

## **The PRWRERI Personnel Educated on River Mechanics**

On September 8th and 9th of 2011, Dr. Walter F. Silva taught a group of 24 people from the Department of Natural Resources of Puerto Rico a seminar titled "River Mechanics."

The fluvial systems transports and distributes water on the surface of the earth. They sustain the lives of millions of organisms that are essential to the preservation of natural resources to ensure sustainable development for this and future generations.

Understanding the principles that govern the dynamic evolution of these systems is essential for human development planning, preservation of the species that depend on water, and for the ecosystems equilibrium.

Using surface water for irrigation, human consumption, flood control projects, dams, and gravel extraction disrupt the ecosystems. This causes adversary effects such as silting or erosion of the channels, reducing flows needed for the preservation of certain species, separate the species that live in flood plains but require frequent contact with water, significantly alter the channels and can produce general deterioration of the environment.

The seminar was intended to provide the essential skills to understand the mechanisms that alter the geomorphological conditions of the rivers and their effects on the river system. These principles will be useful in the day to day decision process.

The topics discussed were:

1. Erosion / Sedimentation and River Mechanics
2. Balance and Stability of Alluvial Rivers
3. Concepts of fluvial geomorphology
4. Sediment Transport Concepts
5. Incipient movement
6. Stable channels
7. Bed forms
8. Suspended sediment
9. Bottom sediment
10. Stability analysis