SEM-PASIFIKA SOCIO-ECONOMIC SURVEY

METIPW COMMUNITY MADOLENIHMW POHNPEI FSM

Executive Summary:

SEM-Pasifika is a set of community-based socioeconomic monitoring guidelines developed specifically for coastal managers in Pacific island countries. Beginning in 2008, several SEM-Pasifika trainings have been carried out across Micronesia. Assessments have taken place in Arno and Jenrok in the Republic of the Marshall Islands, Chuuk and Yap in the Federated States of Micronesia, Palau, and Saipan, Commonwealth of the Northern Mariana Islands. After coordination among Conservation Society of Pohnpei, the National Oceanic Atmospheric Administration (NOAA) and the Micronesia Conservation Trust (MCT) SEM-Pasifika was able to launch the first training in Pohnpei in 2012.

The Training Objectives
- To build capacity of the participants as SEM-Pasifika users
- To provide the participants with the background, purposes and methodological procedures of socioeconomic monitoring based on SEM-Pasifika
- To complete the socioeconomic assessment for a field site, resulting in a group of trained participants who are capable of carrying out an assessment with some guidance from trainers
- Greater understanding and appreciation of monitoring as an important tool
- To improve site management of the coastal and marine areas in the Pacific region, and a completed assessment with survey data analyzed and results reported to community representatives

The SEM-Pasifika training in Pohnpei followed a 15-step process:
1) Preparation activities such as consultation with stakeholders
2) Defining goals and objectives
3) Selecting indicators
4) Site reconnaissance
5) Conduct key informant and focus group interviews
6) With information garnered from the preparation activities, the participants begin the design phase: designing the survey (household questionnaire)
7) Pre-testing the survey
8) Revising and translating the survey into Pohnpeian
9) Fieldwork (data collecting)
10) Data entry
11) Data analysis
12) Developing the communications strategy
13) Presenting results to the community
14) Writing the assessment report
15) Using the information for adaptive management

The Conservation Society of Pohnpei (CSP) and its partnering agencies selected the community of Metipw in Madolenihmw unanimously to be the target field site. At the invitation of the community's chief, the assessment was requested based on concerns from community members regarding their newly established Marine Protected Area (MPA), Nan Wap. Although the Metipw community is active in resource management, there has not been an official assessment addressing how the MPA is impacting the livelihood of those who live in Metipw, what changes have been seen in traditional conservation practices and what changes the community is observing and making regarding climate change. In addition, the site was selected due to a large-scale development (hotel and casino) being proposed for the vicinity of Metipw. The assessment also worked to identify the community's feelings about this development and its potential impact on their resources.

1. Background

Assessment Objectives

The socioeconomic assessment was conducted to provide baseline information regarding the Metipw community's knowledge, attitudes and behaviors in regard to coastal resources, climate change, the Nan Wap MPA, and the proposed large-scale development. To procure this information, the following survey objectives were developed:

- Assess how the marine protected area is impacting the community
- Understand the perceived threats to the coastal and marine resources of the site
- Determine the awareness of traditional conservation practices
- Assesses fishing methods used by the community and how they have changed over time
- Understand impacts of climate change faced by the community and how they cope with the impacts
- Understand the community's perspective on large-scale development

Site Description

Located on the east point of Pohnpei, Metipw peninsula is home to a population of 249 people. The community of Metipw is centered between two neighboring communities, Lukop and Dolopwail. The people of Metipw are highly dependent on their resources and although several community members are employed by the government or private companies, much of the population supports itself through fishing and/or farming. The traditional system of government is followed and is based on a chiefly practice where titles are given and ranked down the line of the chief. Similar to the other communities in Pohnpei, people of Metipw still follow traditional harvesting seasons on both the land and in the ocean. To help conserve the community's natural resources, the Nan Wap MPA was established through community-based resource management under the Locally Managed Marine Area (LMMA) Network's structure. The Nan Wap MPA covers 752.88 acres (3.04 sq. km).

2. Methodology

Data Collection Methods:

The survey was created based on a number of essential objectives and indicators developed by the training team following the guidelines identified in the SEM-Pasifika Socioeconomic Survey Guideline book. After identifying objectives and indicators, the Pohnpei team developed questions to ask selected key informants from the community. Dividing into groups, each group asked their key informants questions addressing the objectives and indicators chosen for the training. These community members of Metipw included the community Chief, the head of Women's Group, an elder fisherman, and a Chief Justice from the Madolenihmw Municipal Government. In addition, a focus group was conducted with the members of the Metipw Youth Group. At the end of the day each group had conducted two key informant or focus group interviews. The following day, the groups typed up their notes and shared their discussions with the other groups (see appendix B).

Following the key informant and focus group interviews, the group developed 42 questions based on the objectives and indicators and the information gathered from the interviews. Breaking up into teams of two, the group first practiced the survey on each other and then went out to pretest these questions with people working and living in Kolonia Town, using a simple convenience sample. After the second pretest the group reconvened and edited the questions according to problems and questions that resulted during the pretest. After the final editing was completed, the team once again broke into groups. Each group was responsible for translating a section of the survey into Pohnpeian. After translation and review by the entire team, the survey was finalized.

The household survey attempted to conduct a census of all those in Metipw over the age of 16. Taking place over two days, Friday and Saturday (June 1st and 2nd, 2012) the team was able to interview ninety-two community members. Every house was visited over the two-day period. However, the team was not able to interview every community member, as some were away and unavailable.

Indicators Used:

Relying on the SEM-Pasifika guidelines, the team worked together to identify the indicators that would provide information most useful to the team and the community. Reflecting on the established objectives, the following indicators were selected to help guide the development of the questions for the key informant and focus group interviews as well as the household survey.

Selected indicators from the SEM-Pasifika guidelines used in the Metipw assessment:

1. Location of coastal and marine resources.	13. Dependence on resources and services vulnerable to climate change impacts
2. Dependence on coastal and marine resources.	14. Awareness of household vulnerability to climate hazard
3. Management plan	15. Ability of community to reorganize
4. Types and level of outsiders	16. Migration
5. Perceived coastal management problems	17. Attitude toward coastal and marine resources
6. Management success and failures	18. Resource conflicts
7. Knowledge of coastal and marine resources	
8. Local tenure, customs and traditions	
9. Compatibility of management with local values and beliefs	
10. Coastal and marine activities	
11. Coastal and marine goods and services	
12. Management types and structures	

3. Results

Demographics
The average age of those surveyed was 37 years of age. The gender distribution, 47% male and 53% female showed a good balance of males and females.

Education level:
43% of the informants had completed elementary school while 27% completed high school. In addition, 24% of those surveyed had attended college and finally 5% had no formal education.

Birthplace:

Out of the 92 informants, 47% were born in the community, and the remaining 53% had moved into the community sometime after birth for reasons such as marrying into the community.

Groups:
22% of respondents reported that they participated in the Community Conservation Officer (CCO) group, a community-led voluntary conservation stewardship program, 20% in the women's group and 39% in the youth group.

Sources of income:
34% of respondents who fished reported doing so for income and 71% for livelihood (meaning that their catch is used for subsistence). 13% participated in invertebrate collection for income and 46% for livelihood. 28% of farmers reported selling their products for income and 51% for livelihood. 12% reported that handicrafts were sold for income and 13% were used for livelihood. 6% of the community members received income from the government and private jobs and 8% received retirement money from the government. 15% reported receiving money from community work and church. Finally, 43% received money from overseas.

Figure 1. Number of days for fishing (of those who answered Yes to fishing):
N=58

Fishing Frequency

- 1-3 times per week
- 4-6 times per week
- Everyday

9%
5%
86%
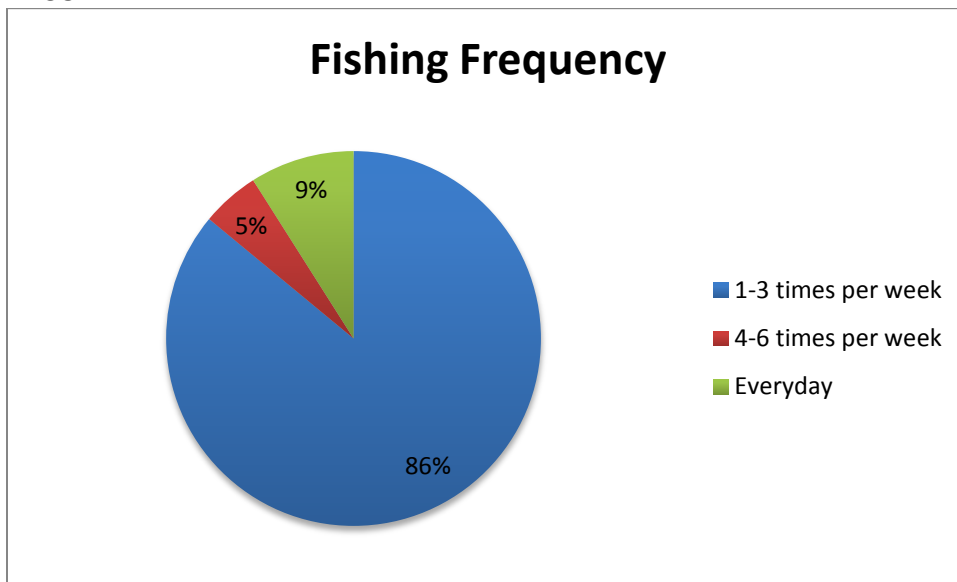
This figure indicates the number of days that fishers go out fishing per week. 86% of those who fish do so 1-3 times a week while 5% fish 4 to 6 times a week. The remaining 9% of those who fish do so every day.

Figure 2. Time that fishers fish:
N=64

Time for Fishing
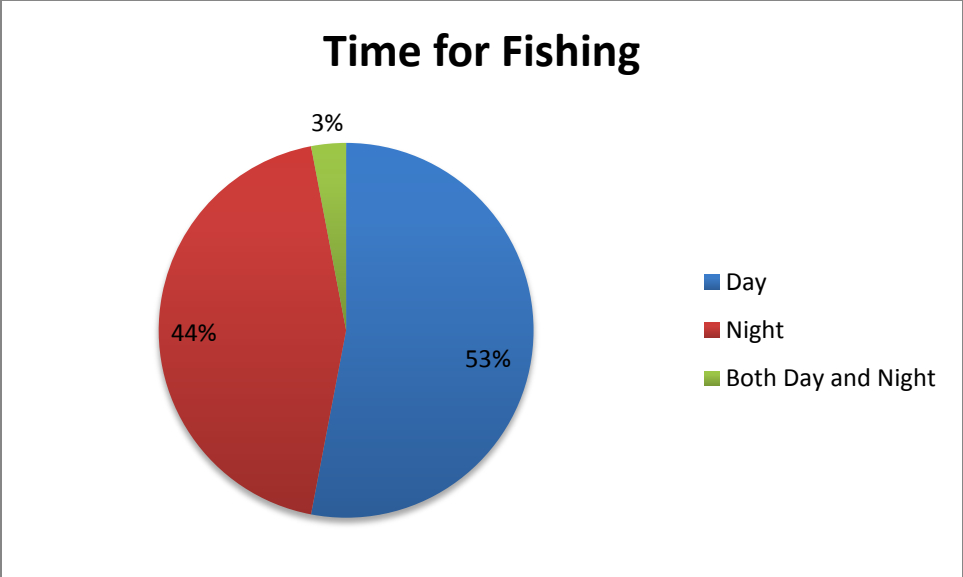
Figure 2 illustrates the different times fishers go out fishing. 3% prefer to fish at night time and 53% fish during the day. 44% fishes both day and night.

Figure 3: Fishing methods that individuals use.
N=61

Fishing Gear Used
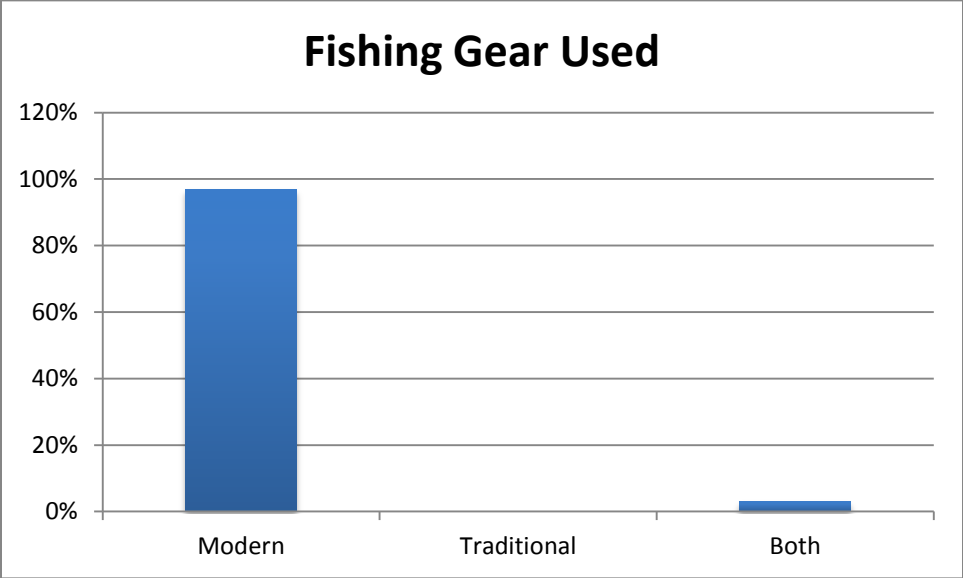
The figure above demonstrates that modern fishing methods are the most regularly used methods used by fishers at 97%. 3% of respondents use both modern and traditional methods while no one uses only traditional methods or 0%. Of those who use traditional methods, the most frequently used are naik, ukalap, and mai.

Figure 5: Modern Fishing Methods
N=61

Modern Fishing Methods
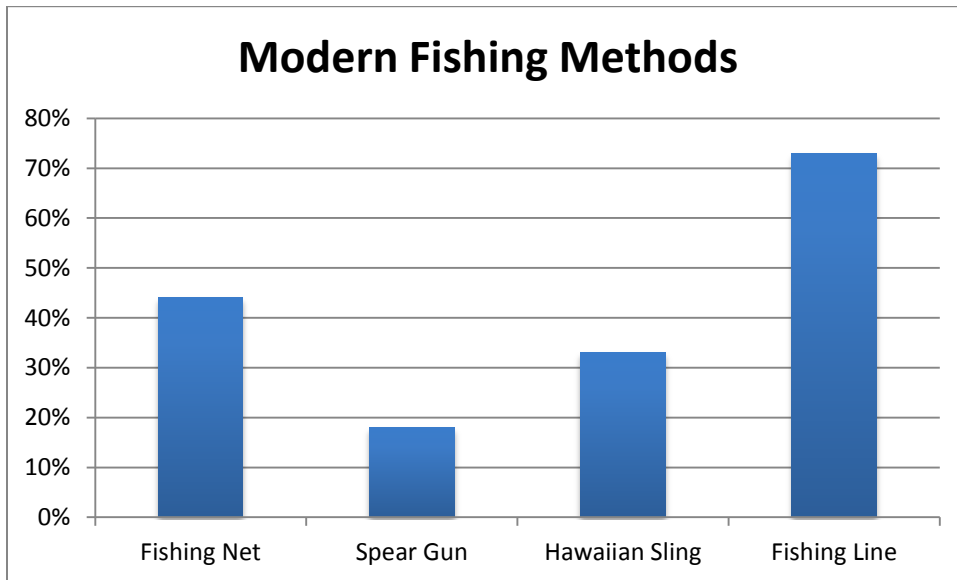
The above figure (5) shows that the majority of fishers use monofilament fishing line (73%), 44% use monofilament fishing nets (example mesh size net and diamond mesh). 33% of the community who fish use Hawaiian sling and 18% use spear gun.

Figure 6: Location for fishing
N=62

Places for Fishing
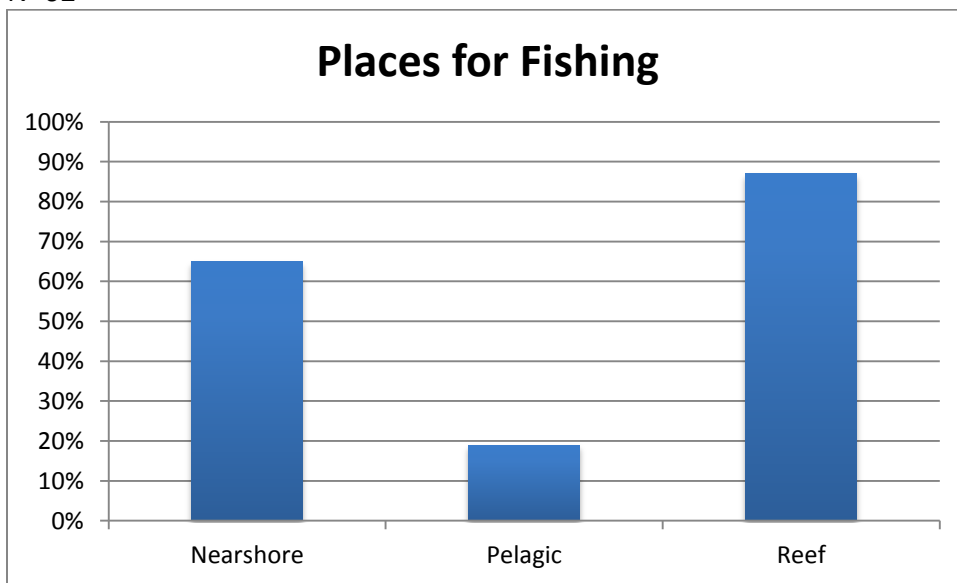
The above figure shows that most of the fishers in the community fish on and around the reef at 87%, 65% fish in the near shore which includes the mangrove area, sand area, and within the lagoon. 19% of the fishers fish outside the reef.

Changes seen to fishing methods:
5 respondents reported a shift from traditional to modern fishing gear including monofilament line, monofilament nets, and Hawaiian sling. 2 respondents reported a shift away from traditional practices such as the use of tiki torches (instead of today's flash light) and the use of nets made from palm leaves (instead of monofilaments)

Establishment of Nan Wap (MPA):
Awareness:
Among the community members, 84% are aware of the establishment of the MPA. 16% are not aware of the establishment of the MPA.

Table 1.
N=92

Community Consultation	94%
Printed Materials	39%
Radio Announcements	24%
School	12%
Internet	4%
Other	5%

From the survey that was conducted on June 1st and 2nd, most community members have heard about the establishment of the Nan Wap MPA from community consultations (94%). 24% heard from radio announcements, 39% from printed materials, 12% from schools, 4% from the internet, and 5% from Climate Change Outreach Committee (CCOC), other people, and church.

Regulations awareness:
74% of the community reported being aware of the Nan Wap MPA regulations while 26% are not aware of the regulations.

Regulations of Nan Wap MPA:
Of those who said that they are not aware of the marine protected area, the majority of the community members surveyed (90%) stated that no fishing is allowed in the MPA and 3% of the community was aware of the buffer zone

Involvement in the MPA:
49% of the community had been involved with the MPA but 51% said that they had not been involved.

Threats to the coastal and marine resources:

Figure7:
N=88

Threats to Coastal and Marine Resources
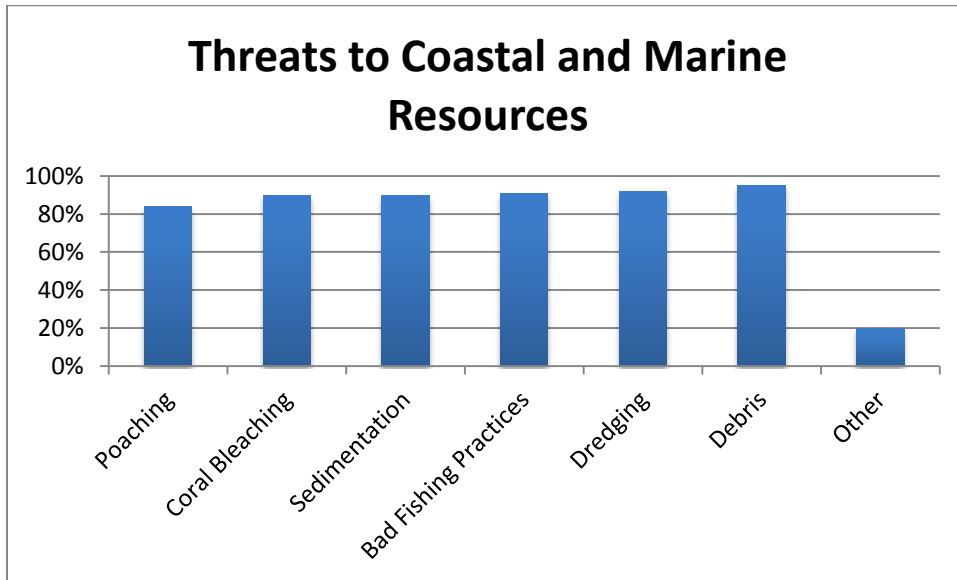
95% of respondents stated that debris poses the highest threat to the coastal and marine resources followed by dredging with 92%, and bad fishing practices 92%. Coral bleaching and sedimentation were reported to be a threat by 90% of respondents while 84% responded that poaching was a threat to the coastal and marine resources. 20% noted other threats including mangrove deforestation, foreign fishing vessels, and piggeries along shoreline.

Mangroves:
100% of Metipw community members surveyed consider mangroves very important.

Figure 8: Use of mangroves:
N=90

Use of Mangroves
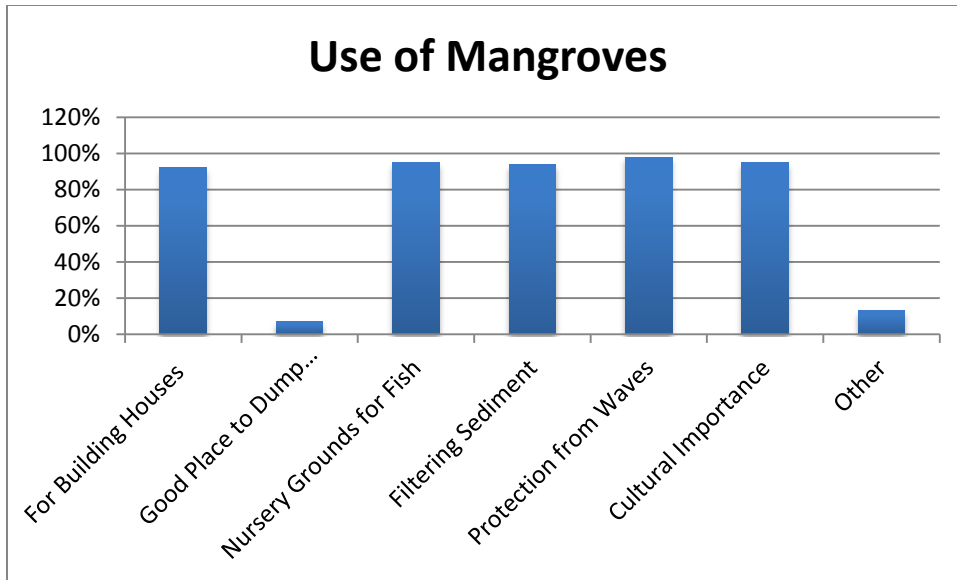
98% of respondents thought that mangroves are important in protecting the island from big waves, 95% said that the mangroves are important for nursery grounds for fish and other animals and also that it is an important part of the culture to have a healthy marine environment. 94% responded that they are important for filtering sediments. 92% of the community responded that mangrove trees are important for building houses and 7% for dumping trash. Finally, 13% provided other reasons regarding the importance of the mangroves, these reasons included the mangroves as a source of local medicine, food, firewood, and income.

Corals: The importance of corals

Table 2:
N=92

Importance of Corals
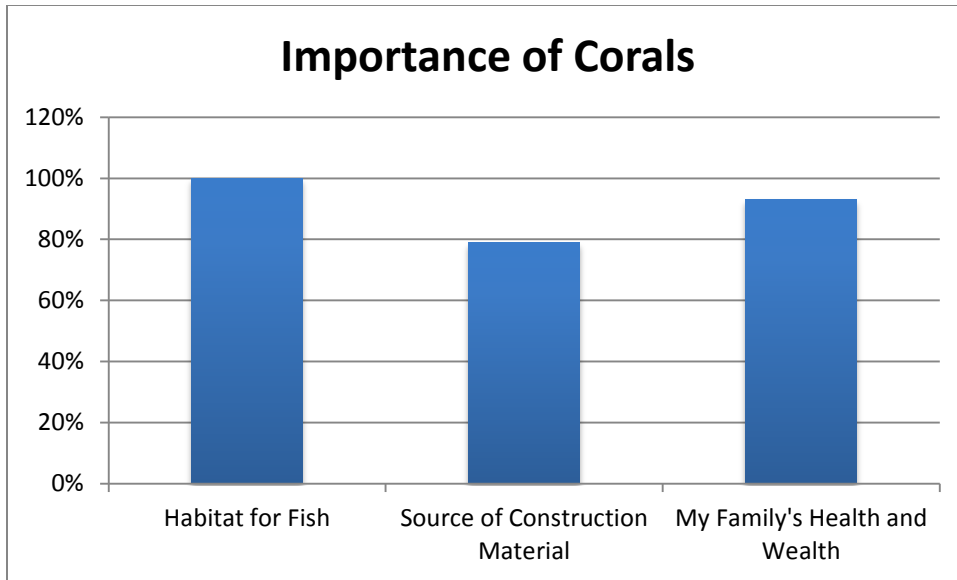
100% of respondents stated that corals are important. When asked why, 79% think that corals are useful to provide construction materials. 100% consider that corals are important for fish and other animals. 93% stated that corals are linked to the health and wealth of the community.

Climate change:

When asked if they were aware of the term climate change, 63% of respondents answered yes, 29% said no, and 8% were unsure.

45% of the community learned about climate change from community consultations and 43% stated that they had heard about it from radio announcements. 36% read about it from printed materials and 42% learned the term climate change from school. In addition, 22% got the information from the internet and 20% from other sources such as CCOC, other people, and church.

Climate change effects:

Table 4:
N=90

Effects of Climate Change
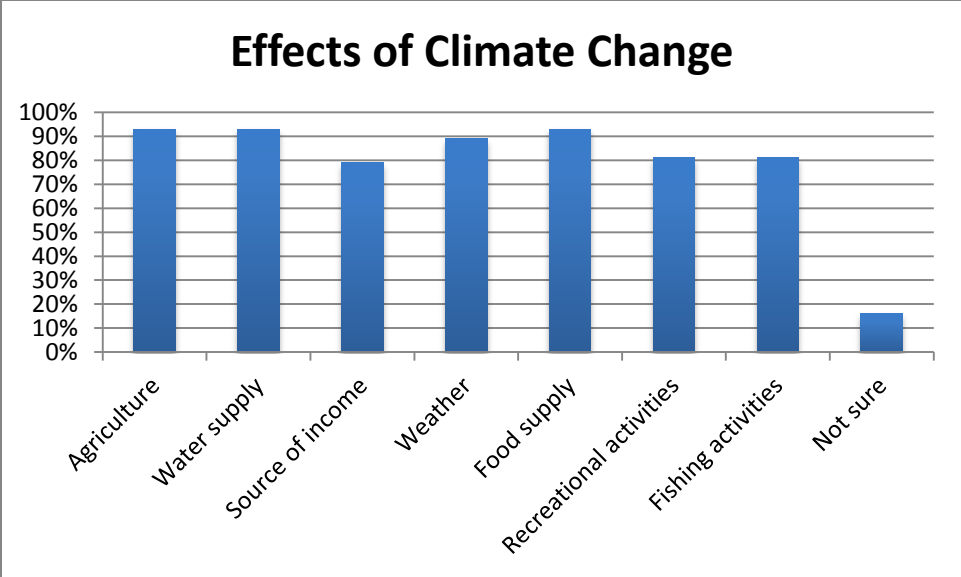
According to the data collected from the survey when asked if climate change had an effect on their livelihoods, 91% think that climate change effects their livelihood while 3% think that it has no effect to their livelihood. 6% are not sure if there have been any effects from climate change. Of those who answered yes or unsure, they were then asked to share what kind of changes they have noticed. 93% of the respondents mentioned that climate change has had an effect on agriculture, food supply, and water sources. 81% said that climate change has also affected recreational activities and fishing activities. 79% also said that it has an effect on their source of income. 89% mentioned that climate change has affected the weather patterns. 16% are unsure about the effects of climate change.

Impacts of the casino:
Table 5:

Potential Impact of Proposed Casino
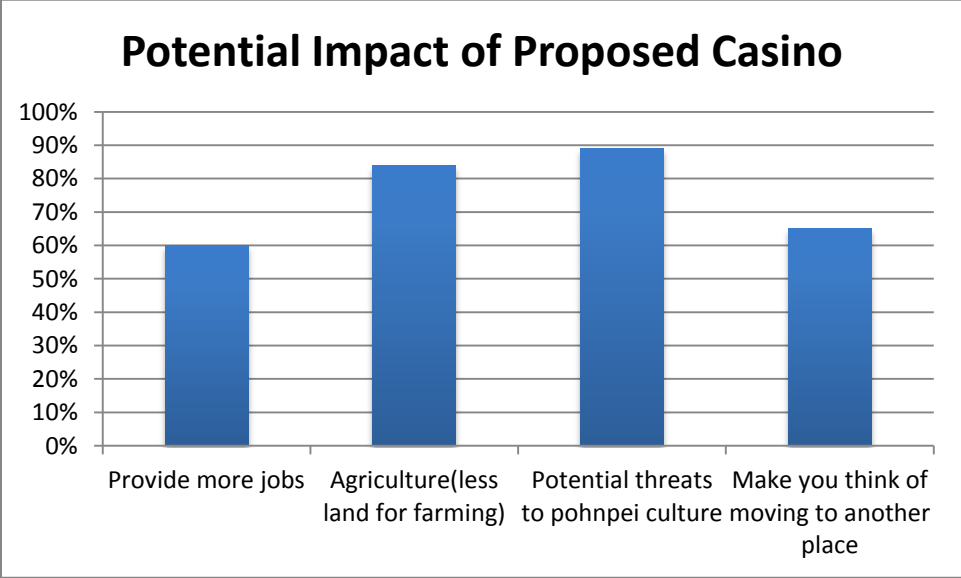
From the information collected during the survey 91% had already heard about the plans of developing the casino. Also 21% of community members are in favor of the development while 77% oppose it. 2% of them are unsure about the development. In response to the potential impacts, 60% said that the casino will provide more jobs to their families. 84% think that the casino will have an impact on agriculture. 89% believe that it will be a potential threat to the culture and 65% of the community thinks that it will make them think about relocating.

4. Discussion

From the results of the survey, it is clear that most of the ninety-two (92) people the team talked with expressed an understanding of the condition of their terrestrial and marine ecosystem and the potential threats to these resources, including climate change. Impressively, 100% of respondents said that mangroves and corals are important to them. Encouragingly, most of the people surveyed were in support of the community's neighboring MPA (Nan Wap).

The concerns of the community seemed to focus primarily on direct threats to their natural resources while very few expressed concerns about indirect threats to their coastal and marine ecosystems. The threats identified were those that they have seen and experienced such as destructive human activities and changes in weather patterns (climate change). For instance, while clearly aware of the threats climate change poses to their resources, the community did not express concern regarding how climate change may impact their culture. In addition, the community expressed concern about how the proposed casino might impact their culture and community.

Appendix A: SEM-Pasifika Survey with Results

Total Surveys = 92

Mwaren soun kapeidak (Interviewer Name) _____

Mwaren soun inting (Recorder Name)_____

Rahn en kalelapak (Interview Date)_____

Kuloak (Time)_____

Kaselehlie maing, ai tungoal ahd:_____, mwaren ohlet de lihet iei_____ se doadoahk ohng_____. Se pato pahn kupwuramwail pwe se men song kapehse oh wia kisin kalelapak kei ma pahn pidahda sapwelmatail wahn kepikipik en paliesed oh paliemor oh komw kupwure pwe sapwelmwomwi pasapeng kan pahn pwukehdi en wia mehn doadoahk oh e sohte pahn wia mehn kasansal ohng meh teikan. Sohte sapwung oh pwung en sapwelmwomwi pasapeng kan. Ia kupwuromwi sen doula wia kisin kalalapak pwukat? Ei de soh. Ma ei ah kita ketin doulahng nan kalalapak pwukat oh e sohte pahn reirei mwein minit 20.

Hi, my name is _____ and this is _____. We're working on behalf of Conservation Society of Pohnpei and its partner agencies and we are here to ask some questions about what you think of resource management in Metipw. Your answers will be anonymous and confidential and you do not have to answer any questions that you don't want to. We are looking to get the opinions of community members. Please speak freely. The survey should take about 20 minutes. Would you be willing to take the survey?

If yes, go ahead…If not, say thank you and move on to the next house…
   - *Ma ei ah I pahn doula, ma soh ah I pahn nda kalahngan ngei kohkohla ehu nihmw.*

Great, thanks. First we're going to ask some questions about you.

Kaselel, kalahngan.

1. How old are you? *(Only survey people 16 and up): aramas me sounpar eisek wenehu kohda ihte…*
   - ❖ Komw sounpar depe? _____
      37 (Average)

2. Male or Female *(Do not ask): komw dehpa kalelapak.*
   - ❖ Ohl de lih _____
      Male: 47%   Female: 53%

3. What is your level of education? *(Choose one: pilada ehu)* : ia dakehn kaskuhl me komw lel de kanekehla.
   - a. Elementary: dake keiou   43%
   - b. High school: dake keriau   27%
   - c. College: dake kesiluh   24%
   - d. No school: sohte sukuhl   5%

4. Were you born in this community?: komw ipwidi nan kousapw wet?
   a. Yes: Ei   47%
   b. No: soh   53%

5. If no, how long have you lived in this community? : ma soh ah iauwen wereihn omwi kouson nan kousapw wet.
   a. Less than 5 years: pahnangin sounpar limau   7%
   b. 5-9 years: nan pwungen sounpar limau oh duwauh?   9%
   c. 10-20 years: nan pwungen sounpar eisek oh riesek?   21%
   d. More than 20 years: pohnangin sounpar rieisek?   63%

6. What group/s do you participate in your community? Please say yes or no to each one:
   ❖ Mie pwihn me komw iang towehda nan kousapw wet me rasohng:

	Yes- Ei
a. Community Conservation Officer Pwihn en apwalih wasahn nahk (CCO)	22%
b. Women's Group(pwihn en lih)	20%
c. Youth Group(pwihn pwulopwul)	39%
Other(pwihn teikan) (*sponge farming, church, men's council*)	N/A

7. What are your sources of income or livelihood? Please say yes or no to each one:
   ❖ Iahngehkan sapwelmwomwi elen kapai kan de elen mour?

Source	Income (sell) elen sent	Livelihood (eat/use) Mehn karoson
Fishing (laid)	34%	71%
Invertebrate harvesting (sei menihke)	13%	46%
Farming (mwetiwel)	28%	51%
Making handicraft (perper de peipei)	12%	13%
Government job/private (doadoahk ong koperment de ohpis teikan)	6%	XXXXXX
Money from Govt (imwin sounpwung)	8%	XXXXXX
Community/church official(pwukoa nan mwomwohdso de wasahn kouson)	15%	XXXXXX
Family support (sawas sang peneinei teikan)	43%	XXXXXX

(*If yes to fishing, ask questions 8-14. If no, skip to question 15*)

Now I am going to ask you some questions about fishing: Komw kupwure I pahn wia kalelapak kei me pidahda laid.

8. How often do you fish in one week? *(Choose one): komw kin laid pak depe nan week ehu?*
   a. 1 – 3 days/ wk. pak ehu lel siluh nan week ehu?   86%
   b. 4 – 6 day/ wk.: pak pahiou de wenehu nan week ehu?   5%
   c. 7 days/ wk. week ehu pwon de tohtohsang   9%

9. Do you fish? *(Choose one)*: komw kin laid?
   a. At night: laid en pwong   3%
   b. During the day: laid en ninrahn   53%
   c. Both: koaros   43%

10. Do you use *(Choose one):* songen wiepen laid da me komw kin wia?
   a. Traditional fishing methods: sapwelmatail wiepen laid en mahs   0%
   b. Modern fishing methods: laid en mwehi et   97%
   c. Both traditional and modern fishing methods: de koaros   3%

If Modern skip question 11: ma laid en mwehi et ah komw doulahsang kalelapak 11

11. What traditional method do you use?
   ❖ Soangen wiepen laid en kawahu da me komw kin wia?

	Yes
a. Naik- doadoahki uhk tikitik me wiawihsang kolou	8%
b. Mai- kehl takai	3%
c. Ukalap- uhk lapala	5%
d. Other- wiepe teikan: _____	N/A

12. What type of fishing gear do you use? Say yes or no to each one:
   Soangon dipwsoun laid da me komw kin doadoahngki ma komw kin laid? Pasasapeng pahn ei de soh

	Yes(ei)
a. Fishing net(uhk)	44%
b. Spear gun(kesikped)	18%
c. Hawaiian sling(kioar)	33%
d. Line fishing (Bottom, trolling, drop stone fishing, casting)(selin epiep)	73%
e. Other (Specify)(ehu soangen dipwisoun laid tohrohr): (*local plants*)	N/A

13. Where do you fish? Say yes or no to each one:((ia wasa me komw kin laid ie?,sapeng ei de soh

	Yes (ei)
a. On the reef(pohn paina)	87%
b. Outside the reef (pelagic) (Epiep en mas likin pahina)	19%
c. Near shore (harvesting sea clams, shells, cucumber) (manihke) (Saik Menihkeh kan)	65%

14. What changes have you seen to fishing methods during your life? For example to you see more modern gear being used here? (Mie wekideklahng wiepen laid sang mahs lel rahnwet me komw wehwehki me pahn karasepe dipwisou en laid kan?)

   Of those who answered:
   - 5 respondents reported a shift to modern fishing gear including monofilament line, monofilament nets, and the Hawaiian sling
   - 2 respondents reported a shift away from traditional practices such as the use of tiki torches (instead of today's flashlights) and the use of nets made from palm leaves (instead of monofilament)

Now, I am going to ask some questions about the Nan Wap Marine Protected Area: (ansouet kalelapak kan pahn dohke wasahn nahk en Nan Wap:)

15. Are you aware of the establishment of the Nan Wap Marine Protected Area? *(If no, skip to 25)* (Komw Mwahngih de Patohwan koukoudahn wasahn Nahk en Nan Wap?)
   a. Yes(ei)   84%
   b. No(soh)   16%
   c. Unsure(sohte wehwehki)   0%

16. How did you hear about the Nanwap Marine Protected Area? Please say yes or no to each one: (Ia mwomwen ahmw koarongehda de wehwehkihda kokoudahn wasahn nahk en Nan Wap

	Yes- Ei
Community Consultations (Kaweidpene en nan pwungen tohn Kousoan)	94%
Radio Announcements (Pakair nan Rehdio)	24%
Printed Materials (Nan doaropwehn Kapehseh kan)	39%
School (kasikuhlki)	12%
Internet (kawehwehpe nan Internet)	4%
Other (Ehu tohrohr) (CCOC, other people, church)	5%

17. Have you been involved with the MPA? (Komw kin iang patehng doadoahk en wasahn nahk en Nan Wap?)
   a. Yes (Ei) 49%   b. No (Soh)   51%

18. Are you aware of the Nan Wap Marine Protected Area Regulations? (Komw mwahngih de patohwan kosoned kan en nan wasahn nahk?)
    a. Yes (Ei)   74%
    b. No (Soh)   26%

19. If yes, what are they? Please list: (Ma ei, Komw kak sawaski iahnge kosoned kan:)
    Of those who answered YES to question 18
- 90% answered that there is no fishing allowed in the MPA
- 3% were aware of the buffer zone

20. Since the establishment of the Nanwap Marine Protected Area, how has your catch changed? (Mie wekwekdeklahn seikomw kan (mwahmw/menihke) me komw kin saikada sang ni tepin kokoudahn wasahn nahk et?) *(Ask only if they fish)*

	Yes (Ei)
a. I catch more fish per trip (Dirla mwahmw de menihke me I koledi	46%
b. I catch less fish per trip (Malaulaulahn mwahmw de menihke me I koledi	39%
c. It hasn't changed (saik wekidekla)	12%
d. Unsure (Sohte wehwehki)	13%

21. Since the establishment of the Nanwap Marine Protected Area, how has the size of your catch changed? (Ia duen omwi kasawih uen seikomw kan sahng ni tepin kokoudahn wasahn nahk wet?) *(Ask only if they fish)*

	Yes (Ei)
a. I catch smaller fish (Mwahmw Tikitikla)	34%
b. I catch bigger fish (Mwahmw kan lapalahla)	32%
c. It hasn't changed (Saik wekidekla)	38%

22. Do you support the MPA?
    Komw kin iang utung Wasahn Nahk en Paliesed?
    a. Yes/Ei 87%   b. No/Soh 6%   c. Unsure/Sohte wehwehki   7%

23. In your opinion what is the level of use of your resources by outsiders? Please say yes or no to each one:

Pein omwi pepehm, ia mwomwen omwi pahn teneki wiepen doadoahngki tehtehn mour en paliesed en sapwelimomwi wasahn kousoan ni ansou kan me tohn ehu wasa tohrohr kin iang doadoahngki? Komw masanih Ei de Soh ohng ireh kan me pahn sansal pah:

	Yes/Ei	No/Soh	Sohte wehwehki
a. Outsiders take too many fish and resources Mehn liki kin kamwomwala mwahmw oh tehte teikan	62%	9%	28%
b. Outsiders fish here but it is not a problem Mehn liki kin laid wasaht ahpw sohte wiahda kahpwal	28%	47%	26%
c. Outsiders do not fish here/ Mehn liki sohte kin laid wasaht	26%	47%	27%
d. Outsiders fish in our MPA Mehn liki kin laid nan Wasahn Nahk wet	24%	29%	47%
e. Outsiders visit our community but do not take our resources Mehn liki kin kohdo ahpw re sohte kin kedirapwa tehtehkan me mie nan kousoan wet	34%	36%	29%
f. I don't know/ Sohte wehwehki	8%	54%	38%

24. Do you ever see or hear of anyone fishing in the Marine Protected Area?
    Mie ansou me ke kilang de rong me mie me kin lalaid nan Wasahn Nahk ?
    a. Yes/Ei   41%   b. No/Soh 51%   c. Unsure/Sohte wehwehki 8%

25. (*if yes*) Who was fishing in the Marine Protected Area?
    (ma Ei) Ihs me kin laid nan Wasahn Nahk?

	Yes- Ei
a. Community members/ Tohn kousoan wet	20%
b. Outsiders/ Mehn Liki	62%
c. I don't know/ Sohte wehwehki	9%

26. From your own observation what is the condition of the coastal resources? *(Choose one)*
    Pein omwi kasawih mwomwen momour en kepikipik kan sangete ni orohr lel nan sehd? (pilada ehu)
    a. Very good/Udahn mwahu   3%
    b. Good/mwahu   34%
    c. Not so good/sohte nohn mwahu   42%
    d. Bad/udahn sohte mwahu   7%
    e. Unsure/sohte wehwehki   13%

27. What are the threats to your coastal and marine resources? Please say yes or no to each one:
Iahnge kerempw kan ohng kepikipik kan en ni oarohr lel nan sehd? Ei de Soh

	Yes- Ei
a. Poaching/Wiepen laid sohte mweimwei	84%
b. Coral bleaching/Olahn rahr	90%
c. Sedimentation/Kiried	90%
d. Bad Fishing Practices/Wiepen laid kamwomwtehte	91%
e. Dredging/Sand Mining/Orohr dahn rahr de pihk	92%
f. Debris/Peilahn kihd ohng nan sed	95%
g. Other (specify)/Sohng teikan	20%

28. Do you think that mangroves are important?
Ke kamehlele me naniak kesempwal
   a.   Yes/Ei   100%   b. No/Soh   0%

29. If Yes, why? *(If no, skip to 32)* Please say yes or no to each one:
Ma Ei, kahrepe? (ma soh, luslahng 32) Ei de Soh oahng ehu sohng kan me sansal pah:

	Yes/Ei
a. Build houses for people/ Wiahda ihmw ohng aramas	92%
b. Good place to dump trash/ Mwahu ehng wia wasahn kihd	7%
c. Nursery ground for fish and other animals Wasahn kanaitikada kisin mwahmw oh sohng teikan	95%
d. Filter sediments/ Pereh peilahn pwehl	94%
e. Protects our island from big waves/ Perehpen sahpw sang ilok	98%
f. It is an important part of our culture to have a healthy marine environment Kesempwal ohng tiahk pwe kitail en ahneki mour mwahu en paliesed	95%
g. Other (specify)/ Sohng teikan (food source, local medicine, income, firewood)	13%

30. Do you think corals are important?
Ke kamehlele me rahr kesempwal?
   a.   Yes/Ei   100%   b. No/Soh   0%

31. If yes, why? *(If no, skip to 34)* Please say yes or no to each one:

Ma Ei, kahrepe? (ma soh, lusla 34) Ei de soh ong ehu ireh kan me sansal pah:

	Yes/Ei
a. Habitat for fish and other animals Wia wasahn kousoan ohng mwahmw oh audepen sehd teikan	100%
b. Provide construction material Wia dipwisou en keirdahn pai en wehi (ihmw/ahl)	79%
c. My family's health and wealth is linked to the health of our marine habitat Mour mwahu oh pai en peneinei en pil peiante mour mwahu en wasahn kousoan kan nan paliesed	93%
d. I do not think corals are important/ Udahn I sohte kamehlele me rahr kesempwal	16%

32. Do you know any traditional conservation practices still used today in Metipw?

Komw mwahngih de patohwan ma mie pein atail wiepen kasohtik kepikipik kan wie doadoahk nan kousoan metipw rahn pwukat?
   a. Yes/Ei   26%
   b. No/Soh   61%
   c. Unsure/sohte wehwehki   13%

33. If yes, please describe:

Ma Ei, komw kak kaweid:

Traditional Conservation Practices	Number of Respondents
Local Plates made from Coconut	1
Only catch large fish	3
Conserve Breadfruit and Taro	1
sharing of catch between community	1
Traditional Farming	3
Subsistence Fishing	1
Fish less for better future	1
Traditional gathering	1
Sustainable fishery	1

Great, we are almost done, just a few more questions.

Kalahngan, kerenieng kita pahn kaimwsekla sapwelimata kalelapakat

34. Are you familiar with the term climate change *(If no, skip next question)*

    Komw mwahngih lepin mahsen, kieweklahn nan wehwe?

    a. Yes- Ei   63%

    b. No- Soh   29%

    c. Unsure- Sohte nohn wehwehki 8%

35. How did you learn about climate change?

    Komw mwahngih sang ia lepin mahsen kieweklahn nan wehwe?

	Yes- Ei
a. Community Consultations/ Kaweid sang tohn kouson	45%
b. Radio Announcements/Pakair	43%
c. Printed Materials Doaropweh kan me langada pwe en kak wia mehn kaweid	36%
d. School	42%
e. Internet/Sang nan computer kan	22%
f. Other/ Mehn kaweid tohrohr (church, personal observations)	20%

36. Do you think that climate change affects your livelihood *(If no, skip next question)*?

    Komw pehm me kieweklahn nan wehwe pahn wia keremwpw de kahpwal ohng sapwelimomwi ieias?

    a. Yes- Ei   91%

    b. No- Soh   3%

    c. Unsure- Sohte nohn wehweki   6%

If so, how does climate change affect your livelihood? Please say yes or no for each one.
Ma Ei, iamwomwen ah pahn wia kerempw de kahpwal ohng sapwelimomwi ieias? Mahsanih Ei de Soh ohng ireh kan me sansal pah.

	Yes- Ei
a. Agriculture/ Wie sapwasapw	93%
b. Water Supply/ Pihl	93%
c. Source of Income/ Elen sent	79%
d. Weather/Mwekid en nan wehwe	89%
e. Food Supply/Mehn koaroson kan	93%
f. Recreational Activities/Wasahn mwemweit kan	81%
g. Fishing Activities/Wiepen laid kan	86%
h. Not sure/Sohte nohn wehwehki	16%

37. Which of the following climate events has your household experienced in the past 10 years? Please say Yes or No for each one (Column w/ frequency and not sure)
Mehnia rehn iren kahpwal kan pah me komw pepehm me lelehngehr sapwelimomwi peneinei nan erein sounpar eseik patolahr? Masanih Ei de Soh ohng ehu ehu iren kahpwal kan pah.

	No Soh	Yes Ei	Unsure Sohte nohn wehwehki	Frequency: How many times in past 10 years Pak depe e wiawi nan erein sounpar eisek patolahr
a. Tropical Storm/ Melmel	47%	49%	4%	Average: 2
b. Storm Surge/ Tumwenieng	17%	81%	3%	Average: 4
c. Sea level rise/Loaladahn sehd	52%	45%	3%	Average: 4
d. Coastal/beach erosion Peilahn pwehl	42%	54%	4%	Average: 6
e. Saltwater intrusion Keradahn sehd nan sapw	47%	46%	7%	Average: 4
f. Mud slide/ Engklahn pwehl	56%	40%	4%	Average: 2
g. Coral bleaching/Mehlahn rahr kan	36%	58%	5%	Average: 4
h. Hotter/cooler climate Ansou en karakar oh lemwlemwur	29%	68%	1%	Average: 6

38. Okay, you said your household has experienced (*repeat the ones they said yes to*). Have you or your family made any changes to cope with these impacts?
Komw mahsanih me mie iren kahpwal me komwi oh sapwelimomwi peneinei sohpai nan erein sounpar eisek patolahr, mie sapwelimamwail koasoandi en apwalih iren kahpwal kan?

Of those who answered yes:

Changes Made	Number of Respondents
Conserve water	4
Farm taro and plant trees to hold soil and water	2
Improve farming methods	1
Water plants	1

Before we finish, I am going to ask you three more questions about a proposed development:
Mwohn ata pahn ketin kaimwasakala sapwelimata mahmasen pene, ah I men patohwan kaimwsakihla kalelapak siluh…….

39. Have you heard about these plans to develop a casino and hotel nearby to here?

Komw mwahngih de koaronge me mie koamwomwada ehu me pidahda kokoudahn CASINO ehu me karanih kousoan wet?

    d.   Yes- Ei   91%

    e.   No- Soh   9%

    f.   Unsure- Sohte nohn wehwehki   0Would you be in favor of the casino?

Komw iang utung kokoudahn CASINO wet?

    g.   Yes- Ei   21%

    h.   No- Soh   77%

    i.   Unsure- Sohte nohn wehweki   2%

40. How would building a casino impact you? Please say yes or no to each one:

Iamwomwen kokoudahn CASINO wet ah pahn wia keremwpw de kahpwal ohng komwi? Masanih Ei de Soh ohng ireh kan me sansal pah.

	Yes- Ei
Provide more jobs Elen doadoahk tohtohla	60%
Agriculture (less land for farming) Sahpw oh wasahn wie sapwasapw pahn tikitikla	84%
Potential threat to Pohnpei culture Keremwpw ohng sapwelimatail tiahk	89%
Make you think about moving to another place Pahn elehieng komwi en kak kosoulahng ekis wasa	65%

Appendix B: Focus Group and Key Informant Interview Notes
Group 1:

Focus Group: Youth Group
Key Informant Interview: Metipw Chief, Yuper Soram
How are your MPA impacting your community?
- Our Sanctuary is just two years and six months and now we already see improvements in fish stock replenishment and coral density.
- Improve collaboration between the two communities
  -enforcement cleaning activities

Are there any threats to your MPA?
- Development on the neighboring Islands

What should be done to address these threats?
- Enforcement

Is there any management plan in place?
- No

What could the management plan help with?
- Provide guidelines
- Decisions are made according to principles.
- Financing assistance will be easier.

Do you aware of the impacts of climate change if yes and what are the impacts?
- Shifted harvesting season
- Frequent high tides
- Weather patterns unpredictable
- Increase Sedimentation

Are you familiar with any traditional fishing method?
- Coconut palm torch
- Subsistence harvesting of clams and sea cucumbers

What are your madmadau towards large scale projects (casino)?
- Positive-Job opportunities, land lease, exchange of local products between locals and foreigners.
- Negative- sedimentation and relocation.

Group 2
Key Informant Interview: Women's Group Representative

1. How long have you been staying in Dolapwail?
   - 25 years
2. How much do you know about the importance of our coastal and marine resources?
   - Protects our island from big waves and storms

- People depend on the coastal and marine resources
3. What are your thoughts about the large-scale development? (CASINO)
    - Advantages: will contribute a lot to our economic system
    - Disadvantages: will affect the marine ecosystem
4. What are the impacts of climate change that your communities have been facing how will you cope with the impacts?
    - Drought- affecting their resources: Discontinue deforestation
    - Extreme low tide- kills the corals, which leads to less fish: community should support the MPA
5. What are the threats you notice in the Mangrove and Marine ecosystem?
    - Waste
    - Outhouses
    - Pigpens

Key Informant Interview: Elder Fisherman

1. How long have you been staying in Metipw?
    - 59 years
    Fishing methods:
    Before: there were more fish, since then the number of fish decreases
    a. The reasons
        i. No nets
        ii. More fishing methods
        iii. 1 inch nets with 6 or 7lbs
            (Kill more fish)

2. To understand the importance of mangroves (community)
    a. Before, there were no laws regarding the mangroves
    b. Then, people didn't have access for the mangrove trees
    c. Mangrove trees are important to people
        i. Firewood
        ii. Charcoal (uhmw)
3. What are your thoughts about the big scale development?
    a. Suggestion: hotel is better than the casino
4. What are your thoughts on the marine protected area?
    a. increase in fish population
    b. fishers tend to buy a big amount of gasoline to go fish at a far place
5. Are there any conflicts between the two villages (metipw and dolapwail) when the MPA was established?
    a. some of the villagers disagree about the MPA and some are disagree

Group 3:
Key Informant Interview: Judge (Casino and Traditional Practices)
    1. What are the impacts of having the casino?
        • Recently there hasn't been any impact but there will be once the project will start.

    Assumption of Impacts
    ➢ Negative Impacts

- More visitors/tourists less water
- Removable of fertile soil will affect the crops
- Soil erosion
- Swamp taro effected
- Kang Kong vegetables effected
➢ Positive impacts
  - More tourist more money
2. On a scale of 1-10, how would you rate the community's like for having casino?
   - 7 out of 10 don't like the casino
3. What do people think of the casino?
   - Most people think that the casino will not be good for the community
4. What are some traditional conservation practices used by community?
   - Reserved Breadfruit (MAHR)
   - Fish Spawning time-selected people to go out fishing
   - Fish for food consuming only (not for selling)
5. How is municipal MPA ordinance?
   - NO MUNICIPAL MPA ORDINANCE
6. Are the people from the community obeying the MPA?
   - YES the community obeyed the MPA but some people still poaching inside the MPA

Key Informant Interview: Chief (Climate Change)
1. What climate change impacts have you seen?
   - No breadfruit season this season
   - Elnino (lack of water- drought)
   - Sea level change/ changing tide
2. Are there any community contributions to the cause of climate change? Examples
   - Yes
➢ Burning plastics, tires, foams, deforestation, cutting down mangrove forest contributes to the destruction of the Green House Ozone causing warmer from sunlight.
3. Is the community aware of climate change?
   - About a year ago, there was a climate change awareness/outreach came to the village so now people are aware, before the community didn't know.
4. What are some adaptation measures that the community is already using or might use?
   - Reducing deforestation while replanting trees
   - Rehabilitation of mangrove forest
   - Traditional farming practices
   - Oppose shoreline dredging

Appendix C: Nan Wap Marine Protected Area

Nanwap Marine Protected Area

0.5 Miles

July 2011

Appendix D: Metipw Household Map