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**Introduction**

Diamondback terrapin (*Malaclemys terrapin*) inhabit brackish water salt marshes along the Eastern and Gulf Coast of the United States (Coker 1996). Terrapin are often found in dense populations exhibiting high site fidelity. Unfortunately these unique characteristics have lead to their decline (Gibbons et al. 2001; Seigel 1984). Human industry and development have had a detrimental impact on terrapin populations throughout history and continues to contribute to their decline (Szereg & McRobert 2007). Mitro (2003) suggests that survival is more influential on population growth than reproductive success. It has been shown the highest injury rates in terrapin occur in larger individuals (Cecala et al. 2008). Natural predation by sharks, fish, and crabs have been documented as another stress to terrapin populations (Cecala 2008).

As documented in the current Texas State Wildlife Plan, data is urgently needed to insure wise conservation and management of terrapin by the Texas Parks and Wildlife Department and U.S. Fish and Wildlife Service. The objective of our study was to analyze the types and affects of injuries on diamondback terrapin in Galveston Bay, Texas. We analyzed the types and rate of terrapin injuries at two different locations and habitats.

**Materials & Methods**

- Diamondback terrapin were caught using land searches and marine trapping throughout West Galveston Bay in Texas (Figure 1).
- Terrapin were observed at two different habitat types;
  1. large barrier island and mainland areas (Sportsman’s Road on Galveston Island and Green’s Lake in Hitchcock, TX)
  2. isolated islands sites (North and South Deer Islands in West Bay, Galveston Bay, TX).
- Carapace length and weight were measured and injury type, severity, and location of injury were noted and photographed when applicable.
- Injuries were divided into four categories (Figure 2):
  1. death (death of turtle) • shell (any injury to any part of shell) • limb (any injury to any of legs including missing legs, toes, etc) • head (injury to any part of head including eye, nose, mouth, neck, etc)
- Differences in injury rates were evaluated using Fisher’s exact test with a 95% confidence interval to determine if there was a significant difference between the injury rate in different sexes on island versus mainland locations.
- We used the Mann-Whitney test with a 95% confidence interval to determine if there was a significant difference in the weight or the carapace length of terrapins injured versus not injured.

**Results**

A total of 56 dead or injured terrapin were observed during the study, several had more than one injury (Table 1). A variety of injuries with associated causes were observed (Figure 3). We found that female carapace length was significantly larger (p = <0.001) in injured versus uninjured individuals (Figure 4). Although not statistically significant (p=0.053) injured male carapace length was slightly larger than uninjured (Figure 5).

The injury rate of males was significantly lower (p=0.001) from the injury rate of females at isolated islands (Figure 6). However, the injury rate of males was not found to be significantly different (0.775) than females in the mainland habitat. The injury rate of males and females on the mainland were not found to be significantly different (p=0.176 and 0.092) from males and females collected at the islands respectively.

**Discussion & Future Work**

Our data suggests that larger females sustain more injuries than smaller females. Several mechanisms may be responsible for this. For example older terrapin would accumulate more injuries over time. In addition, larger females may be subject to a higher proportion of unsuccessful predation attempts that result in injury versus mortality. We also found that females at isolated islands have a higher injury rate than the males in the same area. One possible reason for this observed difference is that females have to travel to nest, putting them at greater risk of injury or death by motor boats and aquatic predation (Rosenburg 1991). On the isolated islands there is not a large area for nesting thus females terrapin may travel off the island to nest thereby increasing their risk of injury. We plan to continue monitoring these populations to determine how these injuries may affect the physiological condition of terrapin and survival. This critical information is needed to determine possible approaches to minimize terrapin injury and conserve terrapin populations.

**Literature Cited**


**Acknowledgments**

We thank USFWS, Texas Parks and Wildlife, Sea Grant, and the Houston Zoo for funding research in Galveston Bay. We also thank the dedicated staff of EHB and all of the countless graduate students and volunteers that have spent long hot days in the marsh capturing and releasing Texas Diamondback Terrapin. For more information please visit [www.EHI.uchcl.edu](http://www.EHI.uchcl.edu) or email marolwa@uhcl.edu or guillen@uhcl.edu.