

DAL LAKE:

A BATTLE GROUND FOR EXOTIC AND LOCAL FISHES

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INTRODUCTION:

Colloquially referred to as “Lake of flowers” or “Srinagar’s jewel”, Dal lake is a famous freshwater lake in the summer capital of Jammu and Kashmir. It is the second largest lake of Kashmir and is located between latitude 34.11°N and longitude: 74.86°E. Dal lake is a warm monomictic lake which experiences a temperature range of 1 to 11°C during winters; 12 to 30°C during the summer season and can freeze to a greater extent during harsh winters. The main source of water is believed to be Talbel Nallah and Marsar Lake. Besides, the presence of springs in the lake adds to its water reservoir. The lake spans over a total area of 18 to 22 Sq Km with total length and width of 7.4 Km and 3.5 Km, respectively.



SIGNIFICANCE:

Dal lake is a centre of attraction for many tourists because of its calm waters and serene beauty as seen from the foothills of Zabarwan and Shankaracharya. The banks of the lake are home to various Mughal gardens that serve as a first stop for the tourists in the valley. The lake has been in recent years flourished as a prime spot for water sports in Kashmir and witnessed a record number of tourists from different parts of world. Besides its natural beauty, the lake is bestowed with tremendous fish fauna which serve as a main source of livelihood mainly for the local people living in its vicinity. In addition, weeds extracted from the lake are dried and used as fodder and manure by the local people.



Utilization of weeds by the local people

CURRENT STATUS OF FISHERIES:

Studies conducted by various researchers on Dal lake has revealed that an estimated of 14 fish species have been identified till date. The lake serve as a home for various local fishes of Kashmir of which Snow Trouts mainly {*Schizothorax niger* (Ale gad), *Schizothorax esocinus* (Chirru), and *Schizothorax curvifrons* (Satter gad)}, *Botia birdi* (Rama gurun), *Crossochilus diplochilus* (Tettur gad) and *Puntius conchoniuis* (Rosy barb) are important. However among local snowtrouts *S.niger* and *S.curvifrons* forms an important part of commercial catch. Interestingly in addition to local fishes, the lake also harbors a number of exotic fish species of cyprinidae family notably *Cyprinus carpio communis* (punjabe gad), *Cyprinus carpio specularis* (punjabe gad), *Carassius Carassius* (Gang gad) and *Gambusia holbrooki*.

There is no clear information available as to when exotic fishes were introduced in Dal lake however, few reports suggest that *Cyprinus carpio* (common carp) was introduced in Kashmir in the year 1959. Soon after its introduction, common carp proliferated and thrived as a major fish species for culture in small seasonal water bodies and ponds. With time, the common carp started to form a major catch for the local fisherman. The carp fish has now apparently outnumbered the local fish fauna of Dal lake. There are various reasons that can be attributed to its faster growth, in particular among which its breeding and feeding habit, which is very well adapted to the water bodies of Kashmir. Besides, common carp is considered a hardy fish as it can survive in low oxygen concentrations and muddy waters. Since it had a potential of attaining large size in short period of time as compared to local snow trouts, therefore it has gained the attention of local people, farmers and Government agencies, this has prompted the policy makers to propagate common carp culture using semi intensive and extensive farming across Kashmir valley.

On the contrary the breeding technique for snow trouts is yet to be standardized although

it is a preferred fish species. This has been a major set back in extending the cultural practices of snow trouts among the private fish farms. These bottlenecks in snow trout culture coupled with the higher fecundity and better spawning facilities of common carp has been a major hurdle in flourishing of local snow trouts. Interestingly, a study conducted by a team of local researchers where in it was found that out of 100% catch of Dal lake around 70% comprised of Common carps and only a minor proportion of 14% was that of snow trouts. This should be an eye opener for the fish professionals, aquaculturists and policy makers to develop and frame strategies for the conservation of stock of local fishes in Dal lake. This demands various measures like ranching for which development of breeding technology is a prerequisite. The local fish fauna is expected to decline further as the conditions of Dal lake are deteriorating continuously, mainly due to the domestic sewage and eutrophication.

Also there is a strong food competition as the ecological niche of the two species coincide wherein common carp always dominates the snow trout because the fish has attained significant numbers in the Dal lake



Heavy pollution and weed infestation in Dal lake

MITIGATION MEASURES

a. Standardization of breeding

Technique.

Despite being a highly preferred fish, no successful culture technique for snow trouts has been standardized yet in Kashmir. Although several attempts have been made by the fish professionals and aquaculturists but none of them showed promising and long term results. Intensive research in this field is necessary as the captive breeding will help in improving the status of snow trouts in Kashmir and a shift from capture to culture fishery will ultimately relieve pressure from the water bodies like Dal lake.

b. Ranching

Ranching is a technique where fishes that are commercially important and need replenishment are reared in a controlled environment and let into the water bodies when they are of certain size. However for ranching standardization of breeding technique of fish is a prerequisite. This technique can help in faster growth and proliferation of snow trouts in the water bodies of Kashmir.

c. Mesh size regulation

Regulations on mesh size of different fishing gears can be placed that will prevent the catching of juvenile fishes giving an appreciable time for the fishes to grow and breed. As a general rule fishes that have bred at least once can be caught helping in increasing the production of fishes.

d. Observing Closed seasons

Closed season is an emerging concept that involves restricting fishing activities in the breeding season of any particular fish species preventing the fishing of brooders and giving them a favorable environment to breed. Since local snow trouts usually breed in winter months restrictions on their fishing can be placed to help them breed effectively which ultimately will help in developing the fish fauna.

CONCLUSION

In conclusion, it may be comprehended that the introduction of exotic fishes especially common carps in the Dal lake has destroyed feeding and breeding grounds of the local snow trouts. The Dal lake apparently is battle ground between the two species where exotic fishes seem to dominate. If this issue is not addressed immediately and effectively it may not be surprising to see the complete eradication of local snow trouts from the Dal lake.

