

# Environmental Risk Assessment

CES VCU

ENVS 601

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# Risk Assessment in the Federal Government

According to NRC (1983), risk assessment predicts the impacts to health from exposure to an environmental agent or condition

# Ecological Risk Assessment

EPA (1992) defined ecological risk assessment as “a process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors.”

Suter agrees in principle

# Application of risk assessment

- Law
- regulation
- policy
- health
- environment
- wildlife
- safety
- emergencies

# Basic approach

- Source
- Exposure assessment
- Hazard assessment
- Dose-response function
- Risk characterization
- Discussion with manager
- Uncertainty analysis

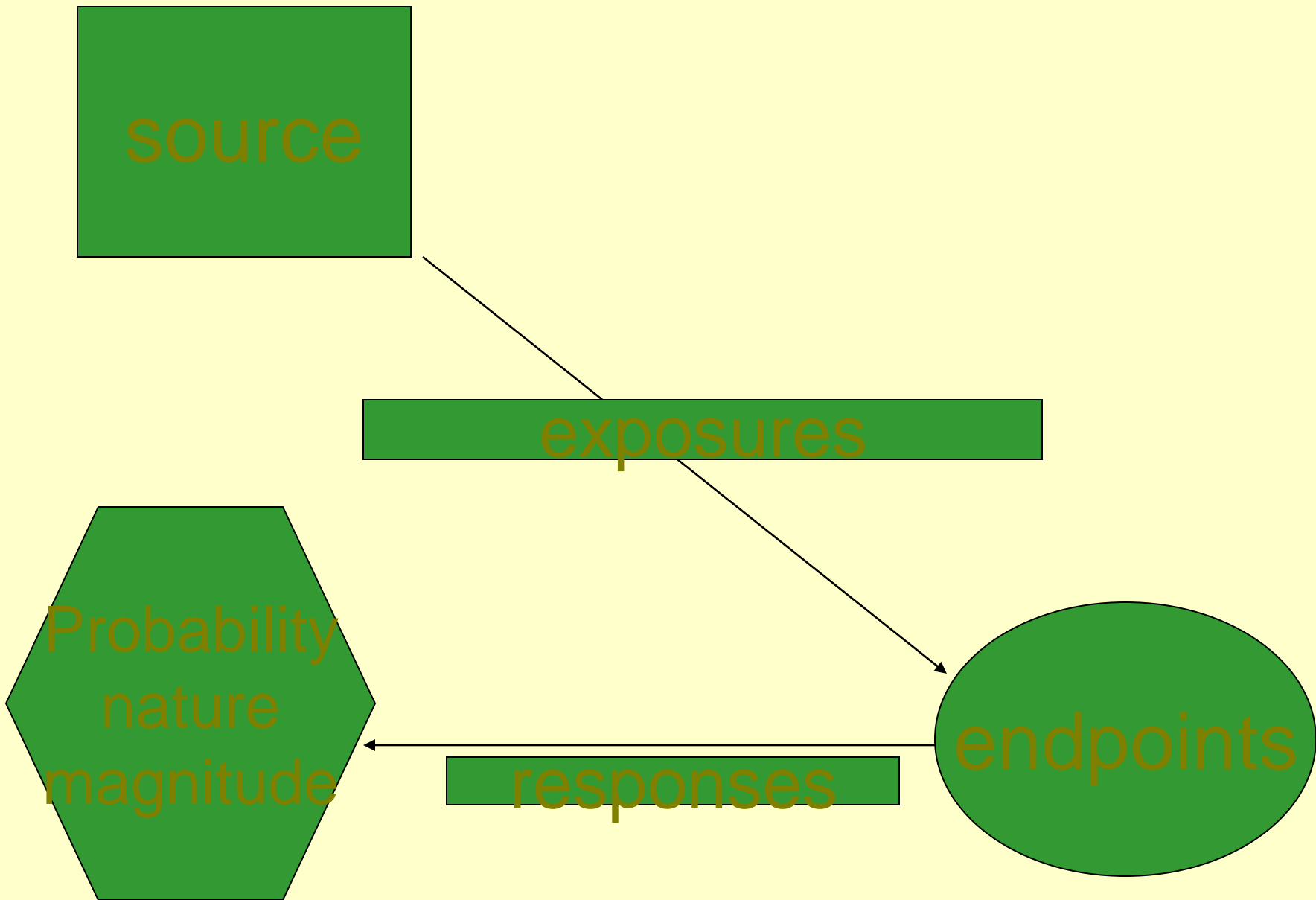
# Federal Environmental Laws

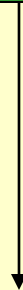
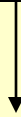
- National Environmental Policy Act
- Clean Water Act
- Clean Air Act
- Superfund - CERCLA
- Solid Waste Act - RCRA
- Endangered Species Act
- Safe Drinking Water Act

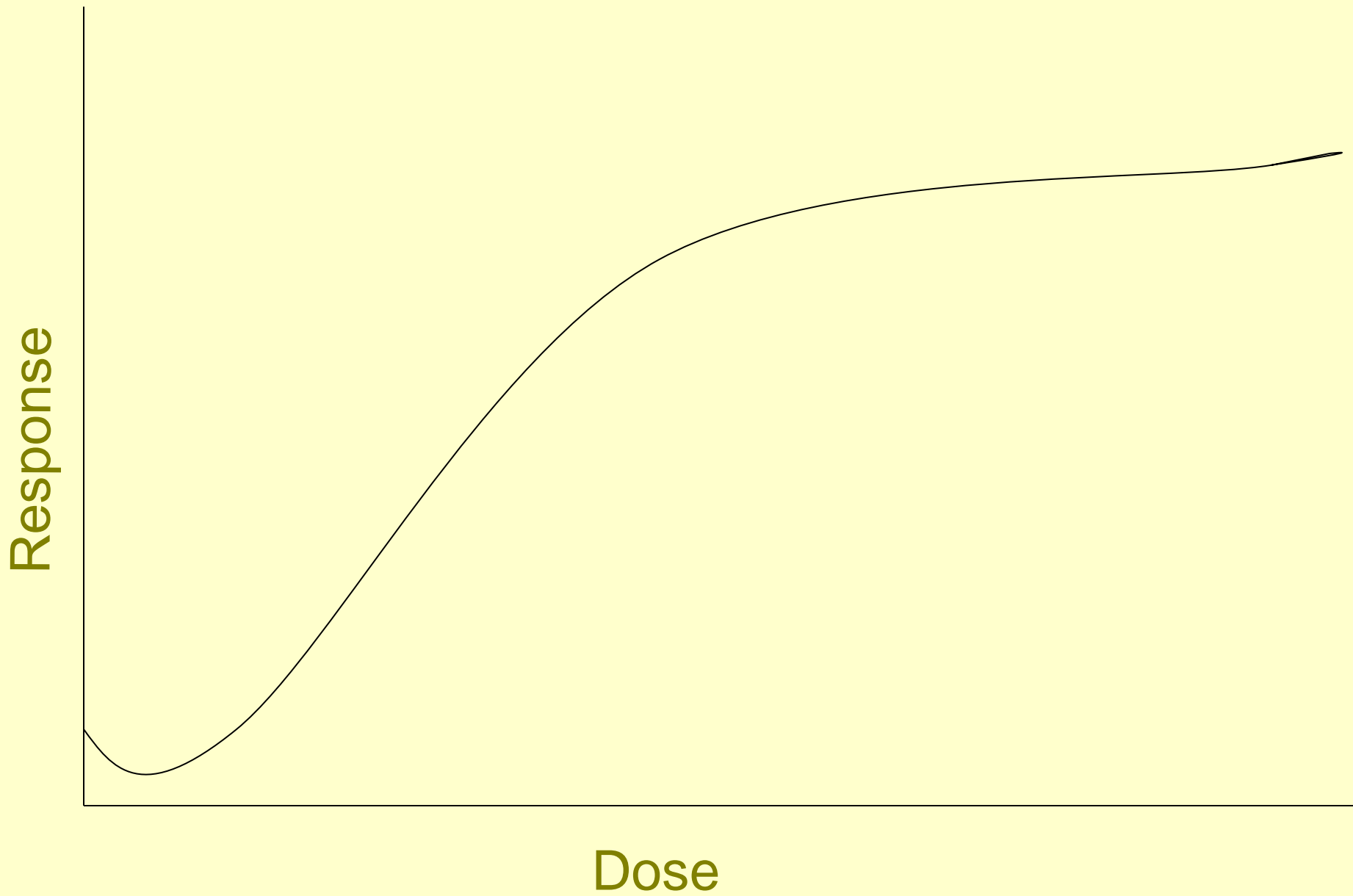
- Pesticide Act - FIFRA and FQPA
- Marine Mammal Act
- Marine Protection Research and Sanctuary Act
- Migratory Bird Act

# Risk assessment derives from toxic chemicals

- Dose makes the poison
- Dose-response is required (linear or otherwise)
- Underlying biology needed
- no-exposure = no poison
- lab testing is the basis







# Testing concepts

- animals as surrogates – concepts of extrapolation
- Dose selection
- Response identification
- LD vs LC
- LD 50 ideas and issues
- Sample sizes

- Duration of exposure and experiment
- ASTM
- Baselines and “normal”
- Points of comparison-  
experimental v control, n, t, dose,  
etc
- monophasic/monotonic curves?