

Workshop Report:
Profiling the St. Croix Fisheries and Local Stakeholders'
Perceptions of Marine Protected Areas

Workshops Conducted By:

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Purpose of the St. Croix Workshop

Workshops were conducted in St. Croix from August 14-17, 2006, to disseminate preliminary information based on more than two years of research that profiled the social, cultural and economic importance of fishing to St. Croix residents¹. A second component of the research assessed the effectiveness of Marine Protected Areas (MPAs) as perceived by a variety of stakeholders who are directly and indirectly affected by the implementation and existence of MPAs in St. Croix. These workshops served an education and outreach function of social science research in the U.S. Caribbean, contributed to the rapport-building process with local stakeholders, and provided an opportunity to collect new data and more fully discuss preliminary research findings. Workshops are an important part of socio-cultural research in which additional input and feedback from stakeholders strengthens the analysis for the final report so that management decisions are based on the best available scientific information.

Background

The Magnuson-Stevens Act (MSA), National Environmental Protection Act (NEPA), and Executive Order (EO) 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) require that social impact analyses be conducted when federal agencies propose new regulations. Under National Standard 8 (NS 8) of the MSA, federal agencies are required to consider whether fishing communities are A. . . substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and United States fish processors that are based in such community” (MSA Sec. 3 [16]), with a fishing community specified as ^A...a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries dependent services and industries (for example, boatyards, ice suppliers, tackle shops)” (63 FR 24235, May 1, 1998). Similarly, EO 12898 (59 FR 7629 [1994]), requires federal agencies to address environmental justice concerns by identifying “disproportionately high and adverse human health and environmental effects.. .on minority populations and low-income populations.” Last, NEPA requires that economic and social effects as specific environmental consequences to be examined (40 CFR ' 1508.8).

The development of methodologies to operationally define and identify fishing communities and assess community impacts is a complex undertaking. NS 8 of the MSA, for example, establishes community as a location-based definition, not gear-based or ethnographic-based definition. In addition, NS 8 distinguishes between ‘substantially dependent’ and ‘substantially engaged’ fishing communities. Substantially dependent

¹ These workshops were funded and supported by NOAA’s Coral Reef Conservation Program and National Standard 8 funds.

implies that loss of access may lead to some change in the character of the community, perhaps a major change, or may even threaten its existence. Substantially engaged, on the other hand, implies participation in a commercial, recreational, or subsistence fishery. Engaged is defined to include harvesting and/or processing activities. In contrast, EO 12898 stresses the need to assess differential impacts on community sub-groups, which opens the door to combine *place* and *non-place* driven categorizations. Anthropological and sociological methods can provide valuable insights about how to better identify and characterize these communities and assess community impacts.

The community profiling research is designed to help make a determination about a community's level of engagement and dependency on the local fisheries. This is a task that measures certain criteria based on both quantitative and qualitative data. And as there appears to be some sort of threshold that must be crossed to be designated a fishing community as opposed to a community engaged in fishing, the threshold is subjective and often must be considered not only at the regional level but at the community level.

The SEFSC Social Science Research Group has been examining the levels of engagement and dependency on local fisheries in various communities throughout the U.S. Caribbean. After having collected and analyzed the data, the next step was to organize the information to determine what it said about the importance of fishing and whether certain areas could potentially be candidate fishing communities. Because St. Croix is so unique in its size, existence of complex social and economic networks, and historic and contemporary reliance on the local fisheries, the data seemed to suggest the designation of the island rather than individual communities within the island. One way to assist in gathering more data and obtaining feedback about the data already collected is to take the information back to the local stakeholders to discuss the preliminary research findings. This is an important part of the iterative socio-cultural research process that produces a stronger, more accurate final report.

Place and Time

There was fair amount of preparation in order to ensure that local residents as well as government officials were made aware of the workshop. Phone calls and emails were sent to potential participants. Upon arrival on Island, trips were made to locations where fishermen sold their fish in order to personally invite them to the workshop and to alleviate any fears they may have had about its purpose. Phone calls were made to local people as a means for assuring other potential participants about the nature of the workshop.

Preliminary research findings were presented to people using three main strategies: Powerpoint presentations² for the formal meeting; open semi-structured discussions for the field site visits with individuals and small groups; and an oral presentation for the Fisher Advisory Committee (FAC) with the promise of sending them the larger

² The Powerpoint presentation is located in Appendix 1.

Powerpoint presentation if so desired. The combination of all three of these efforts was extremely useful for ensuring that a wide audience had access to the preliminary research findings and an opportunity to clarify or enhance the final research product.

The formal workshop was an open public meeting held at the Buccaneer Resort where the Caribbean Fisheries Management Council was meeting throughout the week. We arrived on Monday, August 14, 2006 and the meeting was set for later that night. The meeting began at 7:00 p.m. and lasted until 9:30 p.m. It was well attended considering the heavy rain storm that began about an hour and a half before the meeting and only stopped as the meeting was beginning. (If you know about Caribbean people and rain then you will understand why I mention this.) In attendance were fishermen from St. Thomas and St. Croix, as well as members of the Caribbean Fishery Management Council, the USVI Department of Fish and Wildlife, and the NOAA Fisheries regional office and science center.

Fishermen are often uncomfortable attending and participating in formal meetings. For this reason, Dr. Stoffle used time not obligated for other meetings as an opportunity to travel around the island and talk with fishermen at a variety of locations that may be perceived to be more comfortable or informal than the Buccaneer Resort. One of the primary locations was the La Reine Fish Market, a place where a large number of fishermen congregate daily to market and sell their catch (as well as visit, talk story and have their dive tanks filled by a portable compressor – a task that normally had forced them to go daily to the actual dive shops in order to fill tanks). Visits were also made to Gallows Bay, Altoona Lagoon, Teague Bay, and Fredriksted (where there were no fishermen at the marketplace). The information was discussed with numerous fishermen as well as wholesalers/intermediaries. During this time numerous other accounts of fishing activities were shared in relation to whatever topic was being discussed at the time.

The fieldwork conducted in 2004 and 2005 are mere snapshots of the society as a whole, including the local fisheries and its participants. This became apparent as Dr. Stoffle spent time with a number of key informants. It was interesting to note that since the last visit to the island in 2005 there are reported changes in the society at large as well as in the local fisheries (especially the perceived notion of increased violent crime associated with a perceived downturn in the economy as a whole). One thing that became apparent is that the fisheries do not exist in a stasis form. They change as the larger society is influenced by certain dynamic natural and human forces. This is discussed in greater detail in the upcoming section about “shore based activities,” and is one reason why it is important to conduct the community profiling research and then periodically update the data.

The final meeting was with the Fisher Advisory Committee (FAC) in a conference room at the Department of Agriculture. This meeting was a semi-private meeting held with the FAC members and some invited guests. The FAC is a committee that is comprised of a variety of local stakeholders who are charged with advising local and regional fishery managers regarding a variety of issues. This group is made up of commercial fishermen,

a dive shop owner, recreational fishermen (two from the charter/for hire sector), a scientist from the University of Virgin Islands, and an advisor for the Fish and Wildlife Department of the USVI DPNR. During the course of the meeting, Dr. Stoffle summarized his preliminary research findings and answered questions that the members or guests had regarding the data and analyses. The general discussion was related to the preliminary analyses. However, there were other concerns regarding community designation and the manner in which fishery related and unrelated forces were affecting or threatening the local fisheries (specifically the impending net ban).

Outcome of the Workshops

We were very pleased with the feedback from local stakeholders regarding the accuracy of the data. In fact, the majority of the discussion reinforced the preliminary research findings, leading the researchers to conclude that they achieved the research objective and that the sampling and methods appear to have been appropriate. There were some topics that drew more discussion than others, especially the community designation process and potential threats to the fishery. The following list of five subcategories related to the two aforementioned topics:

- 1) what does it mean to be designated as a fishing community
- 2) how does a community get designated
- 3) the gill net ban
- 4) the fear of future closures
- 5) the impact of shore based activities on nursery areas and inshore reefs

These topics will be an important component of the St Croix community profile.

What Does it Mean to be Designated as a Fishing Community

Participants were very interested in what it could mean to be designated a fishing community. In the workshop we mentioned to the participants that the community profiling research has only begun nation-wide and that at this time the bounds or parameters of what it means to be designated have not yet been fully explored, tested or defined. However, there was one very clear advantage for participating in the community profiling research process: the knowledge gained throughout this research could be extremely useful for identifying communities that potentially are more impacted by certain kinds of fishery management decisions based on their levels of engagement and dependency on marine resources. Thus this information could be important for mitigating the social and economic impacts on fishing communities and other communities engaged in fishing. However, that having been said we made sure to let people know that beyond the development of a baseline there was no guarantee as to what the designation was to mean or any advantage it might have for fishermen in the future.

How Does a Community Get Designated

Participants were interested in the designation process, and in addressing this issue we learned that there were two real underlying questions: 1) what is the political process for designation; and 2) what are the criteria to get designated. It was explained that designation comes from local political and stakeholder influence, which encourages the Caribbean Fishery Management Council to request designation from the NOAA Fisheries Southeast Regional Office. The criteria to be met in order to be designated have not yet been fully defined. However, 29 indicators are identified in a draft copy of the Socio-Practitioners Manual. These indicators include biological, economic and socio-cultural variables. A copy of the draft list of indicators was handed out during the meetings and at individual field site visits.³

The variables were selected because it was believed that they best served the purpose of indicating whether a community was substantially engaged and/or substantially dependent on fishing, or if it is simply engaged in fishing or not engaged at all. This means that there is some sort of comparative scale or inclusion/exclusion factor. NOAA headquarters has suggested the following definitions to be used when examining dependence and engagement:

Dependence standards compare the information about a community to the same information at a different geographic level, such as the national average, or median of all in-state communities, or to a selected threshold such as 15%.

Engagement standards compare the information about a community to information about a particular fishery or sector, such as 12 permit holder residences of 500 total permits issued in this fishery, or the preponderance of vessel services for an area.

At the upper end of each of these scales of measurement is a threshold that when crossed means that a community can be designated a fishing community. The problem is that because of the cultural, social and physical differences that exist throughout the Nation and Territories it is difficult to apply a common standard that adequately addresses this variability. For example who is to say that a 15% threshold for any single variable or indicator for communities in the Caribbean is any better than a 20% or 10% threshold elsewhere? For this reason the process can be described as subjective, even though it attempts to justify decisions based on some sort of quantitative rationale.

³ The list of indicators appears in Appendix 2.

Another important issue relates to the definition of a ‘fishing community.’ As defined in the Magnuson-Stevens Act (1996), a community is a “place-based” entity. This is an imperfect definition when applied to a number of communities engaged in fishing throughout the continental US. For example, many communities along the Atlantic coast that once resembled the definition of a place-based fishing community, communities with strong commercial and recreational fisheries in terms of the amount of fish landed or value of the catch, have overtime changed in appearance due to forces such as coastal redevelopment and gentrification. In fact, with exception of a few places throughout the US, including but not limited to Hawaii, Alaska, and New England, there are few communities that even appear to fit any placed-based definition. This in large part is due to the complex socio-economic networks that currently exist within and outside of the physical boundaries of many coastal communities that are engaged in fishing. The success of and dependency on the local fisheries is based on much more than the relationships that exist within the local community. For this reason, when we compared the concept of a placed-based definition with certain island locations, such as St. Croix and St. Thomas, we found that these places may more aptly represent the levels of dependency and interconnectedness that best resembles the MSA definition of a fishing community. This having been said, when researchers examine communities throughout the US we need to respect the limitations of the definition in its exclusiveness while at the same time acknowledging those socio-economic networks that are impacted by the success and existence of the local fisheries, be they commercial, recreational, and/or subsistence. In doing so we better understand the socio-economic importance of fishing, and can provide decision makers with a more holistic understanding of the fishery that is not confined by the limitations of the current definition.

For the US Caribbean, primarily St. Croix and St. Thomas, an argument can be made that based on a number of factors one should not consider small communities within these islands as fishing communities. Rather, we can focus on the interconnectedness of the social and economic ties that exist and make the island as a whole worthy of designation. Our research appears to support this very conclusion for these two islands and follows the precedence set in the designation of Guam in its entirety as a fishing community.

One of the strongest justifications for designating the entire island as a fishing community was based on the existence of strong community linkages, meaning the social and economic networks that tie the fisheries to other industries and businesses on the island. Other important factors included the cultural and historic connection to fishing on the island and among its residents (which are not necessarily the same thing), the widely dispersed residential pattern of the fishermen throughout the island, and the fact that almost 100% of the fish caught by island fishermen stays on the Island. This means that the money made from fishing comes from residents and businesses of the Island and then circulates throughout the island’s formal and informal economies. Hence, dollars spent on fish are dollars that stay on Island and support the local infrastructure and economy.

The Gill Net Ban

This is one of the most heated topics on the island. A few years ago a video was made showing the bycatch associated with divers using gillnets when targeting potfish (reef fish). This video, coupled with reports of excess waste of unsold fish at local trash sites, caused people to be concerned with the use and impact of gillnet fishing. This caused local politicians and fishery officials to consider the complete ban of gillnets in an effort to protect the reef fish fishery in St. Croix.

Currently, there is a great deal of apprehension among those that use gillnets that the local Government does not fully understand the level to which gillnetting impacts the fishery or fish stocks, and that they do not realize the socio-economic hardships that would be incurred by those who fish with nets. The fishermen perceive that the local Government has overestimated the negative impact of using this gear type, and that it has a negative bias about the use of this gear as it relates to the concepts of gear efficiency and the level to which it harvests unwanted species as bycatch. A fear among fishermen is that the loss of the net fishery will force those who engage in the practice to switch to gear such as traps and contribute to overfishing by forcing them to build more traps to compensate for the ban on gill nets. These fishermen argue that it will take a long time for the ban on gill nets to produce a noticeable increase in fish abundance and that during this time “bills need to be paid, things like school fees, groceries, and house and car payments.” They question how they are supposed to compensate for the immediate loss while waiting for the catch per unit of effort to increase in the trap fishery. They also worry that the closure may force overcrowding on already limited available shelf space, forcing managers to deal with another problem in the near future.⁴

Fear of Future Closures

Fishermen expressed a fear of future closures that exists at all times based on the limited amount of bottom they have to fish. In addition, they fear that people do not understand the cumulative impact of regulations coupled with problems such as pollution and de facto area closures from things such as Homeland Security. Fishermen stated that they are facing future economic hardships that decision makers do not seem to fully comprehend. In many cases this may be related to the fact that a closure is examined as a single entity and not understood within the larger framework of management that has decisions being made from multiple agencies without sufficient collaboration or interaction. A single closure may not result in a tremendous loss of revenue, however if it is viewed as a part of the cumulative impact of other closures and fishery regulations, that revenue loss may substantially impact local fishermen.

⁴ Two days after our arrival, in a meeting with the Lt. Governor, the fishermen made a strong case for reconsidering the ban on nets and actually won the support of the Lt. Governor, who was said to have commented that he had no idea the level to which this was going to impact the fishermen. The ban was postponed until the first of the New Year, 2007, apparently to give netters a chance to prepare for the transition into other fisheries and perhaps for officials to re-examine the impacts of a net ban.

The Impact of Shore based Activities on Nursery Areas and Inshore Reefs

During the course of conducting our research about fishing communities, it became evident that fishermen shared similar perceptions regarding certain kinds of perceived threats to the environment and the success of their fisheries. Several threats were identified as problematic and arose regularly during our conversations with fishermen. Therefore, our workshops included discussions about activities that might impact the success of local fisheries as they relate to things occurring outside of the fishermen's control.

Their main concerns centered around three issues specifically related to shore based activities: 1) coastal development and runoff related to hillside home construction; 2) pollution related to rum effluent on the southwest coast of the island; and 3) the impact to nursery areas from Hovensa Dredging and pollution from the Anguilla Dump. These issues related to perceived destructive practices undertaken in the name of development and industry; practices which are said to have not only had an environmental impact, but a socio-economic one as well, especially on the Southwest coast. Using satellite imagery we were able to observe and show images of the impact of such things as hillside residential development and the runoff into Salt River Mangrove area, as well as satellite imagery on inshore areas around the Hovensa plant as well as the Anguilla Dump. These images seemed to support fishermen's claims that these locations were the likely sources of the adjacent polluted waters, and in their opinion were currently impacting and have for years impacted important nursery areas.

These issues are of extreme importance to the local fishermen for a couple of reasons. One reason is that they are often blamed for reductions in fish stocks, and believe that even by addressing fishing pressure there are still other factors that affect the health of the stocks that should be addressed as well. Another reason is that it is not clear how multiple agencies will work together in the context of ecosystem-based fishery management to address problems such as runoff and pollution that can indirectly affect fisheries.

Conclusion

The feedback that we received during the course of the workshop supported much of the initial data analyses developed from our survey of almost 50% of the total active commercial fishing population in St. Croix. We also learned that certain strategies for disseminating information are better than others. For example, the majority of fishermen from St. Croix do not like to attend formal meetings, and the best way to reach them is to establish an appropriate place to gather (if possible of their choosing) or at least to make sure there is sufficient time during the field visit to go to specific locations where fishermen congregate and talk with them individually or in small groups. If not for the

time in between the two formal meetings, then a good portion of the fishing population would not have had the time to discuss the preliminary analyses.

Our preliminary conclusions for the community profiling research suggest that St. Croix, as a whole, seems to have an argument for being designated a fishing community. We learned that many individuals and families are tied to the success of the local fishery, especially fishermen, and that while there appear to be many things that differentiate fishermen from one another, the data suggest that there are actually more things that bind them together, especially when it comes to the protection of the sea and the importance of the local fishery.

Without a doubt this was an incredibly useful workshop and outreach effort. Local stakeholders were pleased with the quality of the research and the findings, and believed that the research findings will be helpful for future fishery management decisions. Especially among fishermen, the idea of being designated a fishing community was well received, and they were glad to see that we took the time and effort to learn about the complexity and interconnectedness of the social and economic networks. Dr. Kojis of the USVI DPNR expressed her support of the designation process and felt that the data certainly supported the Island-wide designation.

APPENDIX 1

Profiling Fishing in St. Croix:

An Examination of the Social, Cultural and Economic Importance of the St. Croix Fisheries and the Community Designation Process

Dr. Brent Stoffle, NOAA Fisheries
Dr. Manuel Valdes Pizzini, University of Puerto Rico
Dr. Juan Agar, NOAA Fisheries

Research Objectives

- To Profile Fishing in St Croix and Determine Whether it Meets the Magnuson-Stevens Criteria for Being Designated a Fishing Community
 - To do this we must determine the social and economic value of fishing and the fisheries to the Island
- Assess Local Stakeholders Perspectives Regarding the Effectiveness of Local Marine Protected Areas

Preliminary Findings have not been peer reviewed.

Methods and Sample

- Summer 2004 and 2005; 2 Research Teams
- Conducted Formal and Informal Interviews with individuals as well as groups
- 84 Interviews with 71 Stakeholders
- Survey with 103 Stakeholders
- Stakeholders Include:
 - Commercial Fishermen
 - Recreational Fishermen
 - Dive Shop Owners/Captains
 - Local Fishery Managers
 - Local Fisheries Enforcement Officers
 - National Park Service
 - Tourists/Divers

Preliminary Findings have not been peer reviewed.

Data

- Both Quantitative and Qualitative
- Primary and Secondary
- Primary—Ethnographic Data
 - Face to Face Formal and Informal Interviews and Formal Surveys
 - Phone Surveys
 - Group Interviews
 - Attended Local Meetings, e.g. FAC
 - Participant Observation
- Secondary
 - Fishery Dependent and Independent Sources
 - Census (USVI Fishermen and U.S.)
 - Websites
 - Local Newspapers
 - Previously Published Articles and Books

Preliminary Findings have not been peer reviewed.

National Standard 8 and MSA

- MSA stipulates ten National Standards to which fishery conservation and management actions must conform. Six of these National Standards have social and economic implications and one, National Standard 8, requires analyses to determine the social and economic impacts of proposed conservation or management actions on fishing communities
- The term "fishing community" means a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community.

MSA's Definition of Fishing Community

- Substantially Engaged or Dependent in Fishing Activities – the difference is that *engaged communities* are participating in fishing activities, regardless if they are commercial, recreational, or subsistence, and *dependent communities* are those that when experiencing a change in the fishery or loss of access, it creates a change in the character of the community, perhaps even threatening its very existence
- Problem: community defined as a place based entity
- However, in the NMFS we are charged with meeting NEPA and EO 12898 requirements of determining potential impacts, and minimizing adverse social and economic impacts of regulatory actions

What Is the Advantage of Being Designated a Fishing Community

- If designated it means that increased information about the levels of engagement and dependency of locals on the fisheries has been disseminated to policy decision makers, thus providing people with a better understanding of the potential social and economic impact of certain management decisions.

Is St. Croix a Fishing Community?

- Cultural Connection to the Sea
- Engagement and Dependency
 - Commercial, Recreational/Charter, Subsistence
 - Employment
- Forces that Impact the Fishery

Preliminary Findings have not been peer reviewed.

Cultural Connection to the Sea

- Place: Long History of Use and Dependency which predates Slavery and is continuous throughout history
- People: Many current participants in the commercial fishery have a strong cultural connection to fishing, but have only two or three generations of fishing in St. Croix even though many have a much longer family history of involvement which predates arrival to St. Croix.

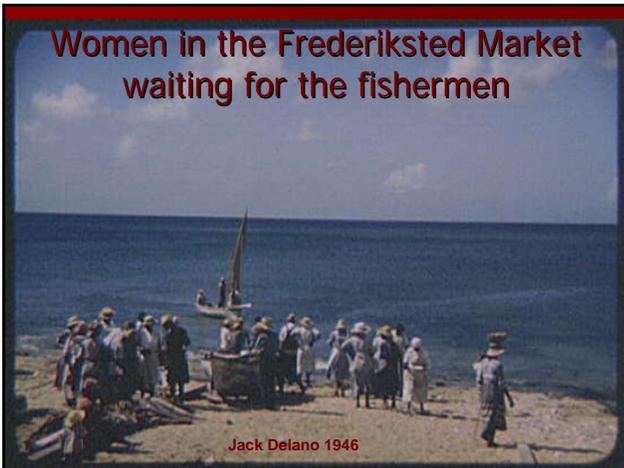
Preliminary Findings have not been peer reviewed.

Fishing, culture and history

- Smoked herring and salt fish during the Danish domination
- Pervasiveness of salt fish today
- Fishing: freedom and independence from slavery and the plantations
- Farmers and fishermen
- Key role of women in the market
- Saturdays and fish markets
- Fishing and identity for Cruzans: fishers are all over the landscape
- La Reine Market as a central place for social relations and market transactions

Preliminary Findings have not been peer reviewed.

Women in the Frederiksted Market waiting for the fishermen



Newcomers and fishing

- St. Lucians
- Trinidadians
- B.V.I.
- St. Kitts and Nevis
- Puerto Ricans or Papa Dem (Hispanics are 38.5% of the fishers)
- Continentals (USA) and the recreational sector

Preliminary Findings have not been peer reviewed.

Economic impact of fishing

- 12 to 13 million dollars into the economy
- Jobs for new migrants making their way into other sectors of the economy
- Employment and a source of proteins for the local population
- A key cultural staple
- Fish for the restaurant market catering the local population and tourists as well
- Role of imported fish today

Preliminary Findings have not been peer reviewed.

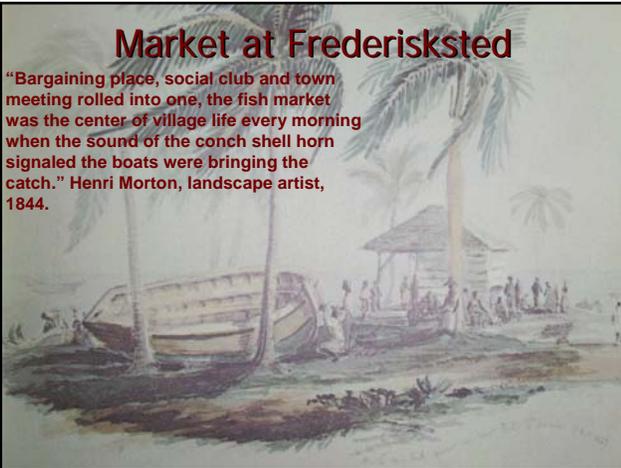
History and dispersion of fishermen (I)

- Urban changes: elimination of the markets in Christiansted (the Fort and Watergut)
- Homesteading and the New Deal
- Fishers moved throughout the St. Croix landscape
- Sale of beachfront properties to non-Cruzans
- Cruzans moving out of rural activities, including fishing
- Changes in traditional fishing settlements: LaVallee and Gallows Bay

Preliminary Findings have not been peer reviewed.

Market at Frederiksted

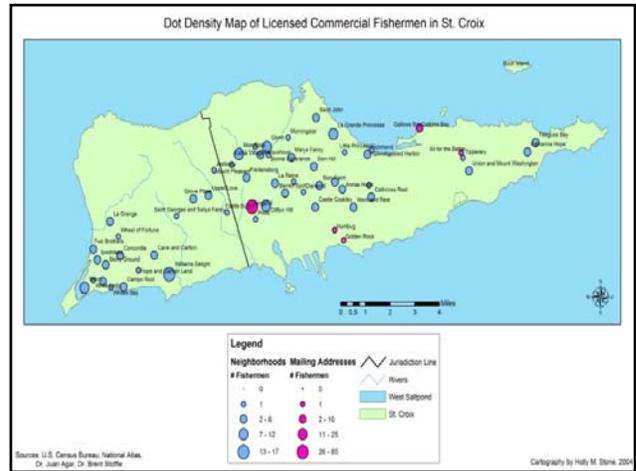
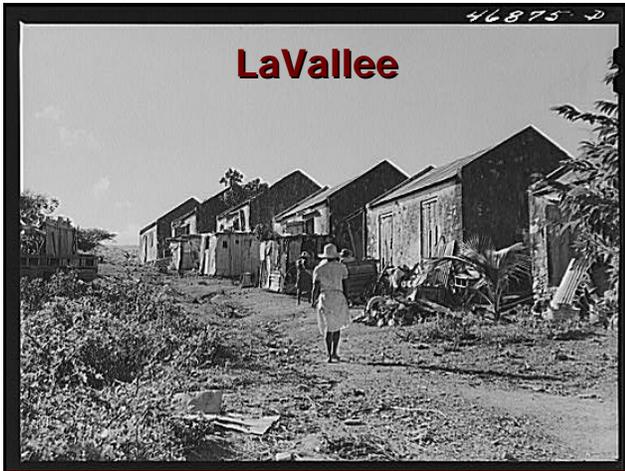
“Bargaining place, social club and town meeting rolled into one, the fish market was the center of village life every morning when the sound of the conch shell horn signaled the boats were bringing the catch.” Henri Morton, landscape artist, 1844.



Fishing communities in the past:

The fishermen... are concentrated in the towns Christiansted and Frederiksted, though a few are to be found at Cane Bay, Salt River, Great Pond Bay, Krausse Lagoon, Long Point, and at points scattered along the shore. The majority of those fishermen living in the two towns of the island follow fishing to the exclusion of other occupations. While the possible fishing ground around the island of St. Croix is not as great as that of the other islands as a group, this area is fish more intensively. The boats used are larger, a greater amount of gear is carried, and the boats fish a greater portion of the available areas. Most of the fishermen at points outside Christiansted and Frederiksted follow fishing only as part-time work, to eke out other occupations. Fiedler and Jarvis 1932

Preliminary Findings have not been peer reviewed.



History and dispersion of fishermen (II)

- Use of ramps throughout the Island
- Fishermen's residences are distributed all over St. Croix
- Decline of certain markets and urban communities: Frederiksted
- A sense of lack of unity for political-fishing purposes; various groups and places of origin, interests, and areas of residence
- Gentrification: "Keep the Gallows Afloat" (1980)
- Changes in the role of women in the market

Preliminary Findings have not been peer reviewed.

Ramps

Site	Responses	Location
Altoona Lagoon	37.5	N-NE
Molasses Pier	35.5	S
Fredericksted Pier	31.0	W
Gallows Bay	8.5	W-NE
Castle Nugent	5.5	S-SE
Salt River Bay	5.5	N
Christiansted	4.5	N
Teague Bay	3.0	NE
Green Cay Marina	2.0	N
Solitude	2.0	N
Turner Hole	1.5	SE
Duggans Reef	1.0	NE
Great Pond	1.0	SE

Variables Identified By NOAA Headquarters

- **Fishery Related Activity**
- Pounds of fish landed in the community
- Value of fish landed in the community
- Number of vessels landing fish to the community
- Number of processors in community
- Value of fish processed in the community
- Pounds of fish processed in the community
- Number of dealers and buying stations in community
- Number of permit holders residing in the community
- Number of crew members residing in the community
- Number of fishing vessel owners residing in the community
- Number of fishing vessel homeported in the community
- Number of processing workers based in the community
- Sportfish total catch in the community
- Number of sportfish trips originating from the community
- Number of sportfish for-hire businesses (charter and partyboat) operating in the community
- Number of tackle retailers & bait stores operating in the community
- Number of sportfish licenses sold in the community
- Number of sportfish license holders in the community
- Number of households participating in subsistence harvest in the community
- Number of households participating in subsistence consumption in the community
- Pounds of subsistence fish landed in the community

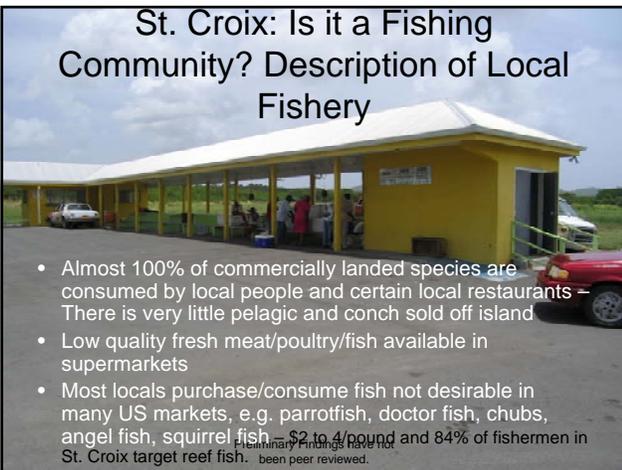
Preliminary Findings have not been peer reviewed.

Variables Identified By NOAA Headquarters

- **Economic Role and Importance**
- Amount of base economic activity generated by fishing
- Number of directly related fisheries-dependent services
- Number of firms providing fisheries dependent services
- Number of community jobs related to fishing
- Number of community jobs in fisheries-dependent services
- **Social and Cultural Role and Importance**
- History of fishing in the community
- Perceived importance by community members of fishing to the continuity or self-identification of the community
- Prior status as an MSA Fishing Community

Preliminary Findings have not been peer reviewed.

St. Croix: Is it a Fishing Community? Description of Local Fishery



- Almost 100% of commercially landed species are consumed by local people and certain local restaurants – There is very little pelagic and conch sold off island
- Low quality fresh meat/poultry/fish available in supermarkets
- Most locals purchase/consume fish not desirable in many US markets, e.g. parrotfish, doctor fish, chubs, angel fish, squirrel fish – \$2 to 4/pound and 84% of fishermen in St. Croix target reef fish.

Preliminary Findings have not been peer reviewed.

Diverse Commercial Fisheries



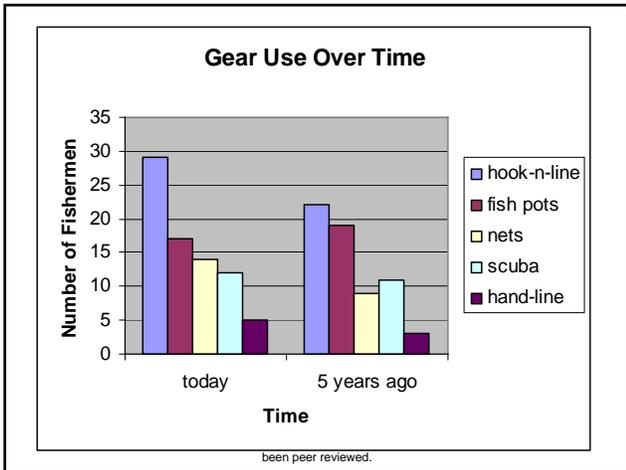
- Fish Census –
 - Moratorium on commercial licenses – 217 fishermen with commercial licenses; 61% Ft; 31.5% Pt; 7.5% Opportunistic
 - Helpers/Crew approx. 1.5 per vessel – could be underestimated
 - Crew is comprised of family and friends
 - Approx. known total of 542; how many families does this equate to being directly or indirectly impacted by fishing, either money or food
 - Evidence of those who buy commercial gear and fish with licensed fishermen
- There are those whose job it is to market fish
- There are those who clean fish as well



Survey Results for Gear

- Not much change over time
- If you fished for something five years ago you are likely to still be fishing for it today (using the same gear)
- One of the biggest changes is the impact of nets and the net ban
- Many of the fishermen utilize multiple gear strategies, sometimes within the same trip

Preliminary Findings have not been peer reviewed.



Squirrelfish, Trunkfish and Angelfish



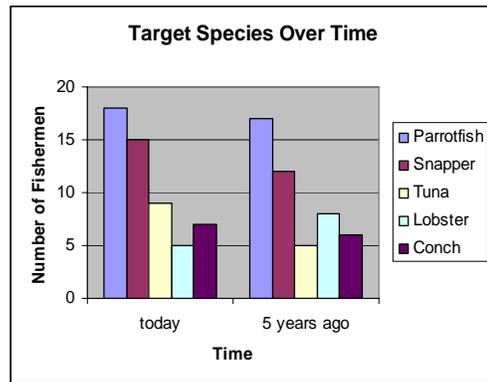
High End Market Species



Local Consumption: Individual and Restaurants



Target Species Over Time

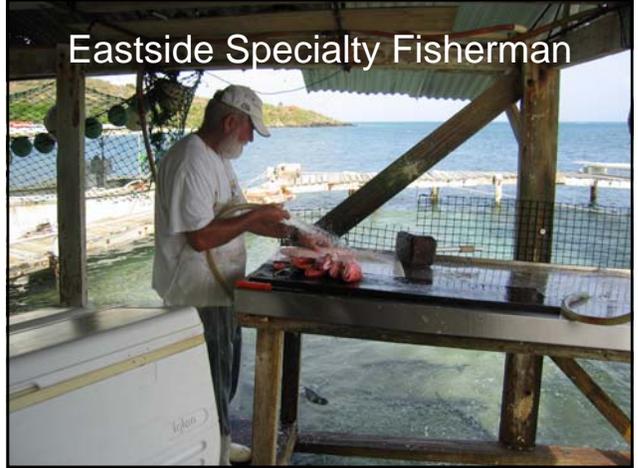


Preliminary Findings have not been peer reviewed.

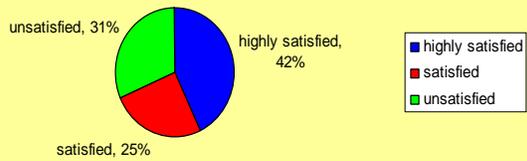
Distribution of Catch



Eastside Specialty Fisherman

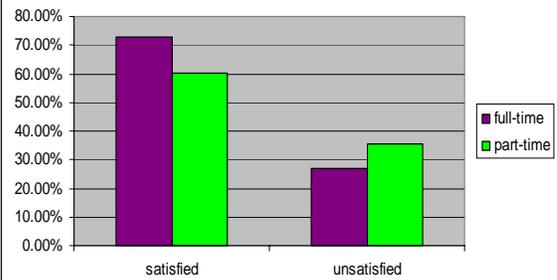


Fishermen Satisfaction with Fishing as an Occupation



Preliminary Findings have not been peer reviewed.

Full-time vs. Part-time Fishermen Satisfaction with Fishing as an Occupation

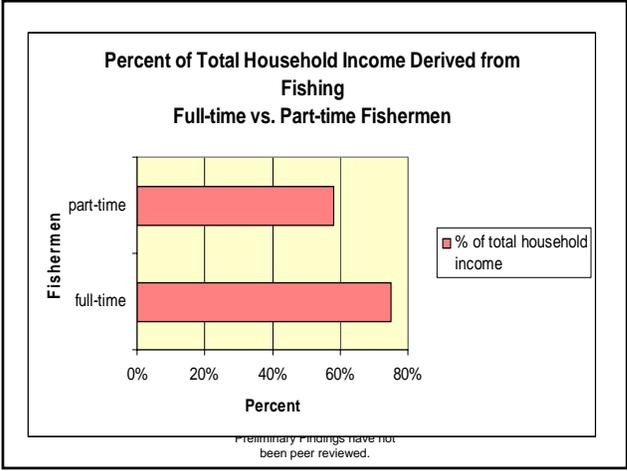
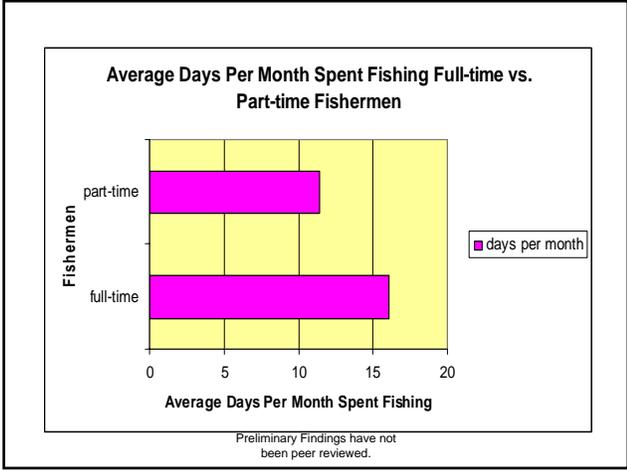
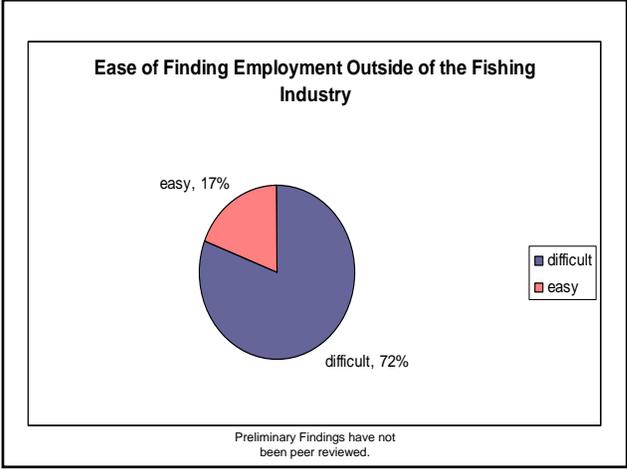


Preliminary Findings have not been peer reviewed.

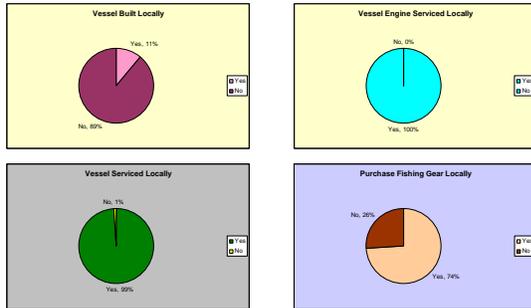
Employment

- 2005 US Unemployment 5.1%; USVI 7.1%; St. Croix 9.9%; connection to education ??? 21% Teachers Accredited
- Jobs in both Fishing and Marketing
 - Crew, Cleaning, Keeping Books
- Jobs are limited in other sectors
 - Primarily industrial (tourism)

Preliminary Findings have not been peer reviewed.

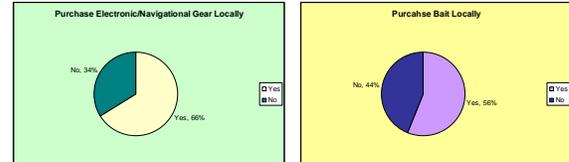


Community Linkages



Preliminary Findings have not been peer reviewed.

Community Linkages



Preliminary Findings have not been peer reviewed.

Recreational Fishermen

- Divided into pleasure fishermen with no commercial license and charter fishermen
- Difference between the legal sale of catch and home consumption (subsistence)
- We know about the fishing tournaments
 - Brings in fishermen from other islands
 - Kids day in Christensted
- There is a question of conflict between the subsistence fishermen and their allowable catch as well as the lack of concern for adherence to regulations by immigrants (mostly blamed on Dominicans) Is this the case?

Preliminary Findings have not been peer reviewed.

Recreational Fishing

- **ST. CROIX**
 - Ruffian (St. Croix Marina) 773-7165/773-6011 (773-0917)
 - Louie G (St. Croix Marina) 773-1123
 - Center Console (Salt River Marina) 778-9650
 - Lisa Ann (Green Cay Marina) 773-3712; 773-4977
 - Cruzan Divers 772-3701/1-800-35 2-0 107
 - Fishaholic 773-8988; 690-8570
 - Leisure Lady 773-8988; 690-8570
 - Sharon M III 773-8988; 690-8570
- From What we could assess there was only one licensed charter operation on island. From this website appears to be more. Is this the case?

Preliminary Findings have not been peer reviewed.

Recreational Fishing

- Recreationally – Charter Catch is sold to local restaurants – creates less reliance on imports to meet local tourism demand
- Recreational/Charter Fishermen rely on local commercial fishermen and bait fishermen for bait for their charters

Preliminary Findings have not been peer reviewed.

Subsistence Fishing



Preliminary Findings have not been peer reviewed.

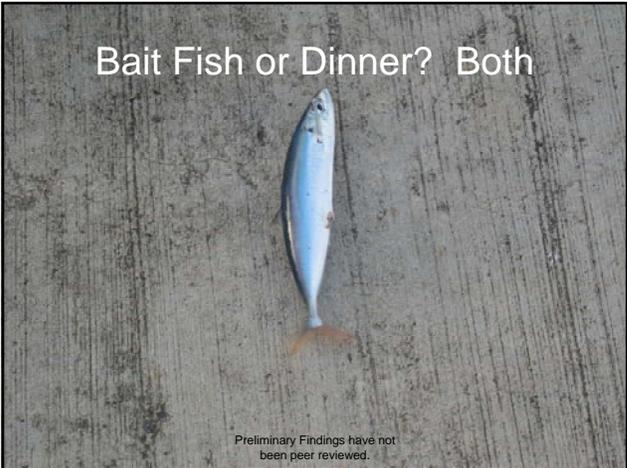
Important Unknown Component

- How many are there?
- How much do they take?



Preliminary Findings have not been peer reviewed.

Bait Fish or Dinner? Both



Preliminary Findings have not been peer reviewed.

What are Some Concerns Among Fishermen About the Fishery

- Some are concerned about the use of Nets
 - Concern that it takes too many fish
 - Bad for Fish and for Market Price
 - Forces increased competition and waste (discards)
 - Believed that for many to compete had to get into fishing with nets
- Some would like to season a a season on Lobster like Conch
- Some are concerned about the La Reine Market
 - From a Marketing Perspective
 - From a Sanitation Perspective
- Concern With Illegal Immigrants Fishing inshore Reefs
- Some are concerned with the Rebuilding of the Ramp in Fredriksted
- Perceived Lack of Voice in Policy Process

Preliminary Findings have not been peer reviewed.

What Other Factors Affect Fishing

- Tourism
- Hurricanes/Weather/Climate
- Rum Production
- Pollution
- Coastal Gentrification and Development
- Enforcement (lack)
- Homeland Security
 - » Suggested Reading "Tourism and Coastal Resources Degradation in the Wider Caribbean" (<http://www.irf.org/irtourdg.html>)

Preliminary Findings have not been peer reviewed.

Economic Dependency on Tourism and Creating Increased Demand

- Lobster was a species with no economic value
- Today, fetches the highest price per pound, except for Land Crab
- Primarily sold to restaurants and to tourists
- Tourism development on rise – impact on certain species, especially conch, lobster and pelagics

Preliminary Findings have not been peer reviewed.

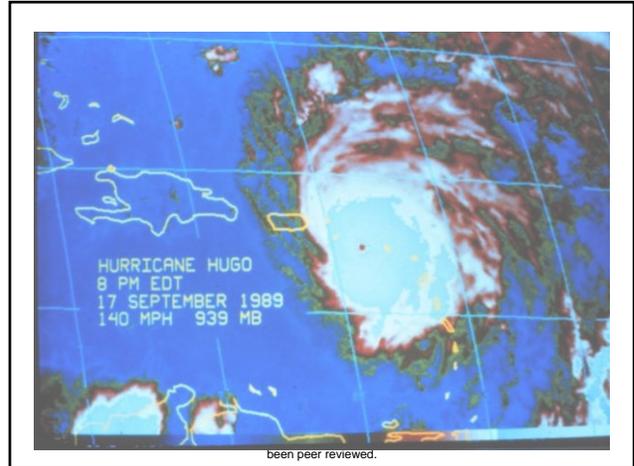
Coastal Development



Hurricanes/Weather/Climate

- Destructive for reefs, nursery areas and local businesses
- Evidence suggests that hurricanes are a part of a trend in global warming
- Global warming is said to be leading to coral bleaching
- What good could come from Hurricanes
 - Stories of how local fishermen fed islanders during Hugo; a real sense of community in a time of chaos.

Preliminary Findings have not been peer reviewed.



Rum Production

- **St. Croix, Virgin Islands(VI News)-** When EPA Administrator Bill Muszynski flew over the south shore of St. Croix, he couldn't help but see the long brown streak of effluent from the Cruzan Rum factory that stains the turquoise water. He said the rum factory has had a Clean Water Act waiver from the EPA to discharge its molasses byproduct since 1992. Based on earlier studies, the discharge was deemed unsightly but not harmful to the marine environment. Now however, the EPA suspects it might be toxic and is looking into imposing new restrictions.

Preliminary Findings have not been peer reviewed.



Pollution

- Hovensa – Impact of Spills plus dredging
- Anguilla Dump — Runoff
 - Although the physical destruction from hurricanes and white band disease has produced the most drastic changes in U.S. Virgin Islands reefs, other stresses are also taking their toll. Probably the greatest potential threat to the reefs around the U.S. Virgin Islands is sedimentation associated with runoff from coastal development sites.

» <http://biology.usgs.gov/s+t/SNT/noframe/cr134.htm>

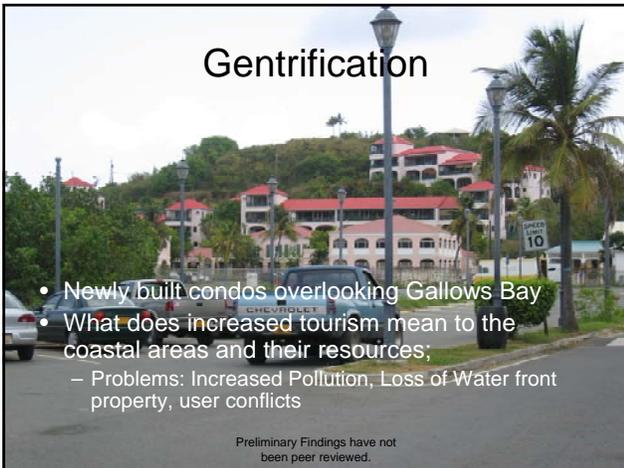
Preliminary Findings have not been peer reviewed.



Gentrification

- Newly built condos overlooking Gallows Bay
- What does increased tourism mean to the coastal areas and their resources;
 - Problems: Increased Pollution, Loss of Water front property, user conflicts

Preliminary Findings have not been peer reviewed.



Hillside Housing Development

- Photo of New Houses above Salt River





Enforcement

- Many Comments about the lack of enforcement
- After having interviewed all the enforcement officers it is important to realize that they are not just in place to monitor fisheries but all Land and Water issues under DPNR
- As well they have increased Homeland Security, Immigration and Drug Trafficking Responsibilities
- Punishment (fines) in their opinion are not stiff enough to create deterrent
- Lack of Enforcement of Buck Island should be a Park Service Problem

Preliminary Findings have not been peer reviewed.

What Does This All Mean for Ecosystem Management

- Greater Agency Collaboration Within NOAA
- Greater Collaboration Between Local, Territorial, Regional, National Agencies and with Local, Territorial, Regional Developers
- Increased Local Participation in Policy Process
- Appropriate Conservation + Appropriate Use = Sustainability
- But if Reef fish stocks appear to be low or decreasing, cannot just assume overfishing

Preliminary Findings have not been peer reviewed.

Marine Protected Areas

- Buck Island
- East End
- Virgin Snapper
- Lang Bank
- De facto MPAs, especially for bottom fishing

Preliminary Findings have not been peer reviewed.

MPAs and Local Fishermen

- Both commercial and recreational (subsistence) fishermen alike are affected
- Loss of viable shallow water reef
- Loss of cows mouth hurt pelagic fishing
- Is there a positive?
 - Potential for new kind of charter service opportunity for bonefish and other shallow water game fish (Tarpon)
 - Are there increases in the number of fish?

Preliminary Findings have not been peer reviewed.

Stakeholders Response

- Both Quantitative and Qualitative Data Suggests that Stakeholders are not opposed to MPAs in principle.
- They agree that it can be useful for protecting species and spawning aggregations
- They are against MPAs without enforcement
- They do believe that many of the current MPAs have created economic hardships for local fishermen
- Increased consultation and a bottom up approach would make them more successful and increase local fishery buy-in.

Preliminary Findings have not been peer reviewed.

Conclusion

- Is it a fishing community?
- Total number of families and individuals impacted is not yet known – we will know much more after the 2006 research is completed (survey with 100 stakeholders)
- We do know that they have shared interests, shared concerns for future, formal and informal organizations and a island wide dependency on the occupations and food source associated with fisheries – especially for low income families
- We do know that there is a commercial, recreational and subsistence fishery which local participants perceive to be important and of value socially and economically

Preliminary Findings have not been peer reviewed.

Conclusion

- Certainly St Croix appears to be substantially engaged and dependent on the local fisheries
 - Other than the individual fishermen, crew and their families, there are a large number of businesses directly and indirectly impacted by the success of the local fisheries, especially hotels and restaurants

Preliminary Findings have not been peer reviewed.

APPENDIX 2

List of Data Types That Will Be Used to Create Indicators for Identifying MSA “Fishing Communities”

Note that not every one will be used in each region because data availability is not uniformly distributed. They will need to compile it for the maximum set for which it is available. See regional notes for what each region currently finds itself able to compile.

Level and Type of Fishery Related Activity

1. Pounds of fish landed in the community
2. Value of fish landed in the community
3. Number of vessels landing fish to that community
4. Number of processors in community
5. Value of fish processed in the community
6. Pounds of fish processed in the community
7. Number of dealers and buying stations in community
8. Number of permit holders residing in the community
9. Number of crew members residing in the community
10. Number of fishing vessel owners residing in the community
11. Number of fishing vessels homeported in a community
12. Number of processing workers based in the community
13. Sport fish total catch in the community compared to appropriate standard.
14. Number of sportfish trips originating from
15. Number of sportfish for-hire businesses (charter boats, party boats, guide boats, head boats) operating or landing in the community
16. Number of tackle retailers & bait stores operating in the
17. Number of sportfish licenses sold in the community or number of sport fish license holders in the community
18. Number of households participating in subsistence harvest or consumption in the community
19. Number of subsistence fish landings in the community

Economic Role and Importance

20. Amount of base economic activity generated by fishing or directly related fisheries-dependent services
21. Percent of community jobs related to fishing or directly related fisheries-dependent services

Social and Cultural Role and Importance

22. History of fishing in the community
23. Perceived importance by community members of fishing to the continuity or self-identification of the community