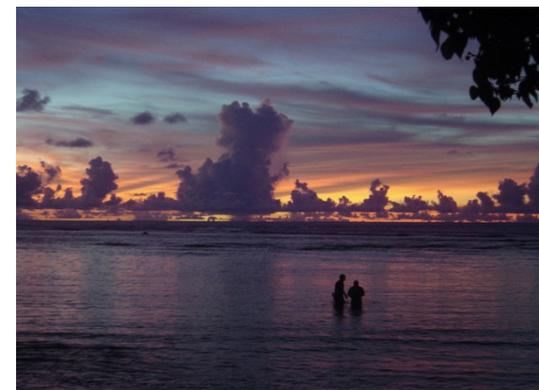




NOAA
CORAL REEF
CONSERVATION PROGRAM



Communities Near Reefs with Their Attitudes and Beliefs: The National Coral Reef Monitoring Program



February 10, 2016

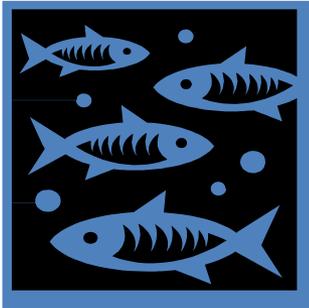
Matt Gorstein and Peter Edwards

NCRMP Socio Team: Peter Edwards, Maria Dillard, Arielle Levine,
Jarrod Loerzel, and Matt Gorstein





National Coral Reef Monitoring Program



Biological
Indicators

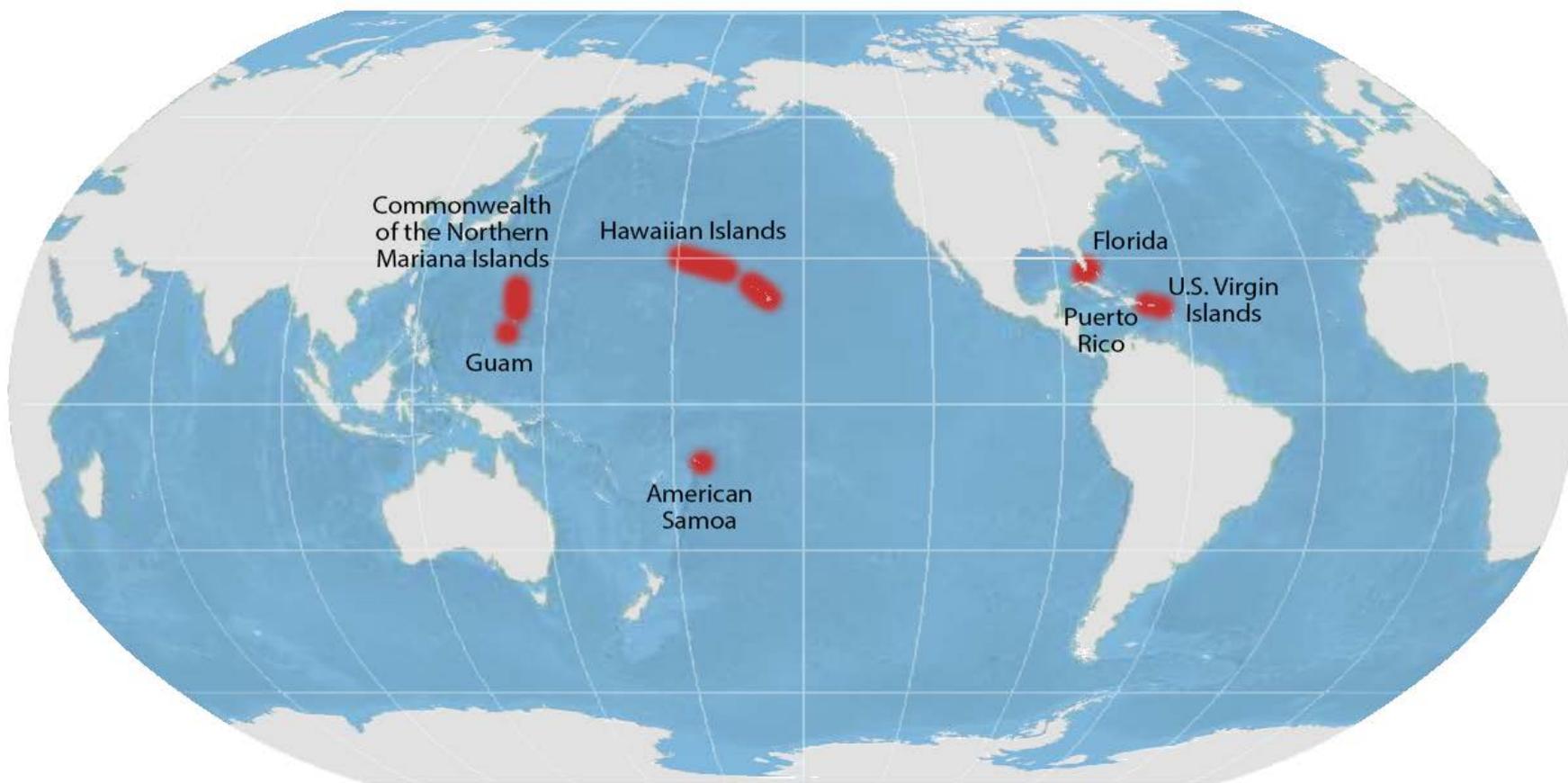
Climate
Indicators



Socioeconomic
Indicators



US Coral Reef Jurisdictions

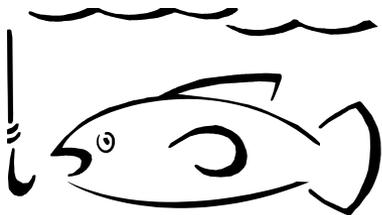




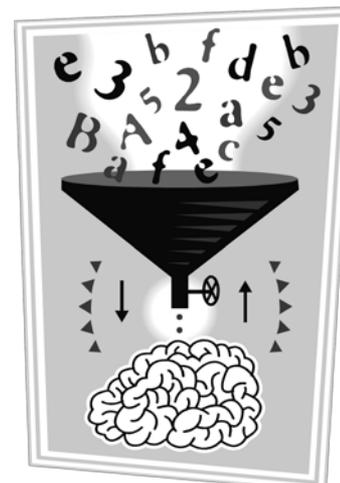
Examples of the types of data we are collecting



Use of coral reef resources



Population change



Knowledge, attitudes, & perceptions of coral reefs and coral reef management



Why do we need social monitoring?



Coral reefs are highly valuable ecosystems



We need to track management success and public support

Coral reefs offer many benefits to society



Survey Methodology



- ❖ Core module vs. jurisdiction specific module
- ❖ Stratified random sample of adult residents in the jurisdiction representative of population demographics (age, race, sex, income)
- ❖ Survey mode (phone, face to face, internet) and language(s) are jurisdiction specific





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RESULTS





Management Index

	Management Index
South Florida	76.13
American Samoa	64.51
Hawaii	74.56
Puerto Rico	81.09

* = statistically significant at the 10% level;

** = statistically significant at the 5% level;

*** = statistically significant at the 1% level

- Higher index scores indicate more agreement with management
- Support for management is apparent across all four jurisdictions
- Puerto Rican respondents were more likely to respond more favorably to management options when compared to all other jurisdictions***
- American Samoan respondents were less likely to respond more favorably to management options when compared to all other jurisdictions***



Change in Condition Index

	Last 10 Years Condition Index
South Florida	35.02
American Samoa	45.99
Hawaii	41.17
Puerto Rico	34.46

* = statistically significant at the 10% level;

** = statistically significant at the 5% level;

*** = statistically significant at the 1% level

- Higher index scores indicate a more “positive” perception
- Perceptions concerning the change in the condition of marine resources is largely negative
- American Samoan respondents were more likely to have a more positive perception concerning the change in the condition of marine resources over the last 10 years when compared to all other jurisdictions***
- Hawaiian respondents were more likely to have a more positive perception concerning the change in the condition of marine resources over the last 10 years when compared to respondents from Florida*** and Puerto Rico***



Similarities

Completed College		More negative opinion concerning resource condition
		More positive opinion concerning MPAs
		More positive opinion concerning management options
		More familiarity with reef threats
Longer Tenure		More negative opinion concerning resource condition
		More positive opinion concerning MPAs
More Reef Reliance		More positive opinion concerning resource condition
More Income		More negative opinion concerning resource condition
Fishing to sell		More negative opinion concerning MPAs
More agreement with management		More familiarity with reef threats



Education and Marine Resource Condition Perceptions

Puerto Rican Resource	Did not complete college		Completed college		Statistical test for difference	
	n	Mean	n	Mean	t	p value
<i>Current Conditions</i>						
Ocean water quality	1116	3.00	1167	2.99	0.36	0.72
Amount of coral	967	2.64	1024	2.68	-1.03	0.30
Number of fish	1023	3.03	1082	2.93	2.61***	<0.01
Diversity of fish	1016	3.08	1062	3.04	0.93	0.35
Amount of sea grass and mangroves	1019	3.06	1072	2.96	2.33**	0.02
<i>Change in conditions over last 10 years</i>						
Ocean water quality	1108	2.42	1163	2.38	1.23	0.22
Amount of coral	1009	2.24	1074	2.20	1.35	0.18
Number of fish	1052	2.44	1107	2.36	2.18**	0.03
Diversity of fish	1040	2.52	1080	2.45	1.87*	0.06
Amount of sea grass and mangroves	1037	2.50	1088	2.43	1.74*	0.08

* = significant at the 10% level;

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*** = significant at the 1% level



Next Steps

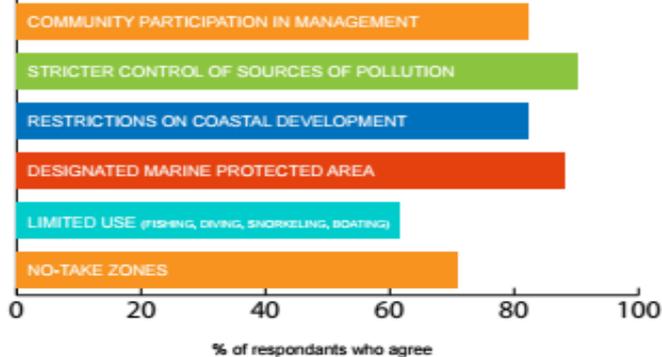
Jurisdiction	Geographic scope	Year
American Samoa	Island of Tutuila	2013-14
Florida	Martin, Palm Beach, Broward, Miami-Dade, Monroe Co.	2013-14
Hawai'i	Islands of Kauai, Maui, Moloka'i, O'ahu, Hawai'i, Lana'i	2014-15
Puerto Rico	Islands of Puerto Rico, Vieques, Culebra	2014-15
CNMI	Islands of Saipan, Tinian, Rota	2015-16
Guam	Entire island of Guam	2015-16
USVI	Islands of St. Croix, St. Thomas, St. John	2016-17



Infographics

MANAGEMENT SUPPORT

The majority of people support management strategies to improve protection.



USES OF RESOURCES

Swimming



58%

Fishing



24%

Beach
Recreation



61%

Percentage of respondents participating

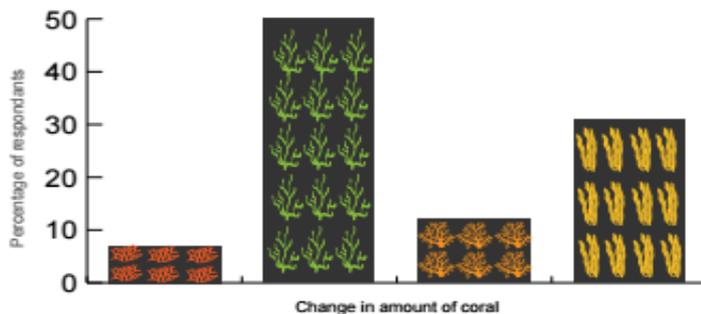
TENURE & CONDITION

Years of residence impacts perceptions of marine resource conditions. Residents who have lived in South Florida for over 10 years are more likely to believe that the condition of marine resources will get worse over the next 10 years.

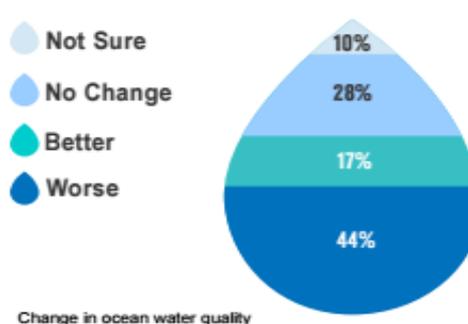
PERCEPTIONS

PARTICIPANTS WERE ASKED HOW THE AMOUNT OF CORAL AND CONDITION OF OCEAN WATER QUALITY HAS CHANGED IN THE PAST 10 YEARS...

- Better
- Worse
- No Change
- Not Sure

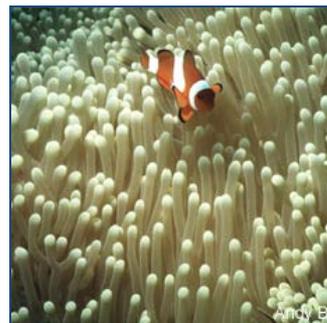


- Not Sure
- No Change
- Better
- Worse





Thank you



For more information, please contact:

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web-portal: <http://www.coris.noaa.gov/monitoring/socioeconomic.html>



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[EXTRA SLIDES IF NECESSARY]



Management Index and Threat Familiarity

Puerto Rican Threats to Coral Reefs	Management Index ≥ 76		Management Index < 76		Statistical test for difference	
	n	Mean	n	Mean	t	p value
Climate Change	1108	3.68	1267	3.37	7.22***	<0.01
Coral Bleaching	1106	2.71	1243	2.60	2.03**	0.04
Hurricanes and other natural disasters	1107	3.97	1268	3.66	8.43***	<0.01
Pollution (stormwater, wastewater, chemical runoff, trash/littering, fuel spills)	1107	4.02	1269	3.80	6.17***	<0.01
Increased Coastal/Urban Development	1106	3.74	1268	3.50	5.56***	<0.01
Invasive Species	1105	3.32	1252	2.98	6.98***	<0.01
Fishing and Gathering	1105	3.14	1253	2.89	5.00***	<0.01
Damage from Ships and Boats	1108	3.14	1266	3.31	5.96***	<0.01
Impacts from Recreational Activities	1105	3.33	1261	3.00	6.71***	<0.01
Coral Diseases	1102	2.58	1250	2.50	1.35	0.18

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