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Peter Goldmark - Commissioner of Public Lands

Forest Practices Compliance Monitoring 2014 Interim Report Results and Program Updates

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2014 Program Redesign

WAC 222-08-160(4): Are Forest Practices conducted in compliance with the rules

- Prior program design
  - Entire sampled prescription assessed as either compliant or non-compliant
    - Wide confidence intervals
    - Limited information on specific rule non-compliance

- Objectives of new program study design
  - Increase statistical precision
  - More quantitative estimate of compliance
  - Better determine specific rule noncompliance
  - Flexibility to add, remove, or combine prescription types

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2014 Program Redesign Continued

- Changes to the methodology of data analysis by prescription, <u>not</u> to data collection methods

- Estimate average compliance by prescription

  - Mean Compliance (prescription)$= \dfrac{\#\ rules\ compliant}{\#\ total\ rules\ sampled}$

- Sample size is set to control error rate on mean compliance by prescription

  - Variance (2010-2014)

  - Cluster size (average number rules evaluated by prescription)

  - Prescription population size

Prescriptions

- Forest Practices Applications are sets of rule applications (prescriptions)
    - FPAs reflect how Landowners apply the Forest Practices rules to conduct forest practices activities. FPAs are clusters of rule groupings (prescriptions).
    - Prescriptions sampled: Desired Future Condition (option 1), Desired Future Condition (option 2), No Inner Zone Harvest, Non-fish bearing Perennial streams, Non-fish bearing Seasonal streams, Type A & B Wetland Management Zones, Forested Wetland Management Zones, Roads, and Haul Routes

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Example of Type F stream Riparian Management Zone

- Each zone within RMZ has corresponding rules that are evaluated for compliance

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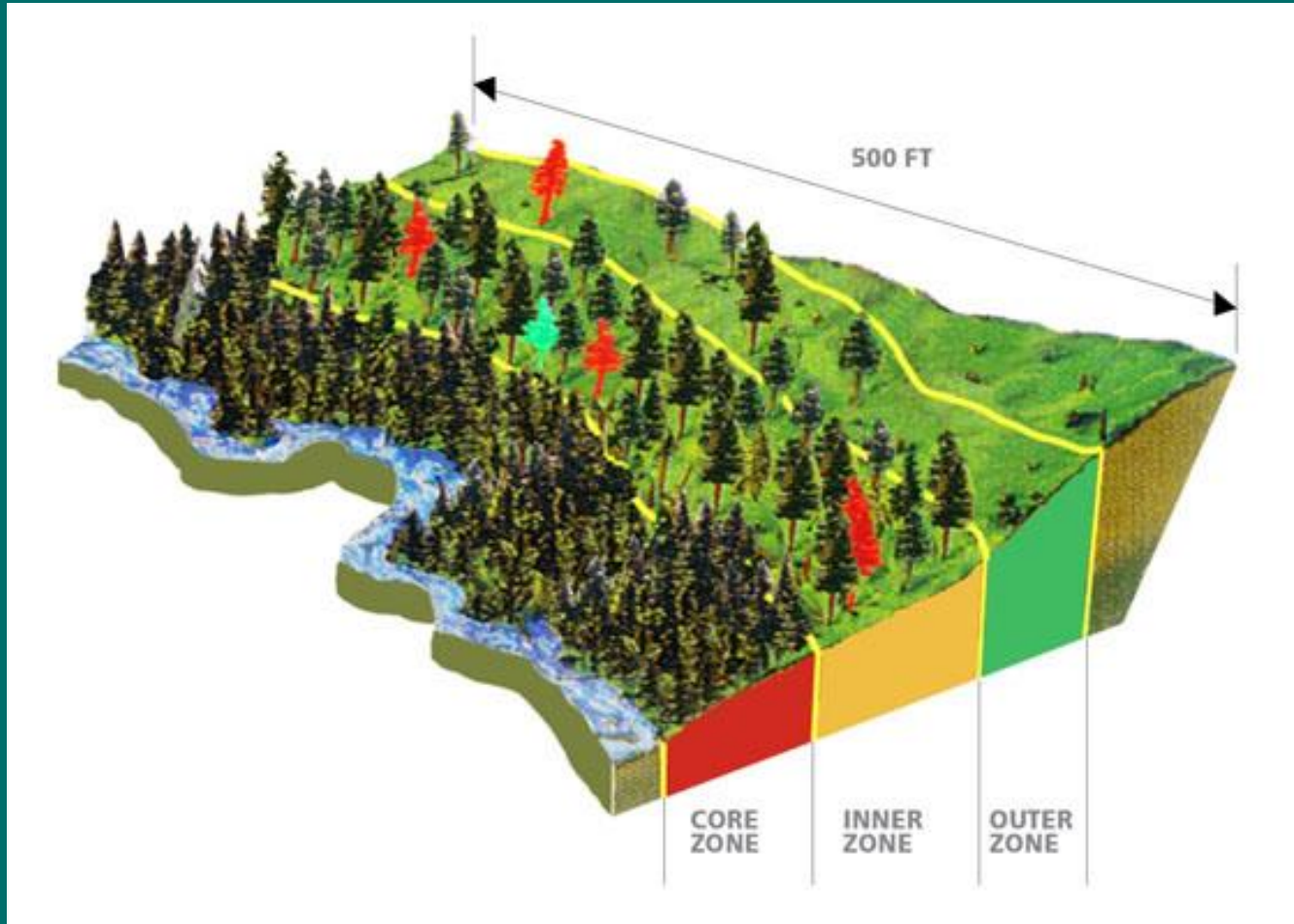
Desired Future Condition (option 1) 2014 data

Species match DFC worksheet	Site Class not under represented	Stream size not under-represented	No harvest in Core Zone	Inner Zone meets diameter strategy	Largest 57 Trees/ Acre left in Inner Zone	Unstable slopes bounded out	Observed Channel Migration Zone not on FPA	Correct Outer Zone leave trees	Total Applicable Rules	Total Compliant Rules
1	1	1	1	1	1	NA	NA	0	7	6
1	1	1	1	0	1	NA	NA	1	7	6
1	1	1	1	1	1	NA	NA	1	7	7
1	1	1	1	1	1	NA	NA	1	7	7
1	1	1	1	1	1	NA	NA	1	7	7
1	1	1	1	1	1	NA	NA	1	7	7
1	1	1	0	1	1	NA	NA	1	7	6
1	1	1	1	1	1	NA	NA	1	7	7

2014 Sample Overview

- 1st year of biennium sample
- 40% of Biennial sample completed in 2014
  - Remaining 60% of sample completed 2015
- No 2014 Emphasis sample
- 2010-2014 Trend analysis project

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Prescription Sample and Population Sizes

Geographic Region	Prescription Type	Sample Count	Estimated Population Size of FPAs by Prescription
Statewide	Road Construction and Abandonment	6	591
	Haul Routes	20	n/a*
	RMZ — Type Ns Prescriptions	14	356
	RMZ — Type Np Prescriptions	14	322
	Type A Wetlands	15	53
	Type B Wetlands	10	105
	Forested Wetlands	8	104
	RMZ — Type S or F No Inner Zone Harvest	10	264
Western WA	RMZ — Type S or F Inner Zone Harvest DFC1	8	18
	RMZ — Type S or F Inner Zone Harvest DFC2	6	49

2014 Results (Rule Compliance)
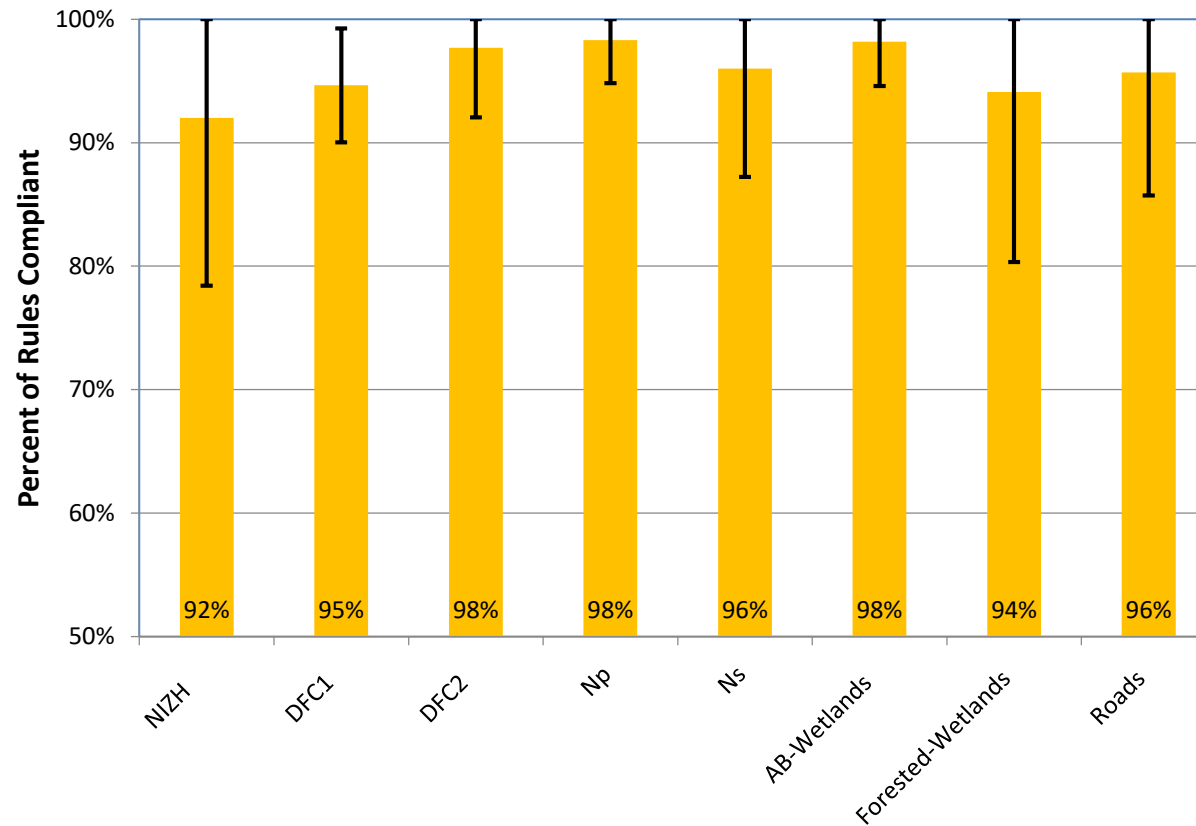
Water Typing

- Underclassified — Physical characteristics indicate that the water should have been typed on the FPA and protected on the ground at a higher level of the hierarchical water typing system.

- Overclassified — Physical characteristics indicate that the water should have been typed on the FPA and protected on the ground at a lower level of the hierarchical water typing continuum.

- Indeterminate — Waters for which the compliance monitoring field team determines there is not enough information to make a water typing determination.

Water Type on FPA	# Waters in Standard Sample	# Waters with Typing Disparity	# Waters Underclassified	# Waters Overclassified	# Waters Indeterminate
F or S	24	0	*	0	0
Ns	14	5	1	3	1
Np	14	0	0	0	0
Type A Wetlands	6	4	2	1	1
Type B Wetlands	8	2	0	1	1
Forested Wetlands	9	1	1	0	0
Total	75	12	4	5	3

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Desired Future Condition option 1 (Thinning from below)

Sample size	8
Cluster size	7.0
# Rules evaluated	56
# Rules compliant	53
% Mean compliance	94.6%
95% Confidence Interval	(90%, 99%)
Exceeds rule requirements	2 (3.5%)
Low severity deviation	3 (5.4%)
Moderate severity deviation	0
High severity deviation	0
Indeterminate	0

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Desired Future Condition option 2 (Leaving trees closest to the water)

Sample size	6
Cluster size	7.17
# Rules evaluated	43
# Rules compliant	42
% Mean compliance	97.7%
95% Confidence Interval	(92%, 100%)
Exceeds rule requirements	8 (18.6%)
Low severity deviation	1 (2.3%)
Moderate severity deviation	0
High severity deviation	0
Indeterminate	0

No Inner Zone Harvest

Sample size	10
Cluster size	5.0
# Rules evaluated	50
# Rules compliant	46
% Mean compliance	92.0%
95% Confidence Interval	(78%, 100%)
Exceeds rule requirements	2 (4%)
Low severity deviation	3 (6%)
Moderate severity deviation	0
High severity deviation	1 (2%)
Indeterminate	0

Non-fish bearing Perennial streams

Sample size	14
Cluster size	4.21
# Rules evaluated	59
# Rules compliant	58
% Mean compliance	98.3%
95% Confidence Interval	(95%, 100%)
Exceeds rule requirements	0
Low severity deviation	1 (1.7%)
Moderate severity deviation	0
High severity deviation	0
Indeterminate	0

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Non-fish bearing Seasonal streams

Sample size	14
Cluster size	1.78
# Rules evaluated	25
# Rules compliant	24
% Mean compliance	96.0%
95% Confidence Interval	(87%, 100%)
Exceeds rule requirements	0
Low severity deviation	0
Moderate severity deviation	0
High severity deviation	1 (4%)
Indeterminate	0

Type A & B Wetland Management Zones

Sample size	14
Cluster size	3.93
# Rules evaluated	55
# Rules compliant	54
% Mean compliance	98.2%
95% Confidence Interval	(95%, 100%)
Exceeds rule requirements	0
Low severity deviation	0
Moderate severity deviation	0
High severity deviation	1 (1.8%)
Indeterminate	1

Forested Wetland Management Zones

Sample size	9
Cluster size	1.89
# Rules evaluated	17
# Rules compliant	16
% Mean compliance	94.1%
95% Confidence Interval	(80%, 100%)
Exceeds rule requirements	3 (17.6%)
Low severity deviation	0
Moderate severity deviation	0
High severity deviation	1 (5.9%)
Indeterminate	0

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Roads

- All new construction and up to 1 mile of abandonment, including Type N crossings is evaluated.

- Each road constructed will be assessed for compliance separately. Thus if construction includes 4 spurs, each spur will be assessed separately. The same is true for road abandonment.

- Each culvert installation and stream crossing is assessed separately. Compliance, or deviations from compliance will be assessed on each individual installation within a road spur.

# Rules evaluated	30
# Rules compliant	28.7
# Non-compliant	1.3
% Mean compliance	95.7%
95% Confidence Interval	(86%, 100%)

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Haul Routes

Sample size	20
% Mean compliant	91%
No delivery	87%
De Minimis	3.9%
%Non-compliant	9%
95% Confidence Interval	(80%, 100%)
Exceeds rule requirements	0
Low severity deviation	3.1%
Moderate severity deviation	5.7%
High severity deviation	0
Indeterminate	0

Primary Cause	% Deviation for Primary Cause
Inadequate water crossing structures	2.6%*
Contaminated ditchwater	2.6%
Other (described in comments)	18%
Faulty cross drainage	2.6%
Spring Intercepted	5.1%
Road fill failure	2.6%
Sediment from stream adjacent parallel road	67%

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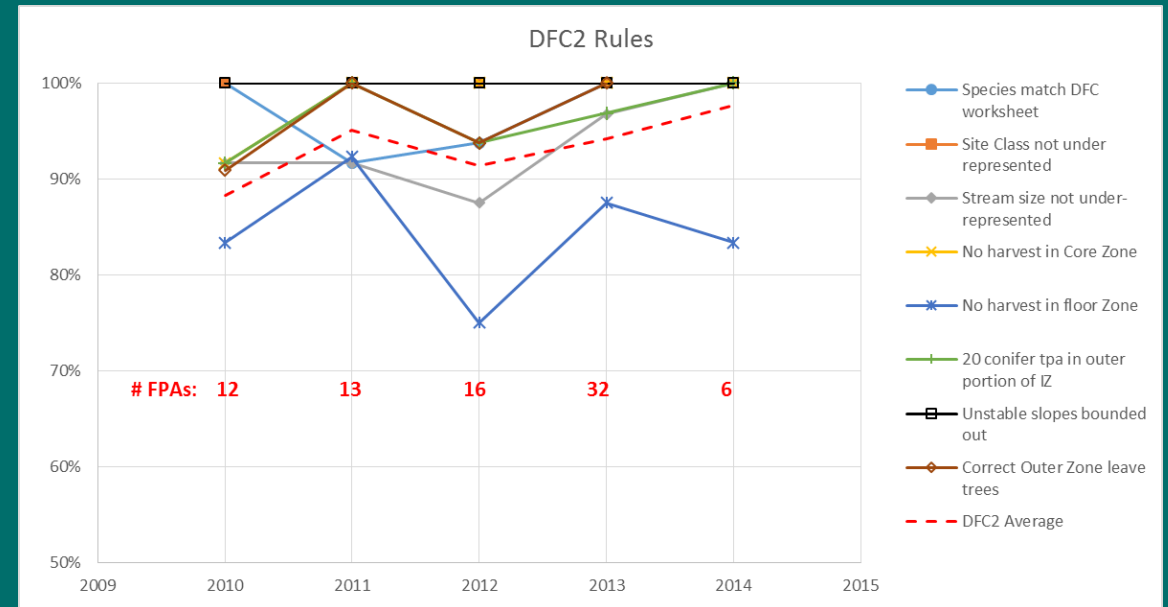www.dnr.wa.gov

2014 Results (FPA Compliance)
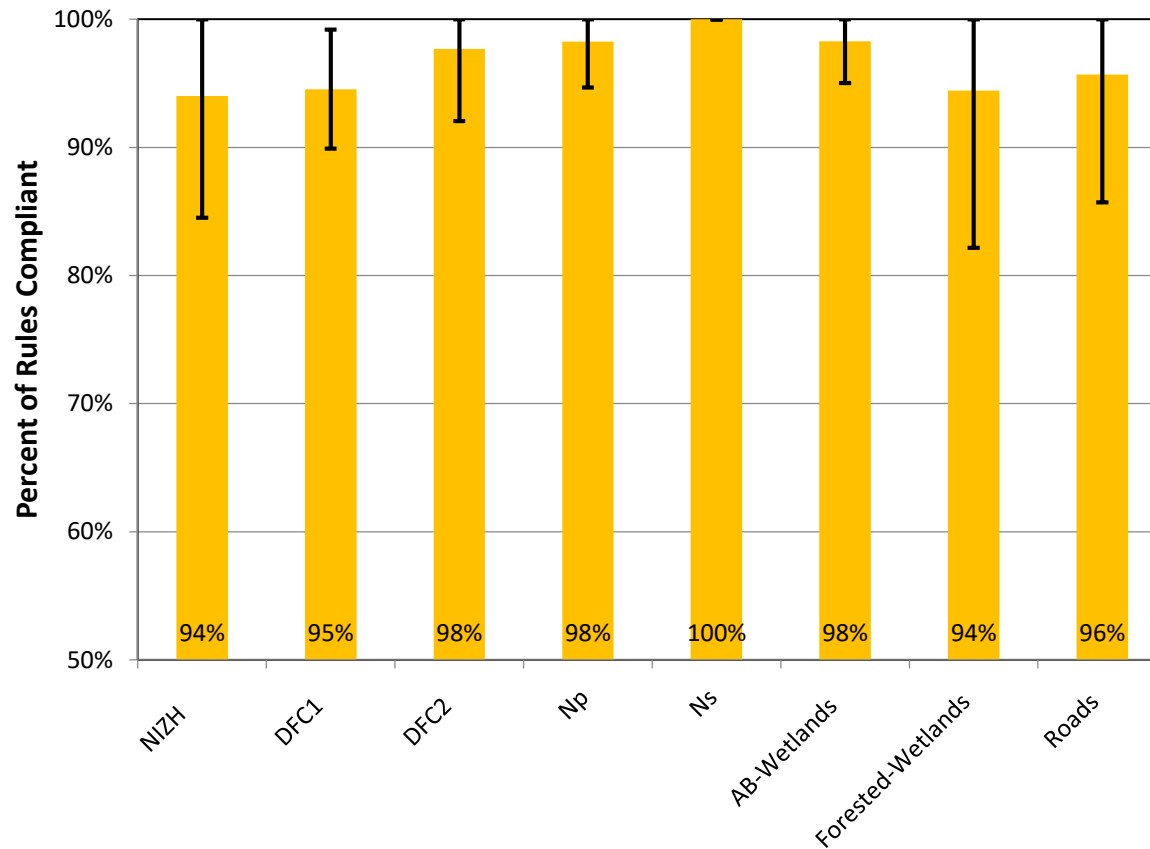
Example of DFC 2 Individual Rule Compliance Over Time

DFC 2 Prescription Trend
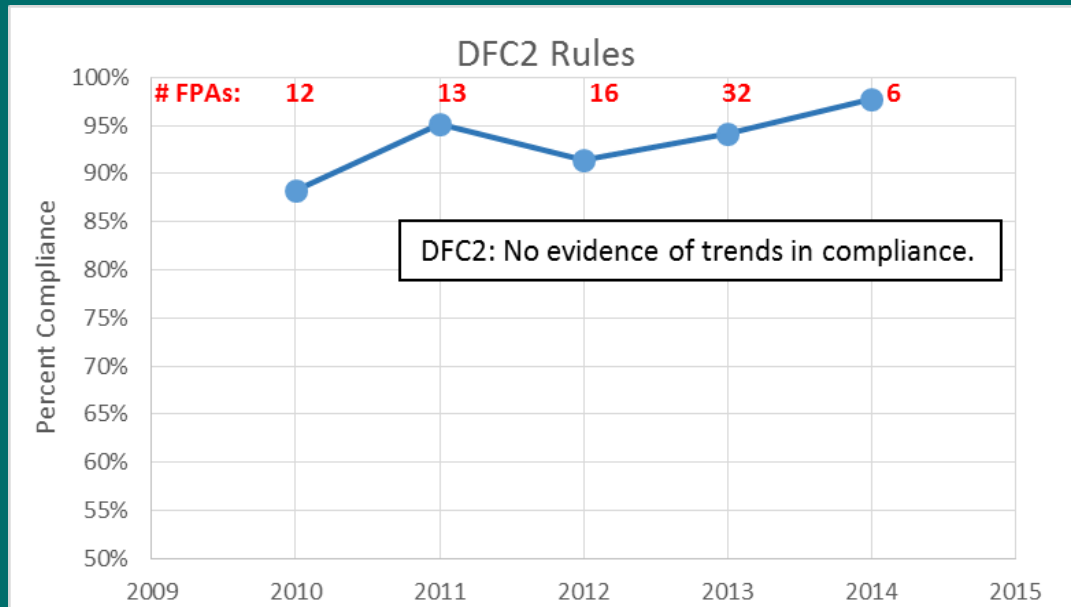
Rule Trends

Discussion

- Discussion regarding results in this annual report is limited because data collected are only for 1 year of a 2-year sample
- Methodology update allows for better information leading to specific rule non-compliance.
  - Rule & Board manual clarifications
  - Timber, Fish, and Wildlife educational outreach
  - Internal DNR trainings

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Questions

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