Wetland Biogeochemistry
Diagram of Wetland Mass Balance

Figure 5–14. Generalized diagram of components of a wetland mass balance, including inflows, outflows, and intrasystem cycling.
Components of Wetland Balance (Inflow)

- **Hydrological**
  - Precipitation
  - Surface Water
  - Ground Water
  - Tidal Exchange

- **Biological**
  - Photosynthesis
  - Nitrogen Fixation
  - Animals

- **Intrasystem Cycling**
  - Litter Production
  - Remineralization
  - Chemical Transformation
  - Translocation
Components of Wetland Balance (Outflow)

- Hydrological
  - Surface Water
  - Ground Water
- Biological
  - Respiration
  - Animals
- Physical
  - Long-Term Burial
  - Denitrification
  - Volatilization of Ammonia
  - Methane
  - HS
Nitrogen cycling in wetlands progresses more rapidly where there is a thin oxygenated soil layer present.

After Mitsch & Gosselink 1993
Phosphorus Cycle

Figure 5-11. Phosphorus transformations in wetlands. SOP indicates soluble organic phosphorus.
Figure 5–10. Carbon transformations in wetlands. POC indicates particulate organic carbon; DOC indicates dissolved organic carbon.
Wetland as Sink / Source / Transformer

Sink

Source

Transformer
Wetland Ecological Process
Diagram of Ecosystem Components

*Figure 2.1* Schematic representation of an ecosystem or a biogeocenose (framed) in a state of exchange with the environment. If it is possible to recognize a distinct boundary to the ecosystem, for example, the edge of a woodland, then the area enclosed by the frame would constitute a biogeocenose (Redrawn from Walter (1973); by kind permission of Springer-Verlag, Heidelberg.)
Diagram of Energy Flow
Succession

- **Autogenic** – community change brought about by the biota
  - Linear
  - Directed
- **Allogenic** – community change in response to environmental change
  - Continuum
Autogenic Succession

Figure 7-3. Diagram of classical hydarch succession at the edge of a pond. (After Wison and Loomis, 1967)
Plant Zonation