namely, Myxidium, found in representatives of the family Rajidæ.

Several species representing the three genera are new, and a detailed description of these will soon be published.

Host	Number of species from each host	Genus	Seat of Infection
1. *Carcharinus pleurotænia*	1	Ceratomyxa	Gall bladder
2. *Cestracion blochii*	2	Ceratomyxa Chloromyxum	do
3. *Cestracion zygæna*	3	Ceratomyxa Ceratomyxa Chloromyxum	do
4. *Chiloscyllium griseum*	1	Chloromyxum	do
5. *Carcharinus menisorrah*	2	Ceratomyxa Ceratomyxa	do
6. *Carcharinus limbatus*	5	Leptotheca Chloromyxum Ceratomyxa Ceratomyxa Ceratomyxa	do
7. *Hemigaleus balfouri*	3	Ceratomyxa Ceratomyxa Chloromyxum	do
8. *Pristis cuspidatus*	2	Chloromyxum Ceratomyxa	do
9. *Rhynchobatus djeddensis*	2	Chloromyxum Ceratomyxa	do
10. *Scoliodon sorrakowah*	3	Chloromyxum Ceratomyxa Leptotheca	do Kidney
11. *Scoliodon* sp.	2	Chloromyxum Ceratomyxa	Gall bladder
12. *Scoliodon walbeehmi*	3	Ceratomyxa Ceratomyxa Chloromyxum	do
13. *Scoliodon palasorrah*	2	Ceratomyxa Chloromyxum	do
14. *Carcharinus bleekeri*	3	Ceratomyxa Ceratomyxa Chloromyxum	do
15. *Hypoprion macloti*	2	Ceratomyxa Ceratomyxa	do
16. *Carcharinus melanopterus*	2	Ceratomyxa Chloromyxum	do
17. *Trygon bleekeri*	1	Chloromyxum	do
18. *Rhynoptera javanica*	1	Chloromyxum	do

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THE EFFECT OF DAMS ON THE MIGRATION OF THE HILSA FISH IN INDIAN WATERS

IN the October issue of *Current Science*,[1] Devanesen has done a great service by directing attention to the fact that the construction of weirs in the Godavari, the Kistna and the Cauvery rivers has reduced the spawning areas of the Hilsa fish with disastrous results to its fisheries in South India. His presumption that before the erection of dams "the spawning Hilsa had the whole run of the river excepting the upper reaches" is abundantly borne out by the fact that in the Ganges the young of Hilsa have been collected as high up as Allahabad[2] and the fish is known to ascend as far as Agra and Delhi. The reported destruction of Hilsa in roe in immense numbers below the first anicut by fishermen is to be greatly deprecated and certainly calls for some protective, legislative measures.

After discussing the futility of the existing fish-passes and the establishment of hatcheries for the resuscitation of the depleted rivers, Devanesen suggests that "prohibiting fishing within a five-mile (?) length of the river from the first weir, observing a closed season of a few weeks or restricting fishing below the first weir to three days in a week may produce a salutary effect on the Hilsa-fisheries". There can hardly be any two opinions regarding the utility of these measures and the beneficial effects they are likely to have in adding to the stock of the existing population of Hilsa in the Indian waters.

The readers of *Current Science* will recall that a short time ago[3] the present writer in reviewing a symposium held in America, on 'Dams and the problems of migratory fishes', *inter alia* directed attention to similar problems in India. This subject was thoroughly discussed by the Fish Committee of the Imperial Council of Agricultural Research in October 1941, and on its recommendations the Governing Body of the Council requested "all provinces and State Governments to give due consideration to the fishery resources of the

water-ways, and that before starting construction of a dam or other types of structure proposed in any basin containing migratory fishes, surveys of fishery resources should be carried out by an expert with a view to making proposals to safeguard the interest of the majority of economically important fishes of the area. It was further recommended that as fish-ladders in some provinces had proved to be unsatisfactory, they should be replaced by more suitable devices to safeguard fish populations. Similar measures should also be introduced in other provinces where they did not already exist. It was also suggested that fishing should be prohibited within one mile of the lower reaches of a dam."

The Imperial Council of Agricultural Research has thus given a valuable lead and it is up to the various Governments to institute surveys of fishery resources by experts and if the existing fish-passes or fish-ladders are unsatisfactory they should replace them by more suitable structures. The prohibition of fishing within one mile of the lower reaches of a dam was just a suggestion, but in case it is found necessary to prohibit it over a greater area provision should be made for that in any protective measures that may be adopted.

Devanesen has shown that in view of the inability of Hilsa to leap in the air and of its habit of spawning in the lower and middle reaches of the rivers there is no case for fish-passes to be built for the migration of this fish. However, no experiments have yet been conducted on the type of suitable dams for different migratory fishes of India and in this connection it may be noted that in England, Wales and Scotland "the difficulties presented as regards the ascent of the breeding fish and the subsequent descent of the fry and kelts have now to some extent been met by the idea of a fish-pass with an adjustable feed from the reservoir, as has been adopted at Tongland (where the range of fluctuation in the top-water level does not exceed 41 ft.) and at the other impounding reservoirs on the same river system (the Kirkcubright Dee) which are comprised in the Galloway Power Scheme".[4]

There is no reason why experts in this country through extensive experimental studies should not be in a position to devise suitable measures to safeguard the interest of the majority of economically important fishes of the area likely to be effected by the construction of a dam.

Devanesen has also hinted on the futility of Hilsa hatcheries for the resuscitation of the South Indian rivers and his views are based on a long experience of experimental work conducted by the Madras Fisheries Department. For quite different reasons, I came to the conclusion that Hilsa hatcheries are not required for Bengal waters and I hope until the circumstances change no further costly experiments will be conducted in establishing hatcheries for this fish.

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[1] Devanesen, D. W., "Weirs in South India and their effect on the bionomics of the Hilsa in the South Indian rivers—The Godavari, the Kistna and the Cauvery," *Curr. Sci.*, 1942, **11**, 10, 398.

[2] Hora, S. L., "Dams and the problem of migratory fishes," *Curr. Sci.*, 1940, **9**, 9, 406, 407.

[3] —, "Life-history and wanderings of *Hilsa* in Bengal waters," *Journ. Roy. As. Soc. Bengal*, Science, 1940, **6**, 93-112.

[4] Anon, "Dams and the problem of migratory fishes," *Nature*, 1941, **147**, 487.

[See bibliography for earlier literature on the bionomics and fishery of the Hilsa fish.]