



First Record of the Ridley Turtle from Bermuda, with Notes on Other Sea Turtles and the Turtle Fishery in the Islands

Author(s): Louis S. Mowbray and David K. Caldwell

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work was carried out at Woods Hole, Mass. during the summer of 1957.

Developing embryos were collected in the field, or eggs were stripped from gravid females and fertilized in the laboratory. They were reared in finger bowls, and when hatched, the 5 mm. long larvae were transferred to a wooden rectangular trough, 4' long and 1½' wide, filled to a depth of 2" with running sea water at a temperature of approximately 22° C.

After the yolk sacs had been absorbed, generally by the fifth day post-hatching, the larvae were fed a variety of foods such as; larvae of *Arbacia* and *Crepidula*, diatoms, powdered fish foods and *Artemia*. Apparently they ingested some of these foods, but it was impossible to raise the larvae beyond the eighth day. However, if feeding was initiated by the second day, post-hatching, while they still had a conspicuous yolk sac, excellent survival rates were obtained.

The most satisfactory diet consisted of newly hatched *Artemia*. Although the two-day old larvae were incapable of ingesting them whole, they were able to tear off appendages. Generally, by the sixth day post-hatching these *Menidia* larvae consumed entire *Artemia*, as was verified by examination of the stomach contents. Evidently when larvae are reared in the laboratory, the age at which they are first fed is critical.

Larvae with yolk sacs almost fully absorbed may be close to starvation and therefore unable to effectively utilize the new food source. An additional food source is necessary long before the yolk is completely absorbed in order to insure survival and adequate growth.

At the termination of these experiments a total of 90 fish had been successfully reared, some of which were kept for 48 days and reached lengths of 27-30 mm.

Supported by the Office of Naval Research under contract to the Marine Biological Laboratory, Woods Hole, Mass.—IRA RUBINOFF, *Queens College, Flushing, New York.*

CORRECTION FOR "THE FROGFISHERS OF THE FAMILY ANTENNARIIDAE BY LEONARD P. SCHULTZ, NO. 3383, PROC. U.S. NATIONAL MUSEUM, 1957.—*Antennarius pauciradiatus* Schultz, page 101, last line should read "no pelvic ray divided." The drawing is in error, as the last pelvic ray is simple, but all anal rays are divided. Therefore, in the key on page 62, section 52b. should be transposed to page 61 under section 49a. Dr. James Böhlke suggested that I check on the species which revealed the above errors.—*Leonard P. Schultz, U.S. National Museum, Washington, D. C.*

Herpetological Notes

FIRST RECORD OF THE RIDLEY TURTLE FROM BERMUDA, WITH NOTES ON OTHER SEA TURTLES AND THE TURTLE FISHERY IN THE ISLANDS.—On March 31, 1949, an Atlantic Ridley turtle, *Lepidochelys kempi* (Garman), was captured by Mr. George Lima who grasped the turtle's flipper as the animal drifted, apparently asleep, near Mr. Lima's fishing boat in the vicinity of Warwick, Bermuda. The 15-pound turtle was brought to the Government Aquarium at Flatts, where it is still living. In mid August, 1957, the turtle weighed 40 pounds and measured 18½ inches in carapace length and 18¾ inches in carapace width (both measurements taken in a straight line between perpendiculars, the length at the ends of the midline of the carapace, the width at its widest point, not in a curved line over the shell). Only the weight was obtained at the time of capture, but interpolating from the length-weight data for this species presented by Carr and Caldwell (1956, Amer. Mus. Novi-

tates, No. 1793: 20, 22) the turtle must then have had a carapace length of approximately 14 inches. That the turtle is *L. kempi* and not a waif *L. olivacea* is clearly shown by its five pairs of laterals and its grayish color (Carr, 1952, Handbook of Turtles: 396).

Goode (1877, Amer. Jour. Sci. & Arts, 114: 290) did not list the Ridley from Bermuda, nor did Garman (1884, Bull. U. S. Nat. Mus., 25: 287), though both writers listed the other four species of North Atlantic sea turtles. Dr. Archie Carr of the University of Florida, who has made a particular study of the Ridley, tells us that he knows of no previous records for it from Bermuda, nor from anywhere on the seaward side of the Antilles Current or Gulf Stream, the latter a point which is perhaps even more zoogeographically significant. Carr (*loc. cit.*) notes that juvenile Ridelys have been taken on the Atlantic coast of North America as far north as Massachusetts, and also in England, Ireland, the Scilly Isles, and the Azores. He later (Carr, 1956, The Wind-

ward Road: 15) includes southern France. Bleakney (1955, COPEIA (2): 137) lists the species from Nova Scotia. Carr (1952: 398) also noted that he believed that the Atlantic records are based on individuals which are "lured, or swept, northward [and to Europe] by the reasonably warm current of the Gulf Stream" from the Gulf of Mexico, the only region in which the species is abundant. Sverdrup, Johnson and Fleming (1942, The Oceans: chart VII) show a gentle swirl or drift from the Gulf Stream which bathes Bermuda. It would be expected, therefore, that juvenile Ridleys such as ours might occasionally reach these islands, as do itinerant individuals of many animal groups. Actually, then, though word-of-mouth reports of its occurrence have been received in past years by Mowbray, it is surprising that a specimen of this turtle has not been reported there before now.

Although there is no organized sea turtle fishery in Bermuda, a few turtles, fewer than 100, are taken by fisherman each year. Most of these turtles are the Atlantic Green, *Chelonia m. mydas* (L.), though some Hawksbills, *Eretmochelys i. imbricata* (L.), are taken for food also. The Atlantic Loggerhead, *Caretta c. caretta* (L.), is frequently seen by fisherman, but is not pursued. The Atlantic Leatherback, *Dermochelys c. coriacea* (L.), is occasionally seen but not fished for.

Though an occasional turtle may come ashore to lay its eggs on the islands' beaches, there is no regular nesting there today by any of the species, nor has there been for many years. Study of the accounts of the party of Sir George Somers, wrecked in Bermuda on July 28, 1609, and of subsequent recorders, discloses the fact that many very large turtles were found. Turtles large enough to feed fifty men were taken, "and one Tortoise would go further amongst them than three hogs. One turtle feasted well a dozen Messes, there being six men to every Mess ... their eggs are as big as geese eggs, and themselves grown to perfection, bigger than great round Targets." It was said that the eggs of one were far larger than those of the others, indicating that the Leatherback nested in Bermuda at that time. Garman (*op. cit.*) indicates that turtles nested in Bermuda at least as late as the late 19th century, but it is not clear from his remarks which species. It is assumed, however, that at least the Green turtle is included since it is noted by him as "the common turtle of the Bermudas". The only recent evidence of nesting consists of several eggs found uncovered by storm waves on the beach near Warwick in 1955. The eggs, from an undetermined species of sea

turtle, were found at high tide and were presumed to have been washed out of an unseen nest lower on the beach. Even by his time Garman notes that the once abundant large sea turtles were rapidly disappearing from Bermuda due to the depredations of turtlemen, and today the largest Green turtles taken there range in weight from 125 to 140 pounds, with the majority weighing only 40 to 60 pounds. Furthermore, none are reported with eggs. These data are remarkably similar to those reported for Green turtles now found on the Florida Gulf coast (Carr and Caldwell, *op. cit.*), and indicate an itinerant population of juveniles, probably derived from the West Indies, the coasts of the Caribbean mainland, or both, and carried to Bermuda each season by the Gulf Stream.

Although Goode (*loc. cit.*) reported the Leatherback from Bermuda, supposedly for the first time (*vide* Garman, *op. cit.*: 290), the following earlier record is included here, not primarily for that reason, but because it includes a few measurements made on a specimen of this infrequently captured species. The quotation is taken from the *Bermuda Gazette*, dated July 14, 1835, and refers to a turtle taken in Bermuda waters a few days previous: "Very much resembling the common turtle; was taken by some fishermen on the 'grouper ground', on the south shore, and taken to Hamilton. Shell on back 'ridged', not unlike the bottom of a clinker-built boat. Seven feet long, 3½ feet [wide]; head-fin three feet six inches long and 15 inches broad; lower fin two feet four inches long, 14 inches broad; length of head 10½ inches; neck nine inches; estimated weight 1200 pounds." The large eggs mentioned above, from the accounts of 1609, if actually referable to the Leatherback turtle, represent a still earlier record for this species in Bermuda.

We wish to thank Dr. Carr for his critical examination of this manuscript.—LOUIS S. MOWBRAY, *Government Aquarium and Museum, Flatts, Bermuda*, and DAVID K. CALDWELL, *United States Fish and Wildlife Service, Brunswick, Georgia*.

REPRODUCTION IN CAPTIVE CORN SNAKES, *ELAPHE GUTTATA GUTTATA*.—We have had four corn snakes lay fertile eggs at a young age and small size. The four snakes are part of a litter hatched September 16, 1955 from a clutch of eggs laid June 18, 1955. The lengths given are for March 1, 1957, when the snakes were approximately 18 months of age. Gestation is regarded as the period of time between the first observed copulation and egg laying. Incuba-