





# Outline

- 1) Quick Intros
- 2) Program Background and Updates
- 3) Updates on the Decadal Management Review
- 4) Data Summaries



# Introductions

We'll make this quick! Go ahead and give us your:

- Name
- Affiliation with CCFRP (Volunteer, deckhand, etc.)
- Favorite place to fish



# California Collaborative Fisheries Research Program (CCFRP)



- Fishery-independent (catch-and-release) study that combines the expertise and ideas of:
  - the fishing community
  - academic scientists
  - resource managers
- Conducts scientifically rigorous data collection and analyses for MPA monitoring and fisheries management





# Benefits of Collaboration

- Engage stakeholders
- Develop scientifically sound collection protocols
- Collect data
- Create a shared understanding of resources
- Facilitate communication



# Our Partners

## Aloha Spirit Sportfishing



## Stardust Sportfishing



- We couldn't do this project without the support of our charter partners
- Please support them in our off season in any way you can!



# California MPAs

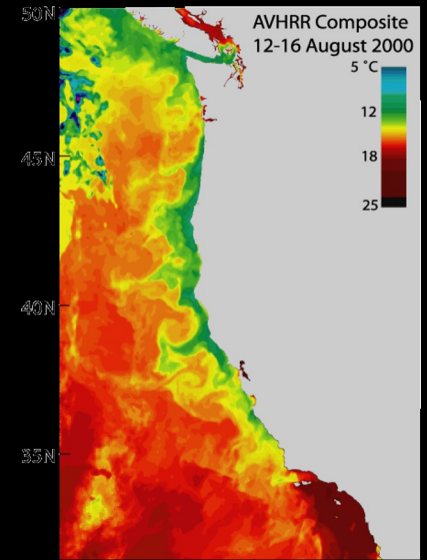
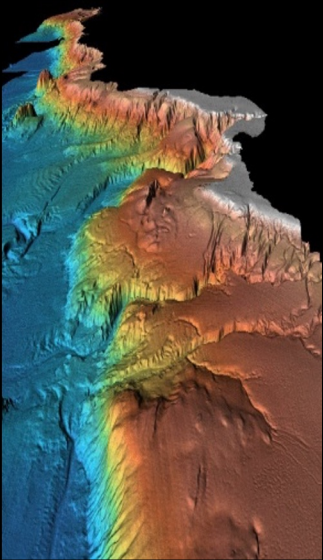
## Marine Life Protection Act (MLPA)



passed in 1999



mandated the creation of a network of marine protected areas (MPAs) along the California coast to protect diversity and ecosystem function



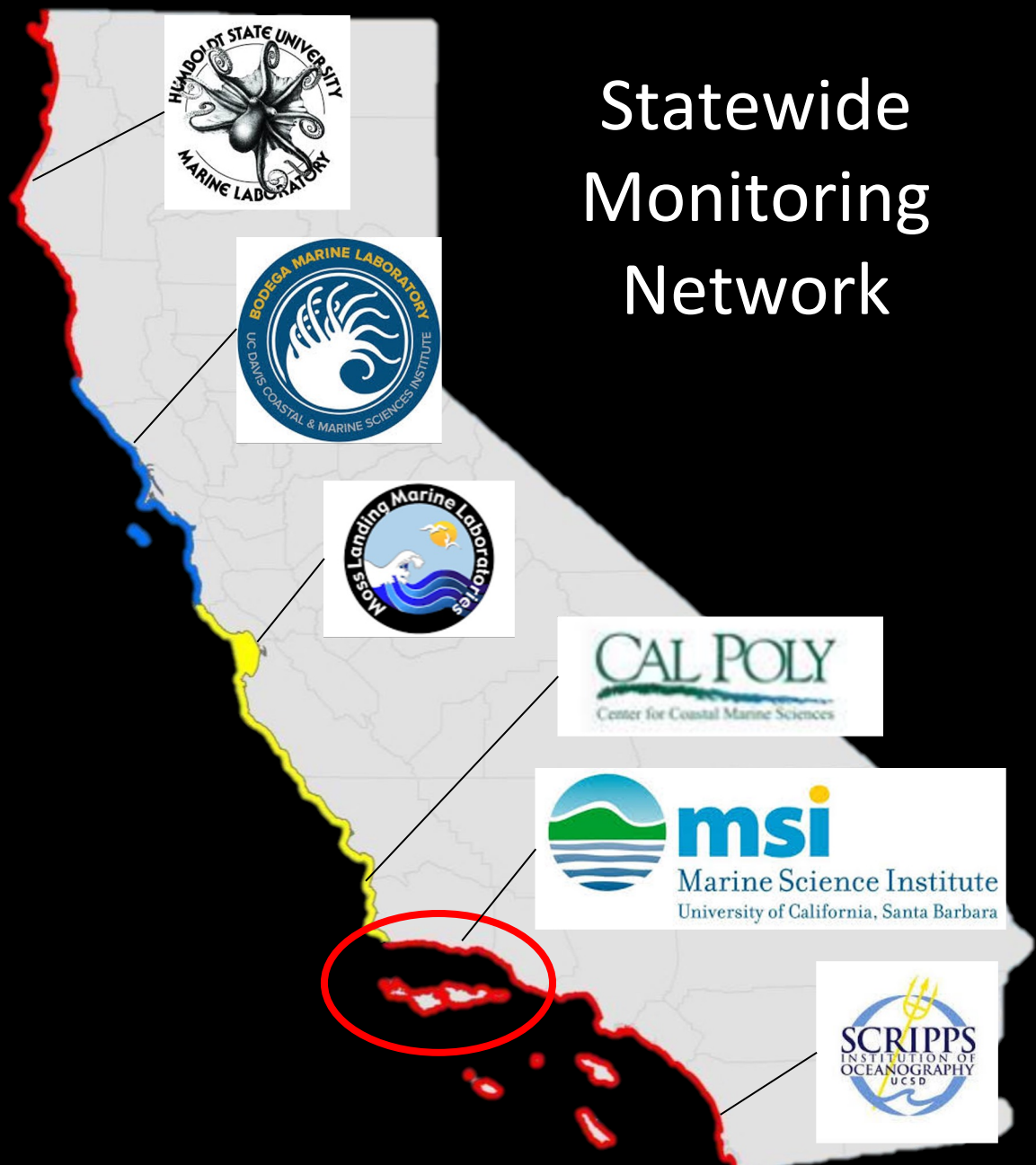
# Why Monitor MPAs?

1. It is a priority adopted by the state of California
2. It is required by MLPA
3. Critical to see the effects of the MPA network in action





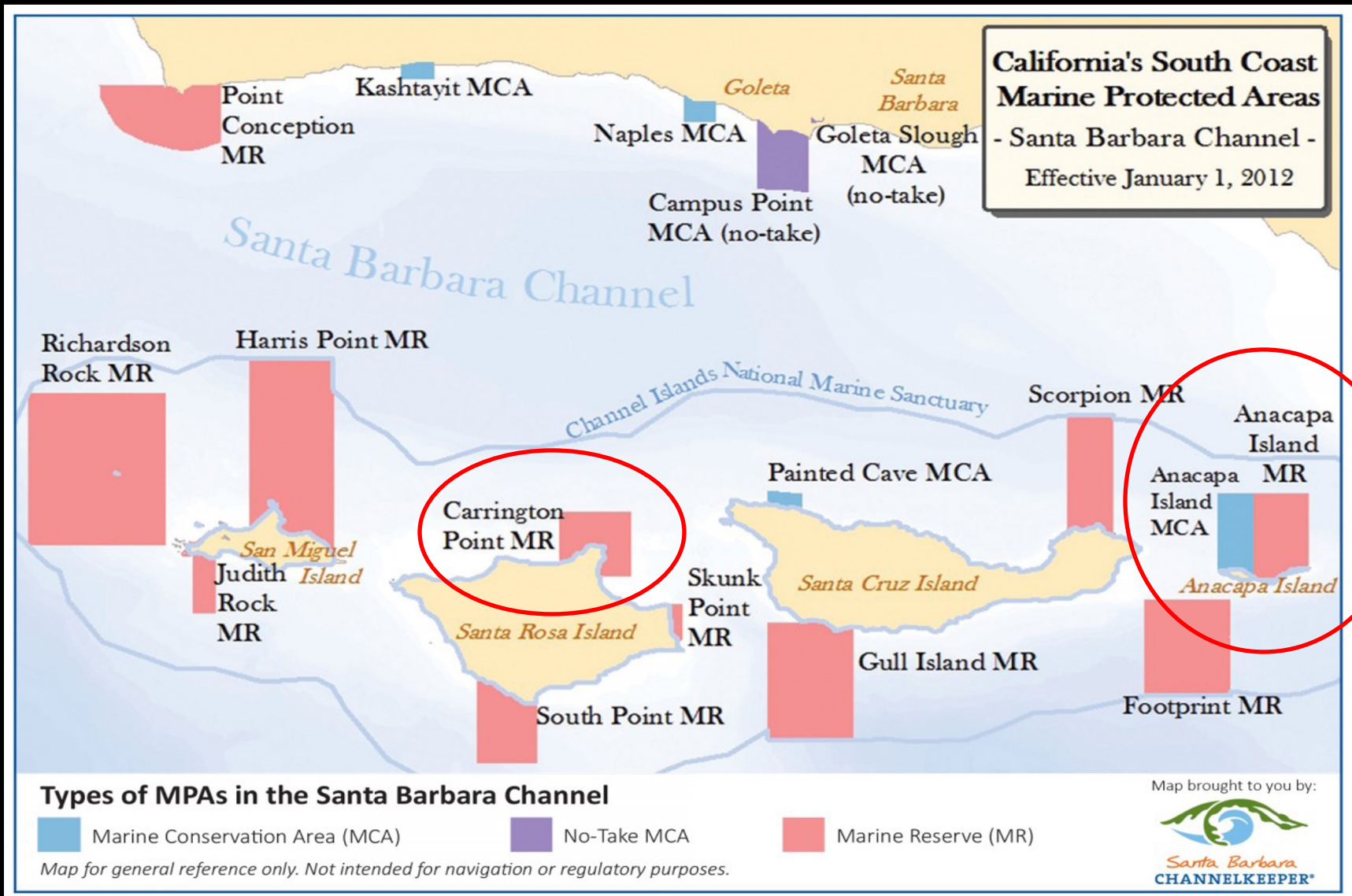




# Statewide Monitoring Network



# Channel Islands MPAs

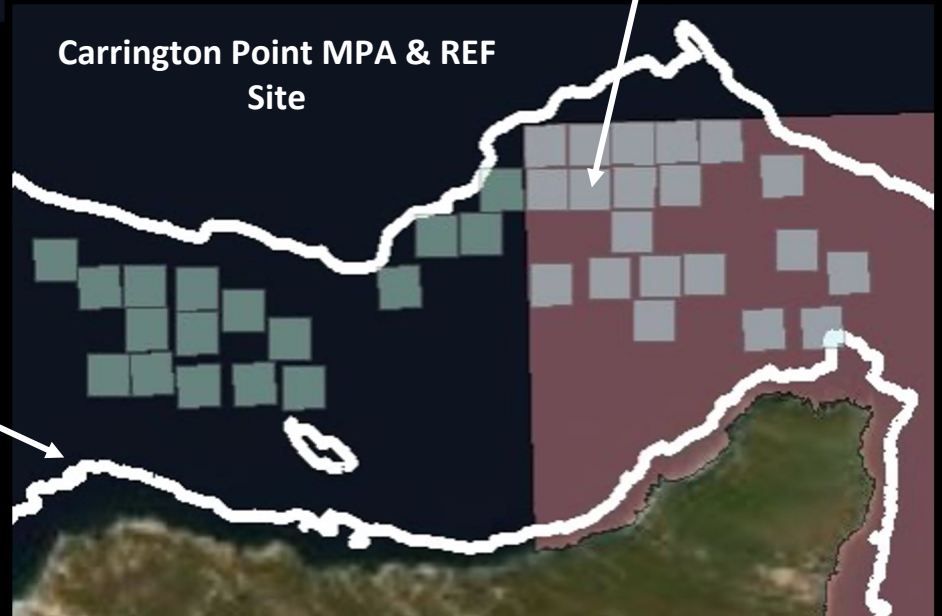


# Where Do We Sample?



500 x 500 m grid cells placed on hard bottom inside and outside of MPAs

30 ft & 150 ft Bathymetry lines





# How do we Sample?

- Each time we visit a cell we aim to fish for 45 mins, broken into 3 15 minute drifts
- Drifts can be cut or extended depending on habitat, current, or other factors



# Moving Forward!

- We are on for 2022 fall sampling - keep an eye out for sign ups!
- Data from our first 5 years of collaborative MPA monitoring have been included in the ongoing MPA Decadal Management Review







# Updates from the MPA Decadal Management Review







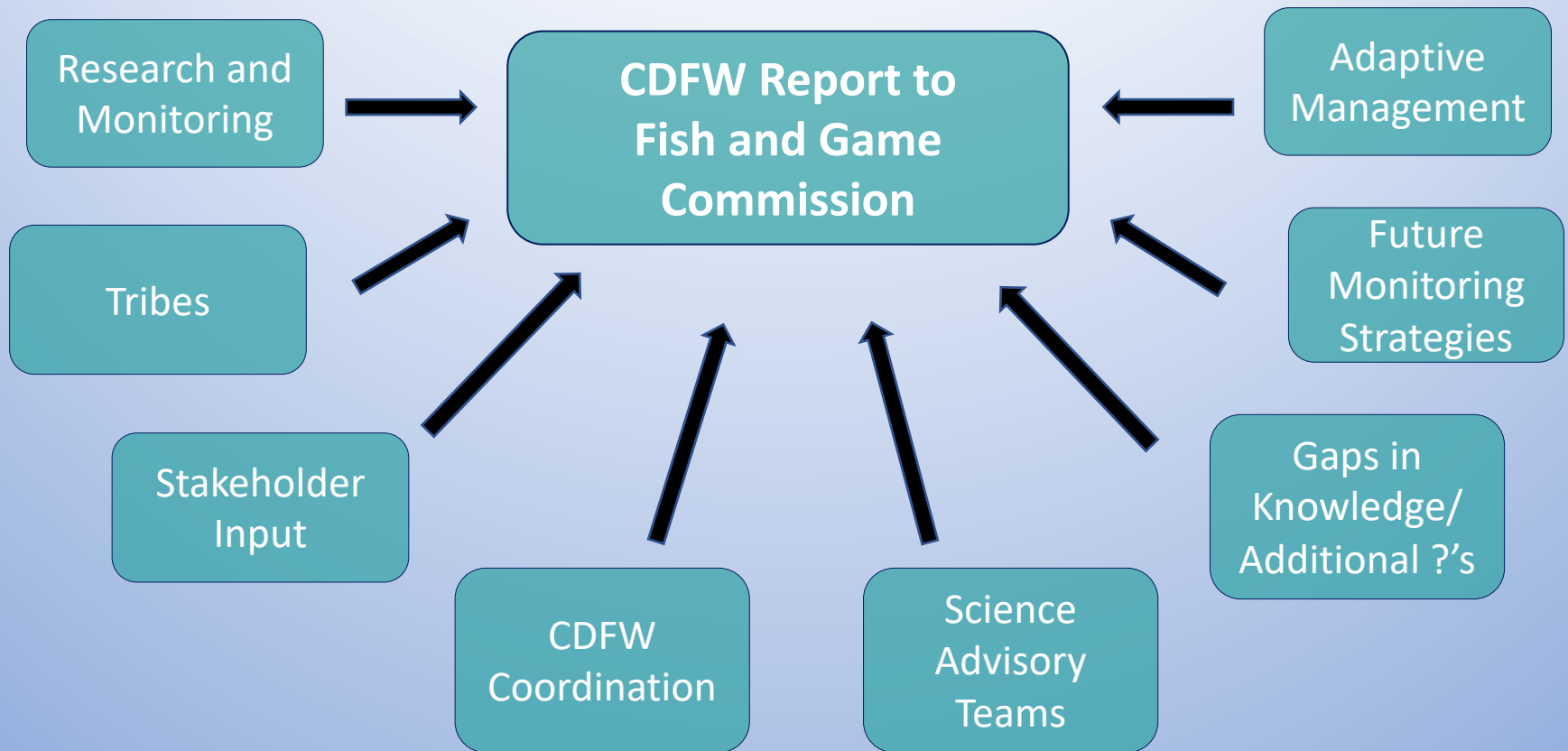
# MPA Management Program







# Decadal Management Review: 2023





# Monitoring Program and Science Guidance

- Baseline Monitoring data (2007-2018)
- Long-term Monitoring data (2016-present)
- Network connectivity model
- Science guidance
  - MPA Decadal Evaluation Working Group
  - MPA and Climate Resilience
  - National Center for Ecological Analysis and Synthesis



Long-term monitoring technical reports now available on CA Sea Grant website!

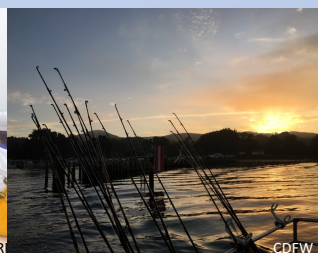




# Anticipated Timeline

2023

- **January:** CDFW and NCEAS reports publicly available
- **February:** Reports discussed at Fish and Game Commission meeting
- **March:** MRC meeting, Public symposium/open house
- **April:** DMR discussion at Tribal Committee meeting and FGC meeting with direction on next steps





## Stay Informed

- Decadal management review landing page  
<https://wildlife.ca.gov/Conservation/Marine/MPAs/Management/Decadal-Review>
- [MPAManagementReview@wildlife.ca.gov](mailto:MPAManagementReview@wildlife.ca.gov)
- Community meeting report and videos now available!
- Upcoming public webinars with monitoring researchers  
<https://cdfwmarine.wordpress.com/2022/05/11/mpa-monitoring-webinar-series-ask-the-researcher/>
- Fish and Game Commission, OPC, Marine Resources Committee, Tribal Committee meetings
- Sign up for CDFW and OPC newsletters





Thank you!

*Kara Gonzales, CDFW Environmental Scientist*

[kara.gonzales@wildlife.ca.gov](mailto:kara.gonzales@wildlife.ca.gov)





Here Comes the Data!



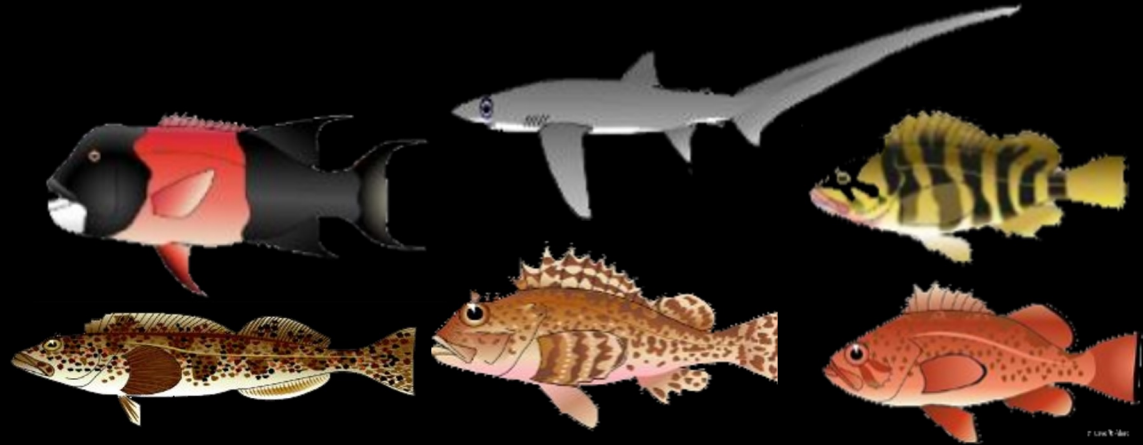


# UCSB's 2021 Season Summary

Area	Fishes Caught	Fishes Tagged	Species Caught	Tag Recaptures
Anacapa SMR/SMCA	1351	376	22	3
Anacapa REF	242	86	18	0
<b>Anacapa Total</b>	<b>1593</b>	<b>462</b>	<b>26</b>	<b>3</b>
<b>Carrington Point SMR</b>	1309	771	16	7
<b>Carrington Point REF</b>	764	369	23	4
<b>Carrington Point Total</b>	<b>2073</b>	<b>1140</b>	<b>25</b>	<b>11</b>
<b>Season Totals</b>	<b>3666</b>	<b>1602</b>	<b>26</b>	<b>14</b>

# Catch Per Unit Effort (CPUE)

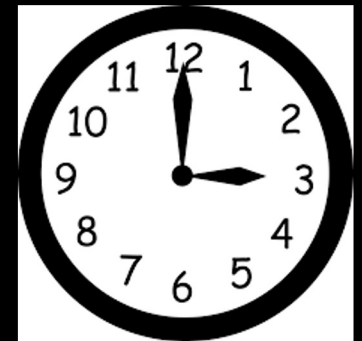
- One of the best ways to assess a fishery is to look at relative abundance
- How we calculate it:






CPUE =

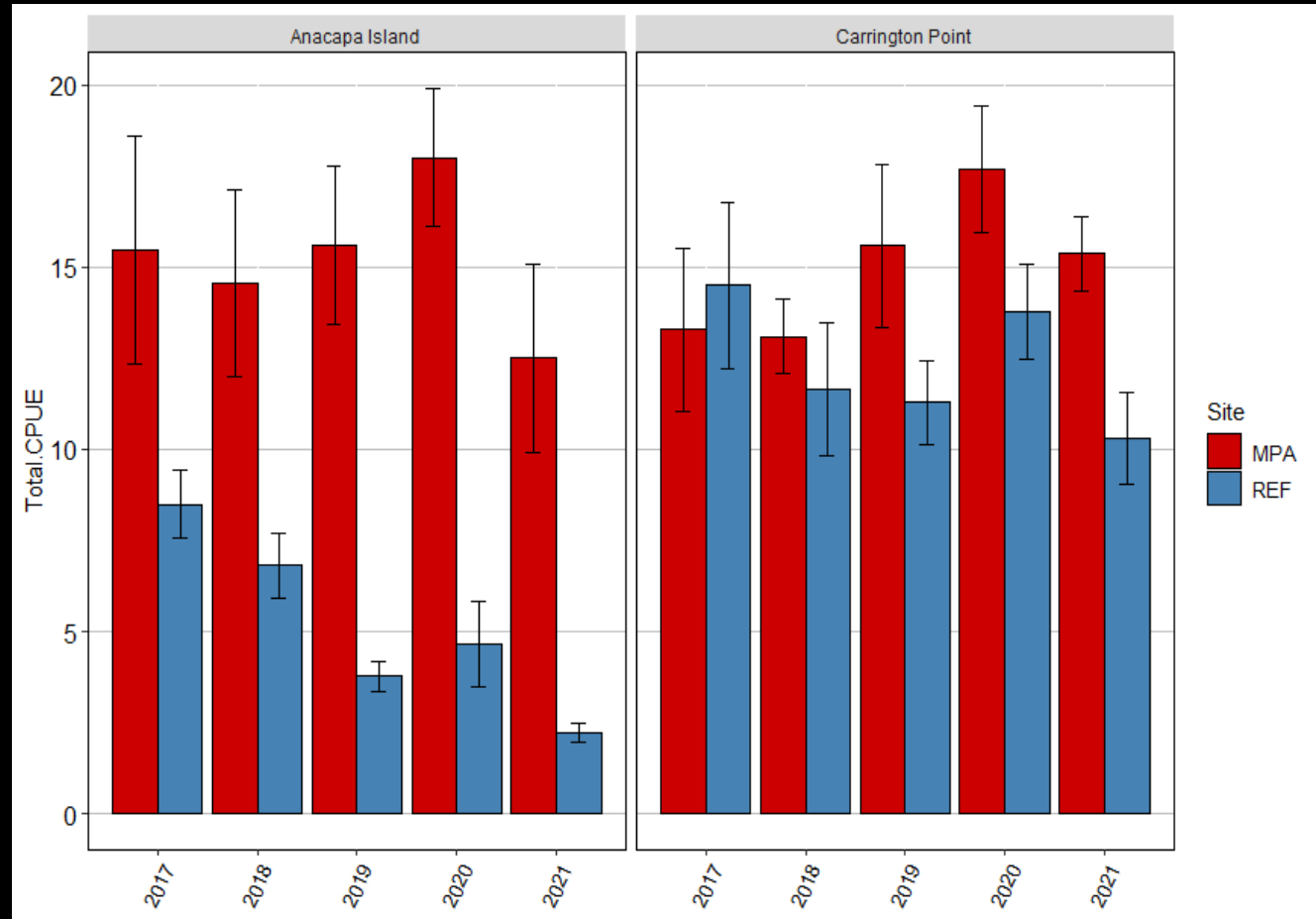


X



# Total CPUE by Site

CPUE =   × 

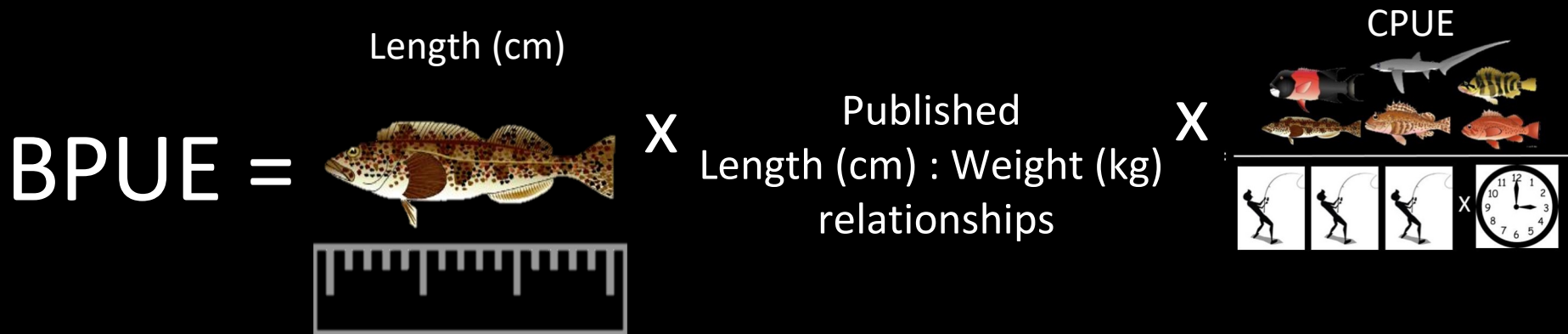


“Warmer” → “Colder”



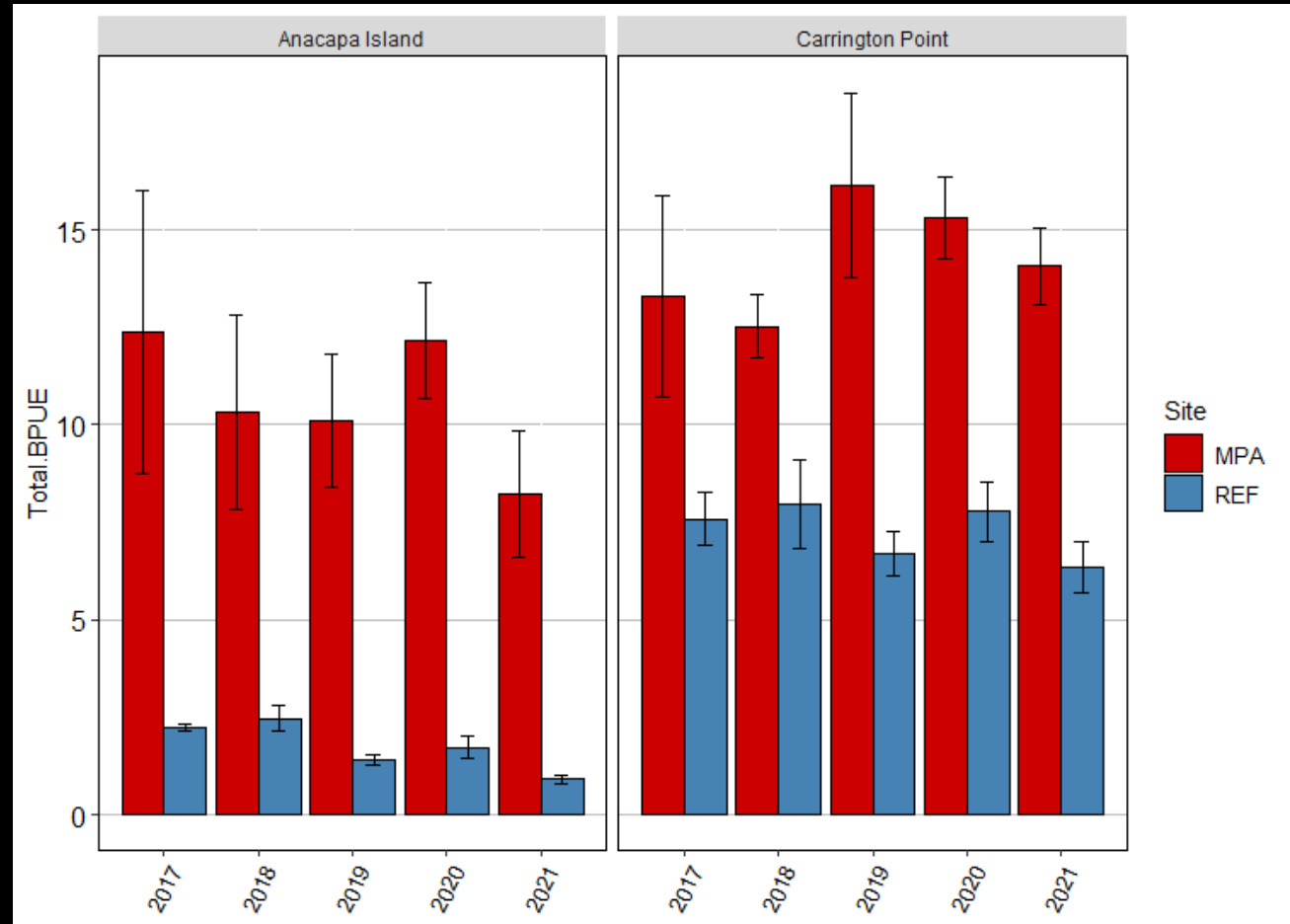
# Biomass Per Unit Effort (BPUE)

- Another important metric we use to assess fishery health is biomass (kg)
- For our purposes, we consider it as a rate, much like CPUE
- Here's how BPUE is calculated:

$$\text{BPUE} = \text{Length (cm)} \times \text{Published Length (cm) : Weight (kg) relationships} \times \text{CPUE}$$


The diagram illustrates the calculation of BPUE. It shows a fish being measured with a ruler, a fisherman catching a fish, and a clock representing time. The equation is: BPUE = Length (cm) x Published Length (cm) : Weight (kg) relationships x CPUE. The CPUE part includes images of various fish and a clock.

# Total BPUE by Site

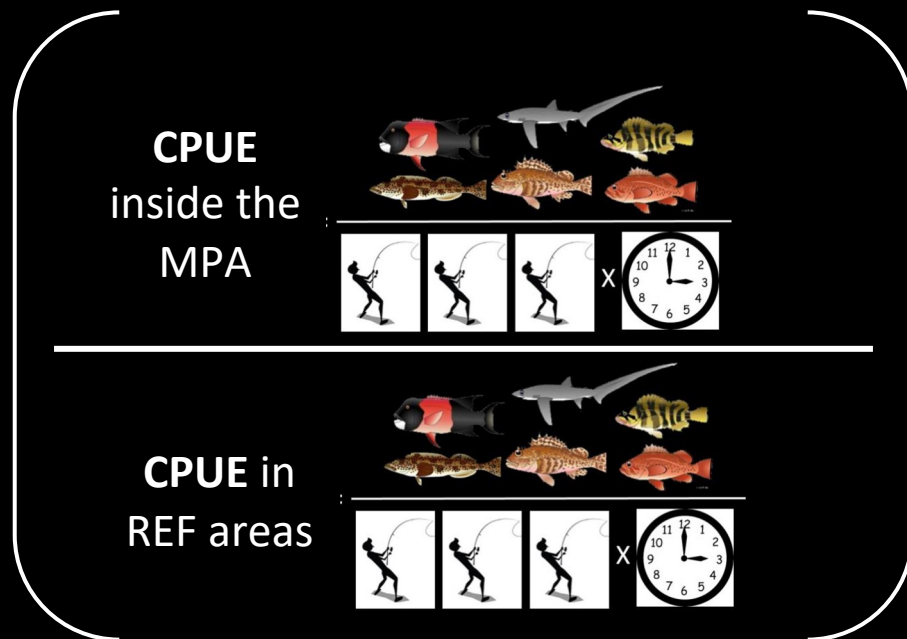


- BPUE may mirror CPUE, or tell a different story

# Response Ratios

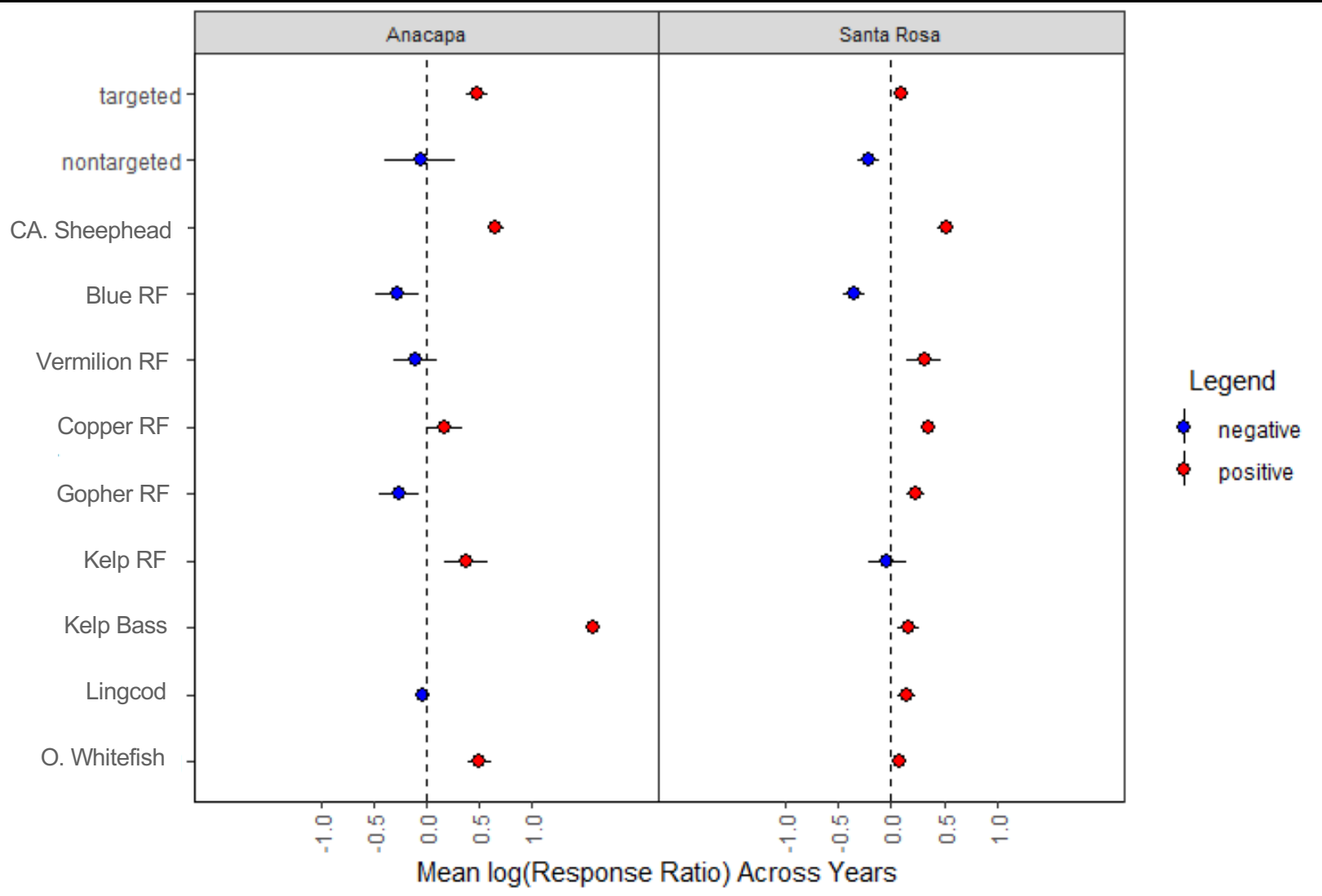
- Allows us to easily compare results among groups, in our case MPA vs. REF
- Can calculate based off of CPUE, BPUE, etc.
- + RR = More inside the MPA
- - RR = More in REF areas
- RR of 0 = No difference

$$RR = \log$$





# Response Ratios



# Data from the DMR Report

## California Collaborative Fisheries Research Program (CCFRP) – Monitoring and Evaluation of California Marine Protected Areas



### CCFRP Program PIs:

Scott Hamilton (Moss Landing Marine Laboratories)  
Rick Starr (Moss Landing Marine Laboratories)  
Dean Wendt (Cal Poly San Luis Obispo)  
Benjamin Ruttenberg (Cal Poly San Luis Obispo)  
Jennifer Caselle (UC Santa Barbara)  
Brice Semmens (UC San Diego)  
Lyll Bellquist (The Nature Conservancy)  
Steven Morgan (UC Davis)  
Tim Mulligan (Humboldt State University)  
Joe Tyburczy (California Sea Grant & Humboldt State University)

### Post-doctoral Researcher:

Shelby Ziegler (Moss Landing Marine Laboratories)

### Statewide CCFRP Coordinator:

Rachel Brooks (Moss Landing Marine Laboratories)

### Lead Technicians:

Grant Waltz (Cal Poly San Luis Obispo)  
Erica Mason (Scripps Institution of Oceanography)  
Chris Honeyman (UC Santa Barbara)  
Sadie Small (UC Davis)  
Jay Staton (Humboldt State University)



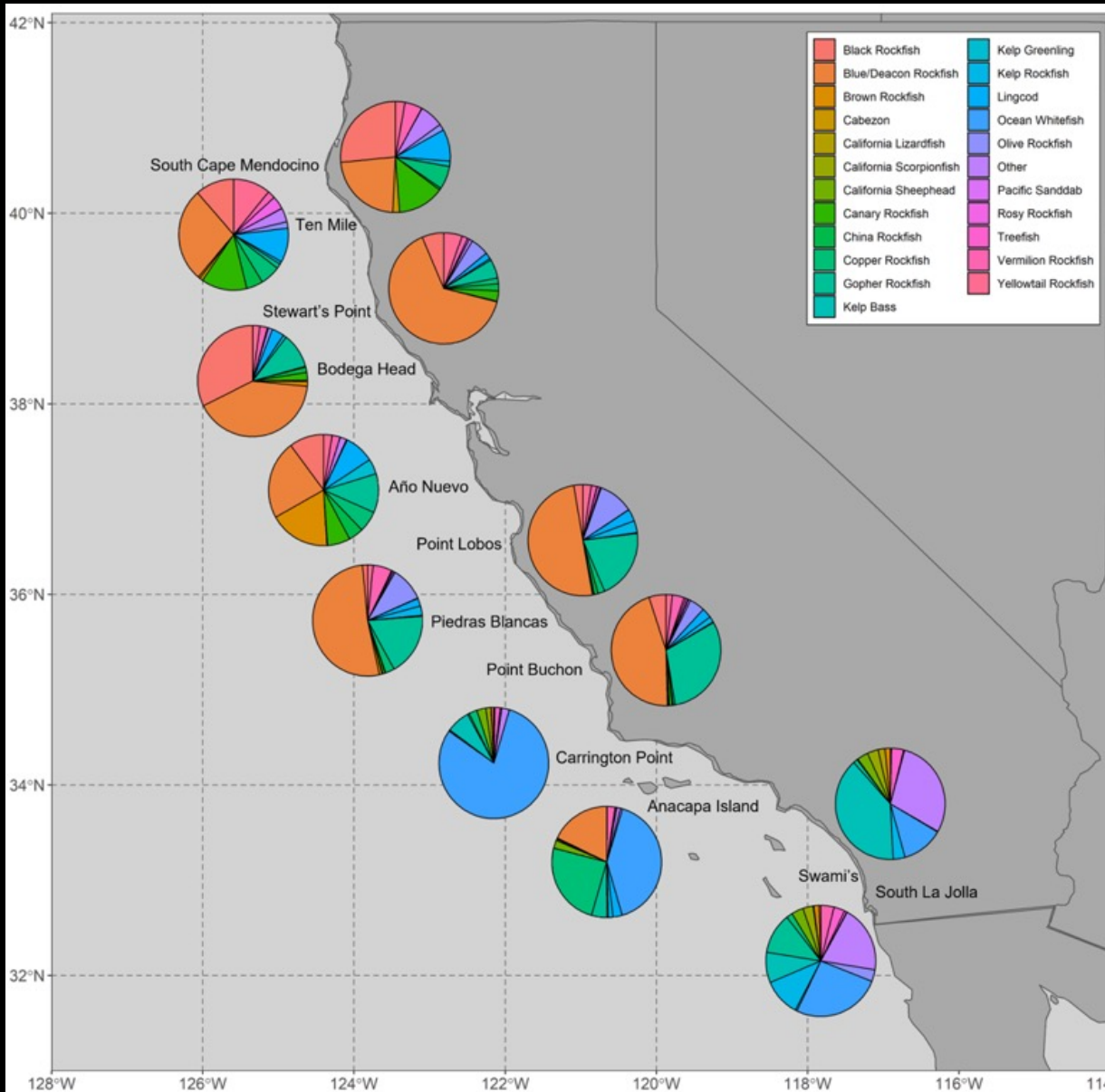
## Major Takeaways:

- Fishes inside MPAs are larger in size and more abundant throughout the vast majority of the state
- Tag return data shows many fishes remained within a small home range for extensive periods of time
- External fishing pressure is the most important metric for understanding differences in MPA effect across the state

You can find CCFRP's full (all 211 pages!) DMR report here:

<https://caseagrants.ucsd.edu/news/california-marine-protected-area-long-term-monitoring-program-final-reports-2019-2021>

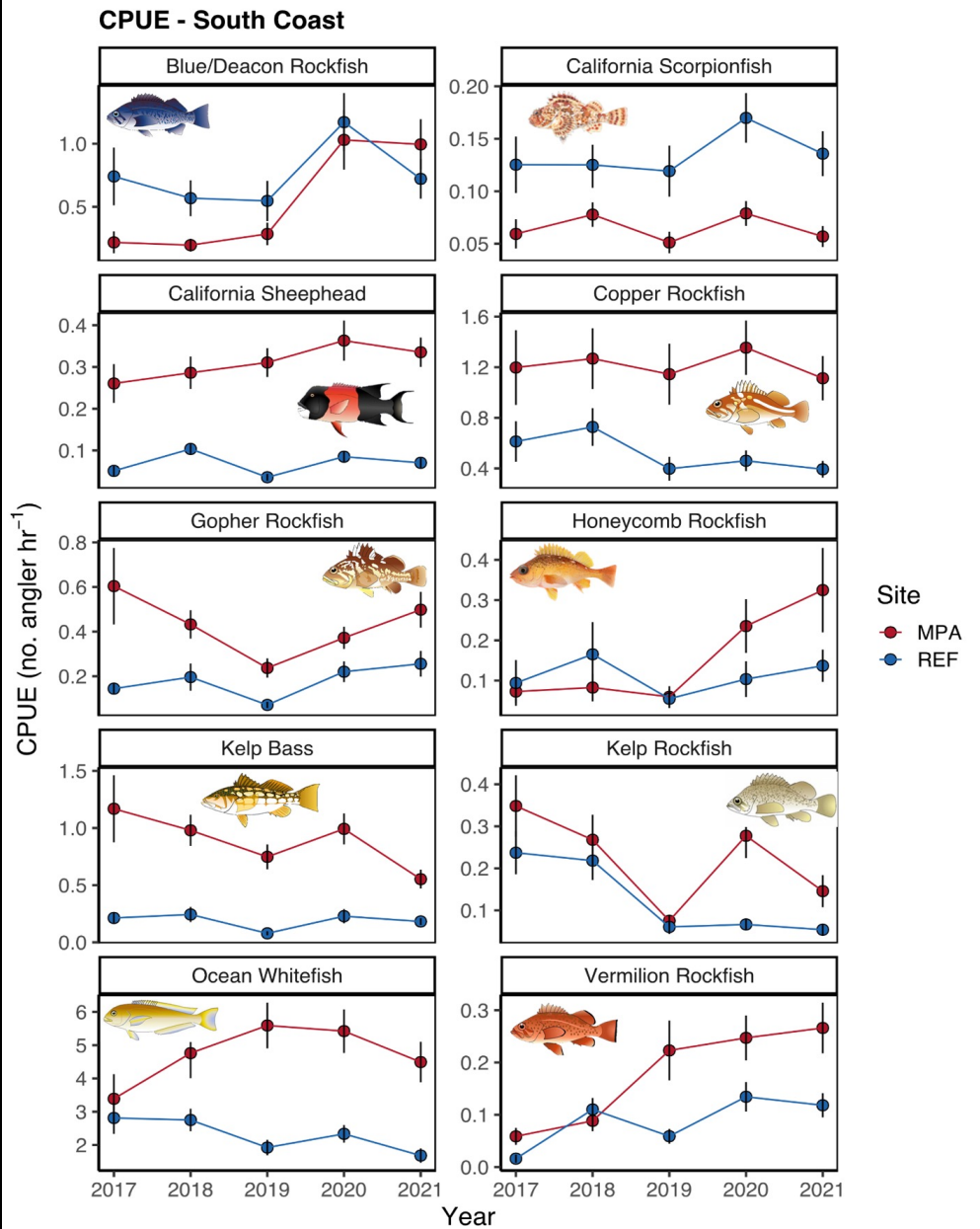
# Species Composition - Statewide



- As we move from North to South, we see changes in community composition at our sampling sites

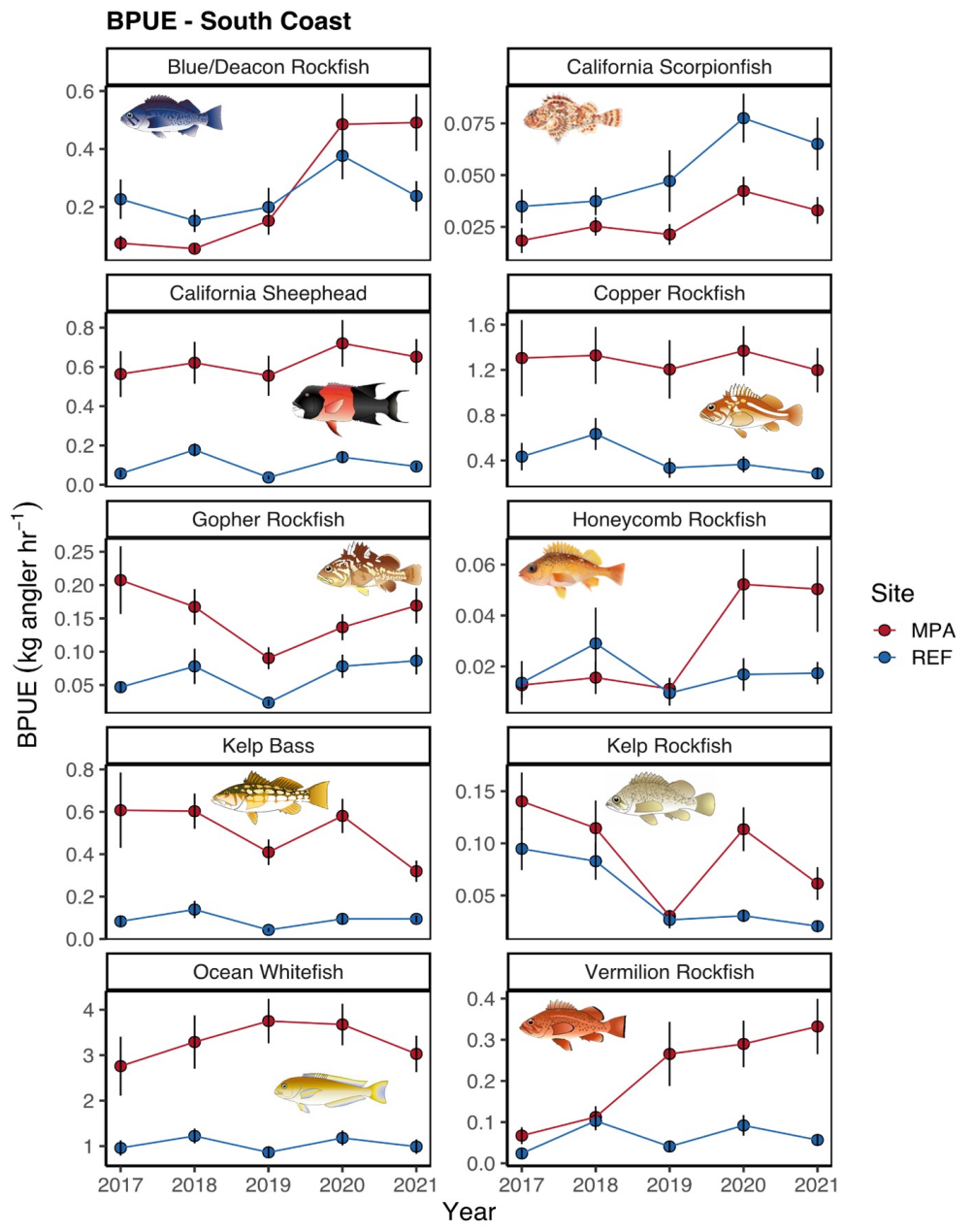


# CPUE for Species of Interest – South Coast



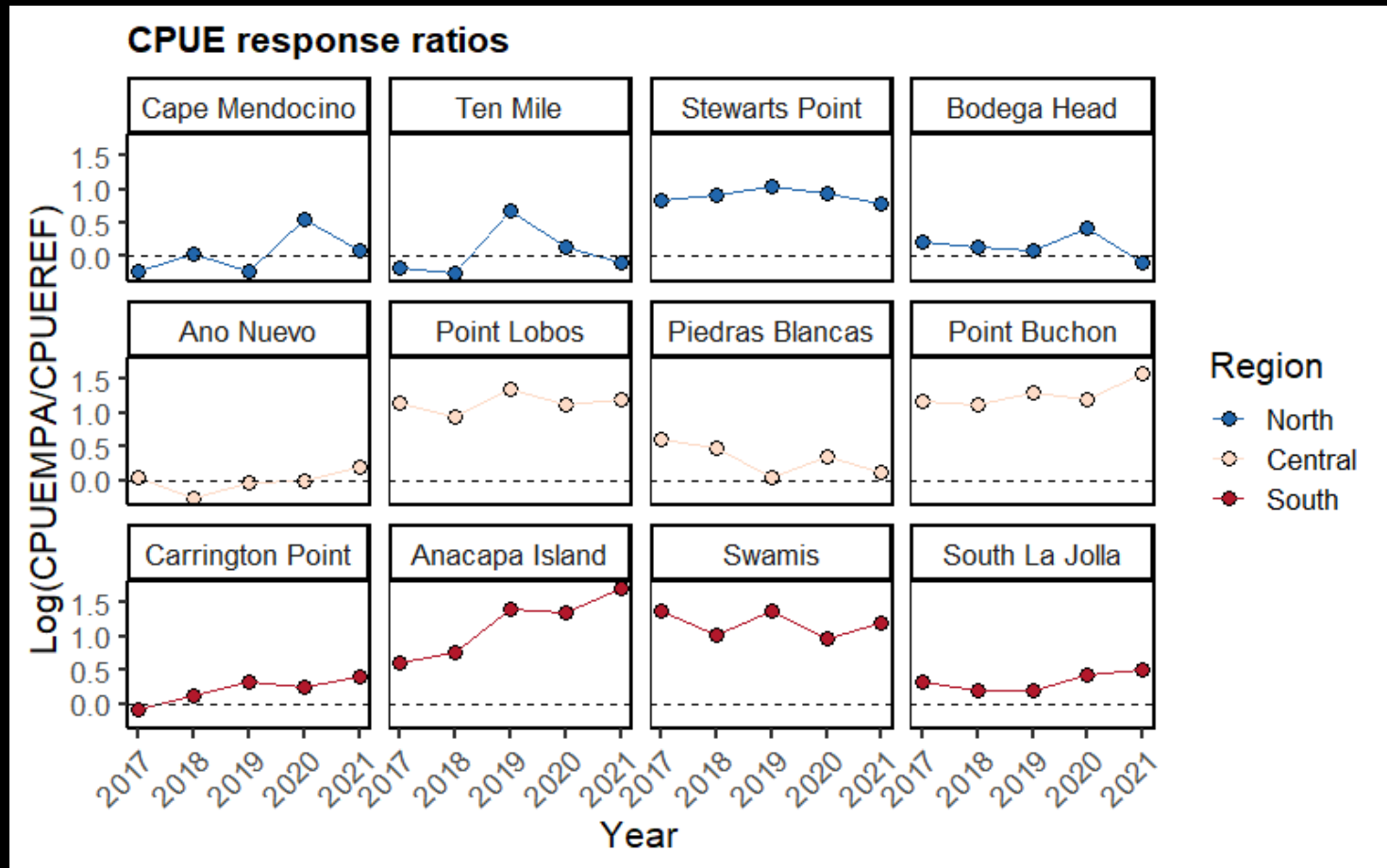
- Includes data from Channel Islands and San Diego MPAs
- The majority of commonly caught species are caught more frequently inside the MPA than outside year after year

# BPUE for Species of Interest – South Coast



- Like CPUE, we generally see more biomass inside the MPAs for our South Coast species of interest

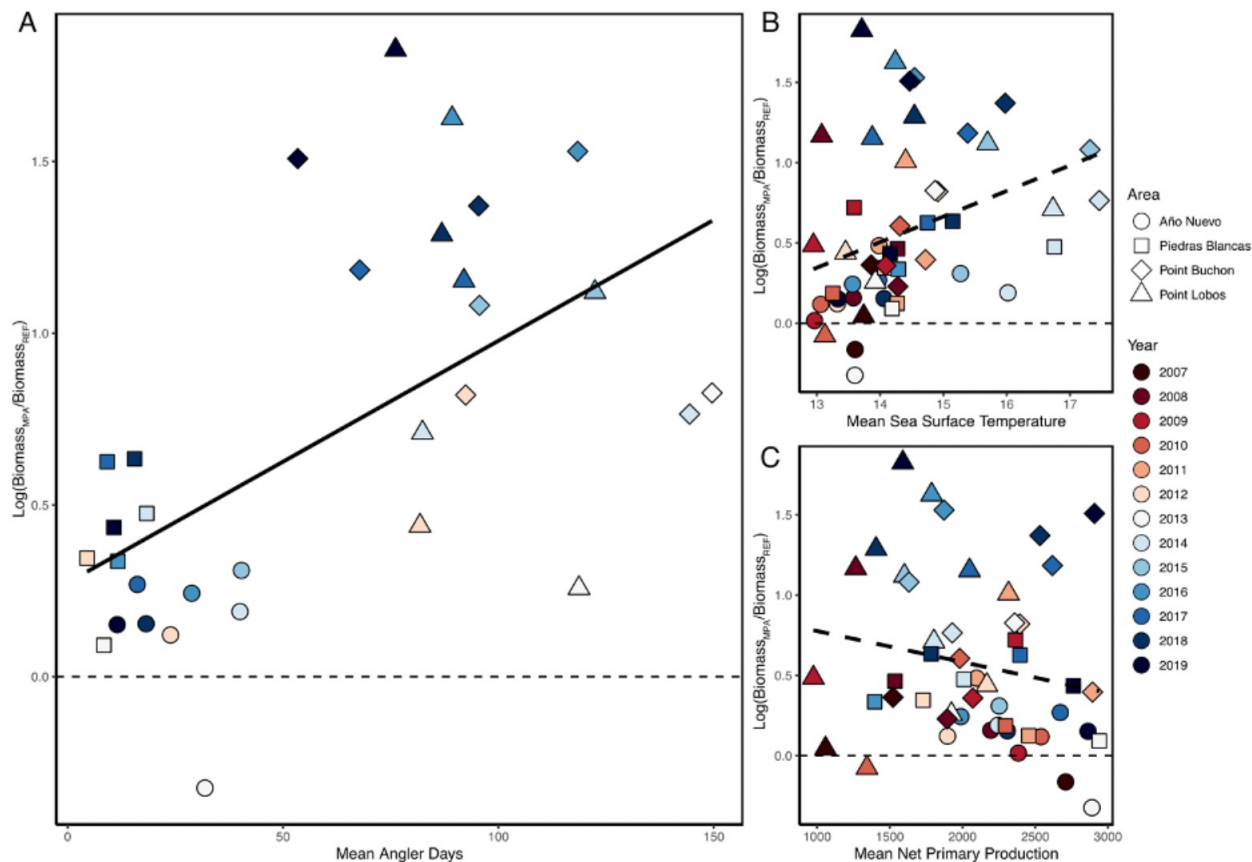
# CPUE Response Ratios Over Time - Statewide



- In most of the MPAs CCFRP samples, we see positive CPUE response ratios across years



# Response Ratios vs. Fishing Effort – Central Coast



**Figure 67.** Fishing effort (A) and environmental variables [SST (B) and NPP(C)] in relation to biomass response ratios for the four MPAs along the Central coast for years with sufficient data between 2007 and 2019. Trend lines are linear regressions for the effect of each variable on biomass response ratios.



But one metric is clearly the most important....





# Who Caught the Most Fish?

Angler	Average # of Fish Caught per Trip
Ryan W.	58
Adam H.	49
Russell P.	46
April B.	36
Hannah K.	36
Bill P.	34





# Who Caught the Biggest Fish?

Angler	Winning Catch by Species
Marcy D.	Pacific Barracuda (30.3 in)
Christian G.	Lingcod (30.3 in)
John S.	CA Sheephead (30.3 in)
Bill P.	Lingcod (30 in)
Justin P.	Ocean Whitefish (30 in)
Justin P.	CA Sheephead (29.5 in)
Michael R.	CA Halibut (29.1 in)
John B.	Lingcod (29.1 in)



# Who Caught the smallest Fish?

Angler	Trophy Catch by Species
Lester Y.	Rosy Rockfish (5in)
Justin S.	Jack Mackerel (5in)
Ryan W.	Vermilion Rockfish (5in)
Mac P.	Squarespot Rockfish(5.9in)
Wayne K.	Blue Rockfish (5.9in)
John C.	Vermilion Rockfish (6.2in)



Follow Us!  
@Casellelab  
and  
@CCFRP



Thanks for  
joining us!

