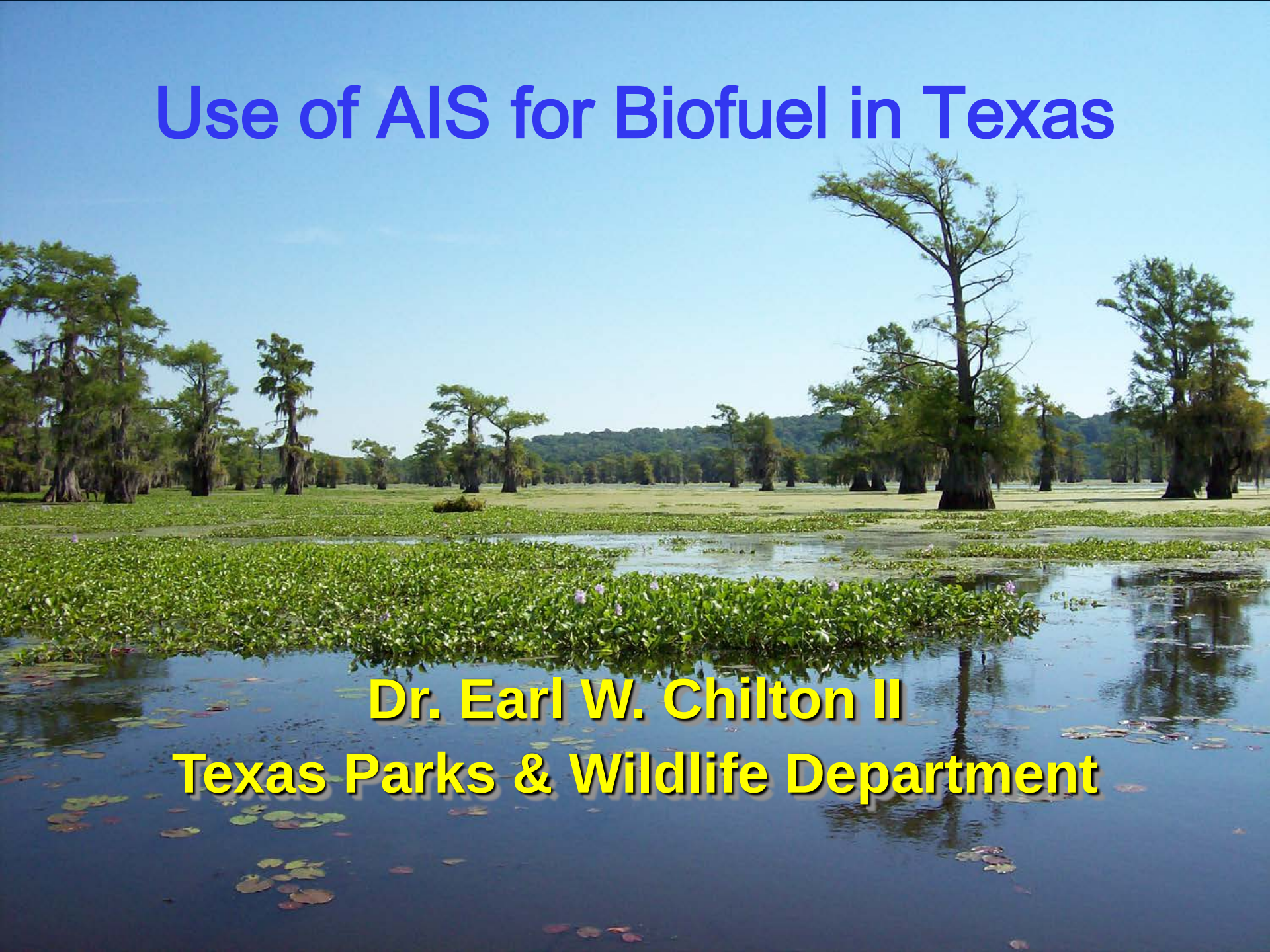
Use of AIS for Biofuel in Texas



Dr. Earl W. Chilton II
Texas Parks & Wildlife Department

Biodiesel

In 2011, Texas ranked No. 1 nationally with 8 biodiesel refineries producing 328 million gallons of annual production capacity, according to the U.S. Energy Information Administration.

In the first quarter of 2012, the NIFA awarded more than $1 million in bio-energy grants in Texas to extend separate studies at Texas A&M and Rice Universities.

Biodiesel

In 2011, the Texas Commission on Environmental Quality (TCEQ) began allowing biodiesel to be blended at any ratio into any compliant fuel.

This means former limitations, such as requirements to use more additives within the biodiesel and producers having to report blending requirements, have ended.

Texas biodiesel producers are exempt from the excise tax, even when the biodiesel is blended with conventional diesel.

The most common plants used are soybeans, peanuts, rapeseed, palm, corn, sorghum, canola, sunflower and cottonseed.

Arundo donax

Homeland Security News Wire:
"Densely packed and growing to 30 foot heights, the cane provide cover for illegal activities, including human and drug smuggling"
January 5, 2012

Currently regulated by Texas Department of Agriculture

Pellets were approved

Arundo donax

1. Texas Agrilife Research is targeting the most wasteful step in photosynthesis by redirecting a waste byproduct into a new pathway that will create terpenes.

2. Terpenes are energy-dense fuel molecules that can be converted into jet or diesel fuel.

3. This strategy will be first applied to tobacco to demonstrate more efficient terpene production in the leaf.

4. If successful in tobacco, the approach will be translated into the high biomass plant *Arundo donax* (giant cane) for fuel production.

Development of White List Regulations

During the 2009 legislative session, TPWD was directed to publish a list of exotic aquatic plants that would be approved for use in Texas without a permit.

Exotic and genetically modified algae used in biofuel production would have been regulated.

- **Escalating interest for use in biofuels**
- **Requires separate treatment**
- **Thousands of species/strains**
- **Many poorly described**

Special Concerns Related to Microalgae

- Toxicity
  - Humans
  - Animals
  - Other plants
- Propensity to bloom
- Competition with native species

Return to Prohibited List

January 2011 TPWD was directed to discontinue development of white list Regulations

SB 1480 Directed TPWD to return to the use of a Prohibited Plant list

> **“This section does not apply to any microalgae imported, possessed, used, or sold for biofuel, academic, or research and development purposes. The department shall consult with the Department of Agriculture as necessary to administer this section and may not adopt rules or permits for microalgae imported, possessed, used, or sold for biofuel, academic, or research and development purposes without written approval from the Department of Agriculture of the rules or permits.”**

Algae

University of Texas maintains one of the world's largest algae collections, with approximately 3,000 strains. The university supplies algae strains globally for research, biotech development, water quality assessment, and a variety of other purposes.

Algae

Enclosed reactors versus open ponds

Joule

Exxon/Mobile
Texas A&M

Algae

Joule Unlimited

Utilizes enclosed algal reactors

Operations in Leander, TX, Hobbs, NM, and the Netherlands

Just partnered with Audi

Algae

Exxon/Mobile

Collaborating with Synthetic Genomics on a $600 million project near Houston.

The project will utilize open ponds.

Renewable Fuel Standard Program

The RFS program was created under the Energy Policy Act of 2005.

It originally required 7.5 billion gallons of renewable- fuel to be blended into gasoline by 2012.

Energy Independence and Security Act (EISA) of 2007, the RFS program was expanded diesel, in addition to gasoline.

EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.

Texas along with Arkansas, Nebraska, and South Carolina is considering renewing a petition to waive the RFS mandate.

Other News

Texas A&M University is testing Chinese tallow as a biofuel on several plots.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You!