

Potential Ornamental Marine Brachyuran Crabs available off Chennai

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Abstract

Thirty one potential ornamental, marine brachyuran crabs belonging to eleven families, namely Calappidae, Corystidae, Dorippidae, Dromiidae, Epialtidae, Galenidae, Leucosiidae, Matutidae, Parthenopidae, Portunidae and Xanthidae, landed by trawlers at Chennai Fisheries Harbour are reported. Their morphological/colour pattern, length range in the fishery and season of occurrence are given. Majority of these crabs are used as raw material in fish and poultry meal preparation. Their attractive colour and morphological features make them good candidates for aquarium purpose.

Keywords: brachyuran crabs, ornamental, Chennai, carapace width.

Introduction

Brachyuran crabs are the most diverse group among the decapod crustaceans with 6,793 species and subspecies recognised (Ng *et al.*, 2008). The crab fauna landed by trawlers at the Chennai Fisheries Harbour is constituted by several families namely, Calappidae, Corystidae, Dorippidae, Dromiidae, Epialtidae, Galenidae, Leucosiidae, Matutidae, Parthenopidae, Portunidae and Xanthidae etc. Most of the species recorded from these families possess dazzling colour pattern and distinct morphological features, making them good candidates for ornamental/aquarium purposes.

Crabs are mainly categorised into anomurans - with a clearly evident tail portion and brachyurans or true crabs which lack an obvious tail. Each of these families has clearly distinguishing features/characters: family Calappidae are box-shaped whereas Parthenopidae usually have a triangular or pentagonal carapace

with lot of spines. Dromiidae has convex carapace and genus *Arcania* of the family Leucosiidae is characterised by the presence of spines on the carapace with fingers longer than the palm. Genus *Dorippe* of the family Dorippidae is protected by a dead shell, which is held by the posterior pairs of the legs on its back. Xanthidae constitutes the most diverse and numerically abundant family among brachyurans. Portunidae has crabs mostly of commercial value like *Portunus sanguinolentus*, *P. pelagicus*, *Charybdis feriata*, *C. lucifera* etc.

The paper presents brachyuran crabs landed at Chennai Fisheries Harbour as potential species for ornamental/aquarium purposes with photographs of each species in fresh/original colour.

Material and Methods

The paper deals with the specimens recorded during June 2003-March 2008 from the regular weekly sampling. They were landed at the Kasimedu

(Chennai) fisheries harbour by trawlers operating between Ongole in south Andhra Pradesh and Nagapatinam to the south of Chennai from a depth of 10-90 m. The crabs are identified following Sakai (1976), Galil and Clark (1994), Galil (1997, 2001 & 2009), Chen and Ng (1999 & 2004), Ng *et al.* (2000 & 2008), Wee and Ng (1995) and Krishnamoorthy (2007).

Results and Discussion

Thirty one brachyuran crabs belonging to eleven families and twenty one genera are listed as potential marine ornamental crabs off Chennai. Hence emphasis is given on their spectacular colour, certain striking patterns on their carapace and chelipeds, size and availability. *Portunus sanguinolentus*, *Portunus pelagicus*, *Charybdis lucifera* and *Charybdis feriata* are excluded as they have high non-ornamental commercial value.

Superclass: Crustacea Pennant, 1777
 Class: Malacostraca Latreille, 1806
 Subclass: Eumalacostraca, Calman, 1904
 Order: Decapoda Latreille, 1803
 Suborder: Pleocyemata Burkenroad, 1963
 Infraorder: Brachyura Latreille, 1802

Family Calappidae De Haan, 1833
Calappa calappa (Linnaeus, 1758)
 Common name: Giant box crab
 Carapace is distinctly broader characterised by the length being less than half of its width. The smooth side expansion of the carapace covers the appendages. Colour: uniformly plain beige with wavy horizontal lines. Size range: 93-121 mm in carapace width (CW). Availability: February.

Calappaca pellowis Laurie, 1906
 Common name: Box crab
 Front thick and obtusely truncate, covered with coarse tubercles, hepatic regions depressed. Colour: dark orange to red brown. Size range: 85-130 mm in CW. Availability: January-March.

Calappa clypeata Boradaile, 1903
 Common name: Box crab
 Their posterior border is produced pronouncedly beyond the level of the posterior margins of the clypeiform expansions. Colour: greenish yellow. Size range: 70-85 mm in CW. Availability: January-February.

Calappa japonica Ortmann, 1892

Common name: Japanese box crab
 Carapace is broadly oval with seven sharp teeth around the free margin of the clypeiform expansion. Carapace and dorsal surface of chelipeds has tubercles covered with fine, flat granules. Colour: pale brown, granules on carapace and chelipeds surrounded by red-pink pigmented rings. Size range: 65-80 mm in CW. Availability: rare.

Calappa lophos (Herbst, 1782)
 Common name: Common box crab/ Cockscomb crab
 Carapace is dome shaped and smooth. Colour: carapace red/brown in colour with white lines, the chelipeds are white with irregular brown spots and markings. Size range: 55-125 mm in CW. Availability: October to December and January to March.

Calappa philargius (Linnaeus, 1758)
 Common name: Spectacled box crab/ four spotted crab
 Posterior border of carapace is armed with three prominent spines, one in middle and one on either side. Colour: Body light brown in colour, characterized by distinct brown/red spots two on each claw and one around the eye. Size range: 78-95 mm in CW. Availability: August.

Family Corystidae Samouelle, 1819
Jonas indicus (Chopra, 1935)
 Common name: Masked burrowing crab
 Carapace longitudinally elliptical with the rostral spines produced anteriorly beyond the tips of preorbital spines. Legs are flattened. Colour: diffused with pale red and white. Size: 28 mm CW. Availability: rare.

Family Dorippidae Macleay, 1838
Dorippe frascone (Herbst, 1785)
 Common name: Leaf porter crab/ Urchin crab
 Carapace uneven, anterolateral borders has series of small spines/ tubercles. Last two pairs of legs with curved dactylus, which help in carrying a dead molluscan shell or sea urchin. Colour: beige to pink. Size range: 35 to 45 mm in CW. Availability: throughout the year.

Family Dromiidae De Haan, 1833
Conchoecetes artificiosus (Fabricius, 1798)
 Common name: Sponge crab
 Surface of carapace is velvety and pentagonal in shape. Colour: dark brown with pink to purplish tinge. Size: small, 28-32 mm CW. Availability:

sporadic.

Lauridromia dehaani (Rathbun, 1923)
 Common name: Japanese sponge crab
 Carapace is longer than broad. They usually carry a piece of sponge with its last two pairs of legs. Colour: brown in colour with tip of claws pink. Size range: 63-90 mm in CW. Availability: usually during November.

Family Epiplatidae MacLeay, 1838
Docea canalifera Stimpson, 1857
 Common name: Spider crab
 Carapace has three spines in midline, last one being prominent and horizontally produced backwards. Anterolateral border armed with four spines, last one being largest. Colour: dark brown in colour. Size range: 28-31.5 mm in CW. Availability: August to October.

Docea ovis (Fabricius, 1787)
 Common name: Spider crab
 Carapace without spine in midline, branchial region has three short spines on the anterolateral margin, last of which very small tuberculiform. Colour: brown. Size range: 30-38 mm in CW. Availability: October to November.

Phalngipus hystrix (Miers, 1886)
 Common name: Long legged crab
 Appendages are very slender and long with two rostral spines armed with subdistal accessory spinule. Colour: pale brown. Size range: 39-46 mm in CW. Availability: November-December.

Family Galenidae Alcock, 1898
Galene bispinosa (Herbst, 1783)
 Common name: Square shelled crab
 Carapace is pentagonal, smooth, anterolateral border indistinctly four lobed two being distinct. Colour: tan to purplish tan. Size range: 35-110 mm in CW. Availability: throughout the year.

Family Leucosiidae Samouelle, 1819
Arcania elongata Yokoya, 1933
 Carapace is circular and covered sparsely with uniform sized tubercles. Eleven spines present in the circumference of carapace, the one in the middle of posterior border the longest. Colour: pale pinkish. Size range: 30 to 40 mm in CW. Availability: rare.

Luphira perplexa Galil, 2009
 Common name: Pebble crab
 Carapace convex and subglobular.

surface is smooth and polished. Colour: orange brown. Size range: 21.5-25 mm in CW. Availability: August to November.

Pariliaa lcocki Wood-mason, 1891

Common name: Pebble crab

Carapace is circular, finely granulated, but smooth to the naked eye. Chelipeds are slender and very long. Palm more than twice the length of fingers. Colour: orange red. Size range: 40-65 mm in CW. Availability: December to March.

Family: Matutidae De Haan, 1838

Ashtoret lunaris (Forsk., 1775)

Common name: Spotted moon crab/yellow moon crab

Each side of carapace is with long projection or spine. All the legs are flattened for swimming and digging. Colour: Yellowish pink with brown dots on carapace. Size range: 25-85 mm in CW. Availability: June-September and January-March.

Matuta planipes Fabricius, 1798

Common name: Reticulated moon crab/flower moon crab

Front distinctly wider than orbit. Colour: dark green with closely arranged maroon edged circles on carapace, paddle shaped legs bright yellow with dark markings near the end. Size range: 40-55 mm in CW. Availability: June-September.

Family Parthenopidae MacLeay, 1838

Cryptopodia fornicata (Fabricius, 1787)

Common name: Buckler crab/domed elbow crab

Carapace is convex, sharply pentagonal with very large vaulted expansions which completely conceal the legs. Colour: creamy beige. Size: 42 mm CW. Availability: rare.

Enoploclambruse chinatus (Herbst, 1790)

Common name: Elbow crab

Carapace and chelipeds are covered with low depressed tubercles. Colour: brown. Size range: 21.4-25 mm in CW. Availability: August.

Parthenope longimanus (Linnaeus, 1758)

Common name: Long armed crab

Carapace and chelipeds are covered with rather sharp tubercles and their median rostral process is thin. Colour: reddish to light brown. Size range: 22.5-30 mm in CW. Availability: July to November.

Family Portunidae Rafinesque, 1815

Charybdis natator (Herbst, 1794)

Common name: Ridged swimming crab

Carapace is marked with several

transverse granulated ridges. Chelipeds are considerably strong, covered with tubercles. Colour: carapace brown with the granulated ridges and tubercles bright red. Size range: 25-120 mm in CW. Availability: throughout the year.

Charybdis (Goniohellenus) hoplites (Wood-Mason, 1877)

Colour: carapace is brownish in colour and the chelipeds have cream coloured markings. Size range: 55-95 mm in CW. Availability: October.

Charybdis granulata (De Haan, 1833)

They are comparatively small in size, the posterior border of the dorsum of carapace is straight and the chelipeds are much longer than the carapace. Colour: mosaic green, mottled with brown, fingers blackish. Size range: 28-54 mm. Availability: sporadic.

Podophthalmus vigil Fabricius, 1798

Common name: Long eyed swimming crab

Carapace is smooth, broader than long. They have very long eyestalk that extends almost as much as the carapace width. Colour: dark green. Size range: 85-110 mm in CW. Availability: almost throughout the year.

Portunus (Monomia) argentatus argentatus (A. Milne Edwards, 1861)

A brown/black spot present on dactylus of the last appendage. The crest of the second abdominal segment and propodus of cheliped are very prominent with silvery appearance. Colour: pale brown with raised regions of carapace dark brown. Size range: 55-105 mm in CW. Availability: throughout the year.

Portunus (Monomia) gladiator Fabricius, 1798

It lacks the spot on the dactylus of moving legs. The crest of the second abdominal segment and propodus of cheliped are moderately prominent. Colour: pale brown. Size range: 55-102 mm in CW. Availability: throughout the year.

Family- Xanthidae MacLeay, 1838

Demania baccalipes (Alcock, 1898)

Common name: Demon crab

Anterior border of the ambulatory legs with wart like tubercles and the carapace and chelipeds are covered with large depressed tubercles. Colour: red with green patches. Size range: 60-95 mm in CW. Availability: rare.

Demania armadilius (Herbst, 1790)

Common name: Stone crab

Anterior border of the ambulatory legs is crested and the carapace and chelipeds are covered with smooth depressed tubercles. Colour: pale brown with dark brown/maroon on anterior part of carapace. Size range: small, 25-32 mm in CW. Availability: rare.

Liagore rubromaculata (De Haan, 1835)

Common name: Brown spotted crab
Front is faintly bilobed. Colour: Carapace light brown with reddish spots and legs are with red bands. Size range: 32-48 mm in CW. Availability: June - September.

The crabs are marketed at very nominal rate as raw material for fish/poultry meal and fertiliser preparation. Their capture from the wild may have detrimental impact as they are an important entity in the natural ecosystem. Hence for aquarium/ornamental purpose, they should be reared and suitable protocols developed for larval rearing as depending only on the wild can lead to increased exploitation also. Unfortunately for most of these species, larval development is unknown. Most of the crabs form association with hard and soft corals, echinoderms, sponges and molluscs regarding which further studies are needed. These ignored species can attain the status of highly valued crustaceans in the aquarium industry if culture techniques are standardised and behavioural pattern studied. The marine segment of the aquarium trade industry still predominantly relies on wild collected specimens, with over 90% of the traded species being taken from coral reefs (Tlustý, 2002).

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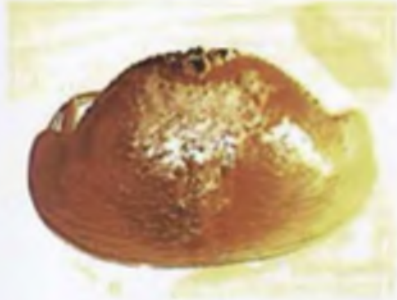
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Calappa calappa



Calappa capellonis



Calappa clypeata



Calappa japonica



Calappa lophos



Calappa philargius



Jonas indicus



Dorippe frascoe



Conchoecetes artificiosus



Lauridromia dehaani



Doclea canalifera



Doclea ovis



Phalangipus hystrix



Galene bispinosa



Arcania elongata



Lyphira preplexa



Parilia alcocki