

# COLUMBIA RIVER CHANNEL DEEPENING PROJECT BALANCING THE DECISION USING HDM

EMGT 530/630 Decision Making in Engineering and  
Technology Management

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# PRESENTATION OUTLINE

- ❑ Introduction
- ❑ CRCD Map, Main Players, Execution Stages
- ❑ CRCD Approval Process
- ❑ HDM
- ❑ Economic Objective
- ❑ Social Objective
- ❑ Environmental Objective
- ❑ Mission Evaluation
- ❑ Analysis and Conclusions



# COLUMBIA RIVER CHANNEL DEEPENING (CRCD) - MAP



# MAIN PLAYERS

## Project Funding

- U.S. Federal Government
- Governments of Oregon and Washington
- Local Sponsoring Ports - (Port of Portland and St. Helens in Oregon; Vancouver, Woodland, Kalama and Longview in Washington)

## Project Construction

- U.S. Army Corps of Engineers (Corps)

## Natural Resource Agencies

- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife (USFWS)

## Project Supporting Organizations

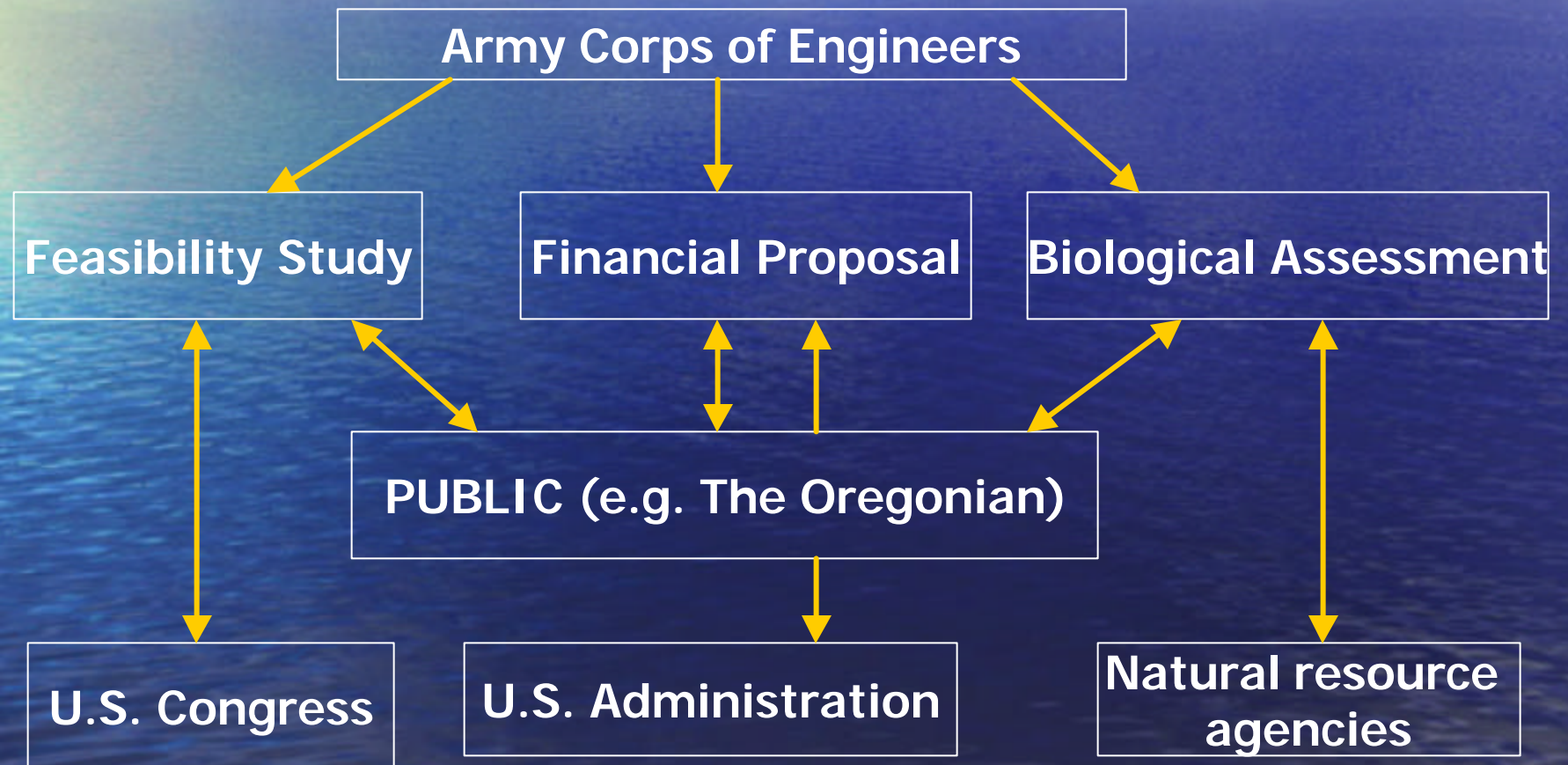
- Columbia River Channel Coalition



# PROJECT'S MAJOR EXECUTION STAGES

- ☐ Construction and Maintenance Dredging
- ☐ Maintenance Disposal Activities
- ☐ Monitoring Program and Adaptive Management Process
- ☐ Ecosystem Restoration and Research actions

# APPROVAL PROCESS ELEMENTS AND MAPPING



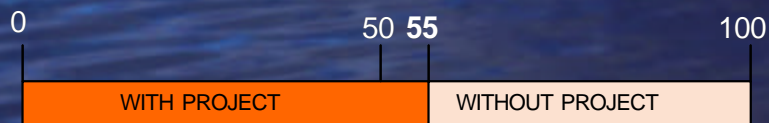


# HDM



## "YARDSTICK"

Results 55 > 50; "Go"



Results 40 < 50; "No-Go"



# ECONOMIC OBJECTIVE

## COMMITTEE: SARKA, MEHMET & JUAN

### ECONOMIC OBJECTIVE

- PWC
- VALUES
- WEIGHTED VALUES

COST/BENEFIT  
W=0.25; V=53

COMPETITIVE  
ADVANTAGE  
W=0.29; V=78

JOBS  
W=0.11; V=68

GENERATED  
TAXES  
W=0.20; V=80

### ☐ OBJECTIVE CONCEPTS & QUESTIONS

- Importance of C/B Ratio, Corps Problems?
- Who is benefiting, in what amount?
- Feasible economically?

### ☐ INFORMATION SOURCES

- Corps/Port of PDX
- Oregonian/Wash Post

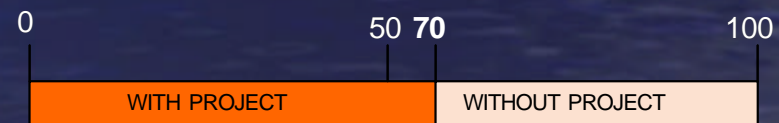
### ☐ GOAL IDENTIFICATION AND PWC

- 4 goals, key local issues

### ☐ DETERMINING VALUES

- Debate, and disagreement, but a "Go"

### ☐ WEIGHTED VALUE





# SOCIAL OBJECTIVE

## COMMITTEE: SAM & BRIAN

### SOCIAL OBJECTIVE

- PWC
- VALUES
- WEIGHTED VALUES

STANDARD OF  
LIVING  
W=0.23; V=90

LAND  
W=0.14; V=45

TRIBAL  
W=0.26; V=15

COMMUNITY  
W=0.28; V=30

STATE &  
FEDERAL AGENCIES  
W=0.09; V=65

### ☐ OBJECTIVE CONCEPTS & QUESTIONS

- *More difficult to define*
- *Public well being improved? Tangible social benefits?*

### ☐ INFORMATION SOURCES

- *Newspapers, discussions, public forums*
- *Corps/ USFWS – Public relations*

### ☐ GOAL IDENTIFICATION AND PWC

- *5 Goals, public evaluations*

### ☐ DETERMINING VALUES

- *"Little" benefit is identified*

### ☐ WEIGHTED VALUE



# ENVIRONMENTAL OBJECTIVE

## COMMITTEE: MATT & FATIH

### ❑ OBJECTIVE CONCEPTS & QUESTIONS

- *IMPACTS TOO HIGH?*
- *CAN THEY BE MITIGATED?*

### ❑ INFORMATION SOURCES

- *NMFS/USFWS – BIOLOGICAL OPINIONS (CWA/ESA)*
- *CORPS - ENVIRONMENTAL ISSUES*
- *NWEA/ASTORIA FISHERMAN - WATCHDOGS*

### ❑ GOAL IDENTIFICATION AND PWC

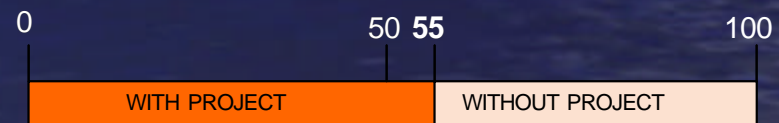
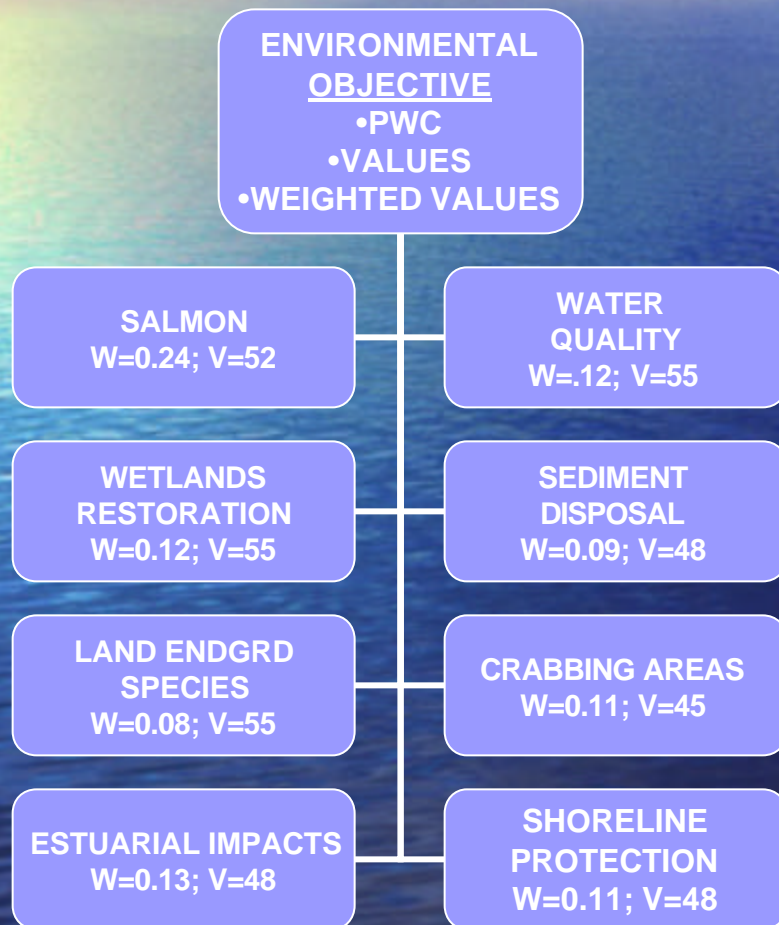
- *8 GOALS, BROAD TOPIC RANGE*

### ❑ DETERMINING VALUES

- *"HARD" SCIENCE –vs- "HISTORY/LAW"*

### ❑ TOTAL WEIGHTED VALUE

- *"Go"*





# MISSION EVALUATION



**FINAL "YARDSTICK"**  
**Results 56.1 > 50; "Go"**



# ANALYSIS & CONCLUSIONS

- ❑ INDIVIDUAL COMMITTEES:
  - GOOD DISCUSSIONS, FRUITFUL RESEARCH AREA
  - MEMBERS HAD LOW INCONSISTENCIES
  - LOW DISAGREEMENTS ( $D < 0.06$ ), EXCEPTION OF **ECONOMIC TEAM** ( $D = 0.115$ )
  
- ❑ MISSION PWC:
  - REFLECTION OF OUR PERSONAL "UTILITIES" TOWARD THE MISSION
  - MEMBERS HAD LOW-INCONSISTENCIES ( $I < 0.06$ )
  - REASONABLE DISAGREEMENT BETWEEN 7 INDIVIDUALS ( $D = 0.10$ )
  
- ❑ REFLECTIVE OF THE ACTUAL DEBATE:
  - "EXPERTS" IN COMMITTEES, SHARING VIEWS
  - SOME "ARM TWISTING" INVOLVED
  - "ON-BALANCE", OUR DETERMINATION MATCHES REALITY "GO"
  
- ❑ SIMPLIFIED VERSION OF HDM:
  - MAY BE EXPANDED AS NEEDED
  - A REASONABLE APPROACH FOR PUBLIC WORKS
  - NEED FOR CONTINUED EDUCATION, COLLABORATIONS
  - PUBLIC FUNDS/PUBLIC GOODS IN SPOTLIGHT





**THANKS, QUESTIONS?**

