



COLLABORATIVE  
NETWORK

# CLIMATE AND THE COAST

## SAN DIEGO



### San Diego Marine Protected Area Collaborative

Perspectives on climate change, the coast, and  
California's Marine Protected Area Network

*A summary of the greatest concerns, needs, and  
priorities from a survey and focus group of San  
Diego residents on climate change, the coast, and  
marine protected areas (MPAs).*

[www.mpacollaborative.org](http://www.mpacollaborative.org)



## EXECUTIVE SUMMARY

This report is a summary of 30 survey respondents and 17 focus group attendees in San Diego.

Participants discussed climate resiliency and benefits of MPAs, climate change-related risks to MPAs, and avenues for ensuring MPAs continue to promote a healthy ocean.

Recommendations for decision makers can be found on page 3.

## Key Takeaways

The following key takeaways are highlighted in further detail throughout the report.

Respondents believe...

- **climate change is negatively impacting MPA effectiveness**, coastal ecosystems, and coastal communities
- **MPAs are helping address climate change** impacts on local coastal ecosystems and communities
- **marine management is a priority** for addressing climate change
- **climate action is a high priority** for their community

Some takeaways **specific to San Diego County** include:

- MPAs provide a **sanctuary for ecosystems and recreationists**
- Engagement with MPAs/MPA education can be a means of **reconnection to the coast** and **cultural heritage preservation for the Kumeyaay Nation**
- Concerns around warm **water-driven range shifts of pelagic fish, kelp forest decline, and cliffs eroding** into the ocean due to coastal development

# Recommendations

*The following recommendations represent the perspectives of respondents and do not necessarily represent the perspectives of the MPA Collaborative Network, which represents many diverse viewpoints*

## Develop...

- **outreach and education materials** (messaging) that clearly and succinctly communicates the intersections of climate change and MPAs
- **positions** within each organization/agency/department dedicated to climate change
- **co-management agreements** for MPAs between Tribes and state governing agencies
- **funding streams** towards projects focused explicitly on climate change and MPAs
- **learning opportunities** for partners and the public to learn about the intersections of MPAs and climate change
- **clear communication** to partners and the public about how **adaptive management** will address climate change

## Prioritize...

- **Traditional Ecological Knowledge (TEK)** in management and research practices
- **Protection of blue carbon ecosystems**
- **Research and monitoring** projects focused on MPAs and climate change to inform management decisions

## Assess potential positive climate impacts of...

- **allowing for restoration** activities within MPAs
- **expanding protected areas** and **implementing stronger protections**
- additions of **dynamic MPAs** that address changing conditions

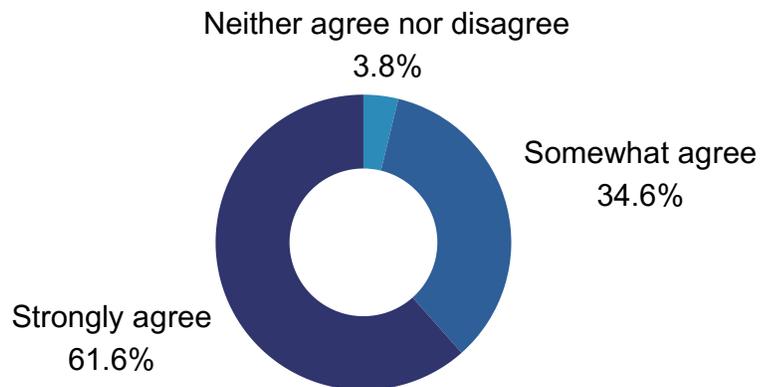
## Conduct...

- a **blue carbon inventory** for California's MPAs (either as a whole or individually) that estimates how much blue carbon they sequester, as well as how much greenhouse gases are created through the management program
- **A climate change vulnerability assessment** for California's MPAs (either as a whole or individually)

# TAKEAWAY #1

## Respondents believe climate change is highly impacting MPA effectiveness and coastal ecosystems

1.1 Indicate how strongly you agree or disagree with the following statement:  
**Climate change is impacting MPA effectiveness.**



1.2 Rank your **biggest concerns about how climate change impacts** your local coastal ecosystems and marine protected areas (MPAs).

### Concerns ranked from highest to lowest

- 1 Increased ocean temperatures and marine heatwaves
- 2 Ocean acidification
- 3 Sea level rise
- 4 Climate driven shift in human impacts
- 5 Coastal storms
- 6 Invasive species
- 7 Wildfire runoff
- 8 Other \*



“When you take out one species from an ecosystem, others are impacted.”  
- Respondent

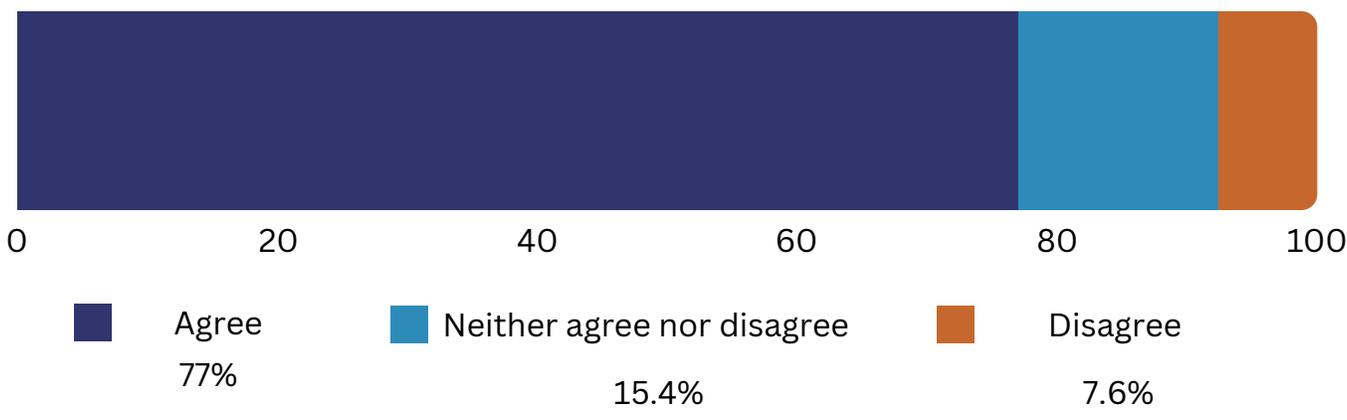
\*Concerns mentioned in the “other” section included: biodiversity impacts, flooding, loss of intertidal habitat, extinction of marine life, and desecration of cultural heritage and human remains.

# TAKEAWAY #2

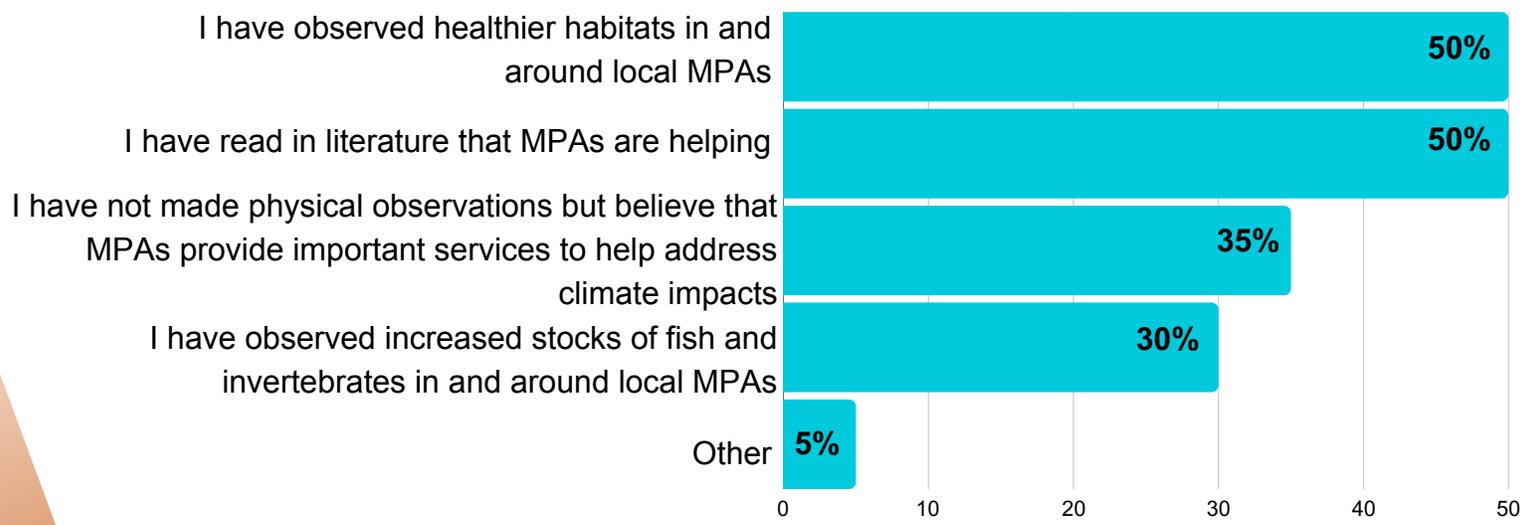
## Respondents believe MPAs are helping address climate change impacts on local coastal ecosystems

2. Indicate how strongly you agree or disagree with the following statement:  
**My local MPAs are offsetting/helping address these impacts to my local coastal ecosystems.**

A majority of respondents felt that their local MPAs are offsetting/helping address impacts to local coastal ecosystems. In particular, 77% MPAs are strongly (30.8%) or somewhat (46.2%) offsetting climate impacts.



Respondents who **agreed** local MPAs are offsetting/helping address impacts to your local coastal ecosystems were asked why.\*



\*Respondents were allowed to choose more than one answer

## TAKEAWAY #3

### Respondents are concerned about the impacts of climate change on coastal communities

3. Rank your biggest concerns about how the following **climate impacts affect the health** (ability to function and thrive) **of your community or your community's resilience** (ability to bounce back).

#### Concerns ranked from biggest to smallest:

- 1 Warming and changing oceans further accelerating and exacerbating climate change on a larger scale
- 2 Impacts to species used for sustenance
- 3 Impacts to culturally important species
- 4 Impacts to infrastructure
- 5 Loss of aesthetically, culturally, and/or spiritually important sites
- 6 Widening of existing social inequalities
- 7 Loss of economic resources or opportunities
- 8 Diversion of resources that could be used for other community programs/priorities
- 9 Other \*



“Threat to cultural heritage and identity along the coast [for the Kumeyaay Nation]” - Respondent

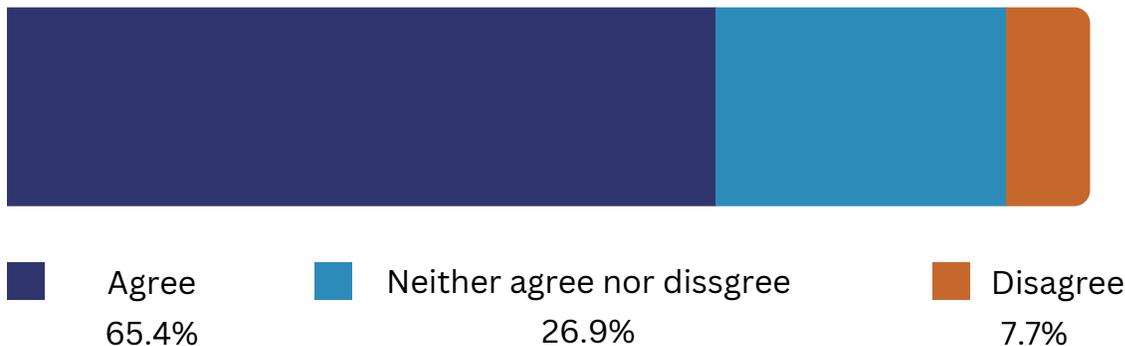
“Migratory patterns of pelagic species have shifted (i.e., bluefin and albacore) which is impacting the fishery”- Respondent



## TAKEAWAY #4

### Respondents believe MPAs are helping address climate impacts on communities

4. Indicate how strongly you agree or disagree with the following statement: **My local MPAs are offsetting/helping address climate impacts that affect the health (ability to function and thrive) of my community or my community's resilience (ability to bounce back)**



Respondents that **agreed** were asked to explain their answer. A thematic analysis of responses revealed the most frequently mentioned topics:

- MPAs provide sanctuary for species
- biodiversity increases resilience
- healthy marine ecosystems sequester carbon
- MPAs allow ecosystems to thrive without human impacts
- MPAs have the ability to act as a human buffer
- MPAs protect species that are culturally important and used for sustenance

Respondents that **disagreed** were also given a chance to explain their answer. **Only one response was submitted, stating ‘MPAs are too small and poorly enforced to offset large scale climate changes’.**



“If we can keep some natural systems in the ocean intact, species will migrate there to reproduce and hopefully thrive. If the species thrive the physical, mental and economic health of the community follows.”

- Respondent

## TAKEAWAY #5

### Respondents believe marine management is a priority for addressing climate change

5.1 How would you **prioritize marine management alongside other climate change solutions** (such as renewable energy and carbon sequestration)?



5.2 Rank what you believe are the **most important priorities for adaptively managing MPAs** specifically in the face of climate change.

#### Priorities ranked from most to least important

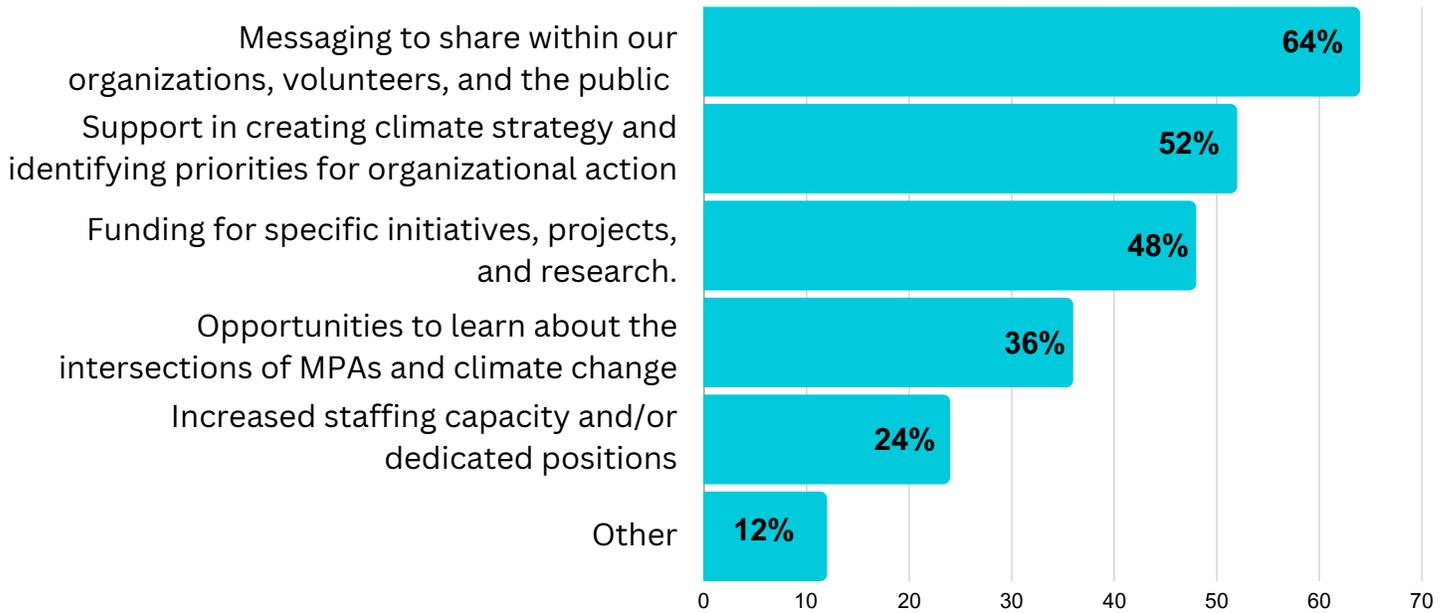
- 1 Protection of blue carbon ecosystems (kelp, seagrasses)
- 2 Expansion of protected areas and stronger protections
- 3 Research and monitoring projects to collect more data to inform decisions
- 4 Allow for restoration activities within MPAs
- 5 Integration of Traditional Ecological Knowledge (TEK) into MPA management and research
- 6 Co-management of MPAs between tribes and state governing agencies
- 7 Take necessary management action to allow for landward migration of submerged aquatic habitats
- 8 Consider addition of dynamic MPAs that address conditions impacting California currents



# TAKEAWAY #7

## Highest needs of respondents

7. What are the **needs of your organization/agency/tribe/business/community** in relation to MPAs and climate change?\*



\*Respondents were allowed to choose more than one answer

### Respondents expressed a need for funding to support their work, specifically:

- Tribal Consultation
- Integrate cultural and recreation aspects of marine managed areas (including MPAs) into management
- Invasive species removal
- Land acquisition
- Monitoring
- Restoration
- To support implementation of environmental protections
- Upgrade enhancement plans
- Wildlife monitoring

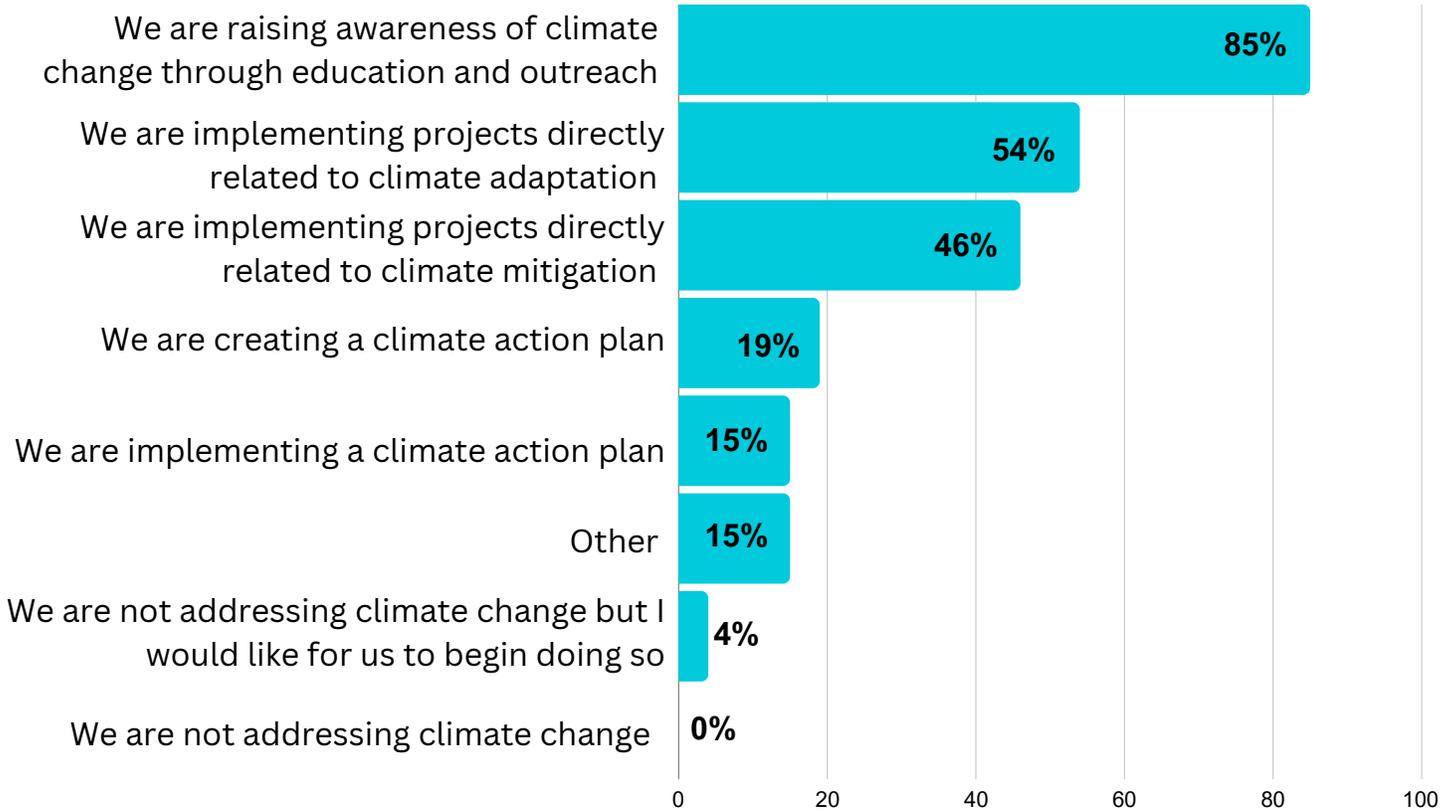
### Those who selected other were asked for more information. Responses included:

- Monitoring of individual MPAs
- Public education
- Large scale public relations study and program to better preserve coastal resources

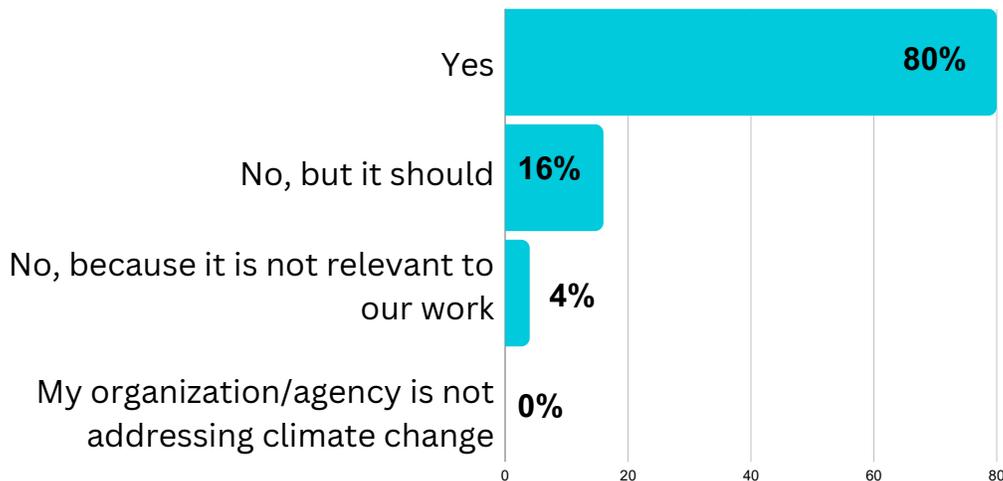
# APPENDIX A

## Community Work

**How is your organization/agency/tribe/business/community addressing climate change?\***



**Do the climate actions of your organization/agency/tribe/business/community incorporate or consider MPAs?\***



\*Respondents were allowed to choose more than one answer

# APPENDIX A

## Community Work and Resources

The following information/resources were provided by participants in regards to the work that is already occurring within San Diego and relevant community resources.

### What is currently being done to address climate change:

- Efforts to protect village sites through tribal monitoring and adherence to the Native American Graves Protection and Repatriation Act (NAGPRA) law, focusing on data collection and repatriation
- Ongoing monitoring of sea level rise, full/new moons, and emergency response preparedness for inevitable bluff failures
- Initiatives like [ReWilding Mission Bay](#), a symposium addressing climate change topics, and research in blue carbon analysis
- Del Mar is educating residents more about how to adapt to climate change ([especially] since storms will be more common and stronger). Having a 6-hour symposium in 5 weeks covering 10 different topics (could use an MPA representative)
- [WILD Coast: Blue Carbon Collaborative](#); [Feeling the Heat Lesson Plan](#) (climate and MPAs education for grades 9-12), Research within blue carbon ecosystems with Matt Costa. Wetland carbon stock assessments

## Resources

For resources on Climate Change and MPAs, as well as resources specific to your region, [visit our resources document \(click on this link or scan QR code\)](#).



Resources

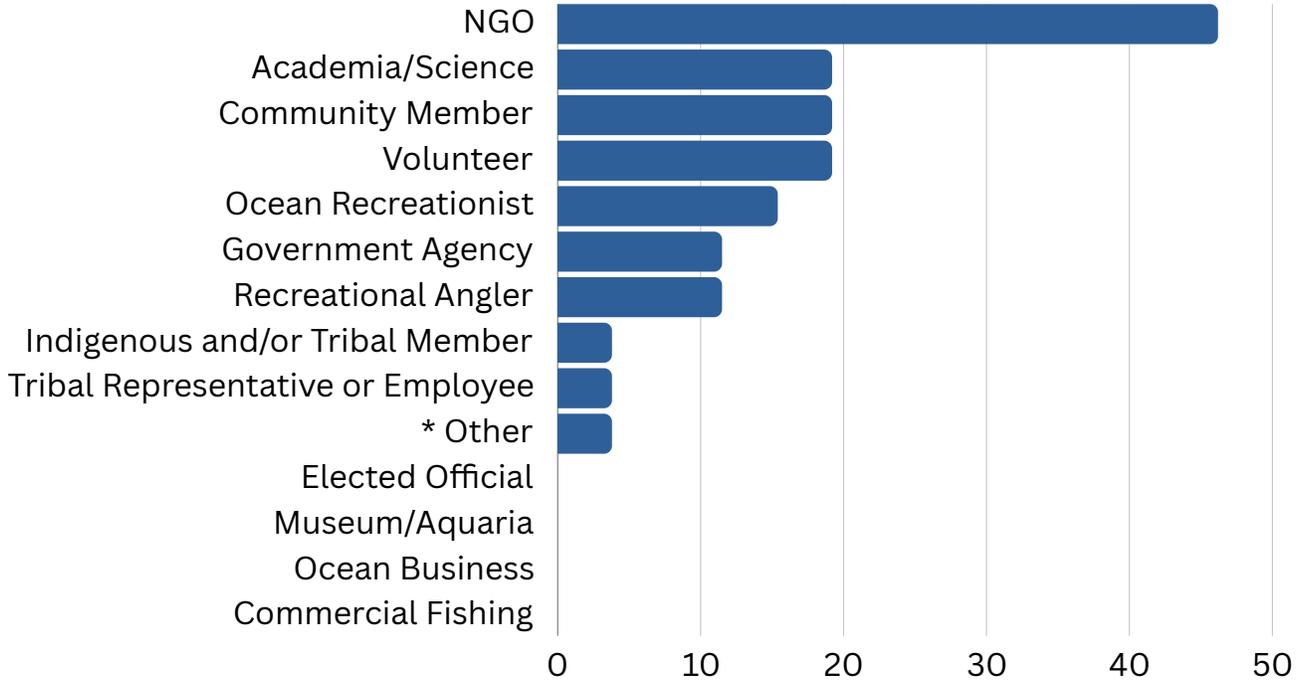


 San Diego-Scripps Coastal SMCA

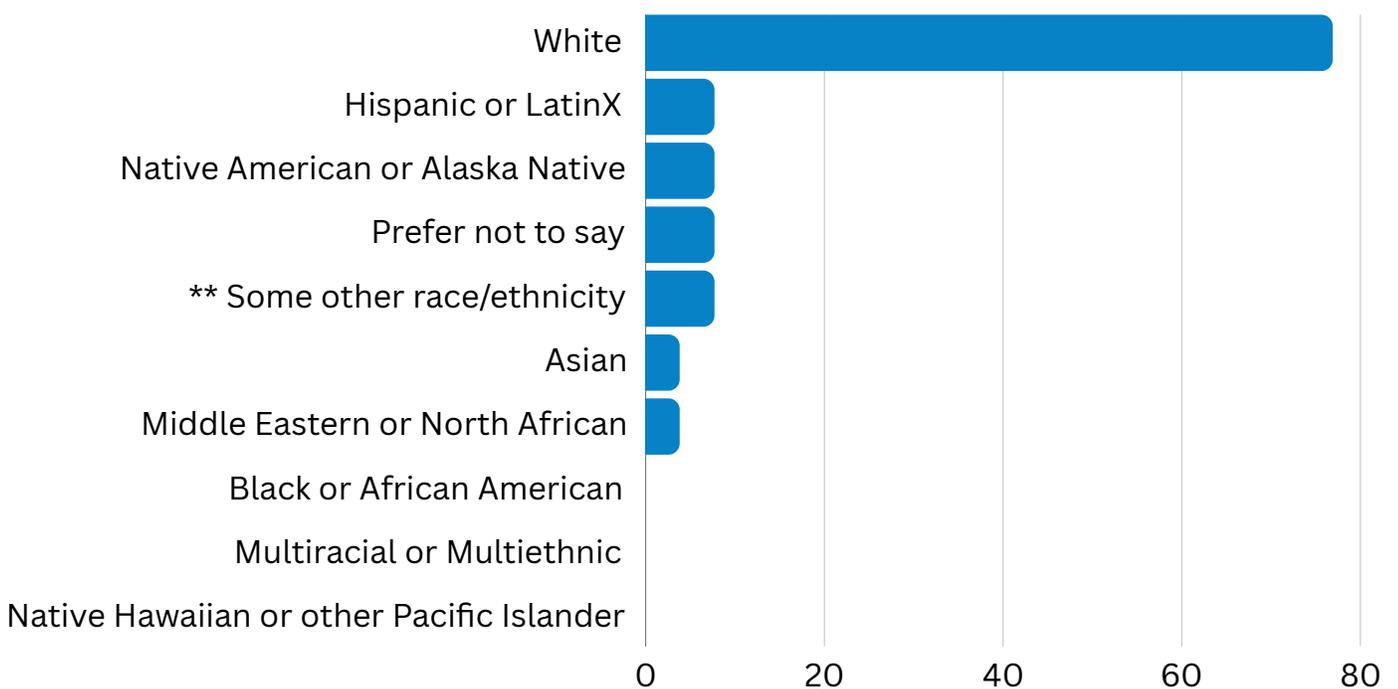
# APPENDIX B

## Demographics of survey respondents

### Sector Affiliation(%)\*



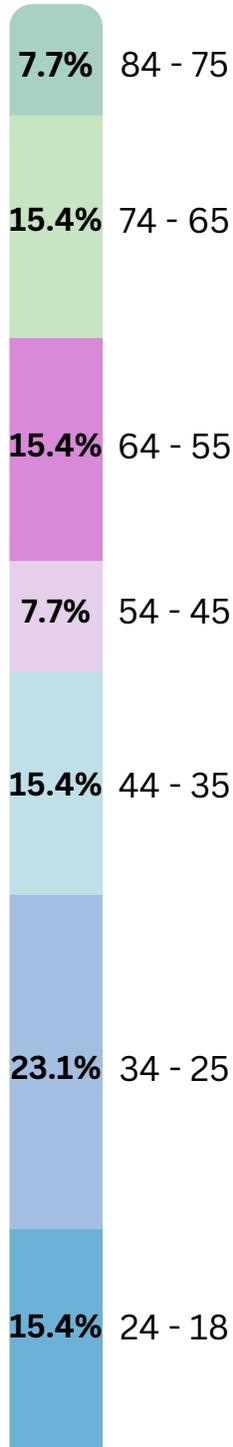
### Which race, ethnicity and/or origin categories describe you?(%)\*



\*\* For "Some other race/ethnicity" the following was provided, "Gabrielino-Shoshone", "Kumeyaay", "Persian", "USA", and "Half Nicaraguan."

# APPENDIX B

## Age Groups

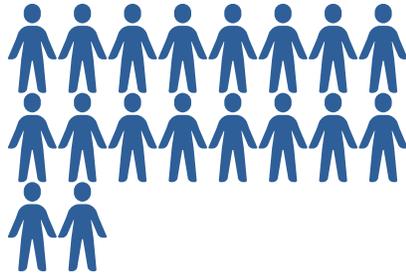


0% of respondents selected any of the following age groups: "Under 18" and "over 85".

## Gender Identity



31% of respondents selected "male" as their gender identity.

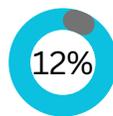


69% of respondents selected "female" as their gender identity.

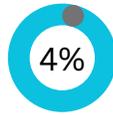


0% of respondents selected any of the following gender identities: "Non-binary", "Transgender", "Not listed/Option to specify", or "Prefer not to say."

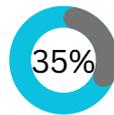
## Highest level of education



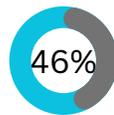
12% Some college, but no degree



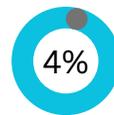
4% Associates or technical degree



35% Bachelor's degree



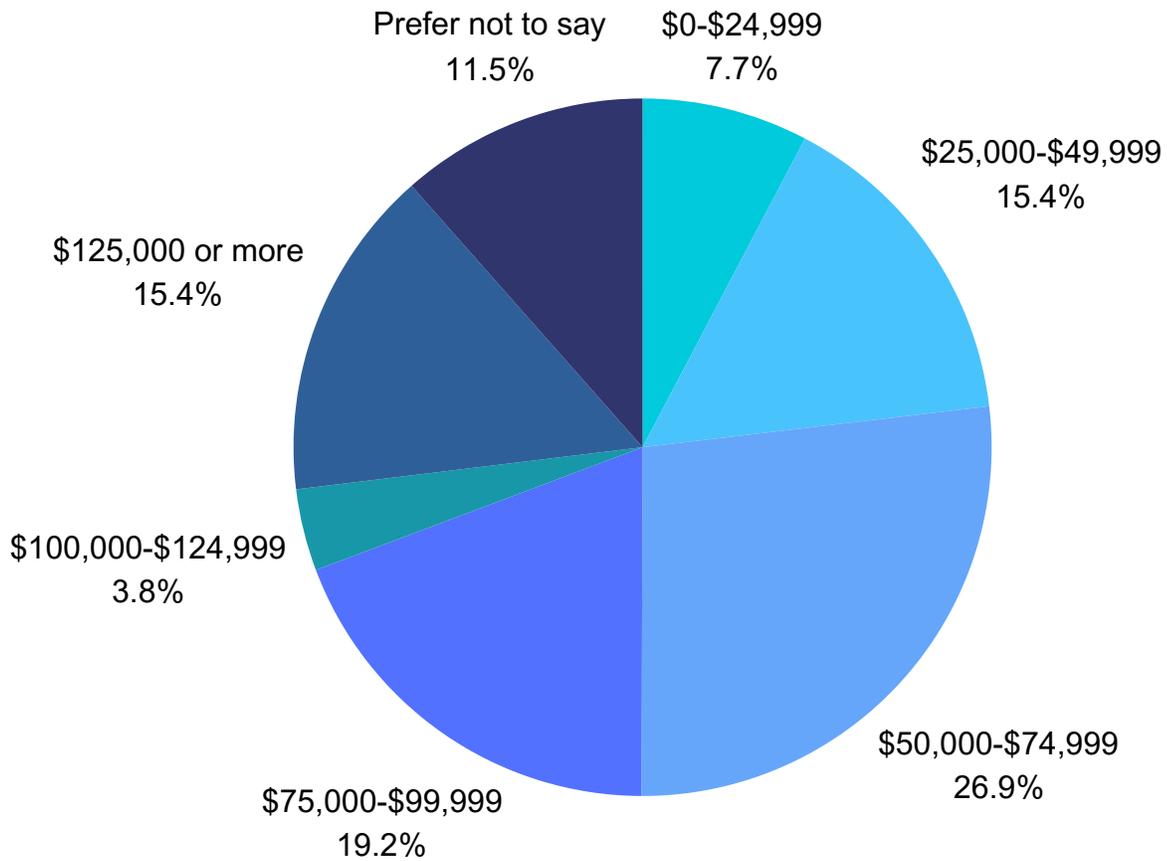
46% Graduate or professional degree



4% Prefer not to say

# APPENDIX B

## Annual household income (before taxes) in 2022





## ABOUT THE MPA COLLABORATIVE NETWORK

The MPA Collaborative Network (CN) ensures that MPAs are effective by providing a robust structure for civic engagement in MPA management. The CN's 14 county-based volunteer groups (collaboratives) bring together over 1,700 members representing hundreds of distinct and diverse Californian organizations, agencies, Tribes, individuals, interests, and backgrounds for a more comprehensive and localized approach to resource management.

Learn more as well as join your collaborative:

[www.mpacollaborative.org](http://www.mpacollaborative.org)

For more information on MPAs:

<https://wildlife.ca.gov/Conservation/Marine/MPAs>

Photo credit: Aubrie Fowler, South Coast Specialist,  
MPA Collaborative Network