

UNION AQUACULTURE RESOURCE INVENTORY (UARI)

**UNION: NO.5 ATLIA
Upazila: Dumuria
District: Khulna**

By BSFF

**In collaboration with
DoF, Khulna and No.5 Atlia Union Parishad**

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Development of models for Union based inventory of aquaculture resources in selected Unions of selected districts in Khulna Division

1. Background

The approach of aquaculture resource survey was highly appreciated by the relevant authorities like the respective Union porishad, Upazila fisheries office and District fisheries office and from other relevant organizations, while Union Level aquaculture resources surveys were conducted and an Inventory for each of 2 unions as Batiaghata Sadar Union of Batiaghata Upazila of Khulna and Kashimari Union of Shyamnagar upazila of Satkhira district was prepared during the previous phase in the year 2013.

An organized inventory of the union level aquaculture resources has come-out through this program. This could be treated as a milestone to prepare a larger level-database for whole upazila and district-wise aquaculture resources on actual basis. The latest prevailing resources of the respective areas are known through this. It is evident that this kind of survey program would obviously help taking decisions for necessary planning and implementation steps to increase the aquaculture production and real expansion of the sector on genuine perspective. Thus the present component of resource survey and inventory preparation has drawn immense interest among the relevant authorities of public and private sectors.

In view of this, one Union Level Aquaculture Resource Survey (ULARS) has been accomplished by BSFF in association with DoF-GoB under 3rd phase, 2013-2014 project of BSFF supported by AIN-WorldFish

2. Objectives:

- Develop Union-based aquaculture resource inventory modules for districts of varying aquaculture resources: one module for two Bagda shrimp farm dominated districts,
- Recommend Union based aquaculture resource inventory to the Government as a high priority national program for establishing a solid data base for aquaculture resources
- Involve Union Parishads in local level fisheries surveys and development matters
- An overall inventory of aquaculture resources at union level would help to know at a glance about:
 - ✓ The status of prevailing aquatic resources,
 - ✓ To know about utilization-level of water areas,
 - ✓ To know the reasons about lacking in proper exploitation of the prevailing aquatic opportunities,
 - ✓ Necessary action plan to be taken for adequate utilization of the aquatic potential of the union.

3. Outputs:

Aquaculture resource inventory done in two Unions in two districts with varying fisheries resources

- Modules for Union wise aquaculture resource inventory in two Bagda shrimp dominated districts established
[The above will help local level and national level planning and developing the vitally important national resources on a more realistic basis.]
- Areas and reasons of under utilization and overutilization of water areas will be addressed
- Evidences of encouraging production-outcome through advanced rearing technique (if any) in favor of aquaculture based yield will be noticed which can be adopted in other suitable areas for further improvement of aquaculture production from the prevailing scope of the union.
 - Report on the survey published
 - A guideline for future inventory prepared

4. Methods:

- Select one suitable Union from each of Khulna and Satkhuis district
- BSFF personnel closely interact with DoF resource survey wing, concerned field level officials of Tahsil Office, and with Union Parishad (UP) Chairmen and other members of the UP
- BSFF personnel prepare a structured questionnaire in English and simple Bengali in consultation with the above mentioned people
- Select field level surveyors drafted from DoF/Tahsil Office/and Union Parishad
- Explain and orient them the questionnaire, including simple definition of separate aquaculture areas mentioned
- Field testing of the questionnaire
- Revise questionnaire, if needed
- Select one Union in each of two selected districts of same category
- Conduct survey with tested questionnaires
- Inventory of all existing and potentially suitable aquaculture areas, including seasonal waters potentially suitable for aquaculture, by:
 - Ownership: Private/Public
 - State of lease
 - Existing physical state of the water bodies, depths in dry and full monsoon months, aquatic vegetation,
 - Present uses
 - Fish production by species
 - Future development needs for the surveyed water bodies and rough budget estimation
- Fish landing facilities at farm sites
- Sources of ice
 - How many farmers ice fish within 30 minutes after harvest?
 - Number and Capacity of ice plants in or within 10 KM from the Union
 - Registration with CA
 - Source and quality of water used,
 - Mode of ice transportation

- Aquaculture feed sources
- Total aquaculture production
 - By water and culture types
 - By species
- Fish marketing
 - Fish market number
 - Facilities
 - Operators
- Survey data will be collected from the owners of the respective aquatic units by the trained surveyors through in-field visits and interview at the farm side.
- In-field monitoring and evaluation of data collection will be done by BSFF personnel.
- Local personnel of DoF and Union Parishad Office in addition with related supply chain stakeholders and local NGOs will be involved collecting data.
- Computation of database, preparation and display of inventory in the form of a book-let for the Union level Aquaculture Resource will be done by BSFF

5. Activities done to initiate ULARS

- Preparation of tour and work plans for 11-15 May 2014
- Make necessary correspondence with UP Chairmen, DFOs, SUFOs, Fisheries ExOs, proposed surveyors/enumerators and others associated,
- Twelve surveyors for Atlia Union (Khulna District) were selected with the help of DFOs, UFOs and AFOs of DoF of the upazila;
- Four orientation meetings for Atlia union's group of surveyors were organized at the Upazila fisheries office
- Meetings were held with the concerned Union Parishad Chairmen
- Distribution of survey questionnaires prepared in consultation with DoF officials
- Orientation to the concerned DoF field officials and surveyors as to the questionnaires and filling in the questionnaires
- Have spot visits and provide hands-on training to the surveyors on interviewing the owners of various facilities
- Reveal Procedure of recording of information on the Survey Forms

6. Activities conducted for monitoring, evaluation and completion of survey

➤ Atlia Union, Dmuria Upazila, Khulna District

- BSFF and DoF officials met the Union Parishad Chairman and the local level surveyors at the office of the Upazila Fisheries Officer and monitored and evaluated the surveyed data for their accuracies
- Lists of participants attending the meetings are enclosed as annexes in previous quarterly report submitted
- Survey data documents, GPS readings and soil pH data were collected
- Cross checks of data recorded by the surveyors were done through in field visit of BSFF staffs
- Detailed compilation and computerization of survey data completed.

- Findings, remarks in brief on Union based Aquaculture Resource Inventory presented with this report.
- Work plan and Travel schedule, Attendance Register of two orientation meeting with surveyors of Atlia, records of 2 discussion meetings with surveyors, Questionnaire Formats for survey in Bangla were presented in separate annexes in the report of April-June 2014

7. Area Map of Dumuria Upazila showing position of ATLIA Union



8. Villages of the union

No-5 Atlia is one of the potential Bagda shrimp dominated Unions of Dumuria Upazila under Khulna district of Bangladesh. The geographical location of the Union may be seen in the map above. *Atlia* Union has 21 villages as may be seen in Table below:

Sl. No.	Village	13	Motbaria
01	Atlia	14	Murabunia
02	Boyershing	15	Monohorpur

03	Boratia	16	Nichukhali
04	Chakundia	17	Nornia
05	Chuknagar	18	Putikhali
06	Changmari	19	Rustompur
07	Gobindokati	20	Suripukur
08	Golapdoho	21	Sudorbunia
09	Khutakhali	22	Alokdia
10	Kulbaria		
11	Kholsibunia		
12	Maltia		

9. Aquaculture water resources & production, 2013

9.1. Total numbers of farmers			
Sl. No.	Farm type	Number of farmers	Number of ghers
1	Bagda	1250	1678
2	Pond	1777	1924
3	Galda	452	497
		3479	4099

-?

9.2 Black Tiger, *Penaeus monodon* shrimp or Bagda Gher

Total No. of Bagda Gher	1678
Total water areas (acres)	3707.88 acres = 1483 Ha

Total aquaculture production (MT)	556.01
• Bagda: <i>Penaeus monodon</i>	226.93
• Harina: <i>Metapenaeus monoceros</i>	18.46
• Chali chingri: <i>Metapenaeus brevicornis</i>	4.34
• Galda	34.65
• Parsey	22.11
• Others	244.92
• Crab	4.6
Paddy production (MT) from Bagda Gher:	--

9.3 Giant Prawn, *Macrobrachium rosenbergii* or Galda Gher

Total No. of Galda Gher	497
Total water areas (acres)	473.92
Total aquaculture production (MT)	126.78
• Galda	35.93
• Carp	59.57
• Tilapia & others	24.32
• Bagda	6.96
Paddy production (MT) from Galda Ghers	503.09

9.4 Excavated Pond

Total No. of Ponds	1924
Total pond water area (acres)	272.56
Total aquatic production from Pond (MT)	363.57
• Local carp	196
• Chinese carp	84.21
• Tilapia/pangus/koi	39
• Other species of fin fish	39.4
• Galda	4.96

9.5. Other Water resources¹

Total No. of Canal	19
Total Canal area (Acre)	270
Total aquatic production from Canal (MT)	?

Total No. of River	1
Total River area (Acre)	50
Total aquatic production from River (MT)	Not studied

Note : Only 3 of 19 or 16% Canals are fresh, remaining 84% saline; 42% canal require reclamation; The Only River is free flowing and does not require reclamation.

9.6 Statistics of Aquatic farming Units at a glance				
Subject	<u>Bagda Gher</u>	<u>Galda Gher</u>	<u>Pond</u>	<u>Total</u>
Total No. of Aquatic farming Units	1,678	497	1,924	4,099
Total water areas (acres) of Aquatic farming Units	3,708	474	273	4,455
Total aquatic production (MT)	<u>556</u> Bagda: 227 Galda:35 Other shrimp: 23 Crab: 4.6 Fish : 267	<u>127</u> Galda: 36 Bagda:7 Fish: 84	<u>364</u> Fish: 359 Galda:5	<u>1,047</u> Bagda: 234 Galda:76 Other shrimp: 23 Crab: 4.6 Fish: 710
Agricultural production (MT)	<u>49</u> Paddy: ---	<u>6746</u> Paddy:503	Not studied ---	<u>6795</u> Paddy: 503

10.Ownership of farming water bodies		
Water type	Single ownership %	Joint ownership %
Bagda Gher	97	3
Galda Gher	92	8
Pond	78	22
Type of ownership	Lease Property %- Yes	Lease Property %- No

Bagda Gher	7	93
Galda Gher	24	76
Pond	2	98
Canal	<i>17 of 19 or 90% canals are publicly owned; 10 of 19 canals are leased</i>	
River	<i>The only one River is publicly owned</i>	

11. Sources of water			
Water source	% contribution in		
% Contribution of	Bagda Gher	Galda Gher	Pond
Tide fed – direct from river, canal	39	2+4=6	1
Tide-fed indirect through others' Gher	51		
Tide-fed: direct & indirect	10		
Rain		59	77
Underground		--	1
Rain & Canal		3	3
Rain & River		9	1
Rain & Underground		23	17
Total %	100	100	100

12. Sources Of Fry			
Fry Source	% contribution in		
% Contribution of	Bagda Gher	Galda Gher	Pond
Hatchery	100	24	100
Wild		69	
Both		7	
Total %	100	100	100

13. Practice Of Icing In 60 Minutes After Harvest			
Icing in 60 minutes after harvest			
	% contribution in		
Response	Bagda Gher	Galda Gher	Pond
Yes	45	13	17
No	55	87	83

14. Substrata On Which Shrimp / Fish Dumped After Harvest			
After harvest shrimp / fish kept on			
	% contribution in		
Material	Bagda Gher	Galda Gher	Pond
• Cemented floor	21	0	3
• Plastic sheet	12	7	1
• Bamboo basket	53	70	66
• Plastic basket	14	23	30
• Plastic drum	0	0	
• Net	0	<1	
• Date leaf mat	0	0	
Total%	100	100	100

15. Training Received On Aquaculture / Gaqp

Have any training on aquaculture / GAqP			
	% contribution in		
Response	Bagda Gher	Galda Gher	Pond
Yes	2	3	1
No	98	97	99

16. Information On Supporting Facilities			
Facilities	Type	Number	Response
a. Is there any ice plant in the union?		01	Yes
b. Ice plants within 10 KM from Union		--	No
c. Feed mill in the union			No
d. Feed mill in the union within 10 km			No
e. Feed shop present? How many?		4	Yes
f. Number of shrimp/fish depot		12	
g. How many registered with DoF?		11	
h. Is water tested for arsenic?			Yes
i. Is water tested for germs?			No
j. Mode of ice transportation	Paddle -van		
k. Ice covered during transportation?			N/A
l. Number of Fish market		3	Yes
m. Permanent shed		1	Yes (1) No (3)
n. Roof type	Tin (2) Concrete(1)		
o. Floor type	Cemented(1) Eathen(1)		
p. Fish sold on raised shelf			No
q. Water supply	Tube well (2) River (1)		
r. Fish sold with ice			Yes-30% No-70%
s. Any unsold fish?			Yes
t. Market daily washed & disinfected			Only washed not disinfected
u. Any means to prevent pest animals			No
v. Any storage facility?			Stored in portable box with ice

17. PER ACRE PRODUCTION, ATLIA UNION, DUMURIA, KHULNA:Golda: KG/Acre

Sl. No.	Village name	Area (acre)	Golda	Carp	Tilapia & others	Bagda
1	Atlia	7.90	227.85	153.16	72.15	0.00
2	Adharmanik	2.49	25.30	76.31	60.24	0.80
3	Boershing	56.20	64.68	64.23	46.26	4.00
4	Boratia	45.74	90.36	221.10	105.07	0.70
5	Chuknagar	100.79	52.46	142.03	19.00	25.60
6	Chakundia	34.68	75.84	166.90	42.94	1.82
7	Gobindakati	23.70	76.37	75.95	149.83	12.45
8	Kulbaria	75.13	69.45	60.14	15.71	23.77
9	Motbaria	9.78	179.96	200.41	81.29	39.16
10	Monohorpur	15.61	28.51	40.36	37.16	10.57
11	Murabunia	1.54	33.12	136.36	12.99	0.00
12	Nornia	33.31	117.08	254.01	52.39	1.08
13	Nichukhali	17.46	77.55	82.76	16.04	12.54
14	Rustompur	6.32	143.67	100.47	33.23	56.17
15	Suripukur	43.27	67.95	108.39	102.38	18.88

18. PER ACRE PRODUCTION, ATLIA UNION, DUMURIA, KHULNA: Bagda ; KG/Acre							
Sl. No.	Village name	Area (acre)	Bagda	Others chingri	Golda	Parse	Others
1	Alokdia	104.84	85.71	11.60	7.79	3.70	108.10
2	Andharmanik	266.96	42.42	2.53	5.32	2.35	56.19
3	Boyershing	270.83	50.10	2.34	9.58	14.88	68.44
4	Boratia	16.87	198.46	55.25	1.30	35.09	29.52
5	Chuknagar	54.26	52.89	3.76	23.13	6.27	70.40
6	Chakundia	172.96	71.62	2.10	19.24	0.86	87.36
7	Changmari	350.53	34.20	6.44	2.31	6.22	48.15
8	Durgatuni	60.00	44.52	7.98	5.33	3.90	103.00
9	Gobindakati	80.65	67.86	11.11	24.13	2.94	63.58
10	Golapdoho	1050.94	73.35	4.26	5.59	3.87	72.93
11	Khutakhali	42.18	45.40	3.11	12.85	8.25	41.20
12	Kulbaria	211.91	64.54	7.88	24.25	5.29	65.69
13	Kholsibunia	224.36	54.08	0.49	2.63	6.49	103.56
14	Maltia	26.73	426.57	21.78	0.00	7.18	0.00
15	Motbaria	138.61	50.70	8.99	20.32	5.25	86.93
16	Murabunia	284.54	47.11	10.27	7.96	5.74	24.86
17	Monohorpur	32.62	38.63	8.68	6.65	10.88	26.06
18	Nichukhali	33.16	48.61	5.04	25.21	9.62	69.00
19	Putimari	42.74	37.95	10.46	27.84	5.50	110.90
20	Rustampur	19.93	86.80	23.08	15.05	0.00	47.27
21	Suripukur	126.98	33.31	4.25	4.10	3.43	15.75
22	Sundorbunia	196.90	36.64	10.72	9.42	12.42	35.34

19. PER ACRE PRODUCTION, ATLIA UNION, DUMURIA, KHULNA: Pond; KG/Acre								
Sl. No.	Village	Number of pond	Area (Acre)	Production (Kg/Acre)				
				Local carp	Chinese carp	Tilapia/Pungus/Koi	Others	Galda
01	Atlia	35	7.93	7450=940	3530=446	1650=208	755=96	0=0
02	Boyershing	120	22.30	10622=477	2850=128	2329=105	517=24	376.5=17
03	Boratia	354	24.67	8190=332	3835=156	5540=225	7030=285	20=0.81
04	Chakundia	120	15.53	6076=393	3545=229	1152=75	814=53	0=0
05	Chuknagar	103	15.59	8191=526	5003=321	1845=119	667=42	22=1.41
06	Changmari	36	3.48	845=243	321=93	496=143	149=43	64=19
07	Gobindokati	135	15.44	17577=1139	11554=749	2611=170	2212=144	245=16
08	Golapdoho	86	11.97	4340=363	1526=128	1429=120	649=55	576=48
09	Khutakhali	34	4.73	491=104	50=11	422=90	377=80	90.7=19
10	Kulbaria	188	25.52	13196=518	4720=185	2805=110	13316=522	1606=63
11	Kholsibunia	5	0.41	335=818	384=937	79=193	15=37	22=54
12	Maltia	191	26.59	25225=949	17345=653	3440=130	3050=115	0=0
13	Motbaria	99	15.04	21406=1424	3553=237	1276=85	1279=85	491=33
14	Murabunia	28	4.17	1648=396	520=125	335=81	132=32	136=33
15	Monohorpur	24	2.08	876=422	384=185	118=57	60=29	29=14
16	Nichukhali	6	0.68	59=87	3=5	106=156	105=155	0=0
17	Nornia	187	44.04	49534=1125	24730=562	10368=236	6761=154	799=19
18	Putikhali	46	5.62	534=95	0=0	382=68	382=68	149=27
19	Rustompur	106	17.28	15197=880	160=10	1065=62	670=39	170=10
20	Suripukur	11	8.19	4050=495	195=24	1310=160	20=3	145=18
21	Sudorbunia	10	1.30	127=98	3530=2715	207=159	415=319	22=17
Average		1924	272.56	195969=719	84213=309	38965=143	39375=145	4963.2=19

20.Place of ATLIA Union in Dumuria Upazila			
Sl	Parameters	DoF data on Shyamnagar Upazila 2011-12	BSFF/DoF survey 2013
1	No of Unions	14	(Atlia) 1
2	No. of Wards	126	9
3	No. of Villages	238	23
4	Area KM ²	454.23	?
5	Total No. of Aquatic farming Units		
	■ Bagda Gher	7734	1678
	■ Total Bagda Ghers registered by DoF	7734	---
	■ Crab fattening units	No record found	No record found
	■ Total Crab fattening units registered	Not registered	N/A
	■ Galda Gher	15427	497
	■ Total Galda Ghers registered by DoF	15427	----
	■ Pond	4167	1924
	■ Total fish pond registered by DoF	--	not registered
	■ River	3	1
	■ Canal	113	19
6	Total a Area of farming Units (Acre)		
	■ Bagda Gher (Ha)	6957	3708acre=1495Ha
	■ Crab fattening units	No record found	No record found
	■ Galda Gher (Ha)	8246	474 acre=191 Ha
	■ Pond (Ha)	1423	273 acre=110 Ha
	■ River & Canal (Ha)	285+957=1242	20+109=129 Ha
7	Total number of aqua farmers	21358 (Shrimp & Prawn Farmers)	3479
	■ Bagda Ghers	included in above info.	1250
	■ Galda Gher	included in above info.	452
	■ Pond	No record found	1777
	Total aquatic production (MT)		
	■ Bagda Gher (Bagda & other species)-MT	2290.35	chingri-285+Fish-267+crab-5= 557
	■ Crab fattening units- MT	No record found	No record found
	■ Galda Gher (Galda & other species)- MT	5099	Gal-36+fish-303+Bagd-7= 346
	■ Pond (Various fish & Galda)- MT	3557.5	fish-358+ Gal-5= 363
	■ River and Canal- MT	45+ 248.8	Not recorded

8	Total number of Hatchery		-
	■ Bagda	0	-
	■ Galda	Pvt.2	-
	■ Carp	Govt.1	-
	■ Tilapia	Pvt.1	
9	Ice plant: Number	6	0
	Ice plant: Number-Licensed	3	N/A
10	Fish depot	No record found	--
11	Shrimp /Fish depot	35	12
	Shrimp /Fish depot -Licensed	30	11
12	Shrimp processing plant	(Closed)1	0