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## South Florida Restoration Science Forum

### Invasive Exotic Species

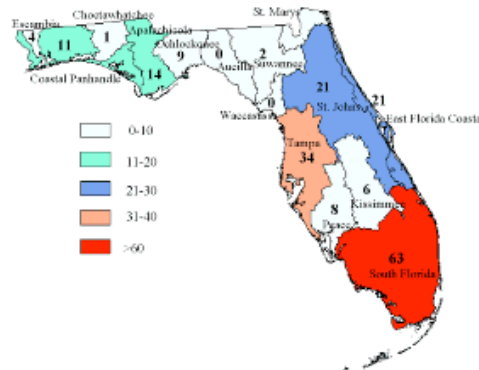
#### What controls invasive animals?

Poster presented May 1999, at the [South Florida Restoration Science Forum](#)

## Nonindigenous Fishes of Florida

### With a Focus on South Florida

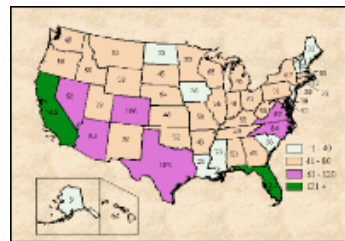
**Pam L. Fuller & Leo G. Nico - USGS/BRD, Florida Caribbean Science Center, Gainesville, FL**



This map depicts the number of introduced fish species\* in each of the Florida's drainages (at a USGS 6-digit HUC level). Areas with high numbers of introduced species are also areas with high human population, habitat disturbance, and presence of tropical fish farms. (Click on image for full-sized version.)

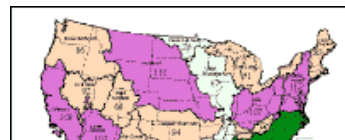


Last updated: June 11, 2007



#### A national perspective of introduced fishes

Florida is second only to California in the number of nonindigenous fish species reported\* from its waters. Many of the introductions are aquarium species grown in the tropical fish farms or released by owners. (Click on image for full-sized version.)

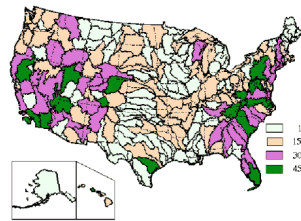


#### Major drainage basins of the United States

The Southeast has, by far, the most fish species introduced\*. The high number is largely attributed to



the introductions in South Florida. (Click on image for full-sized version.)



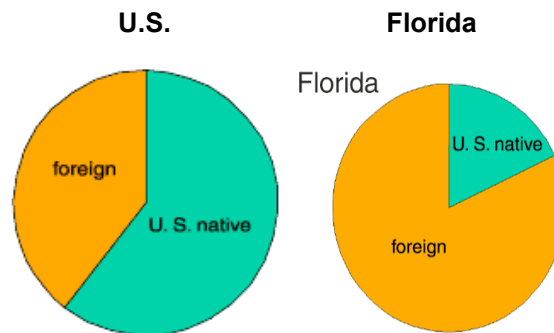
### U.S. perspective by drainages

The South Florida drainage ranks as one of the highest in the country in the number of fish species introduced\*. It ranks third, behind the Upper Tennessee (TN, NC) and Kanawha (WV) drainages. (Click on image for full-sized version.)

\* data represent all species ever collected, including historical reports and species that failed to become established.

### Origin of introduced fish species

Florida has a much higher percentage of foreign species introduced\* mainly because of the tropical fish farm industry that raises foreign fish species and because of the tropical climate that allows these species to survive. (Click on image for full-sized version.)

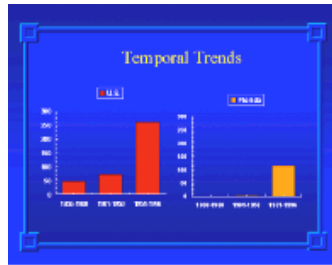
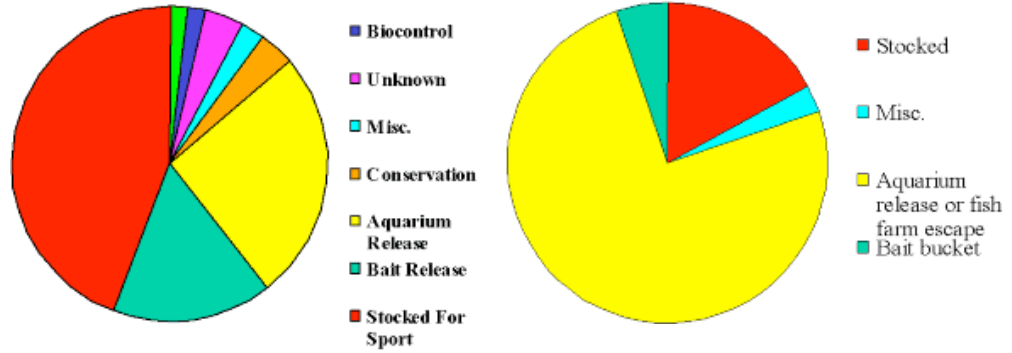


### Methods of Introduction

Florida has a much higher percentage of introductions\* attributable to either aquarium releases or tropical fish farm escapes. (Click on image for full-sized version.)

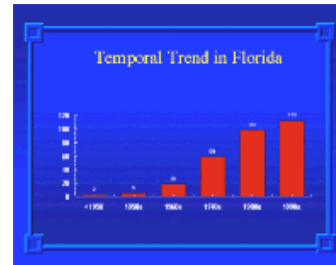
U.S.

Florida



**Temporal Trends Compared to the U.S.**

Florida follows the national trend of a drastic increase in the numbers of introduced fish species in recent years. (Click on image for full-sized version.)



**Florida through the decades**

The number of introduced species in Florida has steadily increased each decade. (Click on image for full-sized version.)



**Orinoco Sailfin Catfish (*Pterygoplichthys multiradiatus*)**

This South American armored catfish has been established in southeastern Florida since about 1971. Its presence is most likely the result of escapes or releases from fish farms. (Photo by Leo G. Nico) (Click on image for full-sized version.)

**Oscar (*Astronotus ocellatus*)**

This South American cichlid has been established in Florida waters since the late 1950s, the result of a Dade County fish farm release. In South Florida, this predator is commonly taken by anglers. (Photo copyright by Richard Bryant) (Click on image for full-sized version.)



**Brown Hoplo (*Hoplosternum littorale*)**

This South American catfish has been established in peninsular Florida since the mid-1990s, source of introduction is unknown. It has recently invaded the Kissimmee River drainage and will likely spread into southern Florida within the next decade. (Photo by Howard Jelks) (Click on image for full-sized version.)

**Pike killifish (*Belonesox belizanus*)**

Native to Middle America, this species was introduced into South Florida in 1957 when individuals reared for medical research purposes were released into a local canal. It is now firmly established. (Photo by Leo G. Nico) (Click on image for full-sized version.)

**Spotted tilapia (*Tilapia mariae*)**

This African cichlid was introduced into Florida as a result of escapes or releases from fish farms in Dade County, probably during the early 1970s. It is now one of the most abundant species in many South Florida canals. (Photo by Noel Burkhead) (Click on image for full-sized version.)

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**Related Links**

- [Nonindigenous Aquatic Species](#)



[Back to the Invasive Exotic Species page](#)

U.S. Department of the Interior, U.S. Geological Survey, Center for Coastal Geology  
This page is: <http://sofia.usgs.gov/sfrsf/rooms/species/invasive/focus/index.html>  
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