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Fig. 2 Existing structures of the Thondamanaru lagoon

Randomly collected samples were placed in polythene bags. All collected specimens were brought to the laboratory in an ice box and analyzed.

Samples were examined using hand lenses and under a binocular stereo microscope. Identification of samples was done up to the species level at the laboratory by observing the morphological characteristics. Photographs of all specimens were taken at the laboratory. Identification was confirmed with the help of widely used references [4]-[6].

III. RESULTS AND DISCUSSION

Four finfishes, *Chanos chanos*, *Hemirhamphus* sp., *Nematalosa* and *Mugil cephalus* and seven shell fishes, *Penaeus indicus*, *Penaeus monodon*, *Penaeus latisulcatus*, *Penaeus semisulcatus*, *Metapenaeus monoceros*, *Portunus pelagicus* and *Scylla serrata* were identified.

Chanos chanos



Fig. 3 *Chanos chanos*

- Common name : Milkfish
- Colour: Body colour silvery on belly and sides, olive-green or blue colour on back. Dorsal, anal and caudal margins are dusky.
- Descriptive remarks: Body shape is fusiform, elongated, moderately compressed, smooth and streamlined. Single dorsal fin present. Formula of dorsal fin D_{14-16} . Short anal fin present. Formula of dorsal anal fin A_{10-11} . Dorsal fin is present opposite to ventrals.
- Anal fin is very close to caudal fin. Deeply forked large caudal fin present with large scale flaps at base in adults.

Pectoral fins and pelvic fins present with axillary scales. Scales are cycloid type. Toothless small mouth present.

- Size: Maximum about 180 cm.
- Habitat: Coastal waters including lagoons [6].

Hemirhamphus sp.



Fig. 4 *Hemirhamphus* sp.

- Common name : Murrail
- Colour: Bluish dorsally, silvery on sides
- Descriptive remarks: Dorsal fin present. Formula of dorsal fin D_{12-15} . Anal fin present. Formula of anal fin A_{10-12} . Anal fin originates opposite to dorsal fin. No scales present on dorsal and anal fin.
- Greatly prolonged, beak-like lower jaw present, end of the beak coral red, upper jaw short and triangular without scales, preorbital ridge absent. Total number of gill rakers on first gill arch 25-36; pectoral fins is short and not reaching past nasal pit when folded forward. Caudal fin forked. Lower lobe of caudal fin is longer than upper lobe. Dorsal and anal fins located posteriorly.
- Size: Maximum about 44 cm.
- Habitat: Coastal waters [6].

Nematalosa sp.



Fig. 5 *Nematalosa* sp.

- Common name : Koi
- Colour: Silvery body with yellow fins
- Descriptive remarks: Dorsal fin present. Formula of dorsal fin D_{15-19} . Anal fin present. Formula of anal fin A_{17-26} . Belly with 17 to 20 + 9 to 13, total 28 to 32 (usually 30) scutes (Ventral scutes) present. Black shoulder spot present. Occasionally a diffuse pink lateral band present. Snout is projecting.
- Size: Maximum about 22 cm.

- Habitat: Bays and lagoons [5], [6].

Mugil cephalus



Fig. 6 *Mugil cephalus*

- Common name : Flathead grey mullet
- Colour: Black blue/green, flanks and belly pale or silvery
- Descriptive remarks: Body is cylindrical and robust. Head is broad and flat, its width is more than width of mouth cleft, adipose eyelid is well developed and covering most of pupil; upper lip is thin. Two dorsal fins present. Formula of dorsal fin $D_{IV}; 6-8$. First dorsal fin is very closer to snout tip than to caudal fin. Anal fin present. Formula of anal fin $A_{III}; 8-9$. Scales present on back and flanks and it forms streaked longitudinal stripes. Pectoral axillary blotch is dark.
- Size: Maximum about 90 cm.
- Habitat: Estuarine, bays and lagoons [6].

Penaeus monodon



Fig. 7 *Penaeus monodon*

- Common name: Giant tiger prawn (E), Karawandu issa(S)
- Colour: Greenish grey body with dark brown bars present and yellow spot on pleopods. Antenna is uniform pink – brown.
- Descriptive remarks: The rostrum is well developed and toothed dorsally (7-8) and ventrally (3-4). The most distinct features for identification of this species are fifth pereopods without exopod, carapace without longitudinal sutures and unarmed telson.
- Size: Maximum about 27 cm in males, females about 35 cm.

- Habitat: Post larvae and juveniles in estuaries, adults in the sea. Abundant in low salinity lagoons [5].

Penaeus indicus



Fig. 8 *Penaeus indicus*

- Common name : White Shrimp (E), Kiri issa (S)
- Colour: White body covered with numerous minute dark brown dots.
- Descriptive remarks: The rostrum is well developed and toothed dorsally (7-9) and ventrally (4-6). Carapace is without longitudinal sutures. There are no fixed subapical spines on telson. There are fifth pereopods with exopod.
- Size: Maximum about 18 cm in males, females about 25 cm.
- Habitat: Very abundant on sand and mud. Showing preference for soft sand at depth of 30cm. Abundant in both low and high salinity lagoons [5].

Penaeus latissulcatus



Fig. 9 *Penaeus latissulcatus*

- Common name : Western King Prawn.
- Colour : Pale brown body. Short brown stripes present in abdomen with yellow pleopods.
- Descriptive remarks: The rostrum is well developed and toothed dorsally (9-12) and ventrally (1). Carapace is without longitudinal sutures. Exopod present on fifth pereopods. Telson armed with 3 pairs of small movable spines.
- Size: Maximum about 16 cm in males, females about 20 cm.

- Habitat: Juveniles common in high salinity lagoons and at mouth of low salinity lagoons; rare in the sea [5].

Penaeus semisulcatus



Fig. 10 *Penaeus semisulcatus*

- Common name: Green tiger prawn or flower prawn (E), Kurutu issa (S)
- Colour: Antenna banded white and brown. Reddish brown to pale brown body with brownish grey dorsal transverse bands present.
- Descriptive remarks: The rostrum is well developed and toothed dorsally (5-8) and ventrally (2-4). Antenna banded white and brown. Carapace is without longitudinal sutures. Telson unarmed. Exopod present on fifth pereopods.
- Size: Maximum about 18 cm in males, females about 23 cm.
- Habitat: Post larvae and juveniles in high salinity lagoons and near mouths of low salinity lagoons. Abundant in the sea on very soft green mud/burries in mud at daytime [5].

Metapenaeus monoceros



Fig. 11 *Metapenaeus monoceros*

- Common name: Speckled shrimp.
- Colour: Greenish grey body
- Descriptive remarks: The rostrum is well developed and toothed dorsally (9-12) and no ventral teeth. Carapace is without longitudinal or transverse sutures. Telson armed only with spicules. Fifth pereopods have no exopod. Branchio cardiac ridge reaches the posterior extension of hepatic spine.

- Size: Maximum about 15 cm in males, females about 20 cm.
- Habitat: Post larvae and juveniles in estuaries, adults in marine on mud bank [5].

Portunus pelagicus



Fig. 12 *Portunus pelagicus*

- Common name : Blue swimming crab
- Colour: Blue in colour with white spots
- Descriptive remarks: Teeth on each anterolateral border of the carapace cut into nine teeth. The last pair of lateral tooth enlarged in the form of long spine. A single spine present at the distal end of posterior boarder of the cheliped.
- Males are blue with extensive white spots. The tips of the chelae and the distal segments of the legs are purple. Females are duller greenish/brownish colour with irregular patches and have rounded carapace. Laterally flattened legs present and last 2 segments of last pair paddle-like.
- Size: Carapace length about 18 cm for males, females about 16.5 cm.
- Habitat: Very wide spread generally marine. It is a marine crustacean that occurs in large shoals in shallow coastal water overlying sandy or muddy substrates. Commonly rise to the surface at night [5].

Scylla serrata

- Common name : Indo-Pacific swamp crab
- Colour: Greenish body
- Descriptive remarks: Carapace is smooth, with strong transversal ridges. Orange colour tipped strong chelipeds and well developed spines present on the outer surface. There are polygonal markings on all limbs and the two sharp spines on the outer margin of the carpus of the cheliped. Teeth of the antero-lateral border of the carapace cut into nine and equal in size. Legs are marbled.
- Size: Carapace length to about 22cm.
- Habitat: Neritic, benthic on mud and sand and also on high silty substrata. In Sri Lanka, this species are most abundant in estuaries [5].

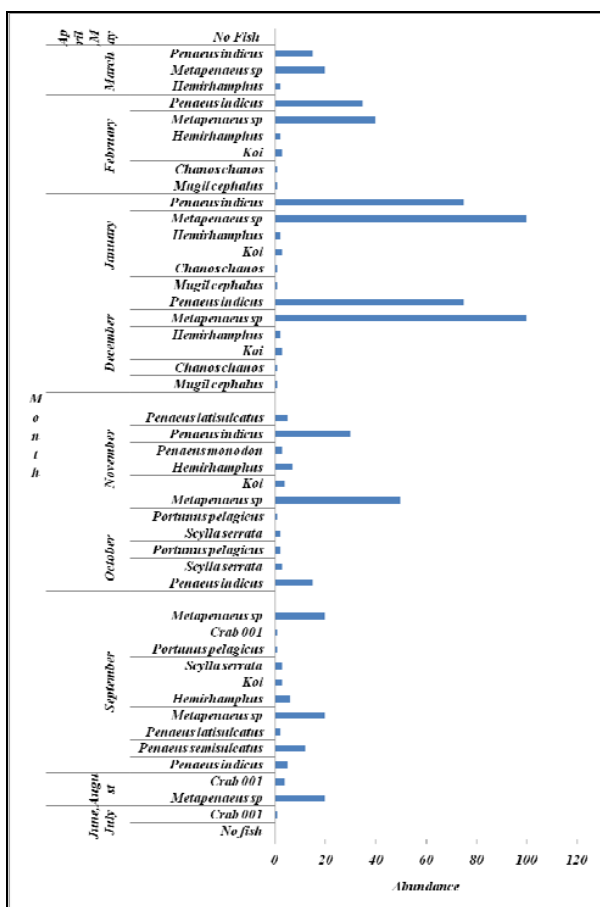
Fig. 13 *Scylla serrata*

Fig. 14 Fluctuation in fish and shellfish in Thondamanaru lagoon

At Thondamanaru lagoon, *Penaes indicus*, *Penaes monodon* were present along with 33 species of fish. Out of the 33 species, 18 species were purely marine forms during 1963-1969 [1].

Prior to 1953, lagoon harboured all species. But after the introduction of the barrage with sluice gate, fish fauna had

been reduced from 47 species during 1967/68 to 15 species in 1978 [2].

Fluctuation of fish and shellfish were observed during the study period. During the rainy season, species diversity was observed high compared with other months. *Mugil cephalus*, *Penaes indicus* and *Metapenaeus monoceros* were most abundant in this lagoon during rainy season from November to January (Fig 14).

Changes in fish and shellfish were observed due to the increased salinity in dry season [2]. Main causes for these changes in fish and shellfish are absence of water circulation, changes in water depth, salinity and absence of rainfall.

IV. CONCLUSION

Conducted field study revealed that 11 species of fish and shell fish were existed in Thondamanaru lagoon, Jaffna, Sri Lanka. They are *Chanos chanos*, *Hemirhamphus* sp, *Nematalosa* sp and *Mugil cephalus*, *Penaes indicus*, *Penaes monodon*, *Penaes latisulcatus*, *Penaes semisulcatus*, *Metapenaeus monoceros*, *Portunus pelagicus* and *Scylla serrata*. After the introduction of the barrage with sluice gate, changes in fish and shellfish were observed due to the increased salinity in dry season.

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REFERENCES

- [1] Atputhanathan, M. and Chitravadevelu, K. (1968). Fishes of the Thondaimannar lagoon. Proc. Sri Lanka Association of Advancement of Science.25(1):68
- [2] Chitravadevelu, K. (1978). FWC Newslwtter.IX(1):9-13
- [3] Chitravadevelu, K and Arudpragasam, K.D (1983). Studies on the prawn fishery in the Jaffna lagoon. Proceeding of Sri lanka Association for Advancement of Science.39(1) 47
- [4] Carpenter, K.E. and Niem, V.H. (1998). FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Cephalopods, crustaceans, holothurians and sharks. Rome, FAO. Volume 2. pp 687-1396.
- [5] De Bruin, G.H.P., Russell, B. and Bogusch, A. (1994). The Marine Fishery Resources of Sri Lanka, FAO species Identification guide for fishery purposes. FAO, Rome.
- [6] Munro, I.S.R (1995). The Marine and freshwater fishes of Ceylon. Department of external affairs, Canberra, Australia.
- [7] Sachithanathan, K. and Perera, W.K.T. (1970). Topography and Substratum of the Jaffna lagoon. Bulletin of the Fisheries research station Ceylon.21:75-85.
- [8] Sanmugarajah, K. (1993). Report of water resources Development, Jaffna Peninsula.pp78

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