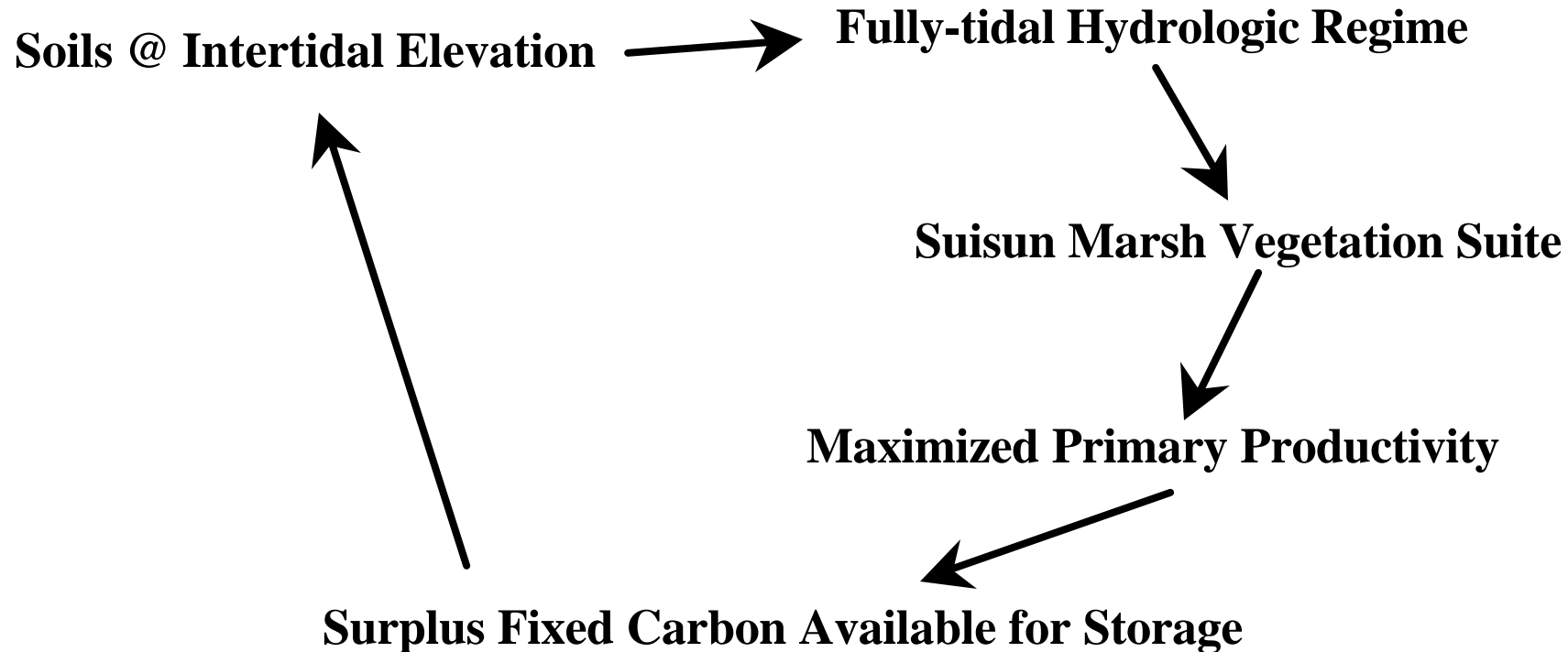


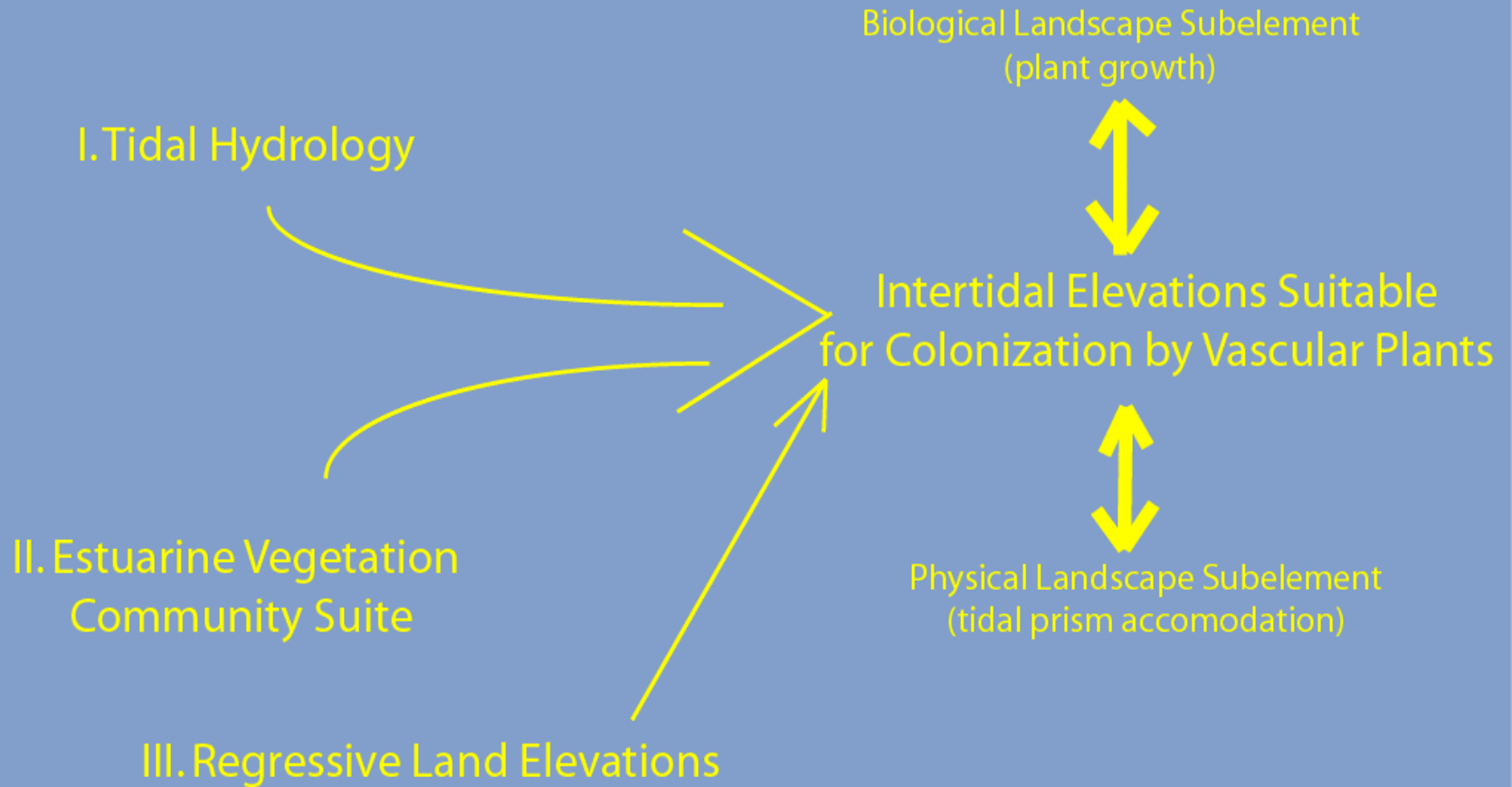
Conceptual View of Marsh as Carbon Storage Vessel



Conceptual Model of Suisun Marsh Geomorphology

Soils Forming and Sustaining Processes

An Exercise in Complex Systems Organization



Biological Systems Goal Seeking

An Exercise in Complex Systems Organization

I. Dominance



II. Persistence

Optimization of Productivity
Under Physical Constraints
(innundation, salt stress)

Physical Systems Goal Seeking

An Exercise in Complex Systems Organization

I. Dissipate Tidal Energy



Obey 2nd Law of Thermodynamics
and Other Physical Truths

II. Accomodate Tidal Prism
via Hydraulic Geometry
Reorganization



Tidal Marsh Plan
&
Channel Form

Attributes

Conceptual Model of Suisun Marsh Geomorphology

Ecosystem/Biotic Landscape Subelement

An Exercise in Complex Systems Organization

- I. Maximization of Primary Productivity and Incorporation of Surplus Biomass into Soil Horizons
- II. Peat Creation and Trapping of Additional Allocthanous Materials
- III. Marsh Ecosystem Ability to Track Changing RSL (Persistence) and Achieve Successful Genetic Transmission (Dominance)
- IV. Native Vegetation Suite Includes Species Adapted to a Variety of Conditions and Can Therefore Tolerate, Thrive, and Persist Under Conditions of Flood, Drought, RSL Rise, Sediment Deposition, etc.
- V. Peats Grow as High in the Intertidal Gradient as the Water Table Will Allow, Then Regress Until Upward Peat Building is Again Possible

Attributes

Conceptual Model of Suisun Marsh Geomorphology

Hydrologic Landscape Subelement

An Exercise in Complex Systems Organization

- I. Dissipation of Tidal Energy & Accommodation of Tidal Prism (tidal volume)
- II. If tidal energy or tidal volume diminish, tidal channel system "silts in"
- III. If tidal energy or volume increase, tidal channel system "erodes"
- IV. This leads to a dynamic equilibrium at the level of the tidal channel geometry

Linkage Between Landscape Elements

Vascular plants influence the "siltability" or "erodibility" of the tidal system, and themselves reflect the influence of other physical forcings (salinity, nutrients, etc.)