



# NOAA Coral Reef Conservation Program

## Valuing the Monetary and Non-Monetary Ecosystem Services of U.S. Coral Reefs

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# Coral Reef Ecosystems

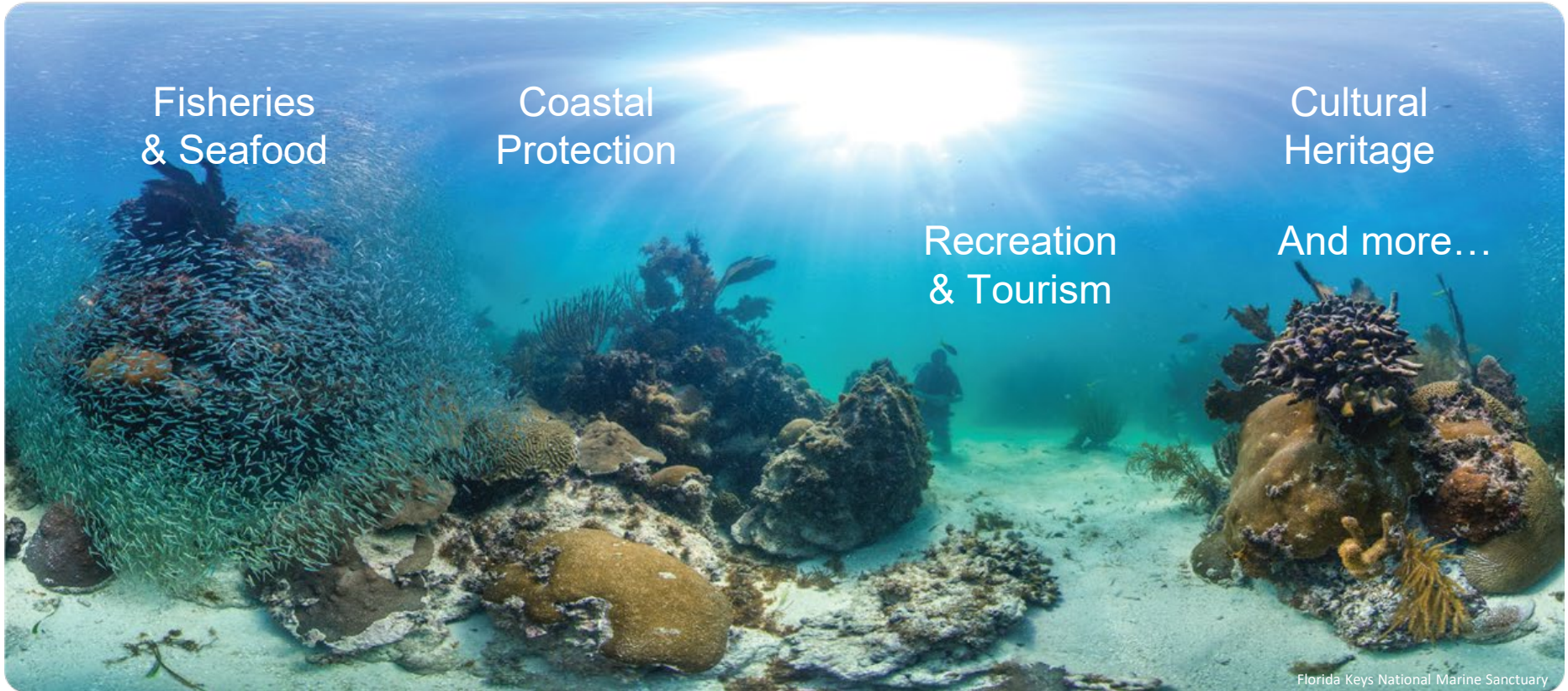
Fisheries  
& Seafood

Coastal  
Protection

Recreation  
& Tourism

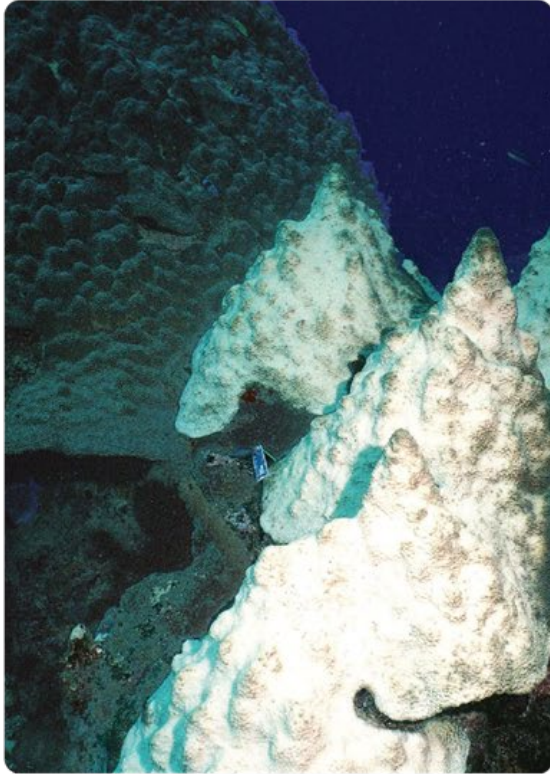
Cultural  
Heritage

And more...





# Coral Reefs Face a Variety of Threats



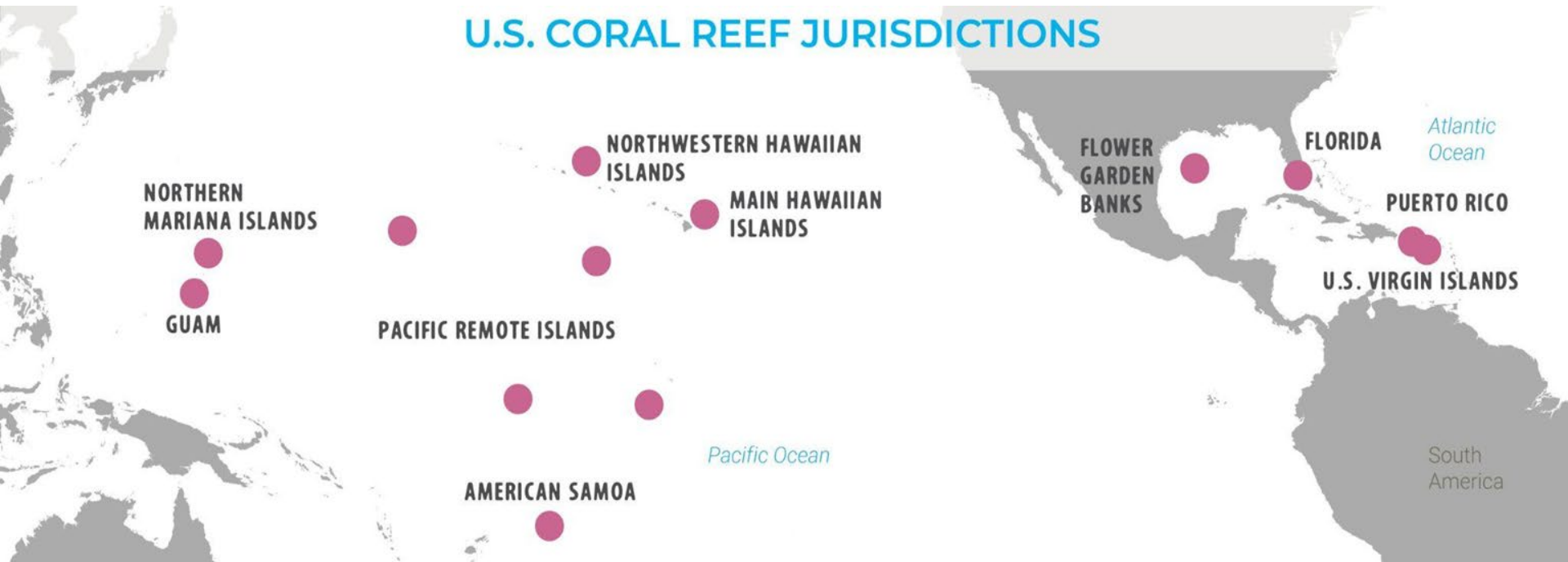
# Research Questions

- How much are coral reefs worth to society?
- What ecosystem services do coral reefs provide, and how do we measure their value?
- What local, social, and cultural practices can we incorporate into valuation?



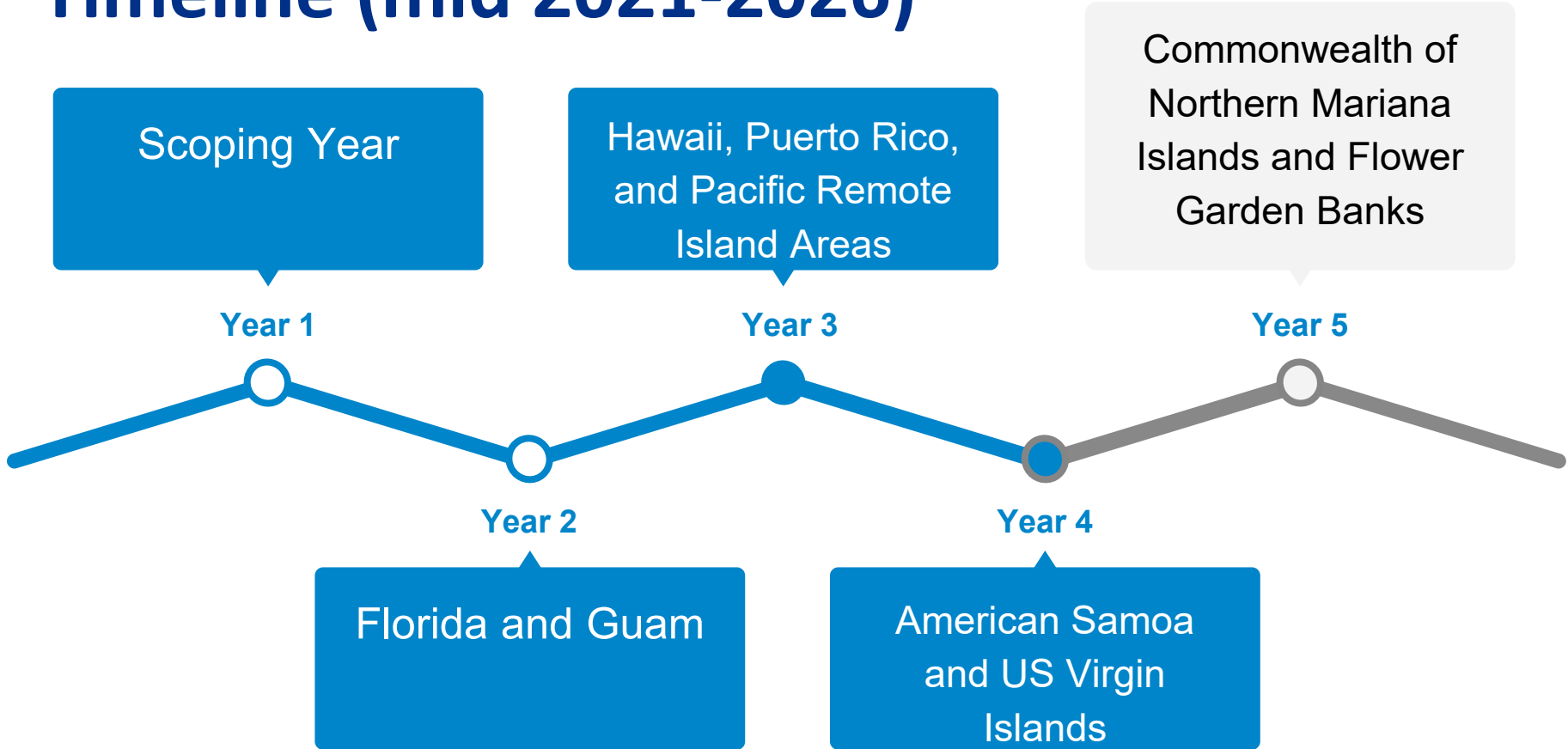
# Project Goal

- Update the economic values of coral reef ecosystem services;
- Improve representation of cultural benefits





# Timeline (mid 2021-2026)



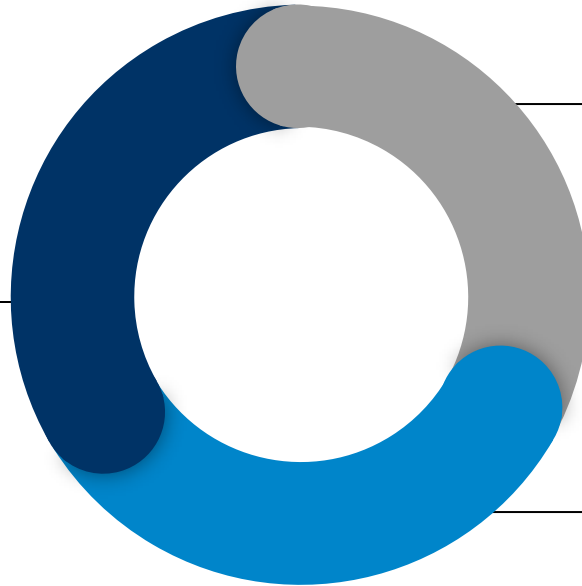
# Year 1: Project Scoping

## Jurisdictional and Socioeconomic Workshops

Cultural ecosystem services are a priority

Caution for quantification of cultural values.

Plural approaches recommended.



## Gap Analysis

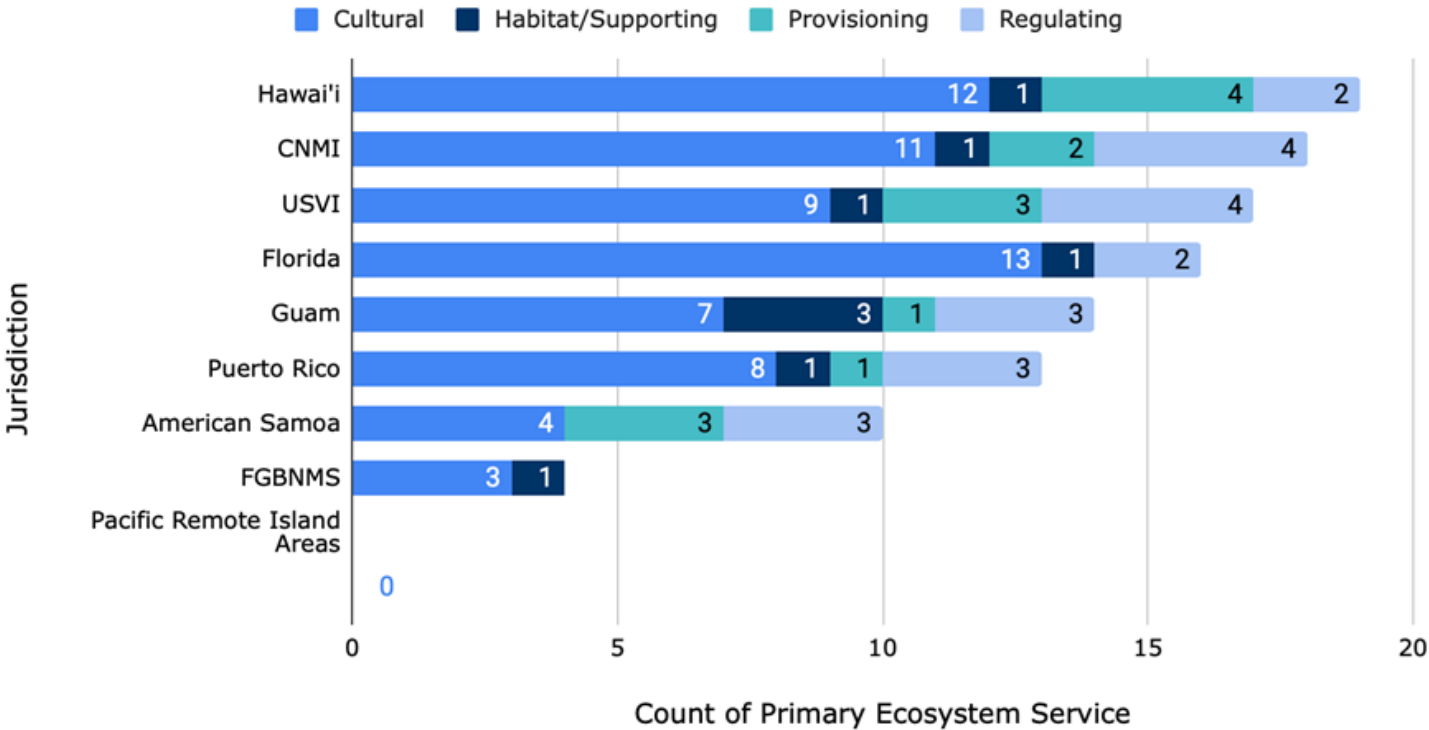
Every jurisdiction exhibits gaps in literature.

## Literature Review

60 sources reviewed comprehensively.

Defensibility concerns were flagged.

# Literature Review of Valuation Studies





# Monetary Valuation Methods

**Benefits Transfer:** Estimate benefits for one area of interest by adapting an estimate of benefits from other studies with similar context and characteristics.

## Criteria used to examine studies:

- Age of study; major events
- Sample size
- Bias
- General methodological concerns in primary data collection estimate

# Year 2: Florida Ecosystem Benefits

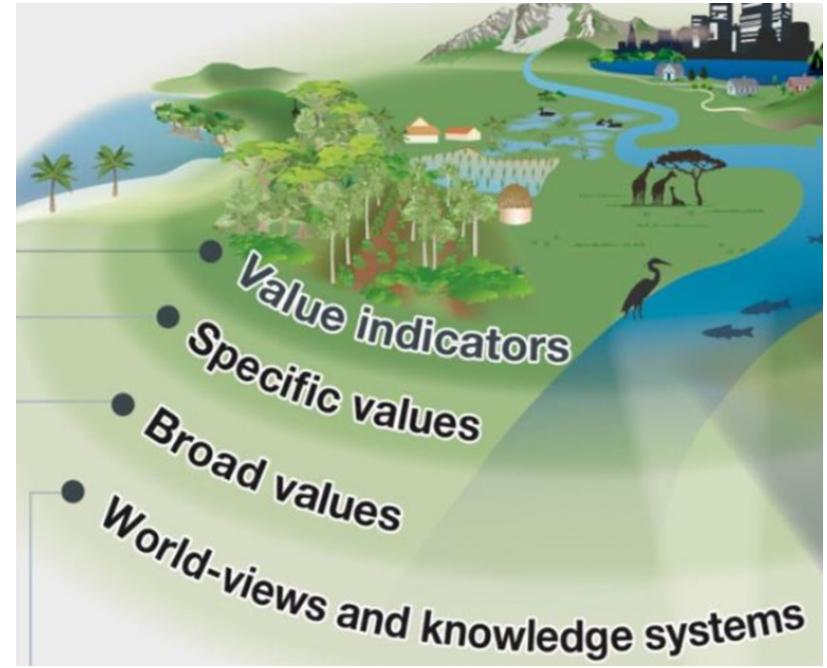
Ecosystem Service	Lower Range	Upper Range
<b>Coastal Protection</b>		
Peninsula	[a]	\$431.2M
Florida Keys	[a]	\$ 42.8M
<b>Commercial Fishing</b>	\$ 31.2M	\$ 31.2M
<b>Recreational Fishing</b>		
Florida Residents	\$ 43.2M	\$ 43.2M
Non-Florida Residents	\$ 26.9M	\$ 26.9M
<b>Recreation (Diving and Snorkeling)</b>	\$578.8M	\$578.8M
<b>Recreation (All)</b>		
Florida Residents	[a]	\$ 67.1M
Non-Florida Residents	[a]	\$ 27.5M
<b>Research</b>	[a]	\$ 75.7M
<b>Total (2022 USD)</b>	<b>\$678.8M</b>	<b>\$ 1.3B</b>

[a] The lower and upper bounds reflect the most reasonable estimate of the value of the ecosystem services of Florida's coral reefs. The values in the lower bound represent distinct values, of which there should be little to no overlap. The values in the upper bound include the lower bound plus additional values that may involve some double-counting. See the full report for detailed explanations on why certain values were excluded from the lower bound.

# Non-Monetary Methods Being Employed

## Plural Valuation

- Literature Review
- Interviews
- Listening session (i.e., focus groups)
- “Points” exercise



(IPBES Values Assessment, 2022)

# Year 3: Hawai`i Non-Monetary Values

*We identified 13 categories of non-monetary values for Hawai`i. Some were quantifiable, while others were not.*



○ Cultural heritage

○ Social capital and social cohesion

○ Intrinsic value of biodiversity

○ ...and much more



# Indicators of Coral Reefs' Value

*We re-organized and expanded our categories into indicators of cultural value. For example:*

Kōkua aku,  
kōkua mai:

*Help others, be helped*

Ho'olako:

*Enrich, supply, or  
equip*

Nānā i ke  
kumu:

*Look to the surface*

# Discussions and Takeaways

- Procedural justice; early and frequent local engagement
- Diverse world views across jurisdictions
- Plural approaches for better representation of holistic value; advance social equity



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# Questions?

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# Acknowledgements

Kat Flik (ERG)

Kate Quigley (NOAA)

Travis Grout (NOAA)

Nathan Smith (Ocean Associates)

Nataly Medina (Lynker)

Hannah Stroud (ERG)