



haricof92@gmail.com

Department of Fisheries Biology and Resource Management Fisheries College & Research Institute, TNJFU, Thoothukudi- 628 008.

Tamil Nadu, India

n India, the idea regarding the conservation of fisheries resources of rivers was given by Sir Arthur cotton during sixties of the last century. He was in charge of a number of dams and weirs being constructed at that tie on the rivers of south India (Datta and Das, 2013). He feared that these structures might adversely affect the local inland and coastal fisheries. The Government of India deputed Dr. Francis Day in 1869, to investigate the freshwater fisheries and to draw up a scheme with a view to institute a special and necessary legislation for better protection of the fisheries of the country. Sir Francis Day, after a thorough investigation of many years published two reports in 1873, viz,"freshwater fish and fisheries of India and Burma", and "The Sea Fish and Fisheries of India", in which he drew the attention of the Government to the widespread slaughter of ripe fish, fry, and fingerlings. He also pleaded the urgency to adopt legislative measures to conserve the fisheries resources (Ayappan et al., 2006). Nothing was done for many years. By 1888, the question again forced its way to the front, and it was considered by the Agricultural Conference held at Delhi in that year (Singh, 2004). The Government of India enacted the Indian Fisheries Act, which came into being in 1897 (as it received the assent of the Governor General of India on the 4th February, 1897).

Relevance of Legislation in Inland Fisheries

The brief in the inexhaustibility of capture fishery resources has been belied since long. Experience has shown that uncontrolled fishing and highly destructive devices of fish capture deplete fishery resources and are followed by great economic distress. The purpose of fishery regulations is to obtain maximum sustained yield of fish from waters and assure a recurring bountiful harvest of fish without depleting the resources and wastage of fishing effort. The basis of empirical regulations is the belief that every fish should be given a chance



to breed at least once. By way corollaries to this belief the following notions may be mentioned (Singh, and Gupta, 2018).

- That it is necessary to have a large number of spawners of a species;
- That all smaller fish must be protected as the majority will mature and become spawners;
- That is very essential to protect fish during the spawning season.

Indian Fisheries Act Of 1897 and Rules Framed There Under In Various States

The salient features of the Indian fisheries act 1897 are as follows:

- 1. (i) This act may be called the Indian Fisheries Act, 1897.
- (ii) It extends to the whole of India, except Burma
- (iii) It shall come into force at once.
- **2.** Subject to the provisions of section 8 and 10 of the General Clause Act, 1887, this act shall be read as supplemental to any other enactment for the time being in force relating to the fisheries in any part of India except Burma.
- 3. In this act, unless there is anything repugnant in the subject or context
- (i) Fish includes shell fish.
- (ii) Fixed engine means any net, cage trap or other contrivance for taking fish, fixed in the soil or made stationary in any other way.
- (iii) Private-water means which is the exclusive property of any person, or in which the person has for the time being as exclusive right of fishery whether as owner, lessee or any other capacity.

Explanation:- water shall not cease to be "private water" within the meaning of this definition by reason only that other person may have by custom a right of fishery therein.

4. (i) If any person uses any dynamite or other explosive substance in any water with intent thereby to catch or destroy any of the fish that may be therein, he shall be punishable with imprisonment for a term which may extend to two months, or with fine which may extend to two hundred rupees;



- (ii) In substance (i) the word "water" includes the sea within a distance of one marine league of the sea-coast; and an offence committed under that subsection in such sea may be tried, punished and in all respects dealt with as if it had been committed on the land abutting coast.
- **5.** (i) If any person puts any poison, lime or noxious material into any water with intent thereby to catch or destroy any fish, he shall be punishable with imprisonment for a term which may extend to two month, or with fine which may extend to two hundred rupees.
- (ii) The local Government may, by notification in the official Gazette, suspend the operation of this section in any specified area, and may in like manner modify or cancel any such notification.
- **6.** (i) The local Government may make rules for the purpose hereinafter in this section mentioned and may by a notification in the official Gazette apply all or any of such waters, not being private water, as the local Government may specify in the said notification.
- (ii) The local Government may also by a notification, apply such rules or any of them to any private water with the consent in writing of the owner thereof and of all persons having for the time being any exclusive right of fishery therein.
- (iii) Such rules may prohibit or regulate all or any of the following matters, that is to say:
 - a) The erection and use of fixed engines;
 - b) The construction of weirs; and
 - c) The dimension and kind of the nets to be used and the modes of using them.
- (iv) Such rules may also prohibit all fishing in any specified water for a period not exceeding two year.
- (v) In making any rules under this section the local Government may
 - a) Direct hat a breach of it shall be punishable with fine which may extend to one hundred rupees and, when the breach is continuing breach, with a further fine which may extend to ten rupees for every day after the date of the first convention during which the breach is proved to have been persist in; and
 - b) Provide for
 - The seizer, forfeiture of and removal of fixed engines erected or used, or nets used, in contravention of the rule; and



- The forfeiture of any fish taken by means of any such fixed engine or net.
- (vi) The power to make rules under this section is subjected to the connection that they shall be made after previous publication;
- (vii) (i) any police officer, or other person specially empowered by the local Government in this behalf, either by name or as holding any order from the time being, may without an order from a magistrate and without warrant, arrest any person committing his view any offence punishable under section 4 or 5 under any rule under section 6
 - a) If the name and address of person are unknown to him, and
 - b) If the person declines to give his name and address, or if there is reason to doubt the accuracy of the name and address if given
 - (ii) A person arrested under this section may be detained until his name and address have been correctly ascertained (Ayappan *et al.*, 2006).

It is in no doubt, that the implementation of the Indian Fisheries Act, 1897 proves to be an essential criteria to preserve fish and fishery resources intact.

The Indian Fisheries Act, 1897, implemented in different states of India as follows

- A. Restriction on types of gear and mesh: The minimum mesh size for nets permitted is 30 mm so that smaller fish are not caught. However, nets of smaller meshes are permitted to be used in the marginal area and some reservoirs of Andhra Pradesh and Tamilnadu. In Delhi, since 1948 restriction have been imposed on fishing except with rod and line, hand line and long line or any other net less than 1.5 inch square mesh from July1 to 10 August 30, every year. Mesh regulation is also observed in Manipur, Andaman and Nicobar Islands. In Assam, the size of gaps in bamboo fencing used for fishing have been limited. Restriction have been imposed on the use of certain nets during specified parts of the year, as well as on the mesh sizes of nets of Assam, Maharashtra, M.P., Punjab etc. From 1st April to 15th of June drag net of having mesh size of 2.2 inch are not allowed of any water body of Assam (Paukert et al., 2016).
- **B. Restriction on size of the fish to be caught:** Many states have prohibited the catching of economical fishes having size below 25 cm so that every fish get a chance to breed at least once in its lifetime. Restrictions are also imposed on the sale of undersized fishes. In 1956, Punjab state Government prohibited catching of rohu, catla, mahseer and mrigal smaller than



25.4 cm long. In Delhi, the capture and sale of these species below 20.4 cm in length has been prohibited since 1948. The state of Uttarpradesh has prohibited, since 1954, the capture and sale of fry and fingerlings of major carps, 5.1-2.5.4 cm in length from July 15 to Sept. 30 and of breeders from June 15 to July 31 in the prohibited areas, except under a license issued by the proper authority. In M.P. a size limit of 22.9 cm was imposed in 1953, for the capture of rohu, catla, mahseer and mrigal (Cowx and Gerdeaux, 2004).

C. Closed season: Closed season is followed in Bihar, Madras, Jammu and Kashmir, M.P., Mysore in all large reservoirs, fishery is closed from June-July to end of September so that fishers are not hampered during their spawning migrations and allowed to breed at least, once. Fishing is closed from 1st July to 15th September in the entire state of Rajasthan. However, at Jaisamabad, there is no restriction with regard to mesh or the fish size and no closed season is observed (Sass et al., 2017).

D. Declaration of sanctuaries or protected waters: About 3.2 km of river stretches below the dams Mettur, Tungabhadra and Gandhisagar have been declaired in sanctuaries. Sanctuaries have been declared in Assam, Bihar and Punjab. Delhi, U.P., M.P., T.N., J&K, A.P., also observe restrictions on fishing in prohibited waters. In J&K prohibition has been imposed on the extraction of Hakreza, awter nuts, aquatic plants are gravel or stones during the spawning season of fish in reserved and protected waters from November to February except with the permission of authorities concerned. In Kerala, restriction has been imposed against attracting prawn into private water except under license. In T. N., fishing is prohibited in rivers Cauvery, Harangi, Sampaja and Barapole and their tributaries during the period March 15 to June 1. Cauvery Bridge to its confluence with Ellis. In hariyana, conservation and development measures have been adopted in the portion of Uhlriver and Lambadug and their tributaries situated in the Mandi distict, Pabar river and Bapsa river situated in the district of Mahasu (Midway et al., 2016).

E. Leasing of lackes and reservoirs in alternate years: This is followed in Madhya Pradesh.

- **Prohibition on indiscriminate fishing:** In M.P., Madras, Kerala, Haryana ,Panjab, and in Delhi fishing by means of fixed engine or construction of weirs are prohibited.
- Ban on the use of explosives or poisonous substances: Various states such as U.P.,
 A.P., Kerala, J&K, Karnataka, Rajasthan, Kerala, Himachal Pradesh, Delhi, Coorg



banned the use of poisons and explosives for fishing. In Assam, the pollution of the water by retting of jute had been prohibited since 1953 (De Graaf et al., 2015).

Constraints and Suggestions

- a) Fishing right: In some of states fishing rights of notified water (river, canal, reservoir, tanks, beels etc.) is not vested with the fishery department. These are based by other department like riverine department (as in Assam state) and by irrigation departments as in Punjab and Haryana. Fresh legislation should be made vide with fish rights of all these water bodies should vested with states Fisheries department.
- **b)** Check at fish market: At present, there is hardly any legislation for the checking of stale of rotten fish in the market. Fisheries department can be interested with the job of checking market allowed on the sale good quality fish.
- c) Control of village ponds: At present, all the village ponds are under the control of village panchayat. Sometimes these tanks are note leased out for fishery and they remain fallow. The control of village ponds should be handed over to fisheries department and fishery official should be made responsible for their development.
- **d)** Adoption of Fisheries Legislations by all states Governments: Many of the states like West Bengal and other states in the North East region had no fishery legislation for the conservation of the fishery resources. Some states have taken some measures but only in limited area. All the state Governments should make laws and rules to conserve their fisheries resources (Midway et al., 2016).

Guidelines on regulations of Inland Fisheries

1. Resources to be covered: Rivers, streams and associated waters, floodplain lakes, wetlands, reservoirs, canals, estuaries and lagoons, mangrove wetlands, backwaters, natural and manmade lakes (reservoirs) and their variants (John Wiley and Sons, 2008).

2. Craft and gear:

Fishing devices such as seine and gill nets, boats (mechanized or non-mechanized), traps, spears and other implements, which are employed for catching fish are referred to as the crafts and gear



- The states or any other authorized agency by the state/union territory shall restrict, regulate or prohibit the use of fishing crafts and gear, which are deemed as destructive in nature so as to conserve to biodiversity in general and endangered species in particular.
- The state shall adopt the precautionary to approach to regulate the use of fishing gear so as to protect fish species of commercial value from over-fishing or fishing at undesirable size (Rajesh, 2013).

3. Control, regulation and ban on destructive crafts and gear:

- The state shall not allow the use of non-prescribed gear of any kind for catching fingerlings, juveniles, larvae of fish which affect the stock or species or are against the prescribed norm of responsible fishery, including minimum legal size of capture.
- Fishing crafts fitted with out-board motors affecting the ecosystem or fish biodiversity in any form shall be regulated or banned.
- Cross nets, such as stake-nets, bag-nets etc. which encroach or affect the migratory pathway of fish and other organism, shall be regulated to facilitate conservation of brood stock and auto- stocking.
- The authorized fishery officer shall have the authority to monitory to monitor and check the type of crafts and gear that are used in open-water ecosystem for catching fish and imposing suitable penalty for violating the normal prescribed types, as mentioned under I, II and III above (Misra, 2006).

4. Untenable fishing practices in inland waters:

- Wanton killing of fish juveniles, fish brooders and other organisms, which otherwise have economic, aesthetic or biodiversity significance, and effects the fishery, shall be treated as cognizable offence and shall be dealt with appropriately. A penalty of Rs. 5000 or six months imprisonments or both can be awarded depending upon the gravity of offence.
- Wanton killing of fish and associated fauna using poison of plant origin or synthetic dynamite and any other destructive method in open shall be treated as a cognizable act, with a penalty of Rs. 10,000 or one year imprisonment or both.



• Establishment or compartments or structures of any from such as earthen embankments, bamboo screens etc. which obstruct or restrict the movement of fish in any form within the lake/wetland/estuary/lagoon, shall be deemed as cognizable offence except otherwise done in public interest (Agarwal, 2021).

Conservation of stock and resources

- The state shall notify closed season or fishing holidays in open waters like rivers/reservoirs/wetlands for a minimum 60 days during breeding season of commercially important species such as Indian major carps to augment auto-stocking and wanton killing of fish juveniles as well as fish brooder stock.
- The state shall be prepare inventory of deep pools in various riverine stretches and ensure their protection and maintenance. These may be declared as protected areas and the active participation of fisheries, cooperatives, local panchayats and NGOs to conserve fish and other important biodiversity in such deep pools shall be encouraged.
- To protect the physical entity of wetlands/flood lakes, no person or body shall allowed to obstruct the lateral connectivity of wetlands with rivers, especially during flooding, as it acts the passage for the migration of fish brooders to wetlands for breeding and in turn the wetlands act as the natural nursery and feeding grounds for many important riverine fish species (Jingran, 1991).
- The state shall ensure that construction of dam, barrage, bundh, etc. should be preceded by appropriate environmental impact assessment and abatement especially with regard to migration of fishes.
- Encroachment or reclamation of rivers, lakes and wetlands, wither for arable land or human habitation or any other purposes, which leads to colossal loss of aquatic resources and associated utility functions, shall be deemed as a punishable offence.
- The state shall ensure that appropriate environmental impact assessment and abatement measures are carries out before construction of dams, barrages etc. across streams and rivers. Hydraulic structures should include devices to facilitate migration of fish species.
- The state shall ensure the protection of the interest of traditional fishers using traditional crafts and gear (Saxena, 1969).



Leasing/licensing of Open Waters

- The leasing of open-water fisheries, especially the lake, reservoirs, beels, etc. shall be
 done keeping in view the long term management perspective besides sustainability of
 endemic biodiversity.
- The lease period for a water body shall not less than five year. However, the state shall have the right to cancel the lease in case the lessee is found wanting or proves to be guilty of violating norms or not adhering to the prescribed guidelines for sustainable fishery.
- Annual rent or lease amount shall be fixed in accordance with the status of production and productivity evaluated duly following scientific principles (Singh, 1989).
- Inventory, licensing and registration of motorized boats should be made mandatory to curb the unchecked growth of such crafts leading to over fishing of target species or threats to biodiversity or to water quality in estuarine and lagoon ecosystems. The state shall fix a rent on each such registered boat in accordance to the types of boats and gear, and average anticipated fish catch per boat per day.
- The state shall have the right to confiscate, impose fine and ban the entry of such unregistered boats or even registered boats using destructive devices to catch fish.
- Dumping of solid wastes in lake/wetland/lagoon area thereby reducing the effective
 water area besides impairing the water quality or encroachments of any kind shall be
 treated as an act against the state, as such punishable under this act (Datta and Das,
 2005).

Conclusion

It may be concluded that fisheries management is full of complexities. If one part of the problem is tackled, its result may exacerbate the difficulties to other parts. However, there is an immediate and urgent need to introduce appropriate legislative measures for the protection, conservation and management of inland fisheries resources of India based on latest biological and ecological studies. Apart from these, the actual users of the resources, viz, the traditional fishing communities must be consulted and their aspiration taken onto account before the formulation of regulations. After all, when the fisheries legislation is viewed from the human dimensions, these seems to be truth in the old axioms "one does not manage fish, one manage people".



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