

# **Fish Monitoring Survey Of Bhavani River**

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**Submitted to the**

**Kerala State Biodiversity Board,**  
**Thiruvananthapuram**

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## **Study Team**

**1 Team Leader:** Dr. R. Rajkumar  
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### **3 Members:**

- (i) Dr. K K Hemalatha,  
Reader and Head,  
Department of Zoology,  
N S S College, Ottapalam
  
- (ii) Sri. Guruvayoorappan,  
Wild Life Cooradinator, South India Chapter.
  
- (iii) Sri. Sreejith,  
PG Student, GVC, Palakkad.

### **2 Names of fishermen:**

Sri M. Krishnan  
Sri K. Krishnan

### **Study period and localities:**

Pre-monsoon Survey conducted in **May 2010**.

Dates: **28.05.10, 29.05.10**

Locations: **Attappadi, Mukkali and Siruvani**

## **Introduction**

The Bhavani river originates from the Kunda mountains in the Nilgiris, makes a circuitous course through the Attappady valley and returns to the shadow of Nilgiri mountains. The catchment area of the Bhavani river within Kerala is 220 sq. miles yielding an annual run off of 27,000 million cubic feet of water. The Bhavani is a 217 km. long perennial river fed mostly by the southwest monsoon and supplemented by the northeast monsoon. Its watershed drains an area of 6,200 km<sup>2</sup> spread over Tamil Nadu (87%), Kerala (9%) and Karnataka (4%). The main river courses through entire of the North-Western Erode district of Tamil Nadu. Of the rivers of Kerala, Bhavani river is one among the three, which prefers Bay of Bengal than the Arabian sea.

## **Methods:**

As the team was not issued the permission letter from the Forest Department by the Board, collection could not be done within the Silent Valley zone. Reached the boundary area where Bhavani runs out from the Silent valley at 8.30AM. As the depth was very low and the river bed was laden with pebbles and gravel, collection was difficult. Several trials had to be made.

In addition to the nets supplied by the KSBB, cast net and mosquito nets were also used. Collections were made from different regions along the river using gill net and cast net. At very shallow regions nylon mosquito net was also used. The main collections were done from the pockets of the river at bends and also from occasional pits of sand mining.

Water quality was analysed using the Water Quality Test Kit provided by the KSBB.

Scoping study was conducted on **18<sup>th</sup> May 2010**. After counting, the fishes were released back to the river, after preserving a few samples for identification.

# Observations:

## ANNEXURE: DATA SHEETS

### FISH MONITORING PROGRAMME (KSBB)

#### DATA SHEET 1

#### PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low lands)

Name of the River: <b>BHAWANI RIVER</b>	
Name of survey site: <b>ATTAPADI</b> Lower/Middle/Upper <input checked="" type="checkbox"/>	District and Panchayath: <b>Palakkad Dist, Agale</b>
GPS Reading (Lat. and Long. (Optional))	Name of Team Leader: <b>Dr. R. RAJKUMAR</b>
Date: <b>28.05.2010</b>	Time: <b>9.30 AM</b>

A. WEATHER CONDITIONS	<input checked="" type="checkbox"/> Sunny/ <input type="checkbox"/> Cloudy/ <input type="checkbox"/> Rainy (Tick) Temperature (Atmosphere): <b>29°C</b> Has there been rain in the last 7 days: <b>no</b>
B. STREAM CHARACTERIZATION	Stream nature: Perennial <input checked="" type="checkbox"/> ephemeral Stream type: I/II/III/IV/V/VI order Stream origin: Montane <input checked="" type="checkbox"/> , laterite hill, swamp, sacred grove
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: forest <input checked="" type="checkbox"/> , grass land <input checked="" type="checkbox"/> , agriculture <input checked="" type="checkbox"/> , plantation <input checked="" type="checkbox"/> , tribal settlement <input checked="" type="checkbox"/> , human habitation <input checked="" type="checkbox"/> , township, industrial area, others (Specify) Local Watershed Nonpoint Source Pollution: No evidence <input checked="" type="checkbox"/> . Some potential sources, Obvious sources Local Watershed Erosion: None <input checked="" type="checkbox"/> , Moderate, Heavy
D. RIPARIAN VEGETATION	Trees <input checked="" type="checkbox"/> , shrubs <input checked="" type="checkbox"/> , herbs and grasses, others (Specify) Forest plantations <input checked="" type="checkbox"/> , agricultural plantations <input checked="" type="checkbox"/> , mixed agriculture <input checked="" type="checkbox"/> No vegetation <input checked="" type="checkbox"/> <b>along the bank of the river</b>

<p>E. INSTREAM FEATURES</p>	<p>Reach length (m): 200m  Stream width (m): 200m  Sampling reach area (m<sup>2</sup>): 40000m<sup>2</sup>  Stream depth (m): 1.5m average  Velocity: moderate  Canopy cover (%) 10%  <b>Stream Morphological Types</b>  Rifle ....10% (%); Run....80% (%); pools ...10% (%)  <b>Channelized:</b> Yes/ No ✓  <b>Dam Present:</b> Yes/No ✓</p>
<p>F. AQUATIC VEGETATION</p>	<p>Free floating hydrophytes: no  Floating but rooted hydrophytes: no  Rooted and submerged hydrophytes no  Suspended hydrophytes no  Wetland or marsh plants in certain regions  Attached algae:  Others (Specify): Due to summer, the water flow is reduced to 1/3 and hence the other regions are with shrubs in certain regions</p>
<p>G. WATER QUALITY</p>	<p>Temperature (°C): 20°C  Conductivity:  Dissolved Oxygen:  pH: 7  Turbidity: Very clean  Nitrite: x  Nitrate: x  Phosphate: 0.5 ppm  Sulphate: 200 ppm  Chloride = 30 ppm  Alkalinity = 50 "  Calcium = 70 "  Hardness = 80 "  Magnesium = 10 "  Iron = 0.3 "  <b>Water odours:</b> None/Sewage/ Petroleum /Chemical/ Fishy/Acid/ Other .....  <b>Water colour:</b> Colourless/green/brown/...like...glass  <b>Turbidity (if not measured)</b>  Clear/Slightly turbid/Turbid/Opaque/Stained/Other .....  ✓</p>



# ANNEXURE - DATA SHEETS

## FISH MONITORING PROGRAMME (KSBB)

### DATA SHEET 1

#### PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low lands)

Name of the River: <b>BHAWANI RIVER.</b>	
Name of survey site: <b>MUKKALI</b> Lower/Middle/Upper: <b>Middle</b>	District and Panchayath: <b>Palakkad Agali</b>
GPS Reading (Lat. and Long. (Optional))	Name of Team Leader: <b>Dr. R. RAJKUMAR</b>
Date: <b>29.05.10</b>	Time: <b>2.45 pm</b>
J. WEATHER CONDITIONS	Sunny/Cloudy/Rainy (Tick) <input checked="" type="checkbox"/> Temperature (Atmosphere): <b>26°C</b> Has there been rain in the last 7 days: <b>no</b>
K. STREAM CHARACTERIZATION	Stream nature: Perennial/ephemeral <input checked="" type="checkbox"/> Stream type: I/II/III/IV/V/VI order Stream origin: Montane, laterite hill, swamp, sacred grove
L. WATERSHED FEATURES	Predominant Surrounding Land Use Type: forest, <input checked="" type="checkbox"/> grass land, <input checked="" type="checkbox"/> agriculture, <input checked="" type="checkbox"/> plantation, <input checked="" type="checkbox"/> tribal settlement, <input checked="" type="checkbox"/> human habitation, township, industrial area, others (Specify) Local Watershed Nonpoint Source Pollution: <input checked="" type="checkbox"/> No evidence. Some potential sources, <input checked="" type="checkbox"/> Obvious sources Local Watershed Erosion: None, <input checked="" type="checkbox"/> Moderate, <input checked="" type="checkbox"/> Heavy
M. RIPARIAN VEGETATION	Trees, <input checked="" type="checkbox"/> shrubs, <input checked="" type="checkbox"/> herbs and <input checked="" type="checkbox"/> grasses, others (Specify) <input checked="" type="checkbox"/> Forest plantations, agricultural plantations, mixed agriculture No vegetation <b>through the bank of the river</b>

<p>N. INSTREAM FEATURES</p>	<p>Reach length (m): 1500m  Stream width (m): 50m  Sampling reach area (m<sup>2</sup>): 75000m<sup>2</sup>  Stream depth (m): 1.5m average  Velocity: moderate  Canopy cover (%) 10%  <b>Stream Morphological Types</b>  Riffle ....12.1% (%); Run.....85% (%); pools ...5% (%)  <b>Channelized:</b> Yes/ No ✓  <b>Dam Present:</b> Yes/No ✓</p>
<p>O. AQUATIC VEGETATION</p>	<p>Free floating hydrophytes:  Floating but rooted hydrophytes:  Rooted and submerged hydrophytes Rare  Suspended hydrophytes  Wetland or marsh plants  Attached algae:  Others (Specify): In certain regions some are seen.</p>
<p>P. WATER QUALITY</p>	<p>Temperature (°C): 19°C  Conductivity:  Dissolved Oxygen:  pH: 7 Chloride = 30 ppm  Turbidity: Very clean Alkalinity = 55 "  Nitrite: 1 Calcium = 70 "  Nitrate: 1 Hardness = 85 "  Phosphate: 0.5 ppm Magnesium = 15 "  Sulphate: 200 " Iron = 0.3 "  <b>Water odours:</b> None/Sewage/ Petroleum /Chemical/ Fishy/Acid/  Other .....  <b>Water colour:</b> Colourless/green/brown/.....  <b>Turbidity (if not measured)</b>  Clear/Slightly turbid/Turbid/Opaque/Stained/Other .....</p>



<p>Q. INORGANIC MATERIALS (%)</p>	<p>Bedrock 5% (Five)</p> <p>Boulder 15% (Fifteen)</p> <p>Cobble 15% (Fifteen)</p> <p>Gravel 50% (Fifty)</p> <p>Sand 15% (Fifteen)</p> <p>Silt —</p> <p>Clay —</p> <p>(Should add up to 100%)</p>
<p>R. ORGANIC MATERIALS</p>	<p>Detritus/Muck Mud/Marl ✓ ✓</p> <p>(Tick)</p>

**ANNEXURE: DATA SHEETS**

**FISH MONITORING PROGRAMME (KSBB)**

**DATA SHEET 1  
PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET**  
(Use separate sheets for High/Mid/Low lands)

Name of the River: <b>BHAWANI RIVER</b>	
Name of survey site: <b>SIRUVANI</b> Lower/Middle/Upper	District and Panchayath: <b>Palakkad Dist</b>
GPS Reading (Lat. and Long. (Optional))	Name of Team Leader: <b>Dr - R. RAJKUMAR</b>
Date: <b>29.05.2010</b>	Time: <b>08.30 am</b>

A. WEATHER CONDITIONS	Sunny/Cloudy/Rainy (Tick) Temperature (Atmosphere): <b>29°C</b> Has there been rain in the last 7 days: <b>NO</b>
B. STREAM CHARACTERIZATION	Stream nature: Perennial/ephemeral Stream type: I/II/III/IV/V/VI order Stream origin: Montane, laterite hill, swamp, sacred grove
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: forest, grass land, agriculture, plantation, tribal settlement, human habitation, township, industrial area, others (Specify) Local Watershed Nonpoint Source Pollution: No evidence. Some potential sources, Obvious sources Local Watershed Erosion: None, Moderate, Heavy
D. RIPARIAN VEGETATION	Trees, shrubs, herbs and grasses, others (Specify) Forest plantations, agricultural plantations, mixed agriculture No vegetation <b>on the bank</b>

<p>E. INSTREAM FEATURES</p>	<p>Reach length (m): 200 m  Stream width (m): 100 m  Sampling reach area (m<sup>2</sup>): 20000 m<sup>2</sup>  Stream depth (m): 1.5 average  Velocity: moderate  Canopy cover (%): 10%</p> <p><b>Stream Morphological Types</b>  Riffle .....10% (%); Run.....90% (%); pools ....5... (%)</p> <p><b>Channelized:</b> Yes/No  <b>Dam Present:</b> Yes/No</p>
<p>F. AQUATIC VEGETATION</p>	<p>Free floating hydrophytes:  Floating but rooted hydrophytes:  Rooted and submerged hydrophytes  Suspended hydrophytes  Wetland or marsh plants  Attached algae:  Others (Specify): River bed is <sup>not</sup> laden with pebbles and rocks</p>
<p>G. WATER QUALITY</p>	<p>Temperature (°C): 25 °C  Conductivity:  Dissolved Oxygen:  pH: 7 Chloride 30ppm  Turbidity: very clean Alkalinity 50 "  Nitrite: x Calcium 70 "  Nitrate: x Hardness 80 "  Phosphate: 0.5 ppm Magnesium 10 "  Sulphate: 200 ppm Iron 0.3 "</p> <p><b>Water odours:</b> None/Sewage/ Petroleum /Chemical/ Fishy/Acid/ Other .....</p> <p><b>Water colour:</b> Colourless/green/brown/.....</p> <p><b>Turbidity (if not measured)</b>  Clear/Slightly turbid/Turbid/Opaque/Stained/Other .....</p>

H. INORGANIC MATERIALS (%)	Bedrock      05% Boulder      50% Cobble      15% Gravel      25% Sand      5% Silt      Negligible Clay      Negligible (Should add up to 100%)
I. ORGANIC MATERIALS	Detritus/Muck Mud/Marl ✓ (Tick)

**FISH MONITORING PROGRAMME (KSBB)****DATA SHEET 2****A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)**

(Use separate sheets for high/mid/low lands)

Name of the River:	BHAWANI RIVER	
Name of the tributary (if any):	—	
Name of survey site: <input checked="" type="checkbox"/> Attappadi <sup>o</sup> Highland/Midland/Lowland	District and Panchayath:	Palakkad Agale
GPS Reading (Lat. and Long. (Optional)	Name of Team leader:	Dr. R. RAJKUMAR
Date: 28.5.10	Time: 8.30am	
Types of nets used: 1. Cast net <input checked="" type="checkbox"/> 2. Gill net <input checked="" type="checkbox"/> 3. Trap 4. Mosquito cloth <input checked="" type="checkbox"/> 5. Other methods (specify)	Sampling duration for each net (minutes): 1. One hr Cast net 2. One hr Gill net 1 3. Two hrs ,, 2 4. mosquito net Random 5.	
Anomalies recorded in fish (if any): Deformities; Eroded fins; Fungus; Lesions; Multiple anomalies; Emaciated; Others nil		

**FISH MONITORING PROGRAMME (KSBB)****DATA SHEET 2****B. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)**

(Use separate sheets for high/mid/low lands)

Name of the River: <u>Bhanani River.</u>	
Name of the tributary (if any): <u>—</u>	
Name of survey site: <u>Mukkali</u> Highland/Midland/Lowland <input checked="" type="checkbox"/>	District and Panchayath: <u>Pulkkad, Agali</u>
GPS Reading (Lat. and Long. (Optional))	Name of Team leader: <u>Dr. R. Rajkumar</u>
Date: <u>29.05.10</u>	Time: <u>2.45 PM</u>
Types of nets used: 6. Cast net <input checked="" type="checkbox"/> 7. Gill net <input checked="" type="checkbox"/> 8. Trap <input checked="" type="checkbox"/> 9. Mosquito cloth <input checked="" type="checkbox"/> 10. Other methods (specify)	Sampling duration for each net (minutes): 1. <u>Cast net One hr 10 casts</u> 2. <u>Gill net-① One hr</u> 3. <u>Gill net-② 2 hrs</u> 4. <u>Mosquito net Bandera</u> 5.
Anomalies recorded in fish (if any): Deformities; Eroded fins; Fungus; Lesions; Multiple anomalies; Emaciated; Others <u>nil</u>	

**FISH MONITORING PROGRAMME (KSBB)**

**DATA SHEET 2**

**A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)**

(Use separate sheets for high/mid/low lands)

Name of the River: <b>BHAWANI RIVER</b>	
Name of the tributary (if any): <b>-</b>	
Name of survey site: <b>SIRUVANI</b> Highland/Midland/Lowland <input checked="" type="checkbox"/>	District and Panchayath: <b>Palakkad dist.</b>
GPS Reading (Lat. and Long. (Optional))	Name of Team leader: <b>Dr. R. RAJKUMAR</b>
Date: <b>29-05-2010</b>	Time: <b>8-30 am</b>
Types of nets used: 1. Cast net <input checked="" type="checkbox"/> 2. Gill net <input checked="" type="checkbox"/> 3. Trap 4. Mosquito cloth <input checked="" type="checkbox"/> 5. Other methods (specify)	Sampling duration for each net (minutes): 1. <b>Cast net one hr</b> 2. <b>Gill net ① One hr</b> 3. <b>Gill net ② Two hrs</b> 4. <b>Mosquito net Sandam</b> 5.
Anomalies recorded in fish (if any): Deformities; Eroded fins; Fungus; Lesions; Multiple anomalies; Emaciated; Others <b>nil</b>	





C. Primary Data Collection - Direct Sampling

Sl. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland)													Total	
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	Gill Net 1	<del>Other</del> Nets 1	<del>Other</del> Nets 2		Other Nets 3
1	<i>P. fasciatus</i>	-	2	4	1	-	1	1	-	-	1	1	1	2		14
2	<i>P. filamentosus</i>	-	6	3	2	-	1	2	-	-	2	2	3	1		22
3	<i>Etmopterus</i>	-	-	1	-	-	1	-	-	-	-	1	-	-		2
4	<i>Carassius auratus</i>	-	-	-	-	-	-	-	-	-	-	-	4	-		4
5	<i>Basilichthys</i>	-	3	2	1	1	1	-	-	2	2	2	1			15
6	Eel	-	-	-	-	-	-	-	-	-	1	-	-			1
7	<i>Hemulonidae</i>	-	-	-	-	-	-	-	-	-	-	4	-			4
	<i>pitcair, melanocephalus</i>															1
8	<i>Lepidochelys</i>	-	-	-	-	-	-	-	-	-	-	6	-			6
	<i>hermanni</i>															-
9	<i>Amblypharynx</i>	2	1	-	1	2	1	-	-	2	2	-	1			12
	<i>microlepis</i>															
10	<i>Hetero. fossilis</i>	-	-	-	-	-	-	-	-	-	2	-	-			2
11	<i>Myxus</i>	-	-	-	-	-	1	-	-	-	1	1	1			4

A. Primary Data Collection – Direct Sampling

Sl. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland)													Total	
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	Gill Net 1	<del>Other</del> Nets 1	<del>Other</del> Nets 2		Other Nets 3
1	<i>P. fasciatus</i>	3	-	4	-	2	-	-	3	-	1	1	4	1		19
2	<i>P. filamentarius</i>	2	6	3	3	1	-	2	3	-	-	2	3	1		26
3	<i>Bani. galensis</i>	2	1	3	2	-	-	-	4	-	1	1	3	1		18
4	<i>Crana mulla</i>	-	-	-	-	-	-	-	-	-	-	-	4			4
5	<i>Ambly. microlepis</i>	2	4	5	2	1	-	4	2	-	1	1	-	2		24
6	<i>Homaloptera</i>	-	-	-	-	-	-	-	-	-	-	-	3			3
7	<i>Lepidoccephalus thurstoni</i>	-	-	-	-	-	-	-	-	-	-	-	4			4
8	<i>Etrouplus</i>	-	-	-	-	-	-	-	-	-	-	1	-	2		3
9	<i>H. fessilis</i>	-	-	-	-	1	-	-	-	-	-	-	-	1		2
10	<i>Eel.</i>	1	-	-	-	-	-	-	-	-	-	-	-	-		2

**B. Primary Data Collection – Market Survey**

(Use separate sheets for high/mid/low lands)

Sl. No.	Fish Species / Group	Market Analysis																
		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10	Sample 11	Sample 12	Sample 13	Sample 14	Sample 15	Total	

People <sup>here</sup> catch fish only for daily use not for sale.

**D. Primary Data Collection – Market Survey**

(Use separate sheets for high/mid/low lands)

Sl. No.	Fish Species / Group	Market Analysis															
		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10	Sample 11	Sample 12	Sample 13	Sample 14	Sample 15	Total

No market plau was noticed

**B. Primary Data Collection – Market Survey**

(Use separate sheets for high/mid/low lands)

Sl. No.	Fish Species / Group	Market Analysis															
		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10	Sample 11	Sample 12	Sample 13	Sample 14	Sample 15	Total

No riverine fish observed

Secondary Data Collation - Historical Data  
 (Use separate sheets for high/medium/low funds)



Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	Due to water availability & fish availability.
2	The number of fishermen depended on fishing in the sampling area	No such group was observed. People do fishing for daily use.
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same. (use separate sheet, if needed)	not observed. People said that erosion changed the river much and the fish availability is decreased.
4	List (local names) of fish available in the river system (use separate sheet, if needed)	കോഴി, മത്സ്യം, മുട്ടുപുഴു, ചേര, മത്സ്യം, പി, മ, മത്സ്യം, മത്സ്യം, മത്സ്യം, മത്സ്യം
5	The species (mainly fish) that have declined in availability (abundance)	Esoptus, Eel, channa, If fossils etc declined in availability
6	The species (mainly fish) that are once common in the area and disappeared recently	not known.
7	Is there any new addition of flora and fauna in the region (eg. Exotic fish, fish eating birds, etc)	not observed
8	Is there any major change in habitat structure? If yes, list them	not observed
9	Is there any animal that dependent on the river (eg. Otter) disappeared in recent times	not noticed
10	What are the common fishing practices available in the region?	hooking, gill net
11	Is there any unscientific methods practised (eg. Dynamiting, poisoning, atakkam kollu vala, etc.)	Yes, in certain regions, Dynamiting
12	Any fish diseases outbreak observed till date?	no
13	Any traditional knowledge on fish available in the area	not noticed
14	Suggestions on conservation of fish (as perceived by the local communities)	Strong punishment to those who do harm the ecosystem

Secondary Data Collection - Historical Data

(Use separate sheets for high/mid/low lands)



Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	
2	The number of fishermen depended on fishing in the sampling area	
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same. (use separate sheet, if needed)	
4	List (local names) of fish available in the river system (use separate sheet, if needed)	
5	The species (mainly fish) that have declined in availability (abundance)	
6	The species (mainly fish) that are once common in the area and disappeared recently	
7	Is there any new addition of flora and fauna in the region (eg. Exotic fish, fish eating birds, etc)	
8	Is there any major change in habitat structure? If yes, list them	
9	Is there any animal that dependent on the river (eg. Otter) disappeared in recent times	
10	What are the common fishing practices available in the region?	
11	Is there any unscientific methods practised (eg. Dynamiting, poisoning, adakkam kollu vata, etc.)	
12	Any fish diseases outbreak observed till date?	
13	Any traditional knowledge on fish available in the area	
14	Suggestions on conservation of fish (as perceived by the local communities)	

Same as the high land  
 Nothing new was noticed from the highland.

### C. Secondary Data Collection – Historical Data

(Use separate sheets for high/mid/low lands)

Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	availability of fish & water
2	The number of fishermen depended on fishing in the sampling area	no such group was observed
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same.	not noticed. People said that the erosion changed the river structure and the fish availability
4	List (local names) of fish available in the river system	കടലി, അടലി, മീൻ, മീൻ, മീൻ, മീൻ, മീൻ, മീൻ, മീൻ, മീൻ
5	The species (mainly fish) that have declined in availability (abundance)	H. fossilis, Wallago attu, Etroplus
6	The species (mainly fish) that are once common in the area and disappeared recently	not noticed
7	Is there any new addition of flora and fauna in the region (eg. Exotic fish, fish eating birds, etc)	not observed
8	Is there any major change in habitat structure? If yes, list them	not known
9	Is there any animal that dependent on the river (eg. Otter) disappeared in recent times	not noticed
10	What are the common fishing practices available in the region?	Hook, Gill net
11	Is there any unscientific methods practised (eg. Dynamiting, poisoning, adakkam kolli vala, etc.)	not noticed
12	Any traditional knowledge on fish available in the area	no
13	Suggestions on conservation of fish (as perceived by the local communities)	Fishing by the normal scientific methods will conserve the fish



**Table I**

List of Fish Species Collected from ... Bhavani river, ...Kerala

Sl.no.	Name of Species	No. of organisms collected			Remarks
		High	Mid	Low	
1.	<i>P.filamentosus</i>	19	22	26	
2.	<i>P.fasciatus</i>	11	14	19	
3.	<i>Etroplus suratensis</i>	2	2	3	
4.	<i>H.fossilis</i>	-	2	2	
5.	<i>Mys.cavasius</i>	-	4	-	
6.	<i>Channa striatus</i>	1	-	-	
7.	<i>Garra mullya</i>	4	4	4	
8.	<i>Bari.gatensis</i>	13	15	18	
9.	<i>Lepido.thermalis</i>	3	6	4	
10.	<i>Ambly.microlepis</i>	13	12	24	
11.	<i>Anguilla</i>	-	1	2	
12.	<i>Homaloptera pillai</i>	3	4	3	

Only Nine species were caught from high land, Eleven species from mid land and ten species were caught from the low land of Bhavani river.

## **Result:**

### **Species abundance**

Twelve species of fishes were collected from three collection sites of Bhavani river. *Puntius filamentosus*, *P. fasciatus*, *Etroplus suratensis*, *Garramullya*, *Barilius gatensis*, *Lepidocephalichthys thermalis*, *Amblystoma microlepis*, and *Homaloptera pillai* were found in all the sites. *H. fossilis* was found only in mid and low lands. *M. cavasius* was found only in midland. *C. striatus* was found only in the highland portion, and only one specimen was obtained after all the trials. *A. bicolor* was found in mid and lowlands.

*P. filamentosus* was common in all places and was the most abundant species. The three species that come next in abundance were *A. microlepis*, *B. gatensis* and *P. fasciatus* respectively. All others were found only in very low numbers.

### **Water quality**

The water was crystal clear and was neutral with pH 7. Chemical analysis was done for chloride (30ppm), alkalinity (50ppm), hardness (80ppm), calcium (70ppm), magnesium (10ppm), sulphate (200ppm) and iron (0.3ppm).

Sand-mining was going on at various places and construction work was progressing in a few places.

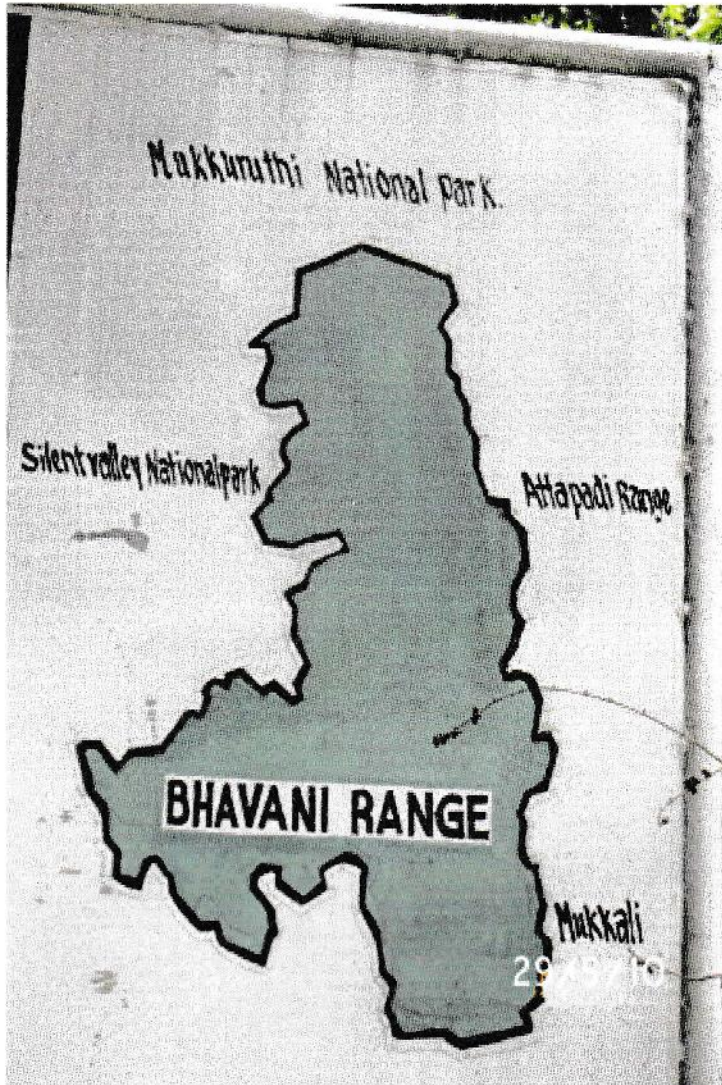


Photo 1



Photo 2 Bhavani river – Mukkali- Mid land



Photo 3 Bhavani river – Mukkali- Mid land



Photo 4 *Putius fasciatus*



Photo 5 Young one of *Puntius carnaticus*



Photo 6. Water sample testing at Attappadi

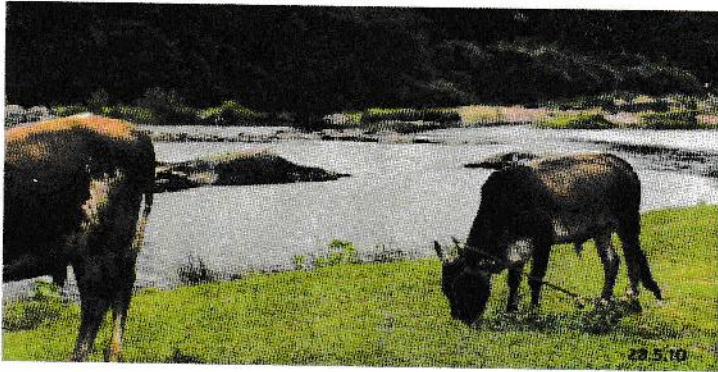


Photo 7 Attappadi Site- High land



Photo 8 Attappadi site – High land



Photo 9 Bio Club Awareness at Mukkali



Photo 9 Siruvani – Low land

## References:

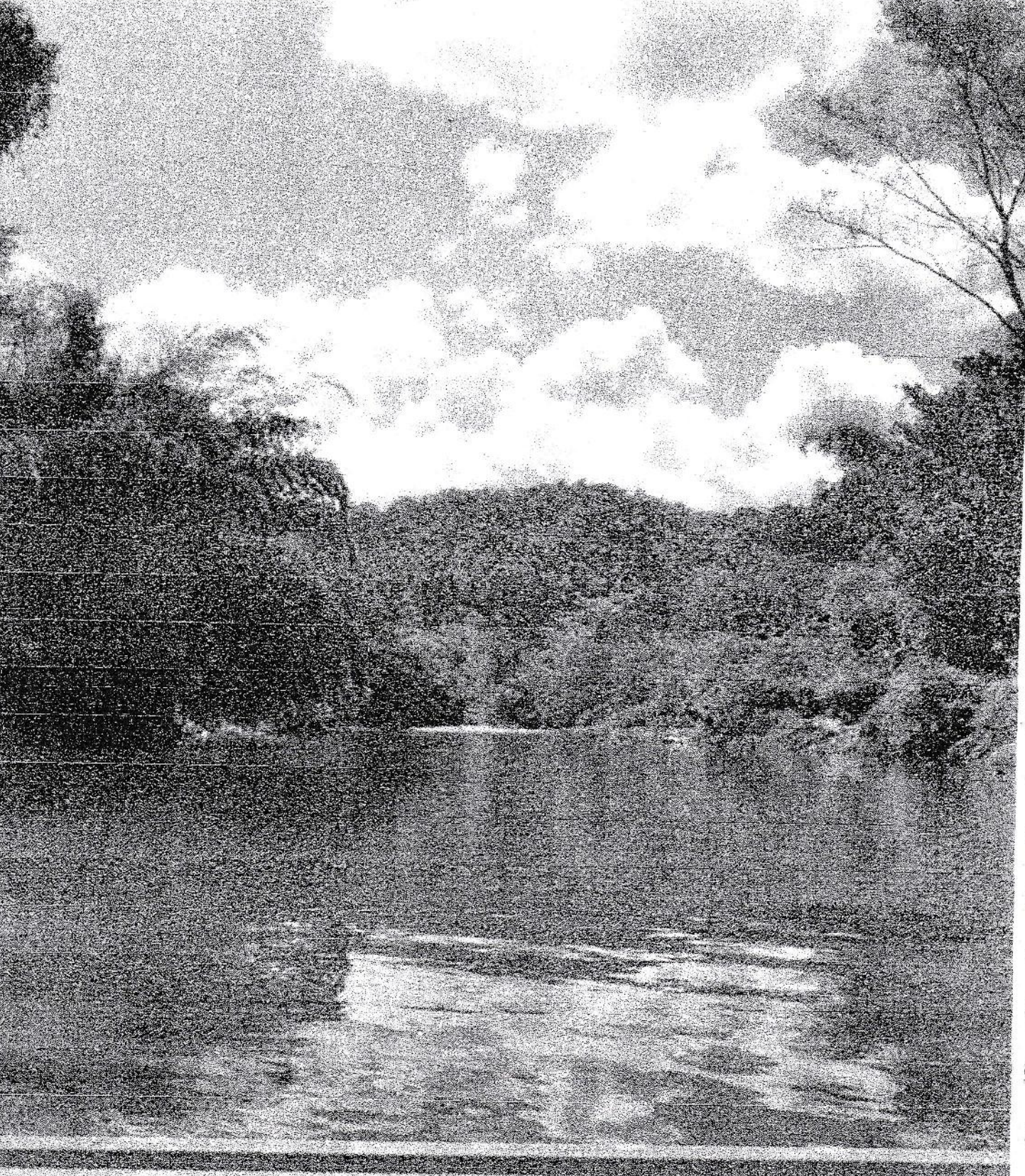
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