

West Coast Ocean Health Report Cards

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Presentation to the SCCWRP Commission

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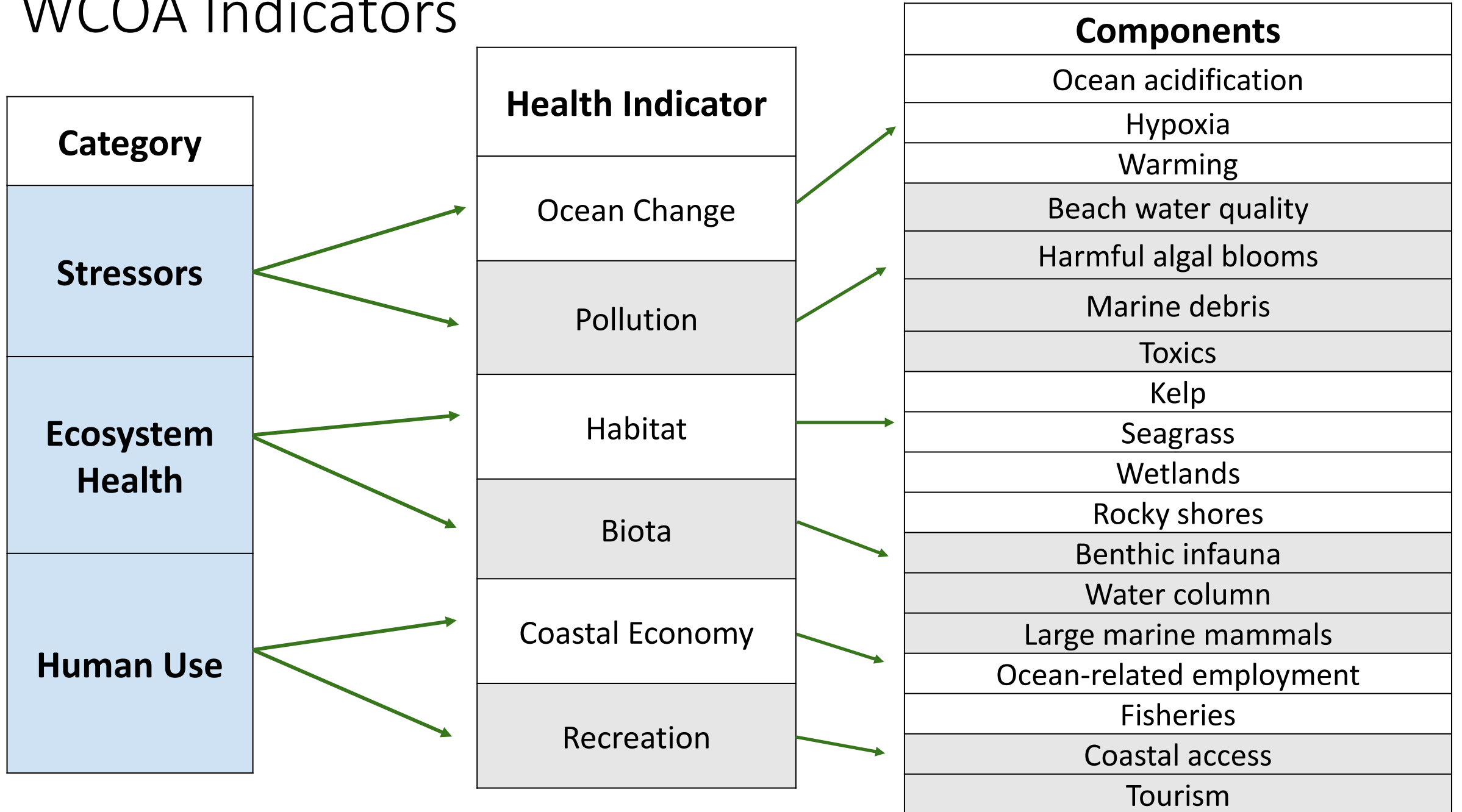
Background

- The West Coast Ocean Alliance has committed to creating an ocean health report card for the west coast
 - Provides a foundation for prioritizing issues on which to focus management attention
 - Improves monitoring systems by determining how well they yield relevant information
 - Leads to enhanced data management systems
- This effort is intended to help the States develop their own report cards at finer spatial scales
 - California is the first out of the gate in that regard
- Goal for today is to share status of the report cards
 - Plus describe SCCWRP's role

Topics for today

- Which indicators is WCOA pursuing?
 - How well does that correspond with the OPC's list?
- How will those indicators be presented?
 - To grade or not to grade?
- What technical activities is SCCWRP undertaking to support these efforts?
- What is the timeline for these report cards?

WCOA Indicators



Category	Shared – short term	Shared – longer term	OPC only
Stressors	Beach water quality	Marine debris	Impingement rates
	Ocean acidification	Toxics	# of impaired water bodies
	Ocean temperature	Hypoxia	Wastewater recycling
	Sea level rise	Seagrass	
Ecosystem Health	Biodiversity - Rocky shores	Wetlands	
	Marine mammals	Biodiversity - Benthic infauna	
	Harmful algal blooms	Tourism – State Park visitation	
Human Use	Kelp	Fisheries landings	
	Coastal access	Ocean-related employment	

Presentation of Indicators

- Grade



- Trends



- Spatial pattern

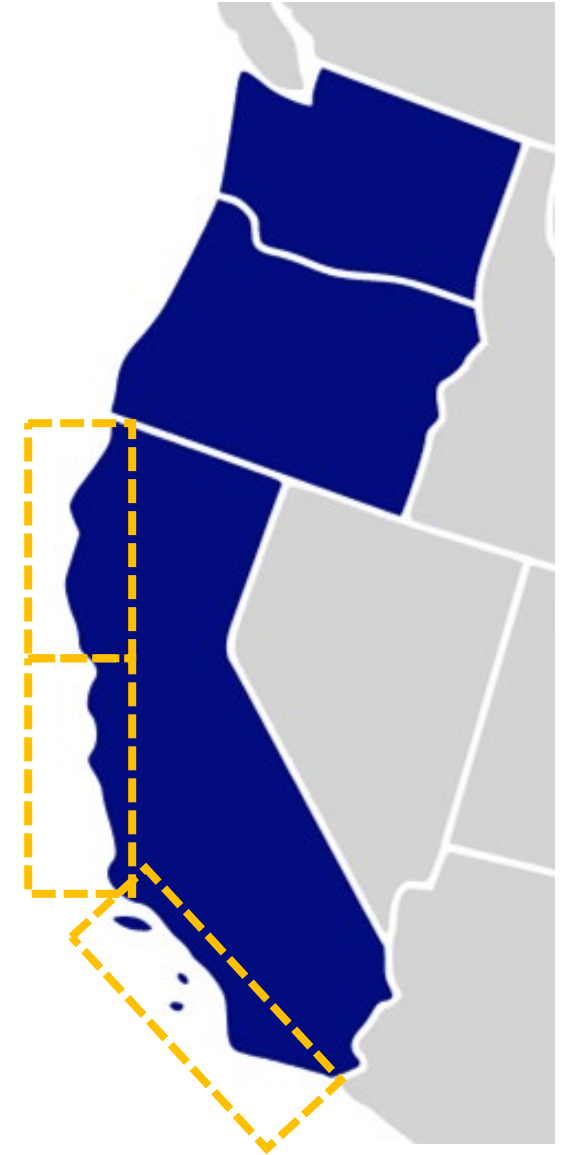
- Probably in the form of a map for continuous indicators like kelp
- Possibly in the form of hot spots for indicators like beach water quality

- Interpretation

- Narrative describing West Coast ocean health
- Causality for changes over time or for differences among regions
- Effectiveness of management action

Scale of Indicators

- **WCOA**
 - Focus on a West Coast-wide scale
 - Will also include state-by-state grades
 - No sub-State grades
- **California**
 - Grade for the State
 - Grades for Northern, Central and Southern California



Indicator development

- What metrics do we use for each indicator?
- What datasets do we use and how do we collate them?
 - Are they comparable Statewide? Coastwide?
- What thresholds do we use?
- What is the uncertainty?
 - When is a detected change “real”?

KELP METRICS

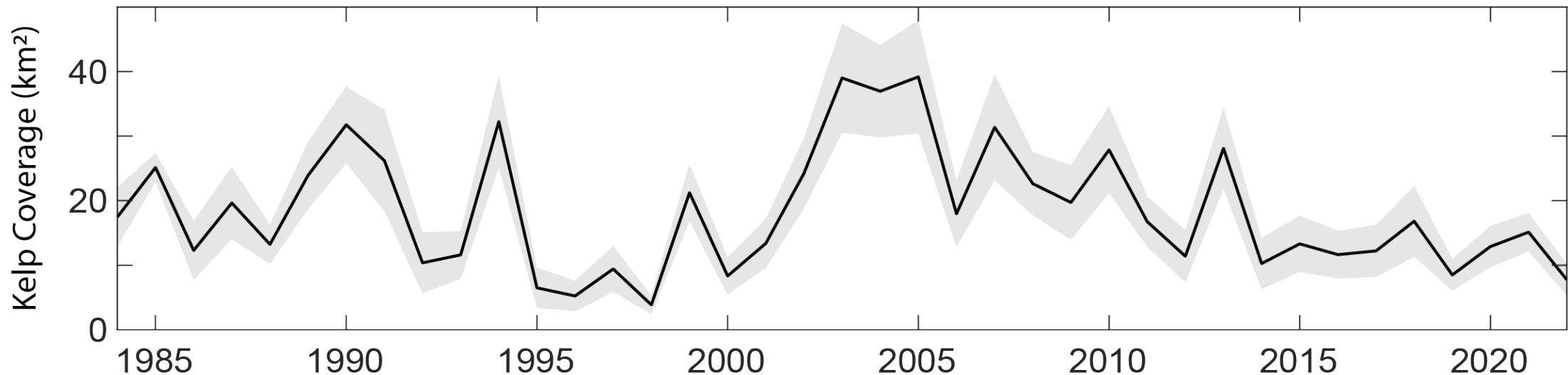
- **Which data set do we use?**
 - There are dive surveys, aerial overflights, and satellite imagery
 - Within each of these classes, there are multiple data sets
- **Undertook a comparative approach using the Point Loma reef**
 - We have multiple data sets there that range back more than 40 years
 - Dive data to 80s, aerial overflight to 50s, satellite to 80s
 - Put together a team of experts that work with these data sets
- **Chose Landsat satellite multispectral imagery**
 - Diver surveys did not scale well with whole-bed dynamics
 - Satellite were superior to aerial surveys because of the higher frequency of satellite passes
 - Selected Landsat over other satellites because it has the greatest historical coverage

“WEEDIER” KELP METRIC QUESTIONS

- **Landsat data are available every few days and we need to determine which to use**
 - Average bed size for the year
 - Maximum bed size on any day of the year
 - Maximum bed size based on merging pixels across dates
- **Did a comparative approach to see how much it matters**
- **Selected annual maximum from quarterly data from any individual Landsat pixel containing kelp**
 - However, found that trend assessment was not sensitive to this calculation decision

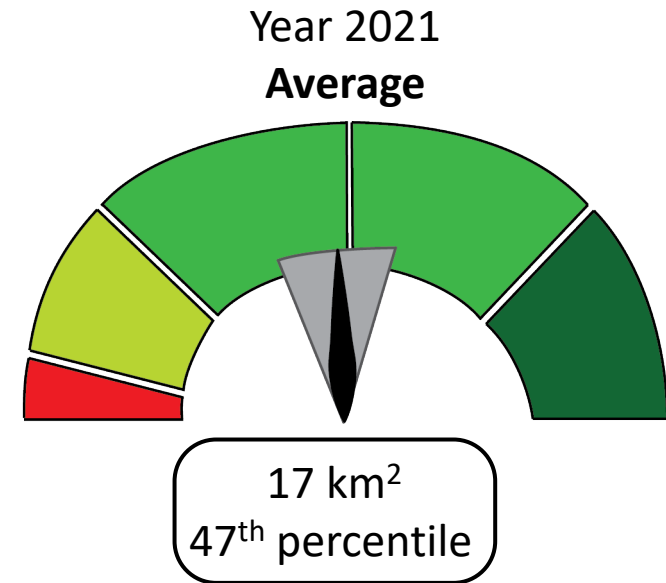
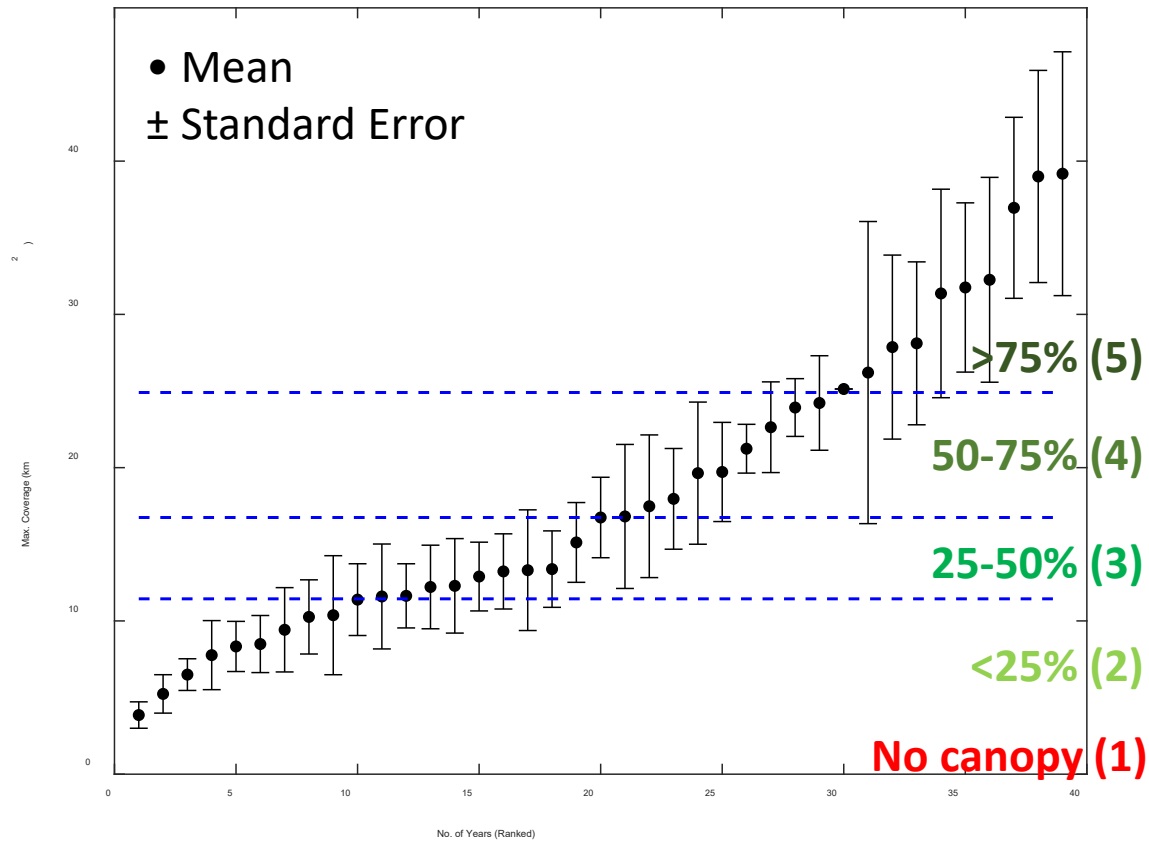
WHAT IS ERROR IN THE KELP COVERAGE METRIC?

- **Potential bias: There have been new satellites and sensors over time**
 - Of minimal concern because different sensors have been calibrated against each other
- **Measurement variability: Assessed by comparing repeat surveys within a quarter to derive the quarterly standard error of kelp coverage**
 - On average, the relative standard error of kelp coverage is 40%
 - We add that as shading on the graphic



CALCULATING GRADES FOR THE KELP INDICATOR

- A gauge with categories based on historical percentiles



Timeline

- 2023: Pilot select indicators
 - WCOA plans to present five fleshed-out indicators to its governing body next summer
 - OPC is planning to release a draft report in January for nine indicators, but only on for trends at this time
- 2024: Inaugural report
 - Likely to include a web dashboard that provides greater depth of information for each indicator
- 2025: Develop data streams that allow for easy annual updates of the Report Card