State of California Constituents of Emerging Concern Coastal and Marine Ecosystems Science Advisory Panel

Meeting #2

September 30, 2010
Costa Mesa, CA

SCHEDULE

- One-year project to be completed July 2011

- Meeting #1: Jan 2010
  - Defining/refining the charge
  - Perspectives of interested parties
  - Identify short term data gaps

- Meeting #2: Summer 2010
  - Working meeting to address charge questions

- Meeting #3: Winter 2011
  - Present preliminary findings

- Meeting #4: Spring 2011
  - Complete draft report for public comments

Jan 2011 to Present

- Resignation of Tracy Collier as Chair
  - Replacement with Schlenk and Denslow
- Approval of Special Studies Proposal
- Formulation of Draft Conceptual Model Framework

Charge Questions

- 1. What are the relative contributions of contaminants of emerging concern (CECs) discharged into coastal aquatic ecosystems from wastewater and stormwater?
  - OTHER INPUTS (ATMOSPHERE, BRINE, SEPTIC TANKS)

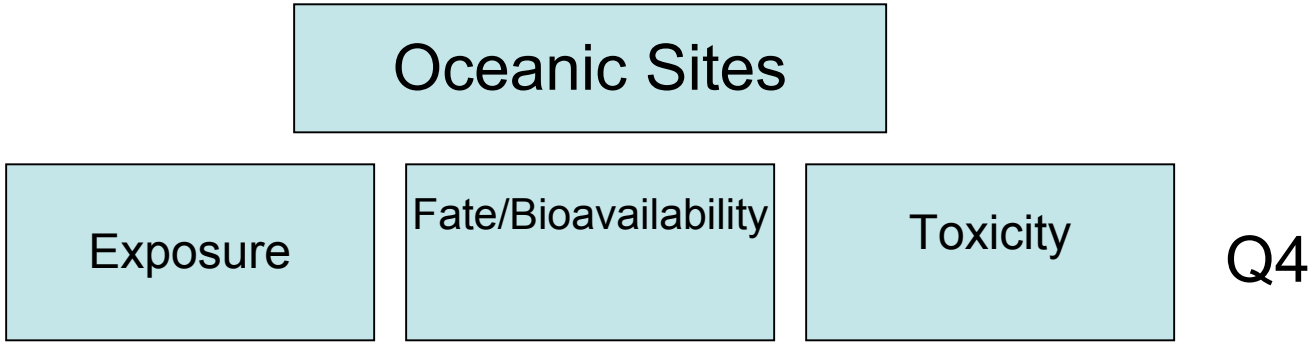
- 2. What specific CECs, if any, are most appropriate for monitoring in discharges to coastal aquatic systems and what are the applicable monitoring methods and detection limits?

- 3. How are these priority constituents affected by the chemistry, biology, and physics of treatment in wastewater systems, by discharge into and transport by coastal streams, rivers and estuaries, and as a result of mixing and dilution with receiving coastal and ocean waters?

- 4. What approaches should be used to assess biological effects of CECs to sentinel species in coastal aquatic systems?

- 5. What is the appropriate design (e.g. media, frequency, locations) for a CEC monitoring and biological effects assessment program, given the current state of the art?
  - What level of effects will be detectable with such a monitoring program and how will its sensitivity vary with investment?

- 6. What concentrations of CECs or levels of biological effects should trigger further actions and what options should be considered for further actions?
  - More comfortable with "…triggering further assessment.



Framework

Prioritize compounds using:

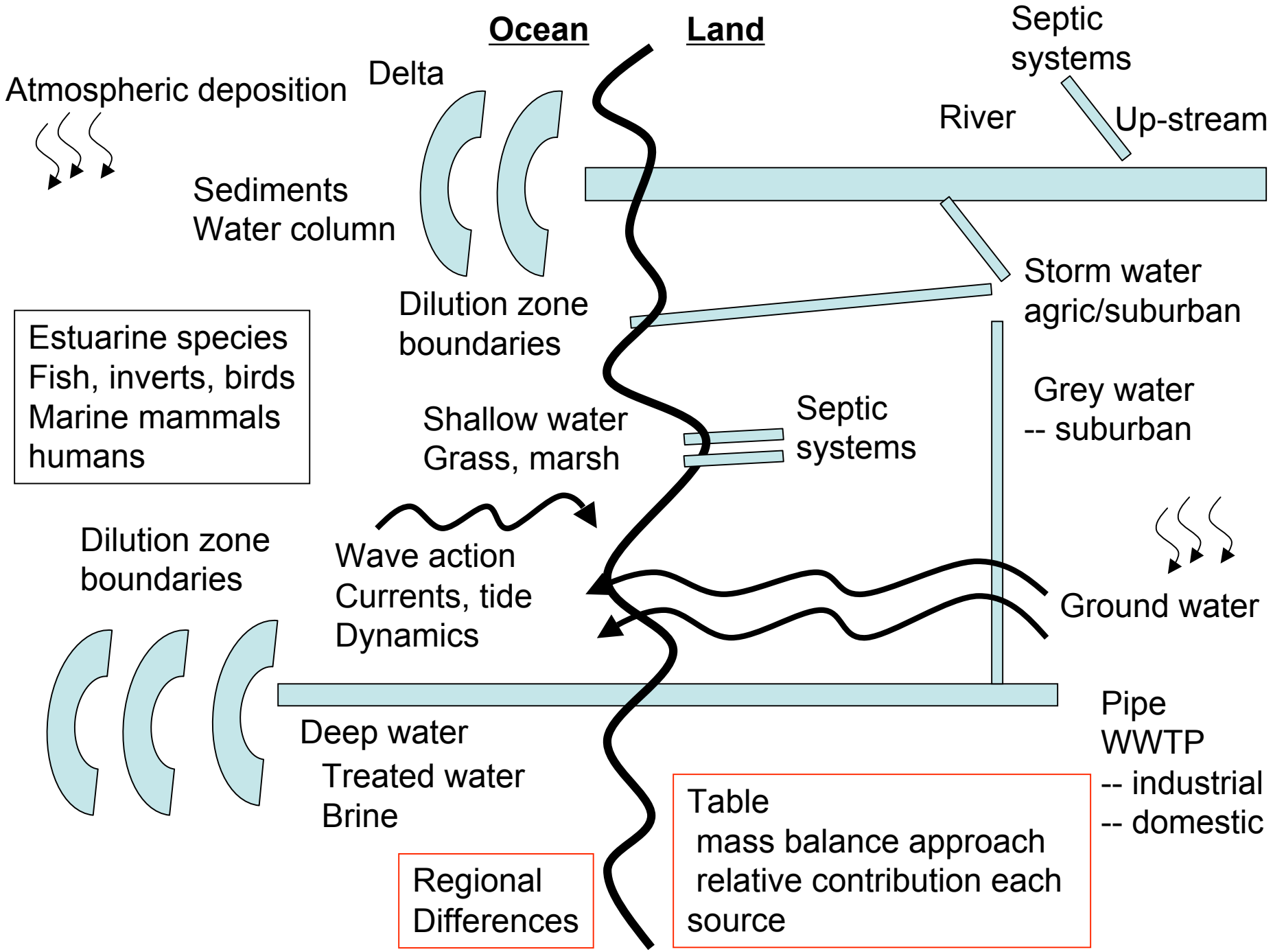
- each category for initial screening (CCl3)?
  - Subjective Ranking (1-5)
- WERF model/list?

Q5

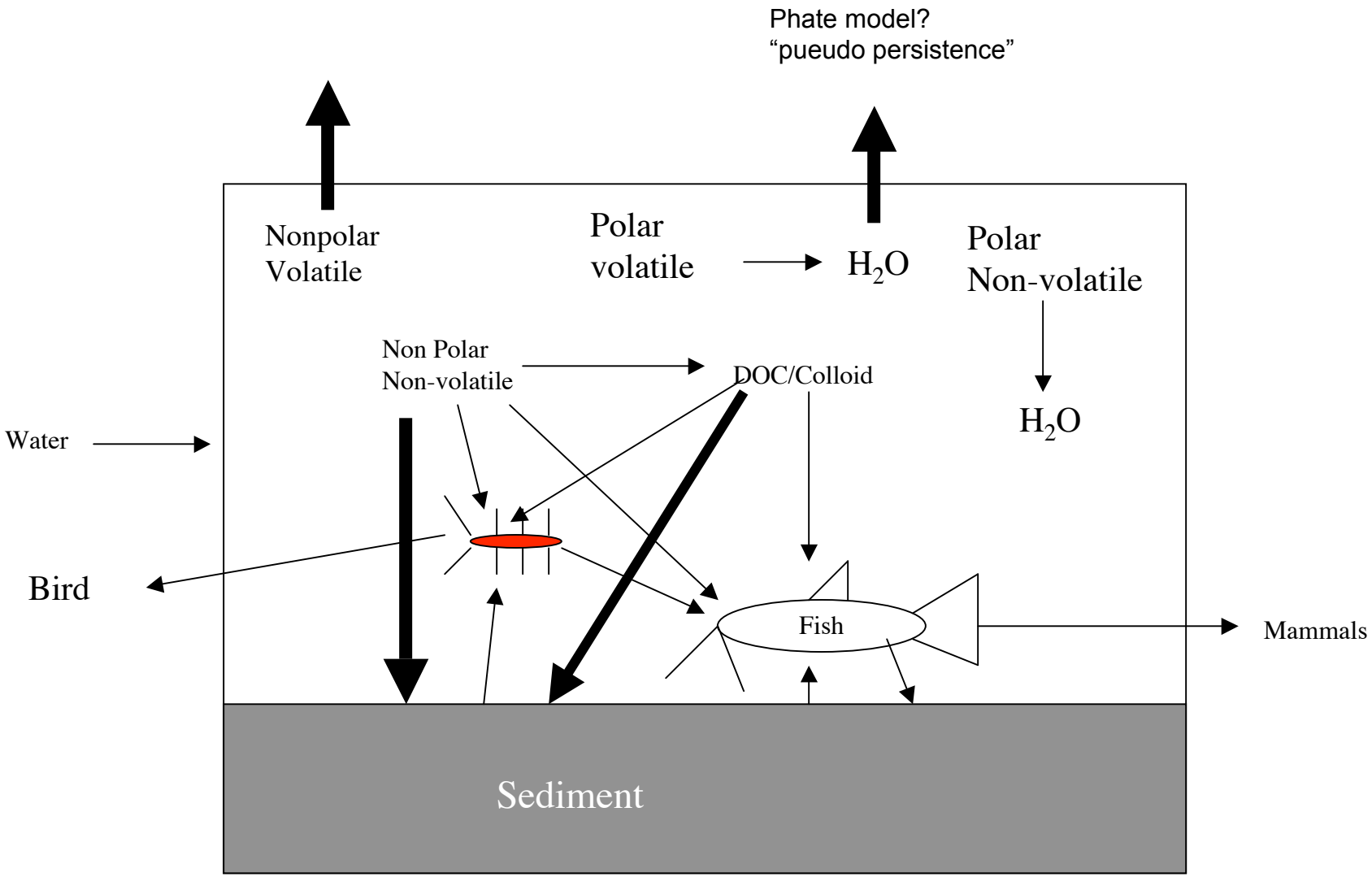
Q6

Case Studies for confirmation?

- SAR
- OCSD/LACSD
- Bight studies


Ocean
Land
Septic systems
Delta
Atmospheric deposition
River
Up-stream
Sediments
Water column
Storm water agric/suburban
Dilution zone boundaries
Estuarine species
Fish, inverts, birds
Marine mammals
humans
Grey water -- suburban
Shallow water
Grass, marsh
Septic systems
Dilution zone boundaries
Wave action
Currents, tide
Dynamics
Ground water
Pipe
WWTP
-- industrial
-- domestic
Deep water
Treated water
Brine
Table
mass balance approach
relative contribution each source
Regional Differences

Paradigm for the fate of Organics in Aqueous systems



Potential Effects

- Direct Effects
  - Receptors of Interest
    - Bacteria
    - Phytoplankton/algae
    - Inverts (benthic vs.pelagic)
    - Fish (benthic vs. pelagic)
    - Birds
    - Mammals (humans)

- Indirect effects
  - Bioaccumulation-->Food web
  - Prey limitations

Endpoint Considerations

- Population> Individual > Physiological > MOA (WERF)
  - Retrospective
  - Propsective

- Chronic vs. Acute

- Repro>growth>survival
  - Neuro-endocrine
  - Immune
  - Developmental (ELS)

- Antibiotic Resistance

- Mixtures

Figure ES-4. Flow diagram conceptualizing steps needed in prospective and retrospective assessments of trace organic chemicals (TOrCs) in terms of ecological impact

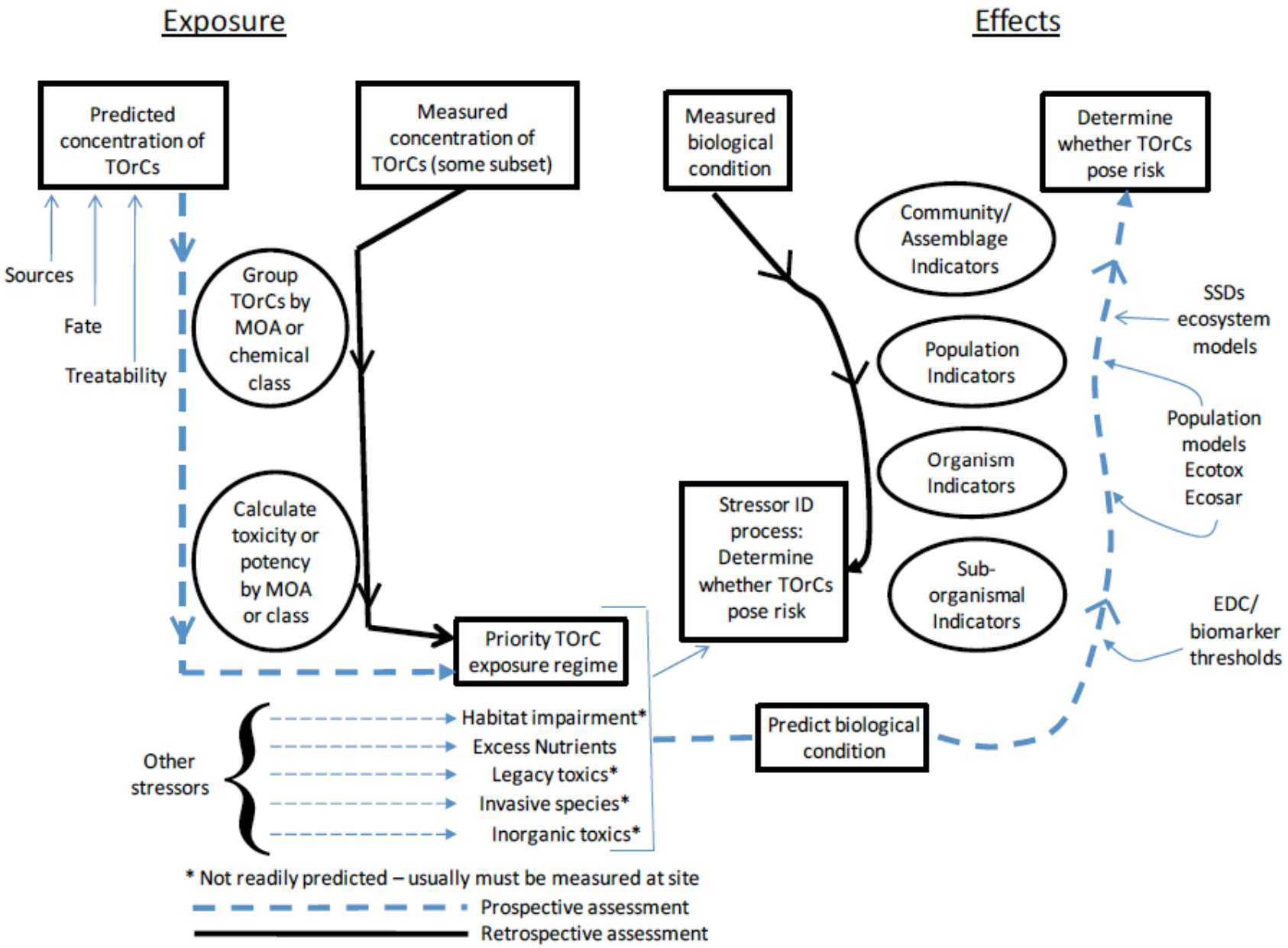
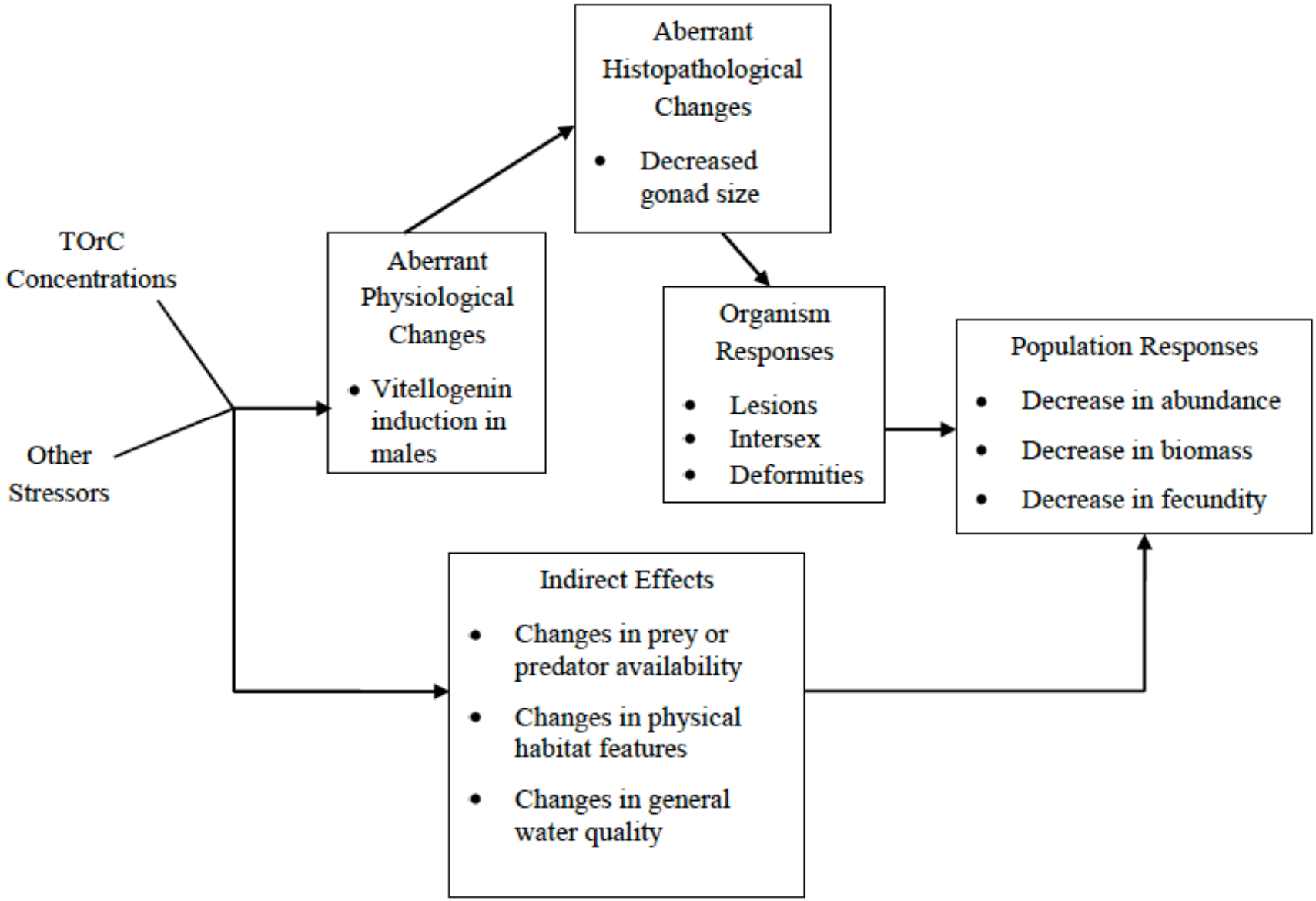


Figure ES-5. Relationships between TOrC exposure and exposure to other stressors and different levels of effect.



Objectives for Meeting 2

- Discuss Special Study Data Outcomes
- Combine Meeting with WERF FW panel to discuss possible overlaps and database sharing
- Outline specific tasks for Draft of Report