

Strategies for Scoping 3x3x3 Studies

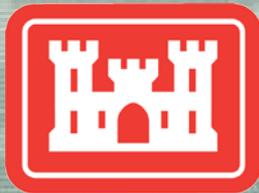
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PCOP Webinar

2 October 2014



US Army Corps of Engineers
**PLANNING SMART
BUILDING STRONG**



The Expectation

- A study scope that will produce a decision document within 3 years for \$3 million or less
- Or, if risks are unacceptable, an exemption request that lays out the scope, schedule and budget necessary to produce a policy compliant decision document ref. Planning Bulletin 2012-04

It's Not 1 Size Fits All

- Some studies can be completed for less than \$3 million
 - Many more will fall around \$3 million
 - Some will require exemptions in order to be policy compliant and technically sound
-

Do not break complex studies into smaller parts just to keep the parts below \$3M each – keep a systems perspective.

Risk Informed Scoping Process

- Focused
- Deliberate
- Structured
- Iterative

Uncertainty and Level-of-Detail

- First, enough detail to see differences/ trade-offs in plan impacts, costs, benefits to choose a TSP
- Then, enough detail to provide sound estimates of impacts, costs, benefits, etc in final report

How can we inform risks?

- Knowledge based – get experienced input
- Iterate through the 6-step planning process at least once before making many judgments about the scope
- Then -
 - ▶ Start with what you know
 - ▶ Challenge your assumptions
 - ▶ Use a risk register or similar tool to organize and communicate your thoughts

Big Building Blocks

- Deep Draft Nav – economics, env impacts, dredge quantities/costs, placement areas
- Flood and Coastal Storm – H&H or storm models, economics, geotechnical, env impacts
- Ecosystem Restoration – habitat assessments, species models, formulation for sites vs systems, costs

Compare Uncertainty Across Disciplines

- Where is there “Bang for your Buck”? i.e. - 80/20 rule
- Which uncertainties, when reduced, would lead to better estimates of costs, impacts, benefits?
- Use this comparison to guide allocation of study resources

Coordination

- Horizontal: Seek experienced technical input – regional RTS's, CX's, labs, IWR, MSC's, etc to prepare scope and supporting rationale
- Vertical: Get vertical buy-in / support / commitment on the tough choices the PDT made

Seattle Harbor Deep Draft Navigation Feasibility Study

Lessons and Tips for Scoping a 3x3x3 Study

2 October 2014

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Chief, Planning Branch
Seattle District



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Study Background



- 2014 New Start Recon Study (one of 9 nationally)
- Evaluation of navigation improvements (primarily deepening) to the East & West Waterways of Seattle Harbor
- Non-Federal Sponsor: Port of Seattle

Tip #1: Keep the end in mind & stay problem-focused

- Narrow the definition of problems
 - ▶ Get on same page early on scope with Sponsor and with Vertical Team
 - ▶ Critically think about tools/data needed to evaluate and make risk-informed decisions
 - Example – timing for ship simulation or survey data
 - ▶ Important to document assumptions, risks, consequences
 - Focused on decision you are trying to make

Tip #2: Risk Based Scoping

- What is *required* to accomplish each milestone?
 - ▶ Scope within each milestone activity using critical thinking to drive decisions
- Spend greatest energy (time/\$) to scope the highest risk items
 - ▶ What are the “must haves”
 - ▶ Document when decision points will occur
- Document risks and verify assumptions
 - ▶ Make conservative assumptions in order to keep moving forward on scope
 - ▶ Determine a timeline for re-visiting assumptions to actively manage the iterative analysis process

Tip #3: Strategically Manage Resources Based on Scope

- Prioritize activities based on risk
 - ▶ Seattle Harbor: Sediment Sampling Analysis & Econ Data Collection need to start right away
- Leverage Sponsor's expertise
 - ▶ Seattle Harbor: Graphics, Printing and Sediment Sampling Analysis
- Contingency managed at project level by PM
 - ▶ Ensure technical disciplines are not putting contingencies on their estimates

Seattle Harbor POCs

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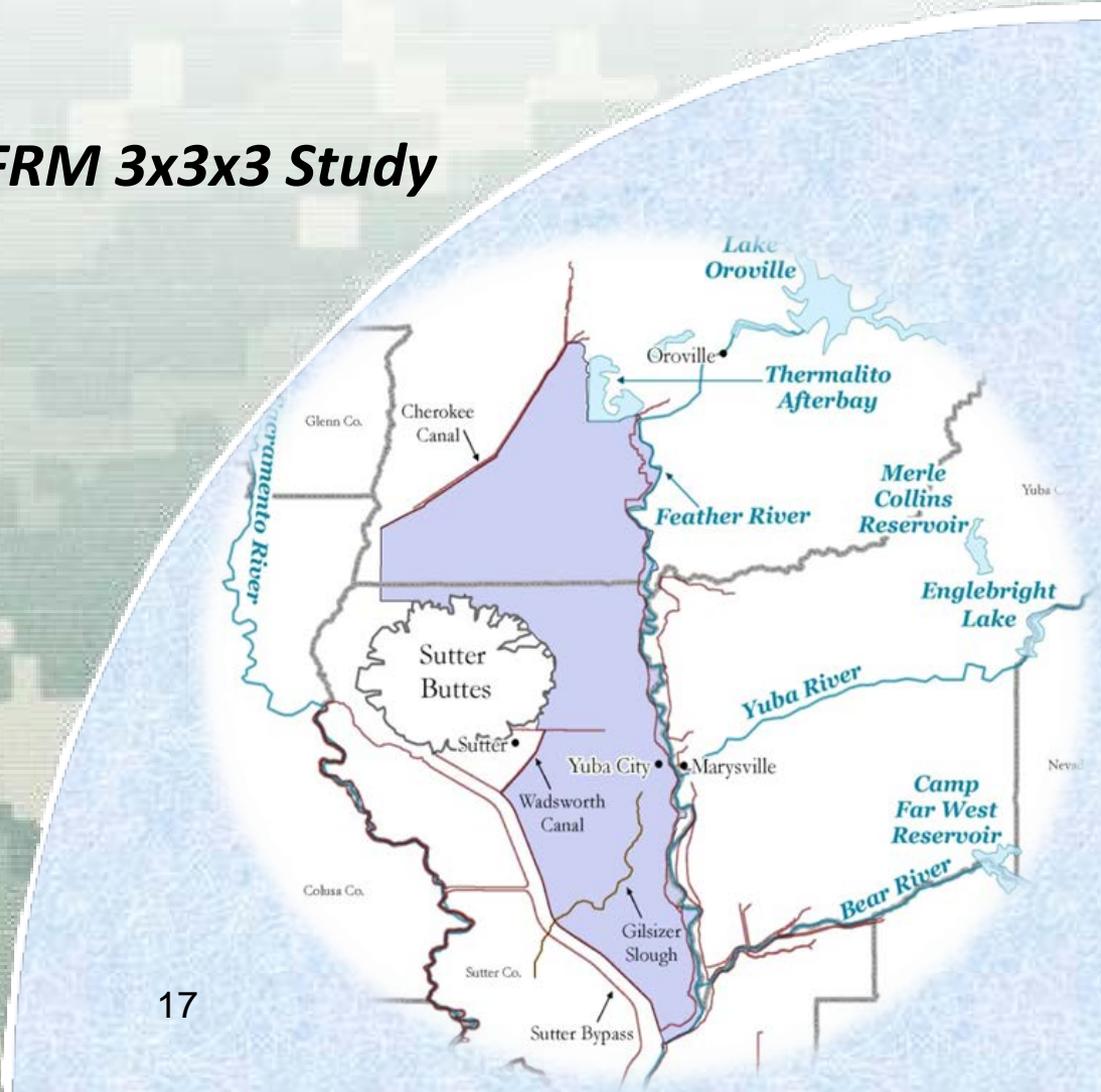
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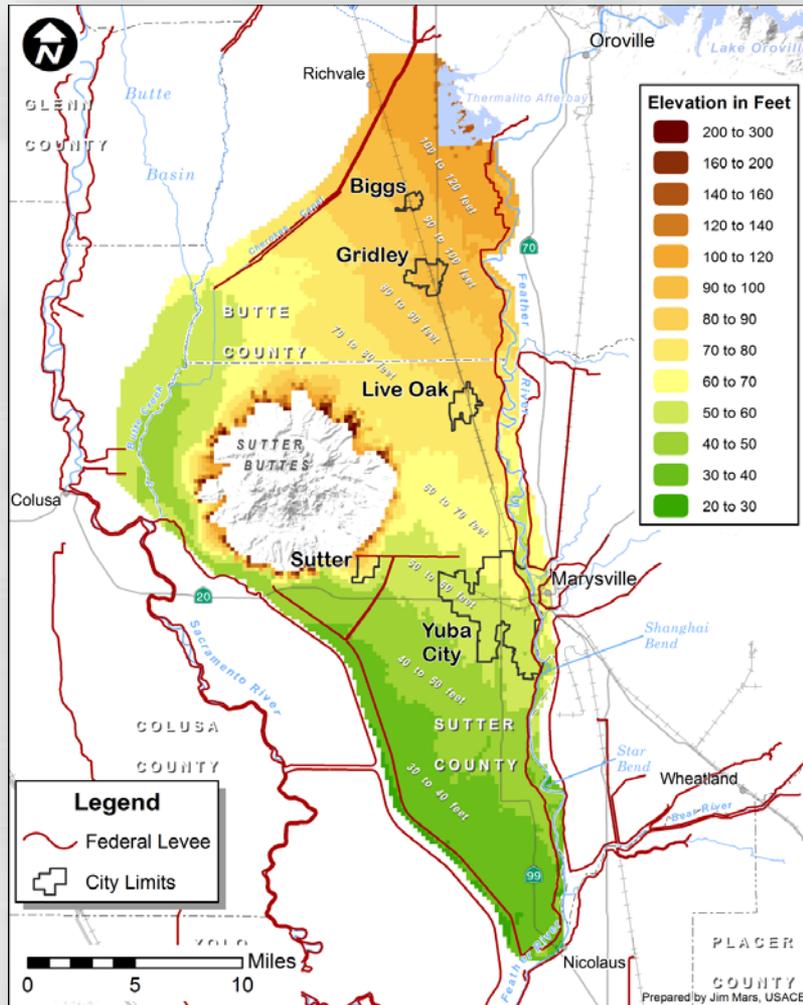
Sutter Basin Flood Risk Management Feasibility Study

Defining Level of Detail for a FRM 3x3x3 Study

2 October 2014
Peter Blodgett P.E.
Hydraulic Engineer
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Study Background



- Selection of Flood Risk Management Alternative for 300 Square Mile Area
- Pilot Study for 3x3x3
- October 2013 CWRB
- WRRDA 2014
- Non-Federal Sponsors: State of California and Sutter Butte Flood Control Agency

Tip #1: Rough Analysis First

- Helps establish the relative sensitivity in complex analysis
- Efficient screening of wide range of initial alternatives rather than detailed analysis of a few well defined alternatives.
- Learn what drives the results and use that information to focus future analysis
- Easier to change a simple model than a complex model

Tip #2: Plan for data acquisition

- Data collection or development of final models must be considered early in the process due to long lead times.
- Clear study focus and geographic extent needed to focus data collection efforts.
- Note: Sutter Study benefited from existing topographic data and soil borings

Tip #3: Parallel Work Flow

- Where possible divide analysis into tasks that can be worked on in parallel.
- Divide project into smaller reaches or items
- Plan for close coordination of parallel efforts
- Analyze a few points and interpolate results
- Focus on inflection points in cost and benefits

Tip #4: Manage the Level of Detail

- Would the added detail change Alternative Selection (Costs, Benefits, or Life Safety)?
- Is it required by guidance for the milestone?
- Is it required to describe environmental impacts?

Tip #5: Learn, Lead, Coordinate, and Communicate

- Learn the basics of your fellow SME's
- Provide leadership to SME's to the end goal
- Coordinate and Communicate so parts fit together
- Reduce the duplication of analysis
- Identify technical shortcuts
- Provide a layer of quality control

Sutter Basin POCs

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Questions?

Type questions in the chat box – send to Everybody.
We will answer as many as time allows.



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