

GOLDEN JUBILEE CELEBRATIONS

Souvenir

2000

**Issued at the National Symposium on
Eco - Friendly Mariculture Technology
Packages - An Update, held at
Mandapam Camp, 25 - 26 April 2000
to mark the Golden Jubilee Celebration of
Staff Recreation Clubs**

**MANDAPAM REGIONAL CENTRE OF
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
MARINE FISHERIES POST - 623 520, MANDAPAM CAMP
RAMANATHAPURAM DISTRICT, TAMIL NADU, INDIA**

The Sea Cow, *Dugong Dugon* Of India

R.S. Lal Mohan,

Conservation of Nature Trust,
43-C, Water Tank Road,
Nagercoil - 629 001.

The sea-cows or the dugongs are distributed in the Indo-Pacific region between longitudes 32°E and 170°W, latitudes 35° and 40°N. There are five population namely, East Australian, North Australian, Andaman-Malay Peninsula, Thailand and South China, South Indian and Sri Lanka, East African, Red Sea and Persian Gulf.

Dugong has a wide distribution in the tropical Indo - Pacific region. They are recorded from East Africa, Mafia Island, Kenya, Red Sea, Persian Gulf, Gulf of Mannar, Palk Bay, Sri Lanka, Andaman Island, Burmese Coast, Merqui Archipelago upto New Caledonia and Philippines Island. At present the dugongs are found in good numbers in the coast of Australia but becoming depleted in other places.

The body of the dugong is spindle-shaped and can be divided into head, trunk and tail. The head is small and characterised by the muzzle, a horse shoe shaped extension of the upper lip specialised to browse at the bottom of the sea. The surface of the muzzle has large number of bristles. In the male a pair of incisors are found. The eyes are small. Nostrils are a pair of crescent shaped openings located dorsally. Ear openings are small without ear lobes.

The dentition consists of incisors and molars, canines are not present. There are four pairs of incisors in the lower jaw in the young dugong but these are lost in the adult. When the teeth are shed, the sockets are filled with bony matter.

Dugongs usually attain a maximum length of about 3 meters.

Dugongs are well adapted for an aquatic life. The fore limbs are modified into flippers and the hind limbs are absent. The pelvic girdle is absent and represented by two small bones. A strong caudal fluke is developed and help the animal in propelling its body and to the swim. Two mammae, one on each side are present near the arm pit of adult females. Nipples are about 25-30 mm in the adult females. In the male dugong, the urino-genital opening is situated away from the anus whereas in the female both openings are close. Bones are massive. It helps the animal to remain at the bottom of the sea. The brain of the dugong is small. Cerebrum has a few shallow sulci on temporal, parietal and frontal lobes. The corpus callosum is well developed. Pineal gland is absent in dugong. The kidneys are elongated. The ureters are dipelvic. In the males, testes are present posterior to the kidneys. Penis of the adult measures 20 - 25 cm in length. The ureters of dugong is bicornuated and the placenta non - deciduous.

Under the skin of the dugong is the blubber or fat layer constituted by fatty adipose tissue. It is useful to regulate the heat and protect the internal parts of the body from cold.

The female dugong gives birth to one calf at a time. The foetus of the dugong may be about 90 cm. Dugong are monogamous. It matures at a length of about 2.3 m.

Mandapam Regional Centre of the Central Marine Fisheries Research Institute has the distinction of keeping the dugong in captivity for 10 years. It was observed to grow 47 cm

during this period. We do not have much information on its longevity. The longevity of the animal may be about 40 years.

Dugongs are herbivores. They feed on sea - grasses found in the coastal waters. The sea grasses *Cymodocea ciliata*, *C. isoetifolia*, *Enhalus koengi*, *Halophila ovalis*, *H. stipulacea*, *C. rotundata* etc. form its main food. They are voracious feeders. 25 kgs of sea grass was taken from a dugong's stomach at a time. Dugongs browse at the bottom of the sea uprooting the rhizome of the sea grass.

Sea grass beds are found mainly off Mandapam in the Palk Bay at about 5 kms. in length and 150 to 300 m in width. Near Hare Island and Manoli Island the seagrass beds are found as scattered patches. Luxuriant growth of *Cymodocea serrulata* is found from near Thondi to Athankarai. Near Sethu Karai also vast meadow of seagrass is found.

Gulf of Mannar is characterised by a chain of twenty Islands and eighty one slightly elevated pearl banks locally known as 'paars'. Some of the islands are Vantivu, Velangu tivu, Musal tivu, Pallivasal tivu, Pulli tivu, Krusadi tivu etc. Dugongs occur in the seagrass beds found near the islands.

As the seagrass beds are the main habitat of the dugong, any natural or man made degradation to the seagrass beds will be affecting the dugongs. Apart from the impact of bottom trawling, cyclones, tidal waves, flood and the effluents also can degrade the seagrass beds.

Heavy damage was caused to the seagrass beds of Palk Bay in 1954 cyclone. The tidal waves of 1958 1964 and 1978 also have caused extensive damage to the seagrass beds of Gulf of Mannar and Palk Bay. It may be mentioned that during 1964, a tidal wave of 3-5m high struck the Rameswaram island washing away Dhanushkodi Island. Flood damage to these grass beds are well documented in India and Australian Coasts.

It was observed that many carcass of dugongs were washed ashore after the 1954 cyclone.

The dugong population of Gulf of Kutch is under great stress due to the development of petrochemical industries and disturbances to the ecosystem caused by the effluents. Many large industries are located in Tuticorin and their effluents are let into the Gulf of Mannar. 38 Dugongs in Saudi Arabia died after the Gulf war.

In India the gillnets are the major cause for the depletion of dugong population. In Tamilnadu there are about 1.18 million gillnets each measuring 2-3 kms. Gulf of Mannar has about 86202 gillnets and the Gulf of Kutch 7382. Between 1971-1975 as many as 146 dugongs were caught in Palk Bay and Gulf of Mannar. The mortality was about 30 per annum. It is very high rate of mortality. There might have been many unrecorded catches. 100-150 dugongs were caught annually in Gulf of Mannar part of Sri Lankan coasts. Gill nets, spears and dynamites have almost exterminated the dugong population. Being a sluggish animal it was an easy target for the fisherman. Further as medicinal properties were attributed to its meat, there is a good demand for it.

The dugong population of Gulf of Mannar and Palk Bay were under severe fishing pressure. There was a good population before 50 years. Meat of dugong was sold at Keelakarai regularly. They were using large gillnets namely 'Avuli Valai' having a mesh size of about 15-18cm for fishing the dugongs. These nets measured about 1.5 to 2.0 km in length and 5-7m in depth and was made of cotton twisted twine or twisted acacia sticks of about 2.5mm thickness.

It can be said that the dugong population of Gulf of Mannar is on the verge of extinction. Fisherman also say that they do not observe the dugongs now. All these observations indicate the dugongs of Gulf of Mannar and Palk Bay are becoming rare.

It is essential to conserve the dugongs of Palk Bay & Gulf of Mannar. The Indian wild life protection Act 1972 offers protection to this animal. But the law not properly implemented by the enforcing authorities. The dugongs were

killed as enough awareness was not created among the fisherman and the coastal population. Intense awareness programme is this only way to protect the animal though they are rare