Oregon Water Resources Department
Strategic Measurement Plan

Approved by Water Resources Commission
2000-2001

Information Provided by OWRD
March 8, 2007

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Introduction

The Oregon Water Resources Department OWRD) and the Oregon Department of Fish and Wildlife (ODFW) completed a cooperative effort that identifies watersheds that have a high priority for fish restoration. These high priority watersheds are known as "Priority Water Availability Basins" or "Priority WABs." The result of the effort combines an assessment from ODFW of the potential for fish restoration, and an assessment from OWRD of the potential for flow restoration. A more detailed summary of the cooperative effort is provided as Appendix a.

In 2000 OWRD developed a strategy for improving water measurement statewide. The strategy was endorsed by the Water Resources Commission and includes a program to develop an inventory of significant diversions. A Water Resources Commission staff report provides more information on the strategy and is provided as Appendix b. Significant diversions are defined as:

Diversions that reside within Priority WABs **and**

1. Surface water diversions that are required by OWRD to measure and report through a water right condition; **or**

2. Surface water diversions without a measurement condition in the water right that are:

a. Greater than 5 cfs, **or**

b. Greater than 10 percent of the lowest monthly 50 percent exceedance flow as defined in the water availability model, and greater than 0.25 cfs.

Even though additional resources have not been available for implementation, considerable work has been accomplished. Currently 2418 priority diversions have been identified within 293 Priority WABs statewide.

The initial inventory and field assessments of priority diversions are nearly complete. The resulting information includes accurate locations, accurate descriptions and ownership information. The next step will be to implement a strategy for increased measurement. WABs will be assigned priorities based on various considerations including:

1. Enforcement of existing measurement requirements;
2. Identification of WABs where increased measurement has the potential to improve instream flow and provide protection for existing water rights.
3. identification of WABs where instream water right needs and/or 303d listings indicate flow restoration is needed; and
4. identification of WABs where a majority of significant diversions are not measured, and there are no stream gages.

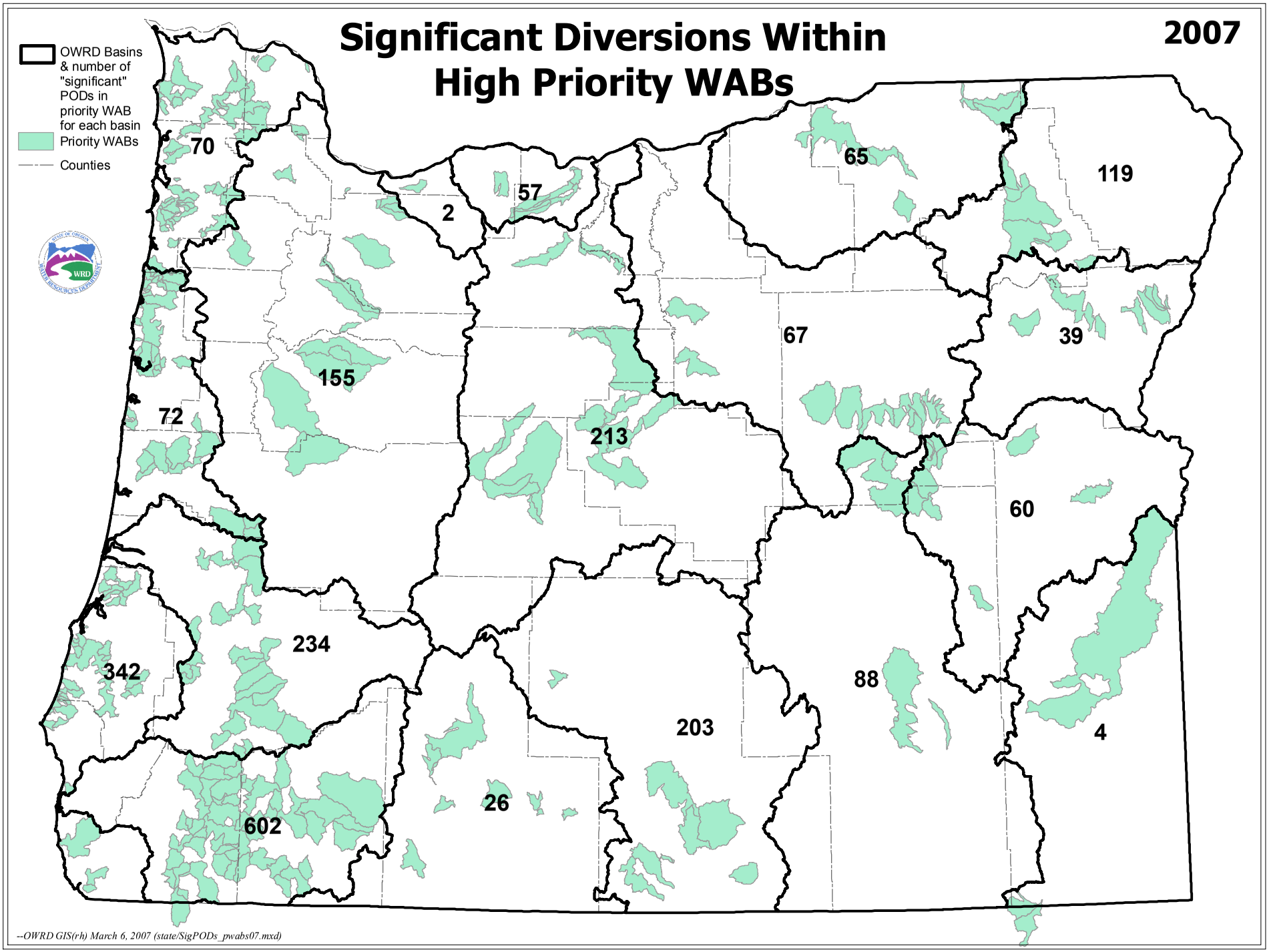
Index

1. Statewide Map - Priority WABs
2. Measurement Activity Summaries & Expected Flow Conditions
   a. North Coast
   b. Willamette
   c. Sandy
   d. Hood
   e. Deschutes
   f. John Day
   g. Umatilla
   h. Grand Ronde
   i. Powder
   j. Malheur
   k. Owyhee
   l. Malheur Lake
   m. Goose/Summer Lakes
   n. Klamath
   o. Rogue
   p. Umpqua
   q. South Coast
   r. Mid Coast

3. Appendix
   a. Oregon Water Resources Department and Oregon Department of Fish and Wildlife Watershed Prioritization Report
   b. Water Resources Commission signed Division Staff Report

Significant Diversions Within High Priority WABs

2007



--OWRD GIS(rh) March 6, 2007 (state/SigPODs_pwabs07.mxd)

North Coast

3/9/2007

Measurement Activities in Priority Watersheds in the North Coast Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
11	Ecola Cr @ Mouth				Yes		
31	N Fk Trask R Ab Bark				Yes		
38	Nehalem R Ab Salmonb				Yes	Yes	
39	Nehalem R Ab Humbug	1			Yes	Yes	
40	Nehalem R Ab Beneke	3	1		Yes	Yes	
42	Nehalem R Ab Rock Cr	3	6		Yes	Yes	1
48	Nestucca R Ab Bible	2	2		Yes		2
50	Rock Cr @ Mouth	3	1		Yes	Yes	
57	Three R Ab Cedar Cr	4			Yes		
59	Tillamook R Ab Beave				Yes	Yes	
70288	Foley Cr @ Mouth	3			Yes	Yes	
70945	Clatskanie R @ Mouth	2	1		Yes	Yes	
70947	Lewis & Clark R Ab H	4			Yes	Yes	
70955	Necanicum R @ Mouth	3	2		Yes	Yes	
70958	Peterson Cr @ Mouth	2	1		Yes		
71223	Sand Cr @ Mouth	1			Yes		
71229	Simmions Cr @ Mouth	1			Yes	Yes	
71233	W Beaver Cr @ Mouth				Yes		
71235	Trask R @ Mouth	3	2		Yes	Yes	
71241	Neskowin Cr @ Mouth	4			Yes		
71244	Nestucca R Ab Niagar				Yes		
71247	N Fk Trask R @ Mouth				Yes		
71251	Killiam Cr @ Mouth				Yes		

Measurement Activities in Priority Watersheds in the North Coast Basin

3/9/2007

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
71257	M Fk Of N Fk Trask @				Yes		
71259	Farmer Cr @ Mouth	3			Yes	Yes	
71260	Fawcett Cr @ Mouth	8	3		Yes	Yes	
71261	Green Cr @ Mouth	6			Yes	Yes	
71265	E Beaver Cr @ Mouth				Yes		
71278	Coal Cr @ Mouth	1			Yes		
71289	Beaver Cr @ Mouth				Yes	Yes	
71290	Bewley Cr @ Mouth	1			Yes	Yes	
71924	Deep Cr @ Mouth				Yes		
71925	Northrup Cr @ Mouth	3			Yes	Yes	
71928	Cow Cr @ Mouth				Yes	Yes	
71935	W Fk Ecola Cr @ Mout	2	1		Yes		1
71938	Nehalem R Ab Robinso				Yes	Yes	
71943	S Fk Necanicum R @ M	1			Yes	Yes	1
14301000	Nehalem R @ 14301000				Yes	Yes	
14301300	Miami R @ 14301300				Yes		1
14302700	Tillamook R @ 143027				Yes	Yes	
14303600	Nestucca R @ 1430360					Yes	1
30100306	Ok Cr @ Mouth						
30100307	Tandy Cr @ Mouth						
30100312	Fox Cr @ Mouth	4	4				

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the North Coast Basin

Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

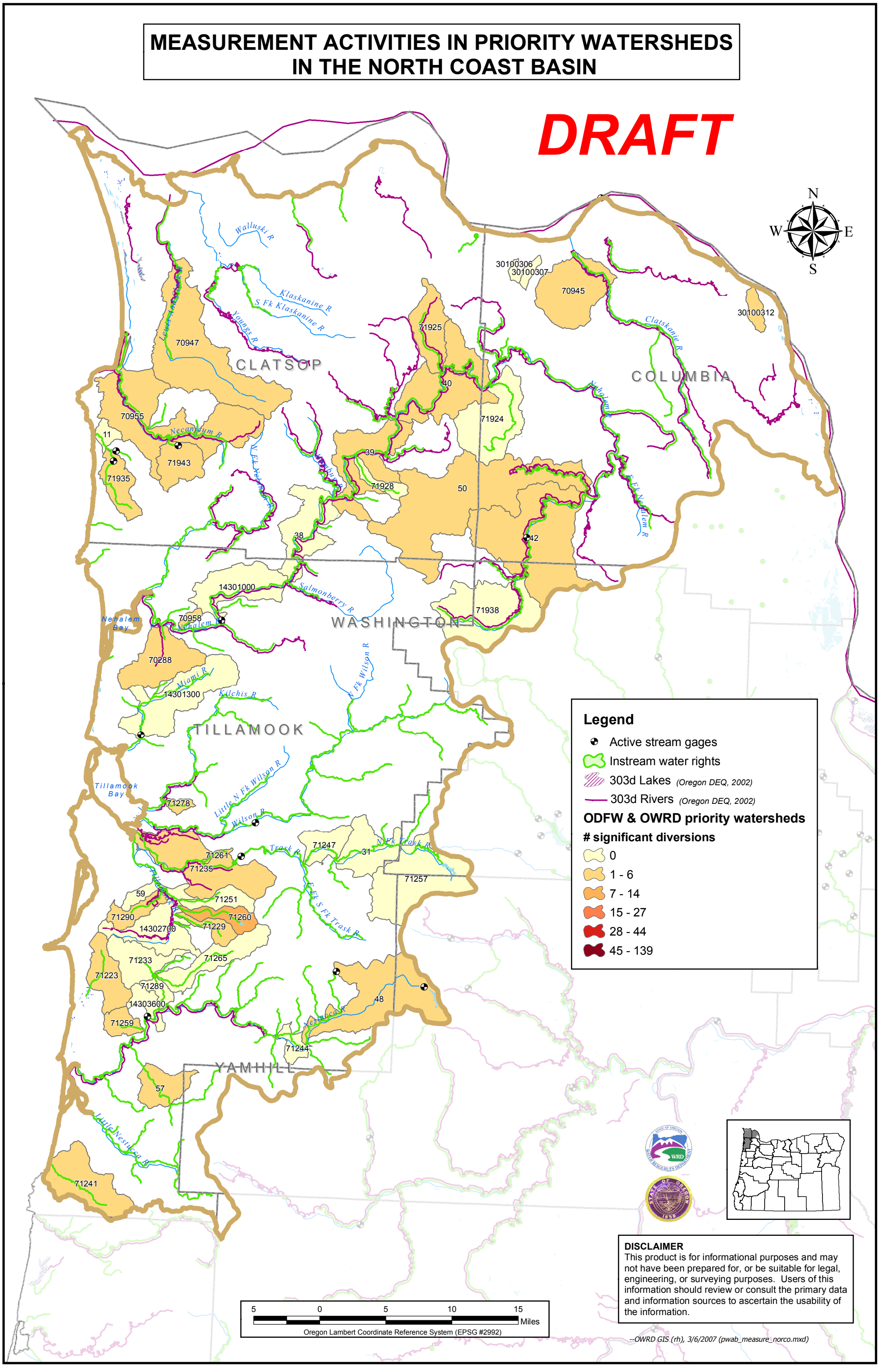
WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
11	1.85	1.69	2.2	3.88	6.23	8.61	14.3	18.6	16.5	9.33	2.35	1.59
31	23.9	24.4	8.03	11.3	19	34.2	60.8	97.7	96.5	54.1	27.1	24.2
38	0.05	0.05	0.07	0.12	0.31	1.24	4.54	6.28	1.93	0.71	0.09	0.05
39	0.04	0.05	0.06	0.11	0.32	1.41	5.33	7.08	1.82	0.63	0.09	0.05
40	0.08	0.08	0.1	0.18	0.48	1.96	6.75	8.95	2.71	1.11	0.17	0.08
42	0.04	0.04	0.05	0.14	0.61	1.58	4.04	6.4	3.59	0.59	0.07	0.04
48	10.6	10.5	6.26	5.07	11.8	18.1	32	52.5	45.7	21.1	7.29	11.1
50	0.52	0.58	0.71	1.17	2.44	5.77	13	23.7	20.6	9.26	1.13	0.57
57	0.03	0.03	0.03	0.05	0.1	0.27	1.13	1.85	0.75	0.23	0.03	0.02
59	9.23	9.82	9.64	18.1	29.2	47.5	102	182	172	69.2	12.8	8.57
70288	0.02	0.02	0.03	0.06	0.23	0.77	3.61	5.86	1.67	0.49	0.04	0.02
70945	0.23	0.24	0.35	0.44	0.67	1.33	2.43	3.15	3.18	3.82	1.37	0.3
70947	7.81	8.11	11	17.6	31.6	57.5	110	182	129	52.3	10.1	7.06
70955	1.63	1.47	1.87	3.24	5.79	7.5	13.6	17.3	16.5	10.8	2.02	1.31
70958	19.2	21.6	27.5	57.7	161	9.65	11.7	13.5	13.9	11.3	39	21.4
71223	0.08	0.08	0.1	0.23	0.63	1.95	6.72	8.19	1.82	0.59	0.14	0.08
71229	4.75	5.08	5.1	9.33	13.8	24.6	54.7	99.2	83	31	5.81	4.43
71233	0.09	0.09	0.12	0.22	0.59	1.33	3.96	5.19	2.13	1.07	0.19	0.08
71235	8.72	8.92	3.12	4.69	8.71	14.4	26.3	40.6	39.8	22.8	10.1	8.82
71241	0.42	0.44	0.47	0.96	1.79	4.19	12.5	21.5	15.6	4.55	0.68	0.4
71244	8.07	7.97	4.81	3.95	9.42	13.9	24.4	39.9	35.6	16.6	5.63	8.45
71247	18.4	18.8	6.26	8.94	15.3	26.9	47.8	76.8	76.3	42.4	20.9	18.7
71251	10.9	11.7	11.8	21.4	31.5	50	99.4	169	140	55.1	12.2	10.2
71257	55.3	56.3	18.2	25.6	42.5	79.1	142	230	224	129	64.1	56.3
71259	0.1	0.1	0.11	0.24	0.51	1.21	5.25	9.54	4.95	1.74	0.2	0.09
71260	46.3	49.2	44.3	78.3	111	202	431	791	686	257	54	43.3

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the North Coast Basin

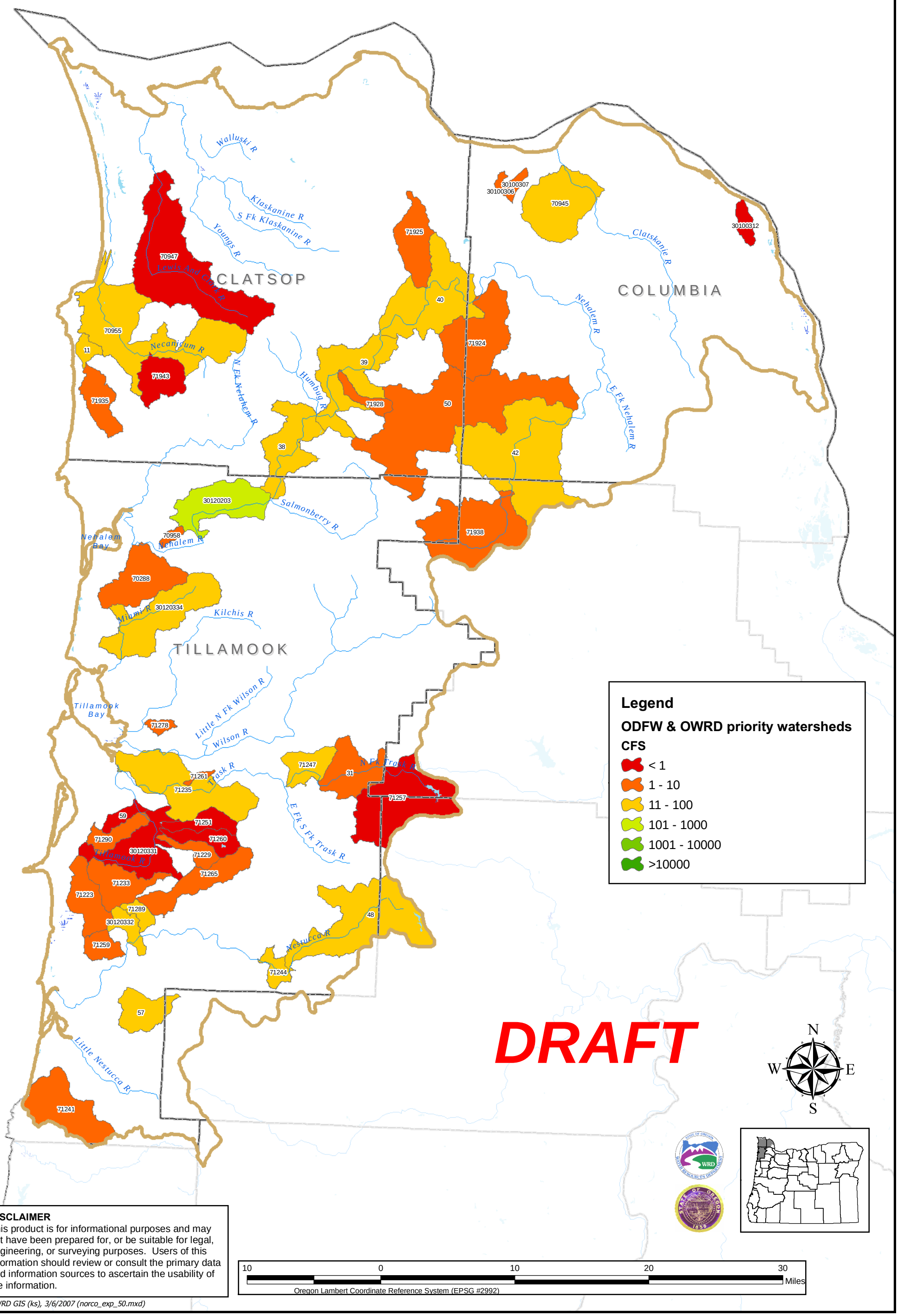
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
71261	0.09	0.1	0.12	0.39	2.04	5.84	21.8	27.8	6.06	1.89	0.19	0.1
71265	0	0	0.01	0.02	0.12	0.58	2.43	2.92	0.41	0.08	0.01	0
71278	1.32	1.16	1.48	3.4	7.81	9.43	13.7	19.1	14.1	6.31	2.82	1.31
71289	0.23	0.23	0.3	0.51	1.08	2.03	4.86	6.67	4.04	2.14	0.41	0.22
71290	0.05	0.05	0.06	0.14	0.38	1.23	6.01	9.61	2.81	0.82	0.1	0.05
71924	0	0	0	0.06	0.41	1	2.63	3.91	1.9	0.11	0.01	0
71925	0.02	0.02	0.03	0.07	0.31	1.52	7.1	10.1	1.85	0.52	0.05	0.02
71928	0.02	0.02	0.02	0.04	0.1	0.23	0.71	1.13	0.59	0.21	0.03	0.02
71935	4.09	3.64	4.54	7.6	12.3	15.4	24.2	30.7	29.3	20.4	4.48	3.25
71938	0.04	0.04	0.05	0.09	0.17	0.42	0.93	1.79	1.77	0.82	0.1	0.04
71943	11.8	10.5	13.3	22.8	38.2	48.7	83.6	114	115	77.3	14.6	9.37
30100306	1.75	1.79	2.58	3.5	5.74	9.29	17.3	25.2	27.9	35.5	11	2.36
30100307	0.31	0.32	0.49	1.4	5.08	9.01	19.3	21.2	11.8	4.6	1.58	0.42
30100312	48.6	38.2	51.5	83.4	146	219	405	610	550	469	234	53.3
30120203	0.04	0.05	0.06	0.1	0.25	0.92	3.39	4.85	1.64	0.59	0.07	0.04
30120331	10.3	11	11.6	21.4	33.7	55.2	118	209	193	76.5	13.8	9.47
30120332	3.5	3.46	2.19	1.94	5.02	7	12.9	19.7	16.8	8.31	2.62	3.66
30120334	0.01	0.01	0.01	0.01	0.04	0.17	0.69	0.9	0.16	0.04	0.01	0

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE NORTH COAST BASIN



Expected Stream Flow for August in the North Coast Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (norco_exp_50.mxd)

Willamette

3/9/2007

Measurement Activities in Priority Watersheds in the Willamette Basin

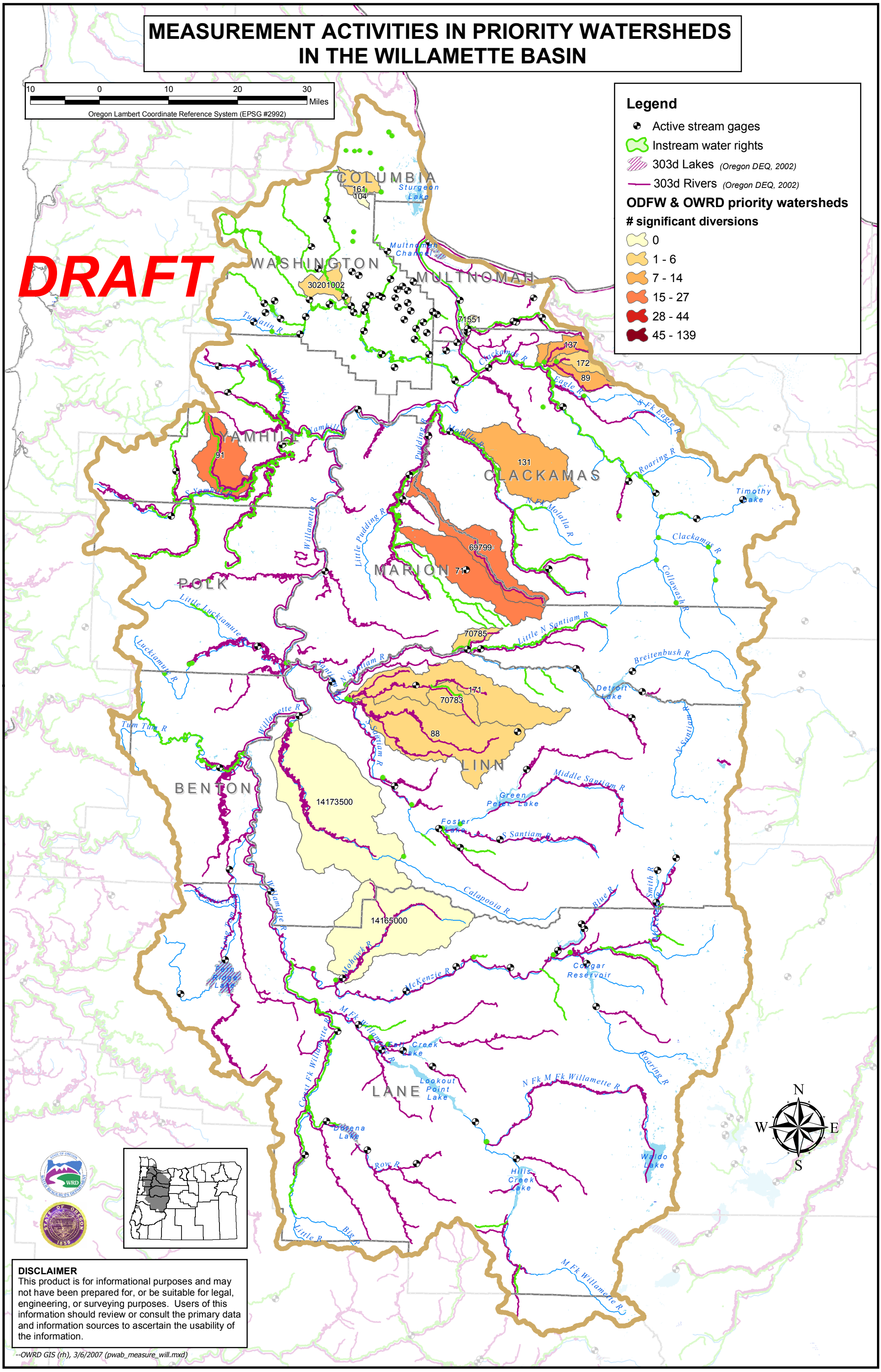
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
71	Abiqua Cr @ Mouth	23	9				1
88	Crabtree Cr @ Mouth	3	7			Yes	1
89	Deep Cr @ Mouth	14	7	3	Yes	Yes	
91	Deer Cr @ Mouth	21			Yes	Yes	
104	Gourlay Cr @ Mouth				Yes		
131	Milk Cr @ Mouth	11	15				
137	N Fk Deep Cr @ Mouth	13	4	2	Yes	Yes	
161	S Scappoose Cr Ab Ra	3	2		Yes		
171	Thomas Cr @ Mouth	3	2	2	Yes	Yes	1
172	Tickle Cr @ Mouth	6	1	1		Yes	
69799	Butte Cr @ Mouth	18	5		Yes	Yes	
70783	Neal Cr @ Mouth	5	1	1	Yes	Yes	
70785	Stout Cr @ Mouth	5			Yes	Yes	
71551	Crystal Springs Cr @	3			Yes		
14165000	Mohawk R @ 14165000					Yes	1
14173500	Calapooia R @ 141735				Yes	Yes	
30201002	Dairy Cr @ Mouth	6	6				1

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Willamette Basin

Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
71	1.53	1.7	2.13	2.84	4.85	20.1	76.5	135	89.7	15.9	1	1.59
76	0.12	0.12	0.14	0.19	1.55	6.7	26	38.8	21	1.45	0.24	0.12
88	0.06	0.06	0.07	0.24	1.99	8.28	31.4	46	22.8	1.04	0.08	0.06
89	1.26	1.32	0.85	0.99	3.73	9.57	50.9	89	38.3	7.86	1.23	1.21
91	1.14	1.18	1.46	2.63	8.26	21.3	56.6	79	67	34.5	4.77	1.29
104	0.04	0.03	0.04	0.06	0.1	0.2	0.59	1.25	1.38	1.08	0.26	0.04
131	0.93	1.04	1.07	1.3	4.29	12.8	57	86.8	32.3	6.73	1.82	0.86
134	0.09	0.1	0.12	0.21	0.82	2.84	9.81	14.8	7.79	1.99	0.25	0.1
137	1.17	1.25	0.75	0.88	3	8.04	39.4	72.3	40.6	15.2	2.1	1.13
161	6.44	5.02	6.78	10.6	18.5	32.8	79.2	140	144	111	35.6	6.86
171	0.41	0.42	0.44	0.62	2.29	8.84	31.6	49.2	27.7	3.55	0.63	0.4
172	1.85	1.79	0.34	0.5	3.22	10.4	57	97.5	37.2	4.18	1.47	1.88
69799	1.03	1.03	0.93	0.94	3.76	15.3	65.4	96.3	43.1	3.79	0.98	1.04
70783	0.87	0.87	1.06	1.48	3.16	7.73	22.8	36.8	30.5	11.7	1.91	0.88
70785	1.39	1.39	1.74	2.51	5.43	13.6	39.1	64.9	54.4	21.6	3.5	1.44
71551	1.01	1.02	0.99	1.21	2.68	6.01	8.37	7.38	4.81	1.87	1.23	1.04
30201002	4.35	3.35	5.2	8.77	35.5	78.5	188	253	166	65.2	23	4.48

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE WILLAMETTE BASIN



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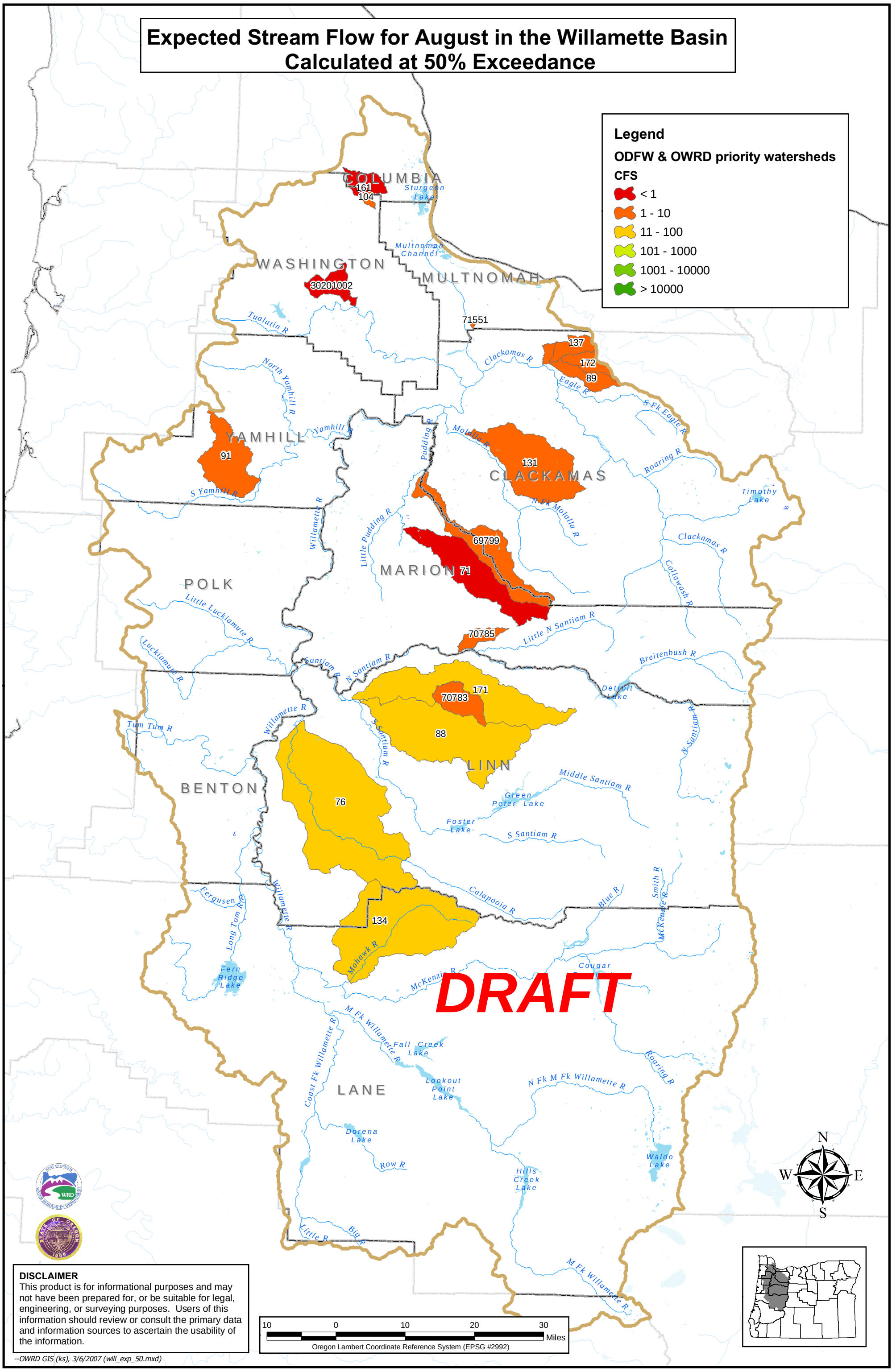
Expected Stream Flow for August in the Willamette Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (will_exp_50.mxd)

Sandy

3/9/2007

Measurement Activities in Priority Watersheds in the Sandy Basin

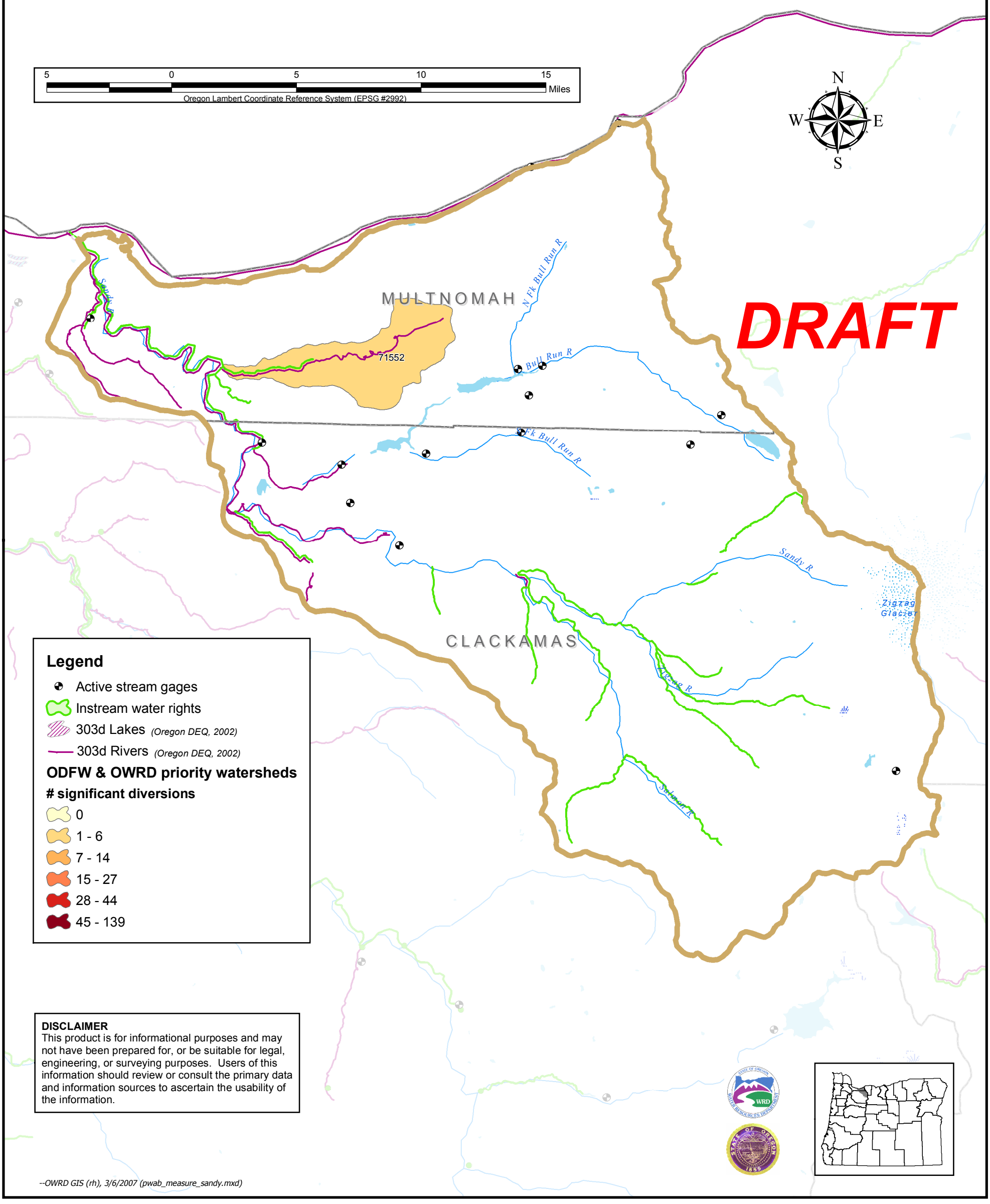
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
71552	Gordon Cr > Sandy R	2	2		Yes	Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Sandy Basin

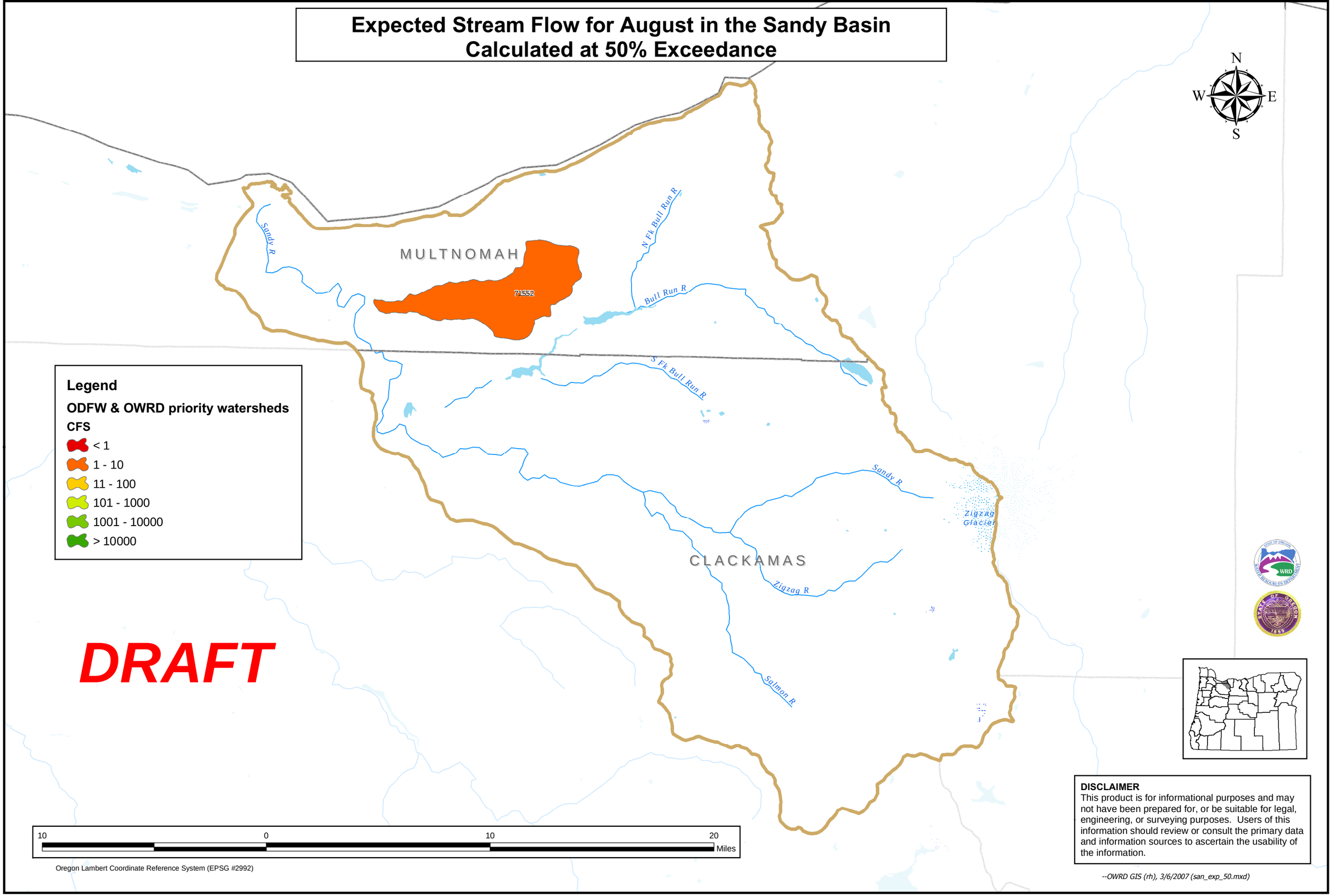
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
71552	3.45	3.94	3.98	4.39	5.72	10.7	22.2	38.4	34.5	21.7	6.11	3.28

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE SANDY BASIN



Expected Stream Flow for August in the Sandy Basin
Calculated at 50% Exceedance



Hood

3/9/2007

Measurement Activities in Priority Watersheds in the Hood Basin

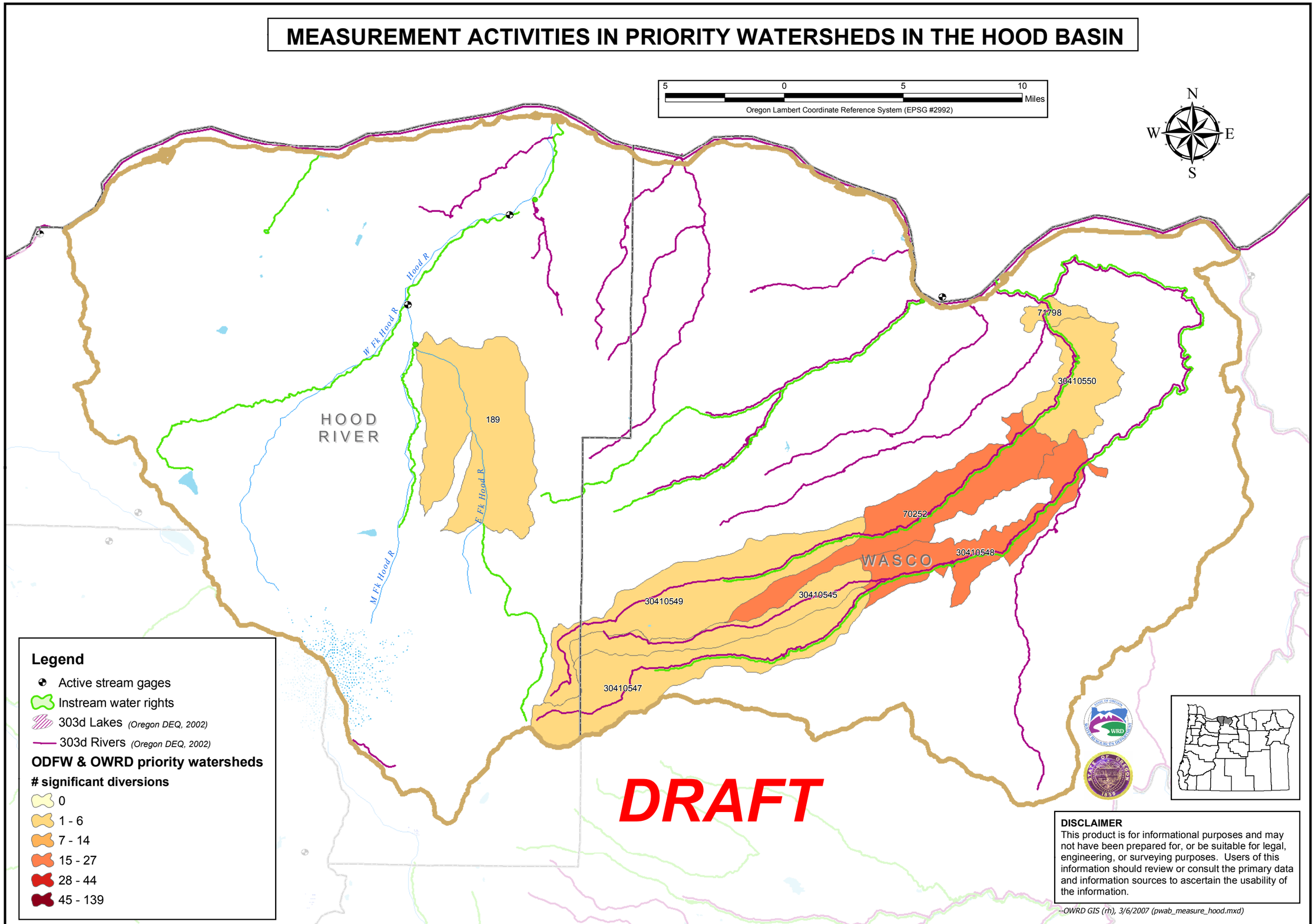
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
189	E Fk Hood R Ab M Fk	3	9	7	Yes		
70252	Eightmile Cr Ab Unn	15	6	10	Yes	Yes	
71798	Eightmile Cr @ Mouth	3				Yes	
30410545	Ramsey Cr @ Mouth	5	1	1		Yes	
30410547	Fifteenmile Cr Ab Ra	6	4	4	Yes	Yes	
30410548	Fifteenmile Cr Ab Ja	21			Yes	Yes	
30410549	Eightmile Cr Ab Wolf	3	15	15	Yes	Yes	
30410550	Eightmile Cr Ab Five	4		1	Yes	Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Hood Basin

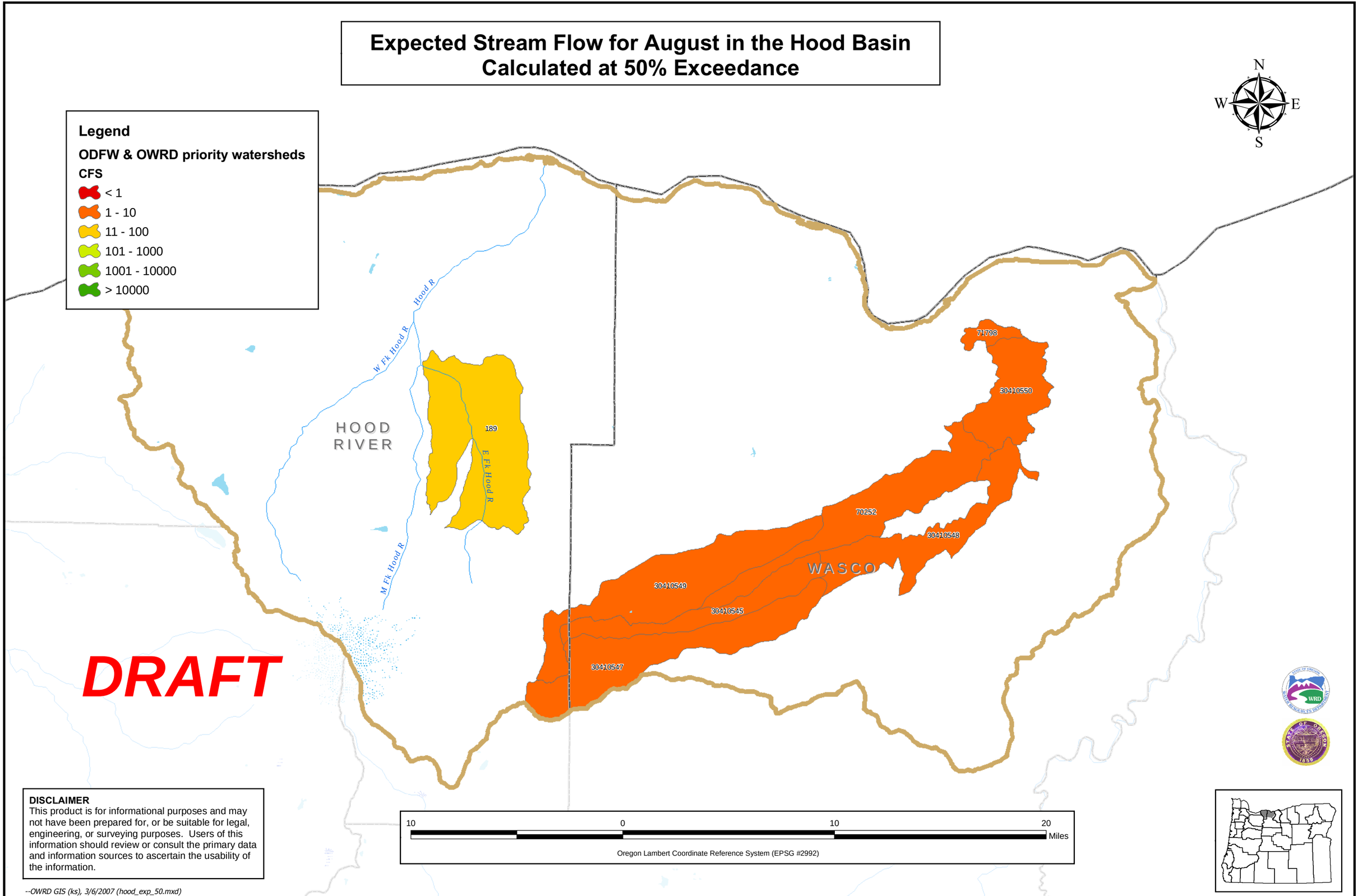
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
189	2.68	2.92	8.42	14.4	23.3	36.9	56.5	73.7	62.7	35.9	7.49	3.02
70252	1.55	0.89	0.7	17.9	61.7	53.4	59.8	52.5	47.4	3.52	2.6	2.41
71798	0.68	0.46	0.4	8.84	40.3	50	51.7	48.6	39.9	3.46	1.83	0.99
30410545	0	0	0	9.62	17	14.4	18.9	35.9	34.2	0	0	0
30410547	4.63	4.18	8.3	22.3	42.8	46.6	56.8	54.9	59.3	45.8	23.9	9.46
30410548	0.81	0.57	0.67	15.5	40.6	44.9	55	65.8	65.3	6.15	4.36	2.12
30410549	0.86	0.8	0.71	11.1	24.8	19.5	21.7	19.3	17.2	1.23	0.98	1.22
30410550	1.58	0.9	0.7	18.6	64.4	55.8	62.4	64	45	3.66	2.52	2.63

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE HOOD BASIN



Expected Stream Flow for August in the Hood Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (hood_exp_50.mxd)

Deschutes

3/9/2007

Measurement Activities in Priority Watersheds in the Deschutes Basin

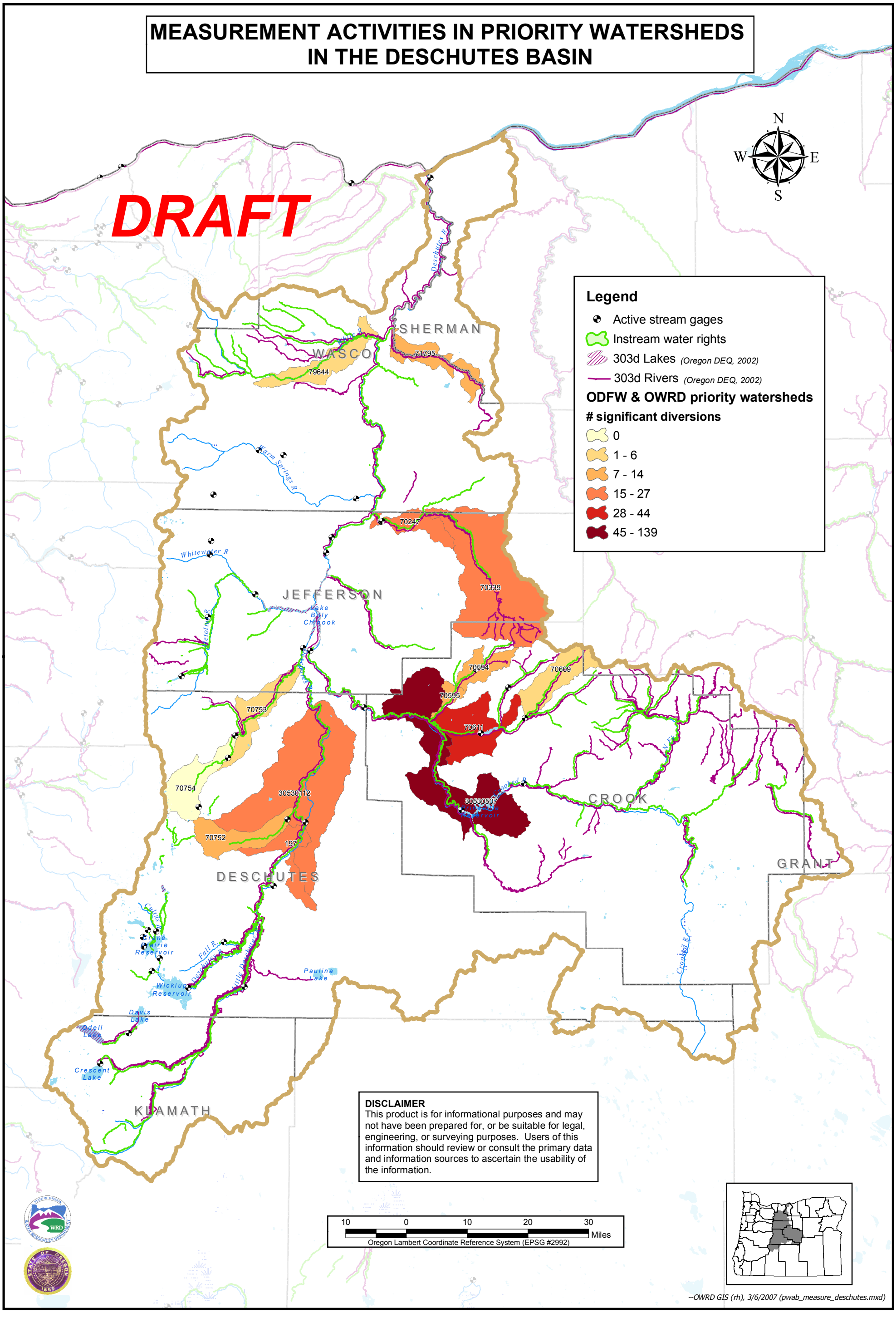
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
197	Deschutes R Ab Tumal	19	34	41	Yes	Yes	
70247	Trout Cr @ Mouth	20	1	8	Yes	Yes	1
70339	Trout Cr Ab Antelope	20			Yes	Yes	
70594	Mckay Cr Ab Allen Cr	10			Yes	Yes	1
70595	Mckay Cr @ Mouth	13			Yes	Yes	
70609	Marks Cr @ Mouth	6			Yes	Yes	
70611	Ochoco Cr @ Mouth	41	2	2	Yes	Yes	1
70752	Tumalo Cr @ Mouth	7	10	16	Yes	Yes	1
70753	Squaw Cr @ Mouth	1	3	3	Yes	Yes	
70754	Squaw Cr Ab Indian F				Yes	Yes	3
71795	Buck Hol @ Mouth	9	1		Yes	Yes	
79644	White R Ab Unn Str	3	2	2		Yes	
30530112	Deschutes R Ab Deep	16	50	70	Yes	Yes	1
30530507	Crooked R Ab Dry Cr	49	12	11	Yes	Yes	1

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Deschutes Basin

Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
197	44.3	35.7	35.4	68.7	123	133	176	166	133	92.5	67.6	57.2
70247	5.51	5.89	7.43	10.6	32	113	423	1088	956	524	9.75	6.09
70339	0.05	0.05	0.67	1.97	10	37.9	147	382	335	190	0.37	0.09
70594	0.04	0.01	0.01	3.57	11.9	49.2	279	865	754	168	0.24	0.06
70595	0.08	0.03	0.05	5.43	18.4	74.9	414	1331	1161	252	0.53	0.14
70611	133	95.9	44	58.9	96.2	202	882	1513	638	76.9	100	166
70752	69.5	77.5	88.5	122	119	96.5	137	160	152	123	84.6	71.2
70753	14.3	19.9	36.5	61.9	72.7	63.5	67.1	74	69.1	54.2	25.3	17.7
70754	18.7	27.2	44.6	76.8	85.3	71.5	77.6	87.7	80.6	64.4	33.2	23.3
71795	2.55	2.53	3.03	4.04	16.6	106	317	778	682	272	2.71	2.57
30530112	44.4	35.5	35	65.7	119	127	173	167	136	94	68.9	57.5
30530507	42	47.9	53	43.6	35.8	84.3	289	578	440	157	36.2	42.7

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE DESCHUTES BASIN



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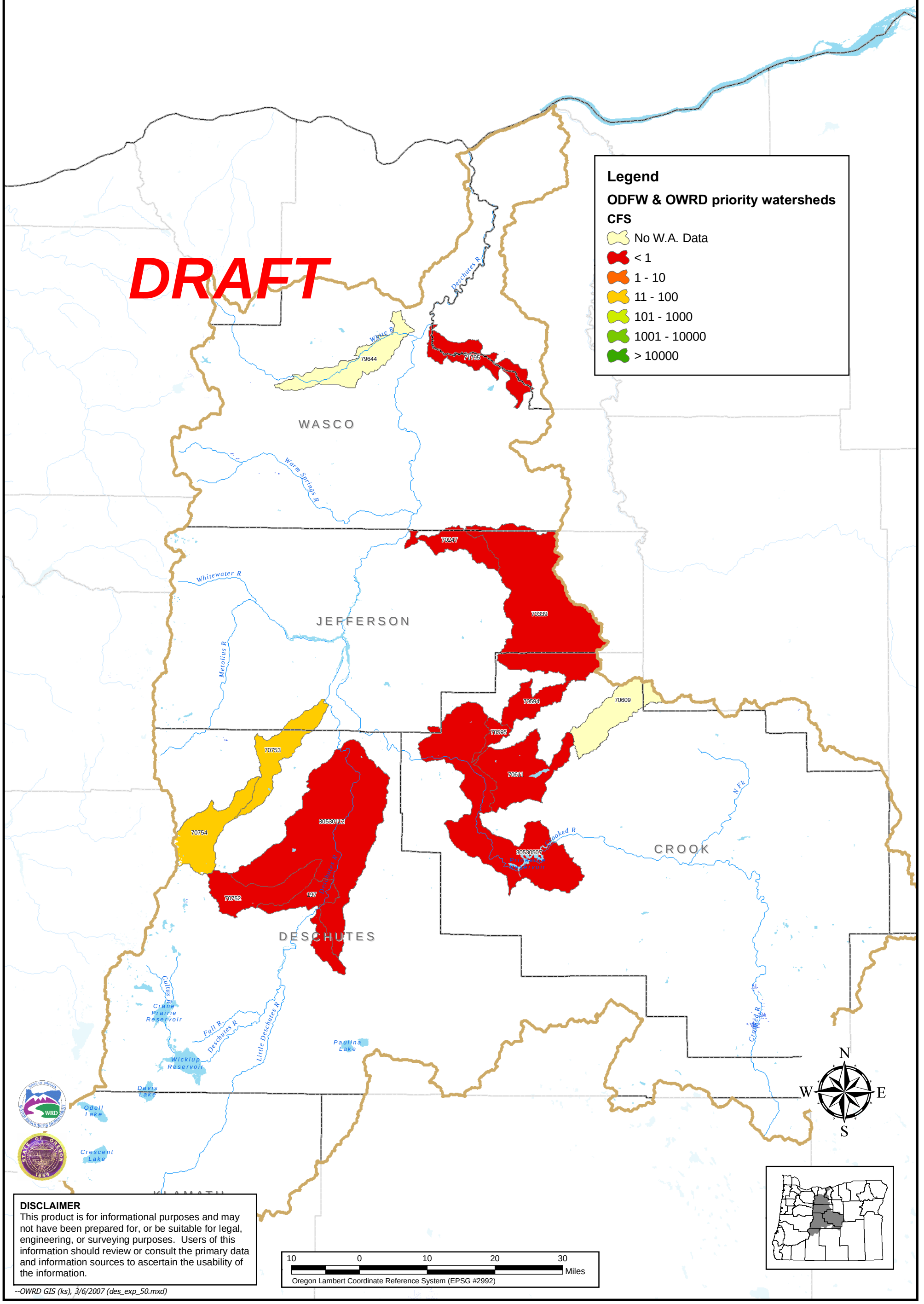
--OWRD GIS (rh), 3/6/2007 (pwab_measure_deschutes.mxd)

Expected Stream Flow for August in the Deschutes Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (des_exp_50.mxd)

John Day

3/9/2007

Measurement Activities in Priority Watersheds in the John Day Basin

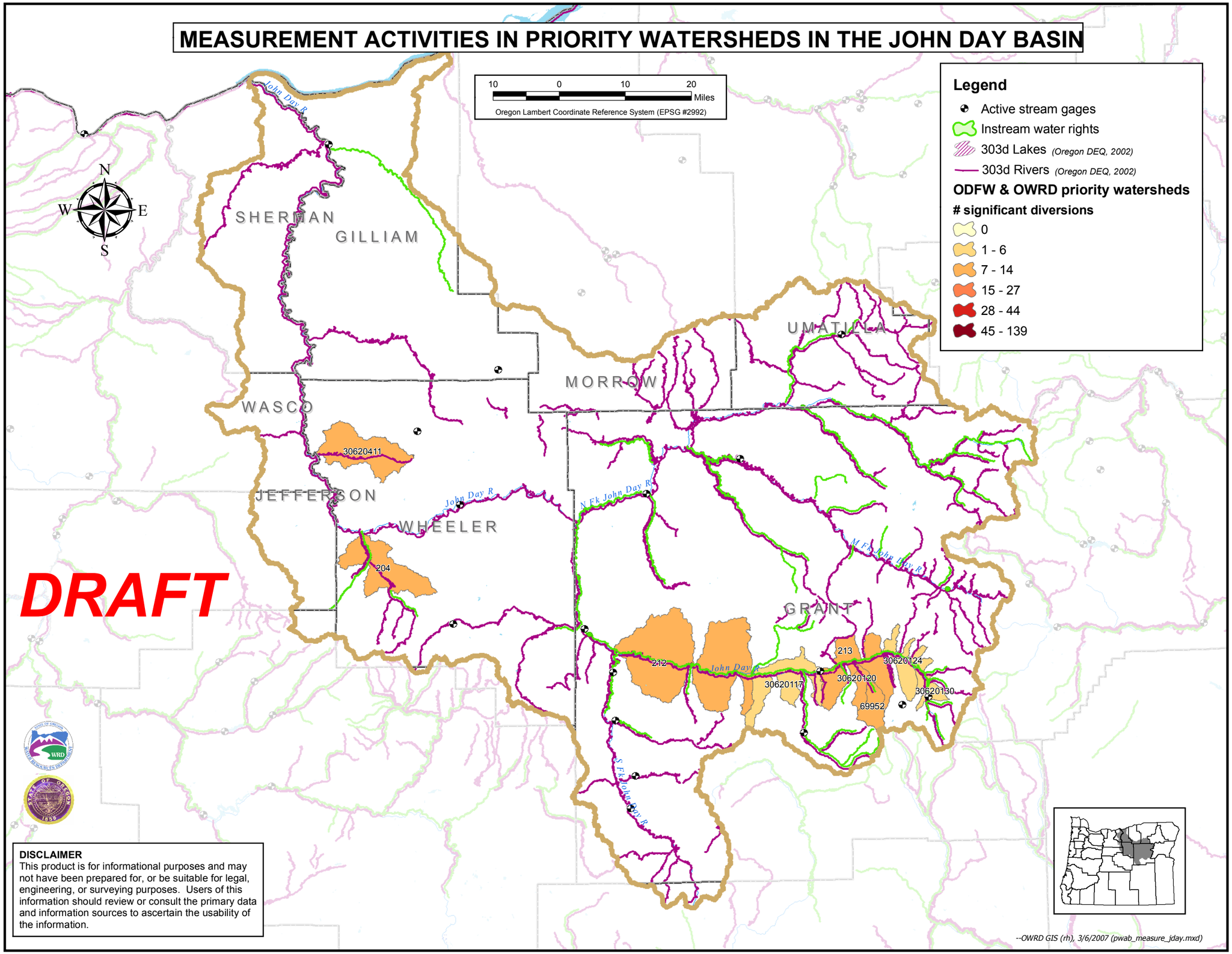
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
204	Bridge Cr @ Mouth	7			Yes		
212	John Day R Ab S Fk J	8	12		Yes	Yes	
213	John Day R Ab Little	10	10		Yes	Yes	1
69952	Indian Cr Ab Little	11	3		Yes	Yes	
30620117	John Day R Ab Beech	5	84	24	Yes	Yes	
30620120	Indian Cr @ Mouth	10	7			Yes	
30620124	John Day R Ab Unn St	4				Yes	
30620130	John Day R Ab Isham	4	2			Yes	1
30620411	Pine Cr @ Mouth	11	1			Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the John Day Basin

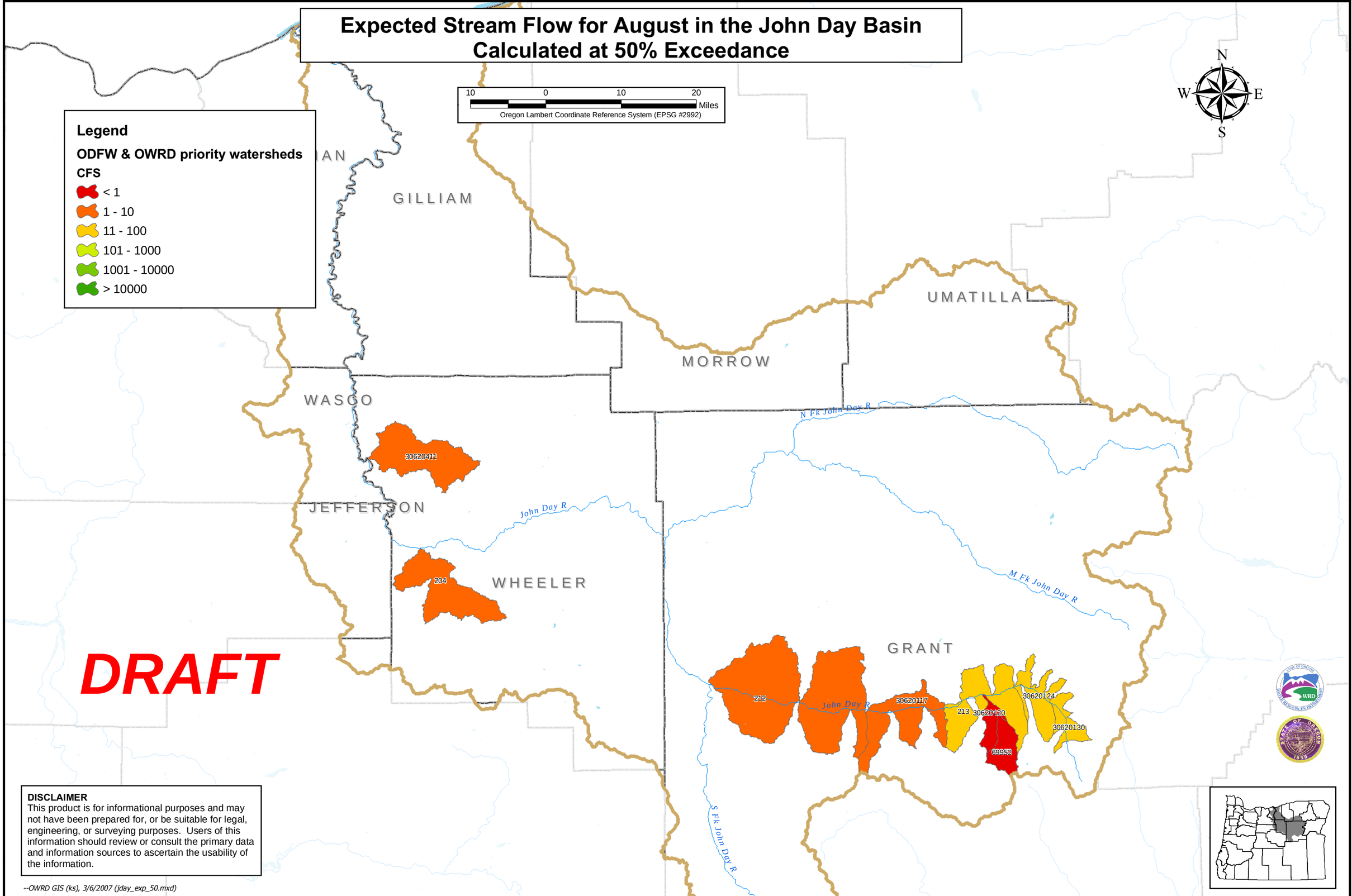
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
204	10.1	10.1	13.5	24.8	41.5	46.7	60.7	72.9	38.2	23.6	11.3	11
212	2.08	1.47	1.12	4.4	8.68	16.3	61.1	94.6	81.5	18.1	2.8	2.27
213	0.92	0.8	0.75	5.71	9.83	15.4	54	69.7	48.5	14.5	1.06	0.96
69952	0.01	0.01	0.01	49.2	49	51.1	212	372	376	96.3	0.01	0.01
30620117	2.13	1.63	1.33	5.77	10.6	19.3	73	98.9	69.2	20.8	2.79	2.31
30620120	0.01	0.01	0	33.8	38.2	42.9	182	317	319	80.7	0.01	0.01
30620124	0.69	0.6	0.5	4.8	8.5	14.2	44.9	52.8	34.1	10.6	0.82	0.76
30620130	0.01	0.01	0.01	4.98	8.26	12.9	38.7	45.7	32.4	10.3	0.01	0.01
30620411	0.17	0.18	2.56	15.8	40.9	53.9	22.9	9.77	5.36	2.54	0.17	0.18

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE JOHN DAY BASIN



Expected Stream Flow for August in the John Day Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (jday_exp_50.mxd)

Umatilla

3/9/2007

Measurement Activities in Priority Watersheds in the Umatilla Basin

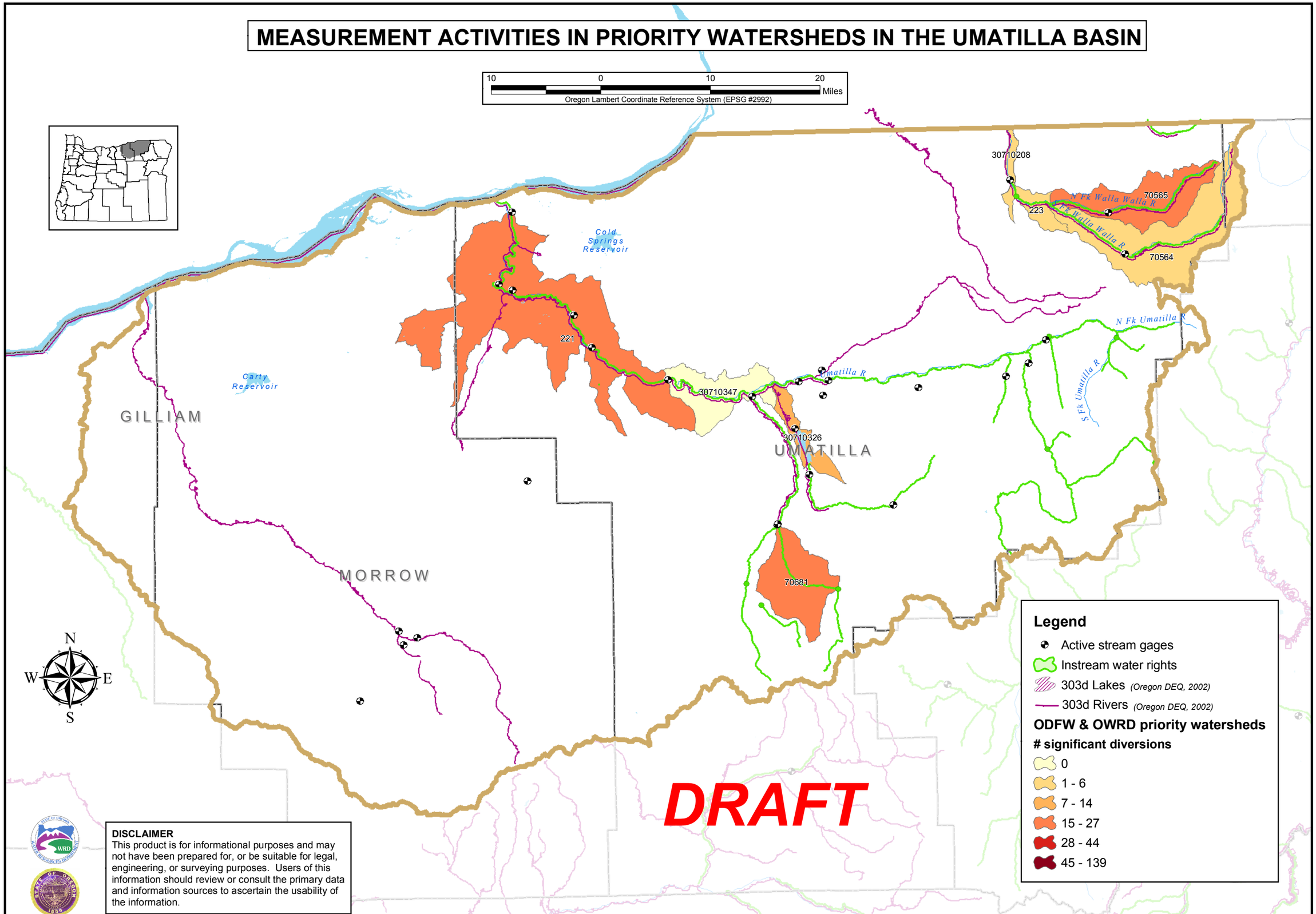
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
221	Umatilla R @ Mouth	20	84	87	Yes	Yes	5
223	Walla Walla R Ab Lit	5	1	1	Yes	Yes	
70564	S Fk Walla Walla R @	3	1	1	Yes	Yes	1
70565	N Fk Walla Walla R @	23	112	113	Yes	Yes	1
70681	E Birch Cr @ Mouth	15	1		Yes		1
30710208	Walla Walla R Ab Bir	1	7	14	Yes	Yes	
30710326	Mckay Cr @ Mouth	9	9	9		Yes	1
30710347	Umatilla R Ab Unn St				Yes	Yes	1

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Umatilla Basin

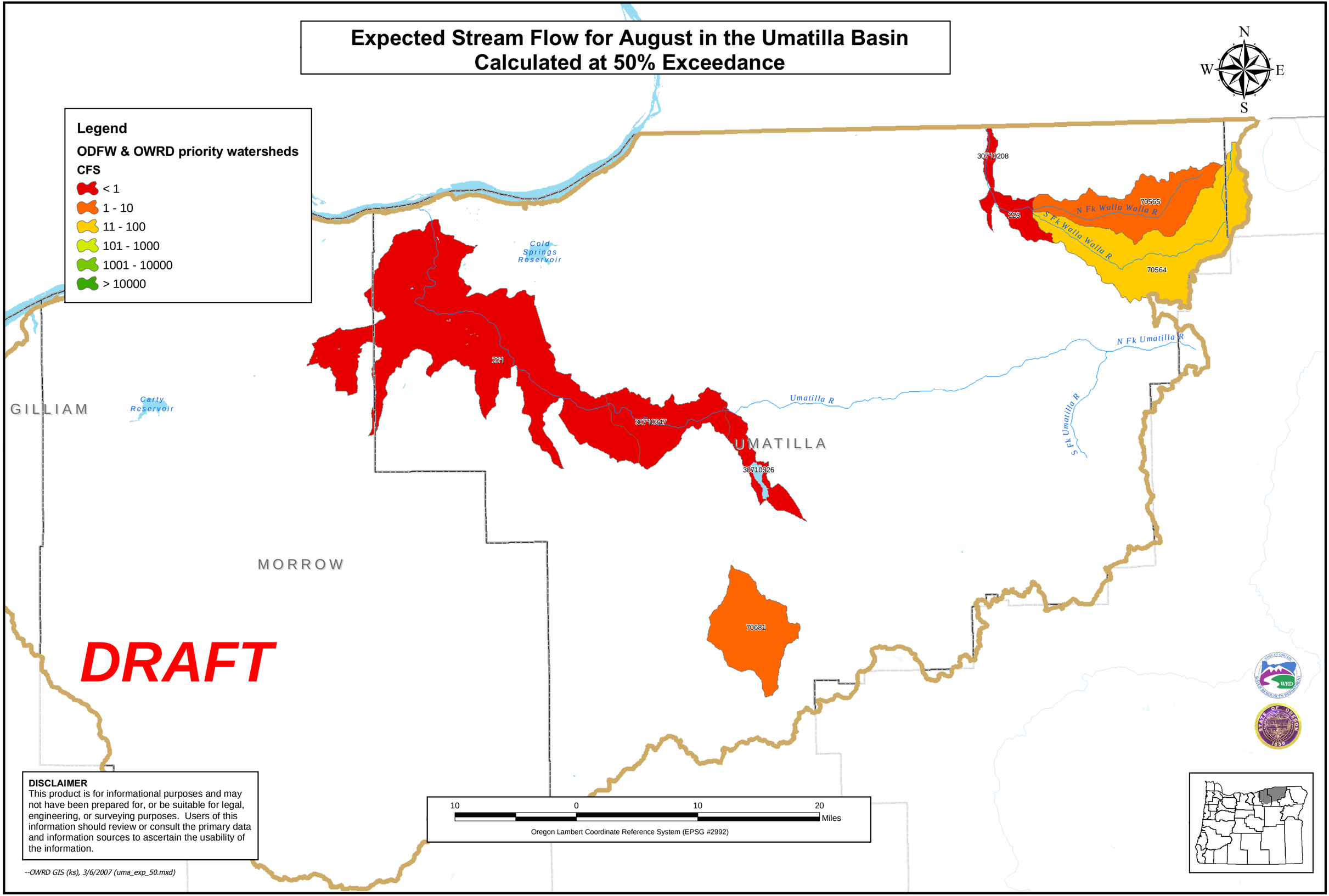
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
221	59.2	41.8	43.9	55.7	111	246	397	478	322	157	109	68.6
223	44.6	33.3	30.1	25.5	26.5	51.2	90.1	102	93.8	86.9	63.7	47.7
70564	3.44	2.87	2.64	2.31	2.26	3.83	6.65	7.27	6.43	5.75	4.3	3.61
70565	0.14	0.08	0.09	0.33	0.8	3.77	23.6	26.3	9.34	2.14	0.3	0.16
70681	0.03	0.08	1.42	4.27	15.9	44.6	49.4	45.9	17.3	5.09	0.07	0.04
30710208	57.1	45.9	44.9	55.9	74.4	150	205	230	195	181	120	70.8
30710326	182	119	82.6	54.5	30.5	43.6	124	152	136	121	233	179
30710347	39.5	25.1	21.4	18.2	23	43.7	91.1	112	70.5	39.4	43.1	37.7

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE UMATILLA BASIN



Expected Stream Flow for August in the Umatilla Basin
Calculated at 50% Exceedance



Grand Ronde

3/9/2007

Measurement Activities in Priority Watersheds in the Grande Ronde Basin

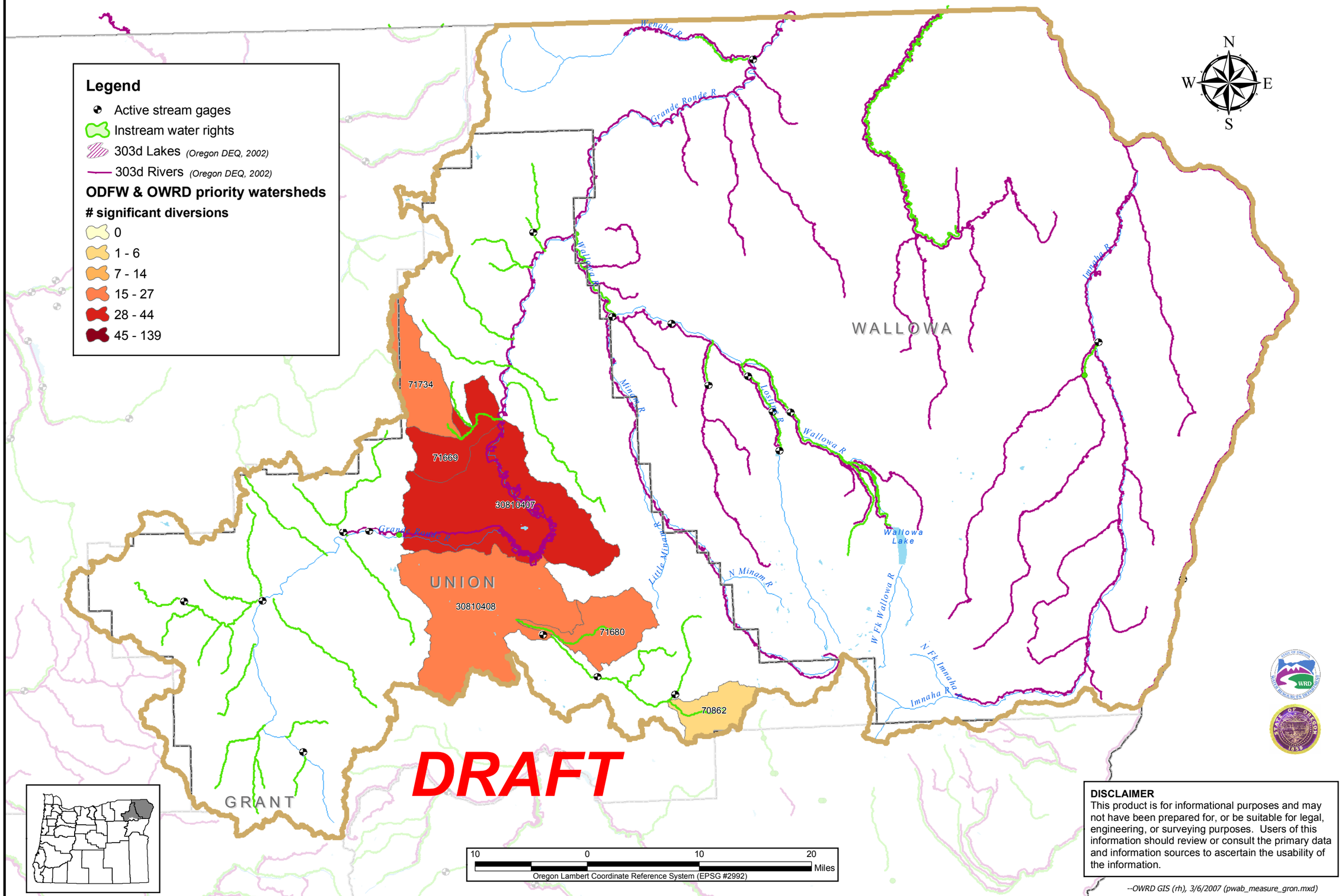
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
70862	S Fk Catherine Cr @	2			Yes		
71669	Willow Cr @ Mouth	30	7	5	Yes		
71680	Little Cr @ Mouth	19	5		Yes		
71734	Willow Cr Ab Mill Cr	18			Yes		
30810407	Grande Ronde R Ab Wi	36	30		Yes	Yes	
30810408	Catherine Cr @ Mouth	15	3		Yes	Yes	1

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Grande Ronde Basin

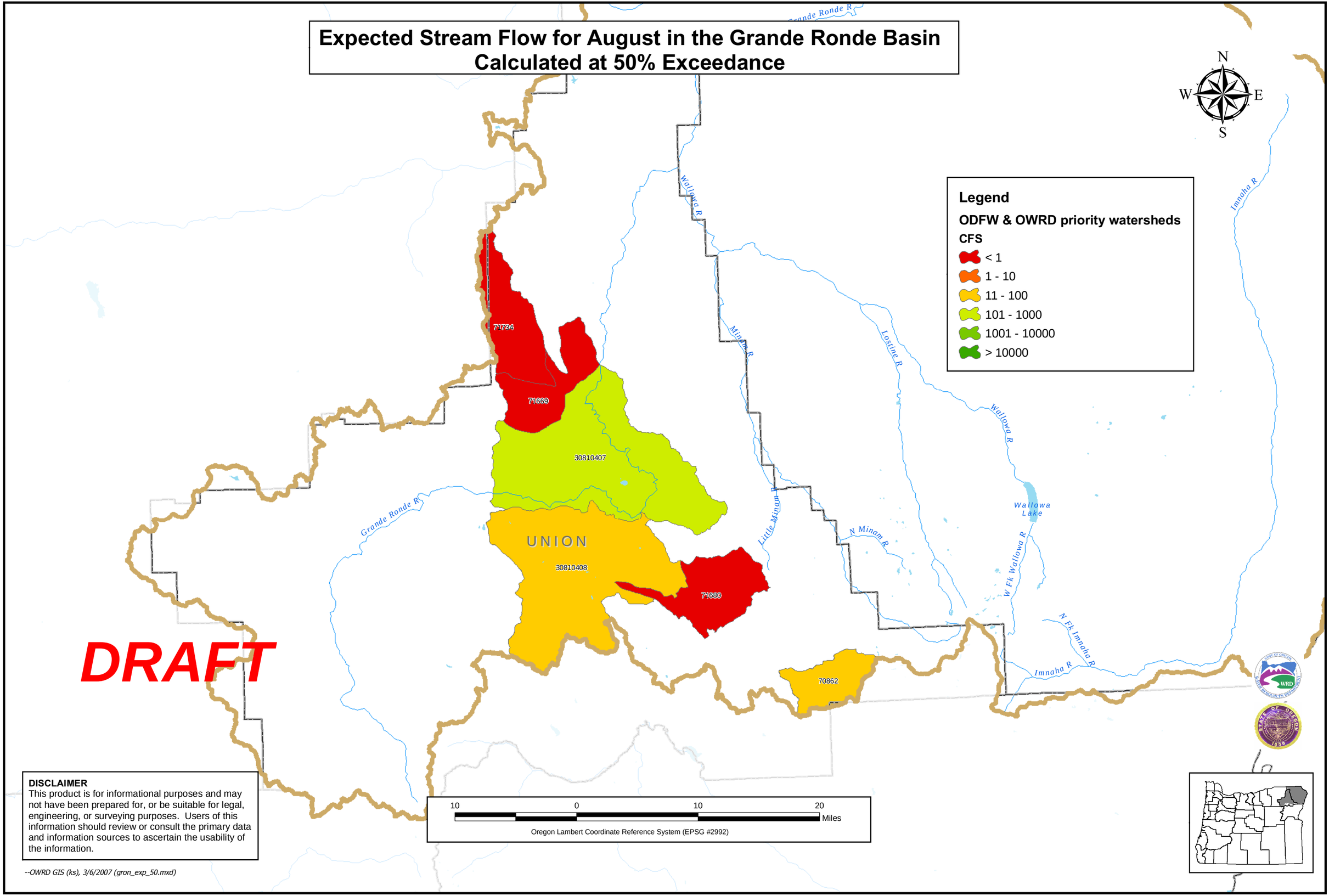
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
70862	0.08	0.07	0.04	0.01	0.77	11.1	23.6	7.43	2.78	0.27	0.07	0.09
71669	0.57	0.38	0.31	0.29	36.8	196	315	310	102	2.49	1.65	0.78
71680	3.38	1.97	0.99	0.71	24.4	103	164	289	90.8	8.71	5.56	4.52
71734	0.63	0.41	0.35	0.34	20.5	112	307	324	126	4.87	2.55	0.9
30810407	6.73	3.54	2.78	9.03	18.2	29.4	40.3	46.2	42.7	20.2	10.7	8.35
30810408	3.41	2.48	2.47	13.9	24.4	31.7	45.8	56.1	43.4	11.8	3.11	3.78

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE GRANDE RONDE BASIN



Expected Stream Flow for August in the Grande Ronde Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (gron_exp_50.mxd)

Powder

3/9/2007

Measurement Activities in Priority Watersheds in the Powder Basin

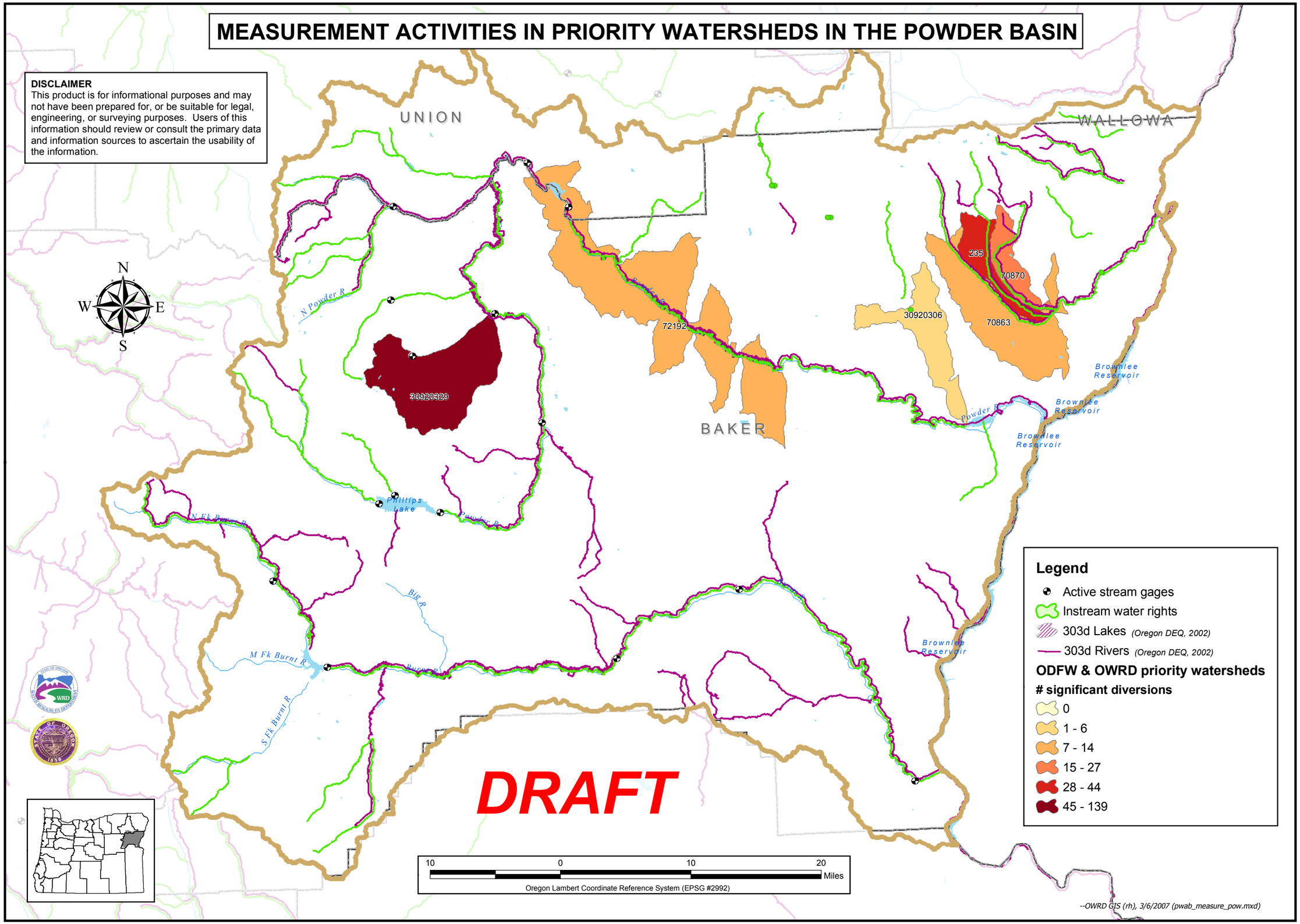
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
235	Clear Cr > Pine Cr -	39	35	1	Yes	Yes	
70863	Pine Cr > Snake R -	10	8		Yes	Yes	
70870	E Pine Cr > Pine Cr	22	19	1	Yes	Yes	
72192	Powder R > Snake R -	12	33	16	Yes	Yes	1
30920306	Eagle Cr > Powder R	3	4	4	Yes		
30920329	Salmon Cr > Powder R	139	80	123			1

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Powder Basin

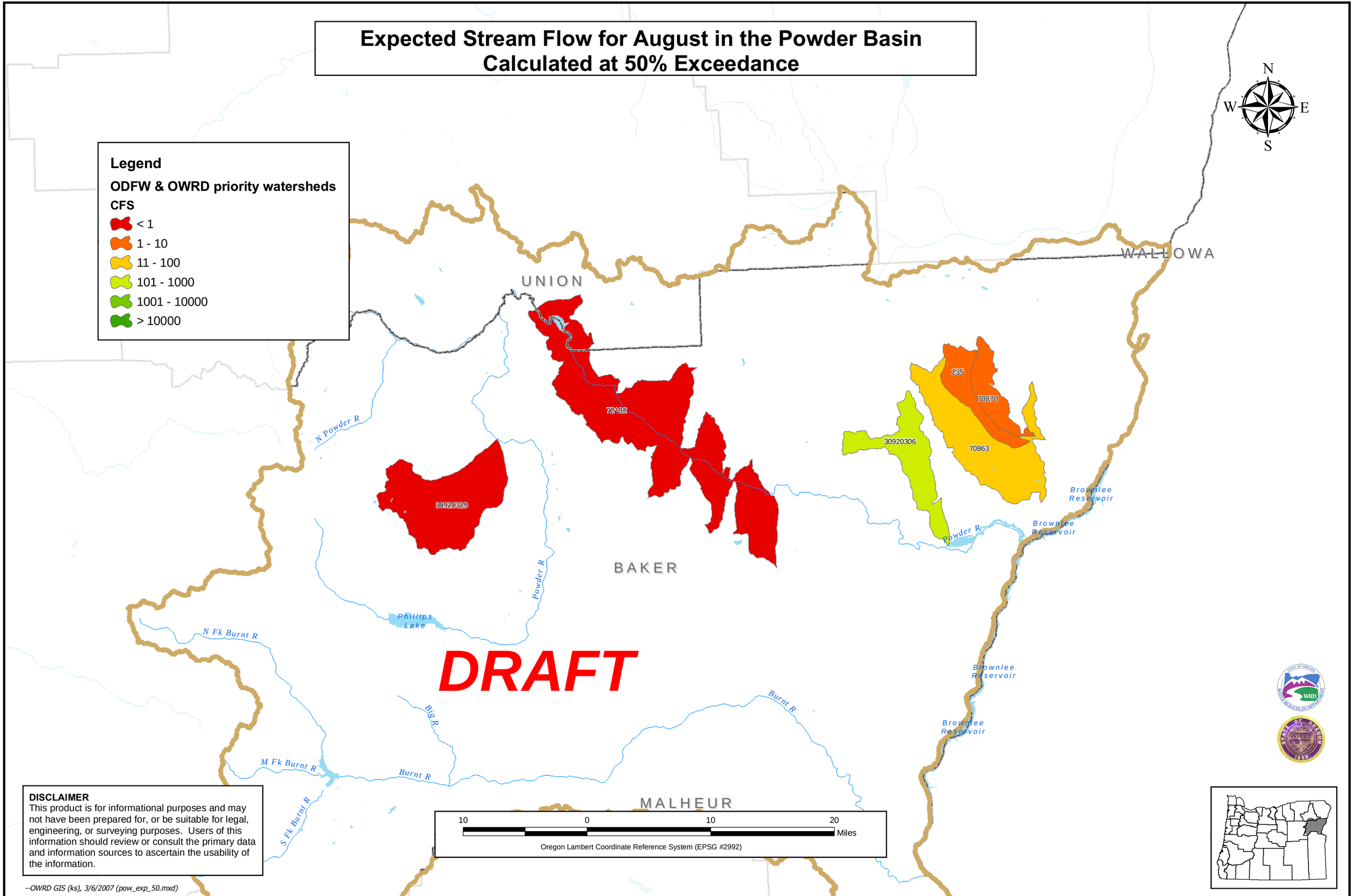
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
235	0.84	0.8	0.77	16.5	25.2	22.9	42	34.7	19.8	0.9	0.87	0.85
70863	1.1	0.92	0.83	13	18	16	54.2	69.4	49.7	1.38	1.24	1.13
70870	1.07	1.03	1.06	19	41.2	50.7	96.5	72	36.3	1.27	1.17	1.1
72192	86.5	61.3	47.8	43.7	83.4	116	207	254	295	108	68.7	106
30920306	4.08	3.74	5.21	8.95	6.5	7.36	23.7	38.8	37.8	22.5	4	4.13
30920329	338	276	190	153	268	331	554	800	921	655	416	425

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE POWDER BASIN



Expected Stream Flow for August in the Powder Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (pow_exp_50.mxd)

Malheur

3/9/2007

Measurement Activities in Priority Watersheds in the Malheur Basin

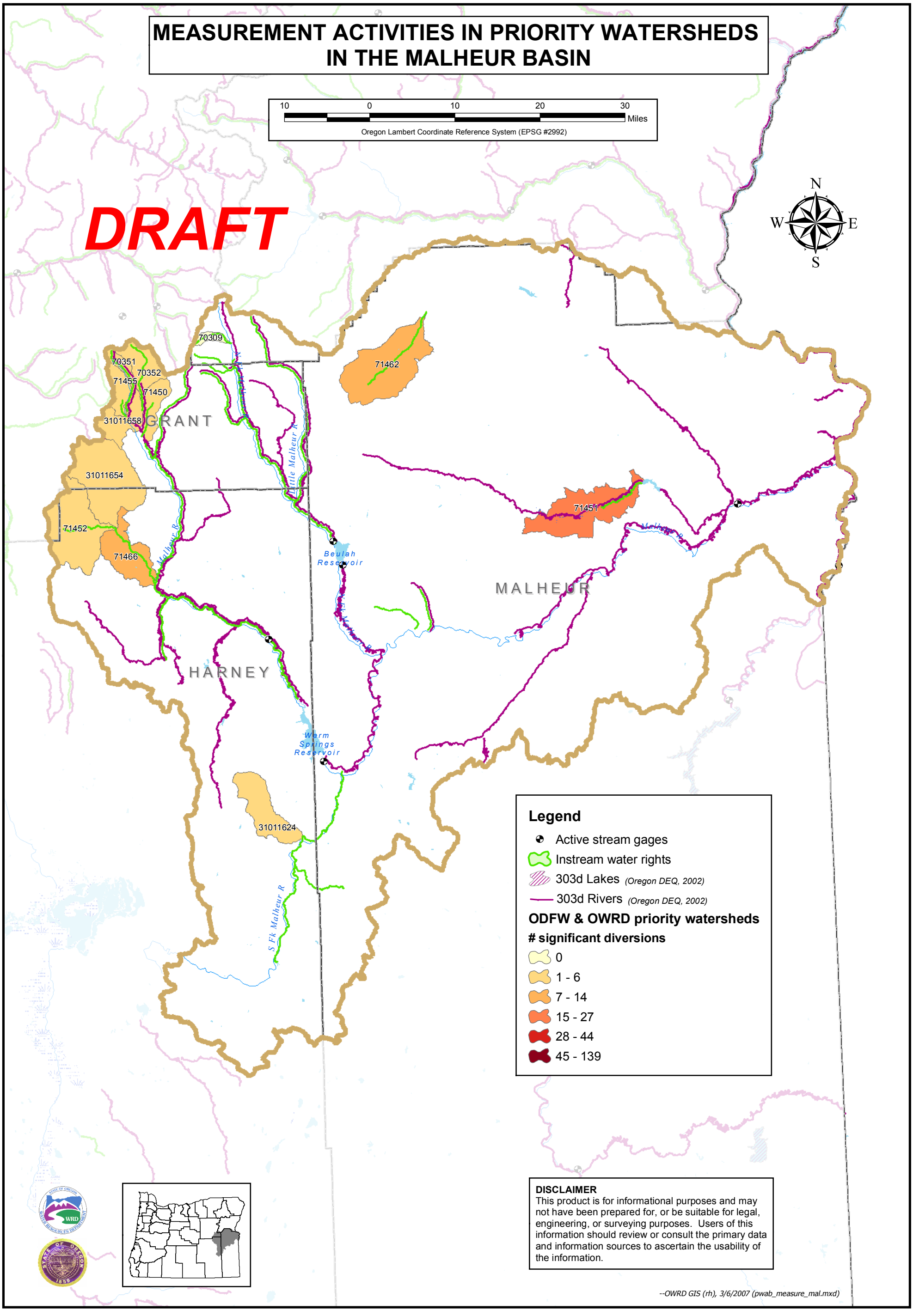
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
70309	Swamp Cr @ Mouth				Yes		
70351	Lake Cr Ab Mccoy Cr	1			Yes	Yes	
70352	Big Cr Ab Unn Str	1			Yes	Yes	
71450	Bosonberg Cr @ Mouth	2			Yes	Yes	
71451	Bully Cr Ab Unn Str	20		1	Yes		
71452	Calamity Cr @ Mouth	4			Yes		
71455	Mccoy Cr @ Mouth	4			Yes		
71462	S Willow Cr @ Mouth	8	1	2	Yes		
71466	Wolf Cr @ Mouth	11			Yes		
31011624	Coleman Cr @ Mouth	6					
31011654	Wolf Cr Ab Calamity	2					
31011658	Lake Cr @ Mouth	1			Yes	Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Malheur Basin

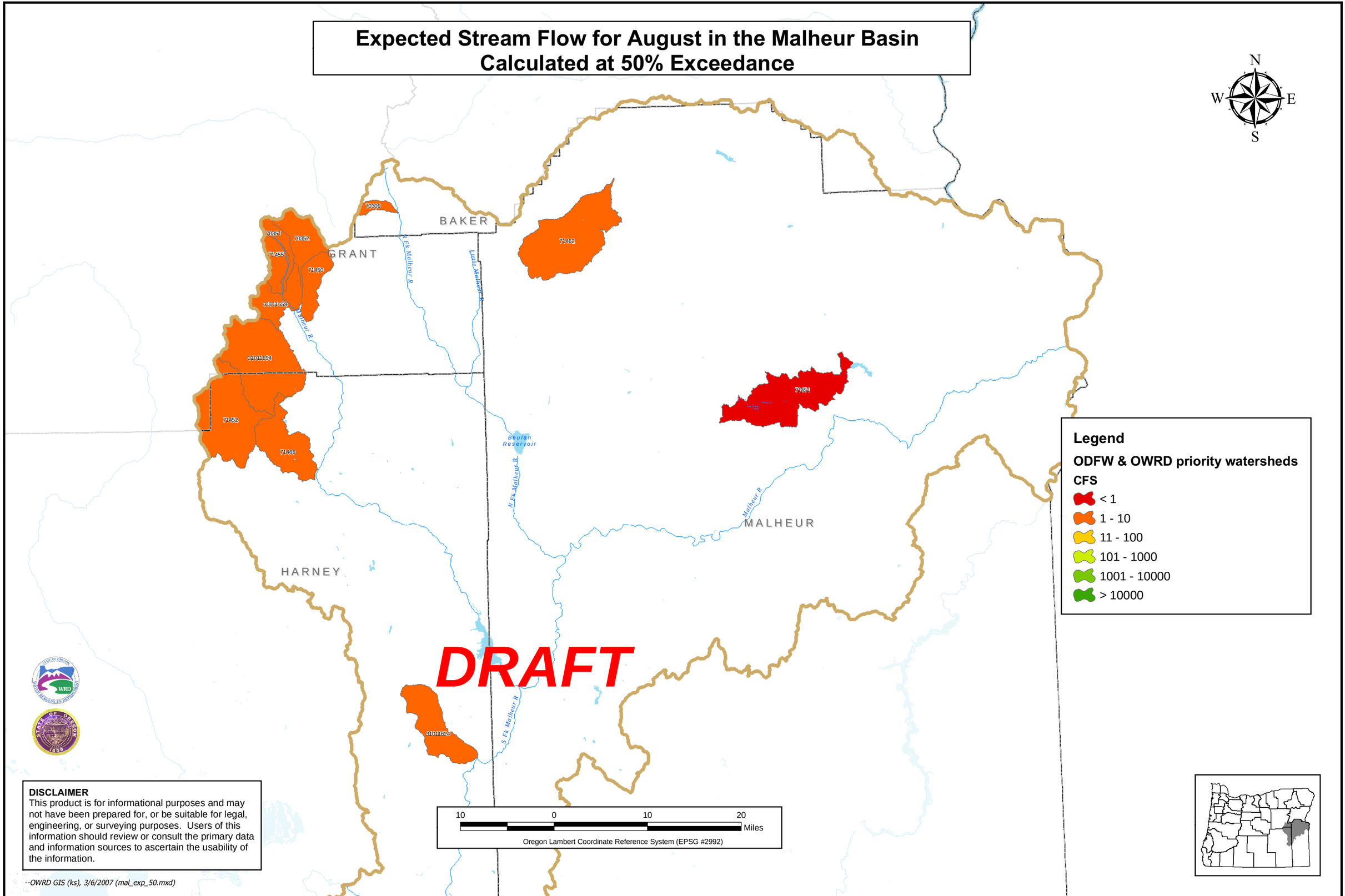
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
70309	0	0	0	3.31	2.88	5	9.81	9.93	6.69	1.88	0	0
70351	0	0	0	4.43	3.95	5.55	16.4	23	17.6	3.37	0	0
70352	0	0	0	1.38	1.43	2.12	6.18	8.21	6.58	1.2	0	0
71450	0	0	0	1.55	3.21	8.27	26.5	31.5	23.9	3.94	0	0
71451	8.55	8.52	15	39.1	185	212	185	165	111	46.3	8.61	8.58
71452	0.26	0.2	1.2	2.38	12.1	23.7	19.8	12.2	7.43	2.32	0.33	0.27
71455	0	0	0	2.55	4.2	9	27.3	33.4	24.6	4.21	0	0
71462	1.11	1.12	4.81	11.3	43.7	48.3	39.1	36.4	22.3	9.68	1.11	1.12
71466	0.88	0.8	2.14	4.65	21.2	43	51.6	43.2	30.2	7	1.02	0.92
31011624	0.59	0.63	3.28	12	56.9	60.9	62.9	61.4	42.4	21.5	0.63	0.59
31011654	0.3	0.25	0.18	1.19	3.74	12.4	40.5	47.7	36.4	6.03	0.41	0.33
31011658	0	0	0	2.51	4.54	8.3	24.8	32.7	24.7	4.47	0	0

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE MALHEUR BASIN



Expected Stream Flow for August in the Malheur Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (mal_exp_50.mxd)

Owyhee

3/9/2007

Measurement Activities in Priority Watersheds in the Owyhee Basin

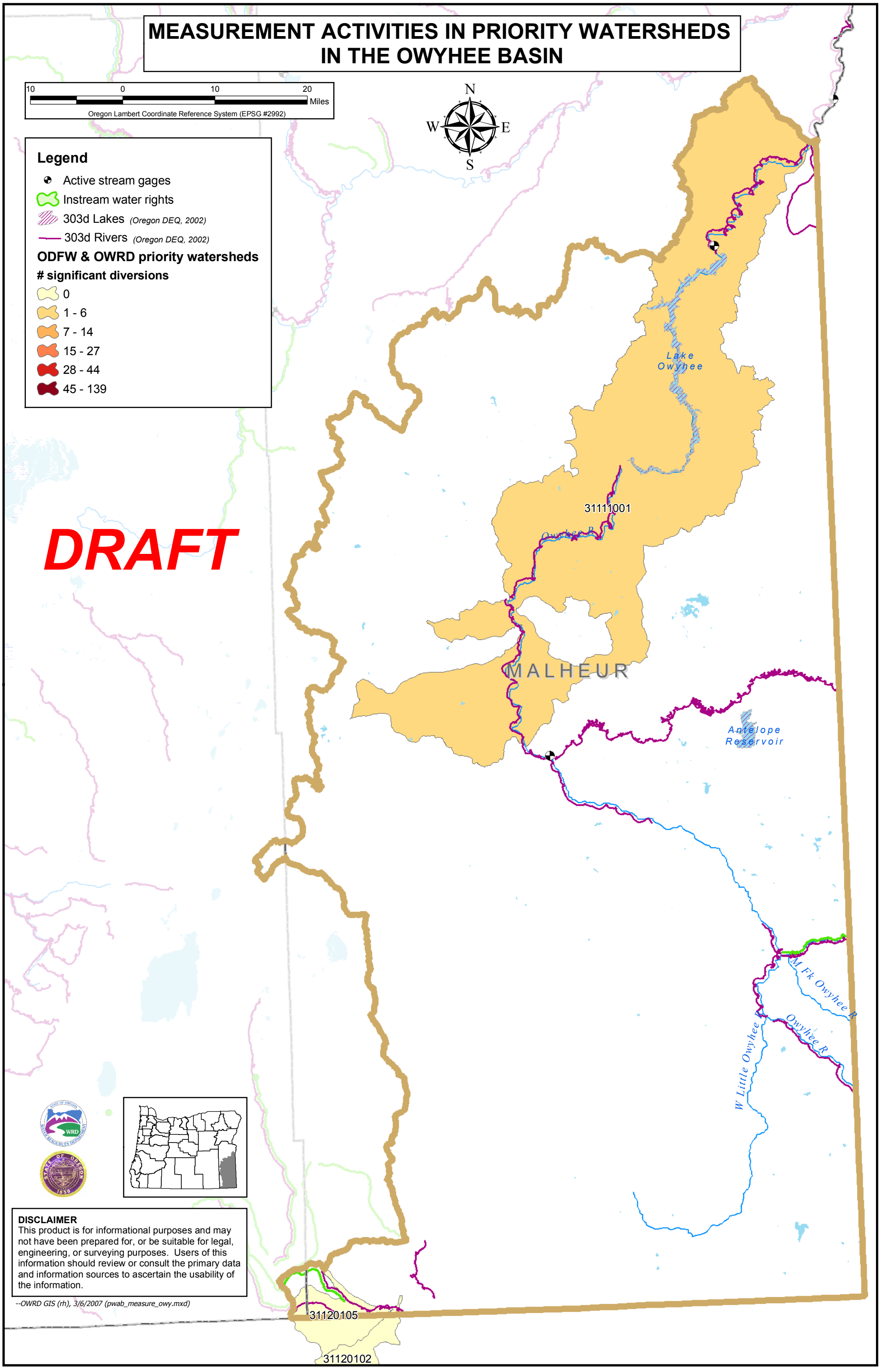
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
31111001	Owyhee R > Snake R A	4	12			Yes	1
31120102	Mcdermitt Cr > Quinn					Yes	
31120105	Mcdermitt Cr > Quinn					Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Owyhee Basin

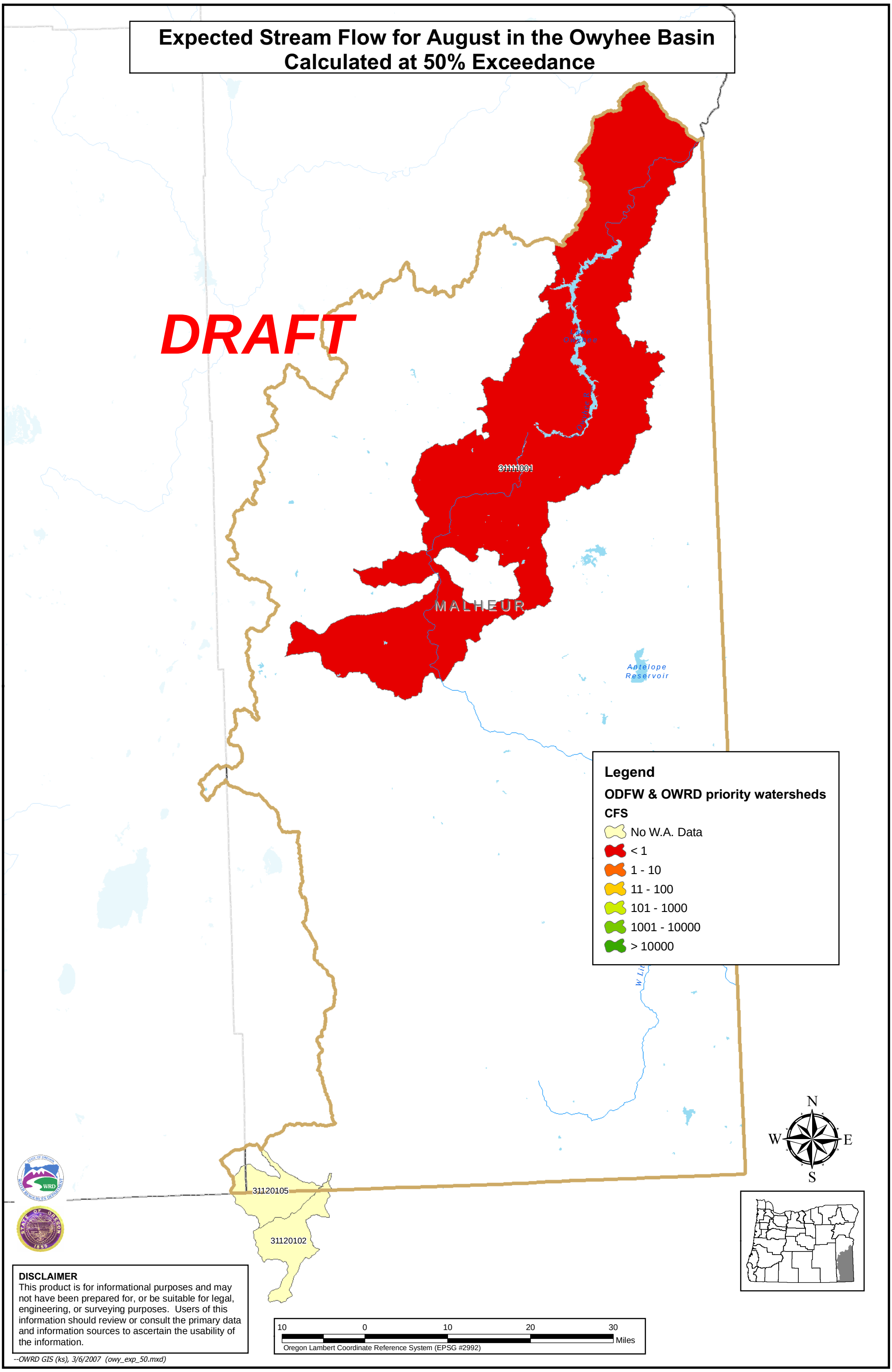
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
31111001	154	89.3	67.7	67.8	95.2	172	468	545	487	219	117	133

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE OWYHEE BASIN



Expected Stream Flow for August in the Owyhee Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (owy_exp_50.mxd)

Malheur Lake

3/9/2007

Measurement Activities in Priority Watersheds in the Malheur Lake Basin

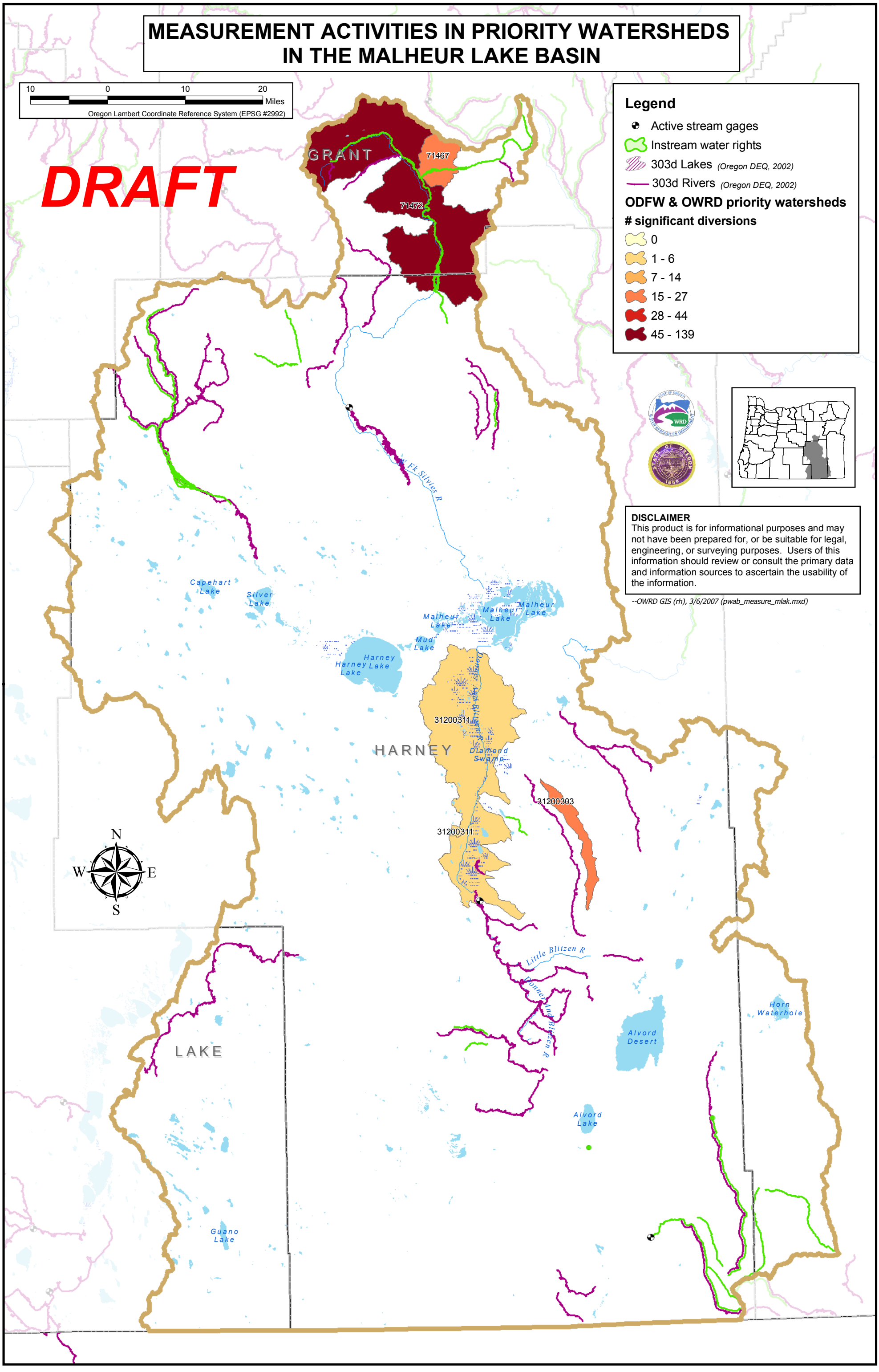
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
71467	Bear Cr @ Mouth	16			Yes		
71472	Silvies R Ab Trout C	52		2	Yes	Yes	
31200303	Cucamonga Cr @ Mouth	17					
31200311	Donner Und Blitzen R	2	2	2		Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Malheur Lake Basin

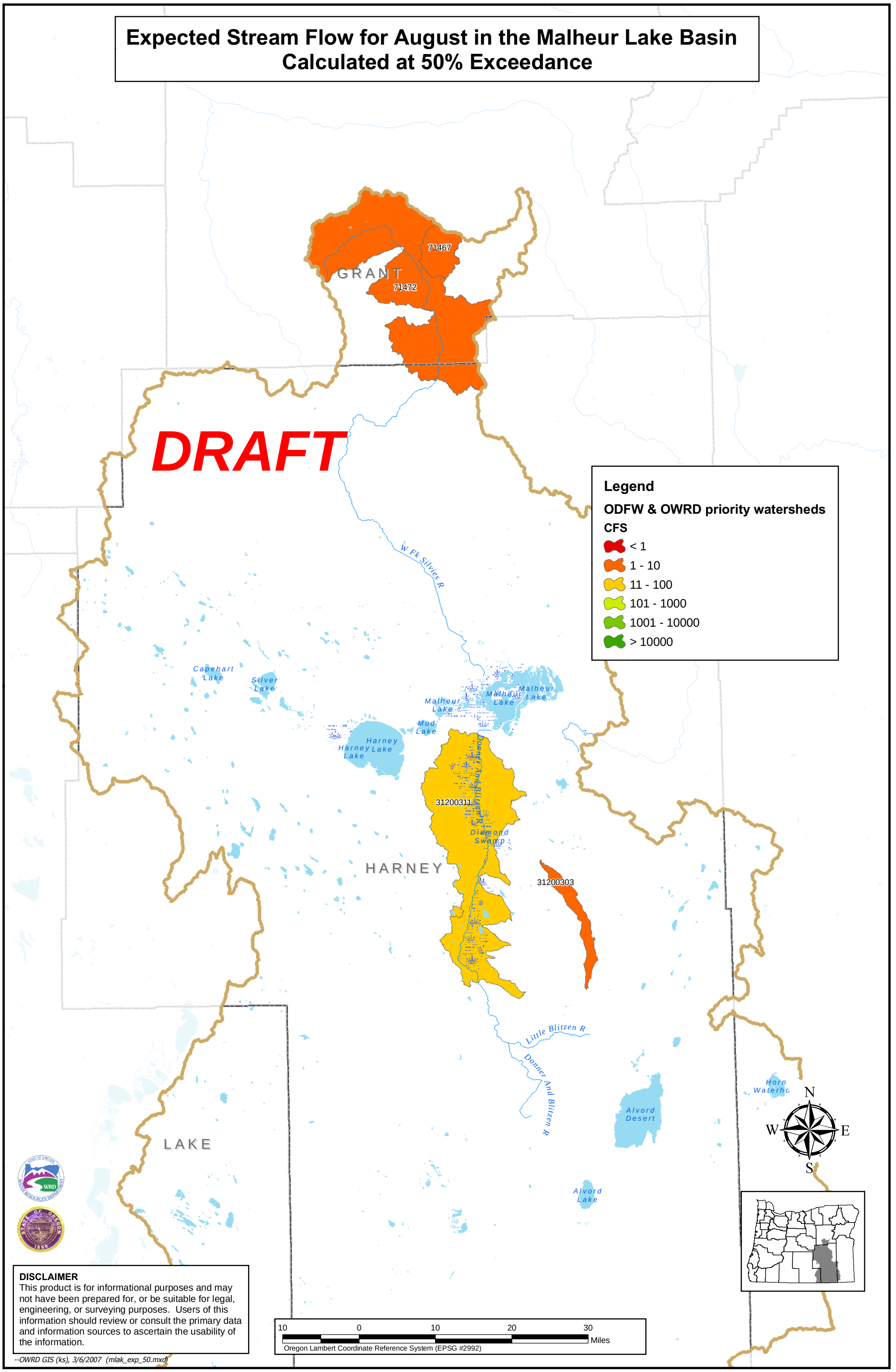
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
71467	0.83	0.49	5.39	10.1	26.4	33.2	38.1	35.5	26.6	1.19	0.89	0.96
71472	2.64	2.19	7.51	12.6	42.3	69.9	83.9	73.4	53.5	3.62	3.03	2.85
31200303	0.06	0	18.5	23.2	27.8	33	65.5	69.9	38.3	18.8	0.07	0.05
31200311	110	107	157	73.2	73.6	77.7	79.5	58.1	32.6	150	146	110

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE MALHEUR LAKE BASIN



Expected Stream Flow for August in the Malheur Lake Basin Calculated at 50% Exceedance



DISCLAIMER
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--OWRD GIS (ks), 3/6/2007 (mlak_exp_50.mxd)

Goose/Summer Lakes

3/9/2007

Measurement Activities in Priority Watersheds in the Goose & Summer Lakes Basin

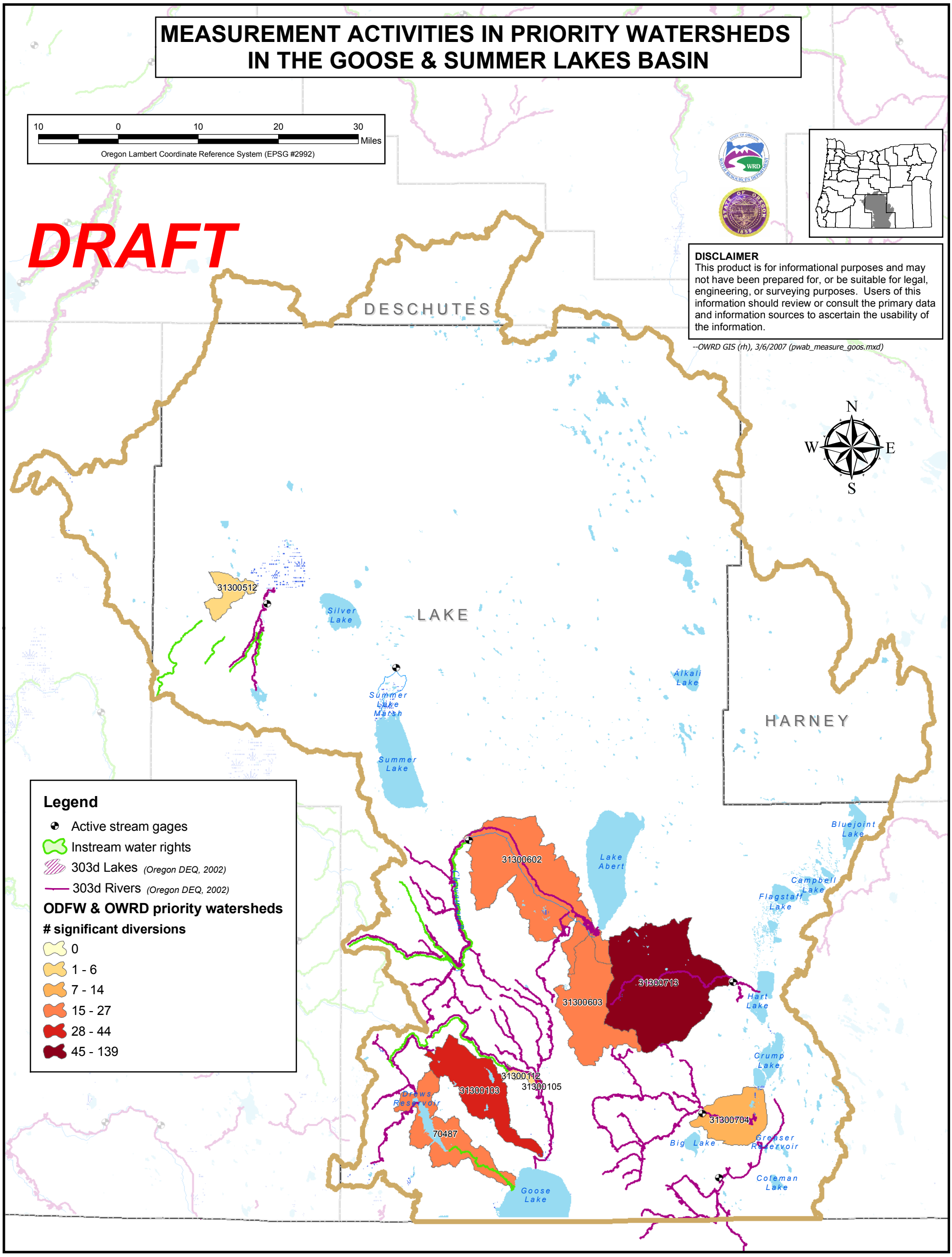
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
70487	Drews Cr > Goose L -	22	19		Yes		
31300103	Cottonwood Cr > Thom	32					
31300105	Camp Cr > Thomas Cr	40					
31300112	Thomas Cr > Goose L	4	1				
31300512	Buck Cr > Silver L -	5					
31300602	Chewaucan R > L Aber	15	2			Yes	1
31300603	Crooked Cr > Chewauc	17				Yes	
31300704	Deep Cr > Crump L -	14	1			Yes	1
31300713	Honey Cr > Hart L -	54				Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Goose and Summer Lakes Basin

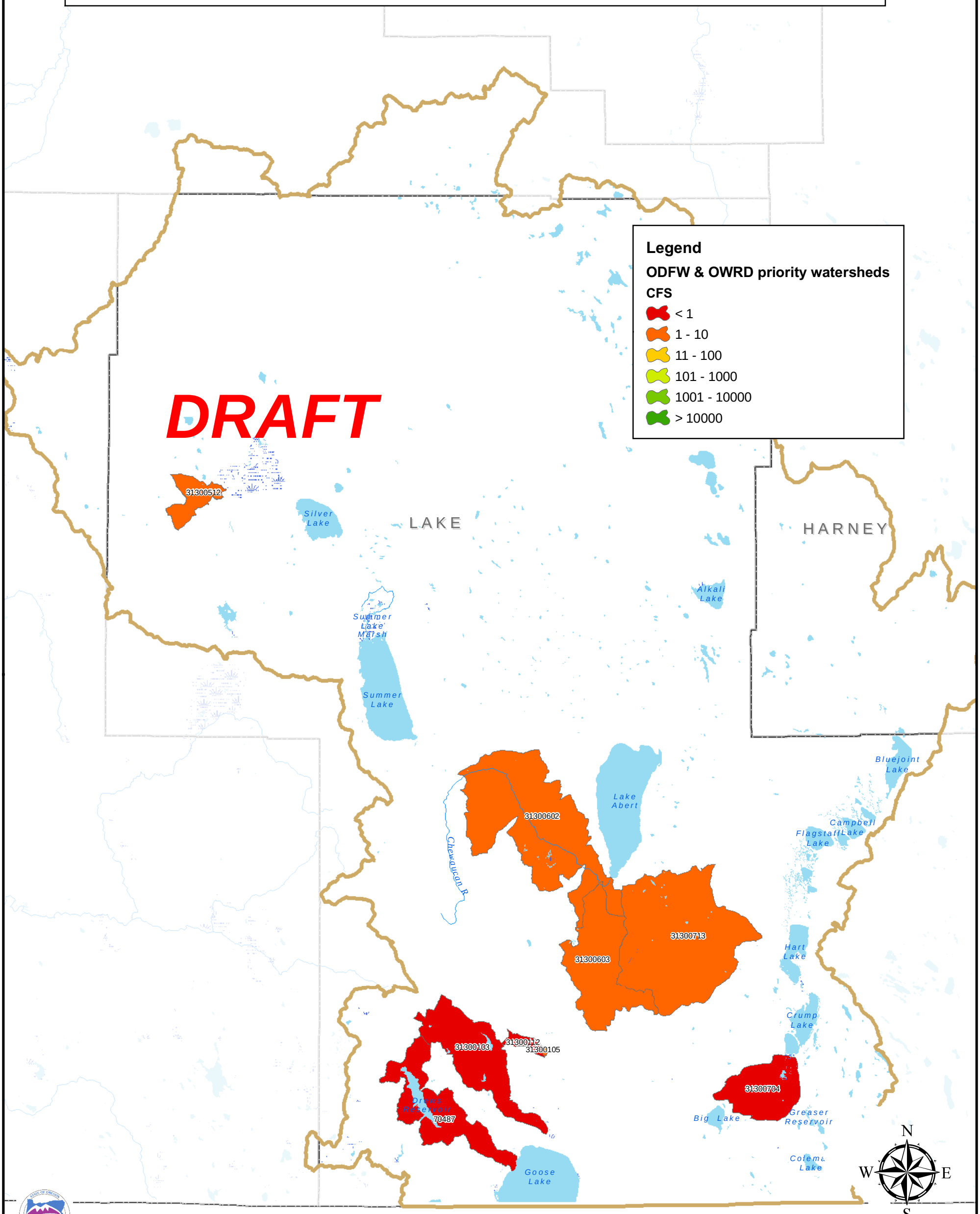
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
70487	248	189	78.1	87.5	89.9	215	337	475	470	226	344	393
31300103	116	127	84.1	85.6	127	259	251	259	238	131	63.2	121
31300105	11	11	14.9	19.6	34.5	83.5	111	84.3	57.2	28.9	10.6	10.9
31300112	5.04	5.02	8.92	15	45.2	138	150	165	155	106	5.1	5.04
31300512	1.37	1.44	6.27	12	16.1	10.2	10.3	12.7	10.2	5.95	1.28	1.38
31300602	1.01	0.97	15	36.7	51	73.5	80.3	87.4	75.2	43.9	1.08	1.12
31300603	3.24	3.21	7.99	15.3	27.7	45.9	47.5	53.4	44.5	23.5	3.29	3.25
31300704	3.28	2.59	7.9	17.4	29.7	59	185	208	140	51.2	3.92	3.35
31300713	2.66	2.64	7.48	10.6	18.5	33.7	55.5	83.7	75.2	36.6	2.68	2.66

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE GOOSE & SUMMER LAKES BASIN



Expected Stream Flow for August in the Goose & Summer Lakes Basin Calculated at 50% Exceedance



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10 0 10 20 30 Miles
Oregon Lambert Coordinate Reference System (EPSG #2992)

--OWRD GIS (ks), 3/6/2007(goos_exp_50.mxd)

Klamath

Measurement Activities in Priority Watersheds in the Klamath Basin

3/9/2007

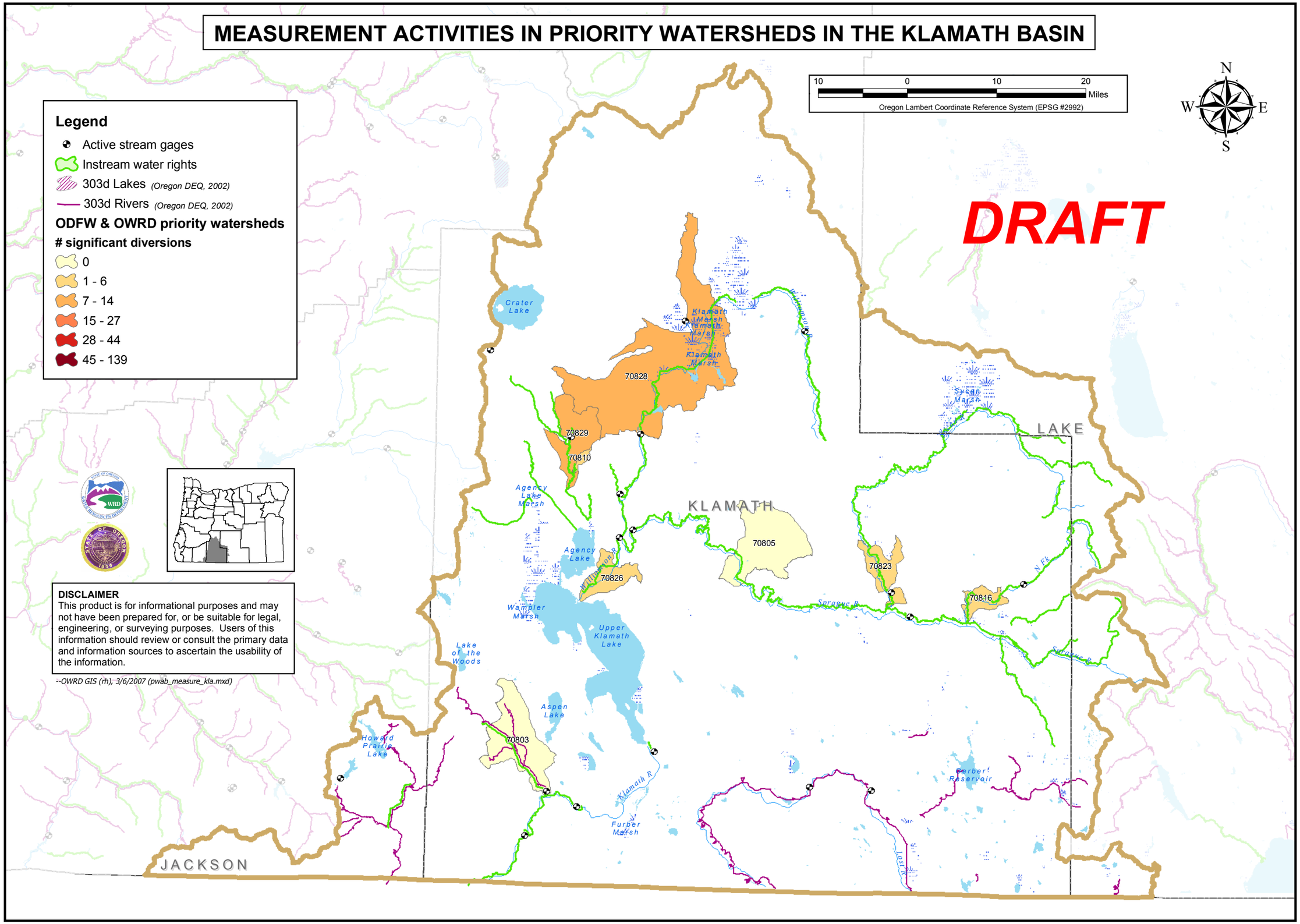
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
70803	Spencer Cr > Klamath				Yes	Yes	1
70805	Sprague R > Williams						
70810	Fort Cr > Wood R - A	1			Yes		
70816	N Fk Sprague R > Spr	3			Yes		
70823	Sycan R > Sprague R	1					1
70826	Williamson R > Upper	4	1		Yes		
70828	Williamson R > Upper	8			Yes		
70829	Wood R > Upper Klama	9	2		Yes		1

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Klamath Basin

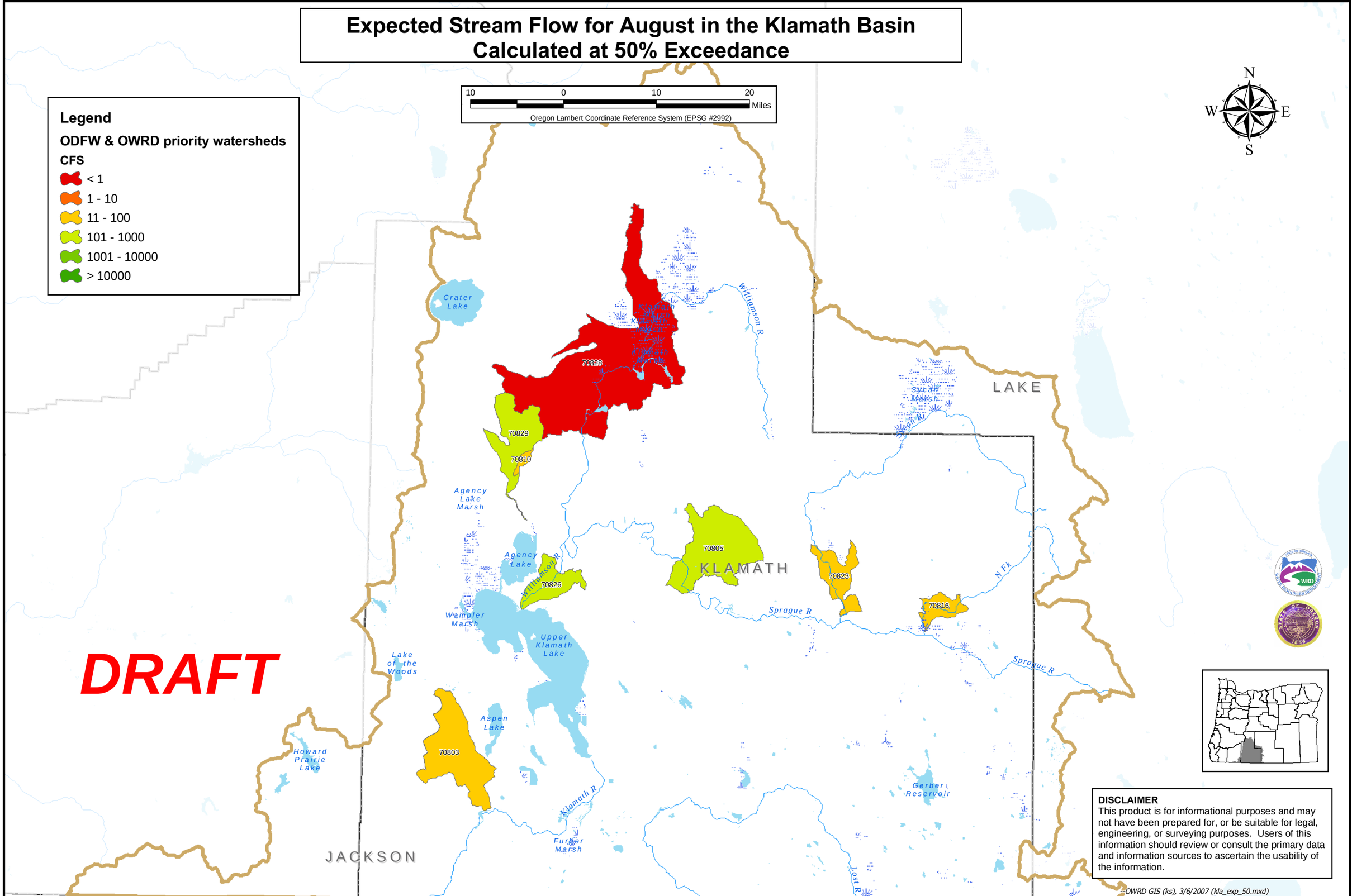
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
70803	0.6	0.47	0.33	2.04	5.88	12.3	22.9	25.1	17.5	4.49	0.68	0.61
70805	1.66	1.62	4.39	5.32	10.7	23.7	30.6	25.8	21.9	12.6	1.67	1.66
70810	0	0	5.89	13.3	31	40.5	25.8	15.1	13.6	9.89	0	0
70816	0.15	0.14	1.85	4.76	10.7	15.6	9.4	6.72	6.22	2.62	0.16	0.15
70823	0.22	0.13	1.31	1.27	4.07	14.2	21.1	17.8	17.4	10.4	0.22	0.21
70826	1.12	1	4.24	6.4	15.8	31.4	31.8	22.7	20.2	12.4	1.15	1.08
70828	1.31	0.86	5.85	10.7	38.3	80.8	120	146	146	148	2.44	1.21
70829	0.1	0.1	10.8	21.4	43.8	52.9	36.4	24.1	22.3	15.6	0.09	0.1

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE KLAMATH BASIN



Expected Stream Flow for August in the Klamath Basin
Calculated at 50% Exceedance



Rogue

3/9/2007

Measurement Activities in Priority Watersheds in the Rogue Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
248	Antelope Cr @ Mouth	31	2	1	Yes	Yes	
249	Applegate R @ Mouth	16	2	11	Yes	Yes	1
250	Applegate R @ 143660	9	7	6	Yes	Yes	1
263	Little Butte Cr @ Mo	18	2	6	Yes	Yes	3
268	Rogue R Ab Fall Cr	11	5	4	Yes	Yes	
270	Rogue R @ 14359000	22	13	7	Yes	Yes	1
274	Sams Cr @ Mouth	24	8	2	Yes	Yes	
276	Thompson Cr @ Mouth	19	1	1	Yes	Yes	
279	Wolf Cr @ Mouth	18	4	2	Yes	Yes	
69808	Sucker Cr @ Mouth	10	1	1	Yes	Yes	2
70975	E Fk Williams Cr @ M	16	1	3	Yes	Yes	
70976	W Fk Williams Cr @ M	30	1		Yes	Yes	
70978	Elder Cr @ Mouth	7		1	Yes	Yes	
70979	E Fk Illinois R Ab E	5			Yes	Yes	1
70980	E Fk Illinois R @ Mo				Yes	Yes	
70981	Williams Cr @ Mouth	41	8	8	Yes	Yes	
70982	Little Applegate R @	20			Yes	Yes	
70983	Little Applegate R A	17	3		Yes	Yes	
70984	Jumpoff Joe Cr @ Mou	9			Yes	Yes	
70986	Evans Cr Ab W Fk Eva	7	4	1	Yes	Yes	
70987	Evans Cr @ Mouth	5			Yes	Yes	
70990	Ditch Cr @ Mouth	2			Yes		
70991	Deer Cr Ab Mcmullin	10		2	Yes	Yes	

3/9/2007

Measurement Activities in Priority Watersheds in the Rogue Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
70992	Deer Cr @ Mouth	7			Yes	Yes	
70997	W Fk Illinois R @ Mo				Yes	Yes	
70999	Waters Cr @ Mouth				Yes	Yes	
71004	Slate Cr @ Mouth	5			Yes	Yes	
71005	Slate Cr Ab Butcherk	7			Yes		
71008	S Fk Little Butte Cr	9	18		Yes	Yes	
71009	Pleasant Cr @ Mouth	11			Yes	Yes	
71011	Louse Cr Ab Soldier	5			Yes	Yes	
71015	Louse Cr @ Mouth	7			Yes	Yes	
71016	Cheney Cr @ Mouth	1			Yes	Yes	
71020	Foots Cr @ Mouth	31			Yes		
71026	Powell Cr @ Mouth	7			Yes	Yes	
71028	Murphy Cr @ Mouth	1			Yes	Yes	
71032	Jumpoff Joe Cr Ab Lo	27	1		Yes	Yes	
71034	Grave Cr Ab Wolf Cr	15			Yes	Yes	
71035	Grave Cr @ Mouth	22		1	Yes	Yes	
71196	Birdseye Cr @ Mouth	1			Yes	Yes	
71206	Wagner Cr @ Mouth	13	7		Yes	Yes	
71622	N Fk Little Butte Cr	7	3	3	Yes	Yes	2
71629	Yale Cr @ Mouth	15		1	Yes	Yes	
72843	Illinois R Ab Joseph	5	1	1	Yes	Yes	1
31530710	Big Butte Cr @ 14337	9	5			Yes	4
31530801	Rogue R Ab Applegate	12	9	12	Yes	Yes	1

3/9/2007

Measurement Activities in Priority Watersheds in the Rogue Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
31531002	Rogue R Ab Grave Cr	25	12	13	Yes	Yes	
31531009	Grave Cr @ 14372000	14	1	1	Yes	Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Rogue Basin

Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

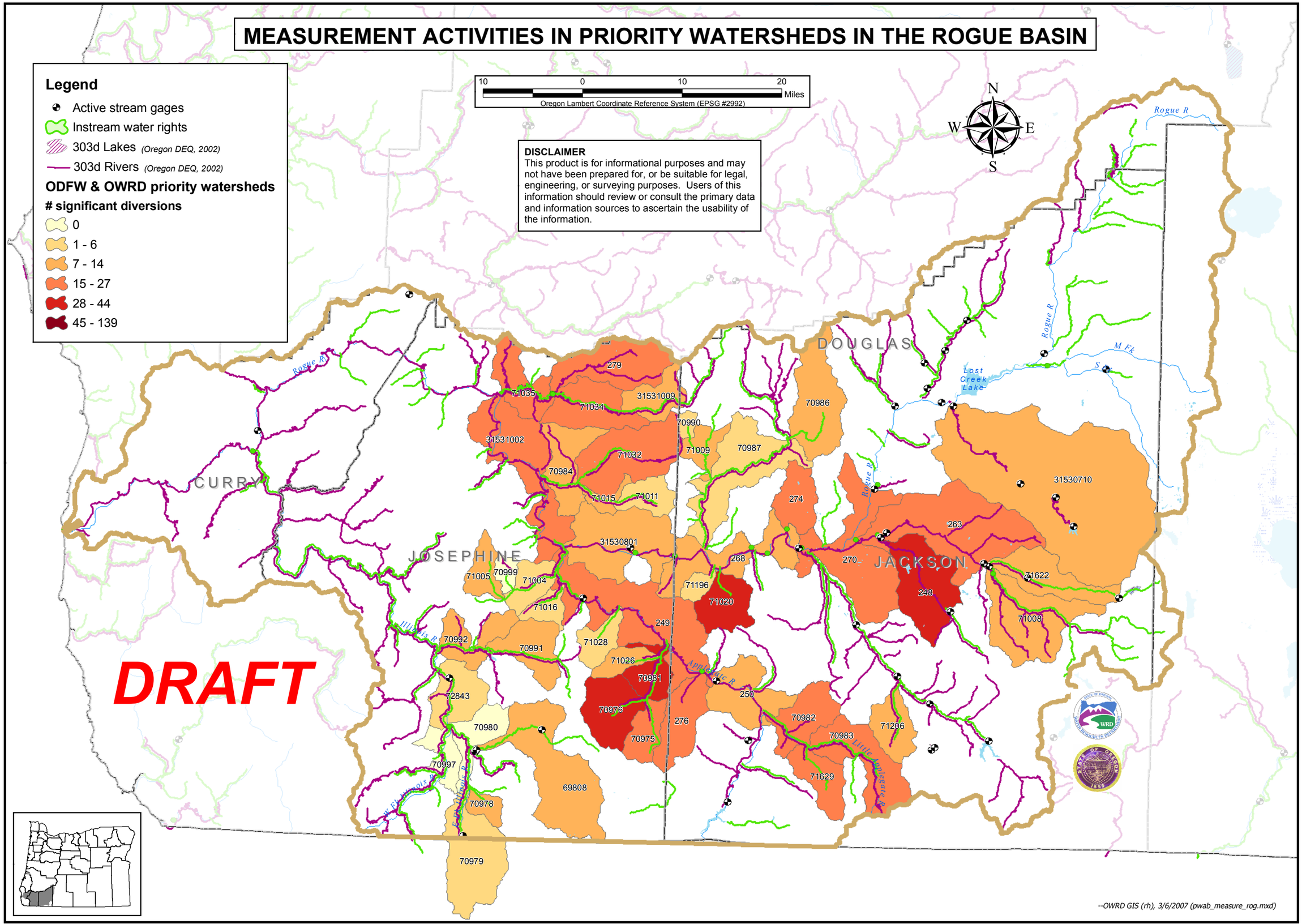
WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
248	9.84	9.83	9.83	1.16	4.85	24.3	52.7	59.9	48	14.2	11.3	9.86
249	0.51	36	35.9	46.5	4.7	14.1	57.3	94.2	69	14.6	1.39	0.64
250	0.46	54.5	57.9	62.9	3.84	11.6	45.9	74.4	59.2	14.7	1.14	0.59
263	13.8	13.5	14.2	3.68	10.3	41.1	85.4	91.5	73.6	39.5	36	16.6
268	26.3	43.2	44	23.8	9.58	20.2	35	38.8	33.5	18	16.8	16.1
270	33.9	53.6	54	28.4	11.7	20.5	34.3	38.4	34.3	23.3	23.9	22.3
274	22.3	22.3	22.3	7.38	34.1	71.8	254	334	367	98.8	23.9	22.2
276	0.12	0.11	0.12	1.91	6.97	26.3	94.9	142	103	20.8	0.49	0.15
279	0.77	0.75	0.78	1.2	3.96	11.7	35.1	50.8	41.1	13.1	1.7	0.81
69808	0.06	0.05	0.05	0.74	1.5	4.33	12.1	15.1	12.4	4.01	0.19	0.07
70975	0.3	0.3	0.3	3.16	11.3	41	163	269	222	46.1	0.51	0.31
70976	0.29	0.25	0.29	2.17	7.95	28.8	117	201	174	36	1.22	0.36
70978	0.06	0.18	0.28	0.49	1.23	4.87	14.1	22.6	16.5	4.12	0.2	0.08
70979	0.02	0.02	0.02	0.32	0.7	2.96	9.65	12.9	10.4	2.76	0.06	0.02
70980	0.44	0.43	0.42	1.07	2.28	6.85	20.7	27.7	22.5	8.6	1.22	0.5
70981	0.66	0.65	0.66	3.25	12.4	43.1	169	277	246	54.4	1.81	0.67
70982	2.8	2.32	1.73	13.6	21.7	29.1	199	1198	1067	51.4	4.95	4.29
70983	4.04	1.87	2.31	19.6	27.7	30.6	195	1134	1063	55.1	5.99	6.28
70984	0.56	0.63	0.59	1.9	8	16.8	52	61.6	60.4	17.1	1.84	0.59
70986	0.18	0.25	0.11	1.36	3.88	10.4	33.5	39.2	28	7.21	0.46	0.16
70987	0.34	0.41	0.4	1.28	3.94	9.26	24.7	30.6	22.6	5.31	0.46	0.33
70990	0.08	0.07	0.08	0.46	2.07	9.19	42.2	63	46.7	7.14	0.21	0.08
70991	0.1	0.09	0.1	0.64	1.91	7.91	27.7	37.2	34.3	8.37	0.26	0.11
70992	0.12	0.1	0.12	0.63	1.95	7.99	28.9	39.8	39.1	9.82	0.34	0.13
70997	0.12	0.12	0.12	0.39	1.45	3.12	8.11	11.6	10.6	3.51	0.25	0.13
70999	0.42	0.33	0.44	0.82	2.65	4.41	12.8	24.8	38.9	22.2	3.17	0.6

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Rogue Basin

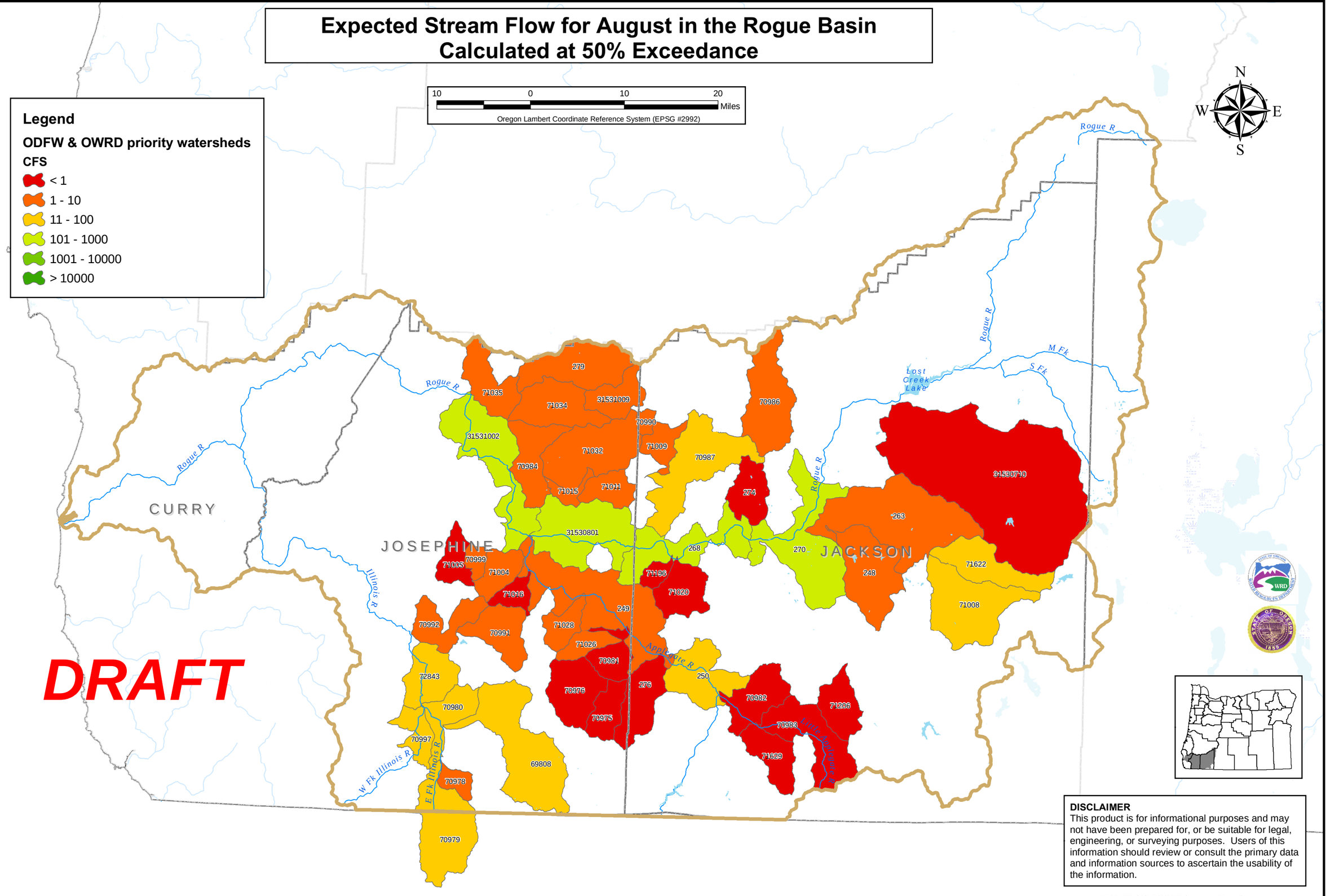
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
71004	0.41	0.31	0.44	1.59	5.98	14.3	47.5	80.3	88.2	32.1	3.17	0.59
71005	0.26	0.19	0.27	1.34	5.12	18.5	73.7	134	124	32.1	1.96	0.37
71008	3	3	3	3.17	8.78	32.1	64.7	67.8	54.4	3.36	3.2	3.02
71009	0.56	0.74	0.66	1.55	6.9	18.3	71.8	98.4	95.8	18.5	0.58	0.37
71011	0.03	0.07	0.04	0.86	3.65	11.4	38.8	46.2	33.6	6.37	0.17	0.04
71015	0.85	1.23	0.99	2.28	8.99	21.5	67.1	80.8	72.6	21.8	3.35	0.95
71016	0.03	0.02	0.03	1.29	5.58	19	68.7	110	89.6	20.3	0.28	0.05
71020	3.55	2.79	3.05	7.05	20.8	49	136	180	188	106	28.6	4.52
71026	0.72	0.71	0.72	2.13	6.59	13.3	22.5	23.5	21.6	8.33	1.1	0.76
71028	0.05	0.04	0.05	1.46	5.13	16.4	51.1	70.2	50.1	11.7	0.14	0.06
71032	0.49	0.45	0.47	1.59	6.35	14.3	45.1	54.7	51.5	14.6	1.7	0.53
71034	0.21	0.19	0.21	1.43	5.04	15.9	51.3	74.8	59.5	15.3	1.04	0.25
71035	0.31	0.3	0.32	1.12	3.94	12.3	37.8	53.3	42.3	11.9	1.04	0.35
71196	0.81	0.67	0.72	5.42	23.4	70.9	258	355	308	92	6.97	0.99
71206	6.6	5.37	5.53	13.8	18	37.8	123	189	158	72.3	19.1	9.3
71622	31.4	27.8	29.8	1.56	3.81	11	21.2	20.7	13.9	0.7	70.9	44.4
71629	0.73	0.38	0.46	1.24	1.88	2.41	17.2	114	111	6.2	1.23	1.08
72843	0.13	0.13	0.14	0.68	1.78	6.28	20.8	29.4	24.1	5.65	0.32	0.14
31530710	120	116	114	118	131	219	245	249	251	140	140	121
31530801	25.9	42.4	43.4	23.9	9.97	22.2	38.2	42.8	37.8	19.1	17.2	16.1
31531002	20.2	33.7	37	27.5	9.83	21.3	39.9	47.2	39.6	19.1	15.6	11.4
31531009	0.04	0.05	0.04	1.1	3.7	13.2	45.8	67.9	49	9.6	0.19	0.05

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE ROGUE BASIN



Expected Stream Flow for August in the Rogue Basin
Calculated at 50% Exceedance



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--OWRD GIS (rh), 3/6/2007 (rog_exp_50.mxd)

Umpqua

3/9/2007

Measurement Activities in Priority Watersheds in the Umpqua Basin

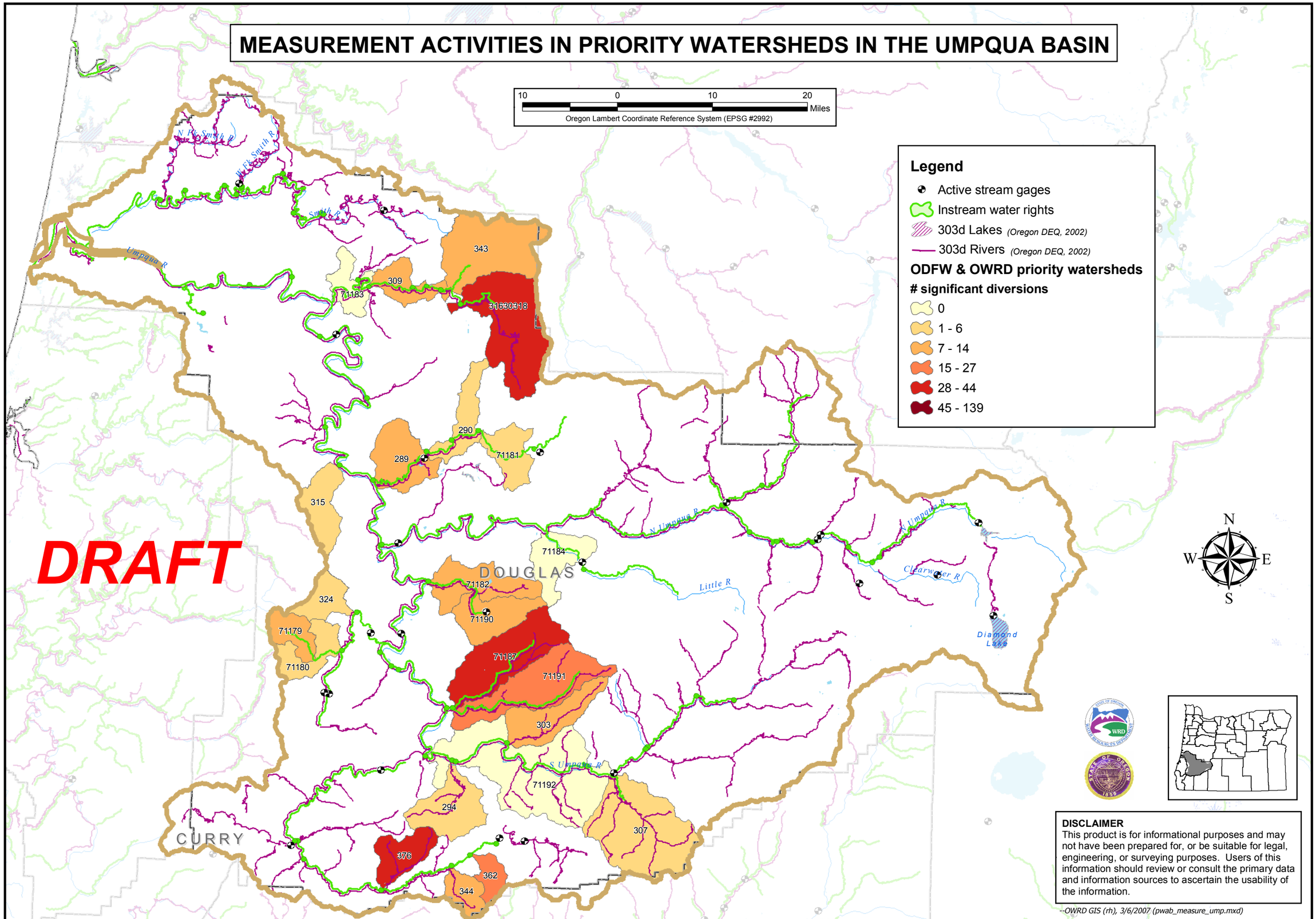
WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
289	Calapooya Cr @ Mouth	7		6	Yes	Yes	1
290	Calapooya Cr Ab Will	1		1	Yes	Yes	
294	Canyon Cr @ Mouth	5	4	4	Yes	Yes	
303	Days Cr @ Mouth	11			Yes	Yes	
307	Elk Cr @ Mouth	1			Yes	Yes	
309	Elk Cr Ab Brush Cr	9		1	Yes	Yes	
315	Hubbard Cr @ Mouth	2		3	Yes		
324	Morgan Cr @ Mouth	5		2			
343	Pass Cr @ Mouth	13	3	12	Yes	Yes	
344	Quines Cr @ Mouth	9	1		Yes	Yes	
362	Starveout Cr @ Mouth	23			Yes		
376	Windy Cr @ Mouth	29	20	3		Yes	
71179	Tenmile Cr Ab Shield	8		3	Yes		
71180	Tenmile Cr @ Mouth	6			Yes		
71181	Calapooya Cr Ab Oldh	4	3	3			
71182	Deer Cr @ Mouth	10			Yes	Yes	
71183	Elk Cr @ Mouth				Yes	Yes	
71184	Little R @ Mouth				Yes		
71187	N Myrtle Cr @ Mouth	44	14	16	Yes	Yes	
71190	Deer Cr @ Mouth	8			Yes	Yes	1
71191	S Myrtle Cr @ Mouth	17	9	19	Yes	Yes	
71192	S Umpqua R Ab Cow Cr				Yes	Yes	
31630318	Elk Cr @ 14322000	30	1	1	Yes	Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Umpqua Basin

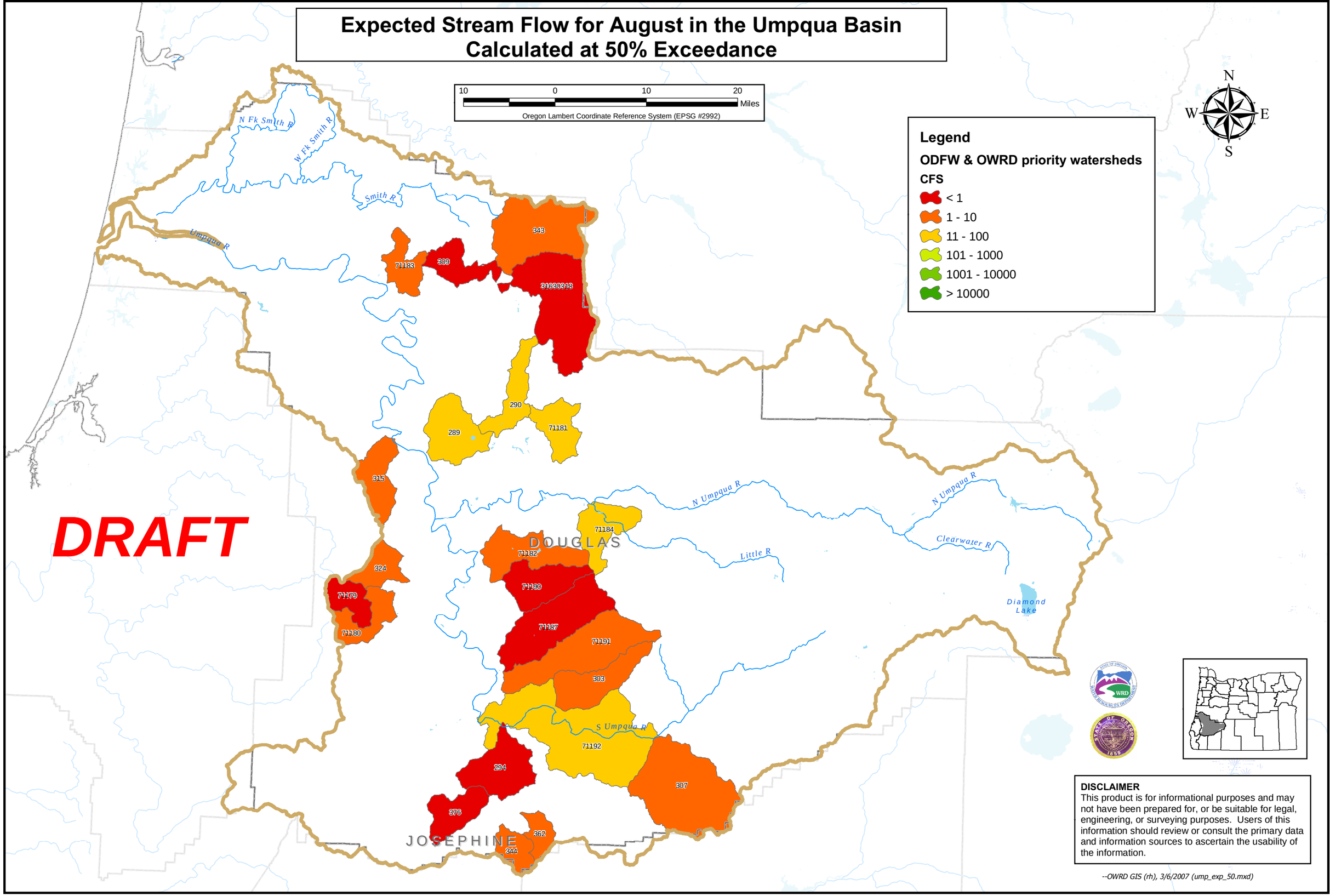
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
289	0.79	0.78	0.77	1.04	2.8	8.74	22.7	32.2	29.4	4.24	0.78	0.75
290	1.53	1.44	1.48	1.84	3.9	8.66	21.1	31.4	30.7	12.2	2.16	1.38
294	2.17	2.34	2.27	0.92	2.07	17.7	71.5	119	66.9	11.3	3.85	2.21
303	0.16	0.17	0.14	0.64	2.58	8.89	42.7	58.4	25.9	2.79	0.5	0.16
307	0.03	0.03	0.03	0.08	0.4	1.87	9.11	16.3	10.8	1.16	0.15	0.03
309	0.44	0.43	0.33	0.86	2.95	15.3	60.8	112	71.4	9.4	1.34	0.43
315	0.07	0.06	0.08	0.19	0.78	3.61	12.8	20.8	11.7	2	0.24	0.06
324	0.09	0.09	0.04	0.11	0.72	2.67	13.2	16.3	14	1.25	0.12	0.09
343	0.16	0.16	0.14	0.43	1.69	5.94	25.8	46.3	26.1	4.23	0.49	0.16
344	0.09	0.09	0.08	0.43	1.91	6.53	20.3	32.4	20.6	1.37	0.41	0.11
362	0.5	0.53	0.45	0.87	2.33	6.89	20.4	38.4	29.6	8.51	2.11	0.6
376	3.1	3.33	2.95	6.13	16.1	43.7	115	221	191	81.3	18.6	3.9
71179	0.17	0.16	0.22	0.83	4.2	16.4	83.6	108	93.7	12.6	0.98	0.16
71180	0.26	0.25	0.29	0.72	3.42	12.6	59.1	71.5	61.3	9.63	0.91	0.24
71181	0.41	0.37	0.41	0.58	1.35	3.19	8.68	12.5	10.8	4.3	0.69	0.36
71182	1.93	1.93	0.7	1.46	5.57	17.7	53.6	74.7	51.4	13.8	4.09	1.94
71183	0.98	0.97	0.26	0.7	2.39	12.3	49	89.1	56.1	7.46	1.67	0.97
71184	0.16	0.16	0.06	0.1	0.3	1.21	4.01	5.68	4.37	0.93	0.21	0.15
71187	4.95	4.82	5.76	5.24	12.6	30.9	77.5	108	80.8	35.4	11.3	2.87
71190	3.31	3.31	0.71	1.84	7.87	30.5	99.6	139	83.6	16	5.57	3.32
71191	0.36	0.36	0.39	1.16	4.37	11.4	37.7	48.3	27.3	2.3	0.25	0.29
71192	0.17	0.17	0.17	0.23	0.61	2.61	9.43	14.6	11.8	2.14	0.39	0.17
31630318	0.51	0.5	0.29	0.8	2.88	13.9	57.8	105	62.2	7.71	1.2	0.5

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE UMPQUA BASIN



Expected Stream Flow for August in the Umpqua Basin
Calculated at 50% Exceedance



South Coast

3/9/2007

Measurement Activities in Priority Watersheds in the South Coast Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
384	Coquille R @ Mouth	21			Yes	Yes	
12655	Davis Cr @ Mouth	60		3			
70449	Larson Cr @ Mouth	13			Yes	Yes	
70450	Palouse Cr @ Mouth	1			Yes		
70574	Sevenmile Cr @ Mouth	22			Yes		
70690	W Fk Millicoma R @ M				Yes		
70877	Sixes R @ Mouth	49		2	Yes	Yes	
70885	Pistol R @ Mouth				Yes	Yes	
70889	Jack Cr @ Mouth	9			Yes	Yes	
70891	Floras Cr @ Mouth	13			Yes	Yes	1
70903	Crystal Cr @ Mouth	1			Yes	Yes	
70907	Chetco R Ab N Fk Che				Yes		
70909	Cedar Cr @ Mouth	4			Yes	Yes	
70915	Fourmile Cr @ Mouth	16			Yes		
72502	Johnson Cr @ Mouth	1			Yes		
72504	Big Cr @ Mouth				Yes		
72505	Winchester Cr @ Mout	2			Yes		
72507	Cunningham Cr @ Mout	7			Yes	Yes	
72526	S Fk Coquille @ Mout	1			Yes	Yes	
72527	M Fk Coquille R Ab B				Yes	Yes	
72784	Rink Cr @ Mouth	5			Yes	Yes	
72803	Twomile Cr @ Mouth	52			Yes		
72804	Twomile Cr @ Mouth	4			Yes		

3/9/2007

Measurement Activities in Priority Watersheds in the South Coast Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
72806	Threemile Cr @ Mouth	2			Yes		
72840	Myrtle Cr @ Mouth	4			Yes		
72941	North Sl @ Mouth	10			Yes	Yes	
72954	Kentucky Cr @ Mouth	5			Yes		
73200	Fourmile Cr Ab S Fk	8			Yes		
31730401	Tenmile Cr Ab Eel Cr				Yes		
31730414	Day Cr @ Mouth						
31730433	W Fk Millicoma R @ 1	2			Yes		1
31730602	New R @ Mouth	24		1	Yes	Yes	
31730603	Bethel Cr @ Mouth	2			Yes		
31730605	Morton Cr @ Mouth	2			Yes		

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the South Coast Basin

Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

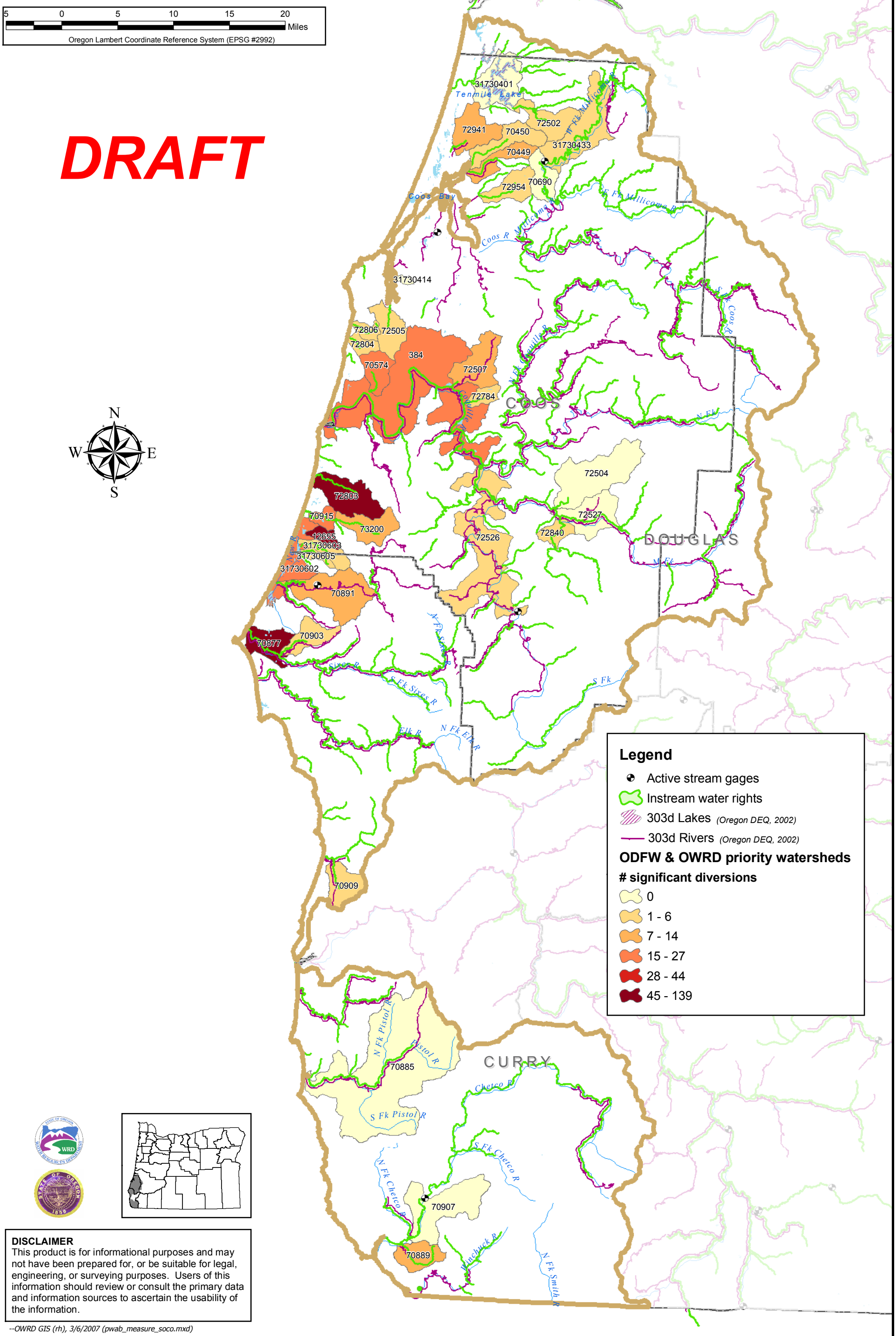
WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
384	0.45	0.43	0.38	0.64	2.13	7.94	24.9	42.1	25.7	5.84	0.58	0.43
70449	0.29	0.31	0.24	0.15	0.36	1.52	5.54	7.42	4.46	1.06	0.12	0.25
70450	0.01	0.01	0.01	0.02	0.05	0.2	0.63	1.04	0.7	0.26	0.03	0.01
70574	3.65	3.47	3.91	2.75	7	21.1	56.4	84	64.6	24.6	5.94	2.39
70690	0.02	0.02	0.03	0.05	0.17	0.7	2.48	4.2	2.01	0.42	0.04	0.02
70877	1.4	1.23	1.36	2.24	1.71	3.58	9.47	13	13.6	5.68	0.55	1.34
70885	0.01	0.01	0.01	0.02	0.08	0.36	0.97	1.31	0.79	0.11	0.01	0.01
70889	0.01	0.01	0.01	0.03	0.19	0.41	1.02	1.54	1.58	0.32	0.04	0.01
70891	0.34	0.3	0.32	0.59	3.15	9.15	24.9	35.2	27.9	6.54	0.56	0.32
70903	0.02	0.02	0.02	0.1	1.19	3.43	8.99	12.3	8.93	0.91	0.04	0.02
70907	0	0	0.01	0.01	0.07	0.41	1.23	1.47	0.83	0.09	0.01	0
70909	0.06	0.06	0.05	0.15	0.81	1.81	4.09	5.44	4.09	0.92	0.12	0.06
70915	3.55	4.26	3.62	5.13	8.13	14.7	31.7	43.6	43	15.3	6.09	3.58
72502	0	0	0	0.01	0.07	0.4	1.42	2.42	1.38	0.18	0.01	0
72504	0.09	0.07	0.06	0.23	0.41	1.21	7.64	12.8	9.31	1.78	0.09	0.11
72505	18	16.5	22.9	35.3	75.6	154	357	760	1099	976	109	22.1
72507	0.26	0.24	0.33	0.58	2.05	7.71	23.7	39.9	30.1	11.7	1.36	0.32
72526	0.07	0.06	0.05	0.13	0.61	2.76	12.1	17.1	10.3	1.83	0.13	0.07
72527	0.05	0.05	0.03	0.06	0.38	2.09	14.8	22.9	11.8	1.18	0.06	0.05
72784	50.7	46.6	56.2	84.2	173	309	630	1197	1581	1371	220	62.1
72803	6.75	6.2	5.66	4.89	8.72	20.6	44.1	53.2	39.6	27.2	3.49	6.78
72804	2.72	4.3	0.75	1.17	2.56	5.2	3.42	4.87	6.03	5.54	4.75	0.74
72806	0.21	0.19	0.26	0.42	1.17	2.97	7.42	12.4	11.4	6.83	1.03	0.26
72840	0.01	0.01	0.01	0.05	0.39	2.1	15.7	26.1	13.7	1.03	0.02	0.01
72941	0.35	0.34	0.39	0.54	1.31	3.97	10.6	17.6	14.2	7.18	0.97	0.39
72954	0.02	0.02	0.03	0.09	0.68	3.72	11.9	18.8	10.5	1.49	0.1	0.03

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the South Coast Basin

Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
73200	0.05	0.38	0.05	0.03	0.12	0.2	0.42	0.62	0.77	0.37	0.04	0.05
31730401	4.63	4.41	6	0.14	0.3	0.81	2.19	4.13	4.3	2.46	17	5.28
31730414	0.1	0.09	0.13	0.21	0.79	2.35	6.8	11.7	8.89	4	0.54	0.13
31730433	0.01	0.01	0.01	0.03	0.15	0.61	2.3	3.8	1.6	0.23	0.02	0.01
31730602	2.13	1.93	1.88	2.35	8.03	11	28.1	37.6	34.7	10	2.55	2.02
31730603	0.75	0.64	0.73	1.52	6.69	10.3	22.1	32.6	37	16.7	1.68	0.74
31730605	0.18	0.16	0.18	0.36	1.23	1.14	1.77	2.89	4.89	3.38	0.4	0.18
31730628	35.8	31	31.9	24.2	60.3	47	94.1	121	112	144	31.9	36.1

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE SOUTH COAST BASIN



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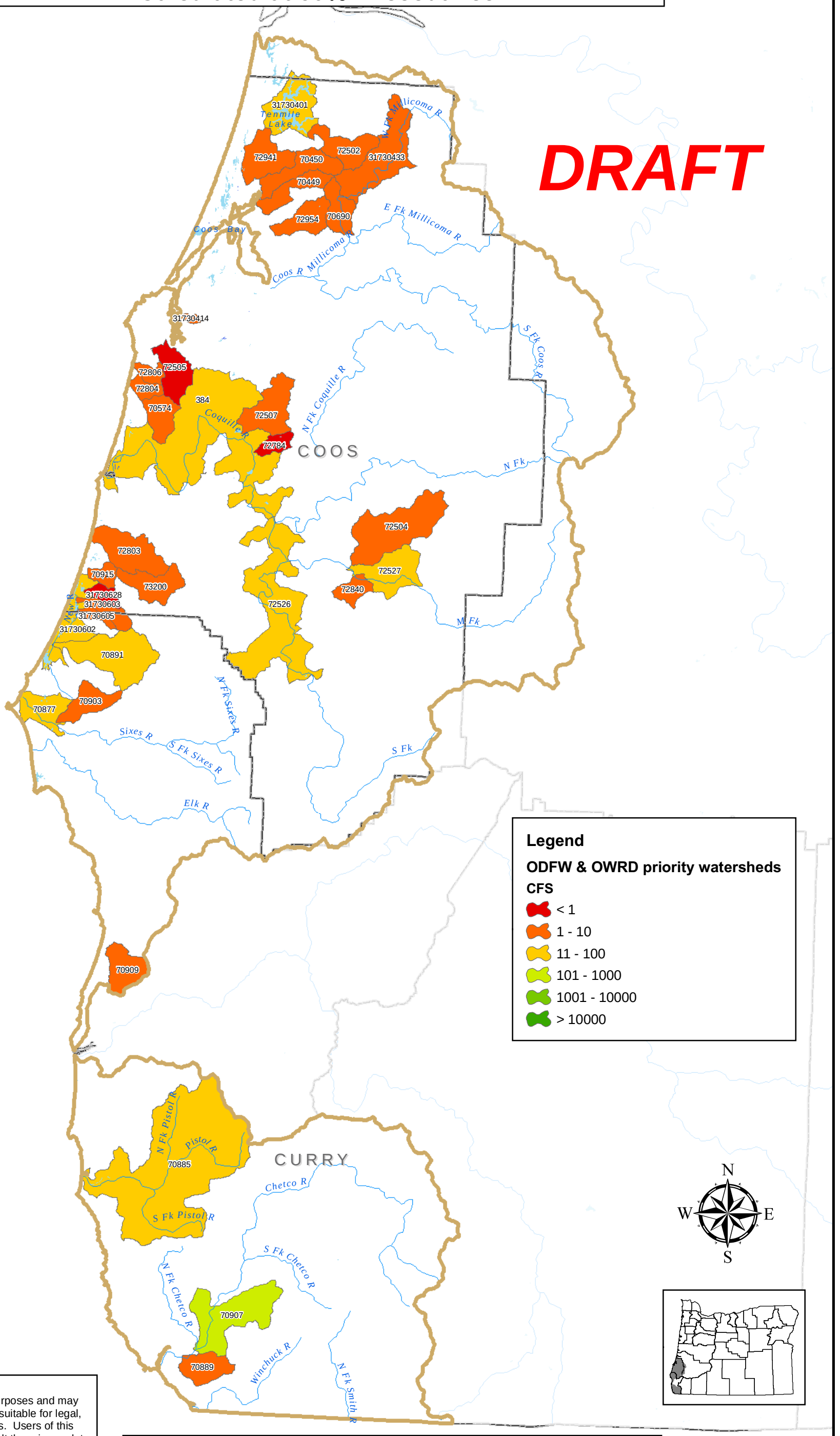
--OWRD GIS (rh), 3/6/2007 (pwab_measure_soco.mxd)

Expected Stream Flow for August in the South Coast Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (soco_exp_50.mxd)

Mid Coast

3/9/2007

Measurement Activities in Priority Watersheds in the Mid Coast Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
446	Drift Cr @ Mouth	1	2		Yes	Yes	
448	Elk Cr @ Mouth				Yes		
470	Little Elk Cr @ Mout				Yes		
492	Salmon R @ Mouth				Yes	Yes	
495	Schooner Cr @ Mouth	4	3		Yes		
498	Siletz R @ Mouth	2	2		Yes	Yes	
511	Slick Rock Cr @ Mout					Yes	
526	Yaquina R @ Mouth	3	2		Yes	Yes	
71388	Bear Cr @ Mouth	2			Yes	Yes	
71391	Deer Cr @ Mouth	1	2		Yes	Yes	
71393	Mill Cr @ Mouth	2			Yes	Yes	
71395	Salmon Cr @ Mouth				Yes	Yes	
71402	Deadwood Cr @ Mouth	3	2	2	Yes	Yes	
71407	Indian Cr @ Mouth				Yes	Yes	
71413	N Fk Siuslaw R @ Mou	12			Yes		
71414	Lake Cr Ab Nelson Cr				Yes	Yes	
71415	N Fk Siuslaw R Ab Mc				Yes	Yes	
71417	S Fk Siuslaw R @ Mou	6	2	2	Yes	Yes	
71420	Siuslaw R Ab Haight				Yes	Yes	
71427	Yachats R @ Mouth	3	1		Yes		
72001	Salmon R Ab Slick Ro				Yes	Yes	
72002	Panther Cr @ Mouth	1	1		Yes	Yes	
72003	Sulphur Cr @ Mouth				Yes	Yes	

3/9/2007

Measurement Activities in Priority Watersheds in the Mid Coast Basin

WS_ID#	Watershed	# significant diversions	# measuring device(s)	# with measuring conditions	Instream Water Rights?	303d stream/lakes?	# gages on streams
72004	Rock Cr @ Mouth	2			Yes		
72007	Olalla Cr @ Mouth	4	3		Yes	Yes	
72884	Bummer Cr @ Mouth	6			Yes		
31820404	Sijota Cr @ Mouth						
31820407	Depoe Cr @ Mouth	2	3				
31820412	Wade Cr @ Mouth	1	2				
31820417	Big Cr @ Mouth	3	2				
31820425	'd' R @ Mouth	4	2		Yes	Yes	
31820427	Unn Str @ Mouth	4			Yes	Yes	
31820436	Salmon R @ 14303750	1			Yes	Yes	
31820441	Mill Cr @ 14306036	1	2		Yes		
31820510	Big Cr @ Mouth	1	1	1			
31820511	Star Cr @ Mouth	3					
31820636	N Fk Siuslaw R @ 143					Yes	
31820638	Lake Cr @ 14307580				Yes	Yes	
31820639	Lake Cr @ 14307500	1	2		Yes	Yes	

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Mid Coast Basin

Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

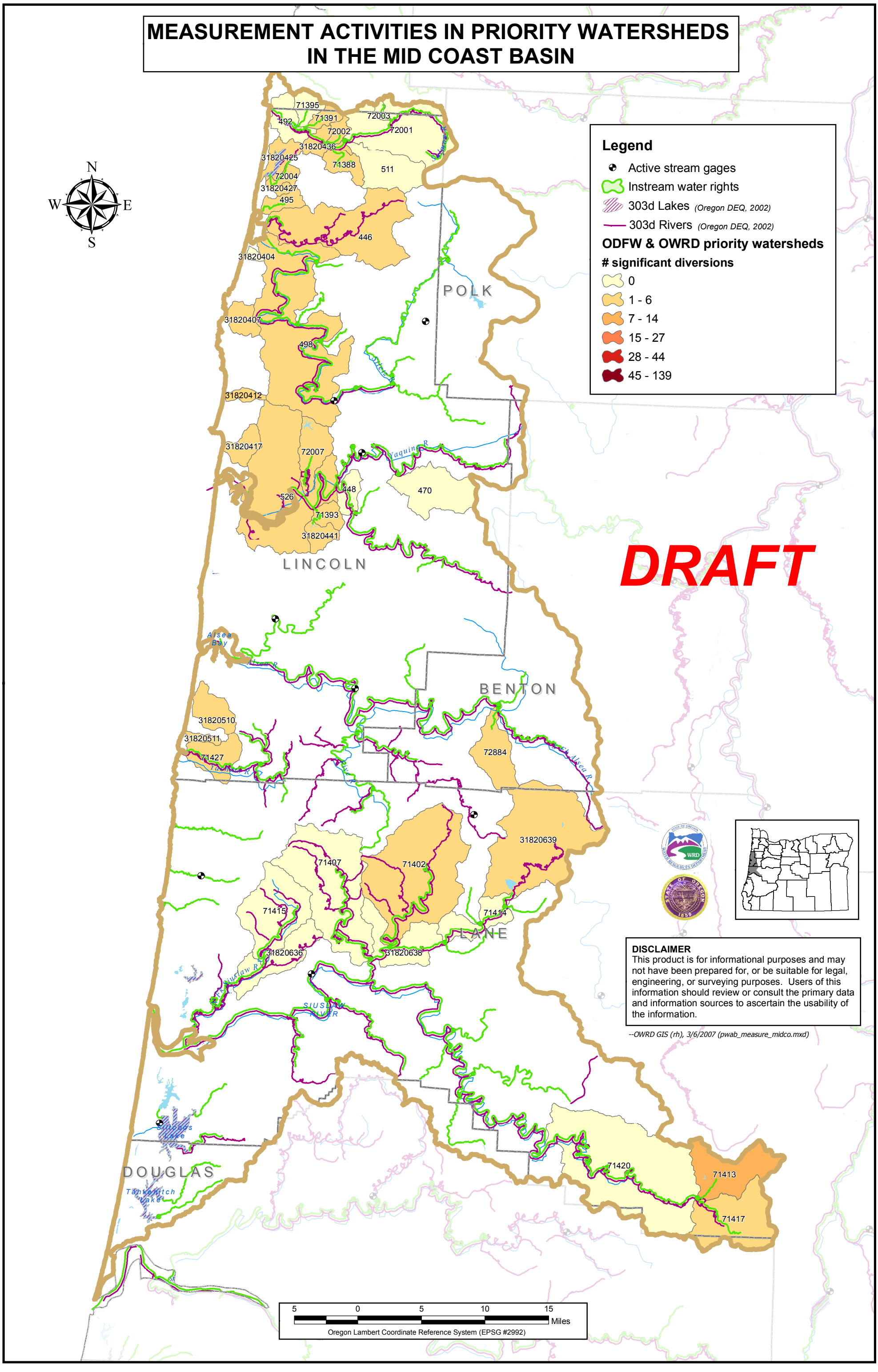
WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
446	2.35	2.25	2.73	4.54	7.76	12.5	20.5	32.1	33.5	16	3.48	2.16
448	0.01	0.01	0.01	0.02	0.08	0.42	2.39	3.48	0.68	0.19	0.02	0.01
470	0.11	0.12	0.15	0.25	0.49	1.23	4.26	7.35	4.8	2.29	0.31	0.11
492	0.1	0.1	0.12	0.19	0.33	0.62	1.22	1.82	1.59	0.68	0.14	0.09
495	8.69	10.2	11.3	18	27	39.9	60.6	89.6	99.8	60.6	14.4	8.61
498	0.54	0.58	0.77	1.16	2.16	4.11	7.47	11.5	10.9	5.23	0.8	0.51
511	0.08	0.08	0.09	0.13	0.19	0.36	0.61	0.96	0.87	0.38	0.09	0.07
526	0.4	0.44	0.42	0.69	1.26	2.86	7.7	13	10.8	5.38	0.89	0.4
71388	0.15	0.14	0.17	0.3	0.56	0.95	1.91	3.3	3.52	1.69	0.29	0.14
71391	0.08	0.08	0.1	0.2	0.43	0.72	1.63	2.26	1.4	0.69	0.15	0.08
71393	4.38	4.54	3.36	4.97	9.43	16.5	27.6	24.4	47.5	50.2	6.83	4.36
71395	0.08	0.08	0.1	0.2	0.43	0.75	1.73	2.66	2.14	1.09	0.19	0.08
71402	0.01	0.01	0.01	0.03	0.26	1.29	4	4.32	1.97	0.26	0.02	0.01
71407	0	0	0	0.02	0.12	0.59	1.81	2.77	1.3	0.16	0.01	0
71413	0.11	0.1	0.04	0.21	2.03	7.47	33.4	57.9	25.7	2.05	0.13	0.03
71414	0.08	0.07	0.09	0.19	0.85	4.03	12.2	18.2	8.42	1.71	0.19	0.08
71415	0	0	0	0	0	0	0	0	0	0	0	0
71417	0	0	0.01	0.07	0.78	2.95	13.5	13.6	6.09	0.41	0.02	0
71420	0.02	0.02	0.02	0.06	0.61	2.3	10.5	16.5	7.34	0.55	0.03	0.01
71427	0.97	1.05	1.36	2.14	3.99	7.15	13.6	21	20.4	10.3	1.67	0.97
72001	0.04	0.04	0.05	0.07	0.12	0.24	0.5	0.77	0.63	0.25	0.05	0.04
72002	0.17	0.16	0.21	0.41	0.87	1.22	2.26	3.95	4.69	2.27	0.37	0.17
72003	0.17	0.16	0.2	0.38	0.74	1.21	2.62	5.48	7.39	3.27	0.39	0.17
72004	5.75	6.93	7.05	9.69	15.7	22.3	29.7	37.3	36.5	37.8	10	5.58
72007	5.3	5.66	7.64	12.1	25	39.8	64.1	55.3	109	116	11.3	5.28
72884	0	0	0	0.02	0.08	0.54	2.7	3.86	0.56	0.13	0.01	0

Consumptive use as a percent of natural streamflow (50% exceedance) in priority watersheds in the Mid Coast Basin

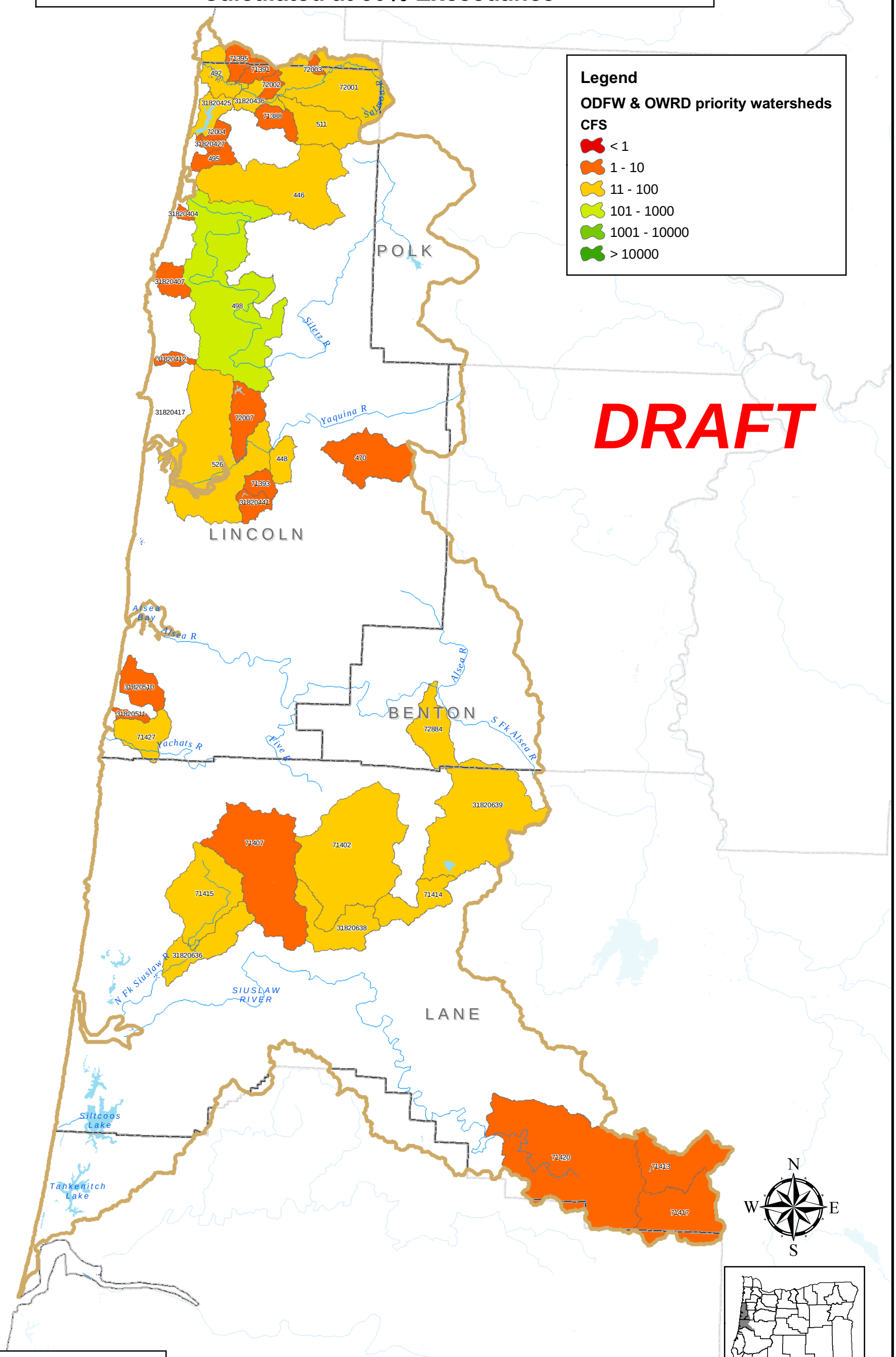
Legend		
	< 30%	18
	30% - 60%	53
	60% - 90%	78
	> 90%	94

WS_ID#	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
31820404	0.29	0.34	0.36	0.79	2.71	8.34	25.1	24.8	5.03	3.03	0.57	0.29
31820407	8.82	10.5	11	16	28.5	37.8	51.2	67.4	74.7	81.6	19.3	8.73
31820412	3.37	3.99	4.1	6.02	10.7	13.8	18.7	24.9	27.7	30.2	7.28	3.37
31820417	47.8	53.4	38	55.6	99.5	132	182	241	274	308	89.4	47.8
31820425	6.54	7.09	7.46	8.97	12.5	15.2	18.8	22.1	22.4	22.9	8.63	6.44
31820427	0.29	0.34	0.36	1.33	2.42	1.25	1.73	2.39	2.67	2.74	0.6	0.28
31820436	0.07	0.07	0.08	0.13	0.22	0.43	0.9	1.35	1.08	0.46	0.09	0.07
31820441	3.73	3.73	0	0	0	0	0	0	0	0	3.73	3.73
31820510	1.08	1.16	1.3	1.78	3.7	8.08	10.2	16.7	7.26	8.55	1.54	1.08
31820511	2.24	2.36	2.59	3.46	6.9	15.5	18.5	30	12.1	14.4	2.94	2.27
31820636	0	0	0.01	0.02	0.14	0.66	1.88	2.4	1.1	0.1	0.01	0
31820638	0.04	0.04	0.05	0.11	0.51	2.42	7.26	10.1	4.71	0.93	0.1	0.04
31820639	0.08	0.09	0.11	0.22	0.92	4.3	12.5	16.2	8.19	2.08	0.25	0.1

MEASUREMENT ACTIVITIES IN PRIORITY WATERSHEDS IN THE MID COAST BASIN



Expected Stream Flow for August in the Mid Coast Basin
Calculated at 50% Exceedance



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--OWRD GIS (ks), 3/6/2007 (midco_exp_50.mxd)

STREAMFLOW RESTORATION PRIORITY AREAS

Synopsis

The Water Resources Department and the Department of Fish and Wildlife jointly identified priority areas for streamflow restoration in basins throughout the state. These priority areas represent watersheds in which there is a combination of need and opportunity for flow restoration to support fish recovery efforts under the Oregon Plan for Salmon and Watersheds. WRD is focusing its efforts under the Oregon Plan on these priority areas.

Background

The Oregon Plan includes two interrelated measures—WRD 6 and ODFW IVA8—for establishing priorities for streamflow restoration. The measures are included in the Oregon Coastal Salmon Restoration Initiative (CSRI) submitted to the National Marine Fisheries Service in March 1997. Similar measures also are included in the Steelhead Supplement which was submitted in February 1998. Under the measures, the Water Resources Department (WRD) is responsible for evaluating deficits in streamflows for instream water rights and the Department of Fish and Wildlife (ODFW) is responsible for prioritizing the areas where fish habitat is most dependent on restoration of streamflows. Appendix 1 contains the full text of the two measures.

WRD and ODFW staff worked closely in developing the methodology for identifying streamflow restoration priorities in the five major coastal basins included under the CSRI.[1] ODFW developed and implemented a process to identify the watersheds in which fish were more likely to respond to increased flows. WRD identified those watersheds in which there are the best opportunities to restore flows. The rankings of expected response by fish and of opportunities for flow restoration were combined to produce the streamflow restoration priorities. A similar process was used by the agencies in establishing priorities for flow restoration in the remaining basins.

Flow Restoration Needs Ranking

ODFW used a process based on the Bradbury Prioritization Model[2] to identify the critical areas for protection and restoration. In applying the process, ODFW district biologists gathered information on the presence of fish resources, habitat integrity, risks to fish survival, and restoration potential for each water availability basin.[3] These factors were combined to produce a

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[1] These basins are the North Coast, Mid Coast, South Coast, Umpqua and Rogue.

[2] The model was developed by a team of scientists to provide a framework for prioritizing restoration work. The team was coordinated by the Pacific Rivers Council at the request of Senate President Bill Bradbury.

[3] A water availability basin is the watershed unit used for the Department's water availability calculations. There are more than 2,500 water availability basins in the state. The WAB delineations used in the prioritization project are those in use in April 2000 may vary from more recent coverages in some basins.

biological rank by season[4] for each water availability basin. Appendix 2 provides a detailed list of the factors included in the biological ranking.

WRD used the water availability model[5] to determine the number of months during which instream water rights are not met at least 50 percent of the time. As staff began the prioritization process, they concluded that, in addition to instream water right deficits, the percentage of natural flow consumed by water uses in each water availability basin would provide an indicator of the extent to which fish were negatively affected by reductions in streamflows. WRD also used the water availability model to develop and to provide ODFW with these data.

The combination of the biological ranking, data on instream deficits and water use, and biologists' judgements of the potential for fish recovery if water was restored yielded a value reflecting the need for flow restoration during each season in each WAB. These values were divided into the following four classes: Low, Moderate, High and Highest.

Flow Restoration Optimism Ranking

WRD developed a process to include input from WRD watermasters in the prioritization process. Based the their expertise and knowledge of local conditions, the watermasters evaluated a variety of factors in developing a flow restoration opportunity ranking for each water availability basin. These factors included streamflow conditions in each water availability basin and the presence of stored water for which the water availability model does not account.[6] Additionally, watermasters considered the distribution and nature of water uses within each of the water availability basins to better identify the areas in which there are opportunities for streamflow restoration. Finally, watermasters considered which of the alternatives for achieving flow restoration likely would be available and useful in each of the water availability basins. Appendix 2 provides a detailed list of the factors used in the flow restoration opportunity ranking.

The combination of these factors yielded a value reflecting the opportunity for flow restoration during each season in each WAB. These values were divided into the following four classes: Poor, Fair, Good and Very Good.

Flow Restoration Priorities

After ODFW staff had completed ranking based on the need for flow restoration and WRD staff completed the restoration opportunity ranking, the district biologists and the watermasters in

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[4] The seasons used in the streamflow restoration prioritization are based on the life history of salmon. The seasons are as follows: Winter (December through March), Spring (April through June), Summer (July through September), and Fall (October and November).

[5] The water availability model provides a method for WRD to determine if there is sufficient water available to allow new appropriations through the issuance of permits.

[6] Because the water availability model was designed to determine whether new appropriations of natural flows could be granted, the model does not provide estimates of the quantity of water in streams resulting from the release of stored water.

each of the basins reached agreement on how these rankings would be combined to yield the streamflow restoration priorities. These agreements varied by basin depending on the district biologists' and watermasters' professional experience and judgement regarding the areas in which flow restoration activities were likely to be most effective. Work on establishment of priorities for the five Coastal Basins (North Coast, Mid Coast, South Coast, Rogue, and Umpqua) was completed in 1997.

In 1999, the Oregon Watershed Enhancement Board agreed to fund completion of a statewide assessment of streamflow restoration needs. WRD and ODFW staff reviewed the prioritization process and made necessary modifications to adapt the process to non-coastal basins. In early 2002, the agencies completed the prioritization for basins throughout the state.

In the non-coastal basins for which work was completed in 1999, WRD identified two levels of priorities. The watersheds with the most highest needs and best opportunities for flow restoration were designated as "Current Resource Priorities." These are areas in which WRD has sufficient resources to actively pursue streamflow restoration. Other areas in which restoration was judged to be a priority were designated as priorities in which WRD would work to secure additional resources needed for flow restoration work.

Next Steps

ODFW and WRD staff currently are working with local watershed councils to provide information on the flow restoration priorities and to gain additional input on the priorities. Many of the alternatives for restoring streamflows will require voluntary local actions. The assistance of the councils will be essential in pursuing these measures. In addition, watermasters are annually identifying the activities in which they can engage in pursuit of streamflow restoration.

For more information, contact:

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Doug Parrow, Oregon Water Resources Department Douglas.M.Parrow@wrd.state.or.us

December 27, 2002

Appendix 1

OREGON PLAN MEASURES

Coastal Salmon Recovery Initiative, March 1997

WRD 6: Identify Unmet Instream Flow Needs

By June 1, 1997, WRD shall determine the months during which the ISWRs are not being met and shall quantify the monthly deficit by stream reach as indicated by current measurement data or water availability modeling.

ODFW IVA8: Identify Instream Flow Priorities

By October 1, 1997, ODFW will prioritize the areas where fish habitat is most dependent on restoration of streamflows, and will establish a schedule for annual incremental restoration of flows over time in cooperation with WRD.

Steelhead Supplement, February 1998

WRD S-6: Identify Unmet Instream Flow Needs

WRD shall complete an evaluation of water availability to determine the months during which the instream flow needs of steelhead are not being met and shall quantify the monthly deficit. Information will be provided for all water availability basins within each ESU according to the following schedule:

Oregon Coast & Klamath Mountains Province ESUs (Coastal basins) - Completed

Southwest Washington, Lower Columbia River (Willamette and Sandy Basins), & Upper Willamette River ESUs - August 1, 1998

Lower Columbia River (Hood Basin), Middle Columbia River & Snake River Basin ESUs - October 1, 1998

By February 1, 1998, WRD and ODFW will mutually determine the types of information and analysis necessary to characterize the unmet instream flow needs for each water availability basin in the ESUs. The analysis for water availability basins without ISWRs will be generally similar that for water availability with ISWRs, and will be based on available information and may use relationships or conversion factors derived from stream reaches with ISWRs to estimate flow needs and unmet flow levels.

ODFW IV A 8: Identify Instream Flow Priority

ODFW will identify streams where quantity of flow is limiting steelhead production and establish priorities for obtaining new ISWRs. ODFW will identify and prioritize the areas where

steelhead habitat is most dependent on restoration of streamflows according to the following schedule:

Oregon Coast, Klamath Mountains Province, and Southwest Washington ESUs - September 1, 1998

Lower Columbia River, Middle Columbia River, Upper Willamette River, and Snake Rivers Basin ESUs - January 1, 1999

ODFW and WRD will establish a schedule for annual incremental restoration of flows over time as the targets for streamflow restoration measures according to the following schedule:

Oregon Coast, Klamath Mountains Province, and Southwest Washington ESUs - February 1, 1998

Lower Columbia River, Middle Columbia River, Upper Willamette River, and Snake Rivers Basin ESUs - March 1, 1999

Watershed councils will review the prioritized areas, amounts of flow restoration and the schedule and provide comments to ODFW and WRD according to the following schedule:

Oregon Coast, Klamath Mountains Province, and Southwest Washington ESUs - July 1, 1998

Lower Columbia River, Middle Columbia River, Upper Willamette River, and Snake Rivers Basin ESUs - July 1, 1999

Appendix 2

FACTORS INCLUDED IN BIOLOGICAL RANK

Fish Resources

Number of Native Salmon Species
Core Area
Other Fish Benefits
Ecological Benefits

Habitat Integrity

Physical Habitat Condition
Human Influences and Development Pressure
Water Quality (especially temperature and dissolved oxygen)

Risk

Sensitive, Threatened, Endangered or "Plan Species"
Instream Flow Protection
Natural Low Flow Problems

Physical Habitat Restoration Potential

Physical Habitat (instream structure, complexity, etc.)
Human Influences (upslope landscape, watershed, etc.)
Water Quality

FACTORS INCLUDED IN OPPORTUNITY RANK

Water Availability

Presence of Stored Water
Other Anomolies in the Water Availability Model

Nature of Uses

Type
Size
Value

Alternative Strategies

Leases and Transfers
Regulation and Distribution
Conservation and Elimination of Waste
Water Measurement

Oregon
Theodore R. Kulongoski, Governor

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MEMORANDUM

TO: Water Resources Commission

FROM: Dave Jarrett
Acting Administrator Field Services Division

SUBJECT: Agenda Item G, July 28, 2005
Water Resources Commission

Water Measurement – Significant Diversions

I. Introduction

In 2000, Department staff were tasked with inventorying and assessing certain diversions statewide. That work was focused in areas designated as high priority for flow restoration and fishery needs. Diversions in those areas greater than a certain size or with a permit condition requiring measurement were considered as "significant points of diversions" and were included in this effort. At the April 2005 Commission meeting, the Department reported its progress on the significant point of diversion inventory and field assessments. With the inventory and assessment largely complete, this staff report provides the Department's approach for moving forward on this project.

II. Background

In 2000 the Commission considered the issue of water measurement at two separate meetings. Staff followed up with staff reports recommending a strategy for improving water measurement statewide. In 2000, the WRC endorsed a strategy for statewide water measurement. The history and progress made to date on the full water measurement strategy are provided in the attached April 2003 (Attachment 1) and April 2005 (Attachment 2) staff reports.

The Commission's water measurement strategy included a program to inventory and complete field assessments of significant points of diversions. To that end, the Department completed a statewide inventory of significant surface water diversions. Significant water diversions were characterized as:

1. Surface water diversions that are required by the Department to measure through a water right condition; or

2. Surface water diversions without a measurement condition that are:

    a. Greater than 5 cfs; or
    b. Greater than 10% of the lowest monthly 50% exceedance flow as defined in the water availability model, and greater than 0.25 cfs.

A central concept of the Commission's water measurement strategy was to focus limited staff on the largest diversions and diversions with the most impact on streams. Consistent with this concept, Department staff focused inventory and assessment work in high priority streamflow restoration watersheds identified by Oregon Department of Fish and Wildlife (ODFW) and Department staff.

The Commission's goal was to complete the inventory and assessment by April 2005. The initial inventory work was completed in 2001. To date, 2425 significant diversions have been identified in 293 high priority watersheds. As the assessment proceeds, the number of diversions is decreasing. The original total listed in previous reports (2567) was estimated on individual water rights. As water rights are linked to diversion points, multiple rights can share a single diversion, so the number of significant diversions is reduced. The latest estimate of significant diversion is approximately 2200 to 2300. According to water right records, 543 of these significant diversions are required by conditions in the water right to have a measuring device installed.

Field staff have completed about 65% of the field visits and data entry and continue to work on these tasks. Over 45% of the significant diversions are located in the Southwest Region. As a result, that region did not complete the field work by the April 2005 target. As we move forward in the rest of the state, the Southwest will continue to focus on completing the field assessments which may take up to an additional year.

III. Discussion

Categories of Significant Diversions

There are several categories of significant diversions to address as we move forward with the Commission's water measurement strategy: 1) significant diversions with a permit condition requiring water use measurement; 2) significant diversions with a headgate/measuring device required by the Commission for water use regulation; and 3) significant diversions without any measuring device condition or requirement.

The Department has two separate standards for measuring devices that can apply to significant diversions. If the device is required by a condition of the water right, then the standard is proof to the satisfaction of the Director. That standard has been met by various devices historically and continues to be evaluated for each water right. In most cases the measuring device is required to satisfy a public interest concern and not necessarily for regulation. Once proof is made, the measuring device requirement remains a condition of the water right.

The second standard for measuring devices would include those required by the Commission for the purpose of regulation. This authority is based on ORS 540.310 and provides a tool for requiring devices beyond what might be included in a water right. Watermasters have relied on this authority for decades for the installation of headgates, controlling devices, and measuring devices when needed for water use regulation.

An inter-divisional team within the Department is working on an internal guidance document describing what qualifies as a water measurement device. That group will work at bringing the two standards into closer agreement, reducing uncertainty among staff and water users.

In addition to the 543 significant diversions in the inventory with a permit condition requiring measurement, staff estimate that another 230 have a headgate/measuring device requirement based on ORS 540.310. The majority of the significant diversions, about 1500, do not have a measuring device condition or requirement.

Approaches for Increased Measurement at Significant Diversions

The Field Services Division was tasked with identifying strategies and next steps for the increasing measurement at significant points of diversion. As we enter the next phase of this effort, we are sensitive to water user concerns. Water measuring devices can be costly to install and maintain. Water users may also be apprehensive about these devices and often perceive them as a slippery slope to user fees or cancellation of water rights.

Significant Diversions with a Permit Condition

From initial data, it appear that 50% of the diversions conditioned to require a measuring device were out of compliance. The initial data may overestimate that number since field staff may not have counted certain measuring devices that meet the proof to the satisfaction of the Director standard. Because of this discrepancy, staff will review water right files, field notes and revisit sites, if necessary, to confirm that a measuring device that meets the standard is in place. Watermasters will then send letters to the non-complying permit holders describing their obligation to measure water use and guidance on what device is necessary to comply with the permit condition. Examples include a power meter dedicated to a single pumped diversion point; a fixed orifice restricting flow to legal limits for diversions less than 5 gallons per minute; or a staff gage in a reservoir.

After the letters are sent, field staff will work watershed by watershed to bring these significant diversions into compliance. Proceeding one watershed at a time allows staff to focus on a small area and treat users consistently. We can further refine our efforts by focusing on the larger diversions within each watershed, or those that divert more than 0.25 cfs or store at least 9.2 acre-feet of water. Based on current estimates of significant diversions out of compliance with measuring device conditions, it will take up to two years to achieve compliance. Compliance can occur voluntarily or through formal enforcement action. During this process we must recognize timing issues for working in streams and compliance with permit requirements for other agencies

such as Department of State Lands.

Significant Diversions without a Permit Condition

There are over 1700 significant diversions in high priority areas without a permit condition to measure. About 1500 of those diversions have not been issued a headgate/measuring device notice by the Department. For those 1500 diversions, field staff will work with water users to increase measurement on a watershed by watershed basis, prioritizing watersheds by the number and size of diversions.

Initial efforts in each watershed will focus on public outreach and education. Staff will work with watershed councils, soil and water conservation districts, Oregon Farm Bureau, Oregon Department of Fish and Wildlife, Oregon Watershed Enhancement Board, and others to perform outreach to water uses so they understand the benefits of water measurement and to identify cost-share funds to offset the cost of measuring devices. Depending on size and sophistication, water measuring devices can cost up to tens of thousands of dollars. Since funding for this effort has not been identified, it is difficult to estimate the number of measuring devices that can be added through education and voluntary efforts.

If other efforts fail to achieve installation of measuring devices, the Department may issue notices under ORS 540.310 requiring those devices. The law provides that the owner of a ditch or canal shall construct shall construct and maintain, when required by the Commission, suitable measuring at such points along the ditch as may be necessary. The Department may apply this authority to any diversion point or point of appropriation.

IV. Summary

The Department continues to move toward the measurement goals previously identified in the Commission's strategy. With the exception of the Southwest Region, most site visits and data entry have been completed. Based on input from the Field Services Division, the Department has developed strategies that would increase measurement at significant diversions in high priority watersheds.

V. Recommendation

This report is informational. While no action is required, Commission comments would be appreciated.

Attachments:

1. Agenda Item II, April 17, 2003 Staff Report
2. Agenda Item L, April 15, 2005 Staff Report

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MEMORANDUM

TO: Water Resources Commission

FROM: Barry Norris, Administrator
Technical Services Division

SUBJECT: Agenda Item II, April 17, 2003
Water Resources Commission Work Session

Status Report on Water Measurement and Reporting

I. Issue Statement

In 1999 the Department developed and recommended to the Commission a strategy for improving water measurement and reporting statewide. In 2000 the Commission concurred with staff recommendations and encouraged staff to proceed with implementation of the strategy at an accelerated schedule, where possible. This staff report provides an update on the implementation of this statewide water management strategy, especially in light of recent Commission discussion on the role of water measurement in long-term water supply management.

II. Background

In January 2000 the Commission endorsed a strategy for statewide water measurement. This strategy included a program to inventory significant diversions and conduct field assessments of these diversions. The strategy also included improvements to a number of other water measurement and reporting programs conducted by the Department.

Significant Diversions

The Department's strategy for increasing measurement statewide has been to focus limited staff on the largest diversions and diversions with the greatest potential impact on streams. Staff began with a statewide inventory of significant surface water diversions.

Significant water diversions were characterized as:

1. Surface water diversions that are required by the Department to measure or report through a water right condition (see attachment 2); or

2. Surface water diversions without a water right condition measurement requirement that are:

   a. Greater than 5 cfs; or
   b. Greater than 10% of the lowest monthly 50% exceedance flow as defined in the Department's water availability model, and greater than 0.25 cfs.

Other Measurement Activities

In addition to the significant diversion inventory and field assessments, the water measurement strategy also set forth a plan to improve implementation of other measurement programs of the Department. These programs include measuring ground water points of appropriation; managing the well net program and water use reporting program; conducting ground water and surface water hydrology investigations; collecting pump test measurements; and producing streamflow records.

III. Discussion

Water Use Measurement

Since 1995 water right permits have included a condition requiring measurement and reporting of use based on the quantity of water diverted under the permit, as described in the internal management directive in Attachment 2. Currently there are 6,650 points of diversion that have a permit condition requiring a measuring device, an increase of 23% since January 2001; and there are 2,465 points of diversion that have a permit condition requiring water use reporting, an increase of 9% since January 2001. Currently approximately 8% of surface water and ground water rights statewide are required to measure, either by statute for public entities or by permit condition. The 8% of water rights currently required to measure account for about 46% of the water that can be diverted statewide.

Significant Diversion Inventory

To complete the significant diversion inventory, staff have initially focused on inventory work in high priority streamflow restoration watersheds. These watersheds, shown in Attachment 1, were identified jointly with Oregon Department of Fish and Wildlife (ODFW) as the watersheds with the greatest biological needs and greatest restoration opportunity. In 2001 staff completed the inventory of significant diversions in the 280 priority watersheds and identified approximately 1,600 significant diversions. From an examination of the data developed, about 10% of the direct flow diversions in priority basins were found to be significant, and they divert about 50% of the total direct flow diverted. Once the inventory was complete for these

watersheds, staff began site investigations of the surface water diversions to assess their status and inventory their physical characteristics.

Since January 2001 the number of priority basins identified by the joint ODFW/WRD effort has increased to 293 and the number of significant diversions identified within those priority basins has increased to 2,908. In 2000, when the Commission endorsed the water measurement strategy, the goal was for all significant diversions identified on the inventory to be field-assessed by April of 2005. To facilitate the field assessment activities, a web application for data input and a PDA (Personal Digital Assistant – handheld computer) application for data collection have been developed for use by field staff. The inventory and field assessments are proceeding according to schedule, and staff believe this target is still achievable.

Water Distribution

Since January 2001 the Department has issued 278 headgate notices requiring the installation of headgates and measuring devices. These devices aid watermasters in the distribution of water. Three were required in the Umatilla Basin, 235 in the Powder Basin, 38 in the Malheur Lake Basin, one in the Rogue Basin, and one in the South Coast Basin.

Measurement Funding

Staff continue to work to identify funding opportunities for installation of measurement devices at those sites needing them. To that end, the Department supported legislation during the 2001 Legislative Session to establish a measuring device cost-share fund. This measurement device fund would provide match funds for measurement device installation and repair. Although no General Funds were appropriated for the fund, the Department continues to look for financial support for this program. Since 1998 the Department has administrated a similar measurement improvement fund for irrigation districts that are within Bureau of Reclamation (Bureau) project areas. This program, funded by the Bureau, has provided $35,000 per year on a 50% grant match basis. This has been a successful program, funding $166,000 for 15 measurement projects for 14 irrigation districts since January 2001 ($83,000 grant and $83,000 match). Unfortunately, the Bureau indicates that funds are no longer available, and the program will be discontinued. Sufficient funding for the Bureau program and the measuring device cost-share fund would greatly help the Department meet its 2005 goal for measurement of significant diversion.

Water Use Reporting

Another task identified in the 1999 water measurement strategy was to make the Water Use Reporting database available to the public on the Department's website. Water use data for governmental entities is available as planned. The number of governmental entities that are required to report water use annually to the Department remains fairly constant around 720.

Staff have also assessed the Water Use Reporting program to find ways to improve compliance with reporting requirements. Significant improvements have been made in both reporting and

accuracy compliance. One step to improving compliance has been the use of follow-up reminder notices sent to the water user. The compliance rate for government entity reporting is currently about 75% before reminder letters are sent and 85% after the letters are sent. The number of other water users who are required to report use by permit condition has increased from 696 in January 2001 to 766 today. The compliance rate for these users is about 55% before follow-up reminder letters and 72% after the letters are sent. Staff have also consolidated water use reporting data from all entities that report. Water use information from this central database is linked to a water right condition database to facilitate compliance crosschecking.

Staff have also noted increased compliance as the result of follow-up reminder notices to ground water users who are required to measure and report static ground water levels. In January 2001 ground water users were required to report the static level in 1,576 wells. Today, the number of wells required by condition to report static levels is 1,917. Compliance before follow-up reminder letters is about 38%, and 56% after reminder letters are sent.

While there have been significant improvements in reporting compliance, a number of water users do not report, even when Department staff expend the resources to provide follow-up reminder letters. In addition, recent staff reductions have made it necessary to suspend the use of follow-up notices for static ground water level reporting and the well pump test program has suffered as well.

Streamflow and Ground Water Measurement

The Department gathers and provides quality assurance on a variety of surface water data including gage flow at over 200 surface water gaging stations and miscellaneous measurements of surface water flow at various locations throughout the state. Department staff expend considerable effort in maintaining existing gaging stations and in collecting and analyzing these data. Because of limited staff resources for analyzing these data, backlogs have developed over time. Recently, the Department was successful in obtaining Oregon Watershed Enhancement Board (OWEB) funds to process 111 station-years in the John Day Basin. Although this is only about 8% of the total backlog, it is a major first step in testing the success of using outside contractors to help with the work.

Interested parties can access streamflow data through the Department's website. The Department has also developed a centralized ground water level database which is available on the Department's website. The information is linked to the well log database. This is a significant development in our efforts to tie all ground water measurements into a single easily-accessible location.

IV. Summary

The Department has made significant progress toward implementing the Commission's water measurement strategy. The inventory of significant diversions in high priority streamflow restoration watersheds is complete. Field staff are currently performing site visits of these diversions. These assessments should be complete in 2005. At that time, the Department will have the data necessary to develop a plan for requiring measurement.

Developing a funding source will be a key issue for requiring measurement. To that end, the Department continues to look for funds for the water measurement cost-share revolving fund established by the 2001 Legislature.

Other Department measurement activities such as water use reporting have been significantly improved in the last four years and have lead to increased reporting compliance among water users. However, staff reductions over the last two years have hampered pump test and static water level reporting efforts.

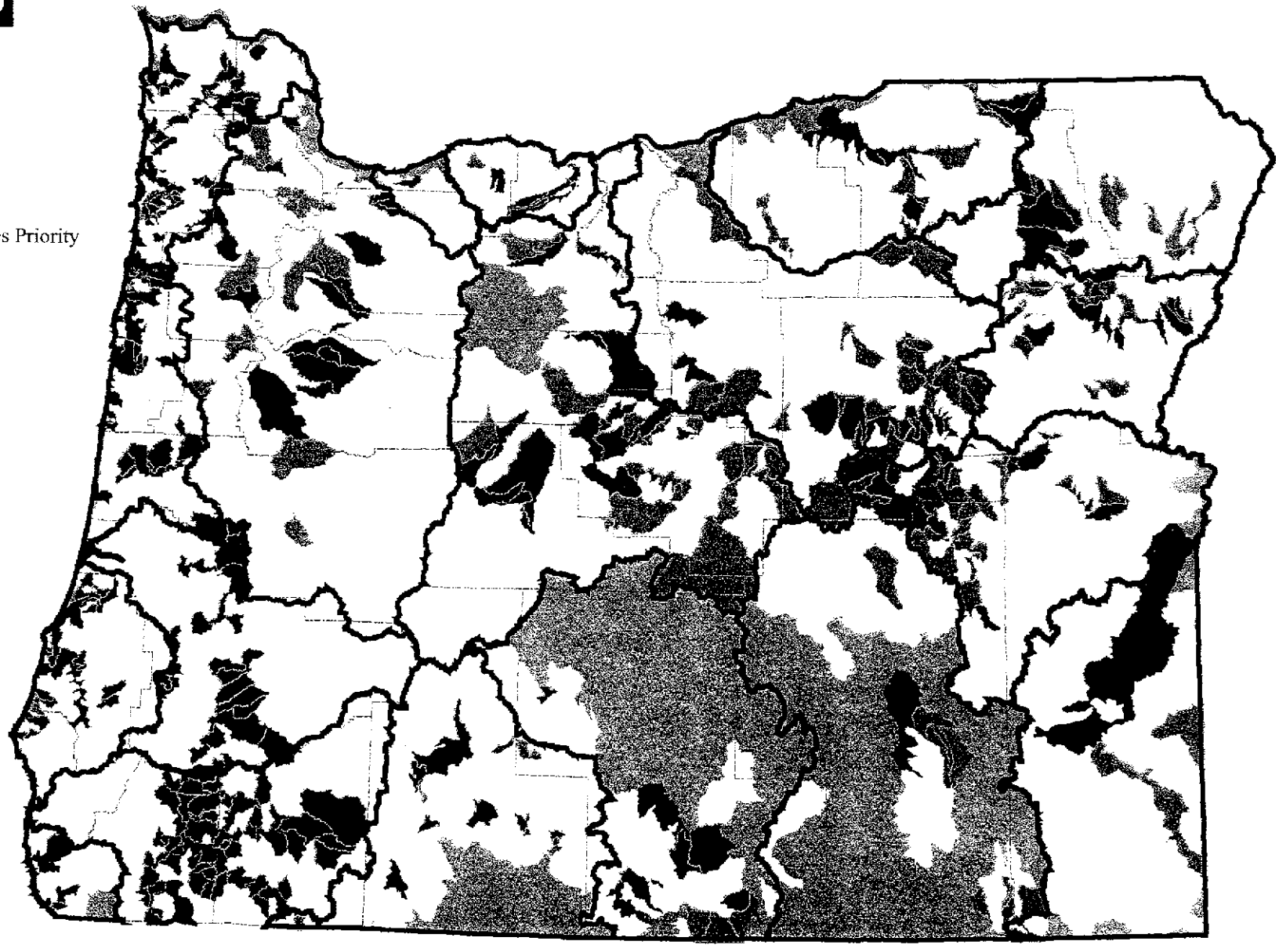
V. Recommendation

This is an informational report. No Commission action is required.

Attachments:
1. Map of Streamflow Restoration Priorities
2. Water Use Measurement, Recording, and Recording Internal Management Directive

Gary Ball
Technical Services
(503) 378-8455 ext. 245

Streamflow Restoration Priorities



- Current Resources Priority
- Priority
- Not a Priority
- Not Ranked

January 28, 2003

11.0 WATER RIGHT APPLICATION BACKLOG INSTRUCTION MEMO #6

INTERNAL MANAGEMENT DIRECTIVE

TO: Regional Managers, Watermasters, Steve Brown, Case Workers

April 21, 1995

FROM: John Borden & Reed Marbut

SUBJECT: Permit Conditions/Technical Reviews
Re: Water Use Measurement, Recording & Reporting

Here are the long awaited answers to your questions regarding what the Department intends to require of new permittees for water use recording, measurement and reporting. This memo should reduce the amount of time watermasters currently spend commenting on such conditions in the draft technical reviews. It should also serve as uniform guidance to case workers.

I. MINIMUM CONDITIONS TO BE PROPOSED FOR ALL APPLICATIONS

A. SIZE CRITERIA

1. Surface water $\leq$ 0.1 cfs
2. Ground water $\leq$ 0.1 cfs
3. Reservoir (storage) $\leq$ 9.2 af

B. CONDITIONS

1. The Director may require the permittee to install a meter or other suitable measuring device as approved by the Director. If the Director notifies the permittee to install a meter or other measuring device, the permittee shall install such device within the period stated in the notice. Such installation period shall not be less than 90 days unless special circumstances warrant a shorter installation period. Once installed, the permittee shall maintain the meter or measuring device in good working order and shall allow the watermaster access to the meter or measuring device. The Director may provide an opportunity for the permittee to submit alternative measuring procedures for review and approval.

2. The Director may require the permittee to keep and maintain a record of the amount (volume) of water used and may require the permittee to report water use on a periodic schedule as established by the Director. In addition, the Director may require the permittee to report general water use information, the periods of water use and the place and nature of use of water under the permit. The Director may provide an opportunity for the permittee to submit alternative reporting procedures for review and approval.

C. REMARKS

All permits will include these basic conditions authorizing the Director to cause installation of a measuring device and/or require record maintenance and reporting of the details of water use and volume, unless the use criteria compels additional conditions.

II. MEDIUM LEVEL USE

A. SIZE CRITERIA

1. Surface water > 0.1 cfs but < 1.5 cfs
   a. Including off-channel diversions to storage
   b. Not including in-channel storage

2. Ground water > 0.1 cfs but < 1.5 cfs

3. Reservoir (storage) > 9.2 af but < 100 af

B. CONDITIONS

1. Before water use may begin under this permit, the permittee shall install a meter or other suitable measuring device as approved by the Director. The permittee shall maintain the meter or measuring device in good working order.

2. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

3. The Director may require the permittee to keep and maintain a record of the amount (volume) of water used and may require the permittee to report water use on a periodic schedule as established by the Director. In addition, the Director may require the permittee to report general water use information, the periods of water use and the place and nature of use of water under the permit. The Director may provide an opportunity for the permittee to submit alternative reporting procedures for review and approval.

III. LARGE APPLICATIONS

A. SIZE CRITERIA

1. Surface water ≥ 1.5 cfs

2. Ground water ≥ 1.5 cfs

3. Reservoir (storage) ≥ 100 af

B. CONDITIONS

1. Before water use may begin under this permit, the permittee shall install a meter or other suitable measuring device as approved by the Director. The permittee shall maintain the meter or measuring device in good working order, shall keep a complete record of the amount of water used each month and shall submit a report which includes the recorded water use measurements to the Department annually or more frequently as may be required by the Director. Further, the Director may require the permittee to report general water use information, including the place and nature of use of water under the permit.

2. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.

Oregon
Theodore R. Kulongoski, Governor

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MEMORANDUM

TO: Water Resources Commission

FROM: Barry Norris, Administrator
Technical Services Division

SUBJECT: Water Resources Commission Meeting
Agenda Item L, April 15, 2005

Water Measurement Report

I. Issue Statement

In 2000, the Water Resources Commission adopted a strategy for increasing water measurement and reporting statewide. This staff report provides an update on the implementation of the statewide water management strategy and, in particular, a progress report on completing the significant diversions inventory and assessment.

II. Background

In 2000, the Commission endorsed a plan for statewide water measurement. The plan included strategies for improving a number of water measurement and reporting programs conducted by the Department including water use reporting, the hydrographics program, and ground water level reporting. The Department has provided several progress reports to the Commission on these programs.

The Commission's water measurement strategy also included a program to inventory significant diversions and conduct field assessments of these diversions. The Department's strategy for increasing measurement statewide has been to focus limited staff on the largest diversions and diversions with the greatest potential impact on streams.

Significant diversions are characterized as:

1. Surface water diversions that are required by the Department to measure or report through a water right condition; or

2. Surface water diversions without a water right condition measurement requirement that are:
    a. Greater than 5 cfs; or
    b. Greater than 10% of the lowest monthly 50% exceedance flow as defined in the water availability model, and greater than 0.25 cfs.

To complete the significant diversion inventory and assessment, staff initially focused on inventory and assessment work in high priority streamflow restoration watersheds identified by Oregon Department of Fish and Wildlife (ODFW) and Department staff. In 2001, staff completed the significant diversions inventory, which identified approximately 1600 significant diversions within 280 priority watersheds. Staff began site investigations of these significant diversions to assess their status and inventory their physical characteristics. The goal was to complete the inventory and assessment by April 2005.

III. Discussion

Water Use Reporting

Currently, water use reporting compliance by governmental entities is 85%. The number of governmental entities that are required to report water use annually to the Department has increased slightly, from 720 to 726. The number of other water users required to report use has increased from 766 two years ago to 945 today. Compliance among these other users is 70%. As described in the April 2003 report to the Commission, the Water Use Reporting database is now available to the public on the Department's website and includes water use reports from public entities such as municipalities and irrigation districts.

Since April 2003, other improvements have been made in both reporting and accuracy compliance. The Department consolidated all water use reporting data that is received. This information is linked to the Department's water right condition database to facilitate easy crosschecking for compliance. Additionally, the Department developed a new web interface for users to submit their water use data. In 2004, 10 % of the water users required to submit water use reports submitted them on-line.

These improvements and regular reminders from the Department led to higher compliance rates. However, the Water Use Coordinator position is proposed for elimination in the Governor's Recommended Budget. Future progress and maintenance of the program will be severely limited as a result of this budget reduction. Additionally, there will be little, if any, review for compliance and data quality.

Hydrographics

Elimination of the hydrographics backlog continues to be a challenge for the Department given staff and funding resources. However, some improvements are being made by seeking other funds to support hydrographic record processing. For example, the Department obtained funding from OWEB to process 111 station years of gage record in the John Day Basin. That contract has been completed and was quite successful. Although only about 8% of the total backlog, it was a major first step in testing the success of using outside contractors to process hydrographic

records. The Department recently received some additional funding for working records for one gage in the Deschutes Basin.

In addition to efforts to address the hydrographics backlog, staff recently upgraded the software used to develop rating curves and process stream gage data. This new software has dramatically increased the efficiency of working hydrographic records.

Ground Water Level Reporting

In January 2003, ground water users were required to report static water levels in 1917 wells. Today, the number of wells required by condition to report static levels is 2226. In 2004, roughly 50% of the well users were required to report static levels submitted reports.

As reported previously, a centralized ground water level database has been developed and is available on the Department website. Interested parties can access data and hydrographs through our web page. The information is linked to the well log database. This is a significant development in our efforts to tie all ground water measurements into a single, easily accessible location for interested parties. This database is being kept up-to-date as field staff and water right holders submit additional data.

Significant Diversions

To complete the significant diversion inventory, staff focused their efforts in high priority streamflow restoration watersheds. To date, 2567 significant diversions have been identified in 293 high priority watersheds. The number of significant diversions in priority watersheds within each of the major river basins is shown in the attached map. According to water right records, 543 of these significant diversions are required by conditions in the water right to have a measuring device installed.

In 2000, when the Commission endorsed the water measurement strategy, the goal was for all significant diversions identified on the inventory to be field-assessed by April 2005. To date, field staff have completed assessments of approximately 47% of the diversions in the inventory.

While these assessments have been a primary focus of the Department's Oregon Plan efforts, there are a number of reasons the assessments are not complete as scheduled. Locating, assessing, and entering data for each of these diversions has been more labor-intensive and challenging than originally anticipated. Since the April 2005 goal was identified, we have also had several low water years that have added to the regulatory workload of our watermasters and other field staff. Finally, the number of priority watersheds and number of the significant diversions increased over time but the schedule was not adjusted to reflect this additional workload. Field staff are optimistic that, even with the increased workload, all assessments will be completed by the Commission's July 2005 meeting.

Field assessment data, to date, provide some interesting information. Of the 1209 diversions that have been inspected and entered into a database, 267 no longer exist or are unused, and 206 are required by condition to have a measuring device. However, only 62 have the required measuring devices installed (30%). Of the remaining 1003 diversions that have been field inspected, 208 (21%) have measuring devices installed, even though there is no requirement in their water right.

While the remaining assessments are completed, Field Services Division is developing strategies for bringing diversions required to measure in compliance with their permit conditions. They are also developing outreach and other options for increasing measuring at significant diversions not currently required to measure. These strategies and efforts will be discussed with the Commission at its July 2005 meeting.

VI. Recommendation

This report is informational. No Commission action is required.

Attachment: Map of Significant Diversions in High Priority Watersheds

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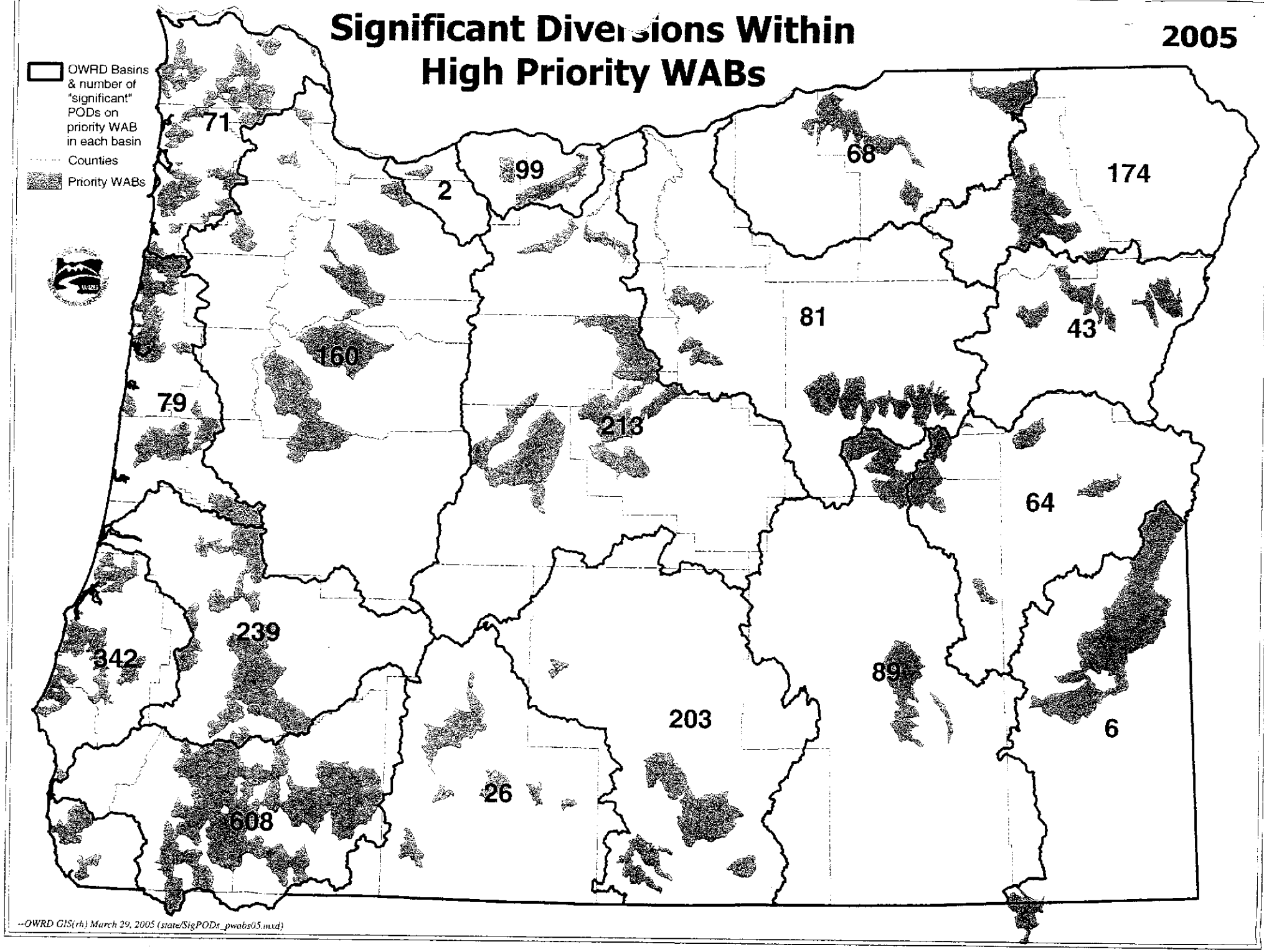
Significant Diversions Within High Priority WABs

2005



--OWRD GIS(rh) March 29, 2005 (state/SigPODs_pwabs05.mxd)