



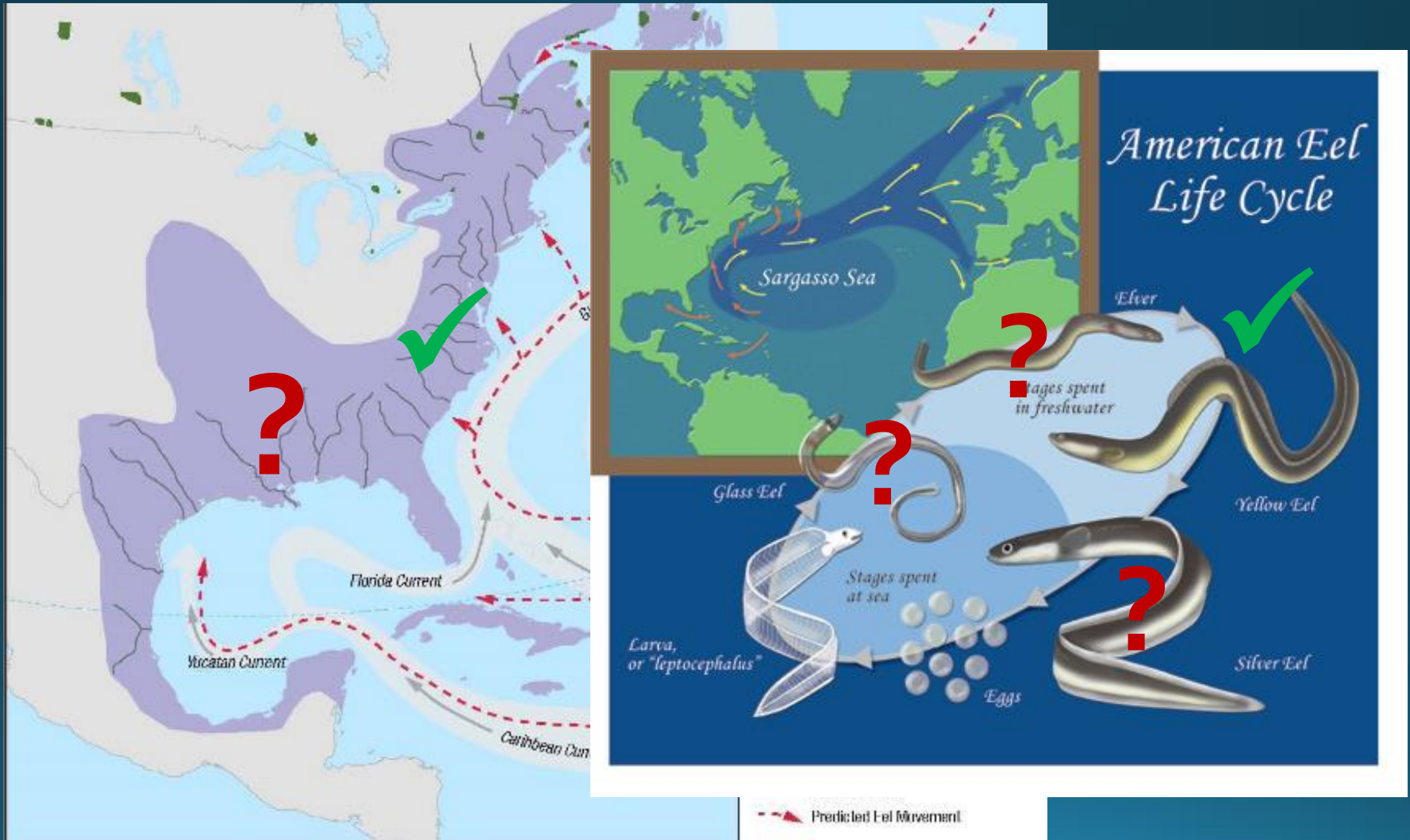
Current Research to Assess the Status of American Eel in Gulf Coast Drainages of Texas

148th American Fisheries Society Meeting
Atlantic City, New Jersey
August 21, 2018

Stephen Curtis & Kevin Mayes
Inland Fisheries – River Studies Program

TEXAS
PARKS &
WILDLIFE

Life History of American Eel



Northern Gulf of Mexico Status

- Commercial species
 - Listed in Florida
 - Petitioned for listing in Texas (2014) & Mississippi
- Species of Greatest Conservation Need
- Research & Monitoring
 - All Northern GOM states
 - Competitive State Wildlife Grant
 - Submitted proposal idea in 2016
 - Submit a full proposal in 2019-2020



Project Partners



UNIVERSITÉ
LAVAL



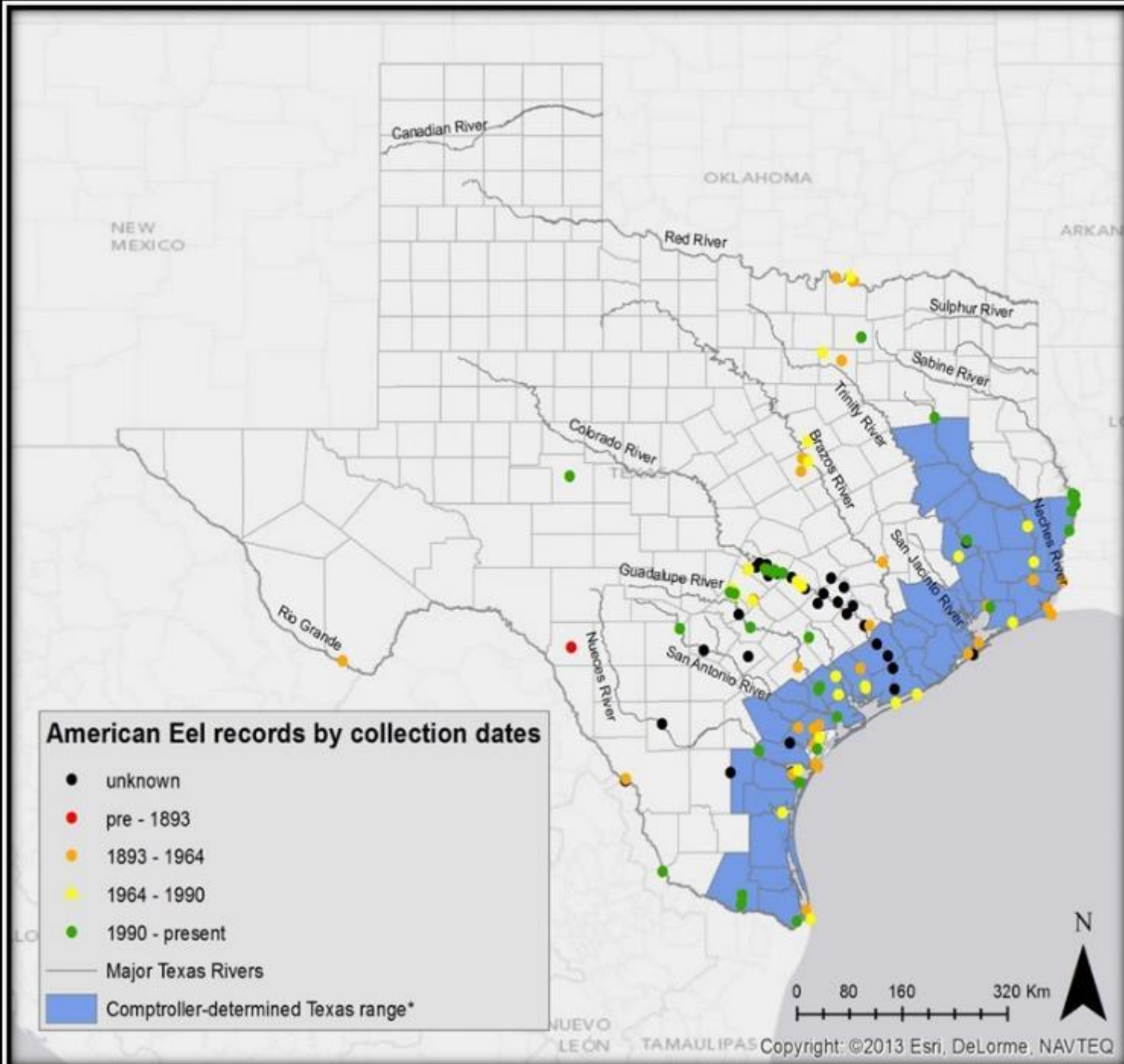
Data Collection

1. Distribution & Abundance
2. Life History
 - Habitat Use
 - Movement Patterns
 - Parasites & Diet
3. Population Structure
 - Genetics
 - Age
 - Sex
4. Assess collection methods



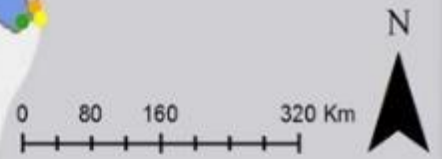
Anguillicoloides crassus





American Eel records by collection dates

- unknown
- pre - 1893
- 1893 - 1964
- 1964 - 1990
- 1990 - present
- Major Texas Rivers
- Comptroller-determined Texas range*



Field Sampling: Yellow Eel

LOCATION

- Statewide
- Below instream barriers (e.g., dams, weirs, SW barriers)

METHODS

- Electrofishing
- Trap and Flow Traps

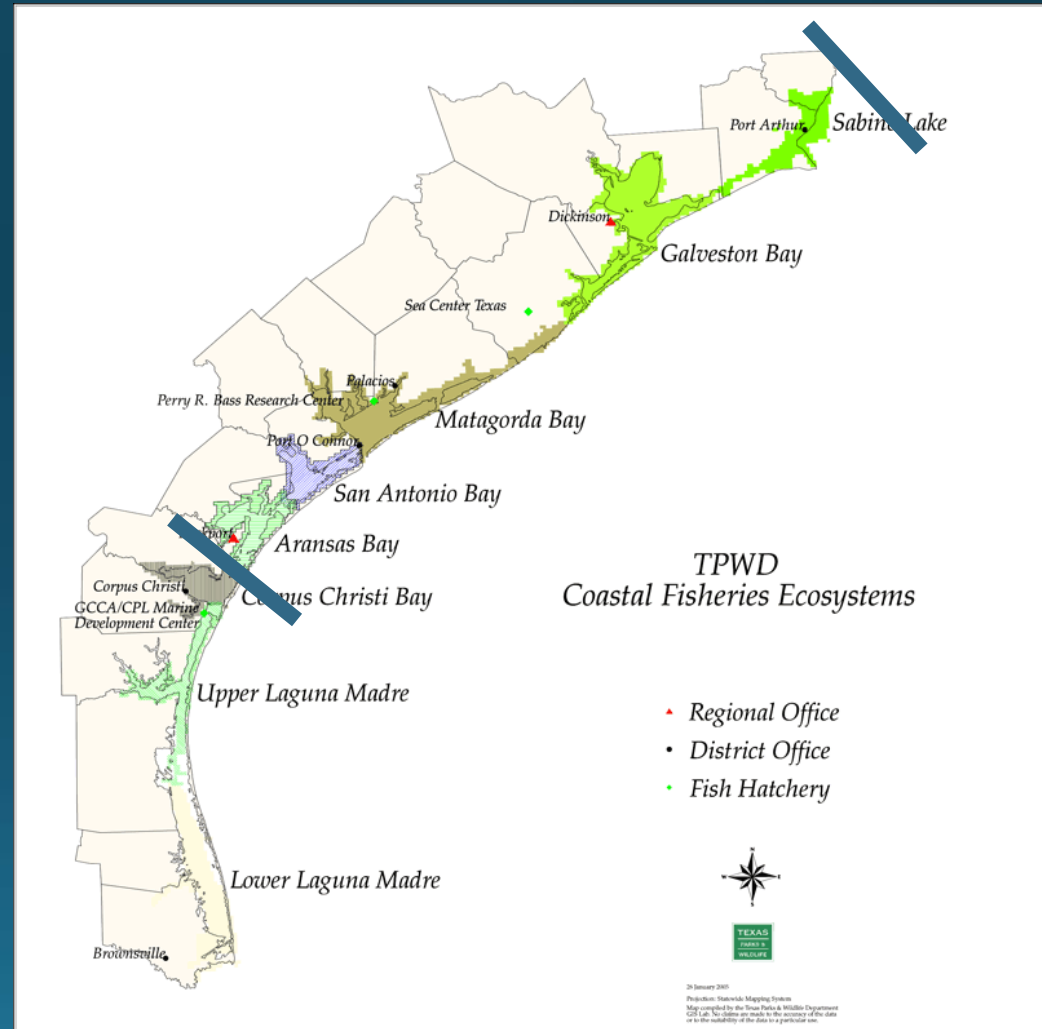
Begging for donations



Field Sampling: Elver & Glass

LOCATION

- Tidal Rivers & Streams
- Lower Guadalupe, Colorado & Sabine Rivers



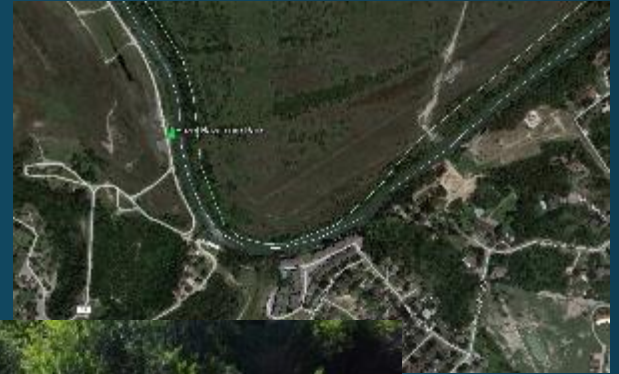
Site Selection: Elver & Glass

From an eel's perspective...

1. Tidally influenced
2. Freshwater inflow

From a human's perspective...

1. Easy access
2. Private vs. Public
3. Constricted channel



TARGET: Within 40 rkm (~25 rmi) of the Gulf of Mexico

Field Sampling: Elver & Glass

METHODS

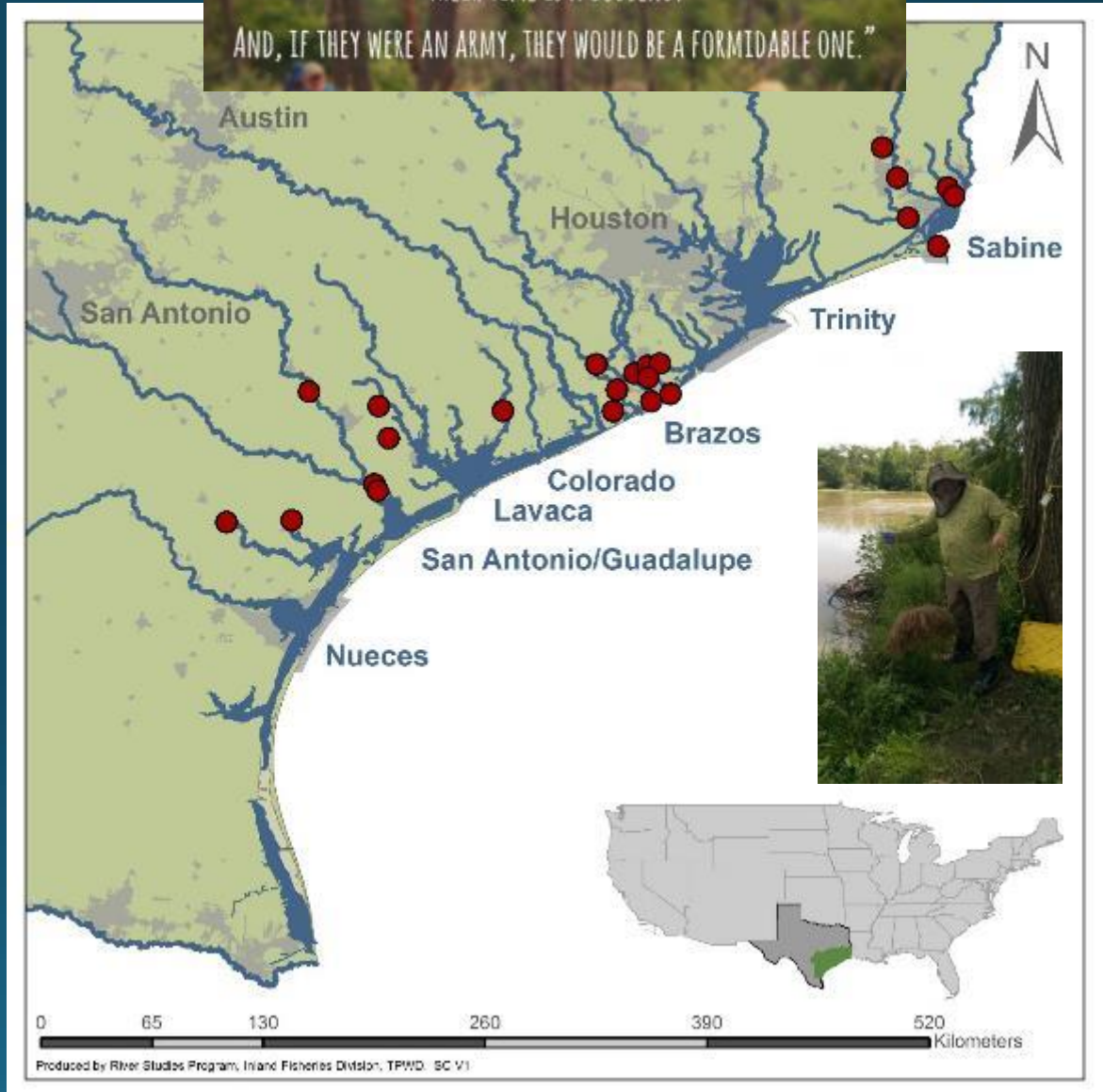
- Primary
 - Eel Mops
 - Small-mesh fyke nets
- Supplementary
 - Dip nets
 - Trawling
 - Ramps
 - Electrofishing



Eel Mop Sampling

- 23 sites
- Continuous sampling since Feb 2018
- Checked every two weeks at a minimum
- Data reported via field datasheet or Google Form

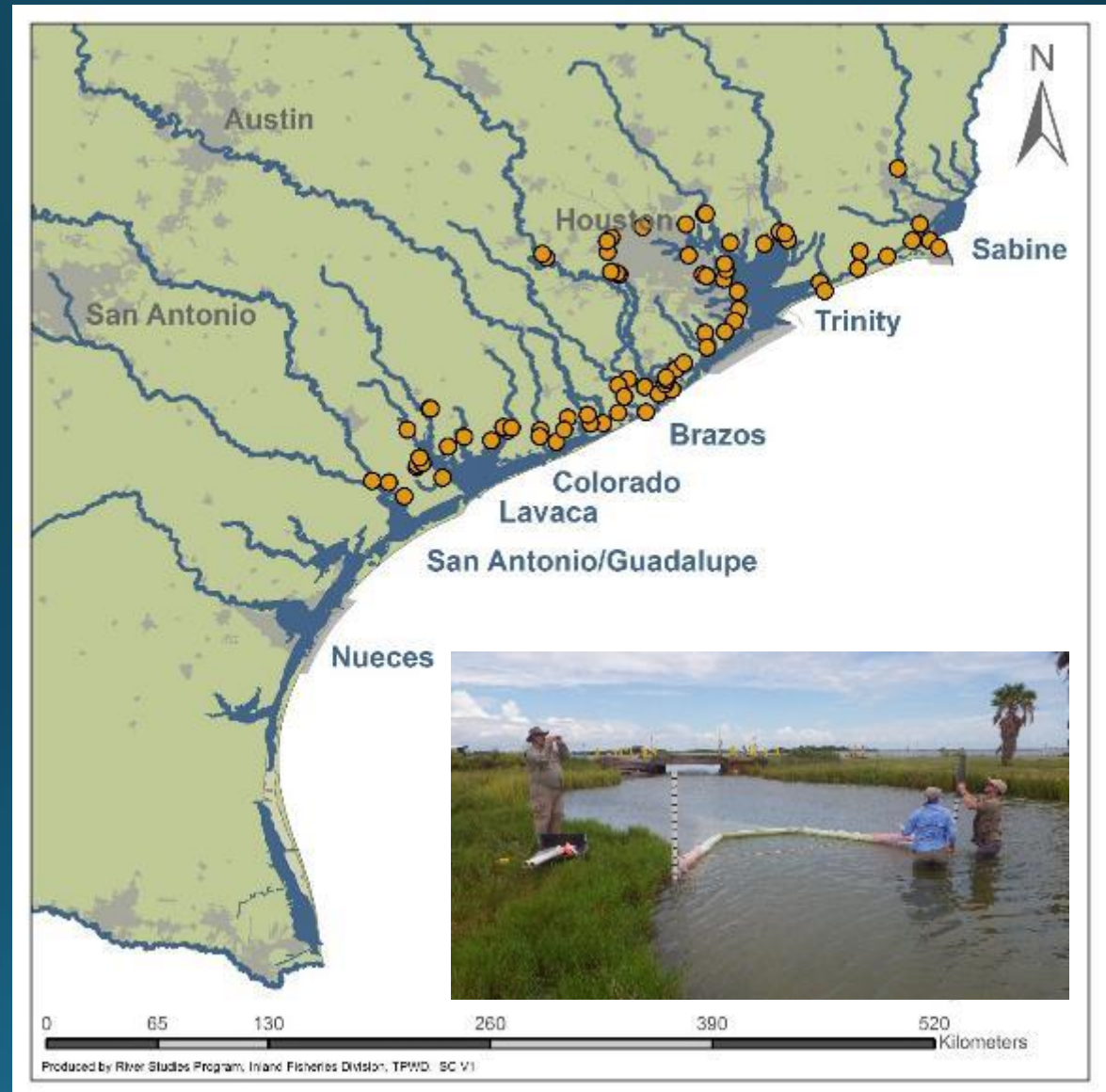
"THEIR TALENTS ARE MANY.
THEIR TIME IS A GODSEND.
AND, IF THEY WERE AN ARMY, THEY WOULD BE A FORMIDABLE ONE."





Fyke Net Sampling

- San Antonio Bay to Sabine Lake
- Deploy nets at night; fish incoming tide
- Conduct sampling events every 2 weeks
- Sampling since July 2018

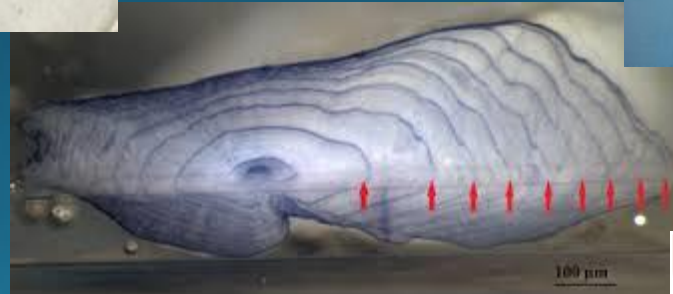


Historical Assessment & Tissue Processing

- Data compilation and literature review
- Specimen management & tissue processing
 - Otoliths (Aging & Microchemistry)
 - Muscle tissue (Genetics)
 - Swimbladders (Parasites)

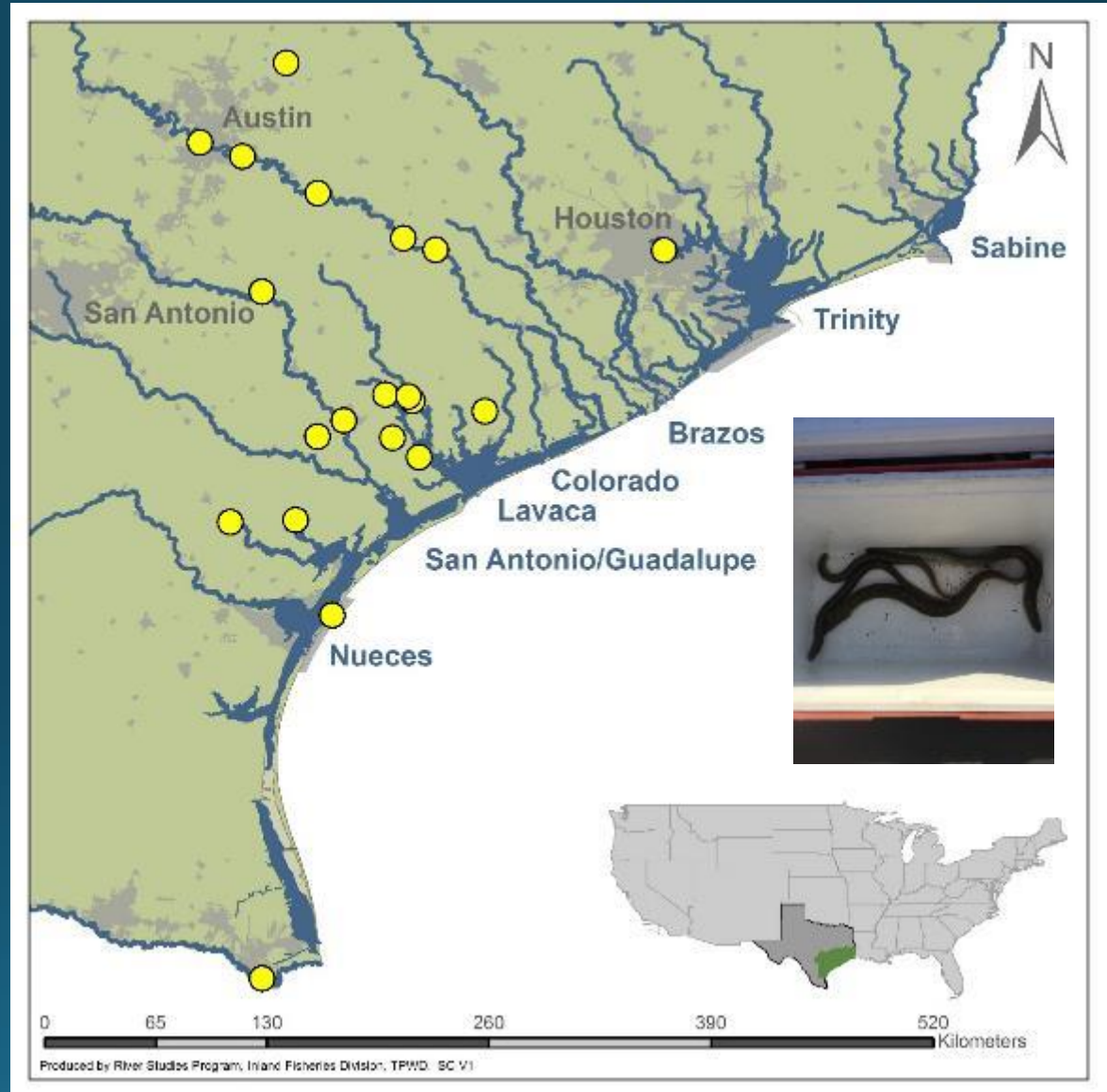


Anguillicoloides crassus



Specimens Collected

- 60 individuals
- 22 sites
- All yellow eel (one possible silver)

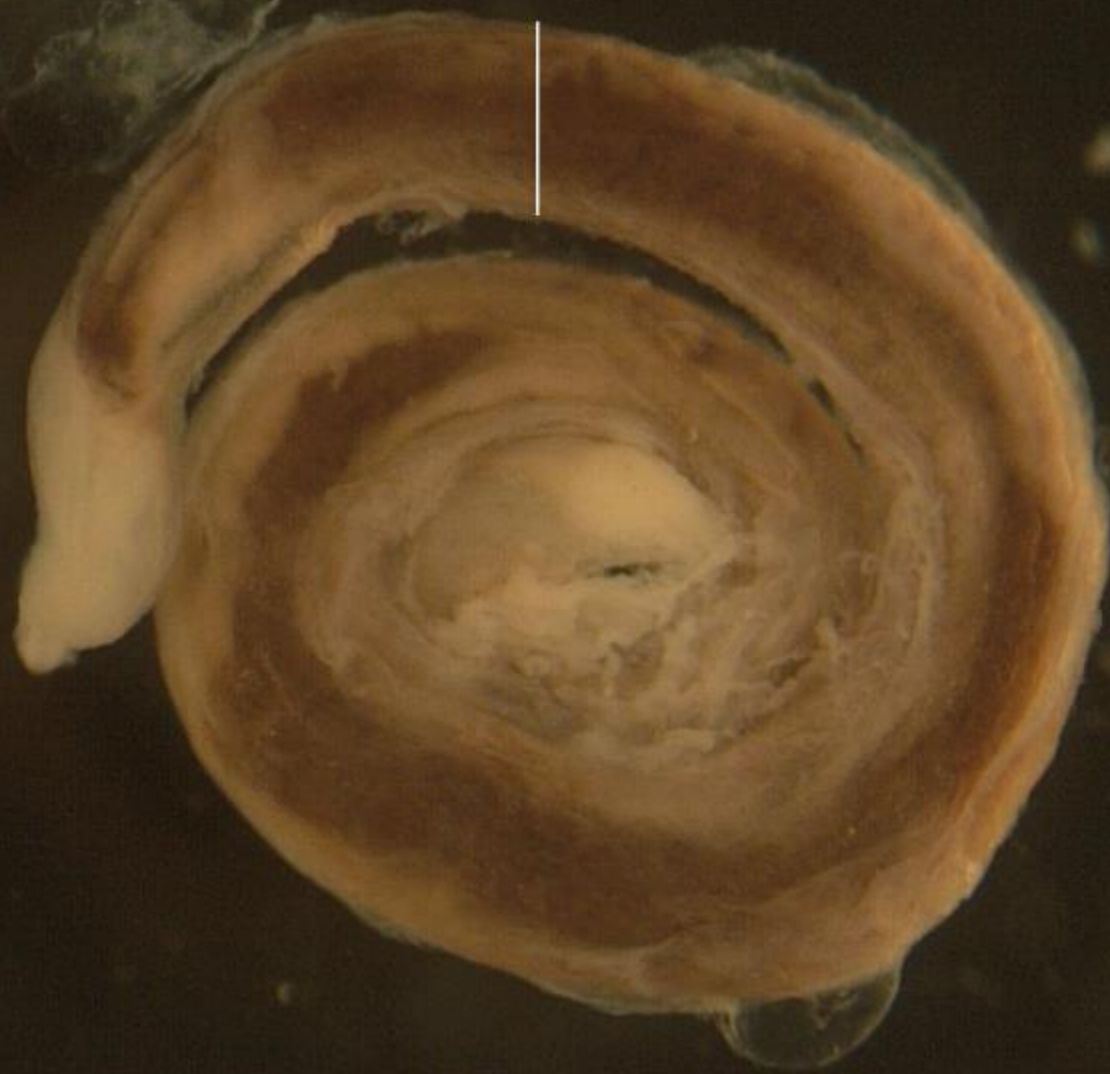


Swimbladder Nematode

- *Anguillicola crassus* (to be confirmed)
 - N=1
 - L4 larva? Pre-adult?
 - 1 of 22 American Eel examined
- American Eel
 - Female
 - 676 mm TL
 - Collected Sept 2017
 - Brays Bayou, Harris Co., TX



(1) 938.67 μm



1 mm

Public Outreach

- Presentations
 - Public Meetings
 - Professional Conferences & Workshops
- TPWD Press Release

Biologists seek assistance from anglers in tracking American Eel in Texas waterways

AUSTIN – Every now and then, anglers fishing Texas waterways may reel in something unexpected: the slimy, secretive American Eel.

"[The American Eel] is just such a unique species that you don't see that often, and so when you catch one or you see one, you remember it," said Texas Parks and Wildlife Department (TPWD) aquatic biologist Stephen Curtis. "It's going to leave an impression."

LOOKING FOR AMERICAN EELS



Please report specimens or observations to Melissa Casarez or Adam Cohen, the Fishes of Texas Project
fishesoftexas@gmail.com
512-475-8171 (Melissa) / 512-471-8845 (Adam)
Maintain specimens alive if possible, or put on ice and give us a call. See links below for more information:

www.texasfishesoftexas.com www.fishesoftexas.com www.naturalist.com



Expected Timeline

	2018	2019	2020
Yellow Eel Sampling	X	X	
Glass/Elver Eel Sampling	X	X	
Tissue Processing	X	X	
Tissue Analyses		X	X
Report Writing			X

Licensed Hydropower
Projects TX



Toledo Bend Dam
Sabine River

Gonzales Dam
Guadalupe River

Gulf of Mexico



Gonzales Dam



Photos courtesy, Brad Littrell

Toledo Bend Dam Tailrace



Figure 4. Toledo Bend Project Tailrace trap installations, non-generation

Toledo Bend Dam Spillway

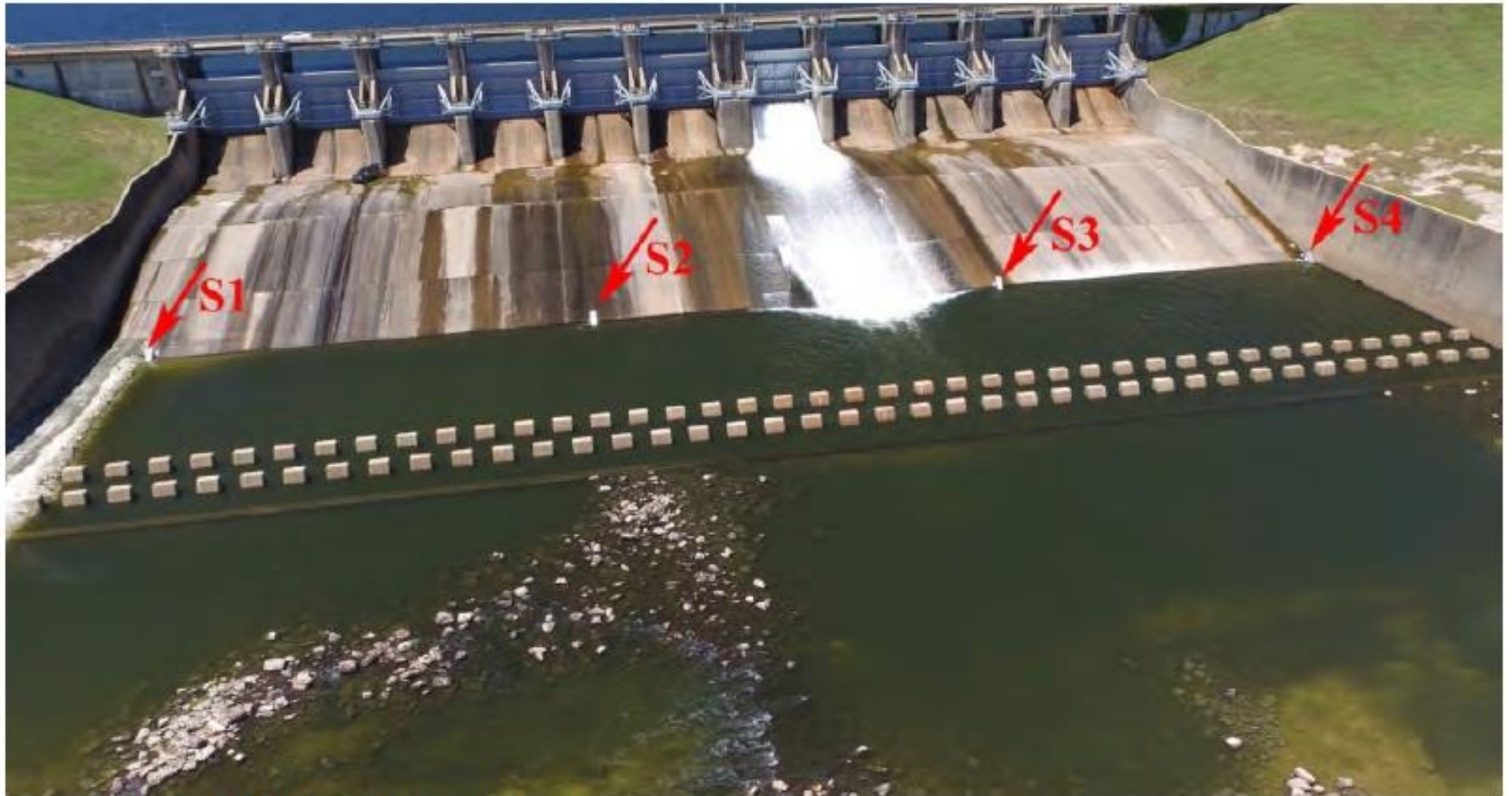


Figure 6. Toledo Bend Project Spillway trap installations


The logo for Texas Parks & Wildlife, featuring the text "TEXAS", "PARKS &", and "WILDLIFE" stacked vertically in white, bold, sans-serif font, separated by horizontal lines, all contained within a green square with a white border.

TEXAS

PARKS &

WILDLIFE

**Recommendations?
Suggestions?
Tips?**

A close-up photograph of a dead fish lying on a sandy beach. The fish is dark-colored with a lighter underbelly and is positioned diagonally across the frame. The sand is light-colored and textured.

**Stephen.Curtis@tpwd.texas.gov
(512) 754-6844 ext. 221**

© C. Robertson