US Army Corps of Engineers®

Suckermouth Catfishes – Threats to Aquatic Ecosystems of the United States ?

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Armadillo del rio (*Hypostomus* sp.)

Over 100 species

3 (?) species in US

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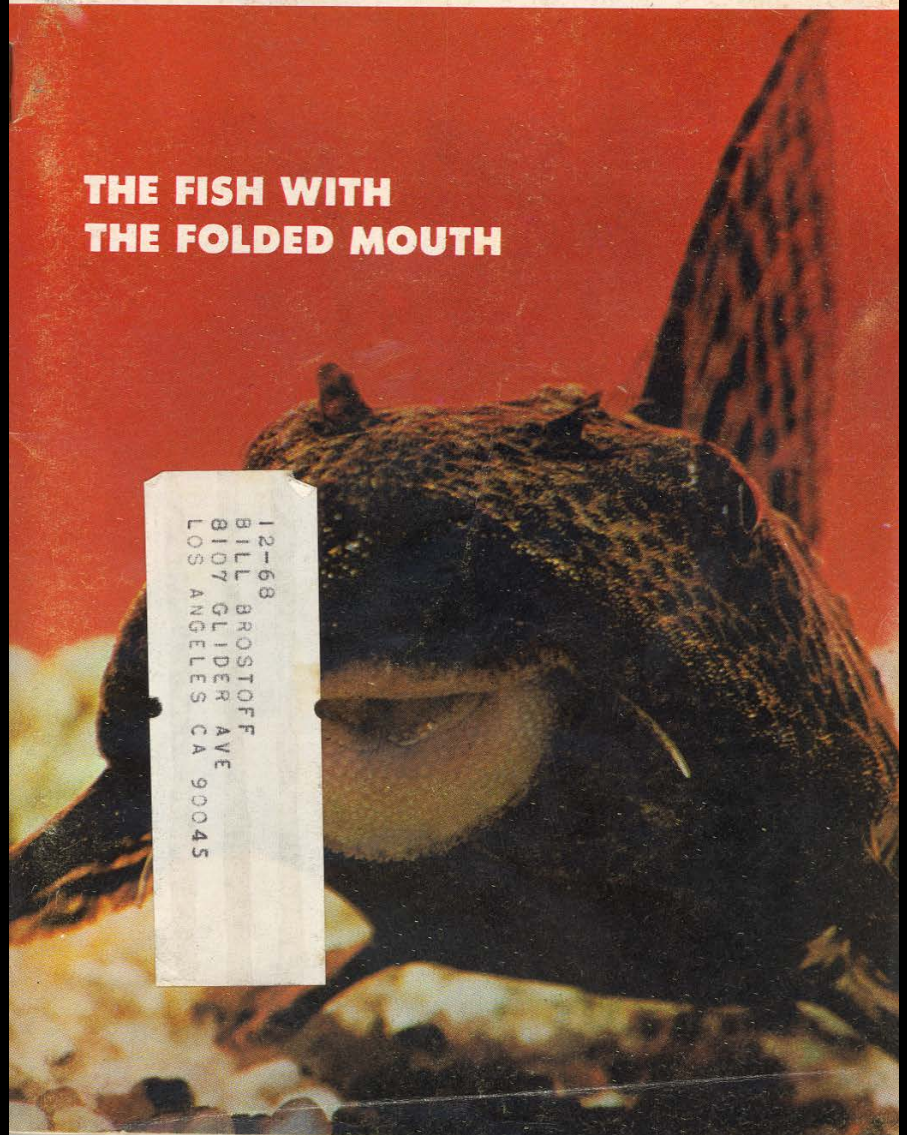
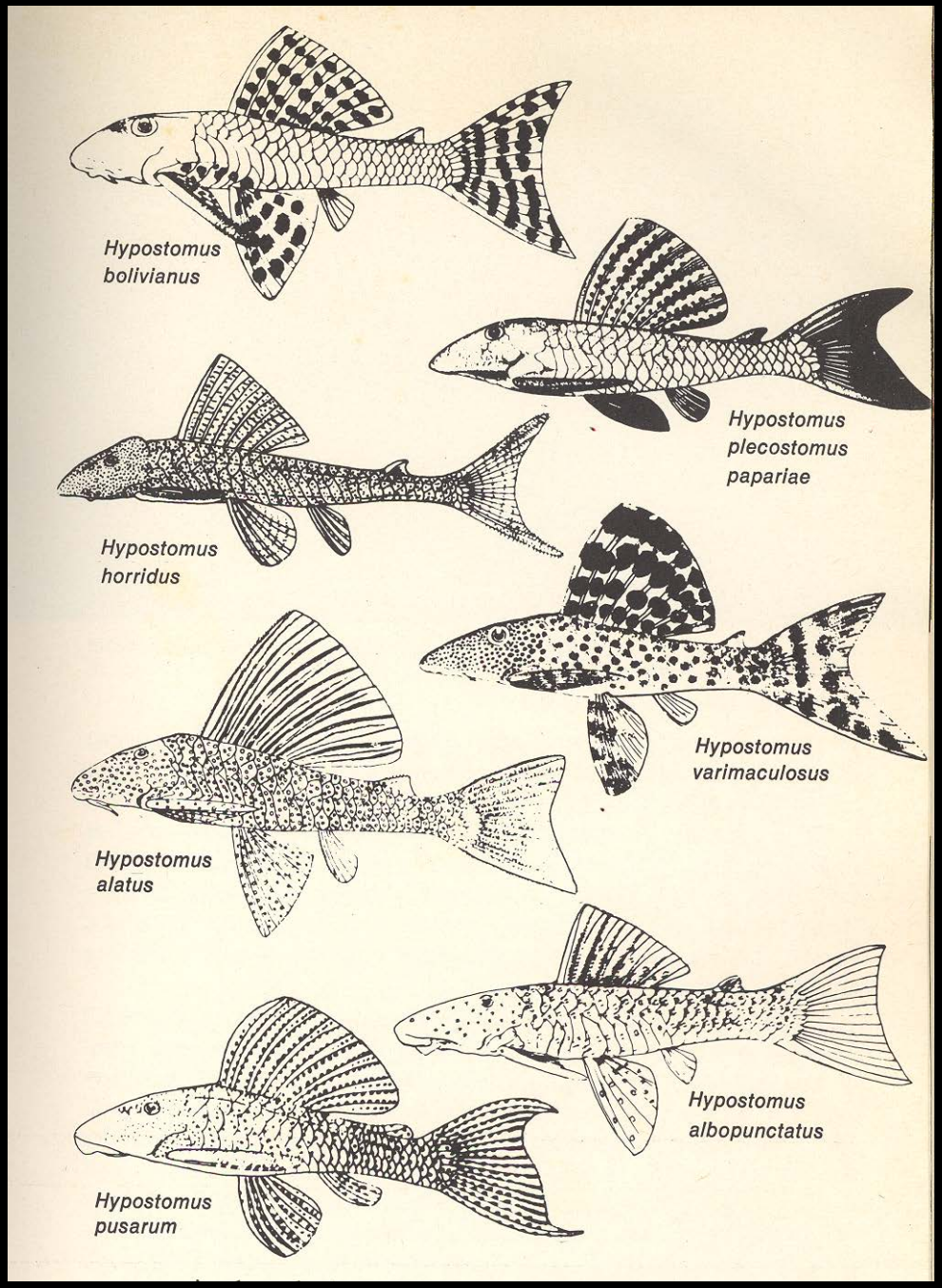
THE AQUARIUM

British Isles 2/6 DOMESTIC 35¢

THE FISH WITH THE FOLDED MOUTH

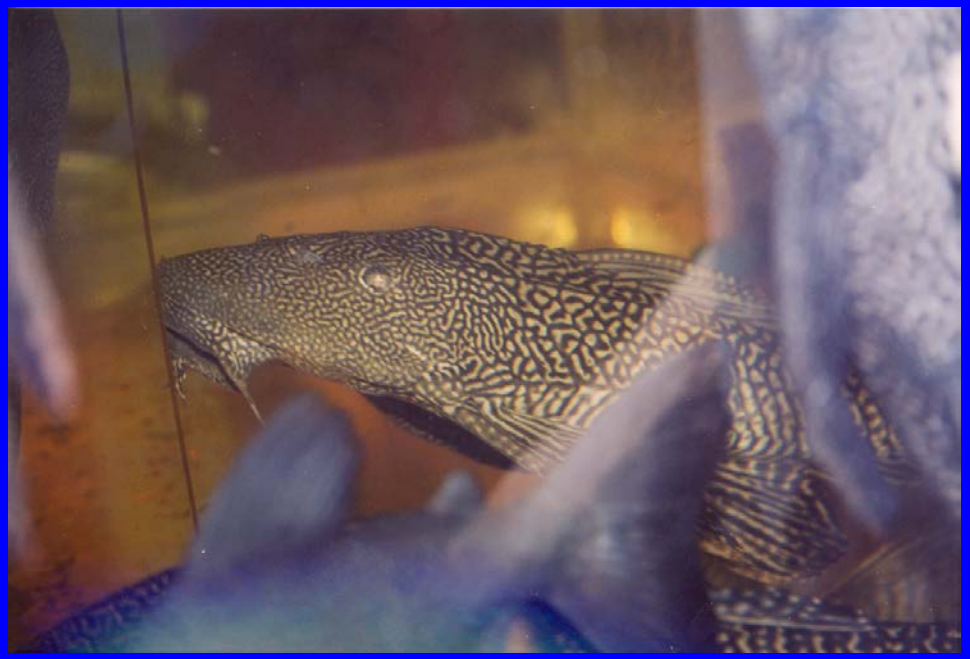



Hypostomus bolivianus
Hypostomus plecostomus papariae
Hypostomus horridus
Hypostomus varimaculosus
Hypostomus alatus
Hypostomus albopunctatus
Hypostomus pusarum

Sailfin catfishes *Pterygoplichthys* spp.

22 (?) species

3 (?) species in US



Case Study: San Antonio River

- Surveys in Oct 2002, Jan 2003, May 2003
- 27 samples of fishes

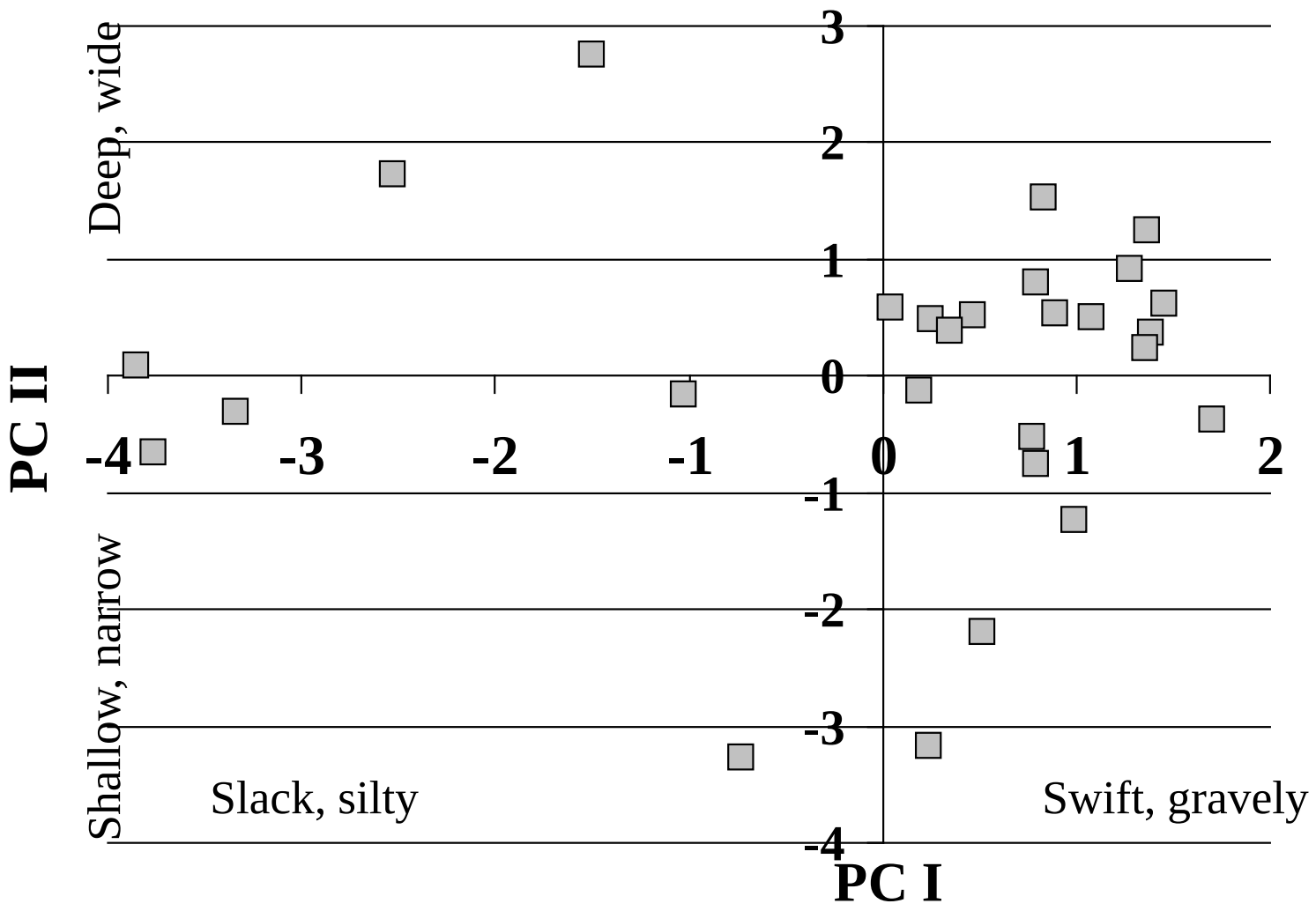
Suckermouth Catfishes in the San Antonio River

- Found in 41% of samples
- Sailfin catfishes – < 2.5 % of fishes, >> 40% biomass
- Armadillo del rio – << 1% of fishes.

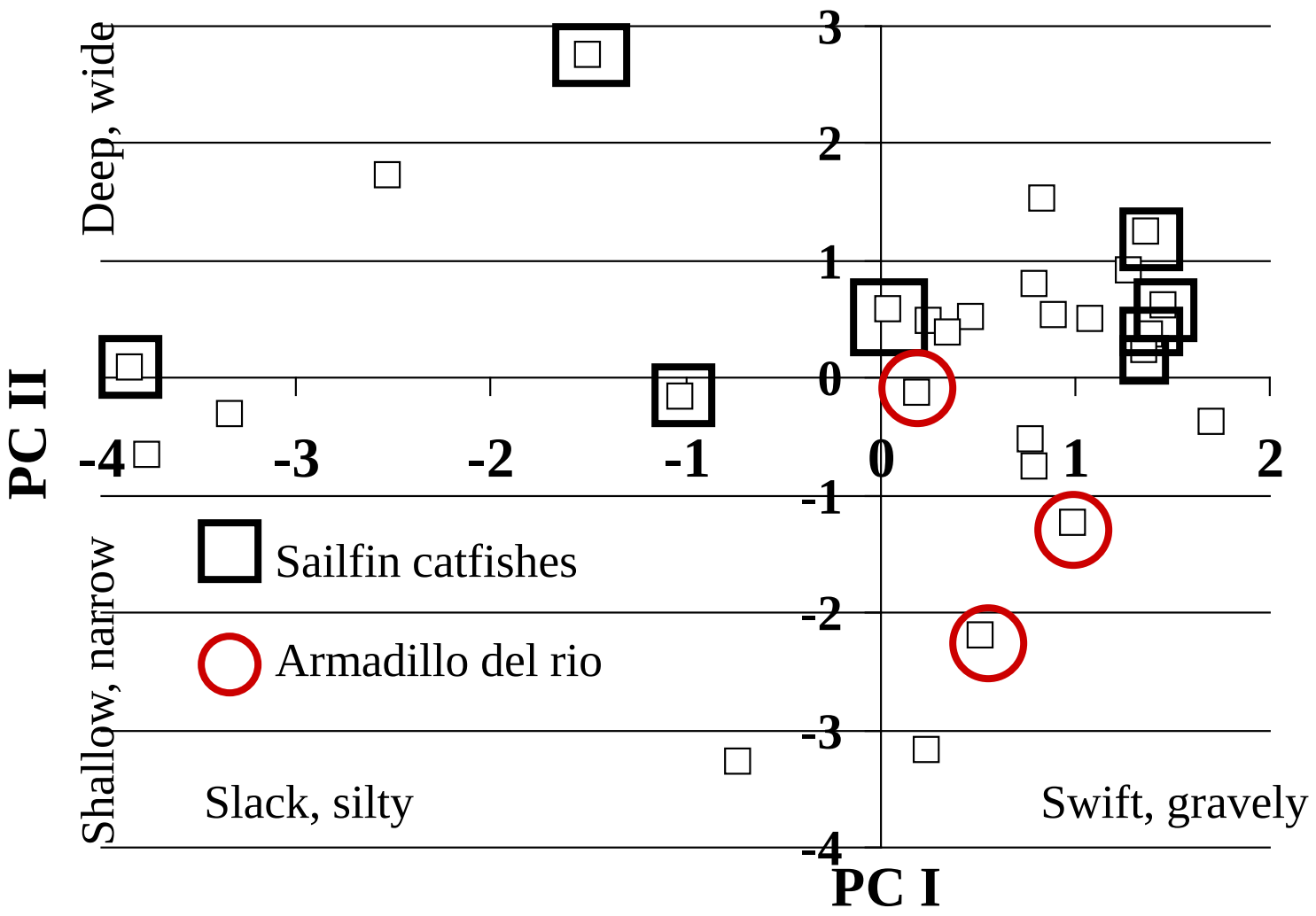
Habitat parameters

- Turbidity
- Temperature
- Conductivity
- Dissolved oxygen
- pH
- Velocity
- Depth
- Substrate

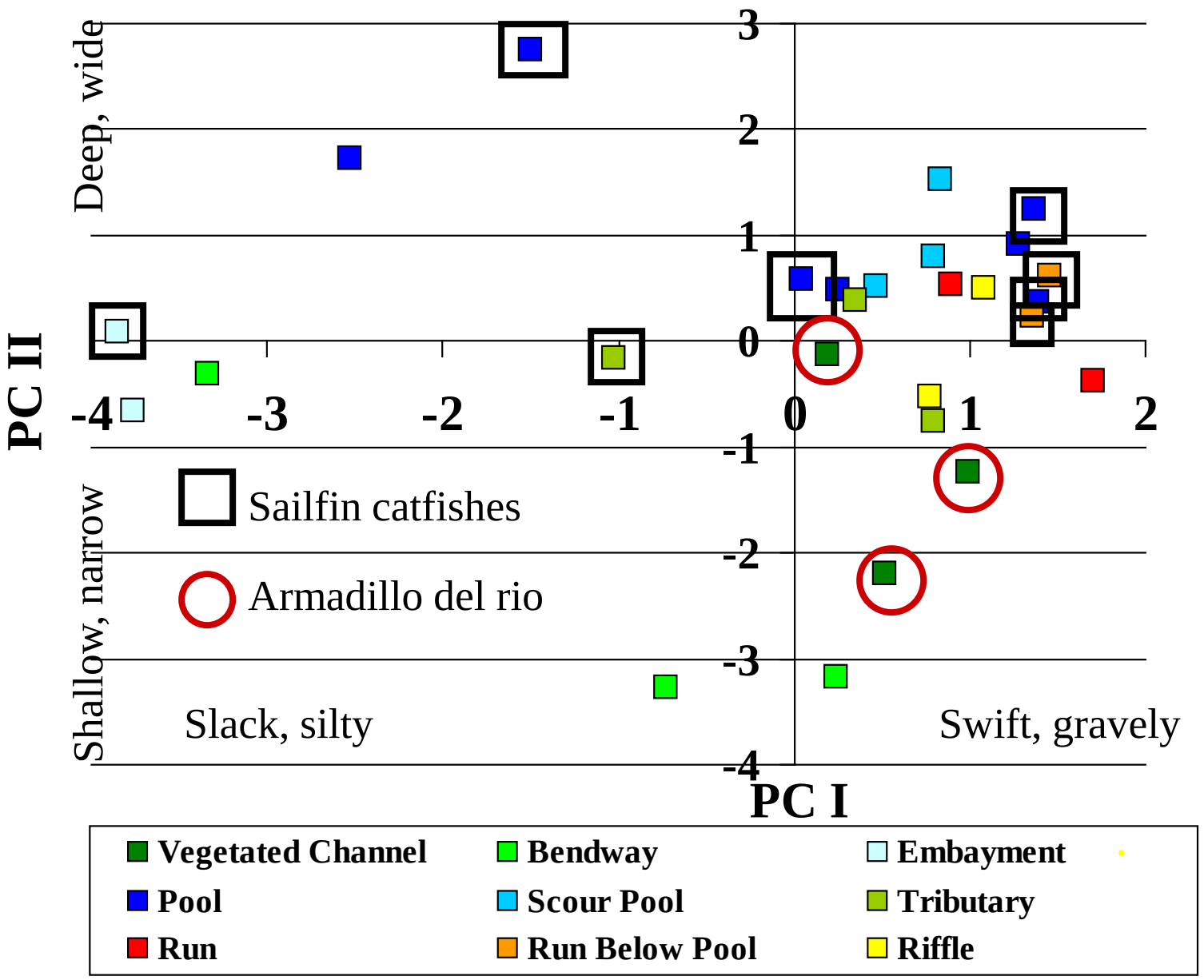
Habitat in the San Antonio River



Suckermouth Catfishes in the San Antonio River



Suckermouth Catfish Habitat in the San Antonio River



Habitats With No Suckermouth Catfishes

Habitats With Suckermouth Catfishes

Ecosystem Impacts

- Disruption of food chains
- Impacts to native species
- Mortality of shorebirds
- Changes in aquatic plant communities
- Bank erosion

Impacts to Native Species

Stoneroller – native; small, short-lived, moderate fecundity; spawns in small, shallow nests; hypoxia-tolerant

Suckermouth catfishes – exotic; large, long-lived, high fecundity; spawns in deep burrows; anoxia- and dessication tolerant

Mortality of Shorebirds

- Defensive erection of pectoral spines by sailfin catfish can cause strangulation in fish eating-shorebirds.

Erosion

Burrows excavated by sailfin catfishes associated with siltation, erosion, and shoreline instability.

Loss of unprotected shorelines in some Florida waters estimated at 1-3 ft/year.

Sailfin Catfish in Boca Raton, FL (Oct 2003)

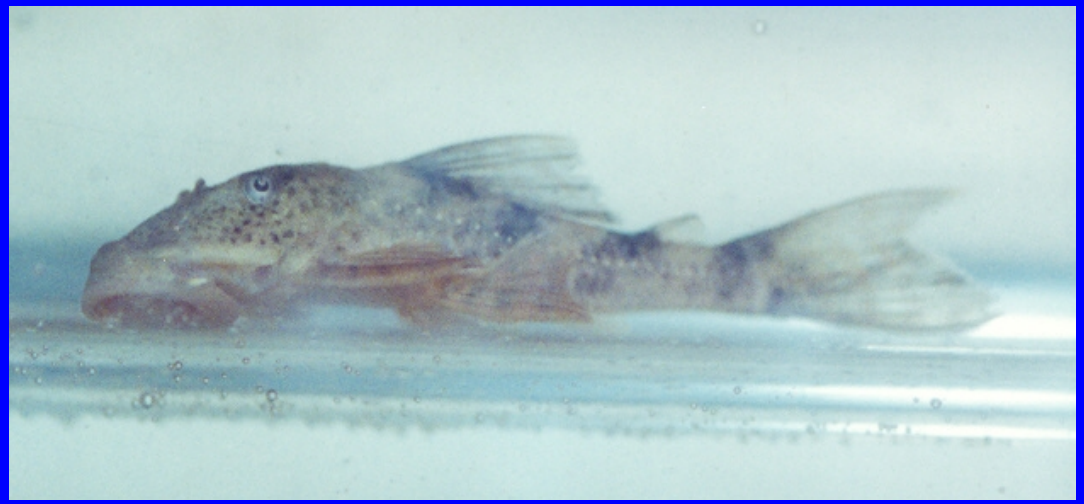
Sailfin Catfish in Boca Raton, FL (Oct 2003)

Management

- Containment features (i.e., barriers)
- Removal programs (e.g., bounties)
- Native fish enhancement (e.g., stocking)
- Bank stabilization
- Education
- Landscaping (?)

Pilot Study: Response to High Flows

Feasibility of hydraulic barriers evaluated using swim tunnel trials with field-collected specimens of armadillo del rio.



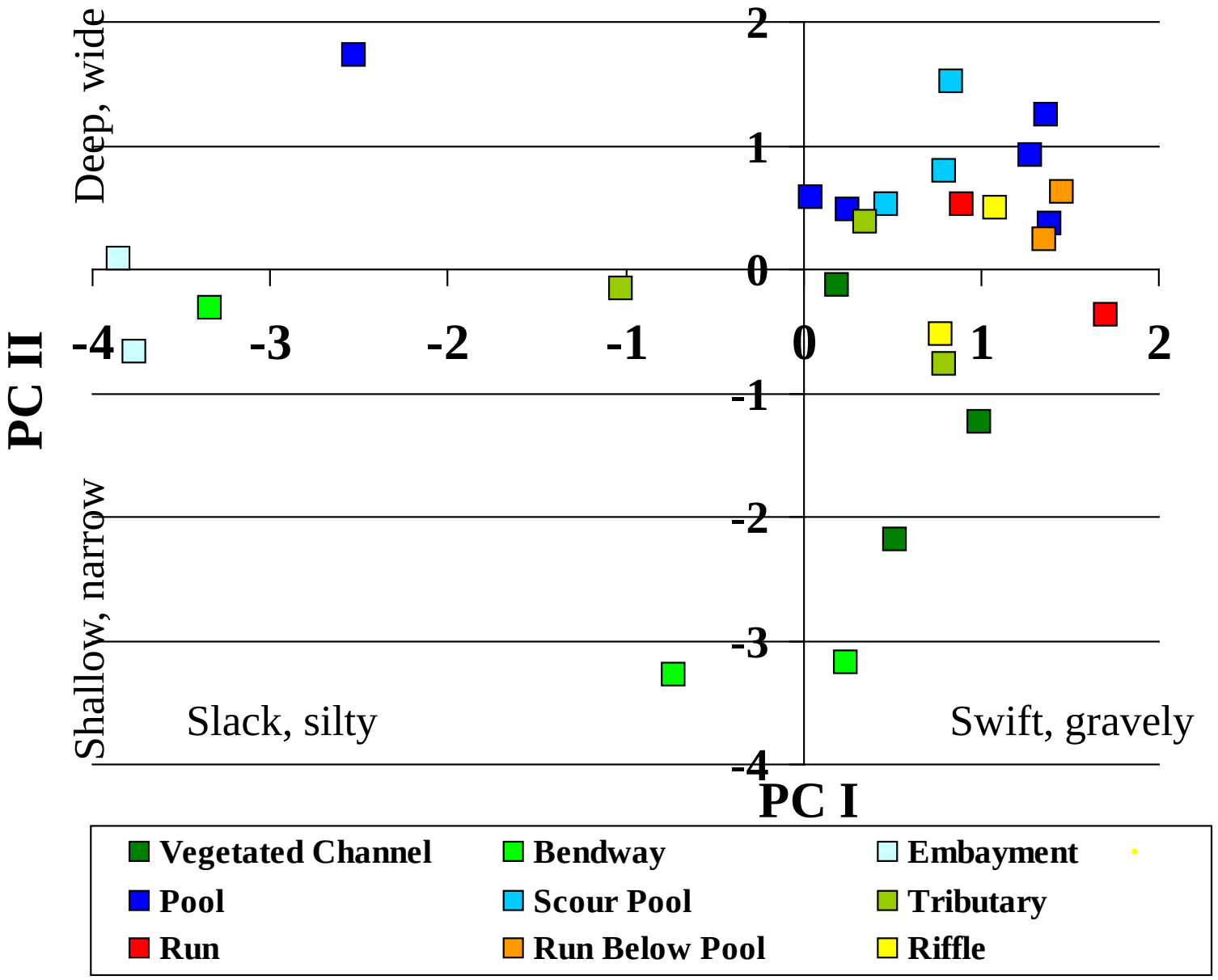

2003
NANF

Sustained (> 200 min) swimming or station-holding at 75 cm/s

Prolonged (> 60 min) swimming or station-holding at 100 cm/s +

Future Studies: Land Use and Suckermouth Catfish Populations

Habitat in the San Antonio River



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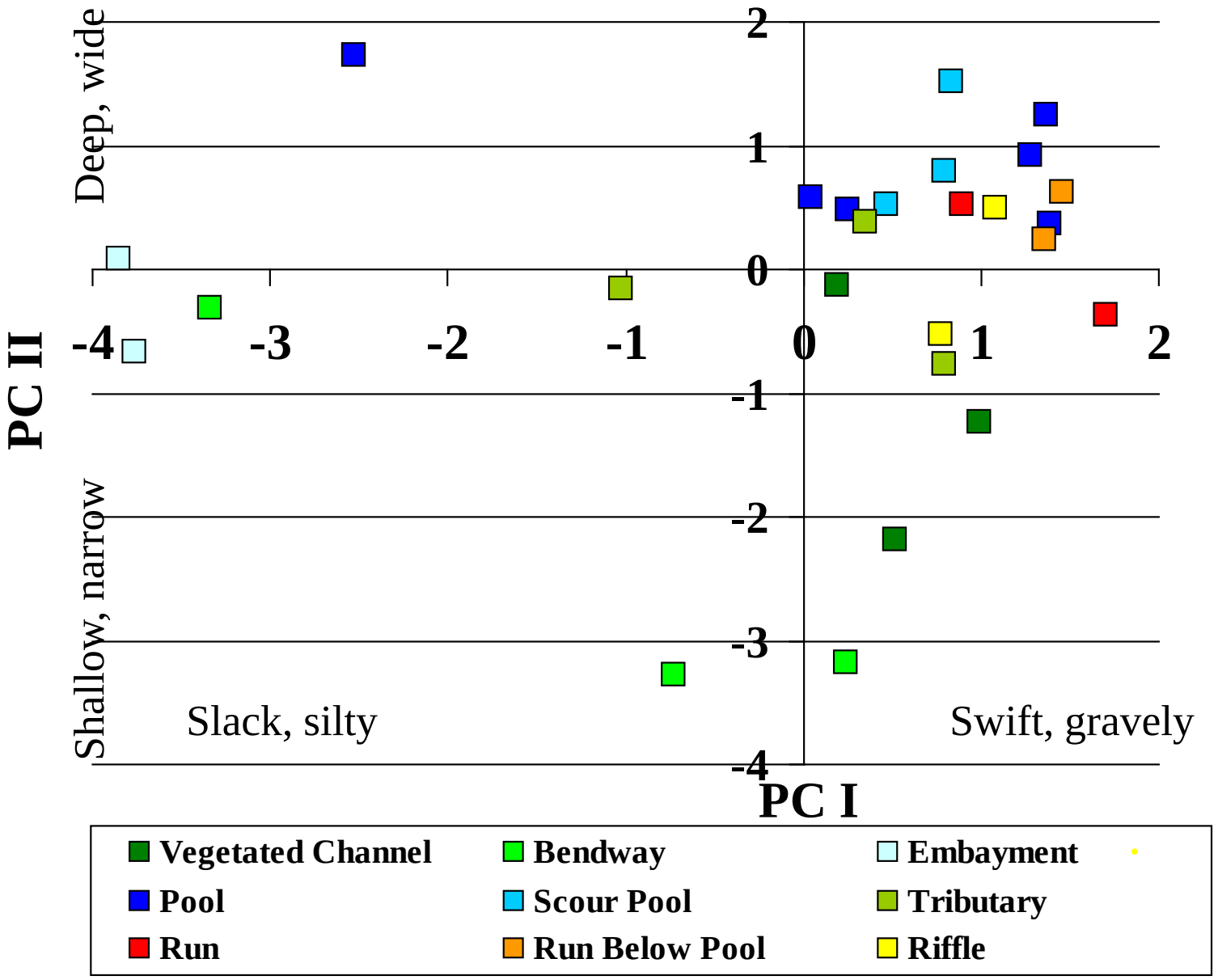

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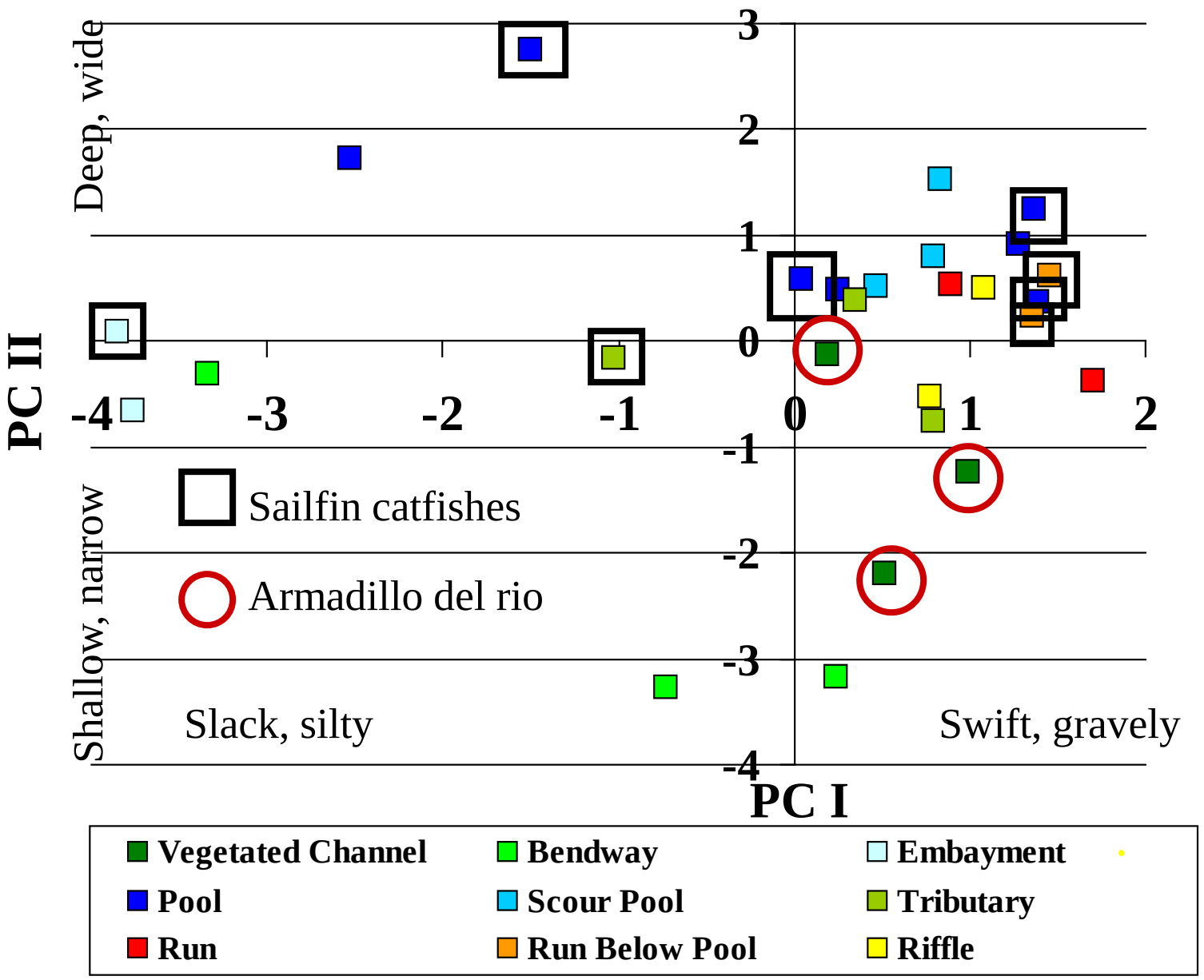

Exotic Fishes of the San Antonio River

Rio Grande Cichlid

Redbreast Sunfish

Mexican Tetra

Tilapias