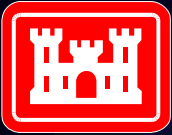


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Willamette Falls Lock Command Briefing



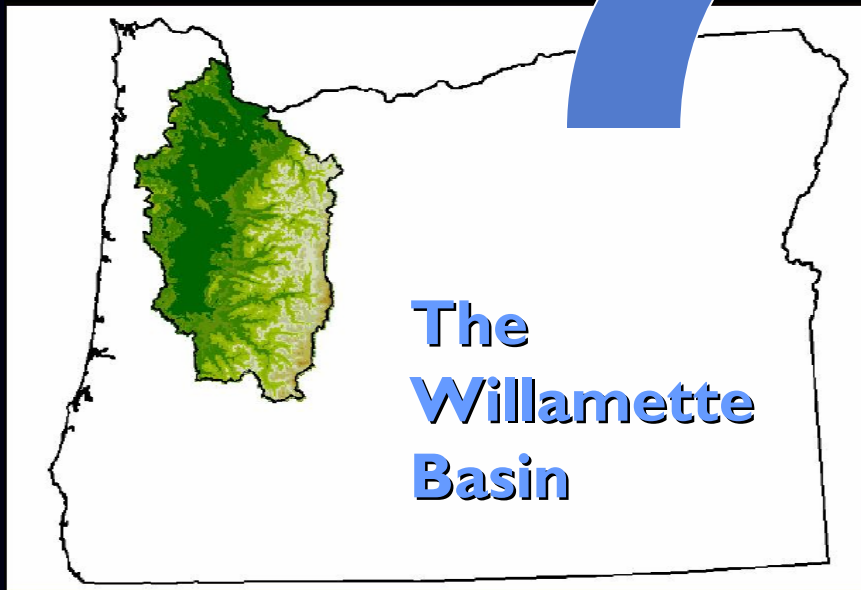
Jeremy Weber August 2008



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Location

- West bank of the Willamette River at West Linn, Oregon (Clackamas County)
- 26.1 miles from the mouth of the Willamette





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Willamette Falls

**Natural waterfall over resistant basalt
bedrock**



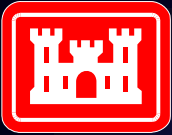


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Introduction

- Navigation: provides the only passage for boats around the Willamette Falls
- National Register of Historic Places
- Designated as a State Historic Civil Engineering Landmark by the American Society of Civil Engineers





Location and Plan Map

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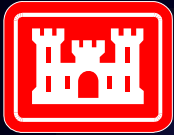


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Recent History

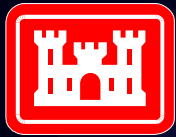
- 2002-2004 – Appropriated funding substantially decreases, recreational season limited to summer.
- 2005 – Appropriated funding goes to 0. Congressional Add funding
- FY06 and FY07 –Budget puts locks in “Caretaker Status”
- Oregon Solutions Process convened to examine short, mid, and long term plans for the lock – Congresswoman Darlene Hooley (OR-5) is a major proponent
- Operations costs for FY06 and FY07 paid by Coalition and through Short term Challenge Partnership Agreement with Oregon Department of Transportation (ODOT)
- Coalition members include Oregon Solutions (Governor Kulongoski), Representative Hooley, Senator Smith’s staff, the Mayor of West Linn, the Mayor of Oregon City, Clackamas County, the West Linn Heritage Society, Oregon Trail Museum, The Maritime Museum, Willamette Riverkeepers, and Tualatin Riverkeepers.



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Funding for Willamette Falls Lock, FY 2004-2008

FY	President's Budget	Received	Coalition / ODOT Funds
2004	\$302,000	\$283,135	-
2005	\$196,000	\$191,210	-
2006	\$64,000	\$64,390	\$156,800
2007	\$72,000	\$75,327	\$65,910
2008	\$80,000	\$155,000*	***
		TOTAL	\$222,710



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Willamette Falls Locks 1-4, Total Lockages 2000-2006

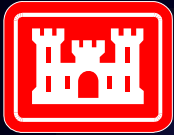
	2000	2001	2002	2003	2004	2005	2006
DrCargo	21	16	7	9	1	3	8
Gov-NF	2	7	1	0	0	0	1
Pas/Ferr	86	55	66	29	68	11	36
Gov-Fed	4	0	2	0	0	3	2
Rec	1249	895	524	378	380	304	393
Towboat	118	100	40	26	6	21	97
Total Vessels	1480	1075	640	442	455	342	537
Total Lockage	747	464	388	265	155	145	270



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Willamette Falls Guard Lock. Total Lockages 2000-2006

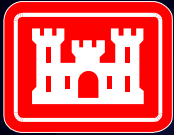
	2000	2001	2002	2003	2004	2005	2006
DrCargo	25	17	9	12	1	2	8
Gov-NF	2	9	0	0	0	0	0
Pas/Ferr	80	48	64	34	67	14	7
Gov-Fed	2	2	1	0	0	4	1
Rec	1299	936	544	378	407	307	402
Towboat	113	98	43	35	6	22	75
Total Vessels	1521	1110	661	459	481	349	493
Total Lockage	756	473	401	283	154	153	219



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Leading up to the FY08 Budget...

- Corps provided Congress with capability amount including operation, but not Hydraulic Steel Structure (HSS) Inspection
- Corps revised capability for FY08 to include HSS
- HSS is necessary based on best engineering judgement
- NWP determined locks should not be operated for safety reasons until HSS is performed and any necessary repairs completed



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Hydraulic Steel Structure (HSS) Investigation

- An extensive inspection, required by regulation, designed to ensure structural integrity of the locks. The HSS inspection includes:
 - Dewater lock chambers
 - Dismantle gate leaves
 - Remove all timber lagging
 - Wash and clean gate
 - Inspect gate (visual, non-destructive testing, divers to inspect pintle bearing)
 - Repair as needed
 - Return lock to working order
- Original Government estimate was \$511,000
- Updated estimate is \$1,494,000
- Magnitude of necessary repairs is unknown



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FY08 Funding/Direction

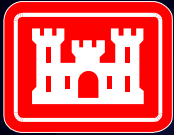
- NWP received \$155,000
- Congress directed Corps to
 - Initiate the HSS with funds provided
 - Seek additional funding to cover difference
 - Identify non-essential NWD O&M activities
 - Identify local stakeholder sources
 - Report back on additional sources within 45 days
 - Report back to Congress on necessary repairs and cost following completion of the HSS
- No additional funds for repairs or operation were provided



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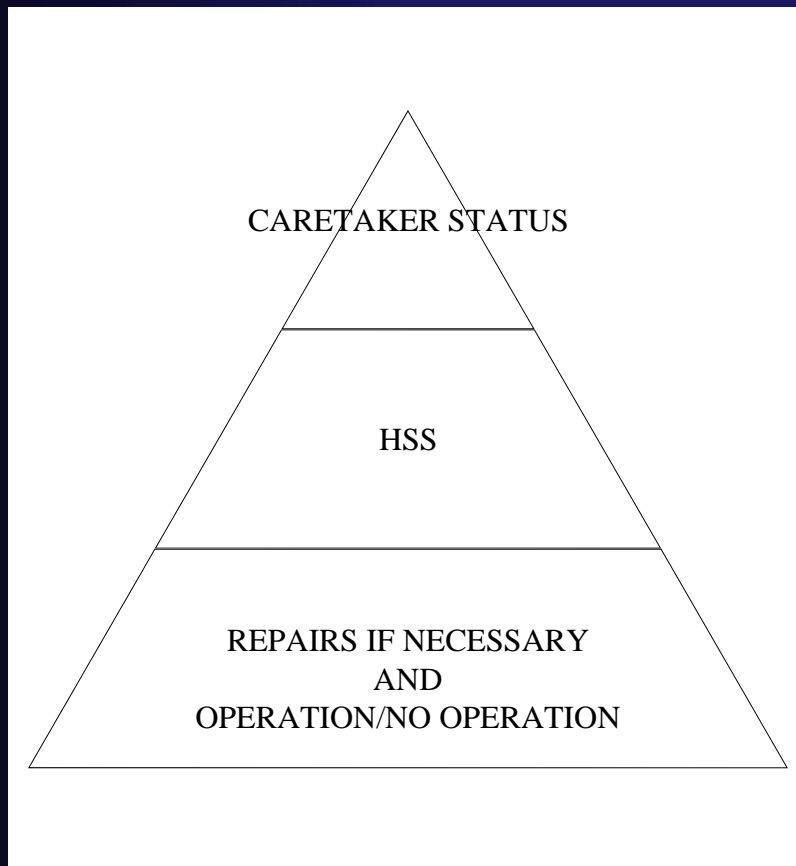
FY08 Funding/Direction

- Local stakeholders have approximately \$130,000 for repairs/operations but not HSS
- NWP identified funding source (Columbia and Lower Willamette River Dredging) and drafted reprogramming request to Committees
- 2/01/08 - NWD transmitted request to HQUSACE
- 4/29/08 - ASA(CW) refused to sign request
- 5/23/08 - WFL received preliminary Dam Safety Action Category (DSAC) 1 “urgent and compelling” classification
- 6/10/08 - Oregon Congressional delegation sends letter to HQUSACE
- 6/12/08 - ASA(CW) signs reprogramming request
- Committees approved reprogramming request



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Operational Status for FY 2008/FY 2009



- Bids/Funding will determine if HSS can be completed in 2008
- Locks will not be operated during summer season 2008
- Signage/Website Update
- Oregon Solutions Group and others working to address alternate sources of funding and long term future of the facility



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Current Milestones

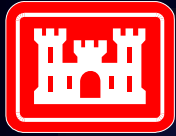
- Solicitation Issued 06 Aug 08
- Bid Opening 09 Sep 08
- Award/NTP 30 Sep 08
- Inspections
 - Gate 3 06 Nov 08
 - Gate 7* 13 Nov 08
 - Gate 1* 20 Nov 08
 - Gate 6* 27 Nov 08
 - Gate 5* 04 Dec 08
 - Gate 4* 11 Dec 08
 - Gate 2* 18 Dec 08



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Moving Forward

- NWP continues to work with the Coalition and other stakeholders exploring:
 - Alternatives for funding the HSS, Repairs, Operation in FY08 and in the future
 - Long term options for ownership/operation of the facility
- Facility is aging, and significant capital improvements will be needed over the next 20 years



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2009 Tentative Budget

■ President's Budget	\$210K
■ Tentative House	\$200K
■ Tentative Senate	\$210K
■ Capability Numbers Provided	
➤ Caretaker Status	\$75K
➤ Critical Minimum Maintenance	\$135K
➤ DDR for Comp. Rehab	\$600K
➤ Minimal Operations	\$148K



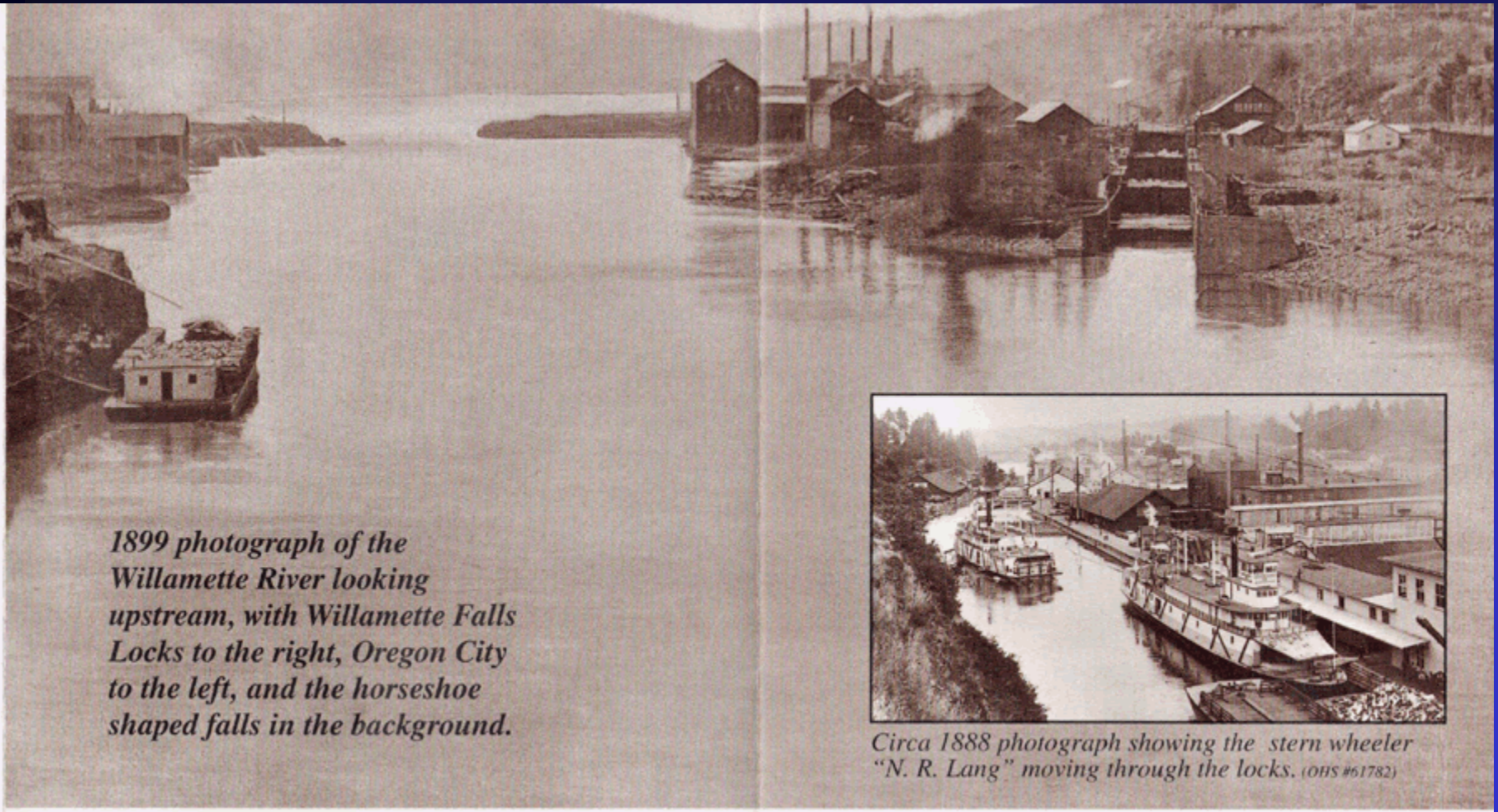
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Questions?



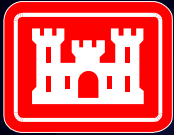
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Background



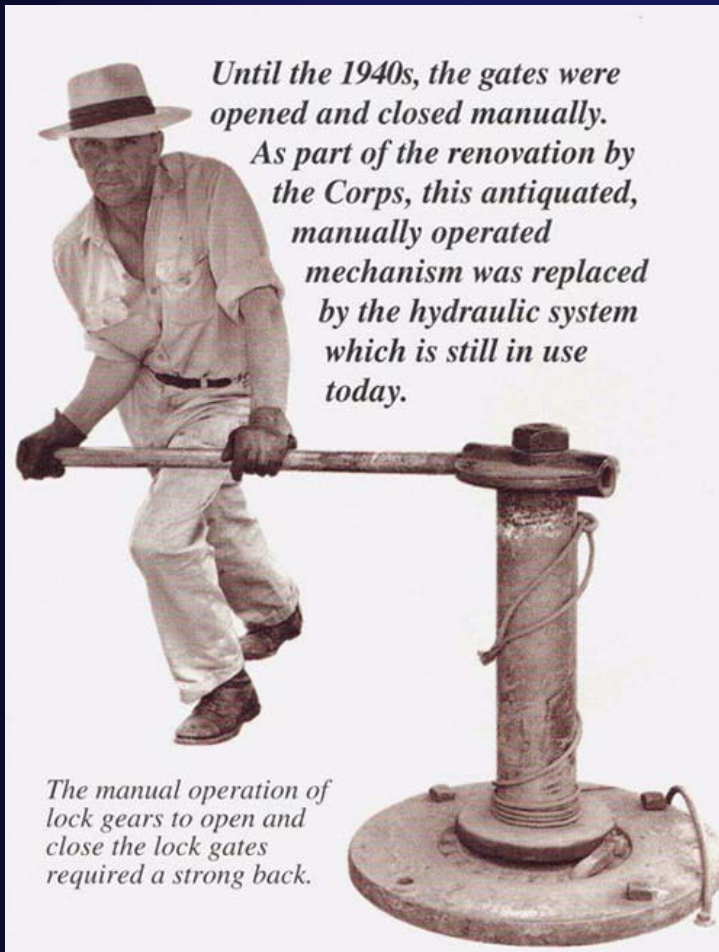
1899 photograph of the Willamette River looking upstream, with Willamette Falls Locks to the right, Oregon City to the left, and the horseshoe shaped falls in the background.

Circa 1888 photograph showing the stern wheeler "N. R. Lang" moving through the locks. (OHS #61782)



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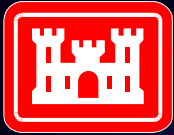
Background



Until the 1940s, the gates were opened and closed manually. As part of the renovation by the Corps, this antiquated, manually operated mechanism was replaced by the hydraulic system which is still in use today.

The manual operation of lock gears to open and close the lock gates required a strong back.

- Located in West Linn, Oregon (Clackamas County)
- 12 miles upstream from Portland along the left bank of the Willamette River at Willamette Falls
- Built by Willamette Falls Canal and Lock Company (1870-1872) with ownership changing several times
- U.S. Army Corps Purchased April 26, 1915



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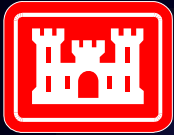
Historic Problems and Improvements

1916 Lock Renovation



Following the purchase of the locks by the Corps of Engineers, a major renovation was undertaken. The lock chambers were deepened from 3 feet to 6 feet as a response to the increased need for passage by deeper draft vessels.

- Complete Rehabilitation (1916)
 - Locks deepened to controlling depth of 6' at low water
 - Renewed all seven pairs of wooden gates
 - Renewed timberwork and fenders along lock walls



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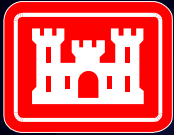
Historic Problems and Improvements

1941 Lock Renovation



As part of the 1940s restoration, the original wooden lock gates were replaced with metal gates.

- 1941: original wooden lock gates replaced with steel miter gates and hydraulic operating machinery installed, replacing previous manual operation
- 1960: Lock 3 left wall (Corps side) replaced by modified timber structure with partial concrete backfill



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Historic Problems and Improvements

- 1962: Lock 4 walls were replaced with new timber wall lining of similar structure to original except that the lumber is now treated
- 1971: Lock 3 (Mill side) wall replaced with same type of structure as the left wall – modified timber structure with partial concrete backfill
- 1973: Lock 2 wall linings were replaced with similar structure to original using treated timber supports. Chain link fabric added above elev. 26.5 right wall and above elev. 31.5 left wall.
- 1980: Cracked Welds and Repairs – Various Gates
- Late 1990's replaced several quoin posts



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Pertinent Data

- Total Length 3,565
- Usable Width 37'
- Total Lift 50.4'
- Depth Over Sills 6.5'
- Max Vessel Length 175'
- Gate Type 2 leaves, structural steel with wooden miter & quoin posts
- Gate Size 30'5.5" high x 20' wide (Gate 1)
20' high x 20' wide (Gate 2-7)



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Pertinent Data, cont.

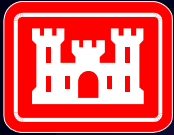
GATE #	STATION	ELEVATION (Tog)	ELEVATION
1	10+00	23.82	-6.11
2	12+10	34.38	15.52
3	14+20	44.40	25.40
4	16+30	54.43	35.66
5	18+40	54.14	43.33
6	31+12	64.50	43.60
7	32+23	64.84	43.41



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Pertinent Data, cont.

- Gates, Sliding structural steel, 4' each gate live, each 27' x 41'
- Sills all gate sills are concrete on rock masonry, except #1
- Canal Basin
Length – 1250'
Width – 40-100' variable
Water Level – Maintained constant
Paper Mill warf – 850' along right side of canal basin
- Stage Fluctuation
Above Locks – 10' (12' in extreme conditions)
Below Locks – 20' (30' in extreme conditions)
- Wall Elevation/Lift
Guard lock at upstream end is used only seasonally to maintain constant level of canal basin



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Pertinent Data, cont.

LOCK #	LOCK WALL LEVATION	LIFT OF LOCK
1	38.5	20.5
2	42	10.6
3	44.4	10
4	56.5	9.3