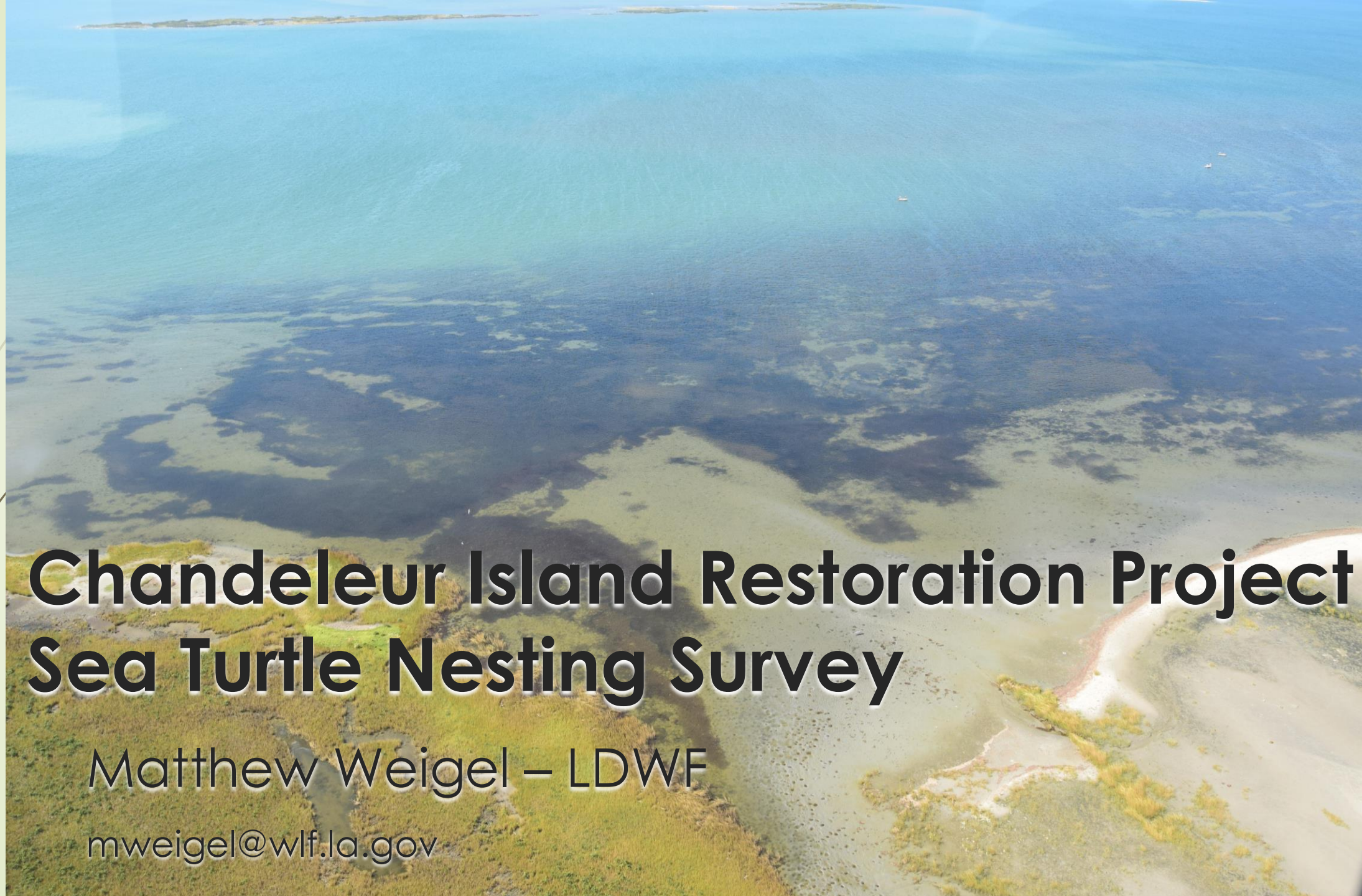

Chandeleur Island Restoration Project Sea Turtle Nesting Survey

Matthew Weigel – LDWF

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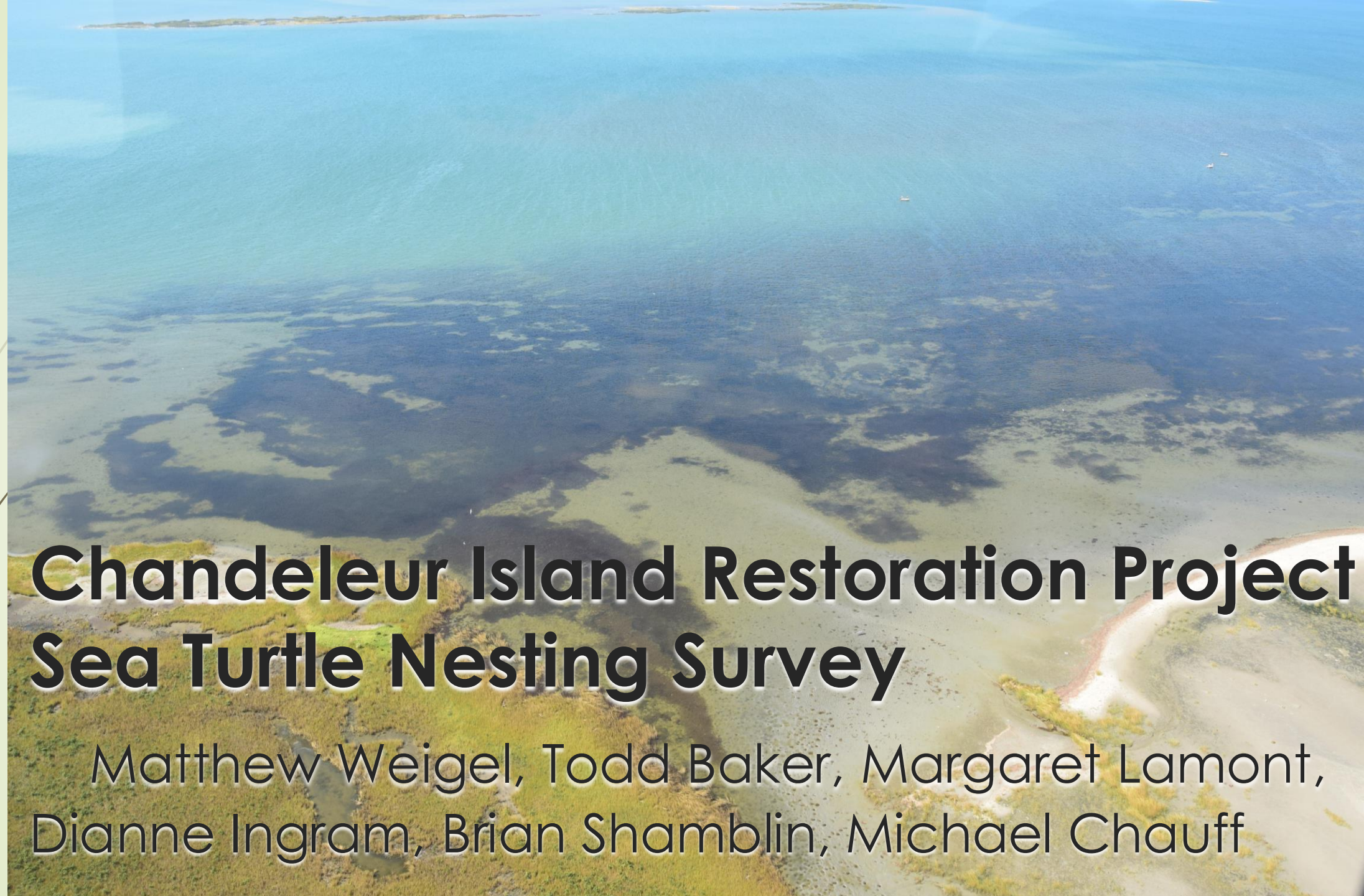
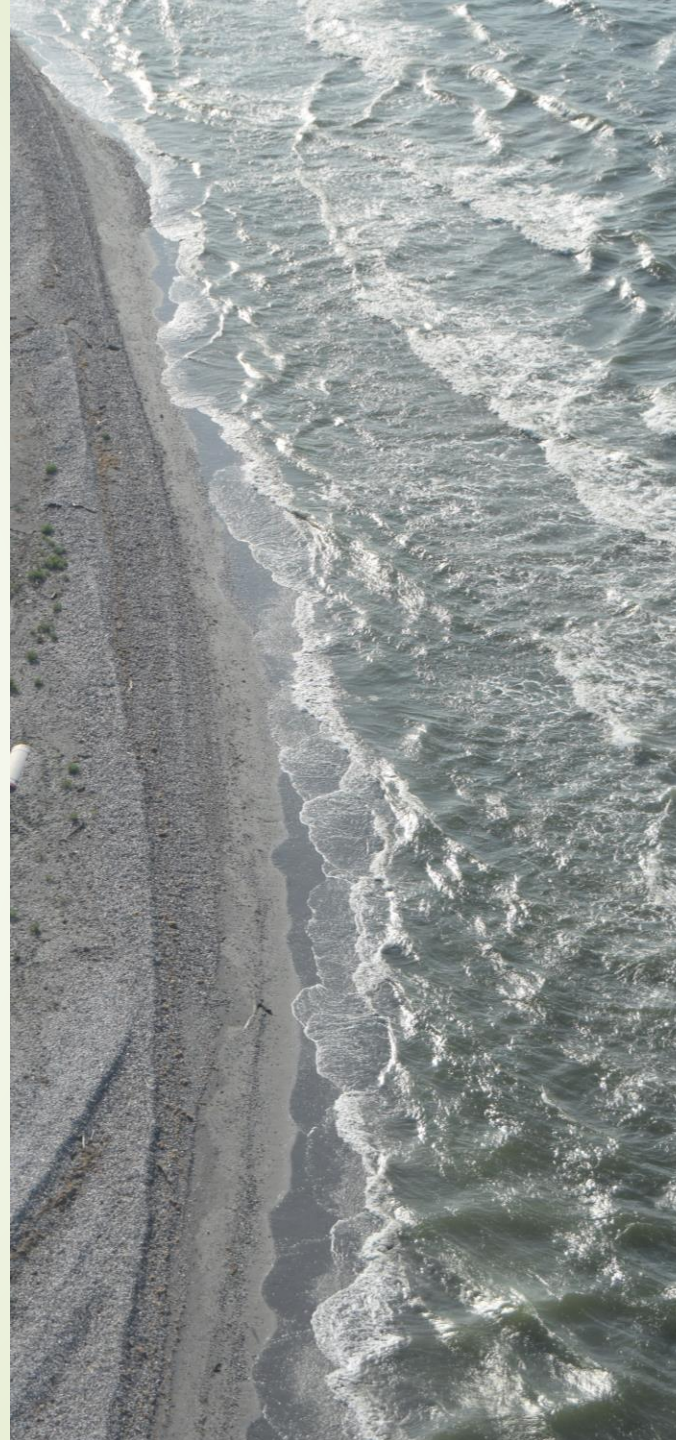


Chandeleur Island Restoration Project Sea Turtle Nesting Survey

Matthew Weigel, Todd Baker, Margaret Lamont, Dianne Ingram, Brian Shamblin, Michael Chauff

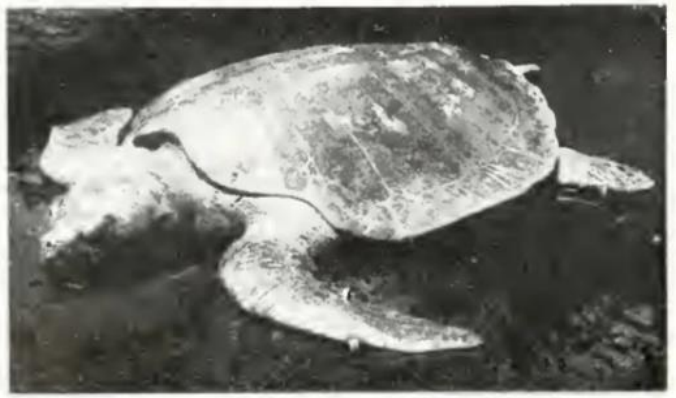
Background and Need

- Sea Turtle nesting on Chandeleur Island (CI) was an unknown
  - Many believed there would be no evidence of present day nesting found
  - It had been decades since a nesting survey occurred on the island – few records existed
  - Remote beaches often represent the largest gaps in monitoring
- Prior to construction planning, the restoration project team needed to determine whether Sea Turtles were utilizing the island's beaches
- RW TIG (E&D) funds gave the team the ability to fill this gap in knowledge with surveys



Literature and Knowledge

- Next step was determining what we knew
- USGS (M. Lamont) and USFWS (D. Ingram) interviewed individuals and conducted related literature reviews
  - One of the latest publications indicating that ST nesting was occurring on CI, Percy Viosca - 1961
  - Last focused survey efforts, NMFS – 1977
  - Only recent reports of nesting found were rare, less reliable observations made by fishermen



The *gray sea turtle*, sometimes called the "Ridley turtle", is the most plentiful sea turtle in the Gulf of Mexico along the Louisiana coast. It nests on the Chandeleur Islands.

Methods - Sea Turtle Nesting Surveys on Typical Beaches

- Surveys are most often done by ATV/UTV
- Sites are often close to towns/amenities
- Costs are relatively low and higher survey frequency is feasible
- The method offers quick and easy access to ***crawls – tracks left by nesting turtles (nesting crawls and non-nesting crawls)***

Credit: North Carolina Wildlife Resources Commission

Photo credit: David Thompson USGS

Challenges Encountered Surveying the Chandeleurs

- Island is very remote 30+ miles from the nearest launches
- Seas are often rough
- A lot of ground to cover and vehicles are not allowed on-island
- Few lodging options exist

Photo credit: Kacie Rome LDWF

Determined Aerial Surveys Best Approach for Chandeleur

- Flew weekly aerial surveys via fixed wing (Kodiak 100, Chauff) during the nesting season, ~April/May through July/August
  - 2 observers
  - Early AM, ~90kts at ~120'alt. (Fuentes et al. 2015)
  - Photos and GPS data collected
- Conducted ground truthing when possible
  - Additional Photos and measurements collected
  - If located, nests were marked for follow-up visits
    - Remote sensing cameras installed at some sites
    - When possible, nests were evaluated/sampled post hatch (through Oct.)
    - DNA samples collected if possible (Dr. Shamblin UGA)

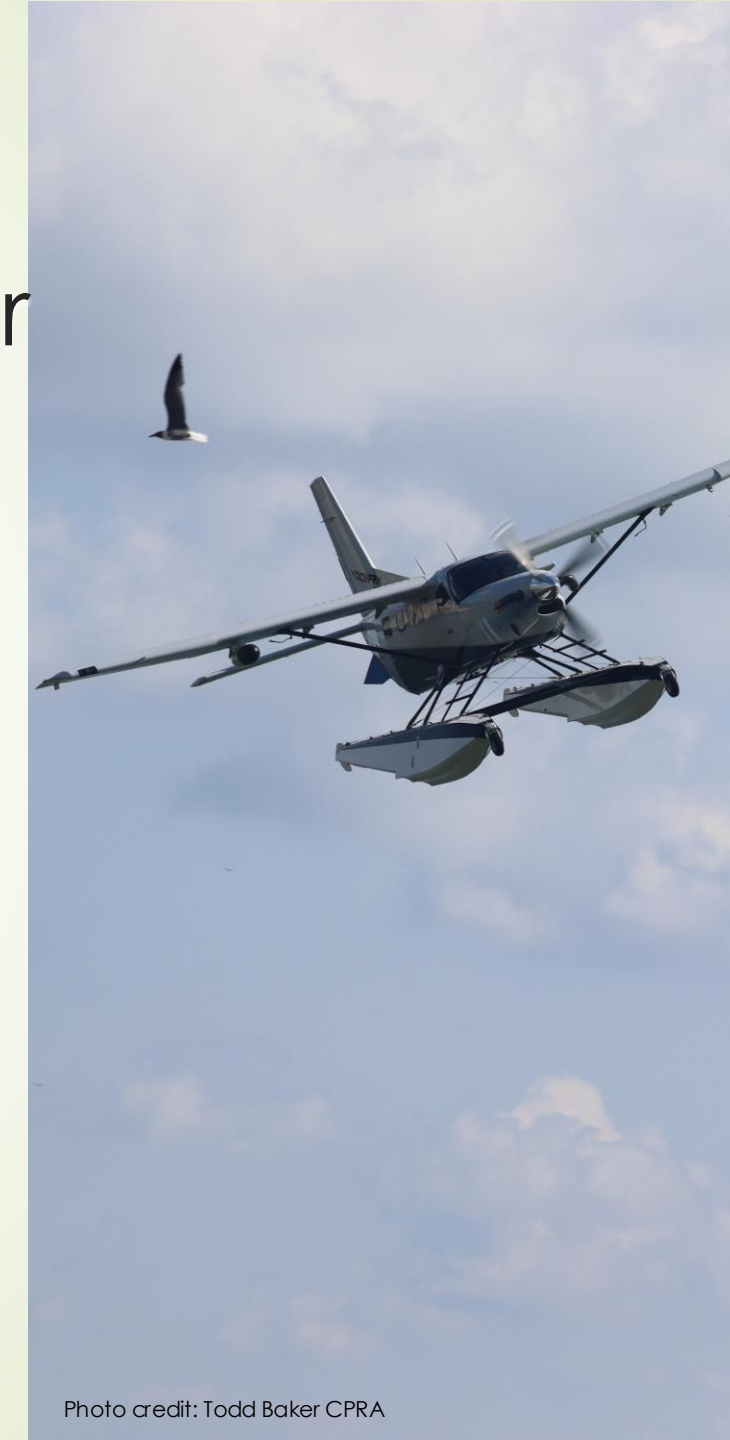


Photo credit: Todd Baker CPRA

Example of how we hoped all crawls would appear
- Many Loggerhead crawls are easily detected

Kemp's crawls?
- Kemps are the smallest and lightest STs

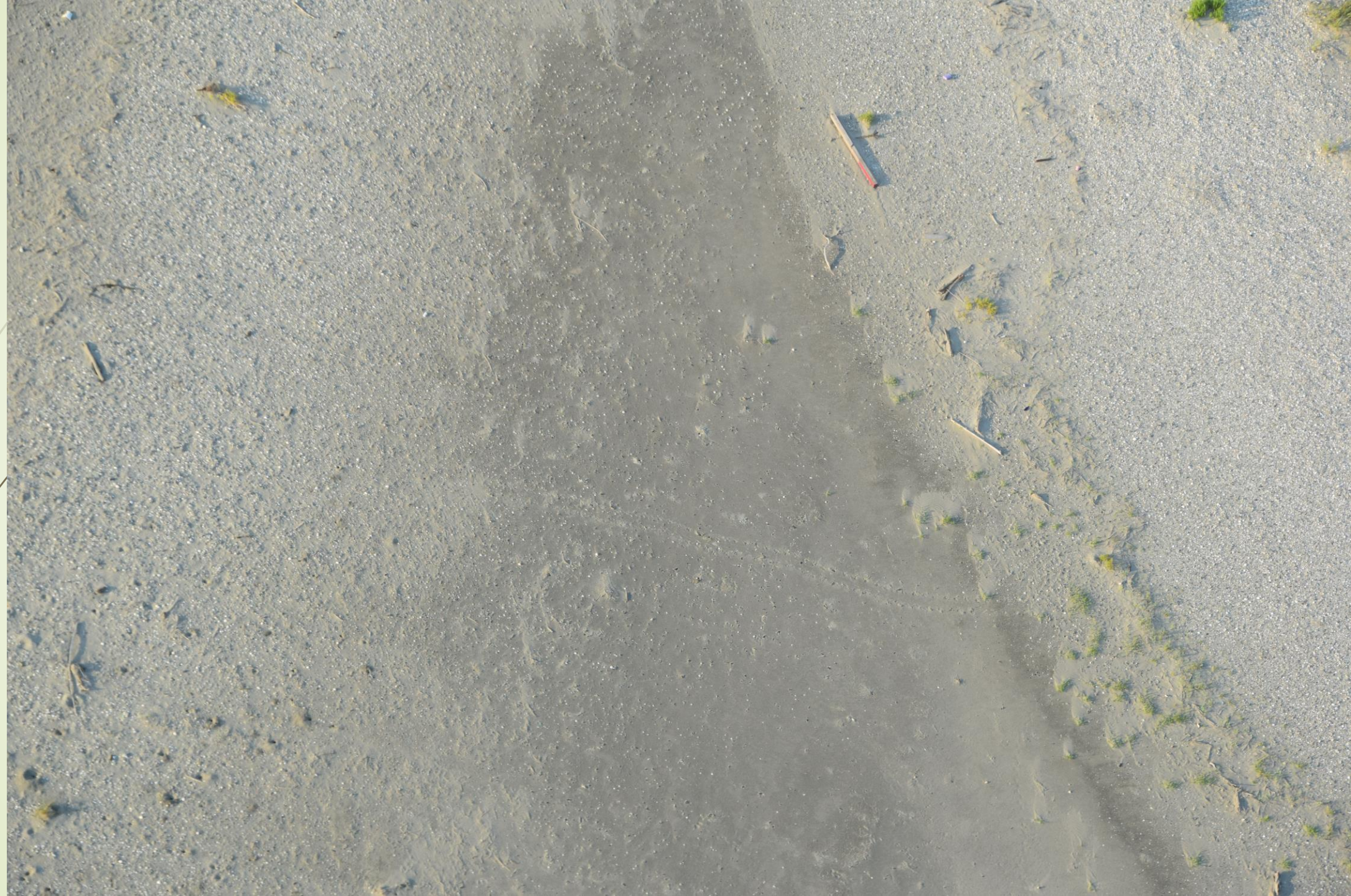



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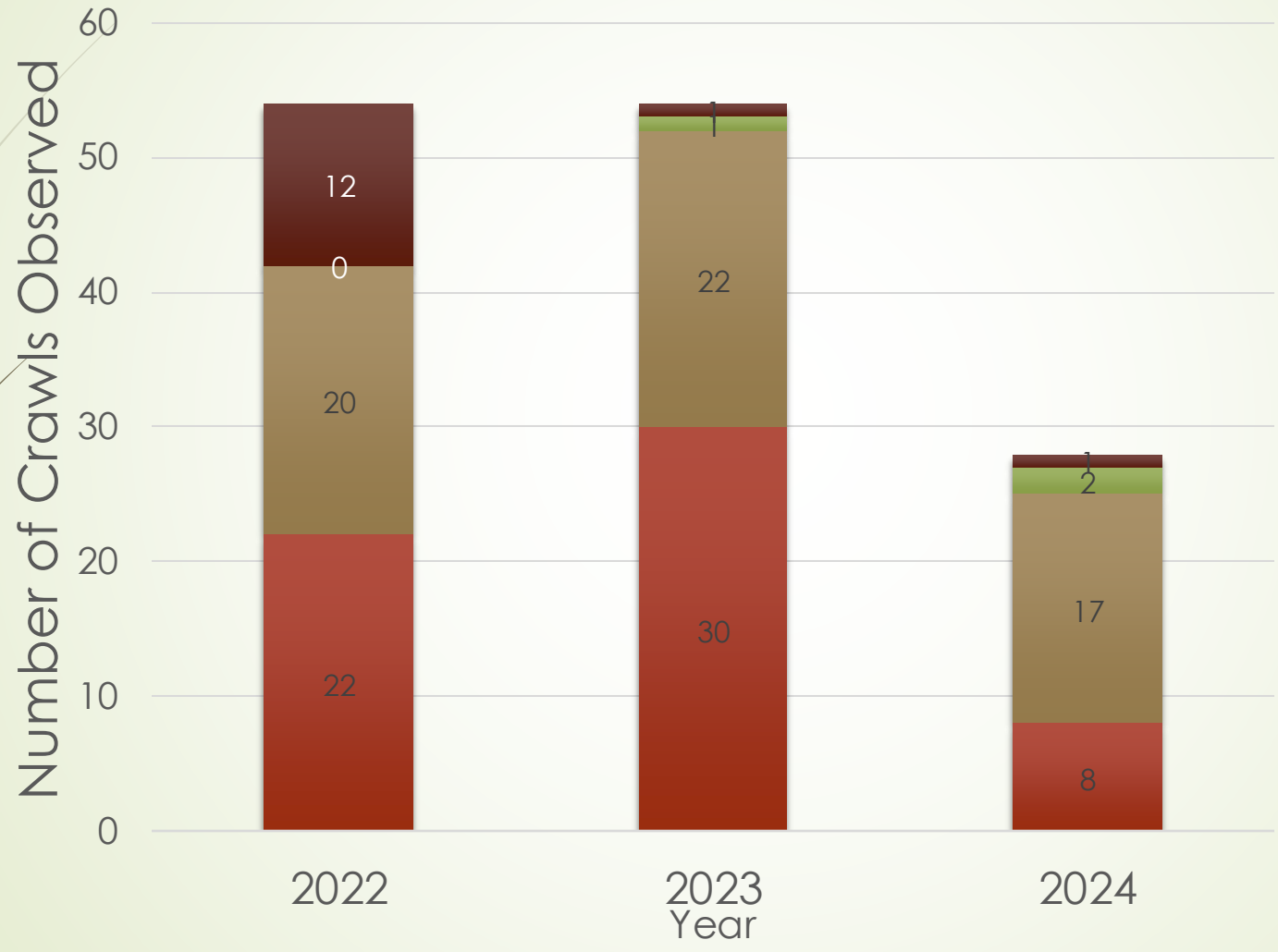
Photo credit: Todd Baker CPRA

Photo credit: Todd Baker CPRA

Results of CI Nesting Surveys



Results of CI Nesting Surveys

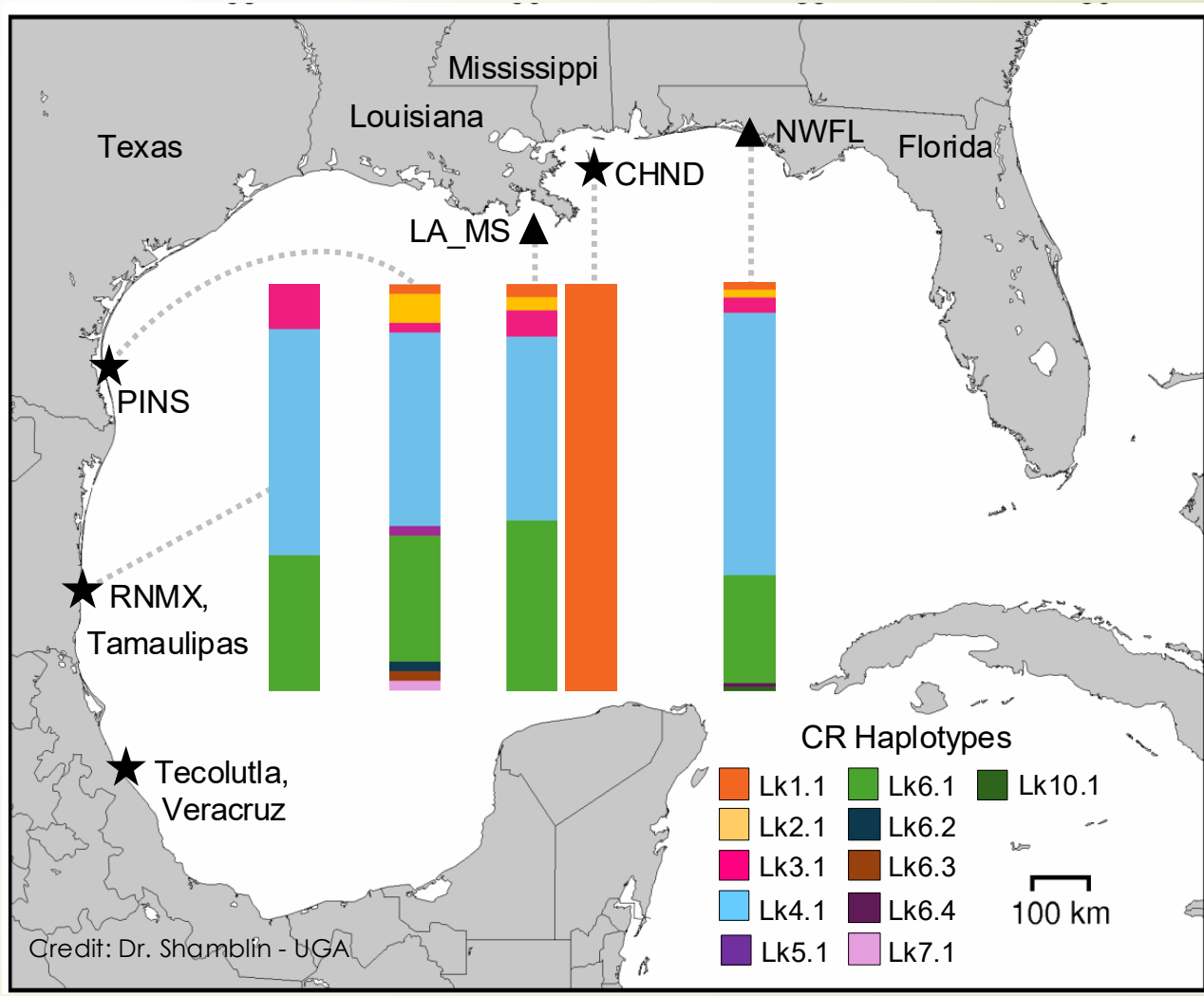
- Provided first known documentation of successful Kemp's hatchling emergence on CI in 75 years – Kemps are the most critically endangered ST sp globally
- Documented successful Loggerhead hatchling emergence
- Documented Green ST nesting
- Determined that CI has one of the highest crawl densities in the northern Gulf of America - 1.9 crawls/km
  - Peak crawls/survey = 17
  - Average crawls/survey = 5.3 (2022)
- Confirmed that **significant sea turtle nesting** is occurring on CI
- DNA Samples collected during surveys have yielded new information…

Confirmation of Hatchling Emergence

- Reconyx HyperFire cameras documented Loggerhead and Kemp's hatchlings emerging from a number of successful nests
- Post-hatch nest evaluations documented success as well

Dr. Shamblin's Genetic Analysis Yielded New Information

- All Kemp's nests sampled yielded no Loggerhead alleles
- All Kemp's nest samples yielded rare haplotype, Lk1.1
- The sharing of a rare haplotype among all females indicates a cohesive population with strong nest site fidelity
- A CI Kemp's nesting colony persists



Discussion

- Aerial Survey has proven to be a viable means of documenting ST nesting activity on CI
- The decline in crawls observed may be due to reduced activity; however, 2024 surveying saw some challenges
  - Plane/Pilot availability – reduced detection
  - Weather – reduced crawl persistence
  - Timing - missed the "mini arribada"?
  - Natural variability? – decades not years
  - Changes in beach substrate – reduced crawl detection

Photo credit: Todd Baker CPRA

Results/Benefits to Restoration

The restoration planning team is engaging with Sea Turtle SME's on design, BMPs, etc.

- Restoration features have been designed to ensure continued/future nesting success
  - Beach slope
  - Elevation at the foredune
  - Sediment source
- Formal Consultation with USFWS and NOAA will result in avoidance and minimization of impacts during construction
  - Timing
  - Location
  - Methods
  - Nesting surveys and relocations
  - Etc.

Next Steps

- Our surveys continue in 2025 (thanks in part to Shell USA, Inc.)
- Future nesting survey efforts are being planned
  - Construction surveys
  - MAM surveys
  - USGS/USFWS high altitude photographic surveys
    - Better for detection, but not spp/nest ID
    - May augment with on-the-ground visits
    - Can determine our crawl detection rates
    - Better determine crawl retention on CI
- We look forward to Construction and continued monitoring of this important nesting colony

2025 Nesting Season Surveys have just begun

7 Crawls documented so far

Resulting Publications

- ***Confirmation of significant sea turtle nesting activity on a remote island chain in the Gulf of Mexico***
  - Margaret M. Lamont, Dianne Ingram, Todd Baker, Matt Weigel, Brian M. Shamblin
  - First published: Ecology and Evolution - 21 August 2023
  - **https://doi.org/10.1002/ece3.10448**

- ***Louisiana's Chandeleur Islands host a demographically discrete nesting population of the critically endangered Kemp's ridley turtle***
  - Brian M. Shamblin, Dianne Ingram, Todd Baker, Matt Weigel, Kristen M. Hart, Donna J. Shaver, Margaret M. Lamont,
  - Coming soon

- ***More to come***

Questions?

- Matthew Weigel - LDWF mweigel@wlf.la.gov

Photo credit: Todd Baker CPRA

Thank you