

M. Boominathan^{1,2}, G. Ravikumar², M.D.S. Chandran¹, & T.V. Ramachandra¹

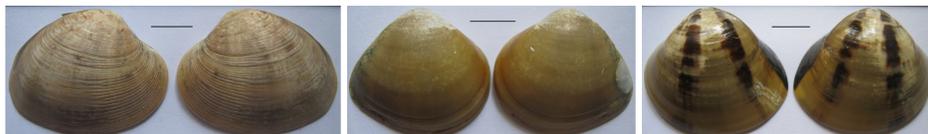
¹ Energy & Wetlands Research Group, Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, Karnataka, India

² Department of Zoology and Biotechnology, A.V.V.M. Sri Pushpam College, Poondi 613 503, Tamil Nadu, India

INTRODUCTION

- Bivalves are invertebrates which come under the Phylum Mollusca.
- They play an important role in ecology as a filter feeder.
- They also play an important role in economy as food, lime, ornaments, and poultry feed.

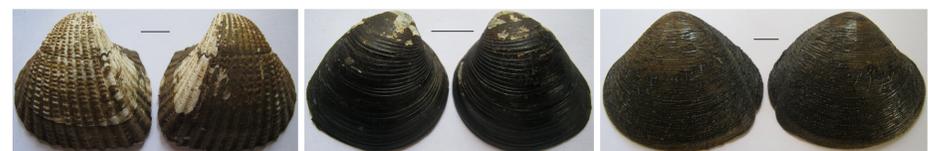
Commercial Clams of Uttara Kannada District



Paphia malabarica

Meretrix casta

Meretrix meretrix



Tegillarca granosa

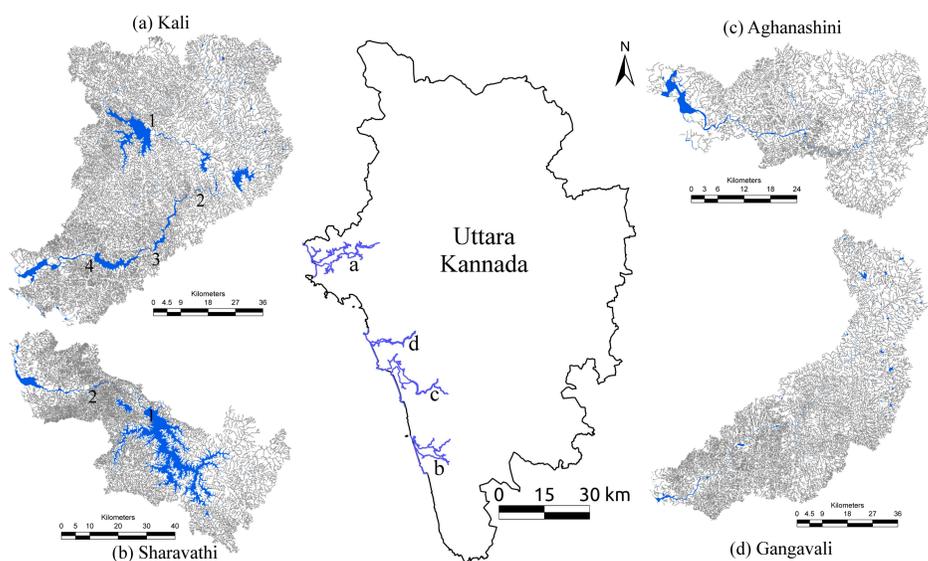
Villorita cyprinoides

Polymesoda erosa

Scale 1 cm.

UTTARA KANNADA

- Uttara Kannada district has four major estuaries namely Kali, Gangavali, Aghanashini, and Sharavathi.
- Of which Aghanashini and Gangavali rivers do not have hydel projects, whereas, Kali and Sharavathi river waters are used for hydroelectric generation.
- (1) Supa, (2) Nagjhari, (3) Kodashalli, and (4) Kadra hydel projects are in Kali.
- (1) Linganmakki and (2) Gersoppa hydel projects are in Sharavathi.



ECONOMY

- Aghanashini estuary provides livelihood opportunities for about 1,200 families.
- In 2006, about 22,000 t of bivalves (with shell) worth 60 million rupees was extracted by bivalve harvesters from Aghanashini estuary.



Diving for harvest



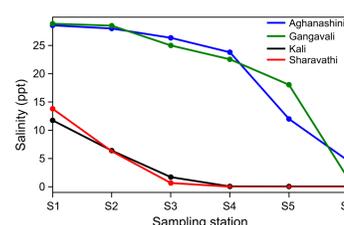
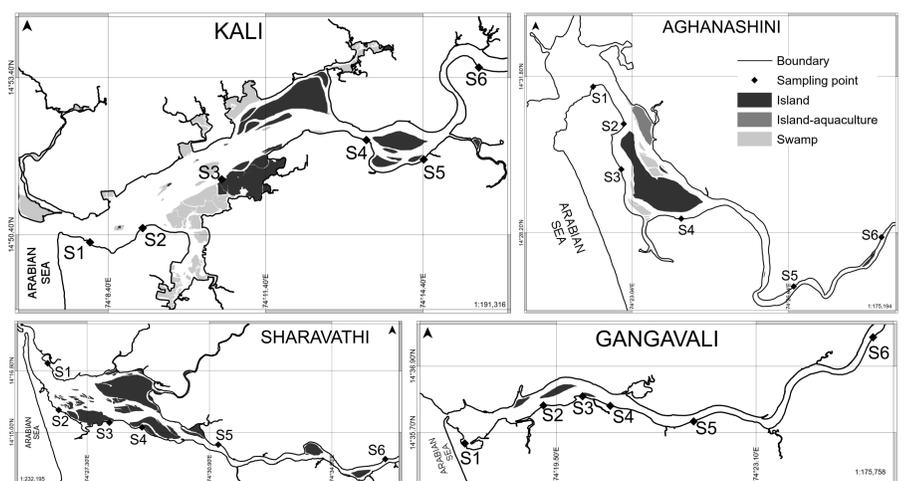
With harvested bivalves



Removing dead bivalves

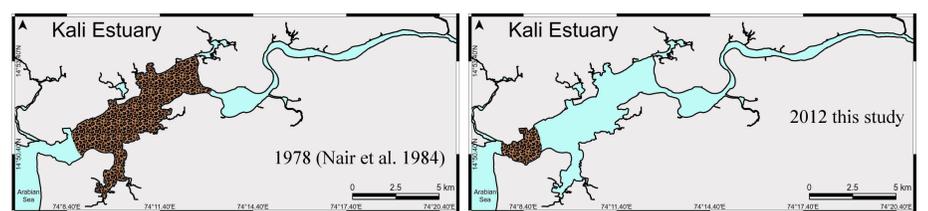
IMPACT

- Freshwater released by hydel projects reduced salinity even at high tide period during the post-monsoon (December 2011) and pre-monsoon (February 2012) in Sharavathi and Kali estuaries respectively.
- Whereas, Gangavali (post-monsoon) and Aghanashini (pre-monsoon) river estuarine salinity were high.

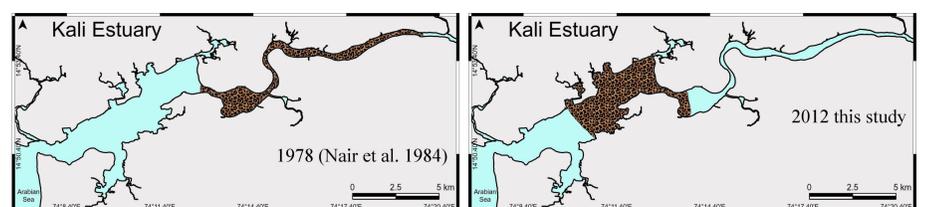


- Due to low salinity bivalves such as *Meretrix meretrix* and *M. casta* were disappeared from Sharavathi estuaries, now it has only one commercial clam *Polymesoda erosa*.

- In Kali estuary, bivalves lost habitat and shifted towards the river mouth after hydel projects.



Distribution of *Meretrix meretrix* in 1978 (pre-hydel) and 2012 (post-hydel)



Distribution of *Villorita cyprinoides* in 1978 (pre-hydel) and 2012 (post-hydel)

- Whereas, in Aghanashini and Gangavali estuaries due to high salinity condition, there were no change in species composition and distributional range.

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Contact emails: boomi@ces.iisc.ernet.in, mds@ces.iisc.ernet.in, cestvr@ces.iisc.ernet.in