ORDER SIRENIA

These strictly aquatic mammals occur in coastal waters, estuaries, and rivers in warm, tropical areas. Sirenians are suspected of being the basis for legends concerning mermaids, but although they move slowly and gracefully, their chunky body and homely facial features do not bring to mind an image of a beautiful woman. Their external features are similar in many respects to those of whales, but are indicative of convergence, not close evolutionary relationship. The mouth is small and the margins of the lips bear conspicuous tactile vibrissae. These animals remain under water most of the time, surfacing usually only to breathe. A dense, heavy skeleton allows them to remain submerged without effort. They swim by gentle vertical undulations of the tail fluke.

The cheekteeth erupt in a continuous series as in hyraxes (p.266) and elephants (p.264), with whom they probably share a common ancestry. In the family Trichechidae (p.262) the teeth are indefinite in number. Strictly vegetarian, sirenians crush and grind food by the combined action of the teeth and horny plates on the palate. Sirenians are hunted by humans as a source of meat.

Recognition Characters:

1. **body large (2.5-4.5 m), massive, fusiform (torpedo-shaped), virtually hairless.**
2. no hind limbs (remnants of pelvic girdle may be present internally), forelimbs modified into flippers.
3. **tail modified into a fluke.**
4. nostrils located dorsally at end of snout.
5. **neck short, not visibly separating head and body.**
6. no pinna.
7. skeleton heavy, dense.
8. no clavicle.
9. nasal bones absent or, if present, small.

Compare with: Mysticeti, Odontoceti.

Remarks: Important studies of this order include those of Kaiser (1974), Mohr (1957), Reinhart (1959), and Simpson (1932). Several works cited for cetaceans (p.239) also include information about sirenians.

KEY TO FAMILIES OF SIRENIA

1a. Upper lip deeply cleft; tail rounded; jugal broadened behind orbit, not in contact with premaxilla; supraorbital process large, broadly expanded over orbit; cheekteeth numerous, variable in number ..... **TRICHECHIDAE** (p.262)

1b. Upper lip only slightly cleft; tail cleft; jugal broadened below orbit, in contact with premaxilla; supraorbital process not enlarged or broadly expanded over orbit; cheekteeth at most 3/3 ..... **DUGONGIDAE** (p.261)

Family DUGONGIDAE
(Dugongs)

Dugongs are readily distinguished from manatees (p.262) by several external and cranial features (see below). The most obvious external difference is the shape of the tail fluke.

These animals frequent sheltered and shallow waters of coastal bays and shorelines where vegetation (chiefly aquatic grasses but also some algae) is abundant. Dugongs are usually found in small groups. The fleshy snout and tusk-like incisors are used to root up aquatic plants, and the interlacing bristles on the lips help grasp the vegetation. The skin is occasionally infested with barnacles. They rarely invade rivers except perhaps to breed. There appears to be no well-defined breeding period. Females normally bear one young.

Two genera, 2 species (a third, *Hydrodamalis gigas*, Steller's sea cow, is evidently extinct); coastal waters of Indo-pacific region (*Hydrodamalis* formerly occurred in Bering Sea).

Recognition Characters:

1. **tail fluke dolphin-like, with pointed lateral projections; posterior margin deeply notched.**
2. **upper lip only slightly cleft.**
3. no nails on flippers.
4. **supraorbital process not enlarged or broadly expanded over orbit.**
5. no nasal bones.
6. premaxilla large, bent sharply downward.
7. **jugal broadened below orbit, in contact with premaxilla.**
8. **palate narrow, distinctly elevated above toothrow, with small median ridge.**
9. **lower jaw with coronoid process projecting upward.**
10. upper incisor tusk-like in males, small and often not protruding through gum in females.
11. **cheekteeth simple, columnar.**

Dental formula: $\frac{1}{1}\frac{0}{0}\frac{2\text{-}3}{2\text{-}3}$ (identity of cheekteeth uncertain)

Compare with: Trichechidae.

Genus:

Dugong (1) - *D. dugon* is the dugong.

Remark: Husar (1978a) and Kingdon (1971) examined the natural history of dugongs.

Family TRICHECHIDAE
(Manatees)

Found in rivers, estuaries, and shallow coastal areas, these mammals graze on a wide variety of aquatic plants. Manatees have thickly bristled upper lips which are partially separated and prehensile. They pull food into the mouth by everting the lips over the food and retracting them as they grasp the food. Trichechids have an indefinite number of cheekteeth which are continually replaced from the rear (five to seven of these are functional at one time) and only six cervical vertebrae. The body of manatees is often covered with algae which themselves harbor a rich community of crustaceans and molluscs. Diatoms and barnacles are also common residents on the skin of manatees.

Trichechids are solitary to mildly social. They breed throughout the year. Females usually produce one calf. During cold periods manatees commonly migrate to warmer areas (usually up rivers) where they may congregate in groups of 40 or more individuals.

One genus, 3 species; coastal waters and rivers of tropical and subtropical Atlantic.

Recognition Characters:

1. **tail fluke evenly rounded; posterior margin not notched.**
2. **upper lip deeply cleft.**
3. small nails usually present on flippers (absent in *Trichechus inunguis*).
4. **supraorbital process large, broadly expanded over orbit** (Fig. 122).
5. nasal bones present, small.
6. premaxilla small, only slightly bent downward.
7. **jugal broadened behind orbit, not in contact with premaxilla.**
8. **palate relatively broad, not elevated above toothrow, with distinct median ridge.**

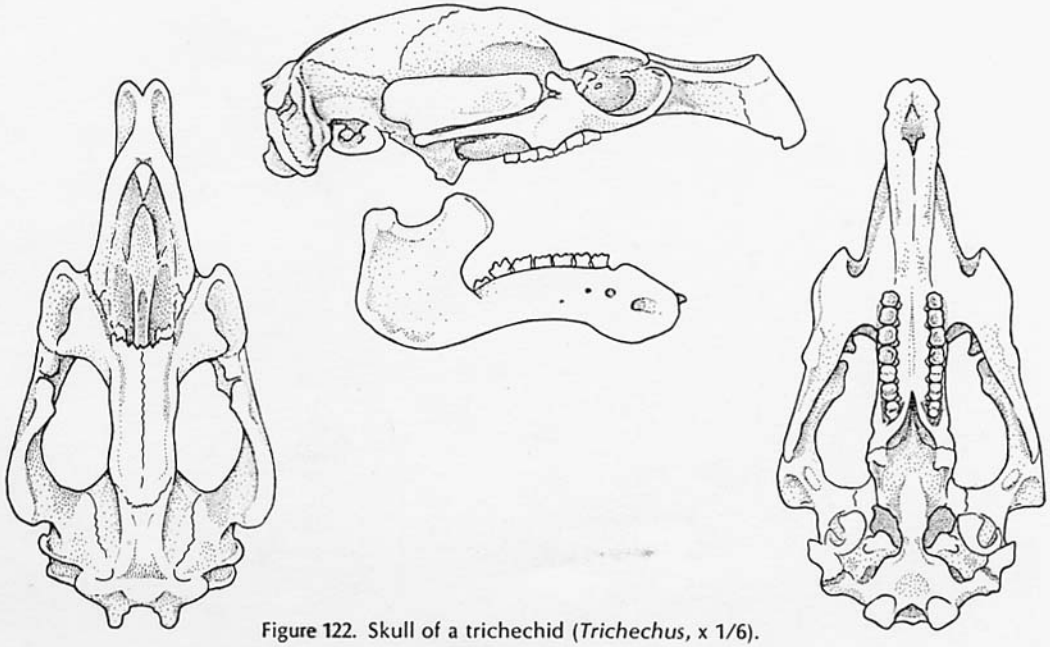


Figure 122. Skull of a trichechid (*Trichechus*, x 1/6).

9. **lower jaw with coronoid process projecting forward** (Fig. 122).
10. **no upper incisors** (Fig. 122).
11. **cheekteeth each with two transverse ridges** (Fig. 122).

Dental formula: $\frac{0\ 0\ \text{indefinite}}{0\ 0\ \text{indefinite}} = ?$

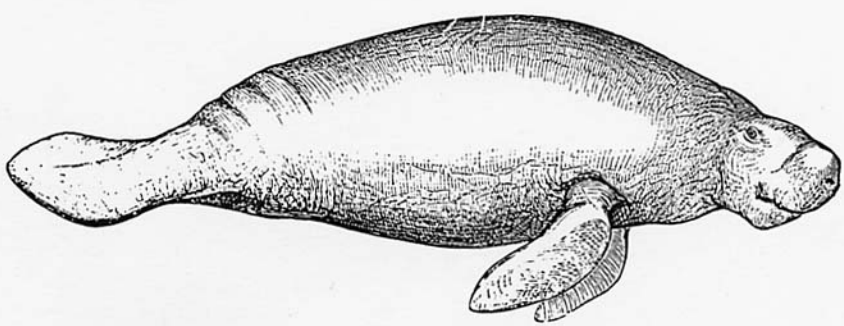
(identity of individual cheekteeth unknown).

Compare with: Dugongidae.

Genus:

Trichechus (3) - Manatees.

Remark: Husar (1977, 1978b, 1978c) reviewed the biology of the three species of manatees.



Manatee.