

ENVS 489 Syllabus — Independent Study

Trinity River Study

Environmental Science Independent Study (3 hours)

Student — Jaime Duran 50075719

Instructor — Chip Fox

Spring, 2009

Format:

This independent research project will consist of a study of the rate of plastic trash migration from Dallas into Galveston Bay and the Gulf of Mexico. The project will result in a substantial research paper that may include other information as well, depending on what is observed.

Background:

Plastic trash in the ocean has become a significant environmental problem. In the Atlantic Ocean, the North Atlantic garbage patch, consisting primarily plastic debris, covers an area hundreds of kilometers across, with a plastic debris density estimated at 200,000 pieces. The Pacific Ocean and the Indian Ocean have comparable plastic garbage patches. Although ocean-going ships undoubtedly contribute their share, the source of most of this debris is terrestrial litter carried to the ocean by rivers.

No practical way has been identified to remove or clean-up these oceanic garbage patches, but studies relative to their source area may help in slowing their growth. The proposed study intends to roughly measure the amount of time it takes for plastic litter in the Trinity River to travel from Dallas to the Gulf of Mexico.

Method of Research:

Several factors will be researched and considered in arriving at the average estimated travel time for the plastic debris. These include such things as topography, meanders, measured flow rates, and total Trinity River length between Dallas and the Gulf of Mexico. Target plastic bottles will be marked and released at a specific point in Dallas and tracked as much as is feasible. Possibilities include fluorescent paints, blinking lights, or small animal-tracking transmitters. These will not be tracked the entire length of the Trinity, but will be tracked through enough of the length of the Trinity so that a reasonably valid extrapolation can be made of the complete travel time.

Requirements:

- (a) The student must submit a professional-quality research paper that results from consisting of the topics listed above, professional both in content and appearance.

(b) The student must present his findings in a PowerPoint presentation to a session of the Intro to Environmental Science class

(c) The student must successfully pass an oral exam to be administered once the project is completed

Evaluation:

Course evaluation will be based on:

- Quality and thoroughness of the research effort
- The degree of professionalism displayed in the appearance, organization, and thoroughness of the paper produced by the project
- The degree of applicable knowledge displayed by the student during the oral exam and class presentation

Student — Jaime Duran

Date

Instructor — Dr. Haydn A. “Chip” Fox

Date

Dept. Head — Dr. Larry Lemanski

Date