NOAA
CORAL REEF
CONSERVATION PROGRAM

Ecosystem Science Evaluation

Socioeconomic and Fisheries Dependent Information

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CRCP Social Science Program

Objectives:

Support social science to improve coral reef management by engaging local communities and better assessing the social and economic consequences of management policies, interventions, and activities on local communities.

(from CRCP Social Science Strategy 2010-15)

Geographic Scope:

All **inhabited** U.S. Coral Reef Jurisdictions in the Pacific and Caribbean

CRCP Social Science Program

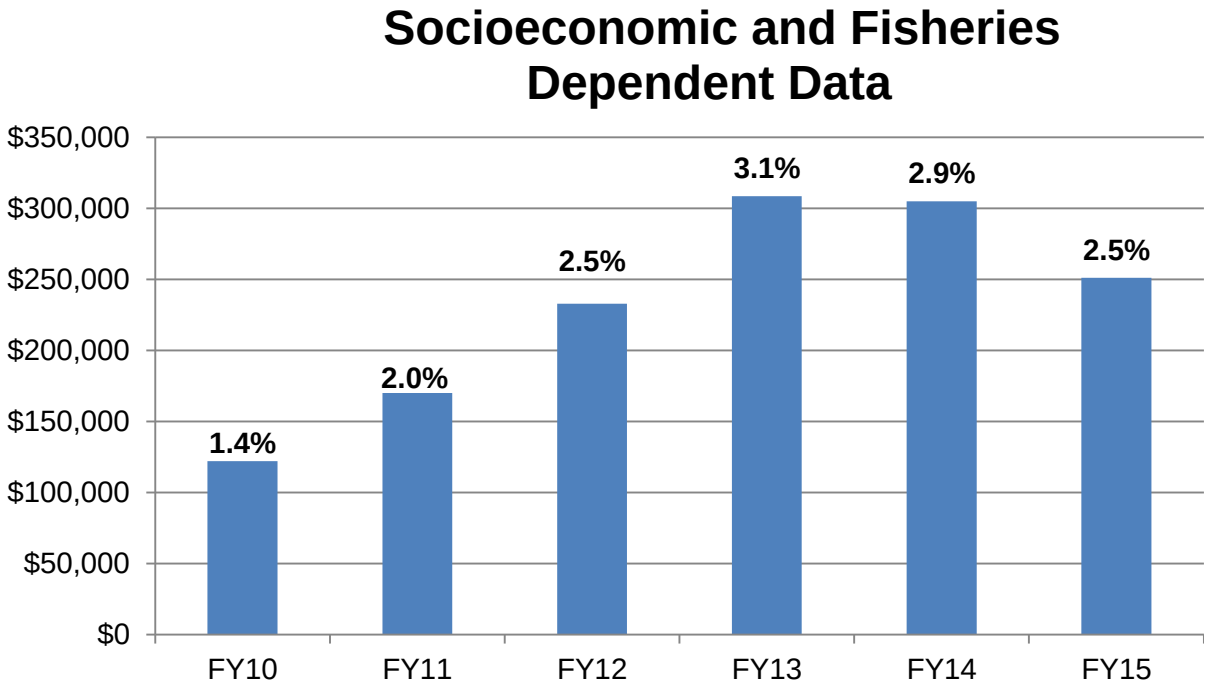
Staff:

- 2 Social Scientists employed by CRCP (one full time, one ½ time)
- Funding provided to HML to support socioeconomic component of NCRMP
- Partner with NOAA social scientists and other staff in NMFS and NOS to support social science program goals

Funding:

- Funding range:

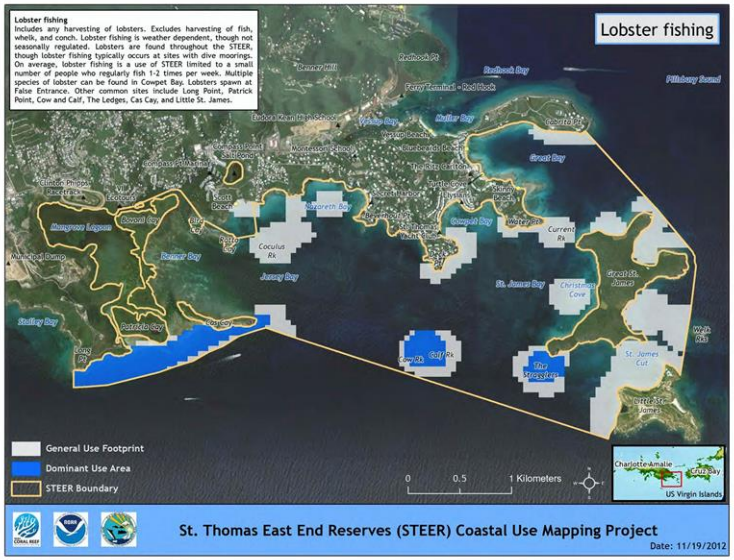
  $122K - $308.5K / yr
- 2.4% of FY10-15 CRCP budget



CRCP Social Science Program

Primary methods:

- Participatory Ocean and Coastal Uses Mapping
- Socioeconomic Surveys:
  - Socioeconomic Assessment and Monitoring
  - Fisheries Dependent Data Collection



Example product: lobster fishing map, USVI

Socioeconomic survey, American Samoa

Also:

- *Economic valuation studies*
- *Building community climate resilience*
- *Capacity building for MPA social assessments…*

Participatory Coastal Uses Mapping

Information goals: Gain a better understanding of human uses of the nearshore marine environment

Examples:

- Extractive activities
- Non-extractive activities
- Overlap of ocean uses
- Dominant and general use areas
- Watershed uses and issues
- Infrastructure and access points
- Preferred mooring sites

Participatory GIS Workshop in Hawaii Island Priority Site

Participatory Coastal Uses Mapping

Mapping Efforts 2010-2015

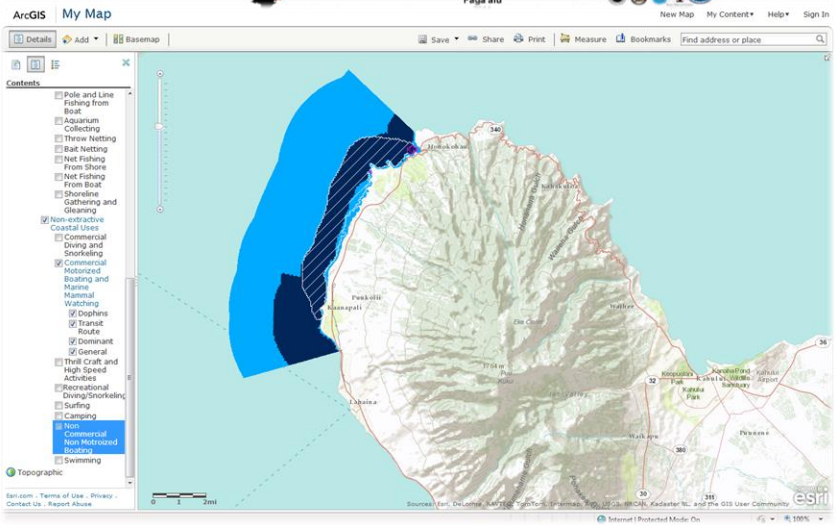
Participatory mapping in 5 sites across 3 jurisdictions:

- Hawaii priority sites:
  - N. Kona / S. Kohala (Hawaii Island)
  - West Maui
- American Samoa priority watershed and potential MPA sites:
  - Fagaloa extended harbor area
  - Watershed and coastal uses mapping of priority site and potential regional MPA (Fatumafuti, Faga'alu, and Utulei villages)
- USVI marine reserve:
  - St. Thomas East End Reserve (STEER)

Participatory Coastal Uses Mapping

Information generated and products:

- ***GIS layers*** of key human uses, infrastructure, watershed issues, other
- ***Map books*** (printed and PDF)
- ***Interactive viewers, heat maps***
- ***Posters*** for local use (eg. harbor infrastructure, watershed issues, American Samoa)



Interactive viewer: marine mammal viewing, W. Maui, HI

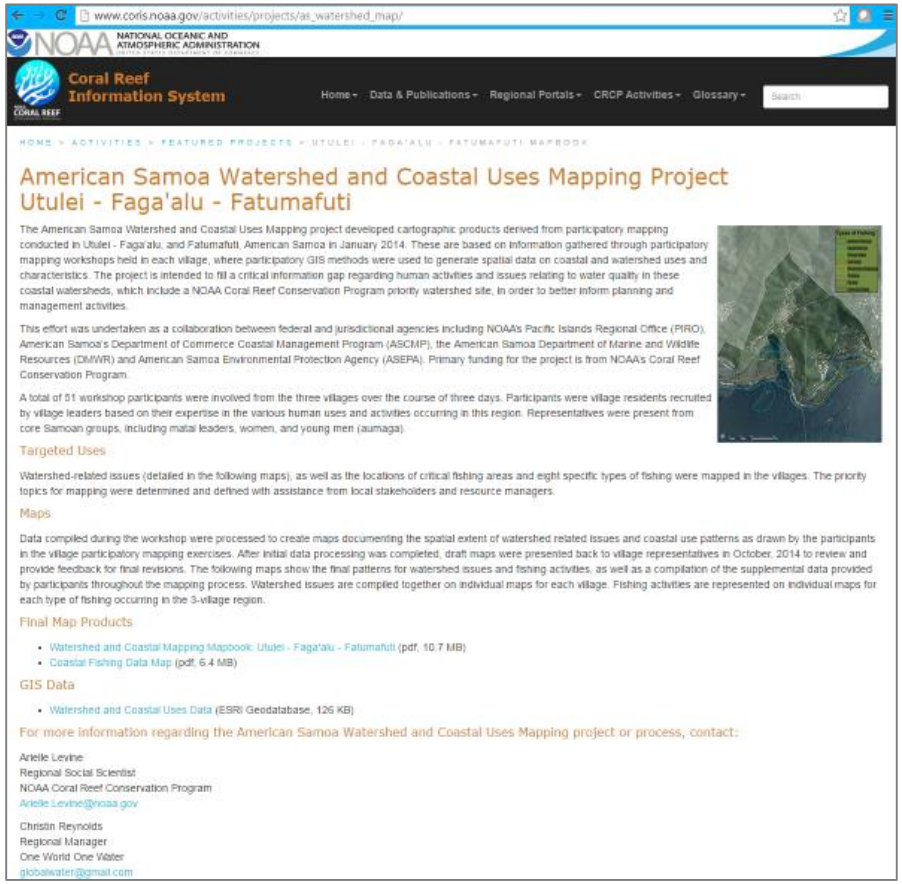
Participatory Coastal Uses Mapping

Information dissemination:

- Most products available on CoRIS
- Presentations to jurisdictions
- Copies of all products distributed to local managers
- Conference presentations
- Peer-reviewed journal articles

Intended users:

- Local coral reef managers, NGOs, community groups



www.coris.noaa.gov/activities/projects/as_watershed_map/

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Coral Reef Information System

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HOME > ACTIVITIES > FEATURED PROJECTS > UTULEI - FAGA'ALU - FATUMAFUTI MAPBOOK

American Samoa Watershed and Coastal Uses Mapping Project
Utulei - Faga'alu - Fatumafuti

The American Samoa Watershed and Coastal Uses Mapping project developed cartographic products derived from participatory mapping conducted in Utulei - Faga'alu, and Fatumafuti, American Samoa in January 2014. These are based on information gathered through participatory mapping workshops held in each village, where participatory GIS methods were used to generate spatial data on coastal and watershed uses and characteristics. The project is intended to fill a critical information gap regarding human activities and issues relating to water quality in these coastal watersheds, which include a NOAA Coral Reef Conservation Program priority watershed site, in order to better inform planning and management activities.

This effort was undertaken as a collaboration between federal and jurisdictional agencies including NOAA's Pacific Islands Regional Office (PIRO), American Samoa's Department of Commerce Coastal Management Program (ASCMP), the American Samoa Department of Marine and Wildlife Resources (DMWR) and American Samoa Environmental Protection Agency (ASEPA). Primary funding for the project is from NOAA's Coral Reef Conservation Program.

A total of 51 workshop participants were involved from the three villages over the course of three days. Participants were village residents recruited by village leaders based on their expertise in the various human uses and activities occurring in this region. Representatives were present from core Samoan groups, including matai leaders, women, and young men (aumaga).

Targeted Uses

Watershed-related issues (detailed in the following maps), as well as the locations of critical fishing areas and eight specific types of fishing were mapped in the villages. The priority topics for mapping were determined and defined with assistance from local stakeholders and resource managers.

Maps

Data compiled during the workshop were processed to create maps documenting the spatial extent of watershed related issues and coastal use patterns as drawn by the participants in the village participatory mapping exercises. After initial data processing was completed, draft maps were presented back to village representatives in October, 2014 to review and provide feedback for final revisions. The following maps show the final patterns for watershed issues and fishing activities, as well as a compilation of the supplemental data provided by participants throughout the mapping process. Watershed issues are compiled together on individual maps for each village. Fishing activities are represented on individual maps for each type of fishing occurring in the 3-village region.

Final Map Products

- Watershed and Coastal Mapping Mapbook: Utulei - Faga'alu - Fatumafuti (pdf, 10.7 MB)
- Coastal Fishing Data Map (pdf, 6.4 MB)

GIS Data

- Watershed and Coastal Uses Data (ESRI Geodatabase, 126 KB)

For more information regarding the American Samoa Watershed and Coastal Uses Mapping project or process, contact:

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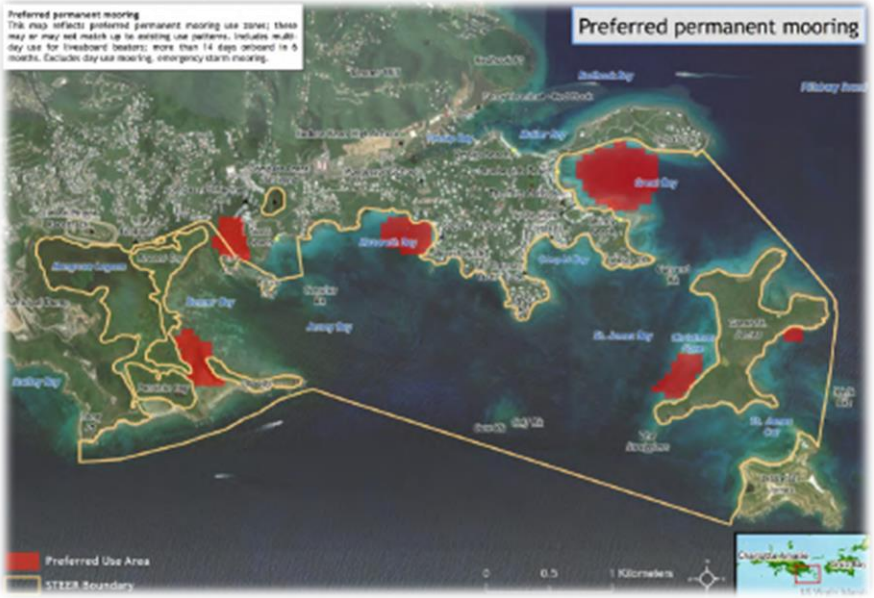
Project information downloadable from CoRIS

Participatory Coastal Uses Mapping

Key contributions and strengths:

Data:

- Provides data on human uses (location and intensity) for management planning in priority sites
- Information for planned zoning (STEER marine reserve, USVI)
- Information for village watershed management plan revisions (Faga'alu, American Samoa
- Information on fishing patterns in planned MPA sites
- Informing ecosystem services valuation (UH study)
- Informing fisheries social-ecological vulnerability study (understand reef species targeted in American Samoa)



Preferred mooring alternative scenario, USVI

Participatory Coastal Uses Mapping

Key contributions and strengths:

Stakeholder involvement:

- Helps managers identify key local stakeholders for participatory management and planning
- Introduction of managers to local planned MPA sites

Mapping workshop in American Samoa

Presenting preliminary mapping results to local stakeholders

W. Maui Coastal Uses Mapping Workshop

Participatory Coastal Uses Mapping

Challenges:

Obtaining the information

- Securing and managing on the ground labor necessary for participant recruitment
  - Time and labor intensive to recruit knowledgeable participants
- Gaining trust and convincing people it is worth their time to participate
  - Some users are enthusiastic, some reluctant (e.g. aquarium fishers in HI)
- Adapting methods to local social/cultural context
  - Technology is similar for each location; mapping recruitment, issues, process varies tremendously

Disseminating information so that it is useful for management

- Broadly publicizing that the data is available, disseminating data
- Generating data does not necessarily mean that managers can act on it
  - Much depends on the political context, planning cycles, resources necessary to take action or mitigate conflicting uses

Participatory Coastal Uses Mapping

Potential future directions…

- Tremendous potential, but currently no future resources allocated specifically to mapping (all projects conducted through internal competitive grant process)
- Other jurisdictions have expressed some interest, better dissemination of examples of the results outside the jurisdiction that the project was conducted in could help other jurisdictions determine potential local utility…
- Potential to integrate human use data with biophysical data, given shared spatial nature of data

Socioeconomic Assessment and Monitoring

Information goals: information relevant to understanding the human dimensions of coral reef resource management

Examples:

- Human uses of the marine environment
- Reliance on marine resources
- Knowledge, Attitudes, and Perceptions regarding:
  - Marine resource condition
  - Threats to coral reefs
  - Coral reef management strategies
- Demographic characteristics of local populations or resource users

Knowledge, Attitudes, and Perception Survey in S. Kohala (HI)

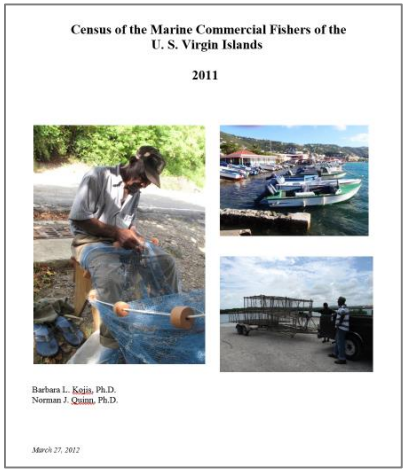
Socioeconomic Assessment and Monitoring

Information generated and products:	
Marine resource use and reliance Knowledge/Attitudes/Perceptions of environmental issues and management measures	American Samoa CNMI *Guam (in process)* Hawaii Puerto Rico USVI
Fisher demographics and financial wellbeing	Puerto Rico USVI
Education/outreach effectiveness	American Samoa Hawaii
Community resilience indicators	American Samoa

Socioeconomic Assessment and Monitoring

Information dissemination and intended users:

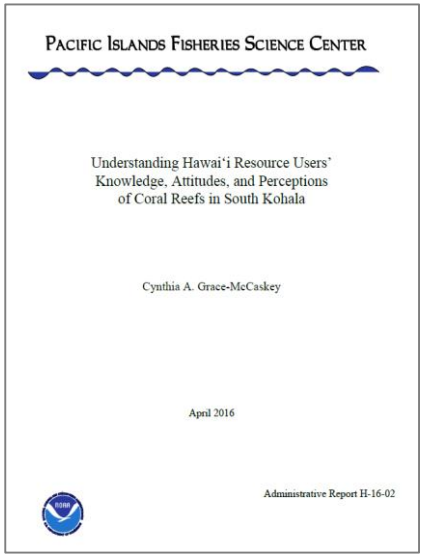
- Tech Memos and Project reports
  - Available on CoRIS and/or NOAA agency websites
  - Shared with NOAA regional offices responsible for drafting fisheries regulations
  - Shared with local fishery management bodies (jurisdictional agencies, regional management councils)
- Results Presentations
  - To local agencies
  - Scientific conferences
- Posters/Infographics
  - New method for disseminating NCRMP socioeconomic results


Census of the Marine Commercial Fishers of the U. S. Virgin Islands

2011

Barbara L. Kojis, Ph.D.
Norman J. Quinn, Ph.D.

March 27, 2012

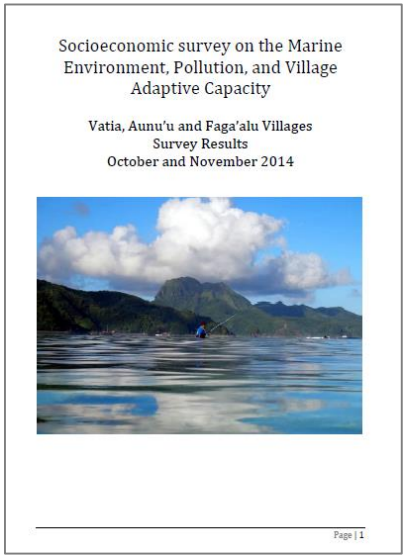

PACIFIC ISLANDS FISHERIES SCIENCE CENTER

Understanding Hawai'i Resource Users' Knowledge, Attitudes, and Perceptions of Coral Reefs in South Kohala

Cynthia A. Grace-McCaskey

April 2016

Administrative Report H-16-02


Socioeconomic survey on the Marine Environment, Pollution, and Village Adaptive Capacity

Vatia, Aunu'u and Faga'alu Villages
Survey Results
October and November 2014

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Socioeconomic Assessment and Monitoring

Intended uses of the information:

Fisheries-specific projects:

- Inform fisheries management
  - Aid in the development of policies that rebuild reef fisheries, protect coral reef habitats, promote Ecosystem Based Management
  - Characterize fishery participants and demographics (eg. for gillnet ban used data to estimate fisher/gear to be bought back)
  - Minimize adverse impacts on fishing communities (required under NS8 of MSA)
  - Understand impacts of management actions on people
  - Understand perceptions of management actions (help identify strengths, weaknesses, opportunities)

Priority site and MPA-specific projects:

- Inform local management strategies
  - Assist in understanding local uses of and reliance on resources
  - Understand human perceptions of resource condition and management measures

Socioeconomic Assessment and Monitoring

Key contributions and strengths

Caribbean fisheries assessments

- Policy assistance: these data collections are the main source of socio-economic data on fisheries for the region

Example: Determined the impacts of gill and trammel net ban and buy-back – USVI

Pacific socioeconomic assessments

- Inform planning for priority sites and MPAs
- Information to improve education and outreach

Example: Better able to target education and outreach to CFMP sites that had low awareness of village MPA – American Samoa

NCRMP surveys

- Inform politicians/decision-makers about the general population's behaviors and perceptions of management actions

Ex: Briefed territorial leadership that the majority of the population has positive perceptions of management (as opposed to vocal interest groups) – Puerto Rico

Fisheries Dependent Data Collection

Information goals: Gain a better understanding of coral reef fisheries

Examples:

- Fishing effort
- Participation rates
- Locations fished
- Temporal use patterns
- Gear used
- Species caught
- Fish sizes caught

Creel survey on Rota, CNMI

Fisheries Dependent Data Collection

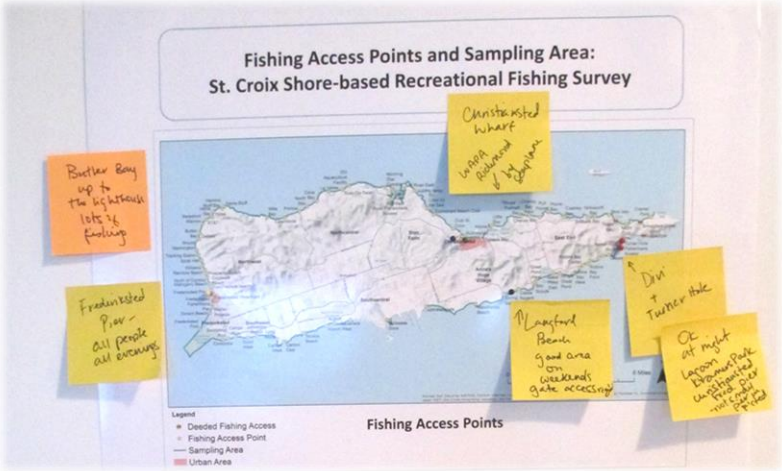
Information generated:

Rota, CNMI:

- Determined project feasibility for collecting creel data in remote location
- Fisheries dependent effort and catch data

St. Croix, USVI

- Characterize recreational shore-based fishery (only commercial data is formally collected)
  - Types of fish caught
  - Number of fishery participants
  - Participation in other shore-based activities
- Demographics and social characteristics of fishery participants
- Spatial and temporal patterns of use



Fisheries Dependent Data Collection

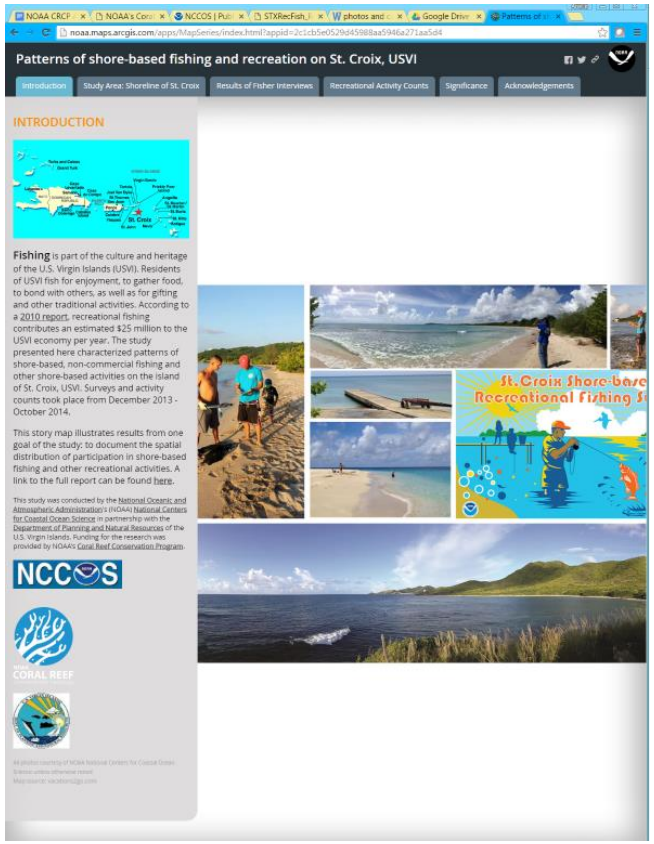
Data dissemination

Rota, CNMI:

- Data stored and accessible through NOAA's WPacFIN (https://pifsc-www.irc.noaa.gov/wpacfin)
- CoRIS report in development

St. Croix, USVI

- Technical report available through CoRIS and NCCOS project database
- Story map
- Conference presentations

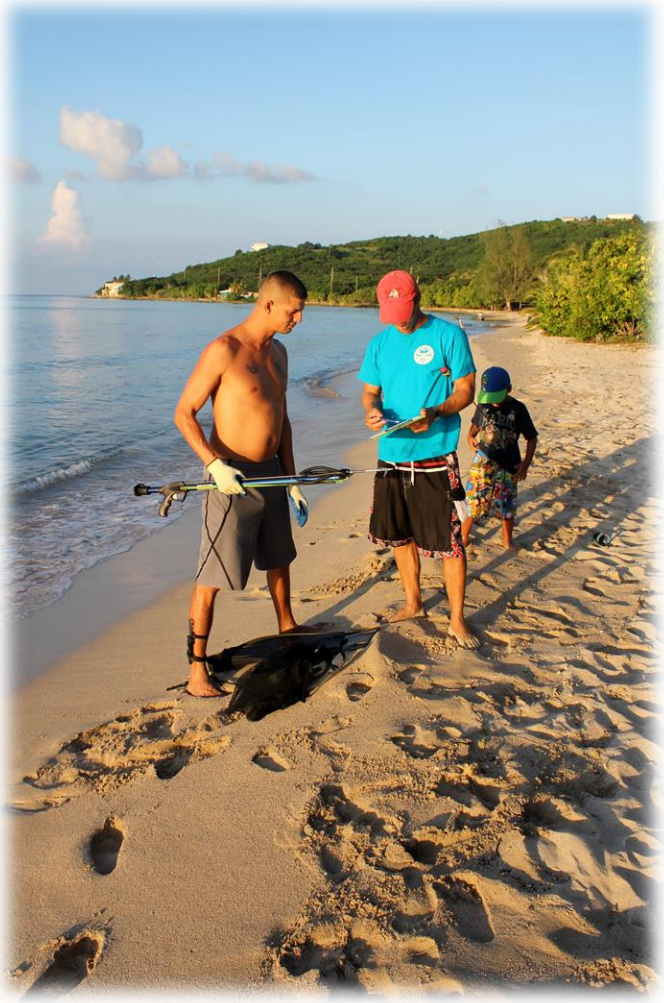


Story map for St. Croix rec. fish study

Fisheries Dependent Data Collection

Intended Users:

- Regional Fishery Management Councils
- Territorial management agencies
- Island leadership
- NMFS Science Centers
- NMFS Regional offices
- NOAA Marine Recreational Information Program



St. Croix rec. fish interview

Fisheries Dependent Data Collection

Rota Island fishermen

Data uses:

Rota, CNMI

- Lessons learned to guide future creel efforts
- Data to inform fisheries management on restrictions or potential bag limits, size closures

St. Croix, USVI

- Determine the relative importance of recreational fishing to fisheries management and monitoring
- Help NMFS MRIP plan future investments in shore-based recreational fisheries monitoring
- Help local managers identify how shoreline is used (spatially and temporally), determine potential conflict areas

Challenges to Survey Data Collection Efforts

Capacity

- Lack of social scientists working for NOAA or with local partners creates challenges in gathering and determining social science information needs for management

Contentious nature of topics

- Causes delay in implementation and approval

Field logistics

- Human resources and time needed to collect representative samples (and be able to break results down by user groups or demographics categories)
- Finding qualified local labor, QA/QC
- Safety issues during survey effort (eg. dogs, crime)

Survey administration in W. Hawaii priority site

Bureaucracy

- Onerous approval process at OMB delays survey implementation
- Lengthy editorial review process for tech memos has delayed dissemination of results

Challenges to Survey Data Collection Efforts *(cont.)*

Partner constraints

- High jurisdictional staff turn-over has constrained local capacity-building efforts
- Challenging to engage local partners in the development and review of informational products

Identifying target survey population

- Lack of marine recreational fishing license in all jurisdictions (except FL) makes it challenging to target fishing populations for survey efforts – methods to reach them often experimental

Linking social and ecological data

- Need to encourage this from the outset to tackle pointed conservation needs/issues

Survey administration in American Samoa

Potential Future Directions for Survey Data Collection Efforts

- Continue collecting information needed to inform management planning and policy
- Prioritize and improve social indicators to be collected (strategically target towards informing management)
- Additional creel surveys are planned for St. Croix (boat-based)
- Collecting complete and reliable fishery data is a program objective (F1.4) – determining how to do this effectively/efficiently when long-term data is needed, and fishery data collection is not part of CRCP's mandate
- Coordinate and integrate socioeconomic and ecological data collection efforts

St. Croix rec. fish study

Relevant publications

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