

Participation, Roles , and Willingness-to-be-Involved in Mariculture Operation Among Men and Women in Mariculture Areas in the Philippines

**Alice Joan G. Ferrer¹, Herminia A. Francisco²,
Benedict Mark Carmelita³, and Jinky Hopanda³**

¹ University of the Philippines Visayas

² Economy and Environment Program for Southeast Asia,

³ University of the Philippines Visayas Foundation, Inc

Background

- ✘ Practice of aquaculture in the Philippines had been for a very long time.
- ✘ But not until 1960s where first fish cage culture of common carp and first fish pen culture of milkfish were established in Laguna de Bay (Yap, 1999).
- ✘ Promotion of Mariculture Parks by the government in early 2000s.
- ✘ Objective of Mariculture Parks: food security, generating employment, promote marine fish culture as an alternative livelihood for marginalized fisherfolks, provide facilities to incur cost-effective operation, and secure environment-friendly practices
- ✘ Issue: displacement from traditional fishing ground, and occurrence of water pollution due to intensive fish culture
- ✘ There is a need to improve existing policies in mariculture operation. One way is by assessing participation, roles, and willingness-to-be involved in mariculture operation of men and women residing in these mariculture areas.

Objectives

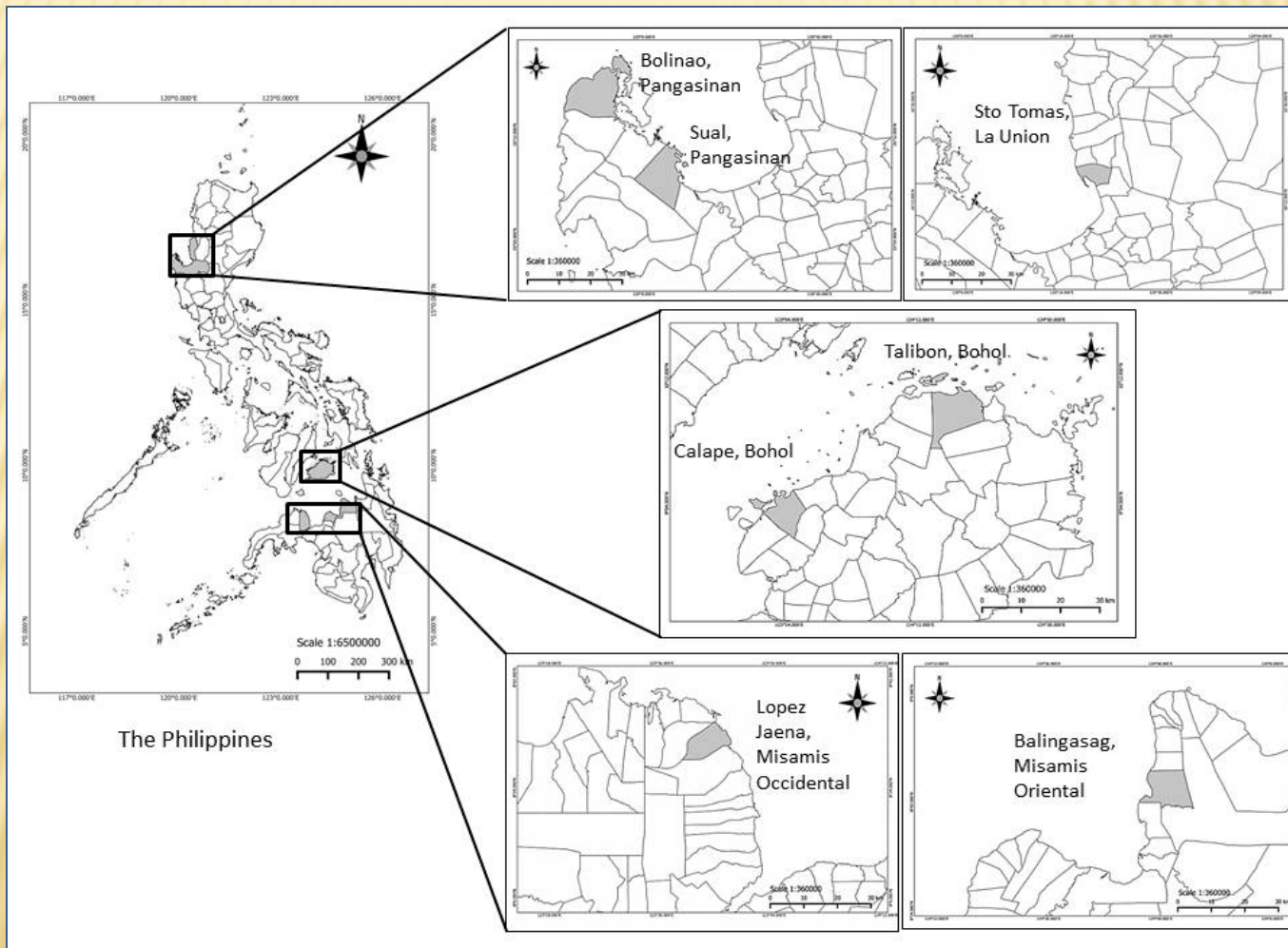
- ✘ This research aims to describe the **participation, roles, and willingness-to-be involved** in mariculture operation of men and women residing in these mariculture areas

FISH CAGE/PEN CULTURE





Study Sites



Profile of Mariculture Operation of the Study Sites

PROFILE OF SITES	Balingasag	Lopez Jaena	Calape	Talibon	Sto. Tomas	Sual	Bolinao
SPECIFIC LOCATION	Majacajalar Bay	Iligan Bay	Calape Bay	Danajon Bank, Bohol Sea	Sto. Tomas Cove	Cabalitian Bay	Bolinao Bay
INITIATED MARICULTURE IN THE AREA	BFAR	BFAR	BFAR	BFAR	BFAR	Private Sector	Private Sector
YEAR STARTED MARICULTURE OPERATION	March 2007	February 2011	October 21, 2008	2008	October 2, 2002	1996	1995
WITH AREA DESIGNATED AS MARICULTURE PARK (current)	Yes	Yes	Yes	Yes	Yes	Yes	No
TOTAL AREA (Current, ha)	195.7	313.26	220	250.28	10	208	279.9
AREA FOR FISH CAGE (ha)	19.5	31.2	22	25.28	10	208	84.4
CURRENT MANAGEMENT	Executive Management Council (EMC)	Executive Management Council (EMC)	EMC not active; private sector left to themselves	EMC not active; private sector left to themselves	private sector left to themselves in non-mariculture park area; BFAR in mariculture area	Private sector with LGU	Private sector with LGU

Profile of Mariculture Operation of the Study Sites

PROFILE OF SITES	Balingasag	Lopez Jaena	Calape	Talibon	Sto. Tomas	Sual	Bolinao
NUMBER OF OPERATORS	(as of Jan 2014) TOTAL: 63	(as of 2014) TOTAL: 79	(as of Feb 2015) TOTAL: 6 (inclusive of BFAR demo cage)	(as of Nov 2013) TOTAL: 7	(as of May 2015) TOTAL: Inside MZ-3 (inclusive of BFAR demo cage) Outside MZ-71	(as of May 2015) TOTAL: 21	(as of Mar 2015) TOTAL: 131
NUMBER OF CAGES/PENS	(as of Jan 2014) TOTAL: 203	(as of 2014) TOTAL: 177	(as of Feb 2015) TOTAL: 17 (inclusive of BFAR demo cage)	(as of Nov 2013) TOTAL: 65	(as of May 2015) TOTAL: Inside MZ-8 (inclusive of BFAR demo cage) Outside MZ-71	(as of May 2015) TOTAL: 750	(as of Mar 2015) TOTAL: 435
RESIDENCE OF THE OPERATORS	<ul style="list-style-type: none"> • Big & Medium - outside of LGU • Small-within LGU 	<ul style="list-style-type: none"> • Big & Medium: Almost all are from LGU • Livelihood: within LGU 	Outside of the LGU	Almost all are from within LGU	<ul style="list-style-type: none"> • Outside MZP: All within LGU • Inside MZP: Outside and within LGU 	Almost all are outside of the LGU	Within and outside of the LGU
KINDS OF CAGES	Square bamboo cages, high density polyethylene (HDPE)	HDPE floating circular Square bamboo cages	Floating bamboo, square	Fish pen, floating bamboo cages	Outside of MP: Floating bamboo and fish pen Inside MP – HDPE, rope-frame cage	HDPE Square steel Circular steel	HDPE Fish pen Square Fish cages Steel square cages
SPECIES CULTURED	Milkfish, Siganids, Pompano	Milkfish, Siganid, Pompano	Milkfish	Milkfish	BFAR Demo: Pompano, Mangrove Snapper, Malaga a. Inside MZ: Milkfish, Green Grouper Outside MZ: Grouper, Milkfish, Malaga	Milkfish, Red Snapper, Green Grouper, Pompano, Siganid	Milkfish

Data Collection

- Duration of Field Data Collection: January 2015 to August 2015
- 48 Focus Group Discussions conducted with a total of 315 participants
- Household survey with a total of 785 household participants (Fishing and Non-fishing)
- 138 key informants interviewed
- Secondary data collection and observation

Profile of Survey Participants

	Balingasag	Lopez Jaena	Sual	Bolinao	Calape	Talibon	Sto. Tomas
	(N=105)	(N=105)	(N=120)	(N=105)	(N= 105)	(N=105)	(N=140)
Age (Mean)	47.29	43.88	42.00	44.03	42.41	45.39	46.67
Male (%)	50.48	50.48	50.83	53.33	69.52	60.95	76.43
Number of Years in School (Mean)	8.06	8.64	7.69	8.23	8.08	7.16	9.41
No. of Years in the barangay (Mean)	31.67	32.88	28.79	30.30	30.15	31.86	40.25
Household size (Mean)	5.56	4.88	5.24	5.22	5.25	5.35	5.41
No. of household members with income (Mean)	1.90	1.31	1.35	1.59	1.51	1.74	1.42
From fishing household (%)	62.86	61.90	58.33	61.90	61.90	61.90	66.43
From non-fishing households (%)	37.14	38.09	41.67	38.10	38.09	38.09	33.57

Household and Individual participation in mariculture operation (Survey Participants)

Sites	Households			Individuals with participation in Mariculture				
	Total Households	With participation	%	Men		Women		Total
				No.	%	No.	%	No.
Balingasag	105	31	29.52	55	96.49	2	3.51	57
Lopez Jaena	105	5	4.76	4	80.00	1	20.00	5
Sual	120	40	33.33	34	82.93	7	17.07	41
Bolinao	105	32	30.48	33	100.00	0	0.00	33
Calape	105	14	13.33	14	100.00	0	0.00	14
Talibon	105	46	43.81	47	85.45	8	14.55	55
Sto Tomas	140	19	13.57	22	95.65	1	4.35	23
TOTAL	785	187	23.82	209	91.67	19	8.33	228

Roles Performed by Men and Women in Mariculture Operation (FGDs , KIIs, Site Visit)

Sites	Input		Grow-out		Marketing	
	Men	Women	Men	Women	Men	Women
Balingasag and Lopez Jaena	<ul style="list-style-type: none"> • Cage/Net Fabrication • Feeds Supply • Seeds supply 	-	<ul style="list-style-type: none"> • Owners • Caretakers • Maintenance workers (net mending/change net) • Harvesters 	<ul style="list-style-type: none"> • Owners • Harvesters (sorters) 	<ul style="list-style-type: none"> • Fish vending 	<ul style="list-style-type: none"> • Fish Processing • Fish vending
Calape, Talibon and Sto. Tomas	<ul style="list-style-type: none"> • Cage/Pen Fabrication • Feeds Supply • Seeds Supply 	<ul style="list-style-type: none"> • Feeds Supply 	<ul style="list-style-type: none"> • Owners • Caretakers • Maintenance workers (net mending/change net) • Harvesters 	<ul style="list-style-type: none"> • Owners 	<ul style="list-style-type: none"> • Fish vending 	<ul style="list-style-type: none"> • Fish vending
Sual and Bolinao	<ul style="list-style-type: none"> • Cage/Pen/Net Fabrication • Feeds Supply • Seeds Supply 	<ul style="list-style-type: none"> • Feeds Supply 	<ul style="list-style-type: none"> • Owners • Feeders • Maintenance Workers (Change net/net mending) • Harvesters 	<ul style="list-style-type: none"> • Owners • Feeders • Maintenance Workers (net menders) 	<ul style="list-style-type: none"> • Consignment (owners, workers) 	<ul style="list-style-type: none"> • Consignment (owners, workers)



Men and Women as Mariculture Operators (Secondary Data, Site Visit)

Study Site	Number of Operators	
	Men	Women
Balingasag	30	10
Lopez Jaena	34	18
Calape	4	0
Talibon	2	0
Sual	21	0
Bolinao	43 (cage); 17 (pen)	9 (cage); 7 (pen)
Sto. Tomas	2 (inside MP zone) 63 (outside MP zone)	0 (inside MP zone) 8 (outside MP zone)
TOTAL	216	52

Percentage Distribution of Men and Women in Mariculture Operation by their roles performed (Survey Participants)

ROLES	Balingasag		Lopez Jaena		Calape		Talibon		Sto. Tomas		Sual		Bolinao		All Sites	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
TOTAL	96.49	3.51	80.00	20.00	100.00	-	85.45	14.54	95.65	4.35	82.93	17.07	100.00	-	91.67	9.09
Operator	100.00	-	0	100.00	-	-	82.35	17.65	88.89	11.11	-	-	-	-	82.98	20.51
Caretaker	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-	75.00	25.00	100.00	-	96.08	4.08
Watcher	100.00	-	-	-	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-
Harvester	90.91	9.09	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-	96.77	3.33
Net Cleaner	88.89	11.11	-	-	100.00	-	100.00	-	100.00	-	100.00	-	100.00	-	93.75	6.67
Net mender	100.00	-	-	-	100.00	-	100.00	-	100.00	-	-	-	100.00	-	100.00	-
Feeder	-	-	-	-	100.00	-	100.00	-	100.00	-	76.47	23.53	100.00	-	86.21	16
Others	100.00	-	-	-	100.00	-	50.00	50.00	100.00	-	85.71	14.29	100.00	-	89.66	11.54

Percentage Distribution of Men and Women by their willingness-to-be-involved in Mariculture Operation (Survey Participants)

Sites	Men			Women			Total
	Fishing	Non-Fishing	Total	Fishing	Non-Fishing	Total	
Balingasag	69.70	10.00	33.00	26.00	8.00	34.00	67.00
Lopez Jaena	69.44	70.59	69.81	55.17	43.48	50.00	60.00
Sual	64.10	45.45	57.38	51.61	50.00	50.85	54.17
Bolinao	65.00	37.50	57.14	52.00	41.67	46.94	52.38
Calape	75.47	45.00	67.12	50.00	50.00	50.00	61.90
Talibon	81.40	76.19	79.69	81.82	78.95	80.49	80.00
Sto Tomas	78.38	60.61	72.90	94.74	64.29	81.81	75.00
TOTAL	72.96	55.70	67.45	66.47	61.29	59.31	64.20

Percentage Distribution of Men and Women by the role they are willing-to-be involved in Mariculture Operation (Survey Participants)

ROLES	Balingasag		Lopez Jaena		Calape		Talibon		Sto. Tomas		Sual		Bolinao		All Sites	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Operator	48.48	14.71	45.95	42.31	26.53	62.50	50.98	63.64	43.59	70.37	8.57	-	21.88	39.13	36.83	39.15
Caretaker	45.45	23.53	35.14	38.46	44.90	31.25	11.76	12.12	25.64	26.92	45.71	13.33	31.25	43.48	29.21	25.40
Watcher	18.18	8.82	8.11	-	30.61	18.75	3.92	6.06	20.51	3.85	2.86	-	9.38	4.35	14.60	5.29
Harvester	12.12	11.76	8.11	-	32.65	6.25	15.69	12.12	14.10	3.85	-	-	9.38	4.35	14.29	5.82
Net Mender	15.15	41.18	-	19.23	10.20	-	3.92	-	11.54	-	2.86	10.00	12.50	-	8.25	11.64
Feeder	-	-	-	-	6.12	-	3.92	-	-	-	48.57	80.00	12.50	8.70	8.25	13.76
Others	-	-	2.70	-	10.20	6.25	2.16	15.15	2.56	-	2.86	3.33	18.75	4.34	8.25	3.70

Conclusion

- ✘ **Goal to reduce employment problems in communities were poorly attained due to low participation.**
- ✘ **Goals to provide alternative livelihood is not attained due to high cost of mariculture operation that prevented the fishers from participation.**
- ✘ **Men were commonly identified with mariculture because the operation requires physical strength and danger associated with work in open sea.**
- ✘ **Willingness to be involved in mariculture operation was high particularly among men from fishing households**
- ✘ **Willingness to engage in mariculture as operator was higher among women than men.**

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