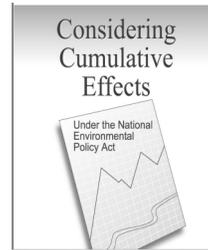


Cumulative Effects Analysis

Leslie E. Wildesen, Ph.D.
ETCI, Inc.
June 29, 2006

CEQ Guidance



- 1997
- Available online
- The Book!

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Why talk about cums?

- Required by NEPA regulations
- Puts your project in perspective
- Essential for large-scale issues
- Helps prevent the “tyranny of small decisions”

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What are they?

“The impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions...”

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What are they? (2)

...regardless of what agency...or person undertakes such other actions.”

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What are they? (3)

“Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

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Key Tasks

- Define criteria
- Find unique discriminators
- Define thresholds
- Get buy-in from major players

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Project Footprint

Direct / Indirect { Project 1
Resources ABC

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Resource Footprint

Cumulative effects

- Project 1
Resources ABC
- +
- Project 2
Resources A, B
- +
- Project 3
Resource C

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Methods

- Described in CEQ Guidance
- 7 “Primary” methods
- 4 “Special” methods

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Primary Methods (1)

- Questionnaires, Interviews and Panels
- Checklists
- Matrices
- Networks and System Diagrams

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Primary Methods (2)

- Modeling
- Trends Analysis
- Overlay Mapping and GIS

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Special Methods

- Carrying Capacity Analysis
- Ecosystem Analysis
- Economic Impact Analysis
- Social Impact Analysis

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For all methods...

- Use pre-existing data
- Essential to define criteria
- Essential to define thresholds
- Be as precise as possible

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How to choose

- Specific applications vary
- Criteria must be clear
- All methods must be
 - Validated
 - Flexible
 - Reliable and repeatable

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Can the method assess:

- Effects “same” and “different”?
- Temporal change?
- Spatial characteristics?
- Structural/functional relationships?
- Physical/biological/human interactions?

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Can the method...

- Quantify effects?
- Synthesize effects?
- Suggest alternatives?
- Serve as a planning tool?
- Link with other methods used?

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Tools

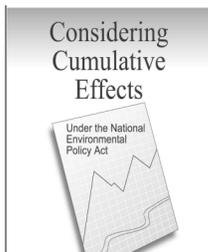
- CEQ “Considering Cumulative Effects” Guidance (1997)
- ETCI “CEA” Protocol (1998)
- ETCI “Determining Boundaries” Protocol (2001)

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CEQ Guidance



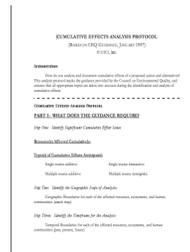
- 1997
- Available online
- The Book!

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ETCI Cums Protocol



- 1998
- Available online
- Based on The Book
- Helps you organize your thoughts

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Env'l Consequences

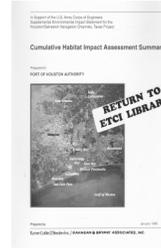
- Identify cause-effect relationships
- Determine magnitude and significance of impacts
- Develop mitigation or alternatives
- Monitor and adapt management

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Galveston Ship Channel



- EIS 1995
- US Army Corps of Engineers
- Port of Houston Authority
- Many players

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Things to notice...

- Committee / IDT structure
- Geographic scope
- Project selection
- Data sources
- Methodology
- Alternative analysis

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Methodology

- Criteria
 - Magnitude
 - Intensity
 - Duration
- Specific data -- acres
- Analysis -- weighting

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Alternatives

TABLE 1. Summary of Bayou PROJECT Alternatives Comparing the METRO/OTB Impacts to Two Alternative Plans

Alternative	No Project				Alternative 1				Alternative 2			
	Wetland (Acres)											
Alternative 1	0	0	0	0	0	0	0	0	0	0	0	0
Alternative 2	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Loss	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Gain	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Change	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Loss (Net)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Gain (Net)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Change (Net)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Loss (Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Gain (Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Change (Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Loss (Net Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Gain (Net Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Change (Net Total)	0	0	0	0	0	0	0	0	0	0	0	0

- No project

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Wetland Change (Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Loss (Net Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Gain (Net Total)	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Change (Net Total)	0	0	0	0	0	0	0	0	0	0	0	0

- No project
- Open Bay

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