



Fondation pour la Protection de la Biodiversité Marine
FoProBiM

Oral History and Contemporary Assessment of Navassa Island Fishermen

Report for
**The United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service**

November 28, 2005

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Summary

In this study information was gathered from Navassa Island as well as the coastal regions of the Southwestern tip of Haiti concentrating on the area between *Les Cayes* in the south to *Jérémie* in the north.

Navassa Island is a small (~5km²), uninhabited, oceanic island approximately 35 miles west of *Cap des Irois* off the Southwest tip of Haiti. Although Haiti since its founding in 1804 has laid claim to the island, the United States has claimed it under the Guano Act of 1856 and has since placed it under the jurisdiction of the United States Department of the Interior, Fish and Wildlife Service as part of the Caribbean Islands National Wildlife Refuge. Pirates, mining, rebellions, murders, insanity, gunboats, presidents, kings, kooks and more have all been a part of its history.

The Southwestern tip of Haiti, visible from Navassa on a clear day, is very mountainous with steep slopes. Access to this part of the country by vehicle is extremely difficult and although it is only 140 miles from the capital of Port-au-Prince (as the crow flies) it is often a two day trip. Roads are often only wide enough for one vehicle to proceed, made of dirt, and not maintained; washouts are common. There is no industry or any other type of “organized” work in the area and the region is even more severely economically depressed than most of the rest of Haiti mostly due to its isolation. Most of the people in this area feel that they live in a forgotten part of the country, and to add to the difficulties of living in this area it is often subject to the effects of hurricanes due to its location.

The fisheries at Navassa are extremely important to Haitian fishers. For those who can afford to make the trips it is an extremely important source of income; in spite of the fact that many of the fishers are to varying degrees also engaged in agricultural and other small business activities. Fishing, farming and small (micro) businesses are the major sources of revenue in the region. The vast majority of those interviewed were in a fisheries related occupation and stated that at least 75% of the region’s income was from fisheries related activities. For those families with a fishing tradition it is 100% of the family’s income. One thousand to 1,500 families may be entirely dependent on fisheries related activities (fishing, boat building, equipment repair, gear manufacturing, marketing, etc.) in the region with 300 to 400 fishers frequenting Navassa Island itself when not fishing close to home. The value of the fisheries and related activities to the entire region is estimated to be between USD \$5,000,000 and USD \$10,000,000 a year. For villages known to frequent Navassa the value of their fisheries and related activities are estimated at between USD \$1,000,000 and USD \$2,000,000 a year, of which Navassa’s fisheries alone may account for between USD \$200,000 to USD \$500,000 a year. Exact figures are extremely difficult to come by due to the enormous amounts of variables, including the fact that the fishers themselves are unsure of their widely variable annual income.

Distance and the dangers associated with the crossings between Navassa and the Haitian mainland, including dangerous winds and waves, lack of food and water at

Navassa, difficulty accessing the island proper, and lack of suitable equipment to reach the island (boats, motors) appear to be the only things saving Navassa from total exploitation and even habitation. All fishers interviewed in Haiti stated that fishing at Navassa was worth the effort and they would all go fish there if they had the necessary equipment.

Fishers at Navassa claim that they have been coming to Navassa anywhere from it being their first trip to having made more than ten trips a year for more than forty years. Fishers also said that as far as they can remember people from their communities have been going to Navassa, including long before motors were available, through the use of sails and rowing. From all of the information gleaned from the fishers, exploitation of Navassa's fisheries by Haitians probably started in earnest around the turn of the 20th century, and most of the fishing pressure on its resources (<50%) appears to come from *Anse d'Ainhault*. Although this certainly does not exclude any previous exploitation of Navassa's resources by Haitians, no mention of fishers, Haitian or otherwise, was found in any documents dating from before a United States Department of Commerce, National Oceanic and Atmospheric Administration expedition in July of 1977.

None of the fishers encountered were aware that Haitian or US fisheries laws exist and may be in effect at the island. After distributing an abridged version of the Haitian fisheries laws to local fishers the reaction to this information was mixed, varying from "...it is a great thing that now we are aware that these laws exist and they will help us to know how to fish, manage our resources, and provide guidance when there is a problem," to "...the laws won't help us. Everyone just does whatever they want to because no one is here to enforce them."

Map of the Location of Navassa Island



Statement of Work

In order to contextualize why coral reefs and fisheries may be healthy or in decline it is important to acquire a sense of the various stakeholders who depend on these resources and the extent to which they engage in extraction and protection of these resources. A socio-cultural assessment of the Navassa fishery is particularly pertinent due to the apparent uniqueness of the people who come to fish, and the potential for conflict which may arise if management of the area and regulation of harvest is undertaken without understanding the implications to those people that are reliant on the resources. In order to conduct this socio-cultural assessment, ethnographic methods will be utilized in order to develop a holistic understanding of the locally affected community or communities in Haiti. However, in order to fully understand the contemporary use of Navassa Island's resources and to document potential claims of ownership or right, oral histories will be conducted with local community members to contextualize historic and contemporary human ecological connections to the area.

Project Objectives and Research Design

The objective of this project is to identify fishermen and communities that utilize the marine resources of Navassa Island. Upon identification a research team will focus on the historical use of Navassa Island and its social and cultural importance to local Haitians. Ultimately the purpose of the study is to conduct research which places the historical and contemporary importance of Navassa Island into context with such important issues as 1) property rights (i.e. marine tenure, traditional or cultural connections to place), 2) traditional or local environmental knowledge (i.e. human ecological relationships, indigenous knowledge), 3) food security (i.e. historical and contemporary utilization of marine resources, resource distribution, social and economic importance), and 4) contemporary management (i.e. identification of people potentially affected by changes in Navassa's marine management strategies, and an understanding of the international conflict or confusion with regard to managing Navassa's marine resources).

Methodology

Methods needed to accomplish this research include both primary and secondary source data gathering strategies. The primary data gathering methods include formal and informal individual interviews, formal and informal group interviews, transect walks, and cultural mapping.

Secondary data gathering will focus on the kinds of information that relate to the historical importance of Navassa to both Haiti and the United States, the historical importance of fishing to the communities of the Southwest coast of Haiti, and the cultural importance of and connection to fishing by Haitians.

Step 1- introductory meeting with individual fishers and groups of fishers at fishing communities to discuss:

- i) overall aim and approach of the research (questioning);
- ii) data collection process (informal individual and group interviews, and tape recordings);
- iii) their recommendations of key informants based upon extent and wealth of knowledge, familiarity with Navassa, fishing techniques or other expertise, and;
- iv) explanation of expected outputs – community information, Navassa fishing/fisheries data, economic importance of fisheries, etc.

Step 2- Conduct semi-directive interviews with fishers which are at first exploratory but then becoming increasingly focused on:

- i) the importance of Navassa to the local communities (present and historical, economic, social, ecological);
- ii) fishing methods;
- iii) fishing gear;
- iv) fishing seasons;
- v) exploitation of fisheries near Haiti and at Navassa;
- vi) commercial aspects of the fisheries at Navassa (processing, marketing);
- vii) local fishing community needs;
- viii) possibilities of alternative income generating activities away from Navassa.

Numbers involved in interviews

Approximately 450 individuals including 90-100 fishers in Haiti and 20-30 fishers at Navassa were interviewed. Due to the fact that a stranger asking questions always tends to draw a crowd with everyone participating in the question and answer session, the exact numbers interviewed on mainland Haiti is estimated, although we were able to manage 53 individual interviews. We found that this time, consistent with FoProBiM's previous interview experiences, sessions in which small groups are present for an interview develop a dynamic in which errors are corrected, forgotten information is revived, and the group dynamic feeds on itself in terms of generating quantitative as well as qualitative information. However, this same experience has also shown that those with important information who may simply be shy or not necessarily interested in participating in group discussions are suppressed. The same situation occurred during interviews in Haiti and at Navassa, and both on land and in boats. At one extreme on certain boats only one or two fishers would respond, whereas at the other extreme not only would everyone on the boat respond, but they would call over to others on other boats who would also respond adding their own insight and corrections.

Site Visits

This report contains information gleaned during a visit to Navassa Island as well as three visits to various communities located along the western tip of the southern peninsula of Haiti. The visit to Navassa Island occurred with an arrival at 0700 on October 30, 2004 and a departure at 2200 on November 11, 2004. Participants included representatives of the United States National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA/NMFS); the United States Fish and Wildlife Service (USFWS); the University of Miami Rosenstiel School of Marine and Atmospheric Science (RSMAS); the *Fondation pour la Protection de la Biodiversité Marine (FoProBiM)* ; Florida State University (FSU); and The John G. Shedd Aquarium.

Visits to the Southwestern tip of Haiti by 4X4 vehicle, local fishing boats, and on foot by the FoProBiM team consisting of Jean W. Wiener, Christian Derosier, and Davidson Dubois took place on March 7 to March 18, May 1 to May 13, and July 20 to August 5, 2005 with visits to the communities of *Anse d'Hainault (Nan Gara)*, *Les Irois (Cité Larôk, Ti Vino)*, *Jérémie*, *Les Cayes*, *Tiburon*, *Dame Marie*, and *Rôche à Bâteau*.

Visit to Navassa Island aboard The John G. Shedd Aquarium's RV Coral Reef II



Map of Study Area



Claims to Navassa Island

"Navassa, still an American possession despite ongoing Haitian claims to the contrary, was mined longer and more extensively than any other island, rock or key that ever appertained to the United States." (Skaggs, 1994)

Haitian claims

In Title I, Chapter II, Article 8, Section (a) of its constitution of 1987 Haiti claims Navassa: *"The territory of the Haitian Republic comprises: The Western part of the island of Haiti and the adjacent islands of la Gonâve, la Tortue, l'Île à Vache, les Cayemites, la Navasse, la Grande Caye and the other islands in its territorial sea."* Similar wording is used in previous versions of the Haitian constitution, varying between directly naming Navassa (constitution of 1987) to claiming *"...and other adjacent islands"* (constitution of 1805). Historical maps of Haiti (*Hayti/St. Domingue*) from 1789 (reviewed and corrected for 1804) show Navassa (*I. de Navaza*) as part of Haiti. It is part of the Haitian departmental section *"3eme Section Les Irois"*.

Haiti backs up its claims to Navassa through the Treaty of Ryswick (Netherlands) of 1697 in which Spain ceded the Western part of Hispaniola, including Navassa, to Paris, and the Ordinance of 1825 in which French King Charles X recognized Haiti's independence (Skaggs, 1994).

Historically, Haitians feel that they have pretty much been the only ones exploiting Navassa, especially its marine resources, and therefore feel a strong sense of ownership. Everyone interviewed at Navassa and on the Haitian mainland stated that Navassa belongs to Haiti; “They (the “foreigners”) just think that it is theirs. My father, and my father’s father, and his father used to fish here (at Navassa). Fishers from Haiti have been coming here for as long as we can remember. We are the only ones who use this place.”

Not surprisingly only a tiny portion of the Haitian population have heard of Navassa with those in the coastal areas along the Western tip of the Southern peninsula much more likely to have heard of Navassa than those living in other parts of the country. As distance increases from this area knowledge of Navassa decreases dramatically; for example, two to three miles inland from *Dame Marie* one can already find people who have never heard of the island.

United States of America claim

The United States claims Navassa under the Guano Islands Act of 1856 whereby;

“Whenever any citizen of the United States discovers a deposit of guano on any island, rock, or key, not within the lawful jurisdiction of any other Government, and not occupied by the citizens of any other Government, and takes peaceable possession thereof, and occupies the same, such island, rock, or key may, at the discretion of the President, be considered as appertaining to the United States”.

The island was mined for phosphate by various US individuals and companies from 1857 to 1898 (Skaggs, 1994) and temporarily abandoned by the US in 1901. With the opening of the Panama Canal, Navassa became a serious hazard to shipping and in 1917 the US finished the construction of a lighthouse; which required the stationing of individuals for its operation and maintenance until 1929 when an automatic beacon was installed, which then required only occasional visits to the island for servicing. The US Coast Guard decommissioned the lighthouse, removed all of its equipment, and the US once again abandoned the island in 1996.

Fishing at Navassa and Adjacent Areas in Haiti

Access to Resources

Marine resources have always been open access in Haiti. Fishers have the basic knowledge handed down from generation to generation by others (family, friends) which allows them to fish in basically the same way as the generation which preceded them. This knowledge may include how to make traps, and when, what, and where to fish. Up until a few decades ago, this knowledge was revered and respected as the best method for allowing what may be considered sustainable fishing. According to the older fishers these techniques were used with a definite eye towards maintaining a strong and healthy resource base. Different fishing methods were used at different times of the year in order

to help manage the resources and the “sea” would be allowed to “rest” at various times of the year (i.e. there would be times when no fishing would take place so the resources could reproduce/recover). Small and egg-bearing lobster, small conch and turtles, and juvenile fish were not intentionally harvested or were returned to the sea if accidentally caught. Resources were abundant.

The concept of “the sea is for everyone”, goes back further than any of the fishers can remember and leads to the frequent statement of “*y’ap cheché lavi yo*”, “They are just trying to make a living”; leading to the resigned feeling of “I can’t stop someone from making a living” which is at the core of the tragedy of the commons in Haiti.

Conflicts between fishers in the area have only recently begun to increase in intensity. These conflicts are usually brought about by a fisher using older “sustainable” methods (e.g. traps, hook and line) against a fisher using what would be considered a newer more damaging method (e.g. triple mesh nets, small meshed nets, stunning agents/poisons). The newer damaging methods usually cause some type of disruption to the “sustainable” fisher’s method and/or cause obvious waste of the catch and/or damage to his equipment; the latter especially tends to promote the most violent response.

Historical significance/importance of Navassa to area communities

Present coastal communities in Haiti have generally been highly dependent on local fisheries since their establishment during the colonial era. However, as the numbers of fishers as well as newer more damaging methods have increased and resources have decreased significantly over the past decades leading to overexploitation close to the Haitian mainland fishers have been forced to venture further and further away more often in order to scratch out a living, ending up at Navassa. Most fishers at Navassa claim to come from *Anse d’Hainault*, *Dame Marie*, *Les Irois*, *Tiburon*, or *Rôche à Bateau*.

Older fishers (<~60) claimed that people from the area have been fishing at Navassa for as long as they can remember. Some have stated that they have been fishing at Navassa anywhere from it being their first trip, to making more than ten trips a year for more than forty years. Fishers also stated that as far as they can remember people from their communities have been going to Navassa, including long before motors were available, through the use of sails and rowing. They claim that their grandfathers and great grandfathers used to fish there, albeit rarely because resources were plentiful close to the Haitian mainland and there was no real a need to go further out. Three said their grandfathers used to go to Navassa and five said they had been coming to Navassa with their fathers and grandfathers since they were at least ten, now most are over 50. From all of the information gleaned from the fishers exploitation of Navassa by Haitians started in earnest perhaps around the turn of the 20th century.

Fishing methods and season(s)/time(s)

Presently, fishing in the area both near communities on the Haitian mainland and at Navassa is nonspecific and is only limited by the amount and type of fishing gear used. Fishers will take anything and everything that can be caught and use traps, nets, line, and occasionally, those who can afford it, may use lights attached to a battery for night fishing (*pêch batri*). Everything and anything which may have any value either for consumption, sale, or use as bait is taken. Very little is discarded. Pieces of fish, lobster, marine turtle, sea stars, birds, sea cucumbers, crabs, oranges, and corn-based animal feed made into a ball, among others things, may be used as bait.

Interview with Ti Toto, Dame Marie, August 3, 2005
80 year old fisherman; fishing for 70 years

Jean Wiener

*Kisa ou ka di'm de pwoblem lapèch ké
nou we en Ayiti jounen jodi-a Ti Toto?*

JW

What can you tell me about all of the fishing problems we are having in Haiti these days Ti Toto?

Ti Toto

*Nan ten lonten pechè te kon fè lapêche pa sèzon.
Nou té kon chagé ak pwason pandan chak sèzon sa yo.
Pandan épok sa yo pwason nou yo pat con fè ampil lajen.
Malgré sa, pechè té kon viv pi byen.
Jounen jodi-a tout moun ka wè konsa ké pa gen pwason anko.
Le'm té kon peché nou té kon kité lanme-a pozé.
Nan mois janvier, fevrier, mas, avril, fon-a ap pozé.
Kounyè-a a pati mai, jyen, jiye
fon-a gen ten pozé, li nivo, li plen pwason.*

TT

In the old days we used to see fishermen fish according to seasons.

And we used to be loaded with fish during each of those seasons.

In those days our catch did not sell for a lot of money.

In spite of this the fishermen used to live well.

These days everyone can see that there are no more fish.

When I used to fish we used to let the sea rest during the months of

January, February, March, and April.

Now, when May, June, July comes around the sea has had time to rest it is new (renewed), it is full of fish.

JW

*Pouki-sa ou pensé ou pa assisté
sitiation sa-a jounen jodi-a enko?*

JW

Why do you think fishing as you knew it
is no longer taking place?

TT

*Ah! Twop pechè kounye-a,
epi gen plis mové fason y'ap peché!
Pechè yo ap mété twop nas nan lanme-a.
Ou pechè kounye-a meté de fwa, twa fwa kantité
nas ou pechè lontan té con meté nan dlo-a.
Youn lot pwoblem sé ké jen pechè yo
pas respèkté sèzon la pech-la anko,
epi yo meté plis nas, ... yon sel peché gen
dwa gen karant nas nan dlo.*

TT

Ah! Too many fishers now,
and more bad ways (methods) of fishing.
Fishers are putting too many traps in the water.
A fisherman now can put in two, three, four times
the quantity of traps a fisherman from the old days (did).
Another problem is that the young fishers
don't respect the seasons anymore,
and they also put in more traps
....a single fisherman could have as many as
forty traps in the water at a time.

JW

Ak kisa ou te kon peche pi plis?

JW

What did you used to fish with most often?

TT

Se ak liyn, ak nas ke nou te kon sevi.

TT

We used lines and traps.

JW

*Pouki-sa ou kwe lanmè-a vin gen tout
pwoblem ou we li gen la-a jounen jodi-a?
Ké moun ap peché ne-pot ki jen.*

JW

Why do you think the sea has all of the problems that you see it has these days?
That people are fishing in any which way.

TT

*Ce pase-ké tout moun ap explwaté lanme-a.
Gen plis nas, gen plis canot, gen plis pechè,
gen plis diférent kalité de pêch.
Sa k'ap plis krazé lanme-a jounen jodi-a se filet yo.
Pechè yo ap tan filet tout tan, tout koté.*

TT

It's because there is more exploitation of the sea.
There are more traps, more boats, more fishers,
more types of fishing methods.
What is damaging the sea/fisheries the most
these days is the nets.
The fishers are laying out nets all the time; everywhere

JW

Eské ou té kon pren ti gwoma?

JW

Did you used to take small lobsters?

TT

*Si you ti gwoma youn liv, twaka liv
te rentré nan kanot mwen, ou moment
kon sa m pren'l m voyé'l jété.*

TT

If a small lobster,
one pound, three-quarters of a pound, ended up in my boat
I would throw it away (back alive into the sea).

JW

Eské ou te kon pren gwoma ak zé ?

JW

Did you used to take lobster with eggs?

TT

*Nou te kon pren yo.
Men nou te kon voyé yo tounen nan lanme-a.
Nou te konen pou'n pa pren yo.
Jounen jodi-a pechè you pren tout bagay.
Yo pa gen limit.*

TT

We used to catch them.
But we used to throw them back into the sea.
We knew not to take them.
These days the fishers take everything.
They have no limits.

JW

*Ki kalité pwason ou te kon pren
le ou t'ap peché gen lontan.*

JW

What kind of fish did you used to catch in the old days.

TT

*Ah...nou te kon pren bel sad, bel pewoket, bous, dorad, ak karan.
Tout sa nou te kon pren yo te bel pwason.
Konye-a mesyé yo pa jwen bagay sa yo anko.
Si telmen yo sevi ak vye métod san yo pa réspekté sèzon yo
se ti piti selman yo jwen.
Y'ap pren tout pwason yo. Tout gwosè.*

TT

Ah...we used to catch nice snapper, nice Parrotfish, Triggerfish,
Dolphin(fish), and Jacks.
Everything we used to catch was a nice(big) fish.
Now the guys don't find these any more.
They're using such bad methods and not respecting the seasons
they only find small fish.
They're taking all of the fish. All sizes.

JW

*Eské ou pa gen ou message ou ta remen voyé
bay jen pechè yo? Ki jan pou yo geré tèt yo?*

JW

Is there a message you would like to send
out to the younger fishermen?
Maybe on how they should regulate themselves?

TT

*Konyé-a ou pa ka di ou nom pinga l'al nan
lanmè pou'l kampé pou'l ta lèvé trent karant nas.
Mwen mem m paka fe'l.
Ou paka pab di ou pechè si petèt lap fè la pech la,
mon che ou pat dwé meté trent nas, karant nas nan dlo-a.
Li imposib pou ou di'l...pou ou ta ba'l ou limit.
Mem si ou ta bay ou limit, ou ta gwen pe tèt dis ki aksepté'l
me wap gwen vin ki pap aksepté'l.*

TT

Right now you can't tell a man they
can't go out fishing and lift out
thirty or forty traps.
I can't do it.

You can't tell a fisherman if you see him fishing
that he shouldn't put thirty or forty traps in the water.
It's impossible to tell him.....to give him a limit.
Even if you were to give a limit,
you would find maybe ten (fishermen) who would accept it,
but you would find twenty who would not accept it.

Older fishers have expressed their concerns about the need for the sea to “rest”; to provide a time for the resources to regain their strength, grow, and to reproduce. However, due to ever increasing pressures on and competition for the resources, this concept is basically no longer observed. The usual time for this observance was during the months of December/January to February/March.

With a tripling, quadrupling, and according to some of the fishers, a quintupling of fishers in the area over the past few decades, what was once the traditional rotation of fishing areas, gear, and seasons has been slowly replaced by fishers who will persistently fish only one area all year long and generally use only one type of method. There are several reasons for this including: a feeling that another area is already over-crowded and therefore over-exploited; a lack of skill on the part of the fisher; and the method/equipment used. As observed along the Haitian coastline and at Navassa, this gives rise to an accurate perception that all of the waters are being fished at all times. The fishers have described the current situation as one where any method may be used at any time depending on if the fisher feels it is in his best interest to change method/materials and/or location. There are generally no bad feelings targeted at other fishers for using these methods because of the utter poverty and the understanding that everyone is basically just trying to make a living and feed their families. No matter how damaging a technique may be the basic feeling is that no one can prevent another from making a living; especially when the person trying to make a living is poor.

The most intense fishing appears to take place between February and October. Most fishers agreed that the best fishing in the area and especially at Navassa is during the Easter season “*Karem*” including the months of March, April, and May. Because there is generally an extremely basic understanding of fisheries biology and migration the answer to “Why?” often comes as simply “*paské gen plis pwason*”, “because there are more fish”. November through February are generally considered bad months for fishing. Although some fishers will still venture out to Navassa during this time, fishers following the more traditional fishing seasons/methods (a rarity these days) are limiting their fishing activities and staying closer to the Haitian mainland or are not fishing at all. Most of the fishers also stated that “there is no time/season to fish” “*pa gen sézon*”, meaning they will go to Navassa at any time of the year.

The phases of the moon also appear to play a role in deciding when to fish, with a full moon apparently being preferred. However, when commenting on this aspect another factor is usually offered as the main, limiting, reason to fish, such as: we will go out and fish “*nan Karem*” -- whether the moon is right or not; and asked why he had a bad fishing day the response may be, “...the bait was bad -- and the moon was dark” or, “...the current was bad, the waves were too high -- and there is not enough moon”. More research needs to be undertaken in order to clarify this specific comment and its role in the fisheries.

Jean Robert

“Pêch la pa gen ou ten. Lanmè-a pa gen ou ten pou li réposé. Mod pêch ké yo fe kounye-a li fini ak lanmè-a.”

J.R.

“Fishing (these days) does not have a time.

The sea does not have time to rest.

The fishing methods that they are using today have destroyed the sea (depleted the resources).

The older fishermen are in agreement that the main type of fishing in their day was the use of traps, and hook and line. In the old days it was certainly easier to adhere to sustainable methods when the resources were abundant. One did not have to capture a small juvenile lobster because a full sized adult was nearby. The basic method of “law enforcement” was being chastised by other fishers or not being able to sell your catch because you’ve harvested an underdeveloped, unmarketable resource. This was/is the basic premise behind using sustainable methods and the “wisdom of the elders” technique, the only type of “regulation” ever used to any extent in Haiti.

Taking into consideration un- and under- employment rates running at close to 80%, increasing cases of AIDS, an unstable and uncaring governance, a virtually non-existent healthcare system, and the nation largely unable to feed itself, among a myriad of other problems afflicting Haiti, the desperation and hopelessness which is felt by those “living” in the vast majority of communities, and especially the poorer more isolated coastal communities such as those near Navassa, is clear. The natural decrease in the numbers of older fishers using sustainable methods both by retirement or death, an increase in the numbers of fishers, and desperation caused by increasing economic hardships causing the shunning of traditional fishing methods has lead to increases in damaging fishing techniques (i.e. small mesh sizes, spear fishing, etc.). This is especially true among younger and more inexperienced fishers to whom any resource which may have even the slightest potential for producing any income is exploited to the fullest no matter what the long term consequences may be for the resource user, their family, or even their community.

As an example, on a single day long outing along the Haitian coast most fishers were found to be in violation of at least one of the following Haitian fisheries regulations.

<ul style="list-style-type: none"> • Article 30.- The meshes of nets must be of at least 16mm.
<ul style="list-style-type: none"> • Article 51.- Nets must be weighted or marked by the Fisheries Department before they can be used in the territorial waters.
<ul style="list-style-type: none"> • Article 97.- It is strictly forbidden: b) to fish for turtles during the months from May to October (nesting season); e) to harvest sea crabs between the 1st of December and the 31st of May.
<ul style="list-style-type: none"> • Article 111.- Lobster season is closed from April 1st to September 30th in order to help protect the species.
<ul style="list-style-type: none"> • Article 112.- It is forbidden at all times to sell lobster carrying eggs. It is also forbidden to sell lobster from which the eggs have been removed.
<ul style="list-style-type: none"> • Article 113.- It is also forbidden: all capture and sale of lobster flesh of less than 151 grams or 5 ounces; the export or local sale of lobster parts or pieces. Only lobster tails weighing at least 5 ounces is allowed for commercial sale.
<ul style="list-style-type: none"> • Article 122.- It is forbidden: to capture, sell, or buy small conch “cocoye” or to engage in the sale of their shells.

Although, generally, Haitians in the area do not engage in this type of activity, the Haitian fisheries laws also forbid the exploitation of corals:

Article 100.- It is forbidden to engage in the exploitation of corals of any type. The same applies to sea fans and any other type of calcareous rock found in the sea.

It is certain that some of the younger fishers would prefer not to use modern methods which even they acknowledge as being unsustainable or damaging to the environment, but, due to the activities of their peers (fellow fisher competitors) they are pressured by circumstance to forego any sense they may have of wanting to use sustainable methods from fear of being left even further behind economically; not an

appealing prospect under any circumstance and even less so in a country enduring such tough economic times. So, although the older traditional fishing knowledge has been passed down from generation to generation, increasing economic hardships leading to pressures on the resource base has made these once time honored, and previously (somewhat) sustainable, techniques all but impossible to adhere to, especially for the younger fishers. Therefore, unfortunately, the “wisdom of the elders” is falling by the wayside as pressures on resources continue to increase; although certain older fishers who feel they are too old to learn a new method continue to use the same methods they learned 40 or 50 years ago.

To summarize, as resources have become more scarce fishers have gone from using mostly line and traps to using line, traps and nets; and respecting a time for the sea to “rest” during the months from November to February, to fishing all year long. The main differences in the uses of gear have been: more trap, net, and line fishing due to the increase in fishers and a decrease in resources; and mesh sizes in both traps and nets getting smaller over the years.

Type of fishing	Intended target	Also catches	
Nets – Triple mesh (<i>Pêch filet twa nap</i>)	lobster, conch, pink/red and white fishes* (<i>gwoma, lanbi, pwason ros, pwason blan</i>)	marine turtles, crabs, coral, sponges (pic. 39)	coral and sponges are thrown back
Night light fishing with hook and line (<i>Pêch batri</i>)	pink/red, and white fish* (<i>pwason ros, pwason blan</i>)	anything else attracted by the lights	anything caught is kept
Decoy (<i>Pêch fôl</i>)	marine turtles (<i>toti, karet</i>)	--	--
Trap (<i>Pêch nas</i>)	lobster, black fish* (<i>gwoma, pwason nwa</i>)	anything else which enters trap (eels, reef fishes, etc.)	anything caught is kept
Hook and line – from boat (<i>Lyn ak zin</i>)	pink/red, and white fish* (<i>pwason ros, pwason blan</i>)	--	anything caught is kept
Hook and line – from cliffs (<i>Lyn ak zin</i>)	black, pink/red, and white fish* (<i>pwason nwa, pwason ros, pwason blan</i>)	--	anything caught is kept
Hook and line - trolling (<i>Lyn ak zin, Tren</i>)	pink/red, and white fish* (<i>pwason ros, pwason blan</i>) bigger pelagics	sea birds	sea birds are generally not eaten

*Of the three categories of fish, black, white, and pink/red, that Haitian fishers generally use, black is the least desirable (e.g. butterfly fish, puffer fish), white is mid-range (e.g. dolphin, barracuda), and red the most desired (e.g. snapper, grouper).

Hook and line may be used to a depth of ~20-30 *bras* (~100-200ft) although shallower tends to be the norm and trolling is generally used whenever the boat is in motion. The prize of prizes with hook and line is snapper, with a nice Red Snapper bringing a premium. A couple of fishers were observed fishing with hook and line from the cliffs near Lulu Bay (pic. 27).

For marine turtles, besides their opportunistic capture in three mesh nets (*filet twa nap*), the use of “decoy” cut outs or frames made of wood in the shape of marine turtles which are pulled behind a boat have also been used. This method, known as *pêch fôl*, was used briefly by a few fishers a while back (no one can remember exactly when) and is not common due to its difficulty, especially in terms of finding appropriate materials and the amount of effort required. Haitian fisheries laws forbid the hunting of any marine turtles between the months of May to October.

The vast majority of fishes observed on boats at Navassa, more than 75%, were less than approximately 8” in length with a very high percentage appearing to be Holocentridae (Squirrelfish).

Navassa is often subject to hurricane activity and the fishers stated that they did not notice any real changes in the fisheries at any time before, or after a big storm. During bad weather, including hurricanes, many traps and nets are lost both from the Haitian mainland and at Navassa causing severe economic distress to local families dependent on fishing.

Fishing boats

Haitian fishing boats use a combination of sails, motors, and oars in the area around Navassa. In general motors and oars are used while fishing around the island and motors and sails are used for crossing between Navassa and the Haitian mainland.

Haitian fishing boats observed at Navassa consisted mostly of 12-17 foot vessels “*kanot*” made of wooden planks with room for a sail and a small single outboard motor of usually around 15hp (pics. 22,24,28). To conserve fuel the fishers will sometimes sail or row around Navassa and areas closer to the Haitian mainland.

Many fishers in Haiti still use dug-out canoes varying in length from 10 to 15 feet in length to fish waters close to Haiti. Although through personal observations fishers have been known to travel up to 20 miles in the Gulf of La Gonâve, Haiti in their dugout canoes, no dugouts were observed at Navassa, no doubt because of the increased distance

(approx. 35 miles), dangers of open water crossings, and the inability to carry enough food, water, and fishing equipment.

Most fishers claimed to know how to swim, and no life jackets were observed on any boats.

Types of fishing gear observed at Navassa

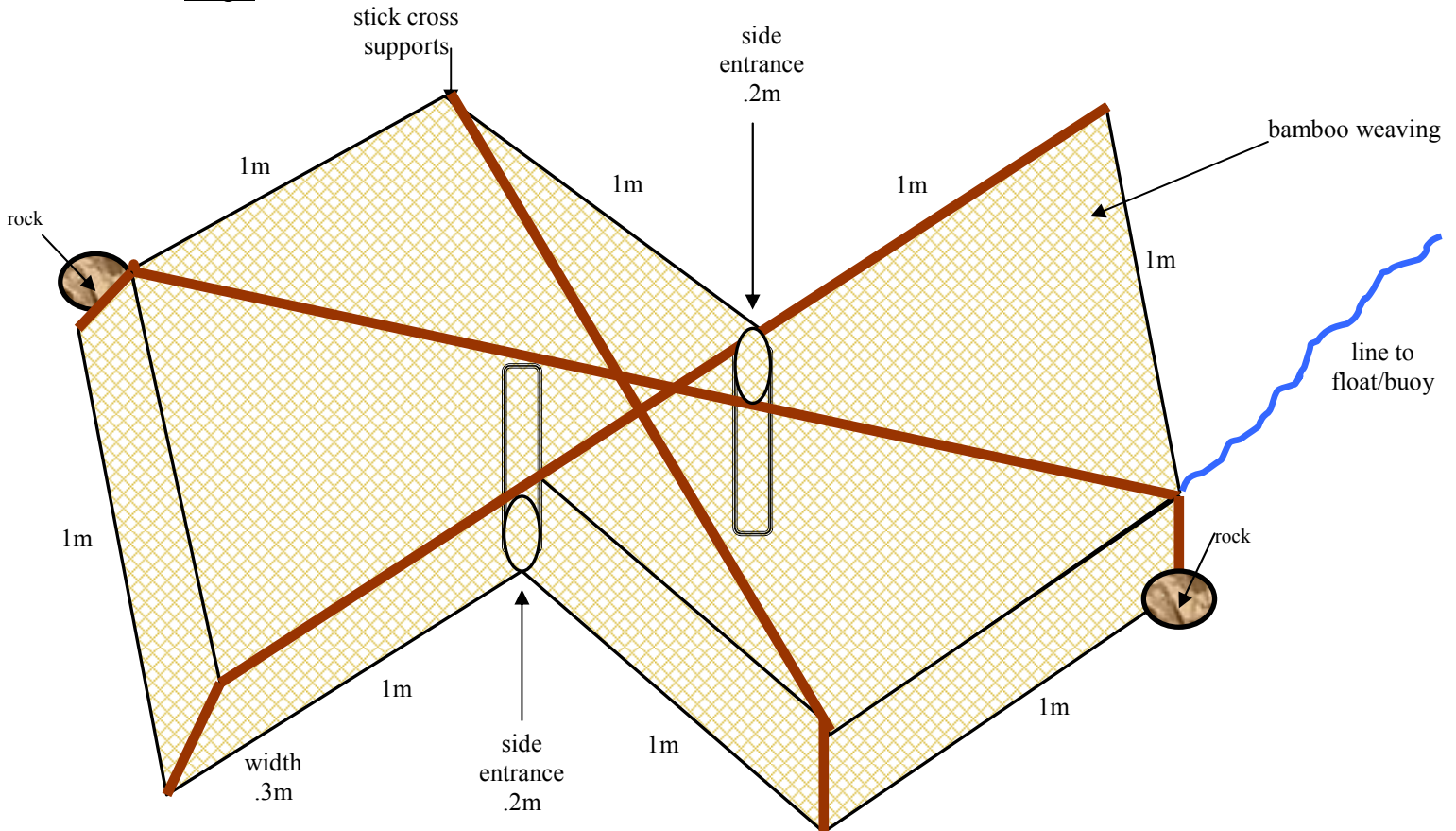
The following types of fishing gear were observed: traps (Caribbean Z – made of bamboo and wood), nets (*twa-nap*, triple mesh, made of natural/synthetic fiber; *filet simp*, single mesh net, made of natural/synthetic fiber), and mono-filament line and hooks for trolling and bottom fishing. No fins, spear guns, harpoons or other types of fishing gear were observed. Only one mask was observed and it was being used to check boats and anchor lines at Lulu Bay.

Not all boats fish with all types of gear. Most boats will troll with hook and line during the crossing and when traveling around Navassa to pull in nets and traps. Boats tend to have either traps or nets aboard, with a few having both. Trap fishers claim to lay out as many as 24 traps at a time, and net fishers claimed to lay out one to three nets at a time. Traps and nets are usually laid out over night and checked every day. Although rare, if something happens and the boat must return to Haiti immediately, traps or nets may stay set for days, weeks or even months until they are recovered.

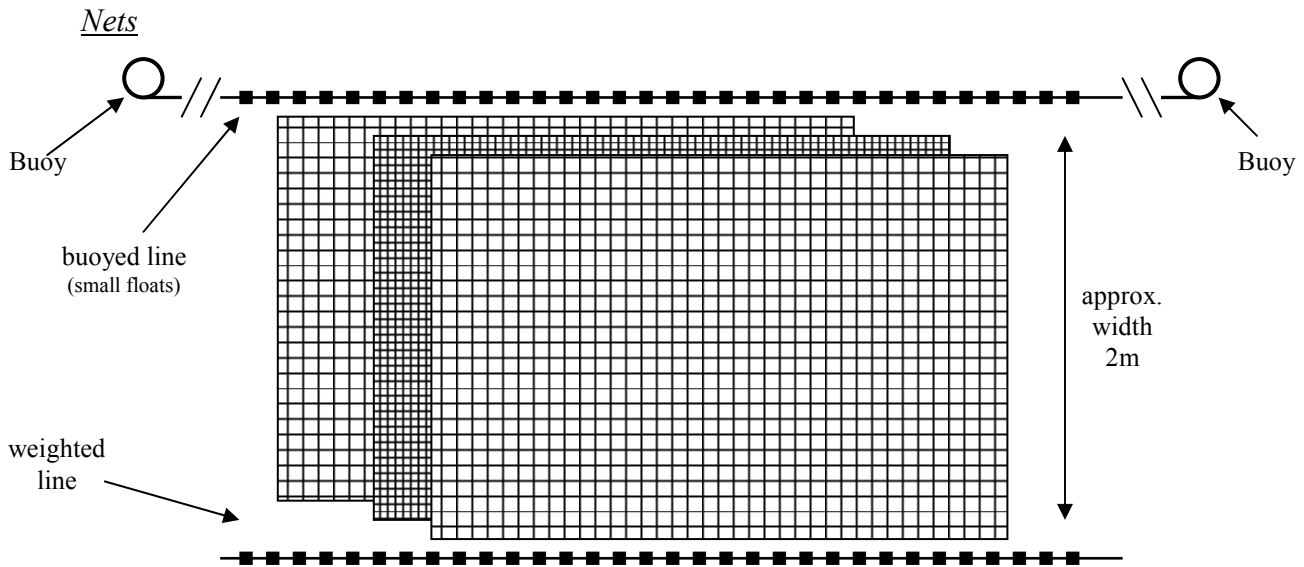
Traps are usually laid out in sandy areas near coral at depths usually not deeper than *~15 bras* (~90-100ft.). Nets are generally laid out partially floating on the ocean floor on sea grass beds (preferably, but apparently none are present at Navassa) or across patchy reefs and/or sandy flats at least overnight (pic. 33) and are usually not set deeper than about 5-20 bras (30-120ft.).

Dimensions of fishing gear

Traps



- All measurements are approximate
- Weight (without rock ballast) 15-25 lbs.
- Weight (with rock ballast) 25-40 lbs.
- Takes 1-2 days to make
- Meshing/weaving made of bamboo (pics. 1-4)
- Parts tied together with bamboo strips or rope (pics. 1-8)
- Bamboo strips are undone at a corner to retrieve fish after trap is raised onboard boat (pic. 10)
- Stick cross supports on both sides of trap (six total) (pics. 1, 5-7)
- Rocks tied with bamboo strips at two corners (outside) (pics. 11,12)
- Two side entrance funnels (pics. 3,4,10)
- Tied to marker float/buoy at one corner
- Where stick cross bars come together at corners there are short cross bars which attach vertically (six total) (pic. 5)
- Cost HG 250 to HG 350 depending on season (Nov. 2004 prices)
- The mesh sizes of traps are sometimes still referred to by the number of fingers that could be inserted through the mesh; *youn, dé, ou twa dwèt* (one, two, or three fingers)
- Trap may also be used to store catch such as lobster



- Total length from 100-300 ft.
- Three layer net, *filet twa nap*: large mesh 40cm - small mesh 13cm - large mesh 40cm (40/13/40) (measurements of four nets, others may vary)
- Cost varied wildly depending on who made the net, what it was made of, how long the net was, how wide the net was, what the buoys were made of, what the weights used were, etc.

Many fishers in the area are adamantly opposed to the use of nets. In areas close to the Haitian mainland nets were observed which remained in place for up to five days at a time. Upon inspection of these nets after two, three, and four days remains of fish which had been reduced to skeletons by other predators were found. This is done on purpose by the net fishers in order to attract other fishes and lobster to the area in order to also, hopefully, trap them in the net.

The fishers who do not use this method are presently in an uproar and are demanding that the net fishers cease their activities due to the observed and obvious waste it produces. The net fishers of course defend their actions and deny that there is any waste occurring.

Some fishers in the area have begun using nets with very small mesh sizes. The main problem with this method is its indiscriminate capture of many types of fish, especially juveniles, whereas larger mature fish may have a tendency to “bounce” off the nets. The fishers using this method often sell fish by the large or small *mamit* (a unit of measure usually involving a can of between 2-4 quarts). The anger against the use of this method is the realization by most fishers that what is sold in a *mamit* for perhaps 10 *gourdes* could eventually sell for more than 500 *gourdes* if the juveniles were allowed to mature. The term used for the underdeveloped fish collected using this method is *kaka pwès*.

Ownership of fishing equipment

Ownership of equipment used by the fishers is broken down into the following categories (equipment includes: boats, motors, traps, and nets):

- boats are rented and 75% of the catch goes to the fisher(s) and 25% to the renter;
- boats are owned by someone on board and they take whatever they catch plus a percentage of the catch from the other fishers on board;
- motors are rented and 75% of the catch goes to the fisher(s) and 25% to the renter; fuel and oil are the responsibility of the fisher;
- motors are owned by someone on board who may also pay for the fuel, and they take whatever they catch plus a percentage of the catch from other fishers on board;
- traps and nets are rented and 75% of the catch goes to the fisher(s) and 25% goes to the renter;
- traps and nets are owned by individuals or groups of individuals on the boat and whatever they catch is theirs (everyone on the boat works to help the others retrieve their gear/catch).

In the best case scenario a fisher can own his own boat, motor and equipment and keep all he catches; and in the worst case he may only be allowed to keep less than 25% of what he catches after paying for the rental of the boat, motor, equipment, fuel and oil. Most fishers will fall somewhere in between these two extremes with most, in order of ownership from most likely to least likely, 1) owning their own fishing gear (traps, nets), 2) owning their own boat, 3) owning their own motor. This list also matches the prices it takes to own this equipment, with traps and nets the least expensive, followed by boats, and then motors the most expensive.

Other Fishing Information

Navigation methods

Longtime fishers to Navassa explained their use of the lighthouse on Navassa before its decommissioning in 1996 to navigate to and from the island. Before the decommissioning they were able to make the crossing at any time of the day or night, but, now are pretty much limited to daytime crossings. Now they navigate by “head”; dead reckoning (using topographic features, sun, stars and moon). No compasses were present on any of the boats.

Due to the prevailing east to west current in the area the crossing takes about eight hours east to west (to Navassa) and usually several hours longer west to east (from Navassa) depending on the method of propulsion (motor, sails, and sometimes some rowing).

Hazards

Entire boats of fishers have been lost during crossings to or from Haiti. Although the exact causes of the losses are unknown most have occurred during bad weather such as hurricanes in the area. Due to the fact that fishers arrive at Navassa from villages which are relatively fairly distant from one another, the only somewhat reliable information on losses are those related directly by inhabitants of specific villages. Dame Marie fishers report one of their boats lost with all onboard in 2004.

Information on weather, including hurricanes, is difficult to come by in this area. The only source fishers say they may access sporadically is the Voice of America (VOA) broadcast; because there are no other radio stations available. Accessing VOA is also complicated by the fact that there are few radios, little, if any, electricity, and batteries are extremely expensive. Due to this fact the fishers often take to the sea with no knowledge of impending storms (although during our Navassa visit the fishers apparently “read the sky” and indicated that a storm was on its way; it struck pretty much when they said it would).

Days spent at Navassa by fishers

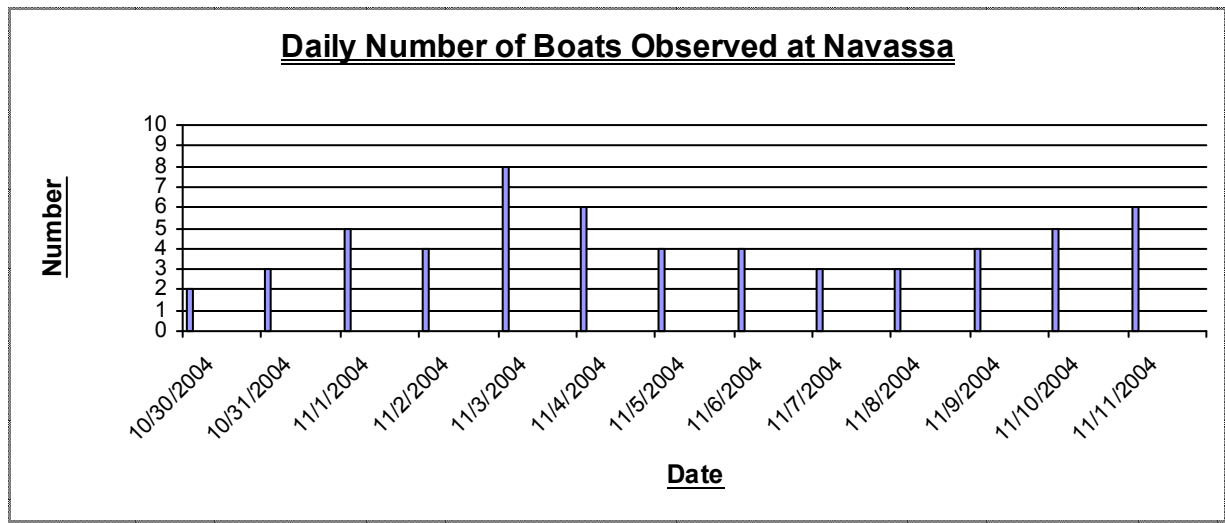
According to the fishers they may spend anywhere from two to 21 days at Navassa with around eight days being the norm. The shortest stays are for those engaged in fishing operations with “big” businessmen on the Haitian mainland. These “runners” from *Anse d’Hainault*, who come for at most a day or two, collect fresh catch (taking catch from their own fishing gear and/or purchasing catch from other fishers), and then return to *Anse d’Hainault* with the fresh iced catch for the big businessmen. These fishers are provided any combination of motors, fuel, ice chests, and ice by these businessmen.

Those with longer stays at Navassa are generally other fishers who do not necessarily engage in commerce with the businessmen on the mainland. Their catch is usually salted and sold to fish merchants in Haiti who sell what they purchase from the fishers to more “mainstream” patrons. Those staying the longest are usually from other Haitian coastal communities and usually only return to the Haitian mainland when their containers are full with their catch.

Friends, brothers, cousins, uncles, fathers, and sons were found on the boats. No women were observed on any of the boats or on Navassa island. In the past (20+ years ago) women used to go out on fishing trips. They apparently no longer go because they feel the crossing has become too tough and dangerous and are now more concerned with the marketing of the catch.

Number of boats observed at Navassa Island

Average: 4.4 boats/day



Boats were counted at the main congregation point at and near Lulu Bay, Navassa each dusk.

Number of fishers on the boats

Three to eight fishers were observed on each of the boats at various times (pics. 22,24) with fishers stating that they averaged about five per boat. The greatest number of fishers were observed on boats which had just arrived from the Haitian mainland and had not yet stopped at Lulu Bay. Boats which had arrived at the island, had already made a stop at Lulu Bay, and were out fishing around the island had, in general, the fewest fishers onboard.

Only three of the fishers interviewed stated that they felt that more fishers were exploiting Navassa than in previous times. All of the rest stated that they felt that there were fewer fishers at Navassa than in previous times because resources are being depleted.

Preservation of catch

Catch	Method
Fish	- gutted, scaled, salted and dried (pics. 15,16) - gutted, scaled, salted (pics. 20,21) - gutted and iced
Lobster	- kept alive in traps until taken to mainland (pic. 12)
Conch	- kept alive in boats until taken to mainland - strung together underwater until taken to mainland (pic. 30)
Marine turtles	- kept alive in boats until sold or eaten

Fishing Territoriality and Fishing Areas

None of the fishers interviewed described any type of territoriality in any area where they fish including Navassa or close to mainland Haiti. There are no “zones” or fishing areas which any fisher or group of fishers claim as their own and/or is off limits to, or defended from, other fishers.

At Navassa at one point, two nets were even laid out accidentally one over another. The nets had been laid out the night before and both boats involved happened to arrive at the site at the same time to haul in their respective nets. There were no cross words or any type of ill will expressed from either boat. On the contrary, all the fishers on both boats worked together to untangle the nets.

The fishers explained a designation of “Jamaican” and “Haitian” fishing areas of Navassa. The Haitian side is the eastern side of the island (facing Haiti) and is generally the windward side. Fishing on the Haitian side is good but much tougher than on the western Jamaican side of the island which is the leeward side. Due to it being on the windward side, the Haitian side is also not fished as often as the Jamaican side due to generally rougher seas.

Food and Water

Because of the lack of any type of subsistence on the island all fishers take their own food and water. Yams, flour, oranges, rice, potatoes, sugar cane, and manioc were observed in the fishing boats at Navassa or described by the fishers as consumables brought from the mainland.

Some water is brought by the fishers in order to have enough for the crossings. In general the fishers rely on water located in the cisterns at the old light keeper’s house for bathing and washing and it is used for drinking only in emergency situations. Rain water is also often collected on the boats.

Economic Value of Navassa Fisheries

Importance of fishery

All fishers stated that the fisheries at Navassa are critically important to the local economy. Those who are able to go say that they find more fish at Navassa than in the waters surrounding the Haitian mainland and are therefore able to make more money to provide for their families. It is the “*kane bank*” of the fishers; meaning it is their bank account, their source of income, and especially their security, similar to what the Créole pig was/is to the farmer or others engaged in “terrestrial” activities.

The closing of Navassa's fisheries would have disastrous consequences for individuals and communities already struggling to feed and to meet the basic needs of their families. Families which are already well below the poverty line (by any standards) would find themselves unable to maintain even their most minimal standard of living. The men and boys fishing in the area would have to find other means to make a living, which in this area would include farming (bringing about increased pressure on limited farmland; clearing land and increasing erosion due to inappropriate methods); or cutting down trees for charcoal production (clearing land and increasing erosion). The only other option is for them to head into larger cities to look for jobs (which don't exist and for which they have no training). With outside help however they can receive training on how to develop various types of alternative income generating activities without having to leave their communities, or necessarily leave fishing.

Many fishers engage in several activities. Fishing, farming and small businesses are the major sources of revenue in the region. Remembering that the vast majority of those interviewed were in a fisheries related occupation, they stated that at least 75% of the region's income was from fisheries related activities. For those families with a fishing tradition it is 100% of the family's income. One thousand to 1,500 families may be entirely dependent on fisheries related activities (fishing, boat building, equipment repair, gear manufacturing, marketing, etc.) in the region with 300 to 400 fishers frequenting Navassa Island itself.

If, as they say, Navassa was "like any other land", they would go and live there; but harsh conditions including heat, lack of food and water, difficulty accessing the island, and difficulty reaching the island have prevented its habitation by the fishers.

There is an understandable reluctance of the fishers to place a monetary figure on their catch. This reluctance is due in part to the fishers not wanting others to know how much they make, and in part because they are not sure of the exact figures. Most fishers simply claimed that they make a lot of money with one claiming to have made up to HG 25,000 (~USD \$610) on certain trips (this estimate sounds high). Income claims per trip range from HG 500 per person per trip to HG 25,000 per boat per trip (USD \$12 per person/trip to USD \$610 per boat/trip)(exchange rate of HG 41 to USD \$1). At HG 25,000 and a fish price of HG 35/lb that boat would have had to have brought back 714 lbs of salted fish. Not impossible, but not likely. But, when other higher priced items such as lobster and conch are added (weight decreases and price increases), this figure is, somewhat, less doubtful.

Not all "fishers" are created equal. Some "fishers" are dropped off on the island and may be temporarily engaged in other activities on the island such as trap and net making, trap and net repairs, collecting water, and cleaning, salting and drying fish, etc. These "fishers" will have varying incomes depending on their work, skills, ownership of equipment, status, etc.

Catch from three boats returning to mainland Haiti from Navassa were examined; two from *Anse d'Hainault* and one from *Dame Marie*. Most of the catch was salted,

dried, and much of it cut up to a point where it was beyond identification, but lobster and conch were also present. The estimates below do not include catch which may have been purchased by the “runners”.

	Fish [♦] lbs. (price [□])	Lobster* lbs. (price [□])	Conch [#] lbs. (price [□])	Est. Total Price (HG)	# of fishers on boat	Average HG per fisher for trip	Days at Navassa	Average per day per fisher (HG)
AH- Boat 1	412 (14,420)	34 (2,380)	22 (990)	17,790	5	3,558	5	711.60
AH- Boat 2	198 (6,930)	54 (3,780)	34 (1,530)	12,240	6	2,040	10	204.00
DM- Boat 1	333 (11,655)	13 (910)	47 (2115)	14,680	3	4,893	6	815.50

♦ Fish – salted – HG 35/lb

* Lobster – whole – live HG 70/lb

Conch – shelled – HG 45/lb

□ Estimated (HG)

Estimate of the value of Navassa fisheries to Haitian fishers (best approximations):

A	Average # of fishers from all areas in Haiti fishing at Navassa	350
B	Average # of trips per fisher per year	5
C	Average # of days spent at Navassa	8
D	Average income per person per trip	HG 5,000
E	Average number of fishers per boat	5
F	Total man/trips/yr (AxB)	1750 man trips/yr
G	Total boat/trips/yr (A÷E)	70 boat trips/yr
H	Total fishing days per year at Navassa (AxBxC)	14,000 man/days/yr
I	Estimated value of the Navassa fisheries (DxF)	HG 8,750,000/yr (USD \$213,414/yr)
J	Estimated value of Navassa fisheries related activities	HG 10,250,000/yr (USD \$250,000/yr)
K	Estimated total value of Navassa fisheries to Haitian fishers (I+J)	HG 19,000,000 (USD \$465,000)

All fishers stated that they would stay closer to home if they had alternatives, but, since they feel the fisheries have been depleted in the waters next to the Haitian mainland, and they have no other way to make a living, they come to fish at Navassa.

Marketing of catch

Most fish caught by fishers coming from villages other than *Anse d’Hainault* are gutted, scaled and salted soon after being caught. These fish are then returned to the Haitian mainland where women (wives, mothers, and sometimes sisters and daughters) take over the marketing of the catch. The fish may be consumed by the fishers themselves, sold locally by a female relative, sold by the female relative to other small

merchants who themselves sell locally (in coastal areas and inland), or sold to other small merchants who come from as far away as *Les Cayes* and *Jérémie*. These fish are in large majority (<99%) sold by local merchants (usually female) “*machan*” (both ambulant and at market places) to individuals for personal consumption with the very small remaining percentage going to retail sellers such as stores and restaurants. The men are generally relegated to taking care of things related to catching the fish (renting the boat, making sure necessary equipment is purchased/available, and the actual fishing) while the women take care of most of the financing and the marketing of the catch.

Salted fish in the area sells for 35-40 HG/lb (~US\$1) around half the price of “fresh” iced fish.

Marine turtles are basically by-catch in the area. They are sold and eaten locally if they can be returned to Haiti alive. There is no commercial fishery for marine turtles in the area. Most shells used to be purchased by tourists to Haiti, and a present lack of demand may be from international regulations now in effect regarding the trade/transport of these shells, as well as a lack of tourists to Haiti.

Fishers’ Organizations

The largest group of “organized” fishers is located at *Anse d’Hainault*. These fishers basically work for the big businessmen and are provided motors, fuel, fishing gear, coolers, and ice to varying degrees by a group of businessmen who purchase much of the local catch, including that coming from Navassa. The purchased catch is generally sold in Port-au-Prince and in varying amounts and times, exported. Fishers are generally allowed to keep up to 75% of their catch depending on what the businessmen have provided them in terms of equipment. A motor costs 25% of the catch, fuel and oil 25%, fishing gear 25%. Deals are made to determine percentages. Along with these fishers are “regular” fishers, who do not necessarily deal with the businessmen on a continuous basis, but who may sell them some of their catch every so often.

In general these businessmen will only purchase iced fish, and fresh lobster, and conch from the area near mainland Haiti as well as from fishers returning from or at Navassa through the use of “runners”, whose main objective are to purchase fresh fish (unsalted), lobster and conch from other fishers at the island and return them as quickly as possible to the Haitian mainland for sale to these businessmen who in turn sell these products at upper scale supermarkets in larger cities, especially Port-au-Prince, as well as for export.

There are very loosely organized fishing associations in other areas; to call them associations is a stretch and most barely have a name. These associations generally have no formal structure, almost never convene, and when they do convene, meetings tend to go nowhere; this generally sours everyone as to what associations are and should do.

Local Needs

Everyone interviewed involved in the local fisheries reiterated the need for (“*tout bagay*” – everything) more and better equipment including, but not limited to, boats, motors, coolers (ice), and fishing gear so as to better exploit resources. Although many of those interviewed had never been to Navassa, they stated that if they were provided the necessary equipment they would go, especially due to the fact that resources in their locality (near the Haitian mainland) were already overexploited and in severe decline.

A strong need to form good associations (group strengthening, educational activities, training) was also expressed by all interviewed. This they feel would give them more control over their destiny in terms of being able to ask for assistance and putting up a unified front in defending the larger communities desires and needs. Fishers would also like to see the installation of more Fish Aggregating Devices (FADs) in the area and also requested better methods for preserving their catch such as coolers/ice for when they are out fishing and cold rooms/freezers for when they return which would allow them to market more expensive fresh fish rather than less expensive salted fish. Requests were also made specifically for outboard motors to allow for the transport of their catch out of their communities to others for sale. If they could transport the fish themselves they wouldn’t have to wait for those who come from other areas (they want to cut out the middleman – including the big businessmen).

Most fishers say they don’t know how to do anything but fish, and if alternatives were provided they would certainly need training.

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Other Information

- Fishers claimed to have encountered, although rarely, people from Martinique, Jamaica, and the United States in everything from small sailboats to fishing trawlers. There were also many other boats observed, but with which they had no contact.
- According to fishers there are no ice factories located in the area. Ice is either bought in *Jérémie*, *Les Cayes*, or *Port-au-Prince*, and brought to the area by boat or truck.
- One fisher has one outboard motor in *Les Irois*.
- Fishers said the US Coast Guard never chased them away; but sometimes they would ask for their names and take the boat’s name and appeared to write this information down.
- Up to 30 boats may come from *Anse d’Hainault* and surrounding areas according to *Anse d’Hainault* fishers.

Recommendations

1) Research

Research activities should be continued and expanded to include:

- increasing data on fisheries;
- increasing data on the exploitation of marine and terrestrial resources;
- fishers demographic and economic data;
- species inventories;
- establishment of baseline data.

2) Closing and management

If Navassa is closed to resource exploitation (esp. fisheries) alternative income generating activities should be developed in order to assist the Haitian fishers who would be left without a significant source of their income.

Alternative income generating activities may include:

- agricultural intensification;
- aquaculture;
- mariculture, including seaweed farming;
- monitoring of resources at Navassa;
- policing resource use/exploitation at Navassa;
- environmental rehabilitation activities in Haiti and Navassa (cleanups, replantings, invasive species eradication, etc.);
- development/rehabilitation of the Haitian fisheries closer to the mainland.

3) Resource exploitation and management

If Navassa is not closed to Haitian (or other) fishers there should be:

- the development of a program to have the fishers modify fishing gear and methods, including mesh sizes and respect for seasons;
- a system to assign fishing permits should also be instituted and would require a method for application, approval, and issuing permits, and would especially require a method of providing penalties for violations;
- if there is to be any type of management of resources at Navassa there would have to be some type of enforcement mechanism based at the island with the capabilities to perform these tasks.

4) Regardless of whether Navassa is closed or not there should be the development of educational activities for fishers to include:

- environmental sciences;
- technical classes for alternative income generating activities, improving fishing methods and gear, safety at sea, boat construction, fishing gear construction, engine maintenance, agricultural improvements (in Haiti), association building, resource use conflict resolution.

5) Clarification of jurisdiction

Clarify who has jurisdiction DOC/NOAA or DOI/FWS (or joint?). Haiti?

References

Guano Islands Act, U.S. Code, Title 48, Chapter 8, Sections 1411-1419, Section 1411

Skaggs, J. 1994. The Great Guano Rush. New York: St. Martin's Press

ANNEX I - Species List of Catch Found Aboard Haitian Fishing Boats at Navassa

(This list is in no way comprehensive)

Common Name	Scientific Name
Batwing Coral Crab	<i>Carpilius corallinus</i>
Black Jack	<i>Caranx lugubris</i>
Blue Chromis	<i>Chromis cyanea</i>
Blue Parrotfish	<i>Scarus coeruleus</i>
Blue Tang	<i>Acanthurus coeruleus</i>
Bull Shark (?)(observed from far)	<i>Carcharhinus leucas(?)(observed from far)</i>
Caribbean Spiny Lobster	<i>Panulirus argus</i>
Cubera Snapper	<i>Lutjanus cyanopterus</i>
Doctorfish	<i>Acanthurus chirurgus</i>
Dog Snapper	<i>Lutjanus jocu</i>
Goldentail Moray	<i>Gymnothorax miliaris</i>
Graysby	<i>Cephalopholis cruentata</i>
Great Barracuda	<i>Sphyraena barracuda</i>
Greater Amberjack	<i>Seriola dumerili</i>
Hawksbill turtle	<i>Eretmochelys imbricate</i>
Honeycomb Cowfish	<i>Acanthostracion polygonius</i>
Juvenile Queen Parrotfish	<i>Scarus vetula</i>
Loggerhead Turtle	<i>Caretta caretta</i>
Marbled Grouper	<i>Dermatolepis inermis</i>
Milk Conch	<i>Strombus costatus</i>
Nassau Grouper	<i>Epinephelus striatus</i>
Ocean Triggerfish	<i>Canthidermis sufflamen</i>
Princess Parrotfish	<i>Scarus taeniopterus</i>
Queen Angelfish	<i>Holacanthus ciliaris</i>
Queen Conch	<i>Strombus gigas</i>
Queen Parrotfish	<i>Scarus vetula</i>
Queen Triggerfish	<i>Balistes vetula</i>
Rainbow Runner	<i>Elagatis bipinnulata</i>
Redband Parrotfish	<i>Sparisoma aurofrenatum</i>
Rock Beauty	<i>Holacanthus tricolor</i>
Rough Triggerfish	<i>Canthidermis maculate</i>
Silversides	<i>Antherinidae</i>
Southern Stingray	<i>Dasyatis americana</i>
Spiny Spider Crab	<i>Mithrax spinosissimus</i>
Spotted Drum	<i>Equetus punctatus</i>
Squirrelfish	<i>Holocentrus rufus</i>
Stoplight Parrotfish	<i>Sparisoma viride</i>
Tiger Grouper	<i>Mycteroperca tigris</i>
Whitespotted Filefish	<i>Cantherines macrocerus</i>
Batwing Coral Crab	<i>Carpilius corallinus</i>

(This list is in no way comprehensive)

Scientific Name	Common Name
<i>Acanthostracion polygonius</i>	Honeycomb Cowfish
<i>Acanthurus chirurgus</i>	Doctorfish
<i>Acanthurus coeruleus</i>	Blue Tang
<i>Antherinidae</i>	Silversides
<i>Balistes vetula</i>	Queen Triggerfish
<i>Cantherines macrocerus</i>	Whitespotted Filefish
<i>Canthidermis maculate</i>	Rough Triggerfish
<i>Canthidermis sufflamen</i>	Ocean Triggerfish
<i>Caranx lugubris</i>	Black Jack
<i>Carcharhinus leucas(?)</i> (observed from far)	Bull Shark (?) (observed from far)
<i>Caretta caretta</i>	Loggerhead Turtle
<i>Carpilius corallinus</i>	Batwing Coral Crab
<i>Cephalopholis cruentata</i>	Graysby
<i>Chromis cyanea</i>	Blue Chromis
<i>Dasyatis americana</i>	Southern Stingray
<i>Dermatolepis inermis</i>	Marbled Grouper
<i>Elagatis bipinnulata</i>	Rainbow Runner
<i>Epinephelus striatus</i>	Nassau Grouper
<i>Equetus punctatus</i>	Spotted Drum
<i>Eretmochelys imbricate</i>	Hawksbill turtle
<i>Gymnothorax miliaris</i>	Goldentail Moray
<i>Holacanthus ciliaris</i>	Queen Angelfish
<i>Holacanthus tricolor</i>	Rock Beauty
<i>Holocentrus rufus</i>	Squirrelfish
<i>Lutjanus cyanopterus</i>	Cubera Snapper
<i>Lutjanus jocu</i>	Dog Snapper
<i>Mithrax spinosissimus</i>	Spiny Spider Crab
<i>Mycteroperca tigris</i>	Tiger Grouper
<i>Panulirus argus</i>	Caribbean Spiny Lobster
<i>Scarus coeruleus</i>	Blue Parrotfish
<i>Scarus taeniopterus</i>	Princess Parrotfish
<i>Scarus vetula</i>	Juvenile Queen Parrotfish
<i>Scarus vetula</i>	Queen Parrotfish
<i>Seriola dumerili</i>	Greater Amberjack
<i>Sparisoma aurofrenatum</i>	Redband Parrotfish
<i>Sparisoma viride</i>	Stoplight Parrotfish
<i>Sphyraena barracuda</i>	Great Barracuda
<i>Strombus costatus</i>	Milk Conch
<i>Strombus gigas</i>	Queen Conch
<i>Acanthostracion polygonius</i>	Honeycomb Cowfish

ANNEX II – Pictures



1

Trap assembly #1

credit: Jean W. Wiener



2

Trap assembly #2

credit: Jean W. Wiener



3

Trap funnel #1

credit: Jean W. Wiener



4

Trap funnel #2

credit: Jean W. Wiener



5

Trap #1

credit: Jean W. Wiener



6

Trap #2

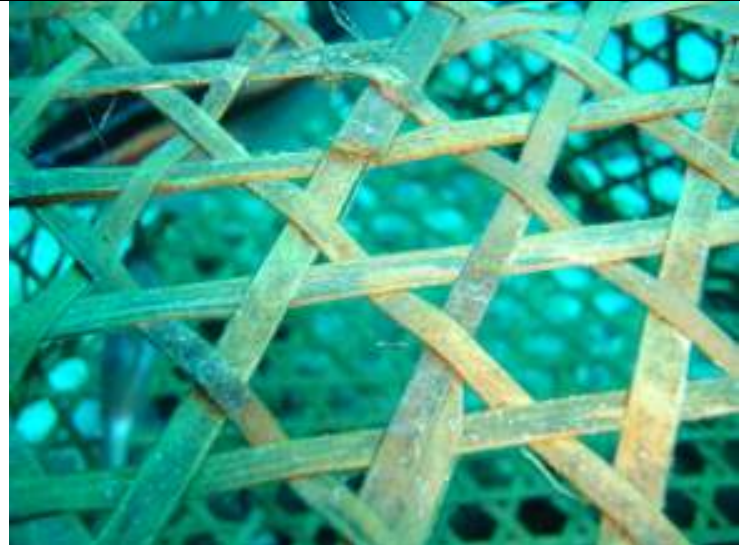
credit: Jean W. Wiener



7

Trap #3

credit: Jean W. Wiener



8

Trap #4

credit: Jean W. Wiener



9

Fishers with traps on boat

credit: Jean W. Wiener



10

Fishers checking trap on boat

credit: Jean W. Wiener



11

Fishers setting trap from boat

credit: Jean W. Wiener



12

Lobsters in trap

credit: Jean W. Wiener



13 Fish hung as bait in trap

credit: NOAA/NMFS



14 Trap on ocean floor

credit: Jean W. Wiener



15

Fish drying

credit: Jean W. Wiener



16

Shark drying

credit: Jean W. Wiener



17

Catch in boat #1

credit: Jean W. Wiener



18

Catch in boat #2

credit: Jean W. Wiener



19

Catch in boat #3

credit: Jean W. Wiener



20

Fisher cleaning and salting fish on boat

credit: Jean W. Wiener



21 | Fisher salting fish

credit: Jean W. Wiener



22 | Haitian fishing boat at Navassa #1



credit: Jean W. Wiener



23 | Haitian fishing boats at Lulu Bay, Navassa #1 credit: Jean W. Wiener



24 | Haitian fishing boat at Navassa #2 credit: Jean W. Wiener

					
25	Haitian fishing boats at Lulu Bay, Navassa #2 credit: Jean W. Wiener		26	Buoys made of plastic drink bottles and/or foam for marking gear credit: Jean W. Wiener	



27

Fisher fishing from cliff at Navassa

credit: Jean W. Wiener



28

Fishers with shark

credit: Jean W. Wiener



29

Conch at Navassa

credit: NOAA/NMFS



30

Conch strung together

credit: NOAA/NMFS



31 Discarded turtle parts and conch at Navassa credit: NOAA/NMFS



32 Discarded marine turtle shells at Navassa credit: Jean W. Wiener



33

Triple mesh net set on ocean floor



credit: NOAA/NMFS



34

Fish caught in triple mesh net

credit: NOAA/NMFS

					
35	Triple mesh net caught on sponges and coral credit: NOAA/NMFS		36	Triple mesh net being hauled to surface with fish NOAA/NMFS credit:	



37 Removing crabs and conch from triple mesh net
Wiener credit: Jean W.



38 Fishers hauling in triple mesh net
Wiener credit: Jean W.



39

Coral brought up with triple mesh net

credit: Jean W. Wiener



40

Lobster caught in triple mesh net

credit: Jean W. Wiener