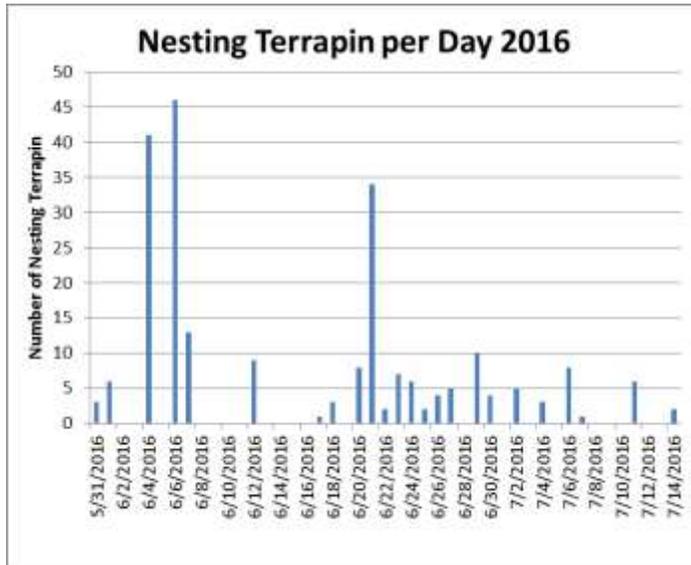# The 2016 Rayner Refuge Diamondback Turtle Season in Review

We started looking for nesting terrapin mid-May. The first nesting turtle was captured on 31 May. We mainly looked at high tide during the heat of the day. There were 3 very busy days where we captured over 30 nesting turtles. The chart below shows the number of nesters captured over the nesting season which ended this year on 14 July. We captured 167 turtles, 10 were new and 61 were captured multiple times. We relocated 27 nests to the large common excluder and protected another 50 nests with individual excluders (IEs). We estimate that we protected 1266 eggs this year.

Nesting Terrapin per Day 2016

Since there were so many IEs we made a GPS map of where they were so we would checking each nest for hatchlings. The map to the right shows where the IEs were.

If we look at when Nesting turtles were captured historically (chart below), the timeframe of our results (late May to mid-July) correspond well

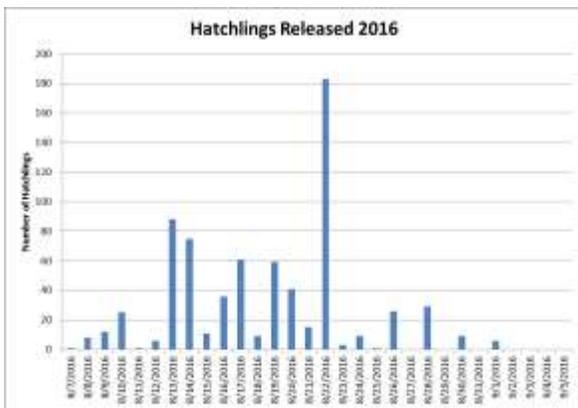

Nesting Turtles Day & Month captured All Years
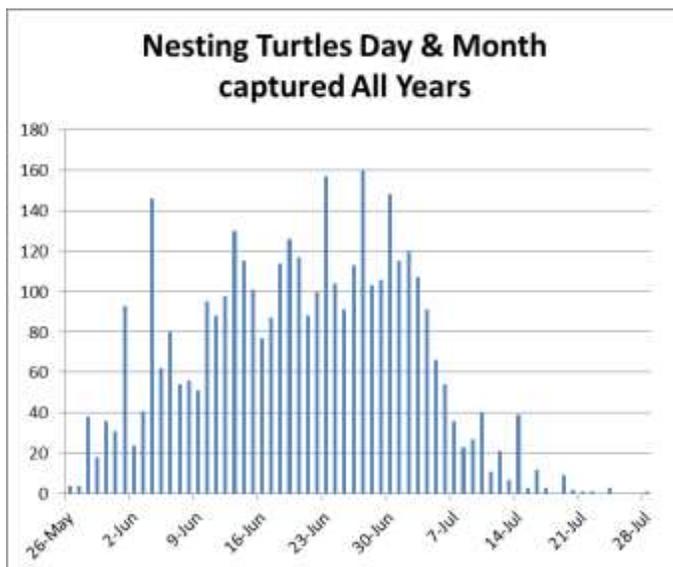
The number of terrapin captured this year was the second highest we've ever had. At this point we do not know if this result is due to a larger volunteer effort this year and/or we are finally seeing the success of our nest protection program. This is still

an open question we are attempting to answer. The chart below shows the total number of terrapin captured (only once per season counted) since the project began in 1990.
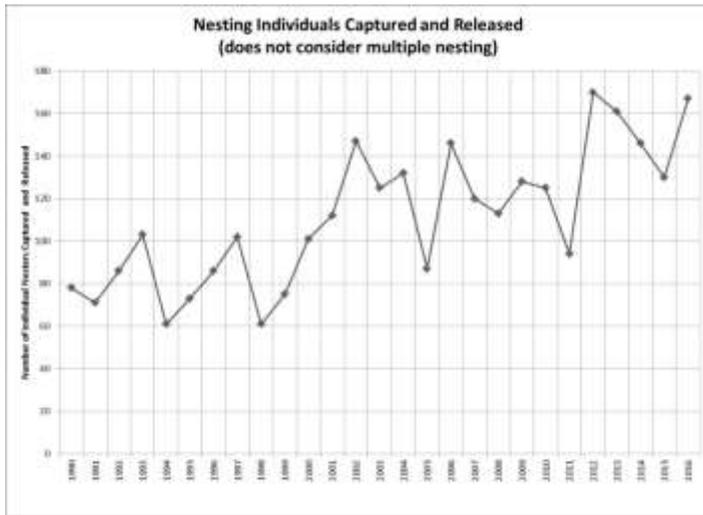
Once all nesting was over we started waiting 70 days for the first hatchlings to appear. It was a very dry hot summer and we had 50 IEs to check along with the Common Excluder. The first hatchling was seen on 7 August. By the end of the season in early September we had released 714 hatchlings. The chart below shows the daily number of hatchlings released this year. Note there were a few days with an abundance of hatchlings. The big days typically occurred after an evening of rain. Overall the common excluder produced 254 hatchlings.


	Common Excluder
# nests Protected	27
Eggs Protected	444
Avg # eggs/nest	16.4
Eggs Hatched	254
Avg # Hatchlings/nest	9.4
% eggs hatched	57%

The table above shows the results from the common excluder (both the north and south sides). The egg hatching rate this year was 57% for the common excluder. The average number of eggs per nest (based on the common excluder) was 16.4. The 50 individual excluders produced 438 hatchlings. The statistics of them are listed below. Besides the hatchlings in the excluders, we found 22 "free" hatchlings wander about. This year we released more hatchlings than we have ever released before. The reason for more hatchlings this year was due to the dramatically increased number of individual excluders we used and the number of volunteers who

Assuming 16.4 eggs/individual excluder			
# IEs	50	
est # eggs	822	50 IEs
# hatchlings	438	
% eggs hatched	53%	
% IEs with hatchlings	88%	

diligently checked them twice a day. 88% of the IEs had hatchlings. Last year we had 23 IEs and protected 22 nests in the common excluder. In 2015 we released 458 hatchlings. The chart below shows the number of hatchlings released every year and we can see that 2016 was indeed a significant year.

1994 to 2016 Hatchlings Released
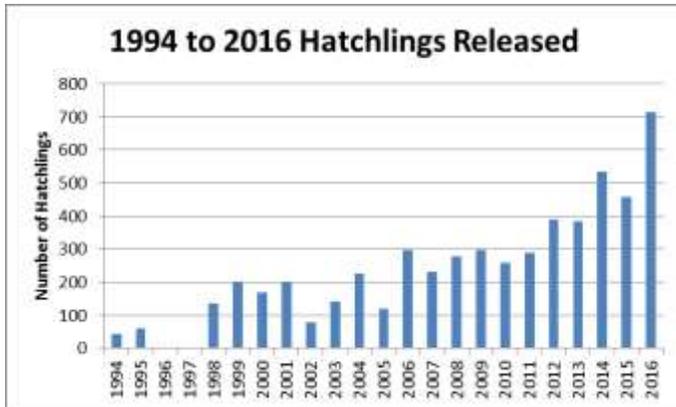
We had a very successful season this year. We captured the second highest number of terrapin and released the highest number of hatchlings. The careful data taken will be used to help predict the future population of the 100 Acre Cove terrapin population.

Going forward we want to make the data we take even more robust and more volunteer friendly. We are currently working on making the nesting terrapin data sheet easier to use and have it more self explanatory. So next year it should be easier to fill out. We use all the data you provide on the data sheets. Missing data can be problematic but often if it is a turtle we have seen in the past we can guess what would have been this year. We will also develop strategies for those frantic days when nesters are coming up all over the place or we have tones of hatchlings. A few changes to the data sheet will be: to record the time of day the turtle nested instead of just the date (later we will be able to correlate nesting with the tides); and the excluder number in which the eggs are protected (so we can track how productive each female is). We are also attempting to get a measure of total volunteer hours during the season by having each volunteer give an estimate of how much time was spent looking for terrapin or processing them. This will help measure how much of the time we have "eyes" on the refuge looking for turtles or hatchlings. This will help inform the population models which consider the probability of capturing a terrapin. More "eyes" means a higher capture probability which will ultimately help get an accurate measure of our population.