PSU Journal of Natural and Allied Sciences
Vol. 1 No.1, pp. 23-31, December 2017

Resource Assessment of Tambac Bay in Western Pangasinan, Philippines

Sotero M. Aban, Armando C. Garcia,
Richmel A. Mercado and Michael M. Ferrer
Pangasinan State University, Binmaley Campus
Binmaley, Pangasinan

Email: sotero_620@yahoo.com

Abstract **—Tambac Bay is a rich fishing ground for fisherfolks from the coastal areas of Alaminos City, Bani and Anda, Pangasinan. Its coastal and fishery resources need to be conserved and managed for sustainable fishing activities of the fisherfolks. Hence, this study was conducted to assess the status of the coastal and fisheries resources of Tambac Bay. A total of 507 fisherfolks from Alaminos City, Bani and Anda were surveyed to gather information on their socio-demographic and socio-economic profile, fishing experience, the types of fishing vessels and fishing gears used, and species composition, volume and price of fish catch. Results revealed that 98.42% of the fishers of Tambac Bay were males, married (90.73%), with an average number of household members of 4, having an age bracket ranging from 31 to 50 years of age (64.3%) and are members of the Roman Catholic Church (86.78%). Majority of the fisherfolks were high school graduates. About 52% of them have a mean monthly household income ranging from PhP 5,000.00 to 10,000.00 while about 48% of them have a monthly household income of less than PhP 5,000.00. About 72% of the fishers had fishing experience of 11 to 30 years while 23% had 1 to 10 years, and 5% had more than 30 years of fishing experience. Of the 507 fisherfolks, 65.68% of them had motorized boats while 34.32% had non-motorized boats. Fish corrals (90.93%) were the most commonly used fishing gear followed by gill nets, scissors nets, and lever nets. Twenty one species of marine fishes belonging to 12 families composed the catch of the fisherfolks in Tambac Bay. Siganids dominated the fish catch, followed by mullets, gobies, tilapia, spotted scats, and trevallies. The recorded average volume of catch was 7.69 kilograms. Market prices of the catch vary depending on the species and value of fish.**

Key words — Tambac Bay, fishing gears, marine fishes, fisheries resources

I. INTRODUCTION

Tambac Bay is a natural body of water shared by four coastal municipalities of Anda in the northeast, Bolinao in the northwest, Bani in the southwest, and Alaminos City in southeast. It is rich in fishery resources supporting the surrounding fisherfolks of the four municipalities but most specially the three coastal waters of Alaminos City, Bani and Anda, Pangasinan.

Tambac Bay is a rich fishing ground in western Pangasinan and its fisheries resources contributes a lot to income, employment and nutrition of the resident fishers. Yap et al. (1996) reported that the fishery industry contributes significantly to national food and economic security by generating jobs and livelihood to small entrepreneurs and producing a healthy population through good nutrition. Trudeau (2001) stated that fisheries and other similar natural resources are considered to be common property resources. They belong to all the citizens of the country in which they occur but they are managed by the government on behalf of all the citizens or society collectively.

White and Cruz-Trinidad (2000) stated that the Philippine coastal ecosystems are some of the most productive and biologically diverse in the world. It is so because the Philippines lies in a rich biogeographic area in which most higher taxa of shallow-water marine life reach the peak of their species diversity. Pauly (1990) and Pauly and Chua (1988), however, mentioned that fisheries of all kinds in the Philippines are near or have surpassed sustainable levels of catch. Most of their studies show that important fisheries are overfished and that the real return in terms of volume of catch and economic value is declining.

The coastal and fishery resources of Tambac Bay need to be conserved and managed for sustainable fishing activities of the fisherfolks. Hence, this study was conducted to assess the status of the coastal and

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)

fisheries resources of Tambac Bay. Specifically, the study aimed to determine the (1) socio-demographic profile of the respondents in terms of sex, age, civil status, number of household members, and religious affiliation; (2) socio-economic profile of the respondents in terms of their educational attainment, estimated monthly household income and other sources of income; (3) fishing experience to include the number of years in fishing, number of fishing hours and frequency of fishing operations; (4) types of fishing vessels used whether motorized and non-motorized; (5) types of fishing gears used by the fisherfolks in Tambac Bay; (6) composition of species caught; (7) volume of fish caught by individual fishermen per day; and (8) determine the selling price per kg of fish caught.

II. Materials and Methods

This study made use of descriptive-survey method of research which involved in analyzing and describing the gathered data on socio-demographic and socio economic characteristics of the respondents, fishing vessel and gear used, time of fishing, species composition, volume of fish caught, and the selling price per kilogram of fish caught. It was conducted in coastal areas of Alaminos City, Bani and Anda that surround Tambac Bay (Figure 1)

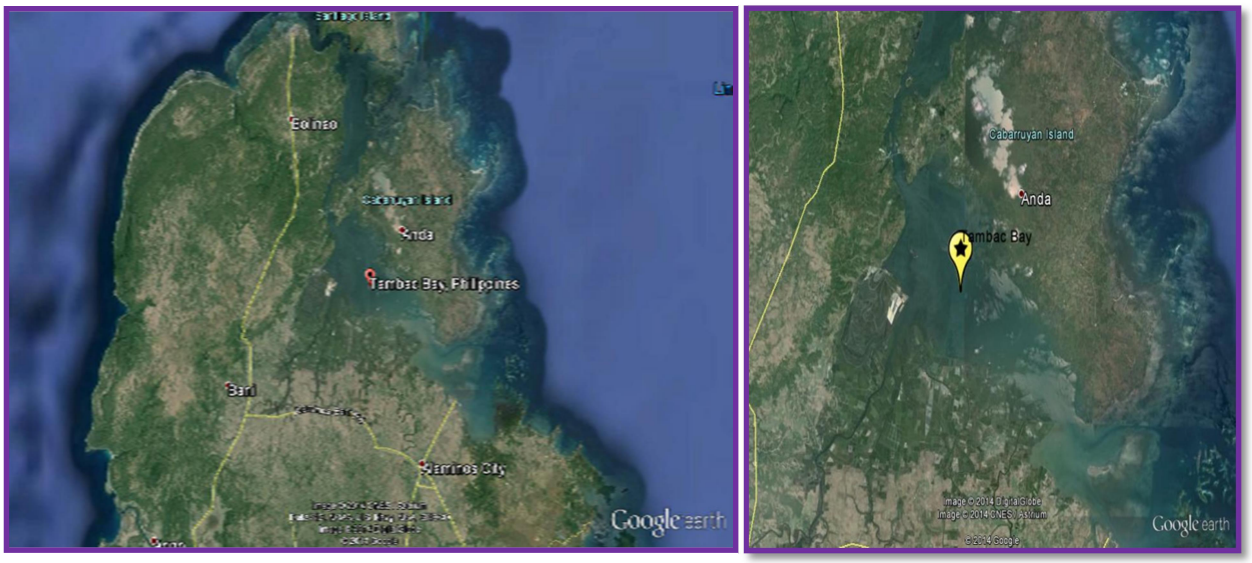

Figure 1. Map of Tambac Bay showing the coastal areas of Alaminos City, Anda and Bani in the province of Pangasinan.

The respondents of the study were municipal fisherfolks from the coastal city of Alaminos, and the coastal municipalities of Bani and Anda in Western Pangasinan. A total of 507 fisherfolks who were engaged directly in utilizing the fishery resources of Tambac Bay were surveyed using a questionnaire coupled with personal interview. The survey questionnaire was divided into seven major parts: (1) socio-demographic profile of the respondents, (2) socio-economic profile, (3) fishing experience, (4) fishing facilities owned, (5) species composition of the catch, (6) catch biomass of individual fisher per day, and (7) selling price per kilogram of fish. Marine fishes caught by the fisherfolks were identified using Fishbase 2004 (Froese and Pauly, 2017).

All responses of the respondents were tallied, tabulated and analyzed using descriptive statistics such as frequencies and percentages.

III. Results and Discussion

A. Socio-Demographic Profile

The fisherfolks of Tambac Bay were mostly males (98.42%) with ages ranging from 16 to 75 years of age where 77.91% of them belong to age bracket 31 to 55 years of age (Table 1). Most (90.73%) of the fisherfolks were married with an average household members of 4. The fisherfolks' religious affiliations were dominated by the Roman Catholics (86.78%).

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)

TABLE 1. SOCIO-DEMOGRAPHIC PROFILE OF RESPONDENTS

VARIABLES	Alaminos		Bani		Anda		Mean	
	f	%	f	%	f	%	f	%
Sex								
Male	197	100	89	91.75	213	100	**499**	**98.42**
Female	-	-	8	8.25	-	-	**8**	**1.58**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Age								
16-20	-	-	4	4.12	1	0.47	**5**	**0.99**
21-25	5	2.54	7	7.22	6	2.82	**18**	**3.55**
26-30	4	2.03	8	8.25	26	12.21	**38**	**7.50**
31-35	7	3.55	11	11.34	58	27.23	**76**	**14.99**
36-40	21	10.66	10	10.31	53	24.88	**84**	**16.57**
41-45	31	15.73	11	11.34	38	17.84	**80**	**15.78**
46-50	48	24.37	12	12.37	26	12.21	**86**	**16.96**
51-55	55	27.92	9	9.28	5	2.34	**69**	**13.61**
56-60	15	7.61	14	14.43	-	-	**29**	**5.72**
61-65	9	4.57	7	7.22	-	-	**16**	**3.15**
66-70	1	0.51	3	3.09	-	-	**4**	**0.79**
71-75	1	0.51	1	1.03	-	-	**2**	**0.39**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Civil Status								
Single	16	8.12	10	10.31	21	9.86	**47**	**9.27**
Married	181	91.88	87	89.69	192	90.14	**460**	**90.73**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
No. of Household Members								
1-3	87	44.16	53	54.64	136	63.85	**276**	**54.44**
4-6	97	49.24	42	43.30	69	32.39	**208**	**41.02**
7-9	12	6.09	2	2.06	8	3.76	**22**	**4.34**
10-12	1	0.51	-	-	-	-	**1**	**0.20**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Mean	**4**		**3**		**3**		**4**	
Religious Affiliation								
Roman Catholic	182	92.39	96	98.97	162	76.06	**440**	**86.78**
Iglesia ni Cristo	15	7.61	-	-	51	23.94	**66**	**13.02**
Jehovah's Witnesses	-	-	1	1.03	-	-	**1**	**0.20**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**

B. Socio-Economic Profile of Fisherfolks

The educational attainments of the fisherfolks in Tambac Bay were low because most of them were high school and elementary graduates (Table 2). There were only a few of them who finished their college education. An estimated monthly household of PhP 5,000.00 and below was reported by about 48% of the fisher-respondents while the other 52% had reported an estimated monthly household income of more than PhP 5,000.00 to ₱10,000.00. In order to increase their income, the fishers also engaged in rice farming, vending/selling, driving tricycle, managing a small-scale store, carpentry work, contract labor, hog and poultry raising, boat renting, and barber work as other sources of income. This result indicates that fisherfolks in Tambac Bay have low level of income. Garcia (2004) mentioned that household incomes of fisherfolks across the country were below the poverty line. The DENR et al. (2001) noted that low fish catch was the immediate reason for the declining incomes and declining quality of life of fisherfolks, which are aspects of poverty. They mentioned that illegal fishing in municipal waters, loss of fish nursery and overexploitation were the underlying causes of low fish catch.

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)

TABLE 2. SOCIO-ECONOMIC PROFILE CHARACTERISTICS OF FISHERFOLKS

Variables	Alaminos		Bani		Anda		MEAN	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Educational Attainment								
No Formal Education	11	5.58	-	-	-	-	**11**	**2.17**
Elementary Undergraduate	13	6.60	2	2.06	-	-	**15**	**2.96**
Elementary Graduate	57	28.93	12	12.37	14	6.57	**83**	**16.37**
High School Undergraduate	77	39.09	30	30.93	41	19.25	**148**	**29.19**
High School Graduate	33	16.75	53	54.64	130	61.03	**216**	**42.60**
College Undergraduate	4	2.03	-	-	26	12.21	**30**	**5.92**
College Graduate	2	1.02	-	-	2	0.94	**4**	**0.79**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Estimated Monthly Household Income in Pesos								
Below 1,000.00	2	1.02	14	14.43	-	-	**16**	**3.16**
1,001.00-2,000.00	6	3.04	10	10.31	-	-	**16**	**3.16**
2,001.00-3,000.00	41	20.81	16	16.50	10	4.69	**67**	**13.21**
3,001.00-4,000.00	35	17.77	9	9.28	15	7.04	**59**	**11.64**
4,001.00-5,000.00	58	29.44	3	3.09	26	12.21	**87**	**17.16**
5,001.00-6,000.00	46	23.35	14	14.43	40	18.78	**100**	**19.72**
6,001.00-7,000.00	7	3.55	1	1.03	46	21.60	**54**	**10.65**
7,001.00-8,000.00	-	-	14	14.43	37	17.37	**51**	**10.06**
8,001.00-9,000.00	2	1.02	14	14.43	35	16.43	**51**	**10.06**
9,001.00-10,000.00	-	-	2	2.06	4	1.88	**6**	**1.18**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Other Sources of income								
Rice Farming	99	50.25	46	47.42	109	51.17	**254**	**50.10**
Vending/Selling	38	19.29	1	1.03	33	15.49	**72**	**14.20**
Driving/Mechanic	13	6.60	9	9.28	10	4.69	**32**	**6.31**
Small-scale store	12	6.09	5	5.15	2	0.94	**19**	**3.75**
Carpentry work	-	-	1	1.03	10	4.69	**11**	**2.17**
Contract Labor	-	-	4	4.12	5	2.35	**9**	**1.78**
Hog Raising	6	3.04	1	1.03	2	0.94	**9**	**1.78**
Government Employee	2	1.02	-	-	-	-	**2**	**0.39**
Poultry Raising	2	1.02	-	-	2	0.94	**4**	**0.79**
Boat Renting	-	-	1	1.03	2	0.94	**3**	**0.59**
Barber	2	1.02	-	-	-	-	**2**	**0.39**
None	23	11.67	29	29.90	38	17.84	**90**	**17.75**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**

C. Fishing Experience of Fisherfolks

The fisherfolks of Tambac Bay had fishing experiences ranging from 1 year to 50 years (Table 3). Only 2.37% had fishing experience of 1-5 years whereas 80.47% had fishing experience of 6 year to 25 years. Those with fishing experiences of 26 to 50 years belong to 17.16% of the total respondents. It was observed that more than half of the fisherfolks (56.61%) spent fishing operation for 4-6 hours. The rest of the fisherfolks spent 1-3 hours of fishing operation (35.11%) or 7-9 hours (8.28%). It was noted that 84.02% of the fisherfolks had daily fishing operations while the others had fishing operations of once, twice or thrice a week.

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)

TABLE 3. NUMBER OF YEARS OF FISHING EXPERIENCE, NUMBER OF FISHING HOURS AND FREQUENCY OF FISHING OPERATION BY THE FISHERFOLKS OF TAMBAC BAY.

Number of Years in Fishing	Alaminos		Bani		Anda		Mean	
	f	%	f	%	f	%		
1-5	3	1.52	7	7.22	2	0.94	**12**	**2.37**
6-10	10	5.08	39	40.20	55	25.82	**104**	**20.51**
11-15	21	10.66	30	30.93	66	30.99	**117**	**23.08**
16-20	38	19.29	11	11.34	41	19.25	**90**	**17.75**
21-25	67	34.01	7	7.22	23	10.80	**97**	**19.13**
26-30	41	20.81	1	1.03	17	7.98	**59**	**11.64**
31-35	13	6.60	1	1.03	4	1.88	**18**	**3.55**
36-40	4	2.03	-	-	3	1.40	**7**	**1.38**
41-45	-	-	1	1.03	-	-	**1**	**0.20**
46-50	-	-	-	-	2	0.94	**2**	**0.39**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Mean Years	**21.91**		**12.23**		**15.91**		**17.54**	
Number of Fishing Hour								
1-3	61	30.97	9	9.28	108	50.71	**178**	**35.11**
4-6	125	63.45	88	90.72	74	34.74	**287**	**56.61**
7-9	11	5.58	-	-	31	14.55	**42**	**8.28**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Frequency of Fishing Operation								
daily	155	78.68	83	85.57	188	88.26	**426**	**84.02**
Once a week	4	2.03	-	-	5	2.35	**9**	**1.78**
Twice a week	28	14.21	14	14.43	5	2.35	**47**	**9.27**
Thrice a week	10	5.08	-	-	15	7.04	**25**	**4.93**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**

D. Fishing Facilities Owned by the Fisherfolks

Among the 507 fisherfolks, 65.68% of them owned and operate motorized boats while 34.32% owned and use non-motorized boats for fishing in Tambac Bay. There were more fisherfolks whose fishing vessels had a gross tonnage (GT) capacity of less than 3 gross tons (54.83%) than those with fishing vessels of more than 3 gross tons capacity. Barut et al. (2004) stated that Philippine marine fisheries are conventionally subdivided into municipal (small-scale) and commercial fisheries on the basis of vessel gross tonnage. Municipal fisheries include capture operations using boats less than 3 GT and those that do not involve the use of watercraft. Commercial fisheries include capture operations using vessels of 3 GT and above.

For the types of fishing gears owned and used by the fisherfolks, 90.93% of them owned and use fish corrals in catching fish, followed by gill nets (46.94%), scissors nets and lever nest with percentage values of 4.73% and 2.76%, respectively. Zaragoza et al. (2004) reported that gill net, hook and line, ring net, beach seine, purse seine, fish corral and bag net are the types of fishing gears used in exploiting small pelagic resources of the municipal fisheries sector. Silvestre and Hilomen (2004) stated that fish corral (*pasabing* and *baklad*) was the most commonly used fishing gear of fisherfolks in Sector I of Lingayen Gulf in Pangasinan.

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)

TABLE 4. FISHING VESSELS AND GEARS OWNED AND USED BY THE FISHERFOLKS.

Variables	Alaminos		Bani		Anda		Mean	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Types of Fishing Vessels owned/used								
Motorized boat	159	80.71	48	49.48	126	59.15	**333**	**65.68**
Non-motorized boat	38	19.29	49	50.52	87	40.85	**174**	**34.32**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Gross Tonnage Capacity								
Less than 3 GT	112	56.85	60	61.86	106	49.77	**278**	**54.83**
More than 3 GT	85	43.15	37	38.14	107	50.23	**229**	**45.17**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Types of Fishing Gears Owned/Used*								
Fish corral	197	100.00	83	85.57	181	84.98	**461**	**90.93**
Gillnet	74	37.56	30	30.93	134	62.91	**238**	**46.94**
Scissors net	23	11.68	1	1.03	-	-	**24**	**4.73**
Lever net	-	-	14	14.43	-	-	**14**	**2.76**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**

**Multiple Response*

E. Species Composition of Fish Catch

Twenty one species of finfishes comprised the catch of fisherfolks in Tambac Bay (Tables 5 and 6) belonging to 12 families, namely: Siganidae, Mugilidae, Cichlidae, Scatophagidae, Serranidae, Carangidae, Gobiidae, Elopidae, Scaridae, Clupeidae, Leiognathidae and Lutjanidae, It was noted that the siganids locally known as malaga, barangen and samaral were the common fish caught by the fisherfolks in Tambac Bay (71.20%), followed by the mullets (36.69%), longtail goby (36.885), tilapia (27.61%), spotted scat (17.95%), trevally (10.26%), groupers (10.06%), and goby (5.13%). Other fish species caught reported by some fisherfolks include tenpounder, parrotfish, chacunda gizzard shad, common ponyfish, torpedo scad, and snapper.

The fisherfolks also reported shrimps as the species of marine invertebrate commonly caught by the fisherfolks in Tambac Bay. Blue swimming crab and mudcrab, lobsters and lobsters were also reported by few fisherfolks.

TABLE 5. SPECIES COMPOSITION OF CATCH IN TAMBAC BAY

Species Caught*	**Alaminos**		**Bani**		**Anda**		**Mean**	
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**
Finfish								
Siganid (Malaga)	132	67.01	72	74.23	157	73.71	**361**	**71.20**
Mullet (Bolasi)	98	49.75	-	-	88	41.31	**186**	**36.69**
Longtail goby (Ipusan)	141	71.56	-	-	46	21.60	**187**	**36.88**
Tilapia	-	-	71	73.20	69	32.39	**140**	**27.61**
Spotted Scat (Pingaw)	65	32.99	2	2.06	24	11.27	**91**	**17.95**
Trevally (Talakitok)					52	24.41	**52**	**10.26**
Grouper (Lapu-lapu)	-	-	11	11.34	40	18.78	**51**	**10.06**
Goby (Kuradingding)	-	-	24	24.74	2	0.94	**26**	**5.13**
Tenpounder (Bidbid)	23	11.68	-	-	-	-	**23**	**4.54**
Parrotfish (Molmol)	15	7.61	-	-	-	-	**15**	**2.96**
Chacunda Gizzard shad (Kabasi)	-	-	4	4.12	-	-	**4**	**0.79**
ponyfish (sapsap)	2	1.02	-	-	-	-	**2**	**0.39**
Torpedo Scad (Oriles)	-	-	-	-	2	0.94	**2**	**0.39**
Snapper	-	-	-	-	2	0.94	**2**	**0.39**
Marine Invertebrates						-		
Shrimp (Hipon)	170	86.29	85	87.63	64	30.05	**319**	**62.92**
Blue Swimming Crab (Alimasag/Galiwey)	5	2.53	-	-	73	34.27	**78**	**15.38**
Lobster	-	-	-	-	15	7.04	**15**	**2.96**
Mudcrab	-	-	-	-	3	1.41	**3**	**0.59**
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)

TABLE 6. COMMON SPECIES OF FISH CAUGHT BY FISHERFOLKS IN TAMBAC BAY

Local Name	English Name	Scientific Name	Common Name	Family
Malaga, Barangen, Samaral	Mottled spinefoot	*Siganus fuscescens*	Malaga, Barangen, Samaral	Siganidae
	Orange-spotted spinefoot	*Siganus guttatus*		
	Vermiculated spinefoot	*Siganus vermiculatus*		
	White-spotted spinefoot	*Siganus canaliculatus*		
	Streaked spinefoot	*Siganus javus*		
Bolasi	Flathead Mullet	*Mugil cephalus*	Mullet	Mugilidae
	Bluespot mullet	*Valamugil seheli*	Mullet	
Tilapia	Mozambique tilapia	*Oreochromis mossambicus*	Mozambique tilapia	Cichlidae
Pingaw	Spotted scat	*Scatophagus argus*	Pingaw	Scatophagidae
Lapulapu	Blacktip Grouper	*Epinephelus fasciatus*	Lapulapu	Serranidae
	Greasy grouper	*Epinephelus tauvina*	Lapulapu	
Talakitok	Big-eye trevally	*Caranx sexfasciatus*	Talakitok	Carangidae
	Longnose trevally	*Carangoides chrysophrys*		
Oriles	Torpedo scad	*Megalaspis cordyla*	Torpedo scad	
Kuradingding	Flatheaded goby	*Glossogobius giuris*	goby	Gobiidae
Ipusan	Longtail goby	*Ctenogobius sagitulla*	goby	
Bidbid, Bayerber	Tenpounder	*Elops machnata*	bidbid	Elopidae
Molmol	Parrotfish	*Cetoscarus bicolor*	Parrotfish	Scaridae
Kabasi	Chacunda Gizzard shad	*Anodontostoma chacunda*	kabasi	Clupeidae
Sapsap	Common ponyfish	*Leiognathus equulus*	sapsap	Leiognathidae
Snapper	Big-eye snapper	*Lutjanus lutjanus*	Big-eye snapper	Lujanidae

F. Volume of Catch by the Fisherfolks

Table 7 revealed that the volume of catch by the fisherfolks in Tambac vary from 1 kg to 39 kg per day of fishing operation. About 80% of the fisherfolks reported their volume of fish catch of 1-3 kg (21.30%), 4-6 kg (33.92%), 7-9 kg (17.95%) and 10-12 kg (9.27%) per daily fishing operation. The other 20% of the fisherfolks reported higher volume of catch of 13-39 kg per day. Fisherfolks in Alaminos City had a higher mean volume of catch of 12 kg compared to those from Bani and Anda with mean volume catches of 5.96 kg and 4.35 kg, respectively. The mean volume of catch for Tambac bay was calculated as 7.69 kg which was very low.

TABLE 7. VOLUME OF CATCH BY FISHERFOLKS IN TAMBAC BAY

Volume of Individual Catch per day (kg))	Alaminos		Bani		Anda		Mean	
	f	%	f	%	f	%	f	%
1-3	5	2.54	17	17.53	86	40.38	108	21.30
4-6	38	19.29	44	45.36	90	42.25	172	33.92
7-9	27	13.71	30	30.93	34	15.96	91	17.95
10-12	42	21.32	2	2.06	3	1.41	47	9.27
13-15	28	14.21	2	2.06	-	-	30	5.92
16-18	30	15.23	2	2.06	-	-	32	6.31
19-21	15	7.61	-	-	-	-	15	2.96
22-24	7	3.55	-	-	-	-	7	1.38
25-27	3	1.52	-	-	-	-	3	0.59
28-30	-	-	-	-	-	-	-	-
31-33	-	-	-	-	-	-	-	-
34-36	1	0.51	-	-	-	-	1	0.20
37-39	1	0.51	-	-	-	-	1	0.20
Total	**197**	**100**	**97**	**100**	**213**	**100**	**507**	**100**
Mean Volume	**12**		**5.96**		**4.35**		**7.69**	

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)

G. Selling Price of Fish Catch

Fish catch of fisherfolks were sold in the local market at varying prices of PhP 11.00 to 450 per kg depending on the type of fish . High valued species like groupers and siganids command a higher price than the other species.

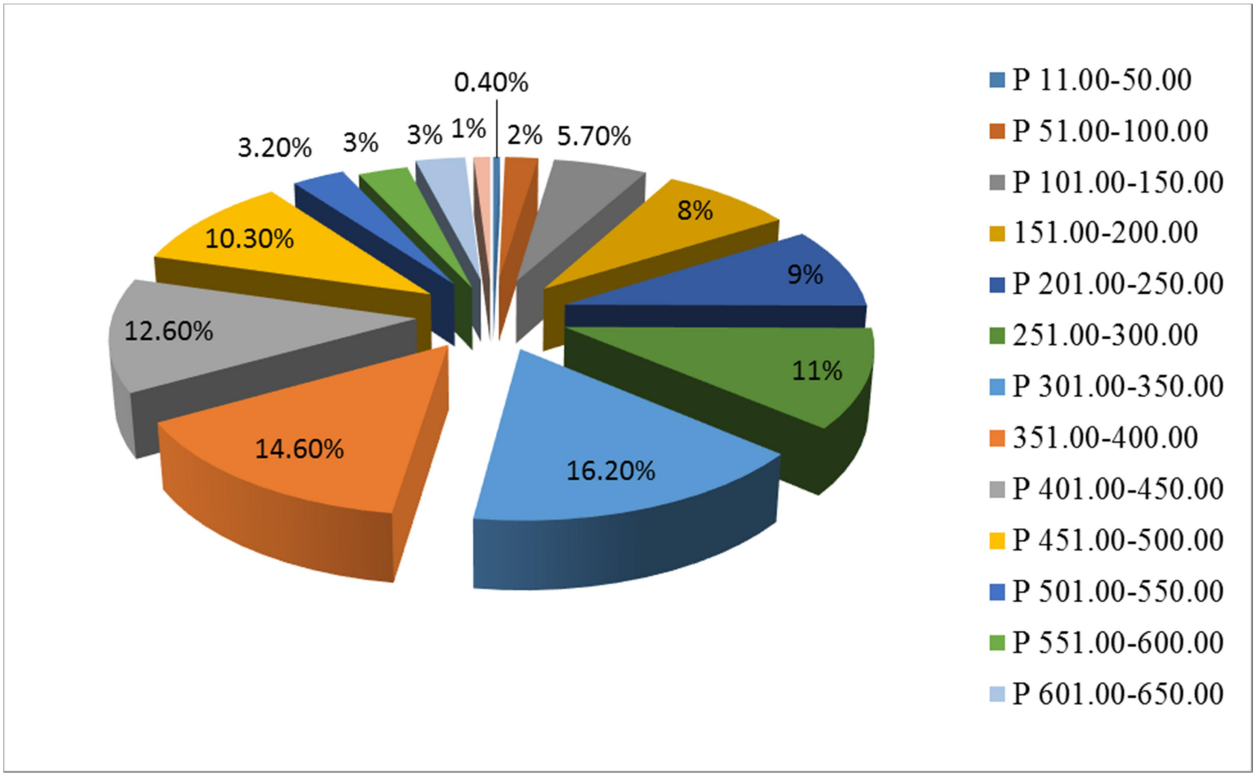

Figure 1. *Market selling price of fish caught by fisherfolks in Tambac bay*

IV. CONCLUSIONS

The fisherfolks of Tambac Bay were mostly married males with an average age of 43 years old. They have low educational attainment and low monthly household incomes. The fisherfolks of Tambac Bay have long years of experience in fishing spending 4 hours of catching fish using gill nets and motorized boats of less than 3 gross ton capacity.

Nineteen species of marine fishes belonging to 12 families comprised the catch of fisherfolks in Tambac Bay with siganids belonging to family Siganidae as the dominant or commonly caught species. The volume of fish catch of individual fisher was low. The market price of the catch varies depending on the species and value of marine fish caught. Since Tambac bay is shared by three coastal municipalities of Bani, Anda, and the City of Alaminos, an Integrated Coastal Management Plan must be prepared for its better and improved management and conservation .

REFERENCES

[1] Barut, N.C., Santos, M.D. and L. R. Garces. 2004. Overview of Philippine Marine Fisheries. In DA-BFAR, In turbulent seas: The status of Philippine marine fisheries. Coastal Resources Management Project of the Department of Environment and Natural Resources, Cebu City, Philippines, 378p.

[2] DENR, DA-BFAR, DILG (Department of Environment and Natural Resources, Department of Agriculture-Bureau of Fisheries and Aquatic Resources, and Department of Interior and Local Government). 2001. Philippine coastal management guidebooks. Vols. 1-8. Coastal Resources Management Project of DENR, Cebu City, Philippines.

[3] Froese, R. and D. Pauly (eds.) 2017. FishBase. World Wide Web electronic publication. www.fishbase.org, version (06/2017).

[4] Garcia, J. R. 2004. Equitable Access and Preferential Use of Municipal Waters by Municipal Fisherfolk. In DA-BFAR, In turbulent seas: The status of Philippine marine fisheries. Coastal Resources Management Project of the Department of Environment and Natural Resources, Cebu City, Philippines, 378p.

[5] Pauly, D. 1990. On Malthusian overfishing. NAGA: the ICLARM Quarterly. 13(1):3-4.

[6] Pauly, D. and T.E. Chua. 1988. The overfishing of marine resources: Socio-economic background in Southeast Asia. Ambio. 17(3):200-206.

[7] Silvestre, G.T. and V.V. Hilomen. 2004. Status of Lingayen Gulf Fisheries – A Brief Update. In DA-BFAR, In turbulent seas: The status of Philippine marine fisheries. Coastal Resources Management Project of the Department of Environment and Natural Resources, Cebu City, Philippines, 378p.

[8] Trudeau, H. 2001. Why we need a fishery licensing system? Sagip Dagat: Quarterly Bulletin of the Fisheries Resources Management Project. BFAR-FRMP-IEC. Quezon City, Philippines. p.2-4.

[9] White. A.T. and A. Cruz-Trinidad. 2000. The Values of Philippine Coastal Resources: Why Protection and Management are Critical?. Coastal Resources Management Project, Cebu City, Philippines. 96p.

[10] Yap, W.G., H.R. Rabanal and J.A. Llobrera. 1996. Winning the Future in Fisheries. Sampaloc, Manila: Mary Jo Educational Supply, 132p.

[11] Zaragoza, E.C., Pagdilao, C.R. and E.P. Moreno. 2004. Fisheries for Tuna and other Large Pelagic Fishes. In DA-BFAR, In turbulent seas: The status of Philippine marine fisheries. Coastal Resources Management Project of the Department of Environment and Natural Resources, Cebu City, Philippines, 378p.

ISSN 2599-4646 (Print) *www.psurj.org/jonas* ISSN 2599-4654 (Online)