

BRACHYURAN DIVERSITY IN SUB LITTORAL ZONE OF TROPICAL ESTUARY, KARWAR, WEST COAST OF INDIA.

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- Estuarine mangrove forests are among the most biologically productive ecosystem
- Mangroves - food energy to coastal waters
- an ideal nursery ground
- which prevent soil erosion
- 75% commercial fishes are caught
- Kali estuary is a productive region of Western Ghats, represents rich mangrove diversity and harbors a plethora of organisms

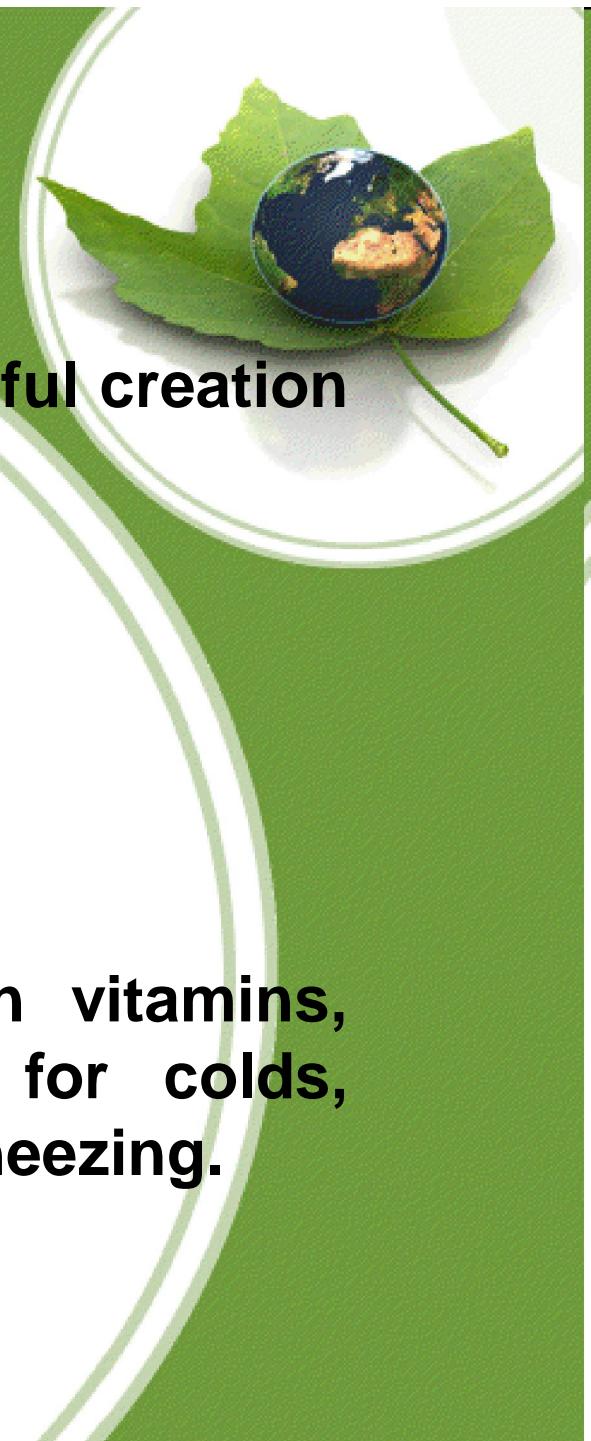




Mangrove crabs are wonderful and colorful creation of nature.

The crabs play a significant role in detritus formation, recycling of nutrients and overall dynamics of the ecosystems.

All the edible crab meats are rich in vitamins, stimulate brain cells and are good for colds, asthma, eosinophil, primary complex, wheezing.



Kali estuary :14°50'21" N ; 74°09'05" E

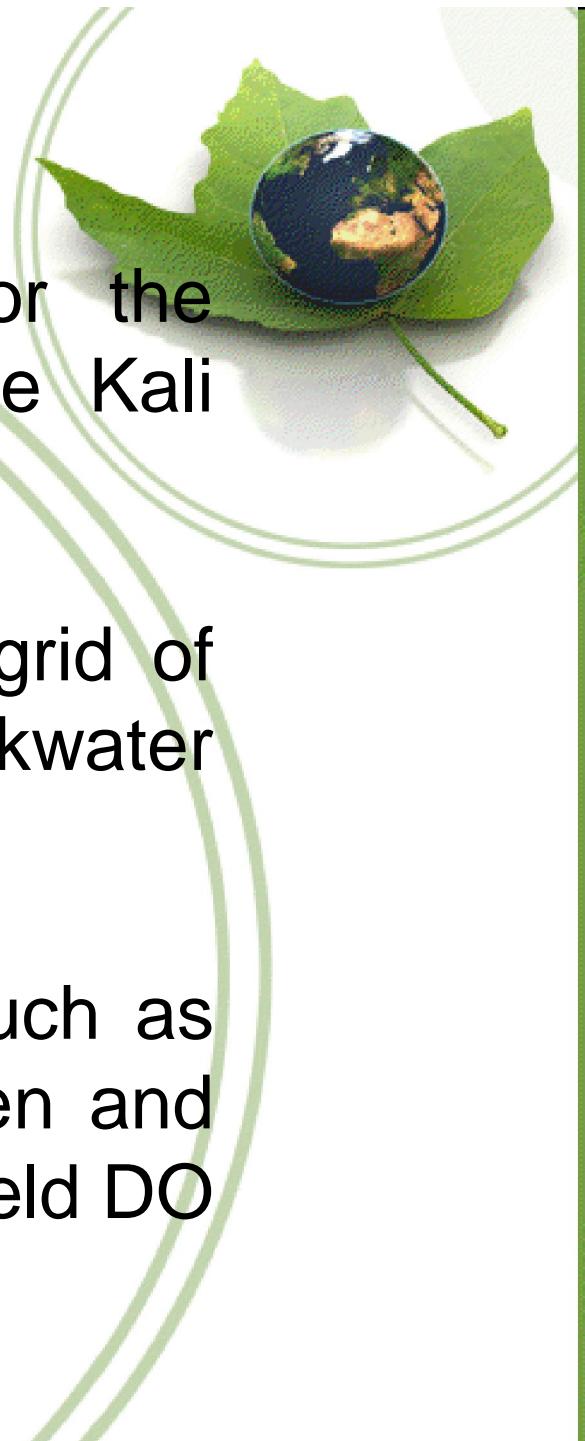
Station	Study area	Location	Extent (Hectare)	Sediment
Station 1.	Devabag and Mavinhole creek	14°50'41"N; 70°07'18"E	2.5 and 10.5	Sandy silt
Station 2.	Kanasgiri	14°51'28"N: 74°09'08"E	2.6	Silty clay
Station 3	Sunkeri and Kadwad	14°50'18"N: 74°10'03"E	18.5	Sandy silt & clay
Station 4.	Hankon	14°52'53"N; 74°10'47"E	8.0	Sandy clay



Present survey was undertaken for the period of one year (2009-10) in the Kali estuary covering around 12km stretch.

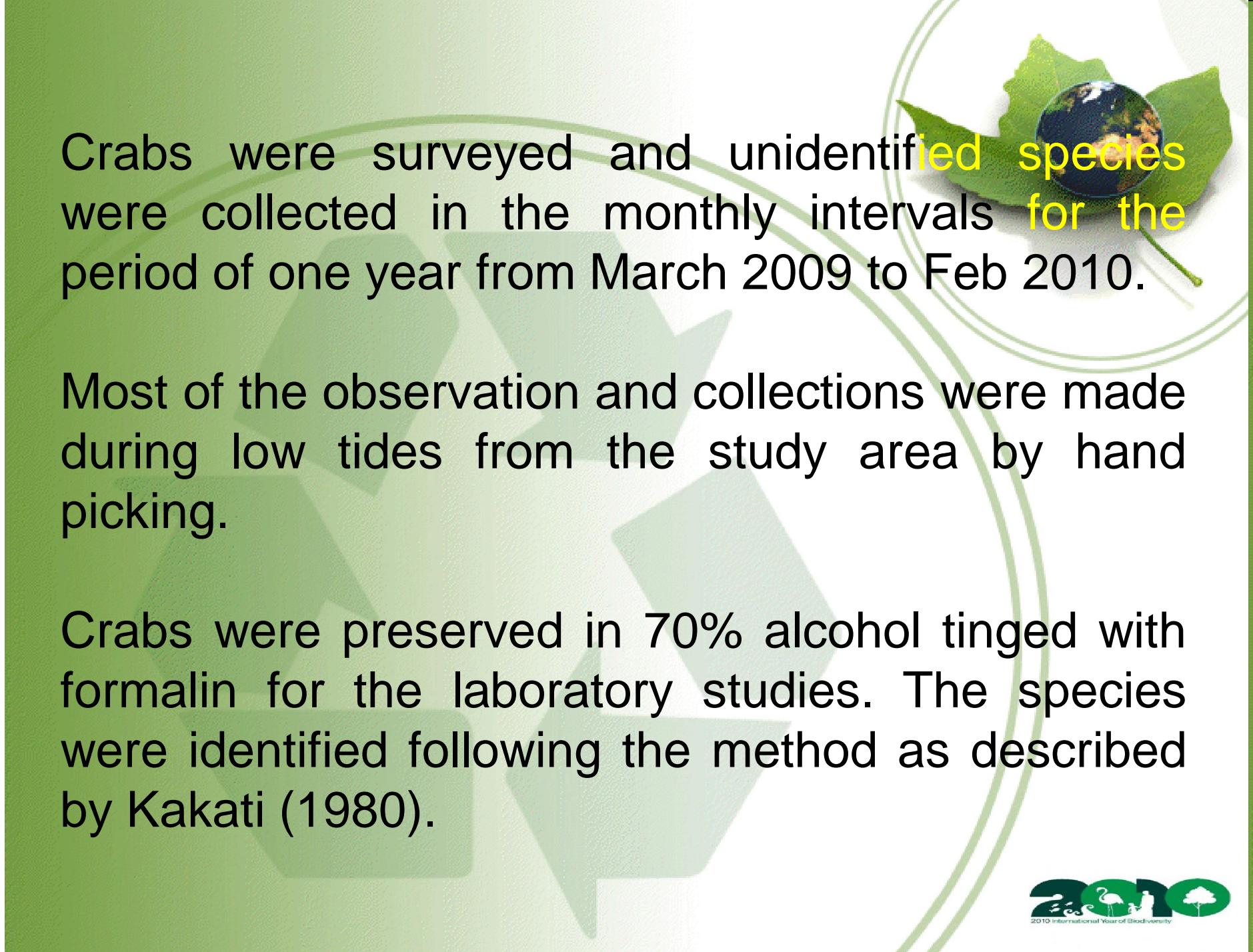
Study stations were falls within the grid of different biotopes like estuary, backwater and freshwater regime etc.

Monthly physico-chemical analysis such as temperature, salinity, dissolved oxygen and pH, was measured in-situ with hand held DO meter (HACH).



Map showing locations of study stations





Crabs were surveyed and unidentified species were collected in the monthly intervals for the period of one year from March 2009 to Feb 2010.

Most of the observation and collections were made during low tides from the study area by hand picking.

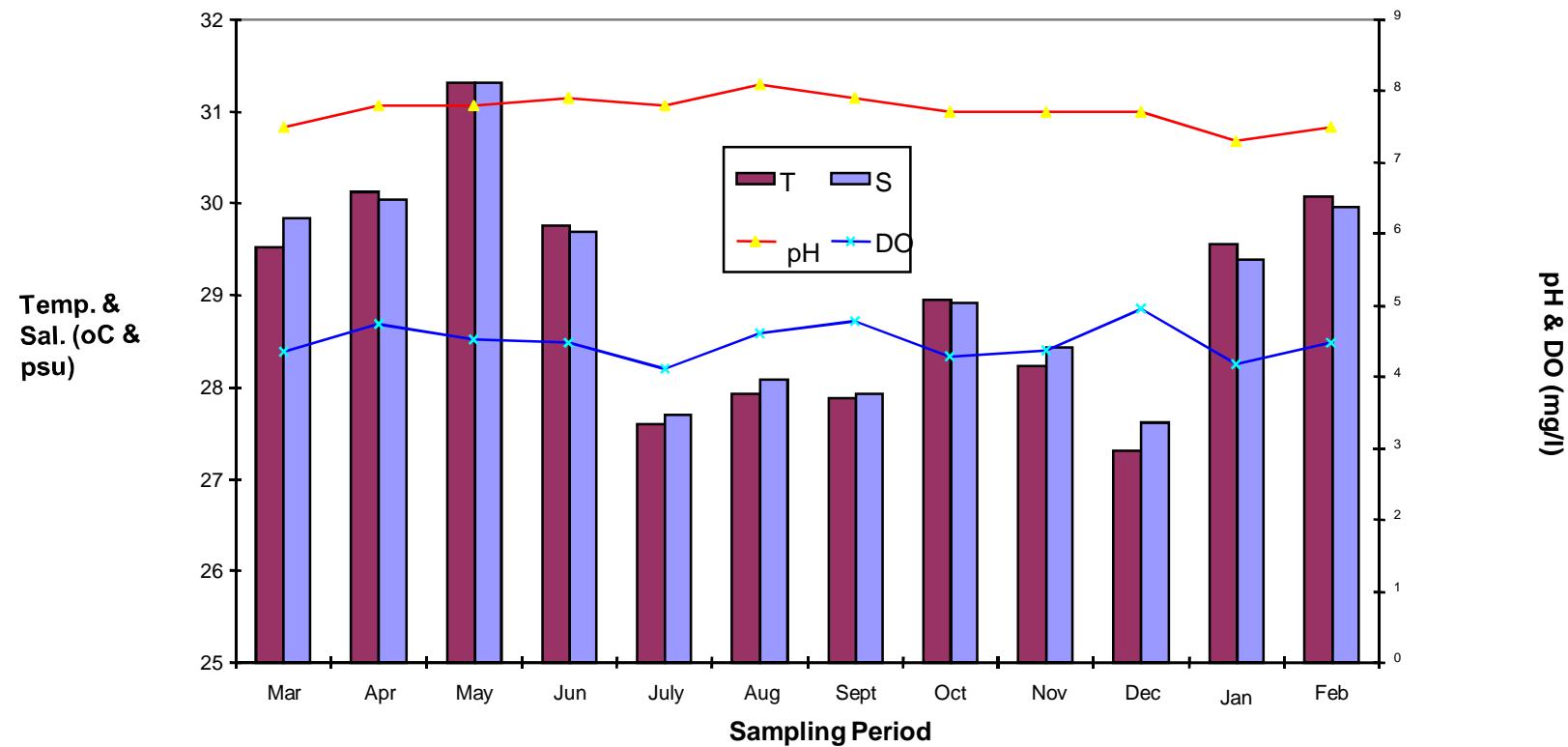
Crabs were preserved in 70% alcohol tinged with formalin for the laboratory studies. The species were identified following the method as described by Kakati (1980).

Statistical Analyses

- Diversity index was calculated as per Shannon Weiner method.
- Similarity index was analyses as per Jaccard's equation
- Dendogram was plotted as per Bray-Curtis formula
- The statistical analysis was carried out following the PRIMER v5 statistical tool



Monthly variations (average) of physico-chemical analysis along study stations.



Mangrove species	Station 1	Station 2	Station 3	Station 4
Family Rhizophoraceae				
<i>Rhizophora mucronata</i>	+	+	+	+
<i>Rhizophora apiculata</i>	+	+	+	+
<i>Bruguiera cylindrica</i>	+	-	-	-
<i>Bruguiera gymnorhiza</i>	+	+	-	-
<i>Kandelia candel</i>	+	+	+	+
Family Avicenniaceae				
<i>Avecennia marina</i>	+	+	+	+
<i>Avicennia officinalis</i>	+	+	+	+
<i>Avicennia alba</i>	+	-	-	-
Family Sonneratiaceae				
<i>Sonneratia caseolaris</i>	+	+	-	+
<i>Sonneratia alba</i>	+	+	+	-
Family Acanthaceae				
<i>Acanthus illicifolius</i>	+	+	+	+
Family Combretaceae				
<i>Lumnitzera recemosa</i>	+	+	-	-
Family Euphorbiaceae				
<i>Excoecaria agallocha</i>	+	+	+	+
Family Myrsinaceae				
<i>Aegiceras carniculatum</i>	+	+	+	-



Brachyuran species	Station 1	Station 2	Station 3	Station 4
Family Ocypodidae				
<i>Ocypode cordimonus</i>				
<i>Ocypode ceratophthalmus</i>				
<i>Uca annulipes</i>				
<i>Dotilla myctiroides</i>				
<i>Macrophthalmus parvimanus</i>				
<i>Scopimera proxima</i>				
<i>Macrophthalmus brevis</i>				
Family Grapsidae				
<i>Metapograpsus maculatus</i>				
<i>Metapograpsus messor</i>				
<i>Varuna litterata</i>				
<i>Pseudographus elongatus</i>				
<i>Pseudographus intermedius</i>				
<i>Sesarma quadratum</i>				
<i>Sesarma lanatum</i>				
<i>Sesarma edwarsi</i>				



Brachyuran species	Station 1	Station 2	Station 3	Station 4
Family Ocypodidae				
<i>Ocypode cordimonus</i>	+	+	-	+
<i>Ocypode ceratophthalmus</i>	+	+	-	+
<i>Uca annulipes</i>	+	+	+	+
<i>Dotilla myctiroides</i>	+	+	+	-
<i>Macrothalmus parvimanus</i>	+	+	+	-
<i>Scopimera proxima</i>	-	-	-	+
<i>Macrothalmus brevis</i>	+	+	+	+
Family Grapsidae				
<i>Metapograpsus maculatus</i>	+	+	+	-
<i>Metapograpsus messor</i>	+	+	+	+
<i>Varuna litterata</i>	-	-	-	+
<i>Pseudographus elongatus</i>	+	-	-	-
<i>Pseudographus intermedius</i>	-	+	+	-
<i>Sesarma quadratum</i>	+	+	+	+
<i>Sesarma lanatum</i>	+	+	+	+
<i>Sesarma edwarsi</i>	-	-	-	+



Family Portunidae

<i>Scylla serrata</i>	+	+	+	+
<i>Thalamita crenata</i>	+	+	+	-

Family Xanthidae

<i>Eurycarcinus orientalis</i>	+	-	+	-
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Family Leucosiidae

<i>Ebalia malefactrix</i>	+	-	-	-
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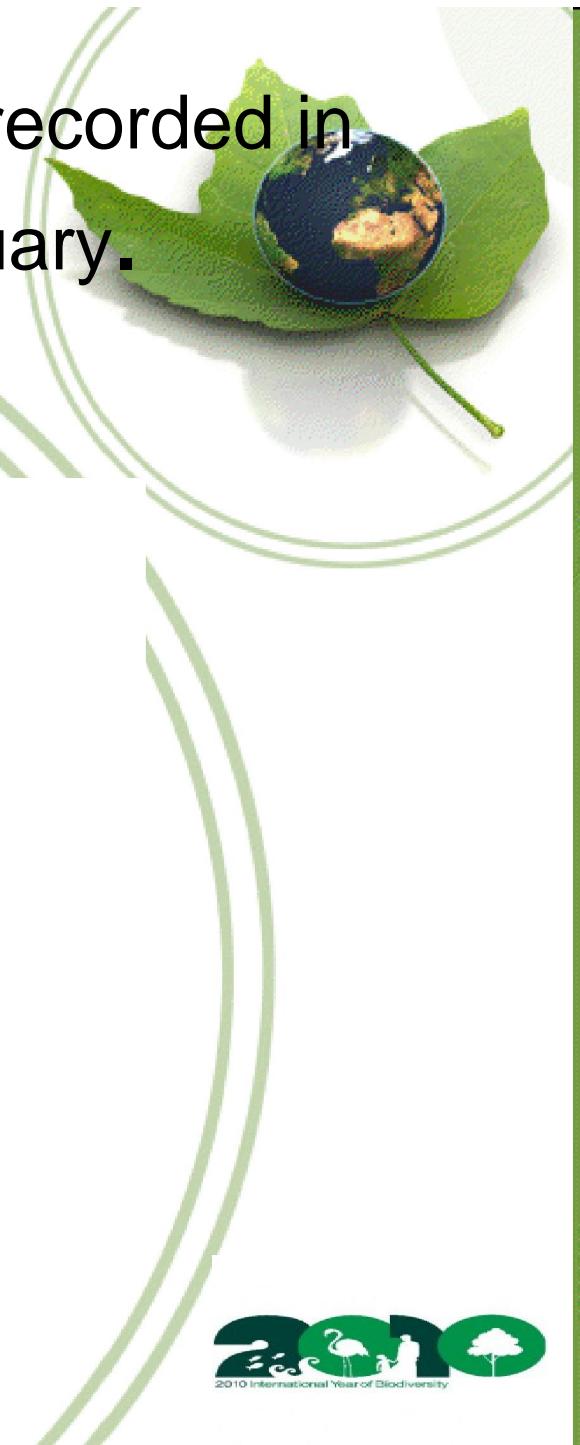
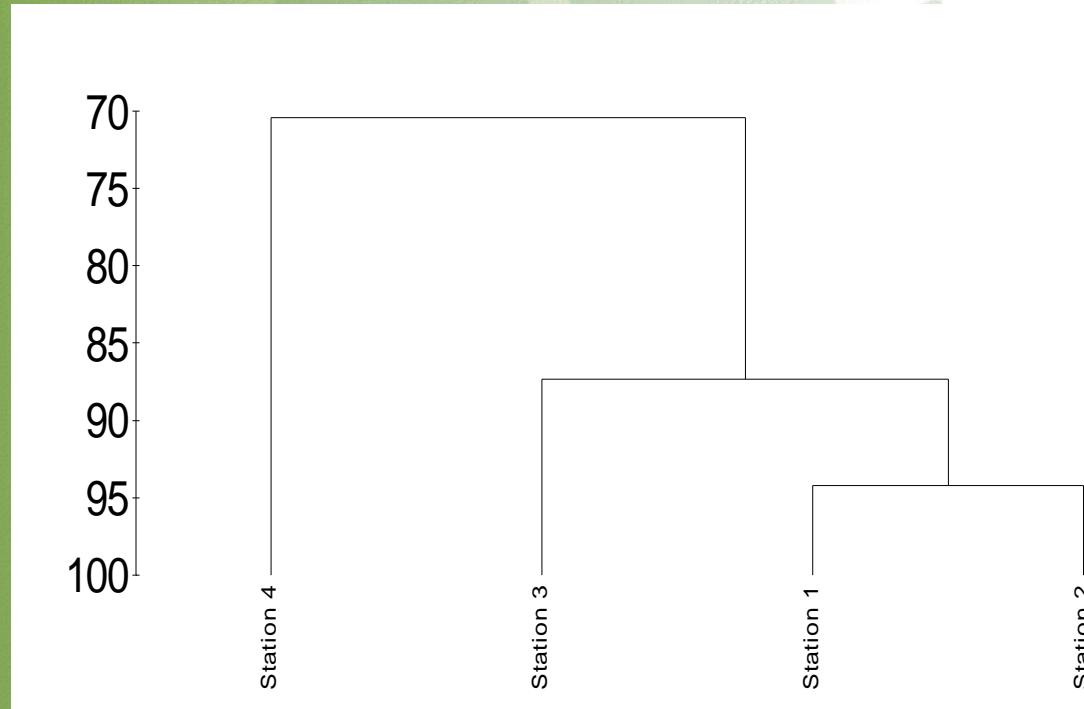
Family Hymenosomatidae

<i>Neorhynchoplax demeloi</i>	+	+	-	-
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Table shows diversity indices of brachyurans crabs in Kali estuary

Stations	S	N	D	J	H [loge]	1- lambda
Devgagh	17	63	3.8618	0.9588	2.7165	0.9416
Kanasgiri	14	69	3.0703	0.8676	2.2896	0.8785
Sunkeri	12	51	2.7976	0.7473	1.8570	0.7796
Hankon	11	27	3.0341	0.8780	2.1055	0.8746

Dendogram of brachyuran crabs recorded in various stations of Kali estuary.



Bray-Curtis similarity for brachyuran's crabs collected from different stations of Kali estuary

	Station 1	Station 2	Station 3	Station 4
Station 1	-	-	-	-
Station 2	71.308	-		-
Station 3	58.438	76.646	-	-
Station 4	51.089	61.256	60.355	-



