Willamette River Basin Floodplain Restoration

U.S. Army Corps of Engineers

General Investigations Feasibility Study

Briefing for

Northwest Power & Conservation Council

October 13, 2005

Willamette Subbasin Plan

Priority Conservation Themes

- Deal with the dams—change flow regimes and establish fish passage
- Fix culverts and diversions to restore fish passage
- Focus on valley & foothills wildlife
- Restore lowland riparian areas
- Restore low cost, high return areas of the Willamette River floodplain
- Let the river cool itself by seeping through streamside gravels, alcoves and islands
- Ensure that all priority themes are taken up and supported at in an organized way at the local level

Willamette River Basin Floodplain Restoration Study

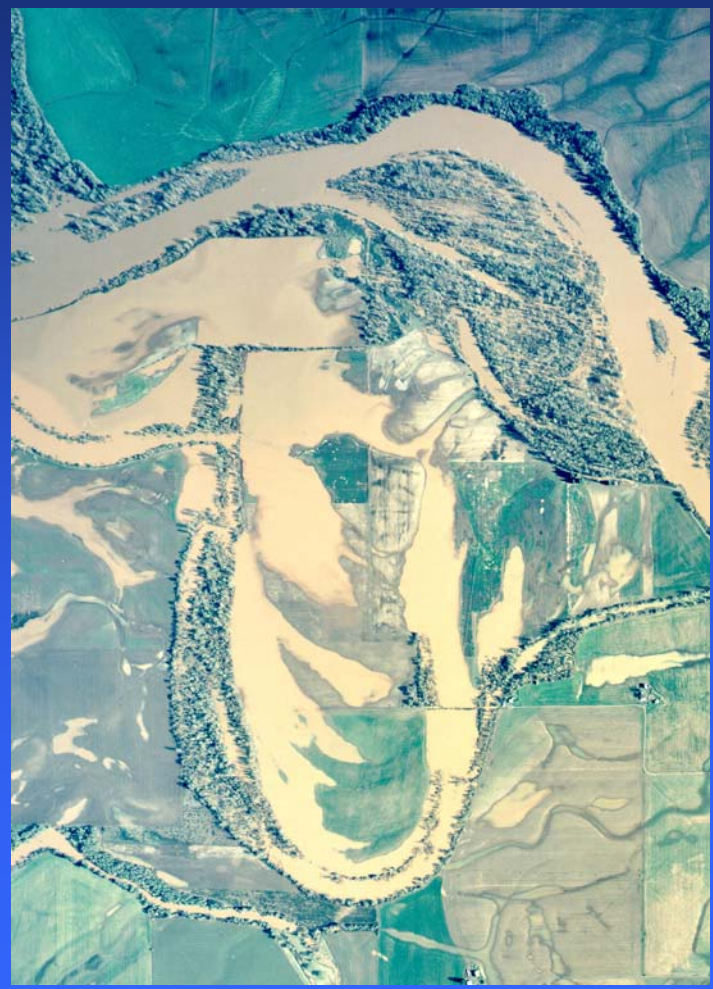
"Assess opportunities to modify existing floodplain features in the Willamette Valley to reduce flood damages while restoring natural wetlands and promoting ecosystem restoration"

Corps of Engineers Planning 101

- What is a General Investigations Study?
  - ✓ The traditional and most common way for the Corps to help communities solve water resource problems
  - ✓ Requires specific congressional authorization to conduct a study
  - ✓ Intent is to send a recommendation back to Congress for project(s) to be authorized to address the problem
  - ✓ Usually used to address large or complex water resource problems
  - ✓ Have no specified limits as to the size and cost of the project
  - ✓ Requires non-Federal cost-sharing

Why conduct yet another study?

- Restoring natural floodplain function to a highly modified river system is complicated, requiring resolution of technical, ecological and social issues.
- Allows us to develop integrated strategic approaches to floodplain restoration.
- Is required to ensure that further Federal interest in implementing floodplain restoration projects is warranted.



Willamette River Basin Floodplain Restoration

Project History

- *10/94 – Initial Meetings with River Network*
- *02/96 – River Network preliminary report*
- *10/97 – FY 98 new start appropriation*
- *10/99 – Reconnaissance Report completed*
- *11/99 – Governor's letter of intent*
- *05/01 – Final WRI Willamette Restoration Strategy*
- *02/04 – Feasibility cost-sharing agreement signed; study initiated*

Floodplain Restoration Study Geographic Scope

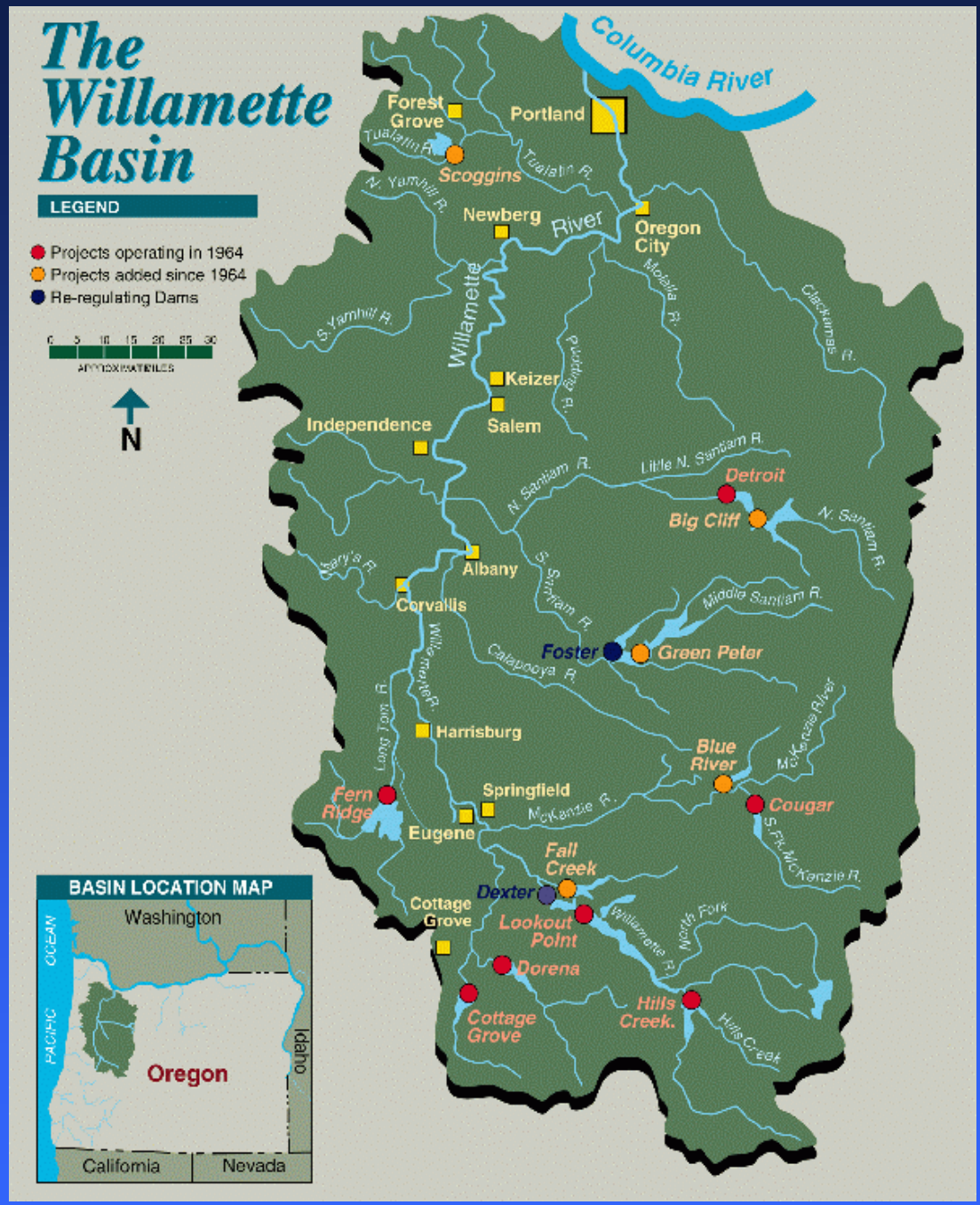
Phase I: Willamette Basin (Completed 12/04)

- Willamette Subbasin Plan

Phase IA: Pilot Reaches (Underway)

- Middle Fork
- Coast Fork
- Focus on dams to confluence

Phase II: Other Reaches (Future Study)



Project Partnership

- *Feasibility Cost-Sharing Agreement (FCSA)*
  - ✓ *Executed by Corps of Engineers and Mid-Willamette Council of Governments, February 20, 2004*
  - ✓ *Financing body for the Willamette Partnership*
- *Major Partners*
  - ✓ *Willamette Partnership (formerly Willamette Restoration Initiative)*
  - ✓ *ODFW*
  - ✓ *The Nature Conservancy*
  - ✓ *Bonneville Power Administration*

BPA's Role

- *Major funding source*
  - ✓ *Willamette Subbasin Plan*
  - ✓ *Through ODFW for the Willamette Wildlife Mitigation Project*
    - *$250K in FY 04/05*
    - *$100K in FY 06*
    - *FY 07 ?*
  - ✓ *Rate-payer funds under BPA Fish & Wildlife Program are allowable as non-Federal source of funds to match against Corps funds*

Willamette Basin, Oregon

The Nature Conservancy / Corps Sustainable Rivers Project

- *One of 12 SRP projects in the country*
- *Integrated as an element of the Willamette Floodplain Restoration Feasibility Study*
- *Cooperative Agreements*
  - ✓ *National MOU (existing)*
  - ✓ *Oregon MOU -- OR chapter TNC/NWP/NWW (draft)*

Stakeholder Collaboration

- Middle & Coast Fork Watershed councils
- Friends of Mt. Pisgah & Buford Park
- Lane County
- Lane Council of Governments
- City of Springfield
- City of Eugene
- NMFS & USFWS
- USFS and BLM
- ODFW, OPRD, OWRD
- East Lane SWCD
- Willamalane PR&D

Feasibility Study Costs

- **Estimated Total Study Cost**
  - ✓ **Total Study Cost:** **$2.96 M**
  - ✓ **Federal Share:** **$1.48 M**
  - ✓ **Local Share:** **$1.48 M**
    - **Cash:** **$0.89 M**
    - **In-kind Services:** **$0.59 M**
- **Costs to date (FY 04 & 05)**
  - ✓ **Federal:** **$639K**
  - ✓ **Local:** **$549K**

Feasibility Study Products

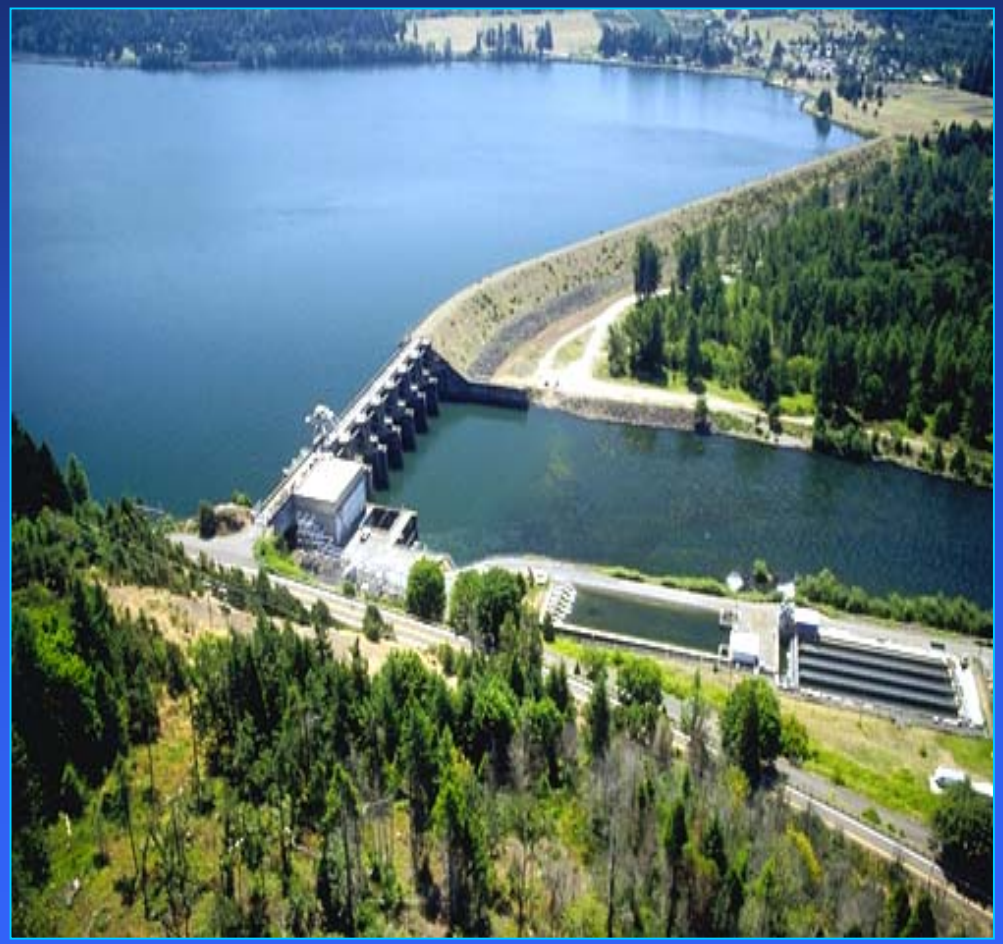
- ***Feasibility Report***
  - ✓ ***Recommendation to Congress for restoration projects for authorization and appropriation***
- ***Environmental Document (EIS)***
- ***Technical Reports***
  - ✓ ***Engineering Appendix***
  - ✓ ***Hydraulics & Hydrology Appendix***
  - ✓ ***Hydrogeomorphic Analysis***
  - ✓ ***Environmental/Biological Appendix***
  - ✓ ***Real Estate Appendix***

Possible Floodplain Restoration Projects or Features

- ✓ *Acquire floodplain lands and easements*
- ✓ *Remove, modify or vegetate bank revetments*
- ✓ *Remove or set back levees*
- ✓ *Reconnect or restore hydrologic connections to natural storage features (oxbows, sloughs, overflow channels)*
- ✓ *Construct alcoves*
- ✓ *Vegetate riparian buffer zones*
- ✓ *Construct engineered log jams*

Potential Programmatic and / or Policy Outputs

- *Evaluate the potential for modifying reservoir operations to more closely follow natural hydrologic patterns*
- *Identify, prioritize and establish a program for relocating infrastructure out of the floodplain*
- *Establish a program to identify, prioritize and purchase floodplain restoration / retention sites*



Other Possible Feasibility Study Outputs

- Floodplain management and ecosytem restoration tools
  - ✓ hydrogeomorphic models
  - ✓ unsteady state flow models
  - ✓ ecological response models
- Environmental Clearances and Permits
- Public involvement and education

Middle / Coast Fork Study Work Efforts To Date

- *Base Condition Report*
- *Orthophotogrammetry and Digital Elevation Models (DEM)*
- *Hydraulic and Hydrologic Analysis and Model Development*
- *Ecological Analysis and Model Development (EDT)*
- *Preliminary Hydrogeomorphic Analysis*

Feasibility Study Milestones

Milestone	*Timeframe*
Submit final report/EIS	***34 mo.***
Baseline Cost Estimate	***35 mo.***
Signed final Feas. Report	***36 mo.***
Authorization in a WRDA	***Oct. 2007?***

Where Do We Go From Here / Next Steps

- *Public Involvement & Landowner Outreach*
- *Complete initial technical analysis*
- *Identify and Develop of floodplain restoration sites, measures and alternatives*
- *Pilot Project Areas*

Willamette Subbasin Plan

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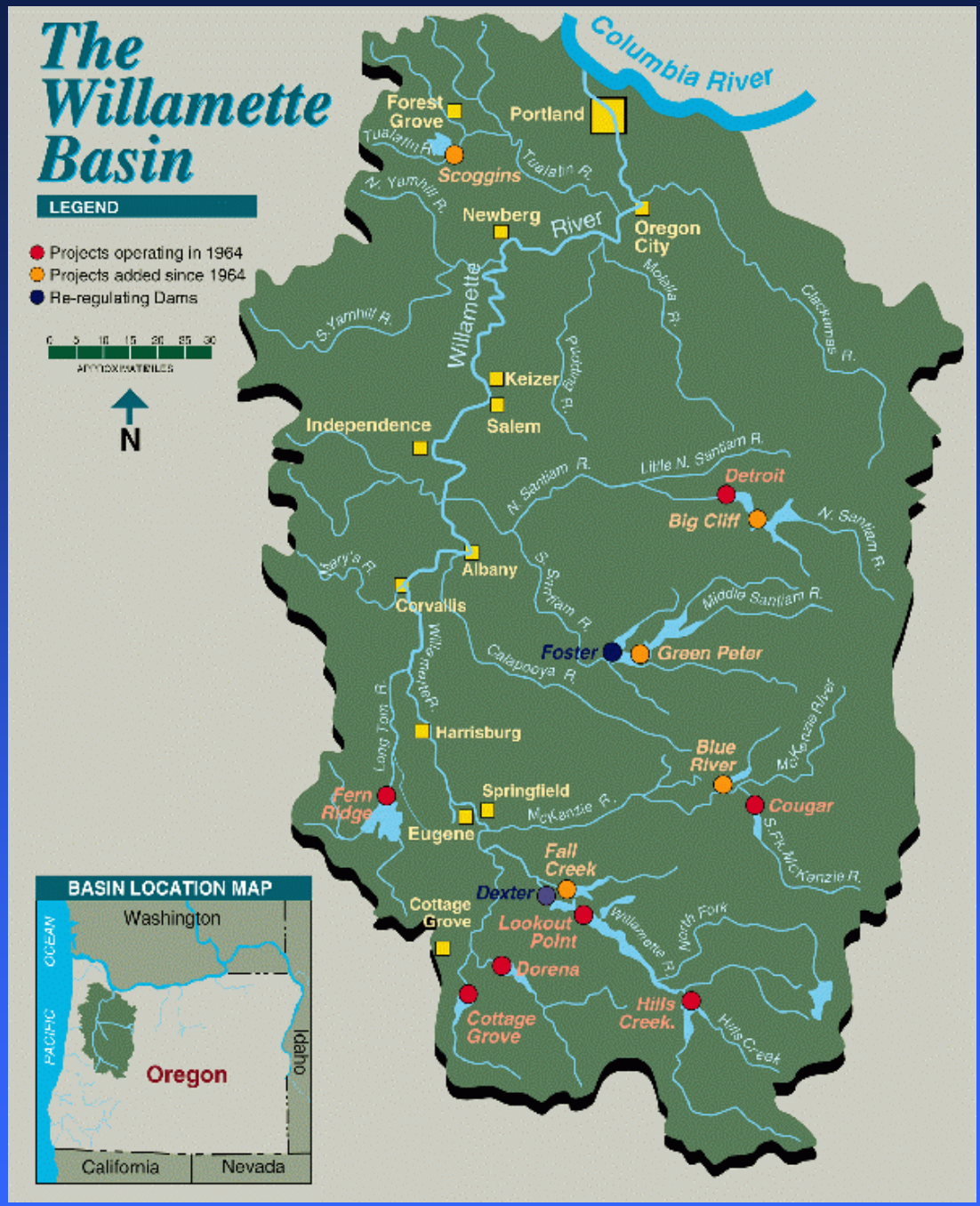
Existing Corps Infrastructure

13 Reservoirs
- 11 Multiple-purpose
- 2 Re-regulating

Navigation Channel
- Portland Harbor to Corvallis
- 132 River Miles

Willamette Falls Locks

Willamette Bank Protection Program
- 100 miles of revetments
- Mainstem and tributaries



Willamette Basin Project

Authorized Purposes

- ***Flood Control***
- ***Hydropower***
- ***Navigation***
- ***Irrigation***
- ***Fish & Wildlife***
- ***Recreation***
- ***Water Quality***
- ***Municipal & Industrial***

Willamette Basin Project

Joint Allocation for Hydropower

Project	Generation		Cost Allocation (%)	
	Capacity (Kilowatts)	Ave. Annual Generation (Megawatts)	O&M	Construction
Detroit / Big Cliff	118,000	660	40.5	50.5
Lookout Pt. / Dexter	135,000	469	31.0	36.0
Green Peter / Foster	100,000	549	49.5	44.5
Hills Creek	30,000	222	24.5	21.5
Cougar	25,000	205	23.0	19.5

BPA Direct Funds 100% of O&M

Willamette Basin Project

Hydropower Benefits & Costs

- ***Hydropower Generation***
  - ✓ ***Average annual production: 1.5 million MWh***
  - ✓ ***Average annual value of energy: $50,000,000***

- ***Hydropower Costs (FY 06 Power Budget)***
  - ✓ ***Corps Appropriation: 5,156,000***
  - ✓ ***BPA share: 9,819,000***
  - ✓ ***Total Joint O&M and small cap: $14,975,000***

What do we mean by "Deal with the Dams…"?

- *Alternative operating strategies*
- *Install and upgrade fish passage facilities*
- *Construct temperature control facilities*
- *Upgrade fish collection, handling and hatchery facilities*

Possible Future Strategies for the Council Program in the Willamette Basin?