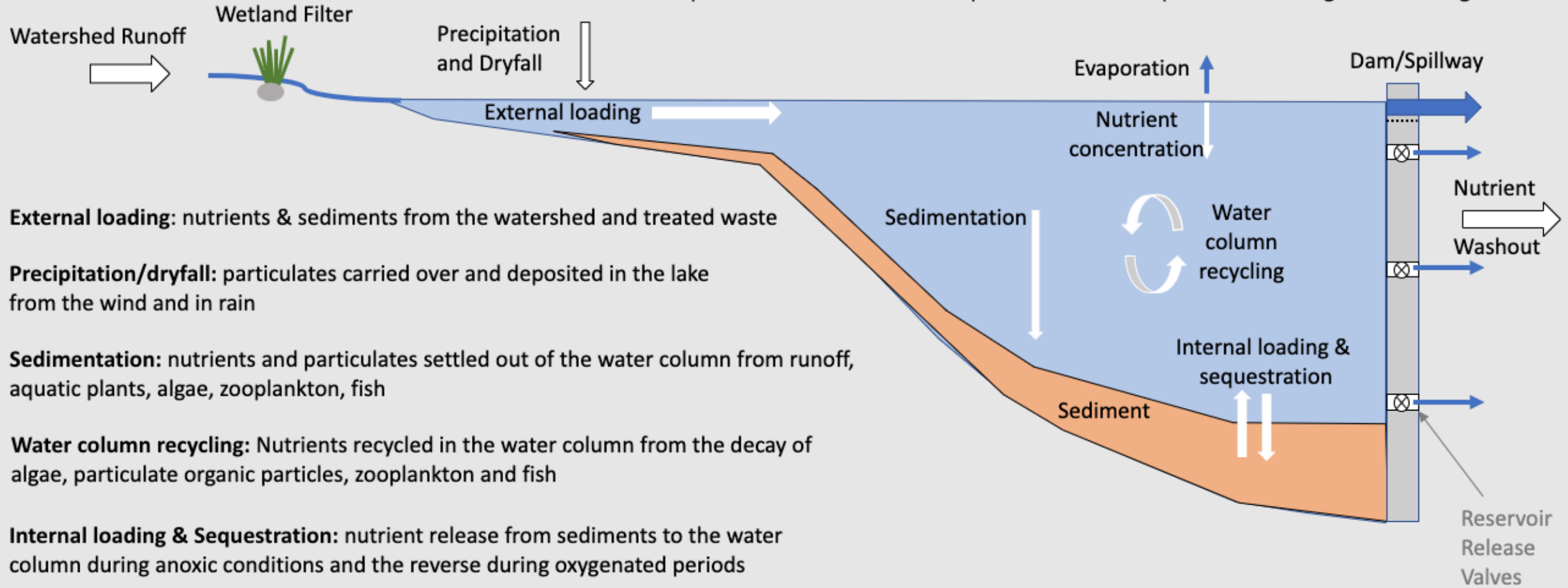


# Simplified Nutrient Dynamics in Lakes

Nitrogen & Phosphorus:

macro nutrients that drive cyanobacterial growth

Nutrient dynamics in lakes and reservoirs are controlled by a complex set of external and internal processes. All of these processes are at work but often they may be dominated by one or two. Lakes and reservoirs with deep, nutrient-rich sediments can release large amounts of nutrients under anoxic conditions. Often the dominant nutrient sources vary seasonally with changes in thermal stratification and the rainy season. Every lake has its own characteristics and it is important to understand these processes to develop effective management strategies.



**External loading:** nutrients & sediments from the watershed and treated waste

**Precipitation/dryfall:** particulates carried over and deposited in the lake from the wind and in rain

**Sedimentation:** nutrients and particulates settled out of the water column from runoff, aquatic plants, algae, zooplankton, fish

**Water column recycling:** Nutrients recycled in the water column from the decay of algae, particulate organic particles, zooplankton and fish

**Internal loading & Sequestration:** nutrient release from sediments to the water column during anoxic conditions and the reverse during oxygenated periods

**Nutrient Washout:** Nutrient release from the lake via over flow or from reservoir through control structures (release valves ⊗)