The Anatomy of Sea Turtles

Jeanette Wyneken, Ph.D.
Illustrated by Dawn Witherington

Close this window to return to the previous page or go to www.ivis.org
Kemp's ridley turtles are dark grey to grey-green in color. They have 5 lateral scutes (4-6 is common).

Olive ridleys turtles are dark grey. They typically have more than 6 normally aligned lateral scutes, 6 or more normally aligned vertebral scutes (Fig. 23) and many supraoccular scales (Fig. 24).

**Skull Anatomy**

The skull is organized into an inner braincase, the neurocranium, which houses the brain and an outer bony superstructure, the splanchnocranium. The anterior splanchnocranium along with the mandibles form the jaws. The splanchnocranium also houses the sense organs and provides the muscle attachment sites for jaw, throat and neck muscles. The braincase is found along the midline, internal to the skull roof, snout, and jaw bones of the splanchnocranium. The external bones of the splanchnocranium (Fig. 25) are the same in all species, however their specific form and some articulations differ. Skull shape and the patterns of bones of the palate (roof of mouth; Figs. 26-27) are diagnostic for species identification. Lateral bones (Fig. 28) are important landmarks for locating internal structures. The jaws (Fig. 26) and the neurocranium (Fig. 29), also are composites of several bones.
SKULL ANATOMY

Figs. 25a and 25b. The dorsal and lateral bones are identified here. With the exception of the supraoccipital, these are bones of the splanchnocranium.

Figs. 26a and 26b. Ventral bones of the skull (with the hyoid skeleton of the throat removed) are shown with the lower jaw and anterior neck vertebrae articulated. Both the upper and lower jaws are composed of multiple bones. The posterior braincase, part of the neurocranium, articulates with the cervical vertebrae. The vertebrae are composed of several parts: a vertebral body or centrum located ventrally and dorsal arch elements. C1 - C4: Cervical vertebrae.
Figs. 27a and 27b. The specific articulations and forms of the bones are characteristic of each species. The bones that make up the palate are frequently used as key characteristics. For example, in this ridley skull, the vomer prevents the maxillae from touching. In the loggerhead, a grossly similar skull, the vomer does not reach the premaxillae, so the maxillaries articulate. The pterygoid process shape and position are also key characteristics.
Figs. 28a and 28b. The lateral bones, identified on this cheloniid skull, vary in form with species. The eye would be housed in the orbit and the auditory canal (ear) would occupy the notch posterior to the quadratojugal.

Fig. 29. The lower jaw is a composite of the dentary, angular, surangular, prearticular, splenial (not shown) and articular bones. The cartilaginous portion is Meckel’s cartilage; it is found in the Meckelian groove in life.
Figs. 30a and 30b. The neurocranium is partially exposed by the removal of the jugal, quadratojugal, and quadrate of a hawksbill skull. The braincase is small and housed internal to the skull roof. Anterior bones (rostrum basisphenoidale and pterygoid) and lateral bones (prootic and opisthotic) form walls of the braincase.