

# Project Abstract Summary

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\* Funding Opportunity Number

F-FWS-WSFR-23-001

CFDA(s)

15.628

\* Applicant Name

FLORIDA INSTITUTE OF TECHNOLOGY, INC.

\* Descriptive Title of Applicant's Project

2023 MSCGP – Modeling population linkages and habitat shifts of migratory fishes in the southeastern USA using a novel integrative approach

\* Project Abstract

Highly migratory fishes like sharks, tuna, billfish, and tarpon are important for many recreational sport fisheries, but their broad movements, use of inshore areas for nursery habitat, and low overall genetic diversity make them particularly vulnerable. Of major concern is how such fishes are adapting their dispersal corridors and critical reproductive habitat use to rising water temperatures, and how this will affect the sustainability of these stocks. Genetic diversity metrics have shown to be powerful contributors to and predictors of species' health and resilience, and while DNA samples are taken as part of regular biomonitoring efforts, genetic data are widely underused because no template exists to integrate them with traditional conservation metrics. We propose to develop a series of models for coastal fishes to identify essential reproductive habitat in the southeastern US, gauge population health and rebound potential, and predict shifts in migration corridors and habitat use in response to environmental change. Specifically, this one-year project would support the development of a graphical interface for the Genetic Species Distribution Models (GSDM) and Genetic Population Viability Analyses (GPVA) currently under development for coastal sharks to enhance existing methods of assessing natural populations using genetic data. This will be made freely-available to users at state wildlife agencies as an accessible method for combining existing genetic datasets with the products of ongoing biomonitoring efforts, to better assess and predict the health and viability of sportfish populations.