Study Guide Aquatics/Water Station Learning Objectives

- **Hydrology and Watershed Dynamics:** Water cycle processes (evaporation, condensation, precipitation, infiltration, transpiration), watershed boundaries, groundwater systems, and aquifers.
- **Physical & Chemical Water Quality:** Water's unique properties and testing parameters such as dissolved oxygen, pH, turbidity, temperature, nutrients, conductivity.
- **Biological Assessment:** Habitat assessment, benthic macroinvertebrates as biological indicators, pollution tolerance levels, fish identification, and aquatic plants/invasive aquatic species (AIS).
- **Pollution & Management Planning:** Point source vs. non-point source pollution (e.g., stormwater runoff, agricultural/urban inputs), riparian buffers, and watershed management practices.

Envirothon Water Station Scoring Rubric
Based on standard NCF – Envirothon Test Writing Guidelines, tests are typically broken down by percentage weight per station:

Topic Category	Percentage of Station Score	Evaluation Criteria & What Judges/Graders Look For
Identification	**20%**	• Correct species identification (fish, plants, macroinvertebrates) using dichotomous keys. • Correctly identifying equipment or topographic/watershed map features.
Terminology & Concepts	**20%**	• Accurate definitions of hydrologic terms and aquatic ecosystem structure (abiotic/biotic).
Equipment & Field Tools	**20%**	• Proper use and reading of water testing kits (pH, turbidity) or field measuring tools.
Management Planning & Problem Solving	**20%**	• Applying critical thinking to real-world scenarios. • Proposing practical non-point source pollution controls like buffer strips, silt fences, grass-lined ditches. • Recommending correct habitat or watershed restoration steps.
Overall Resource Importance	**20%**	• Explaining the ecological and human value of clean water, wetlands, and sustainable aquifer use.