

Trout & Carp Fish farms in Himachal Pradesh An Assessment Report

Preamble:

Fish farms are the foundation stones of Fisheries development in Inland Fisheries Sector. The seed produced at these seed production centres is either used for replenishing the harvested fish stock of open waters i.e. rivers or reservoirs or is further reared under semi-controlled conditions in growing ponds and sold for table purposes. Our state is one of the state amongst a few in the Union of India which has been gifted by the mother nature with the rivers emanating from glaciers, which traverse through hilly terrains and finally enrich the semi-plain and plain areas of the state adjoining Punjab and Haryana. Himachal Pradesh has approximately 3000 kms of riverine length and four reservoirs namely Gobind sagar, Maharana Partap sagar, Pandoh and Chamera constructed on Satluj, Beas, and Ravi rivers respectively. The upper zones of rivers inhabit indigenous *Schizothoracids*, and exotic *salmonids* (trout) while the zones interspersing the semi-plain and plain areas are the abodes of Himalayan tiger- the mighty mahseer, Indian Major Carps and the much sought after catfishes such as Singhara (*Mystus seenghala*) Malhee (*Wallago attu*) and Soal (*Channa species*). Keeping in view the variegated nature of water resources the Government of Himachal Pradesh through its department of Fisheries has setup two types of fish seed farms- Coldwater or Trout fish seed farms and warm water or Carp seed farms. The mandate of these farms till recently was to produce the seed of trout and carps and stock it in rivers and reservoirs with an aim of replenishing the harvested stocks from these water bodies. With the advancement in fish farming it has been now possible to produce fish for human consumption at these farms and thus making them revenue-earning centres. There are in all 12 fish seed farms under the control of Himachal Pradesh Fisheries Department out of which 6 are trout farms and another 6 are carp farms. These are as under:

Trout farms

- 1. Patlikuhl (Kullu);**
- 2. Barot (Mandi);**
- 3. Holi (Chamba);**
- 4. Dhamwari (Shimla);**
- 5. Sangla (Kinnaur).**

Carp farms:

- 1. Deoli (Bilaspur);**
- 2. Alsu (Mandi)**
- 3. Kangra (Kangra);**
- 4. Sultanpur (Chamba);**

The carp farms at Gagret and Nalagarh have been leased out to private entrepreneurs for fish and seed production. The trout fish farm at Nagni has been washed out in devastating floods in the year. A new trout fish farm is being under construction at HAMNI in Kullu District. To revive the pristine

glory of Mahaseer Fisheries in the riverine as well as reservoir sectors of state, a Mahaseer Fish farm is near its final stages of completion at MACHYAL in Mandi District.

Status of trout fish farms:

The present status of trout farms in terms of fish and fish seed production their development and future prospective is as under:

1. Patlikuhl: ESTD. 1909



This farm is situated at National Highway-21 between Kullu and Manali on 26.4 bighas of land. The farm has following infrastructure:

- a) Raceways = 14 [13 (15x2x1.5m) and 4 (45X2.8X1.5)]
- b) Hatcheries = (Bathar and Patlikuhl)
- c) Office Building = 1
- d) Feed mill = 1
- e) Staff residences = 14

Availability of water:

The water to this farm is being drawn through H.D.P. pipes from a perennial tributary of river Beas named as Sujan or Sanjoin nala. The quantum of water available is sufficient for the available raceways. Hatchery at Patlikuhl is under renovation and is being provided assured water supply system.

Capacity of farm, hatchery, feed mill and extent of utilization:

Fish farm:

The fish farm has a fish production capacity of 10 tonnes and the production level attained during previous years has been over and above the capacity.

**Bathar Hatchery:
ESTD 1996**



This hatchery is located at a distance of about 5 km from Patlikuhl. It has an ova incubation capacity of 2,00,000 but the rearing space available for the hatchlings is hardly sufficient. With utmost care about 60,000-70,000 hatchlings can only be reared up to 1 g size. The capacity utilization in the past has been over and above the capacity.

Patlikuhl Hatchery:

This hatchery has 8 nursery tanks of size 2x2x0.5m made of fiberglass.

Feed mill:

The feed mill is catering the feed requirements of trout farms functioning under the department as well as farms in the private sector. The mill has a production capacity of 300 kg per hour. The annual production of feed is approximately 50 tonnes.

Staff Position:

The sanctioned staff strength as well as staff in position at Patlikuhl office is as under:

#	Name of post (s)	Sanctioned strength	Staff in position
1.	Deputy Director	1	1
2.	Senior Fisheries Officer	1	1
3.	Fisheries Officer	1	2
4.	Sub Inspector Fisheries	1	0
5.	Superintendent-G-II	1	1
6.	Clerk	3	1
7.	Stenographer	1	-
8.	Farm Assistant	2	-
9.	Feed mill Mechanic	1	1
10.	Field Assistant/ Fishermen/Pump opp.	10	9

11.	Chowkidar/Peon	2	2
12.	Driver	1	1

Building:

Patlikuhl:

2. Office	1
3. Feed-mill ingredient stores	3
4. Hatchery	1
5. Laboratory	1
6. Staff quarters type-1= 7, type-II	4
7. Type-iii	2
8. Type-iv	1
9. Store	1

Bathar

1. Hatchery 1
2. Type-I 1
3. Type-II 1
4. Store
- 5.

Following activities have been initiated for further expansion and up gradation of existing production level of fish farm at Patlikuhal.

- Re-construction of hatchery at Patlikuhl;
- Expansion of hatchery building and inside infrastructure at Bathar;
- Upgradation of fish feed mill;
- Construction of Angling lake at Patlikuhl;
- Fish buyers face difficulty in the procurement of ice, as there is a small ice plant at Kullu in the entire district. A small ice plant is proposed to be set up in the farm complex.

3. Barot Trout Farm: ESTD. 1959



This farm is situated on the left banks of Uhl and Lambadug rivers near the barrage of Shanon Hydro-electric power project at Barot in Jogindernagar tehsil of Mandi district. The farm has following infrastructure:

- Water storage tank 1 (7.6x4.9x1.78m)
- Fish ponds 3 (7.6x2.4x1.9m)
- Raceways 6 (15x2x4.5m))
30x2x1.5M
- Hatchery 4 Nos
- Office-cum-residence of FO 1
- N. Ponds 10x1x1 M 8 Nos.
- Type-I residence 6
- Aquashop 1

Staff Position

- Fisheries Officer 1
- Farm Asstt. 1
- Fishermen/Field Assistant 5 (*for Uhl river)
- Chowkidar 1

Water availability

The farm had problem of inadequate water supply in the post. The two old water supply systems renovated while two new water supply system from lambadug river with 150 lps capacity have been setup at the farm.

Farm:

In absence of dependable water supply the farm was hardly able to be assigned any fish production capacity. Even maintenance of brood fish was difficult with the augmentation of water supply it's fish production capacity has been increased to 5 t/ annum.

Hatchery:

Hatchery has 6 incubation troughs with 4 trays with utmost care it may only be possible to incubate about 1,20,000-, 1,30,000 eggs here. There are six start feed tanks capable of holding about 1,00,000 hatchlings.

Scope of expansion:

The farm has a scope for expansion in it's fish & fish seed production capacity by 5 t and 1 lakhs ova respectively.

4. HOLI Trout Farm: ESTD. 2000



This farm has been constructed in Bharamaur tribal area at Holi in Chamba district to facilitate the propagation of trout in open waters of Ravi and its tributaries besides initiation of trout farming in rural areas for the generation of employment avenues to the tribal people. The farm has a land area of 6 bighas.

Water availability:

Water for the farm is being drawn from two sources: a) spring source and from Kee-nala from a distance of about 2 km from the farm. The spring source provides approximately one lit/sec water while the pipeline from nala brings about 50lt/sec.

Infrastructure available at the farm:

- Raceways 6 (15x2x1m)
- Nurseries 10

- Hatchery 1
- FO staff/residence 1
- Type-I 2
- Type-II 1

Capacity of farm, Hatchery and its utilization level attained:

Farm:

By making improvements in the water supply system the farm has now 2 tonnes fish production capacity.

Nurseries:

Ten number cement concrete nurseries have been constructed at the farm. 40,000 trout fingerlings can be reared here up to 5 g size.

Hatchery:

The hatchery has 6 incubation troughs with three trays each. As such it is possible to incubate about 1,00,000 trout ova in the hatchery.

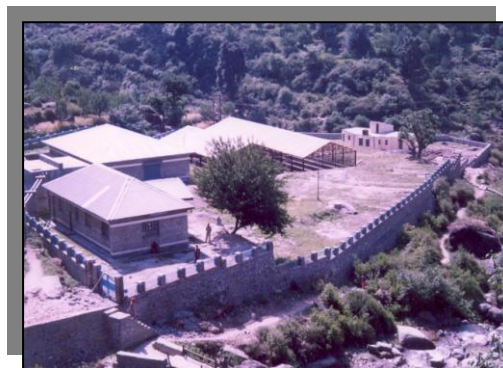
Staff Position:

- Fisheries Officer 1
- Sub Inspector 1
- Field assistant 2
- Fishermen 1
- Chowkidar 1

Scope for expansion of activities:

The quantum of water available is a limiting factor for the expansion in activities at the farm; spring source has 1lt/sec of water. Water supply system from Kee nala is approximately of 2 km length and interspersed with landslide prone areas.

6. Trout Farm Dhamwari: ESTD. 2005



This farm is located on 0.6 ha land in Rohru tehsil of Shimla district at Dhamwari. The farm has been recently constructed.

Water availability:

Water to the farm is being drawn from Khanyara khad at the rate of 150lt/sec through G.I. pipe. There is hardly any shortage of water to the farm and if needed the quantum of water being drawn can be increased by laying an additional pipe line.

Infrastructure available at the farm:

- Raceways 11 (3) (15x2.17x1.5m)
(8) (15x2x4.5m)
- Hatchery building 1 (Containing 4 start feed tanks, two nursery tanks and 6 hatching troughs with 24 trays)
- Office Building 1
- Type II residence 2
- Type-I Residence 2

Capacity of the farm and hatchery and it's utilization level:

Farm:

The construction works at the farm are rearing completion. It shall have a fish production capacity of 5 tonnes.

Hatchery:

The hatchery has an installed capacity of 1 lakhs ova & 50000 fingerlings.

Staff Position:

- Fisheries Officer 1
- Field Assistant 3
- Fishermen 1
- Chowkidar 0

6. Trout Farm Sangla ESTD. 1965



Kinnaur district has a small trout farm at Sangla in on the left bank of river Baspa. The farm has total are of 1.5 acre.

Water quality:

The water is being drawn to the farm from Hubra khad, which is a tributary of river Baspa, through 5-inch diameter GI Pipe. It is estimated that the total availability of water is to the tune of 40lt/sec. There are two spring water sources outside the farm which are supplying about 5 lt/sec water to the farm and this is the water which is being used for rearing the live stock at present.

Infrastructure available:

- Raceways 14 (size varies from 7x1.5x1m to 15x2x1.30m)
- Nursery tanks 16
- Office-cum-store 1
- Hatchery 1
- Feed store 1
- Residential complex Type-III = 2
Type-II = 2

Capacity of the farm, Hatchery and level of it's utilization level:

Farm

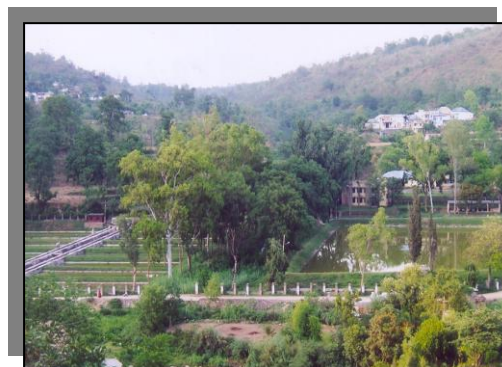
There are plenty of raceways at the farm, but water supply is limiting factor. In order to utilize all the infrastructure available an additional water supply system from Rukti khad is under construction at the farm. After it's completion, farm shall have a production capacity of 5 tonnes.

Hatchery:

Hatchery at the farm is under remodeling process.

Carp Farms:

1. Deoli (Bilaspur) ESTD 1960



This farm is situated on 4.4 hectare of government land in Deoli village of Bilaspur district. There is following infrastructure at the farm:

- Nursery ponds: 14 (30x10xm)
- Rectangular pond: 1 (100x60x2m)
- Triangular pond: 1 (1 ha.)
- Office-cum-residences: 1
- Rest house and Aquarium house: 1

Water availability:

There is no dearth of water to this farm and it can be drawn as per requirement from the small rivulet flowing by the side of the farm.

Capacity of the farm and level of its utilization:

The farm is producing common carp (*Cyprinus carpio*) fish seed besides experiments on the breeding of fresh water ornamental fish species. The common carp is the ideal fish for this farm keeping in view the quantum of seed produced during previous years. The available nursery area has the capacity to rear about 15 million carp spawn per annum.

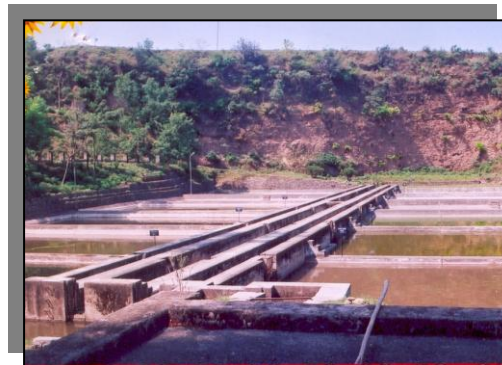
The two bigger ponds of 0.6 and 1 ha. each are available for the maintenance of brood fish and raising of fish for sale.

Gold fish (*Carassius carassius*) is also being maintained at this farm for sale to the aquaria owners.

Staff position:

- Fisheries Officer 1
- Farm Assistant 1
- Field Assistant/Fishermen 3
- Chowkidar 0

2. Alsu Farm (Mandi) ESTD. 1960



This farm is situated at Alsu village of Sundernagar tehsil of Mandi district and has a land area of 20 bighas. The farm has following infrastructure:

- Nursery ponds: 12 (75x50x5feet)
- Storage pond 1 (20x20x10 feet)
- Marketing pond 1 (375x80x12 feet)
- Office-cum-residence of FO 1
- Type-1 3

Water availability:

Water to the farm is being drawn through a kuhl from Alsu nala but the local people never allow drawing water to the farm as per requirement. During lean season or say summers there remains acute shortage of water at the farm.

Capacity of the farm and its present level of utilization:

Following fish species are being reared at this farm:

- Indian major carps- Rohu & Mrigal
- Grass carp

Perhaps it is the only carp farm in the entire Himachal Pradesh where Indian major carps especially mrigal and Rohu are being successfully bred. This has been a regular feature since 1998 onwards. There has been, there is and there shall always be heavy demand for the seed of Indian major carps in the state as such this farm is being given more attention. The farm has attained major carp seed production level of 20,00,000 spawn per year.

Its production level is being increased to 5 million seed per annum by setting up Chinese hatchery & increase in rearing space

Grass carp fish is assisting in the control of aquatic weeds and this has not responded for artificial breeding so far.

Staff position:

- Fisheries Officer 1
- Farm Assistant 1
- Field Assistant/Fishermen 4
- Chowkidar

1

**3. Kangra farm:
ESTD. 1965**



Kangra fish farm has an area of 0.48 ha, out of which water area is 0.28 ha. The farm has following infrastructure:

- Nursery ponds 3 (1272 sqm)
- Rearing ponds 5 (618 sqm)
- Brood stock ponds 2 (1199 sqm)
- Office-cum-Rest house 1
- Residence quarter:
 - Type-III 1
 - Type-I 3.

Water availability:

There is a small pond having an area of 42 sqm, which is acting as a water source during monsoon and early part of winter, when this pond overflows, it supplies water to some other ponds. During lean season when the subsoil water ponds are supplied water through an electric pump from this pond, meaning thereby that all the ponds at the farm except the nursery area are dependant for water on the subsoil water table.

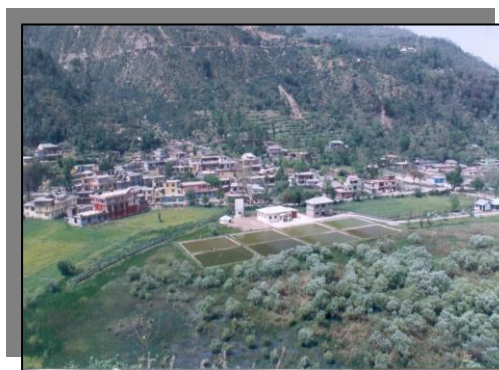
Staff position:

- Fisheries Officer 1
- Farm Assistant 1
- Fishermen 3

Constraints:

Except three nursery ponds all the ponds are getting sub-soil water and there is hardly any scope to increase in their productivity as the entire manure or nutrients if added would not be able to react with bottom soil or pond water and are likely to get leached. This results in stunted growth in fish.

**4. Sultanpur Farm (Chamba)
ESTD. 2000**



The farm is situated on 32 bighas of marshy land of Sultanpur in Chamba district. The main objective of setting up this farm was to provide quality fish seed to the fish farmers in Chamba, besides production of fish for table purpose and stocking of Chamera reservoir. The farm has following infrastructure:

- Nursery ponds 8 (18x13x1m)
- Sump well 1
- Office building 1
- Aquarium house 1
- Angler lodge (UC) 1
- Chowkidar hut 1
- Residential complex
 - Type-III 1
 - Type-II 2
 - Type-I 2

Water availability:

It is the subsoil water, which is being used for fish and fish seed rearing at the farm. A sump-well has also been constructed recently. Perusal of the water temperature record reveals that the temperature ranges between 8 to 38 degree Celsius, lowest during January and maximum during July month. The farm being at low area receives entire run off water from the catchments and this water accumulates in major portion of farmland.

Capacity of the farm and extent of its utilization:

Water logged nature of the farmland has made the productivity control difficult in the ponds. The pond bottoms are peaty and can be dried nor completely

netted out during fish and fish seed harvesting. The total rearing space available is 0.18 ha. Had it been possible to completely de-water the ponds and adopt all fish rearing practices it could have been possible to rear 15-20 lakhs carp spawn in 6 ponds (2 to be left as brood fish ponds) and thereby raise 5 lakhs fry.

Staff position:

• Assistant Director	1
• Senior Fisheries Officer	1
• Clerk	2
• Peon	2
• Chowkidar	1
• Farm Assistant	0
• Field Assistant	2
• Fishermen	2
• Daily paid	-
• Driver	1