*DIFFERENTIAL GENE EXPRESSION BETWEEN AND WITHIN SPECIES OF SEA TURTLE EXPOSED TO A BIOLOGICALLY REALISTIC THERMAL STRESS

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Alongside widespread temperature rises, anthropogenic climate change is expected to result in increases in the frequency, severity, and duration of extreme heat events (EHEs). Sea turtle embryos are particularly vulnerable to EHEs, as they are physically restricted to eggs within terrestrial nests on marine beaches, and unable to behaviourally buffer themselves against high temperatures. Here, we expose embryos of green (*Chelonia mydas*), loggerhead (*Caretta caretta*) and flatback (*Natator depressus*) turtles to a biologically realistic thermal stress during late-stage embryonic development. We use a genome-guided transcriptome-based approach to examine differences in gene expression across and within species. Our results show that gene expression regulation differs between these three species, with variation in the overall number of genes regulated, and the associated biological pathways. We additionally demonstrate that in flatback turtles, gene expression is variable between populations, with higher overall regulation at locations that experience overall lower incubation temperatures *in situ*. These results suggest that acute thermal stress response is variable both between and within-species, with local adaptation and preconditioning likely influencing individual response.

ISTS Technical Memorandum
ISSN 3106-1397

PROCEEDINGS OF THE FORTY-FIRST SYMPOSIUM ON SEA TURTLE BIOLOGY AND CONSERVATION

March 18 – 24, 2023
Cartagena de Indias, Colombia

Compiled by:
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September 2025