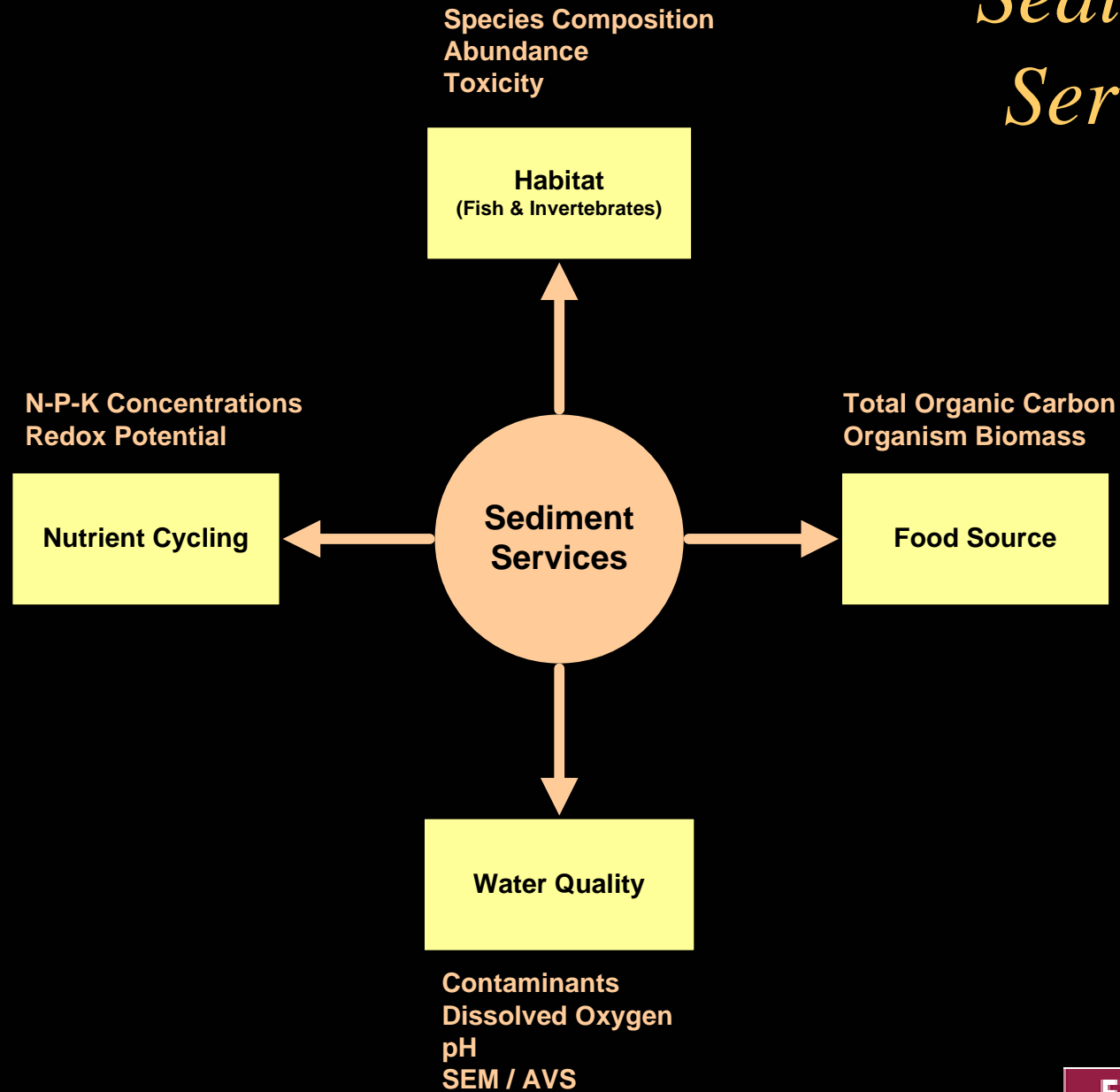


# *Sediment Oiling and Service Loss*

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# *Sediment Services*



# *Sediment Toxicity*

- Different Methods:
  - Total PAH Concentration:
    - ERM Quotient = Estimated Pr(Toxicity) = Service Loss
      - Toxicity estimated from total PAH concentration
      - Estimates lack site-specificity
  - Chronic Toxicity Measurements:
    - Actual Pr(Toxicity) = Service Loss
      - Toxicity site-specificity achieved
      - What is primary cause of toxicity?
      - Is a TIE or PAH fingerprinting necessary?

# *Sediment Chemistry and Service Loss*

<b>Site Priority</b>	<b>Chemical Characteristics</b>	<b>Pr(Toxicity)</b>
Highest	Mean ERM Quotient: > 1.5 ERM Values: > 10 Exceeded	74% 85%
Medium-High	Mean ERM Quotient: 0.51 – 1.5 ERM Values: 6 - 10 Exceeded	46% 52%
Medium-Low	Mean ERM Quotient: 0.11 – 0.5 ERM Values: 1 - 5 Exceeded	30% 32%
Lowest	Mean ERM Quotient: < 0.1 No ERL Values Exceeded	12% 11%

**Source:** Long and MacDonald (1998); Long et al. (1998)

## *Some Questions to Consider*

- Does toxicity reflect realistic loss of sediment services?
  - Is it too conservative?
  - Can (or should) it be scaled appropriately?
  - How would defensible scaling be performed?
- Is ERM Quotient method adequate?
  - Based on site-specific total PAH concentrations
  - Resulting toxicity estimate lacks site-specificity
- Is site-specific chronic toxicity adequate?
  - Needs significant relationship to spill-related total PAH
  - Is it too conservative?
  - Can (or should) it be scaled appropriately?
  - How would defensible scaling be performed?

## *Some Questions to Consider (Cont'd)*

- **How is recovery estimated?**
  - Is additional (long-term) sampling & testing necessary?
  - Can sediment accretion or PAH degradation estimates be used?
- **How is a suitable reference envelop determined?**
- **How is sediment injury coupled with above-ground injury to produce overall loss of services for shoreline segments?**
  - Required to avoid double-counting injury

*All models are wrong but  
some are useful*

G. Box (1979)