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## Tag Returns of Adult Green Turtles from Florida's Headstart Program (1971-1988)

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From 1971 to 1988, the Florida Department of Natural Resources (FDNR, now Florida Fish and Wildlife Conservation Commission) conducted an experimental headstart program for Florida green turtles (*Chelonia mydas*). The program was initiated by Ross Witham prior to any organized statewide sea turtle nesting beach surveys, at a time when green turtle nest totals in the state were unknown. The first statewide nesting data weren't collected until 1979 and those surveys indicated a total of 62 green turtle nests for that year (Meylan *et al.* 1995). Witham theorized that by raising green turtles in captivity and releasing them at a larger size, the high initial mortality rate associated with predation could be offset (Huff 1989). The hope was that the turtles that received a headstart would return to Florida beaches to nest and lead to an increase in the green turtle nesting population in Florida.

Clutches of green turtle eggs were collected from beaches on the central to southeast coast of Florida and incubated in Styrofoam® coolers at FDNR's field office in Jensen Beach, Florida. Once hatched, green turtles were reared at various facilities around the state for up to a year before being tagged and released. This program was initiated before temperature-dependent sex determination was clearly understood, and there were concerns in later years that the headstarted turtles may have been incubated at temperatures predicted to produce only males (Huff 1989). These concerns and the lack of any evidence that headstarted turtles came back to nest on Florida beaches led to the termination of the program in 1988.

Throughout the course of the headstart program, there were over 18,000 green turtle hatchlings reared for tagging and release (Huff 1989). The size range of most of these turtles at release was 16.0 cm - 35.0 cm (SCL - Straight Carapace Length, notch-to-tip). All were flipper-tagged with a single Monel or Inconel tag (National Band and Tag Co., Newport, Kentucky, Style No. 1005, Size No.

49 and Style No. 41005, Size No. 681) (Witham & Futch 1977). Most turtles were released on the beach; however, near the end of the project, some were released at sea or in coastal lagoons.

Identified by their original flipper tags, six headstarted green turtles have been observed in Florida waters or on beaches as adults since the termination of the program (Table 1). The first (PPG413) was a 91.7 cm SCL male (tail length = 39.0 cm) captured in 2002 at the St. Lucie Nuclear Power Plant intake canal on Hutchinson Island, Florida. The second (PPV502) was a female found in August 2002 nesting in the Archie Carr National Wildlife Refuge (ACNWR) in Melbourne Beach, Florida, during nesting surveys conducted by the University of Central Florida (UCF). This turtle was encountered again, nesting on the same beach in August, 2014. Three other headstarted females were encountered by UCF on the ACNWR beach - in 2005, 2008 and 2012. Two of these, PPG346 and PPN642, did not lay eggs and their activities were recorded as non-nesting emergences. Female turtle PPG637 nested successfully in June of 2012. In 2008, a headstarted adult male was found by UCF when a green turtle mating pair washed up on the beach long enough for the tag number to be documented. All six turtles hatched between 1985 and 1987, and were released between 1986 and 1988. Four of the six were released offshore, rather than from the beach. Females subsequently encountered on the nesting beach were between 15 and 24 years of age.

The recaptures reported here provide evidence that at least some of the 18,000 turtles reared as part of Florida's green turtle headstart program survived to reach reproductive maturity. Tag loss (Reisser *et al.* 2009; McNeill *et al.* 2013), the use of a single tag at release, the small number of nighttime surveys and tagging projects during green turtle nesting season on Florida beaches, and the generally lower probability of seeing males, likely contributed to the low

Tag Numbers	Release date	SCL at Release (cm)	Release Location	Offshore or Beach release	Recovery Date	SCL at Recapture (cm)	Recovery Location	Years at Large	Sex
PPG413	6/16/1987	32.2	Jensen Beach, FL	Beach	6/13/2002	91.7	St. Lucie Nuclear Power Plant, Jensen Beach, FL	15	M
PPV502	7/1/1988	17.4	Gulf Stream, 24 -32 km east of St Lucie Inlet, FL	Offshore	8/7/2002; 8/14/2014	99.0 (2014)	Melbourne Beach, FL (ACNWR)	14 / 26	F
PPG346	1/16/1988	22.9	South of Everglades National Park Ranger Station at Turkey Key, FL	Offshore	7/6/2005	99.3	Melbourne Beach, FL (ACNWR)	17	F
PPN642	3/21/1988	36.4	Offshore, 1.6 km north of Ft. Pierce Inlet, FL	Offshore	7/28/2005	N/A	Melbourne Beach, FL (ACNWR)	17	F
PPA425	7/11/1986	N/A	Stuart Beach, Stuart, FL	Beach	6/4/2008	N/A	Melbourne Beach, FL (ACNWR)	22	M
PPG637	6/2/1988	29.9	Howard Park, Tarpon Springs, FL	Offshore	6/6/2012	N/A	Melbourne Beach, FL (ACNWR)	24	F

**Table 1.** Headstarted turtle release and tag recovery information for green turtles (*Chelonia mydas*) recovered as adults in Florida.

(0.03%) rate of recapture. However, the extent to which these factors influenced the recapture rate is unknown. In any case, the data reported here are too few to offer insight regarding the success or failure of the headstarting project. The practice of headstarting sea turtles was terminated in Florida in 1988 and is now not allowed under Florida's Administrative Code Rule 68E-1.

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