USGS
science for a changing world

NAS

USGS NAS Database: New Invasions and Actionable Tools

WESLEY M. DANIEL

WETLAND AND AQUATIC RESEARCH CENTER, GAINESVILLE, FL

Species profiles

Actionable maps and tools

NAS Database

Data sources / references

Distribution maps

New Invasions

USGS
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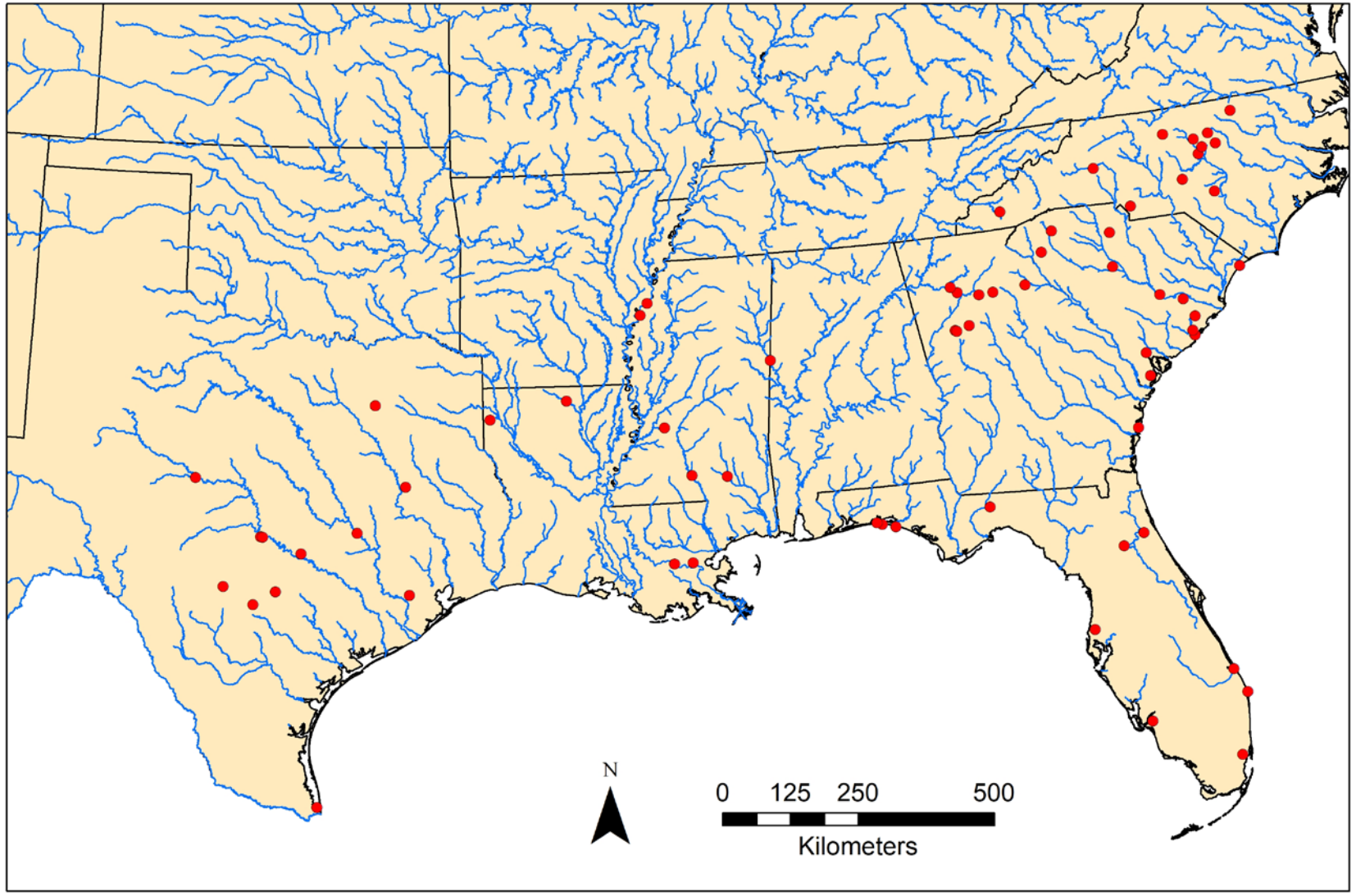
NAS Alerts
from 04/13/2019 - 11/15/2019

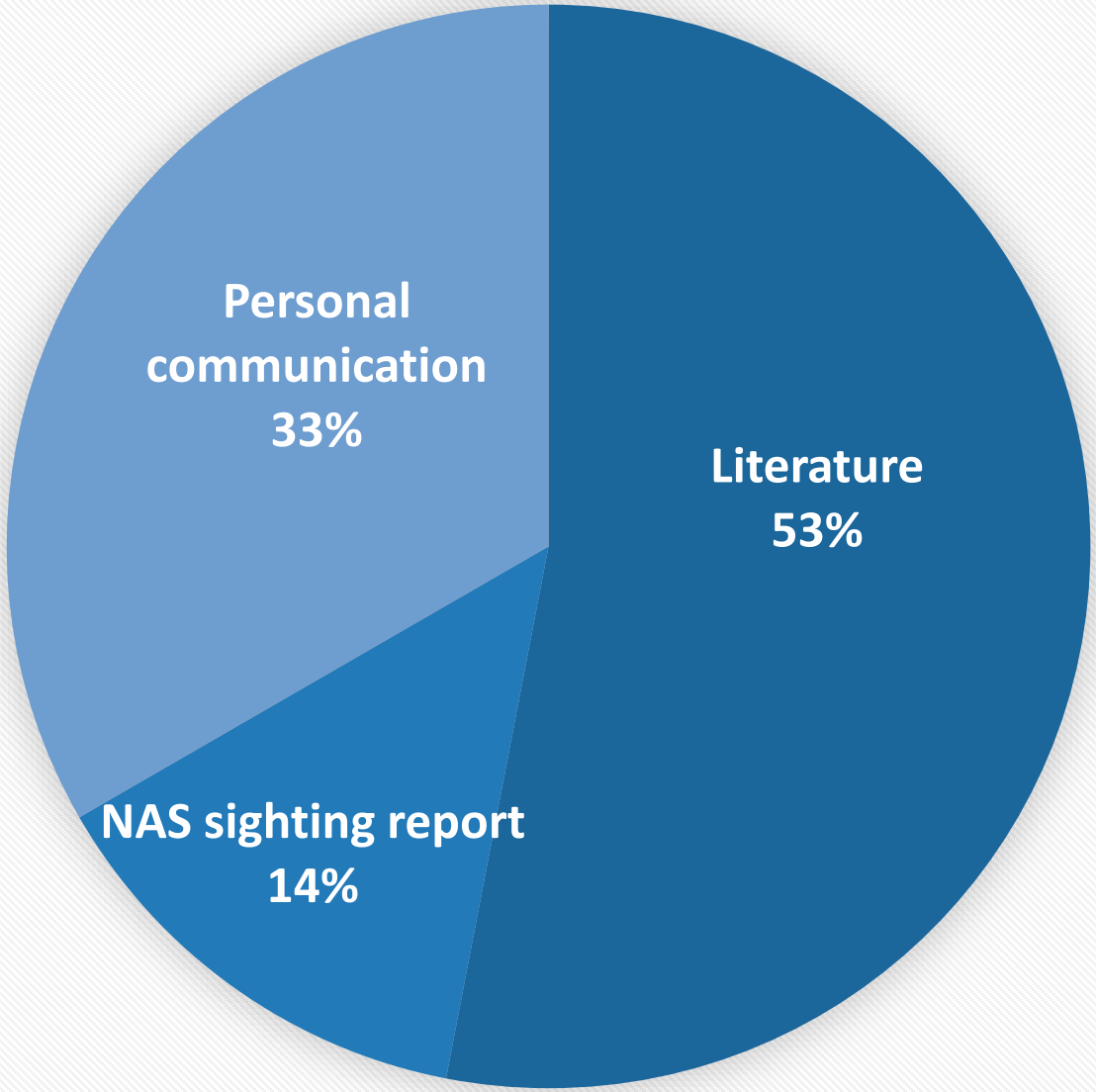


Alert	Count
Bonus	2
County	17
Drainage	41
State	6

State(s)	Count
NC, SC, TX	12
FL	11
GA	9
MS	5
LA	4

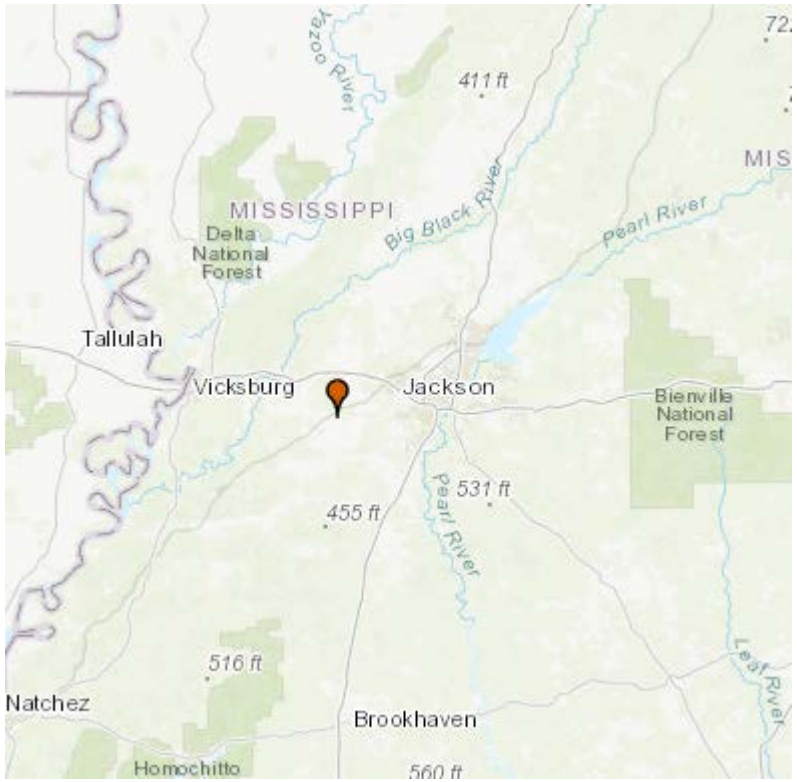
Group	Count
Plants	24
Fishes	13
Mollusks	12
Frogs	10
Marine Fishes	4

NAS Alerts


Personal communication 33%
Literature 53%
NAS sighting report 14%

Cuban Treefrog (*Osteopilus septentrionalis*)

crested floating-heart (*Nymphoides cristata*)



Swamp eel (*Monopterus cuchia & M. albus*)

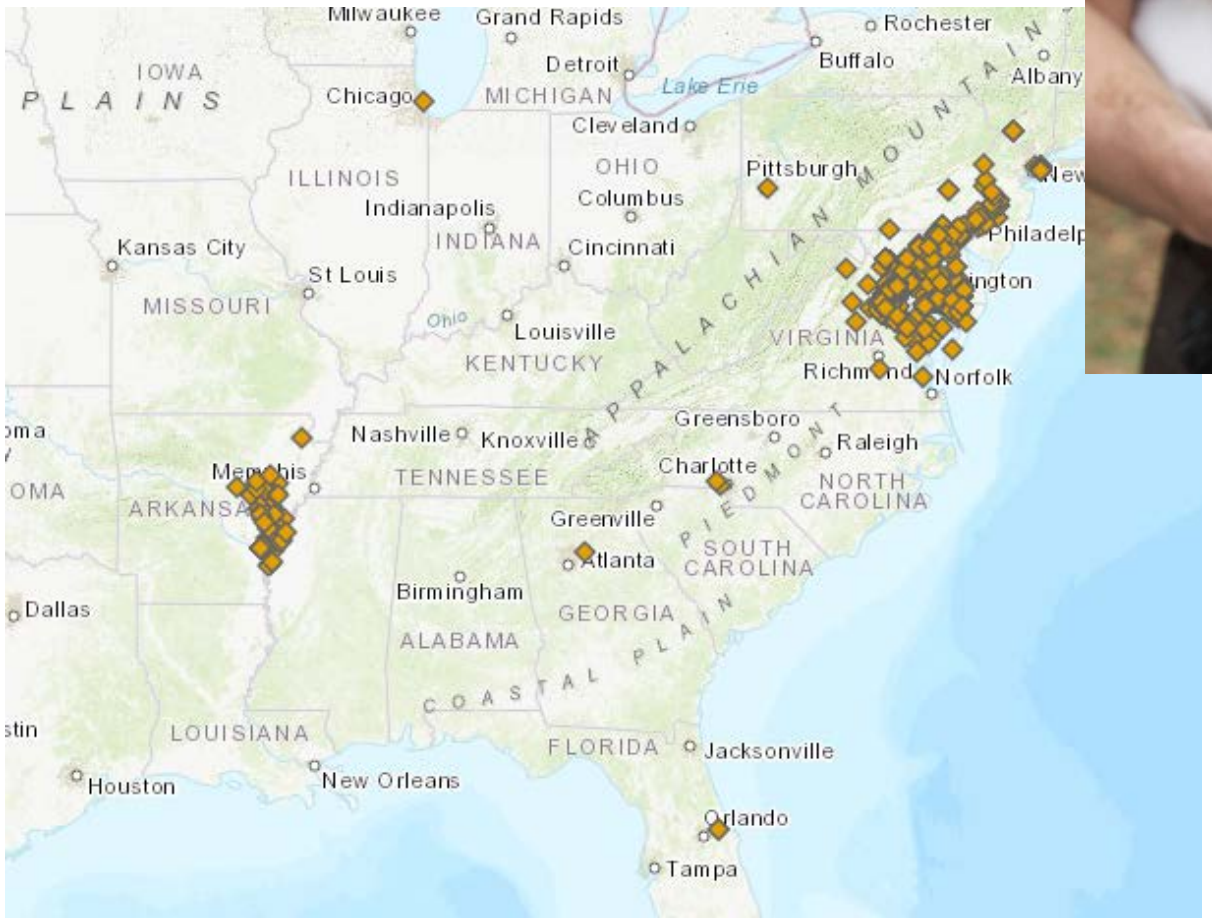
Individual Specimens
Selected

Monopterus albus
Asian Swamp Eel
Fishes
Exotic
Include

Monopterus cuchia
cuchia
Fishes
Exotic
This image is not available at this time.
Include

New Invasions

Northern Snakehead (*Channa argus*)

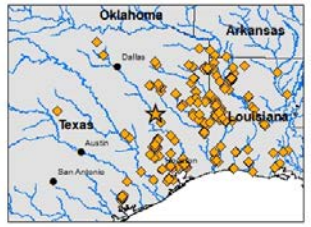


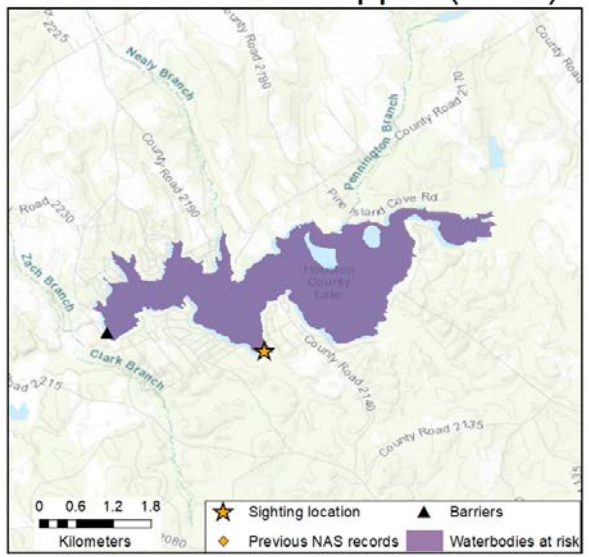
giant Salvinia (*Salvinia molesta*)

USGS science for a changing world

NAS Alert Risk Mapper (ARM)

Specimen ID:	1633132
Species:	*Salvinia molesta* (giant salvinia)
Alert level:	Drainage: Lower Trinity-Tehuacana (12030201)
Alert date:	11/15/2019
State:	Texas
Locality:	Houston County Lake, south cove
Latitude (N):	31.4043
Longitude (W):	-95.5804
Collection date:	11/08/2019





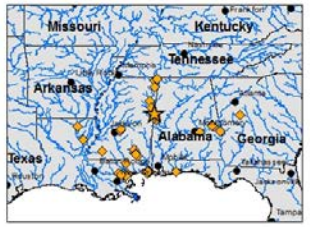
Data Disclaimer: These data are preliminary or provisional and are subject to revision. They are being provided to meet the need for timely best science. The data have not received final approval by the U.S. Geological Survey (USGS) and are provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the data.

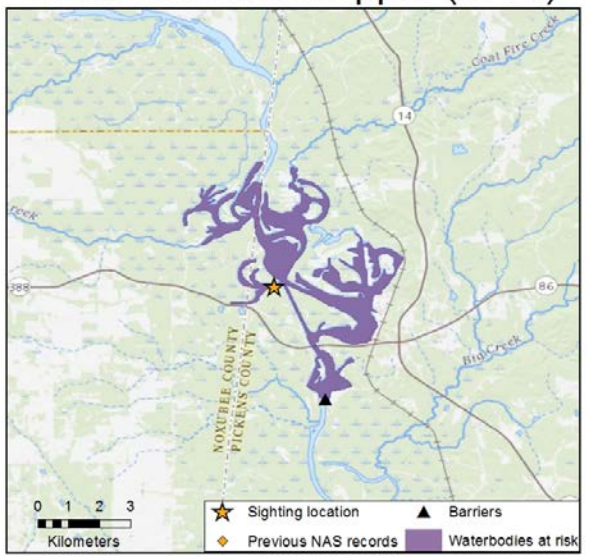
The map shows waterbodies at short-term risk of invasion from the species sighting. The at-risk areas are determined by species mobility and drainage barriers (dams).

USGS science for a changing world

NAS Alert Risk Mapper (ARM)

Specimen ID:	1541689
Species:	*Salvinia molesta* (giant salvinia)
Alert level:	County: Pickens (AL)
Alert date:	04/23/2019
State:	Alabama
Locality:	Aliceville Lake, at public boat ramp
Latitude (N):	33.2433
Longitude (W):	-88.3027
Collection date:	00/00/2018
Comments	





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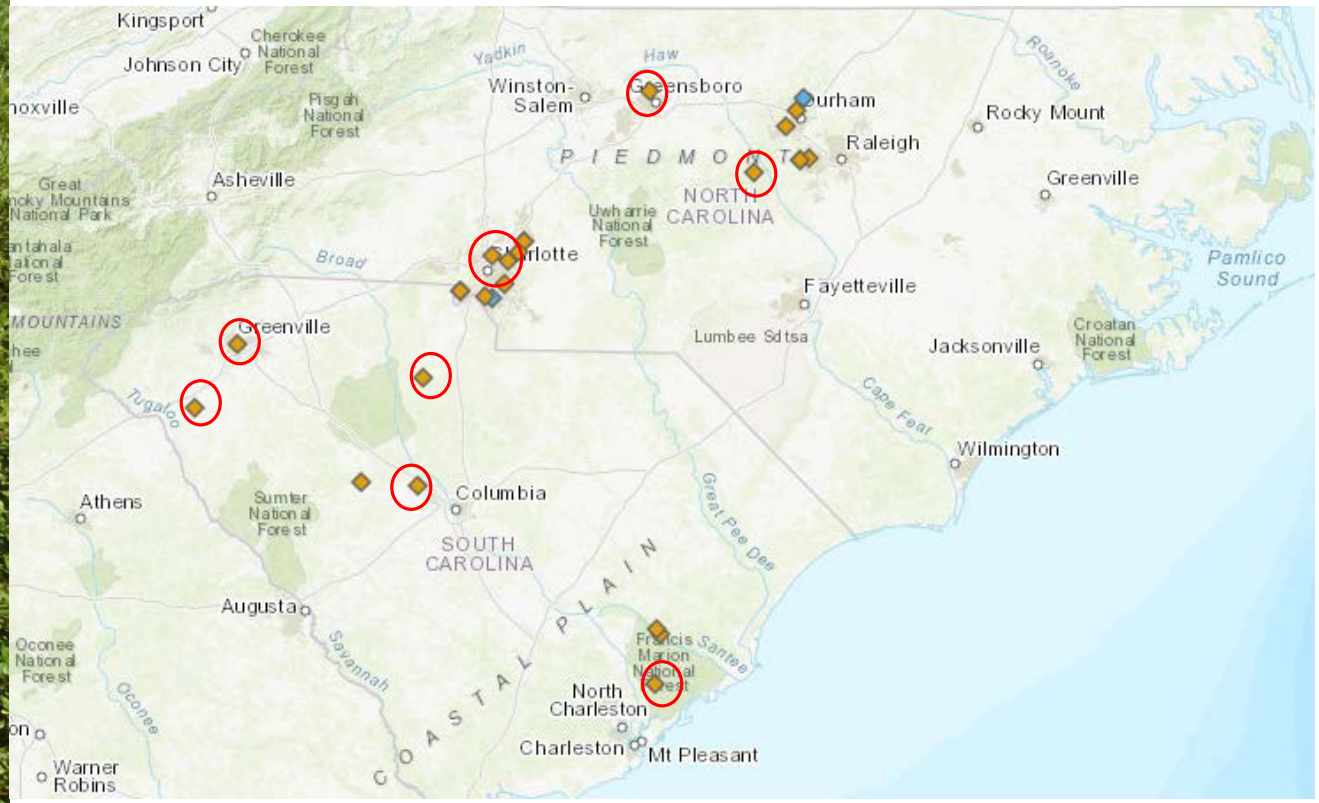
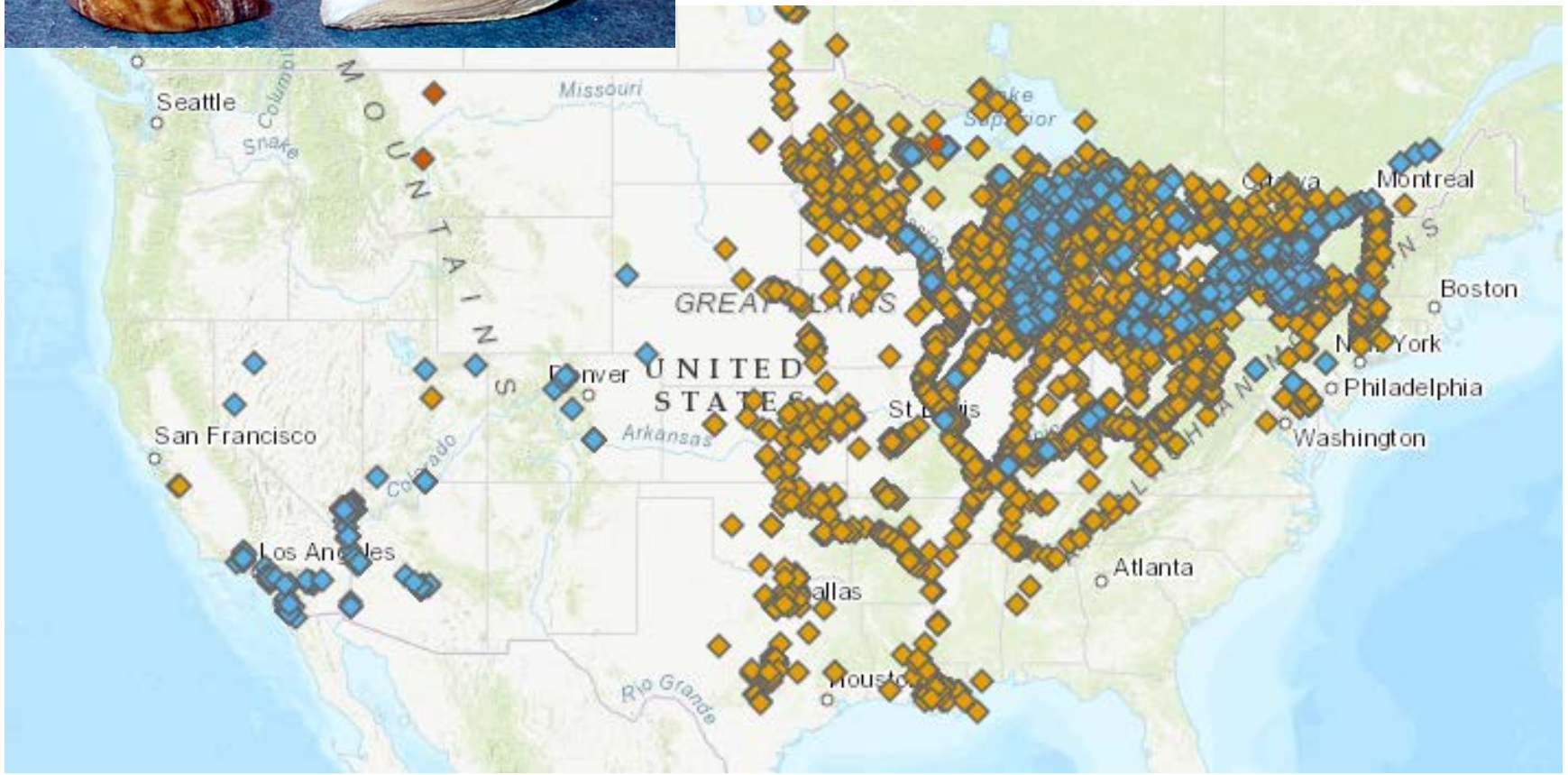
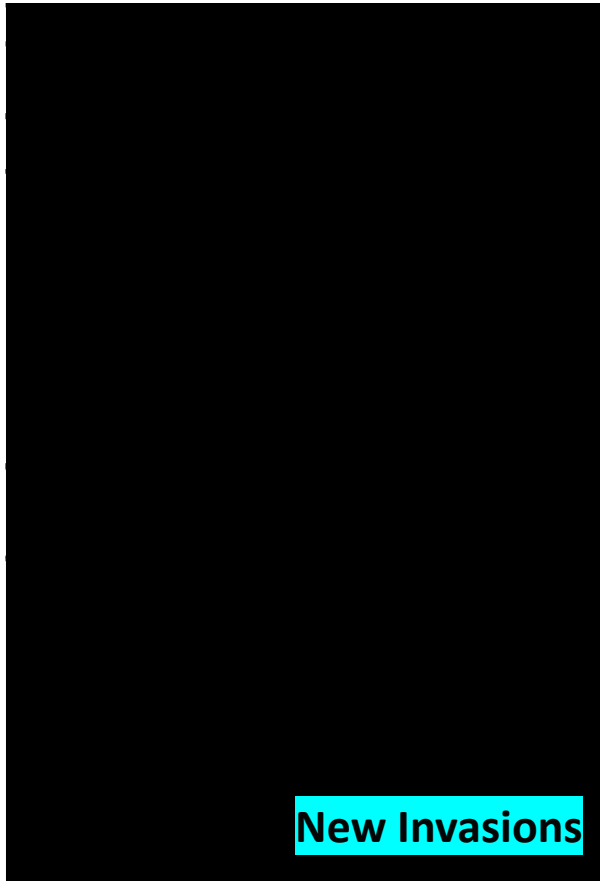
The map shows waterbodies at short-term risk of invasion from the species sighting. The at-risk areas are determined by species mobility and drainage barriers (dams).

Floating primrose-willow (*Ludwigia peploides*)



Dreissena Mussels





NAISMA
NORTH AMERICAN INVASIVE SPECIES MANAGEMENT ASSOCIATION

The NAS API is now compliant with NAISMA Mapping Standards

USGS science for a changing world

NAS

New spatial data

US Waterfalls

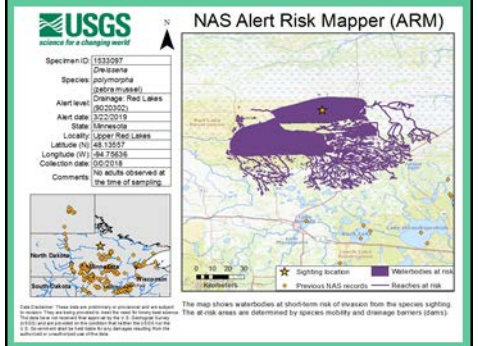
Boat Ramps

Marine Fish Landing Page

Native Ranges

Actionable Maps and Tools

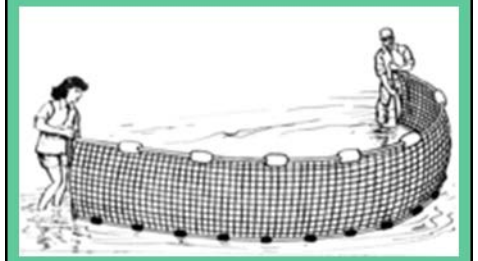
Alert Risk Mapper



Flood and Storm Tracker

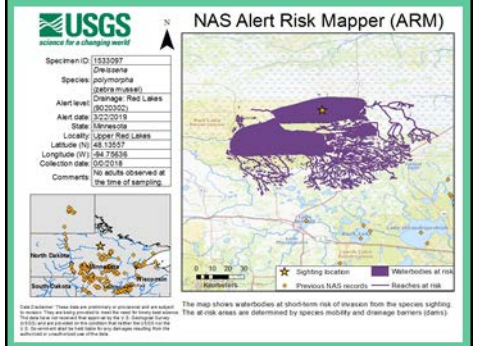
Impact Tables

SEINeD Tool

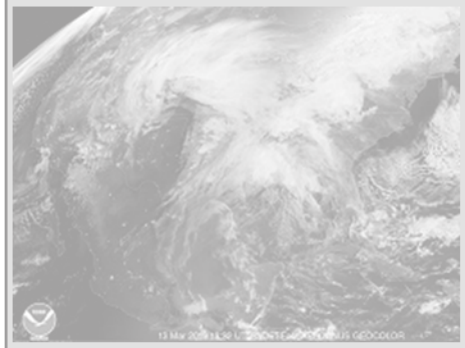


Actionable Maps and Tools

Alert Risk Mapper

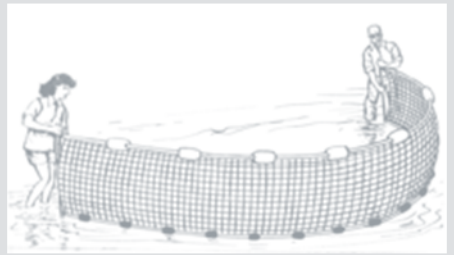


Flood and Storm Tracker



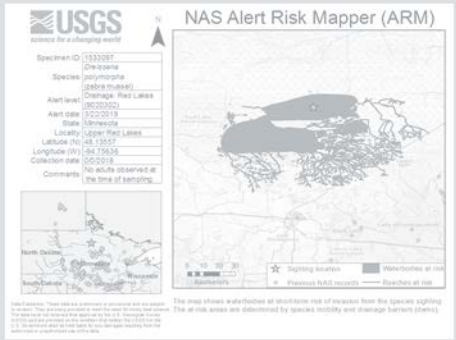
Impact Tables

SEINeD Tool



Actionable Maps and Tools

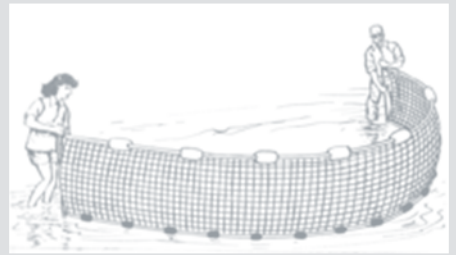
Alert Risk Mapper



Flood and Storm Tracker

Impact Tables

SEINeD Tool



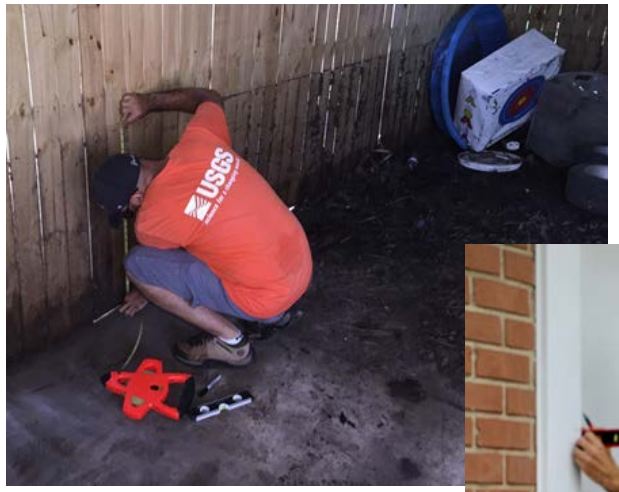
Flood and Storm Tracker (FaST)

Identify flooding conditions that could breach drainage divides from coastal storm surge or inland flooding.

Map flood “connection points” between drainages.

Make use of field collected data to determine flood connections:

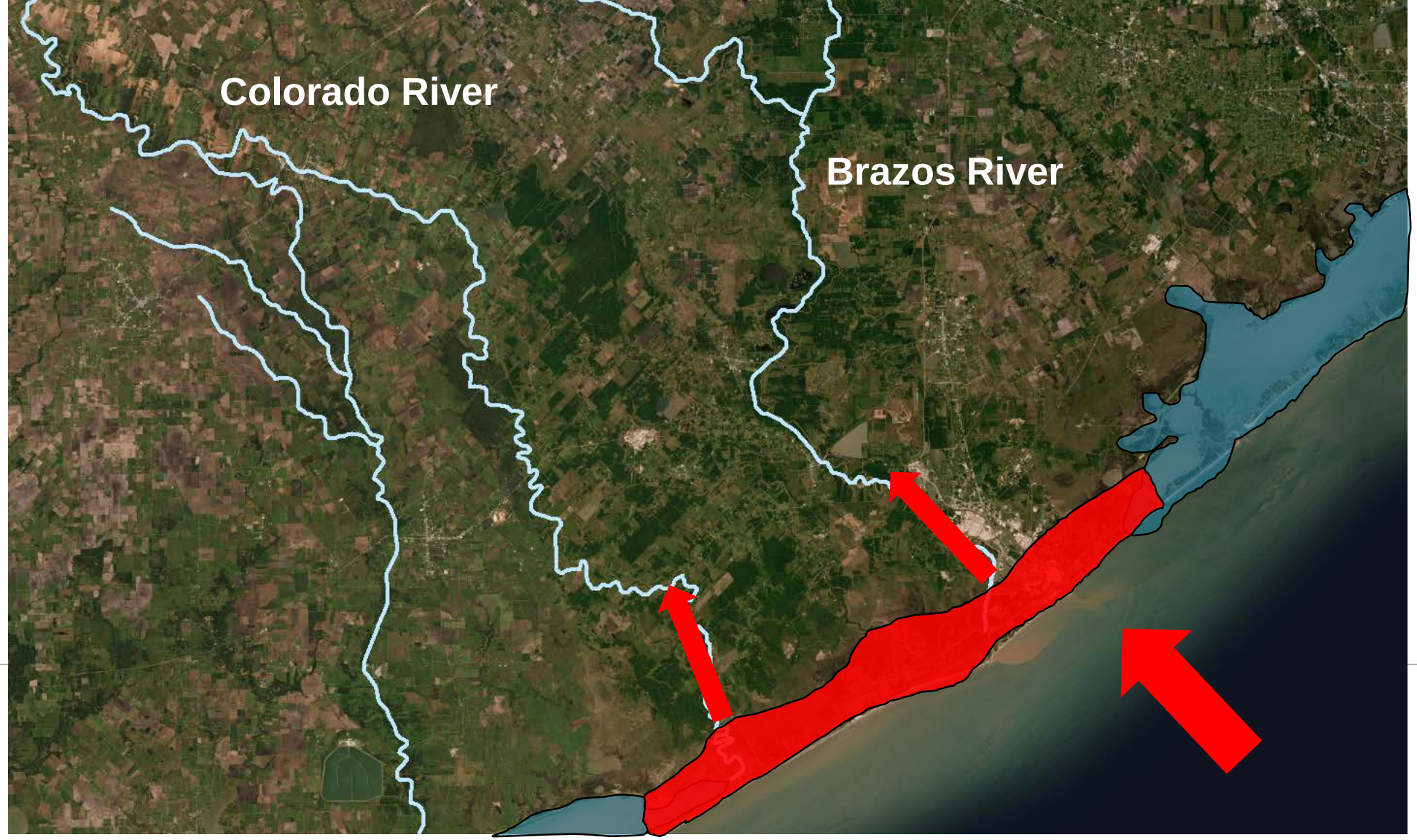
- USGS/NOAA data of stream gages or storm tide sensors
- USGS high water marks.



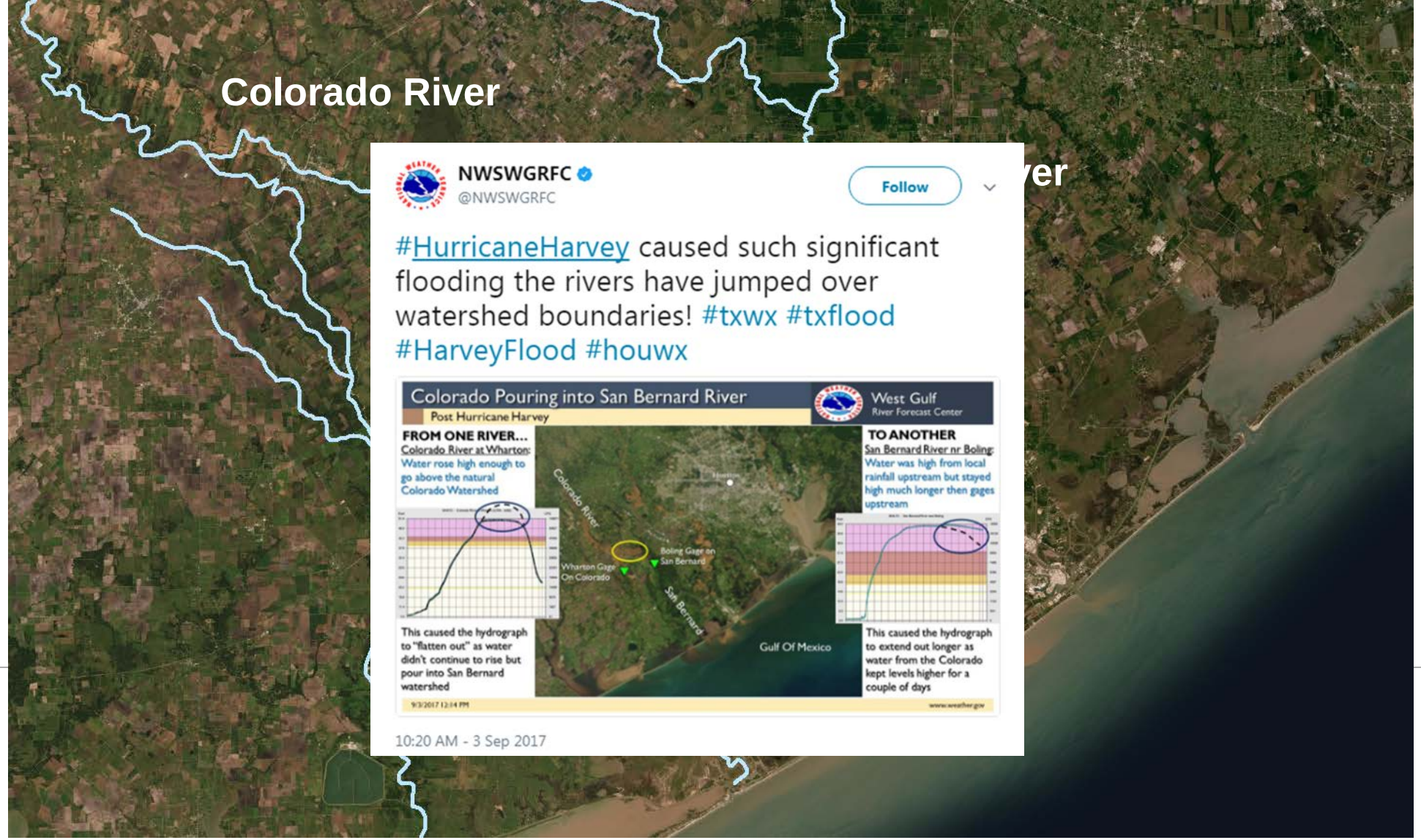
USGS

USGS

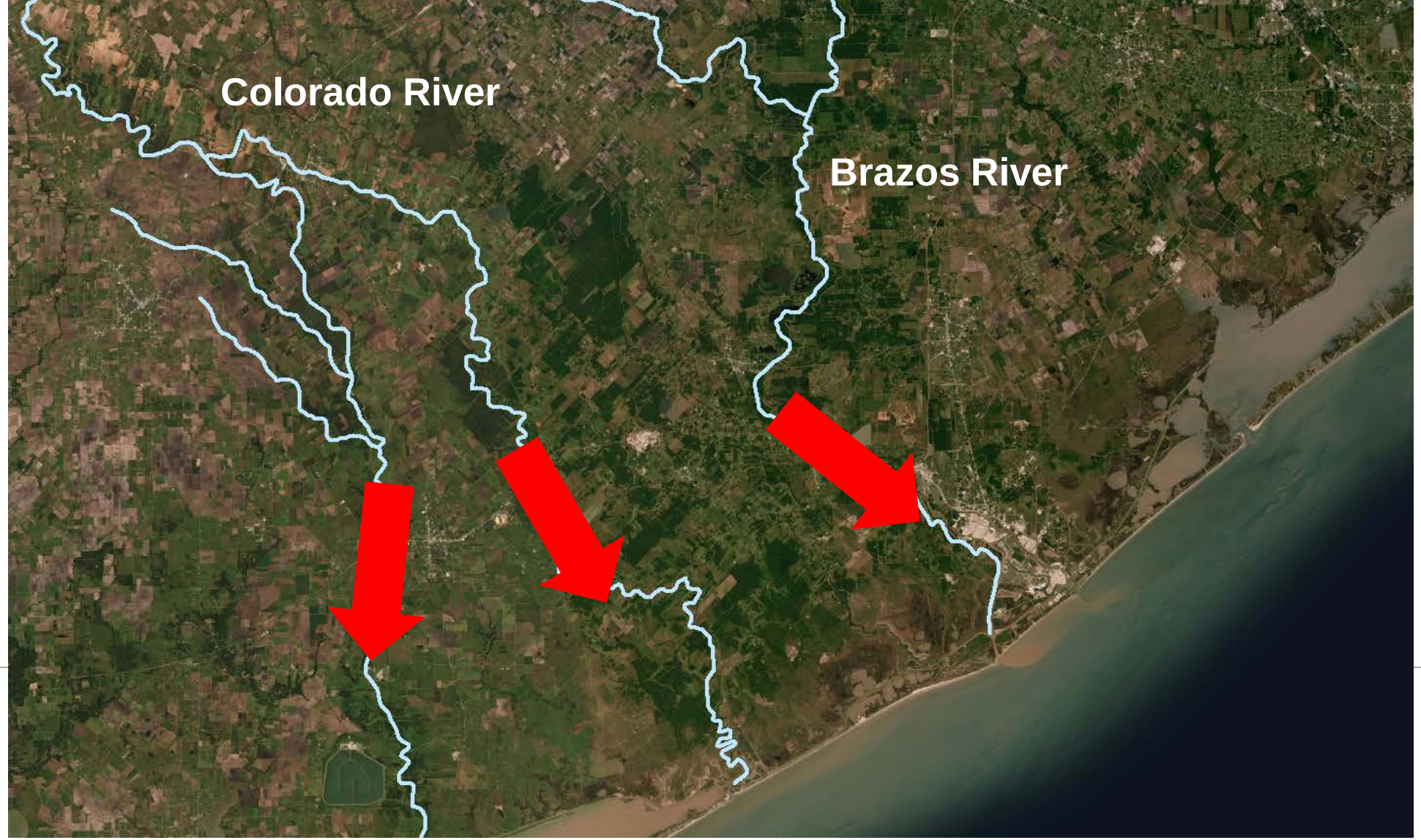
Flood movement



Storm surge



Lateral flooding

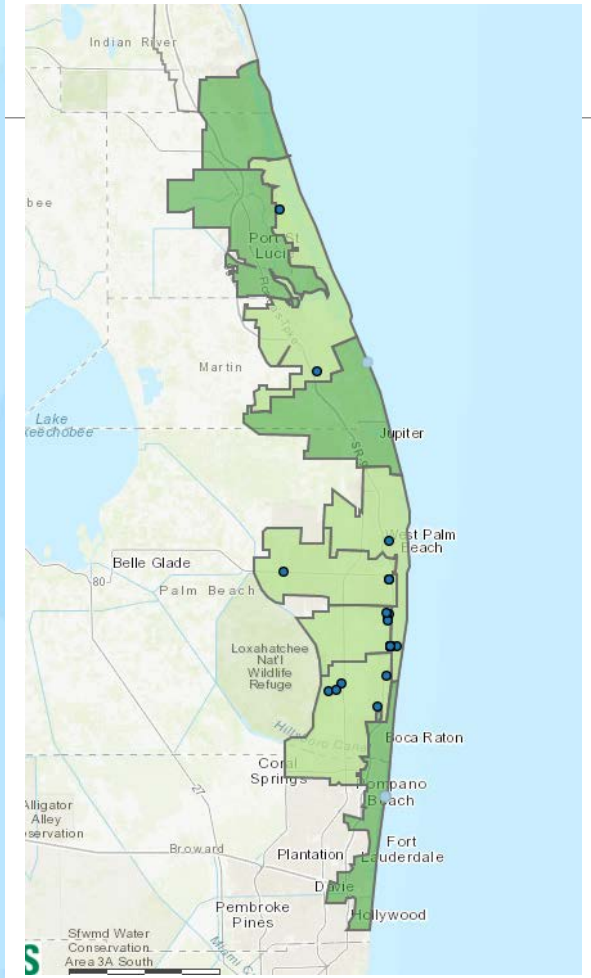


Longitudinal flooding

Flood and Storm Tracker (FaST)

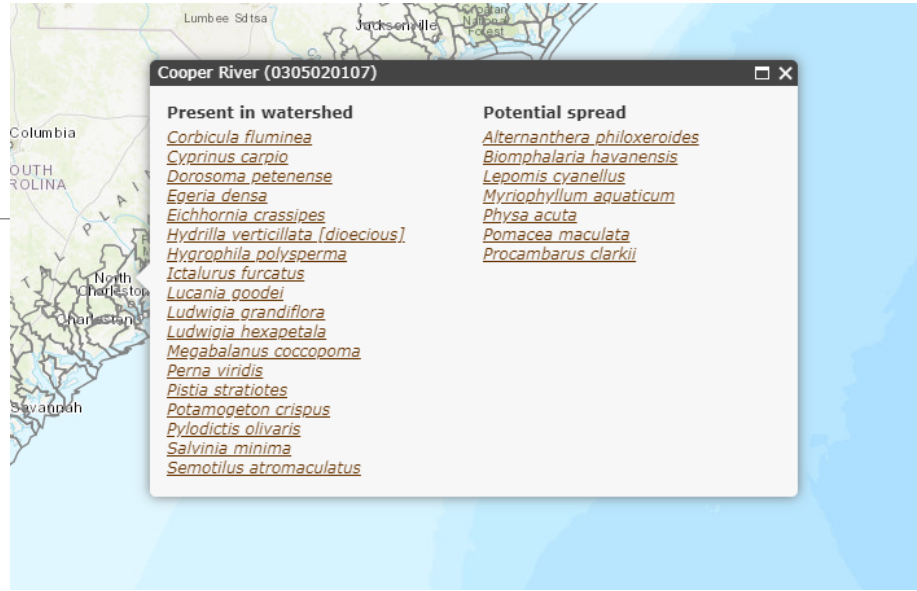
Hurricane Dorian

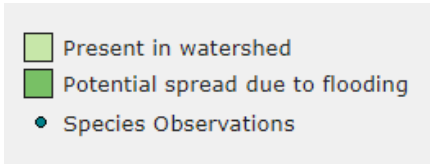
Revised map



Select a taxa

Select a drainage





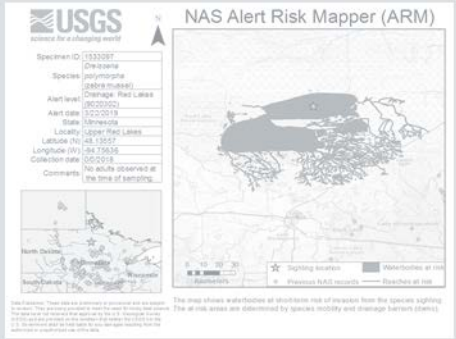
Pterygoplichthys multiradiatus
(Orinoco Sailfin Catfish)

Next Steps
Flood and Storm Tracker (FaST)

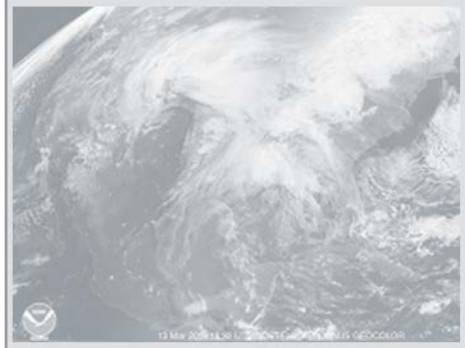
FEMA

Actionable Maps and Tools

Alert Risk Mapper

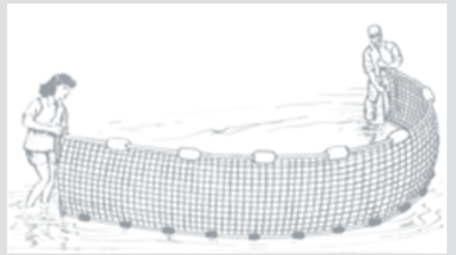


Flood and Storm Tracker



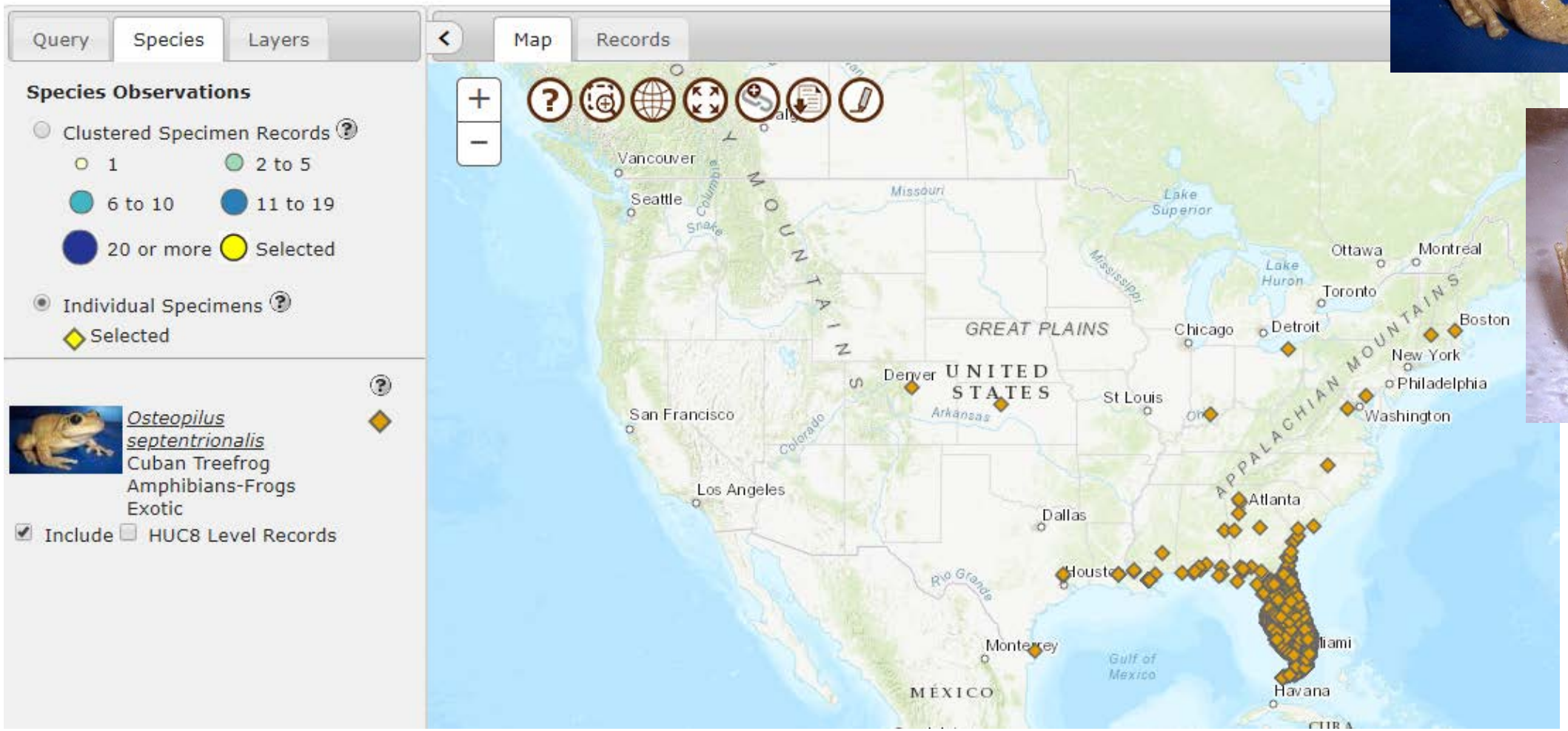
Impact Tables

SEINeD Tool



Impact Tables

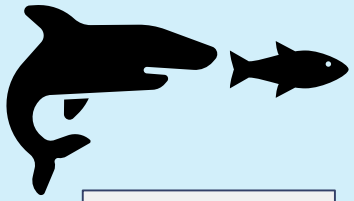
Cuban Treefrog (*Osteopilus septentrionalis*)



Impact Tables

Cuban Treefrog (*Osteopilus septentrionalis*)

Ecological



Predation

Competition

Economic

Infrastructure

Human Health

Impact Tables

NAS - Nonindigenous Aquatic Species

Home | Alert System | Database & Queries | Taxa Information | Report a Sighting

Osteopilus septentrionalis
(Cuban Treefrog)
Amphibians-Frogs
Exotic

Collection Info
Point Map
Species Profile
Animated Map

Rice, K. G., J. H. Waddle, M. W. Miller, M. E. Crockett, F. J. Mazzotti, and H. F. Percival. 2011. Recovery of native treefrogs after removal of nonindigenous Cuban Treefrogs, Osteopilus septentrionalis. Herpetologica 67(2):105-117.

Smith, K.G. 2005. Effects of Nonindigenous Tadpoles on Native Tadpoles in Florida: Evidence of Competition. Biological Conservation 123:433-441.

Johnson, S.A. 2007. The Cuban Treefrog (Osteopilus septentrionalis) in Florida. http://edis.ifas.ufl.edu/uw259. Created on 05/01/2007. Accessed on 03/04/2019

Smith, K.G. 2004. Osteopilus septentrionalis (Cuban Treefrog). Reproductive behavior. Herpetological Review 35(4):374-375.

Meshaka, W.E., Jr. 2011. A runaway train in the making: the exotic amphibians, reptiles, turtles, and crocodilians of Florida. Herpetological Conservation & Biology 6:1-101. http://herpconbio.org/Volume_6/Monograph_1/Meshaka_2011.pdf.

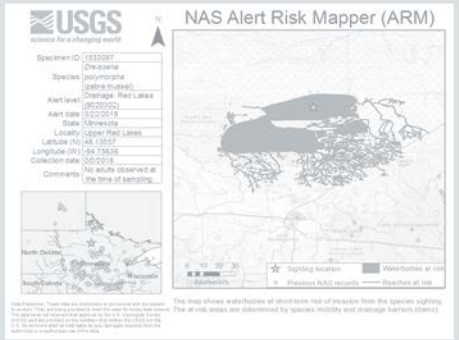
Dahm, D. 2018. Tree frog causes Kissimmee power outage; 800 customers lose power for more than hour. ClickOrlando.com. Orlando, FL. https://www.clickorlando.com/strange-florida/tree-frog-causes-kissimmee-power-outage. Created on 05/11/2018. Accessed on 03/04/2019.

Tennessen, J., S.E. Parks, R.W. Snow, and T.L. Langkilde. 2013. Impacts of acoustic competition between invasive Cuban treefrogs and native treefrogs in southern Florida. Page 010057 in Proceedings of Meetings on Acoustics ICA2013. Acoustical Society of America.

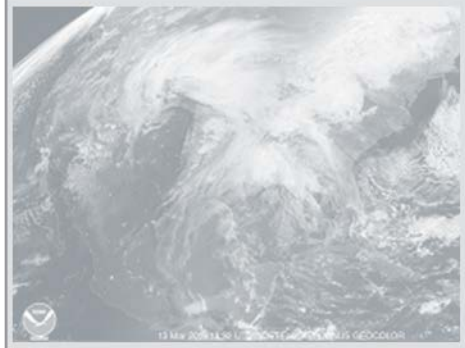
Knight, C. M., M.J. Parris, and W.H. Gutzke. 2009. Influence of priority effects and pond location on invaded larval amphibian communities. Biological Invasions 11(4):1033-1044.

Actionable Maps and Tools

Alert Risk Mapper

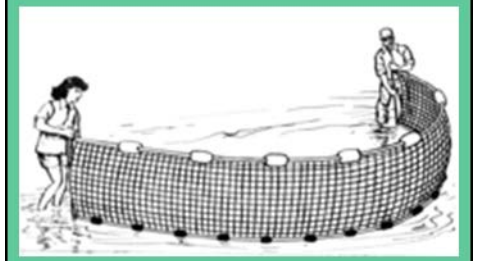


Flood and Storm Tracker



Impact Tables

SEINeD Tool



Biosurveillance tool

Screen and Evaluate Invasive and Non-native Data (SEINeD)

- The SEINeD tool will allow stakeholders to upload a biological dataset (fish, inverts, plants, etc.) collected anywhere in the conterminous US, Alaska, Hawaii, or US Territory that can be screened for invasive or non-native aquatic species occurrences.

ramona osche©

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NAS - Nonindigenous Aquatic Species

Home | Alert System | Database & Queries | Taxa Information | Report a Sighting

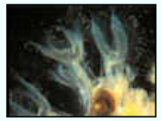
NAS FaST - Flood and Storm Tracker

Welcome to the Nonindigenous Aquatic Species (NAS) information resource for the United States Geological Survey. Located at Gainesville, Florida, this site has been established as a central repository for spatially referenced biogeographic accounts of introduced aquatic species. The program provides scientific reports, online/realtime queries, spatial data sets, distribution maps, and general information. The data are made available for use by biologists, interagency groups, and the general public. The geographical coverage is the United States.

General search for nonindigenous aquatic species information

Search for NAS records via our custom spatial query map

Invertebrates


Bryozoans


Coelenterates


Crustaceans


Mollusks

Vertebrates


Amphibians


Fishes


Mammals


Reptiles

Plants


Plants

SEINeD Tool

Screen and Evaluate Invasive and Non-native Data

Upload CSV file

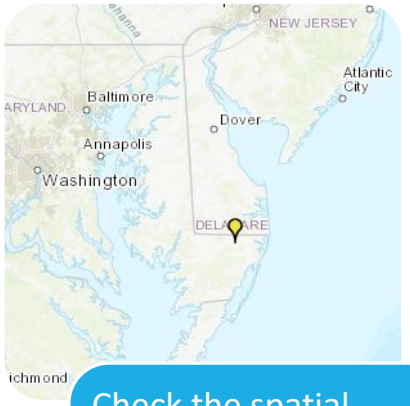
NAS Program Updates

3/25/2019
200th ARM map

3/25/2019
Midwest Spring Flood Map

3/22/2019
Welcome Jonathan Freedman

RSS 2.0



Check the spatial accuracy of the sighting location

- Based on user provided state and county information

Check the indigenous status of the species at the sighting location

- Native ranges developed for USGS NAS and CSAS's Aquatic Gap

Provide additional spatial information about the sighting location

- Hydrologic Unit Codes (HUCs)
- National Hydrography Dataset (NHDPlusV2)

Species	Latitude	Longitude	State	County
Noturus insignis	39.59	-77.82	MD	Washington
Noturus insignis	39.15	-77.52	MD	Montgomery
Micropterus salmoides	39.59	-77.82	MD	Montgomery
Micropterus salmoides	39.59	-77.82	MD	Washington
Pylodictis olivaris	39.15	-77.52	MD	Montgomery
Carp	39.15	-77.52	MD	Montgomery

Species	Latitude	Longitude	State	County	Taxa error	Spatial error	Non-native	HUC 8 (Number)	HUC 8 (Name)
Noturus insignis	39.59	-77.82	MD	Washington				2070008	Middle Potomac-Catoctin
Noturus insignis	39.15	-77.52	MD	Montgomery				2070008	Middle Potomac-Catoctin
Micropterus salmoides	39.59	-77.82	MD	Montgomery		X			
Micropterus salmoides	39.59	-77.82	MD	Washington			X	2070008	Middle Potomac-Catoctin
Pylodictis olivaris	39.15	-77.52	MD	Montgomery			X	2070008	Middle Potomac-Catoctin
Carp	39.15	-77.52	MD	Montgomery	X				

- Wesley Daniel – Inverts, Mollusks, Herps, and Mammals

wdaniel@usgs.gov

- Matthew Neilson – Fishes and Technical details

mneilson@usgs.gov

- Amy Benson – Carps, Snakeheads and dreissenid mussels

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- Ian Pfingsten – Plants

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- Cayla Morningstar – Mollusks

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- Jonathan Freedman – Fishes and Herps

jfreedman@contractor.usgs.gov

- Justin Procopio – Fishes and Crayfishes

jprocopio@contractor.usgs.gov

Thank You

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USGS science for a changing world

NAS

@USGSAquaticLife

@USGS_NAS

U.S. FISH & WILDLIFE SERVICE — DEPARTMENT OF THE INTERIOR