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Pollution database of Indian River water and possible recruitment of *Anabas testudineus Bloch*

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Abstract
Anabas testudineus is habituated in ponds, wetland, marshy land, beels and rivers as well. This species can be ideal in controlling river water through it's growth model. It has been observed that in fisheries science growth models of most male species are logarithmic function whereas, species growth model for female species is almost logarithmic, excepting during the breeding periods. Once such undulation is ignored we may say fish growth model is perfect logarithmic. With an sited example, stochastic growth model $Y= 20.52 \ln(X) + 1$, $R^2=1$ of *Anabas testudineus* Bloch. is derived in this research communication. Here Y indicates the gram weight and x indicates the age in month in real number. This growth model may indicate the amount of water pollutants i.e. mostly as fish food materials of Anabas, that may be controlled by the said species. Once we know the feed to body weight conversion ratio. Modelled omnivorous fish and its growth that species may be ideal in controlling river water pollution. The said *Anabas testudineus* ideally feed on aquatic harmful micro and macro organisms viz Protozoan to Nematodes and may correct river water from aquatic pollution in tropical and subtropical rivers to make these sacred. This study is conducted in micro ecological condition of the district of Nadia.

Keywords: Fish growth model, Logarithmic function, Omnivorous species, Aquatic pollution database, Feed database, *Anabas testudineus*

1. Introduction
Most of the fishes may control water pollution in the river water. The omnivores species like *Anabas testudineus* as Indian Koi (Fig. 1) does this more. Reason is due to their feeding habit (Table 1). Such pollution (Fig 2 to Fig 9) are mostly biological water pollution and the cause to harm every animal including human. Biological water pollution may starts from harmful aquatic microbes to others included in this communication. And we know fish has intestinal acid as well. On the other hand all planktivores species digest cellulose in their intestinal tract with the help of cellulose digesting bacteria in the intestinal of the host. *Anabas testutidineus* is actually habituated in small water bodies may grow well in stagnant river course. The species breeds on the grassy and claye land during the monsoon period. It is found that this species may breed in river, stream or Dead River in this area.
A recent study demonstrated that the climbing perch Anabas testudineus collected and stocked food pellets in its mouth, a behaviour that has not yet been reported in any other species of fish. (Vinoy and Thomas, 2008). It is known that Bacterial flora found in the foregut and hindgut regions of the gastrointestinal tracts (Roy et al, 2009). The micro organism may the ideal food of Anabas is supported this research communication.

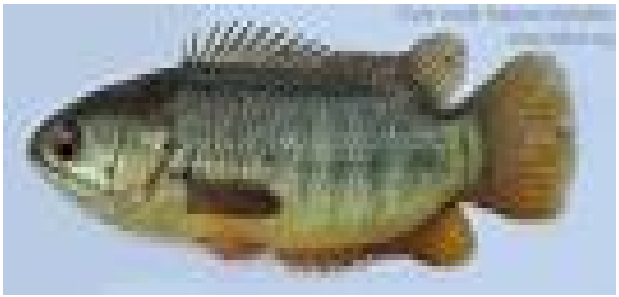

Fig 1: *Anabas testutidineus* Bloch. Indian Koi

The species may not bread in the flowing river, hence natural recruitment is the need of this age. All though through inundation due to flood may help the species and rivers to clean-up.

Fig 2: Mosquito larvae as a feed of *A. testudineus*

Fig 3: Common water worms as feed of *A. testudineus*

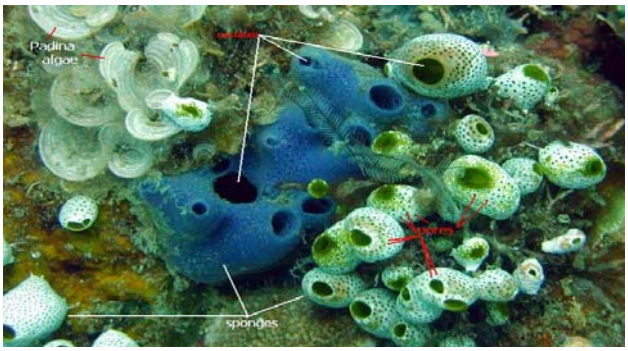

Fig 4: Blue and white sponge (Aquatic) as feed of *A. testudineus*

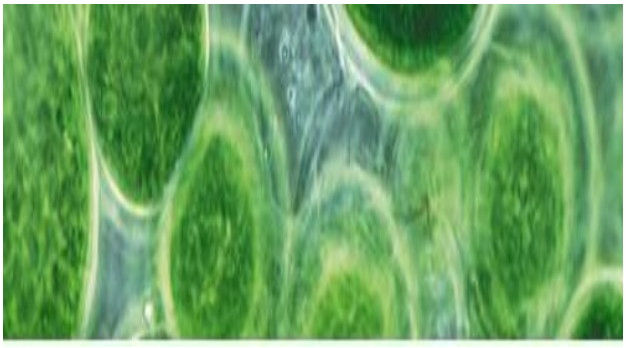

Fig 5: High density algae may also a reason of biological water pollution in stagnant river or stream

Fig 6: Fishing in the river Betwa

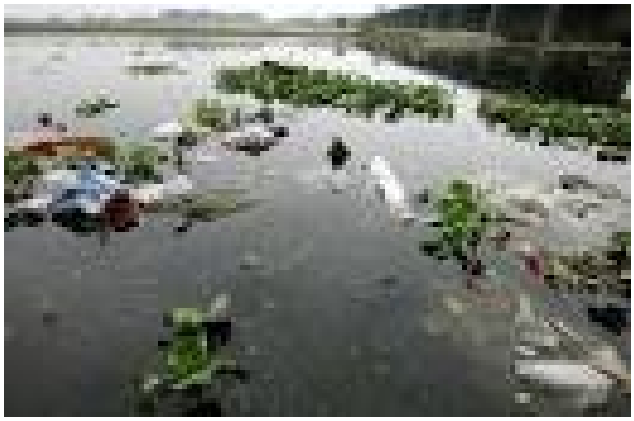

Fig 7: The River Yamuna, near Delhi

Fig 8: The River Churni in the district of Nadia, West Bengal (India).

Fig 9: Harmful microbes

2. Materials and Method

The species growth model is a logarithmic function (Fig. 10) is derived using Excel as a spread sheet software depicted here may help us to imagine how much pollutants i.e. as a source of food materials can be reduced from affected or polluted water. Data are collected from an experimental water area of Ecology situated in Nadia district. The district is blessed by many rivers and streams however due course of time some streams have been polluted. Thus need of stochastic growth model may be essential. Output of this model viz. fish growth is based on probability. Ecological input parameters of fish growth are either random or may follow certain statistical distribution. Optimality of ecology is judged based on bottom soil also. Other than pollutants, mud and detritus may enrich the model as well.

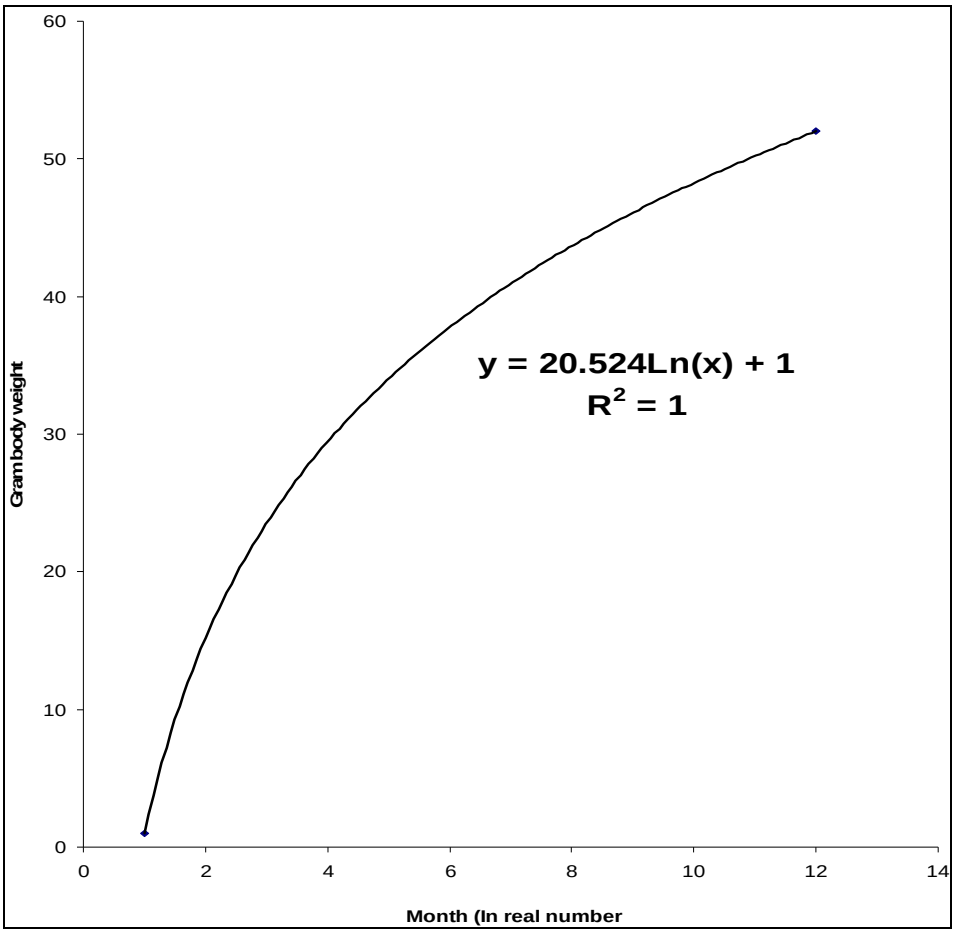

Fig 10: Graphical growth model of male *Anabas testutidineus.*

3. Pollutant as fish food materials

Omnivore species can take pollutants as source of wide number of substrates and may digest most of such aquatic pollutant materials. Any omnivores species may become good in controlling pollution in the river water. Under Indian condition Anabas may be most suited. Among the all possible food materials of anabas in addition to microbes, worms, water insects, aniliidae are more common. Advantage of this species is that this species have additional respiratory organ and can survive even under the condition of low dissolve oxygen. Such situation is evolved when there is excessive plankton biomass that may lead to water pollution as well. Chemical pollutants which is less crucial in the river course or streams, however, may not be controlled by this species.

Table 1: Major Feeds or Aquatic pollution database of *Anabas testutidineus* Bloch,

S. No	Food of *A. testutidineus*	Percentage food
1	Macrophytes	23
2	Shrimps	V (Variable)
3	Fishfry	V
4	Algae	10
5	Tadpoles	V
6	Insects	15
9	Small fishes	V
11	Protozoa	23
12	Worms	3
13	Crustacean	30
14	Mud and Sand	2
16	Water	V

Microbes like *Feacal* coli-forms Bacteria, Ziardia are some feeds of the said species in addition to the Database (Table 1).

4. Conclusions

From the feeding habit it is believed that the role of inland fisheries is to control water pollution by incorporating suitable species like *Anabas testutidineus*. India has many rivers, some rivers are stagnant in such situation chances of water pollution become more. Once we recruit *Anabas testudineus* (Koi) in this stagnant rivers situations, river water may become almost pollution free. Once we need Anabas seed it may be available during post-monsoon periods from stocking pond. If one does not want seed, the technology for production of *Anabas* seeds are readily available. Hence it is believed that river pollution specially in tropical and subtropical belts can be solved or reduced by introducing this ideal and hardy fish species i.e. *Anabas testudineus* wherever and whenever required. Hence the species is useful to control riverine water pollution and to make sacred river water specially in the rivers of tropical, subtropical Indian sub-continent.

5. Acknowledgement

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