Coastal Diamonds: A History of Diamondback Terrapin in Texas

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University of Houston Clear Lake

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GBEP NRU Subcommittee Meeting, Virtual December 3, 2025

Acknowledgements

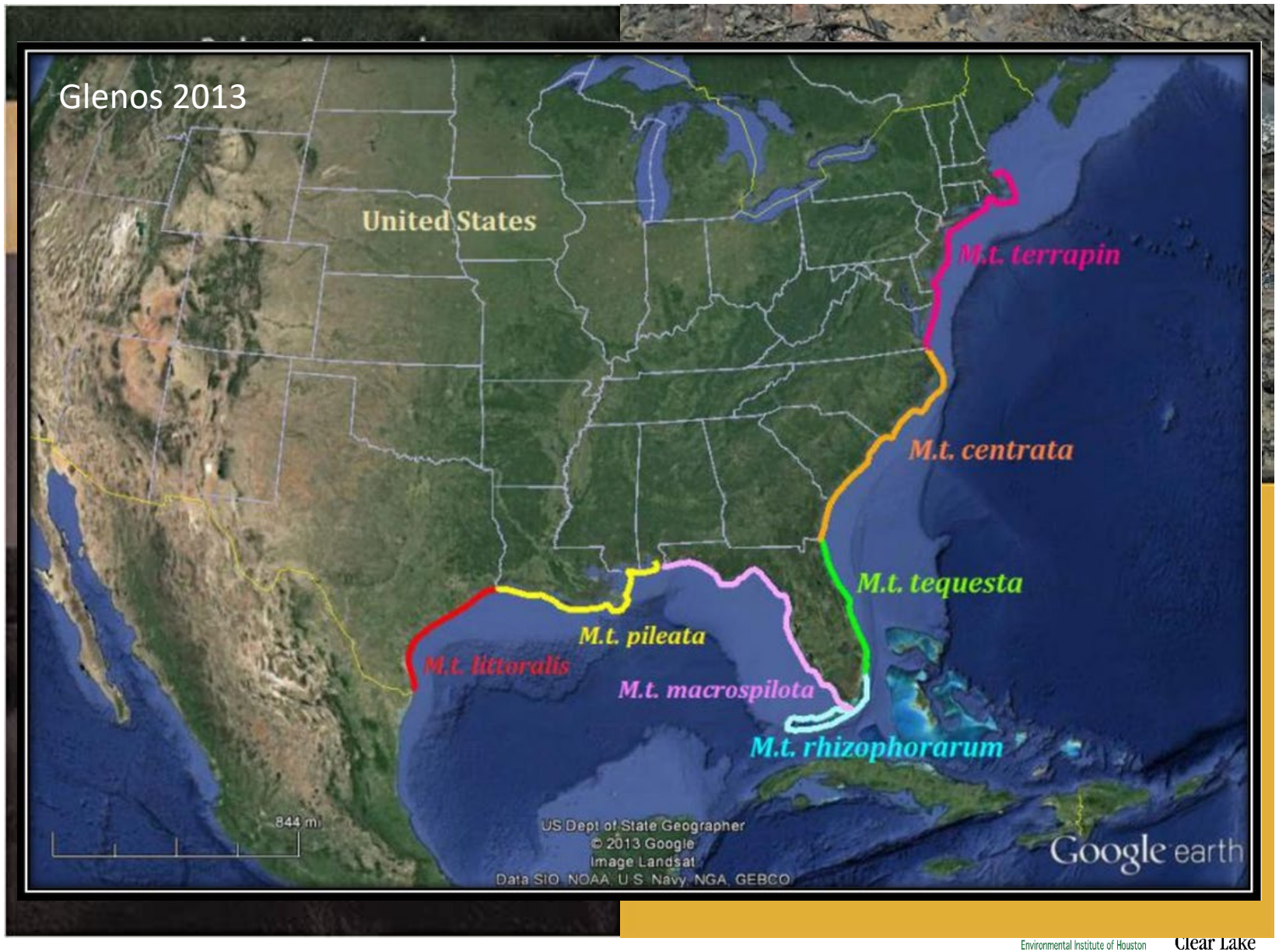
Field Personnel: countless graduate students, staff members, volunteers, project partners, and stakeholders

Funding Sources: Houston Zoo, U.S. Fish and Wildlife Service, Texas Parks and Wildlife, Texas SeaGrant, Texas Herpetological Society

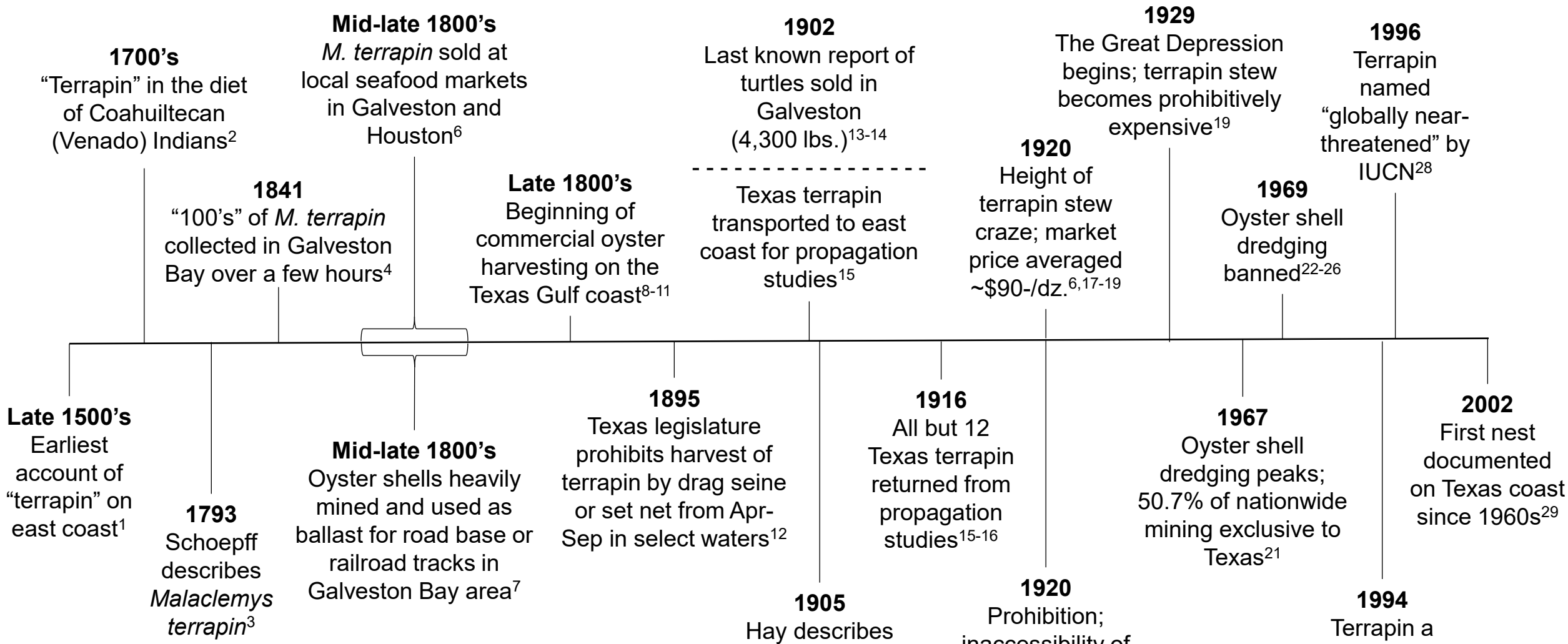
Permitting & Site Access:

- TPWD permits SPR-0504-383 and SPR-0321-026
- Multiple IACUC protocols
- NWR Special Use permits
- The Nature Conservancy, Galveston Bay Foundation and other private landowners

What is a Terrapin?



A Timeline of Terrapin History (Galveston Bay)



[1]Brennessel 2016
[2]Kohout 2010
[3]Schoepff 1792
[4]Hooten 1847
[6]Shaffer et al. 2008
[7]Doran 1965
[8]Tucker 1929
[9]Galstoff 1931
[10]Hoffstetter 1977
[11]Henson 1993
[12]Texas Legislature 1895
[13]Townsend 1899
[14]Doughty 1984
[15]Barney 1922
[16]Hay 1904
[17]Coker 1920
[18]Martin1989
[19]Morise 2010
[20]TPWD 2007b
[21]Arndt 1976
[22]Hoffstetter 1960
[23]Benefield 1976
[24]Garcia 1979
[25]Crowe 1984
[26]Gallaway 2011
[27]Beattie 1994
[28]Outerbridge 2014
[29]Hogan 2003

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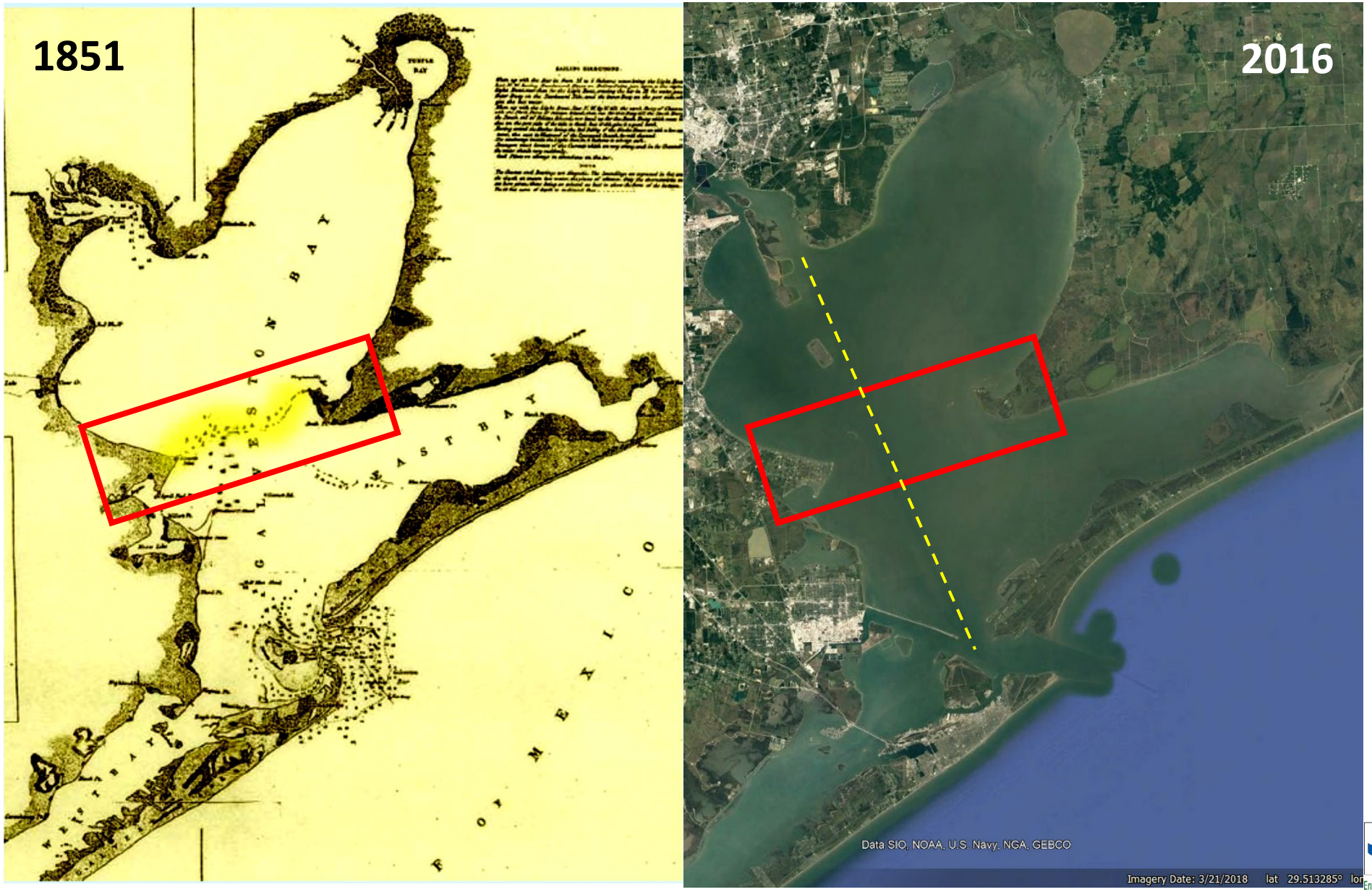
Effects of Oyster Harvesting in Galveston Bay



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UHCL-EIH Terrapin Monitoring Program

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- Within our 17th year (2008-present)
- Covers 9 counties and 5 major bays
- Nearly 1,100 turtles state-wide
- 7 grant funded studies (2008-2015; 2016-2017; 2023-2027)
  - Population Study on Deer Island (HZA 2008)
  - Mid-Coast Complex Surveys (USFWS 2009)
  - Population Status & Demographics (Sea Grant 2010-2012)
  - By-Catch Study (TPWD & USFWS 2012-2014)
  - Mid- & Upper Texas Coast Surveys (TPWD SWG 2014)
  - Continued Monitoring (THS 2016-2017)
  - Microplastic Contaminants (MBMT 2023-2027)

MATAGORDA BAY MITIGATION TRUST

TEXAS HERPETOLOGICAL SOCIETY

Sea Grant Texas

TEXAS PARKS & WILDLIFE

U.S. FISH & WILDLIFE SERVICE

HOUSTON ZOO

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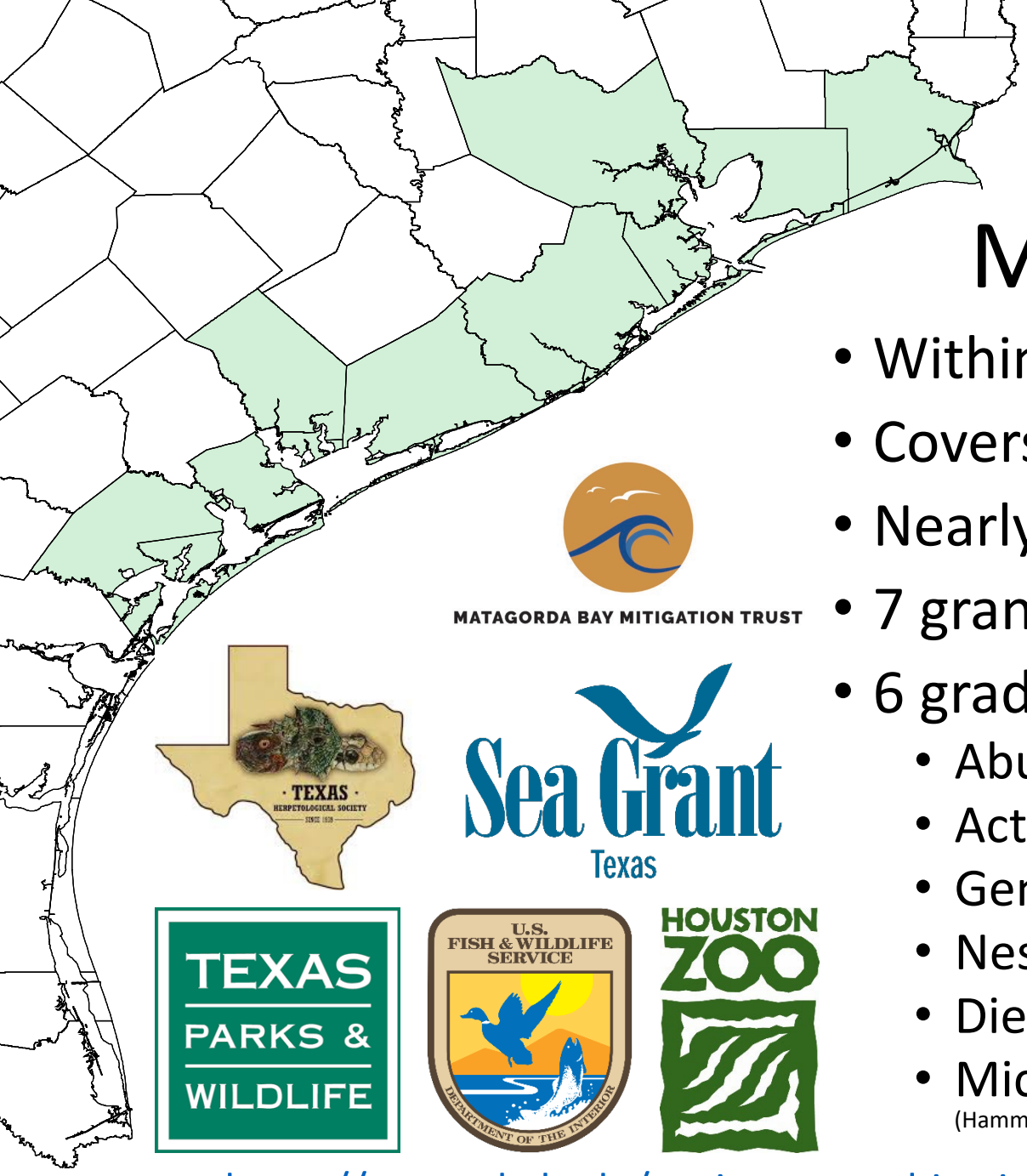
https://www.uhcl.edu/environmental-institute/research/current-projects/terrapin-life-history



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- 6 graduate theses (2011-2015; Ongoing)
  - Abundance & Movement (Haskett [Ondracek] 2011)
  - Activity & Habitat Selection (Clarkson 2012)
  - Genetic Variation (Glenos [Gynego] 2013)
  - Nesting Ecology (George 2014)
  - Diet, Habitat, & Prey Availability (Alleman 2015)
  - Microplastic Accumulation in Habitats (Hammerbach 2025)

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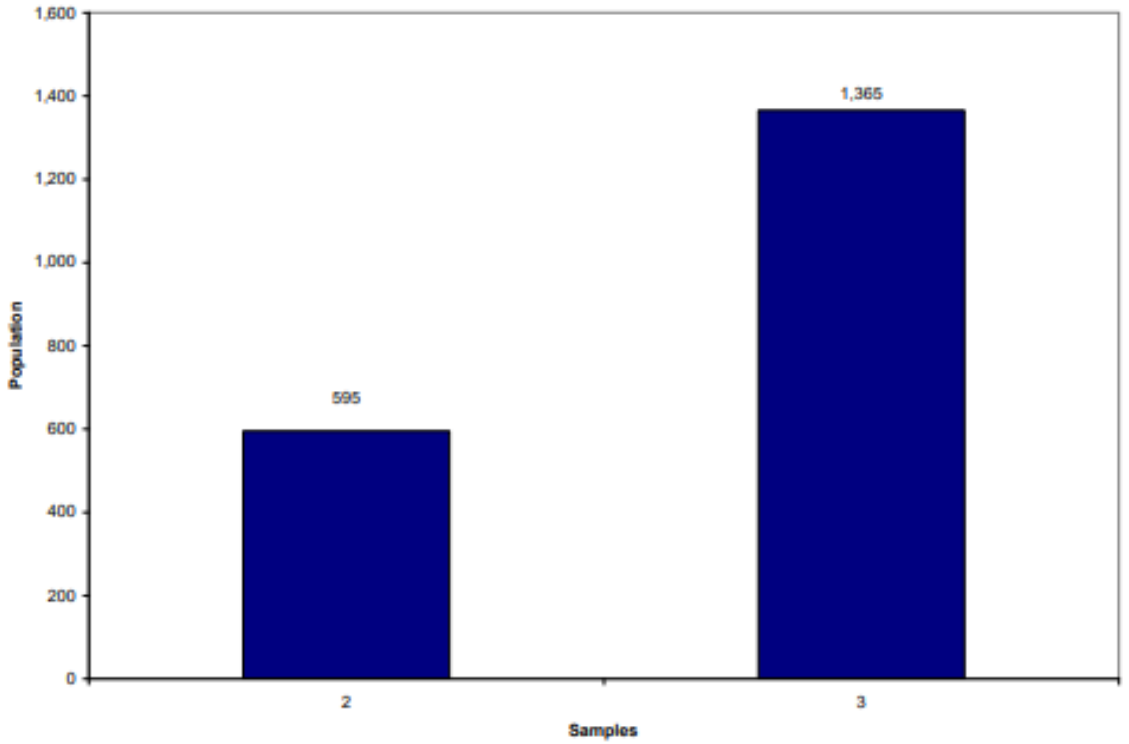
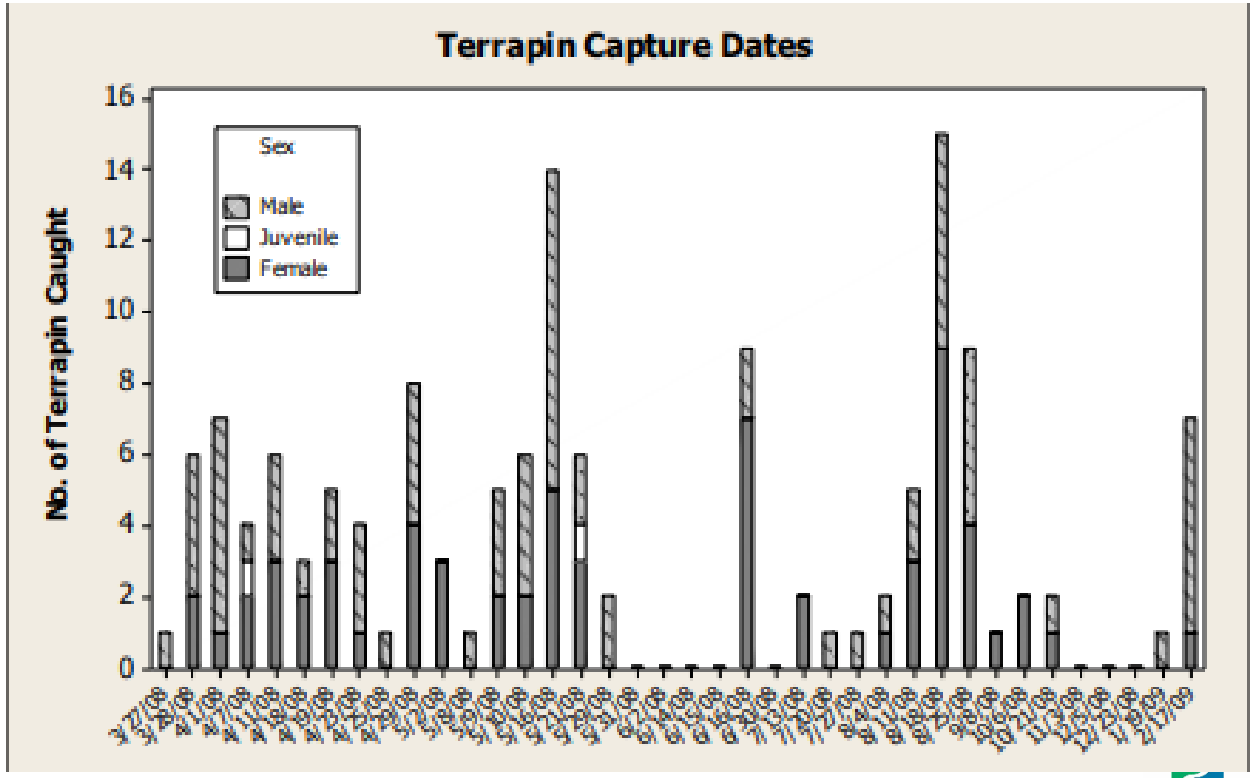
Population Characteristics in West Bay (2008-2010)

Objectives:

- Provide baseline population estimates
- Provide baseline demographic data





Haskett (Ondracek) and Guillen, 2010 (EIH Report No. 10-017)
https://www.uhcl.edu/environmental-institute/research/completed-projects/distribution-demographics-diamondback-terrapin

Abundance and Movement in the Deer Island Complex (2009-2010)

Objectives:

- Estimate population densities
- Gather baseline demographic data
- Describe habitat use and movements
- Develop standard protocols

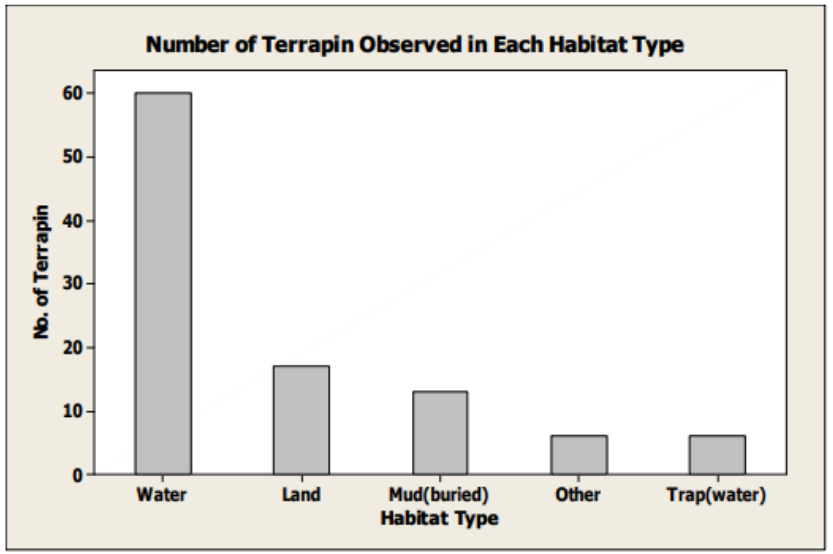


Figure 14. Terrapin catches in various habitats and by gear type.

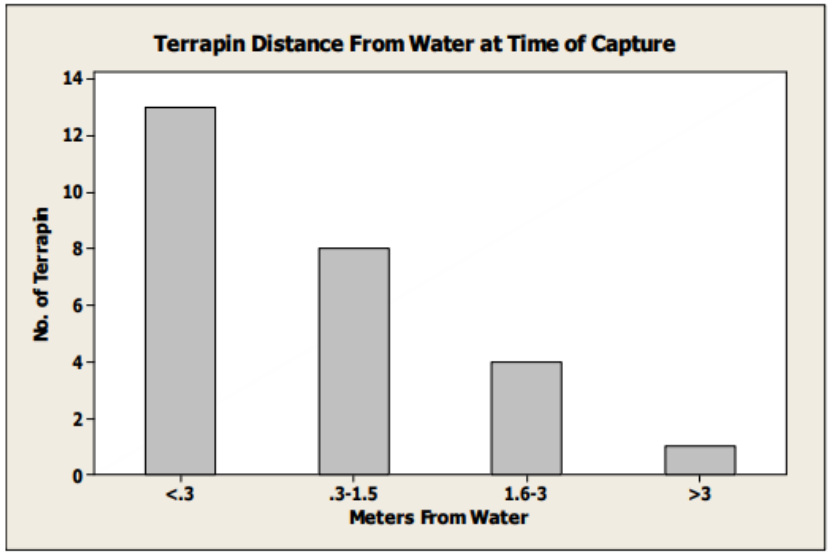


Figure 15. Distance of terrapins from standing water at time of capture.

Haskett (Ondracek), 2011 (M.S. Thesis)

https://www.uhcl.edu/environmental-institute/research/completed-projects/distribution-demographics-diamondback-terrapin

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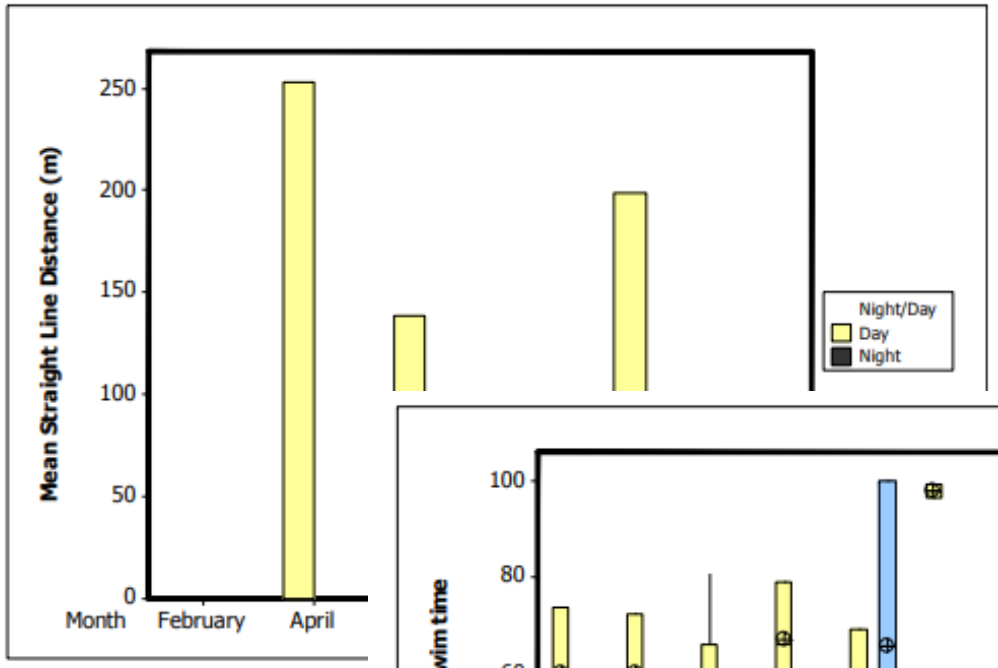
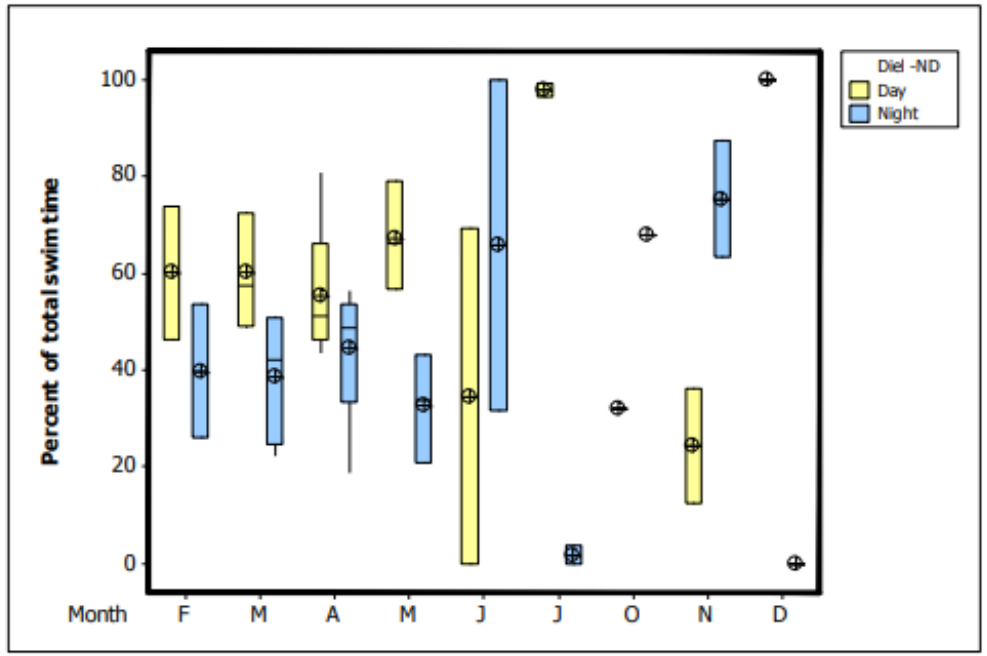
Short Term Temporal Trends in Activity and Habitat Selection (2010-2012)

Objectives - Characterize short term trends in:

- Behavior
- Activity
- Habitat Selection
- Daily Movement





Clarkson, 2012 (M.S. Thesis)

https://www.uhcl.edu/environmental-institute/research/completed-projects/terrapin-population-status

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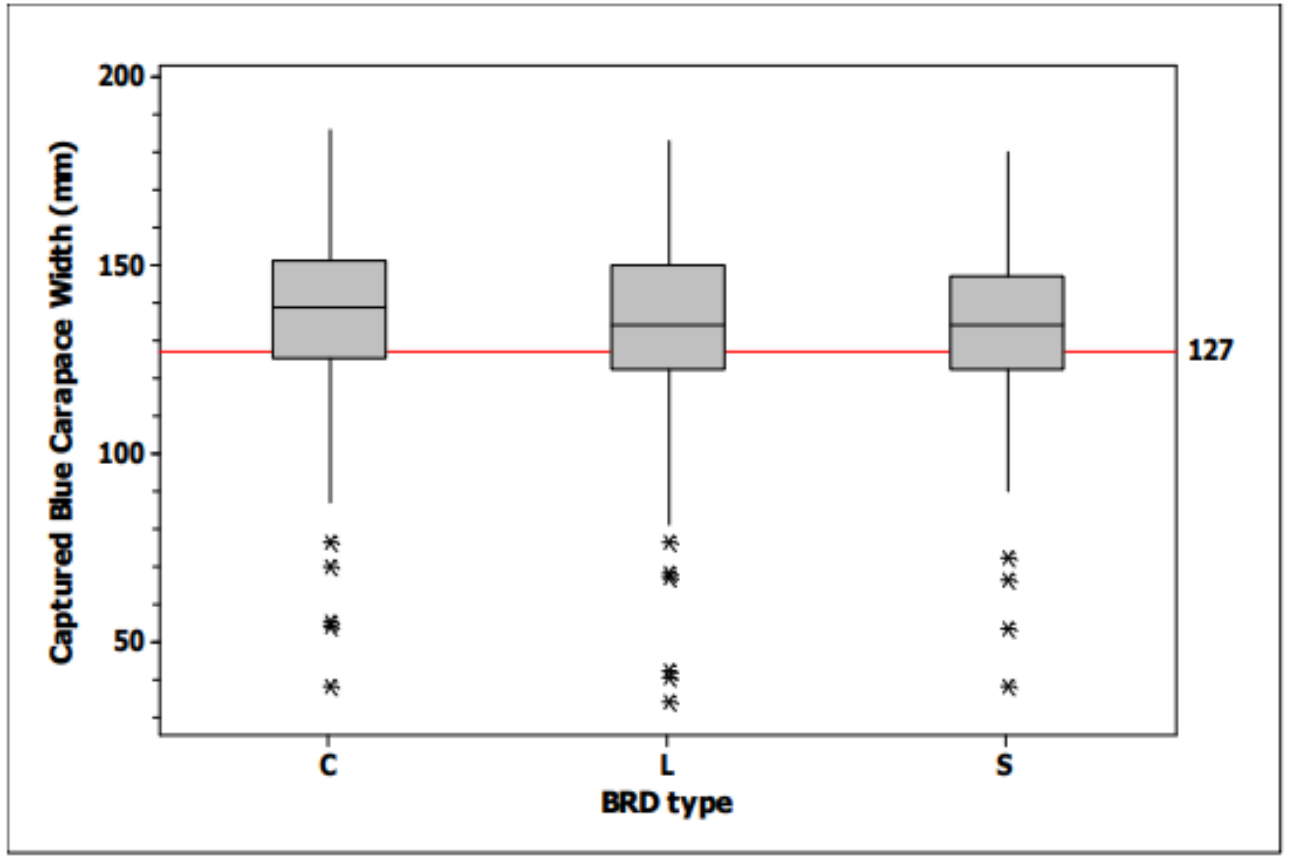
Blue Crab Fishery Bycatch Mortality (2012-2014)

Objectives:

- Observe patterns in by-catch mortality between trap types
- Estimate magnitude of by-catch based on historic fishery data
- Provide demographic data
- Estimate habitat use and res
- Develop and refine a habitat



Guillen and Oakley, 2013 (EIH Report No. 13-004)

https://www.uhcl.edu/environmental-institute/research/completed-projects/bycatch

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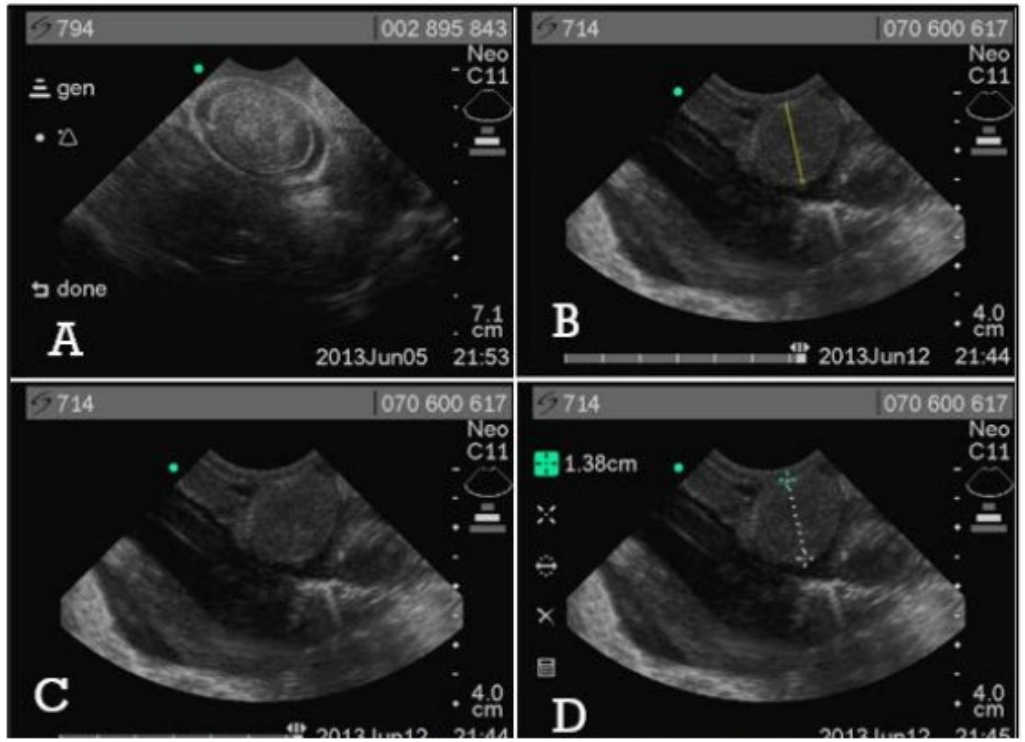
Nesting Ecology (2012-2014)

Objectives:

- Determine timing of nesting
- Quantify physical attributes of nesting areas



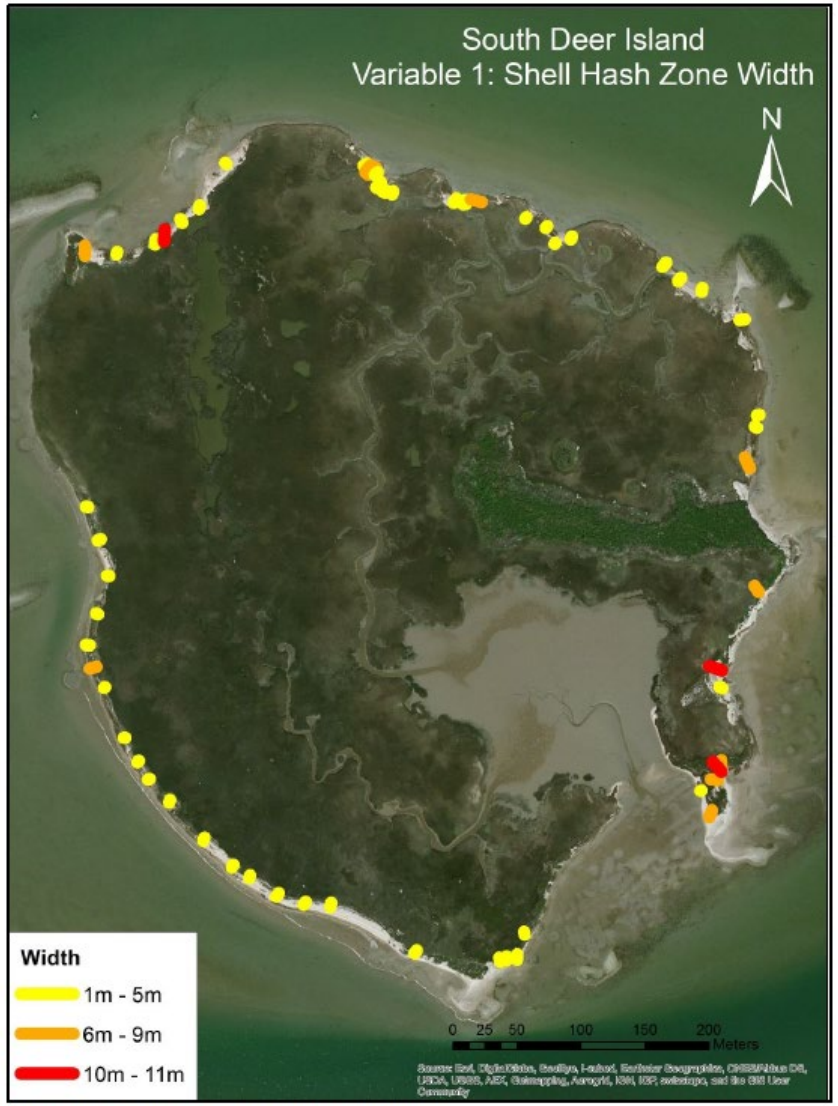


Figure 18. Shell hash zone width of South Deer Island.

George, 2014 (M.S. Thesis)
https://www.uhcl.edu/environmental-institute/research/publications/documents/george-2014-ms-thesis.pdf

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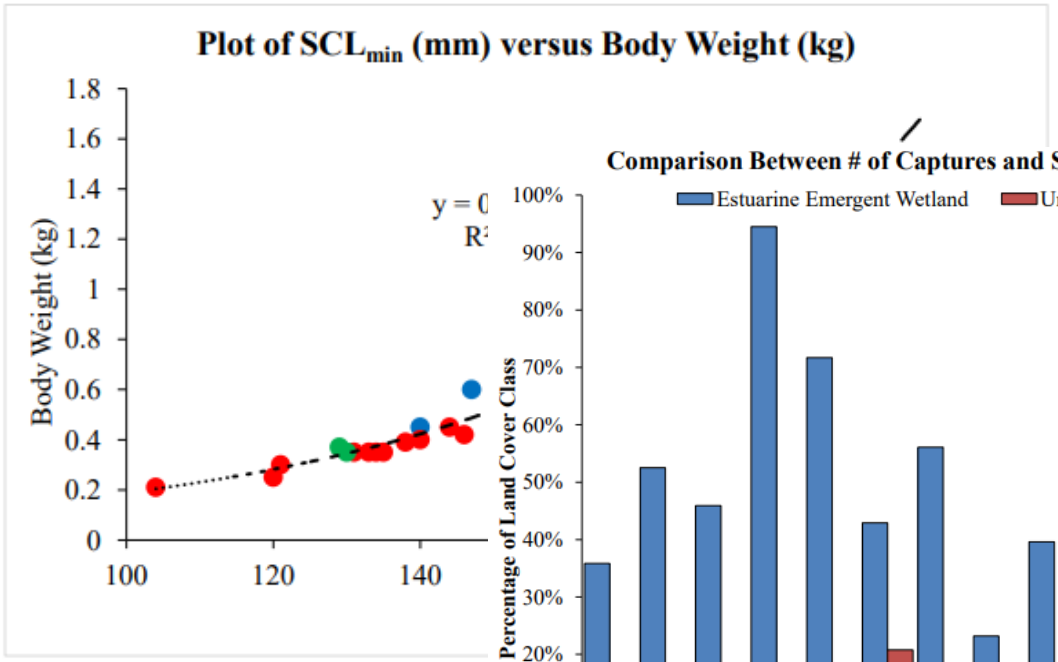
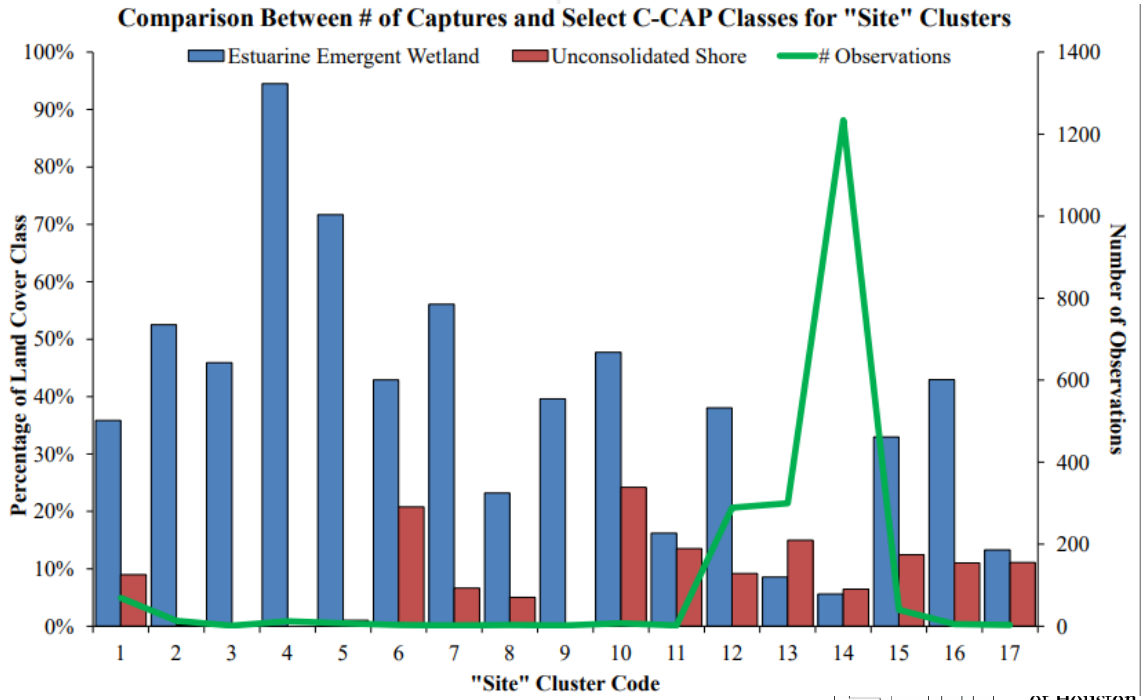
Population Surveys of the Mid- to Upper-Texas Coast (2014-2015)

Objectives:

- Develop initial estimate of distribution in previously un-surveyed bay systems
- Determine critical factors affecting distribution
- Develop density and/or population estimates
- Identify habitat associations





Guillen et al., 2015 (EIH Report No. 15-001)
https://www.uhcl.edu/environmental-institute/research/current-projects/terrapin-life-history

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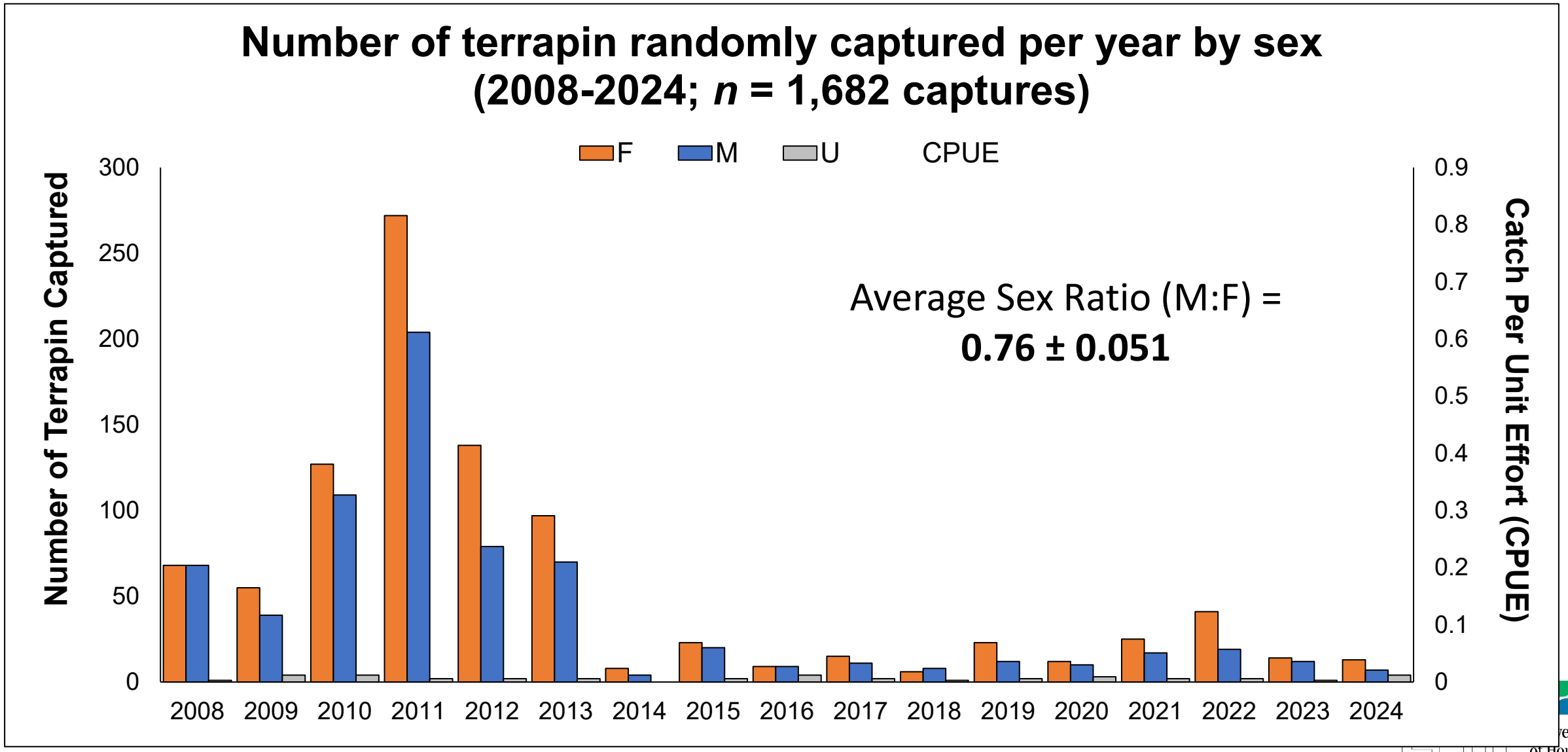
Current and Historic Capture Rates



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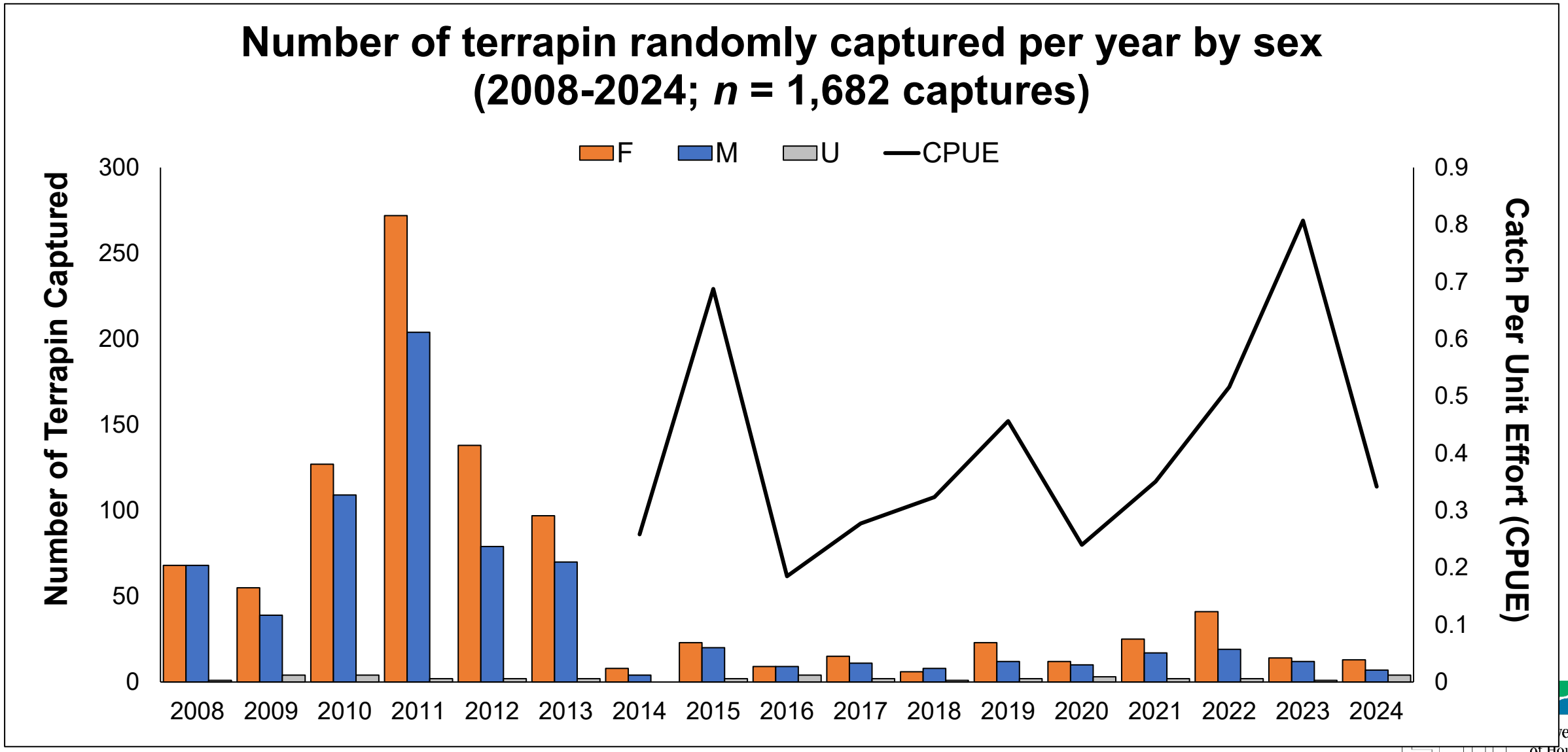

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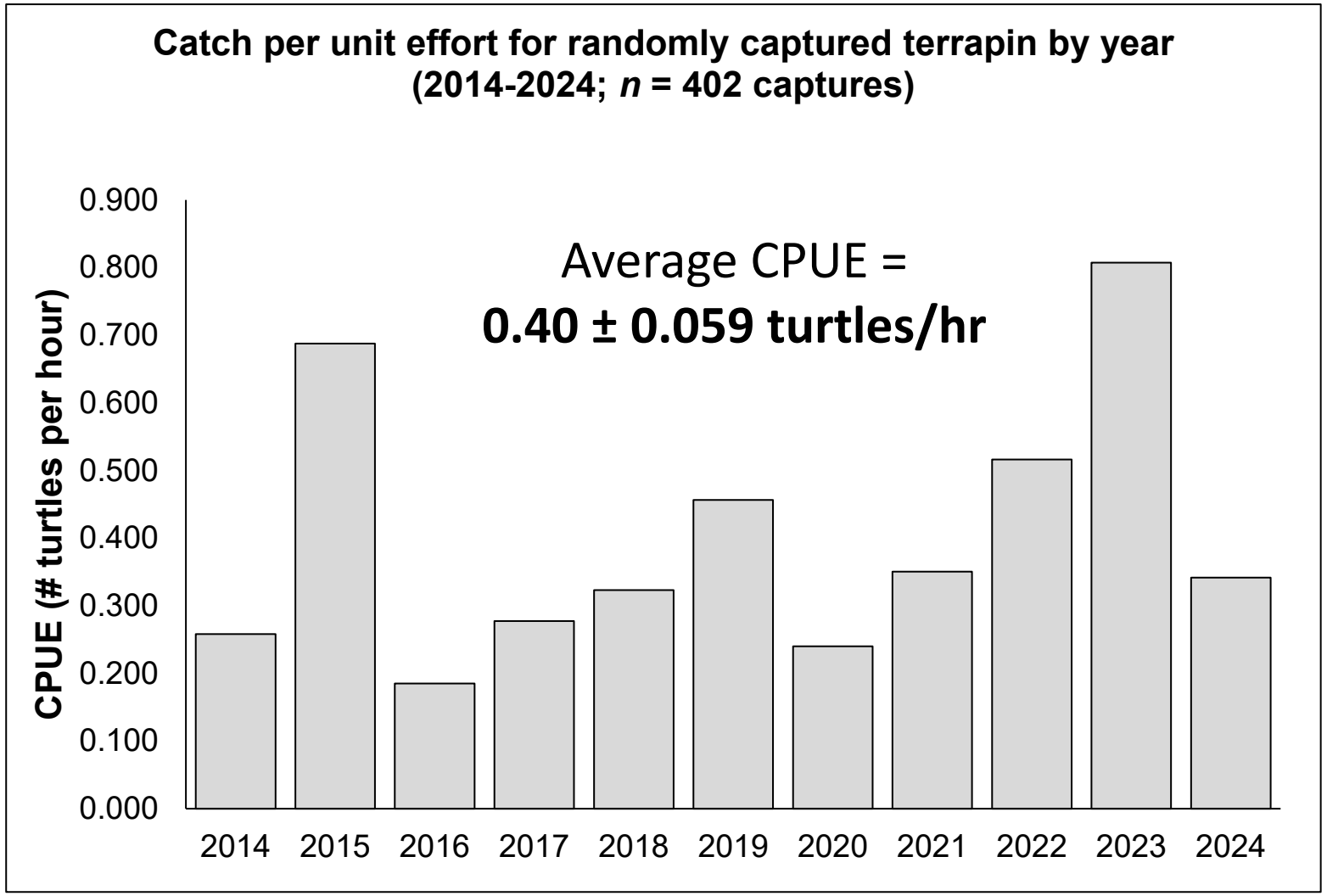

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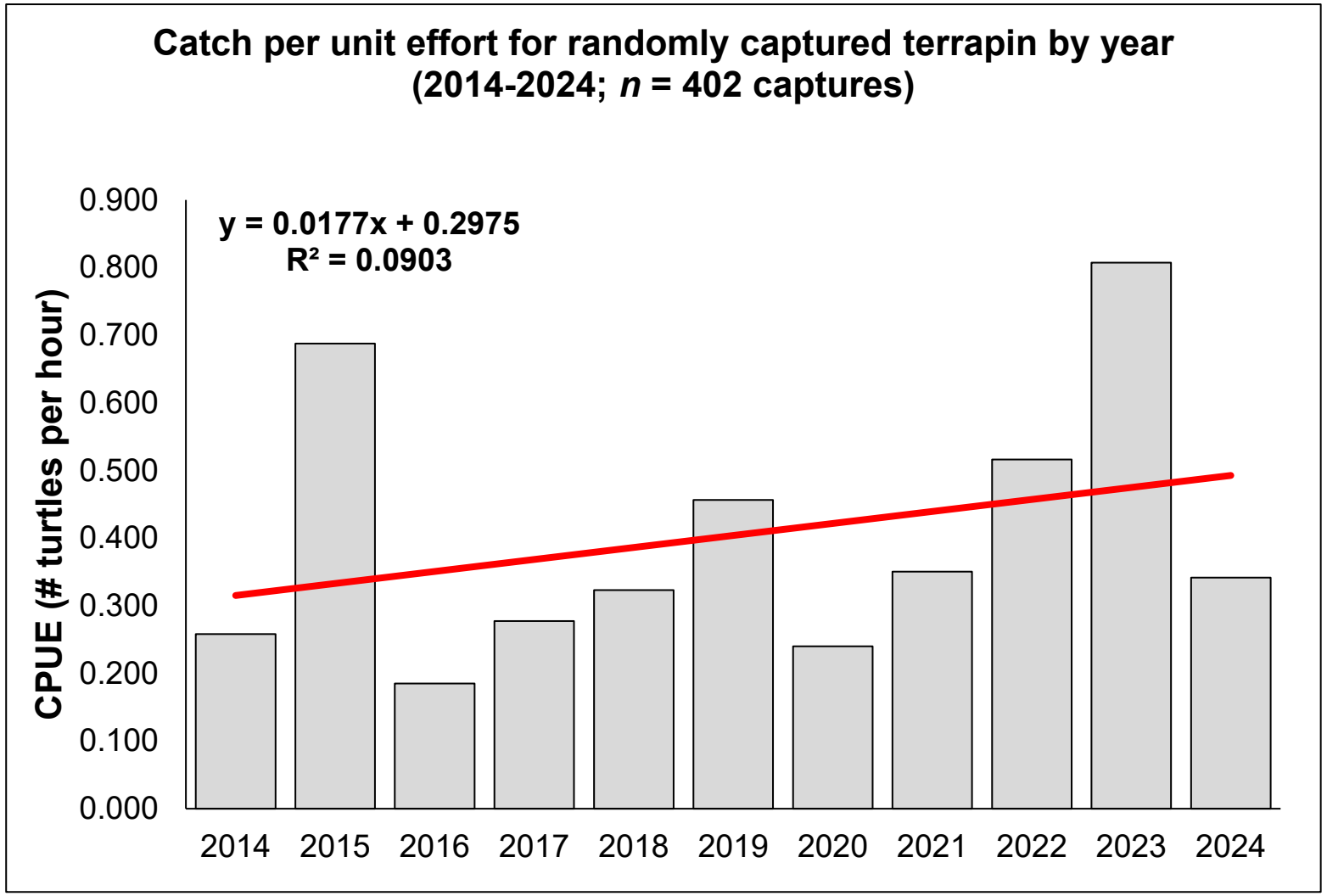

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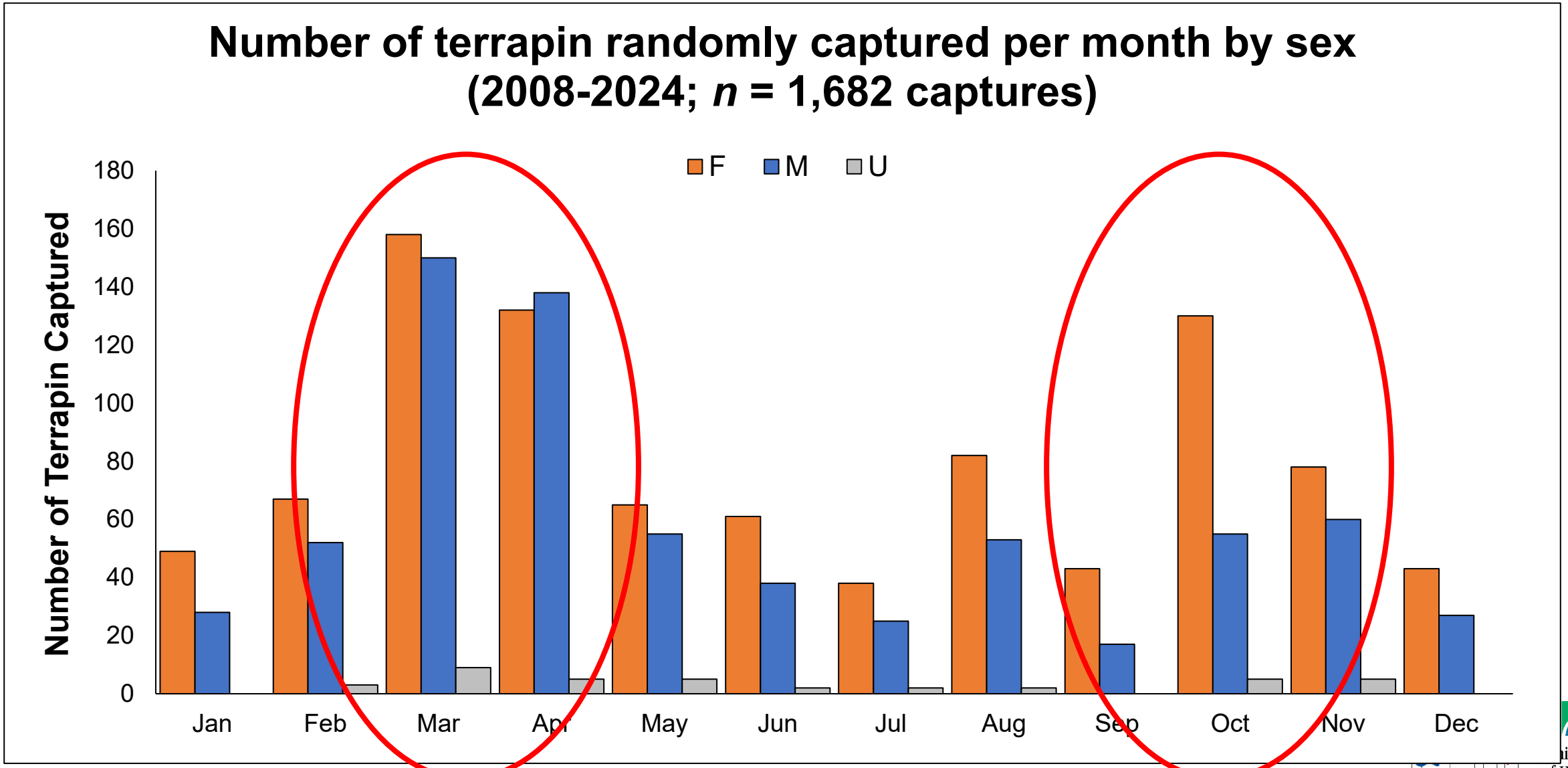

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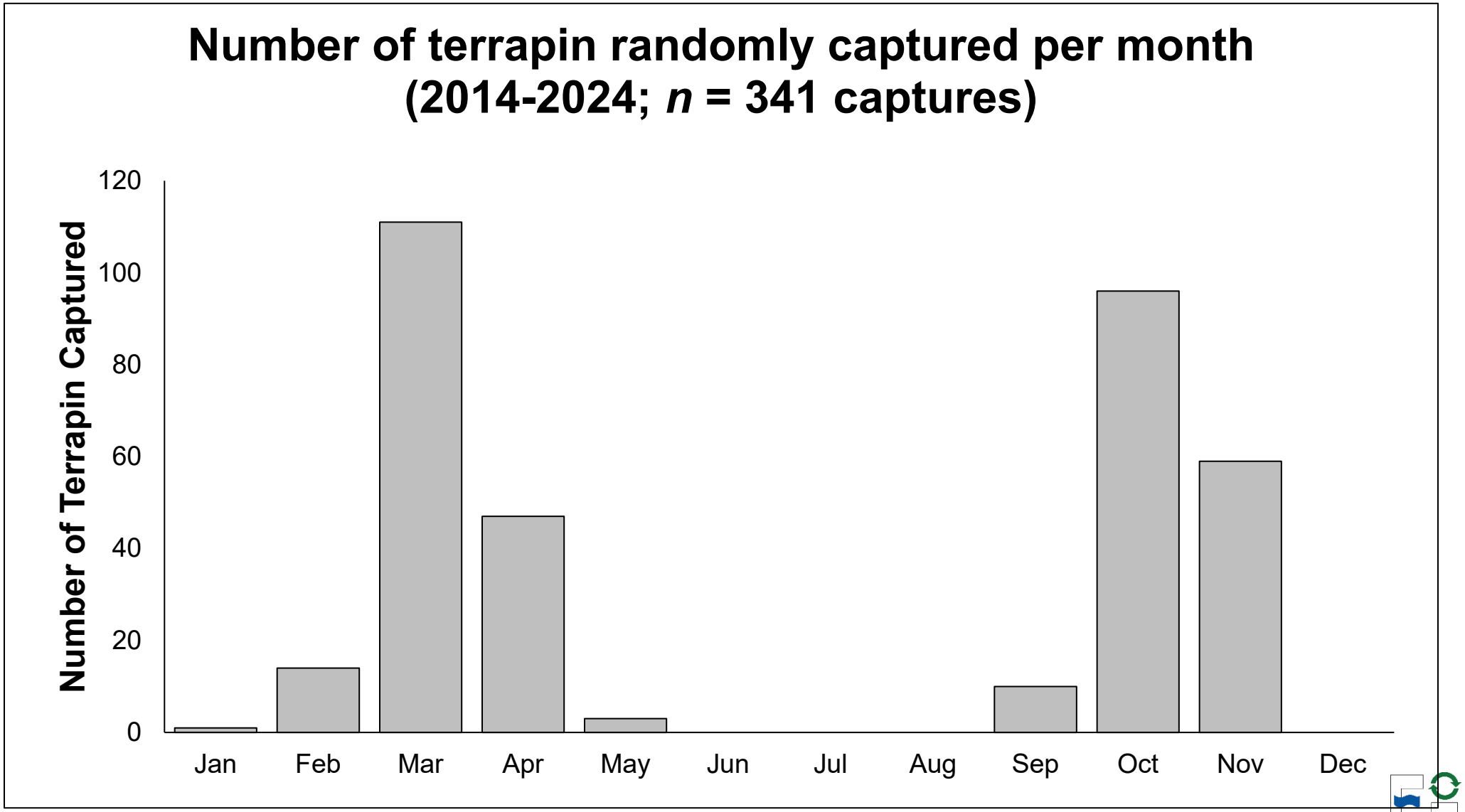

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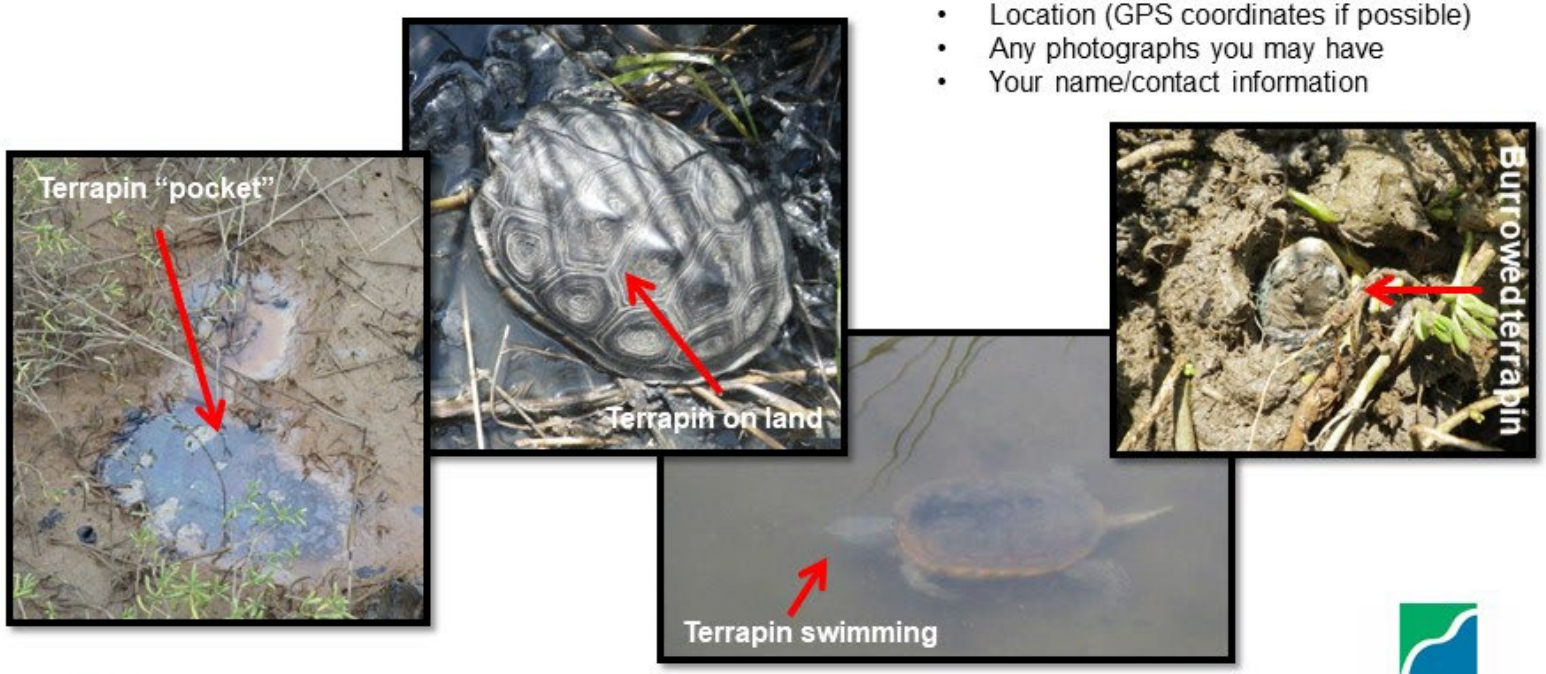
“Have You Seen Me?” Campaign

HAVE YOU SEEN ME?

The Environmental Institute of Houston (EIH) is researching Texas Diamondback Terrapins, in cooperation with Texas Parks and Wildlife and the US Fish and Wildlife Service. If you have seen one of these turtles, please call our main office at 281-283-3950 or email eih@uhcl.edu with the following information:

- Date and time
- Location (GPS coordinates if possible)
- Any photographs you may have
- Your name/contact information



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Please do not pick up or disturb any of the terrapins you may see. Thank you!

For more information about this and other projects, please visit our website: http://www.eih.uhcl.edu/research

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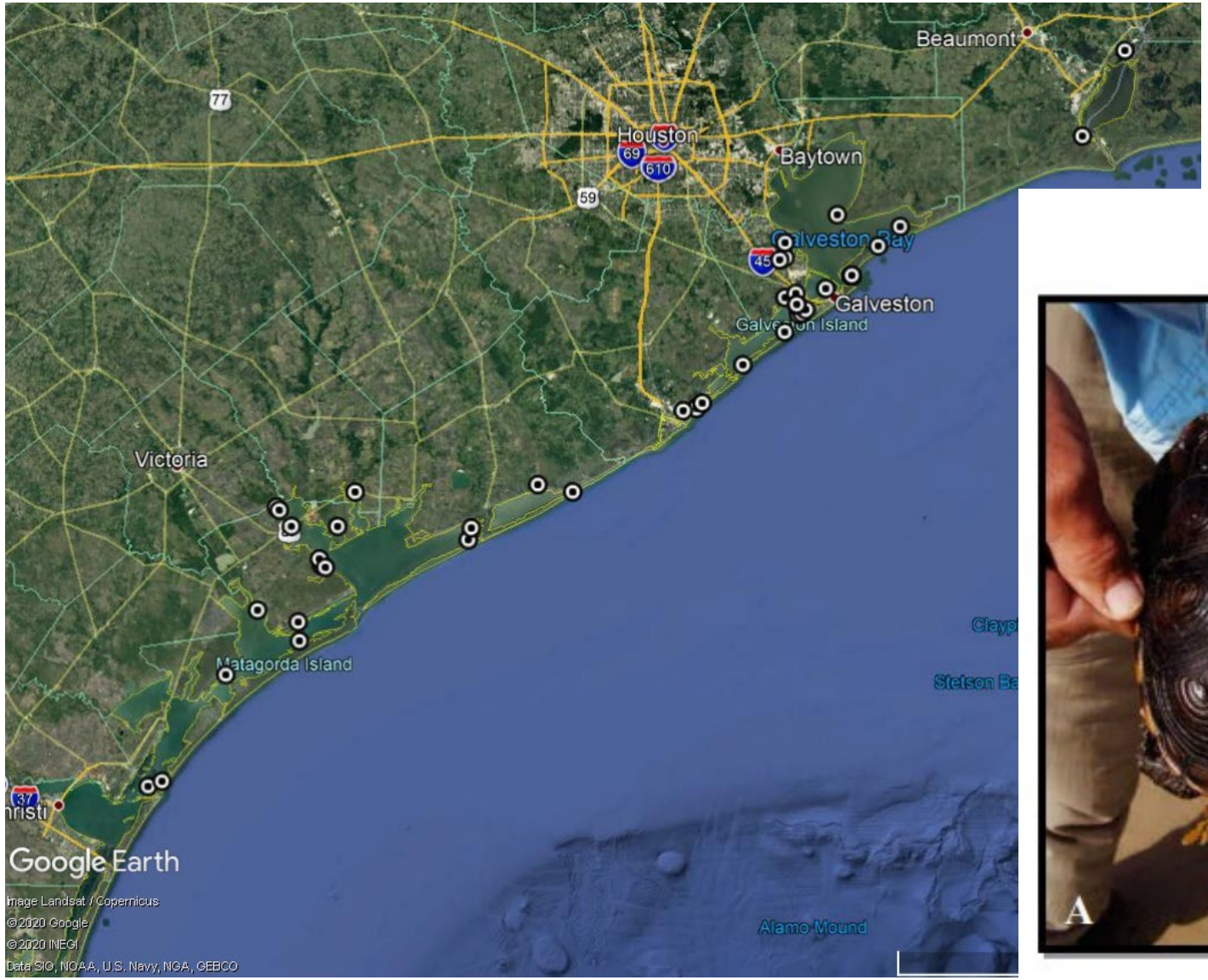
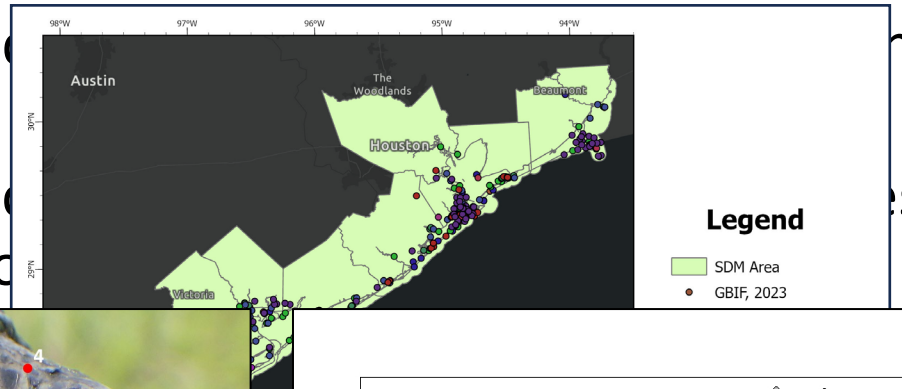


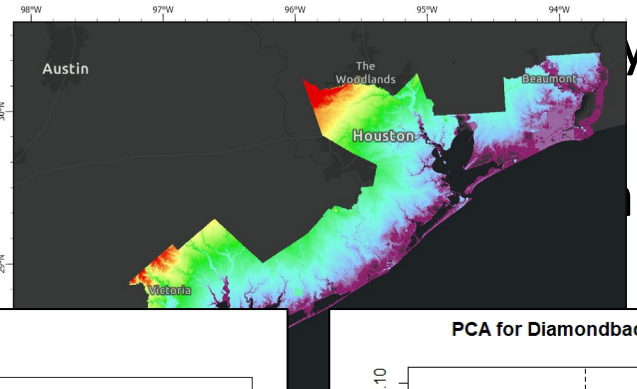
Dissertation Work

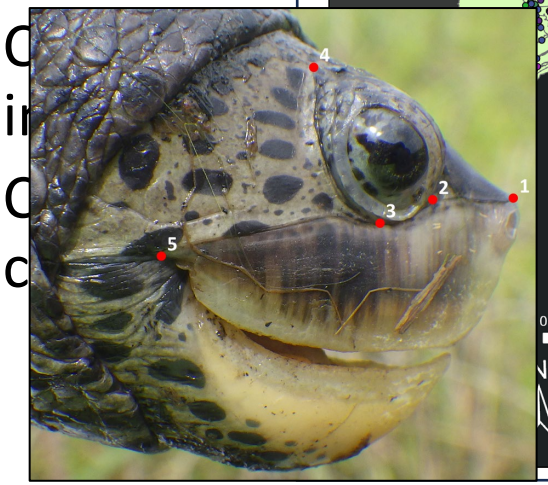
Overall Goal: Synthesize long-term monitoring data to aid in decision making for species conservation

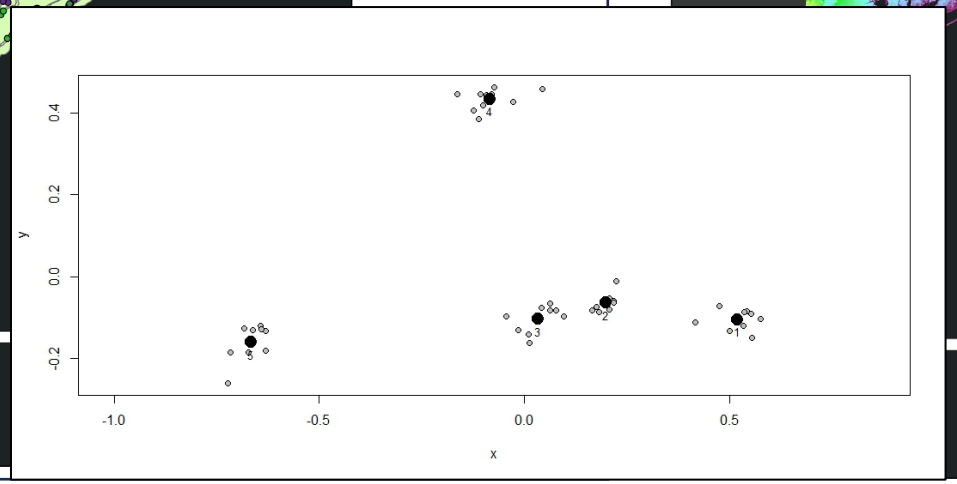
Dissertation Objectives:

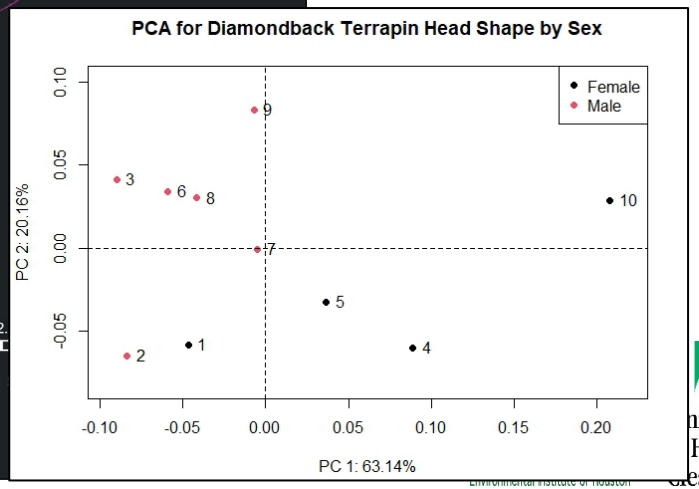
- Chapter 1: evaluate historic, current, and future coastal habitat availability utilizing species distribution models.
- Chapter 2: (hc y viability?) at coast-wide
- Chapter 3: (es s for ecotoxin consumptic
- C i
- C c











Shameless Plug

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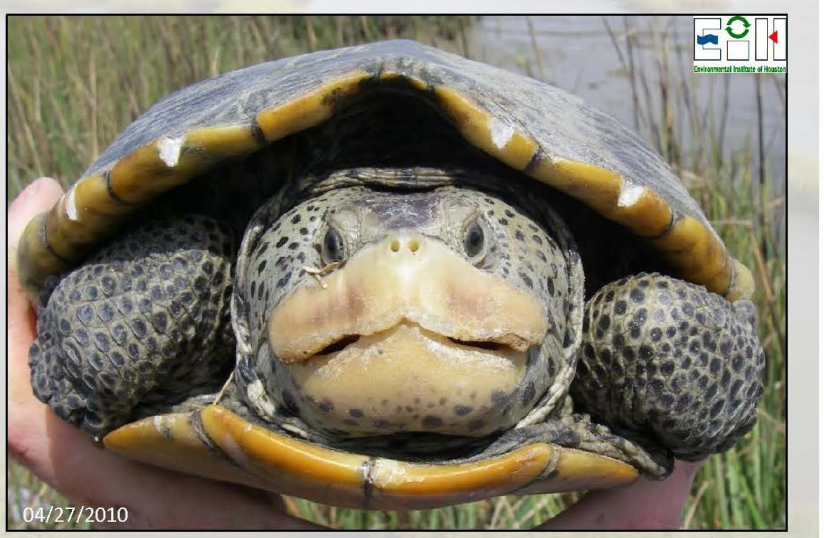
certifies that

John Smith

has adopted and named a Texas Diamondback Terrapin *(Malaclemys terrapin littoralis)*

Individual Terrapin Capture Data

Adopted Name:	**Chico**
Initial Capture Date:	04/27/2010
Last Seen On:	04/27/2010
Initial Capture Location:	Green's Lake
Initial Capture Habitat:	*Spartina* marsh
Carapace Notch ID:	N236
Pit Tag Number:	037 816 332
Sex:	Female
Weight:	1.19kg
Carapace Length (mid):	187mm
Carapace Width (max):	139mm
Carapace Depth (max):	85mm
Plastron Length (mid):	173mm
Plastron Width (min):	89mm
Head Width (max):	45mm



Chico was originally captured in 2010 and has not been seen by EIH since (as of December 2017)

Terrapin Adoption Program

- Funds our ongoing population monitoring
- Funds graduate research opportunities
- Allows volunteers to get out in the field with us!

Adopt by Dec. 11th
for delivery by Dec. 25th

https://www.uhcl.edu/environmental-institute/outreach/adopt-terrapin

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