



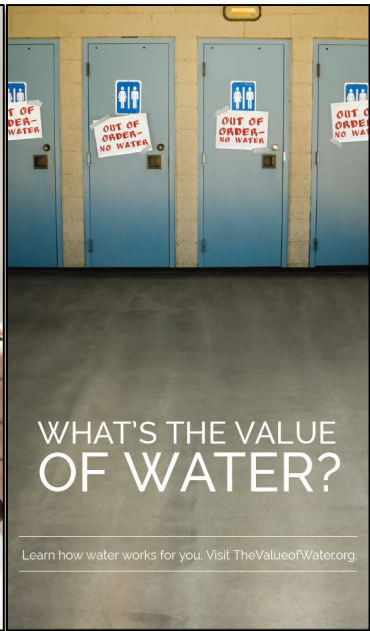
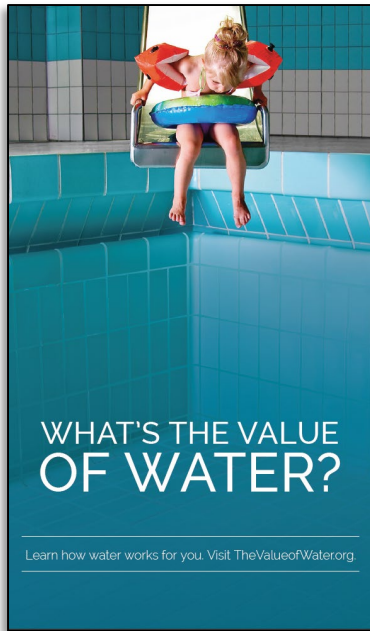
We work with others to protect the health of the people of Washington State by ensuring safe and reliable drinking water.

OVERVIEW OF DRINKING WATER



Washington State Department of Health

What's the Value of Water?



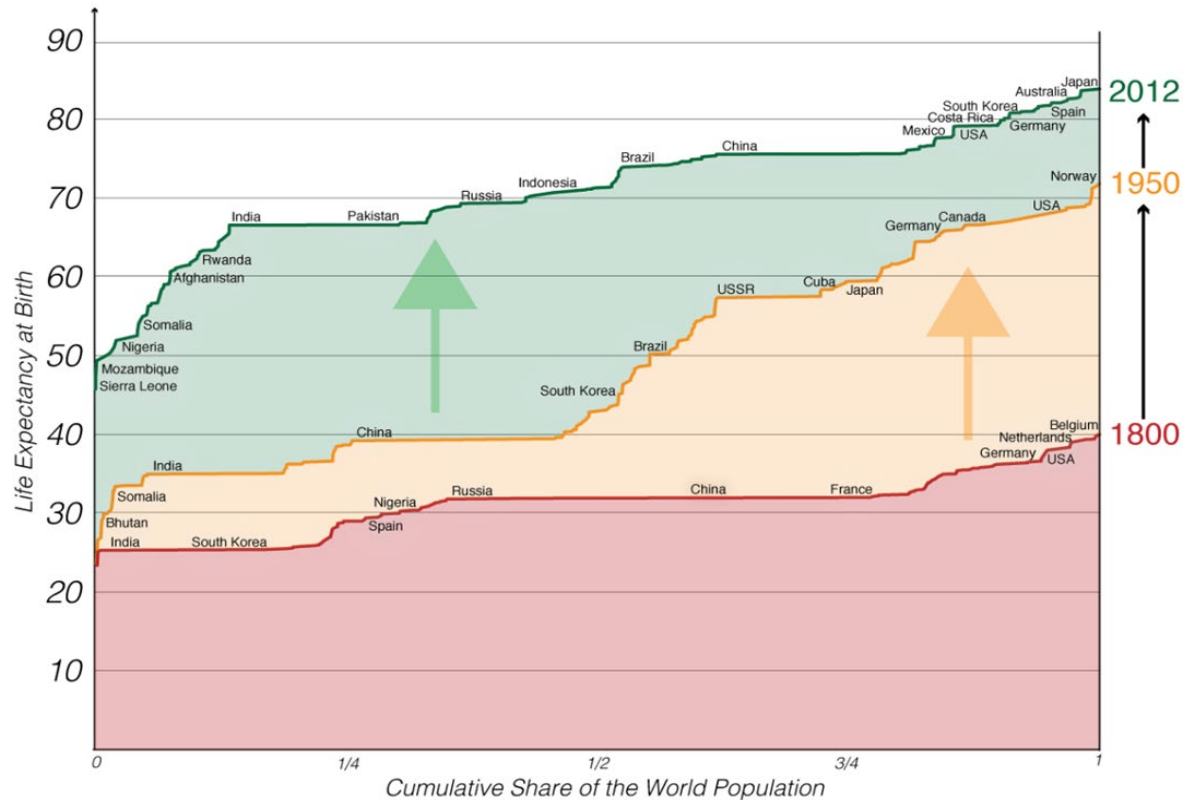
Better Check Your Sources – Historical Cites



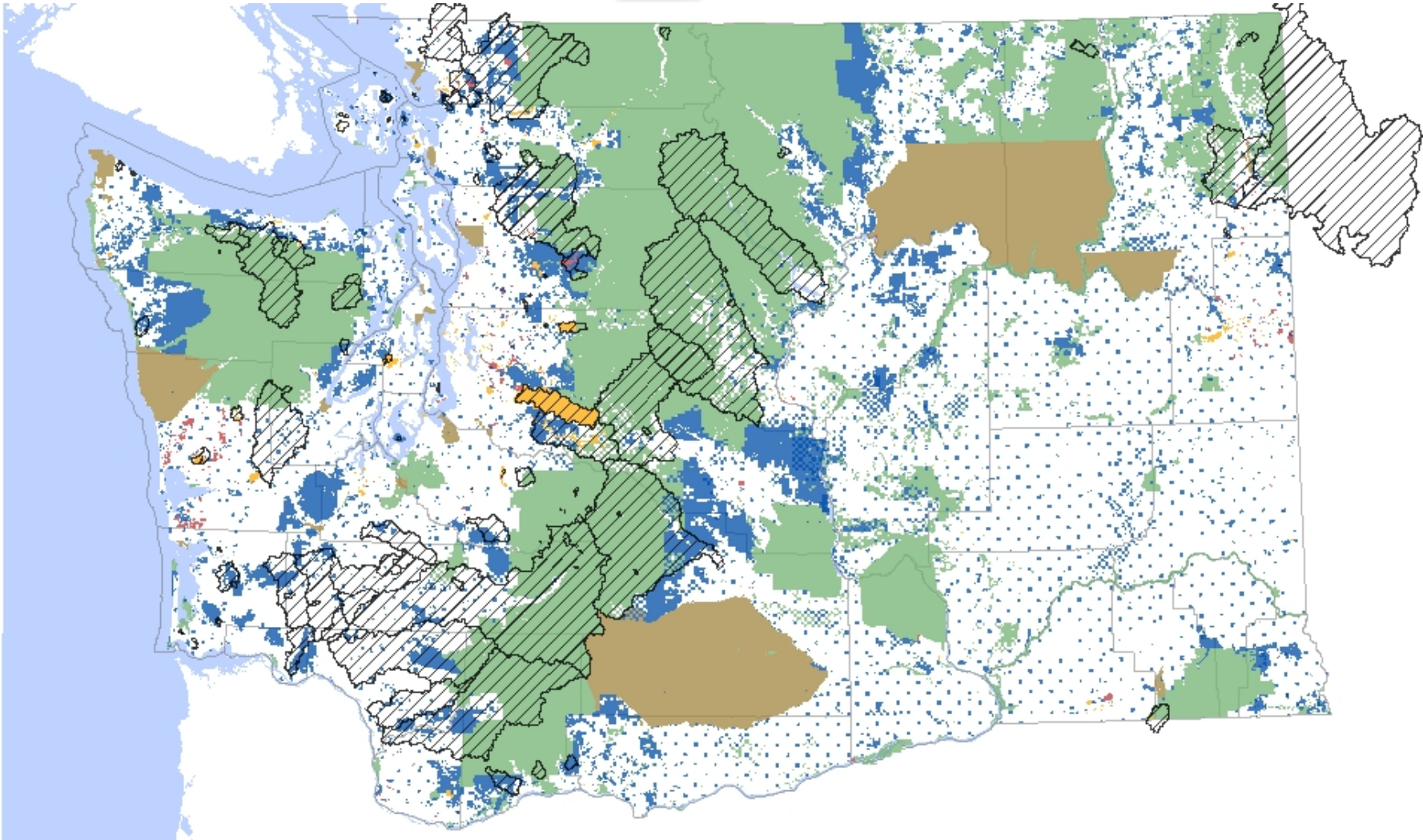
Images courtesy of Wikipedia Commons

Why

Reduction in water borne disease added more to life expectancy than all of recent modern medicine....



Watersheds



Overview of Watershed Protection

September 2014 AWWA Journal

- *Protecting forested watershed is smart economics for water utilities, Gartner, et al*
- EPA study: On average \$1 spent on source water protection saved an average of \$27 in water treatment costs
- EPA conducting new survey on costs

What are the Benefits of Source Water Protection?

- Public health protection
- Reducing emergencies
- Economic benefits
- Environmental benefits
- Public confidence

Regulatory Overview

Department of Health—Safe Drinking Water Act

Department of Ecology—Clean Water Act

Department of Natural Resources—Forest Practice Act

Department of Agriculture—Pesticide Control Act and
Pesticide Application Act

Counties—Land use ordinances

Watershed Control Planning

- It's required of all surface and groundwater under the influence of surface water (GWI) systems (WAC 246-290-135 and 246-290-668)
- Watershed Control Plan must include:
 - Watershed description.
 - Inventory of potential contamination sources and activities.
 - Identification of landowners.
 - Watershed control measures.
 - System operation including emergency provisions.
 - Documentation of water quality trends.

Watershed Control Planning (cont.)

Effective watershed control includes:

- Regular patrols.
- Landowner meetings.
- Landowner agreements.
- Land acquisition strategy.
- Monitoring.
- Evaluation of the watershed regularly

American Water Works Association Standards for Source Water Protection



AWWA Standard G300
Optimizing Utility Operations

Potential Contaminant Sources

- Agriculture
- Forestry
- Mining (gravel & minerals)
- Residential Uses & Development
(urban, suburban, rural land uses; incl. sewer/septic, fuel/oil, hazardous materials)
- Transportation (roads, railroads)
- Recreation (OHVs, hiking/camping)

DNR Regulatory Framework – Policy for Sustainable Forests

Guides the management and stewardship of 2.1million acres of forested trust lands

Economic Performance

- Definition, calculation, and recalculation of the sustainable harvest level

● Forest Ecosystem Health and Productivity

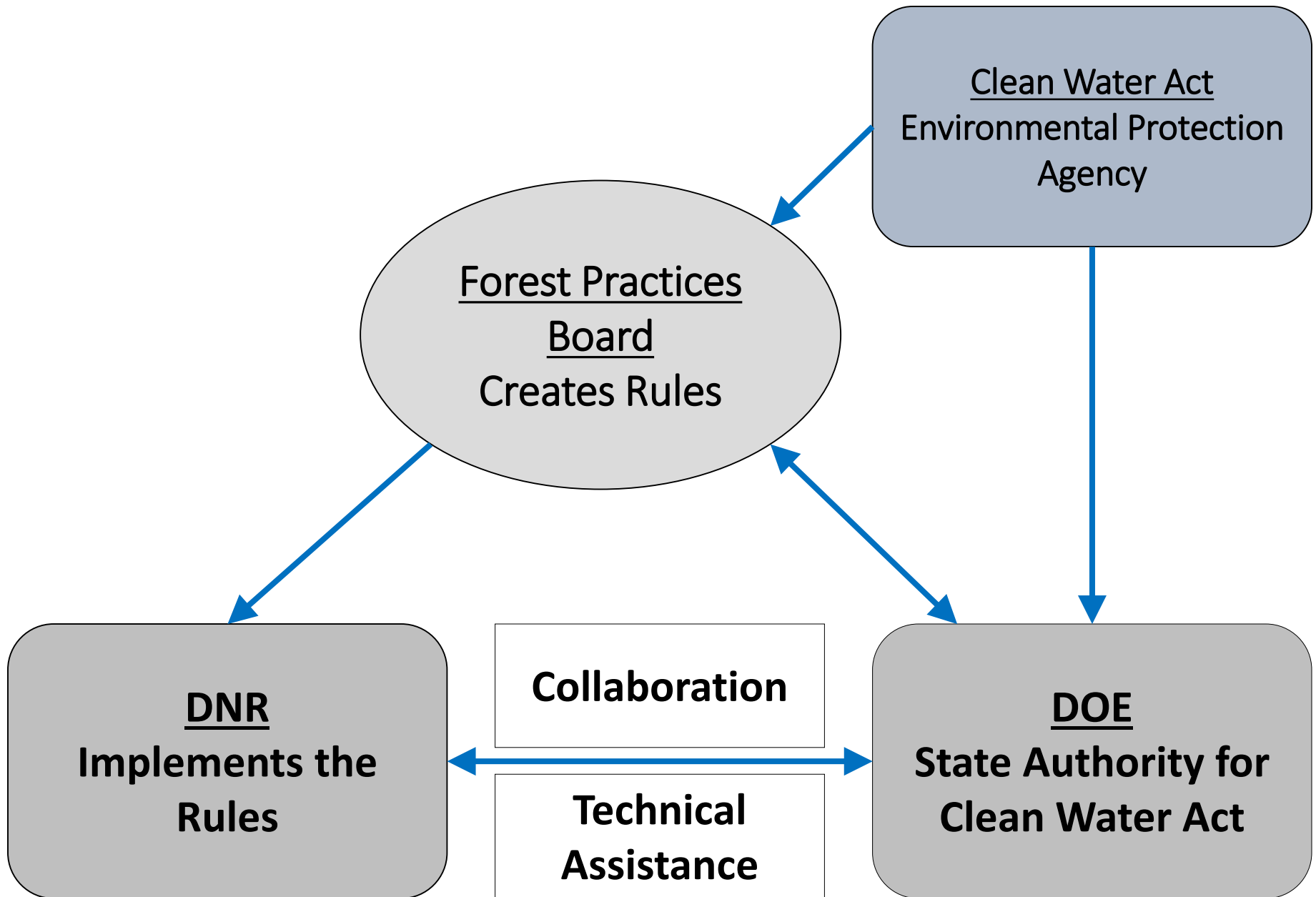
- Outlines specific aspects for protection and management

● Social and Cultural Benefits

- Protection and promotion of various land uses

● Implementation

- Outline management procedures for achieving the above three.



Forest Practices

- Harvest, Road Work, Culverts, etc.)
- Aerial Chemical application



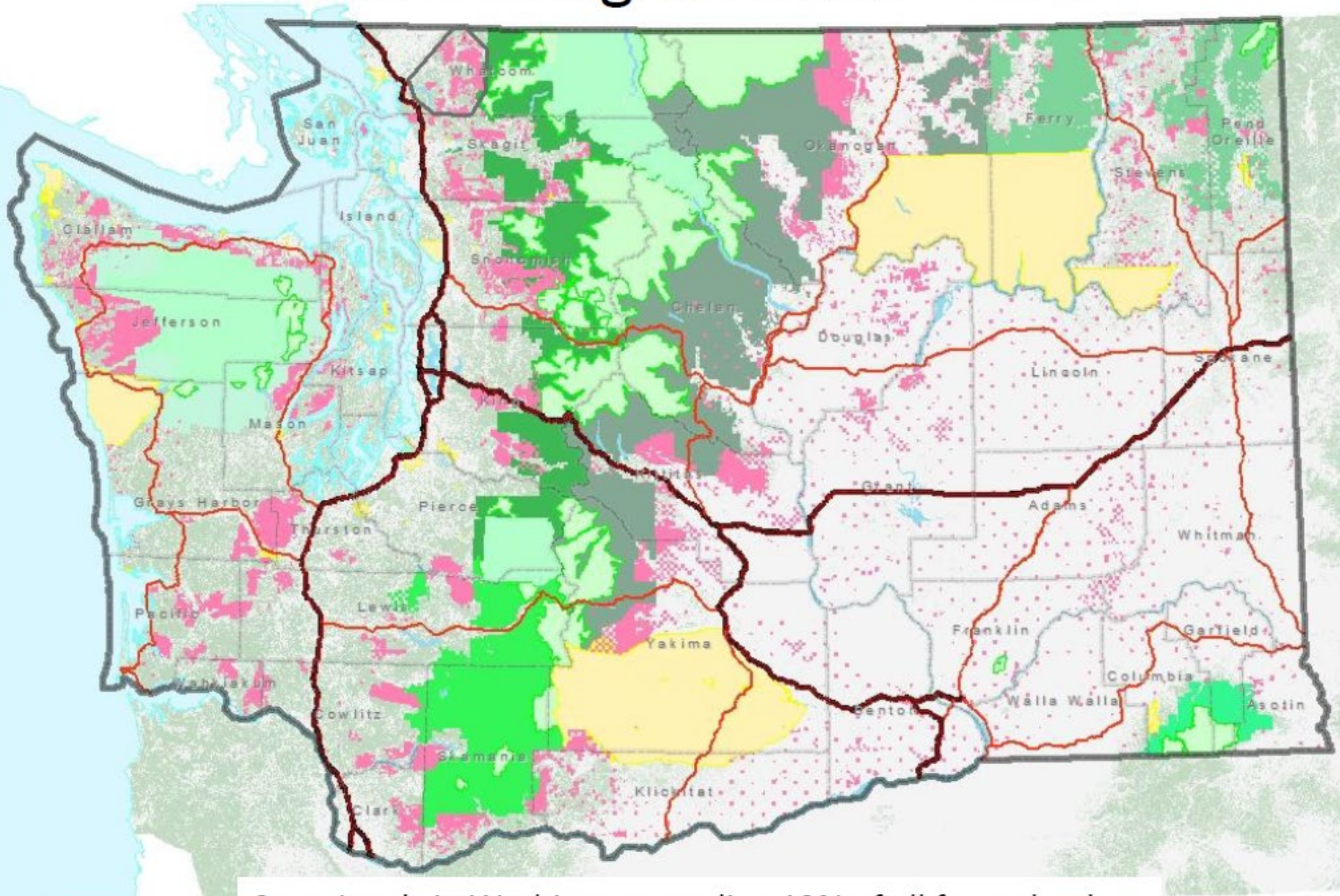
Forest Practices Application Review

FPARs –Allows interested parties to review applications

Application notification



DNR Managed Lands – 12%



State Lands in Washington totaling 12% of all forest lands

Scientific Rationale

- Using best management practices can result in:
 - Healthy forests that are effective at improving water quality.
- Poorly managed roads can increase turbidity levels in surface water. (Cornish 2001)
 - Properly managed stream buffers can prevent sediment delivery to streams.



WA Road Surface Erosion Model

Appendix A – Table A-9

Sediment Delivery/Distance Relationship

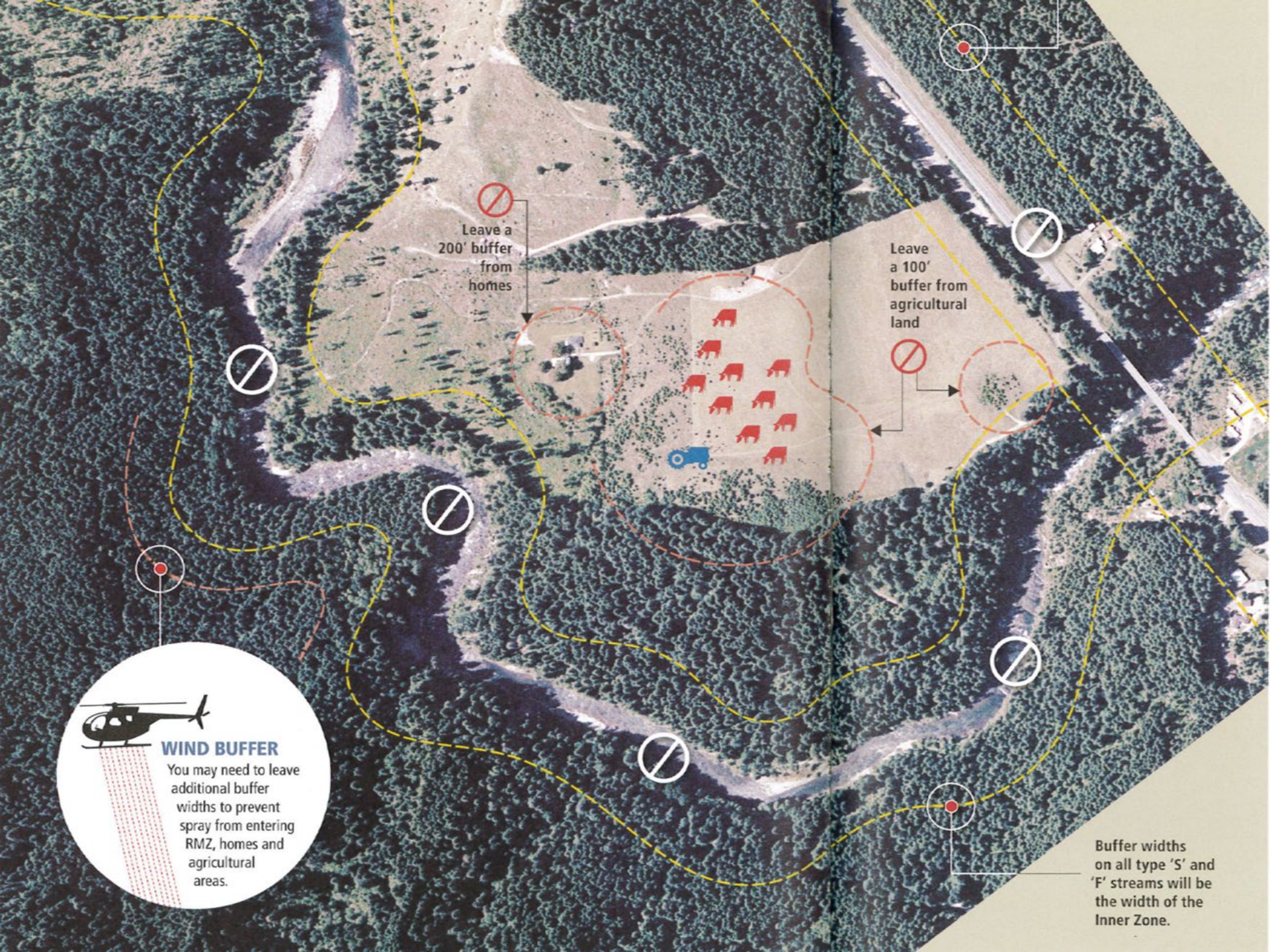
Distance From Culvert (ft)	Percent of Total Eroded Sediment Delivery
0	100
35	70
70	50
105	35
140	25
175	18
210	10
245	4
280	3
315	2
350	1

Turbidity

- An indirect measure of soil particles in water
- Water quality standards in WA State law
- Changes with the background condition
- More turbid background means not as clean water delivered to your system







Leave a 200' buffer from homes

Leave a 100' buffer from agricultural land



WIND BUFFER
You may need to leave additional buffer widths to prevent spray from entering RMZ, homes and agricultural areas.

Buffer widths on all type 'S' and 'F' streams will be the width of the Inner Zone.

Assistance to Public Water Systems

- DOH provides funding, engineering assistance, oversight, provides technical advice & assistance on watershed management & drinking water source protection
 - Source water protection planning & implementation
 - Grants
- Ecology water quality & quantity oversight agency
 - Spill, TMDLs, Non-point, other
 - Grant & Loans for Source Water Protection activities

Who Ultimately Protects the Source?

- The Feds?
- The State?
- The County?
- The Purveyor?



Successful and effective source water protection is implemented at the community level.