US Army Corps
of Engineers
Portland District

Willow Creek Project

Public Information Meeting
February 19, 2008 Heppner, Oregon

Tim Kuhn, Project Manager

US Army Corps
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Meeting Purpose

- Overview of Willow Creek Project
- Discuss proposal for irrigation withdrawal
  - Overview potential effects
- Irrigation water contract process
- Oregon water law & rights discussion
- Answer questions
- Accept written comments

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Willow Creek Project
Authorized Uses

- Authorized Storage Uses
  - Flood Control
  - Irrigation

Construction authorized by Flood Control Act of 1965

- Secondary Uses
  - Aesthetics & Environment
    - ✓ Recreation
    - ✓ Fish & Wildlife
    - ✓ Sedimentation

Over 14,000 acre-feet of storage capacity and stored water used for flood damage reduction, irrigation and secondary uses of recreation, fish/wildlife, sedimentation.

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Pool Elevations

Elev. 2113.5 Max Flood Damage Reduction Level (Controlled Pool)

Elev. 2076.5 Summer Flood Cntl Pool

Elev. 2063 Winter Flood Cntl Pool

Elev. 2047 Minimum Pool

Elev. 1984 Reservoir Bottom

Exclusive Flood Storage – 7,842 af

Joint Flood & Future Irrigation Storage – 1,923 af

Future Irrigation Storage & Min Flows – 1,787 af

Aesthetics & Environmental Storage – 2,539 af
- Recreation
- Fish & Wildlife
- Sedimentation

Elevations are Above Sea Level

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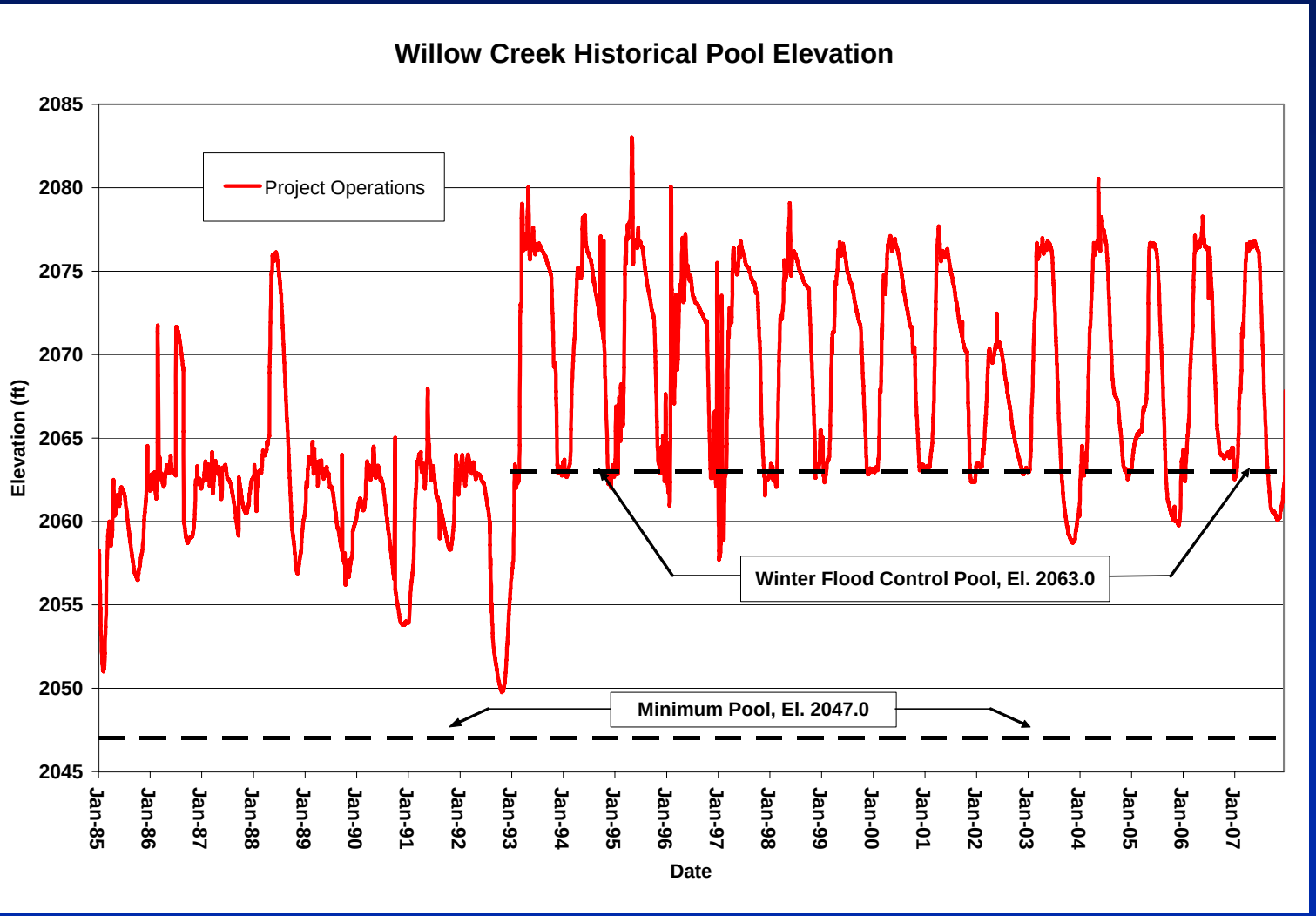
Historic Project Operations



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Irrigation

- In 1965 Congress authorized irrigation withdrawal up to 3,500 acre-feet per year
- Irrigation water withdrawals occurred under drought conditions:
  - 2003: 1,322 ac-ft
  - 2004: 1,030 ac-ft
  - 2005: 1,802 ac-ft
  - 2006: 1,560 ac-ft (requested)
  - 2007: 1,560 ac-ft (requested)
- **Current proposal from irrigators calls for long-term plan to withdraw up to 2,500 acre-feet annually, April 15–September 30**

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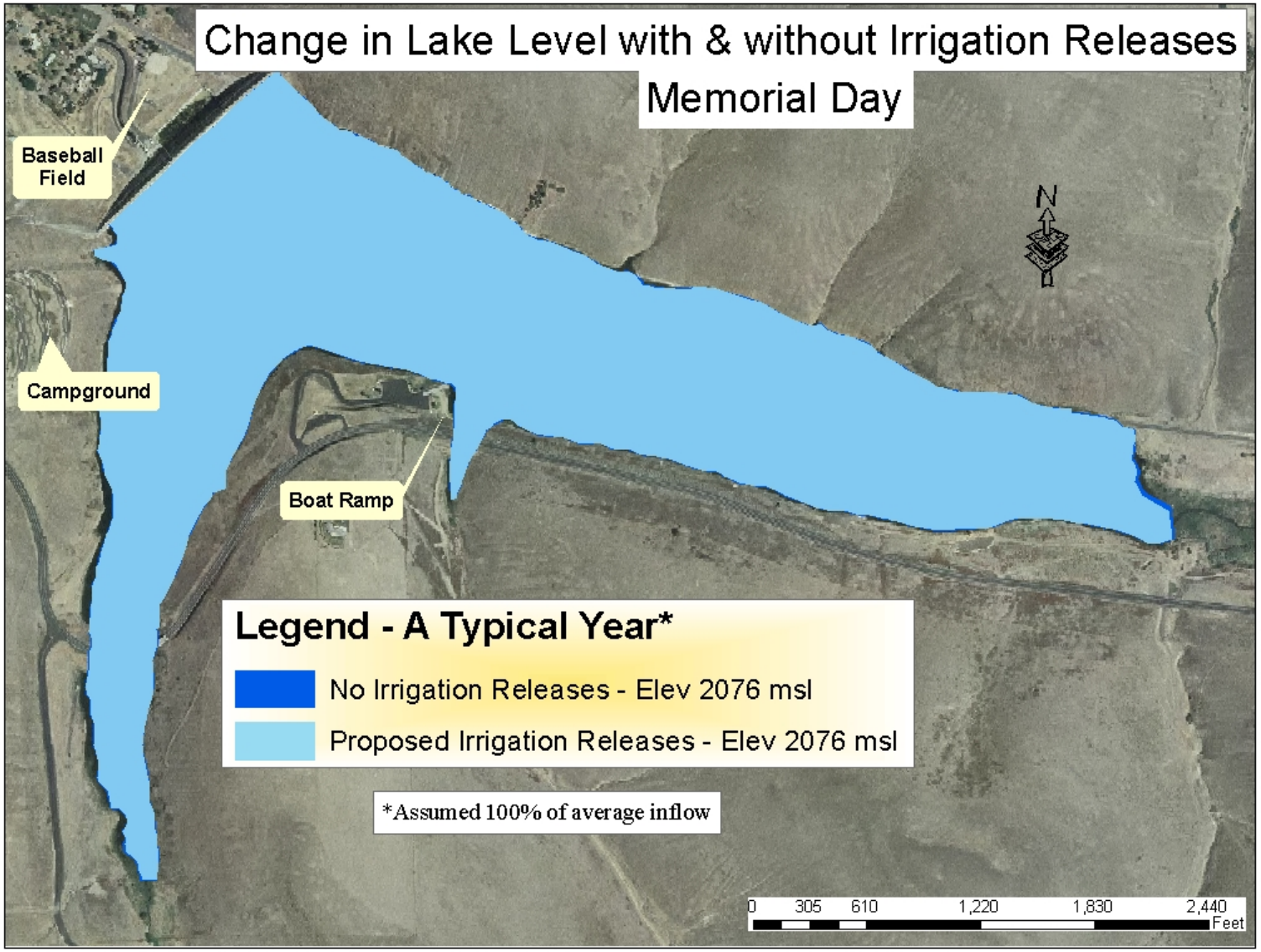
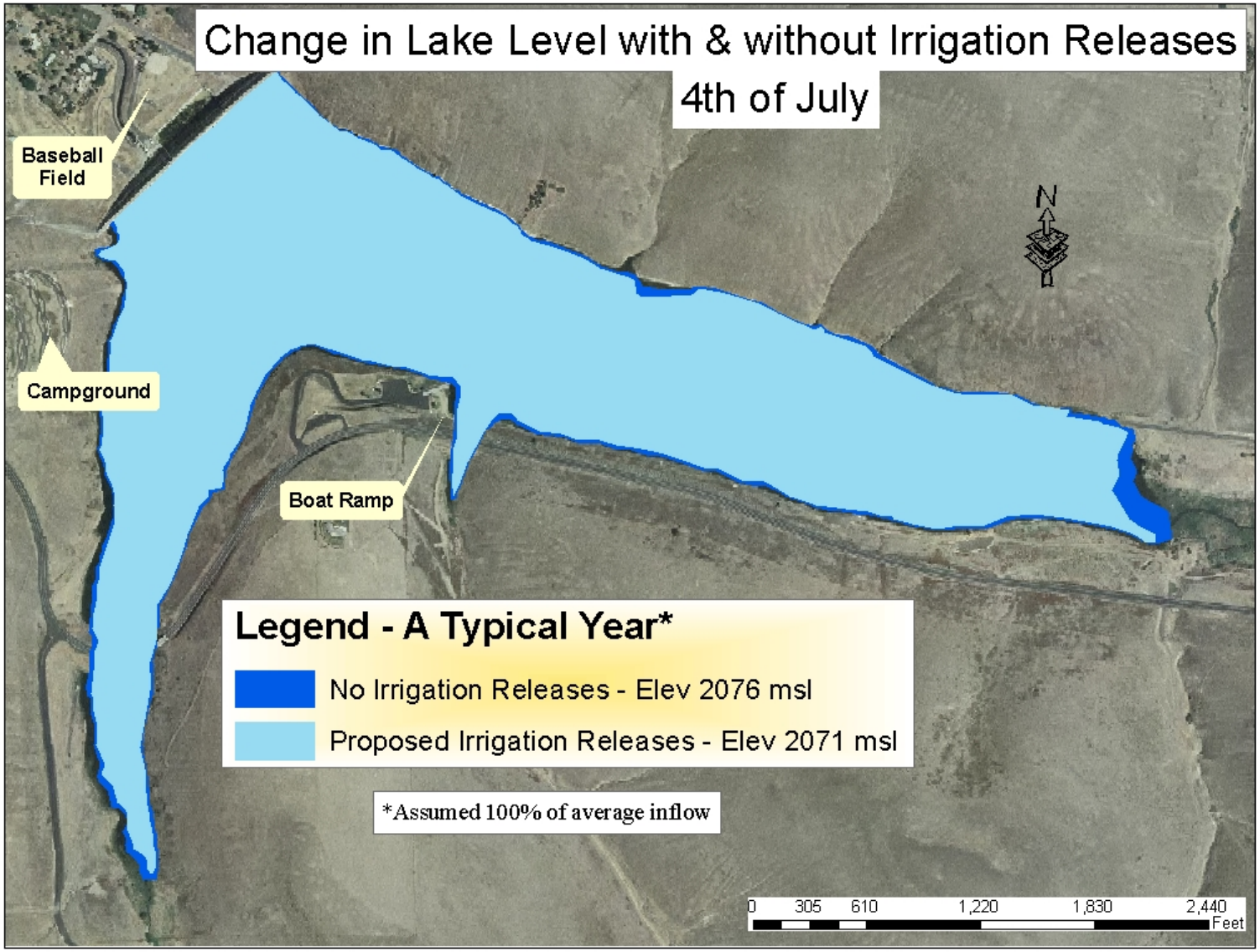
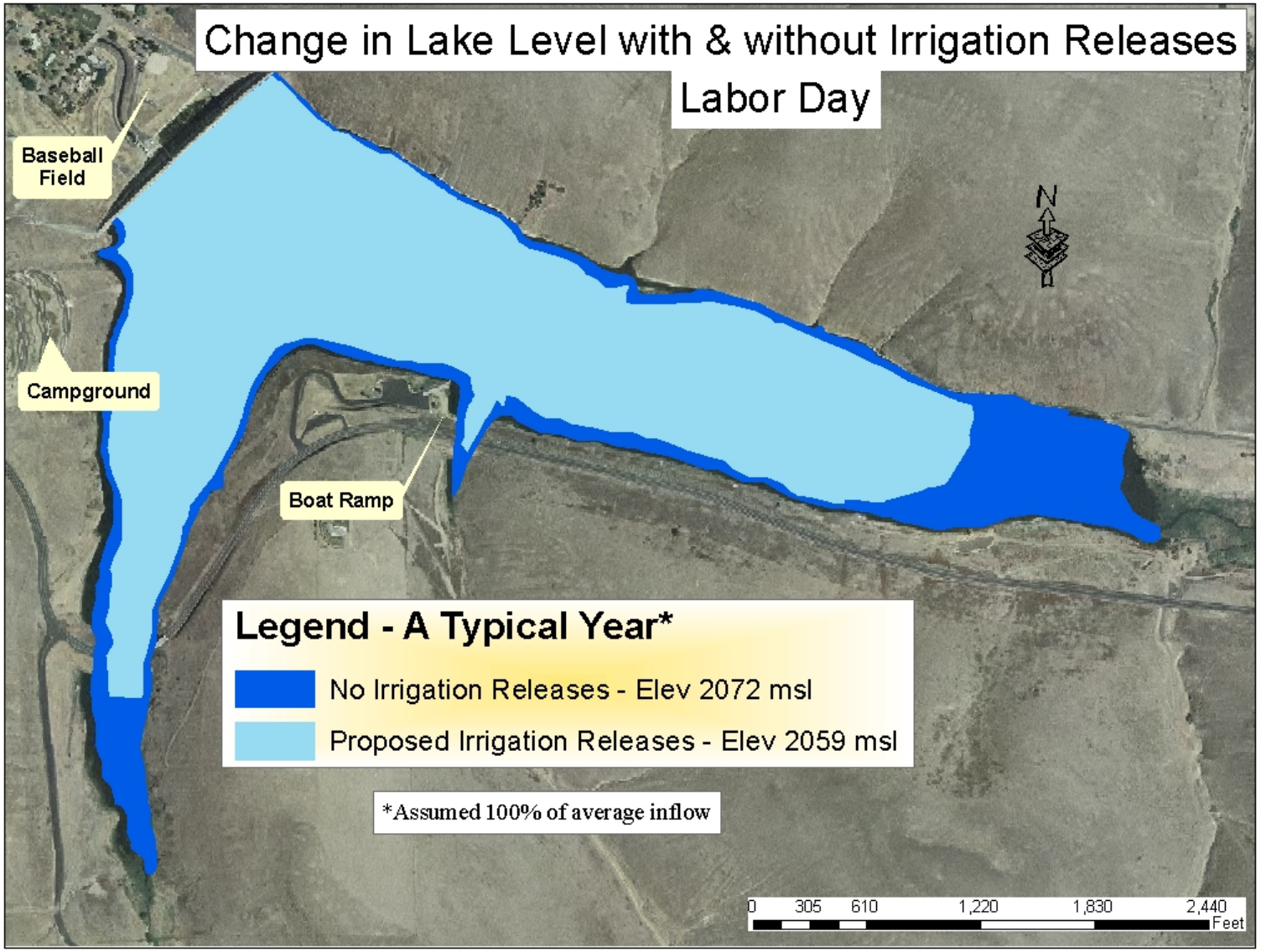
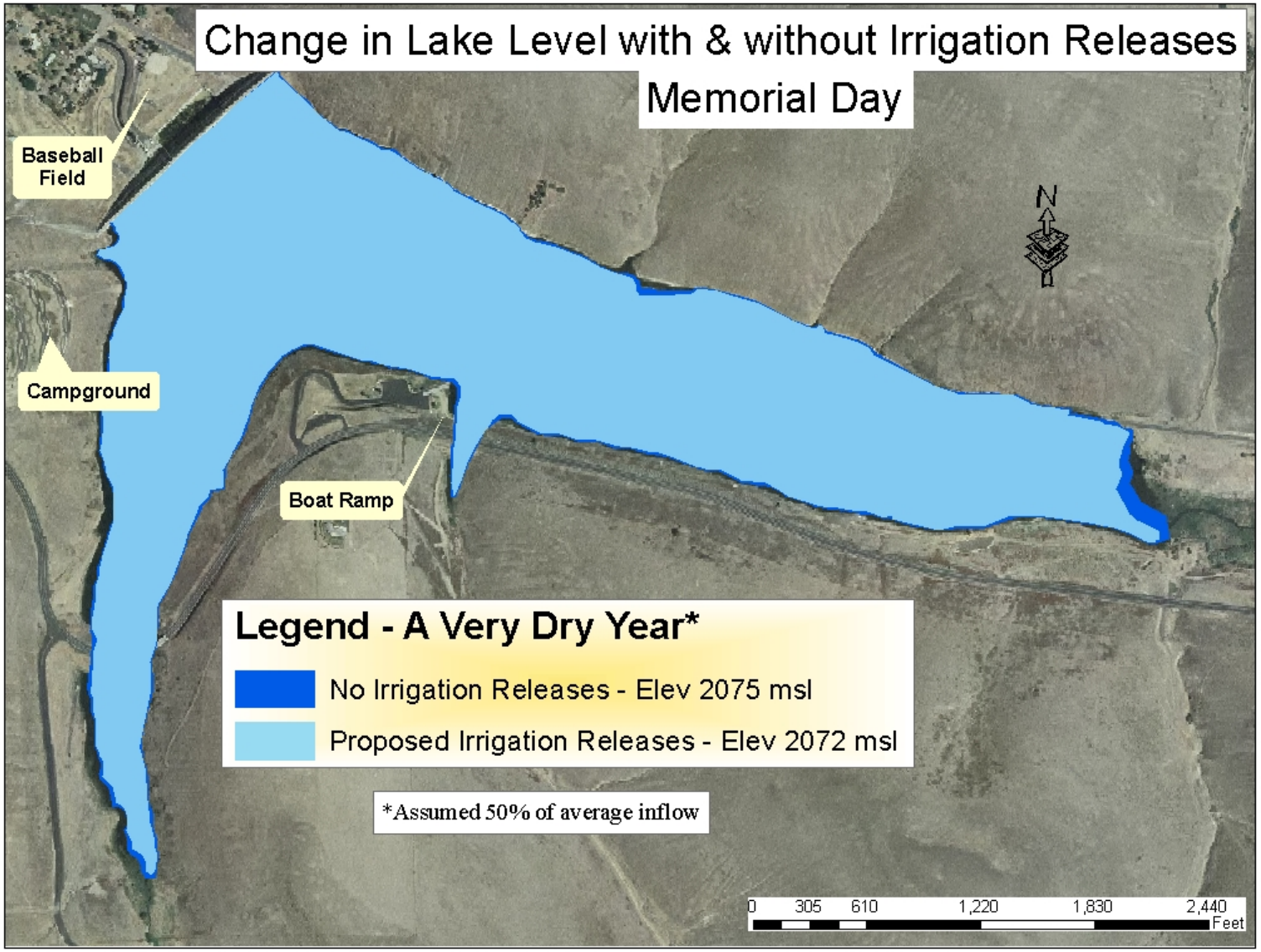
Corps' Role in Proposal Process

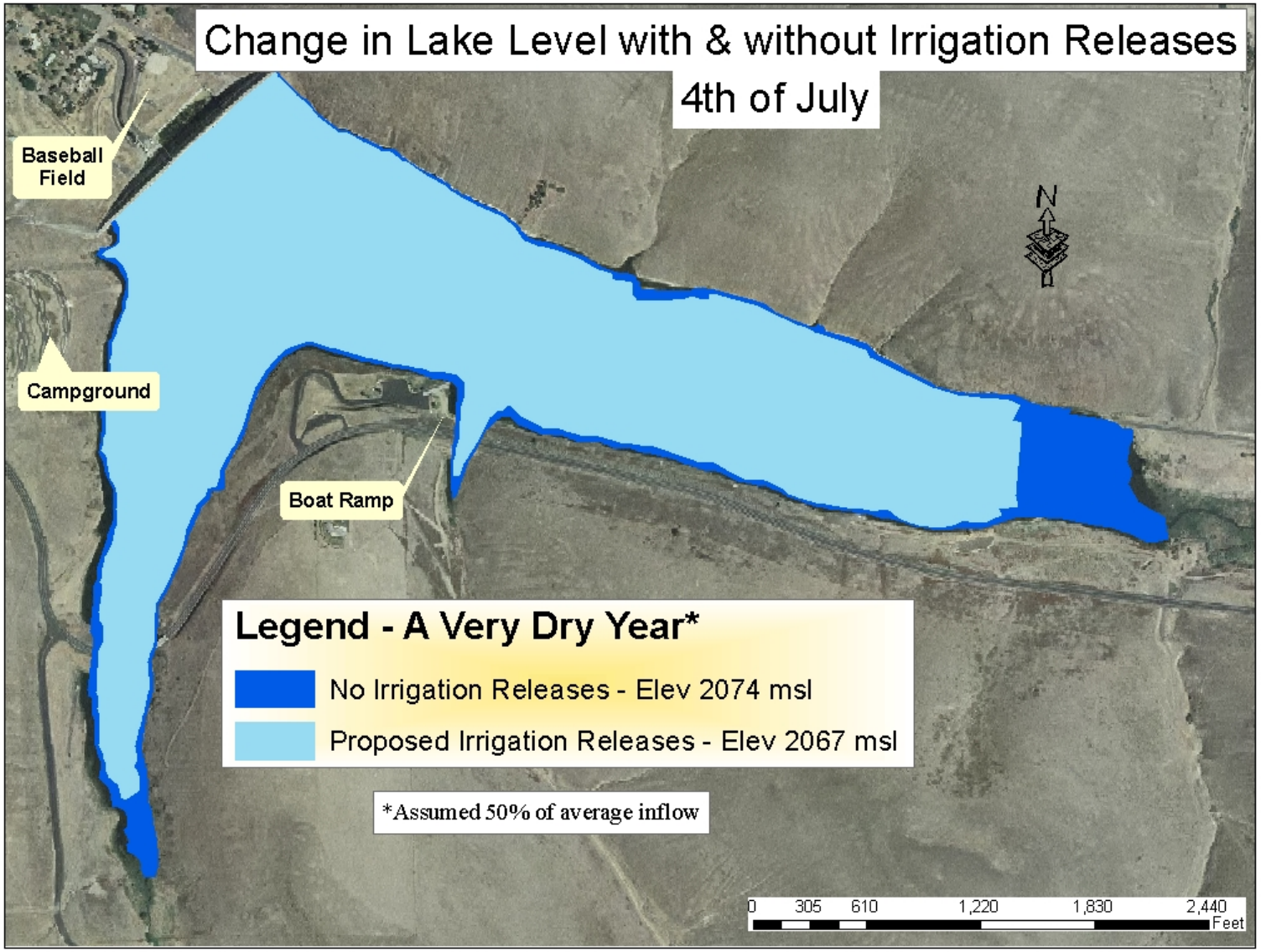
- Corps is responsible for ensuring the proposal's compliance with national environmental process (NEPA) & Endangered Species Act
  - A draft Environmental Assessment outlines irrigation proposal, identifies potential effects and determines their significance
  - Process provides opportunity for public comment
    - Over 60 written comments received to date
    - Tonight's meeting is opportunity to discuss EA and receive additional comments

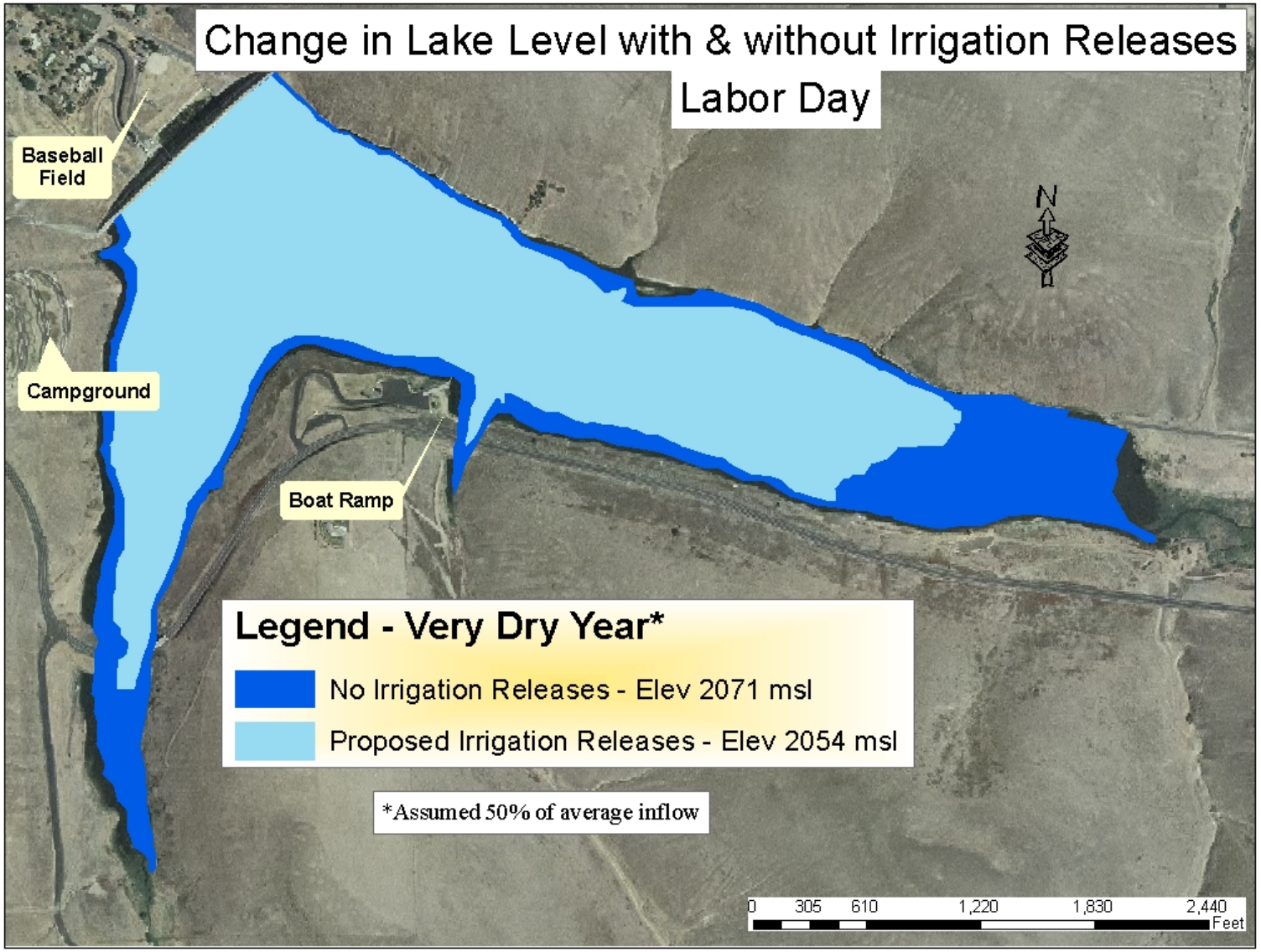

Change in Lake Level with & without Irrigation Releases
Memorial Day
Baseball Field
Campground
Boat Ramp
N
Legend - A Typical Year*
No Irrigation Releases - Elev 2076 msl
Proposed Irrigation Releases - Elev 2076 msl
*Assumed 100% of average inflow
0 305 610 1,220 1,830 2,440
Feet


Change in Lake Level with & without Irrigation Releases
4th of July
Baseball Field
Campground
Boat Ramp
N
Legend - A Typical Year*
No Irrigation Releases - Elev 2076 msl
Proposed Irrigation Releases - Elev 2071 msl
*Assumed 100% of average inflow
0 305 610 1,220 1,830 2,440
Feet


Change in Lake Level with & without Irrigation Releases
Labor Day
Baseball Field
Campground
Boat Ramp
N
Legend - A Typical Year*
No Irrigation Releases - Elev 2072 msl
Proposed Irrigation Releases - Elev 2059 msl
*Assumed 100% of average inflow
0 305 610 1,220 1,830 2,440
Feet


Change in Lake Level with & without Irrigation Releases
Memorial Day
Baseball Field
Campground
Boat Ramp
N
Legend - A Very Dry Year*
No Irrigation Releases - Elev 2075 msl
Proposed Irrigation Releases - Elev 2072 msl
*Assumed 50% of average inflow
0 305 610 1,220 1,830 2,440
Feet


Change in Lake Level with & without Irrigation Releases
4th of July
Baseball Field
Campground
Boat Ramp
N
Legend - A Very Dry Year*
No Irrigation Releases - Elev 2074 msl
Proposed Irrigation Releases - Elev 2067 msl
*Assumed 50% of average inflow
0 305 610 1,220 1,830 2,440
Feet


Change in Lake Level with & without Irrigation Releases
Labor Day
Baseball Field
Campground
Boat Ramp
N
Legend - Very Dry Year*
No Irrigation Releases - Elev 2071 msl
Proposed Irrigation Releases - Elev 2054 msl
*Assumed 50% of average inflow
0 305 610 1,220 1,830 2,440
Feet

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Long-term Irrigation Water Withdrawal Potential Effects Overview

- Flood Damage Reduction
  - No impacts to required storage
- Irrigation
  - Stable water supply for irrigated crops
  - Potential reduced groundwater use
- Recreation
  - Earlier and lower drawdown of reservoir (decreased lake surface area)
  - Boat ramp useable to minimum pool (elev. 2047)
  - Floating dock not useable below winter flood control pool (elev. 2063)

Potential Effects Overview (cont'd)

- Fish and Wildlife
  - Earlier and lower drawdown of reservoir (decreased lake surface area)
  - No ESA-listed species (fish or wildlife)
  - No negative effects on other wildlife
  - Negative effects to reservoir fishery (pumpkinseed, largemouth bass, and crappie) during spawning period (through July 15)

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Potential Effects Overview (cont'd)

- Water Quality
  - Challenges were predicted in the 1970s
  - Proposed withdrawals would contribute minimally to the water quality problems

Many factors contribute to water quality issues

High nutrient inputs from watershed cause:

- Algae blooms
- Low dissolved oxygen in bottom water
- Increased production of methane, hydrogen sulfide, and ammonia by micro-organisms in bottom water and sediment
- Release of iron, manganese and nutrients from sediment

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Water Quality Improvements

Aerators installed 2004

- Purpose
  - Increase dissolved oxygen in bottom water
  - Reduce methane, hydrogen sulfide, ammonia
  - Prevent release of metals and nutrients from bottom
- Results
  - Partially successful but also warmed bottom water and brought nutrients to surface stimulating algae growth

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Water Quality Improvements

Future Plans

- Possible actions to improve water quality
  - Suspend use of reservoir aerators
  - Switch to surface water mixing – disrupts algae
  - Apply algaecides
  - Promote nutrient reduction in watershed above reservoir
  - Construct wetlands at upper end of reservoir to reduce nutrient loading

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Corps Summary

- Irrigation is authorized purpose of Willow Creek Project
- Potential impact is under review
  - Draft Environmental Assessment (EA) comment period ends March 5, 2008
  - Written comments on EA accepted tonight
- Corps will make a determination on significance of effects by end of March
- Required concurrent actions by irrigators
  - Bureau of Reclamation Water contracting process
  - Oregon Water Resources Department water use permit

Bureau of Reclamation
Long-term Water Contract Process

Bureau of Reclamation
Long-Term Water Contract Process for Irrigation

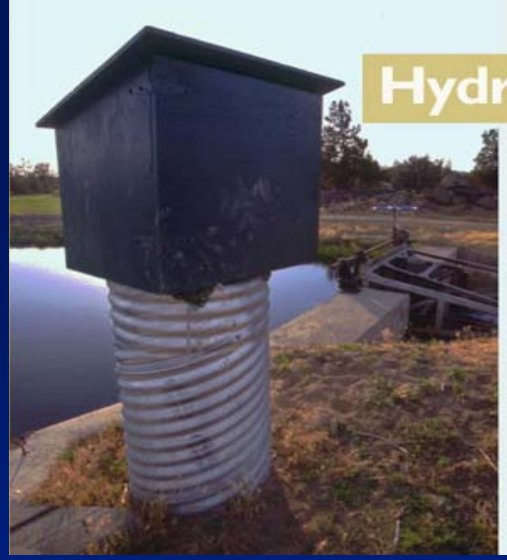
- Irrigators request contract
- Request is reviewed & planning process begins
- Enter into Memorandum of Understanding
  - Document outlines steps/associated contracting costs/payment plan
- Advance Recovery of Reimbursable Contract Administration Costs
- Land Classification Study
- Ability to Pay Study
- Preparation & Approval of Basis of Negotiation (BON) (90-120 days)
- Legal Notice of Contract Action (60 day process)
- Negotiation & Execution of the Contract

Oregon Water Resources Department
Water Law and Water Rights

Michael Ladd

Watermasters

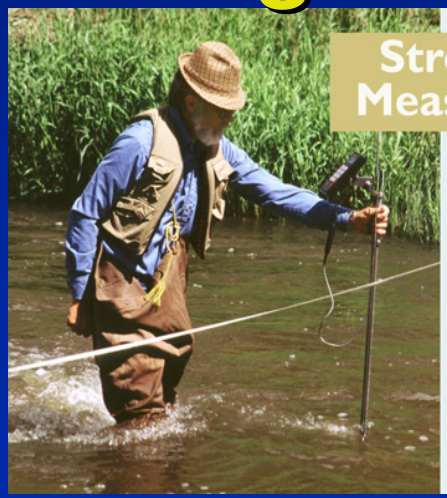
Oregon's watermasters enforce water laws and work with water right holders to promote wise water use.



Hydrographics

Automated streamflow gages gather round-the-clock water level data.

Oregon Water Resources Department



Streamflow Measurement

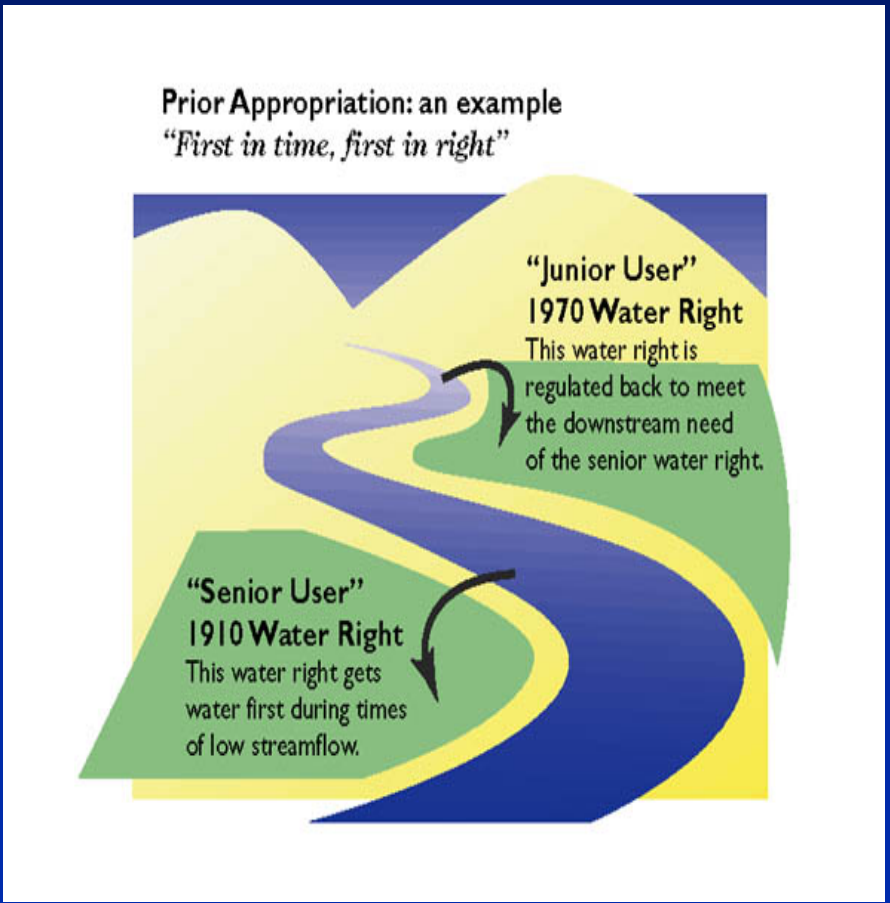
Watermasters, hydrographers, and field staff measure the water flow in Oregon's streams.

Regulation

Department field staff actively enforce Oregon's water laws.

WRD

Water Rights

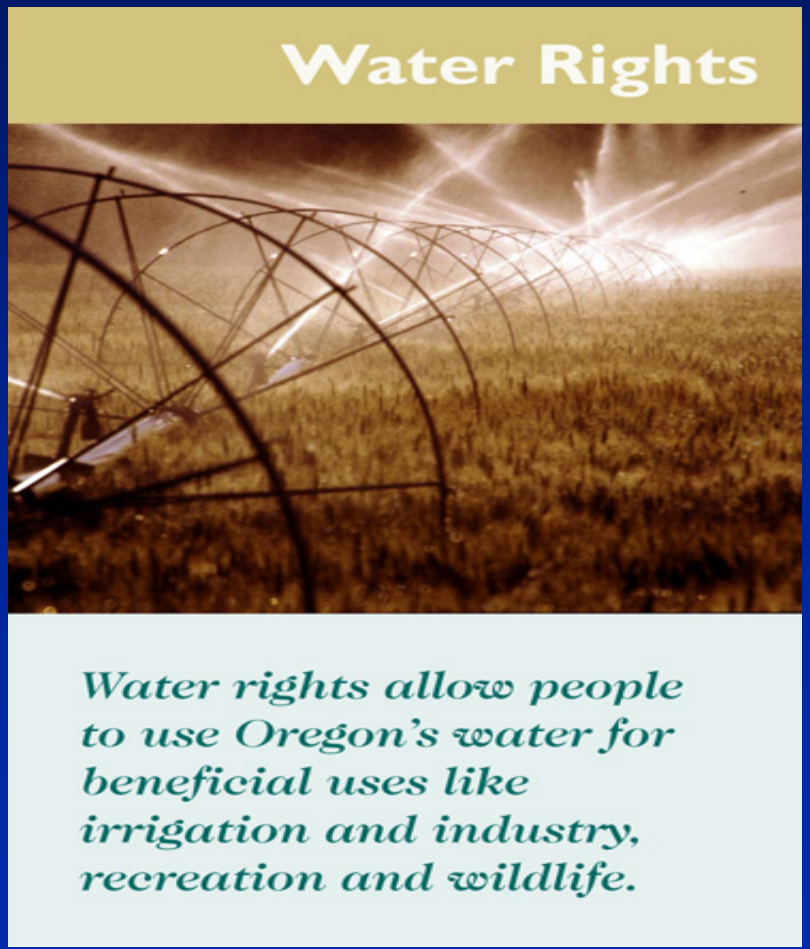


- Most use of water requires a permit from the Water Resources Department.
- These water rights are managed under the doctrine of prior appropriation.
- Permit issued in 1987 to allow storage of 3500 acre feet for irrigation.

Limited Licenses

- Consistent with past temporary contracts for stored water from Willow Creek Reservoir WRD has issued Limited Licenses to irrigation contractors prior to delivering water.

Water Use Permits



- Applicants interested in a long term contract should apply now for a water use permit.
- If circumstances change before issuance of a proposed final order, the applicant can place a hold on the application to preserve the option for all but $150 of the application fees.

Distribution Water

- The Watermaster regulates the distribution of water according to the water rights of record (ORS 540.045).
- Water users pay for ½ the cost of distribution of water from a reservoir by way of a natural water course (ORS 540.410)

WRD

What is needed to ensure delivery of water efficiently

- Installation of headgates and measuring devices as appropriate.
- Stop illegal use.
- Look at formation of an irrigation district
- Payment to OWRD for delivery of stored water.(ORS 540.410)
- Possible future need for the installation of gaging stations to help in delivery and determine losses.

OWRD Contacts

- Joel Clark, Watermaster
  (541) 384-4207
- Mike Ladd, Region Manager
  (541) 278-5456
- Tim Wallin, Water Rights Manager
  (503) 986-0801
- Jerry Sauter, Limited Licenses
  (503) 986-0817

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What's Next

- Discuss topics of interest with staff (list on back of program)
- Submit written comments tonight or by March 5, 2008

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- Reservoir Management/Operations
  - Karl Kanbergs, Corps Chief Reservoir Operations
  - Laurie Rice, Corps Hydraulic Engineer
  - Dan Dunnett, Corps Park Ranger
  - Skip Matthews, USDA Farm Service Agency/Willow Creek Park District

- Environmental Assessment/Water Quality
  - Carolyn Schneider, Corps Biologist
  - Jim Britton, Corps Water Quality Specialist
  - Kathryn Barko, Physical Scientist (Corps contractor)
  - Bill Duke, Oregon Department of Fish & Wildlife
  - Kevin Blakely, Oregon Department of Fish & Wildlife

- Irrigation
  - Michael Ladd, Oregon Water Resources Regional Manager
  - Joel Clark, Oregon Water Resources Watermaster
  - Bill Parks, Bureau of Reclamation Economist
  - Tanya Sommer, Bureau of Reclamation
  - Bernard Damon, irrigation proposal representative

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Willow Creek Boat Ramp/Dock

January 31, 2008 at elevation 2063.3
(near winter pool)