

## Checklist of marine bivalves and gastropods off Kollam, Kerala

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Species diversity of any region can be illustrated by means of an available checklist. It provides an overview of the species that have been recorded and can be considered to understand the local fauna. Fortnightly surveys were carried out to collect the shell-molluscs samples during 2012 - 2014 period from the by-catch of shrimp/fish trawlers landed at Sakthikulangara-Neendakara Fishing Harbour, Kollam. Collected bivalves and gastropods included both empty shells and living animals. Collected shells were brought to the laboratory and placed in freezer for 24 hours. This would liquefy the mollusc body and allowed easy extraction with a strong jet of water. For shells with flesh, freeze-defrost-freeze for two to three cycles was done. On the final cycle, it was defrosted slowly and the shell was put in a small container filled with sand to catch any exudates from decomposition. A device with hook was used to remove animal from shell. After washing shells with water, species were identified and season and magnitude of occurrence were recorded. Species were identified by following Satyamurti (1952, 1956), Dance (1974) and Sowerby (1996). Magnitude of occurrence was indicated by Abundant (A) (>10 specimens collected), Common

(C) (7-9 specimens collected), Occasional (O) (4-6 specimens collected) and Rare (R) (< 3 specimens collected) as per Lee and Chao (2005). For estimating peak seasons for gastropods and bivalves, trawl landings data of 2007-2014 were analyzed.

Observations on the landings of shells indicated that 54 species of gastropods belonging to 27 families; 9 species of bivalves belonging to 5 families and one species of scaphopod were landed as by-catch of trawlers (Table 1). A total of 64 species belonging to 33 families of molluscan shells were collected during this period. Magnitude of occurrence studied for all molluscs landed in the landing centres showed that 38 species were abundant (A), 14 species were common (C), 8 species were occasional and 4 species were rare (R) (Fig. 1). The gastropods came first in number of species recorded and more abundant in the landing centres compared to others. Analysis of gastropods and bivalves landed by trawlers during 2007-2014 at Sakthikulangara-Neendakara Fisheries Harbours revealed that Single day trawl net (MTN) contributed more (>11-21%) landings compared to multiday trawl net (MDTN). Landings were more (>60%) in

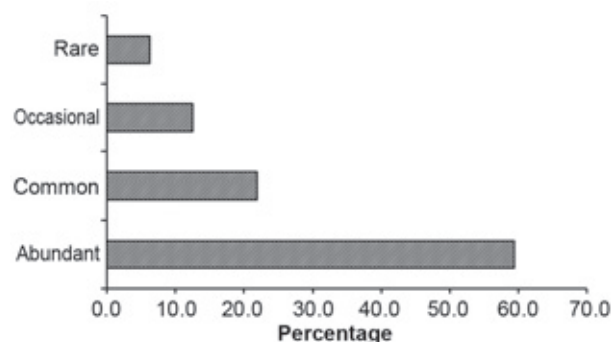


Fig. 1. Magnitude of occurrence (in %) of shell-molluscs landed in Sakthikulangara-Neendakara harbour during 2012-14

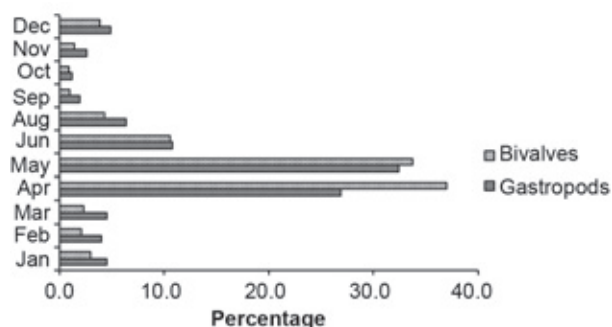


Fig. 2. Month-wise mean percentage landing of gastropods and bivalves in by-catch at Sakthikulangara - Neendakara Fisheries Harbours during 2007-2014

Table 1. Checklist of molluscs, their magnitude and season of occurrence at Sakthikulangara- Neendakara landing centres.

Species	Common name	Magnitude of occurrence	Season of occurrence
<b>GASTROPODA</b>			
<b>Turritellidae</b>			
	Turret/Screw shell		
<i>Turritella attenuata</i>		A	Apr, May, Jun, Aug, Sep, Nov
<i>Turritella duplicata</i>	Duplicate turret	C	Jan, Feb, May, Aug, Sep, Oct
<b>Terebridae</b>			
	Auger shell		
<i>Duplicaria duplicata</i>	Duplicate auger	O	Dec, Aug, Sep
<b>Harpidae</b>			
	Harp shell		
<i>Harpa major</i>	Major harp	A	Mar, Apr, May, Aug, Sep
<b>Olividae</b>			
	Olive shell		
<i>Agaronia gibbosa</i> ( <i>Oliva gibbosa</i> )	Gibbous olive	A	Dec, Jan, Feb, Mar, Nov
<i>Ancilla acuminata</i>	Pointed ancilla	A	Dec, Jan, Feb, Mar, April, May
<b>Ficidae</b>			
	Fig shell		
<i>Ficus ficus</i>	Common fig shell	A	Apr, May, Jun, Aug, Sep, Oct, Nov
<b>Naticidae</b>			
	Moon shell		
<i>Tanea lineata</i> ( <i>Natica lineata</i> )	Lined moon shell	A	Apr, May, Jun, Aug, Sep
<i>Natica vitellus</i>	Calf moon shell	A	Apr, May, Jun, Aug, Sep, Nov, Dec
<i>Polinices mamilla</i> ( <i>Mamilla fibrosa</i> )	Pear-shaped moon	A O	Mar, Apr, May, Jun, Aug, Sep Aug, Sep
<b>Architectonicidae</b>			
	Sundial shell		
<i>Architectonica perspectiva</i>	Perspective sundial	O	Jan, Feb, Mar, Apr, Nov
<i>Architectonica purpurata</i>	Purpurata sundial	R	Jan
<b>Rostellariidae</b>			
	Tibia shell		
<i>Tibia curta</i>	Indian tibia	A	Apr, May, Jun, Aug, Sep
<b>Cassidae</b>			
	Helmet/Bonnet shell		
<i>Phalium glaucum</i>	Grey bonnet	A	Mar, Apr, May, Jun, Aug, Nov
<i>Semicassis bisulcata</i>	Japanese bonnet	A	Apr, May, Aug, Sep
<i>Cassis cornuta</i>	Horned helmet	R	Aug
<b>Tonnidae</b>			
	Tun shell		
<i>Tonna dolium</i>	Spotted tun	A	Dec, Mar, Apr, May, Aug, Sep
<b>Muricidae</b>			
	Rock snails		
<i>Rapana rapiformis</i> ( <i>Rapana bulbosa</i> )	Turnip shell	A	Apr, May, Jun, Aug, Sep, Oct
<i>Murex trapa</i>	Rare spined murex	A	Dec, Mar, Apr, May, Aug, Sep
<i>Chicoreus virgineus</i> ( <i>Murex virgineus</i> )	Virgin murex	A	Mar, Apr, May, Jun, Aug, Sep, Oct
<i>Haustellum haustellum</i> ( <i>Murex haustellum</i> )	Snipe's bill murex	C	Dec, Jan, Apr, Jun, Aug, Sep
<i>Vokesimurex malabaricus</i> ( <i>Murex malabaricus</i> )	Malabar murex	O	Feb, Aug, Sep, Oct
<i>Purpura bufo</i> ( <i>Thais bufo</i> )	Toad purpura	A	Jan, Feb, Mar, Apr, May, Jun, Nov
<b>Strombidae</b>			
	Conch shell		
<i>Mirabilistrombus listeri</i> ( <i>Strombus listeri</i> )	Lister's conch	C	Jan, Feb, Dec
<i>Dolomena plicata sibbaldi</i> ( <i>S. plicatus sibbaldi</i> )	Pigeon conch	O	Dec, Aug, Jan, Feb

Species	Common name	Magnitude of occurrence	Season of occurrence
<b>Volutidae</b>	Volutes shell		
<i>Harpulina lapponica loroisi</i>	Lorois's volute	C	Jan, Feb
<b>Babyloniidae</b>	Babylon shell		
<i>Babylonia spirata</i>	Spiral babylon	A	Apr, May, Jun, Aug, Sep, Oct, Nov
<i>Babylonia zeylanica</i>	Indian babylon	A	Apr, May, Jun, Aug, Sep, Nov
<b>Melongenidae</b>	Crown conch		
<i>Volegalea cochlidium</i>	Spiral melongena	A	Apr, May, Jun, Aug, Sep, Oct
<b>Fascioliariidae</b>	Spindle snails		
<i>Fusinus colus</i>	Distaff spindle	A	Jan, Feb, Apr, May, Aug, Sep, Oct
<i>Fusinus forceps</i>	Forceps spindle	A	Jan, Feb, Apr, May, Aug, Sep
<b>Turbinellidae</b>	chank shell		
<i>Turbinella pyrum</i> ( <i>Xancus pyrum</i> )	Sacred chank	A	Apr, May, Jun, Aug, Sep, Oct
<b>Bursidae</b>	Frog shell		
<i>Bufonaria echinata</i> ( <i>Bursa spinosa</i> )	Spiny frog shell	A	Apr, May, Jun, Aug, Sep, Oct, Nov
<i>Bufonaria crumena</i> ( <i>Bursa crumena</i> )	Friiled frog shell	A	Apr, May, Jun, Aug, Sep, Nov
<i>Tutufa bufo</i>	Red-mouth frog shell	O	Jan, Aug
<b>Ranellidae</b>	Triton shell		
<i>Cymatium (Lotoria) perryi</i> ( <i>C. (Lotoria) lotorium</i> )	Perry's triton	C	Apr, May, Jun, Aug
<i>Gyrineum natator</i>	Tuberculate gyre triton	C	Jan, Aug
<b>Turridae</b>	Turrid shell		
<i>Lophiotoma indica</i>	Indian turrid	A	Apr, May, Jun, Aug, Sep, Nov
<b>Cypraeidae</b>	Cowry shell		
<i>Mauritia arabica</i> ( <i>Cypraea arabica</i> )	Arabian cowry	C	Aug, Sep, Oct
<i>Erronea erronea</i> ( <i>Cypraea erronea</i> )	Wandering cowrie	C	Jan, Feb, Mar
<b>Nassariidae</b>	Nassa shell/Dog whelk		
<i>Nassarius conoidalis</i>	Cone-shaped nassa	C	Dec, Jan, Feb, Mar
<i>Nassarius olivaceus</i>	Olive nassa	A	Jan, Feb, Aug, Sep, Oct, Nov
<i>Nassarius stolatus</i>		A	Jan, Feb, Mar, Apr, May, Sep, Nov
<b>Conidae</b>	Cone snails		
<i>Conus betulinus</i>	Betuline cone	C	Jan, Feb, Apr
<i>Conus textile</i>	Textile cone	A	Jan, May, Jun, Aug, Sep, Oct
<i>Conus milne edwardsi</i>	Glory of India cone	R	Aug
<i>Conus inscriptus</i>	Engraved cone	C	Jan, Feb, Mar
<i>Conus figulinus</i>		C	Jan, Feb, Mar, Aug
<b>Personidae</b>	Distorsio snails		
<i>Distorsio perdistorta</i>	Hunchback distorsio	R	Jan, Aug
<b>Buccinidae</b>	Whelk shell		
<i>Cantharus tranquebaricus</i>	Tranquebar goblet	A	Mar, Apr, May, Jun, Aug, Sep, Oct
<b>Ovulidae</b>	False cowries		
<i>Volva volva</i>	Shuttle volva	O	Jan, Feb, Mar

Species	Common name	Magnitude of occurrence	Season of occurrence
<b>Cancellariidae</b>	Nutmeg snails		
<i>Trigonostoma</i> sp.	Scalariform nutmeg	C	Jan, Mar, Apr
<b>Calyptraeidae</b>	Slipper snails		
<i>Desmaulus extinctorium</i>	Conical slipper shell	A	Nov, Dec, Jan
<b>BIVALVIA</b>			
<b>Donacidae</b>	Wedge shells		
<i>Donax scortum</i>	Leather donax	A	Feb, Mar, Apr, May, Aug, sep, Nov
<b>Arcidae</b>	Ark shell		
<i>Trisidos tortuosa</i>	Propellor ark	A	Dec, Jan, Feb, Oct, Nov
<i>Anadara inaequalvis</i>	Inequivalve ark	A	Feb, Mar, Apr, May, Aug, sep, Oct
<i>Anadara formosa</i>		A	Mar, Apr, May, Jun, Aug, Sep, Oct
<b>Cardiidae</b>	Heart cockles		
<i>Vepricardium asiaticum</i>	Asiatic cockle	A	Nov, Dec, Jan, Apr, May, Jun, Aug
<i>Vepricardium coronatum</i>		C	Nov, Dec, Jan, Feb, Jun, Aug
<b>Trochidae</b>	Top shells		
<i>Clanculus</i> sp.		A	Jan, Feb, Mar, Apr, May, Jun, Aug
<i>Gibbula</i> sp.		A	Jan, Feb, Mar, May, Jun, Aug
<b>Veneridae</b>	Venus shell		
<i>Antigona lamellaris</i>	Lamellate venus	O	Dec, Jan, Aug
<b>SCAPHOPODA</b>			
<b>Dentalidae</b>	Tusk shells		
<i>Dentalium</i> sp.	Elephant tusk shell	A	Jan, Feb, Mar, Apr, May, Jun, Aug

[A = Abundant; C = Common, O = Occasional, R = Rare. Previously known species name is given in parenthesis]

Sakthikulangara compared to Neendakara during 2007-2014 period. Month-wise mean percentage landings of gastropods and bivalves indicated that peak seasons for gastropods and bivalves are April, May, June and August at Sakthikulangara-Neendakara Fisheries Harbours (Fig. 2).

All the identified specimens were deposited in the Designated National Repository (DNR), ICAR-CMFRI, Kochi, India. Since there are no shellcraft industries located nearby, the ornamental shell materials were transported in lorries to shellcraft industries and small scale cottage industries located at Rameswaram, Tirunelveli and Cuddalore in Tamil Nadu.