

# 國立臺北大學自然資源與環境管理研究所

## 103 學年度第一學期『環境工程科學概論』

### 課程講義(10)：水污染與水質管理概論 Water Pollution and Water Quality Management

- INTRODUCTION
  - Water Bodies and Water Uses => Water Quality Standards 水體水質分類標準
  - Self Clarification, Self Purification, Assimilation Capacity, Carrying Capacity
  - Water Quality and River Pollution Index => Effluent Standards 放流水標準
  - Total Maximum Daily Loads (TMDLs) vs. Total Mass Control
- WATER POLLUTANTS AND THEIR SOURCES
  - Point Sources vs. Non-point Sources
  - Oxygen-Demanding Material: Organic Pollutants
  - Nutrients => N&P => CTSI (卡爾森指數, Carlson trophic state index)
  - Pathogenic Organisms: Virus, Bacteria, Protozoa...
  - Suspended Solid => SS =>Particulate Matter (PM) and TSP
  - Salts (Dissolved Solid) => TDS and Salinity
  - Toxic Metals and Toxic Organic Compounds
  - Heavy Metals and Heat => Arsenic, Hot water effluent from nuclear power plants
- WATER QUALITY MANAGEMENT IN RIVERS
  - Effect of Oxygen-Demanding Wastes on Rivers
  - Biochemical Oxygen Demand (BOD)
    - ⇒Chemical Oxygen Demand (COD)
    - ⇒Decay (Aerobic Decomposition): First Order Reaction
  - Dissolved Oxygen and Water Quality: Temperature and Indicator Species
  - Laboratory Measurement of BOD => 5-Day BOD
  - DO Sag Curve (De-oxygenation and Re-aeration)
- WATER QUALITY MANAGEMENT IN OTHER WATER BODIES
  - Water Quality Management in Lakes
  - Water Quality Management in Estuaries
  - Water Quality Management in Oceans
- HOMEWORK #6 (2014/12/09 Due): 請收集相關法規以定義「飲用水水源水質保護區」與「自來水水質水量保護區」, 繳交之作業內容請說明依循之法律名稱與條次, 法律條文之定義內容等。此外, 請概要說明台灣地區「飲用水水源水質保護區」與「自來水水質水量保護區」的劃設概況。