

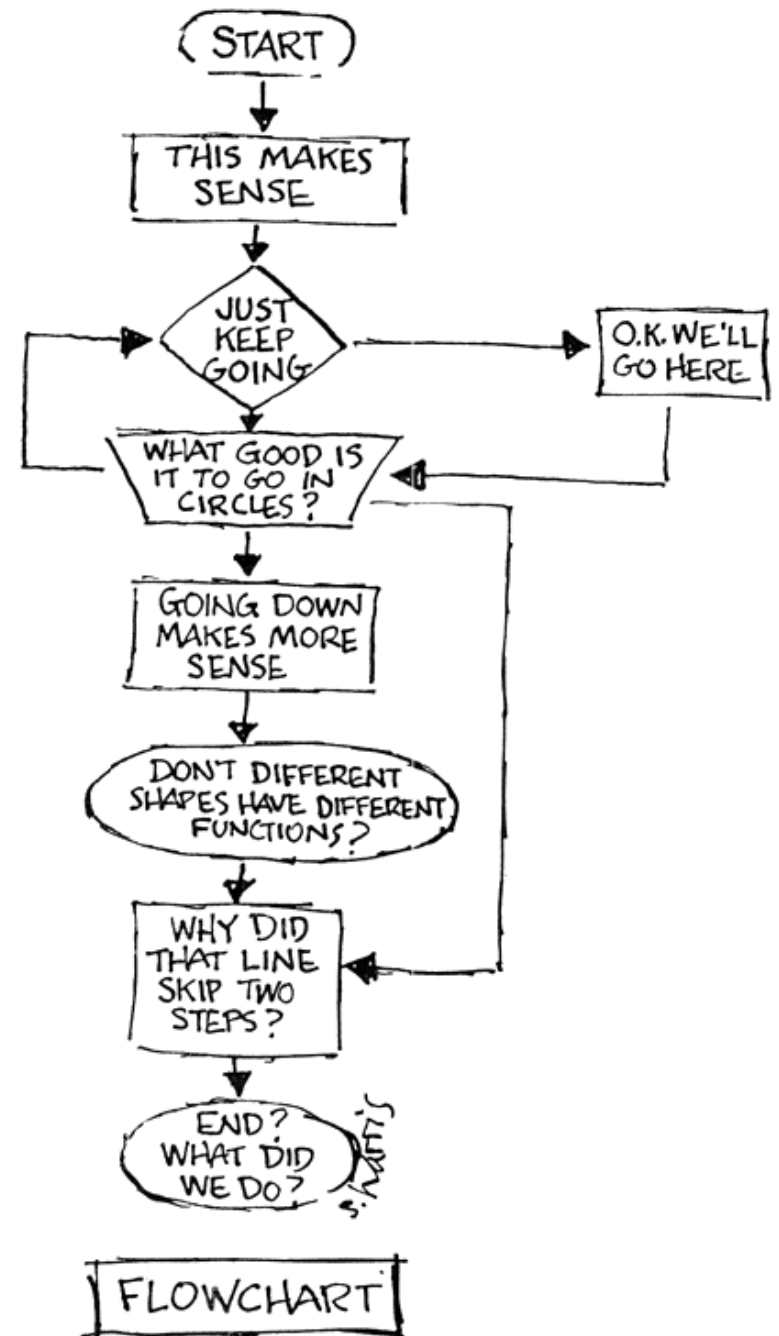


Conceptualizing Hinkson Recovery

Update August 1, 2012

Conceptual Models:

- Communicate – diffuse knowledge about complex systems
- Organize understanding
- Enforce systematic thought
- Formulate hypotheses
- Plan assessments
- Precursor to simulation

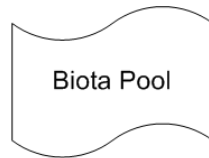
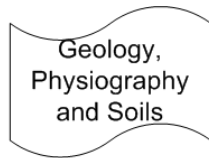
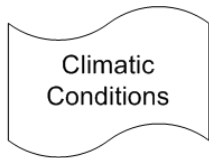


Properties

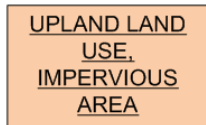
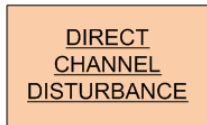
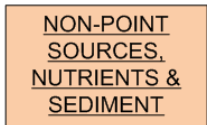
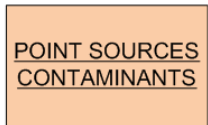
A conceptual model should be:

- Generic
- Specific
- Comprehensive
- Focused, parsimonious
- Simple
- Sufficiently realistic
- Efficiently developed
- Inclusive and organically developed

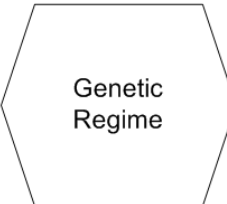
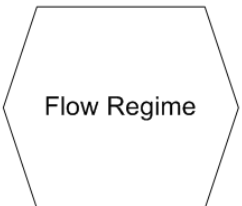
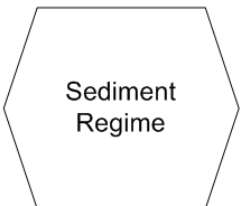
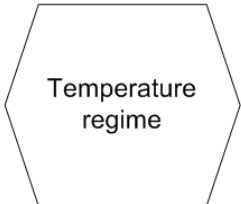
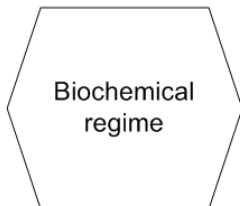
Framework



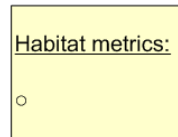
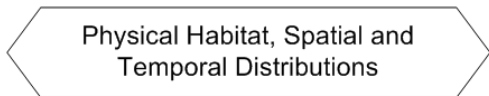
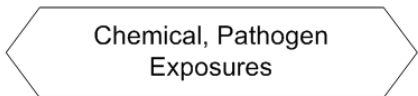
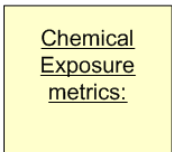
Alteration



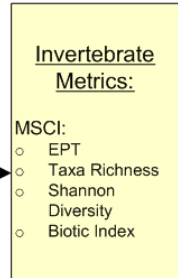
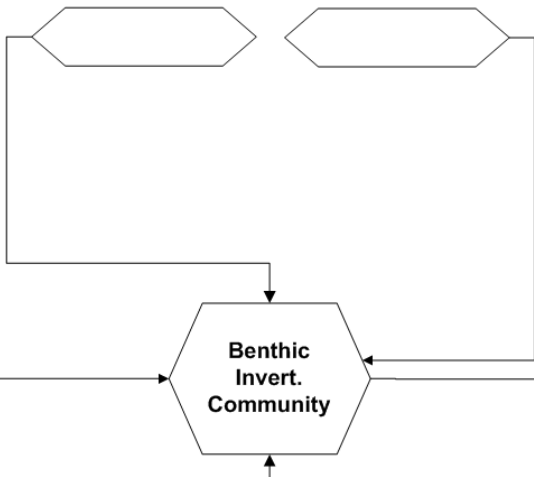
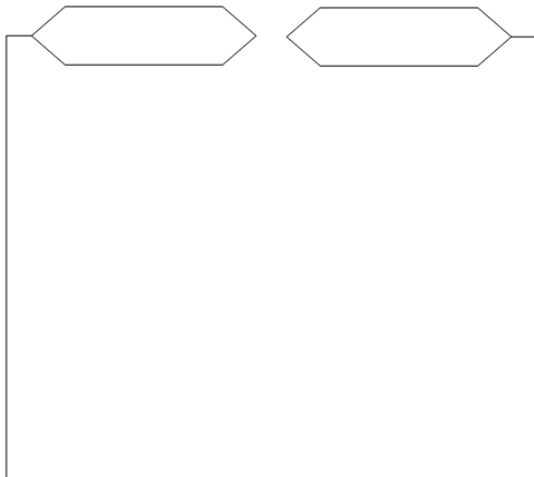
**Physical
Chemical
Regimes**



**Habitat &
exposure**



**Biotic
Responses**



POINT SOURCES
CONTAMINANTS

NON-POINT
SOURCES,
NUTRIENTS &
SEDIMENT

DIRECT CHANNEL
DISTURBANCE

UPLAND LAND
USE,
IMPERVIOUS
AREA

Close
Lagoon

**Biochem.
Metrics:**

- Bacteria flux
- Bacteria conc.

**Flow Regime
metrics:**

- Duration
- Peak flows
- Environmental flow components
-

Biochem
Regime

Temp.
Regime

Sediment
Regime

Channel
Floodplain
Morph.

Flow
Regime

**Chemical
Exposure
metrics:**

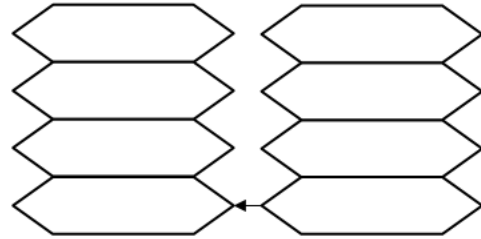
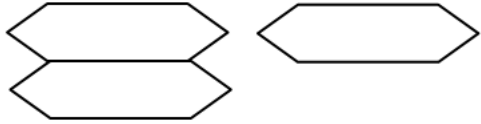
- Time-weighted conc.
- Contacts

**Habitat
metrics:**

- Width:depth ratios
- Erosion / deposition rates
- Scour
- Bed material
- Habitat availability

Chemical, Pathogen
Exposures

Physical Habitat, Spatial and
Temporal Distributions

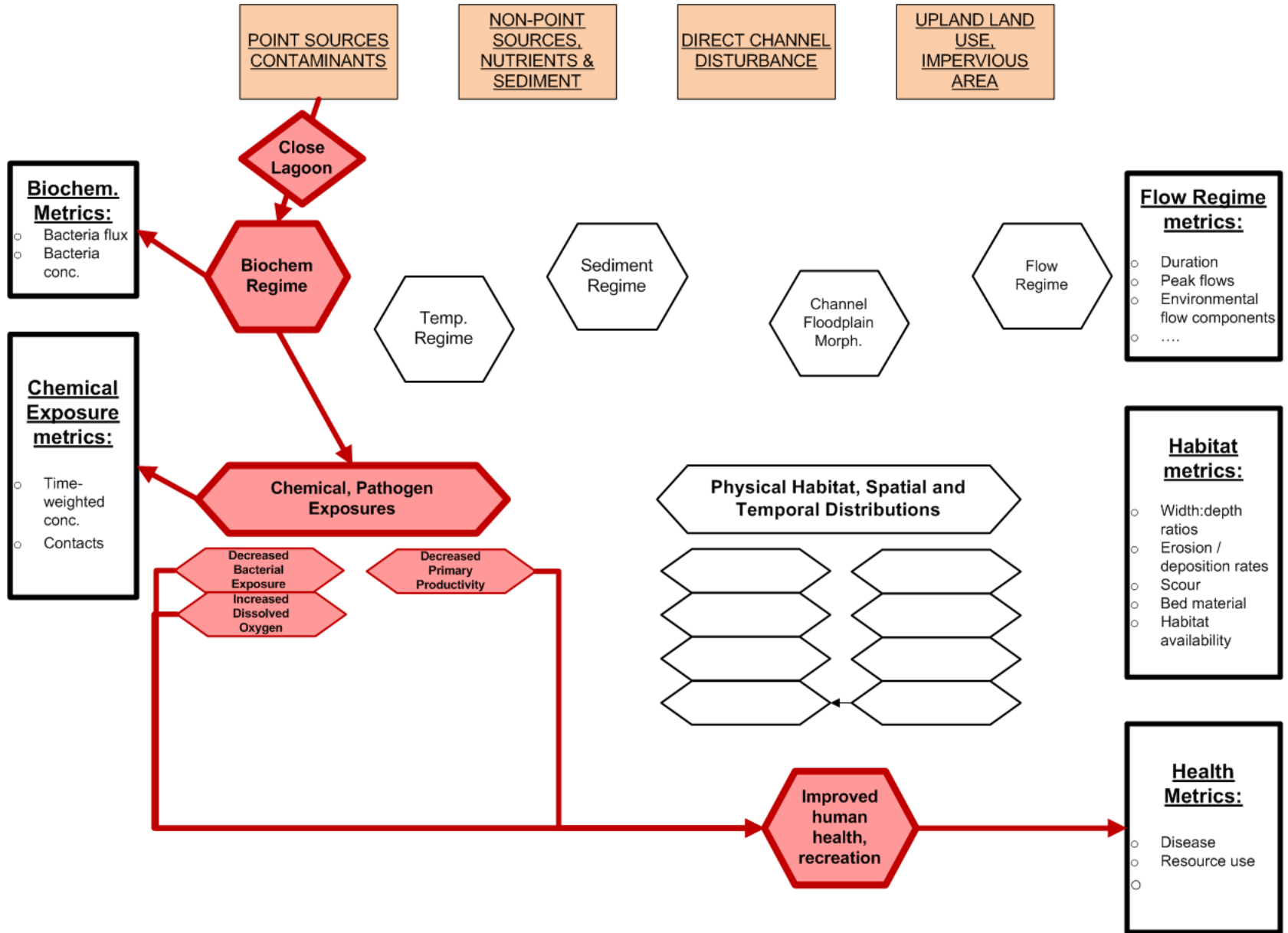


Improved
human
health,
recreation

**Health
Metrics:**

- Disease
- Resource use
-





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Improve
Detention

Flow
Regime

**Flow Regime
metrics:**

- o Duration
- o Peak flows
- o Environmental flow components
- o

Biochem.
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Regime

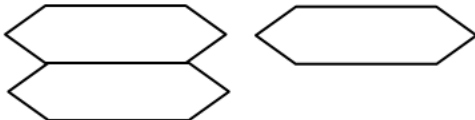
Sediment
Regime

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Morph.

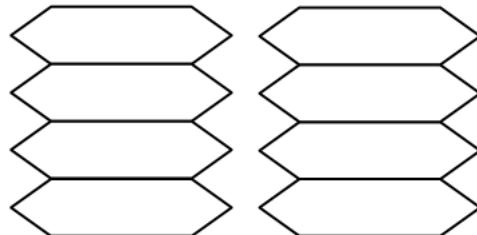
**Chemical
Exposure
metrics:**

- o Water chemistry
- o Time-weighted concentrations
- o ...

Chemical, Pathogen
Exposures



Physical Habitat, Spatial and
Temporal Distributions



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- o Width:depth ratios
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Improved
benthic
invert.
community

**Invertebrate
Metrics:**

MSCI:

- o EPT
- o Taxa Richness
- o Shannon Diversity
- o Biotic Index



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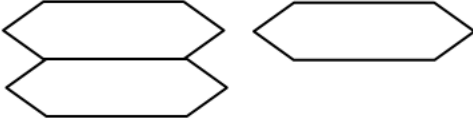
Flow Regime metrics:

- Duration
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- Environmental flow components
-

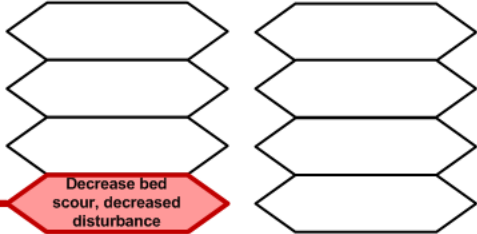
Chemical Exposure metrics:

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Chemical, Pathogen Exposures



Physical Habitat, Spatial and Temporal Distributions



Habitat metrics:

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- Bed material
- Habitat availability

Decreased peak flow
Increased low flow

Improved benthic invert. community

Invertebrate Metrics:

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- EPT
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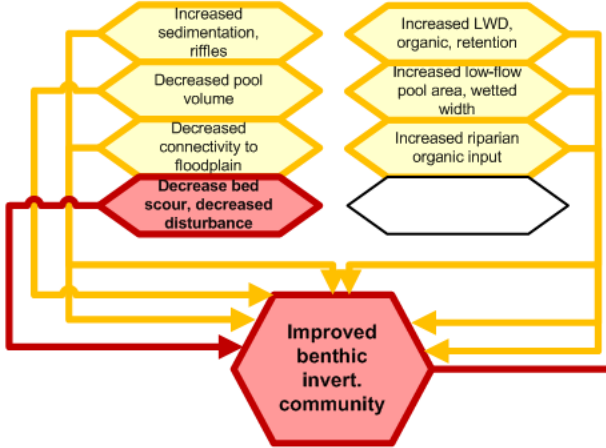
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