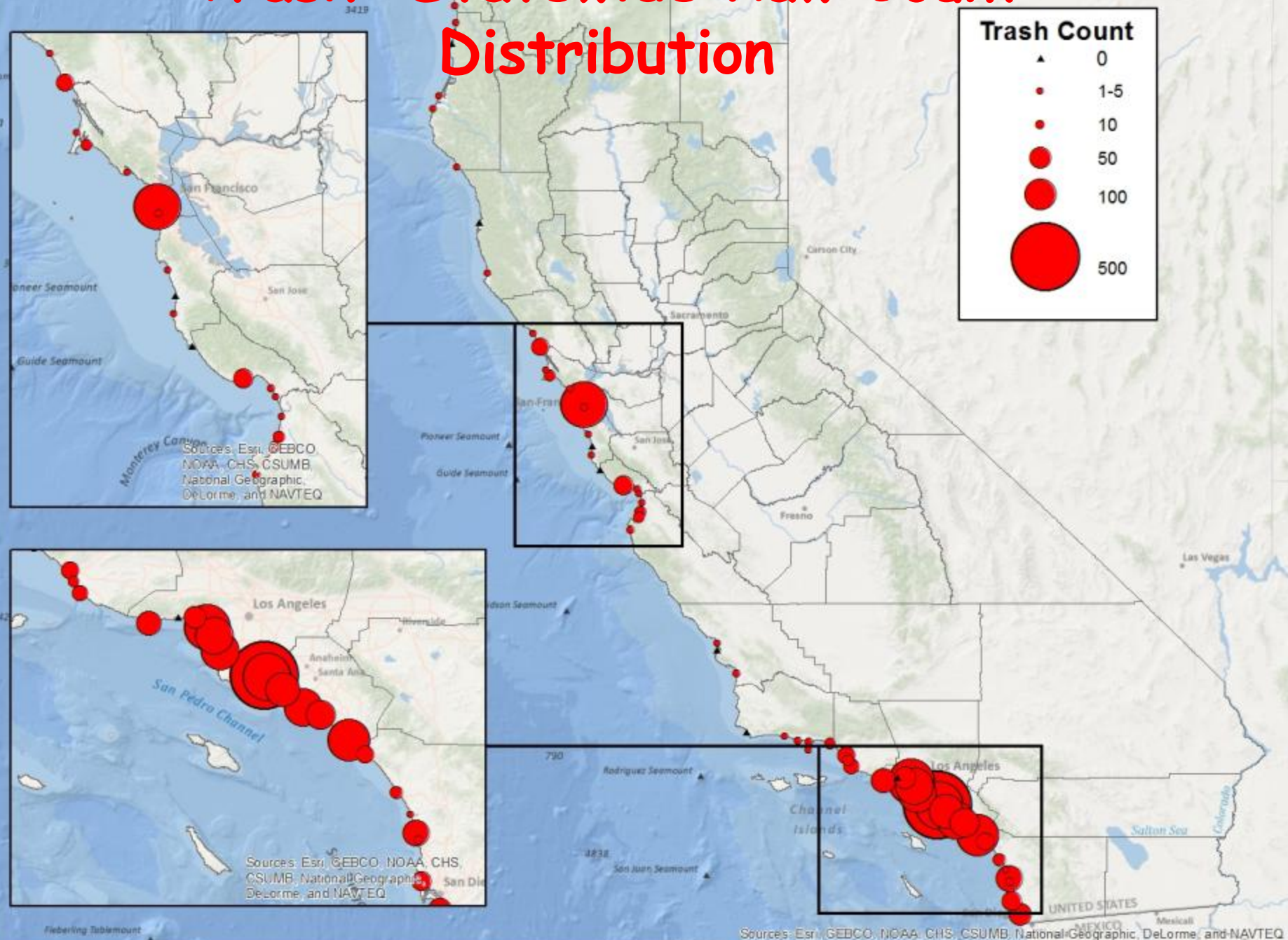
Huntington Beach, wrack line



FIELD SAMPLING



Trash: Statewide Raw Count Distribution



Trash: Statewide Results by Category

Category	Estimated Count
Pre-production Plastic Pellets	210,253,768
Plastics	5,581,129
Foamed Plastics	4,632,176
Paper	353,846
Glass	100,524
Other	104,545
Land Use Materials*	76,398
Rubber	52,272
Metals	52,272
Total Debris	221,206,930

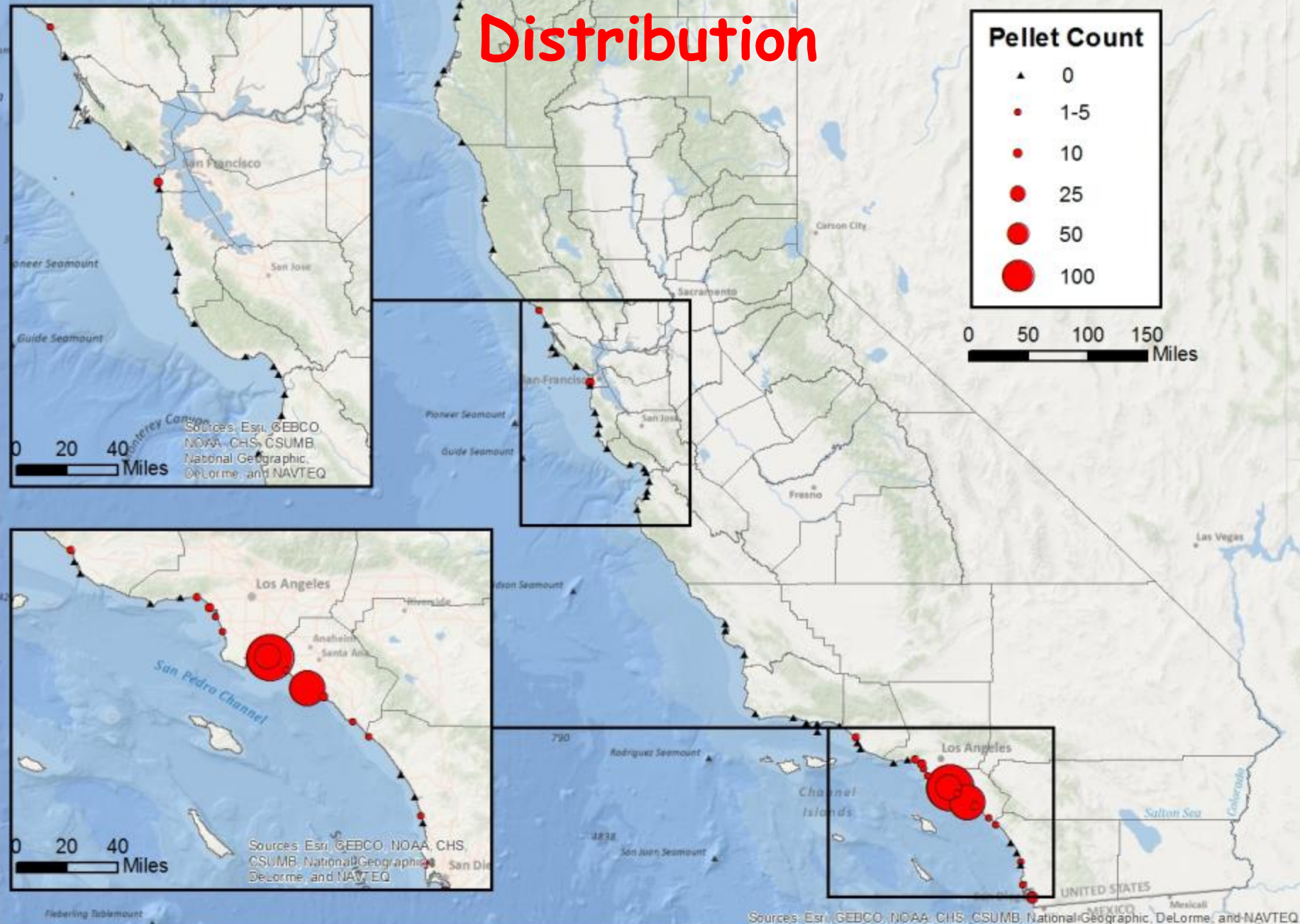
* e.g. lumber, concrete

Trash: Comparison by Debris Category

Category	% Orange County (1998 Study)	% California (2009 Study)
Pre-production Plastic Pellets	98.6	95.1
Plastics	0.6	2.5
Foamed Plastics	0.7	2.1
Paper	0.0	0.2
Glass	0.0	0.1
Other	0.0	0.1
Land Use Materials*	0.0	0.0
Rubber	0.0	0.0
Metals	0.0	0.0
Total Debris	100	100

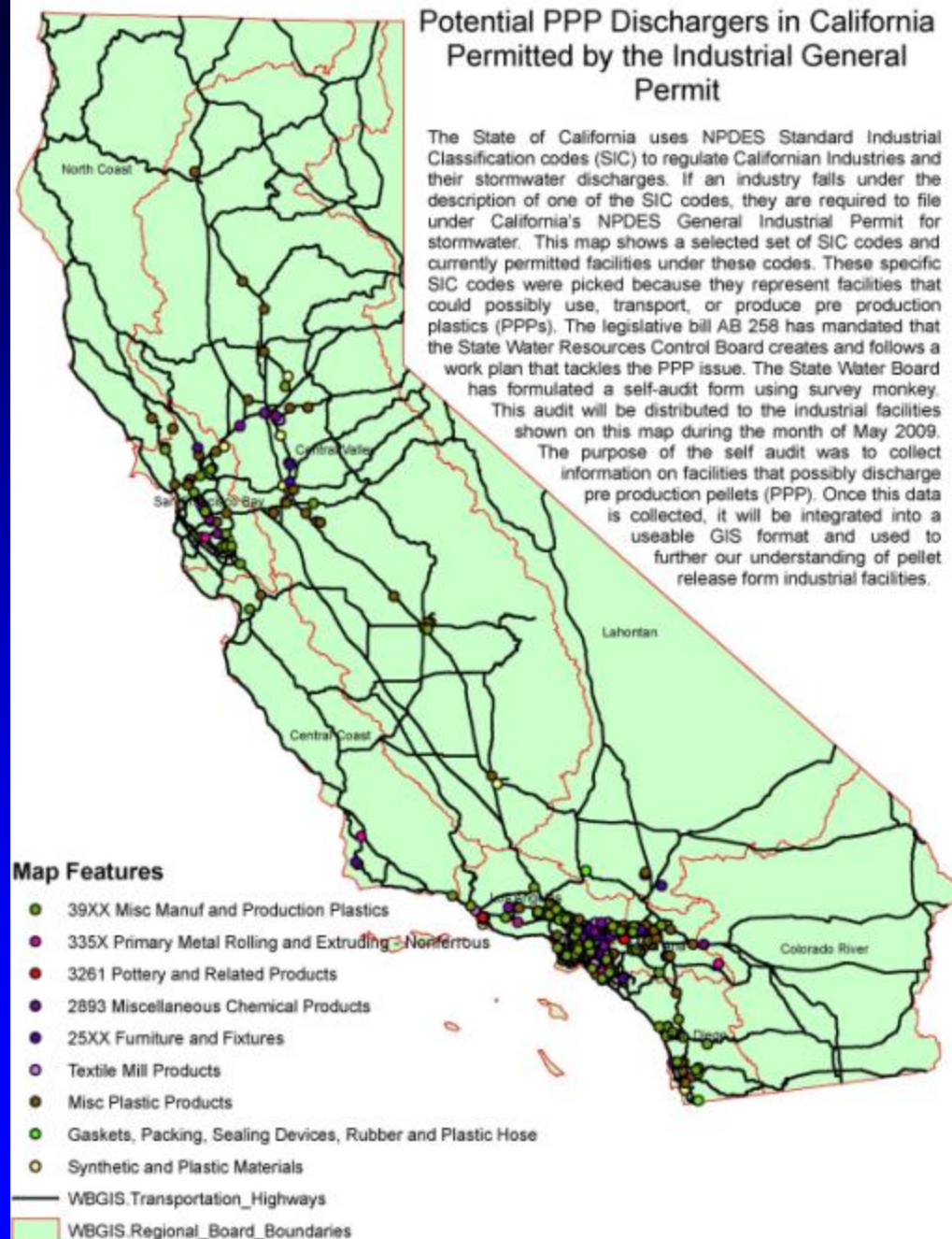
* e.g. lumber, concrete

Pellets: Statewide Raw Count Distribution



Fast Forward to
2007 - AB 258

The State Water
Board Staff
performed a
survey of plastics
manufacturers in
the state



Pellets: Results by Region

RWQCB	Total Abundance	% of Total
Los Angeles (4)	145,632,154	69
Santa Ana (8)	55,061,163	26
San Diego (9)	7,183,407	3
San Francisco (2)	1,985,467	1
North Coast (1)	391,578	<1

* Zero pellets recovered in Central Coast (RWQCB 3)

Focused Monitoring

- Survey only in areas where pellets were found (Orange, Los Angeles, San Diego and San Francisco)
- Looking at four different aspects
 - Distribution
 - Amount
 - Seasonality
 - Source Contribution
- Sample size increased
 - 30 sites per county
 - 15 samples per site

BIGHT '13

- Interest from many groups
 - CTAG
 - Coastkeepers
 - Stormwater Monitoring Coalition
- Are considering looking at different aspects of marine debris
 - Quantify loads
 - Estimate distribution and types
 - Standardize monitoring approaches