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# Napoleon wrasse mapping for resource stock enhancement: The case of Mantatao Island, Bohol, Philippines

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## Abstract

Napoleon wrasse is one of the most important fish that live in the reef that has given much attention due to its alarming population status. This study aims to assess the fisherfolks awareness and fish catch incidence of the Napoleon wrasse in Mantatao Island, Calape, Bohol. Descriptive survey method was used with the aid of a self-made questionnaire from Southeast Asian Fisheries Development Center- Aquaculture Department (SEAFDEC-AQD). This was validated through personal interviews. Thirty percent from the total household number of the island was served as the sample. This was randomly selected. Data were analyzed using simple mean, frequency and percentages. Results showed that fishing is the primary source of income. Majority go to sea daily at night and a few in day time spending only for 3 to 4 hours. Mostly they are using spear fishing with compressor, few were using fish traps and hook and line. Common fish catch is 2-10 kilograms daily are reef fish associate. The fish has other local names including "*mameng*", "*ipos-ipos*" and "*taongan*". It is sold ranging from 80-150 pesos per kilogram. Identified people's organization of the island helped a lot in the strict implementation of resource conservation in which Mantatao is very rich in natural fishery resources.

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**Introduction**

Humphead wrasse is commonly known as "Mameng" or "Napoleon wrasse" *Cheilinusundulatus*. This fish is the largest living member of the family *labridae*, wherein napoleon wrasse in known to survive for at least 30 years and taking around 5 to 7 years to reach sexual maturity. It is considered as an endangered fish, that numerous cases poaching illegal trading of this fish have been documented specially in Malaysia, Indonesia and Philippines. The population densities of humphead wrasse are alarmingly low due to over-fishing, over-exploitation and the effect of destructive and unsustainable fishing practices of the greedy fishermen who use illegal fishing such as sodium cyanide and blast fishing which are still rampant in some part of the region. Hence, it resulted in the degradation of coral reefs ecosystem which affects their survivability. Moreover, most of such illegal actions go undocumented (Pet-Soede, 1999: Daw, 2002).

Determining the catch of humphead wrasse is the major concern in order to know if the fisherman caught it according to legal size requirements for trade in the legal market, thereby, people will know if the fisherman abides the laws that prohibit on catching such fish. This fish is long-lived and naturally uncommon, thus has low rates of replacement and therefore be particularly vulnerable to fishing pressure. Monitoring urgently of this fish is needed both of local capture and exports. In the absence of proper management and monitoring, it is impossible to know whether current capture rates are sustainable or to establish safe quotas for the capture of this vulnerable fish. Aside from that, Napoleon wrasse is also expensive and has a high economic value. In accordance with the International Union for Conservation of Nature (IUCN), this fish needs protection because it is considered as endangered. Therefore, if there are significant exports and no effective controls, fish numbers have declined substantially within a decade or less and exploitation rates are expected to continue, or more likely, intensify.

There were already studies about Napoleon wrasse in the Philippines and in some countries. It was found out that this fish is difficult to capture since it cannot withstand anything other than light fishing pressure that was concluded by the United Nation's Food and Agriculture Organization (Gillett, 2010). Accordingly, there is no population or abundance index, globally or nationally, for this fish. Because of this information, the government starts to analyze the laws and regulation on the trade of Napoleon wrasse to recommend appropriate legal and policy changes both at domestic and regional level. For now, the conservation of this fish generally takes the form of export bands and size limits in Southeast Asia.

The conservation of the humphead wrasse in Southeast Asia generally takes the form of export bans and size limits. Napoleon wrasse is covered in Philippine law and therefore should not be traded at all. Whether or not napoleon wrasse is illegally exported from the Philippines would be difficult to say. The government has no official statement confirming or denying to existence of Napoleon wrasse smuggling in the country (Perez, 2013).

The Bureau of Fisheries and Aquatic Resources (BFAR) no longer encourage volunteers for the program, which allows civilian to help the government enforce fisheries and marine protection laws in municipal waters. BFAR Director Asis Perez told the media practitioners attending the Visayas Wide Environmental Media Conference last October 7, 2013 in Ilo- ilo City that the fisheries bureau intends to gradually phase out BantayDagat program in which the BantayDagat were tasked to fill the lack of law enforcers, but BFAR has started to improve its capabilities. BFAR will have 27 new multi mission vessels, including patrol boats, this year to strengthen its law enforcer program. The conference aim to layout areas for cooperation between the media and BFAR to raise public awareness on the importance of coastal and marine resources conservation (Pinili, 2013).

World Wildlife Fund (WWF) collaborated with different partners in Malaysia was generated to purchase humphead wrasses that were originally intended for sale. The wrasses were then released into protected coral reefs. More than 860 humphead wrasses have been released since 2010. Malaysia also

has an export quota as of 2010 to allow the sale of any available stock (WWF, 2013).

Population assessment of large, wide-raging tropical reef fishes, like the Napoleon wrasse is very difficult (Gillett, 2010). Presently, Malaysia supplies much of the regions demand for the fish. According to a recent report by Tang Cheng Li in Malaysia's The Star newspaper, the export quota for the state of Sabah, imposed by the Sabah Fisheries Department, is set at more than 45,000 fish around five times the annual quota set by the whole of Indonesia that officially harvests it's wrasse from only specified sites. Therefore, Tan suggest to often smuggling in from Indonesia and Philippines where the export quotas are set much lower. Fishermen are apparently even plundering marine parks such as Tubbataha, off Palawan and Bunaken in North Sulaweri in which seizures of live wrasse were reported from both in 2006.

A major challenge which substantially undermines conservation efforts for the Napoleon wrasse would be illegal, unreported and unregulated trade (Sandovy, 2010; Poh and Fanning, 2012). A lot of fishing activities are done illegally by humans like using of toxic chemicals, blast fishing, use of inappropriate fishing gears, over-fishing, destruction of reefs and even the illegal fishing of the trespassers from the foreign countries.In addition, there have been unmonitored trade and major discrepancies in international trade records of this species. According to records by Hong Kong custom, large quantities of up to 18 tons of humphead wrasses were imported from Singapore in 2005 and 2006. However, according to the Agri-Food and Veterinary Authority of Singapore, no permits for the export of humphead wrasse to Hong Kong were issued. Prohibitions of destructive fishing are also being ignored in some countries. In Indonesia, for example, cyanide in being used to capture the humphead wrasse and those that do not satisfy the size requirement for trade in the legal market are being exported illegally (Sadovy, 2010).

The prevalence of illegal trade is due in part to difficulties with monitoring imports by sea (CITES, 2010; Poh& Fanning, 2012). The major importer of this species is Hong Kong. The high frequency of live fish landings makes it challenging to check every shipment which conceal humphead wrasse within boats or include the fish in mixed fish shipments often go undetected (CITES, 2010).

Permits are only awarded in Indonesia to researchers who capture the humphead wrasse for scientific or mariculture development purposes and also to artisanal fishers. The approved weights are 1 to 3kg. Fishes which are not within the approved weights are required to be released back to nature or used for mariculture. The approved fishing methods are hook and line, fish trap and gill net. The Indonesian CITES Scientific Authority has implemented an export quota of 8,000 humphead wrasses per year (Russell, 2004).

Furthermore, the public should be cautioned against consuming humphead wrasse as it is likely to contain ciguatoxins and cause ciguatera fish poisoning when consumed in large amounts (Cheng & Chung, 2004).

The humpead wrasse is biologically vulnerable to fishing pressures and other forms of disturbance due to its natural history. Its longevity and late sexual maturation are commonly associated with low natural rates of replacements and limited ability to endure fishing pressure. In addition, the protogynous nature of the humphead wrasse makes it susceptible to size-selective (and hence, sex-selective) fishing, resulting in a skewed sex ratio, thus reducing reproductive capacity. Furthermore, their aggregation spawning habit makes them an easy target as aggregated adults are readily located. Adult humphead wrasses are also vulnerable to night-fishing because they can be easily captured from caves in which they rest. Moreover, the population densities of the humphead wrasse are naturally low, hence population are highly impacted by even levels of fishing pressure (Sadovy *et al*., 2003).

In the Philippines, exports of this fish are prohibited throughout the country. Until recently, the Napoleon wrasse could not be exported from Palawan with an exemption for the taking of small fish for mariculture. It is protected under section 97 of Republic Act of 8550 of the Fisheries Code of 1998. Mere possession of the

fish can net a Php 120, 000 fine and up to 20 years of jail time (www.bfar.da.gov.ph). Generally, this study aimed to determine the awareness of the fisher folks and fish catch incidence on Napoleon wrasse in Mantatao Island, Calape, Bohol as basis for resource stock enhancement with the following indices measured; demographic profile, common fishing practices used and degree of fish catch incidence.

## Materials and methods

*Research Design*

The study used a descriptive-survey method for it would focus on the awareness of the fisherfolks and the fish catch incidence of Napoleon wrasse in Mantatao Island, Calape, Bohol. The researcher's provided a survey questionnaire and personal interview was conducted to the fisherfolks of the island (SEAFDEC, 2013). Thirty percent from the total population was served as the sample and were randomly selected. Validation of the results was done through the follow up interview conducted. All the responses of the respondents were held confidential to protect integrity. All the data was organized and analyzed for interpretation.

*Research Environment*

The location of this study was in Mantatao Island, Calape, Bohol. Mantatao Island is a 30-minute ride by pump boat from the mainland of Calape. It is famous for its sandy white beaches. According to the first settlers of the island, it was full of bushes without inhabitants. Many people were attracted to its broad stretches of white sand, especially during low tide.

*Research Respondents*

Fisher folks in Mantatao Island were randomly selected and served as the main respondents of this research with 197 total number of households, 59 total number of samples.

*Research Materials*

Survey questionnaire was provided by the Southeast Asian Fisheries Development Center- Aquaculture Department (SEAFDEC, 2013) used in the study. It composed of two sets, first is the prevalence of the fish in that particular area and socio-economic survey of the fisherfolks. Personal interview was conducted to validate the information gathered.

*Research Procedure*

Preliminary survey was conducted in Mantatao Island with the permission of the barangay officials. A survey of the location was done in which guided question was administered and personal interview was conducted to the 59 randomly selected fisher folks or 30% of the total household. The assistance to the barangay officials was the first priority during the conduct of the survey. In monitoring the fish catch incidence, tally sheet was prepared to input the data needed in the study.

## Results and discussion

*Demographic profile of the fisher folks*

The Philippines is widely known for its rich aquatic resources and has great potentials for economic recovery and growth through the development of its fishing industry. However, due to neglect and widespread destruction, abuse of these resources, the fishing industry contributes a measly 5-6% of the Gross National Product (GNP). This accounts for the widespread poverty and poor living standards of about one (1) million fisher folks on the coastal villages and surrounding bodies of water (www.fao.org).

These include the household data, age and sex distribution of the population of the barangay. Table 2a shows the household data of the barangay. These include the number of households in the barangay, average number of children in the family and average family size. The highest educational attainment of the family members (elementary, high school, college) is also reflected Table 1. The latest barangay count reveals that there were 197 household in the island. The average number of children in the family was four (4). The estimated family size was six (6). Elementary level was predominant educational attainment for both the mother and father while children were mostly high school level.

The population age and sex distribution is shown in Table 2b. The island population was 1,002 as of the

latest survey. There were 582 males and 420 females. The age distribution revealed that 27 percent of the populations were children with age bracket 0 to 10 years old, while 28 percent were youth with ages 11 to 19. Adults comprised the age bracket of 20 to 59 years old was 35 percent of the total population. And the remaining 10 percent was composed of the ages 60 and above, were considered elderly. Majority of the island residents were adult. There were more female children than male and more male adults than female.

**Table 2a.** Highest Educational Attainment of the Household Members.

| Educational Attainment | Father Percentage (%) | Mother Percentage (%) | Children Percentage (%) |
|---|---|---|---|
| No formal education | 3.5 | 3.22 | 6.21 |
| Some years in elementary | 47.37 | 40.32 | 13 |
| Elementary graduate | 22.81 | 20.97 | 14.13 |
| Some years in high school | 12.28 | 11.29 | 14.69 |
| High school graduate | 10.53 | 20.97 | 28.81 |
| Some years in college | - | - | 8.48 |
| College graduate | 3.51 | 3.23 | 5.08 |
| Not yet studying (too young) | - | - | 9.60 |
| Total | 100 | 100 | 100 |

Source: Key Informants

**Table 2b.** Age and Sex Distribution of the Population.

| Age Bracket | Community Age | Island Population | | | Percentage (%) |
|---|---|---|---|---|---|
| | | Male | Female | Frequency(f) | |
| 0-10 | Children | 114 | 156 | 270 | 27 |
| 11-19 | Youth | 183 | 98 | 281 | 28 |
| 20-59 | Adults | 234 | 117 | 351 | 35 |
| 60& above | Elderly | 51 | 49 | 100 | 10 |
| Total | | 582 | 420 | 1,002 | 100 |

Source: Key Informants

*Economic Profile*

The economic infrastructure background of the key informants focuses on aspects such as the type of gear used as the type of fishers and fishing crafts used in fishing, the average expenditures per day and organizational structure. The fishers and fishing crafts used by both full-time or part-time fisher for fishing were boats which were classified as owned or rented (Table 3a). The data indicate that majority or 65 percent of the fisherfolk owned a motorized boat while only 35 percent owned a non-motorized one.

However, some fisherfolk rented either non-motorized or motorized fishing boat. It shows that those fisher folks who rented preferred motorized rather than non-motorized boats. Motorized fishing boats either rented or owned were preferred due to its speed and convenience in fishing and transporting commodities from the island to the town. Full-time fishers were majority in the island. The 85 percent of the total household heads were fishermen by occupation. This result indicates that the main source of income was fishing.

**Table 3a.** Fishers and Fishing Crafts used by Fishermen.

| Fishers and Fishing Crafts | Estimated Percentage (%) |
|---|---|
| Boats (Owned) | |
| • Motorized | 65 |
| • Non-motorized | 53 |
| Total | 100 |
| Boats (Rented) | |
| • Motorized | 80 |
| • Non-motorized | 20 |
| TOTAL | 100 |
| Fishers | |
| • Full time | 85 |
| • Part time | 15 |
| Total | 100 |

Source: Key Informants

The average expenditures per year were identified by the key informants. Majority or 60 percent revealed that they spent as average of 35,000 pesos for food per year. Four (4) key informants said that spent 20,000 pesos, eight (8) said that they spent 25,000 pesos and two (2) spent 40,000 to 45,000 pesos per year. Data show that although they got an average income of 335 pesos for fishing per day, they also spent higher than their income in order to live. The key informants revealed that the average amount spent for health was below 1,000 pesos. This corresponds to the minor illnesses and disease being noted in the area. Eighty percent confirms that they spent as average amount of 1,000 pesos for education, 15 percent proves that they spent 10,000 pesos and 5 percent spent an average of 15,000 pesos.

Majority of the key informants explained that they only spent 1,000 pesos for education because most or their children did not pursue high school and college. Expenditures for electricity, clothing and transportation were also noted. Ninety-five percent reveals that they spent an average of 1,500 pesos per year. Most of the residents were still using kerosene. Majority of the key informants show that they only spent 1,000 pesos for clothing and transportation. Housing materials expenditures has average expense of 2,000 pesos per year.

Data corresponds to the type of housing materials used and majority of the house was made up of light materials. The average amount spent for appliances was 5,000 pesos due to the non-continuous supply of electricity. Power was only supplied from 6:00 pm to 11:00 pm. Moreover, majority or 80 percent said that they spent as average of 30,000 pesos per year for the fishing expenditures. The amount of expenditure used in fishing also depends on the kind of fishing gear used by the fisher folks.

The occupational structure of the community residents is presented in Table 3c. The major occupations in the community were fishermen, fish vendor, gleaners, sea cucumber gatherer, seaweed farmer, laborers and barangay officials.

Majority of the estimated percentage of households were fishermen which is 50.85 percent of the total population. The estimated average monthly income was taken from the view of the key informants.

Fishermen got an average monthly income of 5,000, fish vendor had 2000, gleaner had 3000, sea cucumber gatherer had 3000, seaweed production had 3000, laborer had 2000 and barangay officials had 2,000.

Most of the fishermen were male, and most of the fish vendors were female but both male and female worked as gleaners, sea cucumber gatherers, seaweed farming, laborers as well as barangay officials.

**Table 3b.** Occupational Structure of the Household Members.

| Major Occupations in the Community | Household members (%) | Estimated Monthly Income from Such Occupation | Responsible Gender |
|---|---|---|---|
| 1. Fisherman | 50.85 | 5,000 | Male |
| 2. Fish Vendor | 3.39 | 2,000 | Female |
| 3. Gleaner | 16.95 | 3,000 | Female/Male |
| 4. Sea Cucumber Gatherer | 10.17 | 3,000 | Female/Male |
| 5. Seaweed Farming | 6.78 | 3,000 | Female/Male |
| 6. Laborer | 6.78 | 5,000 | Female/Male |
| 7. Barangay Officials | 5.08 | 2,000 | Female/Male |
| Total | 100 | | |

Source: Key Informants

*Fishing practices and operation in Mantatao Island*

Table 4a reveals that among of the seven (7) fishing gears used by the fisher folks, 59.5 percent of the fishermen used spear fishing with compressor, gill/trammel net 5.8 percent, hook and line 2.9 percent, gleaning 14.5 percent, fish pot 14.5 percent, fish corral 1.4 percent and subid 1.4 percent. Results show that spear fishing has been found out to be the least expensive and was the most commonly practiced by the fisher folks. This also has been found out to be the least expensive and was the most commonly practiced by the fisher folks. Aside from the common fishes caught, majority of the key informants identified the napoleon wrasse as “mameng” and can be found in the island; usually they found it swimming alone in the seawaters at approximate of 15 to 20 ft. depth, an average of 10 to 18 kilograms per piece. Usually this can be seen during night time using spear fishing with compressor. Many fish traders came from the mainland and bought the fish in bulk ranging from 200-250 per kilo. Some of them

sell at the local and nearby market. Generally, napoleon wrasse was identified and caught in the island but not at all season, have key informants indicated that this species is nearly depleting and seasonal.

**Table 4a.** Common Fishes Caught and Fishing Gear Used.

| Fishing Gears | Fish Caught | | | Percentage (%) |
|---|---|---|---|---|
| | Local Name | English Name | Family Name | |
| *Bubo* | Katambak | Emperor's bream | Lethrinidae | |
| (Fish Pot) | Mol-mol | Parrot fish | Scaridae | 14.5 |
| | Suno | Grouper | Serranidae | |
| | Timbungan | Goat fish | Mullidae | |
| *Bunsod* | Danggit | Rabbit fish | Siganidae | |
| (Fish Corral) | Mol-mol | Parrot fish | Scaridae | |
| | Mo-ong | Sergeant major | Pomacentridae | 1.4 |
| | Nokos | Squid | Mollusks | |
| | Suno | Silver side | Atherinidea | |
| Trammel/ Gill Net | Bawo | Garfish/Needle fish | Belonidae | |
| | Bolinao | Anchovy | Engraulidae | |
| | Danggit | Rabbit fish | Siganidae | |
| | Katambak | Emperor's bream | Lethrinidae | |
| | Maya-maya | Snapper | Lutjanidae | 5.8 |
| | Sasa | Halfbeak | Hemiramphidea | |
| | Sulid | Fusilier | Caesionidae | |
| | Suno | Grouper | Serranidae | |
| | Timbungan | Goat fish | Mullidae | |
| *Pana* | Danggit | Rabbit fish | Mullidae | |
| (Spear Fishing) with | Katambak | Emperor's bream | Lethrinidae | |
| compressor | Lusod | Barracuda | Sphyraenidae | |
| | Mol-mol | Parrot fish | Scaridae | 59.5 |
| | Silay | Threadfin bream | Nemipteradae | |
| | Sulid | Grouper | Caesionidae | |
| | Suno | Fusilier | Serranidae | |
| | Timbungan | Goat fish | Mullidae | |
| *Panginhas* | Aninikad | Miter shell | Mitridae | |
| (Gleaning) | Bugatan | Venus shell | Veneridae | |
| | Lapas | Abalone | Haliotidae | 14.5 |
| | Litub | Bubble shell | Bullidae | |
| | Sinaw | Harp shell | Harpidae | |
| *Pasol* | Bilong-bilong | Moon fish | Menidae | |
| (Hook and Line) | Borot | Scad | Carangidae | 2.9 |
| | Sasa | Halfbeak | Hemiramphidae | |
| | Tulingan | Mackerel | Scombridae | |
| *Subid* | Tulingan | Mackerel | Scombridae | 1.4 |
| TOTAL | | | | 100 |

Source: Key Informants

Moreover, common fish caught were identified with the specific type of fishing gear used and with its corresponding local, English and family name. Fish caught for hook and line were moonfish, scads, mackerel and halfbeak. They belong to family Menidae, Carangidae, *Scombridae* and *Hemiramphidae*, respectively. Fish caught using fish corral, spear fishing and bubo was quite similar. These include parrot fish (*Scaridae*), rabbit fish (*Siganidae*), goat fish (*Mullidae*), emperors bream (*Lethrinidae*) and grouper (*Serranidae*). Result shows that there types of fishing gear concentrate in the same area. Abalone, harp shell, venus shell, bubble shell and miter shell were common shells gathered by gleaning.

The total global catch of this species is estimated to be no more than 400 metric ton annually (Sadovy *et al.* 2003), yet despite this low volume, severe declines are noted in all places for which data are available and occurring very soon after fishing begins, reducing numbers by more than 50% (both fishery-dependent and fishery-independent) and where management is not effective. Much of the trade is now in juvenile fish which is the preferred market size for live fish. It is severely reduced anywhere that it is fished unless it is effectively managed, there is no export trade or night spear fishing, and it is not included in marine protected areas. It is a species that appears to be highly conservation-dependent. There is no regional fishery management authority for this species and FAO does not collect data on it (www.iucnredlist.com).

Figure 4shows the percentage of the awareness of the total household members regarding about the prohibition of napoleon wrasse fishing. The result shows that majority of the household members already knew about the existing prohibition of the napoleon wrasse fishing which was 84 percent of the total household members. The other 13 percent said that they don't have any idea about the prohibition while the remaining 3 percent said that they were not sure. Through personal interview, we found out that the level of their awareness with the existing napoleon wrasse fishing prohibition doesn't affect their fishing operation. Majority of the respondents said that they could not stop catching such fish because of their economic need.

*Fish Catch Density in Mantatao Island*

The Philippines ranked eleventh among the top fish producing countries in the world in 2003, with production of 2.63 million tons of fish, crustaceans, mollusks and aquatic plants (including seaweed).As an archipelagic state with over 2.2 million km² of highly productive seas, the Philippines is fortunate to have vast fishery resources at its disposal. However, all of the country's main fish species and marine organisms are showing signs of overfishing (www.fao.org). Table 5a presents the kind of fish caught and prevailing price per day. The following kinds of fish found were squid, parrotfish, fusilier, rabbit fish, mackerel grouper, barracuda, halfbeak, anchovy, emperor's bream, and goatfish. Among the 11 types of commonly fish caught, squid, halfbeak and parrotfish have the average catch of 5 kilograms per day. Prevailing price per kilogram greatly varies based on the phases of the moon and the availability of the fish gathered.

**Table 5a.** Common Fish Caught per Day and its Prevailing Price.

| Fish Caught | Catch per Day | Prevailing Price per kg | Amount (Php) |
|---|---|---|---|
| Halfbeak | 5 | 100 | 500 |
| Parrotfish | 5 | 70 | 350 |
| Squid | 5 | 180 | 900 |
| Fusilier | 4 | 80 | 320 |
| Goatfish | 3 | 90 | 270 |
| Rabbit fish | 3 | 70 | 210 |
| Emperor's bream | 2 | 100 | 200 |
| Mackerel | 2 | 150 | 300 |
| Anchovy | 1.5 | 100 | 150 |
| Barracuda | 1.5 | 90 | 135 |
| Grouper | 1.5 | 200 | 300 |

Source: Key Informants

*Fish Catch Incidence of Napoleon wrasse in Mantatao Island*

Table 4b shows the Frequency and Percentage of the fish catch incidence of Napoleon wrasse in Mantatao

Island. The result show that 26 or 44.1percent of the randomly selected fisher folk had a 0 or none fish catch incidence of Napoleon wrasse, 27 or 45.8 percent revealed that they caught once (1), 3 or 5.1 percent said that they caught it twice (2), 1 or 1.6 percent caught this specie thrice (3), and 2 or 3.4 percent caught it 4 times. Mostly, the fisher folk had caught the Napoleon wrasse in part of Mantatao Island only and some caught it in Cabilao, loon which is the Island near from their place. Some of the fisher folk sell the Napoleon wrasse at the local market and nearby market. The price where defend if it is alive or die but fresh. If it is alive they could sell it at approximate of 1000 to 2000 pesos per kilo but if it is died, they could only sell at around 100 to 120 pesos per kilo. Most of them used spear fishing with compressor in catching this kind of fish. It reveals that most of the Fisher folks caught it only ones and sold it in the local market and nearby market.

**Table 4b.** Fish Catch Incidence of Napoleon wrasse fishing.

| Number of Catch | Frequency (respondents) | Percentage |
|---|---|---|
| 0 | 26 | 44.1 |
| 1 | 27 | 45.8 |
| 2 | 3 | 5.1 |
| 3 | 1 | 1.6 |
| 4 | 2 | 3.4 |

Source: Key Informants

## Conclusion

The demographic profile of the residents gives an idea on the livelihood training for the community residents towards the conservation program for the island. Majority of the father and Mother were elementary level but some of their children were high school level. It shows that they don't have a choice but to engage fishing because they have a low chance of finding a more stable job. The expenditures of the household is much bigger than their income that's why most of them can't afford to give a better education to their children. They also had a sideline for their family to survive. Since majority of the fisherfolk's were owned a motorized boat, it was easier and less expense for them in fishing because they only pay a gasoline which was intended for fishing. The amount of expenditure used in fishing were depends on the kind of fishing gear used by the fisher folks. Full-time fishers were majority in the island and their primary source of income was fishing. Spear fishing with compressor has been found out to be the least expensive and was the most commonly practiced by the fisher folks. This also produces more catch, thus increases the fisher's income. Majority of the key informants identified the napoleon wrasse as "*mameng*" and was found and caught in the island but not at all season. Usually this can be seen during night time using spear fishing with compressor. The level of the awareness of the fisher folk's with the existing napoleon wrasse fishing prohibition were too high but it didn't affect their fishing operation. Majority of the respondents said that they could not stop catching such fish because of their economic need.

The density of catch per kilogram would vary based on the phases of the moon and the availability of the fish gathered. Among of the 11 types of commonly fish caught squid, halfbeak and parrotfish have the average catch of 5 kilograms per day. Until now the fish catch incidence of Napoleon wrasse were still rampant in Mantatao Island. Majority of them used spear fishing with compressor since Napoleon wrasse could be seen in too depth part of the sea.

## References

**Cheng CC, Chung CH.** 2004. Ciguatera fish poisoning: a challenge to emergency physicians. Hong Kong Journal of Emergency Medicine **11,** 173-177.Accessed on March 23, 2014.

**Daw T, Daim LJ, Ali MAB.** 2002. Preliminary assessment of the live reef fish trade in the Kudat region: Final technical report. World Wildlife Fund Malaysia, Kota Kinabalu. Accessed on March 23, 2014.

**Donaldson TJ, Sadovy Y.** 2001. Threatened fishes of the word: *Cheilinus undulates* Ruppel, 1935 (Labridae). Environmental Biology of Fishes **62,** 428.Accessed on March 23, 2014.

**Dorenbosch M, Grol MGG, Nagelkerken I, van der Velde G.** 2006. Seagrass beds and mangroves as potential nurseries for the threatened Indo-Pacific humphead wrasse, *Cheilinus undulatus* and Caribbean rainbow parrotfish, *Scarus guacamaia*. Biological Conservation **129,** 277-282. Accessed on March 23, 2014.

**Gillett R.** 2010. Monitoring and Management of the Humphead wrasse, *Cheilinus undulatus*. FAO Fisheries and Aquaculture Circular No. 1048.

**Perez Asis.** 2013. Coral Triangle Initiative Activity Report: Live Reef Fish Trade Intergovernmental Forum. Bangkok, Thailand. Accessed on March **23,** 2014.

**Pet-Soede C, Cesar HSJ, Pet JS.** 1999. An economic analysis of blast fishing on Indonesian coral reefs. Environmental Conservation **26,** 83-93. Accessed on March 23, 2014.

**Pinili A. Liberty.** 2013. Fisherfolk Awareness. From http://www.sunstar.com.ph/cebu/local-news/2013/10/08/fisherfolks-should-risk-life-guard-sea-307398.Accessed on March 23, 2014.

**Poh T, Fanning LM.** 2012. Tackling illegal, unregulated and unreported trade towards Humphead wrasse (*Cheilinus undulatus*) recovery in Sabah, Malaysia. Marine Policy, **36,** 696- 702.From http://blog.nus.edu.sg/lsm4626species/2013/04/16/humphead-wrasse-cheilinus-undulatus/.Accessed on March 23, 2014.

**Sadovy Y.** 2010. Humphead wrasse and illegal, unreported and unregulated fishing. SPC Live Reef Fish Information Bulletin, **19,** 19- 20.From http://blog.nus.edu.sg/lsm4626species/2013/04/16/humphead-wrasse-cheilinus-undulatus/.Accessed on March 23, 2014.

**Sadovy Y, Kulbicki M, Labrosse P, Letourneur Y, Lokani P, Donalson TJ.** 2003. The Humphead wrasse, *Cheilinus unddulatus*: synopsis of a threatened and poorly known giant coral reef fish. Review in Fish Biology and Fisheries **13,** 327- 364. Accessed on March 23, 2014.

**The Convention of International Trade of Endangered Species (CITES).** 2010. Humphead wrasse, additional management measured needed to combat IUU fishing. Fifteen meeting of the Conference of the Parties. From http://www.cites.org/eng/cpo/15/doc/E15-51.pdf.Accessed on March 23, 2014.