Southern California Bight Regional Marine Monitoring Program

Update for Commission
December 2025

For Those That Are New…

- Southern California is the national model for coordinated, integrated regional monitoring

- We have regional monitoring programs for oceans, streams, beaches, stormwater BMPs, and others

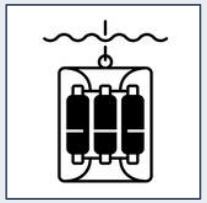
- Regional monitoring at SCCWRP dates to our origins in the 1970's but "Bight" is the fully evolved program
  - Started in 1994 and goes in 5-year cycles

You Want A Bight ‘23 Update

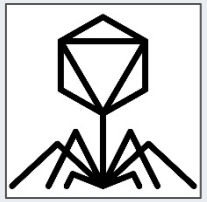
- Regional Monitoring is CTAG’s perennially-favorite research theme
- Bight ‘23 is the largest, most complex Regional Monitoring Survey in its 30-year history
- Overall, it is progressing nicely and achieving the goals CTAG wants

Eight Elements in Bight ‘23


Sediment Quality


Water Quality: Ocean Acidification & Hypoxia


Harmful Algal Blooms


Microbiology


Trash & Microplastics


Estuaries


Submerged Aquatic Vegetation


Shellfish Bioaccumulation

Why Is Bight Regional Monitoring The CTAG Favorite?

- Addresses “big picture” status, context to local discharge monitoring
- Addresses emerging issues without an NPDES permit requirement
- Evaluates success of management actions
- Opportunity to test new technology, standardize methods
- Training and education for your staff
- Independently test your agency’s quality assurance
- Enhances communication with other agencies

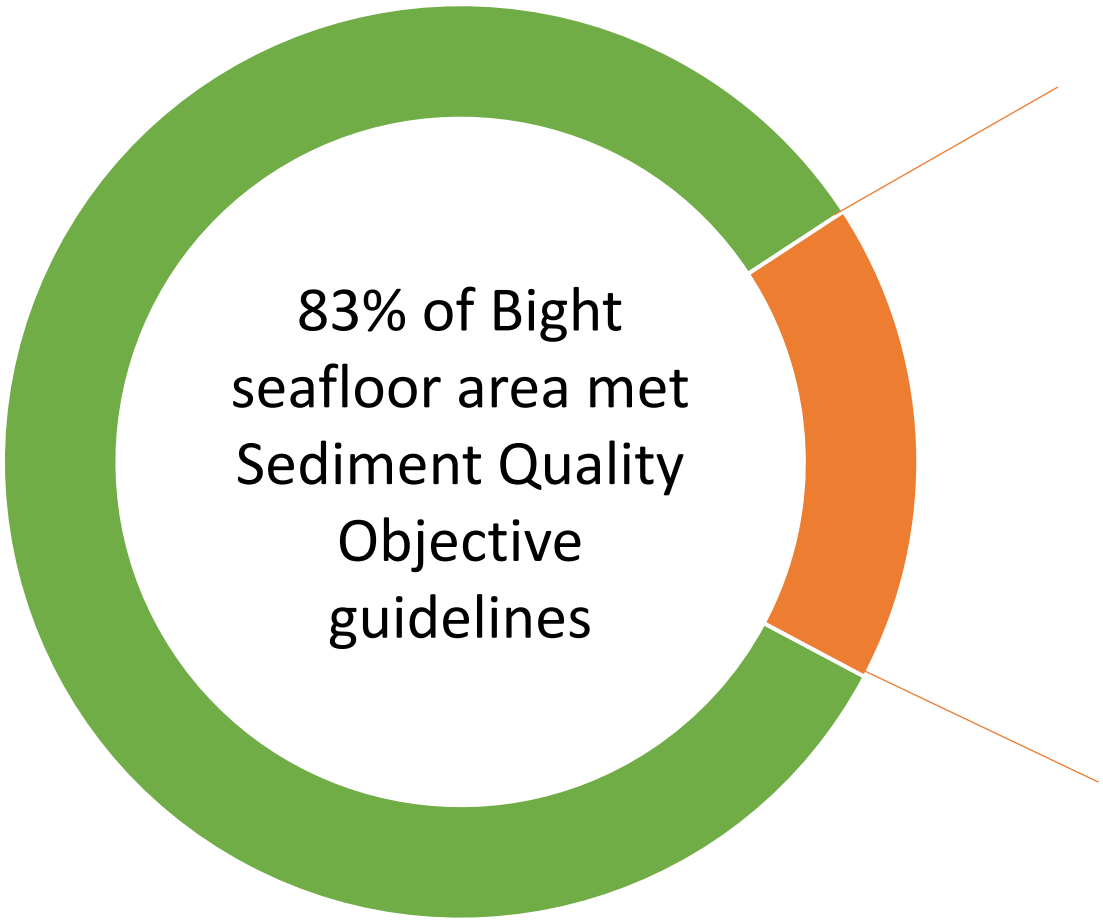
“Big Picture” Status

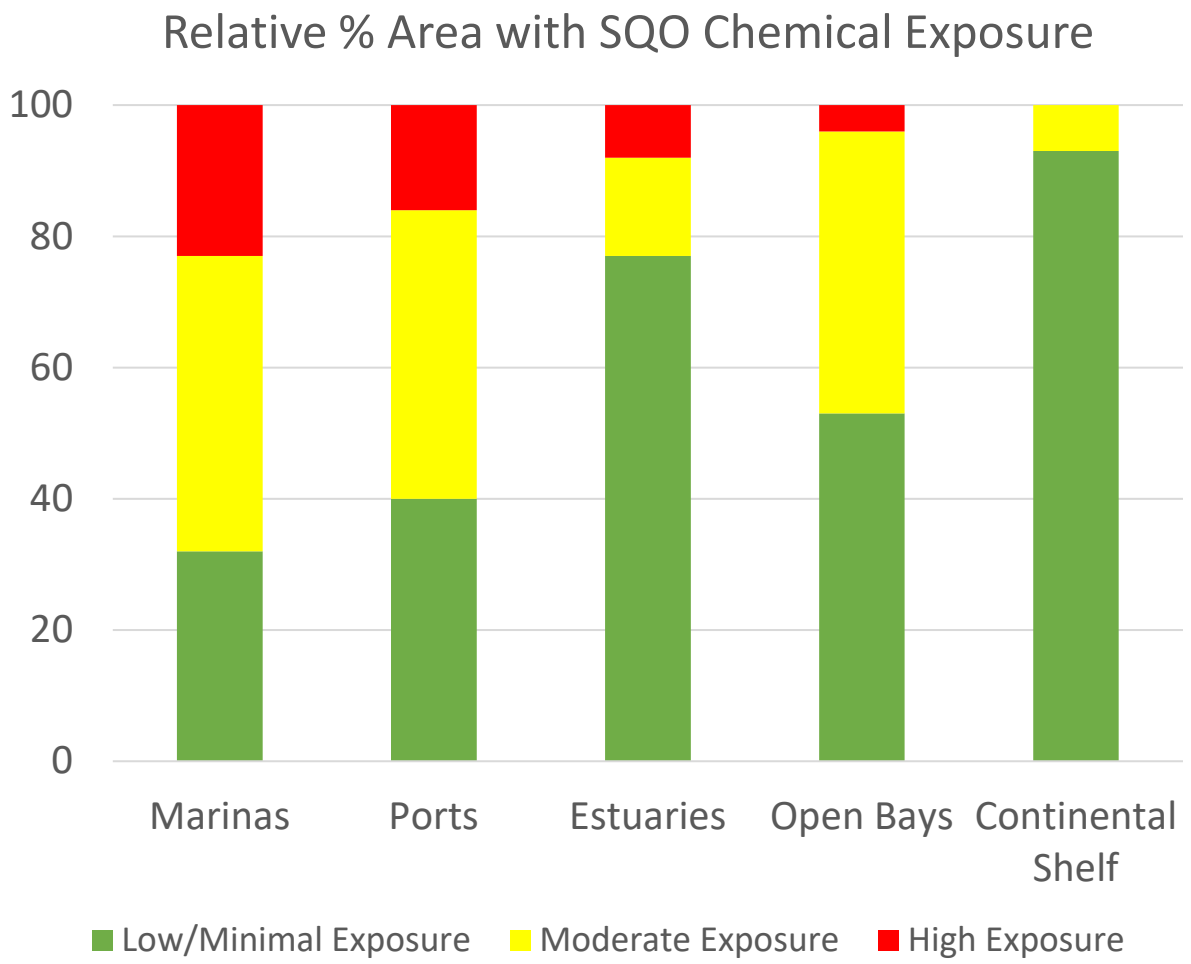
- The B’23 study design focuses on unbiased estimates of contaminant **extent, magnitude,** and **trends**
- Sample hundreds of locations across thousands of square miles of ocean
- Measure hundreds of stressors and impacts
- Going to use sediment chemistry as an example today

Using Sediment Chemistry for “Big Picture” Status

- Sampled ~350 seafloor sites and measured >150 chemicals
- Assessed using California Sediment Quality Objectives (SQOs)
  - Minimal exposure
  - Low exposure
  - Moderate exposure
  - High exposure
- Take away: extent and magnitude of sediment chemical contamination is looking pretty good, but hot spots still exist

Bight ’23 Sediment Chemistry





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Addressing Emerging Issues: CECs

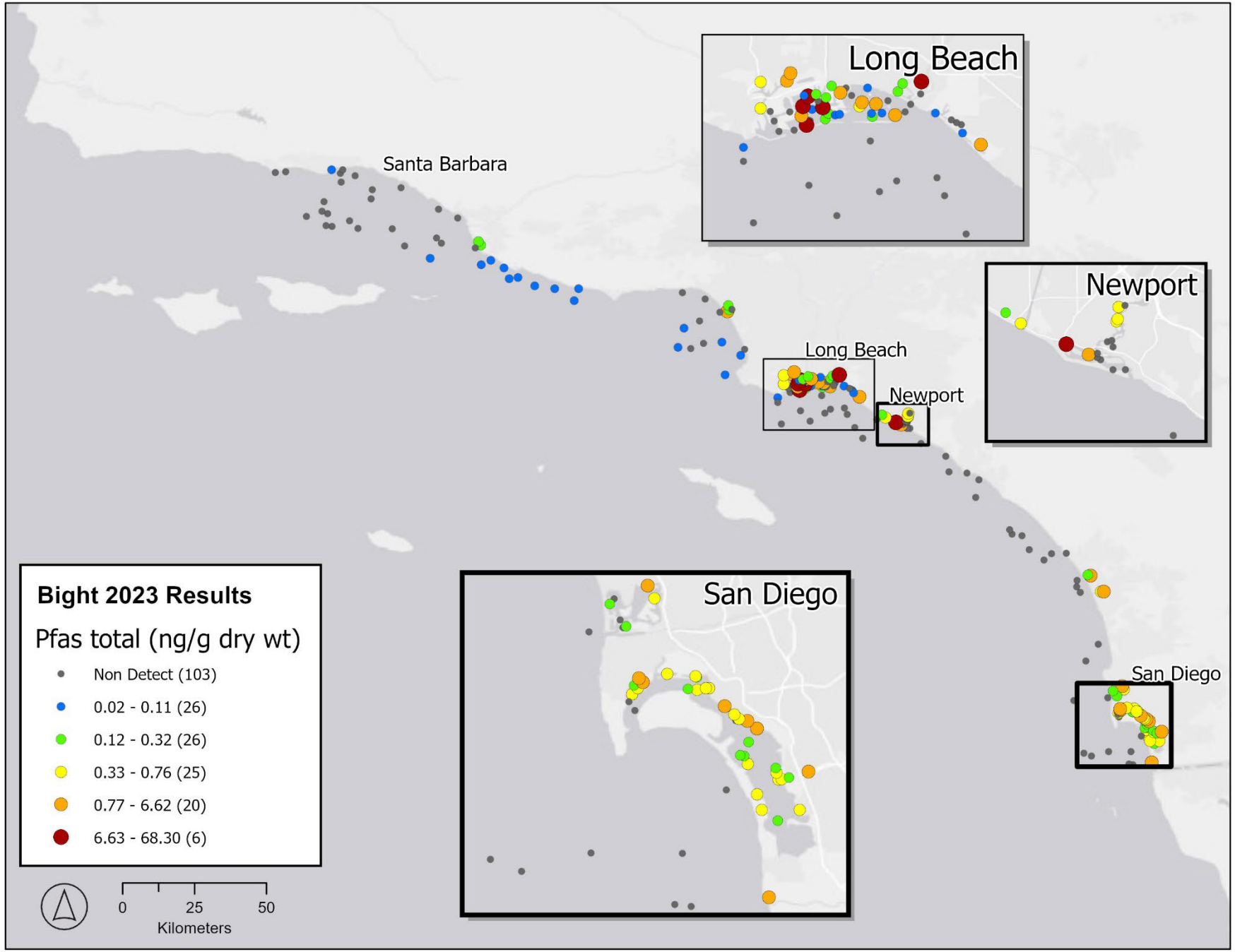
- Nobody wants Constituents of Emerging Concern (CECs) in an ongoing NPDES Permit monitoring program unless they are actually a concern

- We looked at three classes of CECs in Bight ‘23
  - PFAS, Noenicitinoid Pesticides, 6PPD-Q

- Take away: CECs had restricted extent and low magnitude

Sediment PFAS (PFOA+PFOS)

Maximum concentrations	Sediment ΣPFAS (ng/g)
Melbourne (AUS)	7
Zhangjiang River Estuary (CHN)	62
SoCal Bight	**68**
Pearl River Delta (CHN)	69
Truckee River, NV	280
Las Vegas Wash, NV	350
Tampa Bay, FL	3000
Luleå firefighting facility (SWE)	76000

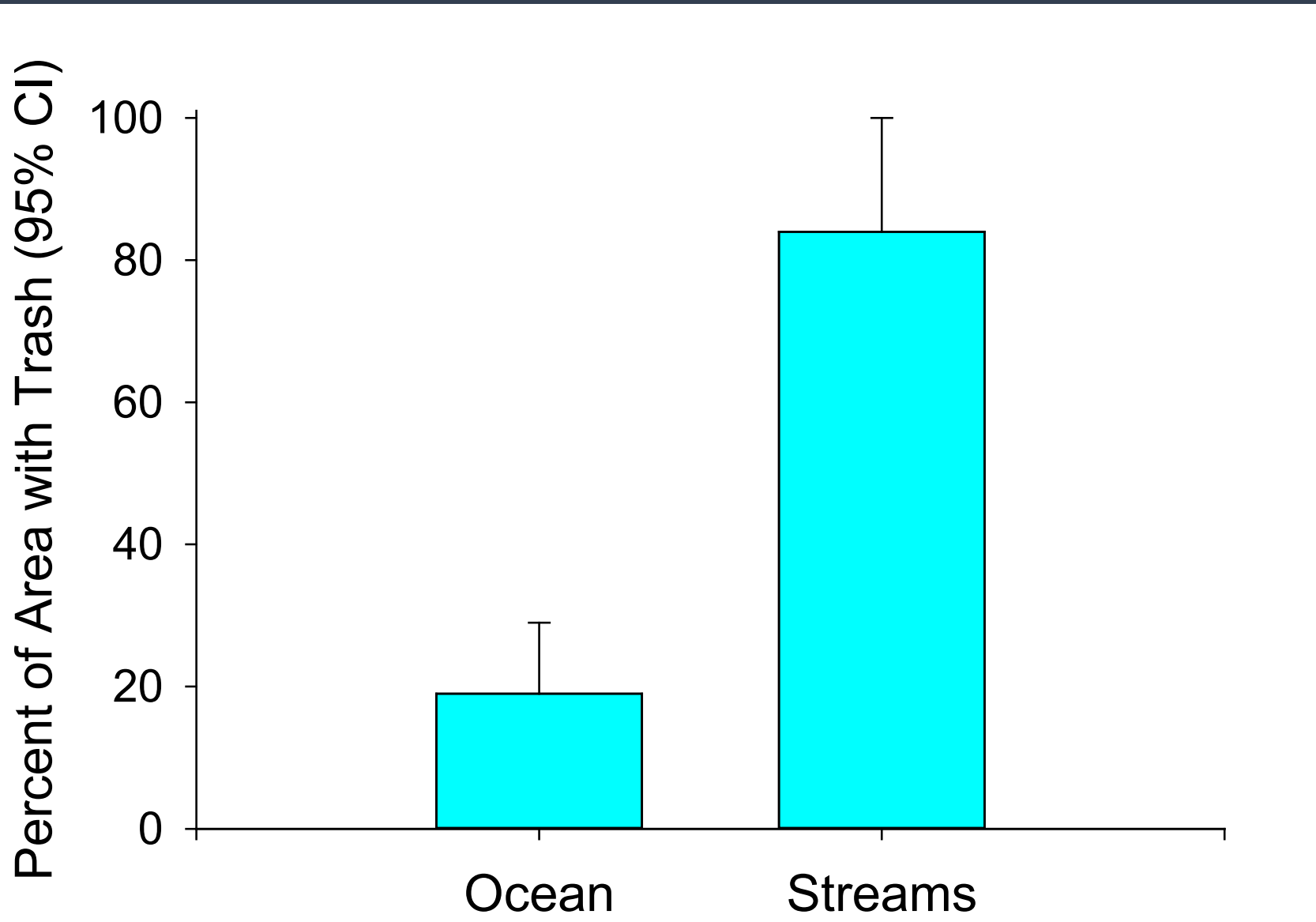


Evaluating Success of Management Actions

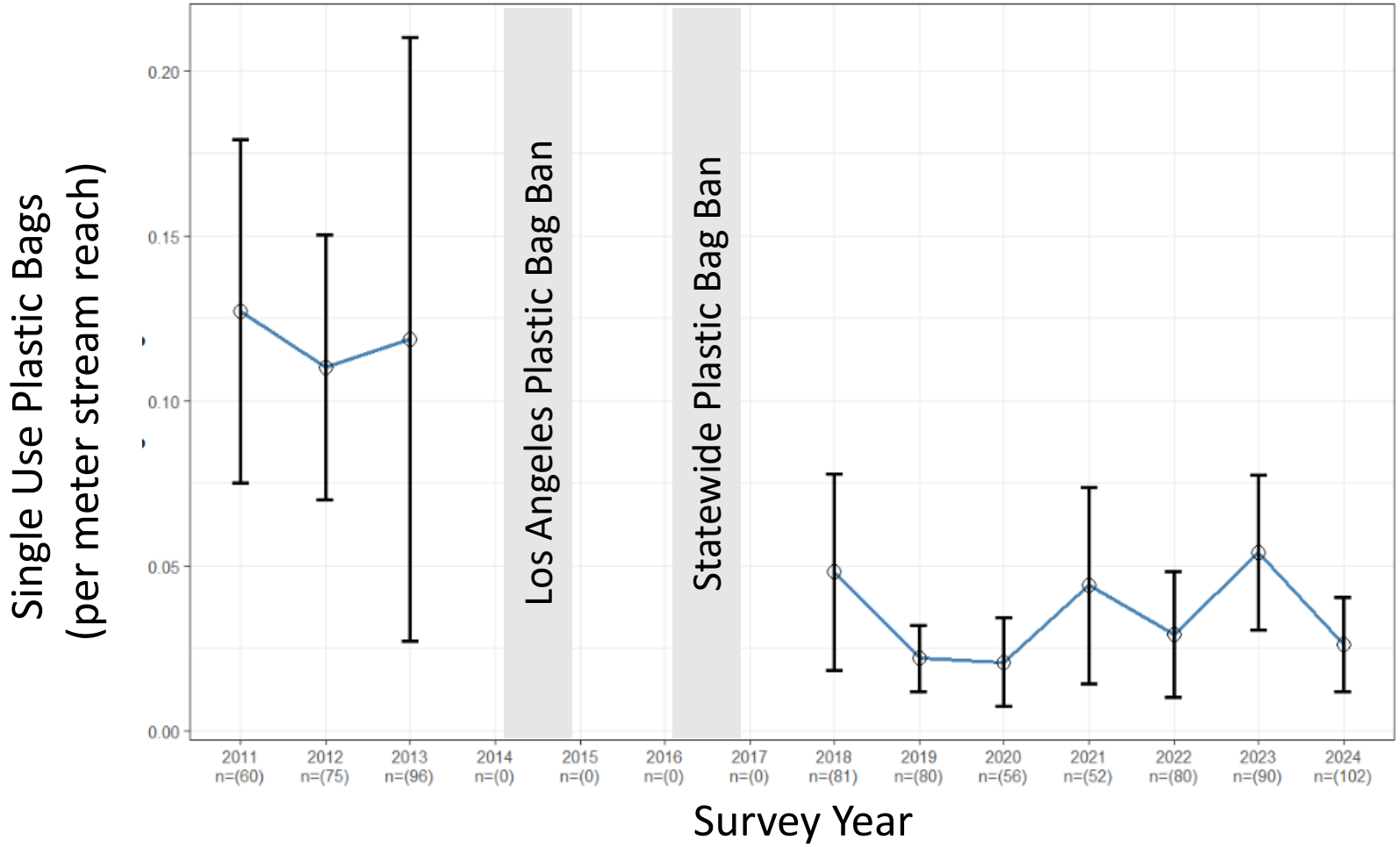
- Because we repeat the Bight Program over decades using comparable methods, we can assess “Before-After” scenarios

- Use Trash for this example
  - Identify and count trash from 89 benthic trawls and from 270 stream reaches in coastal watersheds

- Take away: trash is pervasive and persistent across So Cal seafloor and watersheds
  - But management actions can help reduce trash magnitude


Percent of Area with Trash (95% CI)
100
80
60
40
20
0
Ocean
Streams

Counts of Single Use Plastic Bags Over Time



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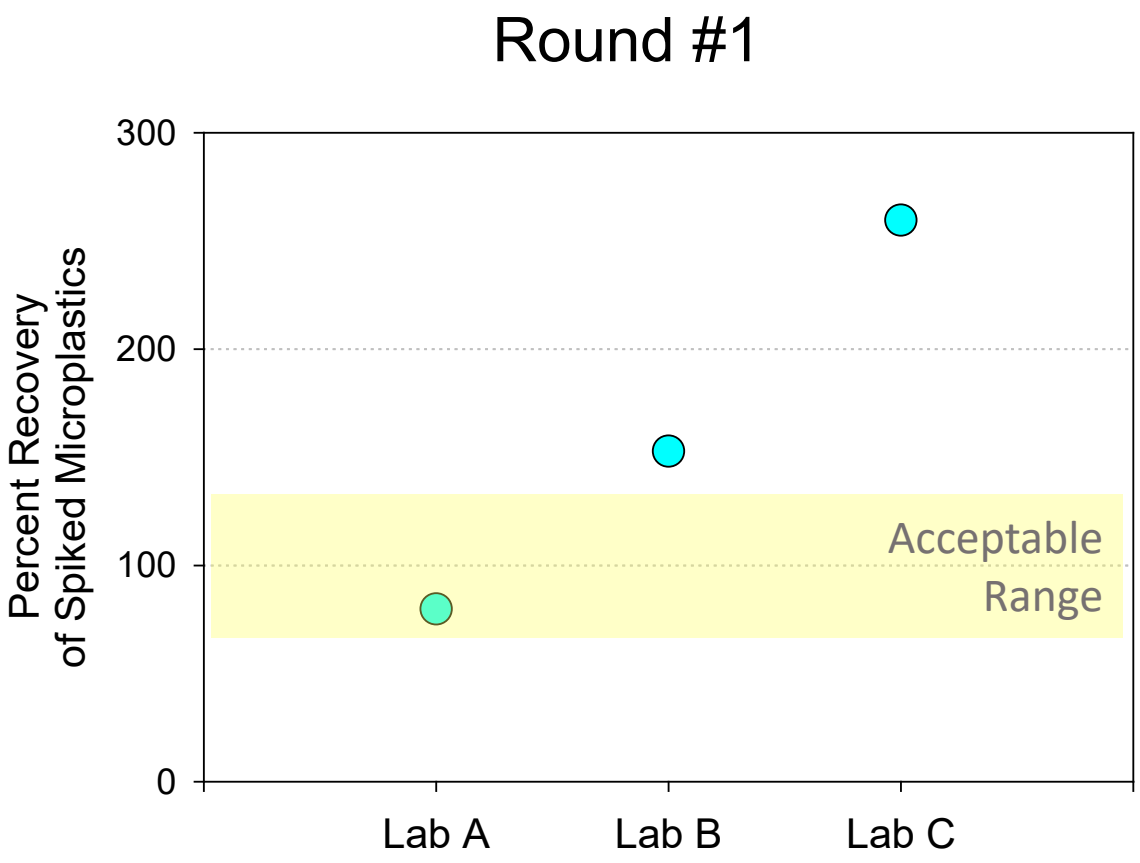
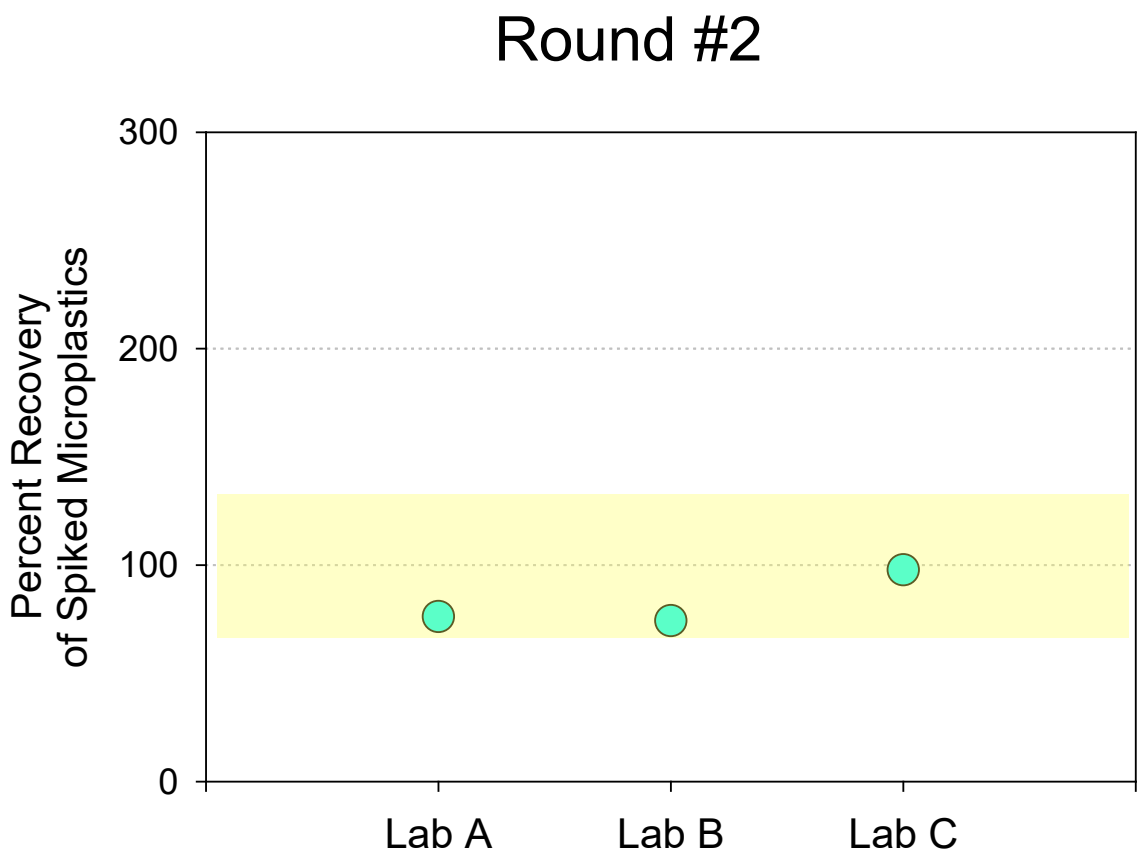
Testing New Technology

- In Bight ‘18 we wanted to measure microplastics, but standard methods were not available
- We spent the time between 2018 and 2023 developing, standardizing and certifying new methods
- Multiple labs are analyzing microplastics at over 200 sites in sediment and bivalve tissues for Bight ‘23
- Take away: Bight Program provides the opportunity to onboard new methods and ensure the quality of Bight participants

Bight Is the Ideal Platform for Testing and Onboarding New Technology





Some Exciting Preliminary Bight ‘23 Highlights

- Most of the Bight sediments represent low to minimal chemical exposure
- Newly monitored contaminants (CECs) do not appear to be a large regionwide issue
- Trash is extensive, but management actions indicate there is hope
- The Bight Program is an excellent vehicle for testing and onboarding new technology

What's Next for Bight '23?

- Trash Report completed in 1st quarter 2026
  - Microplastic lab analysis about halfway completed
- Sediment Quality completed by 2nd quarter 2026
  - Combines sediment chemistry, toxicity and biology
- Relative risk assessment of shellfish consumption by 3rd quarter 2026
  - Finishing bioaccumulation lab analysis now

What else can Bight do for your agency?

[Bight Web Page]

[Bight Data Portal]