

# Flood Damage Reduction

## Objectives

- Identify causes of floods and control options
- Identify your responsibility in the flood control mission
- Summarize flood control mission

# Causes of Floods



## Factors Affecting Runoff

- Snowmelt vs rainfall
- Rural area vs urban setting
- Foothills and mountains vs flat terrain
- Short, high intensity storm vs long, low intensity storm

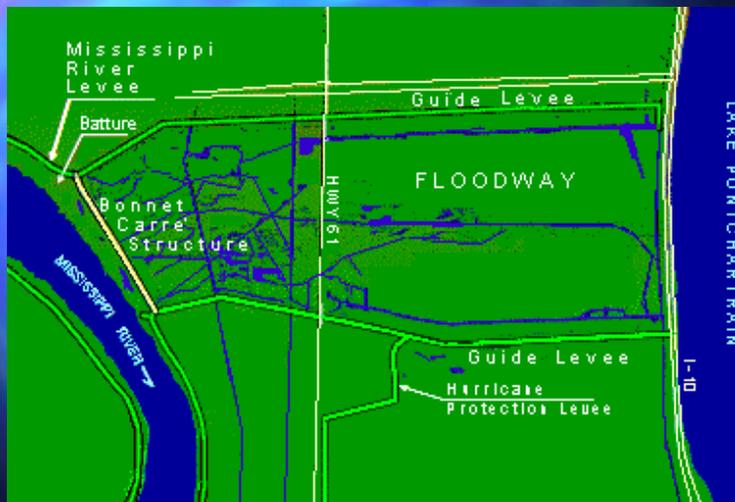
## Flood Control

- Channel improvements
- Divert the water
- Contain the water

# Channel Improvements



# Divert the Water



# Divert the Water



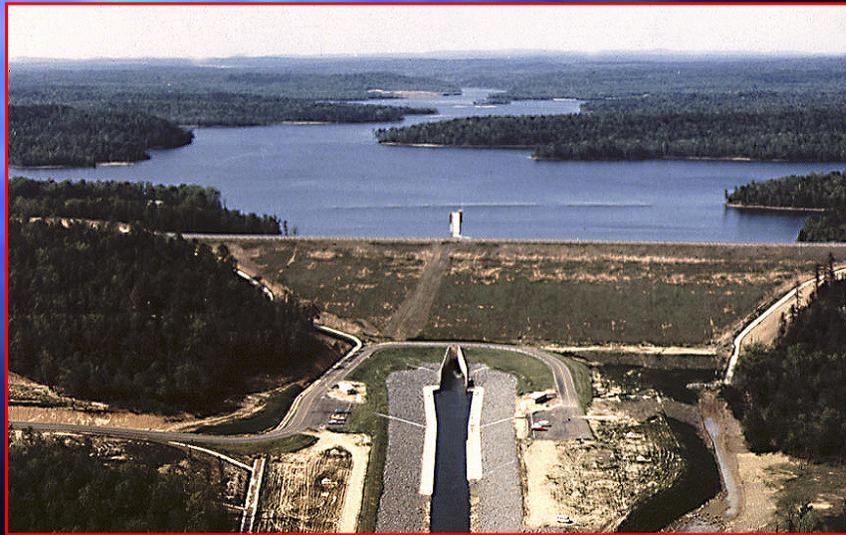
# Divert the Water



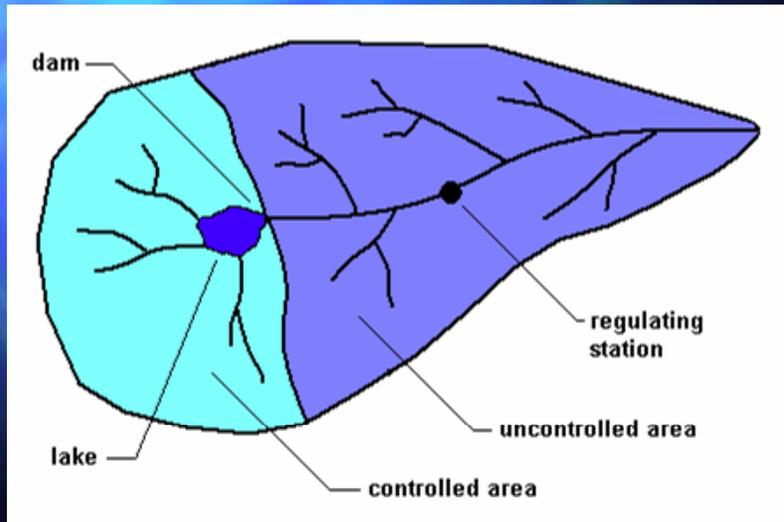
## Contain the Water



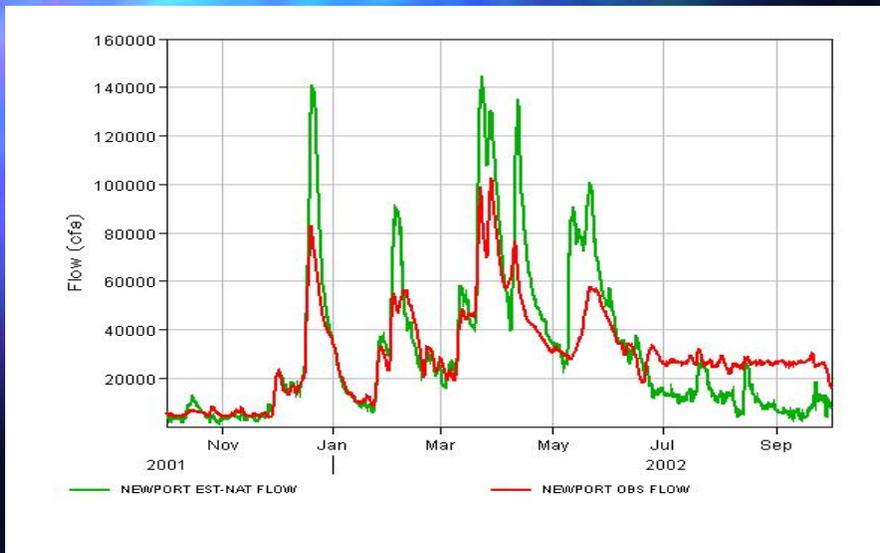
## Contain the Water

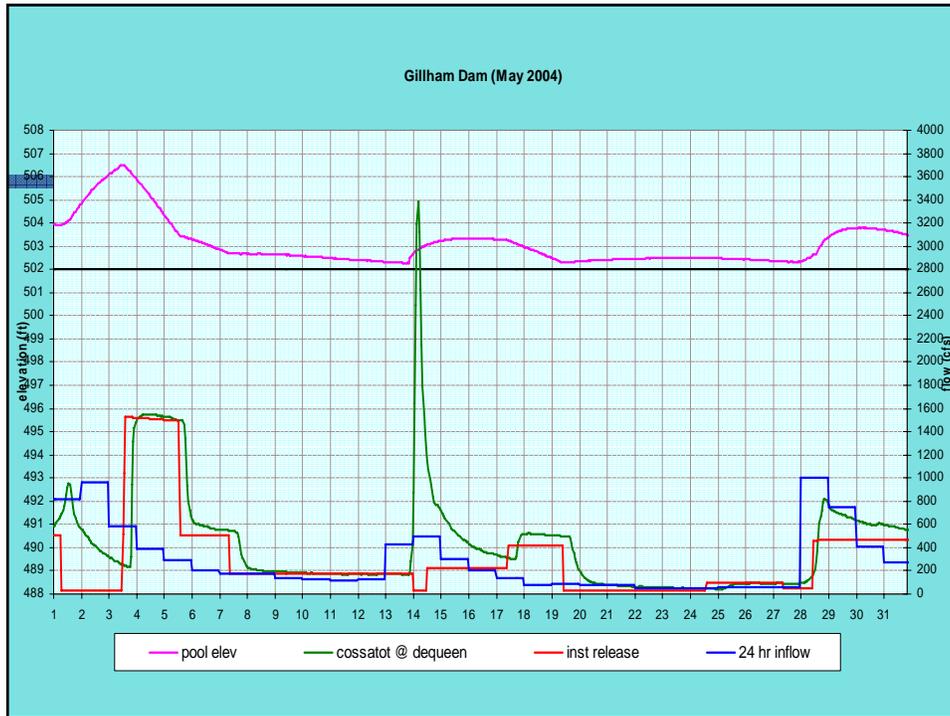


## Contain the Water



## Contain the Water





## Role of Field Personnel



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# Inspection of Local Flood Protection Projects



# Certified Unsafe



## Flood Fighting



## Summary of Flood Control Projects

- Since 1936, Corps has completed:
  - 400 major lake and reservoir projects
  - 8,500 miles of levees and dikes
  - Hundreds of smaller local flood damage reduction projects
- Total cost = \$119 billion (build and maintain)

## Summary of Flood Control Benefits

- Since 1936, has prevented \$706 billion dollars in damages
- Today, it is estimated that \$21 billion in damage is prevented in an average year
- 6:1 return on investment ratio



# FLOOD & COASTAL STORM DAMAGE REDUCTION Business Program

*Harry E. Kitch P.E., Program Leader*



Operations Project Managers

3 August 2005



## Civil Works Strategic Plan

### Program Objectives

- Invest in flood and coastal storm damage reduction solutions when the benefits exceed the costs
- As approved and funded, provide range of assistance to support sustainable regional, basin-wide, or watershed planning and activities in partnership with others
- Deliver project benefits as quickly as possible within available resources
- De-authorize projects that no longer: (a) show a positive benefit-to-cost ratio or (b) have the active support of a local cost-share sponsor.
- Operate and maintain Corps infrastructure to ensure that designed levels of flood protection are realized

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2



## Key Ranking Factors

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<p><b><u>At start of 06 process</u></b></p> <ul style="list-style-type: none"><li>• <b>Studies (GI)</b><ul style="list-style-type: none"><li>– Completions</li><li>– # People in floodplain</li></ul></li><li>• <b>Construction (CG)</b><ul style="list-style-type: none"><li>– Completions</li><li>– RBRCR</li></ul></li><li>• <b>Operations / Maintenance (O&amp;M)</b><ul style="list-style-type: none"><li>– “must have” (Increment I &amp; part of 2)</li><li>– O&amp;M BCR</li></ul></li></ul>	<p><b><u>At end of 06 process</u></b></p> <ul style="list-style-type: none"><li>• <b>Studies (GI)</b><ul style="list-style-type: none"><li>– Signed agreement</li><li>– High performance (RBCR for PEDs)</li></ul></li><li>• <b>Construction (CG)</b><ul style="list-style-type: none"><li>– Dam Safety</li><li>– RBRCR</li></ul></li><li>• <b>Operations / Maintenance (O&amp;M)</b><ul style="list-style-type: none"><li>– Must have</li><li>– O&amp;M BCR</li></ul></li></ul>
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## Performance-based Budget

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- Goal: **Reduce Nation’s flood risk**
  - Get projects on line to start generating benefits
  - Keep projects operating
  - Address new problems
  - Provide tools and support for business program
  
- Budget Ranking Criteria

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## Perspective

- View from the project - 100%
- View from the MSC - 5-10%
- View from HQ – ½ - 1 %
- View from OMB - too small to see

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5



## Problems with Input Data

- Missing (blank)
  - AAD, % available, # in floodplain
- Inconsistent
  - last year vs. 2+ to complete
  - Whole # vs 1000s
- Purpose unhelpful
  - Often did not tell what will be done with the funds
    - “Basic operations”
    - “Strong congressional support”

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6



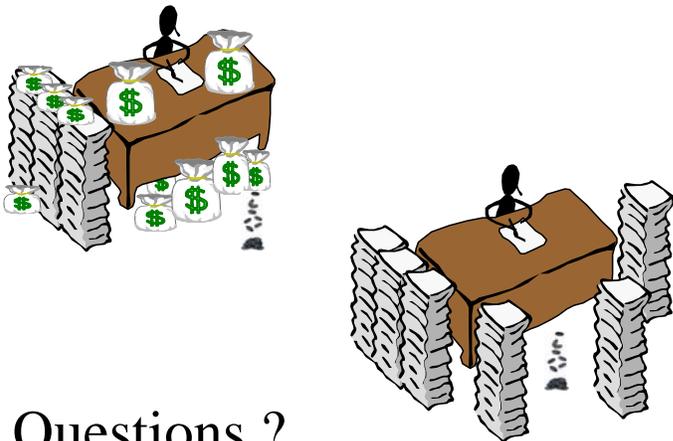
## 07 Budget Ranking Criteria

- # people at risk in 100 yr floodplain – total population in the 100 yr floodplain
- Estimated value of development in 100 yr floodplain
- Average annual damages
- Annual net benefits for FDR
- Total BCR
- RB/RC
- Years to complete – study phase or interim project from BY.
- Other purpose outputs – list other project purpose by BL.
- Agricultural project? – Y if more than 50 % of average annual benefits are agricultural
- % of design level available (reduced conveyance, pool restrictions, seepage (levees), reduced level of protection)
- Cumulative NED benefits
- Cumulative O&M costs for above benefits (separable and allocated joint)
- % of required inspections, surveys & studies needed to accomplish at this budget level
- Safety issue – Y or N describe in remarks

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## Summary



Questions ?

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## Challenges

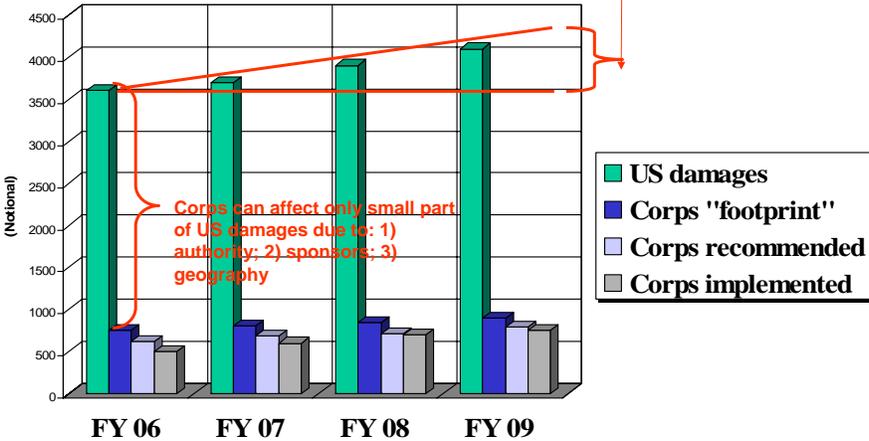
- Lack of data for ranking projects
  - Identify data needed & better definitions
  - Develop effective & efficient process to collect data
  - Quality Control
  - Funding
- Ranking criteria for O&M & GI – what’s best to define performance?
- Optimization of budget given funding constraints – what is proper mix?
  - Within business program
  - Among business programs
- What is ASA(CW) and OMB going to want?

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9



## Corps Contribution to National Risk Reduction

US damages increase due to: 1) growth in risk areas; 2) increase in value



Corps can affect only small part of US damages due to: 1) authority; 2) sponsors; 3) geography

Fiscal Year	US damages	Corps "footprint"	Corps recommended	Corps implemented
FY 06	~3700	~800	~600	~500
FY 07	~3800	~900	~700	~600
FY 08	~4000	~900	~700	~700
FY 09	~4200	~1000	~800	~800

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10