

A Seminar Paper
on
Halda River , the future prospects of Bangladesh
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Halda River , the future prospects of Bangladesh¹

By

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ABSTRACT

The Halda River is the one and only natural breeding ground of carp in Bangladesh. Halda River rises from the badnatali hill ranges in the Chattogram hill tracts and enters Chattogram district through fatikchhari upazila. Eggs of carp fish's (*Catla catla*, *Labeo rohita*, *Labeo calbasu* and *Cirrhinus cirrhosus*) are collected by local fisherman during April to June almost every year from this river. A record 25,600 kg of eggs were collected as the brood fish of indigenous species released eggs in the Halda river in 2020. Secondary data, research papers, newsletters, books, journals etc are used for collecting information on the Halda River. The Halda river is the claimant of the country's national fish breeding heritage for its distinctive features. A total of 83 finfish species under 13 orders and 35 families and a total of 10 shellfish (9 prawns and 1 crab) were identified from the river Halda. This river is the only pure natural gene bank of Rui species in Bangladesh. The amount of heavy metal in the water of this river is less than the standard set by the World Health Organization. Therefore) the Halda River water is especially important as a source of pure and potable water. Tk 67 crore is being earned only by selling water to Chattogram WASA every year. The great contribution in irrigation of 12,550 hectares of agricultural land which includes 1333 million BDT in economy of our country. At present this river facing a variety of natural and man-made crisis. As a result natural fish breeding is hampered. The potentiality of Halda associated with many sector (Agriculture, Water Resources, Economy etc.) can create the greatest figure to improve our national economy in future. This article outlines have importance to utilize all the probable sources of this river for future prospects of Bangladesh.

Keywords: Halda River, ecosystem services, biodiversity, breeding.

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CHAPTER I

INTRODUCTION

Halda River is one of the major rivers in the South-East region of Bangladesh. This river originates in the hilly streams of Khagrachari district and flows through the Fatickchari, Hathazari and Rouzan of Chattogram districts covering 88 km and then meets the river Karnaphuli, which after traversing 20 km empties into the Bay of Bengal . Tidal influence reaches about 40 km upstream in the Halda River from its mouth. The tidal River Halda is one of the tributaries of the River Karnaphuli and well known as the country's main spawning ground of major carps from which naturally fertilized eggs of carps are collected and hatched in mud-made scoops on the river bank for aquaculture purposes (Khan and Azadi, 2006).

The river is also one of the major sources of brood and PL (post-larvae) of giant freshwater shrimp (*Macrobrachium rosenbergii*). A rich assemblage of marine, estuarine, riverine, floodplain, and migratory fin fish and shell fish inhabit Halda River. During the Bangla months of Baishakh and Jaishtha (April and May) every year, different species of mother fish, like Catla (*Catla catla*), Ruhi (*Labeo rohita*), Mrigal (*Cirrhinus cirrhosus*) and Kalibaoush (*Labeo calbasu*) start migrating to the spawning grounds of the Halda, from rivers like the Karnaphuli, Matamuhuri, and Sangu. Halda River is famous as the only tidal river in the world that houses the breeding of pure Indian carps. This is the only river in the world from where fishermen collect fertilized eggs directly (Kibria *et al.*, 2009).

A record 25,600 kg of eggs were collected as the brood fish (mother fish) of indigenous species released eggs in the Halda River, Bangladesh's largest natural breeding ground for carp. Carp fishes lay eggs in the river during high and low tide on the night of the new moon or the full moon when thunderstorms and flash floods occur between mid-April and early June(Saleh,2020).

As a tidal River, this is the only of its kind in the world from where fishermen can collect fertilized eggs directly (Kibria *et al.*, 2009). In past, sixty percent of the country's pond carps culture was reliant on the fish fry naturally produced in the River which is of insurmountable economic and nutritional value. The River also provides drinking water supply and generates an

unparallel number of employment opportunities for the local communities. In this way, it plays pivotal role in the local and the national income generation which makes this River a natural resource of immense economic value (kabir *et al.*, 2013).

territory loss and environmental deprivation causes rapid decline in biological diversity which is a critical challenge for the modern era (Vyas *et al.*, 2012). Freshwater biodiversity is now in a state of crisis, a consequence of decades of human exploiting rivers with overfishing, pollution and development activities. Necessary management initiatives are much needed with updated list of fish species to conserve the biodiversity of fishes in the Halda River.

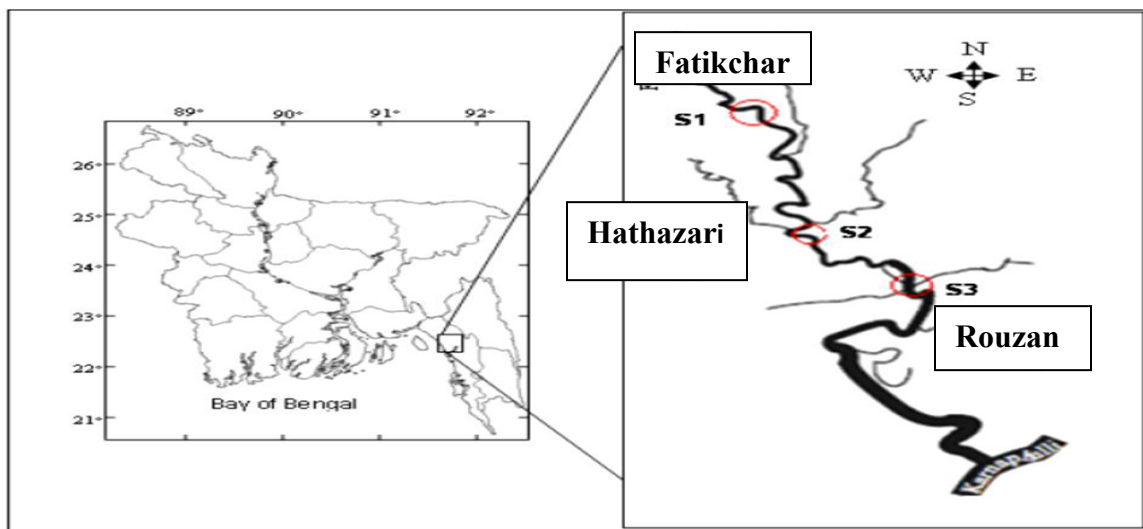


Figure 01.Geographical location of Halda River (Source: Alam *et al.*, 2013)

Objectives

Considering the conditions stated above, the seminar paper has been prepared with the following objectives:

- To review the ecosystem services of Halda River
- To assess the economic contribution of Halda River
- To discuss the fish biodiversity and breeding status of carp in Halda River
- To assess the potentiality of Halda River for future prospects of Bangladesh

CHAPTER II

MATERIALS AND METHODS

This seminar paper is completely a review paper so all of the information was collected by me from the secondary sources. During this paper preparation I have collected key information from various related books, journals, reports, publications etc. Findings related to seminar paper have been prepared from library facilities of Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU) and related internet web sites were used to accumulate information. I found valuable suggestions and information from my course instructors, my major professor and other resource personnel. After collecting all the available information, I compiled and prepared this seminar manuscript systematically and chronologically to enrich this paper.

CHAPTER III

REVIEW OF FINDINGS AND DISCUSSION

3.1 Ecosystem Services (ESs) from Halda River

The concept of ecosystem services (ESs) have emerged as a structuring and synthesizing framework for understanding ecosystem processes in terms of human well-being (Sukhdev *et al.*, 2010). The Halda River is the natural breeding ground for major Indian carps and the main source of carp fries for fish cultivators throughout the country. The river also serves as the fishing ground for local fishermen and supplies drinking water for inhabitants of Chattogram city. Besides, it provides irrigation water to local farmers and meets daily household water needs for communities living in the vicinity. The Halda is also a popular recreational site (Kabir *et al.*, 2015). The following ESs have identified from Halda River.

3.1.1 Provisioning Services

- Supply of drinking, irrigation, and household water.
- Supply of food (fish).
- Supply of non-food consumables such as sand, eggs from brood fishes for pisciculture farms, etc.
- Provision of livelihood for fisherman, boatmen, sand collectors etc. Provision of tourism services.
- Provision of water-based transportation for passengers, sand, bamboo, bricks and trade merchandise, etc. (Kabir *et al.*, 2015)

3.1.2 Cultural Services

- Scenic landscape offering unique smells, sounds, senses, and atmosphere.
- Sites of cultural and religious significance.
- Indigenous knowledge for egg collection and spawning tools and techniques. Characteristic festivity during the egg collection and spawning season.
- The Halda is a source of recreation for adjoining communities and visiting tourists.

- The Halda is an active site for research.
- Origin of cultural icons such as the unique type of boat (Sampan) and unique genre of song by boatmen –Sampanwala. (Kabir *et al.*, 2015)

3.1.3 Regulating Services

- Water purification and assimilation of pollutants and contaminants from different point sources.
- The river provides spawning ground for major Indian carps and regulates their population
- The river stabilizes its banks through retention of soil and addition of sediments.
- It serves as an important component of watershed in the Chittagong region.
- Minimization and colonization of excessive growth of weeds.
- Regulation of ecological and hydrological processes and cycles.
- Minimization of salinity intrusion from the tide off the Bay of Bengal. (Kabir *et al.*, 2015)

3.1.4 Supporting Services

- The river maintains a unique ecosystem to support the brood fishes of major Indian carps and their spawning which gives the river its unique identity.
- The Halda maintains a biodiversity including many aquatic life forms such as Dolphins, rare birds, etc. and serves as a natural gene pool. The sediments carried by this river contribute to soil formation .
- The Halda plays a crucial role in ensuring other ESs through nutrient cycling by carrying sediments from the upstream. (Kabir *et al.*, 2015)

3.2 Economic Worth of Provisioning ESs from Halda River

The market value of post-larvae prawn and prawn collected each year from the lower Halda River has been about BDT 19 and 26 million, respectively. The accumulated annual value of fishing from the Halda has been BDT 17 million. The Halda is the only source of water to meet daily household water demand.

The Halda provides irrigation to 12,550 hectares of agricultural land. The Halda also plays an important role in water transportation. Annual earning of all boatmen has been about BDT 10 million. (Kabir *et al.*, 2015)

Table 1. Annual economic worth of provisioning ESs from Halda River

| Services | Economic worth (million BDT) |
|-------------------------|------------------------------|
| Fish fry production | 10.08 |
| Fishing activities | 62.22 |
| Drinking water use | 112.4 |
| Household uses of water | 14.01 |
| Irrigation water use | 1333 |
| Water transportation | 9.91 |
| Sand quarry | 211.6 |
| Total | 1753.1 |

(Source: Kabir *et al.*, 2015)

Table 2. Annual economic benefit of prawn catching from Halda River

| Category | Average number of people per day | Average amount of fish caught per day (kg) | Average selling price per kg (in US\$) | Total income annually (in US\$) |
|--------------|----------------------------------|--|--|---------------------------------|
| Jo | 200 | 1.5 | 4.74 | 259325.04 |
| Dala | 120 | 0.5 | 4.74 | 51865 |
| Total | | | | 311,190.05 |

(Source: Kabir *et al.*, 2015)

Table 3. Annual income from the sales of Post-larvae Prawn from Halda River

| Category | Category |
|--|---|
| Location of post larvae prawn collection | Amtoa to Kalurghat |
| Time of collection | Chaitra, Baishakh and Jaistha (March, April and May) |
| Average number of fishermen involved per day | 300 |
| Average price of each post larvae prawn (in US\$) | 0.041 |
| Annual income from catching post larvae of prawn (in US\$) | 223,801.07 |

(Source: Kabir *et al.*, 2015)**Table 4. Annual income from the sales of Prawn and Fish from Halda River**

| Category | Annual income (in US\$) |
|----------------|-------------------------|
| Fish catching | 201,344.29 |
| Prawn catching | 311,190.05 |
| Total | 512,534.34 |

(Source: Kabir *et al.*, 2015)**Table 5 .Net profit from fish fry production**

| Category | Amount (in US\$) |
|---------------------|------------------|
| Annual total income | 119391.50 |
| Annual total cost | 69,936.39 |
| Net benefit | 49,455.11 |

(Source: Kabir *et al.*, 2015)**Table 6. Annual economic benefit through water transportation of Halda rive**

| Category | Amounts |
|--|------------|
| Average economic benefit per day per station (in US\$) | 11.10 |
| Number of boat stations | 29 |
| Annual economic benefit (in US\$) | 11,7530.76 |

(Source: Kabir *et al.*, 2015)

Table 7 : Total annual economic benefits from sand extraction

| Category | Amounts (in US\$) |
|---|-------------------|
| Annual economic benefit from legal sand stations (Balu Mohal) | 1471017.8 |
| Annual economic benefit from illegal sand stations | 170722.32 |
| Annual economic benefit by selling sand for filling | 864416.81 |
| Net annual economic benefit | 2,506,157 |

(Source: Kabir *et al.*, 2015)

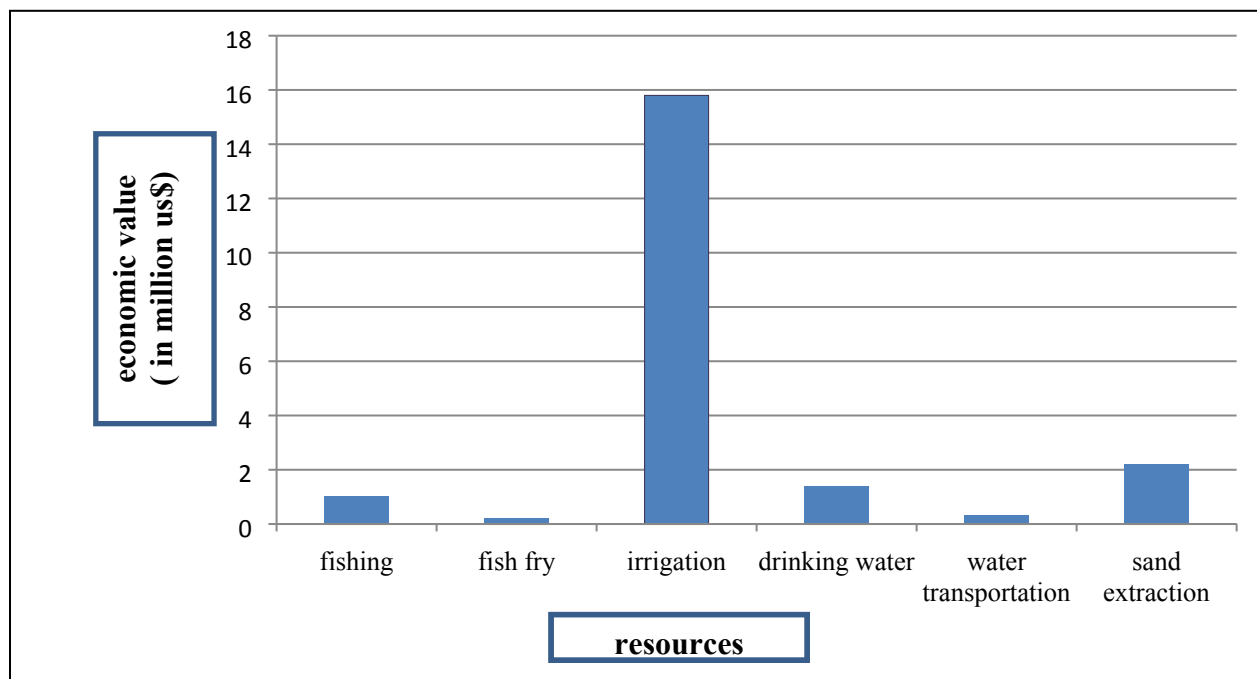


Figure 2 : Economic contribution of Halda river (source: kabir *et al.*, 2013)

3.3 Fish biodiversity of Halda River

Biodiversity is the quantity, variety and distribution across biological scales ranging through genetics and life forms of populations, species, communities and ecosystems (Mace *et al.*, 2005). A major portion of the country's pond carp culture is dependent on these wild seed (Azadi 1979). But the fish diversity of this river has little studied. It is widely accepted that the aquatic biodiversity of Bangladesh including Halda River has not been described statistically

(Chowdhury *et al.*, 2010). During seven years of study period (from September 2004 to December 2011) a total of 83 finfish species under 13 orders and 35 families and a total of 10 shellfish (9 prawns and 1 crab) under 1 order and 3 families were identified from the river Halda (Alam *et al.*, 2013).

Table 8. Ichthyofauna of Halda River

| Ichthyofauna | Number of species |
|-----------------------|-------------------|
| Families | 35 |
| Cyprinidae | 19 |
| Gobiidae | 11 |
| Palaemonidae | 8 |
| Penaeidae | 1 |
| Portunidae | 1 |
| genera | 69 |
| exotic species | 3 |
| species | 93 |
| finfish | 83 |
| critically endangered | 3 |
| endangered | 9 |
| vulnerable category | 8 |

(Source: Azadi and Alam, 2013)



Figure 3: Some fishes found in Halda River(*Rasbora rasbora*, *Puntius ticto*, *Puntius gelius*, *Salmostoma phulo*) (Source: Google and Wikipedia)

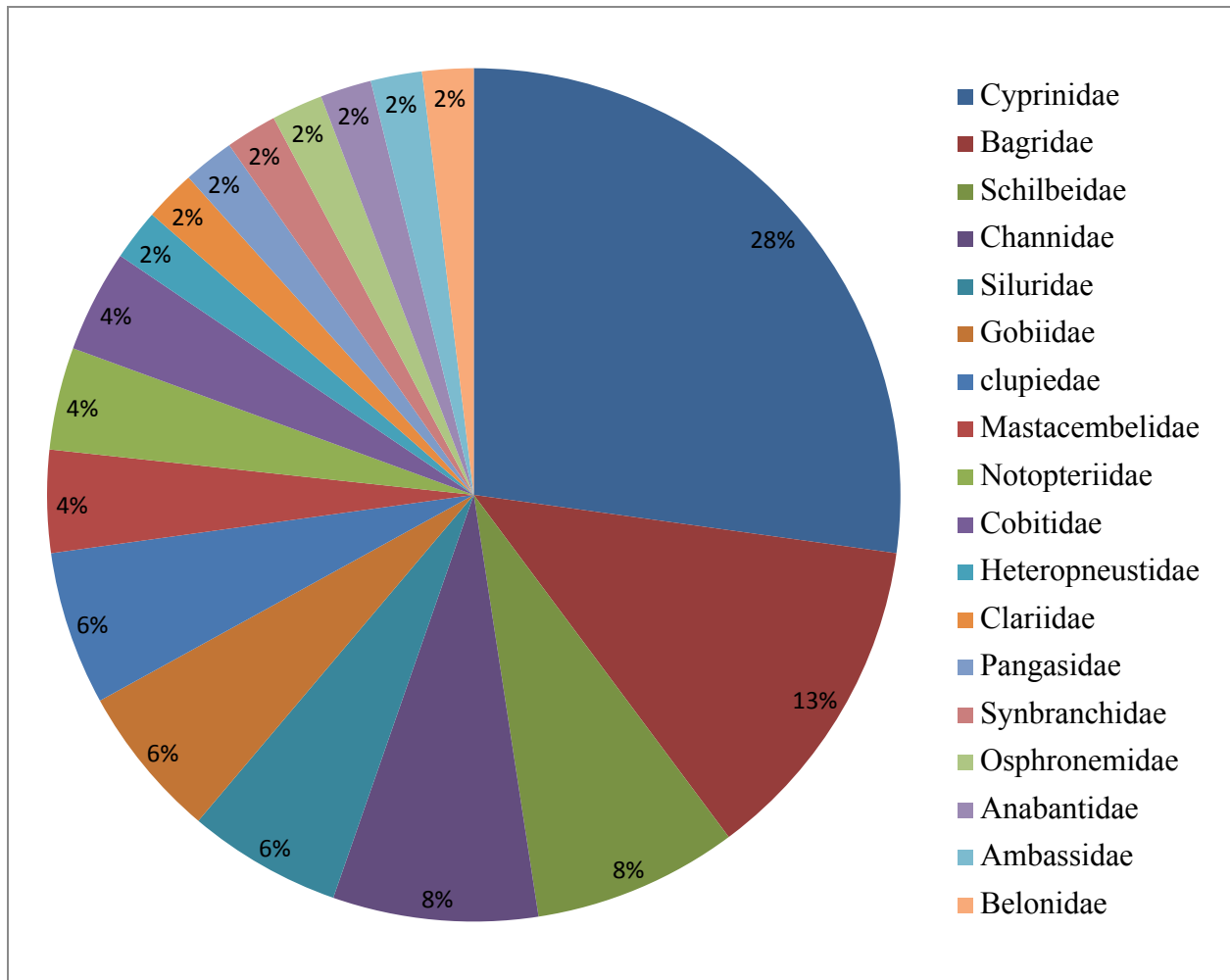


Figure 4. Family based species percentage in Halda River at Garduara point(Source: Ferdous *et al.*, 2015)



Figure 05: Exotic species of carp found in Halda river (*H. molitrix* *C. idella*) (Source: Google and Wikipedia)

Table 9. List of major finfish family and their belonging species found in Halda river

| Family name | Species |
|------------------------|------------------------------------|
| Cyprinidae | <i>Labeo rohita</i> |
| | <i>Labeo calbasu</i> |
| | <i>l. goniuis</i> |
| | <i>l. bata</i> |
| | <i>Cirrhinnus cirrhosis</i> |
| | <i>Catla catla</i> |
| | <i>Amblypharyngodon mola</i> |
| | <i>Puntiusn ticto</i> |
| | <i>p. sophore</i> |
| | <i>P. terio</i> |
| | <i>Esomus danricus</i> |
| | <i>Rasbora rasbora</i> |
| | <i>Danio dangila</i> |
| | <i>Ctenopharyngodon idella</i> |
| | <i>Hypophthalmichthys molitrix</i> |
| | <i>Salmostoma bacaila</i> |
| <i>Cyprinus carpio</i> | |
| Belonidae | <i>Xenentodon cancila</i> |
| | <i>Channa punctate</i> |
| | <i>C. orientalis</i> |
| Cynoglossidae | <i>Cynoglossus cynoglossus</i> |
| Bagrida | <i>M. engara</i> |
| | <i>M. gulio</i> |
| | <i>Mystus vittatus</i> |
| Gobiidae | <i>Glossogobius giuris</i> |
| | <i>Stigmatogobius sadanundio</i> |

| Family name | Species |
|--------------------|----------------------------------|
| Gobiidae | <i>Trypauchen vagina</i> |
| | <i>Odontamblyopus rubicundus</i> |
| Mastacembelidae | <i>Mastacembelus armatus</i> |
| | <i>Macragnathus aculeatus</i> |
| Notopteridae | <i>Notopterus notopterus</i> |
| Osphronemidae | <i>Colisa fasciata</i> |
| | <i>Trichogaster chuna</i> |
| Polynemidae | <i>Polynemus paradiseus</i> |
| | <i>Neotropius atherinoides</i> |
| Schilbeidae | <i>Clupisoma garua</i> |
| | <i>Silonia silondia</i> |
| | <i>Ailia coilia</i> |
| Sciaenidae | <i>Johnius coitor</i> |
| | <i>Wallago attu</i> |
| Siluridae | <i>Ompok pabda</i> |
| Ambassidae | <i>Chanda nama</i> |
| Anabantidae | <i>Anabas testudineus</i> |
| Aplocheilidae | <i>Aplocheilus panchax</i> |
| Engraulidae | <i>Setipinna phasa</i> |
| | <i>S. taty</i> |
| | <i>Apocryptes bato</i> |
| | <i>Pseudapocryptes elongatus</i> |
| Clariidae | <i>Clarias batrachus</i> |
| Clupeidae | <i>Gudusia chapra</i> |
| Cobitidae | <i>Botia Dario</i> |
| Synbranchidae | <i>Monopterus cuchia</i> |

(Source: Azadi and Alam, 2013)

3.4. Natural breeding ground

Instinct breeding in natural environment is known as natural fish breeding. Naturally in favorable environment of tide stream, a hormone of fish inside their body named gonadotropin get mixed with blood and incite the fish for breeding. The breeding period of most of the fishes is May to August. For natural propagation , males and females are placed together in a breeding area such as a small pond or an enclosure where they spawn naturally. This method is usually used, for example, to produce tilapias cheaply.

3.4.1. Halda as the natural breeding ground of carp

Halda River has great importance since it is a natural breeding ground of carp fishes. It also a major source of naturally occurring Indian major carps (Bhuiyan *et al.*, 2018). Several species of fish and other freshwater fish species usually breed in the Halda River (Tsai *et al.*, 1981). This river is the one and the only natural carp breeding ground in Bangladesh from where fertilized carp fish's (*Catla catla*, *Labeo rohita*, *Labeo calbasu* and *Cirrhinus cirrhosus*) eggs are collected by local fisherman and egg collectors during April to June almost every year for time immemorial(Ali *et al.*, 2010). The collected eggs are hatched in the artificial mud-made scoop on the riverbank to produce carp fries. The fry from here are supplied to different regions of the country for aquaculture (Bhuiyan *et al.*, 2019).



Figure 6. Carp eggs collected by the local fisherman from Halda River(Source: Google and Wikipedia)

3.4.2 Present status of egg collection of carp from Halda River

The presence of eggs and larvae of broadcast spawners can be indicative of spawning grounds, although it should be noted that later larval stages may have been advected away from the spawning site. Mature fish with running eggs or sperm is an indicative of spawning grounds. The Halda and its waters have some unique features which cause fishes to come to lay eggs. These features are of three kinds: physical, chemical and biological (Alam *et al.*, 2013).

Table 10. Present status of egg collection

| year | Amount/kg |
|------|-----------|
| 2014 | 16,500 |
| 2015 | 2,800 |
| 2016 | 735 |
| 2017 | 1,680 |
| 2018 | 22,680 |
| 2019 | 9,000 |
| 2020 | 25600 |

(Source: Baul, 2017)

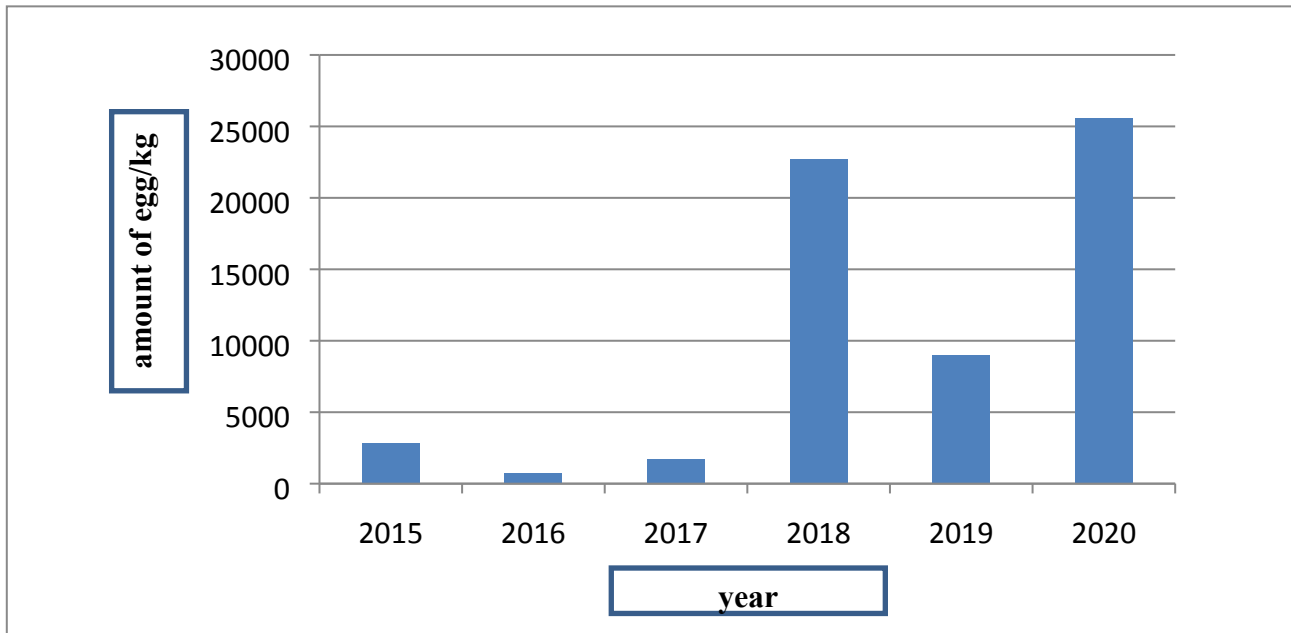


Figure 7: Yearly fluctuation of carp egg availability in Halda River (Source: Baul, 2017)

3.4.3 Threatened Carp Species at Garduara Point of Halda River

Among the 260 fresh water fish species, many species are threatened in Bangladesh (Joadder *et al.*, 2012). The biodiversity of these are categorized under different levels of threat, such as vulnerable (VU), endangered (EN), and critically endangered (CR). In Halda River, 20 species were found to be threatened, where three belonged to the critically-endangered, nine endangered, and eight vulnerable categories according IUCN (2000) (Alam *et al.*, 2013). Among the 15 carp species encountered at Garduara point 2 were vulnerable comprising 13.33%, 5 endangered comprising 33.33%, 3 exotic comprising 20% and 5 not threatened comprising 33.33% of the total carp fishes encountered(Jannatul *et al.*, 2015).

Table 11. Status and percentage of Carp species found at Garduara point of Halda River

| Status | Number of species | Percentages (%) |
|---------------------|-------------------|-----------------|
| Vulnerable(VU) | 2 | 13.33 |
| Endangered (EN) | 5 | 33.33 |
| Exotic (EX) | 3 | 20 |
| Not Threatened (NO) | 5 | 33.33 |
| Total | 15 | 100 |

(Source: Ferdous *et al.*, 2015)

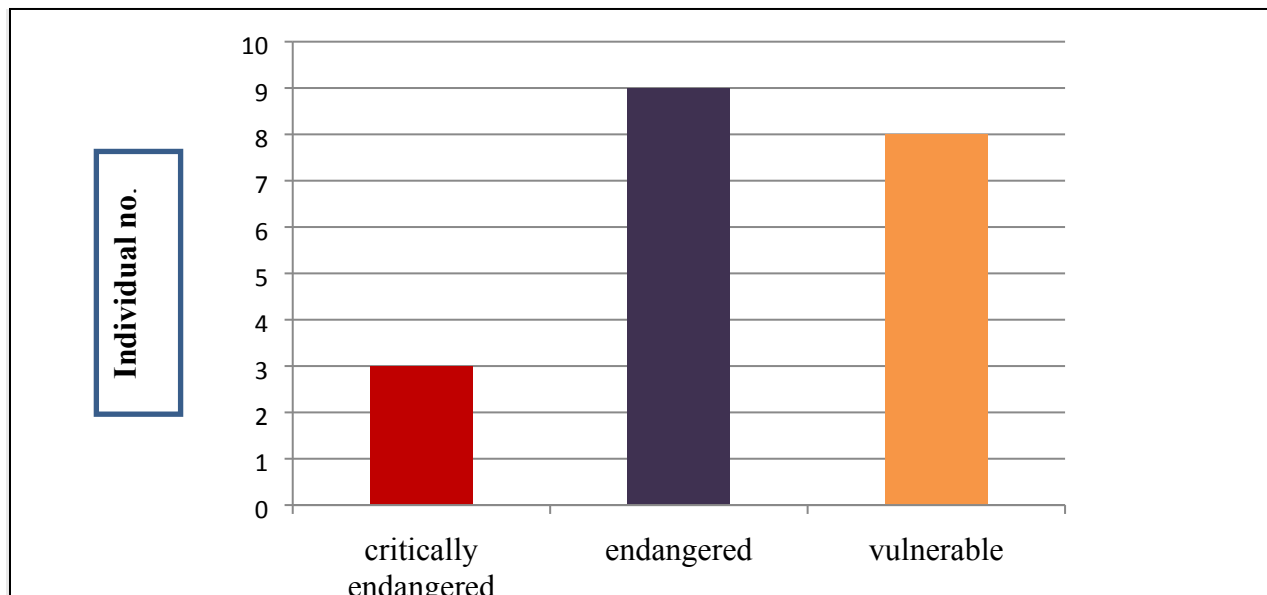


Figure 8. Threatened fish species of Halda river (Source: Alam *et al.*, 2013)

3.5. Potentiality of Halda River for future prospects of Bangladesh

After a long time, a smile appeared on the faces of the people of Halda. This season, roe (fish eggs) collectors have produced the highest number of fish pollen from the Halda River in Chattogram, the only natural fish breeding reservoir in the country. And after collecting the roes, the fry produced in the hatchery were stored in the reservoirs, then the sale is now running in full swing(Adnan,2020).

It is known that this time the highest number of mother fish laying eggs in Halda river after 14 years. These include Rui, Katal, Mrigel, Kalibaus, and other unique species of fish. An egg collector named Mahmudul said that people from different places are coming to buy fry. About two mounts have been sold (Adnan,2020).

Professor Manjurul Kibria, Coordinator, Halda Research and Laboratory, University of Chittagong, said, “We have a big challenge ahead. It is our job to maintain the passage of the Halda River that was created naturally. UNO Ruhul Amin said that it has played a major role in collecting eggs and pollen to turn the Halda River into a mother fish sanctuary (Adnan,2020).

The Halda River is the claimant of the country's national fish breeding heritage for its distinctive features including heritage, resources and economic contribution. Significant aspects of the huge potential Halda are highlighted-

3.5.1 Extensive Potentiality in Fisheries sector

- ✓ In Halda, a large amount of pollen is sold every year. Even 400 kg of pollen has been sold on (10-14 july).There is a high market value of pollen. The market value of 400 kg of pollen Tk two crore and 80 lakh (Adnan,2020).
- ✓ If we calculate the whole year, it is contributing to the national economy with about Tk. 800 crore.
- ✓ According to river officials, a large number of eggs have been extracted from Halda this season. But due to the cyclone Amphan, the salt water has entered Halda and the pollen has hatched less.

- ✓ During the first tide on 22 May and the second tide on 22 June, a large number of mother fish laid eggs in the Halda River.
- ✓ The fry from these eggs are fast growing and well-executed and have a distinct reputation across the country.



Figure 9. Potentiality of Halda river in Fisheries sector (Source: Adnan,2020)

3.5.2 Mother fish sanctuary

- ✓ Mother fish take shelter in Halda River for breeding purposes.
- ✓ Mother fish of many species breed naturally in Halda River.
- ✓ It seems to them safe for taking shelter and act as a sanctuary.

3.5.3 Extensive Potentiality in Agriculture sector

- ✓ Thousands of families are making a living by working in agriculture on the banks of Halda.

- ✓ Besides, paddy has been sold in the rubber dam area of Bhojpur in Fatikchhari upazila alone for crore takas(Adnan,2020).

3.5.4 Unique river

- ✓ The Halda River is the only natural breeding ground for the carp species of Bangladesh (Rui, Katal, Mrigel and Kaligani).
- ✓ It is also the only tidal river in the world, fertilized eggs of Rui-type fish are collected directly from that between April and June (Adnan,2020).

3.5.5 Natural Gene Bank

- ✓ Halda River is the only pure natural gene bank of Rui species fish in Bangladesh.
- ✓ At present, the growth of fish is being severely hampered due to inbreeding. In other sources of the carps, fishes become hybrids due to inbreeding problem.
- ✓ To overcome this situation, there is no alternative to conserving the natural gene bank at the Halda river(Adnan,2020).

3.5.6 Economic contribution

- ✓ The eggs from the Halda play a significant role in the national economy.
- ✓ Hundreds of egg collectors living on both the banks of this river collect eggs from April to June and turn the eggs into fry by releasing those into the wells excavated on the river banks.
- ✓ Later, these are sold in the local markets at high prices.

3.5.7 Traditional

- ✓ The technology of extracting eggs from the Halda River, producing pollen from eggs and caring for them is completely indigenous to the locals.

- ✓ From time immemorial, locals have been using technology combined with religious sentiments and technical knowledge to produce eggs and produce pollen from extracted eggs there (Adnan,2020).

3.5.8 Water Resources

- ✓ The Halda River is the main source of potable water in the country's commercial capital and the port city of Chattogram.
- ✓ Chattogram WASA produces about 20 million gallons of water from here every day.
- ✓ The amount of heavy metal in the water of this river is less than the standard set by the World Health Organization.
- ✓ Therefore, the water of the Halda River is especially important as a source of pure and potable water (Adnan,2020).
- ✓ Tk 67 crore is being earned only by selling water to Chattogram WASA every year



Figure 10. Potential threat zone in Halda River (Source: Zaman, 2014)

3.6 Recommendations to Conserve Halda River

- ✓ Four rivers (Sangu, Chand khali, Sikalbaha and Karnaphulli) connected to Halda River should be protected for facilitating the migration of major carp to Halda River for breeding. (Patra *et al.*, 1985).
- ✓ Without treatment no industrial effluents should be drained to the river Halda, and one paper mill established recently near Nandirhat and Hathazari, should be asked to maintain the treatment plant and only treated water should be allowed to drain into the river Halda.
- ✓ Banning tobacco farming near Halda River and redesigning the sluice gate.
- ✓ Newly-formed oxbow bend (loop) should not be destroyed.
- ✓ Most of the sluice gates are not in used and damaged, and should be withdrawn for easy movement of fish.
- ✓ There should be quota and licensing system for fishing.
- ✓ Illegal and detrimental gears should be banned.
- ✓ Establishment of fish sanctuary in some area of river.
- ✓ There should be a regular vigilance team from the fisheries department for monitoring all activities by the government to restore the natural breeding habitat of the river.
- ✓ Banning tobacco farming near Halda River and redesigning the sluice gate.
- ✓ Mass awareness programme, through radio, television, and leaflets, should be undertaken to protect and conserve the endangered fishery species of the river Halda.
- ✓ Stocking programme should be undertaken for the commercial endangered species. Recently (during 2010, 2011), some major carp fingerlings and sub-adults of Halda origin were stocked in the river Halda (Khan and Azadi, 2006)

CHAPTER IV

CONCLUSION

The Halda river is beneficial and unique river in Bangladesh which provides a wide range of ecosystem Services. Its nature and ecosystem friendly environment refers it as the best and only one natural breeding ground of carp in Bangladesh.

In national economy it plays a major role. This year the highest (25600 kg) fish egg is collected from this river. The good feasibility of this river to naturally monitor the fish by giving shelter and other services make a high production of egg naturally. The economy of our country is also developing by including contribution associated with the river from fisheries sector and this helps to reduce unemployment problem also.

Halda river is also enriched with biodiversity. But Among the fish biodiversity of Halda River, 20 species were found to be threatened, where three belonged to the critically-endangered, nine endangered, and eight vulnerable categories. This situation is created for pollution, human intervention, unplanned establishment of dam, dishonesty, improper monitoring, using illegal and detrimental gears etc. So our government and our scientist and all the organization associated with this should come forward to conserve biodiversity to save Halda. Efficient laws and regulation and other necessary steps should be adopted to increase more production.

Though Halda biodiversity is in threaten condition, it gives the best result of egg production this year. The potentiality of Halda associated with many sector (Agriculture, Water Resources, economy etc.) can create the greatest figure to improve national economy in future. So at last we can proudly say that Halda is really the future prospects of Bangladesh.

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