



Socio-economic Monitoring for US Coral Reef Jurisdictions



Presented By: The NCRMP Social Science Team

**NOAA Coral Reef Conservation Program
& National Centers for Coastal Ocean Science**

for more information on visit the web-portal at:

http://www.coris.noaa.gov/activities/projects/ncrmp_socio/

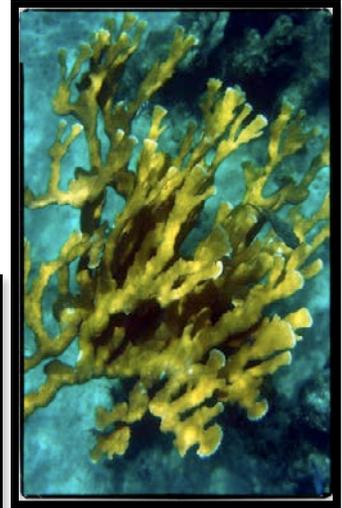
January 9, 2014





The Project

- ❖ NOAA's Coral Reef Conservation Program is implementing the National Coral Reef Monitoring Plan (NCRMP)
- ❖ Components: Biological, Climate, Socio-economic
- ❖ The project team is supporting this effort by developing methods and carrying out the research to monitor social and economic conditions in US coral reef jurisdictions
- ❖ For example, we will collect data on:
 - ❖ Population change
 - ❖ Use of coral reef resources
 - ❖ Knowledge, attitudes, and perceptions of coral reefs and coral reef management



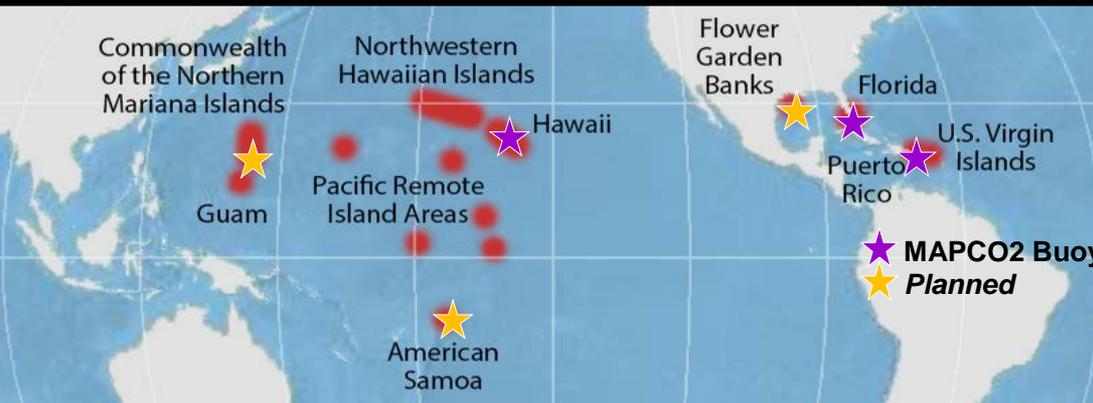


NOAA CORAL REEF CONSERVATION PROGRAM



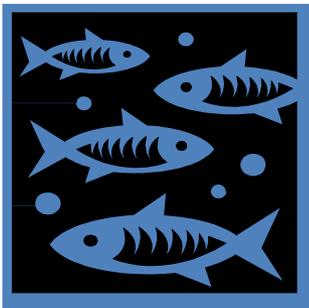
National Coral Reef Monitoring Plan (NCRMP)

- NOAA's Coral Program conducts integrated long-term status and trends monitoring to assess U.S. coral reef ecosystems:
 - Coral and fish size and distribution
 - Temperature and water chemistry
 - Ecological impacts of ocean acidification
 - Social and economic conditions
- Leverages NOAA, Federal, State/Territory, and NGO partnerships
- Provides resource managers with information needed to effectively protect and conserve coral reefs for future generations





National Coral Reef Monitoring Plan



Biological
Indicators

Climate
Indicators



Socioeconomic
Indicators



Project Team

❖ NCCOS social scientists

- ❖ Maria Dillard
- ❖ Susan Lovelace
- ❖ Jarrod Loerzel

❖ CRCP social scientists

- ❖ Peter Edwards
- ❖ Arielle Levine

Partnerships

- ❖ Jurisdictional management agencies
- ❖ Key jurisdictional stakeholders
- ❖ CRCP and NMFS management liaisons



Why do we need social monitoring?



- ❖ Coral Reefs are among the most valuable ecosystems
- ❖ They provide a range of benefits to society
 - ❖ Food
 - ❖ Protection from storms
 - ❖ Recreational opportunities
 - ❖ Tourism industry
 - ❖ Fishing livelihoods
 - ❖ Ornamental resources
- ❖ Changes and threats to coral reefs such as climate change, unsustainable use and land-based pollution are primarily human driven



Our Motivation

- ❖ National Coral Reef Monitoring Plan Goals:
 - ❖ Monitor the status and trends of coral reef ecosystems (including human communities);
 - ❖ Monitor and assess climate-related threats to coral reefs;
 - ❖ Provide a consistent flow of data and information to communities in coral reef jurisdictions; and
 - ❖ Foster partnerships to expand the scope and scale of coral reef monitoring.
- ❖ Scientific information is needed to track the health of both coral reefs and their dependent communities in order to develop effective management plans and actions for coral reef conservation



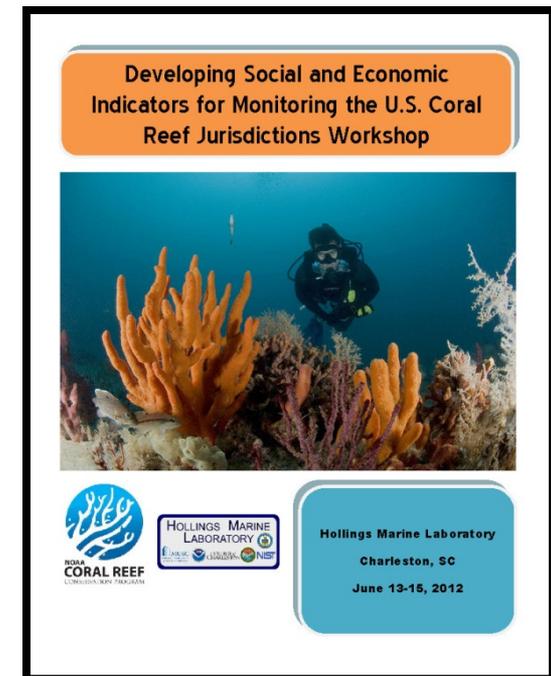
Our Motivation

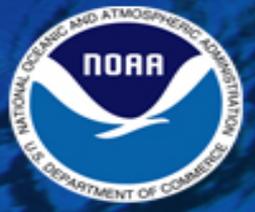
- ❖ Priority under CRCP *Social Science Strategy* (2010-2015):
 - ❖ Develop a **survey question bank** and **template survey examples** to assist jurisdictions in designing socioeconomic assessment and monitoring programs
 - ❖ Develop a long-term national social science monitoring program that includes *territory-wide surveys in each of the jurisdictions* to track CRCP performance measures and progress on CRCP Goals & Objectives
 - ❖ Coordinate with biological and other monitoring efforts



The Approach

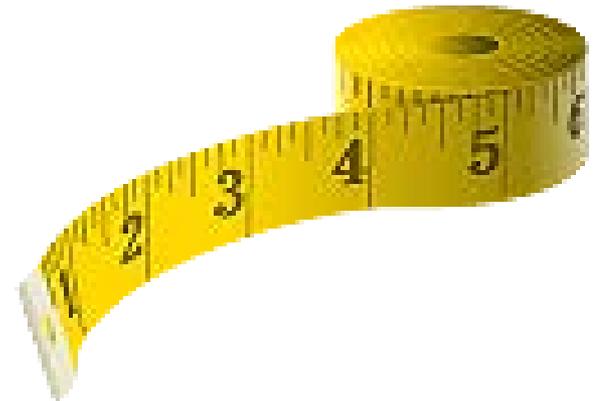
- ❖ Using indicators to assess the status of coral reef jurisdictions
 - ❖ impacts of society on coral reefs
 - ❖ contributions of healthy corals to nearby residents
 - ❖ social and economic outcomes of management activities
- ❖ Indicators were selected and prioritized during a 2012 workshop





The Approach – cont'd

- ❖ Indicators will be measured using:
 - ❖ surveys of residents in coral reef jurisdictions
 - ❖ existing socioeconomic data
- ❖ Resulting data will feed into several products, including a social science database, reports, NCRMP report cards





NOAA
CORAL REEF
CONSERVATION PROGRAM



Linking communities with coral reef health

NATIONAL SOCIOECONOMIC INDICATORS





Social and economic indicators are:



- ❖ Analytical tools
- ❖ Aid in describing changing social/economic conditions



- ❖ Have an explanatory or theoretical function



- ❖ Used for science, forecasting, advising

Indicators for NCRMP Social Monitoring

Participation in reef activities

Attitudes towards coral reef management strategies and enforcement

Awareness and knowledge of coral reefs

Human population changes near coral reefs

Economic impact of coral reef fishing to jurisdiction

Economic impact of dive/snorkel tourism to jurisdiction

Community well-being

Cultural importance of reefs

Participation in behaviors that may improve coral reef health

Physical infrastructure

Awareness of coral reef rules and regulations

Governance



Participation

- ❖ Participation in reef activities (including snorkeling, diving, fishing, harvesting)
 - ❖ To understand the economic and recreational importance of coral reefs to local residents
 - ❖ To understand level of extractive and non-extractive pressures on reefs
- ❖ Participation in behaviors that may improve coral reef health (e.g., beach cleanups, sustainable seafood choices)
 - ❖ To understand positive and negative impacts to coral reefs



Attitudes & Perceptions

- ❖ Perceived resource condition
 - ❖ Complements biophysical information
 - ❖ Key to understanding support for management strategies
- ❖ Attitudes towards management actions
 - ❖ Perceived/actual compliance with coral reef rules and regulations
 - ❖ Helps to explain how people are impacting coral reefs and efficacy of enforcement efforts/regulations



Community Well-being

- ❖ Health, basic needs, and economic security of coral reef adjacent communities
 - ❖ Needed to track the well-being contributions of healthy coral reefs
 - ❖ Important for establishing connections between human and environmental well-being



RESIDENT SURVEYS





Question Bank

- ❖ Question bank contains **138** possible survey questions
 - ❖ Developed in coordination with NOAA staff and jurisdictional partners
 - ❖ Incorporates survey questions used in local surveys, published articles, and other information pertaining to coral reefs and coral reef management
 - ❖ Includes questions to address each *indicator* as well as *demographics*



OMB PRA Clearance

- ✓ 2010 – Developed draft survey questions, input from NOAA offices as well as coral jurisdiction partners
- ✓ 2011 – Submitted final question bank and sampling plan to OMB
- ✓ 2012 – Received OMB approval
- ✓ 2013 – Submitted non-substantive change request and received approval

PAPERWORK REDUCTION ACT SUBMISSION	
Please read the instructions before completing this form. For additional forms or assistance in completing this form, contact your agency's Paperwork Clearance Officer. Send two copies of this form, the collection instrument to be reviewed, the supporting statement, and any additional documentation to: Office of Information and Regulatory Affairs, Office of Management and Budget, Docket Library, Room 10102, 725 17th Street NW, Washington, DC 20503.	
1. Agency/Subagency originating request DOC/NOAA/CSC/CRCP	2. OMB control number a. 0648 b. <input type="checkbox"/> None
3. Type of information collection (check one) a. <input checked="" type="checkbox"/> New Collection b. <input type="checkbox"/> Revision of a currently approved collection c. <input type="checkbox"/> Extension of a currently approved collection d. <input type="checkbox"/> Reinstatement, without change, of a previously approved collection for which approval has expired e. <input type="checkbox"/> Reinstatement, with change, of a previously approved collection for which approval has expired f. <input type="checkbox"/> Existing collection in use without an OMB control number For b-f, note Item A2 of Supporting Statement instructions	4. Type of information collection (check one) a. <input checked="" type="checkbox"/> Regulatory collection b. <input type="checkbox"/> Information collection c. <input type="checkbox"/> Other Requested expiration date a. <input checked="" type="checkbox"/> Three years from approval date b. <input type="checkbox"/> Other Specify: ____ / ____ / ____ Information collection have a significant economic impact on a substantial number of small entities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
7. Title National Coral Reef Monitoring Program Survey	



The Questions

- ❖ Indicators are applicable to all jurisdictions; however, there are ***considerable geographical, cultural, and linguistic differences*** among residents in these areas
- ❖ “Bank of questions” intended to provide more flexibility to address these issues
- ❖ Core module vs. jurisdiction specific module
 - ❖ Asking some of the same questions in all areas allows comparisons across jurisdictions
 - ❖ Asking some specific questions for each area allows jurisdictional management and resource issues to be addressed



Example: PARTICIPATION IN REEF ACTIVITIES

Q14: How often do you usually participate in each of the following activities?

	Never	Once a month or less	2-3 times a month	4 times a month or more	No Answer
Swimming/wading					
Snorkeling					
Diving (SCUBA or free diving)					
Waterside/ beach camping					
Beach recreation (beach sports, picnics)					
Boating					
Fishing					
Gathering of marine resources (lobsters, conch, seaweed)					



Survey Methodology

- ❖ Survey will be focused on:
 - ❖ Random sample of adult residents in the jurisdiction
 - ❖ Representative of population demographics (age, race, sex, income)
- ❖ Survey will be conducted by:
 - ❖ Contracted entity with experience conducting social surveys in the jurisdiction



Survey Methodology – cont'd

- ❖ Survey mode will be determined for each jurisdiction
 - ❖ For example:
 - ❖ **American Samoa:** Face-to-face interviews
 - ❖ **Florida:** Telephone surveys
- ❖ Confidential (no personally identifiable information will be collected)
- ❖ Survey will be conducted in the primary language(s) of the jurisdiction

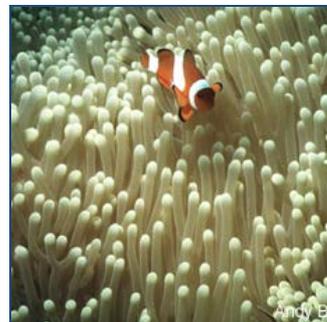




NOAA CORAL REEF CONSERVATION PROGRAM



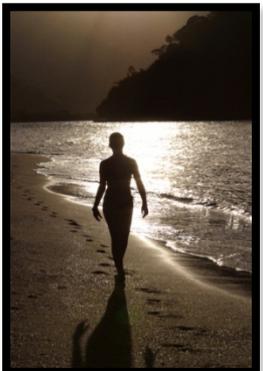
SECONDARY DATA





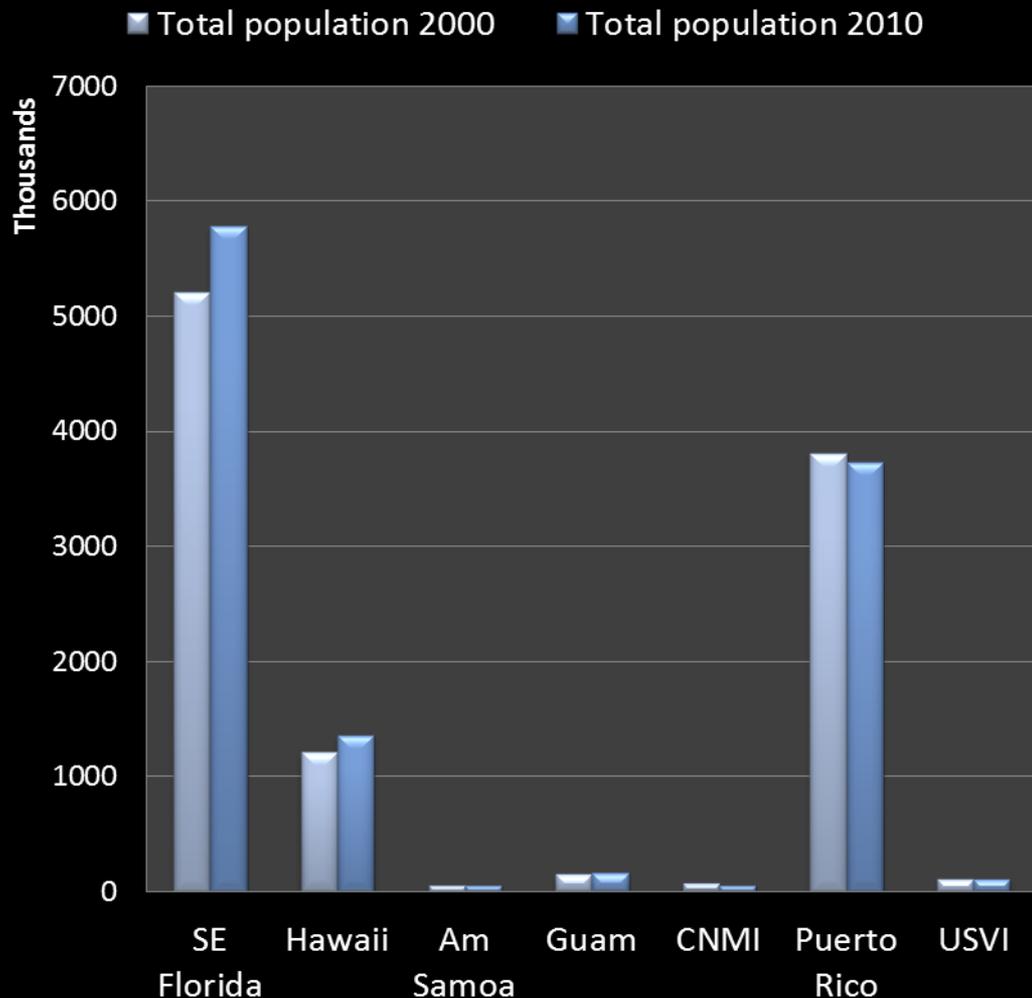
Secondary Data Methodology

- ❖ Existing socio-economic data will be compiled from sources like US Census Bureau, jurisdictional government agencies
- ❖ Data will be analyzed to create indicators
 - ❖ For example:
 - ❖ Human population trends
 - ❖ Community well-being
 - ❖ Physical infrastructure
 - ❖ Economic impact of coral reefs





Coral Reef Jurisdictions - Population



<i>Jurisdiction</i>	<i>Total population 2000</i>	<i>Total population 2010</i>
SE Florida	5,213,884	5,784,043
Hawaii	1,211,537	1,360,301
Am Samoa	57,291	55,519
Guam	154,805	159,358
CNMI	69,221	53,883
Puerto Rico	3,808,610	3,725,789
USVI	108,612	106,405

Data Source: US Census Bureau, 2000, 2010



NOAA CORAL REEF CONSERVATION PROGRAM



WHEN AND WHERE



NATIONAL OCEAN SERVICE



How often will we monitor?

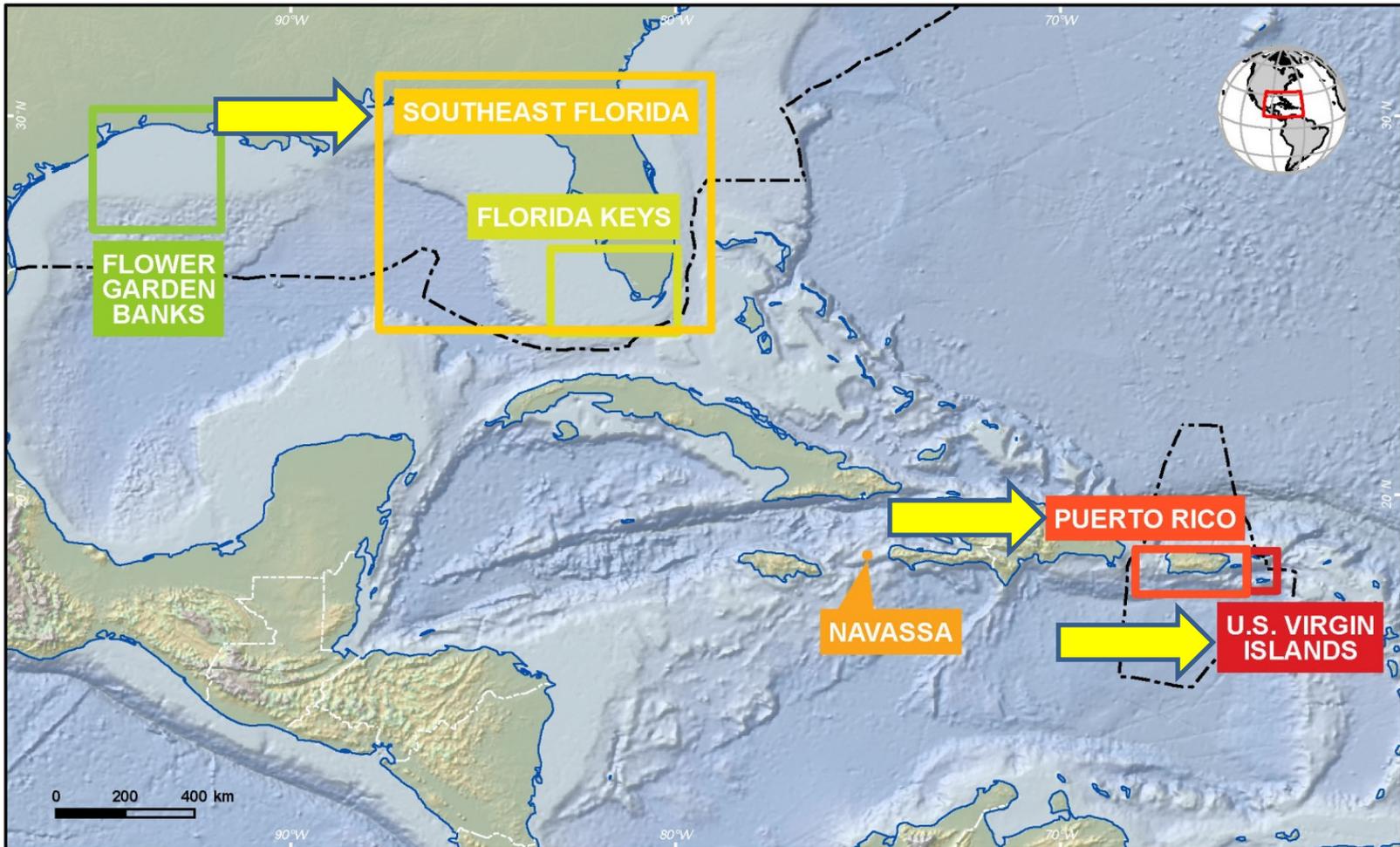
- ❖ Surveying will occur every 3-4 years
- ❖ Secondary data collection will occur throughout the monitoring cycle and be analyzed every 3-4 years

Where will we monitor?

- ❖ Inhabited coral jurisdictions
- ❖ Subset of the biological and climate monitoring sites

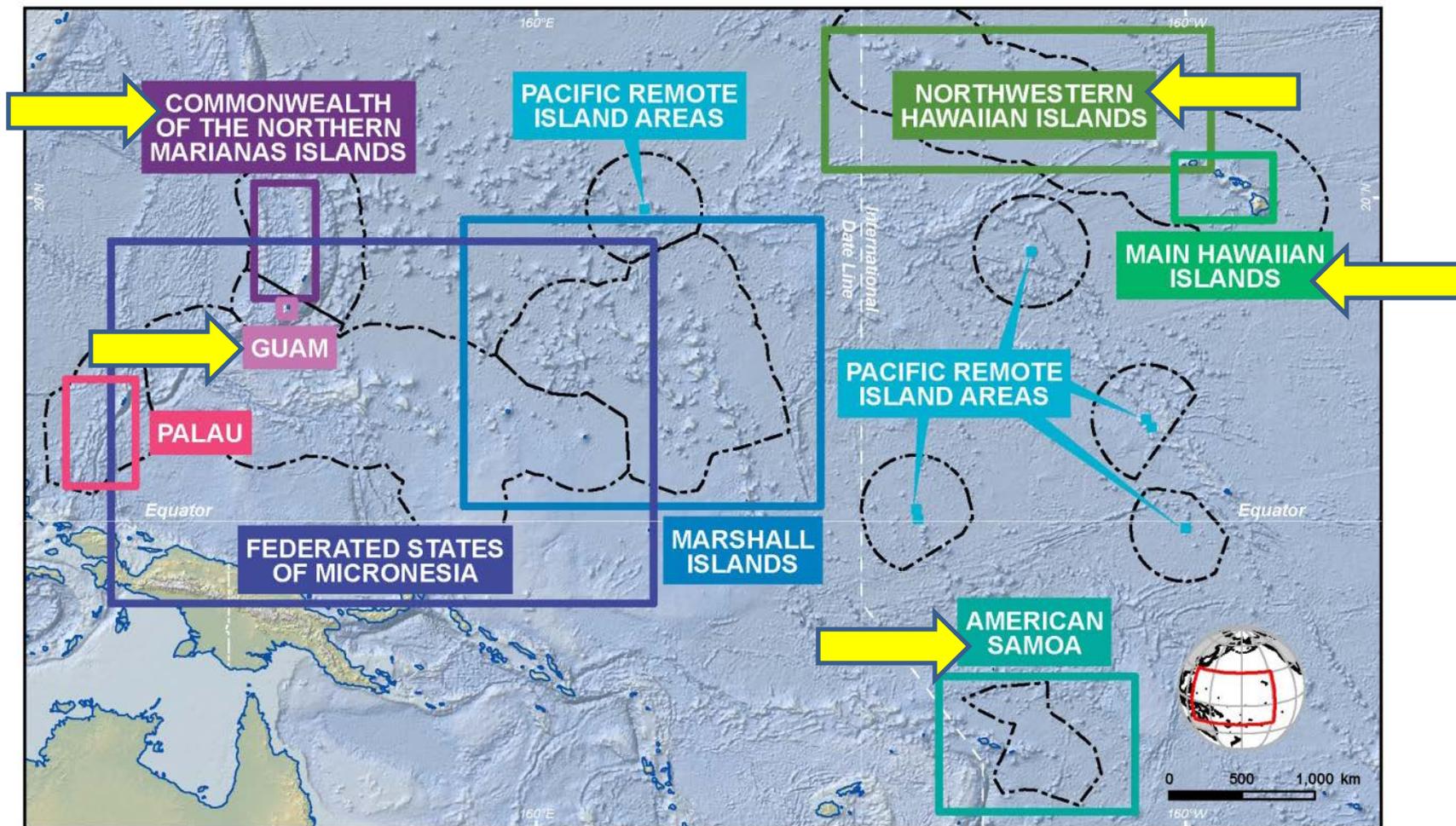


Atlantic Coral Reef Jurisdictions





Pacific Coral Reef Jurisdictions





Social Monitoring by Geography and Year

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



NOAA CORAL REEF CONSERVATION PROGRAM



OUTCOMES



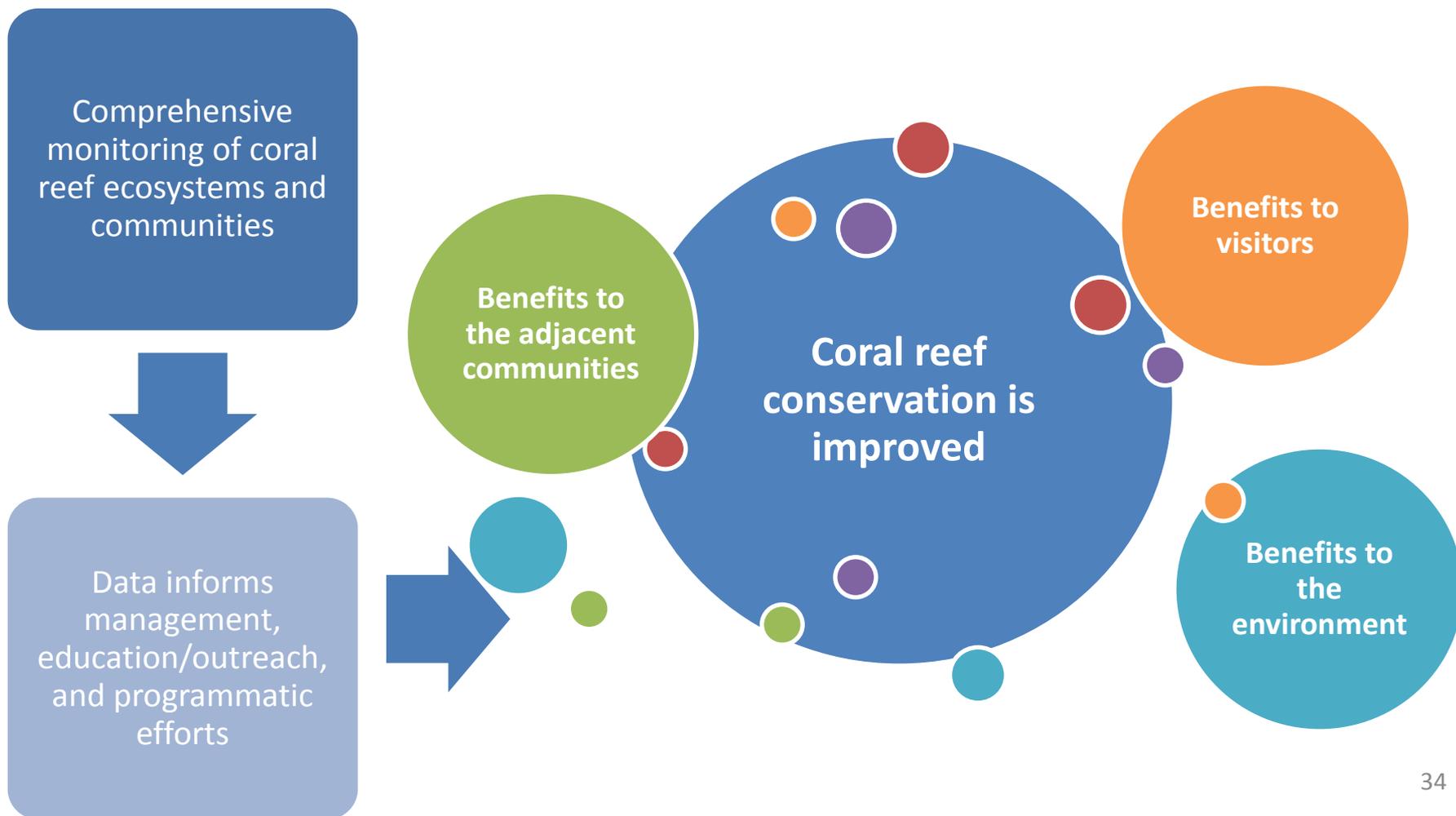


The Outcomes

- ❖ Socioeconomic indicators will be presented alongside biological and climate indicators to provide each jurisdiction with a comprehensive assessment their reef-related status
- ❖ Monitoring over time will allow managers to evaluate trends and improve conservation planning to protect coral reef resources and associated ecosystem services for nearby residents and visitors alike
- ❖ For CRCP staff and jurisdiction partners, data will serve as a baseline for evaluation of conservation programs, education initiatives, and management actions



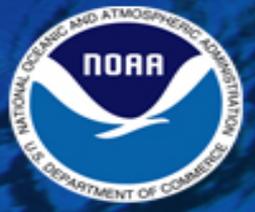
Pathway to societal improvement





What comes out of this effort?

Products	Intended Audience
Informational products (reports, presentations)	<ul style="list-style-type: none">• Jurisdictional managers and local partners
Data	<ul style="list-style-type: none">• Jurisdictional managers and local partners• CRCP
Methods	<ul style="list-style-type: none">• CRCP
Database	<ul style="list-style-type: none">• NOAA Social Scientists

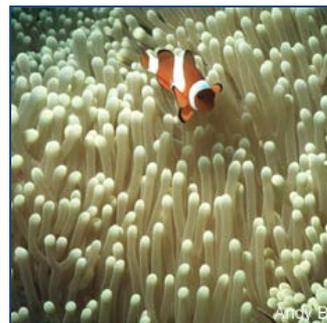


Next Steps

- ❖ Opportunities for engagement
 - ❖ Outreach in upcoming monitoring sites
 - ❖ Participation of jurisdiction partners is requested
- ❖ First round of monitoring and analysis
- ❖ National Report Card - synthesis of social, biological, and climate data
 - ❖ Product not yet finalized



Thank you



National Oceanic and Atmospheric Administration, Coral Reef Conservation Program: Social Science Team

For more information, please contact

Maria Dillard, NOAA/NCCOS, at Maria.Dillard@noaa.gov

Peter Edwards, NOAA/CRCP, at Peter.Edwards@noaa.gov

web-portal: http://www.coris.noaa.gov/activities/projects/ncrmp_socio