

**San Diego Bay
Initial Assessment of
Conditions for Water Contact
Recreation
& Fish and Shellfish Consumption**

Item 9

October 12, 2016



The Strategy's seven iterative steps to ensure our Bay work is aligned with the most important goals and highest priorities:

1. Identify key uses and key areas;

2. Conduct assessments;

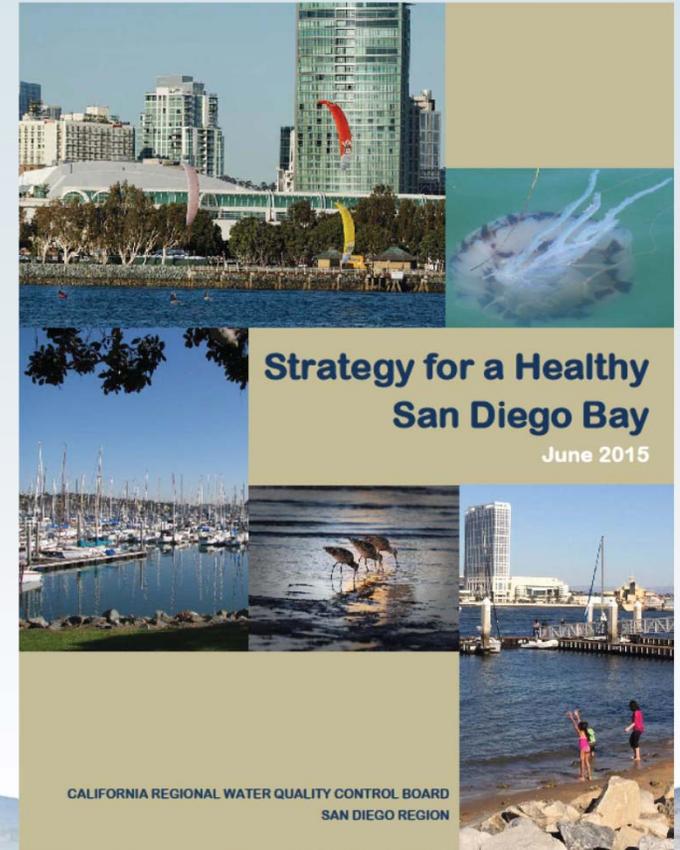
3. Set priorities;

4. Set measurable goals;

5. Realign work;

6. Track progress; and

7. Periodically reevaluate priorities.

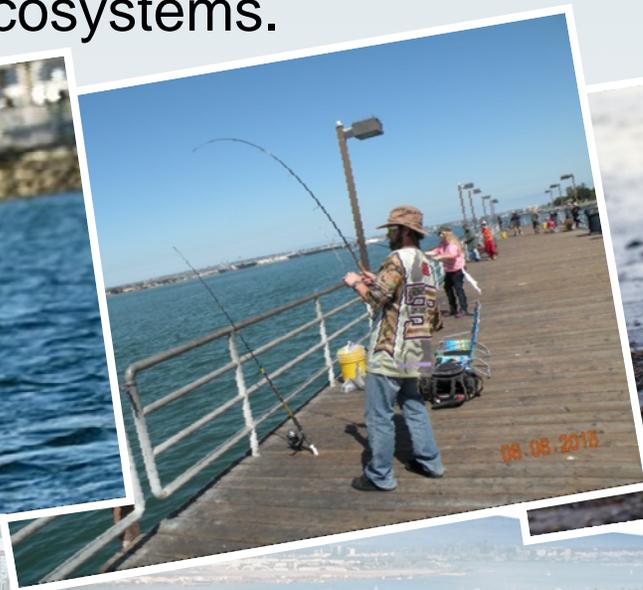


Key Uses

Key uses are categories of water quality-dependent uses that are most critical to consider.

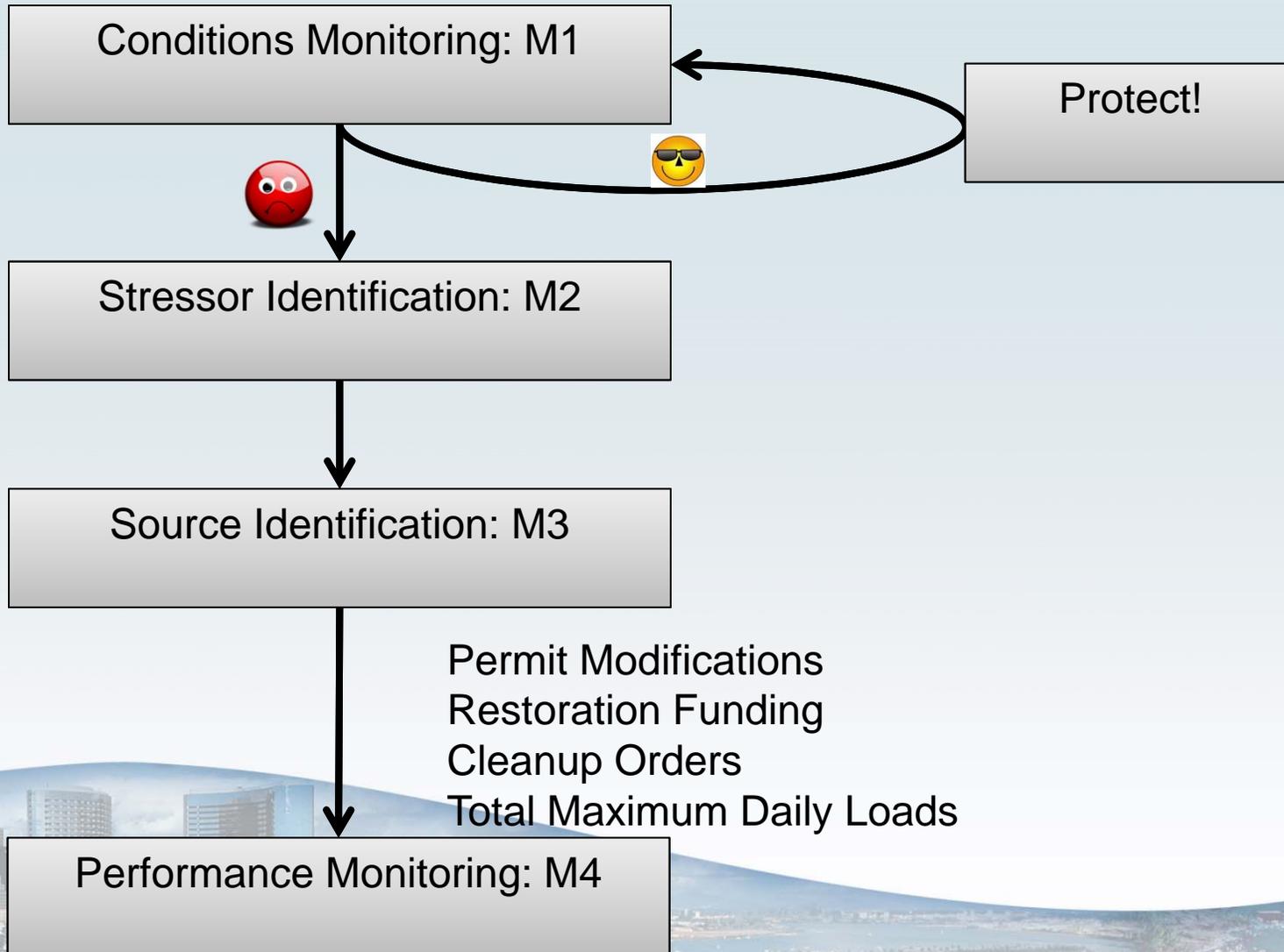
Key uses of the Bay are:

1. Water recreation; contact and non-contact
2. Human consumption of fish and shellfish; and
3. Habitats and ecosystems.





Monitoring & Assessment Framework



Presentation Outline

- Fish and Shellfish Consumption
- Water Contact Recreation
- Next Steps
- Port Presentation
- Closing Remarks

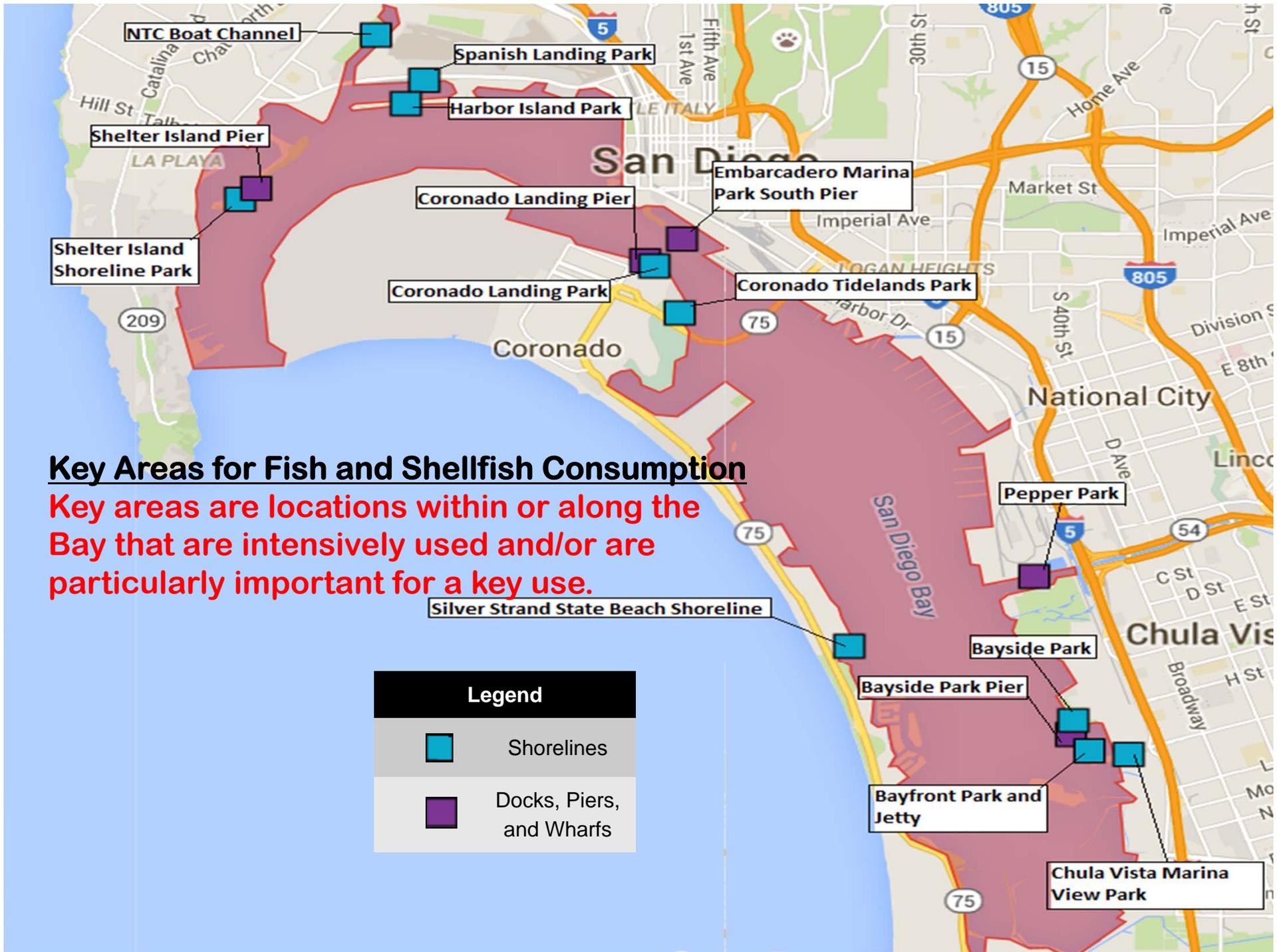


Acknowledgements



Brock Bernstein



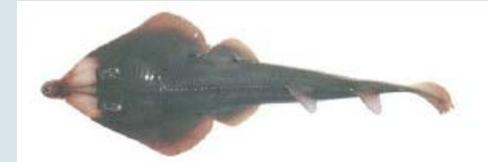


Persistent
Bioaccumulative
Toxic Substances

Biotoxins

Human Pathogens

Fish = bony and cartilaginous fish



Shellfish = filter feeding bivalves



Crustaceans = crab & lobster



(images not to scale)

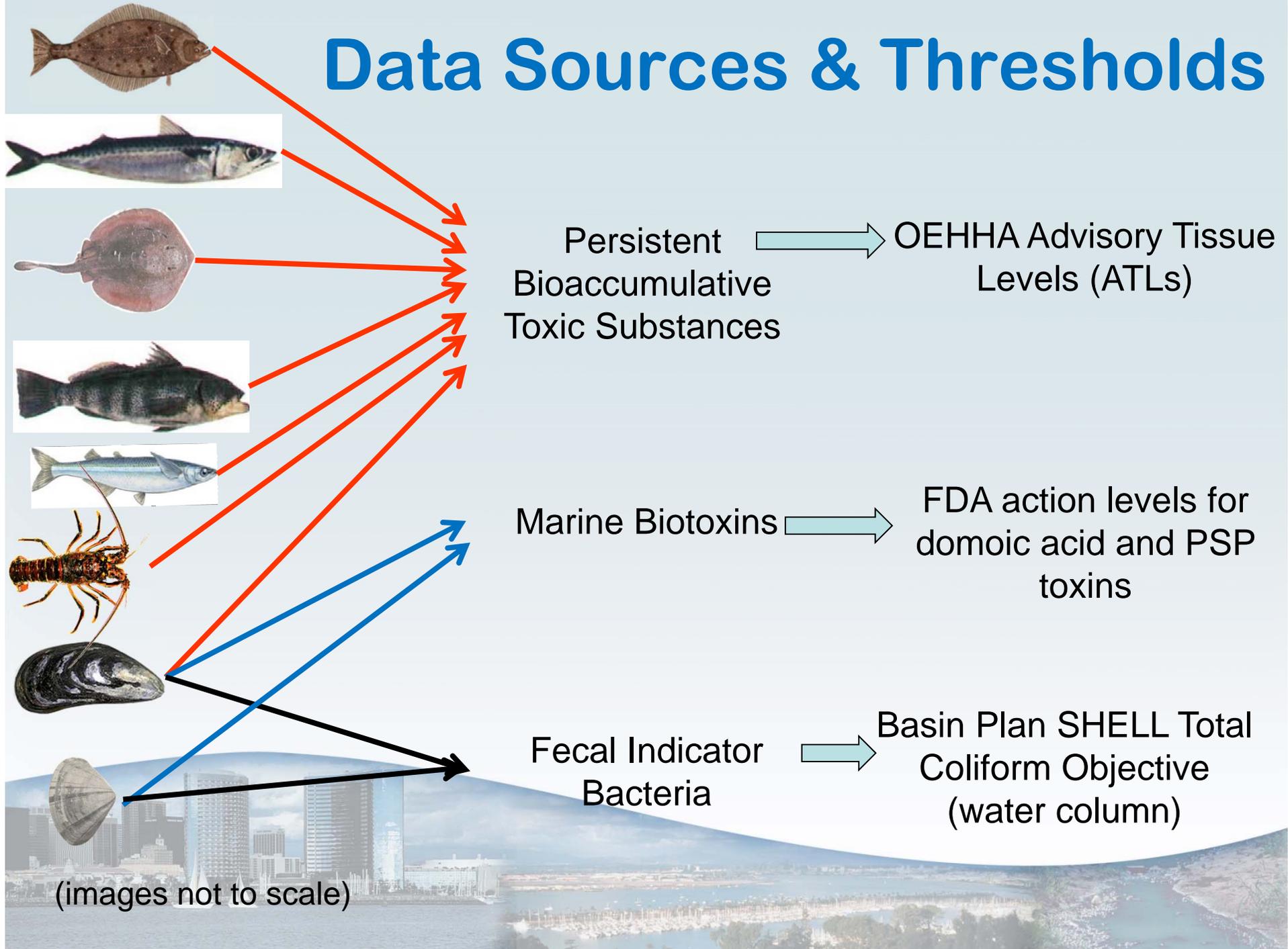
Contaminants and Organisms

Sources of Available Data

Matrix	Program	Lead Entity	Year(s)	Constituents measured
fish tissue	Southern California Bight Regional Monitoring Program	Southern California Coastal Water Research Project (SCCWRP)	2013-2014	Persistent, Bioaccumulative, Toxic Substances: mercury, PCBs, DDTs, chlordanes, dieldrin, PAHs (some samples), PBDEs, & other “constituents of emerging concern”
	Regional Harbor Monitoring Program	Port of San Diego	2013	
	Shallow Water Habitat Survey	City of San Diego	2014	
lobster tissue	Surface Water Ambient Monitoring Program	Water Boards	2014-2015	PCBs, metals, & pesticides (including DDTs)
mussel tissue	Mussel Watch	National Oceanic and Atmospheric Administration	2010-2015	PCBs, PAHs, metals, & pesticides (including DDTs)
clam & mussel tissue	Marine Biotxin Monitoring Program	California Department of Public Health	2011- 2016	Marine Biotoxins: domoic acid & paralytic shellfish poison (PSP) toxins
water	Beach and Bay Monitoring Program	San Diego County Department of Environmental Health	2014-2016	Fecal Indicator Bacteria: total coliform



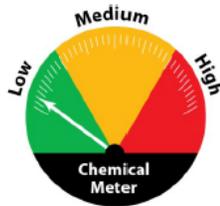
Data Sources & Thresholds



Are fish safe to eat?

A Healthy Guide to Eating Fish from San Diego Bay

Women 18-45 years and children 1-17 years



Diamond turbot



Spotted turbot



Black perch
Pile surfperch
Rainbow seaperch



California lizardfish



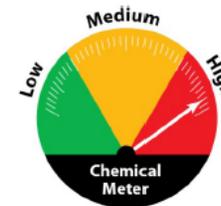
Pacific chub mackerel



Round stingray



Shovelnose guitarfish



Barred sand bass



Spotted sand bass



Shiner perch



Topsmelt



Yellowfin croaker



Leopard shark



Gray smoothhound shark

2 servings a week



1 serving a week

Do not eat

A Healthy Guide to Eating Fish from San Diego Bay

Women over 45 years and men can safely eat more fish



Diamond turbot



Spotted turbot



Black perch
Pile surfperch
Rainbow seaperch



California
lizardfish



Round stingray



Shovelnose guitarfish



Spotted sand
bass



Barred sand bass



Yellowfin croaker



Pacific chub mackerel



Leopard shark



Gray smoothhound shark



Shiner perch



Topsmelt

2 servings a week

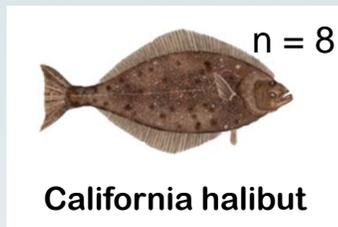


1 serving a week

Do not eat

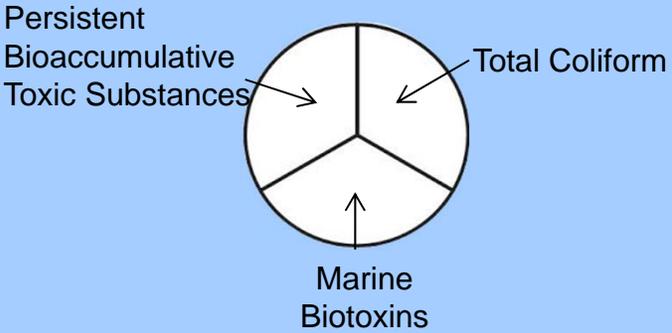
Results-Fish & Lobster

2013-15 data show continued impairment due to mercury and PCBs

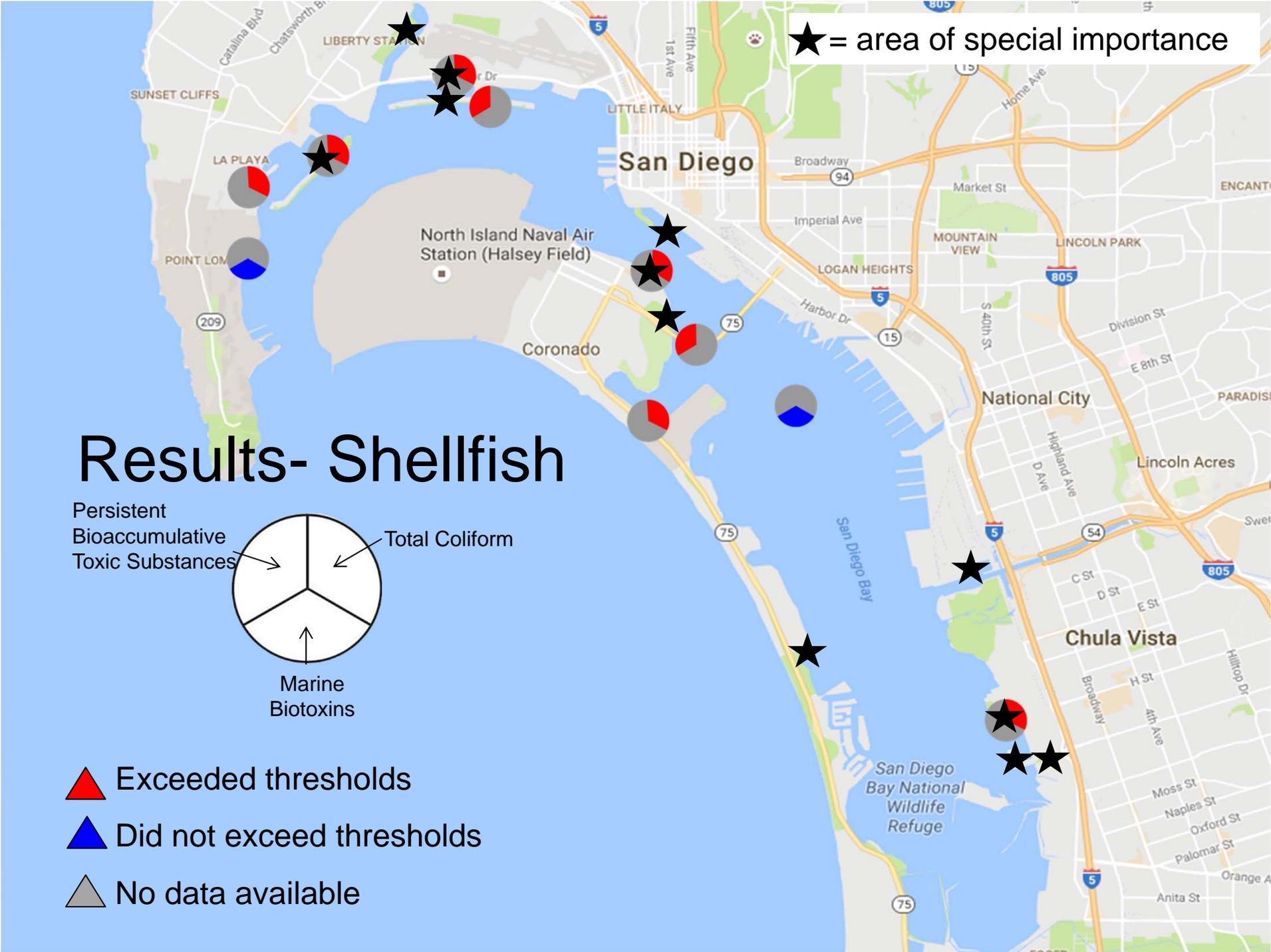


★ = area of special importance

Results- Shellfish



- ▲ Exceeded thresholds
- ▲ Did not exceed thresholds
- ▲ No data available



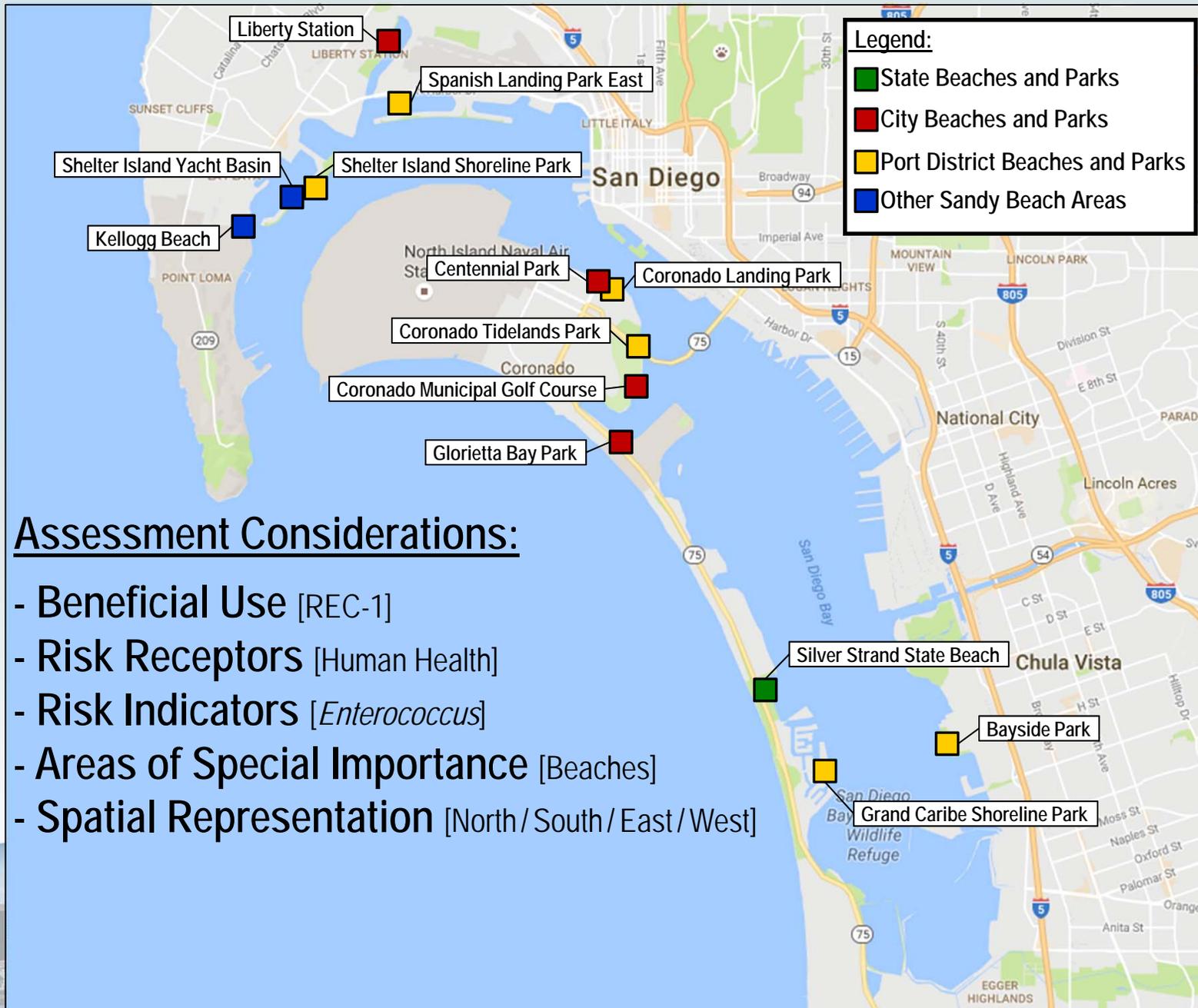
Data Gaps

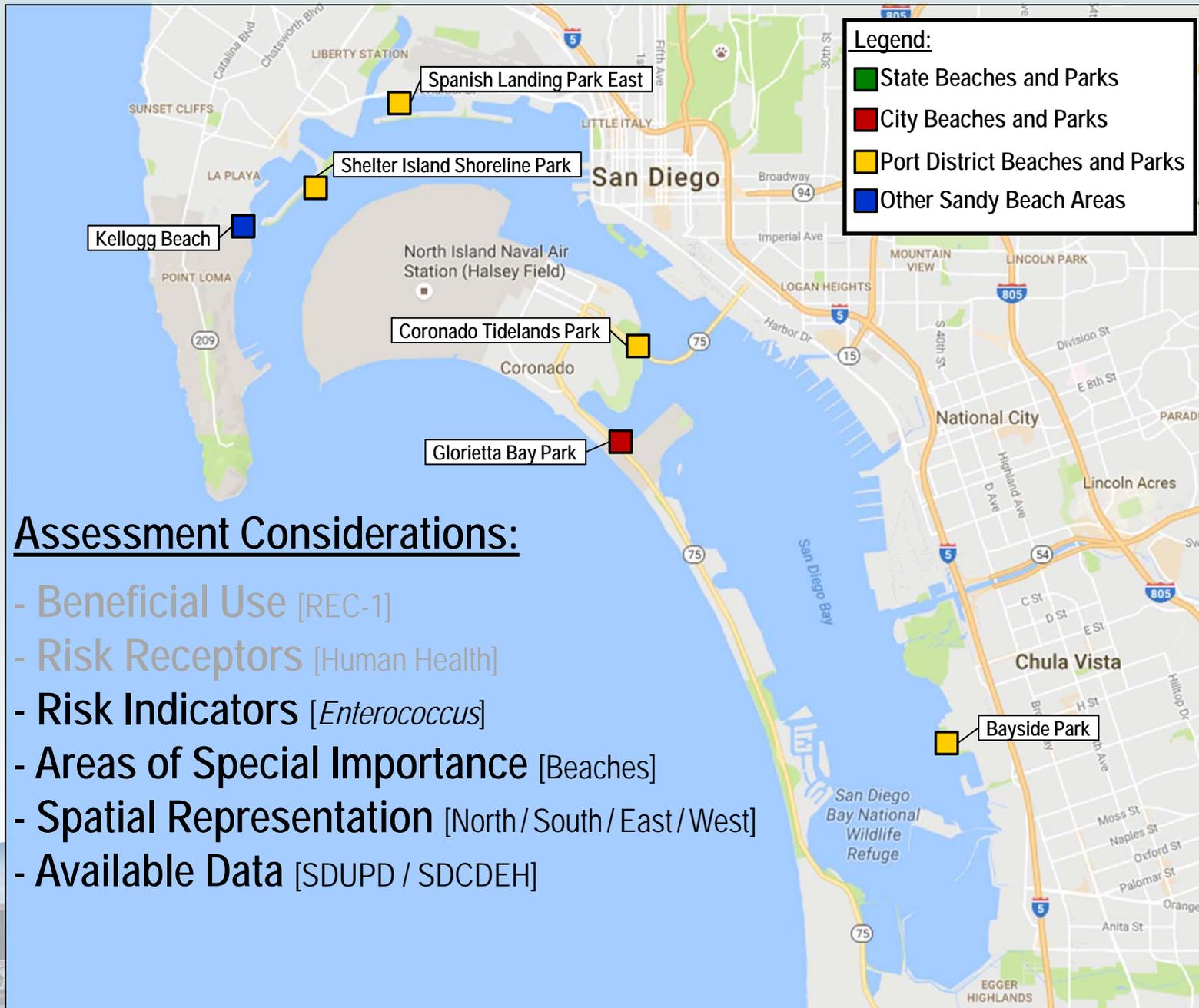
- Consumption information
- Fish
 - Site fidelity
 - Age/growth analyses
- Shellfish
 - Additional sampling locations
 - Marine biotoxins
 - Bioaccumulative substances
 - Additional species
 - Cyanotoxins

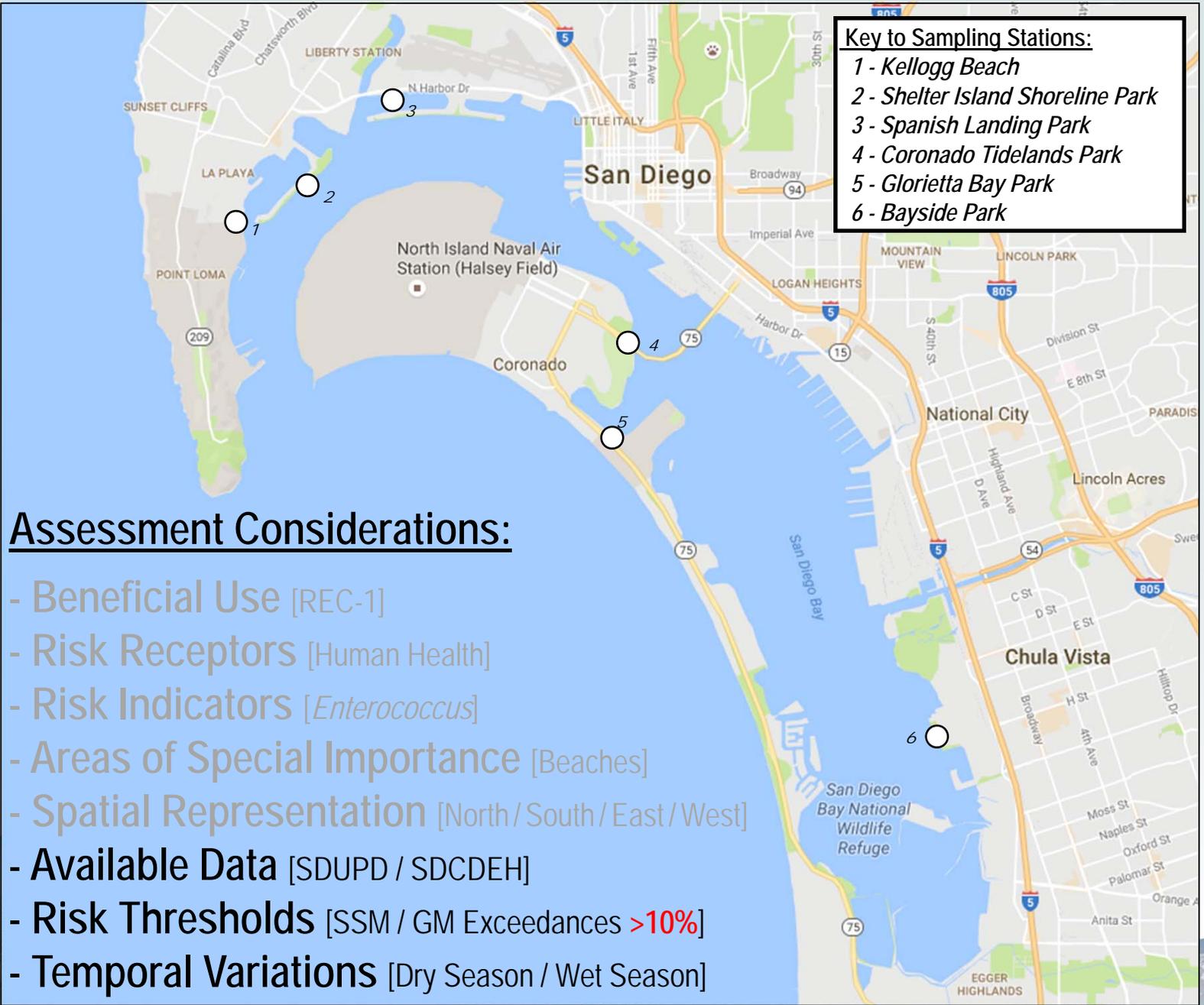


Water Contact Recreation





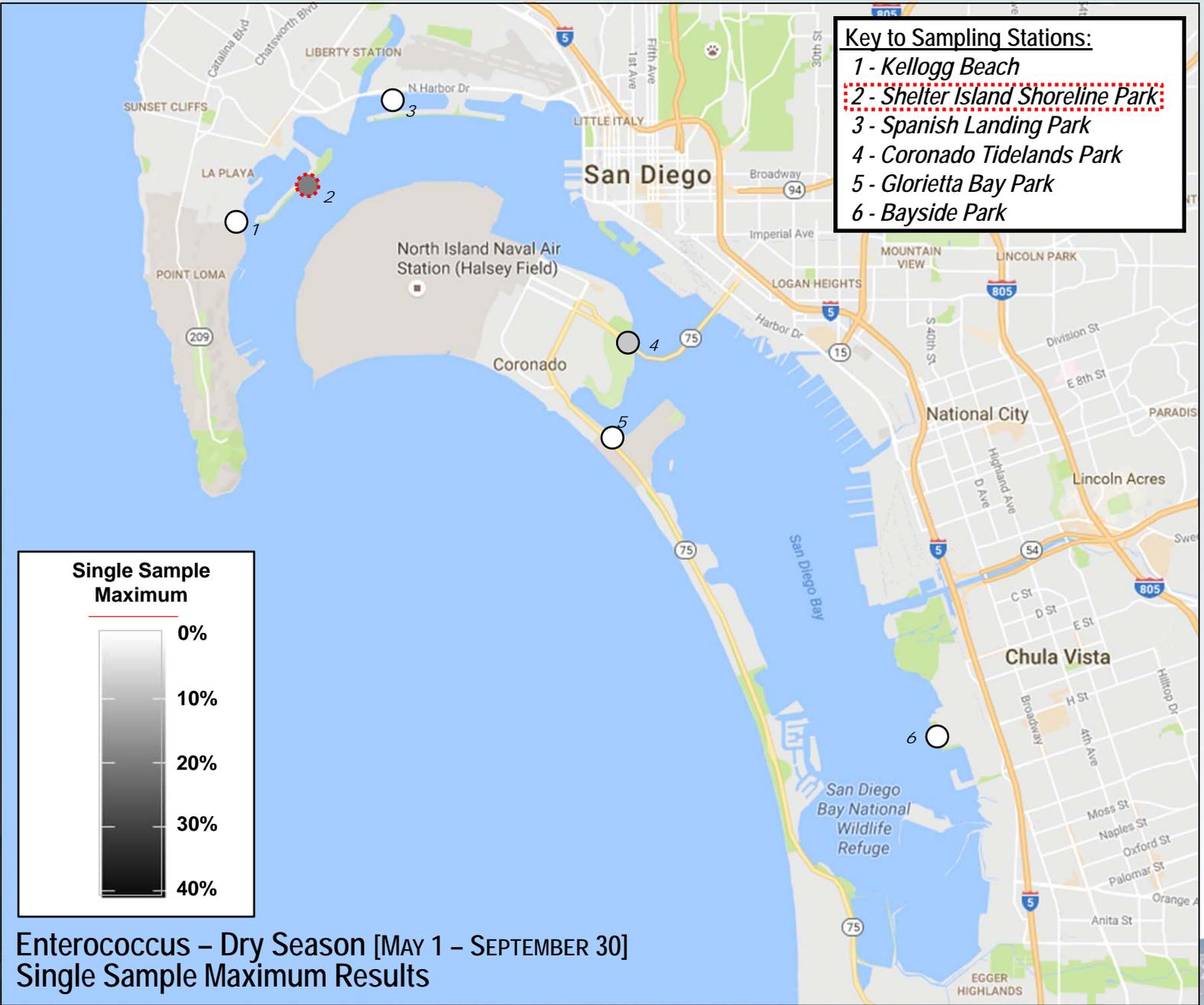


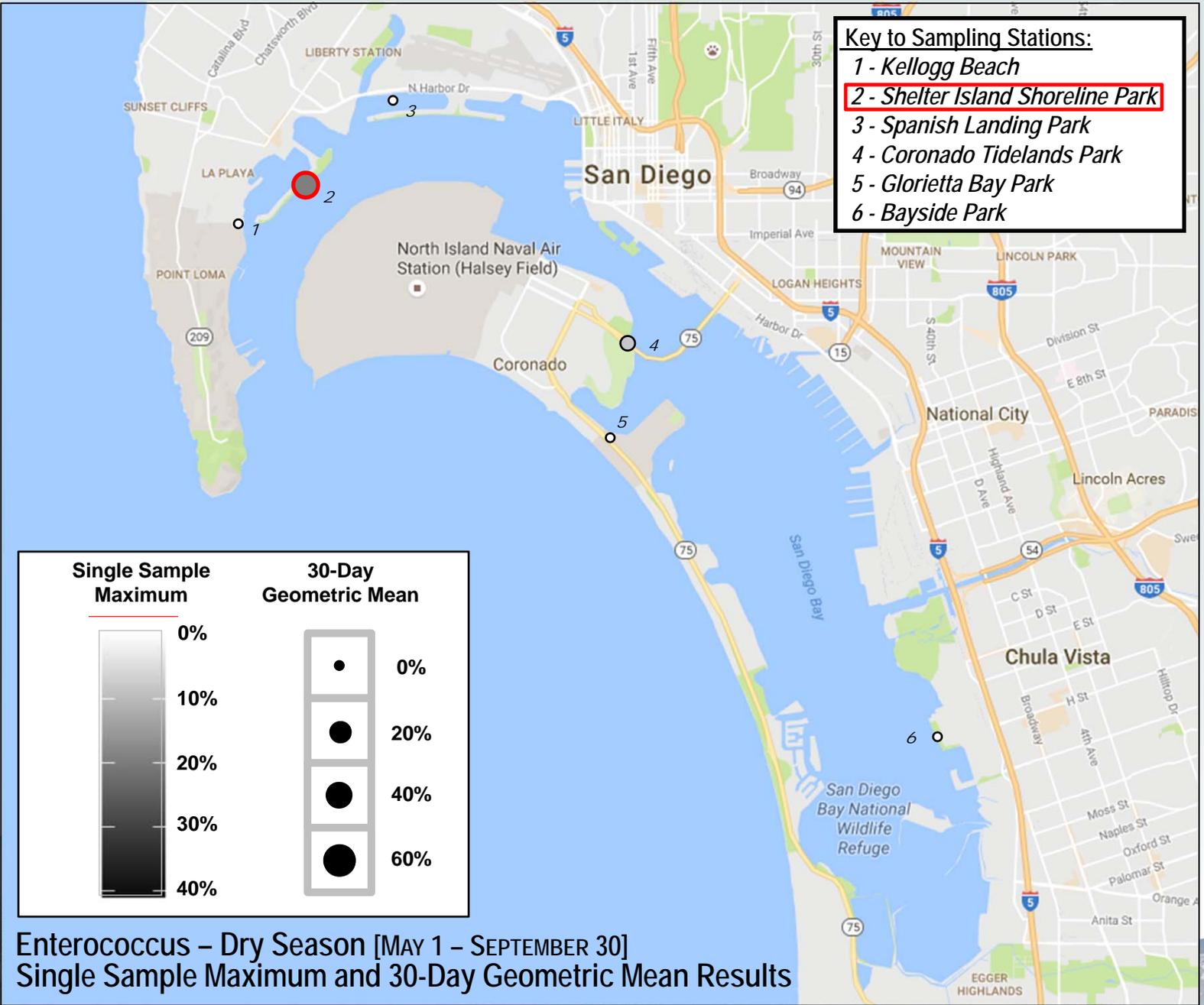


Key to Sampling Stations:
1 - Kellogg Beach
2 - Shelter Island Shoreline Park
3 - Spanish Landing Park
4 - Coronado Tidelands Park
5 - Glorietta Bay Park
6 - Bayside Park

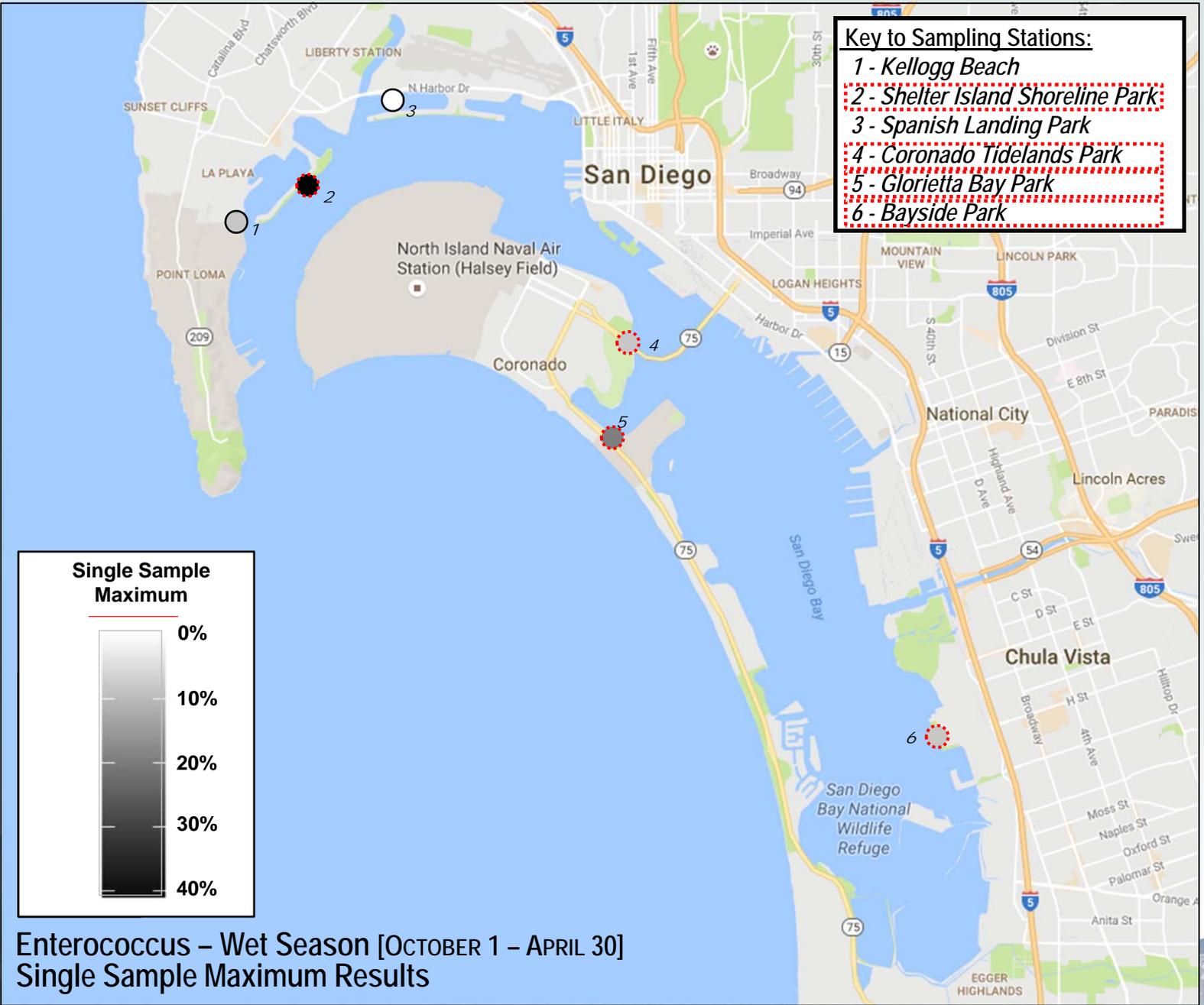
Assessment Considerations:

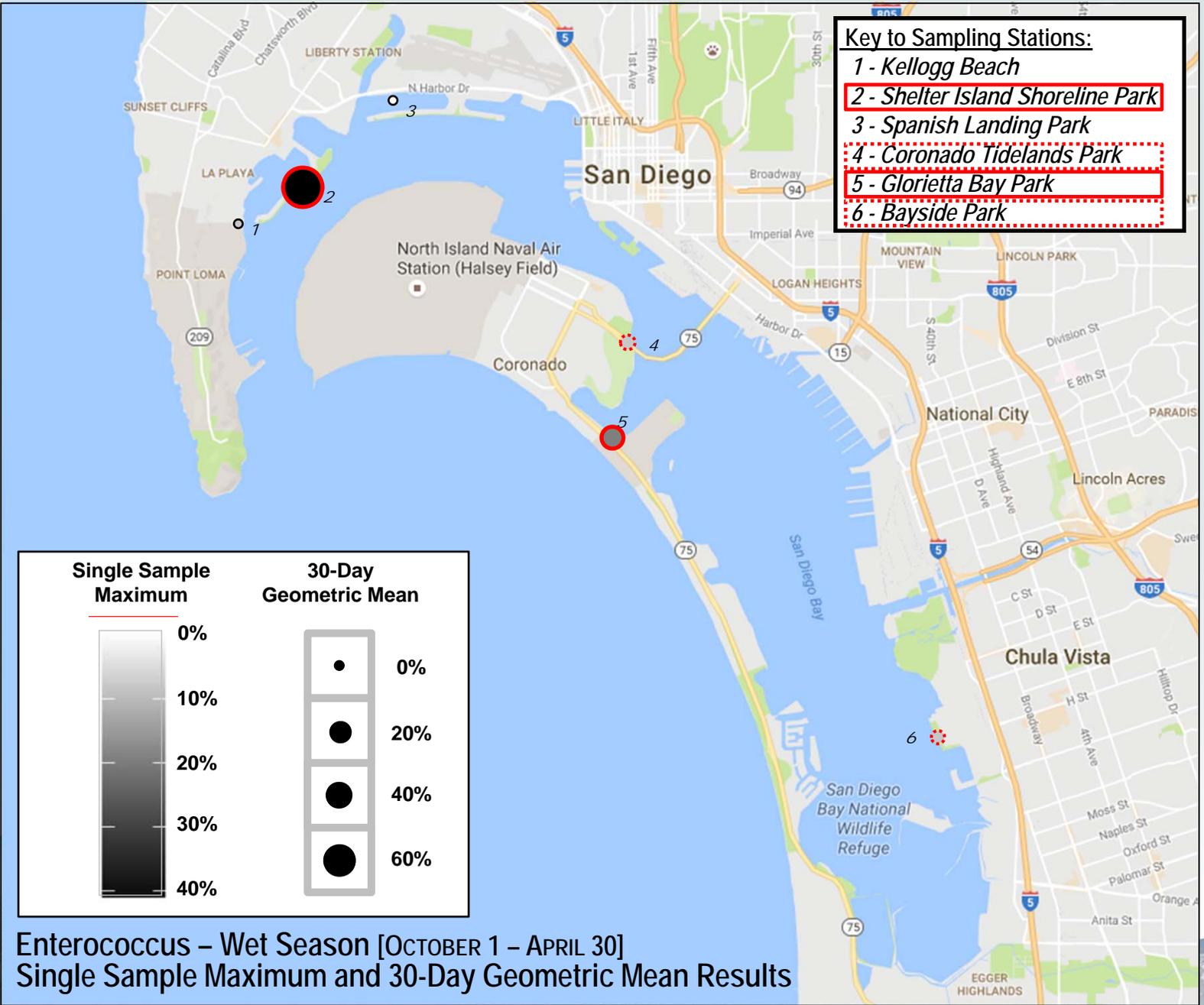
- Beneficial Use [REC-1]
- Risk Receptors [Human Health]
- Risk Indicators [*Enterococcus*]
- Areas of Special Importance [Beaches]
- Spatial Representation [North / South / East / West]
- Available Data [SDUPD / SDCDEH]
- Risk Thresholds [SSM / GM Exceedances >10%]
- Temporal Variations [Dry Season / Wet Season]



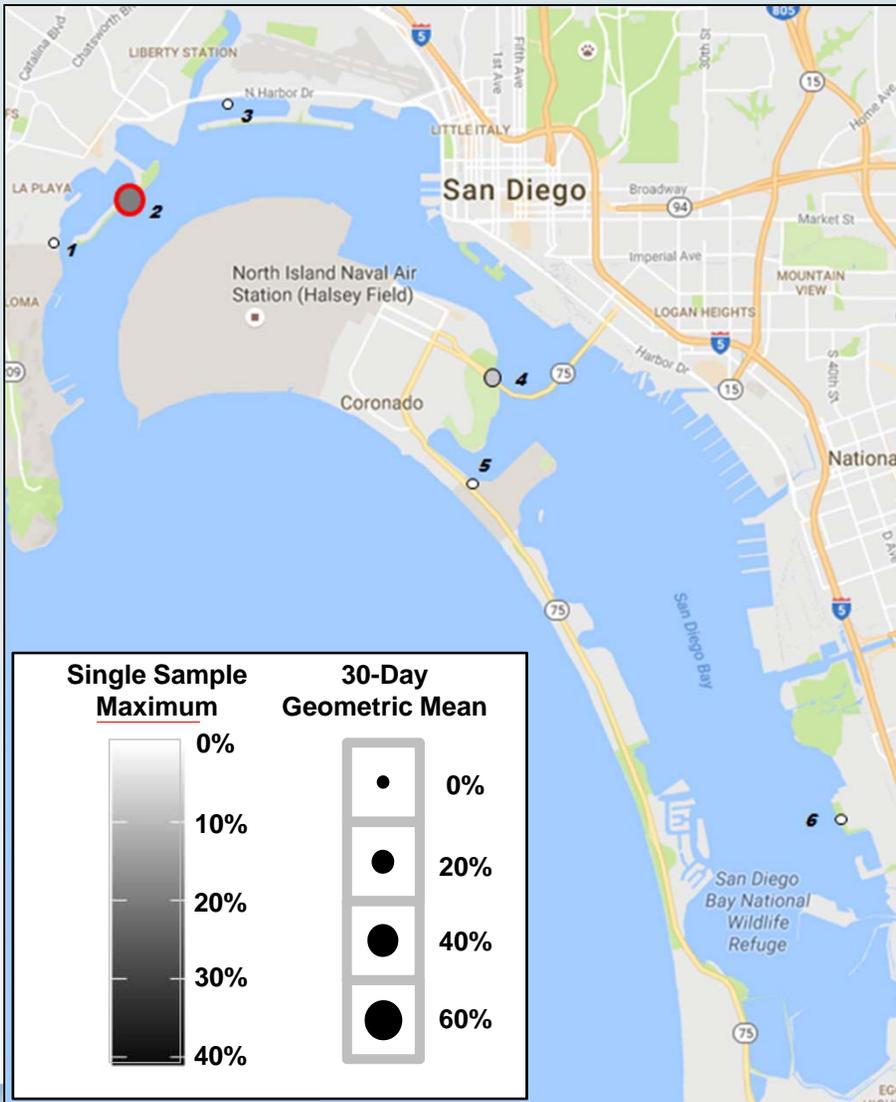


Enterococcus – Dry Season [MAY 1 – SEPTEMBER 30]
Single Sample Maximum and 30-Day Geometric Mean Results





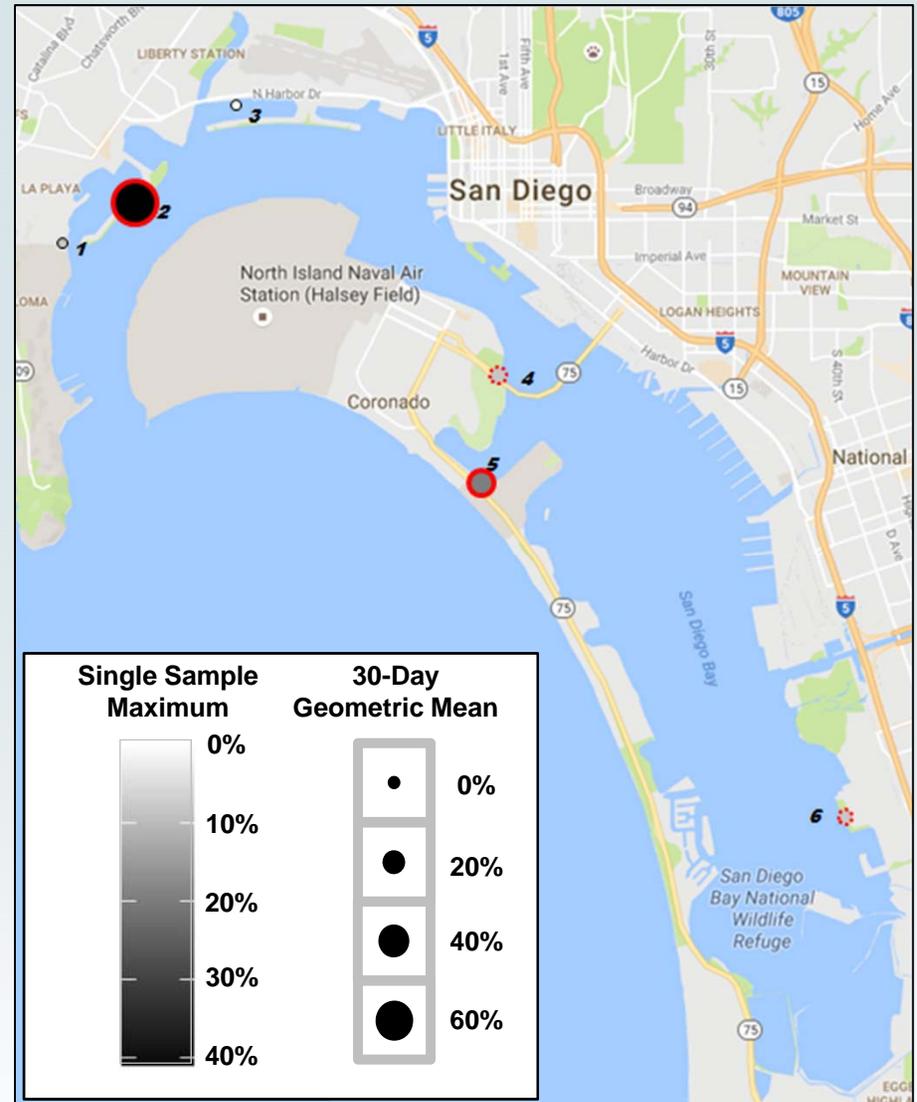
**Enterococcus – Wet Season [OCTOBER 1 – APRIL 30]
Single Sample Maximum and 30-Day Geometric Mean Results**



Dry Season Results

MAY 1, 2014 – SEPTEMBER 30, 2014

MAY 1, 2015 – SEPTEMBER 30, 2015



Wet Season Results

OCTOBER 1, 2014 – APRIL 30, 2015

OCTOBER 1, 2015 – APRIL 30, 2016

2014-2016 Assessment Summary

- **Dry Seasons [MAY 1 – SEPTEMBER 30]:**
LOW RISK to human health
 - except potential risk to human health at Shelter Island Shoreline Park
- **Wet Seasons [OCTOBER 1 – APRIL 30]:**
INCREASED RISK to human health
 - potential risk to human health at Glorietta Bay, Tidelands, and Bayside Parks
 - highest potential risk to human health at Shelter Island Shoreline Park



Future Assessment Needs / Wants

- Complete wet season data
- More data during and/or after storms
- Additional locations
- Additional indicators to provide better linkage between indicator bacteria and actual risk for human illnesses



Next Steps

1. Status sheets for REC1 and FSC
2. Assessments of Habitats and Ecosystems & non-contact water recreation
3. Develop Bay-wide monitoring program
4. Advance M2 & M3 of the Monitoring Framework

Strategy Steps

1. Identify key uses & key areas;
2. Conduct assessments;
3. Set priorities;
4. Set goals;
5. Realign work;
6. Track progress; and
7. Reevaluate priorities.

