

## **MANDIBULAR BOWING AND MINERALIZATION IN BROWN PELICANS**

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*Abstract.* Brown Pelicans (*Pelecanus occidentalis*) plunge dive into water to capture fish with highly distensible pouches. During prey capture, the pouch may expand to hold 11 L of water and the mandibular rami may bow from a resting position of 5 cm to over 15 cm. We compared mineralization of two bending regions of the mandible with a nonbending region, and examined cross-sectional morphology to determine if mineral content and shape play a role in mandibular bending. A rostral bending zone, adjacent to the mandibular symphysis, possessed only about 20% mineral content, significantly less than the lateral bending zone and the rigid caudal mandible, both comprised of over 50% mineral content. Additionally, the rostral zone was solid in cross section, facilitating bending, whereas the lateral zone was made up of bones joined by connective tissue. This latter morphology permits movement between the bones even though there was relatively high mineralization. We suggest that mineral content may be an overlooked component to cranial kinesis in birds.

*Key words:* Brown Pelican, cranial kinesis, feeding, jaw mechanics, *Pelecanus occidentalis*, streptognathism.