



Hawksbill x loggerhead hybrids at Brazilian feeding grounds

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Background

- Five sea turtle species occur in Brazil



Dermocheliidae

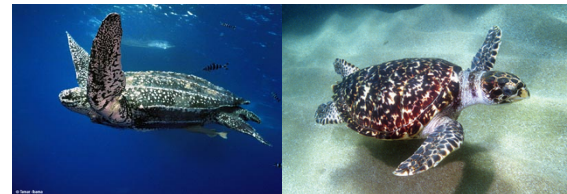
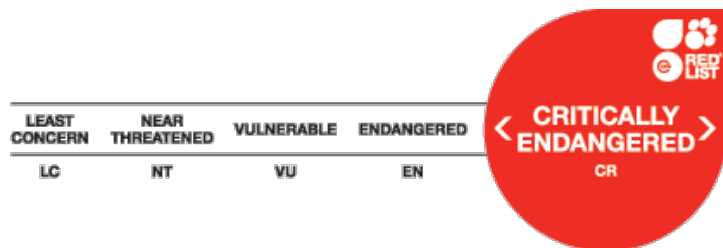
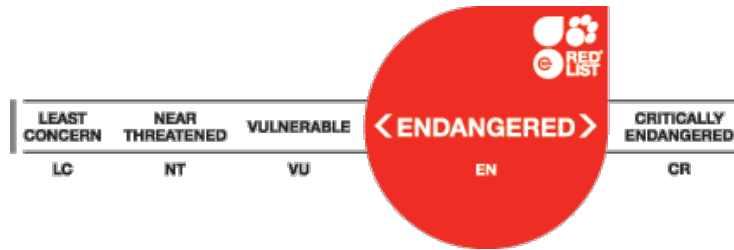


Cheloniidae



Photos: Projeto Tamar

- Threats include poaching, habitat loss/alteration, bycatch, and marine debris



Background

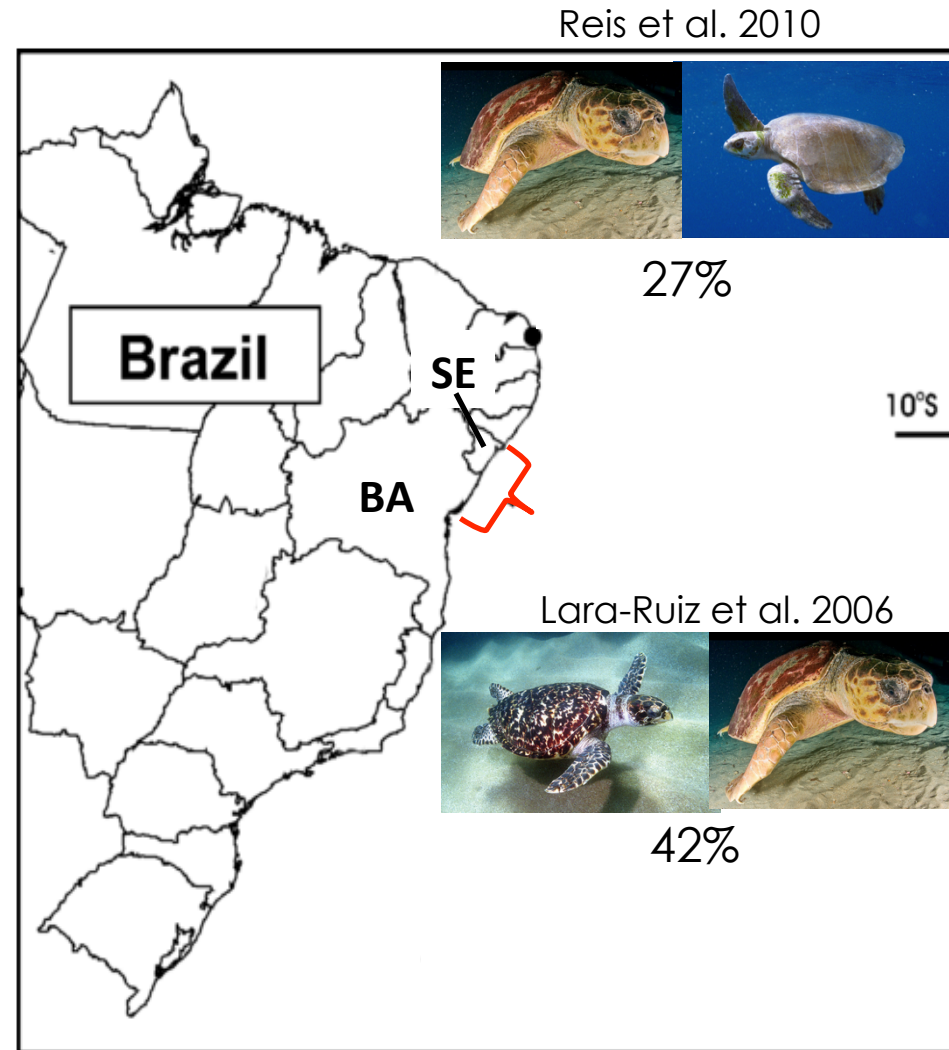
- Hybridization: possible threat to Brazilian sea turtles?
- Hybridization between Cheloniids has been reported worldwide



Photos: Projeto Tamar

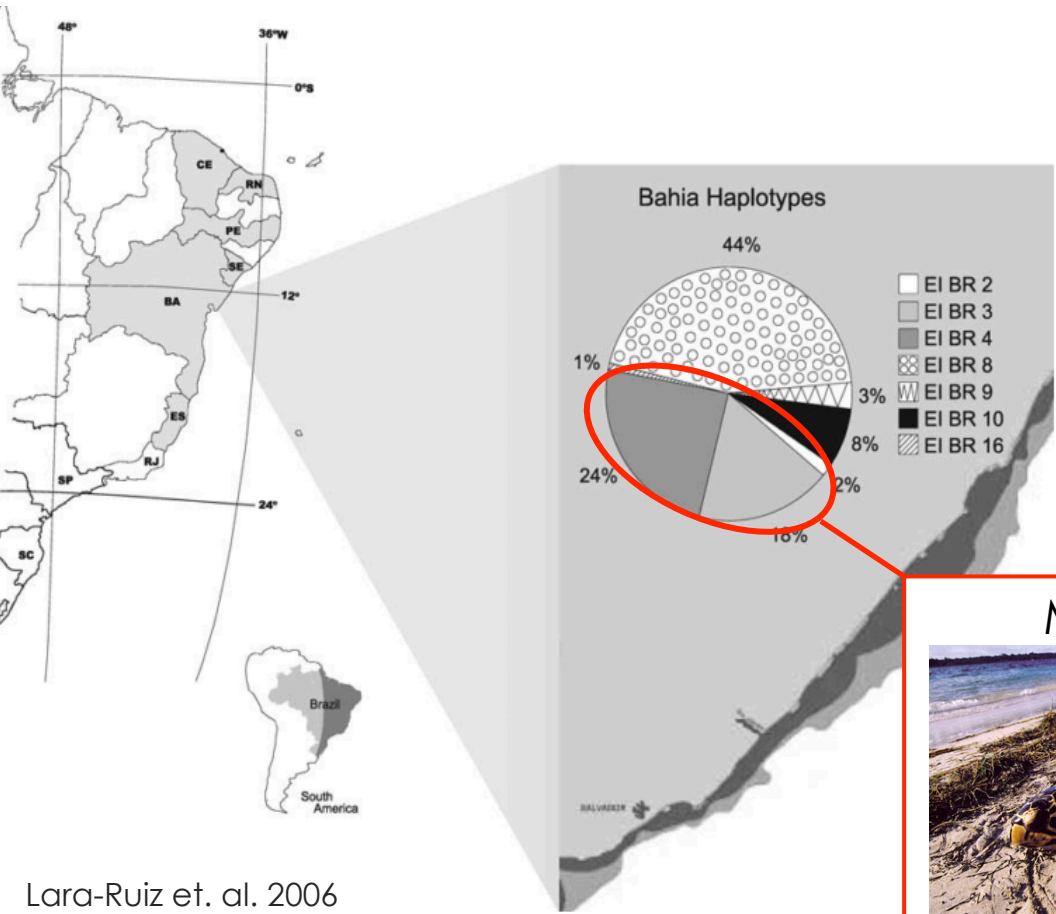
Background

- Brazil: very high rates in BA/SE
- Possible causes: large pop. reductions, spatial-temporal overlap, skewed sex ratios
- Consequences?

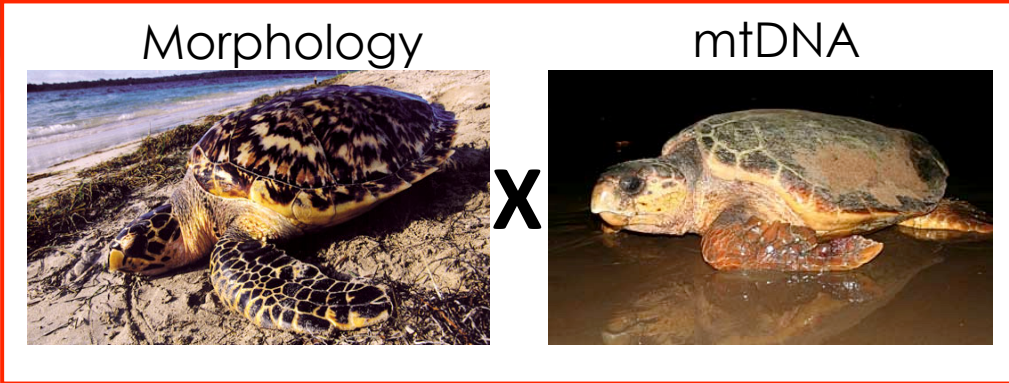


Background

- Bahia rookery: 42% “hawksbill” females are hybrids

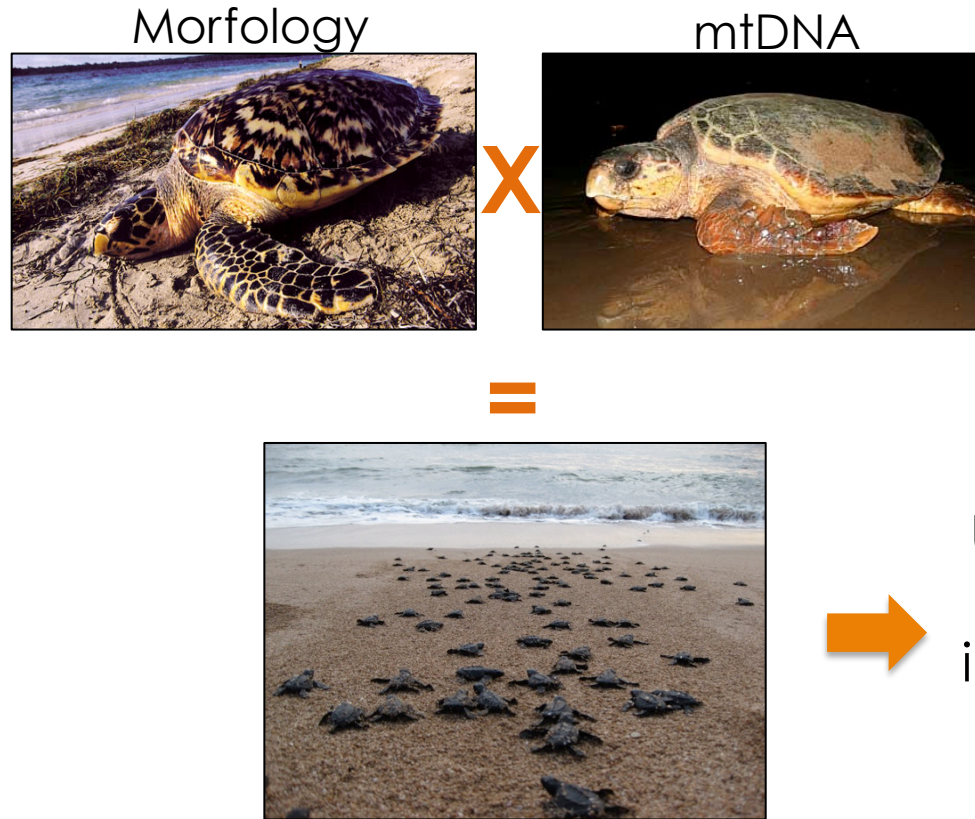


Lara-Ruiz et. al. 2006

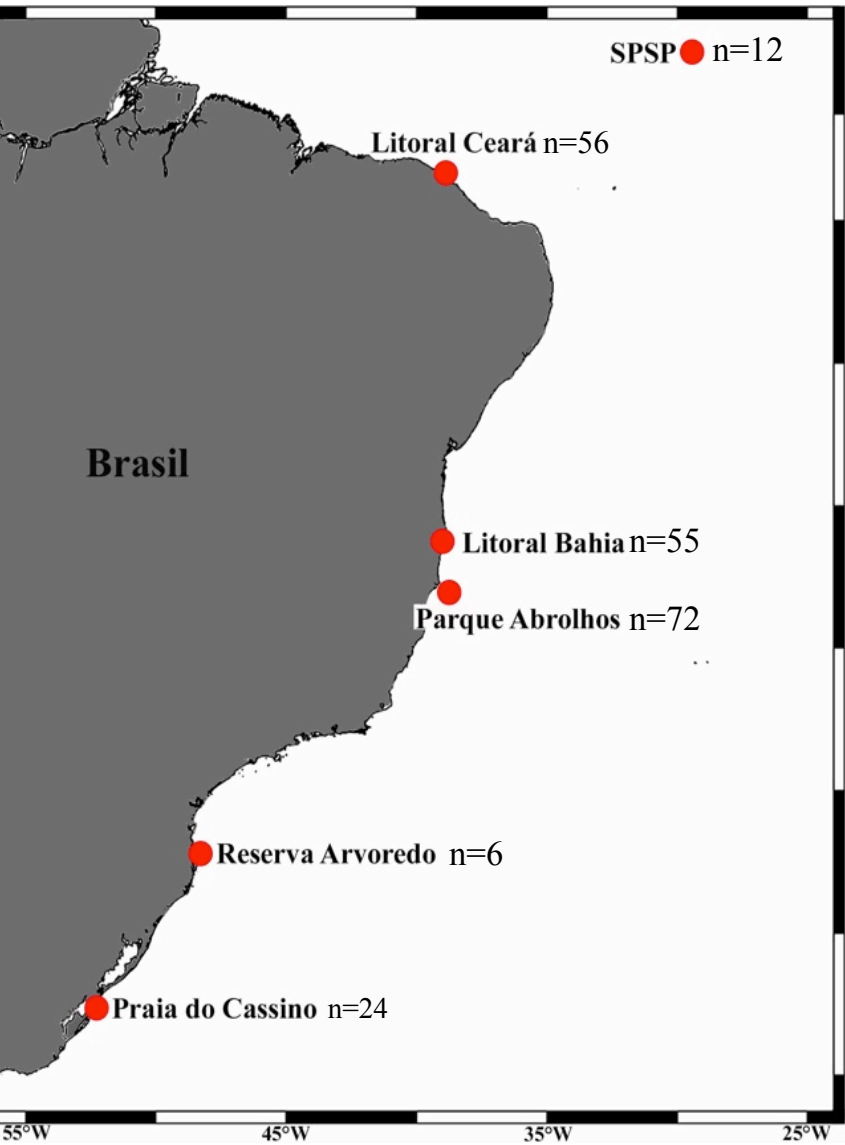


Background

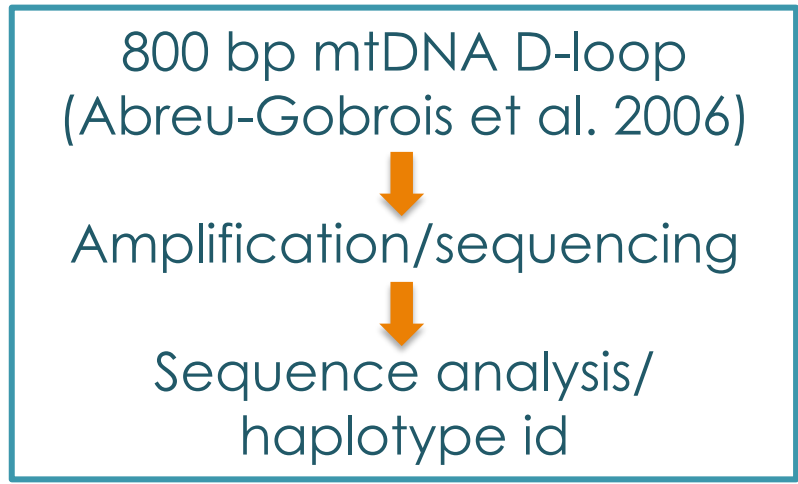
- Female hybrids lay viable eggs



To fill this gap

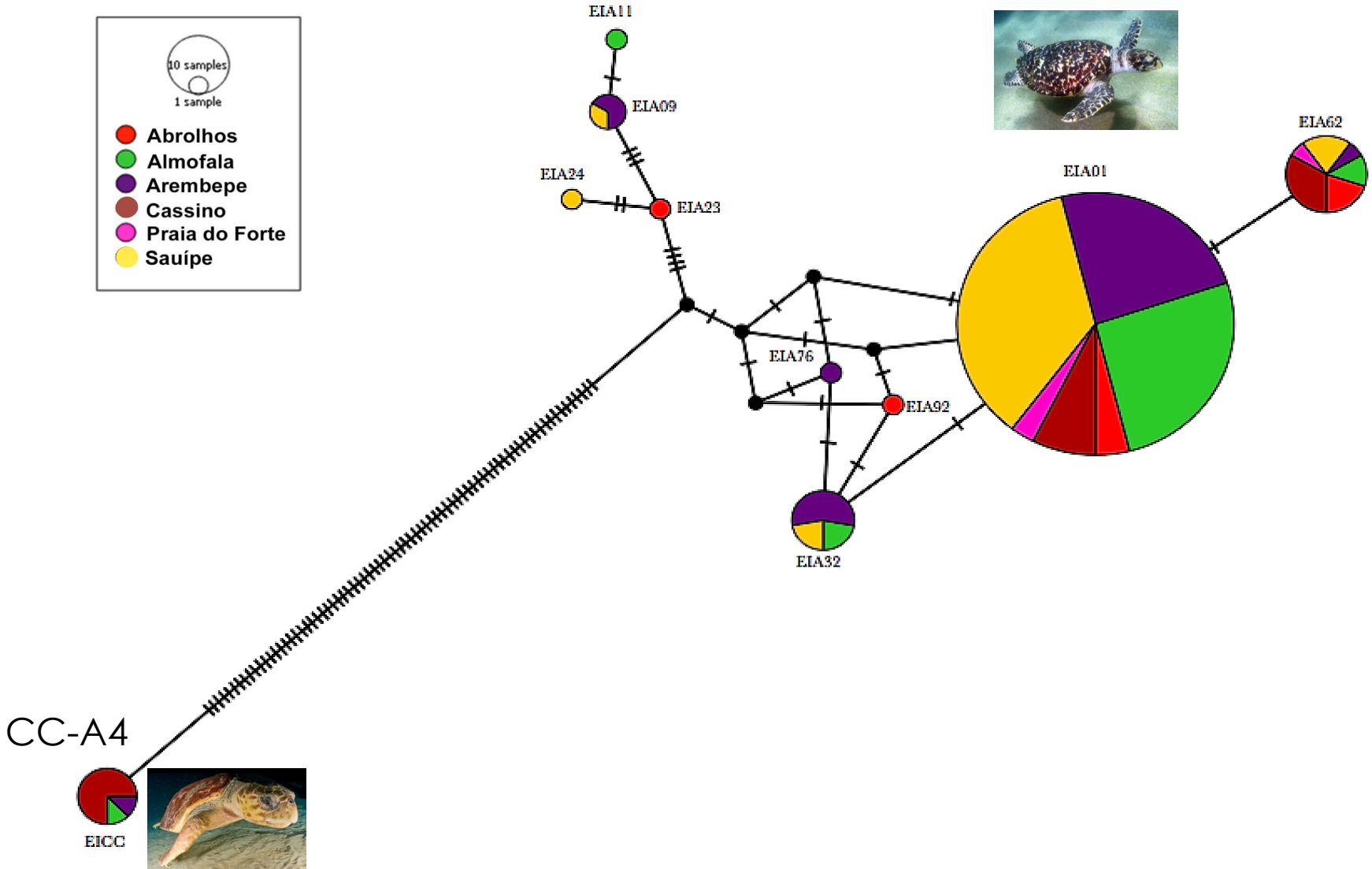


Skin samples - 224 immature hawksbills



Results

- Eight turtles (37 to 52 cm CCL): Hawksbill morphology but Loggerhead mtDNA (Bahia haplotype)

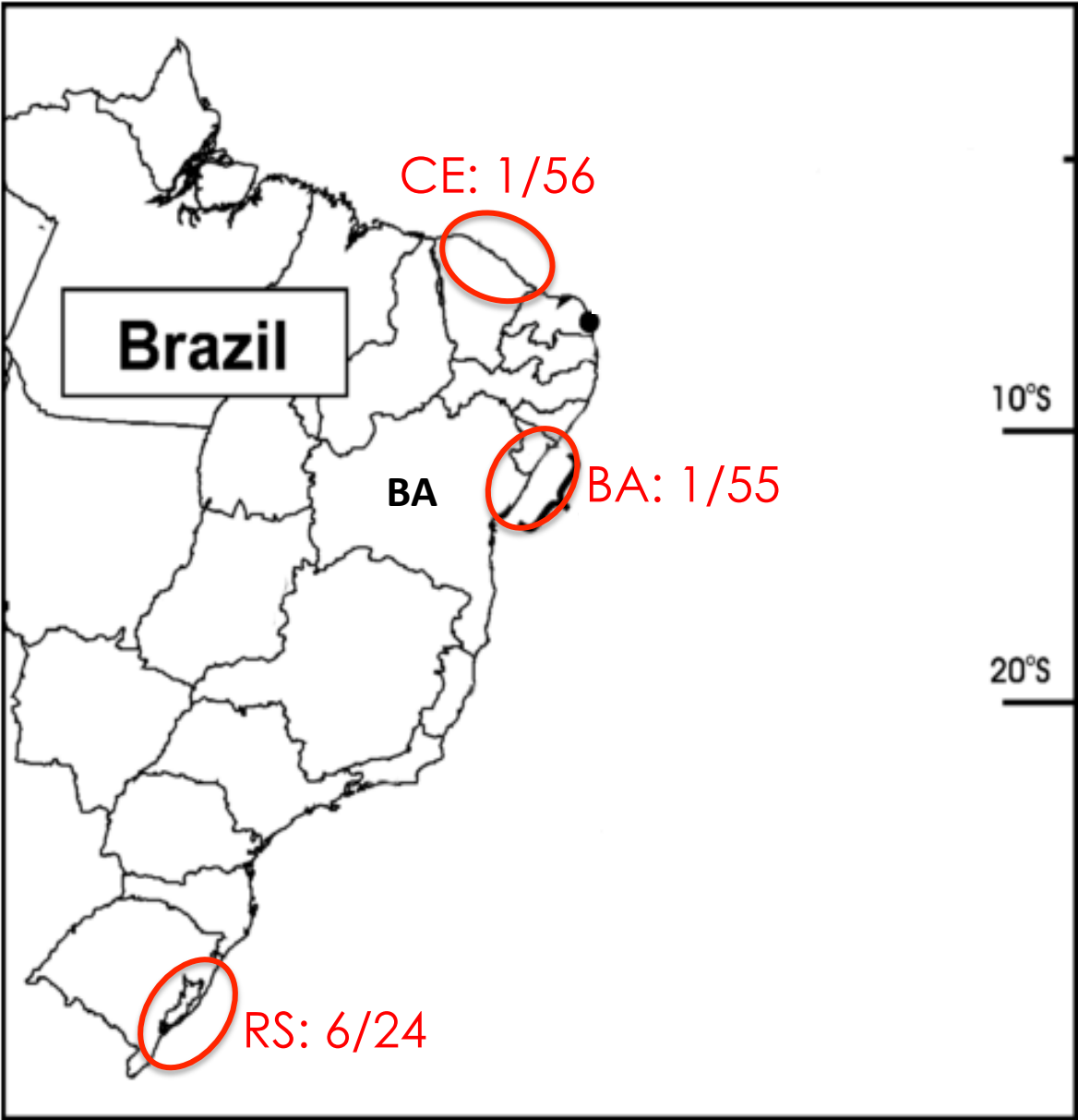


Results



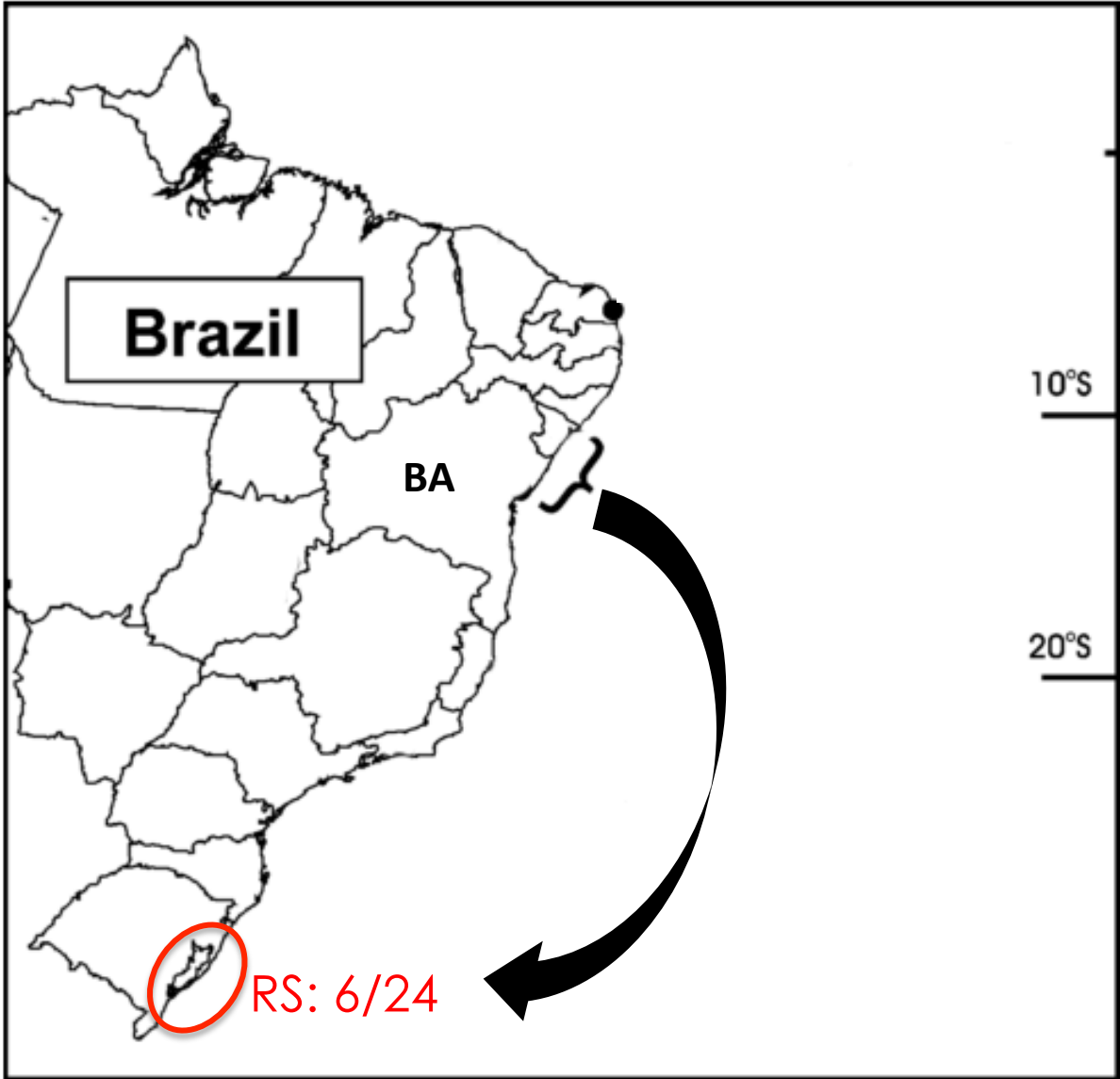
Results

Immature hybrid distribution



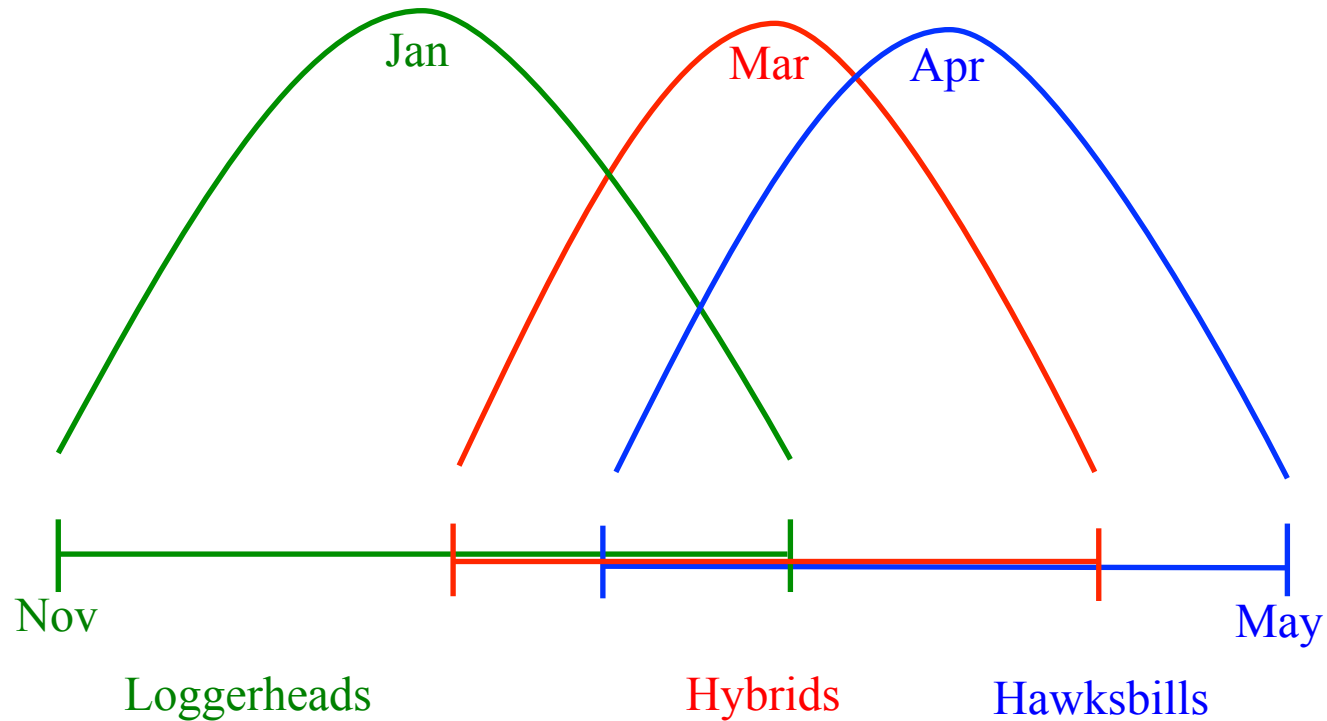
Results

- Dispersal to the South – favored by currents?

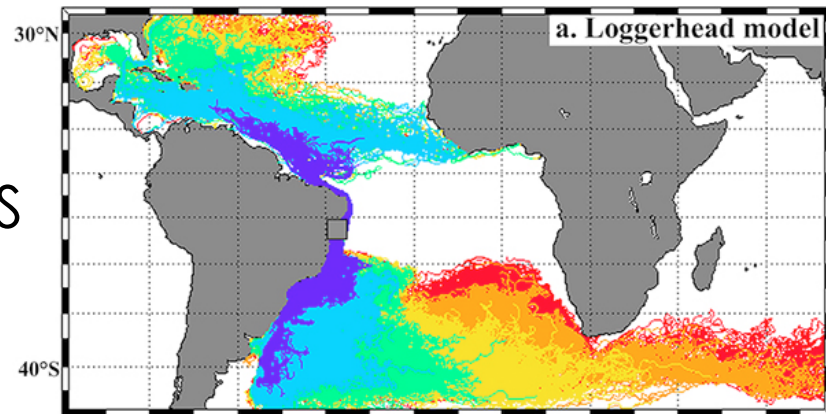


Results

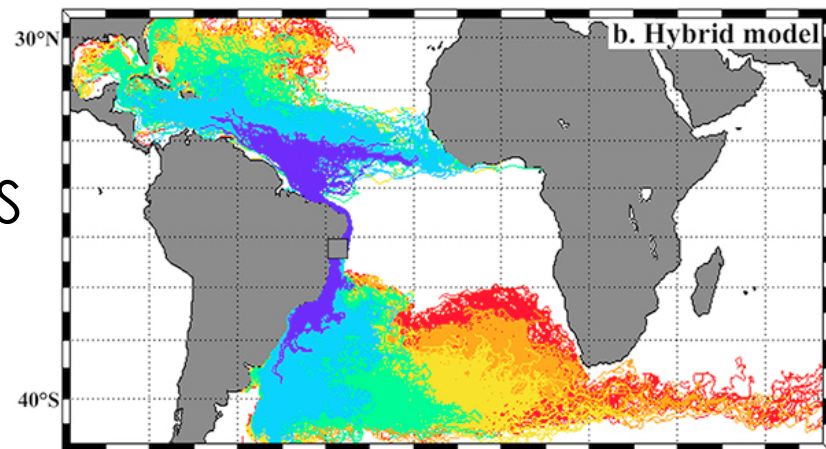
- Particle dispersal model (ICHTHYOP 3.2)
- 3 simulations according to peak hatching period
- Temporal overlap, but slightly distinct peaks



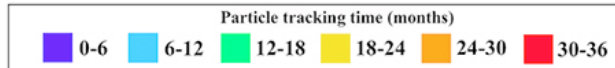
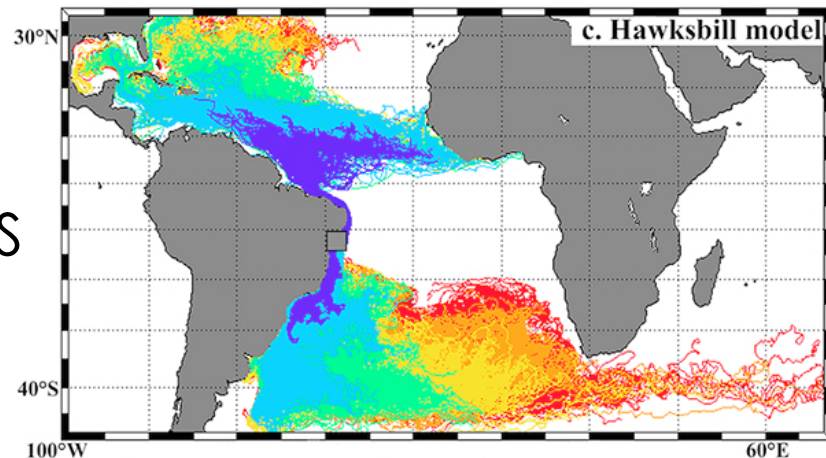
Loggerheads – 72% S



Hybrids – 44% S



Hawksbills – 36% S



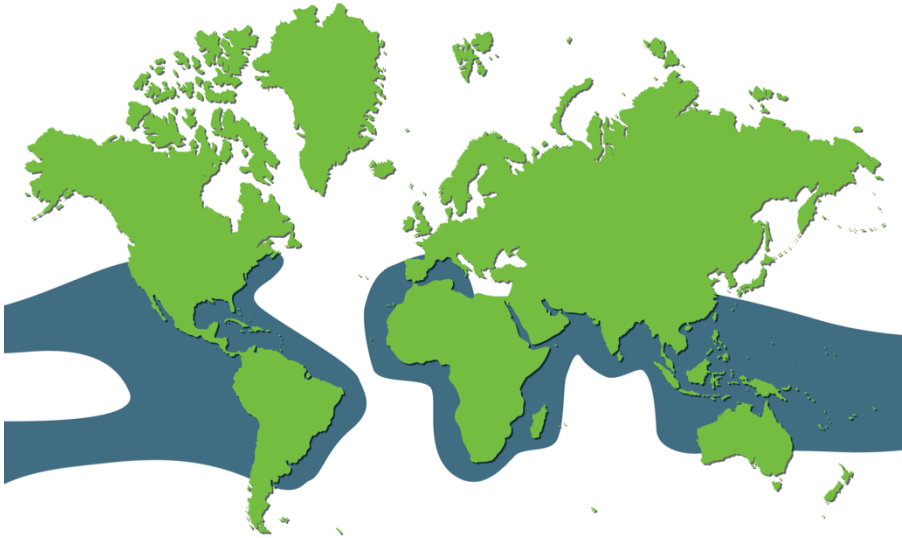
Results

- **Dispersal to the South** – ecological/behavioral?

Hawksbill:

Tropical, coastal

Not common in South BR



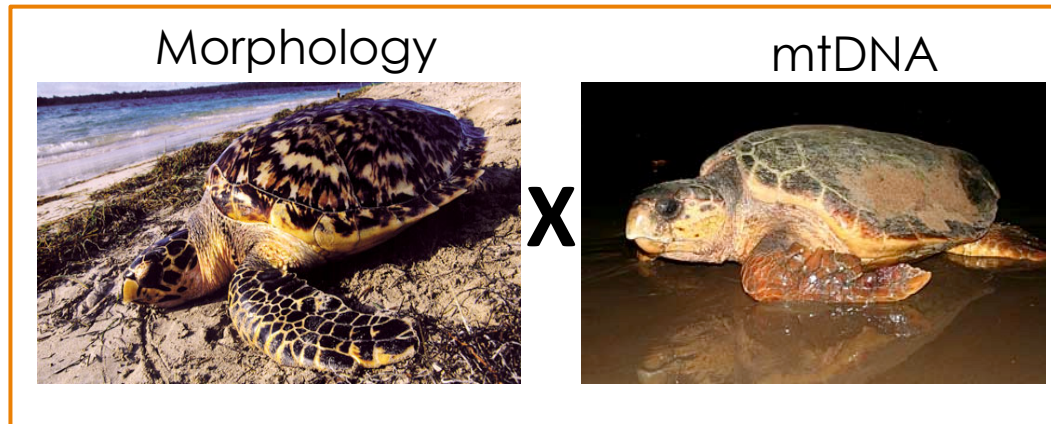
Loggerhead:

Wider distribution

High occurrence in South BR



Next steps



- Until now: only mtDNA



Allows hybrid detection only when morphology/mtDNA are different

Next steps

nDNA analyses
(markers described by Vilaça et al. 2012)



Can detect hybrids even
when morphology and
mtDNA are the same

Provides more info – parental
species, generations, signs of
introgression

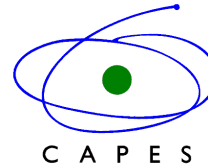


Additional sampling (more coverage!)

What we expect...

- Increase the detection of immature hybrid turtles in Brazil;
- Better understand the distribution patterns of hybrids along the coast;
- Evaluate the characteristics of this hybridization (generations, parental species);
- Collaborate with other projects studying hybrids to help diagnose the effects of hybridization on endangered sea turtle species in Brazil.

Partners and sponsors:



Part of the results published in “Hawksbill x loggerhead hybrids in Bahi, Brazil: where do their offspring go?” (PeerJ 2014)

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