

S.A.L.T.

SHARKS AQUACULTURE LIFE TRAINING

Alligator & Reptile
Culture



2018 Summer SALT Schedule:
Introduction to Florida Aquaculture Commodities

All sessions are scheduled on Mondays from 10 – 11:30 am
and will be held at the FWC Marine Lab conference room.

June 18th – Recirculating Aquaculture Systems

Meet with Brian Catanzaro, Pentair Aquatic Ecosystems, Apopka, FL

Website: <https://pentairaes.com>

June 25th – Molluscan Shellfish Aquaculture

Meet with Leslie Sturmer, UF/IFAS Shellfish Extension, Cedar Key, FL

Website: <http://shellfish.ifas.ufl.edu>

July 2nd – No session due to holiday week

July 9th – *Any suggestions for topic?*

July 16th – Aquatic Plant Culture

Meet with Brandon McLane, Florida Aquatic Nurseries, Davie, FL

Website <http://www.floridaaquatic.com/>

July 23rd – Food Fish Culture

Meet with Geno Evans, Evans Fish Farm, Pierson, FL

Website: <http://evansfishfarm.com/>

July 30th – Ornamental Fish Culture

Meet with Eric Cassiano, UF/IFAS Tropical Aquaculture Lab, Ruskin, FL

Website: <http://tal.ifas.ufl.edu>

August 6th – Alligator and Reptile Culture

Meet with Allen Register, Gatorama, Palmdale, FL

Website: <http://gatorama.com/>



AQUACULTURE SCIENCE

THIRD EDITION ■ RICK PARKER

Chapter 8

Management Practices for Alligators, Frogs, and Plants



Florida Department of Agriculture and Consumer Services • Adam H. Putnam, Commissioner

Origin of the Alligator name

- “el largato” – “the lizard”
- “lagato”
- “alligator”



Photo © 2001 by Kent Vliet

Alligator mississippiensis

- Order Crocodylia
- American Crocodile (*Crocodylus acutus*) also native to US
- Most common of two crocodilians native to US

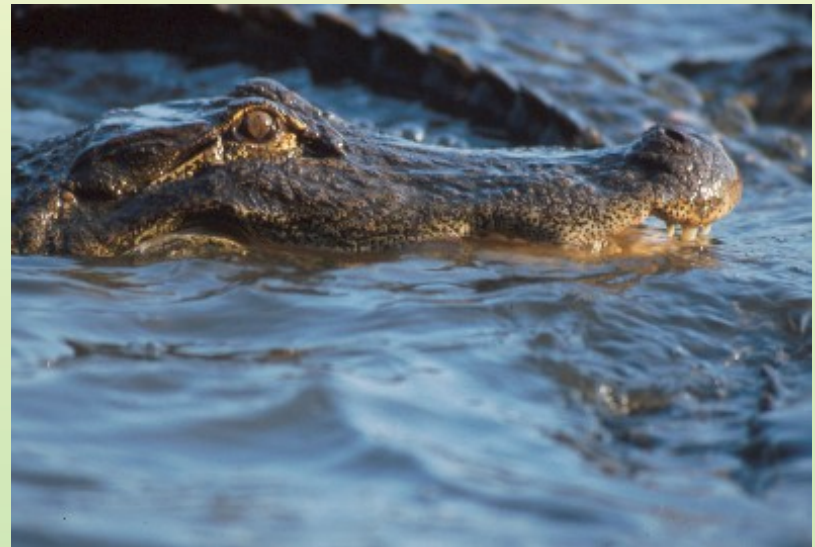


Photo © 2001 by Kent Vliet

Alligators vs. Crocodiles



Photos © 2001 by Kent Vliet

Crocodiles



Photo © 2001 by Kent Vliet

- Narrow, pointed snout
- Light tan or brown coloration
- Possess salt-excreting glands

Alligators

- Broad, rounded snout
- Grayish-black coloration
- Lack salt-excreting glands



Photo © 2001 by Kent Vliet

Alligators & Salt Water

- Low tolerance for salt water
- Crocodiles tolerate salt water
- Alligators lack salt-excreting gland



Photo © 2001 by Kent Vliet

Habitat

- Live in wetlands, canals, streams, ponds, lakes, and marshes
- Largest populations in FL found in nutrient-rich lakes and marshes
- Also found in artificial aquatic habitats



Photo © 2001 by Kent Vliet

Alligator Range

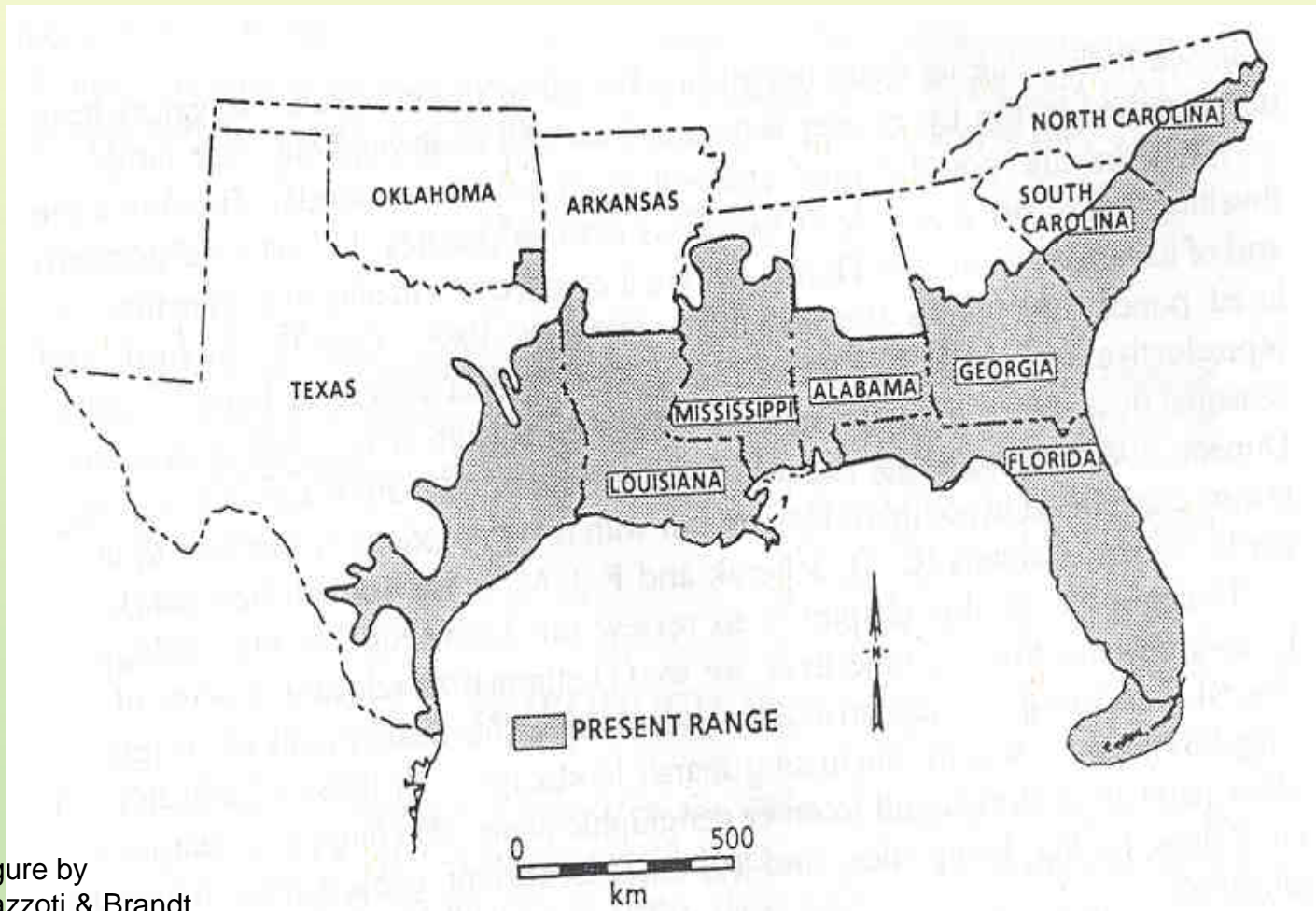


Figure by
Mazzoti & Brandt

American Alligators

- Harvest began in late 1800s
- By 1950s and early 1960s, widely harvested throughout Southeast
- No regulations to manage or protect populations
- Rapid overexploiting lead to serious reductions in breeding populations

A close-up photograph of a crocodile's head, showing its eye and textured scales. A white rectangular box with a black border is positioned in the upper center, containing the word "Status" in a teal, sans-serif font.

Status

- **1967: Endangered throughout range**

- **1987: Removed from Endangered Species List, but are classified as threatened in the state of Florida**

Alligator Hunting

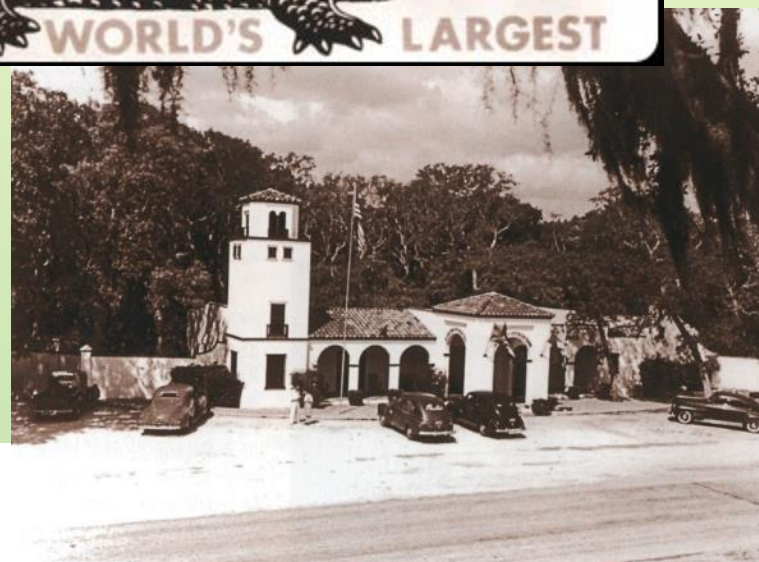
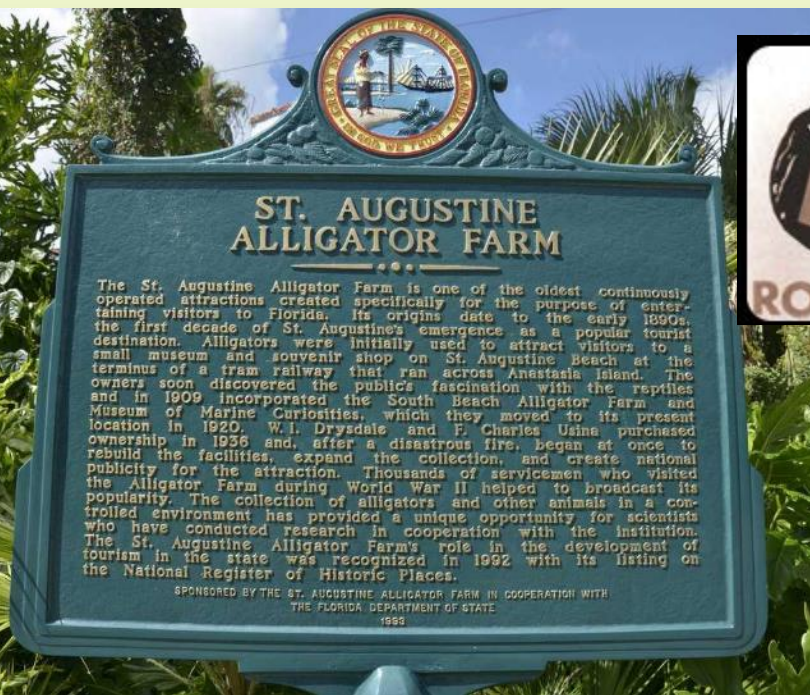
- Regulated by the FFWCC
- Random lottery for permits



Photo by FL Fish & Wildlife Research Coop Unit

History of Alligator Farms in Florida

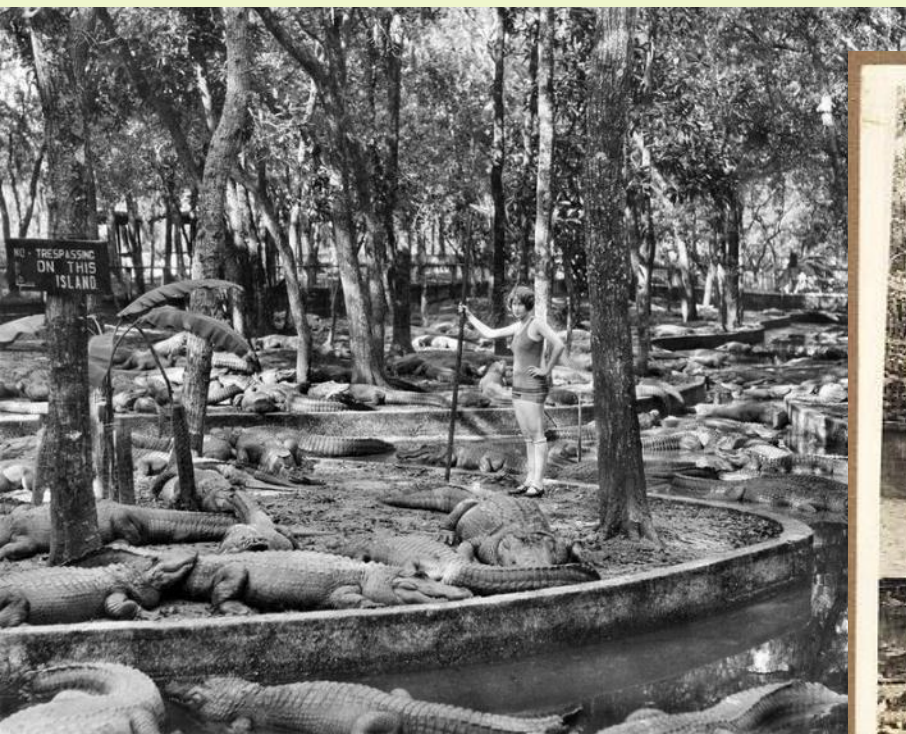
First commercial alligator farm in Florida opened in 1891!



History of Alligator Farms in Florida

At the turn of the 20th century, the farm became a tourist hotspot.

Yes, that's a gator slide!

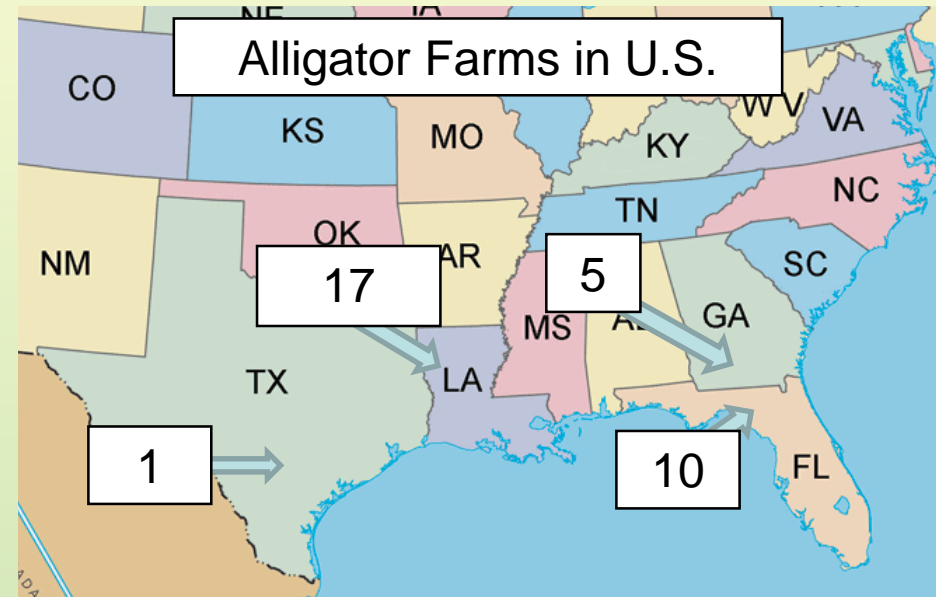


Alligator Aquaculture in the U.S.

(data from NASS Census of Aquaculture 2013)

Primarily Alligator and Turtles

- **33 alligator farms**
 - 314,000 whole alligators sold
 - 644,000 hides sold (Avg. \$32/lb!)
 - 1.15 million lbs. of meat produced
 - \$62 million annual sales!



Alligator Aquaculture in Florida

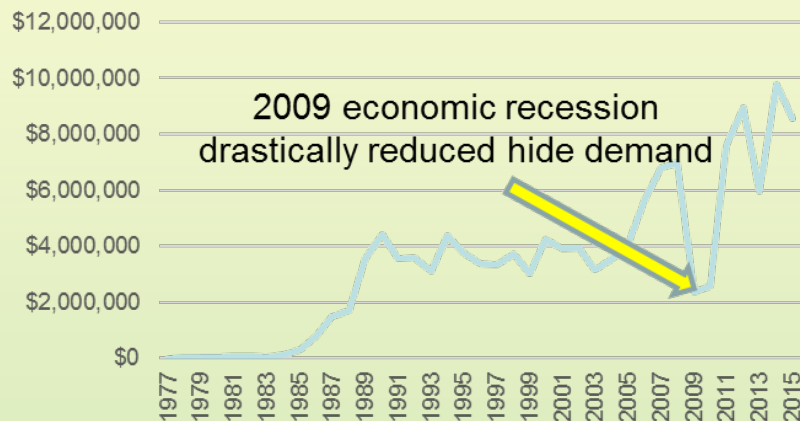
Value of Florida Industry

- \$8,566,584 in 2015
 - 80% of value from hide sales
 - 20% of value from meat sales

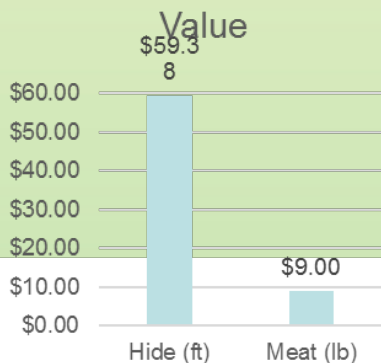
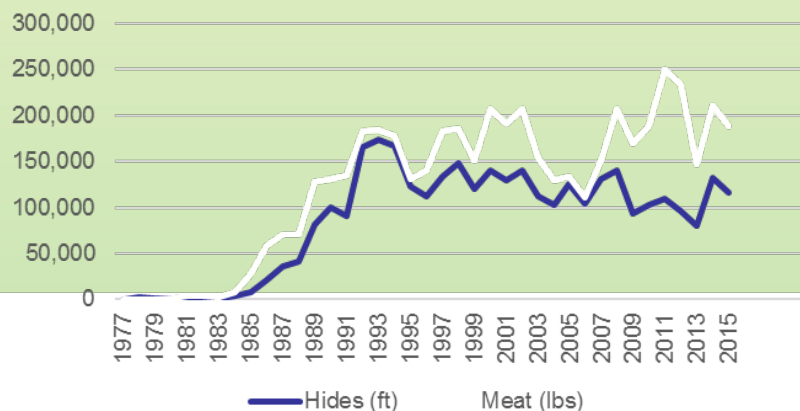
Production in Florida Industry

- 21,696 alligators harvested in 2015
 - 115,460 ft. of hide for leather
 - 188,942 lbs. of meat

Alligator Aquaculture Value (1977-2015)



Alligator Product Production (1977-2015)



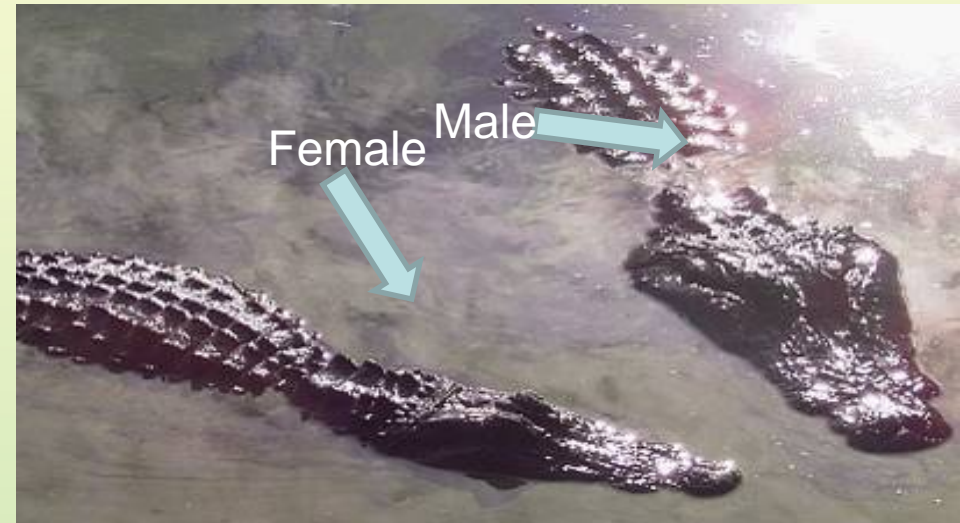
Courtship



Photo © 2001 by Kent Vliet

Alligator Aquaculture Methods

- Alligators breed from May-August
 - Females rarely grow larger than 9 ft.
 - Males can reach 16 ft



During courtship, alligators communicate by bellowing with their head and tail out of the water.



Alligator Seedstock and Breeding

- Nest-building and egg-laying occur at night
- Nest built with natural vegetation
 - Round, mound-type structure
- Eggs deposited at top of mound
- All nesting usually occurs within two weeks

Alligator Aquaculture Methods

- Nesting begins in June and July.
- Females deposit 20-60 eggs and defend the nest until the young hatch.
- Eggs hatch after about 65 days
- Female alligators carry & protect young from predators
- Hatchlings communicate by grunting and peeping



Alligator Egg Collection

- Alligator eggs are collected from the wild during the nesting season and hatched on farms.
- Eggs are carefully marked and removed from the nest.



The helicopter pilot spots nests and directs the airboat captain to the nest.

The eggs are marked so they are not rotated, which can damage the developing alligator during incubation.





Egg Development

- 65 day incubation period
- Sex determined by temperature
- 100% Female nest: 87.8°F and below, or 95°F and above
- 100% Male nest: 90.5-92.3°F



Alligator Aquaculture Methods

- Eggs are incubated at 88-90F
- Hatching success is 50-90%
- Smaller, weaker cannot compete with larger siblings
- Tanks 2 by 2 feet
- Constant temperature pumping hot water
- Hatchlings produced to 4 feet in 14 months



Alligator Stocking Rate

- Pens can be made almost any size
- Commonly used stocking regime:
 - 1 square foot per animal until 2 feet in length
 - 3 square feet per animal until 4 feet in length
 - 6 square feet per animal to 6 feet in length

Aerial photo
of outdoor
alligator farm

*Why are the
ponds
curvy?*

Maximizes
bank area for
basking
alligators



Alligators are also farmed in concrete buildings. Most have removable roofs for warmer weather.



These alligators are at a harvestable size.



Alligator Diseases

- Stress and/or poor water management
 - Brown spot disease
- Penned very sensitive to light and sound
 - Keep in dark
- Two antibiotics added to feed:
 - Oxytetracycline (OTC)
 - Virginiamycin (VA)

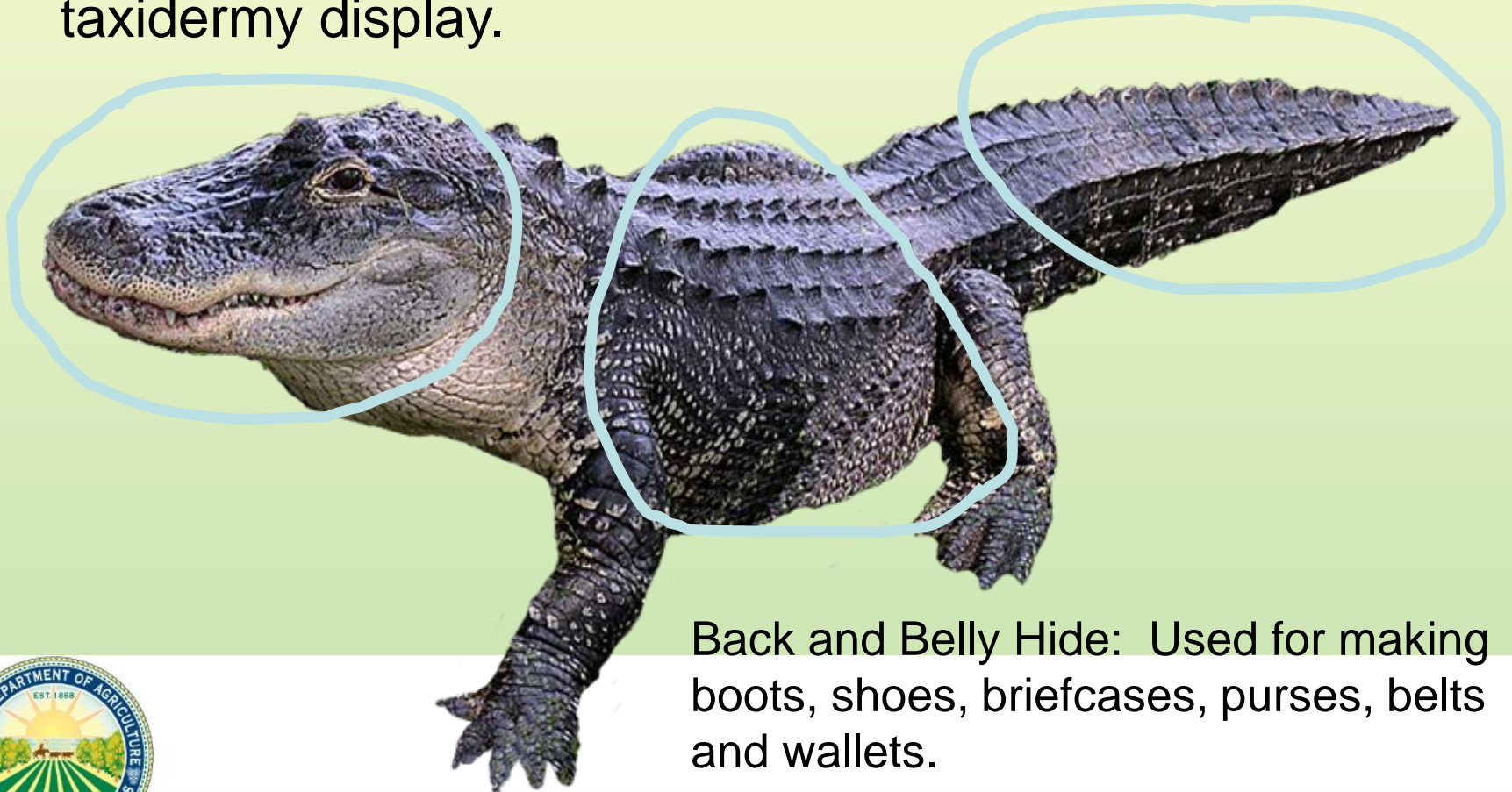
Alligator Harvesting and Marketing

- Can be skinned only at approved sites
- Federal, state, and local sanitation requirements for meat processors
- Tag number that corresponds to hide on carton
- Harvested at 4 to 6 feet
 - State regulatory agency tags

Alligator Products

Head: Mounted for
taxidermy display.

Tail: Meat



Back and Belly Hide: Used for making
boots, shoes, briefcases, purses, belts
and wallets.

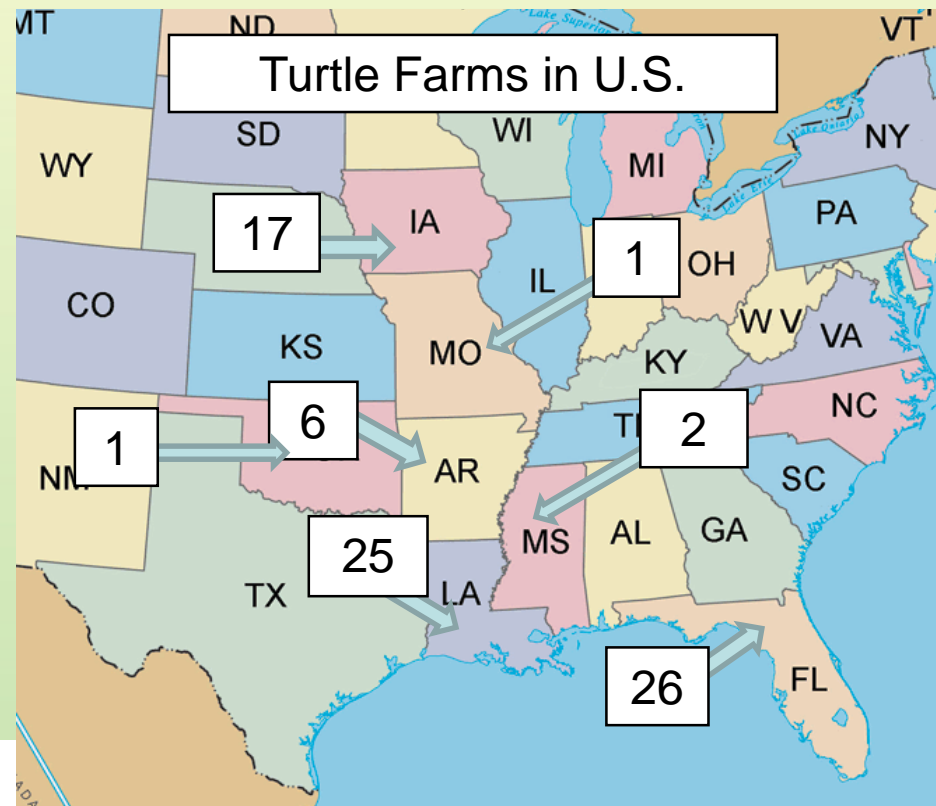


Turtle Aquaculture in the U.S.

(data from NASS Census of Aquaculture 2013)

78 turtles farms

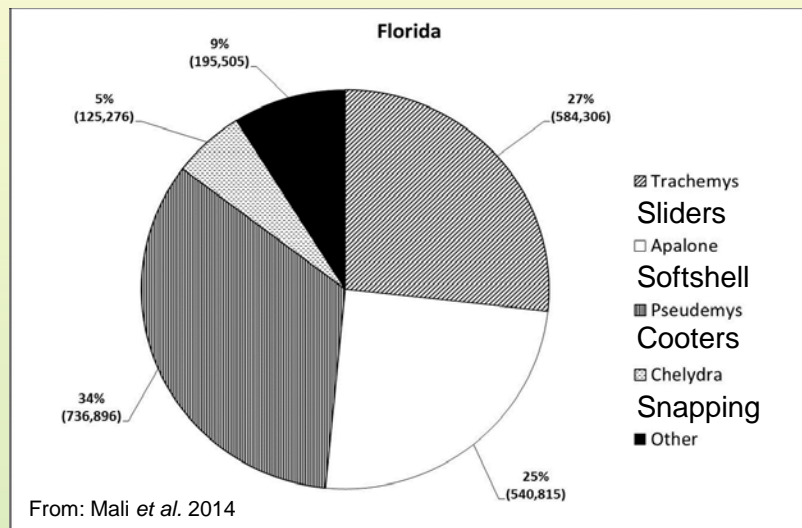
- 3.5 million whole turtles sold
- \$8.6 million annual sales



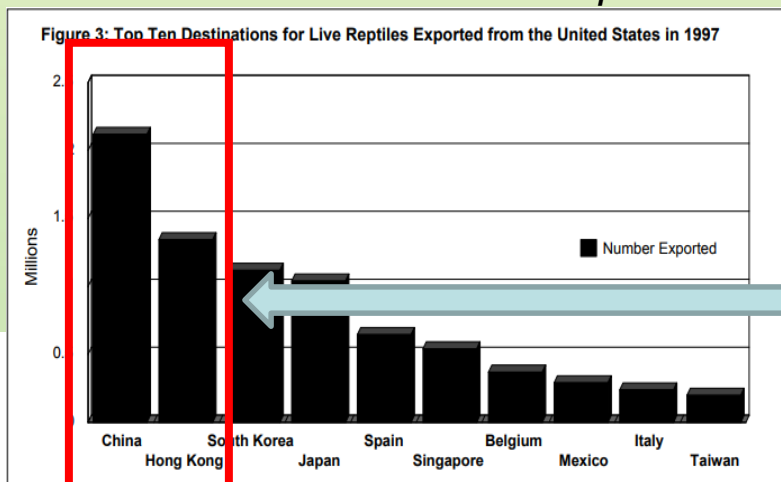
Turtle Aquaculture in Florida

Value of Florida Industry (2013)

- \$3,073,000 sales
- 26 farms in Florida
- 822,000 whole turtles sold
- ~1,079,000 turtle eggs sold



Where are all these turtles exported



China purchases a large majority of U.S. exports



Data from: USFWS: International Wildlife Trade Program – 1997

Turtle Aquaculture Methods

- Nesting season begins in late March and lasts most of the summer.
- Eggs are collected daily and washed with chlorine and dipped in antibiotics to prevent salmonella infections.

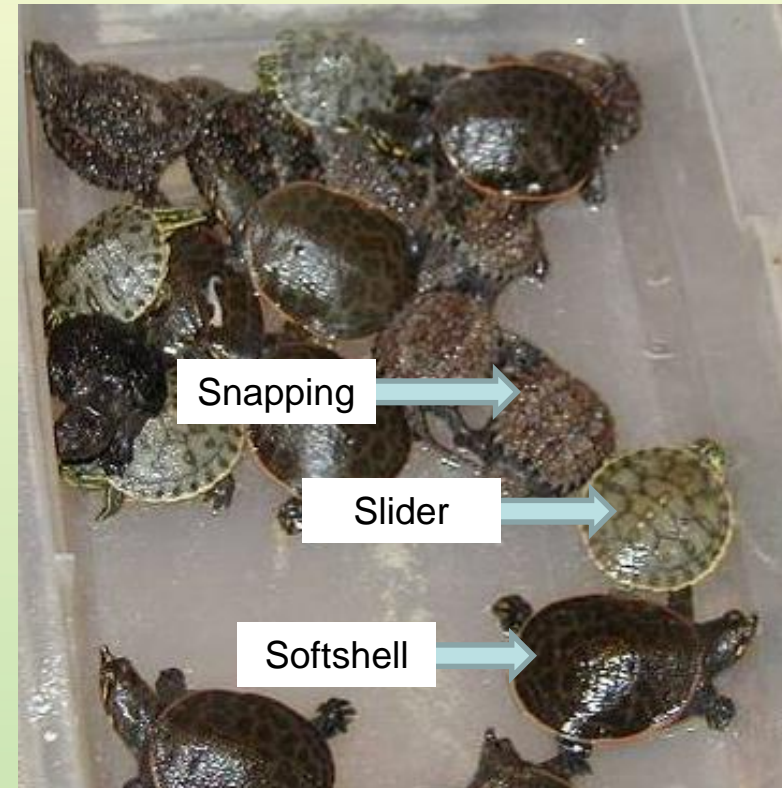
Pond sliders and cooters are the most common turtle species farmed in Florida



Turtle ponds have sandy banks, perfect for turtle nests.

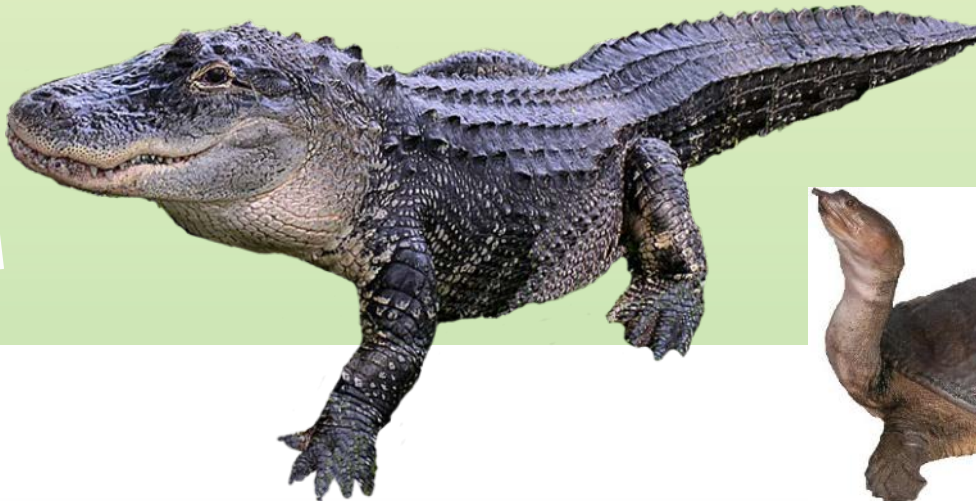
Turtle Aquaculture Methods

- Eggs are incubated for 60 days at 80-85 F
 - Temperature control is critical during incubation.
 - Low temperatures can result in no growth.
 - High temperatures can result in metabolic stress.
- Hatching rates are between 80-90%.



Conclusion

- The U.S. Reptile aquaculture industry valued at \$71 million annually.
- Florida has the most turtle farms and second most alligator farms in the nation!
- Reptile aquaculture is sustainable and a win-win for Florida!
 - Captive production of turtles and alligators satisfies economic demand for their products while also conserving wild populations.



S.A.L.T.

SHARKS AQUACULTURE LIFE TRAINING

Tour: Gatorama, Palmdale, FL

Host: Allen Register