

## Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

### Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a Confirmed

- ☒ ☐ The exact sample size ( $n$ ) for each experimental group/condition, given as a discrete number and unit of measurement
- ☒ ☐ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- ☒ ☐ The statistical test(s) used AND whether they are one- or two-sided  
*Only common tests should be described solely by name; describe more complex techniques in the Methods section.*
- ☒ ☐ A description of all covariates tested
- ☒ ☐ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- ☒ ☐ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
- ☒ ☐ For null hypothesis testing, the test statistic (e.g.  $F$ ,  $t$ ,  $r$ ) with confidence intervals, effect sizes, degrees of freedom and  $P$  value noted  
*Give  $P$  values as exact values whenever suitable.*
- ☒ ☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- ☒ ☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- ☒ ☐ Estimates of effect sizes (e.g. Cohen's  $d$ , Pearson's  $r$ ), indicating how they were calculated

*Our web collection on [statistics for biologists](#) contains articles on many of the points above.*

### Software and code

Policy information about [availability of computer code](#)

Data collection No software or code was used for data collection.

Data analysis NVivo qualitative analysis software was used for all data analysis.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

### Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

Due to the anonymized nature of the human subjects data supporting this work and the requirements of the IRB protocol, data is not publicly available. Data may be made available upon request by the corresponding author.

## Human research participants

Policy information about [studies involving human research participants and Sex and Gender in Research](#).

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reporting on sex and gender | Information on sex and gender has not been collected as part of this research.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Population characteristics  | No population characteristics of the human research participants were collected, analyzed, or reported in this research.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Recruitment                 | The community scientist study participants were recruited through via referral from the volunteer community science organization's leader. The leader of the volunteer group was approached through a pre-existing collaboration with the authors and they referred other members of the group to participate in the study. The government official participants in this study were identified through initial conversations with community scientists as representatives of the agencies with which they most frequently interact. These officials were then contacted by the lead author via email and invited to participate. This recruitment strategy limits the study population to those most frequently interacting around the process of community science in the system, however, the research is designed to analyze these interactions and this recruitment strategy captured the extent of the study system in question, so is therefore appropriate for the analyses sought. |
| Ethics oversight            | All human subjects research procedures were approved by the Stanford University Institutional Review Board (IRB Protocol #71421)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Note that full information on the approval of the study protocol must also be provided in the manuscript.

## Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/documents/nr-reporting-summary-flat.pdf](https://nature.com/documents/nr-reporting-summary-flat.pdf)

## Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Study description | This study is a single case study design that utilizes qualitative data to understand the behaviors and interactions of a group of community scientists and government officials in a coastal social-ecological system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Research sample   | The research sample is a group of community scientists and government officials involved in marine mammal monitoring, conservation, and protection in coastal California, USA. The authors interviewed 8 of 9 potential community scientist participants, and representatives from all 3 levels of government jurisdiction in the study system. Therefore, the sample is effectively a population, as the entire system in question participated in the research. This sample was chosen as it demonstrates the interactions and processes inherent in a social-ecological system that is representative of social-ecological systems and community science organizations elsewhere. This system involves multiple levels of government jurisdiction (Local, State, Federal), federal and state-level protected areas, and a marine mammal species protected by regulations across all levels of governance. This is therefore an extrinsically and intrinsically interesting model system from which this research develops generalizable theoretical results. Therefore, the research sample presented here is intrinsically representative of the system, extrinsically interesting and representative of other systems, and appropriate to answer the research questions investigated in this work. |
| Sampling strategy | This research utilized a modified snowball sampling strategy, wherein the leader of a volunteer group of community scientists facilitated the invitation of their colleagues to participate in the research. Government officials were similarly recruited via snowball sampling, with representatives from relevant agencies contacted via email. Initial contacts then provided referrals within their agencies, inviting the most relevant officials to participate. For the community scientists, sample size was determined primarily by the population of the community science group. The volunteer group has 9 members, and 8 of the 9 were available and willing to participate. For the government officials, representatives were sought out from each of the 3 levels of jurisdiction active in the system (Federal, State, Local), which determined the sample size of 3 for this group. In addition to the natural sample size imposed based on the population, data saturation was used to help validate the sample size and strategy. Thematic saturation was successfully achieved during the collection and analysis of the qualitative data, indicating that sample size was likely appropriate to capture the themes and sentiments of the population.                              |
| Data collection   | All data were collected via in-person or virtual one-on-one interviews. The only people present during data collection were the participant and the interviewer. In-person interviews were recorded using a smartphone voice recorder, and virtual interviews were recorded in the Zoom application. All voice recordings were transcribed using Otter.ai AI transcription service, and the AI-generated transcripts were re-transcribed by the interviewer to ensure accuracy. Transcripts were then coded in the NVivo qualitative analysis software. As this research did not involve any experimental conditions or hypotheses, no blinding procedures were applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Timing            | Data collection began in September 2023 and concluded in April 2024. Community scientists were interviewed between September 22, 2023 and October 10, 2023, while government officials were interviewed between March 29, 2024 and April 17, 2024.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## Data exclusions

No data were excluded from this research.

## Non-participation

No participants dropped out or declined to participate. In cases where our initial recruitment targeted incorrect officials, some potential government official participants referred us to colleagues that work directly with the community scientists and were therefore the best source to speak to. One member of the community science group was unable to participate due to scheduling conflicts.

## Randomization

No randomization was used in this study.

## Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

### Materials & experimental systems

### Methods

- | n/a                                 | Involved in the study                                  |
|-------------------------------------|--------------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Antibodies                    |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Eukaryotic cell lines         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Palaeontology and archaeology |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Animals and other organisms   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Clinical data                 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Dual use research of concern  |

- | n/a                                 | Involved in the study                           |
|-------------------------------------|-------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> ChIP-seq               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Flow cytometry         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> MRI-based neuroimaging |