MPA COLLABORATIVE NETWORK

CLIMATE AND THE COAST

GOLDEN GATE

Golden Gate 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 residents from Marin and San Francisco Counties on climate change, the coast, and marine protected areas (MPAs).

www.mpacollaborative.org

EXECUTIVE SUMMARY

This report is a summary of 10 survey respondents and 12 focus group attendees in the Golden Gate Collaborative area (Marin and San Francisco Counties).

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 2.

Key Takeaways

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

Respondents believe...

- **marine management is a priority** for addressing climate change and climate action is a high priority for their community

Respondents somewhat believe...

- **climate change is highly impacting MPA** effectiveness & coastal ecosystems, MPAs are helping address climate change impacts on local coastal ecosystems and communities

Some take-aways **specific to Marin & San Francisco Counties** include:

- A need for increased MPA outreach and education to anglers, as well as resources for people to easily identify MPAs from the shore without GPS.
- Money that is going towards restoration should also be used for signage, community engagement, etc.
- Concerns about multiple agencies overseeing MPAs with different management approaches, awareness, communications, and involvement.

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 pubic 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...

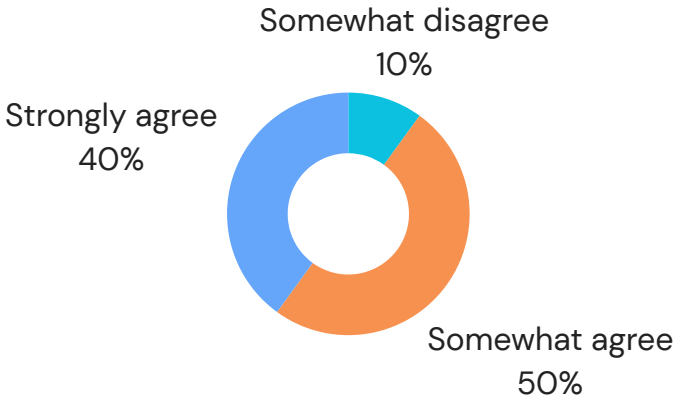
- a **blue carbon inventory** for California's MPAs (either as a whole or individually) that estimates how much blue carbon they sequester, as well as how much greenhouse gases are created through the management program
- **A climate change vulnerability assessment** for California's MPAs (either as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

Credit: Carlos Porrata

TAKEAWAY #1

Respondents somewhat 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. Coastal storms
5. Climate driven shift in human impacts
6. Invasive species
7. Wildfire runoff
8. Other *

"Linda Mar Beach and certain parking lots [are] more prone to damage due to low lying areas..."
- Respondent

*Concerns mentioned in the "other" section included: Deoxygenation, Shift in marine species populations, and Species Range Shifts.

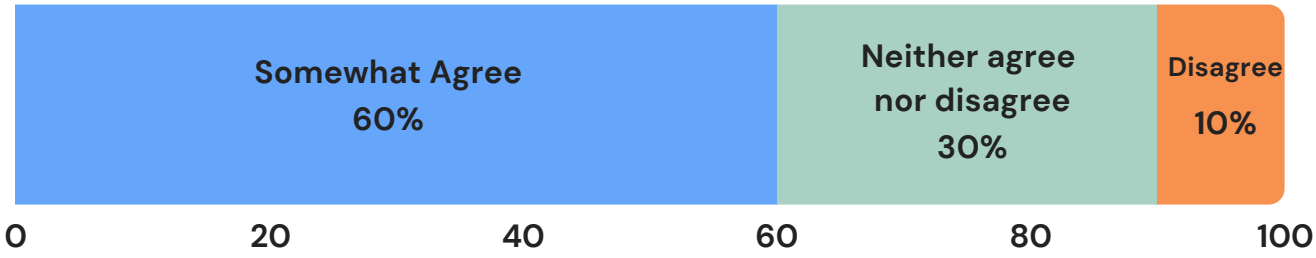
Credit: Morgan Patton

TAKEAWAY #2

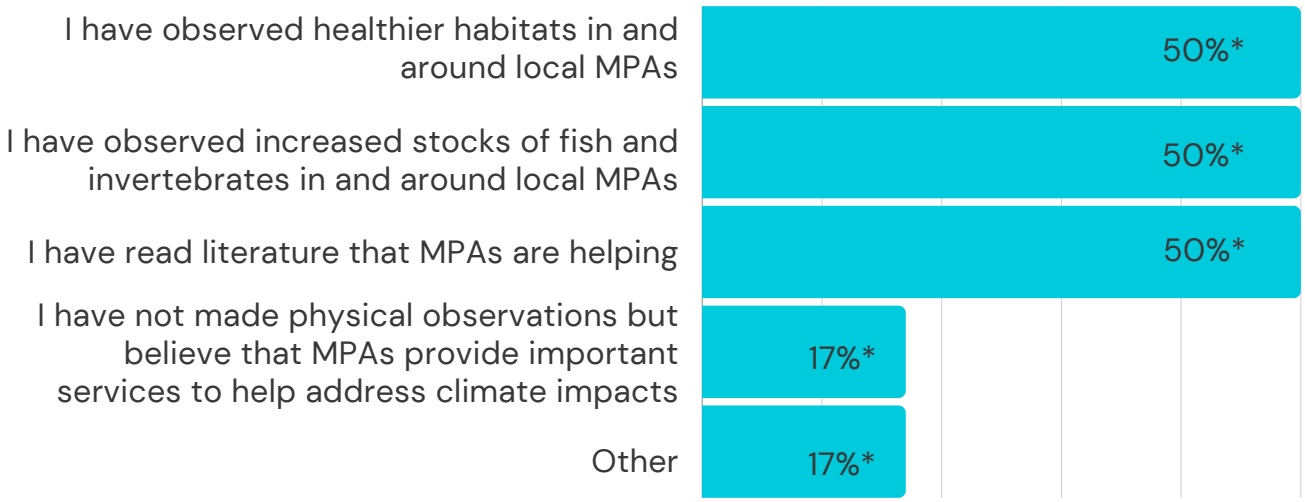
Respondents somewhat believe MPAs are helping address climate change impacts on local coastal ecosystems

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, (60%) of respondents somewhat agreed, (30%) neither agreed nor disagreed, and (10%) disagreed that MPAs are offsetting/addressing climate impacts on their local coastal ecosystems.



Respondents who **somewhat agreed,** that local MPAs are offsetting/helping address impacts to [their] 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. Loss of aesthetically, culturally, and/or spiritually important sites
5. Widening of existing social inequalities
6. Impacts to infrastructure
7. Reduction of recreational opportunities
8. Loss of economic resources or opportunities
9. Diversion of resources that could be used for other community programs/priorities

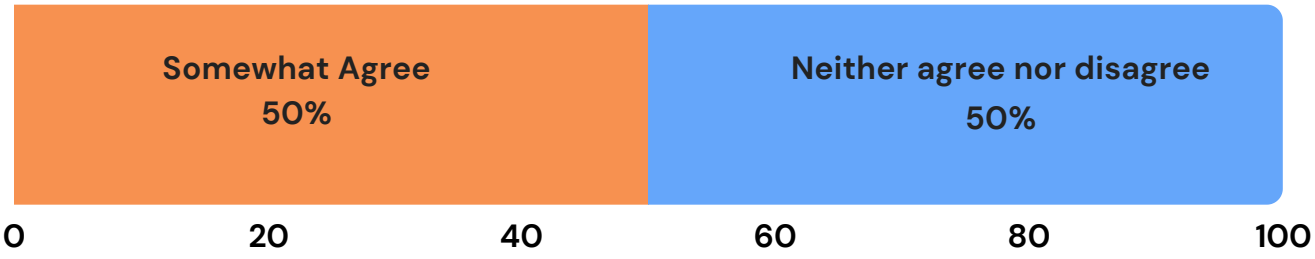
"MPAs help increase the reproductive success of fish, invertebrates, and seaweeds inside and outside MPAs making more resilient the entire coast…I am…interested [in] the role that Indigenous stewardship and tending could play in making MPAs more resilient." - Respondent

"MPA's help protect biodiversity, which confers resilience…more study of and attention to MPAs by agencies and communities may help [identify] ways to address impacts sooner than non-MPAs." - Respondent

TAKEAWAY #4

Half of respondents somewhat 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.
- By protecting areas for recreation and food sustenance.
- By protecting the diversity of habitats and species, MPAs are more resilient.
- MPAs allow ecosystems to thrive without human impacts.
- MPAs have the ability to act as a buffer.
- MPAs provide opportunity for connecting with the environment--the first step to increasing awareness about environmental climate impacts.
- MPAs provide sanctuary for species.

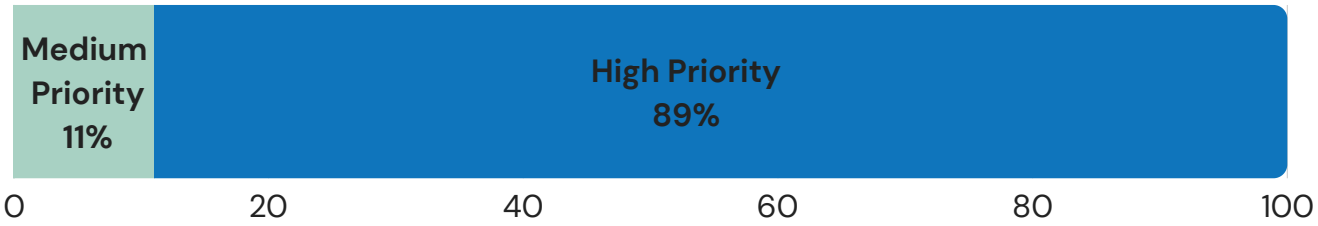
Respondents that **neither agreed nor disagreed** were also given a chance to explain their answer**. No responses were submitted.**

"More intact ecosystems provide more bio-diversity [*sic*] and the ability to adjust and recover form [*sic*] perturbations like sea surface increase or storm damage." - Respondent

TAKEAWAY #5

Respondents believe marine management is a priority for addressing climate change

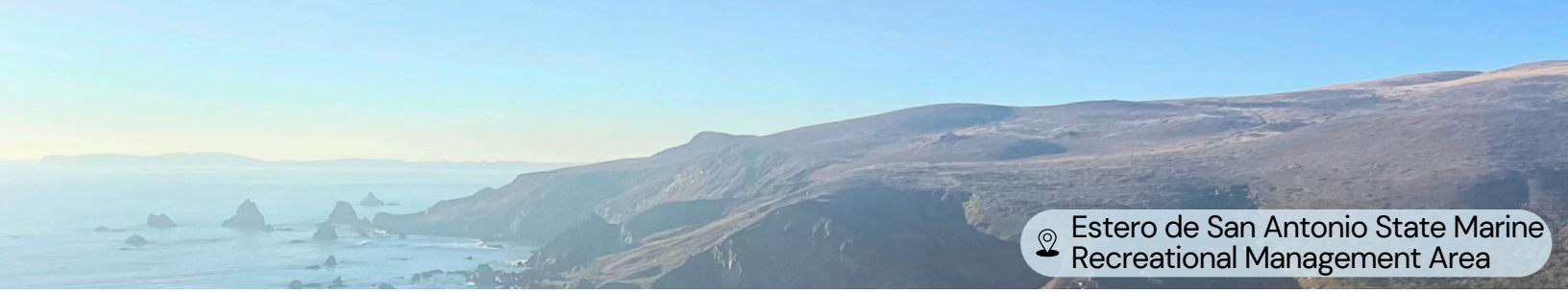
5.1 How would you **prioritize marine management alongside other climate change solutions** (such as renewable energy and carbon sequestration)?



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. Research & monitoring projects to collect more data to inform decisions
3. Integration of Traditional Ecological Knowledge (TEK) into MPA management and research
4. Allow for restoration activities within MPAs
5. Co-management of MPAs between tribes and state governing agencies
6. Expansion of protected areas and stronger protections
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 #6

Respondents believe climate action is a high priority for their community

6. How would you **prioritize climate change alongside other drivers of political, demographic, and/or socioeconomic change** impacting your community?

Respondents had the option to mention the **most important general climate change solution along the coast** (i.e. offshore wind, managed retreat, return of coastal land to tribal management, etc.)?

Credit: Leslie Adler-Ivanbrook

TAKEAWAY #7

Respondents' Highest Needs

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

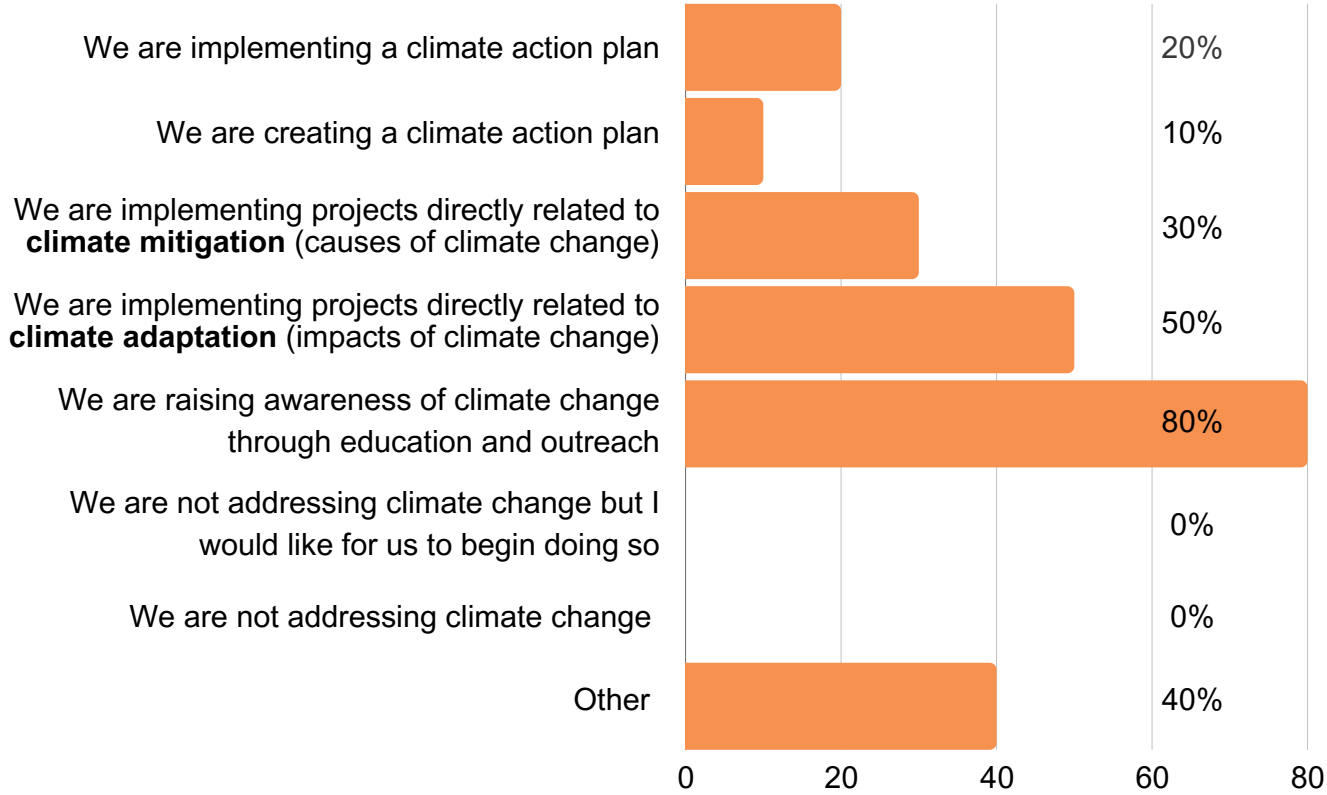
Respondents expressed a need for funding to support their work, specifically:

- More outreach to anglers.
- Clear scientific-based messaging to communities about the benefits of MPAs, and the potential impacts on marine ecosystems and coastal systems.
- Easily identifiable MPA Signage from shore for those without GPS.
- Integrating climate change and impacts in local collaborative communities.
- Continued funding for existing climate change focused projects…instead of creating many new underfunded projects.
- Continued funding for Tidepool Stewards, Snapshot Cal Coast, and the Early Warning and Forecasting System.

APPENDIX A

Community Work

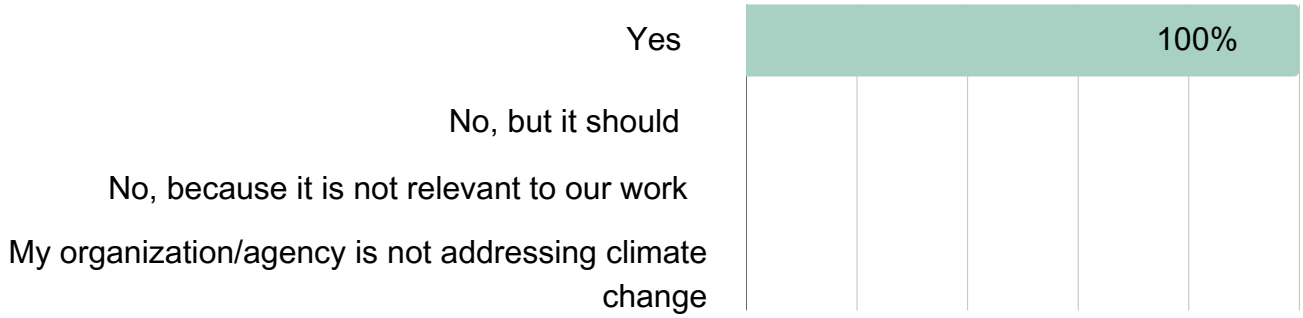
How is your organization/agency/tribe/business/community addressing climate change?*



Some responses for "other": "Through Community science campaigns", "strategic plans calls for incorporating climate messaging into all of our environmental...programs... we also monitor ...offshore breeding seabird colonies..."

*Respondents were allowed to choose more than one answer

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



APPENDIX A

Community Work and Resources

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

What is currently being done to address climate change:

- Community science programs to capture observations:
  - Shark Watch is gathering data on strandings (SF Bay and outer coastline)
  - iNaturalist
  - MPA Watch
  - EcoAdapt: ecoadapt.org/projects/35/Golden-Gate-Biosphere-Region-Climate-Adaptation-Project

- Duxbury Reef docent program helping to protect marine life through education of visitors.

- CalAcademy is working pycnopodia rearing.
- Giant Kelp Restoration Project is conducting good work restoring giant kelp populations off the coast.

Resources

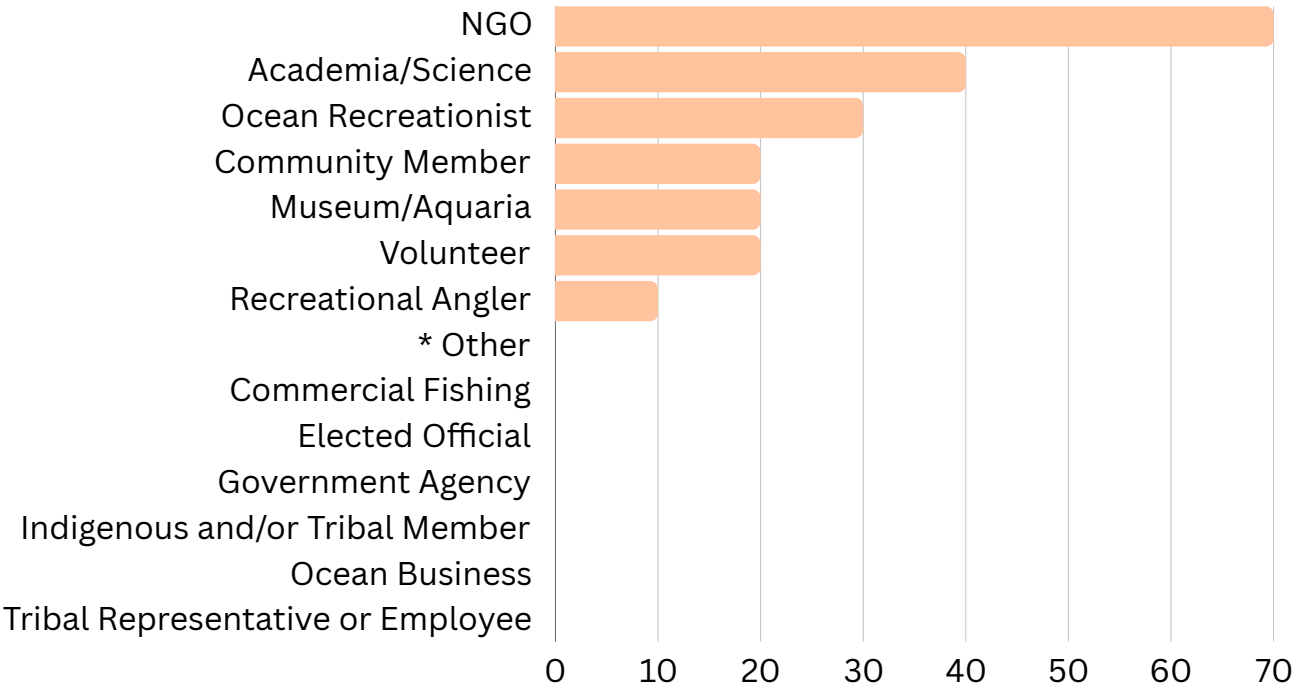
For resources on Climate Change and MPAs, as well as resources specific to your region, visit our resources document (click on this link or scan QR code).

Resources

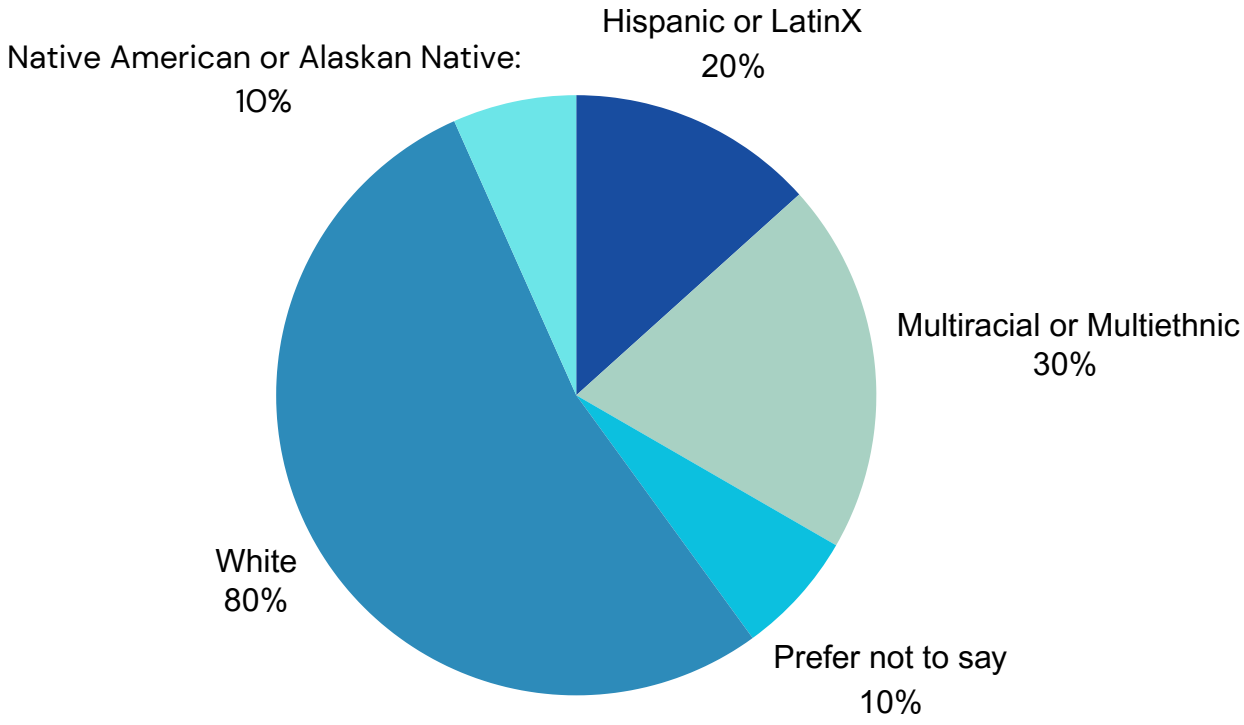
APPENDIX B

Demographics of survey respondents

Sector Affiliation



Which race, ethnicity and/or origin categories describe you?*



**percents do not add up to 100 because respondents were allowed to choose more than one answer*

APPENDIX B

Age Groups

0% of respondents selected any of the following age groups: “Under 18,” “18-24,” “65-74,” and “over 85”.

Gender Identity

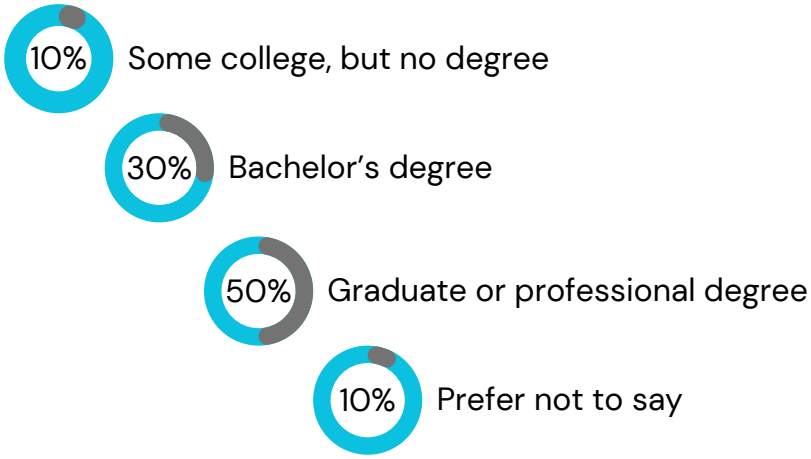
10% of respondents selected “**male**” as their gender identity.

80% of respondents selected “**female**” as their gender identity.

10% of respondents selected “**Prefer not to say.”**

0% of respondents selected any of the following gender identity options: “Non-binary”, “Transgender”, “Not listed/Option to specify”

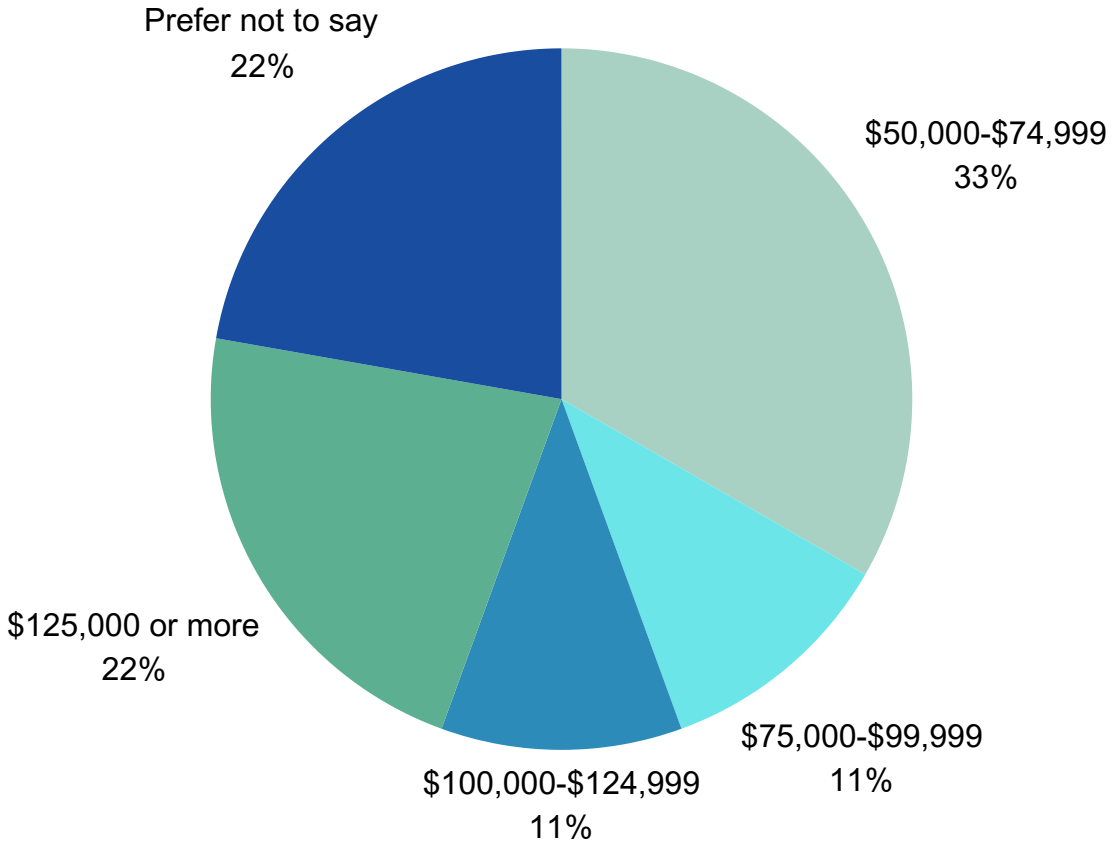
Highest level of education



0% of respondents selected any of the following: “some high school or less”; “high school graduate or GED,” or “associates or technical degree.”

APPENDIX B

Annual household income (before taxes) in 2022



Credit: Carlos Porrata

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

For more information on MPAs, visit
https://wildlife.ca.gov/Conservation/Marine/MPAs

Abbreviations used throughout the reports.
***SMR**= State Marine Reserve. **SMCA** = State Marine Conservation Area.*
***SMRMA**= State Marine Recreational Management Area. **SMP** = State Marine Park*

Photo credit (unless otherwise stated): Calla Allison, Founder and Director, MPA Collaborative Network