



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

The specific storage season will be determined at the time of permitting. The initial screening criteria for these projects (whether there is water available under the 50% exceedance criteria) does give a general answer to the question of whether water will be available for storage. This information can be accessed at OWRD’s Water Availability website:

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Q7) What is the 50% exceedance criteria?

A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

A: Yes; monitoring costs associated with the project are allowed for funding under the grant program. Monitoring requirements and plans for each project will be established based on existing gages, the location of the diversion, and prior appropriations in the basin. Under SB 839, the state is authorized to conduct or pay for studies to determine the seasonally varying flow requirements. Applicants may also pay for these costs if they so choose.

Q9) How will “baseflow” levels be determined for the SVF method?

A: Baseflow refers to a protective ecological flow which serves to protect minimum instream flow needs. When an SVF permit is processed, a baseflow level will be established as part of that permit using protocol decided upon by OWRD and ODFW. Like other permits, SVF permits would be subject to a public comment period. ODFW and OWRD have agreed upon the following approach for establish baseflow values for SVF projects:

- a. If there is an existing Instream Water Right (ISWR) within the reach of a proposed project, those values, already senior to the new project, will be used as the project’s baseflow conditions.
- b. If there is no existing ISWR and the applicant is proposing to use the POF approach, then ODFW will recommend a baseflow value calculated by looking at existing ISWRs in nearby basins (i.e., find the ratio of ISWRs in basin x to median flow in basin X and create a similar ratio in basin y).
- c. If there is no existing ISWR and the applicant wants more than the POF method will permit, then ODFW will perform an in-depth analysis to determine recommended baseflow levels using the same methods ODFW would use to establish an ISWR.

Percent-of-Flow Approach

Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

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Q11) What are the benefits of the proposed POF diversion method?

A: This method gives water users a relatively quick approach to access winter flows for storage purposes without expending much time or funds to determine SVF flows. Particularly useful in streams without existing allocations, this approach could also be used by water right reservation holders to develop needed water supplies.

Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

A: Yes. This POF method was proposed as a tool to allow users to access winter storm peaks in a way that protects ecologically important high water events. The Science Subgroup report provides a snapshot of water availability, storage seasons, storage potential, and examples of the POF method as applied at several sites.

How is the POF (15%) different from the 25% described in the SB 839 language?

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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

Artificial Recharge and Aquifer Storage and Recovery

Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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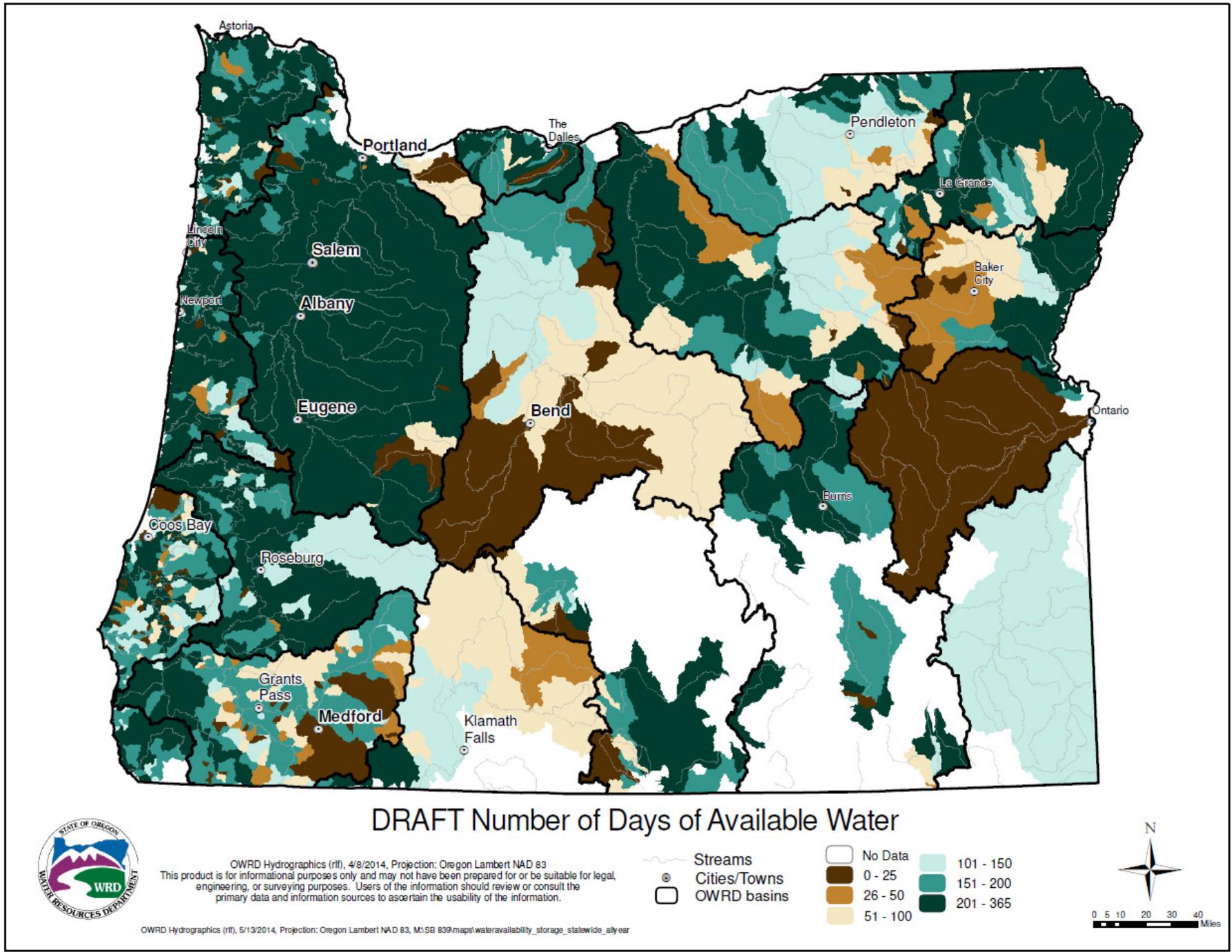


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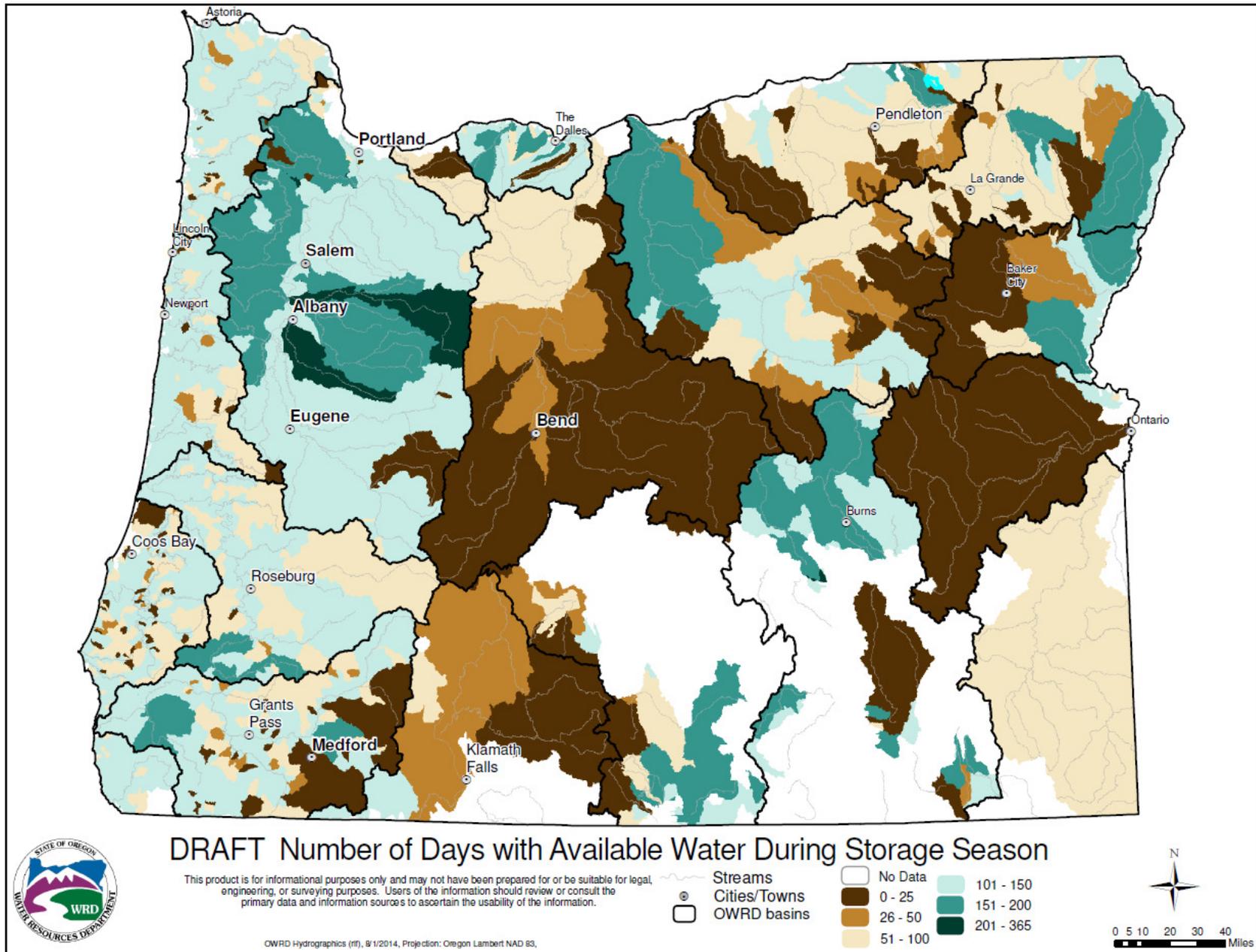


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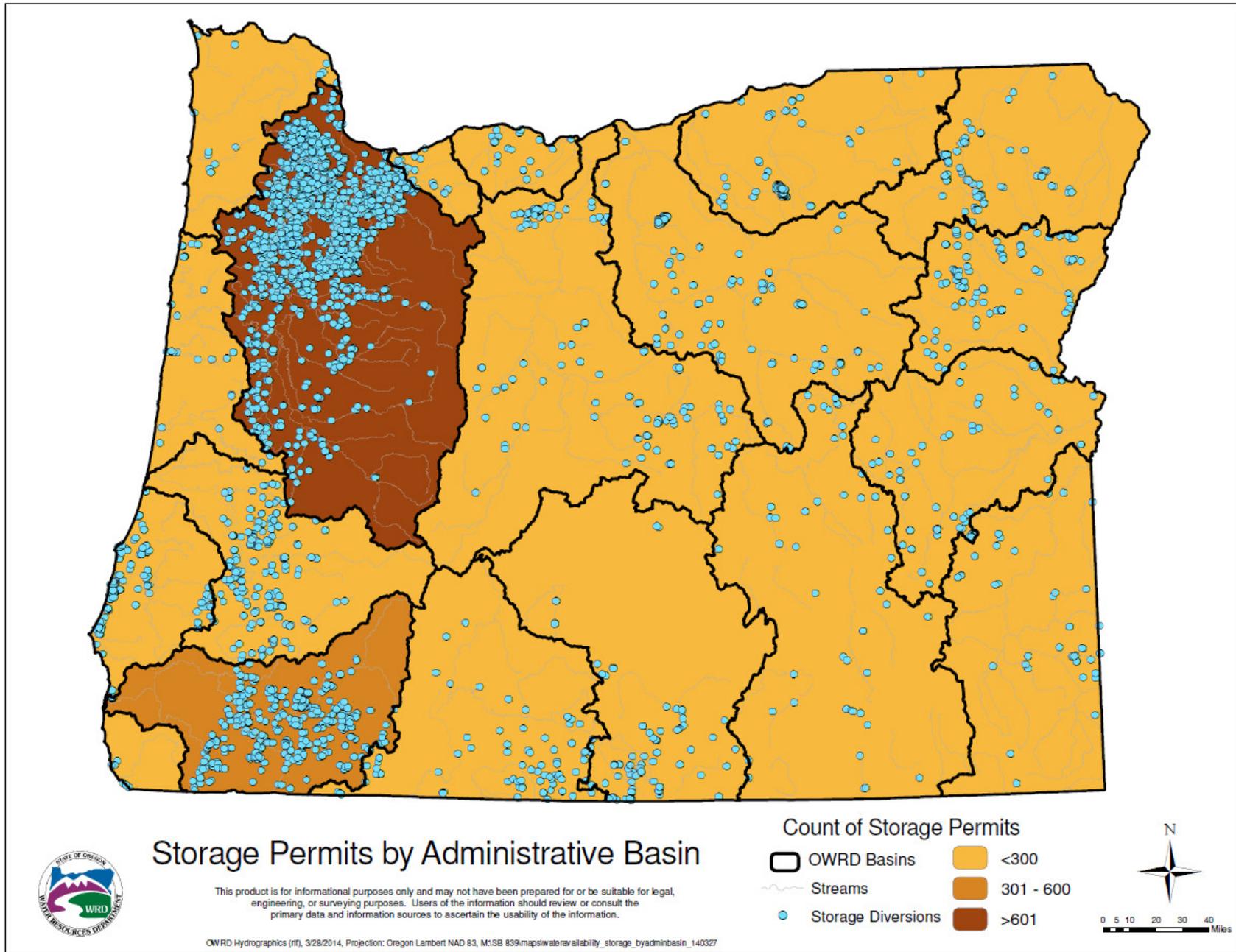


Figure 3: Map of the number of storage permits by administrative basin, statewide.



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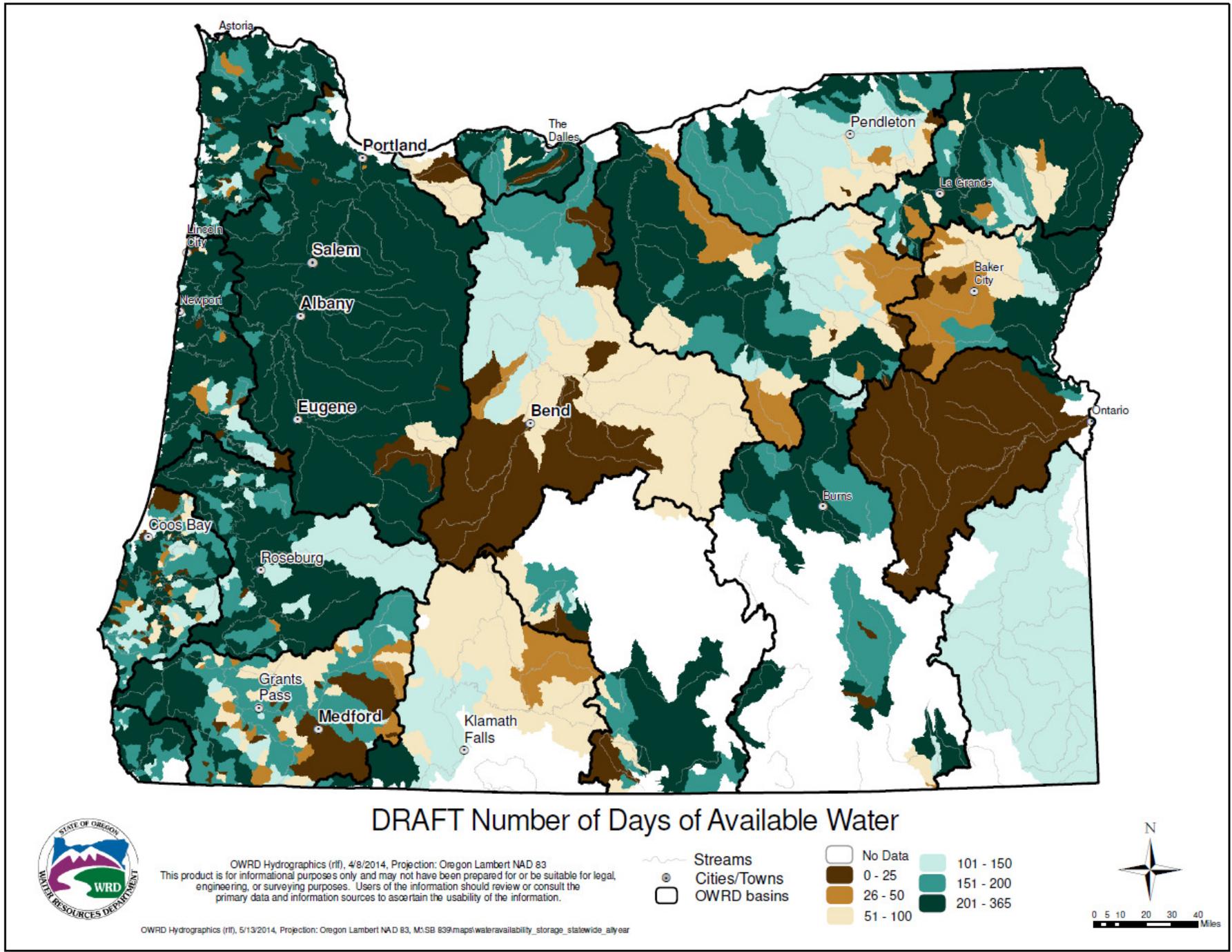


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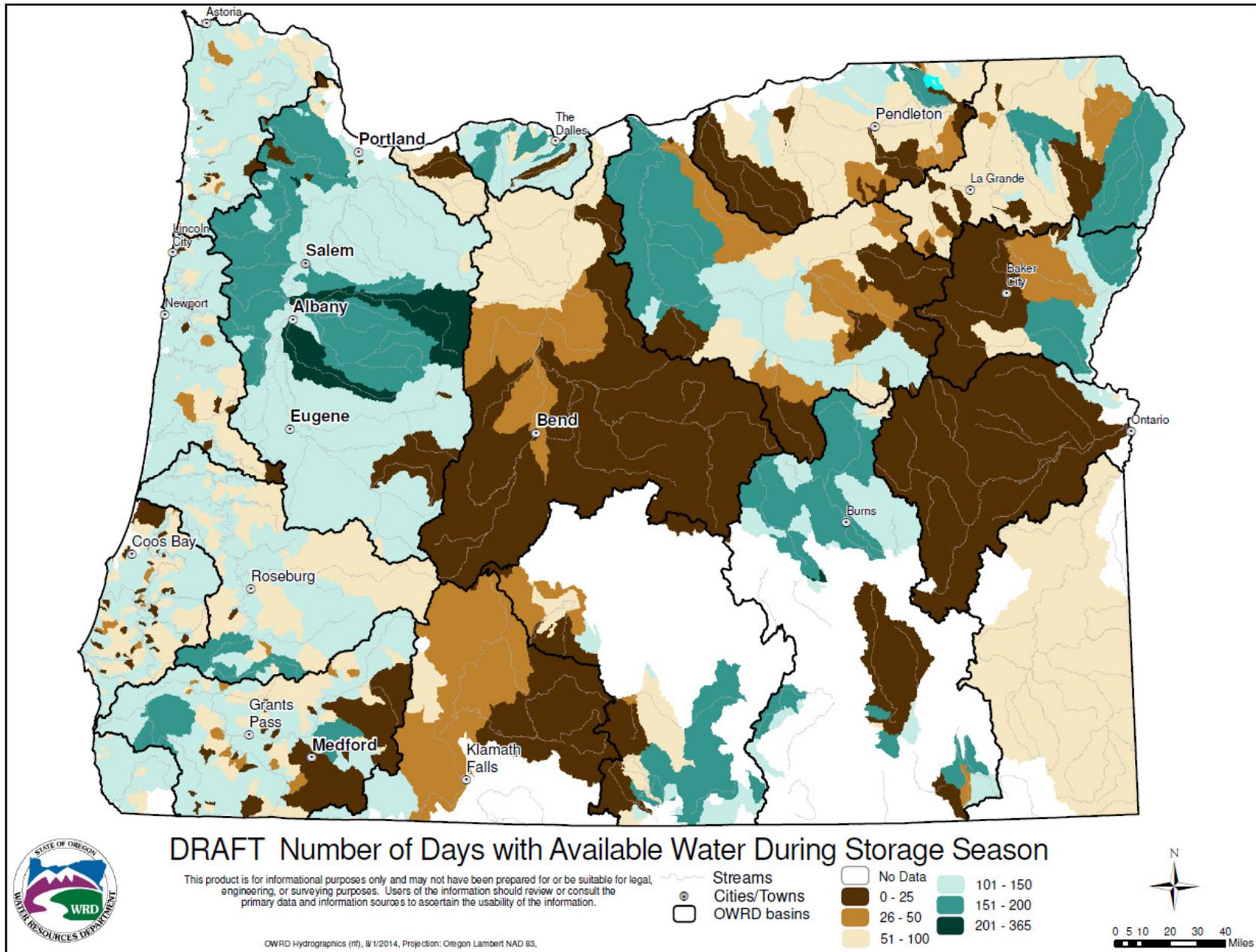


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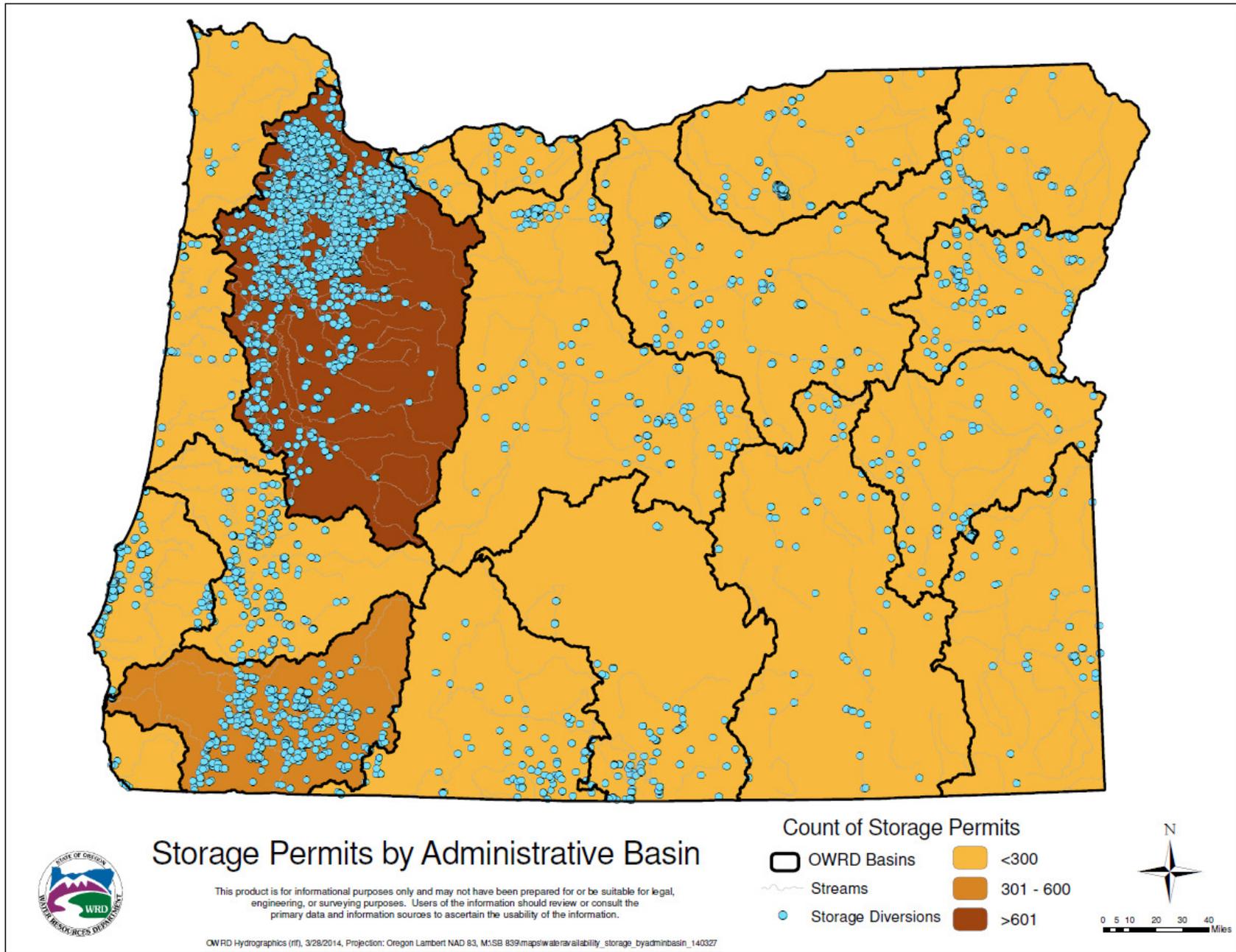


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Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

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Q11) What are the benefits of the proposed POF diversion method?

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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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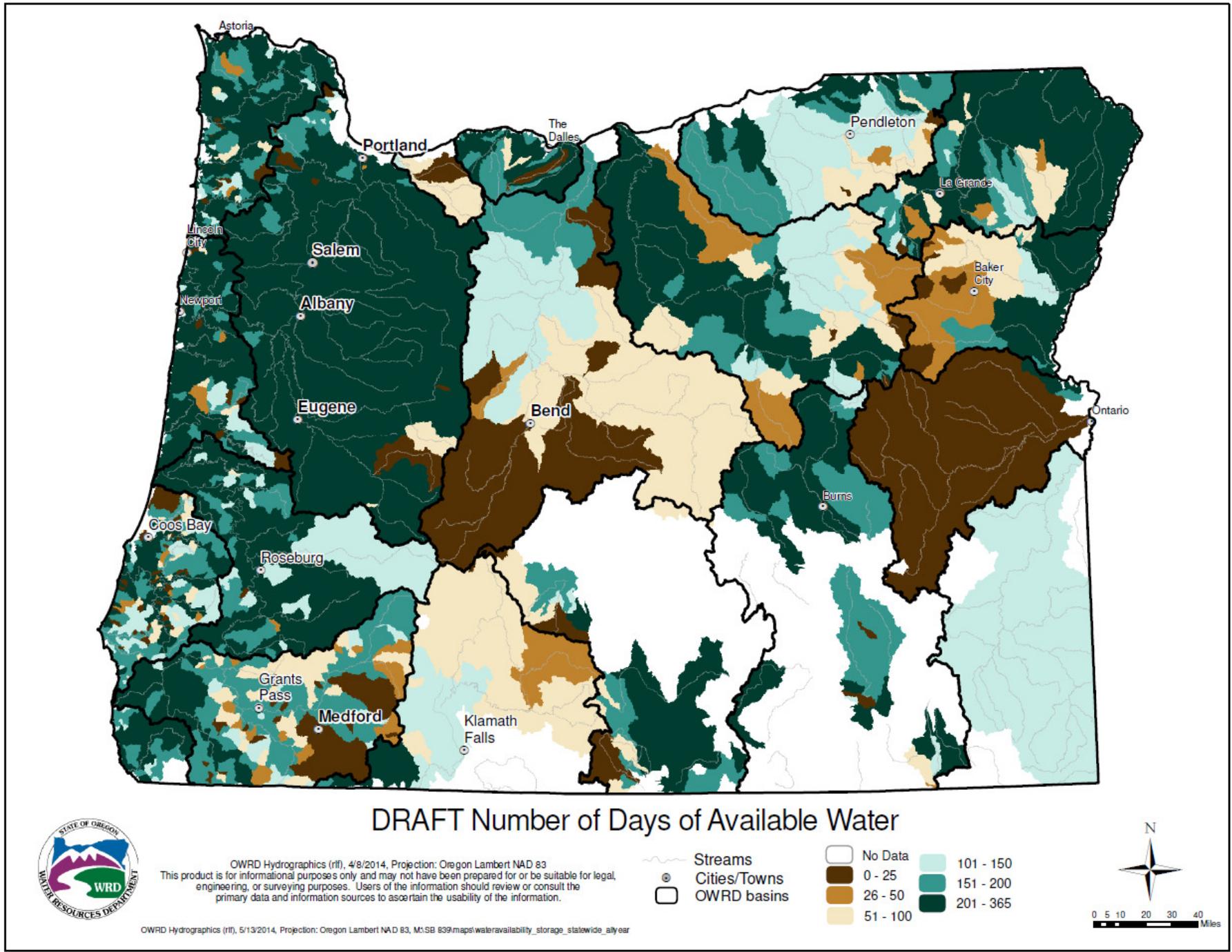


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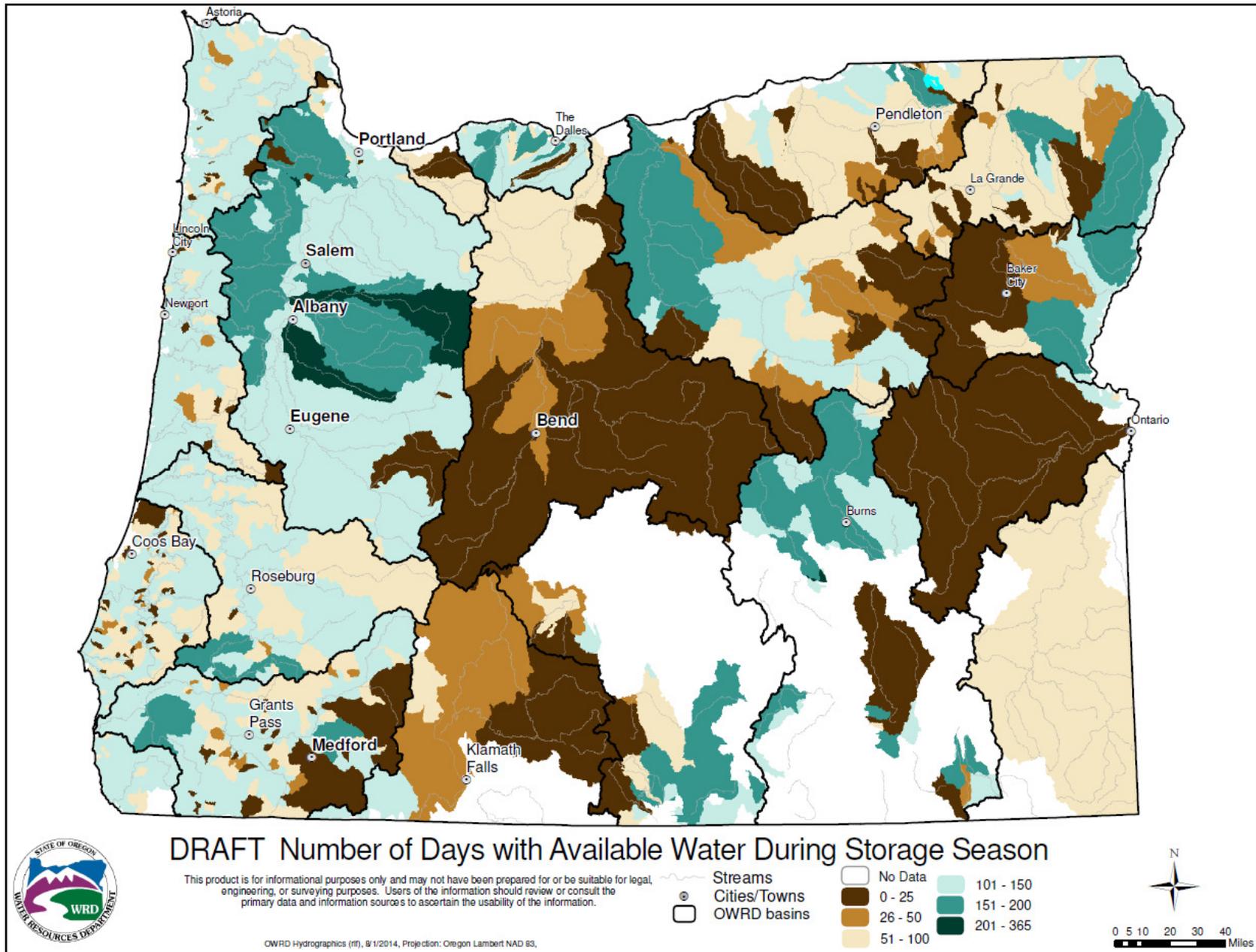


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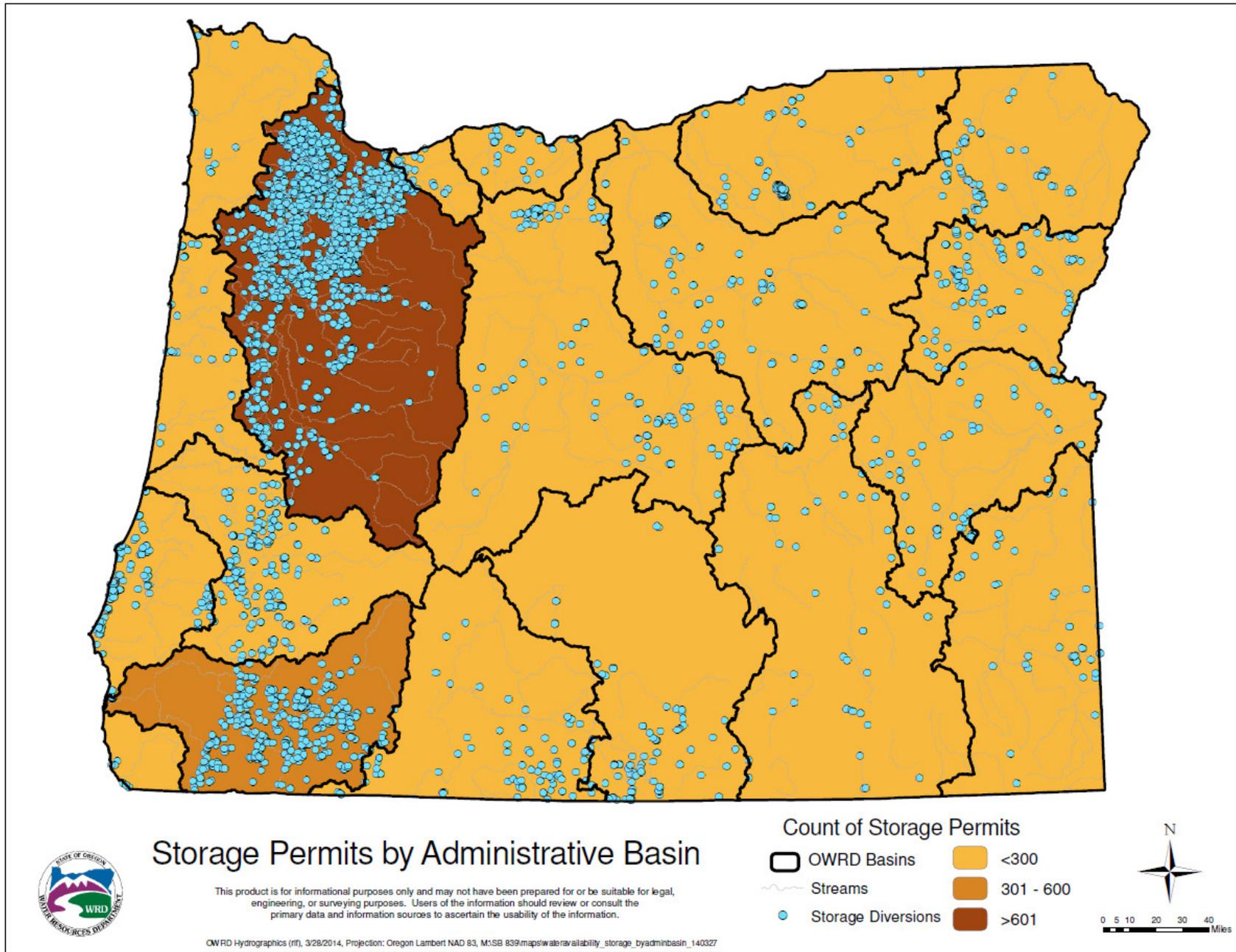


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

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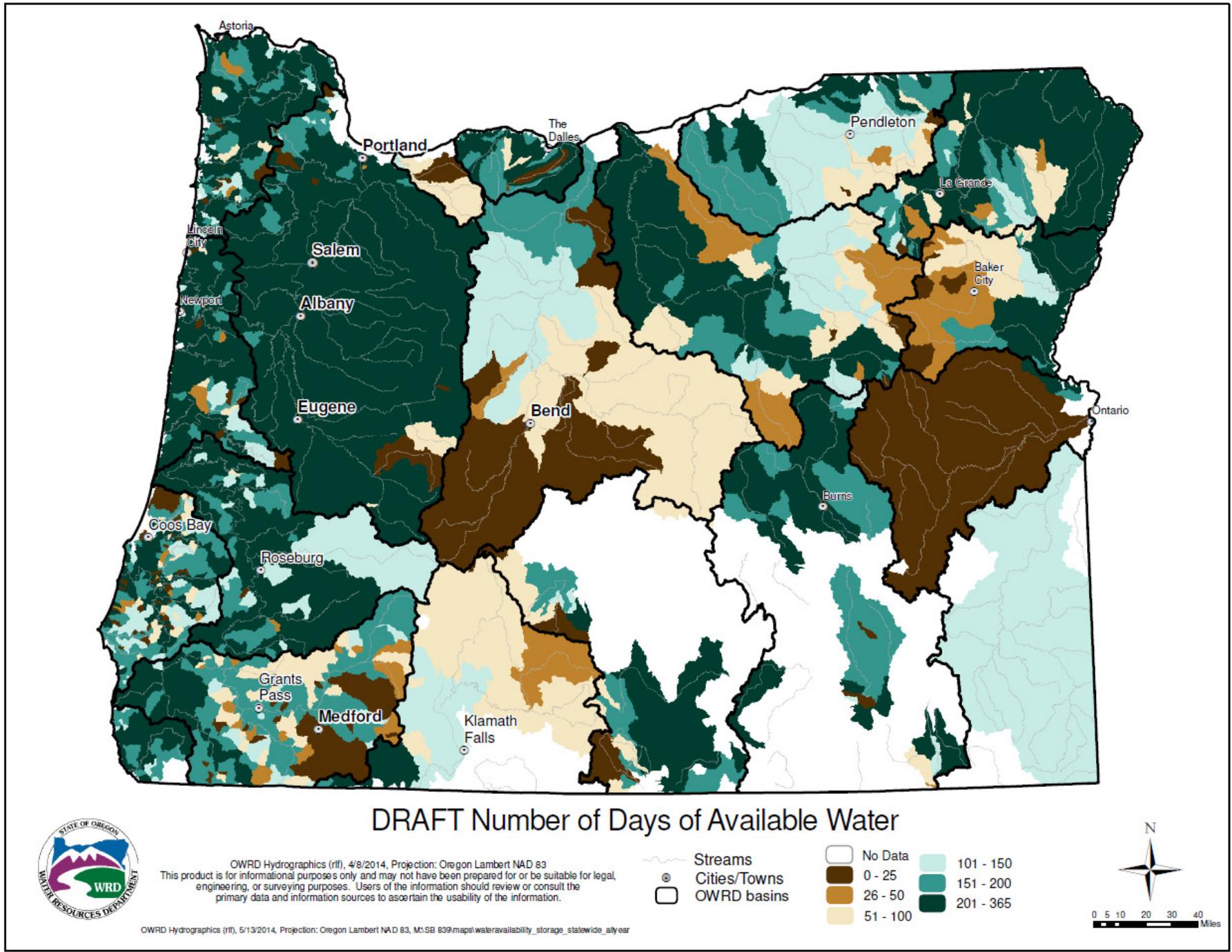


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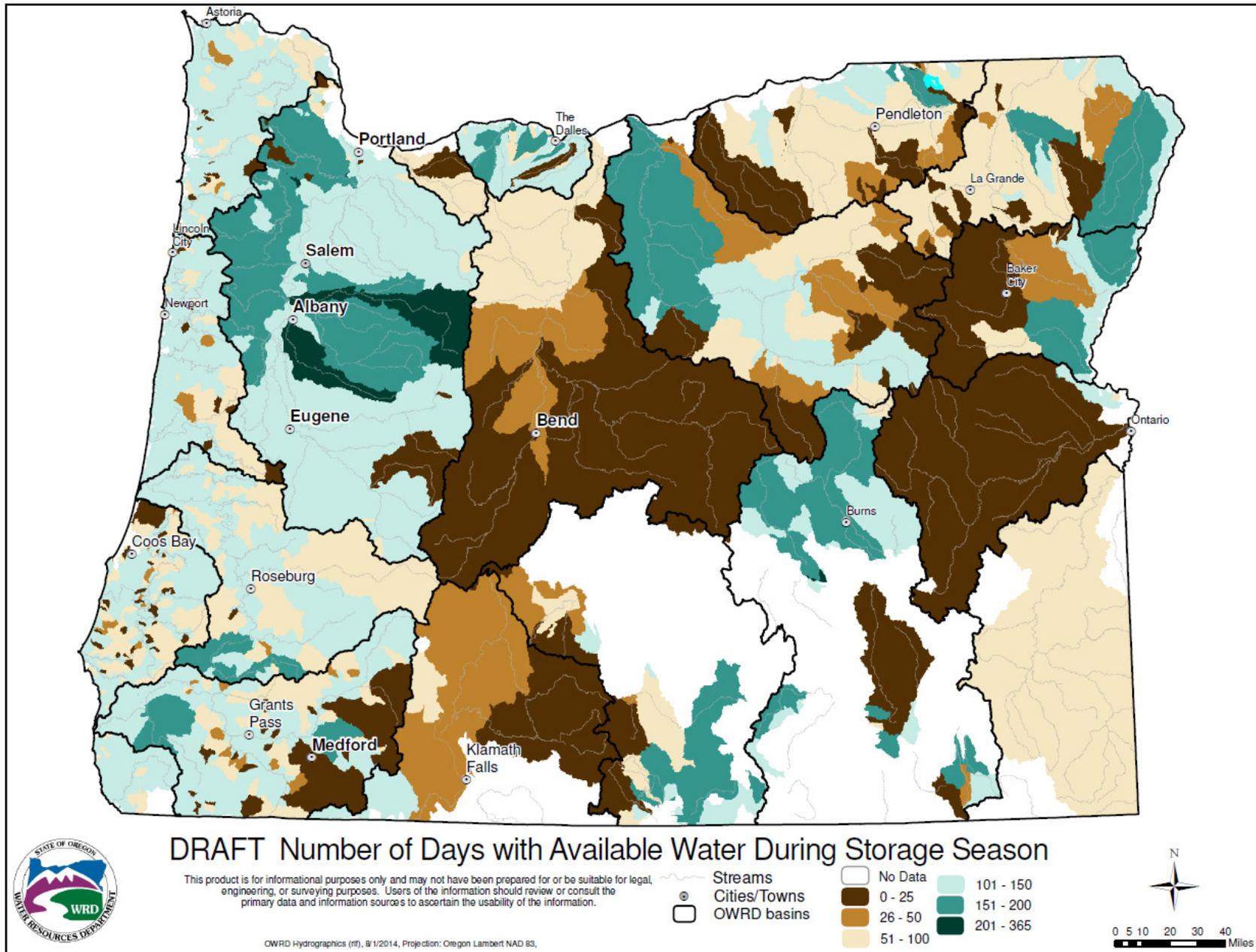


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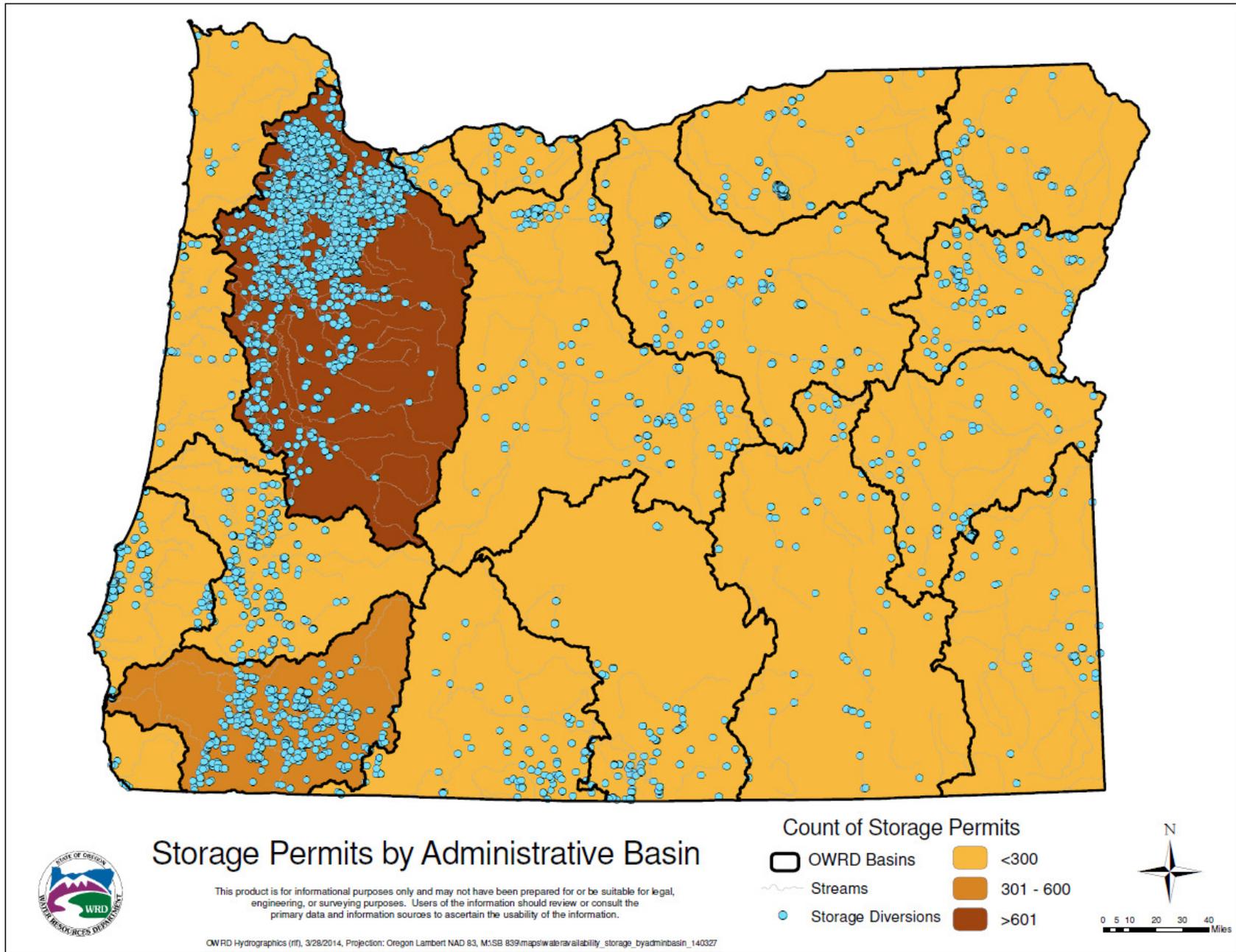


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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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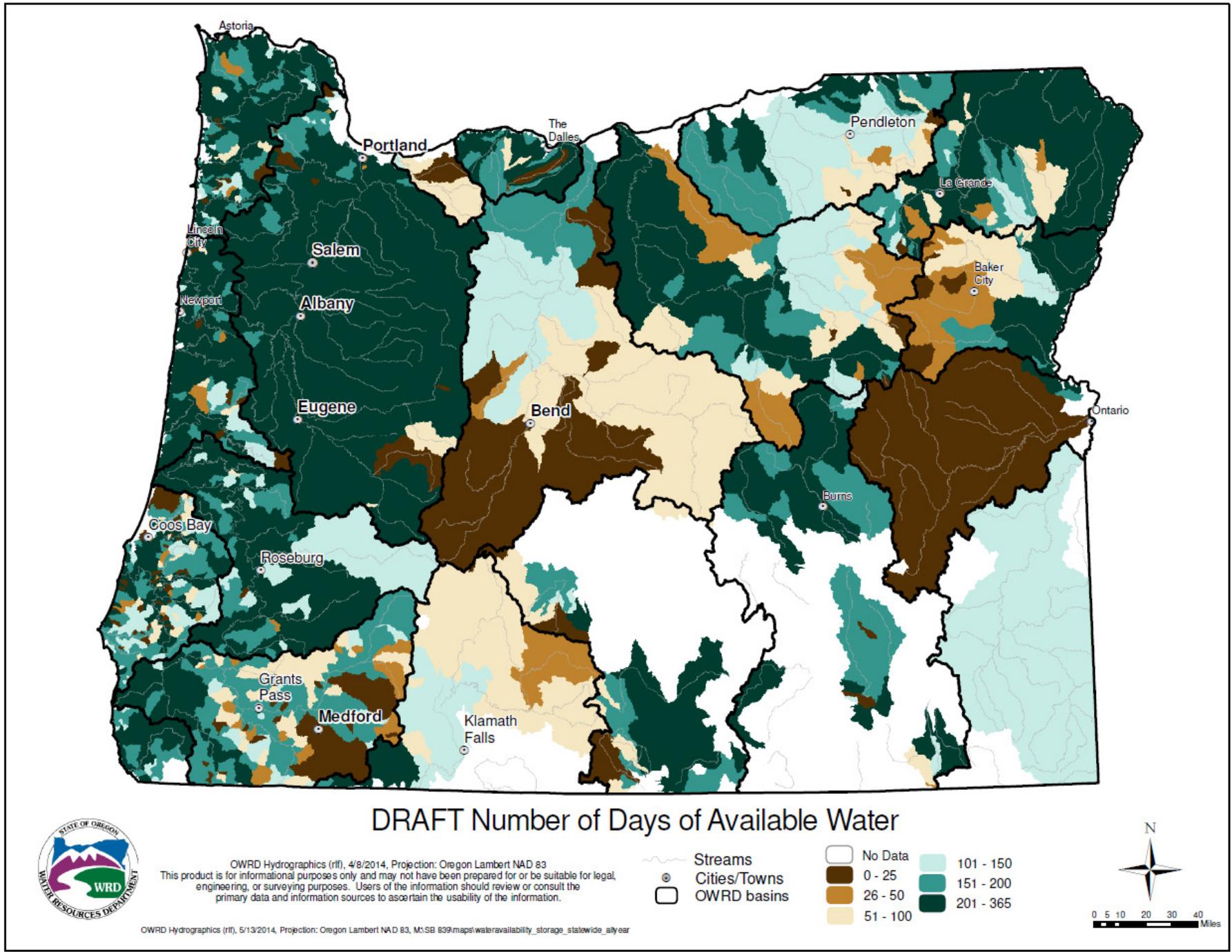


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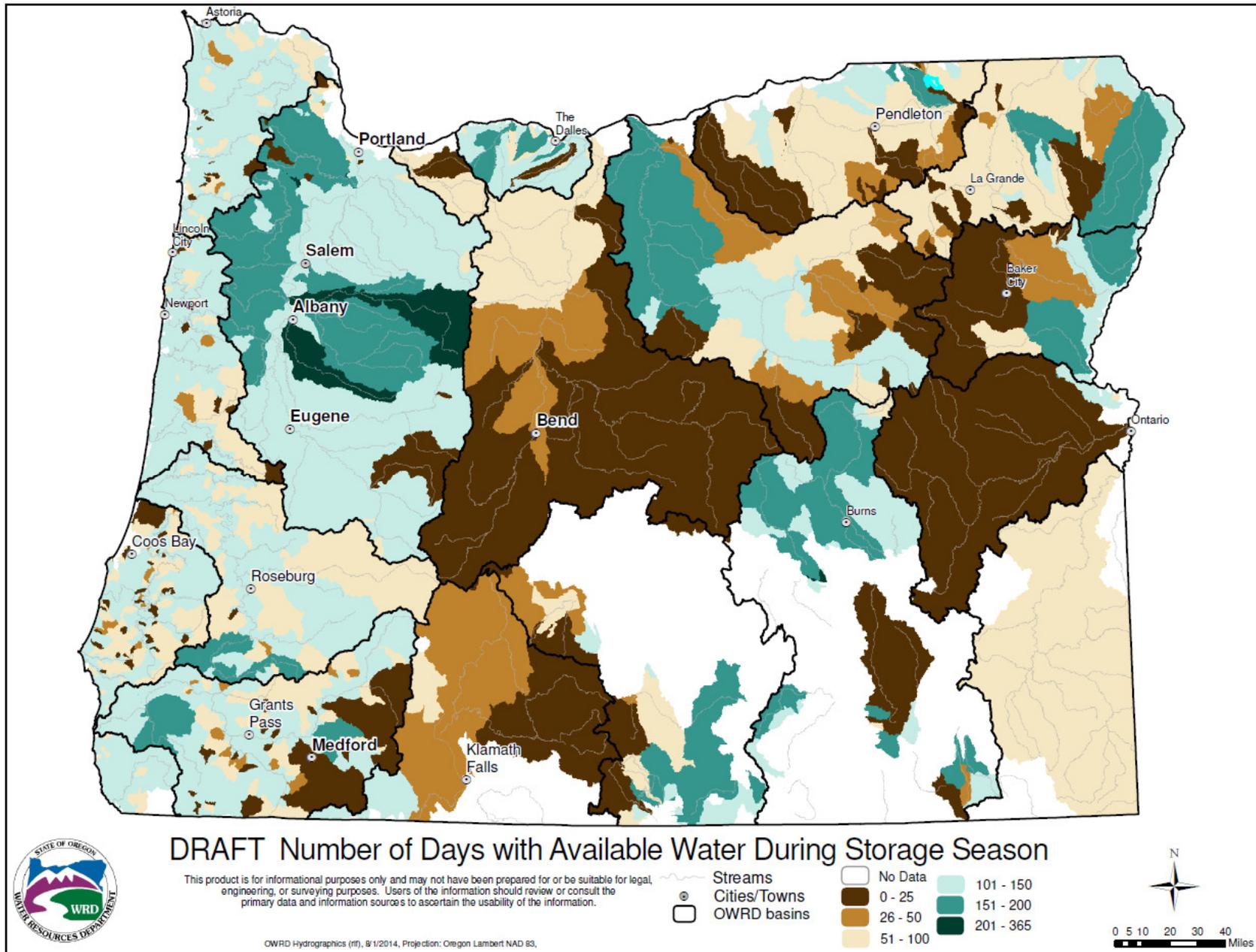


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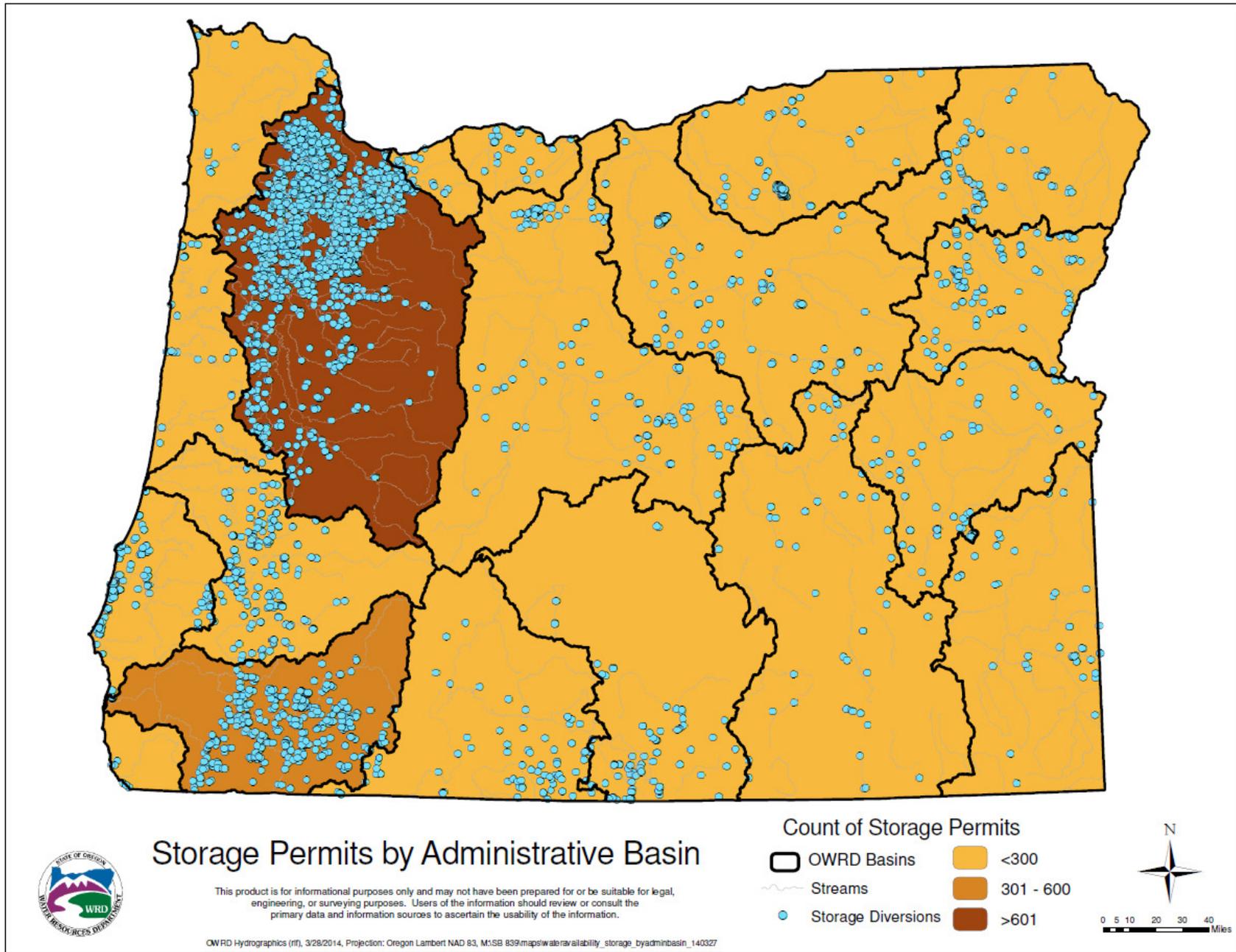


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

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- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

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A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

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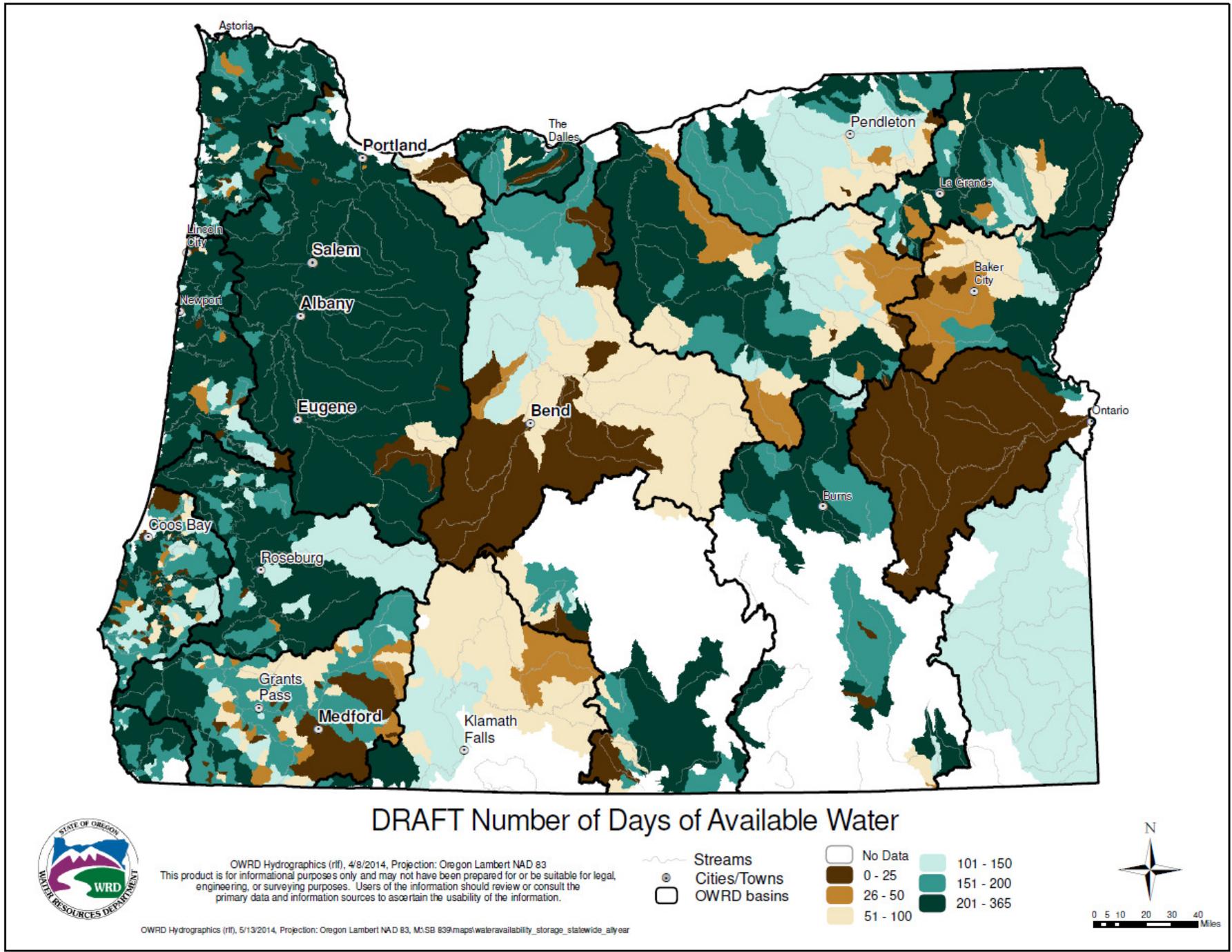


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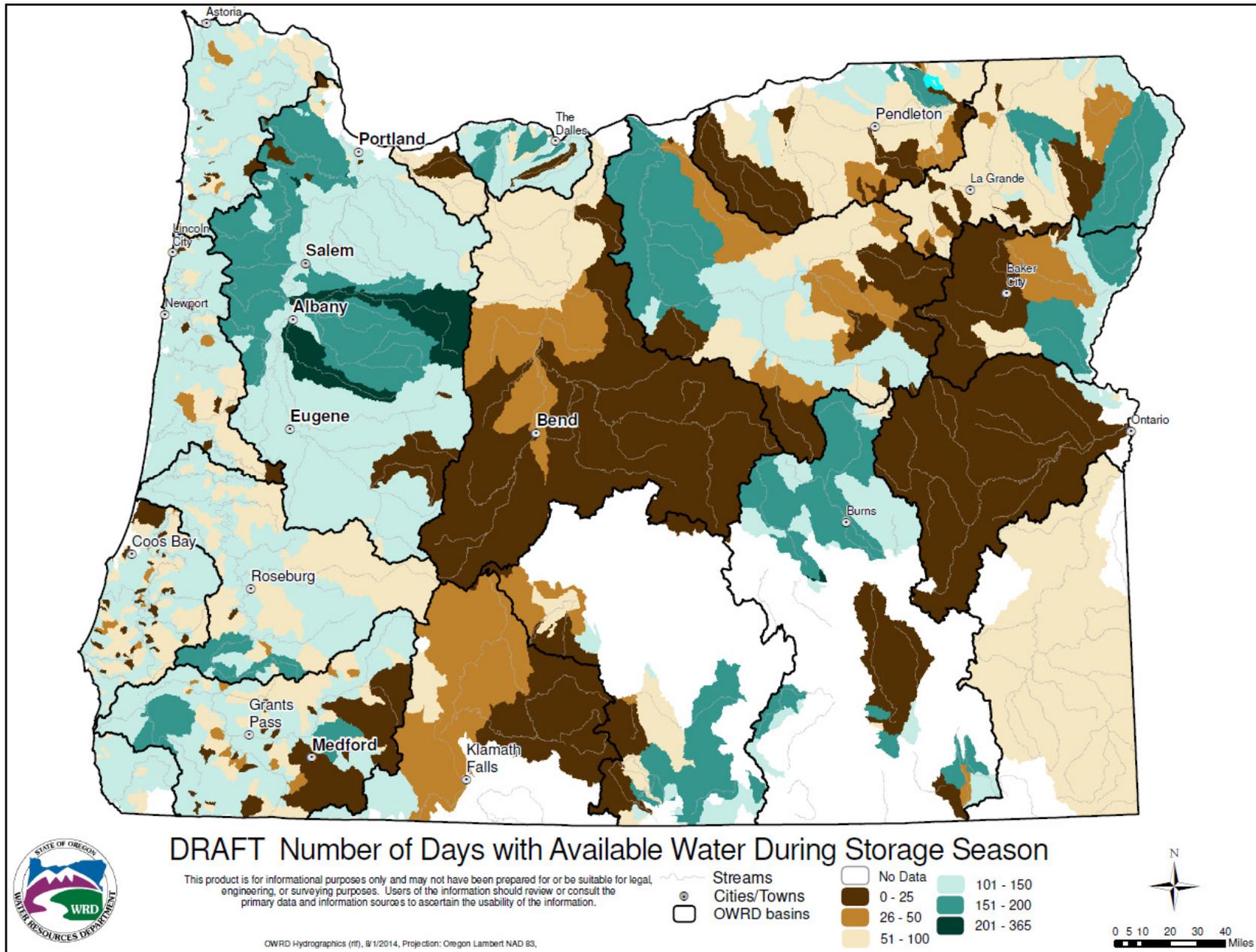


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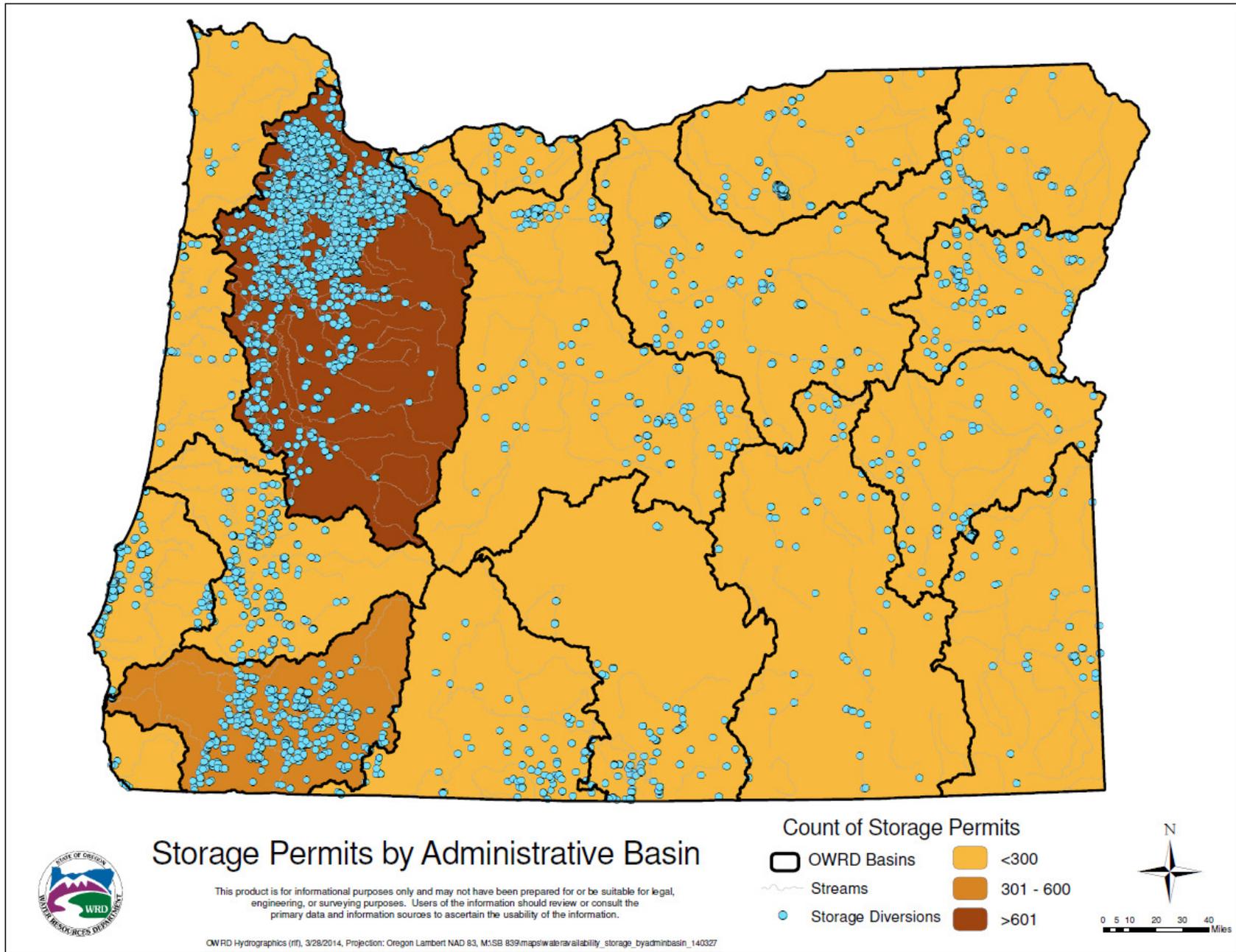


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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

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Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

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Q18) What if I want to store more than 15 percent of the natural flow?

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Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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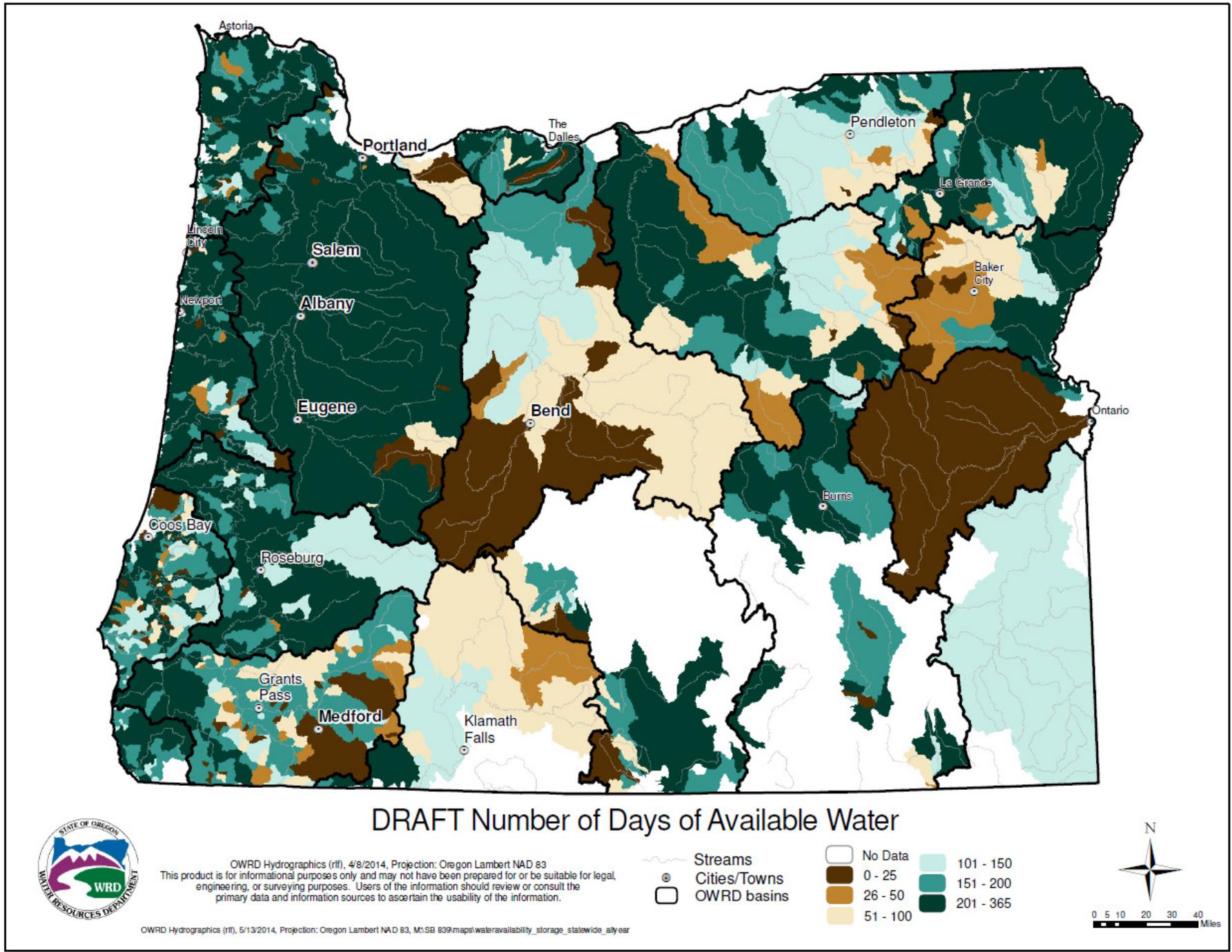


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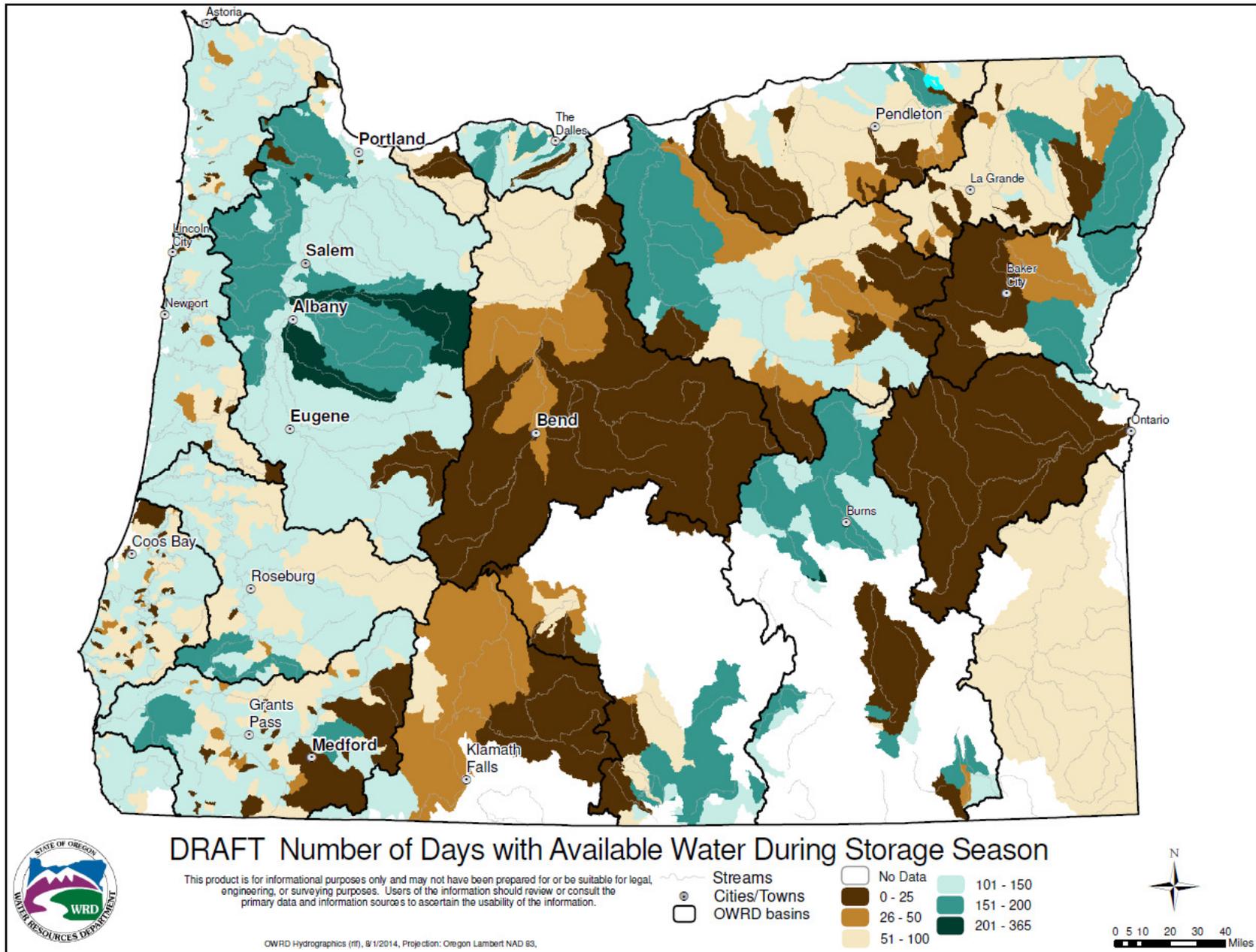


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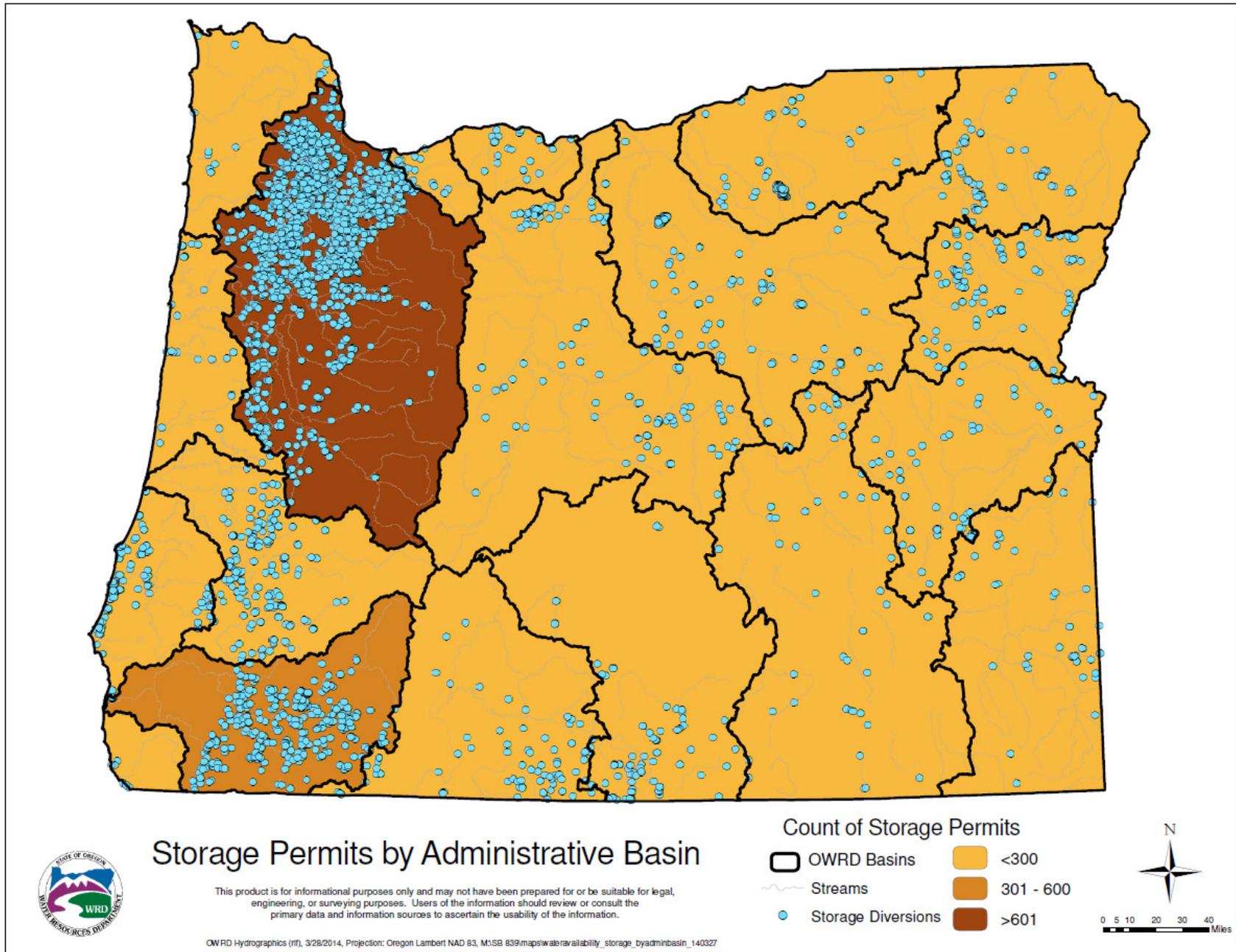


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

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- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

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General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

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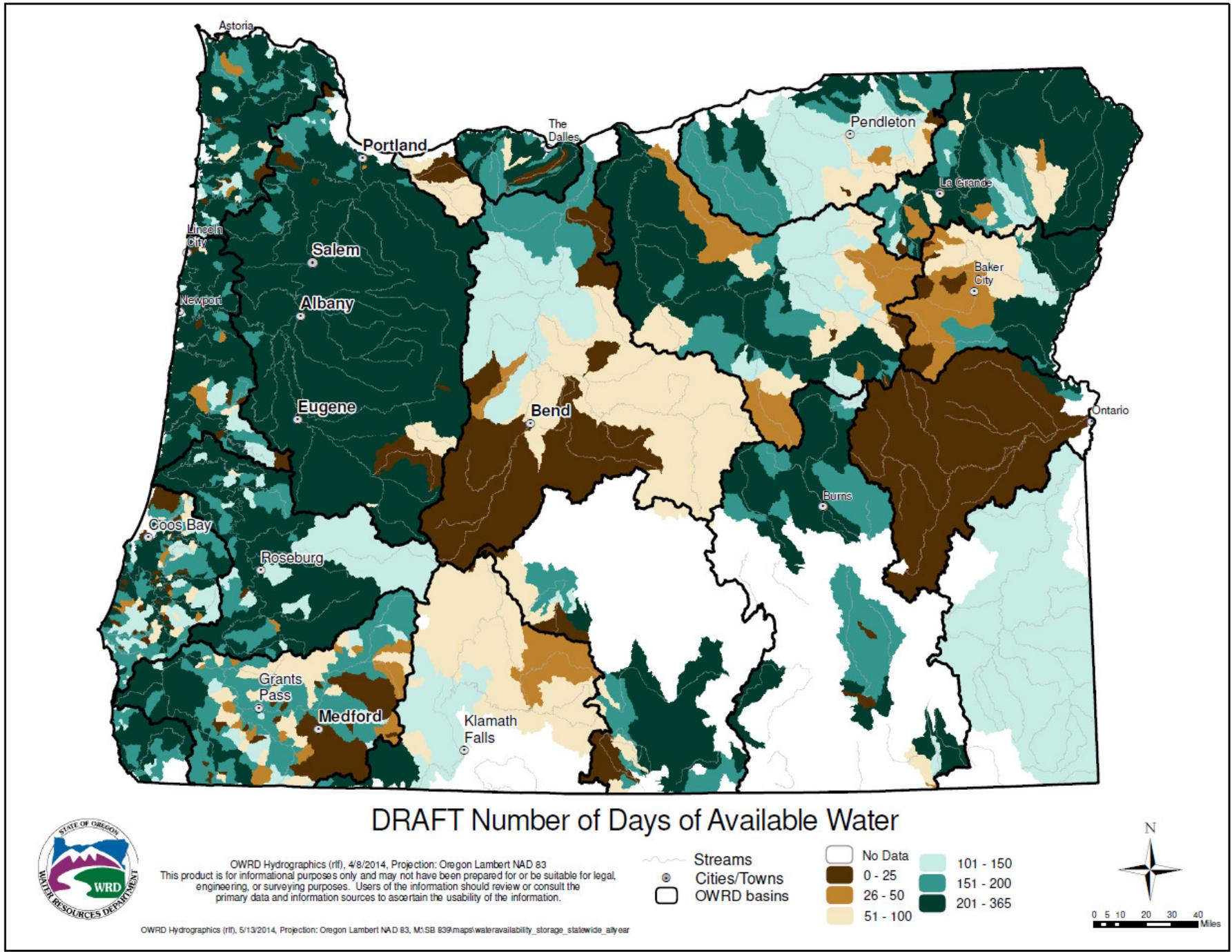


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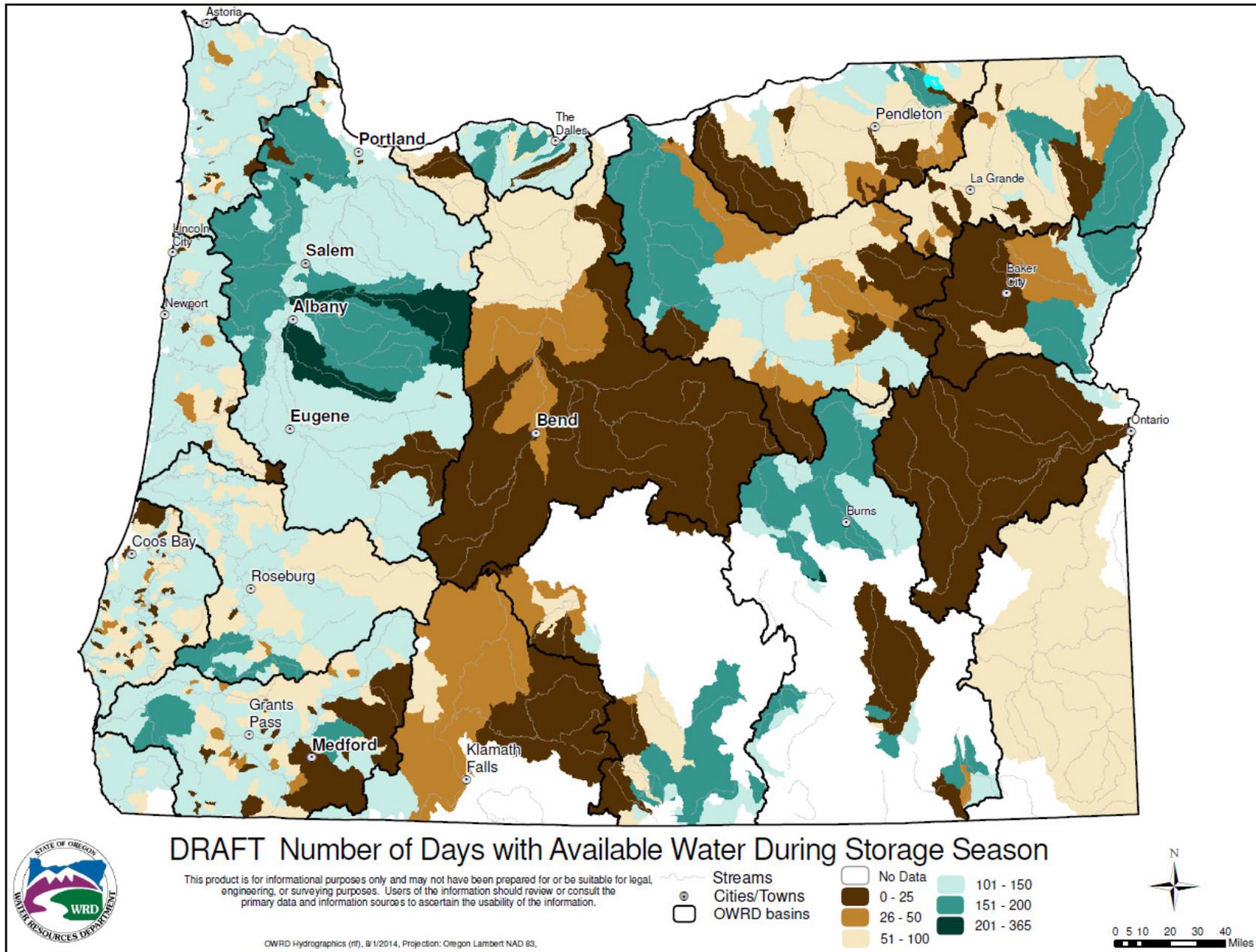


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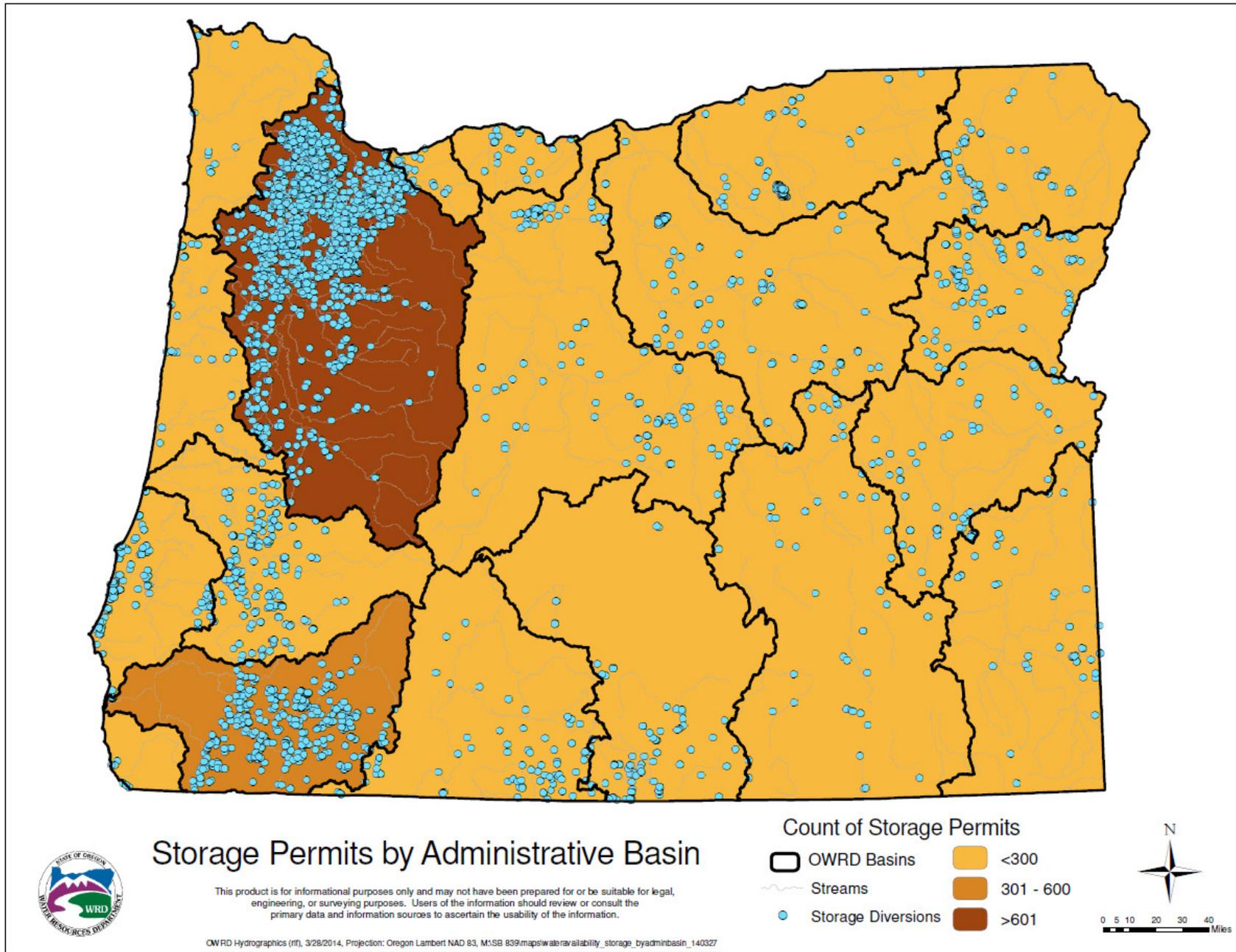


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Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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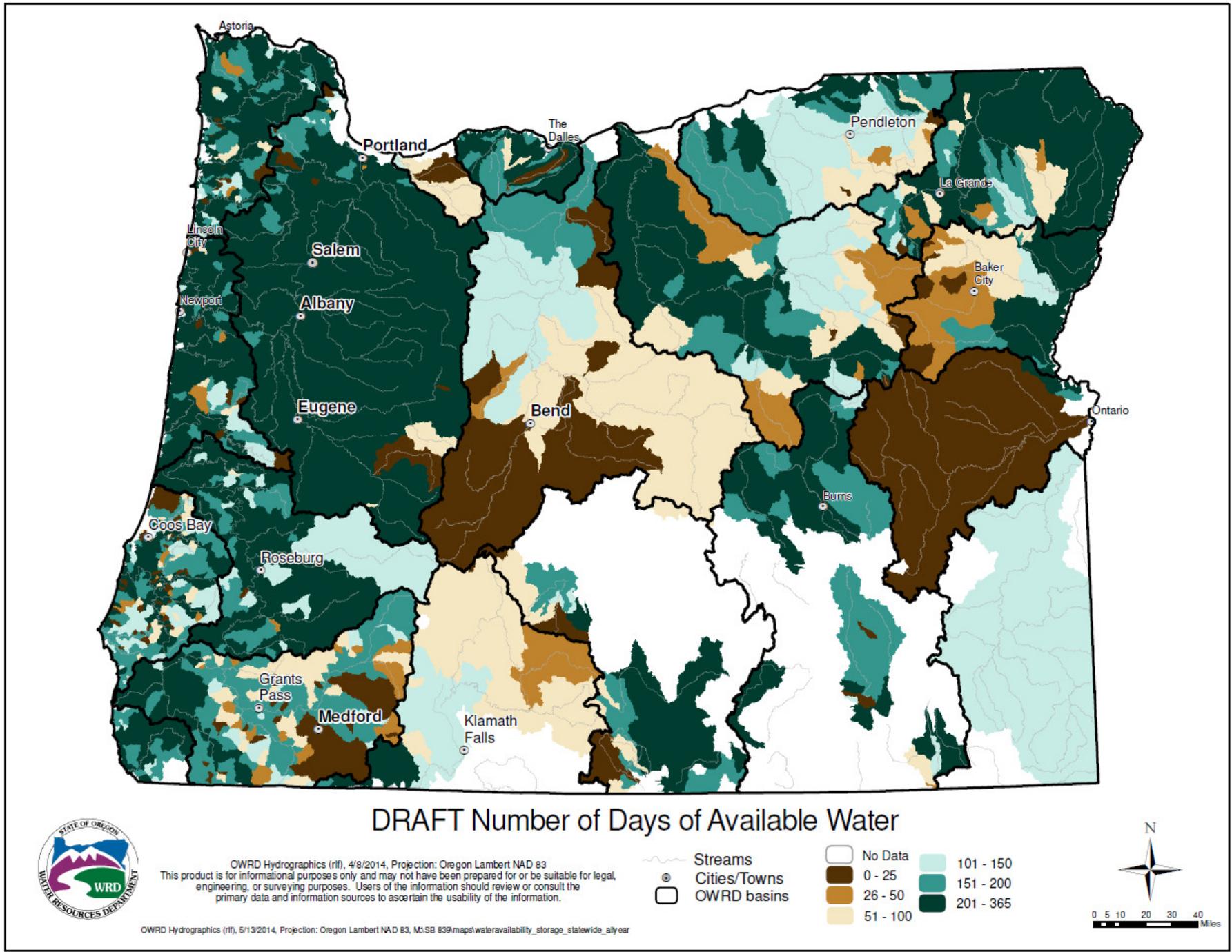


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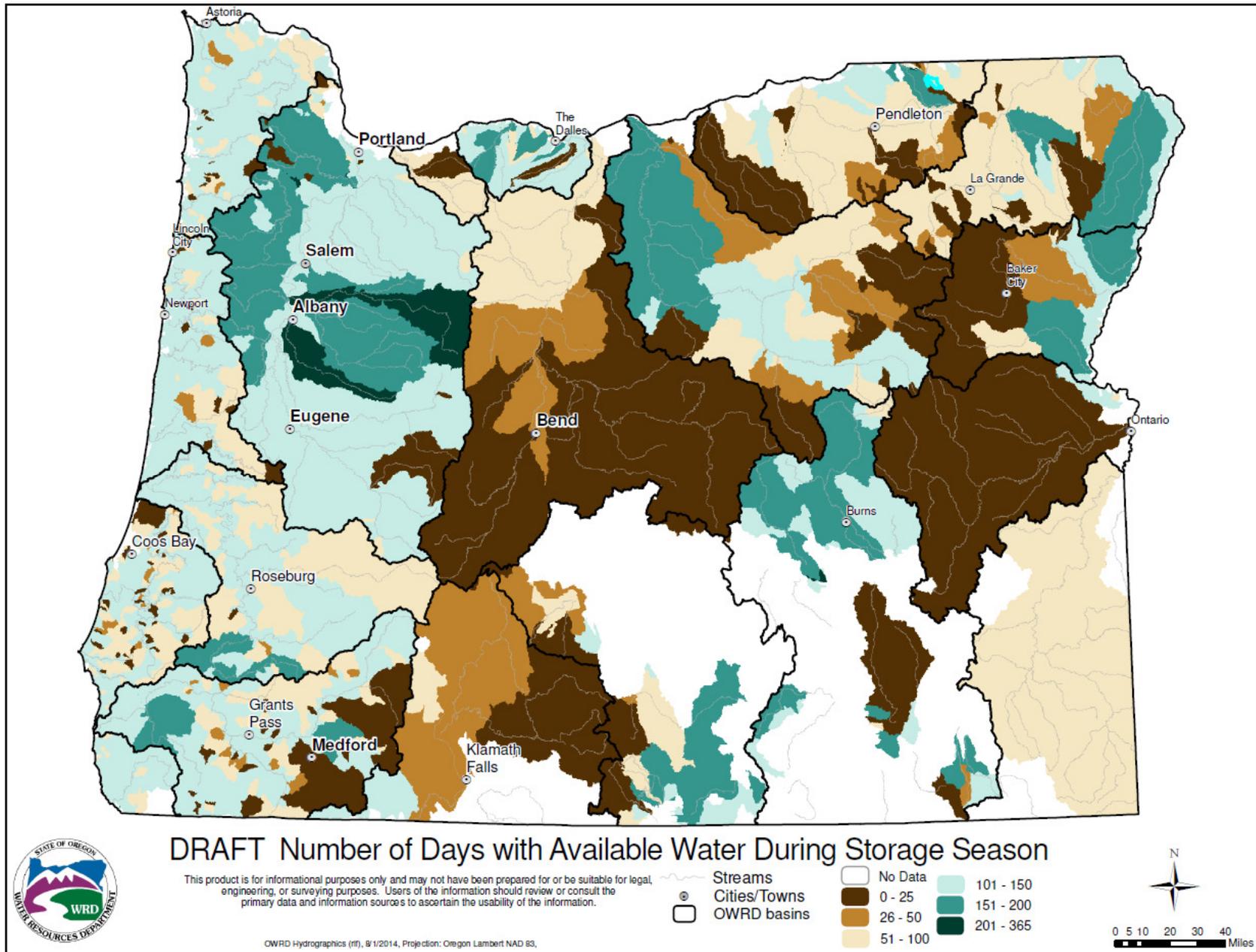


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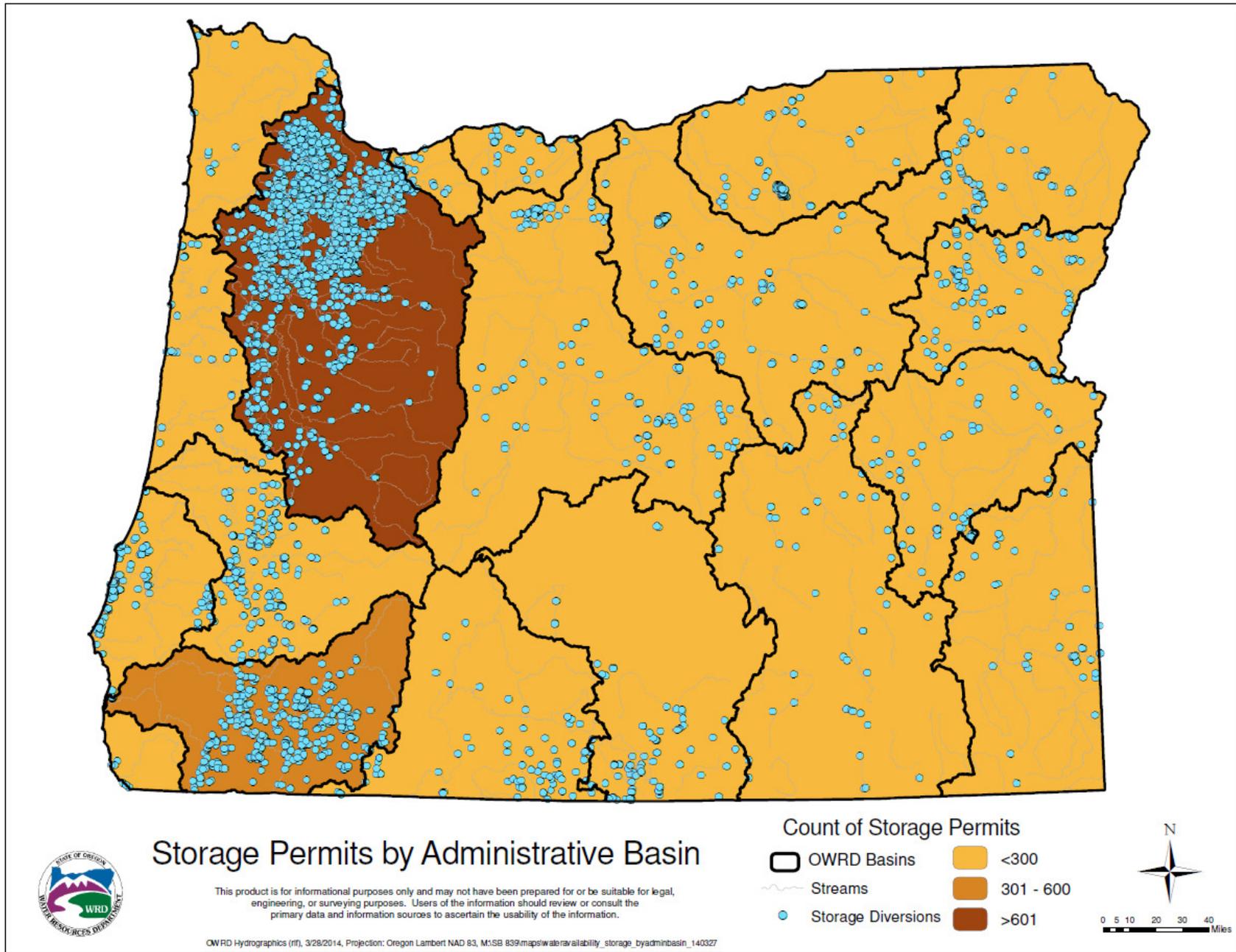


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

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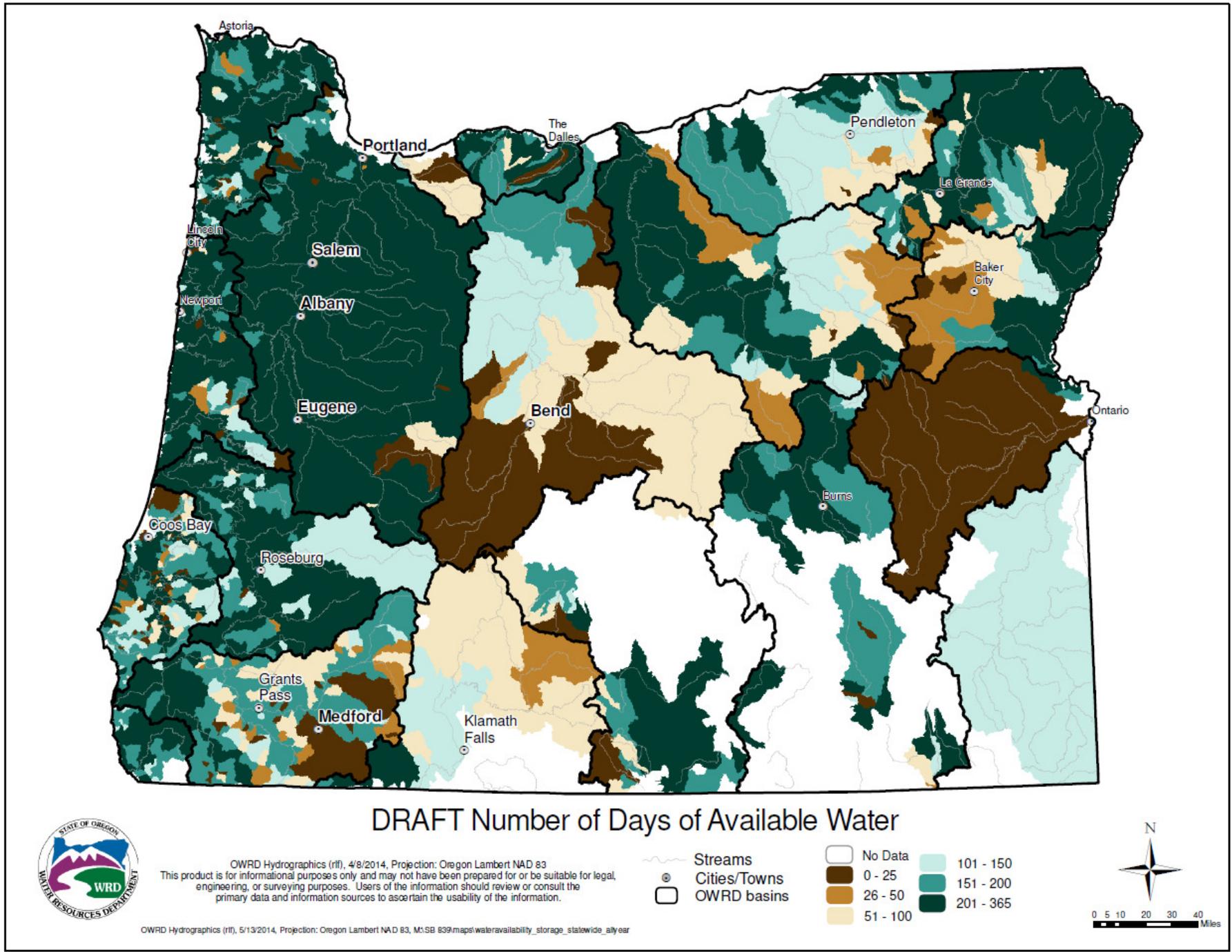


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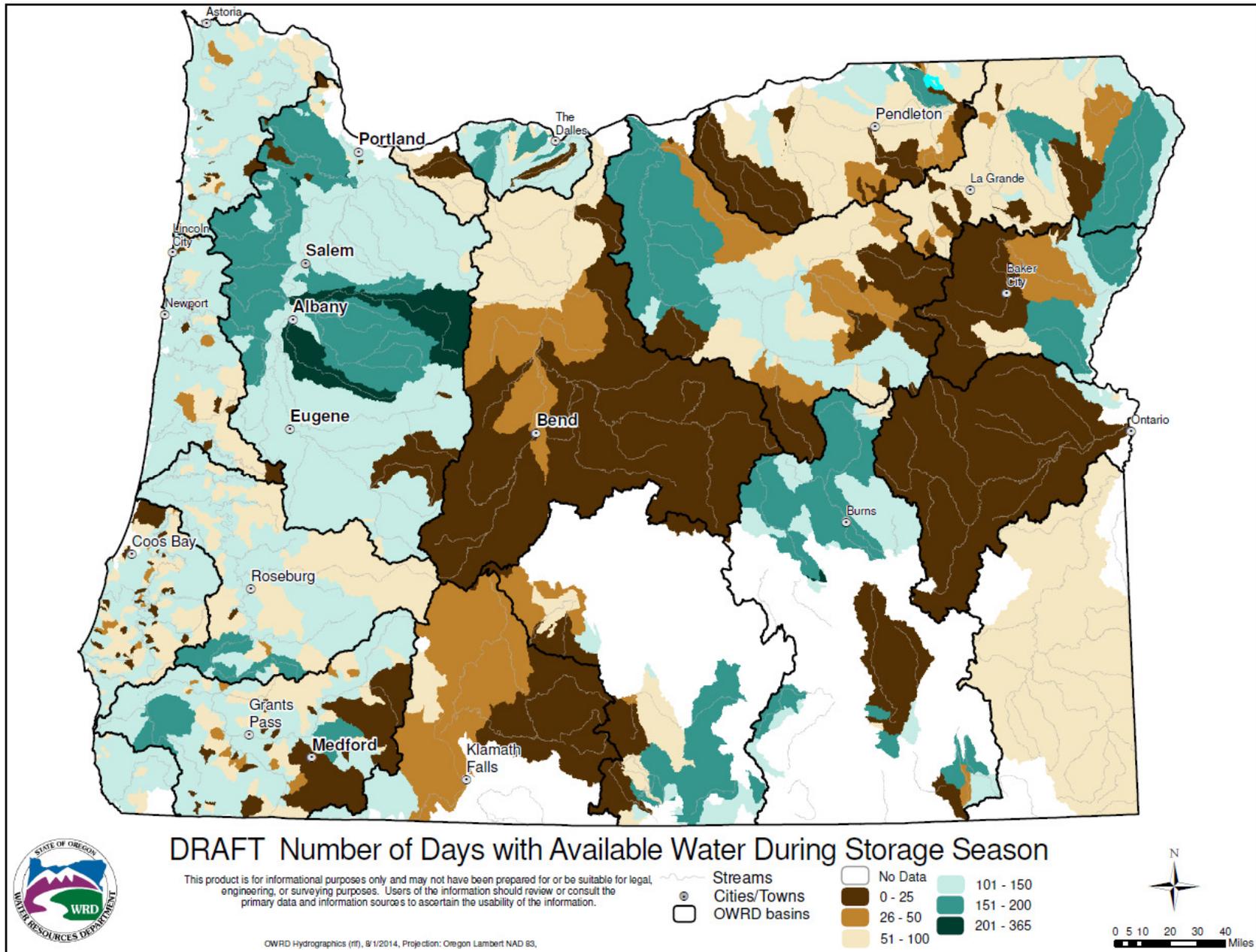


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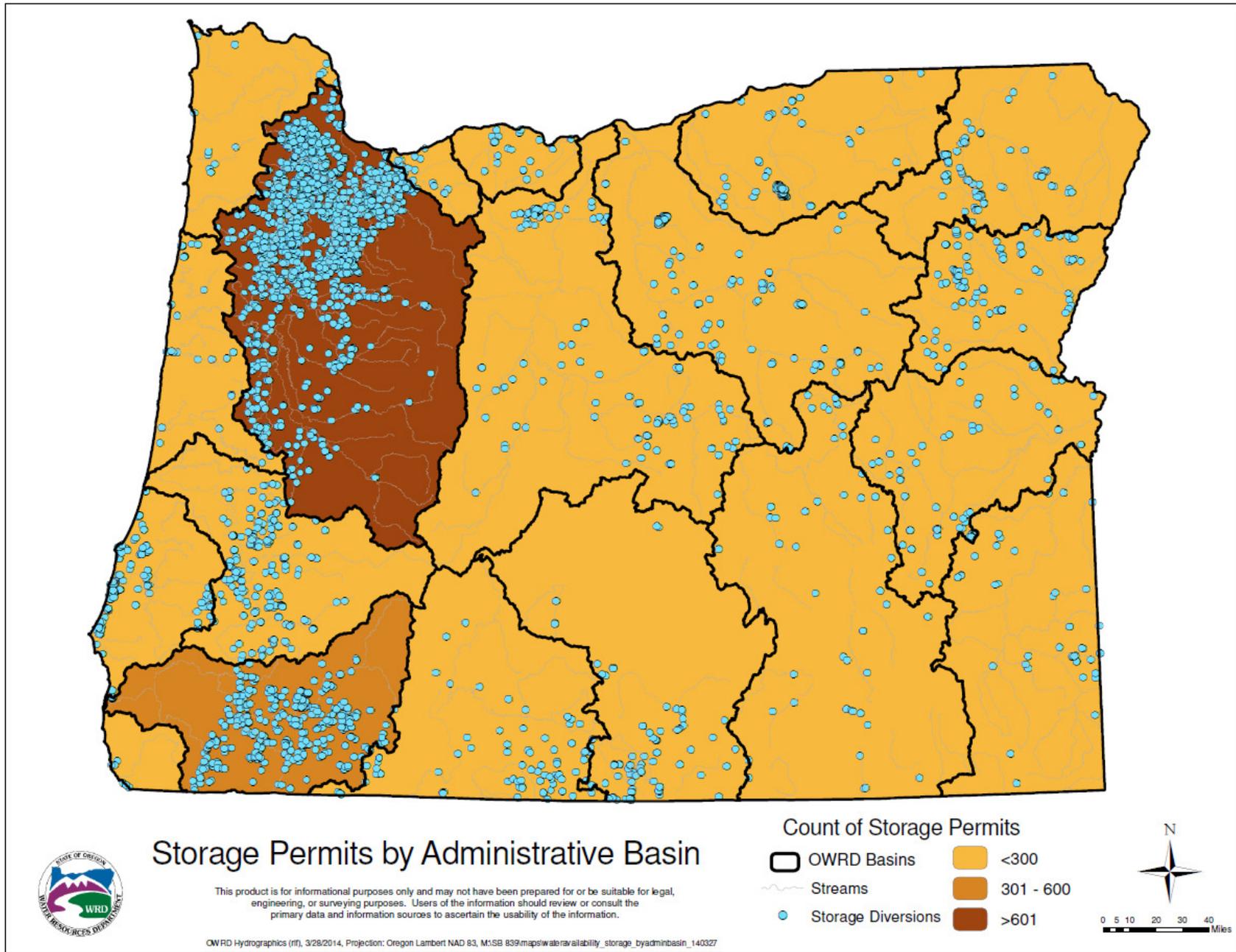


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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

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Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

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Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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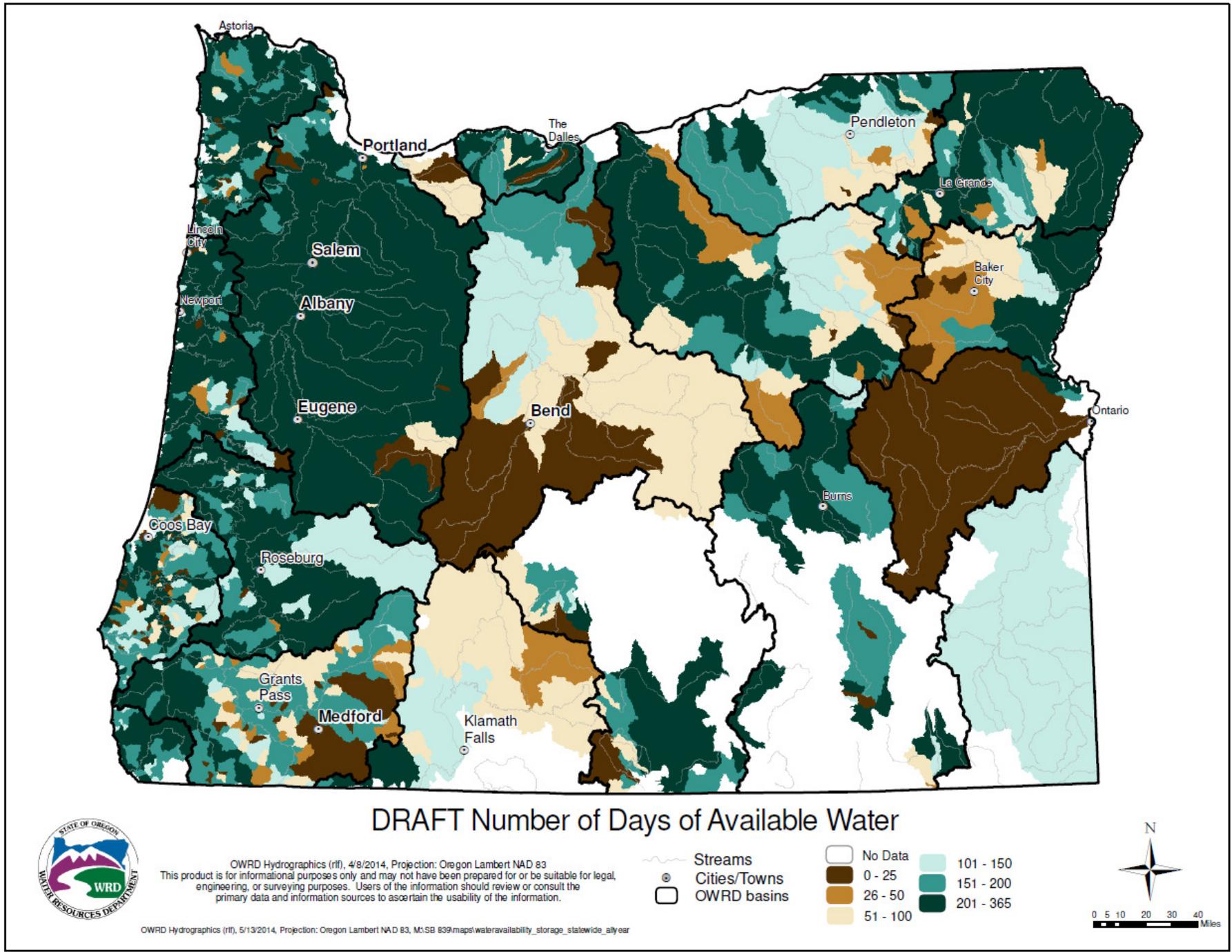


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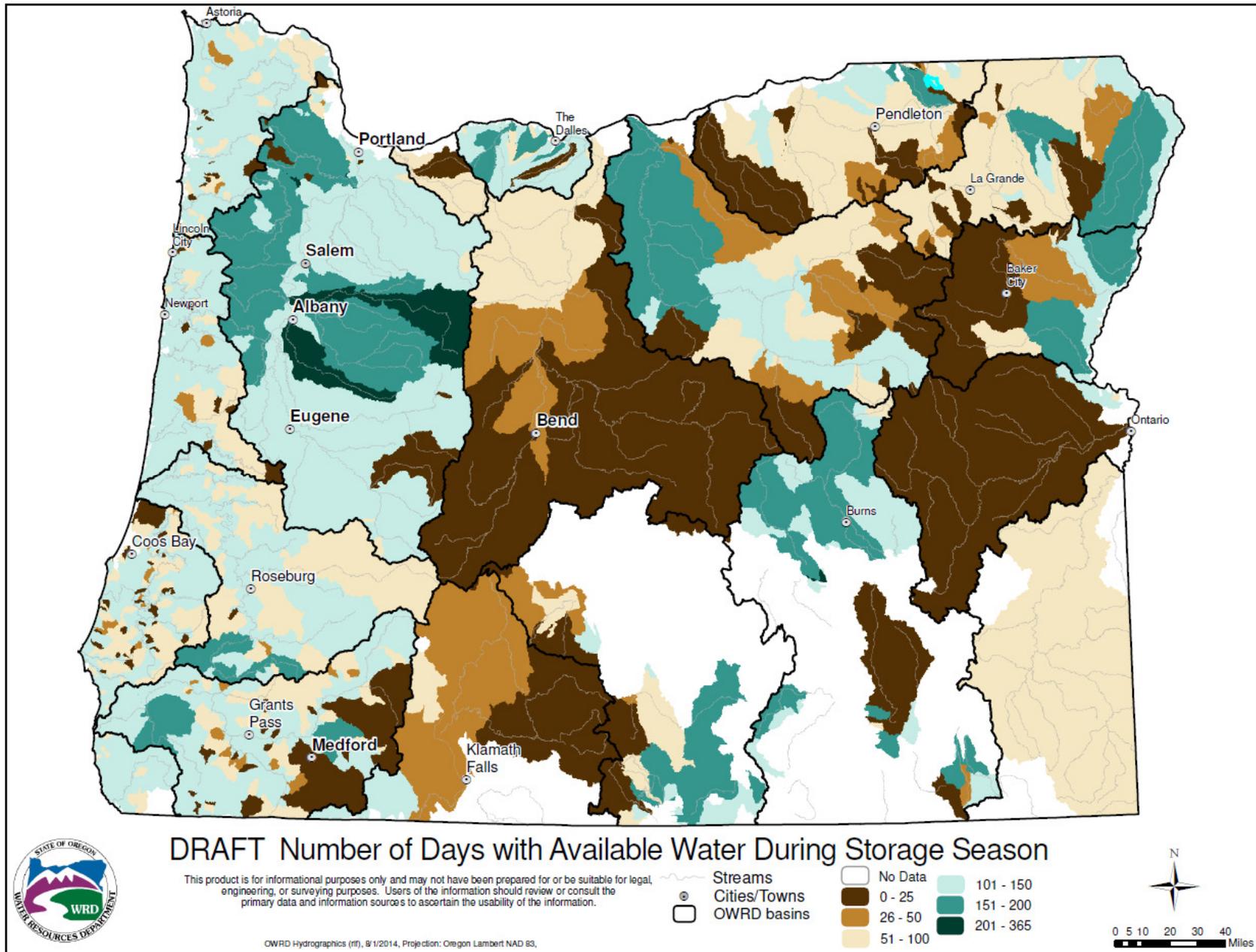


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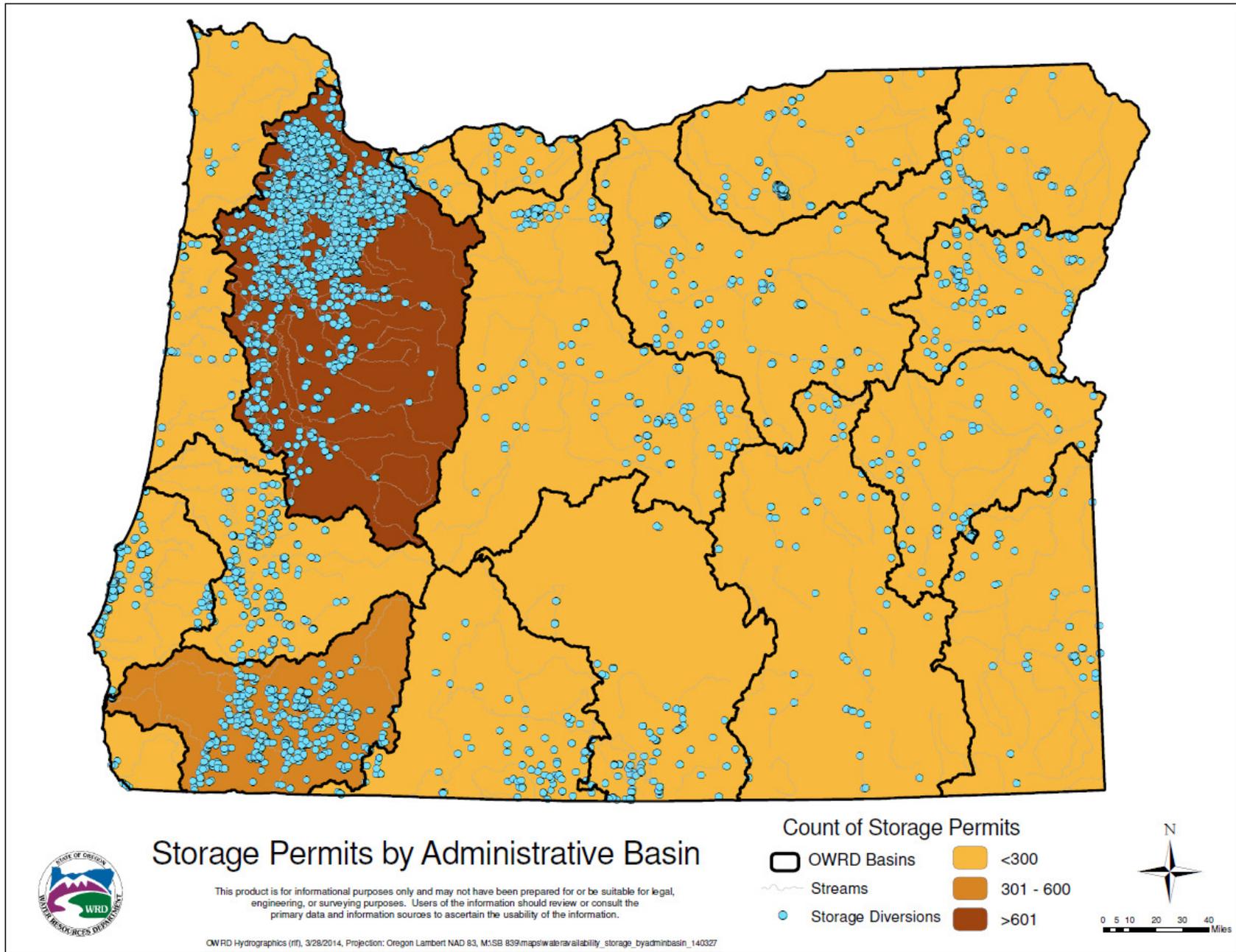


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

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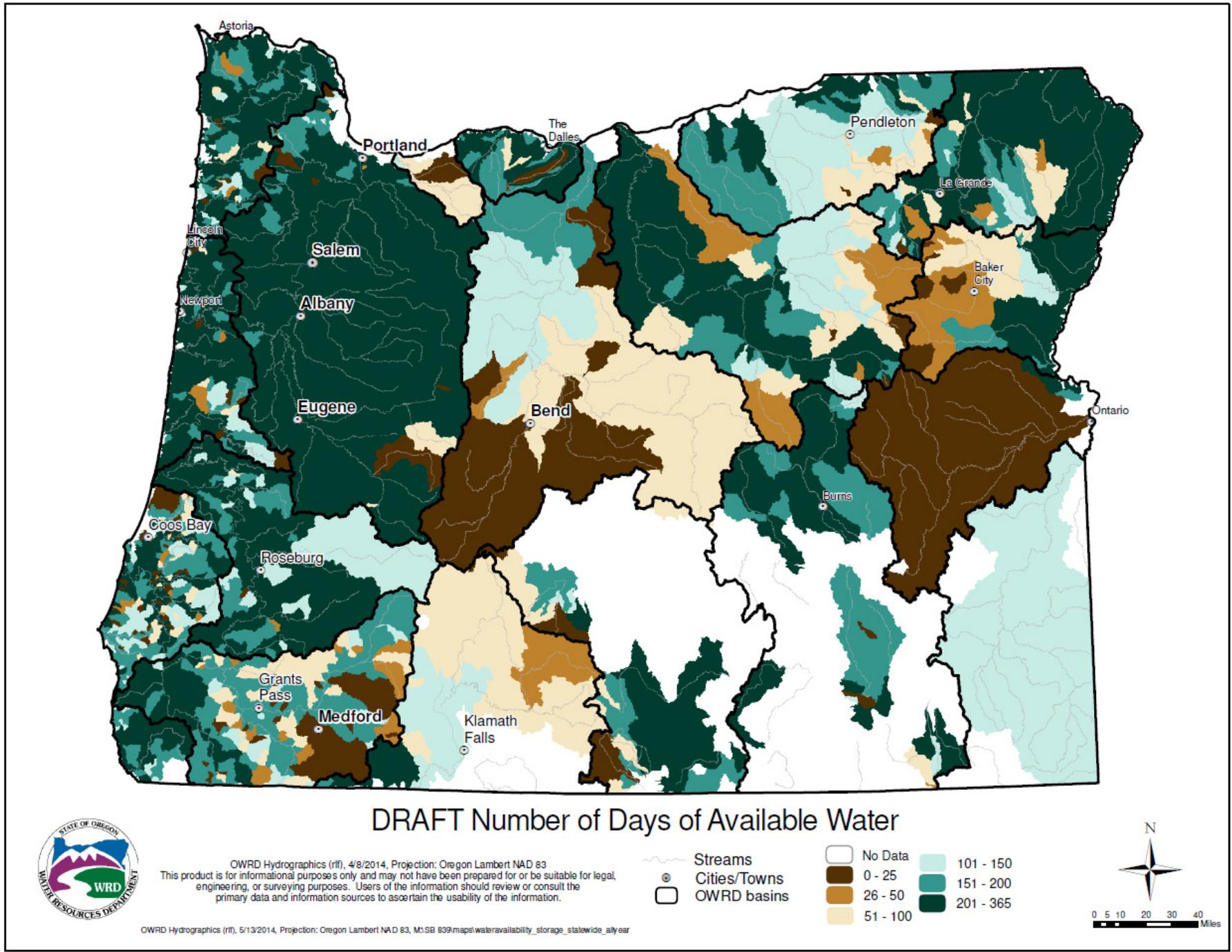


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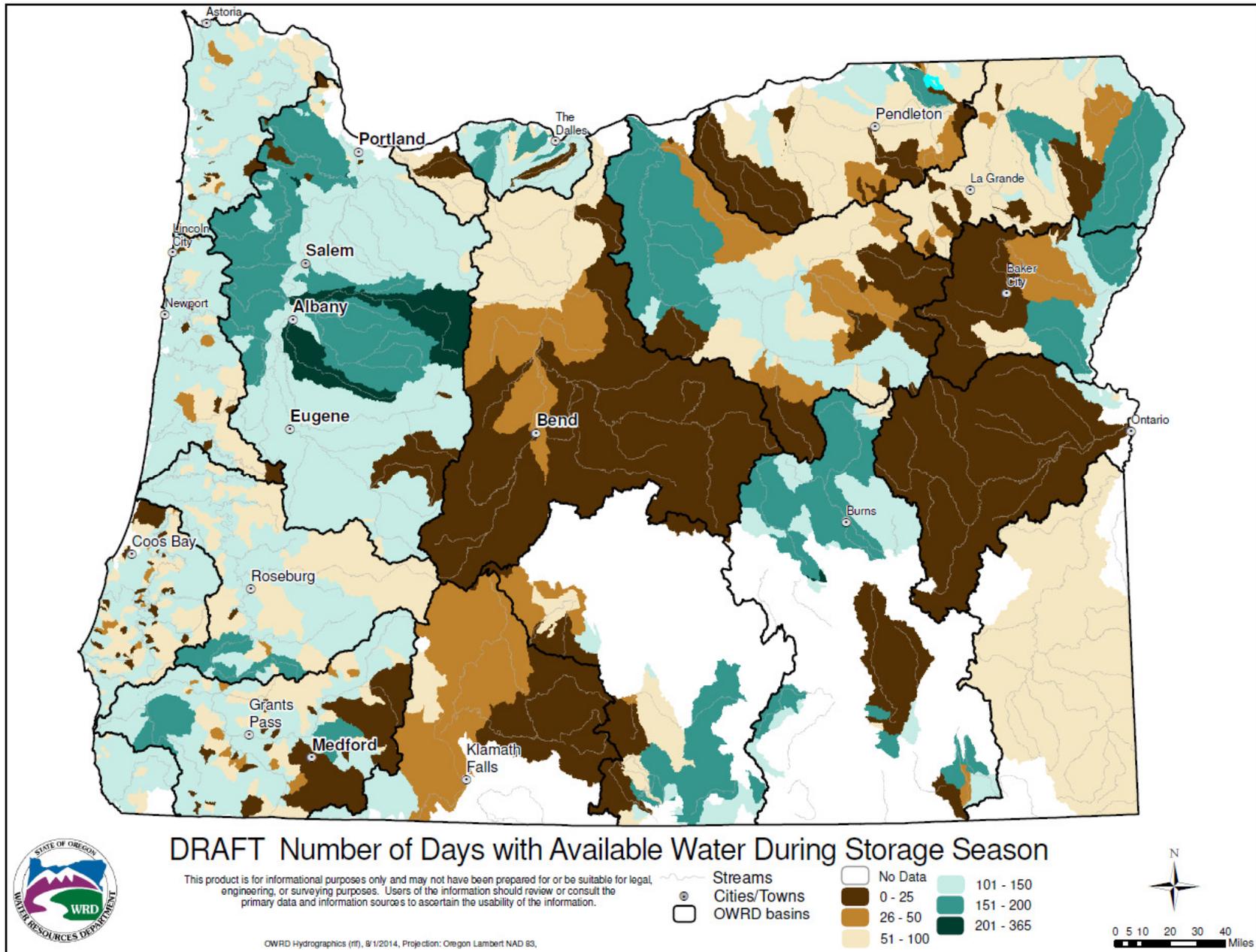


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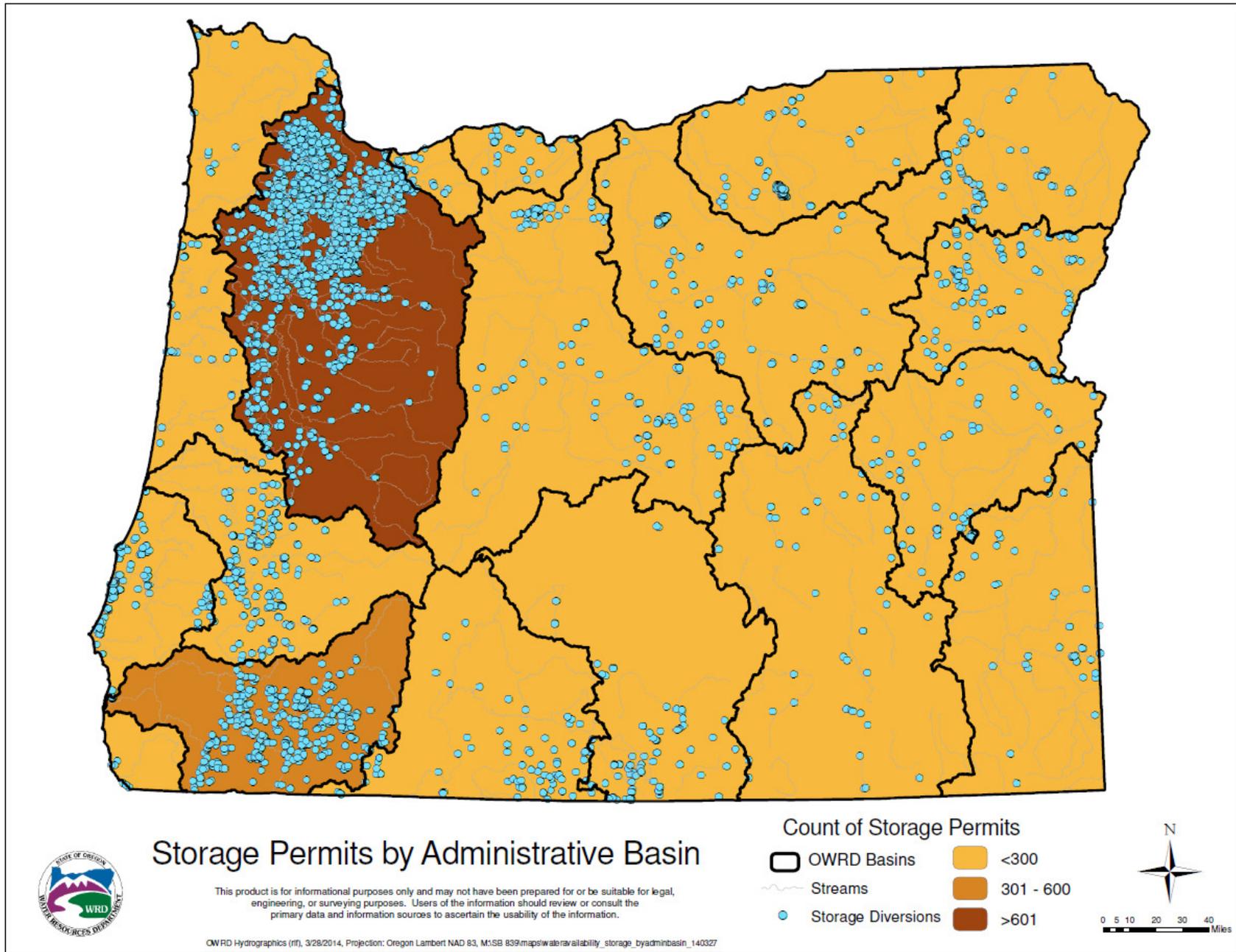


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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

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Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

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Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

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Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

Contact:

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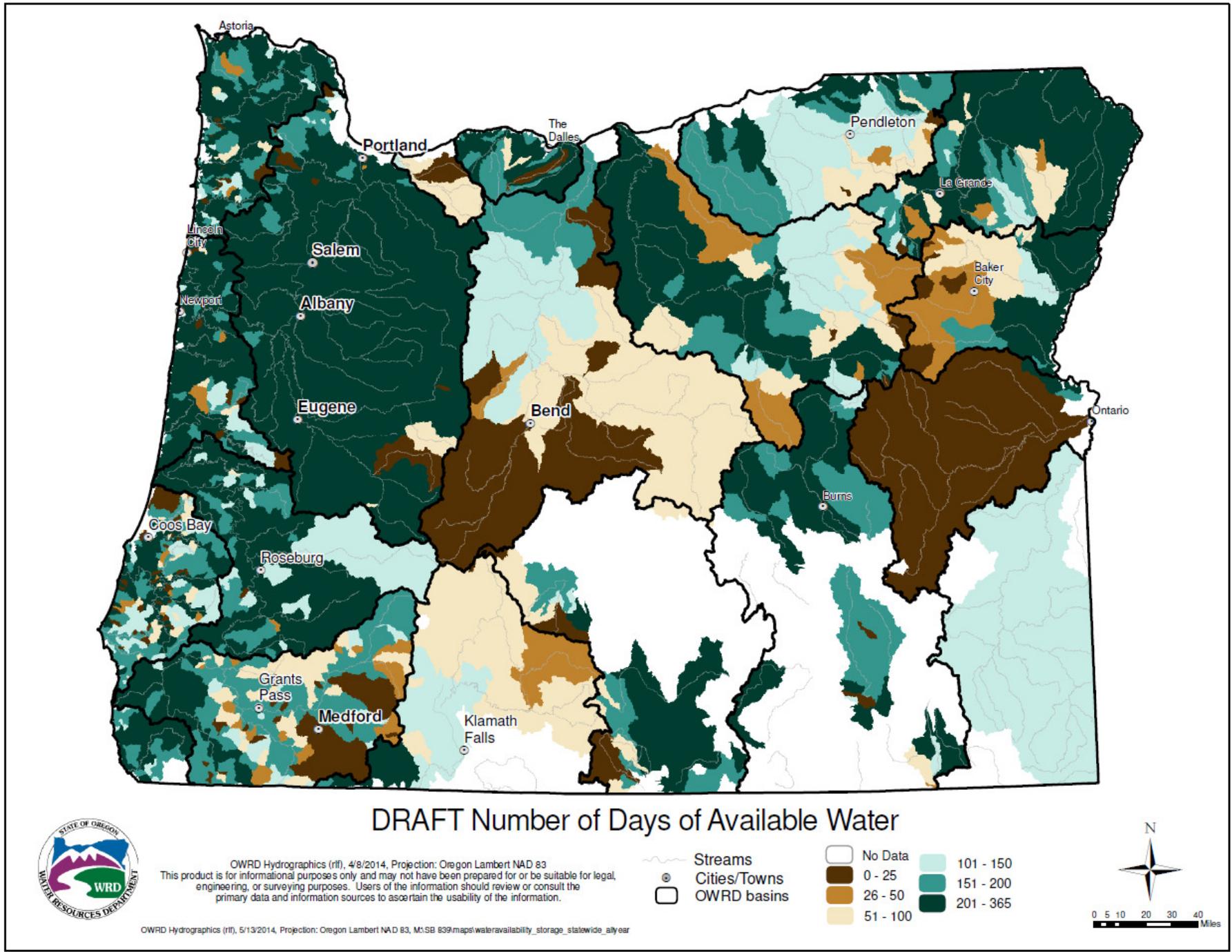


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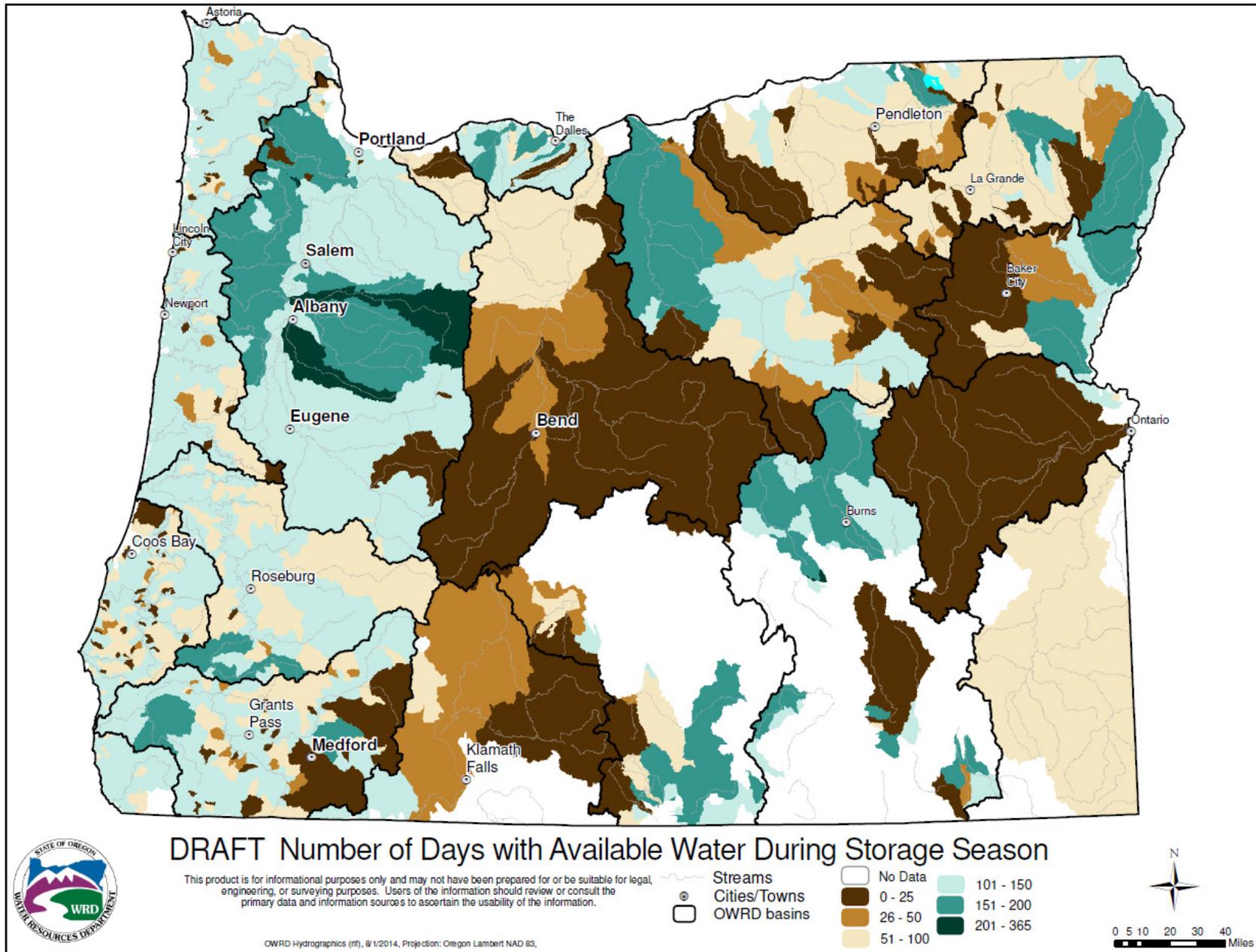


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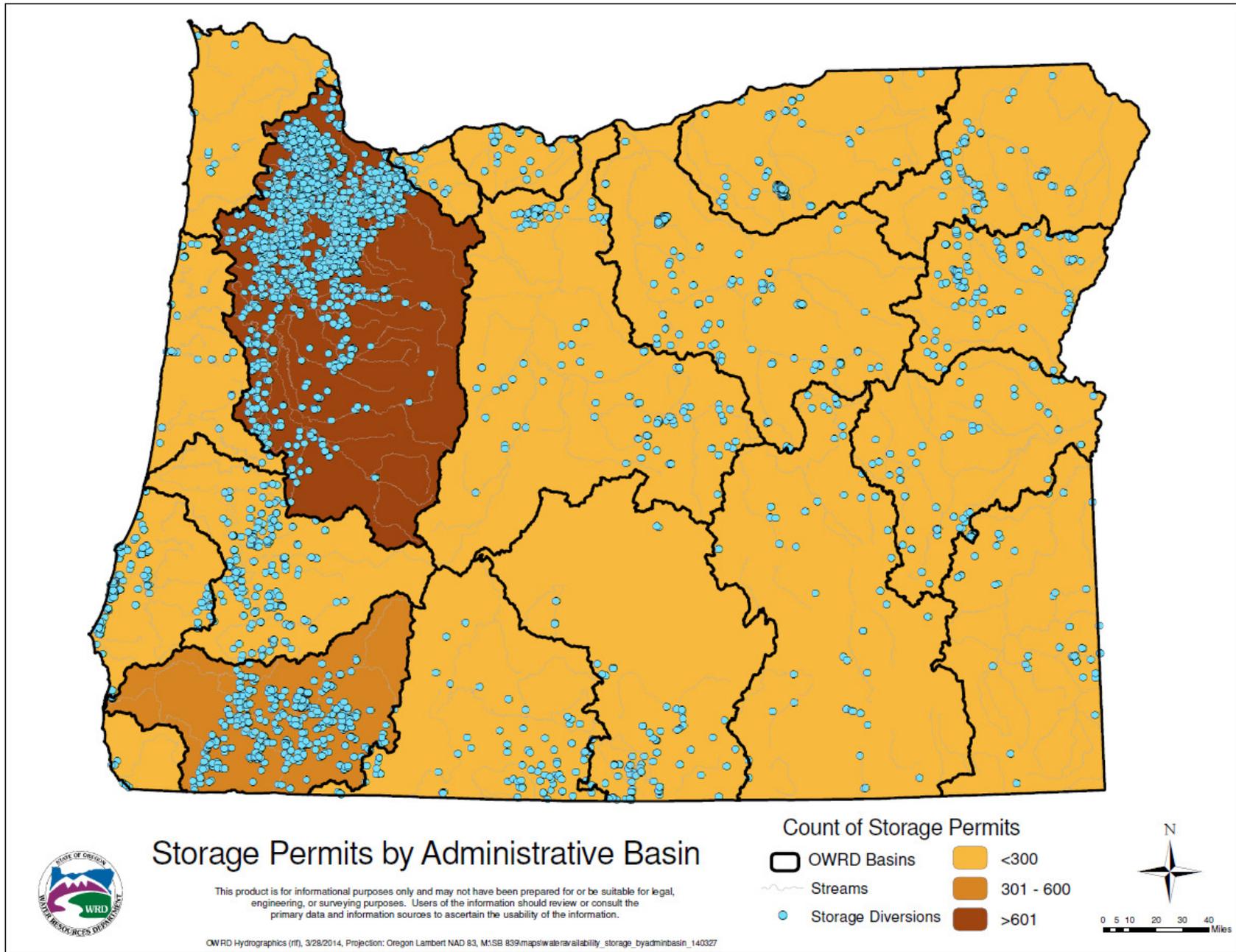


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

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- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

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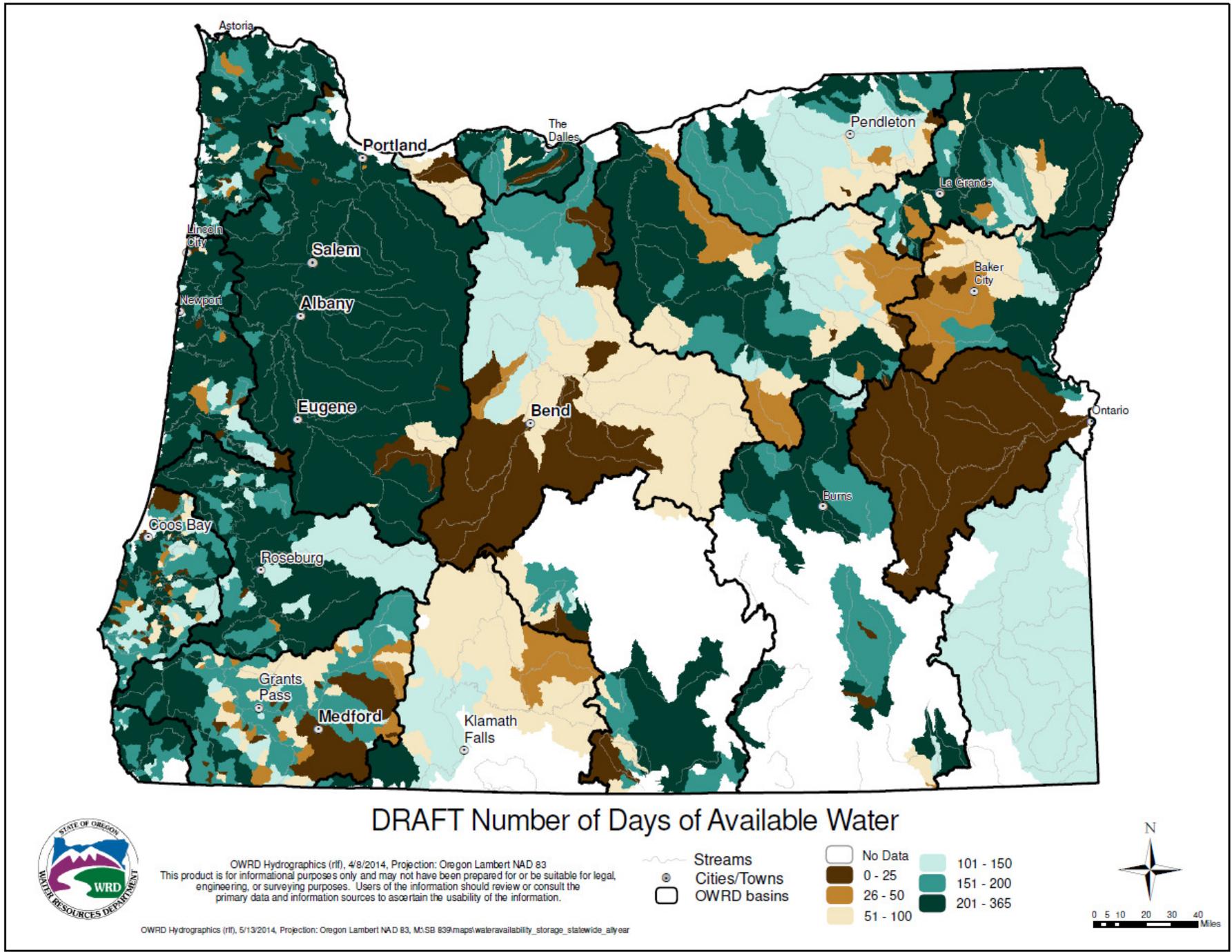


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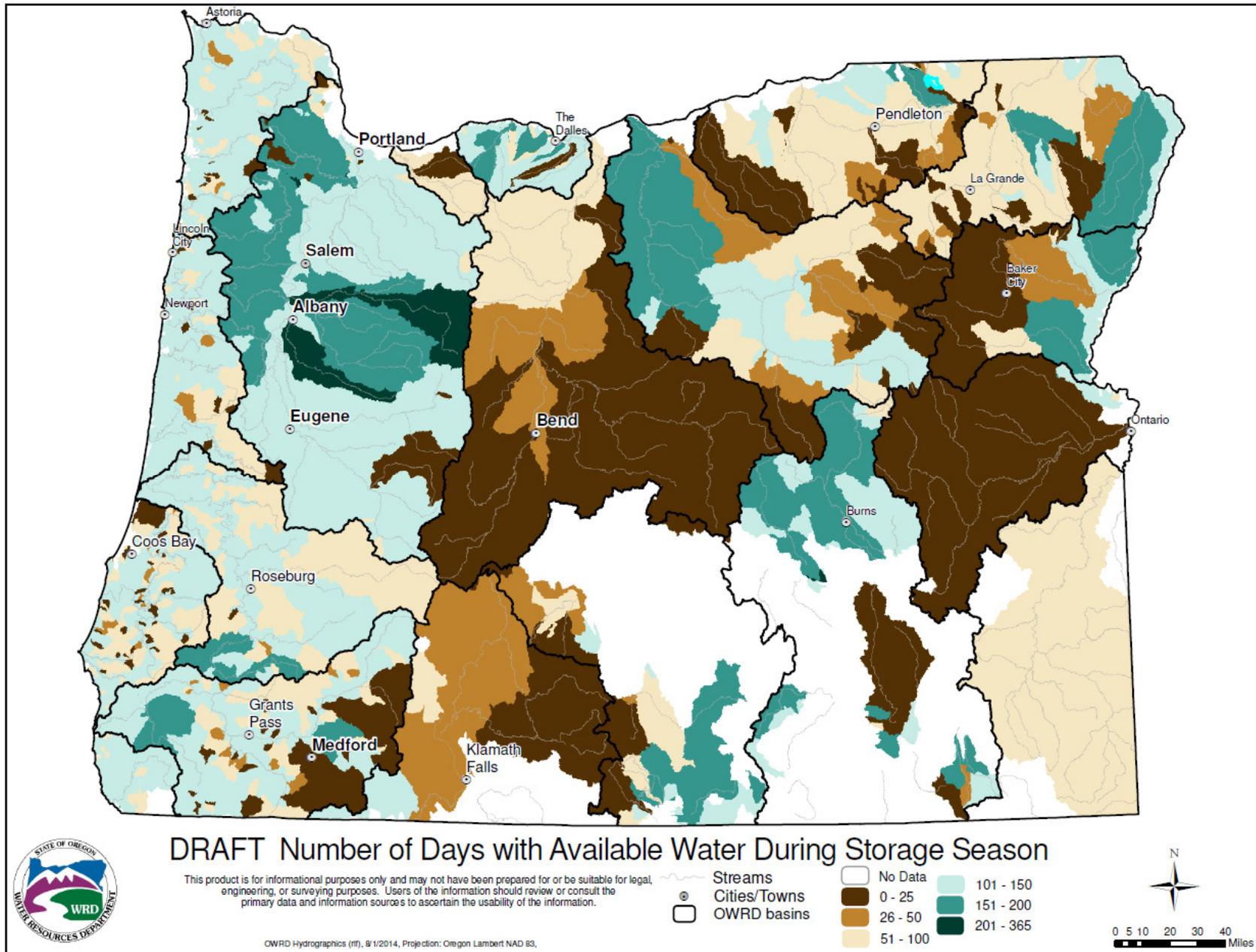


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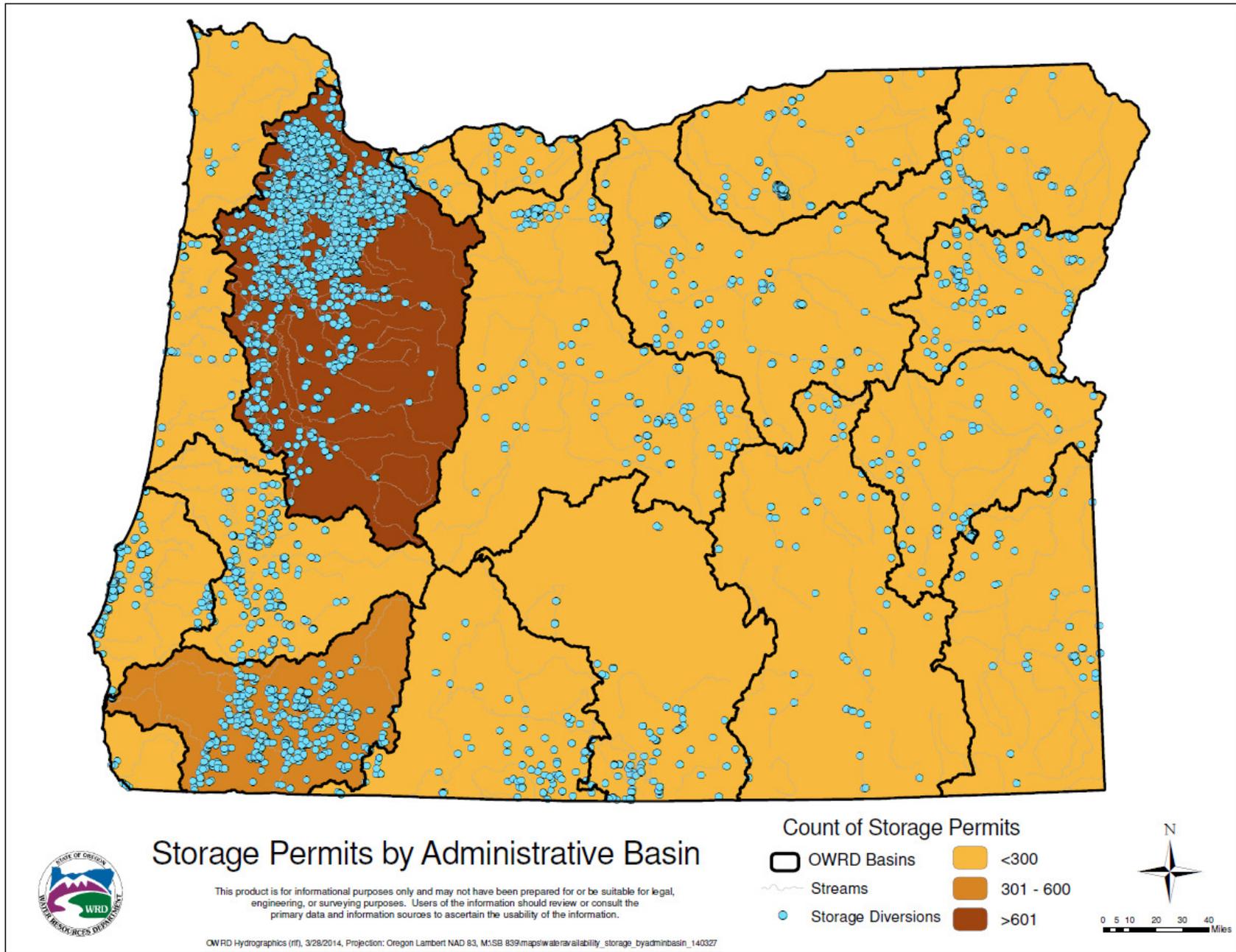


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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

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Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

Contact:

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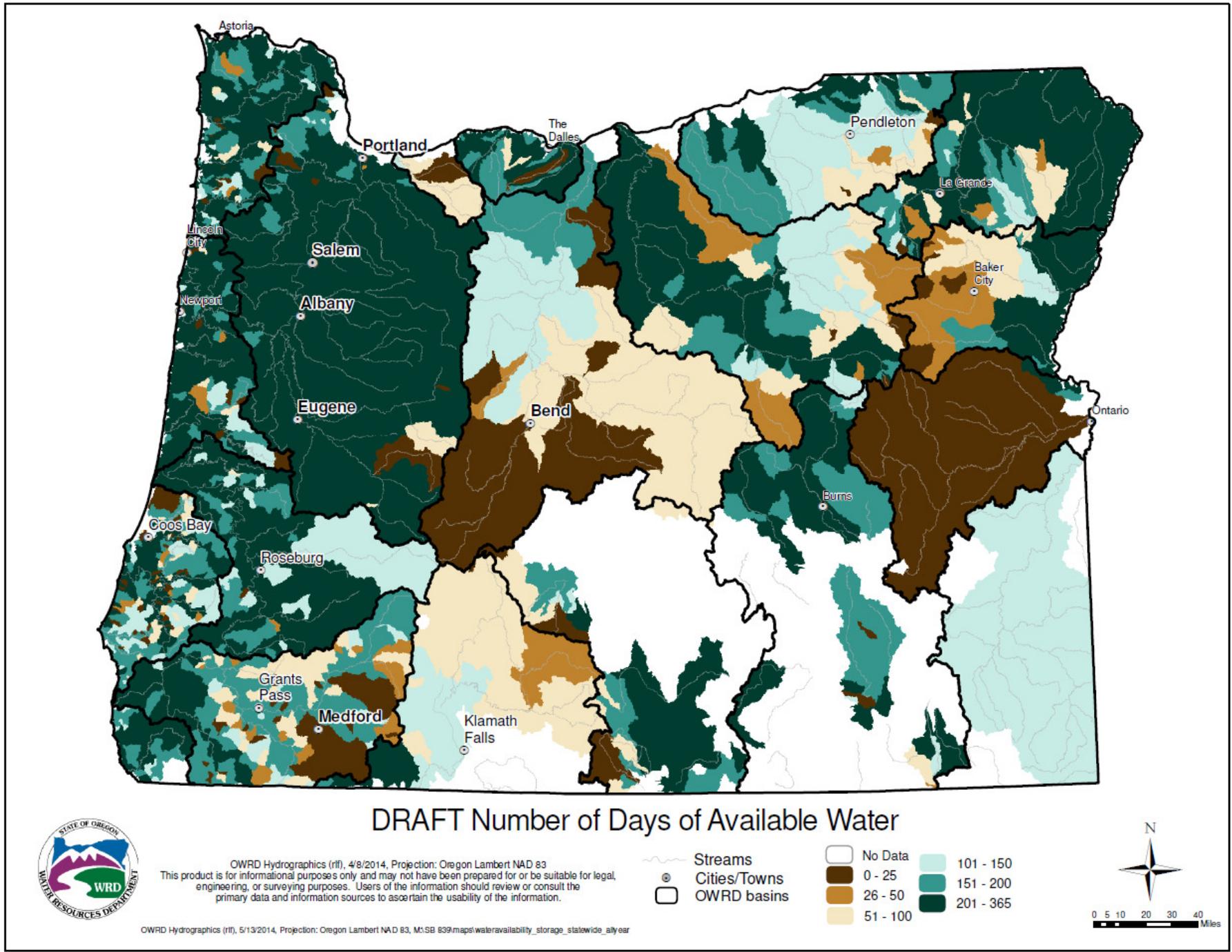


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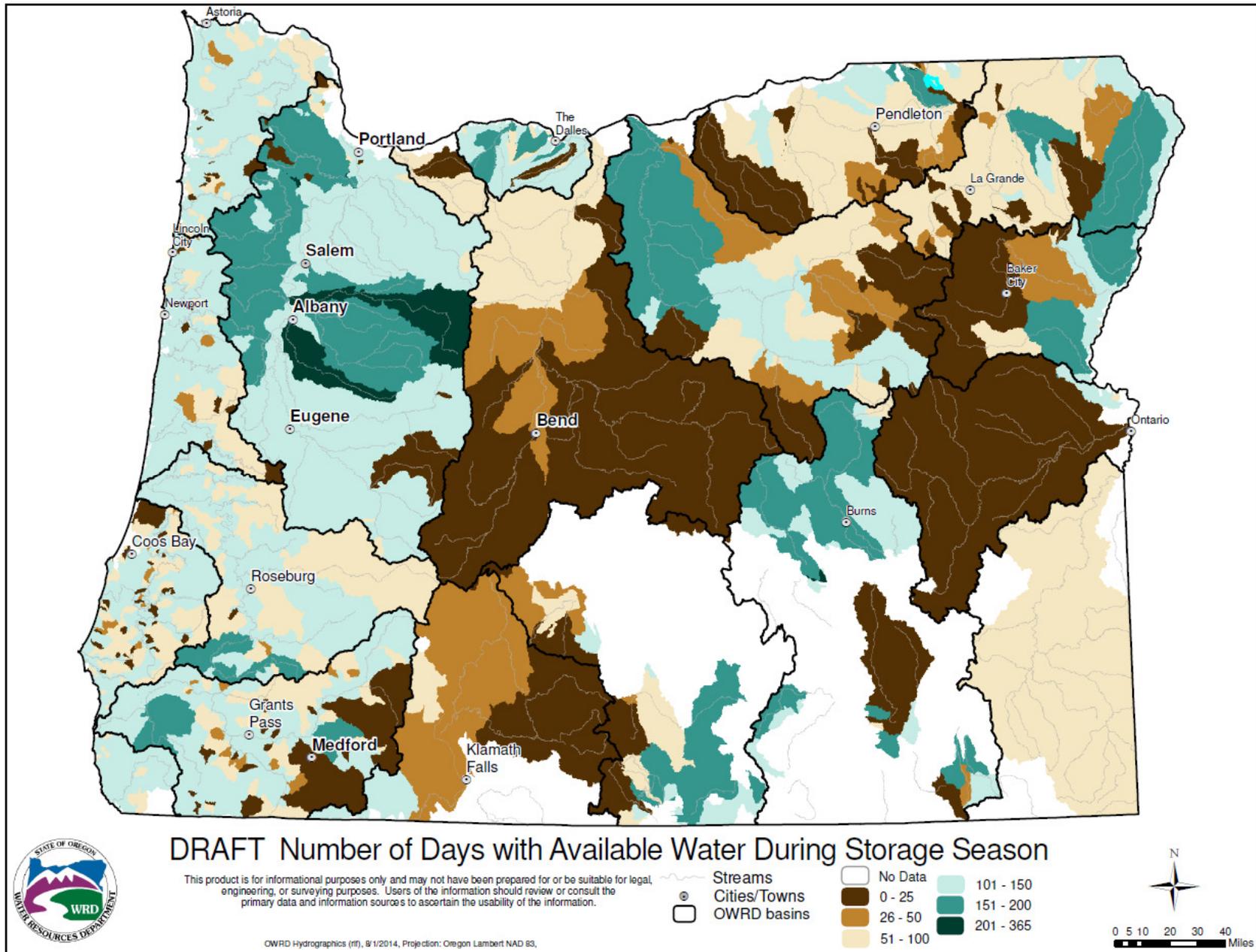


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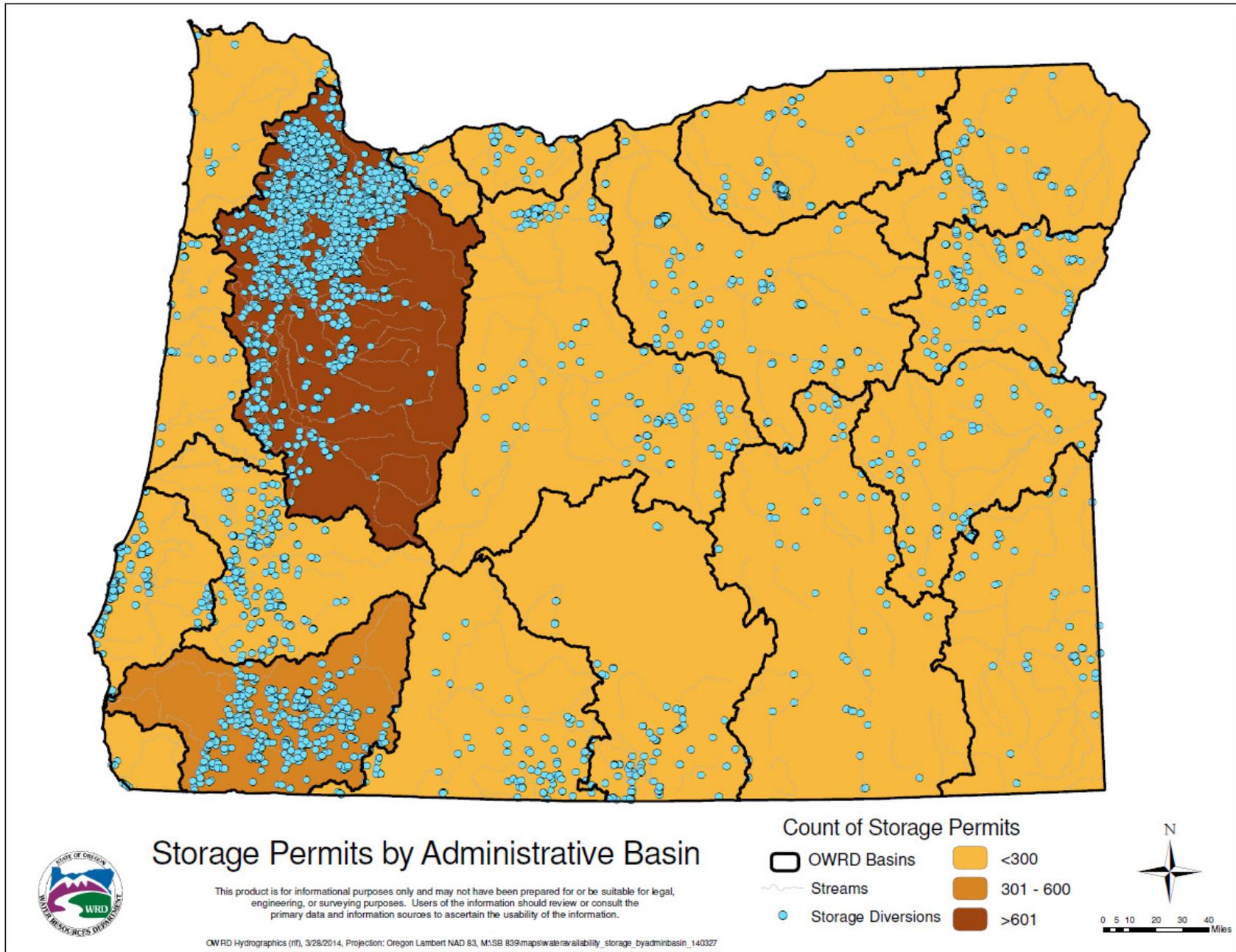


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

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A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

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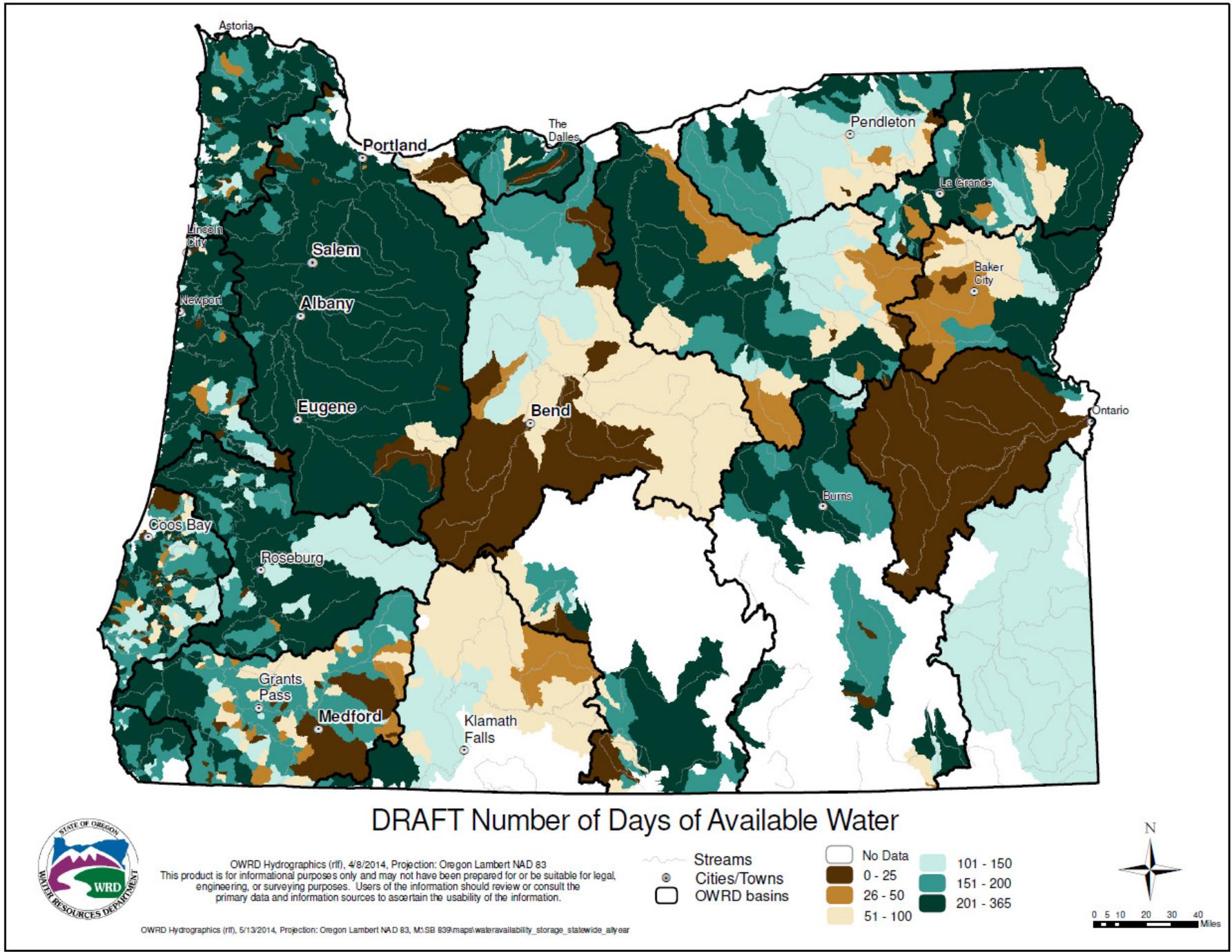


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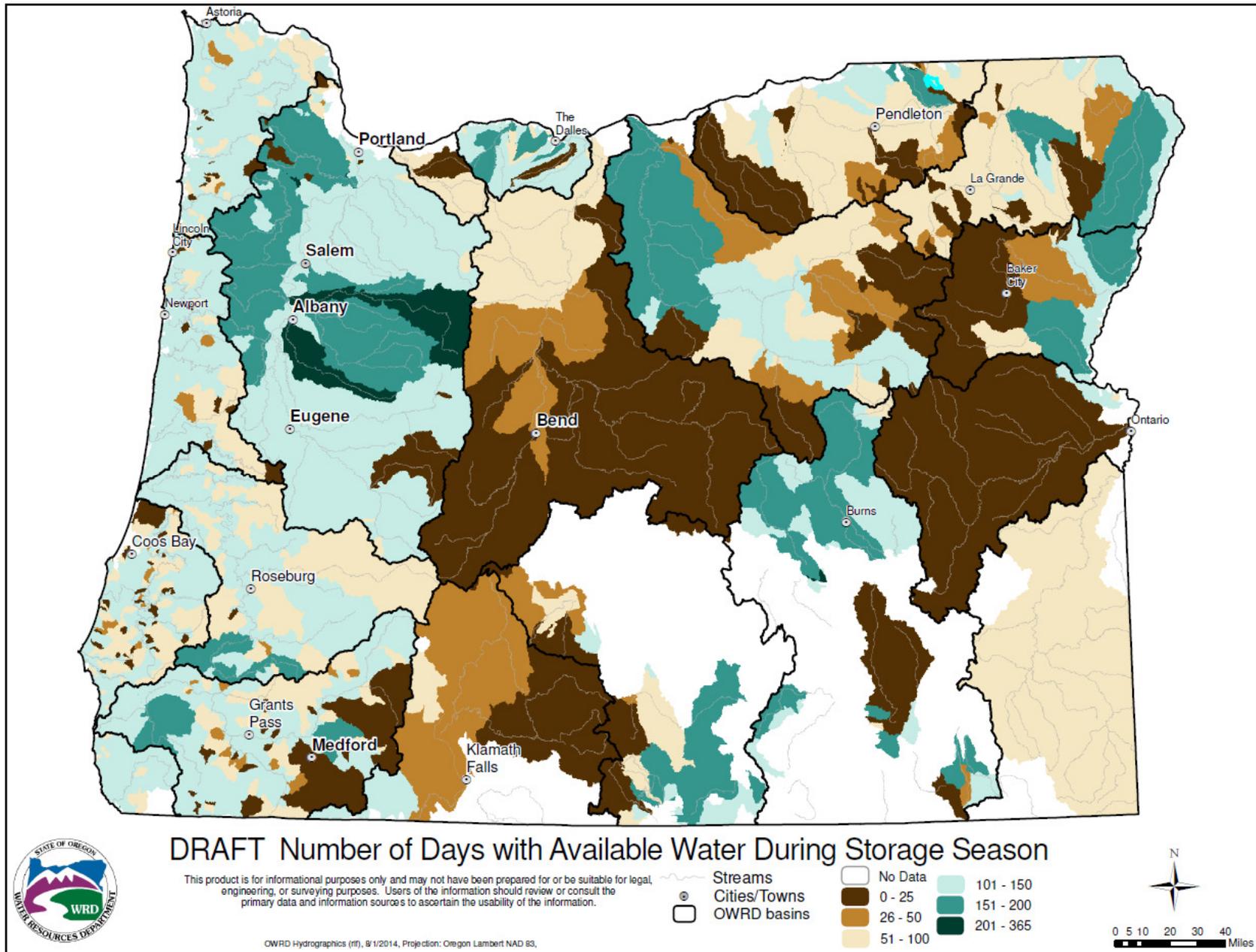


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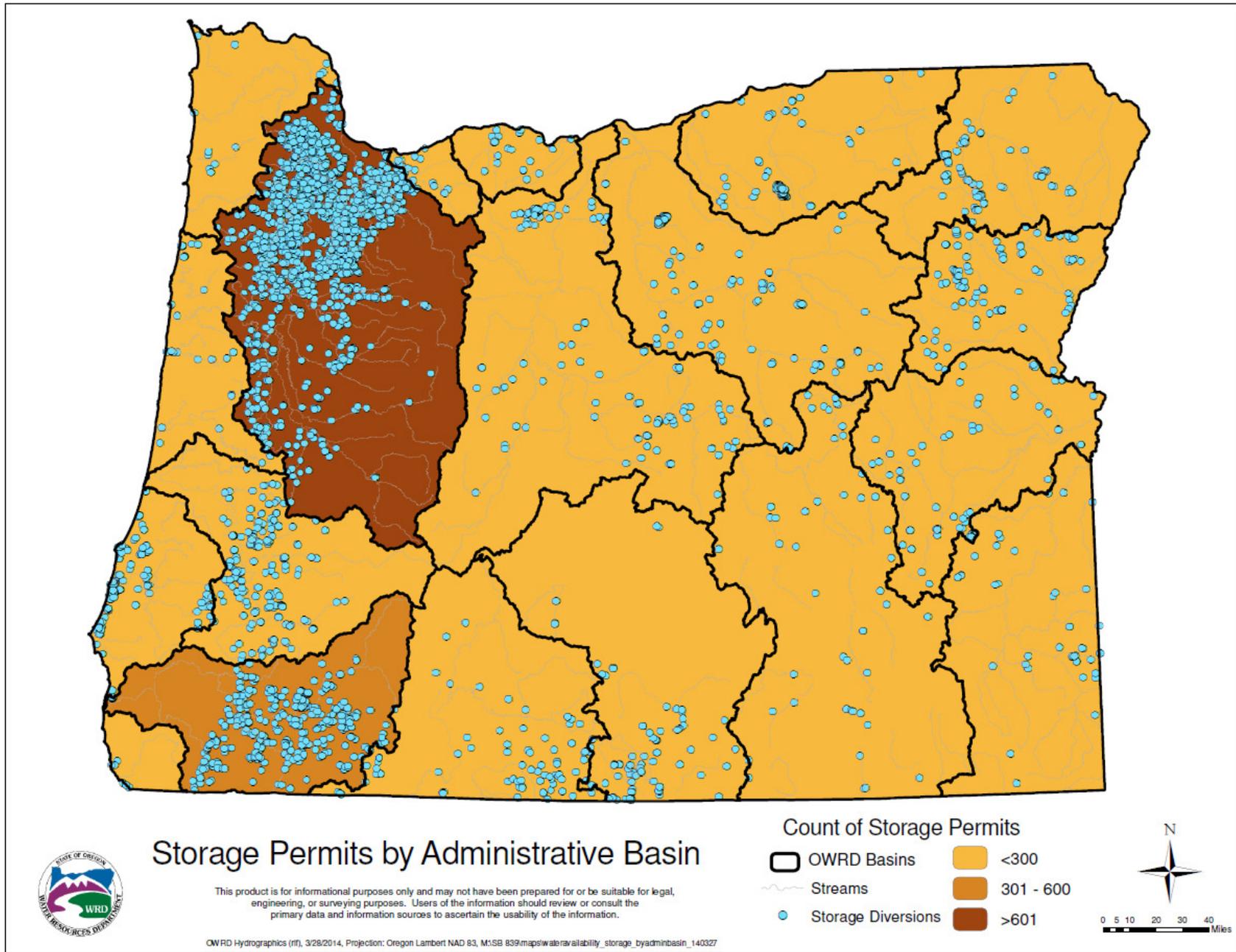


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Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

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Q11) What are the benefits of the proposed POF diversion method?

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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

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Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

Contact:

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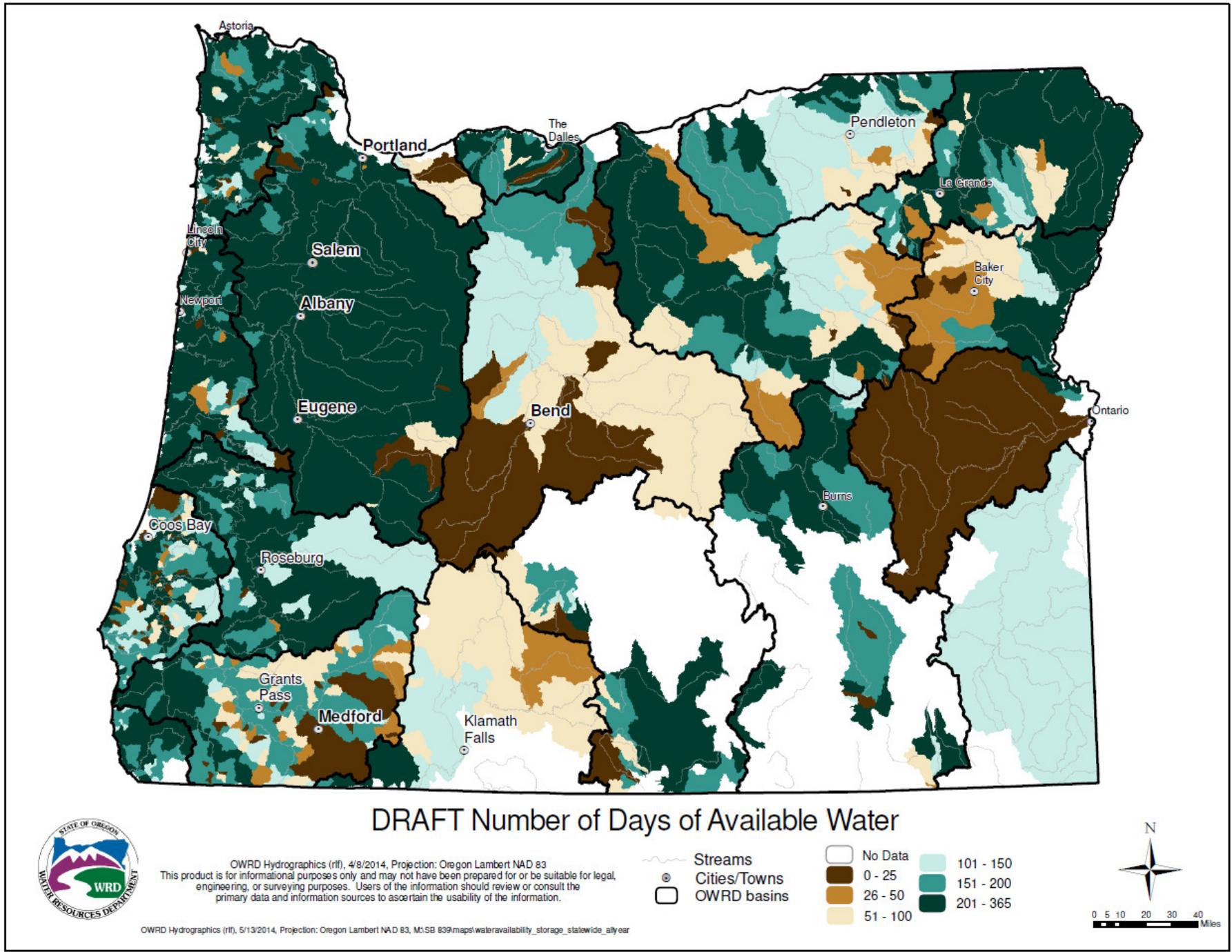


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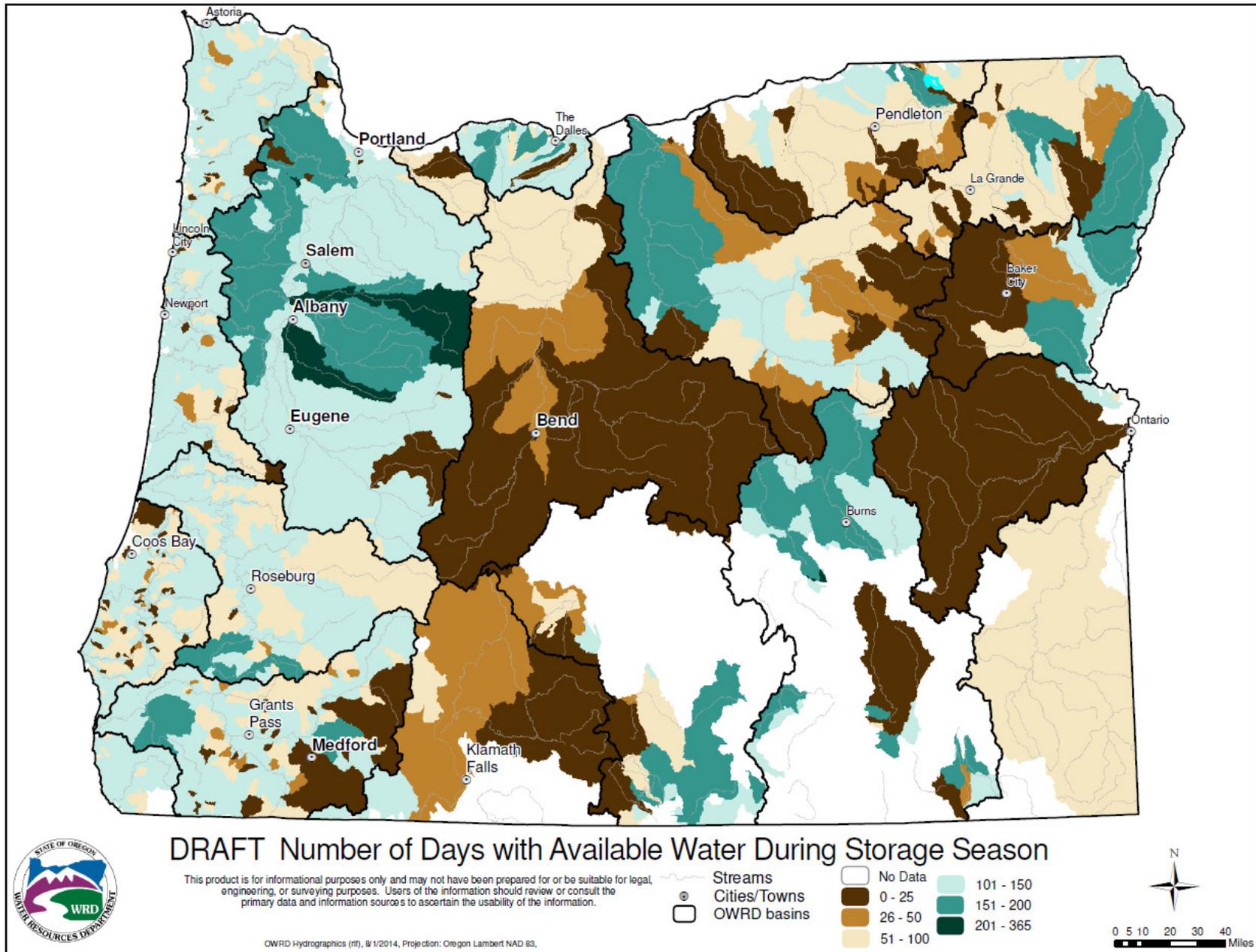


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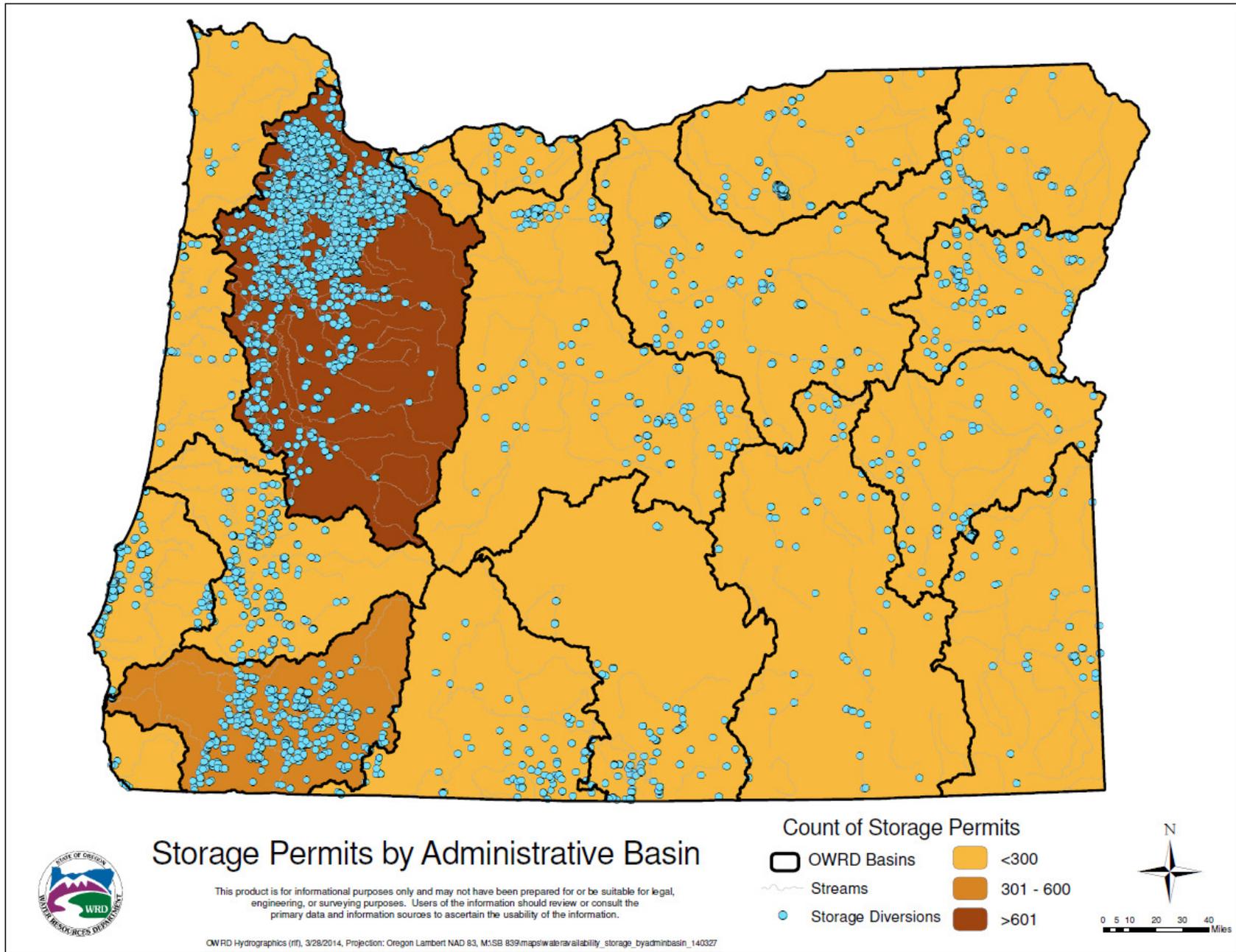


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

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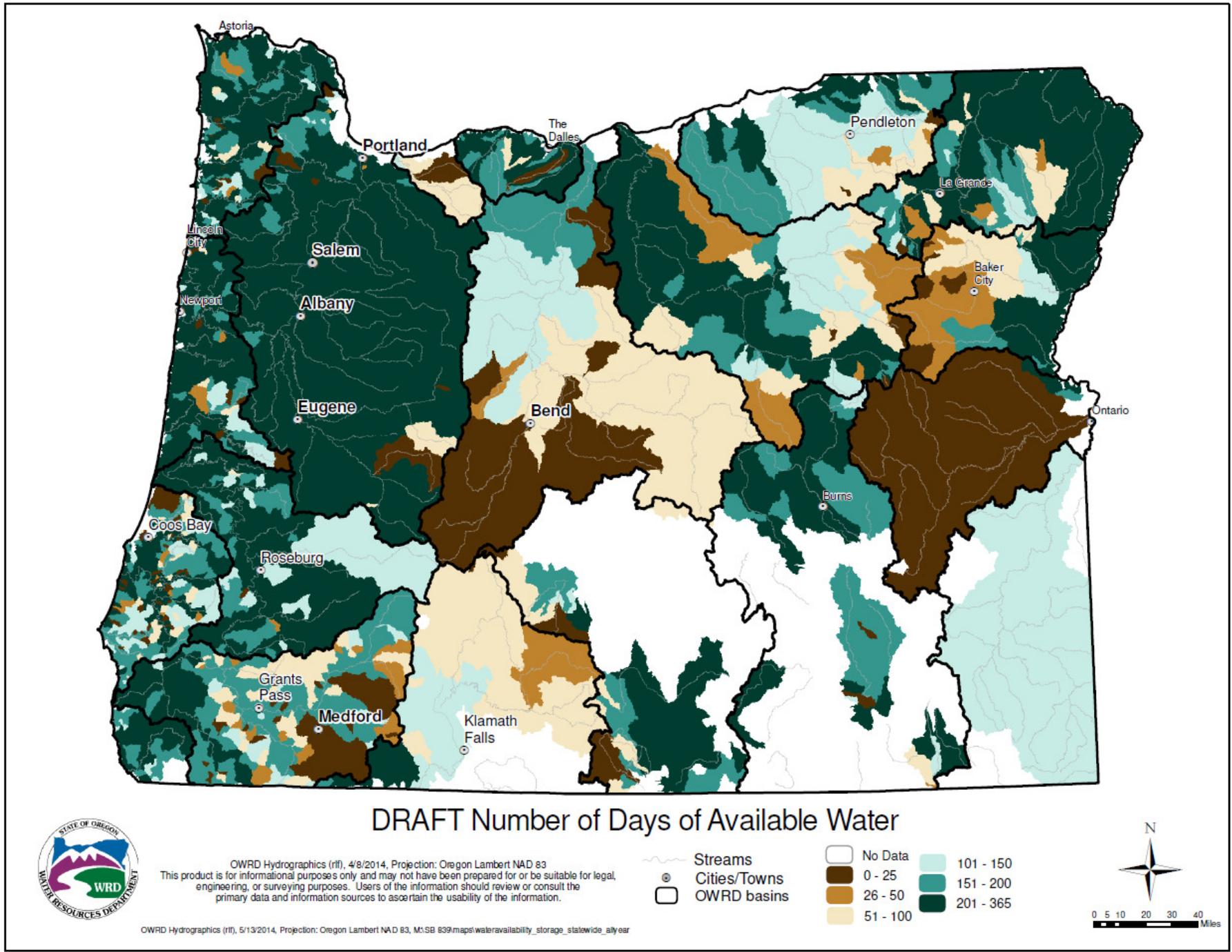


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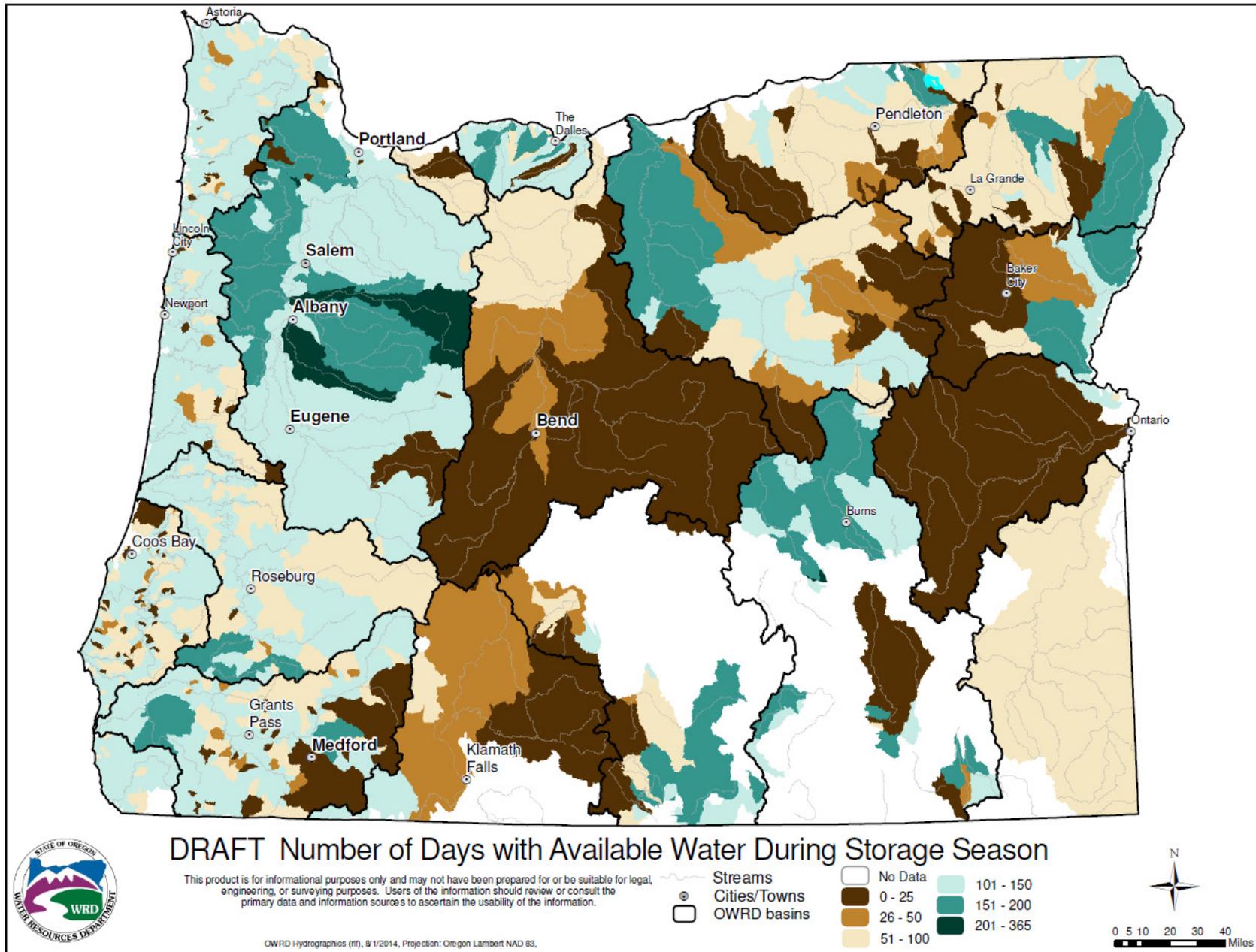


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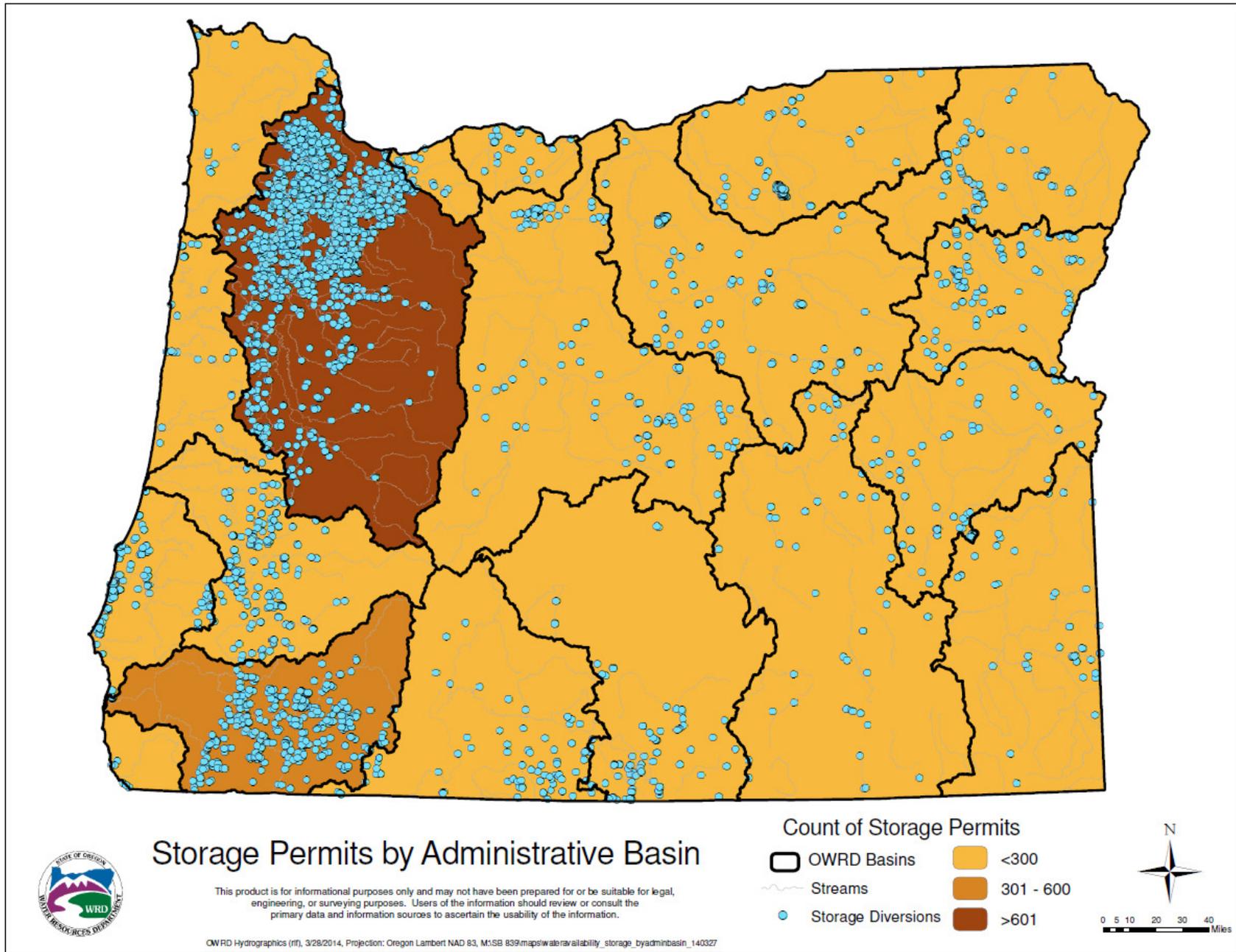


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Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

Contact:

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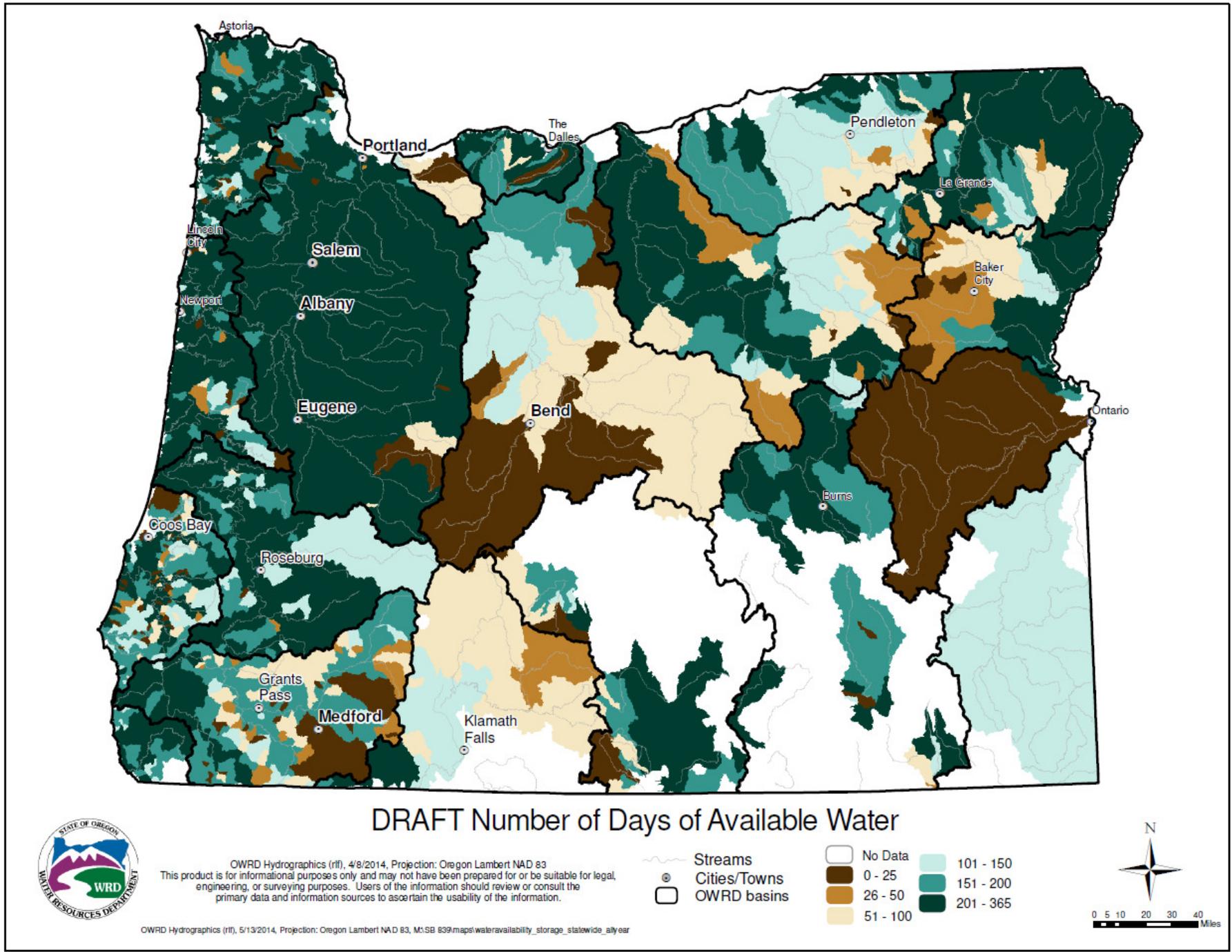


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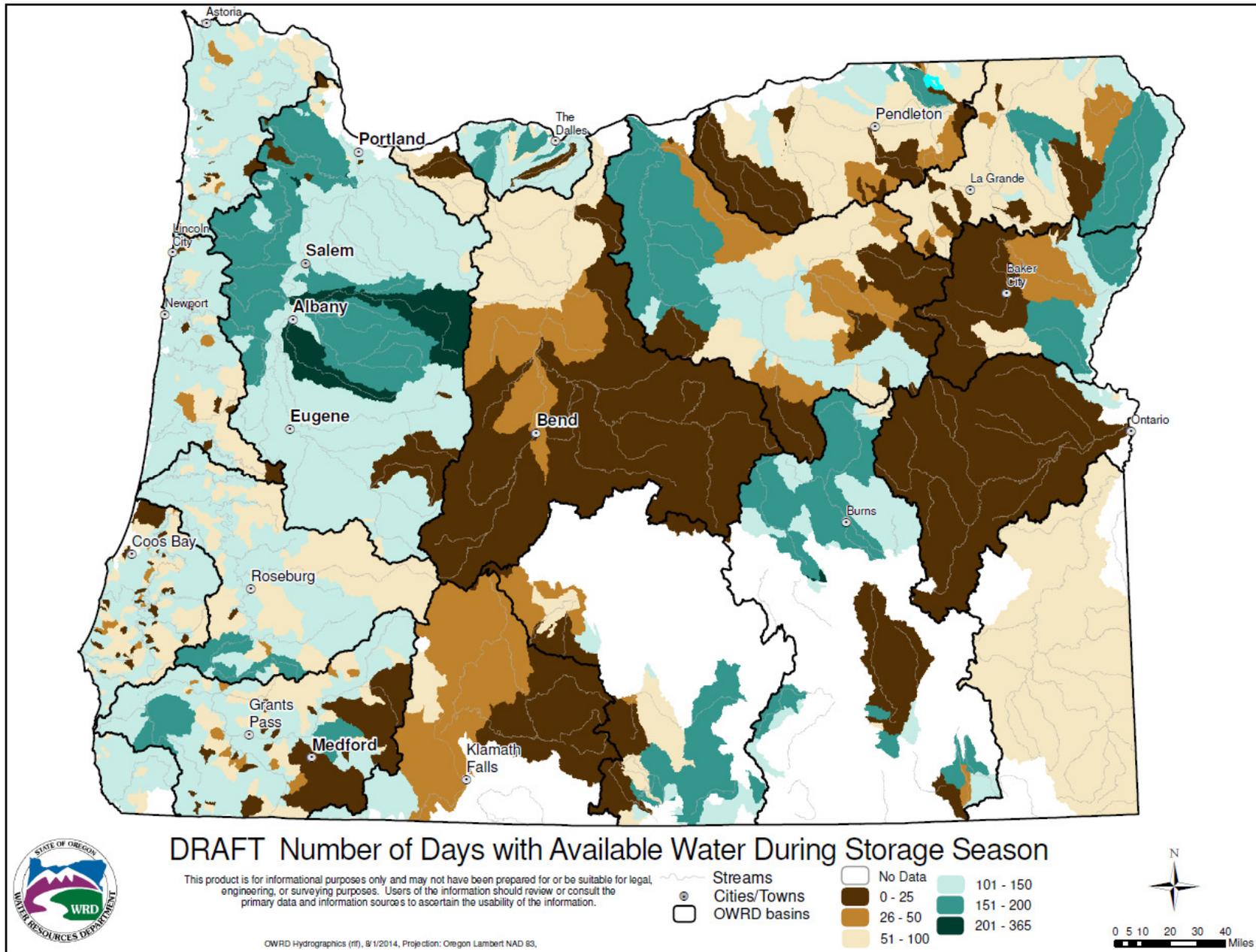


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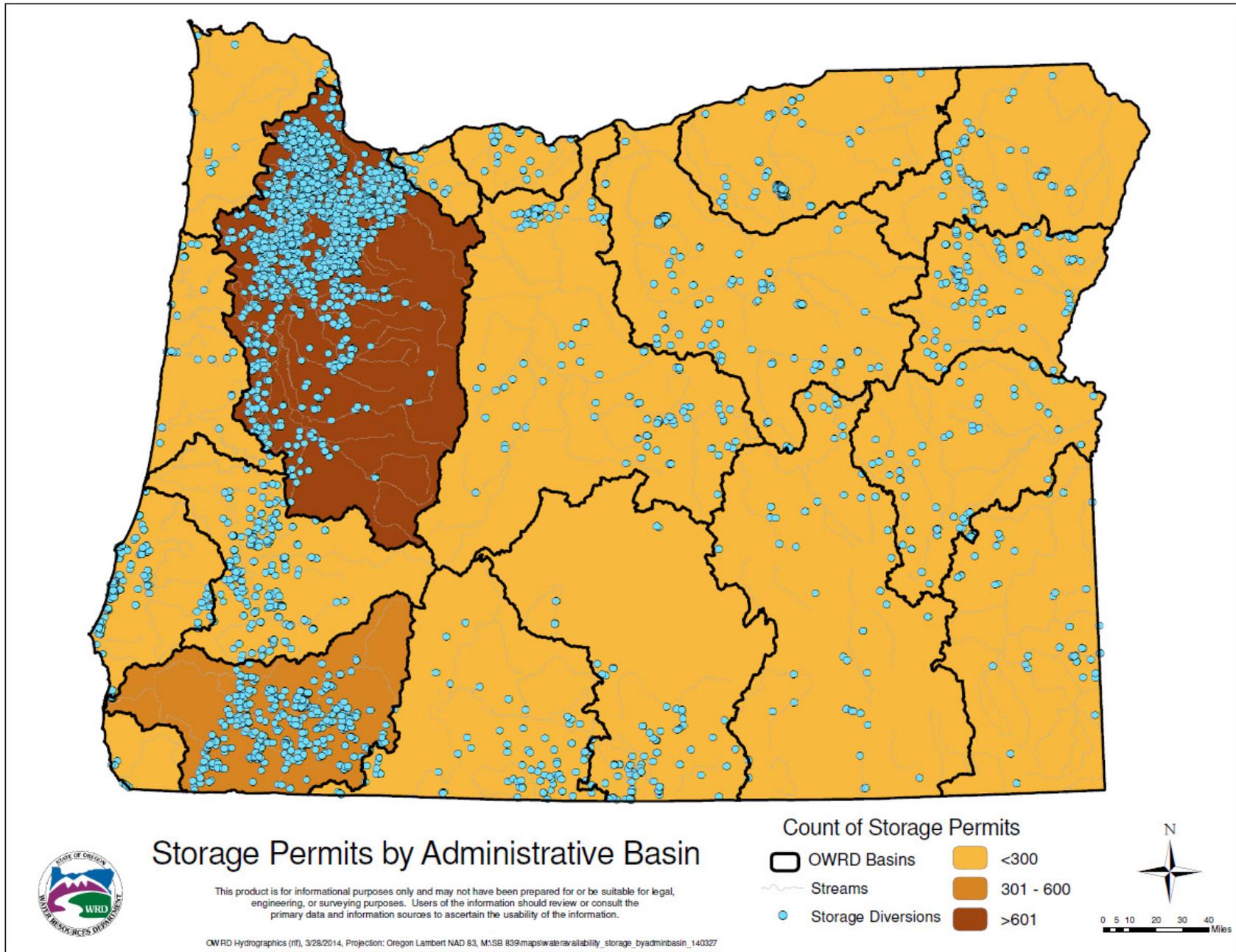


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

The specific storage season will be determined at the time of permitting. The initial screening criteria for these projects (whether there is water available under the 50% exceedance criteria) does give a general answer to the question of whether water will be available for storage. This information can be accessed at OWRD’s Water Availability website:

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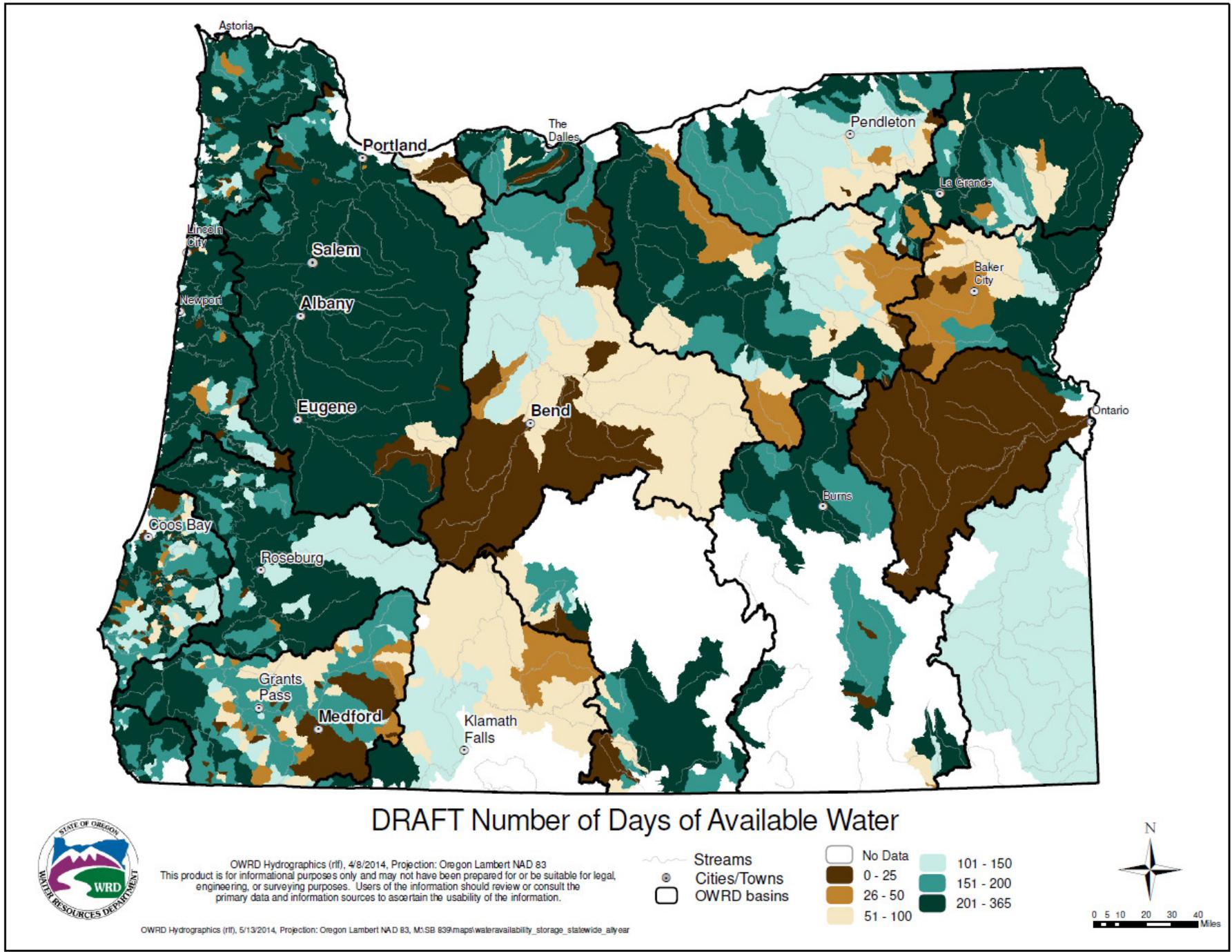


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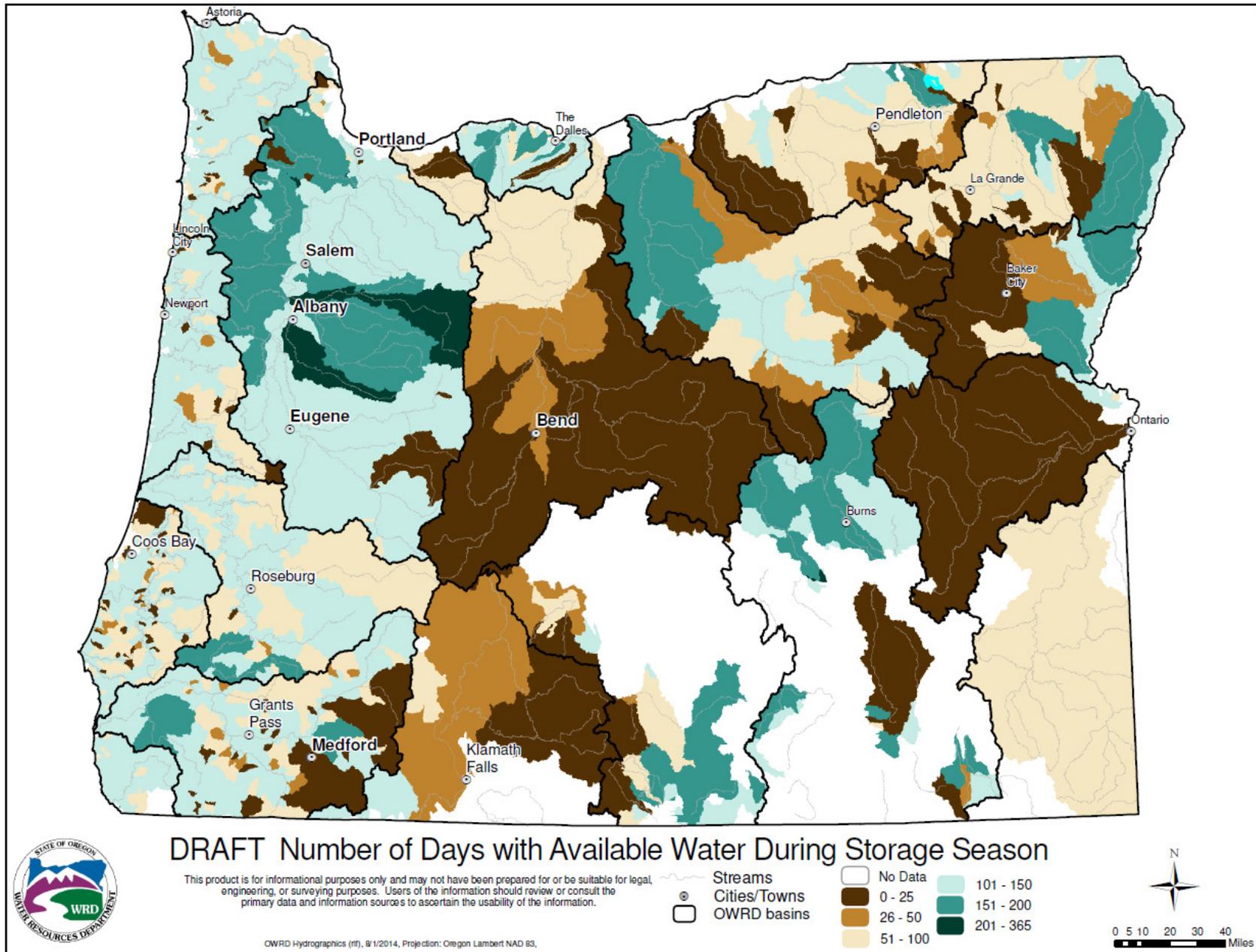


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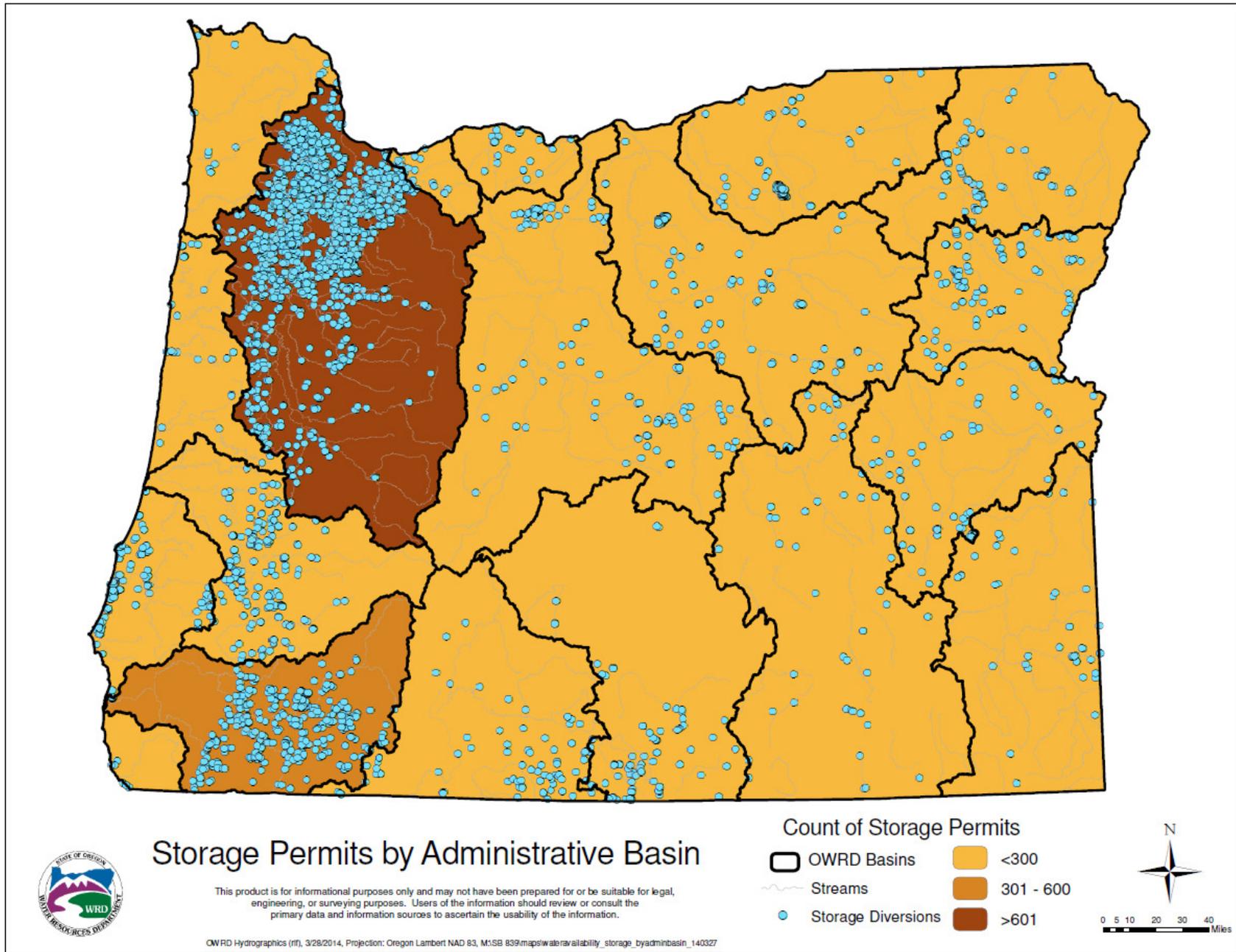


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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

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Q16) How would the POF method be accounted for in the Water Availability program?

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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

Contact:

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Figure 3: Storage projects by administrative basin, statewide _____ pg 9

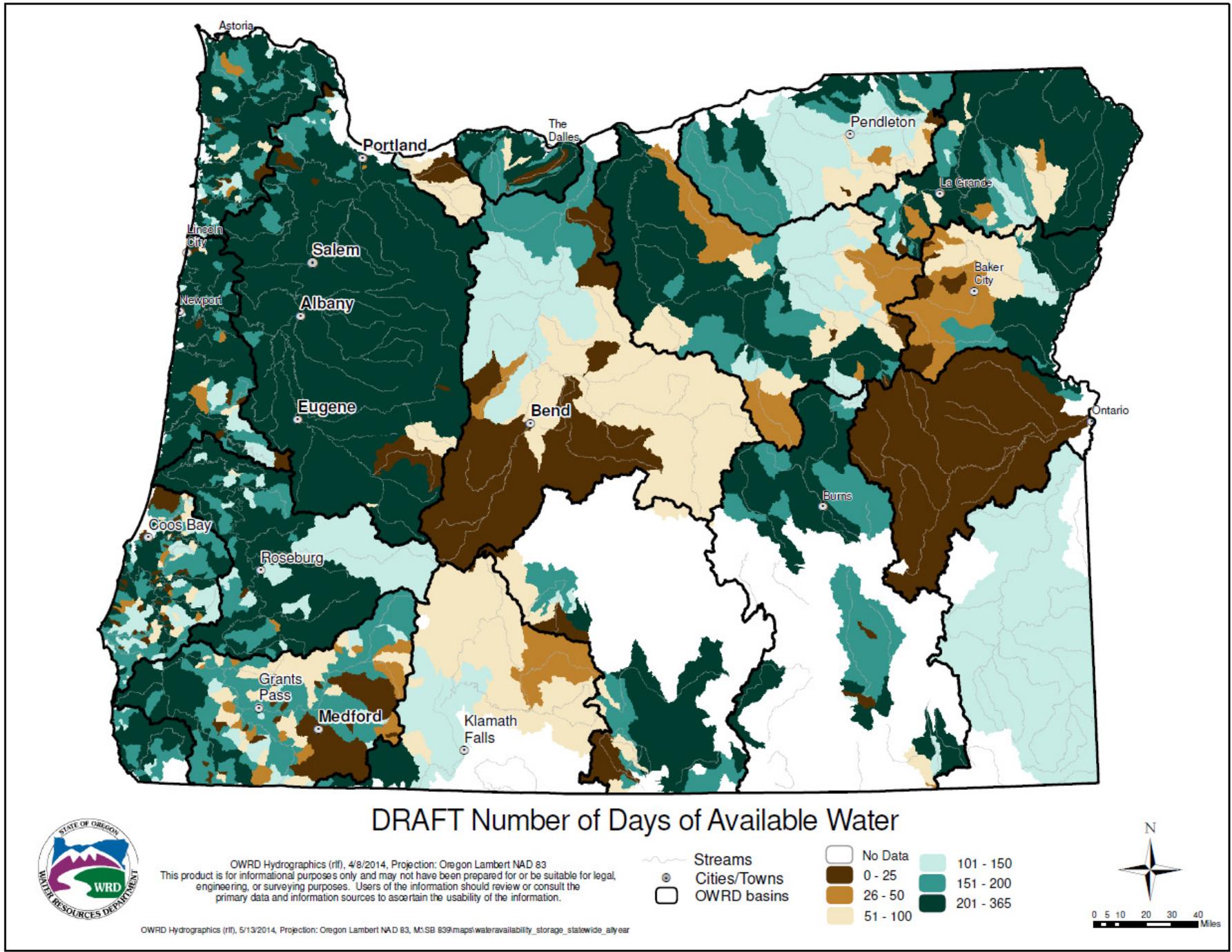


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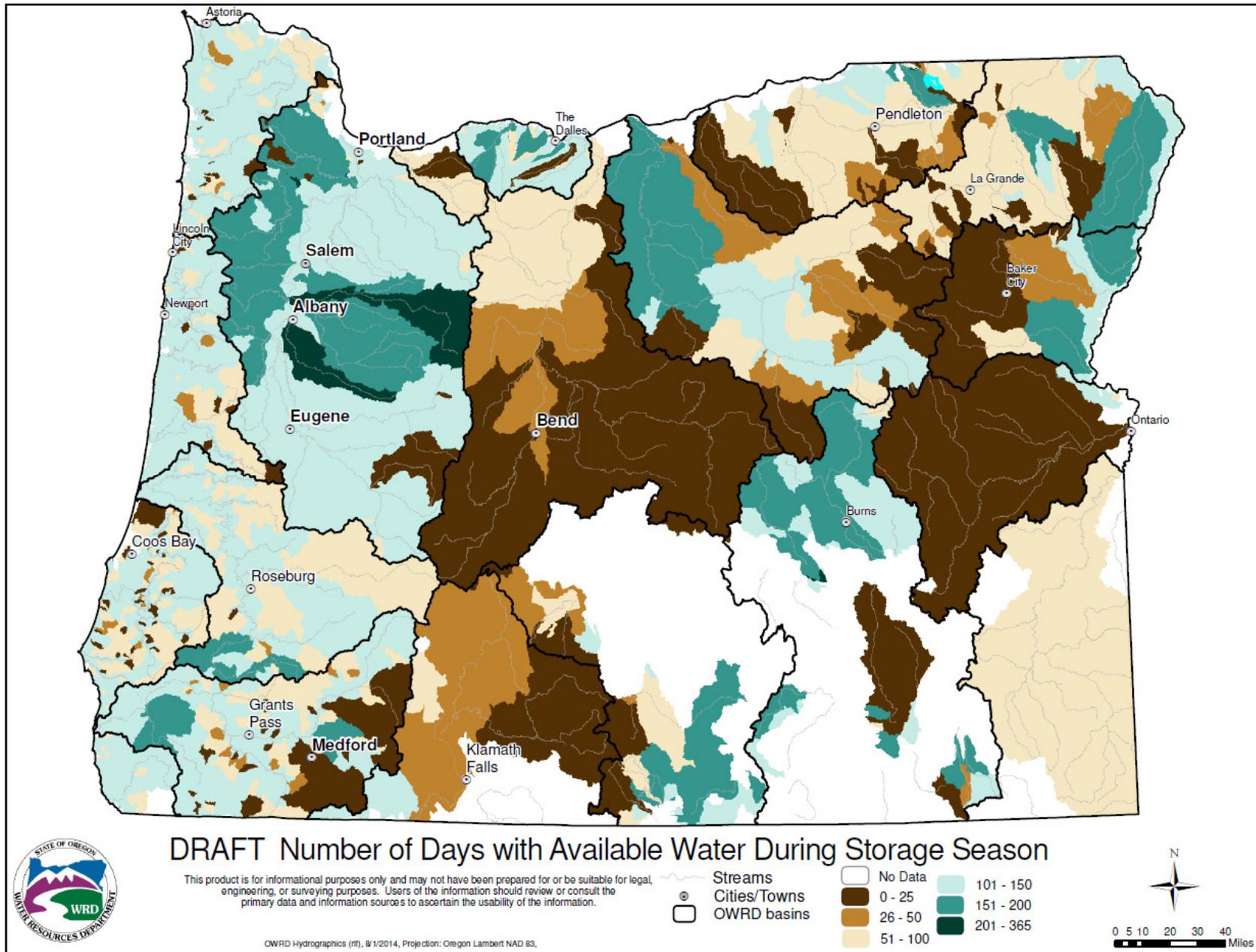


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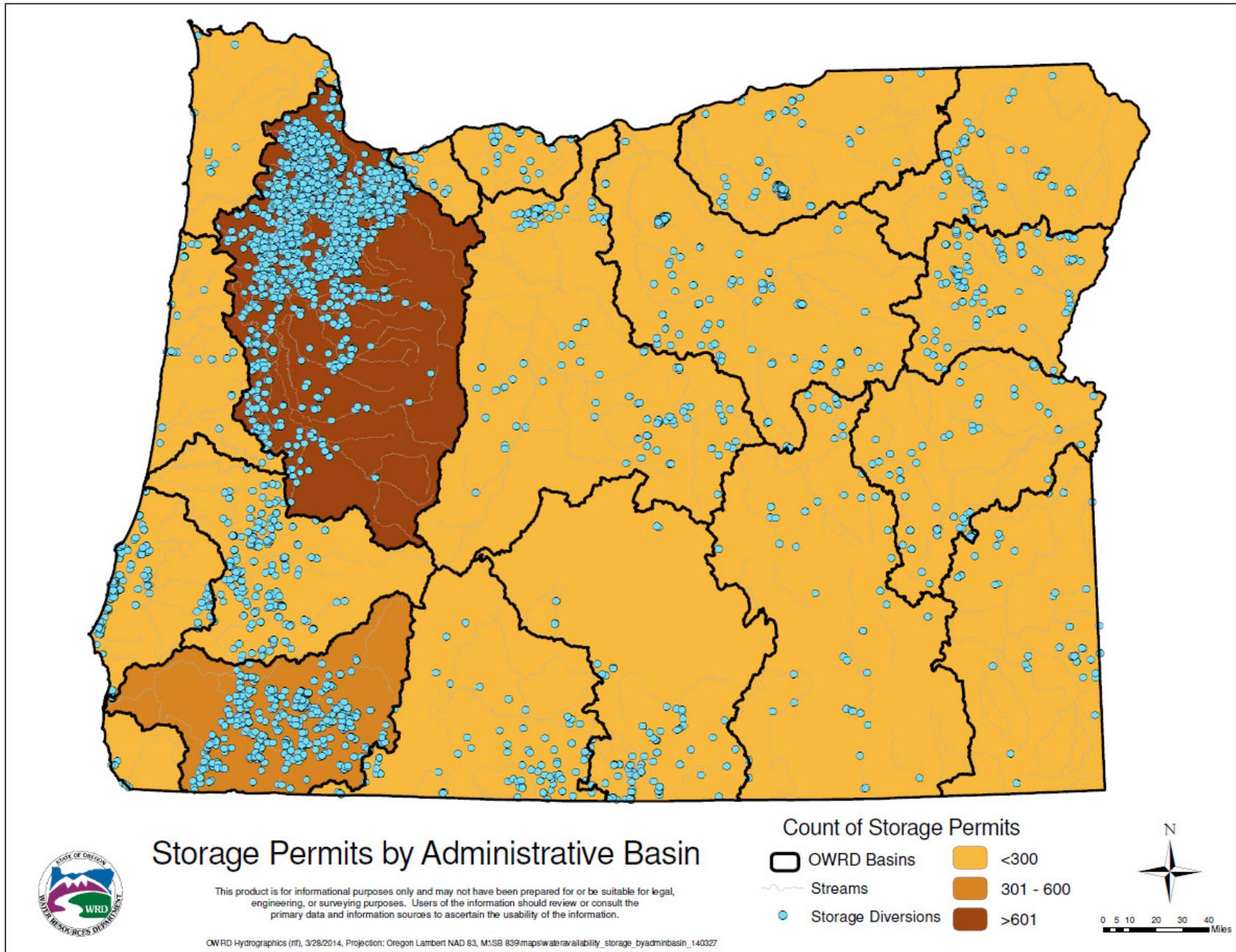


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

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Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

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The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

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A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

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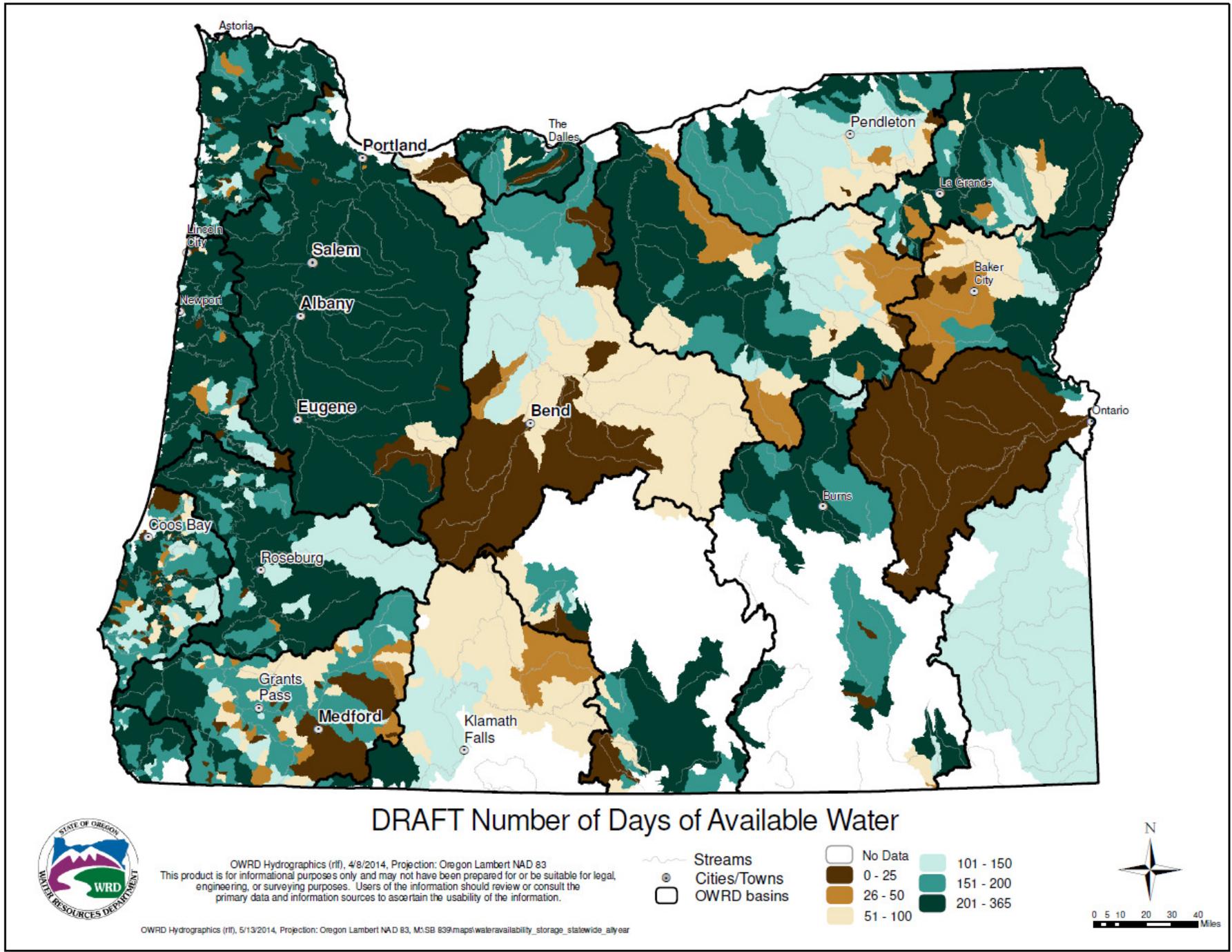


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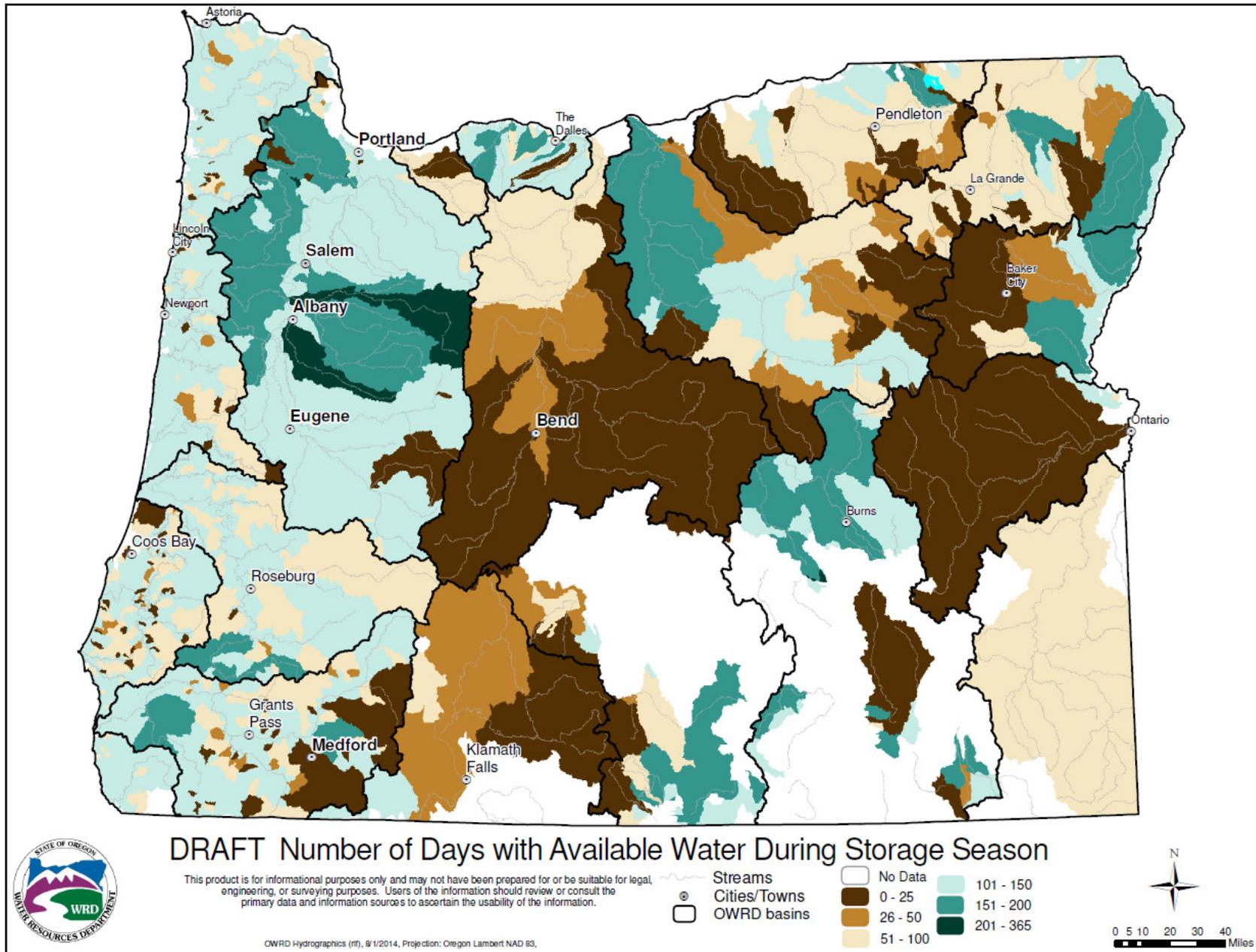


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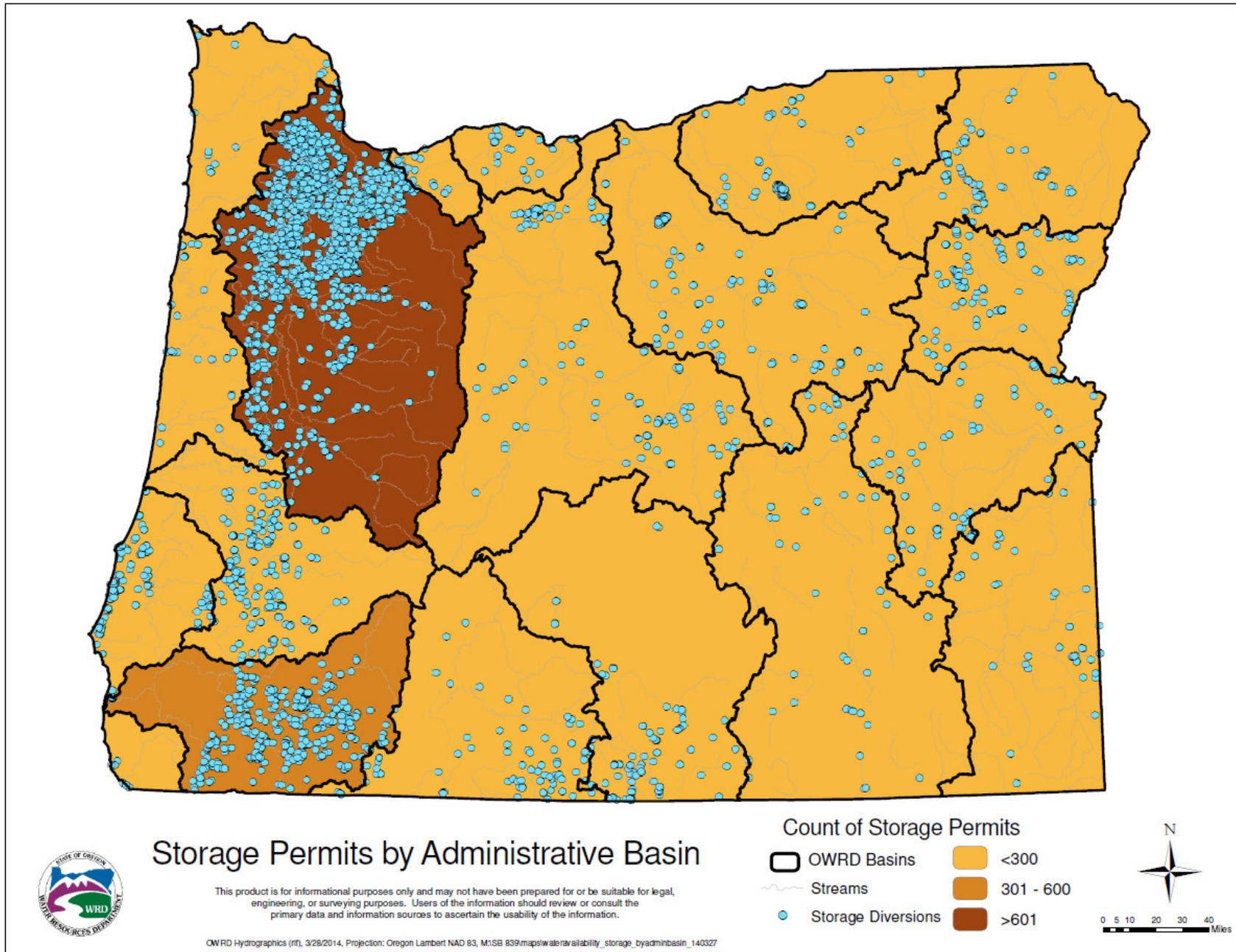


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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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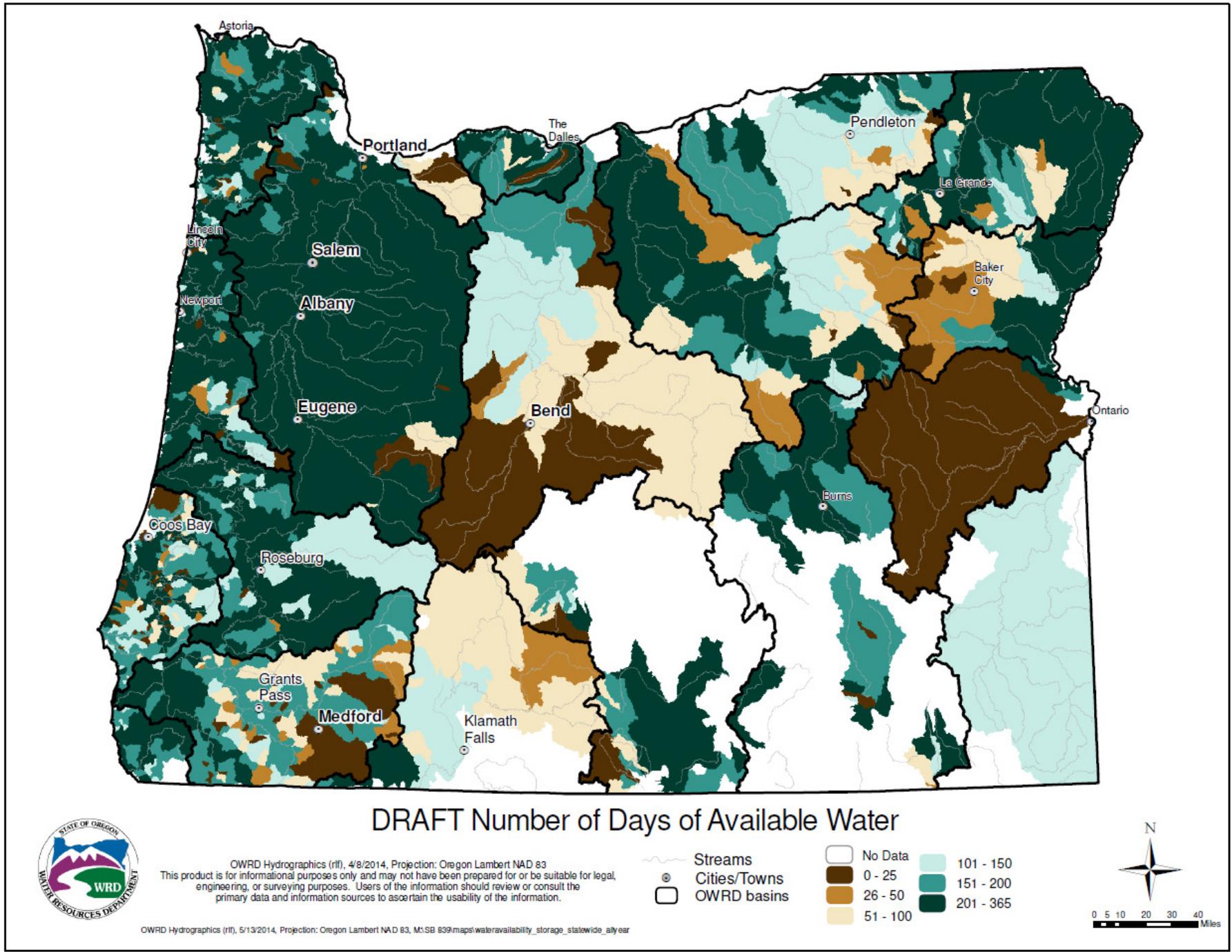


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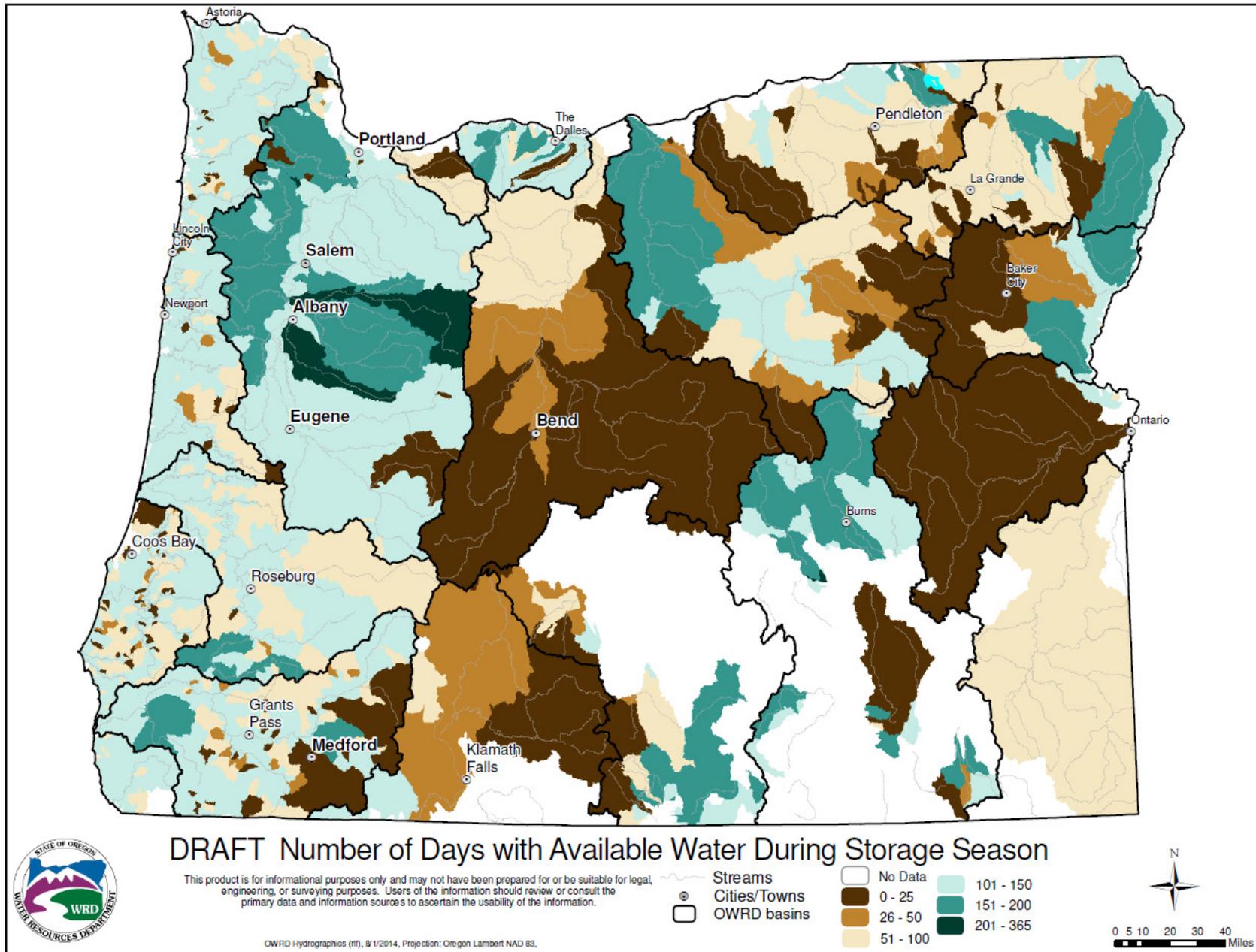


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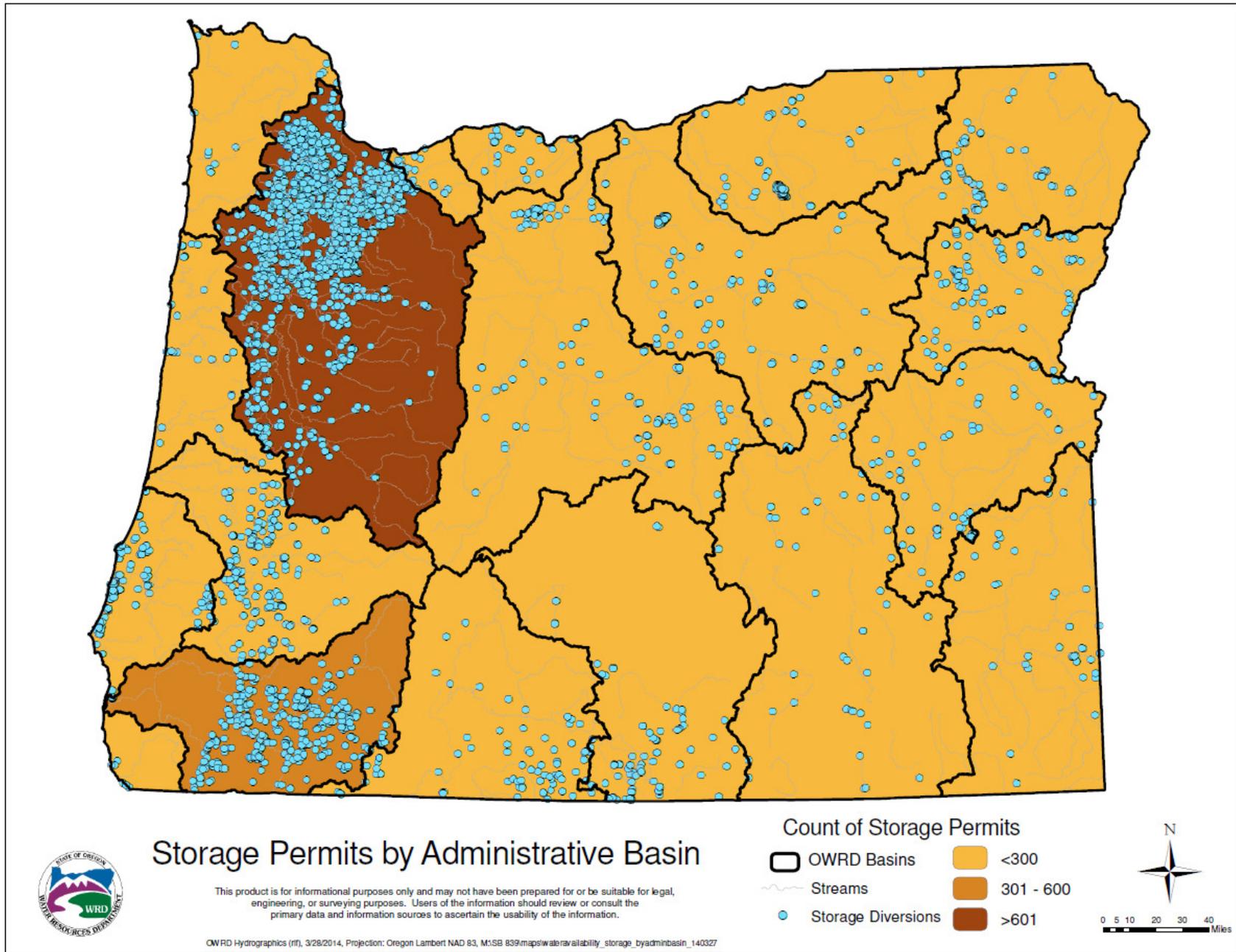


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

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The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

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A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

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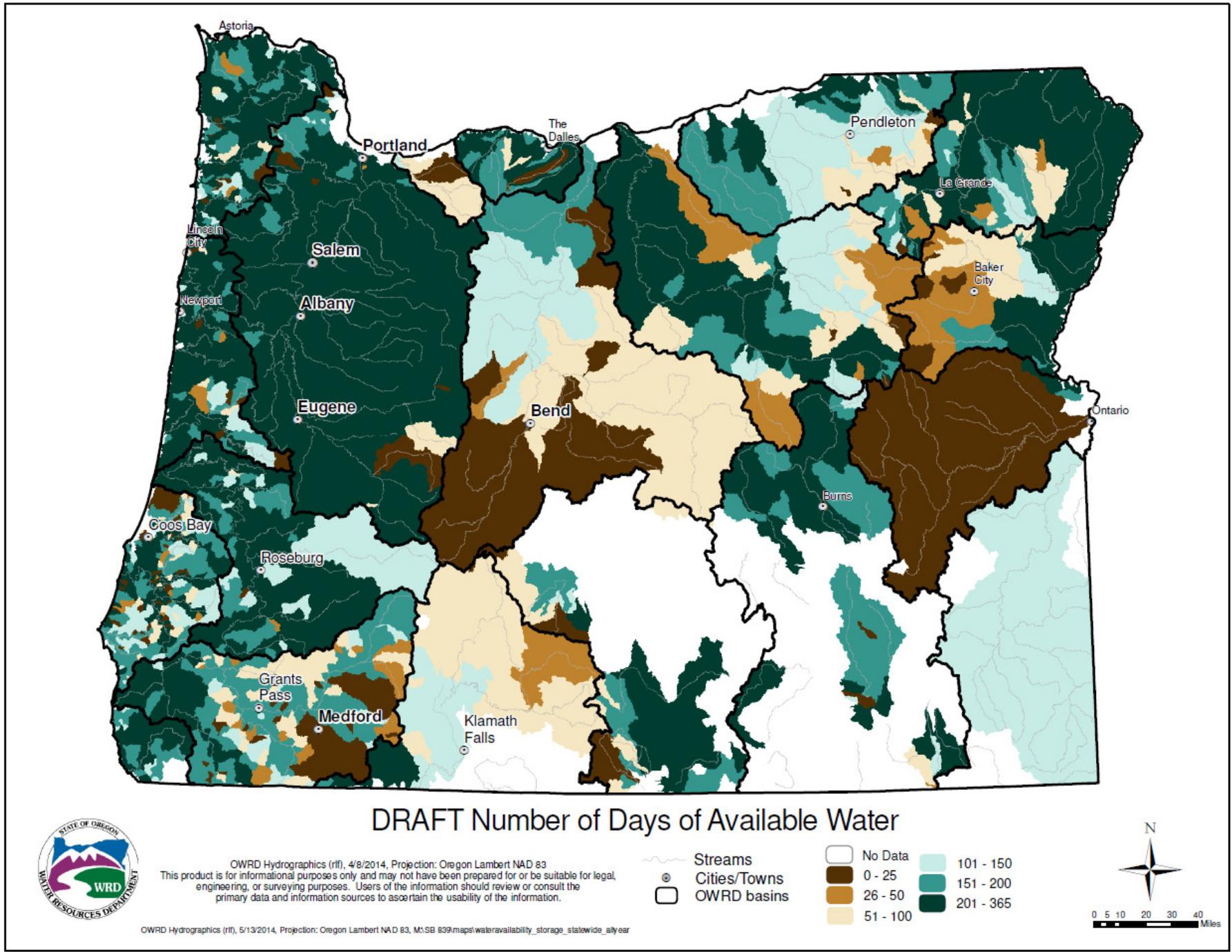


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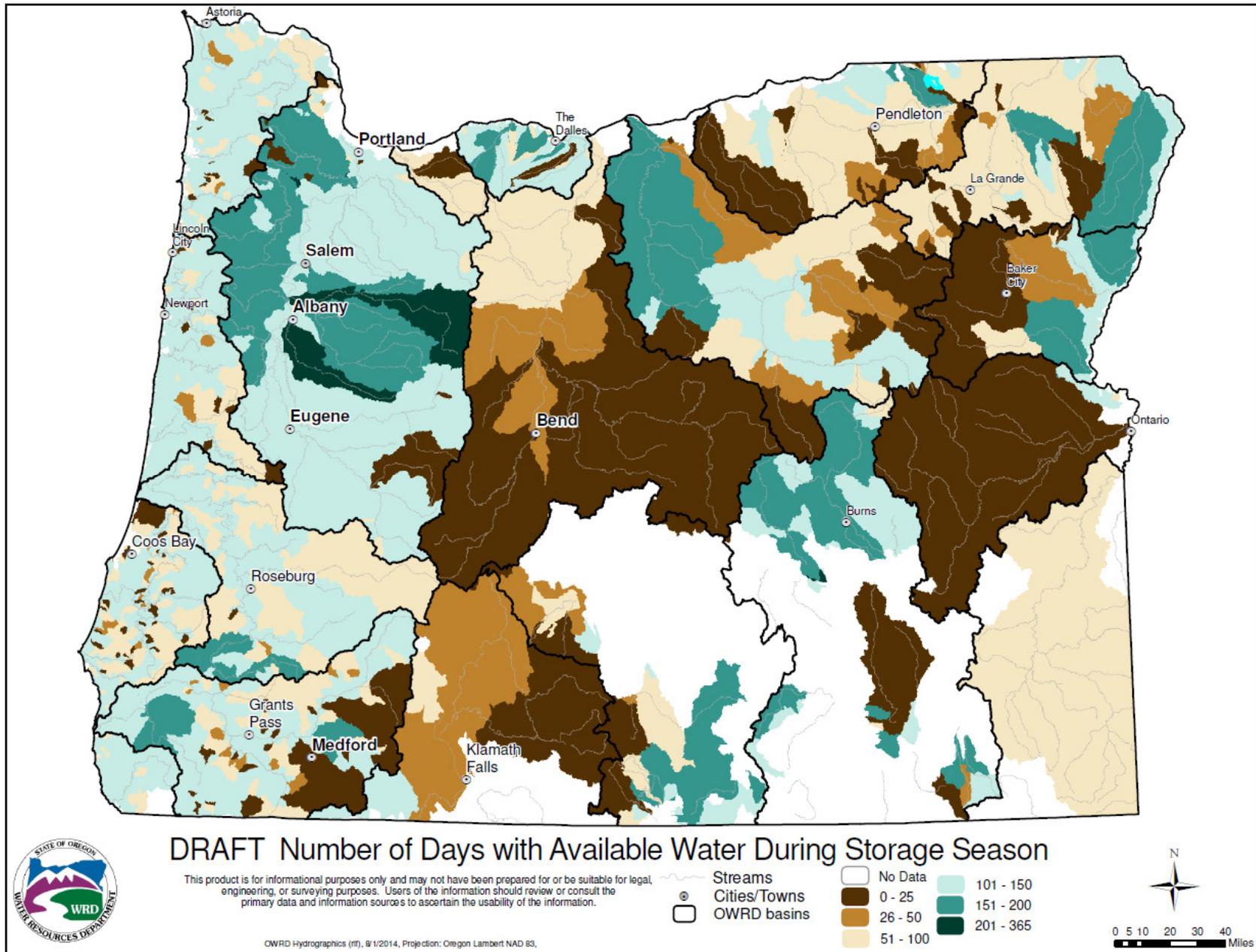


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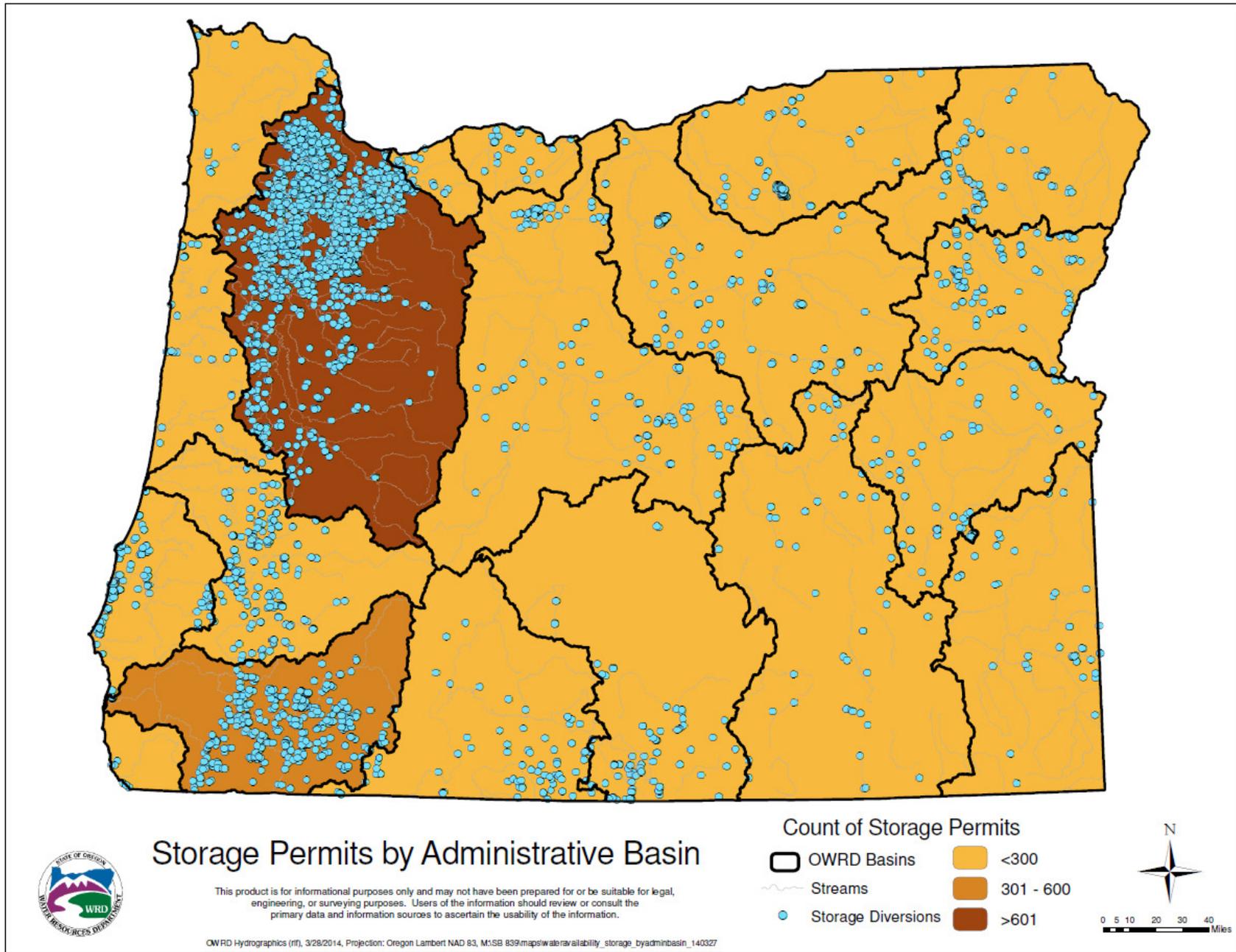


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A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

Artificial Recharge and Aquifer Storage and Recovery

Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

A: Yes. Under SB 839 language, an ASR or AR project would be eligible for funding. The fund can pay for a variety of uses (see OR SB 839, section 3) including new or expanded water storage below ground. If an applicant plans to use an existing water right, then the ASR permit will be limited to the existing permit’s total volume.

Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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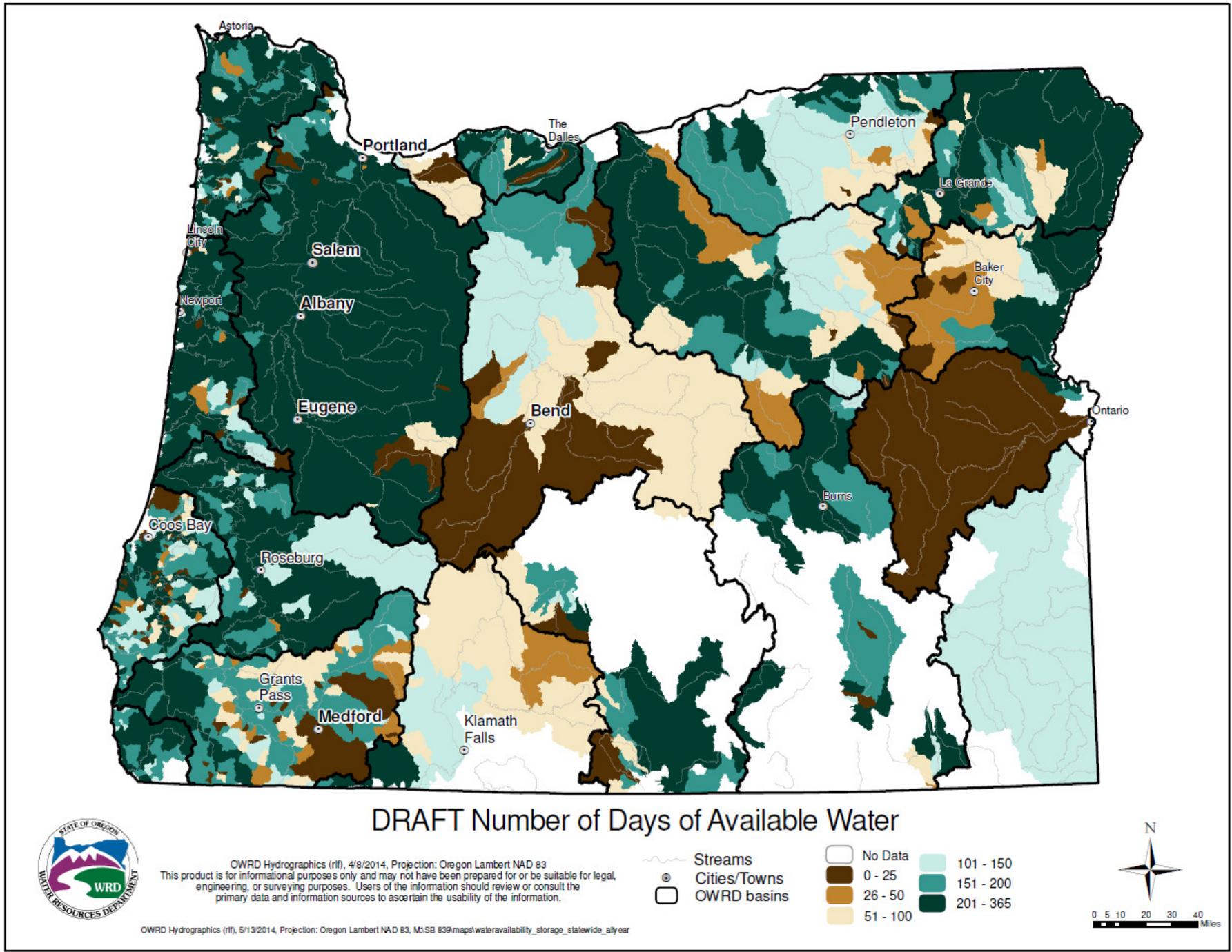


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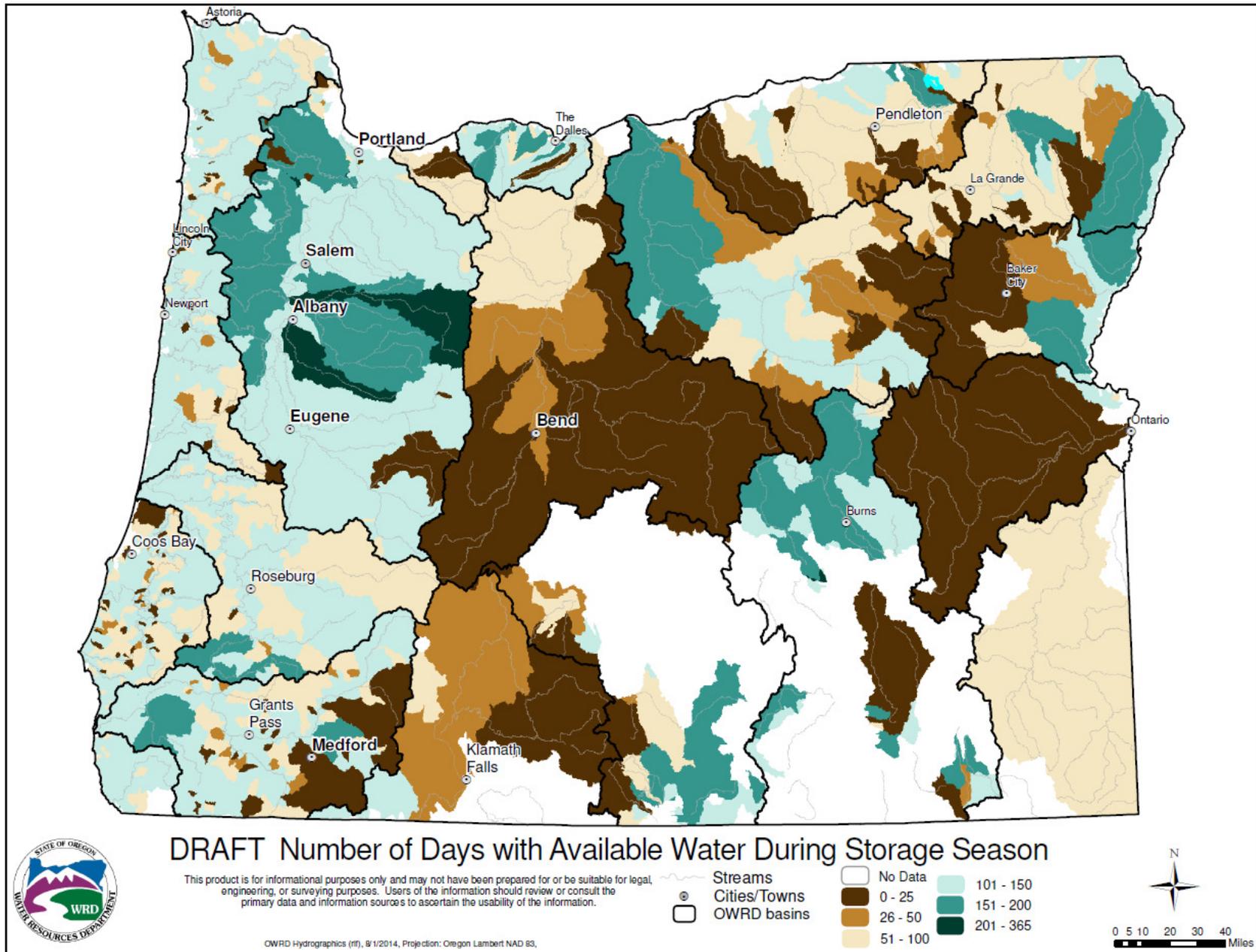


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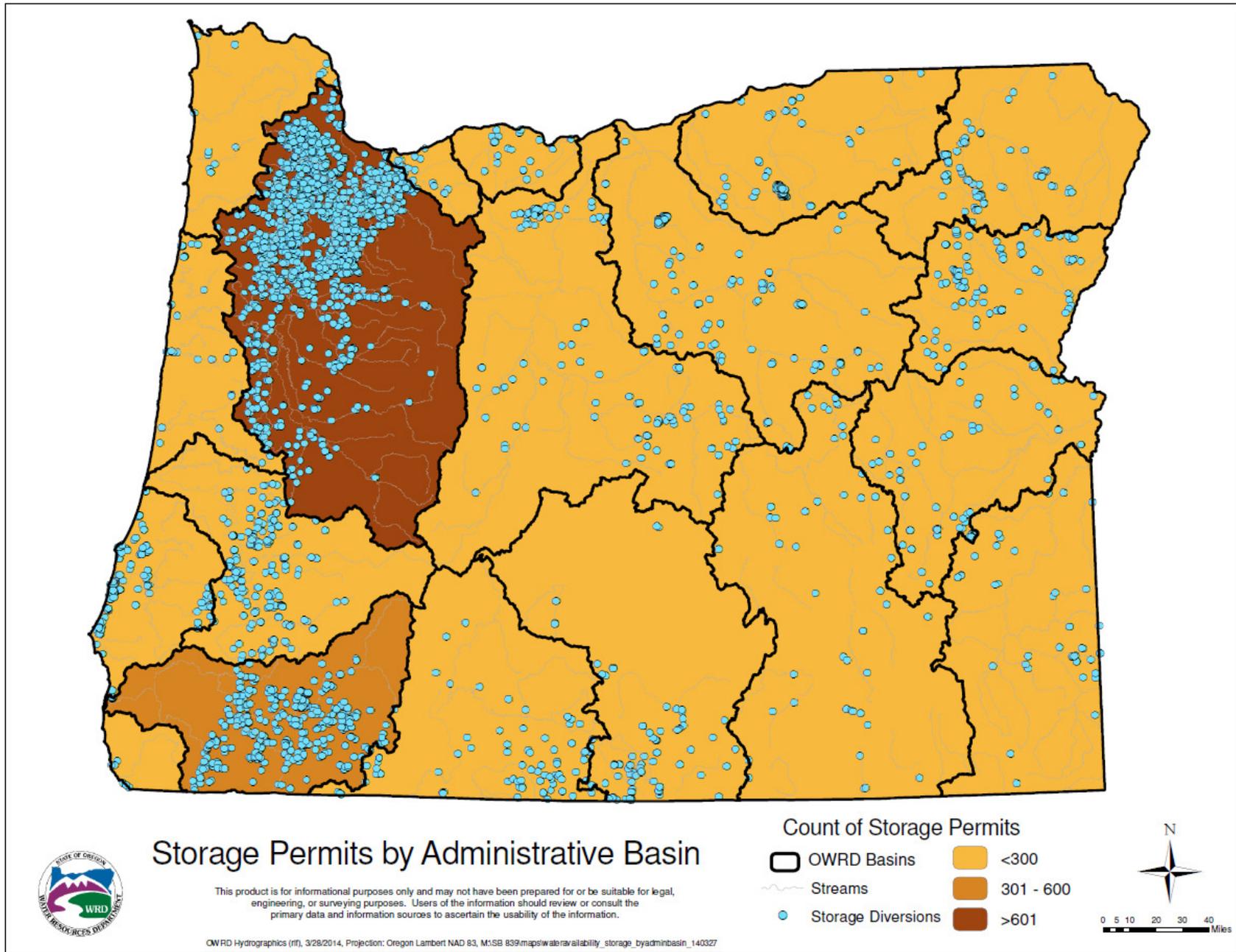


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

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plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

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The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

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A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

A: Yes; monitoring costs associated with the project are allowed for funding under the grant program. Monitoring requirements and plans for each project will be established based on existing gages, the location of the diversion, and prior appropriations in the basin. Under SB 839, the state is authorized to conduct or pay for studies to determine the seasonally varying flow requirements. Applicants may also pay for these costs if they so choose.

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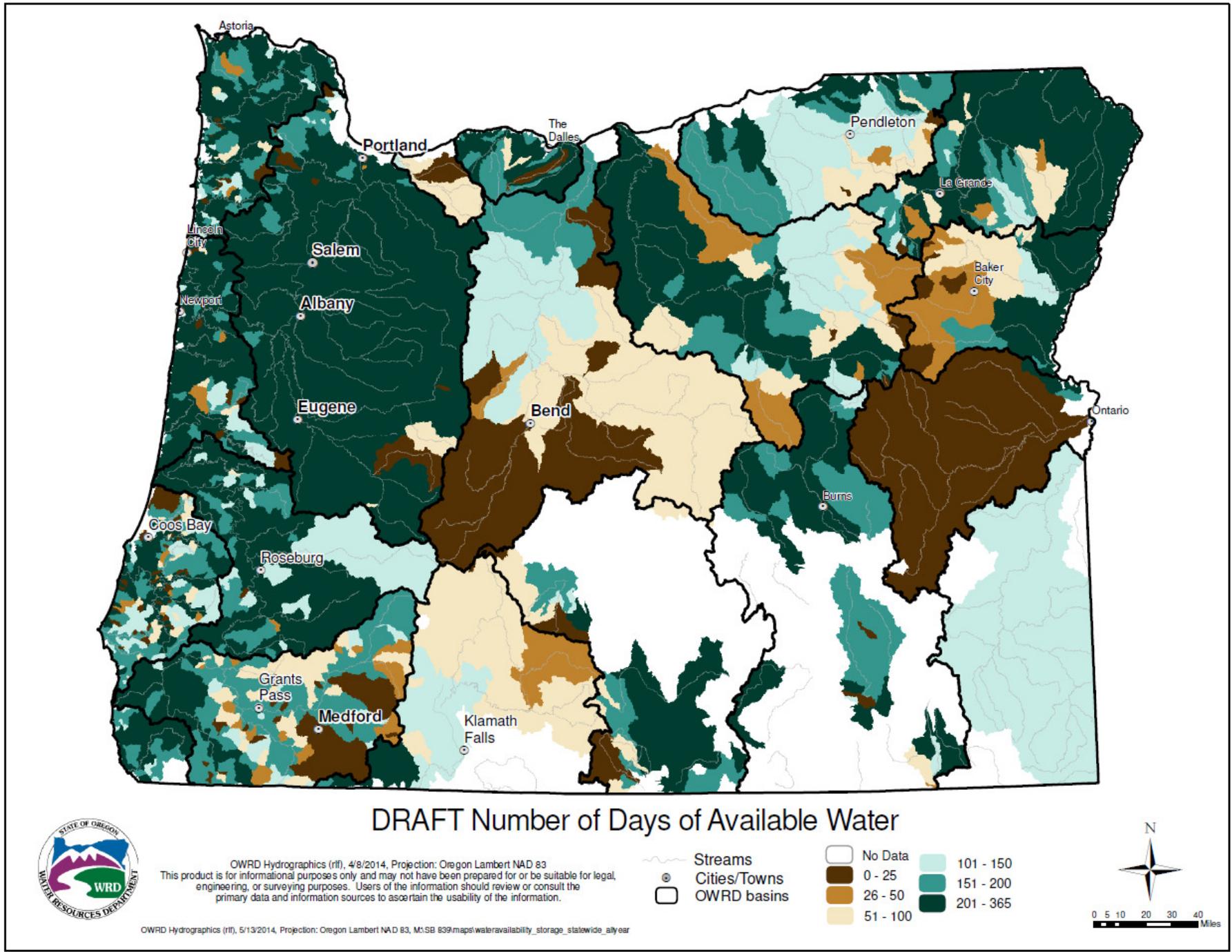


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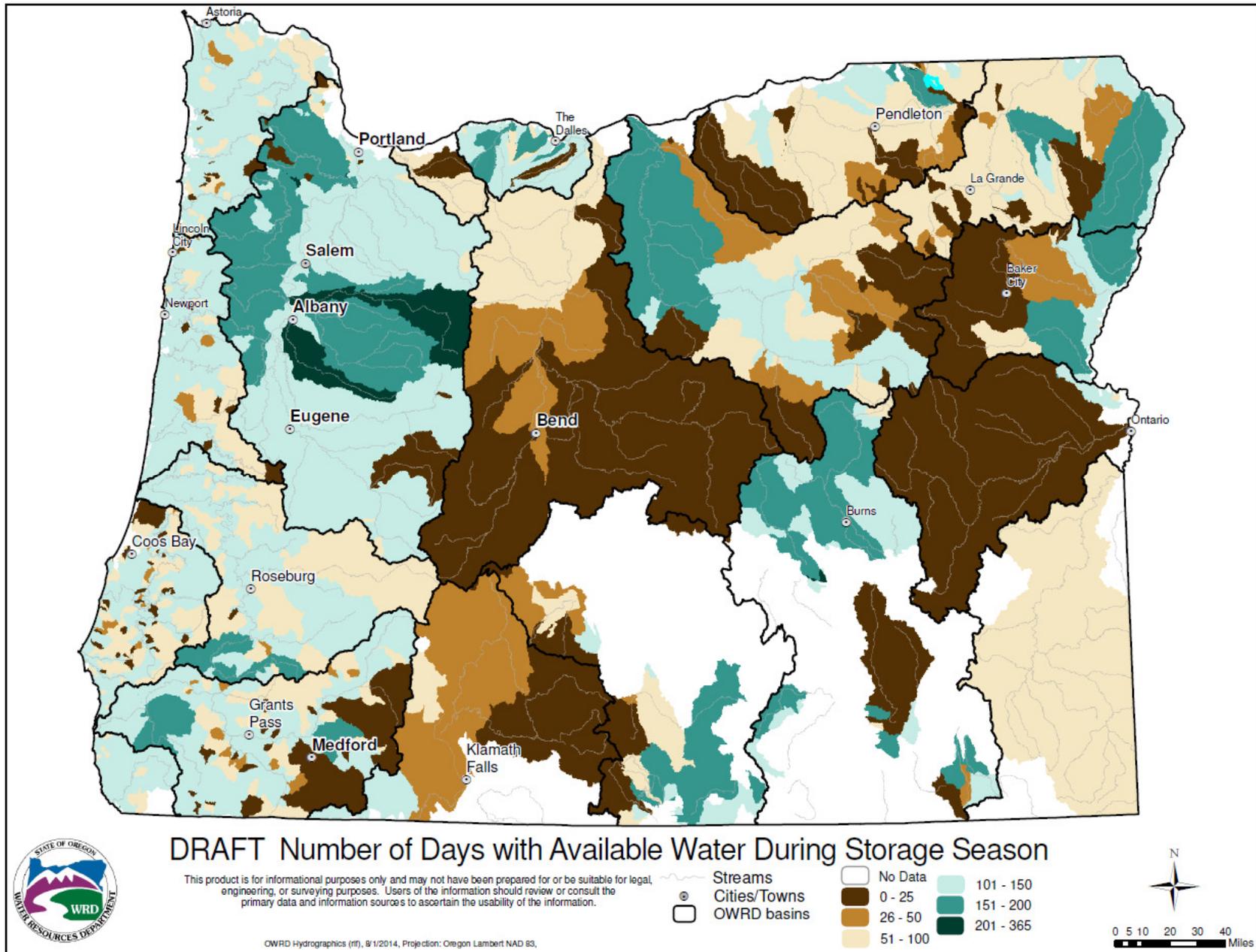


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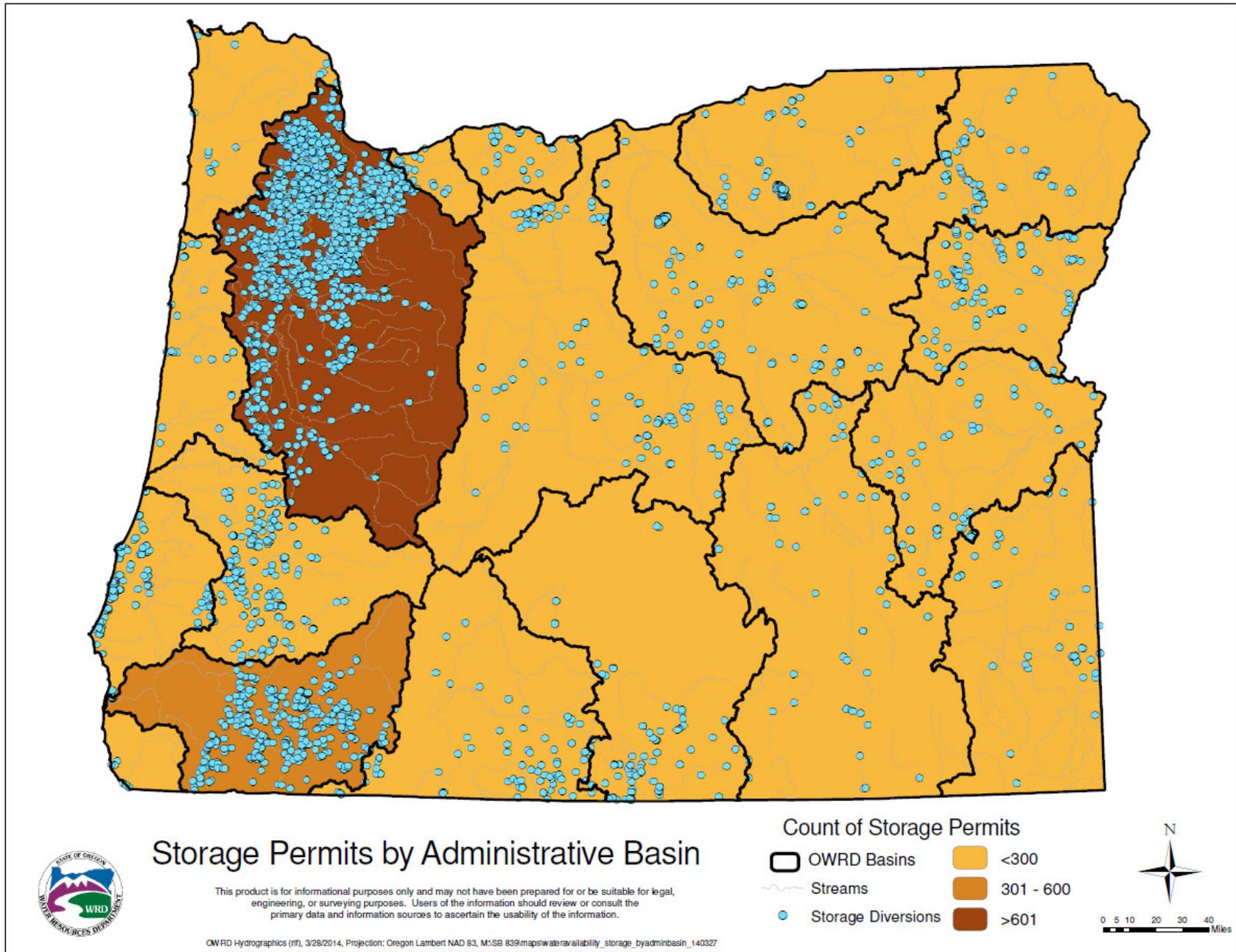


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A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

Artificial Recharge and Aquifer Storage and Recovery

Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

A: Yes. Under SB 839 language, an ASR or AR project would be eligible for funding. The fund can pay for a variety of uses (see OR SB 839, section 3) including new or expanded water storage below ground. If an applicant plans to use an existing water right, then the ASR permit will be limited to the existing permit’s total volume.

Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
Artificial Groundwater Recharge (AR)	AR authorization appropriates source water and allows recharge. A secondary authorization allows recovery of stored water.	Diversion rate and volume identified in AR authorizations; SVF allocation methods do not apply	SVF allocation methods apply to diversion rate and maximum storage volume	Maximum storage volume set by existing right; SVF allocation methods apply to diversion rate
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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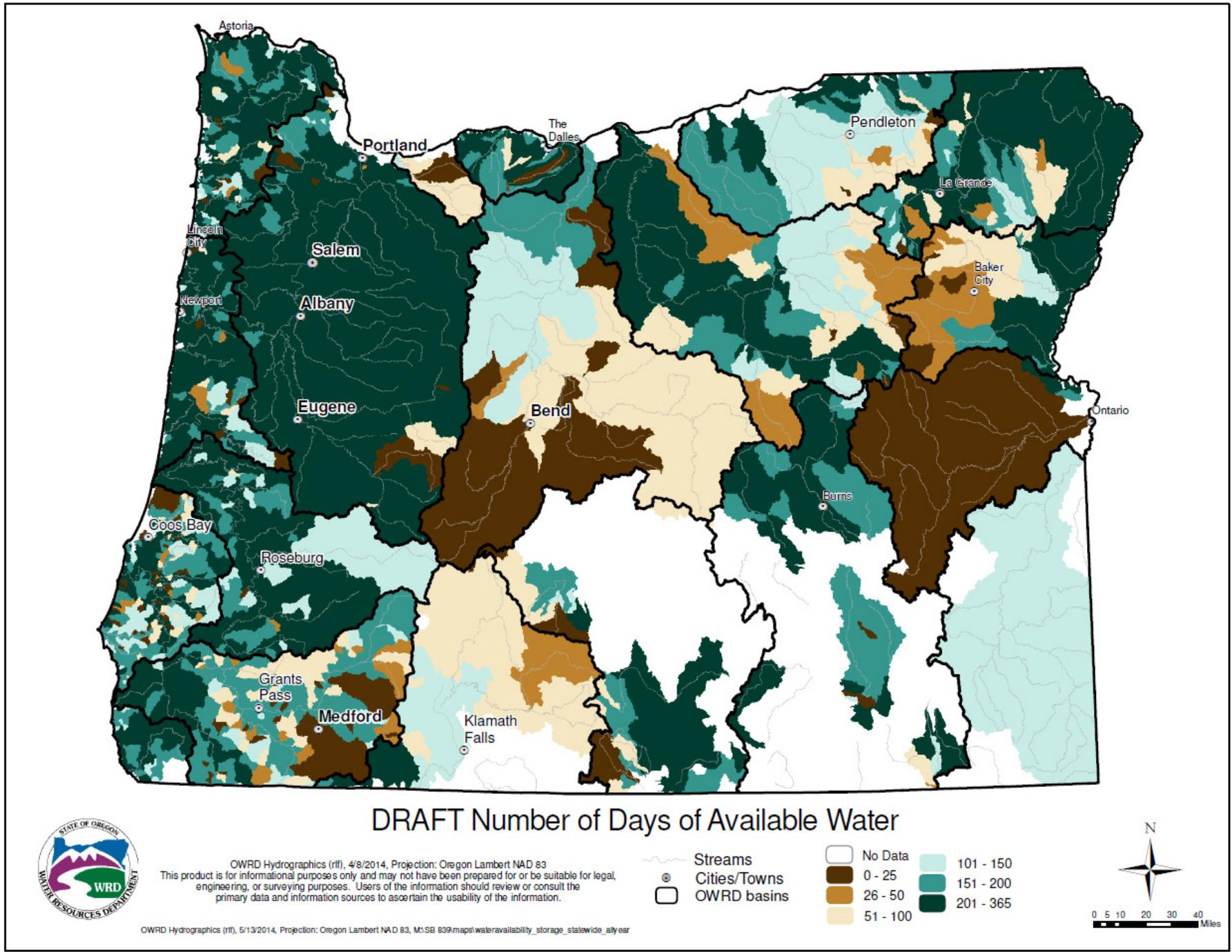


Figure 1: Number of days with available water for storage under the 50% exceedance criteria; statewide, annual.

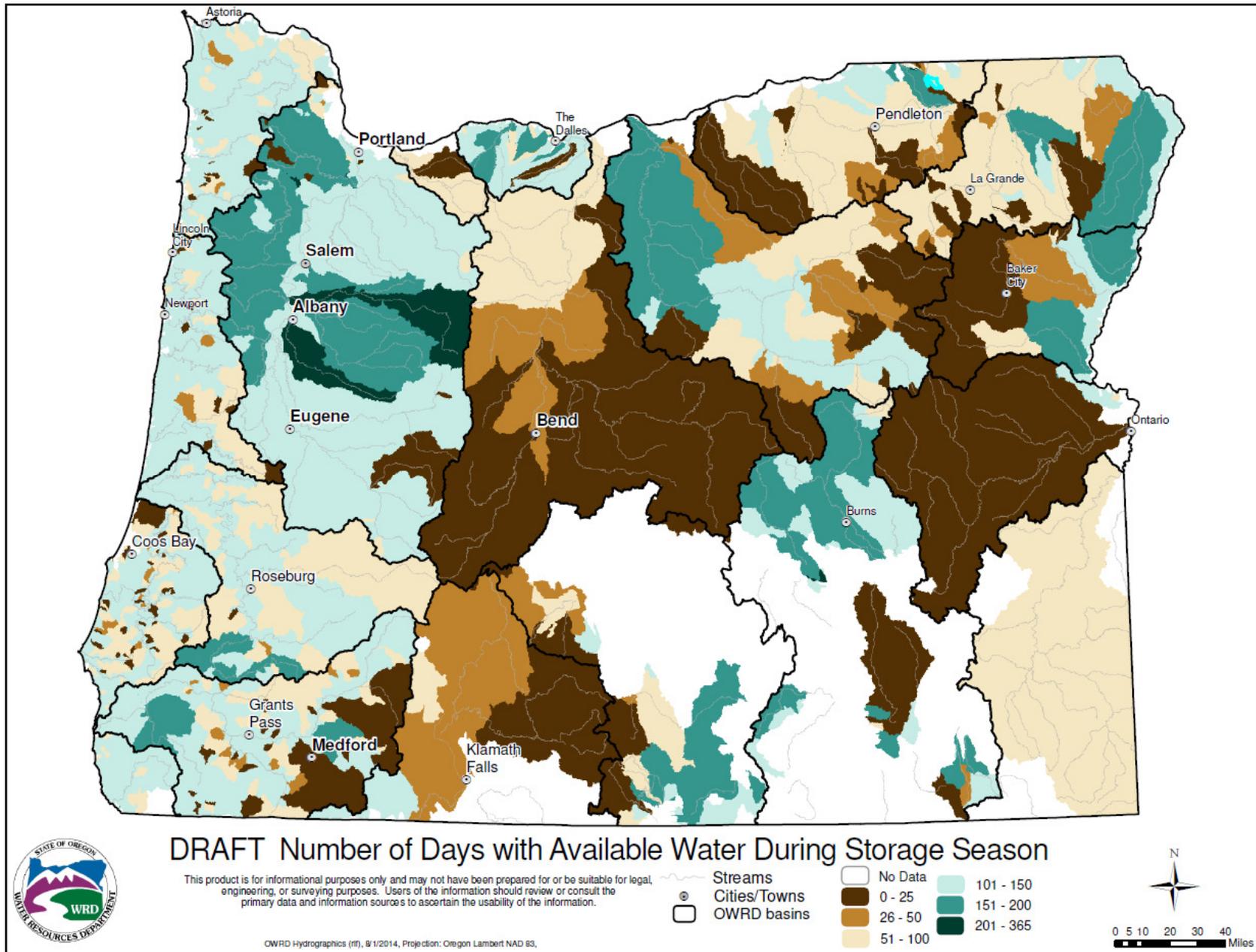


Figure 2: Number of days with water available for storage outside the irrigation season. Here, water availability is limited by SB 839 language defining “non-irrigation season” using decree and the default irrigation season dates. Additional basin plan rules will further limit where water is accessible.

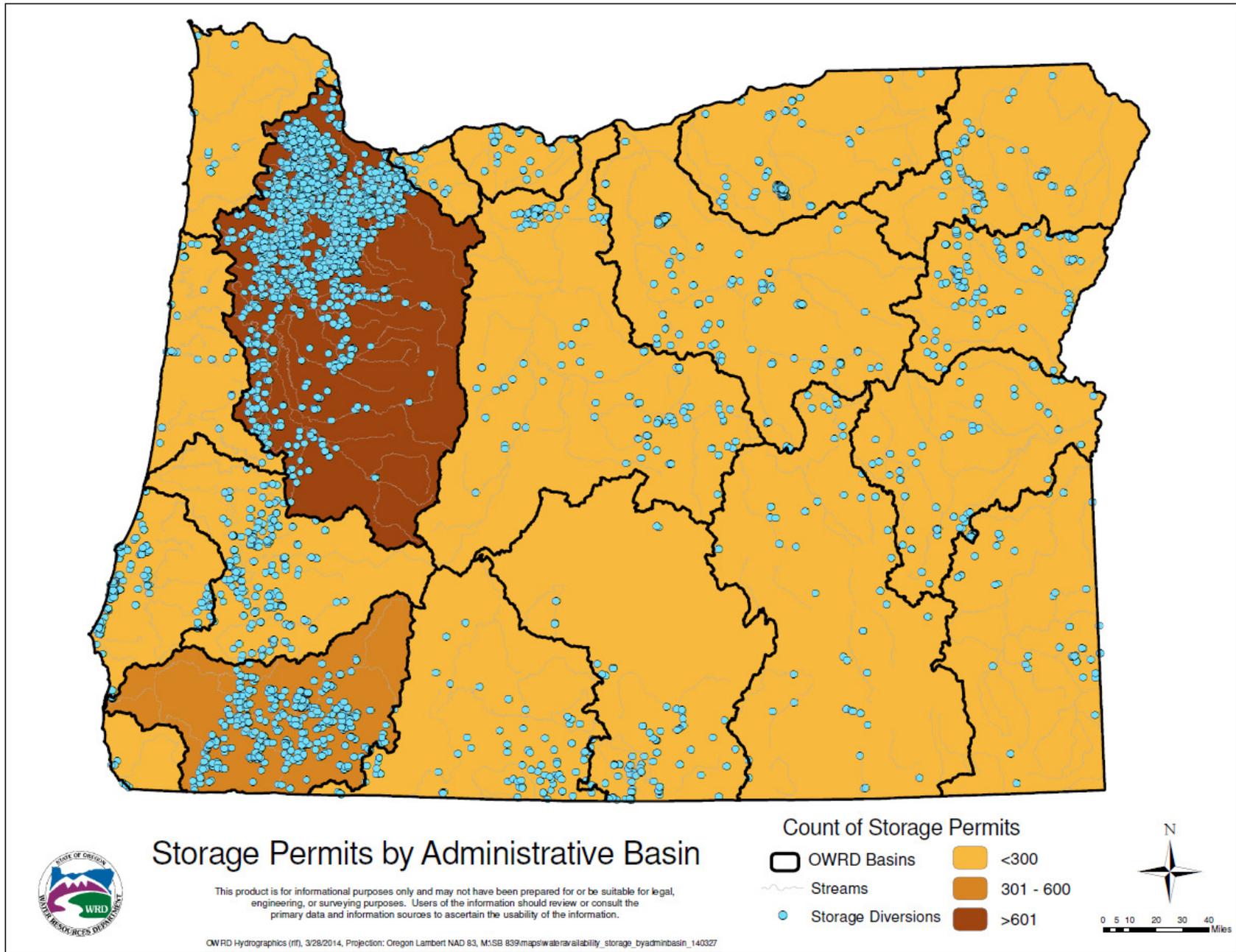


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

The specific storage season will be determined at the time of permitting. The initial screening criteria for these projects (whether there is water available under the 50% exceedance criteria) does give a general answer to the question of whether water will be available for storage. This information can be accessed at OWRD’s Water Availability website:
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Gage data can be used to characterize a basin’s historic flow regime. OWRD and its partners maintain a gage network of more than 500 gages across the state including historic data, flow duration curves and other hydrologic statistics:
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Q7) What is the 50% exceedance criteria?

A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

A: Yes; monitoring costs associated with the project are allowed for funding under the grant program. Monitoring requirements and plans for each project will be established based on existing gages, the location of the diversion, and prior appropriations in the basin. Under SB 839, the state is authorized to conduct or pay for studies to determine the seasonally varying flow requirements. Applicants may also pay for these costs if they so choose.

Q9) How will “baseflow” levels be determined for the SVF method?

A: Baseflow refers to a protective ecological flow which serves to protect minimum instream flow needs. When an SVF permit is processed, a baseflow level will be established as part of that permit using protocol decided upon by OWRD and ODFW. Like other permits, SVF permits would be subject to a public comment period. ODFW and OWRD have agreed upon the following approach for establish baseflow values for SVF projects:

- a. If there is an existing Instream Water Right (ISWR) within the reach of a proposed project, those values, already senior to the new project, will be used as the project’s baseflow conditions.
- b. If there is no existing ISWR and the applicant is proposing to use the POF approach, then ODFW will recommend a baseflow value calculated by looking at existing ISWRs in nearby basins (i.e., find the ratio of ISWRs in basin x to median flow in basin X and create a similar ratio in basin y).
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Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

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Q11) What are the benefits of the proposed POF diversion method?

A: This method gives water users a relatively quick approach to access winter flows for storage purposes without expending much time or funds to determine SVF flows. Particularly useful in streams without existing allocations, this approach could also be used by water right reservation holders to develop needed water supplies.

Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

A: Yes. This POF method was proposed as a tool to allow users to access winter storm peaks in a way that protects ecologically important high water events. The Science Subgroup report provides a snapshot of water availability, storage seasons, storage potential, and examples of the POF method as applied at several sites.

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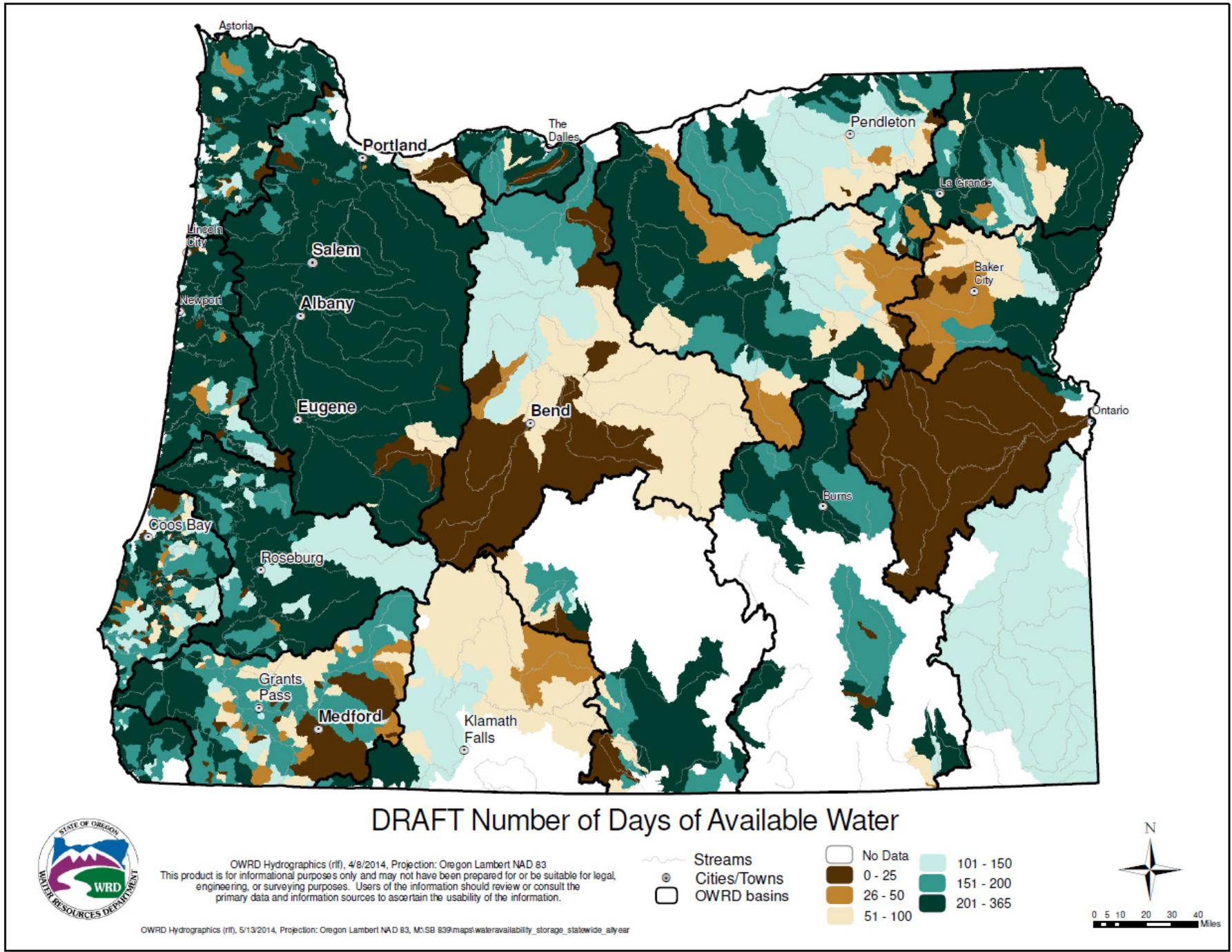


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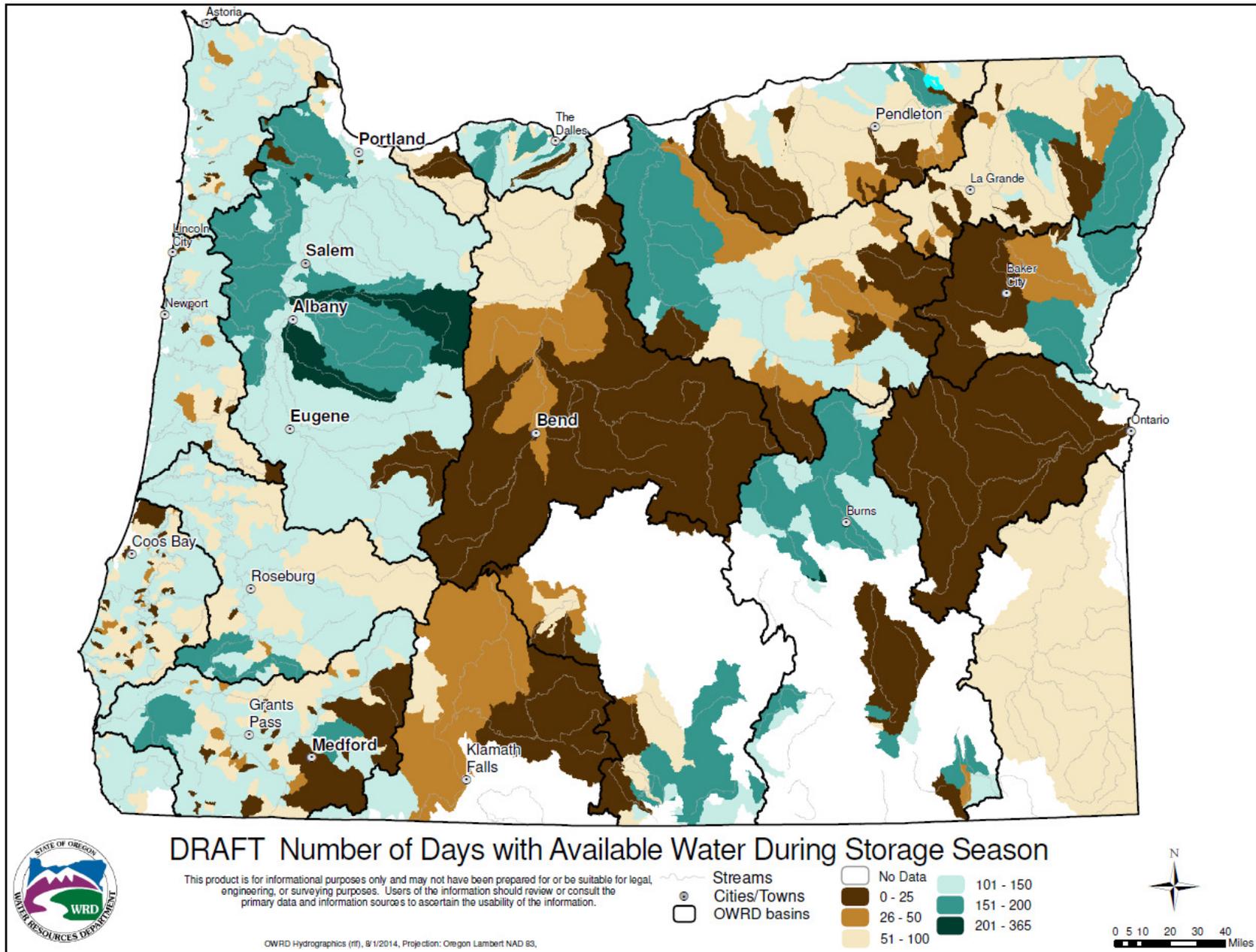


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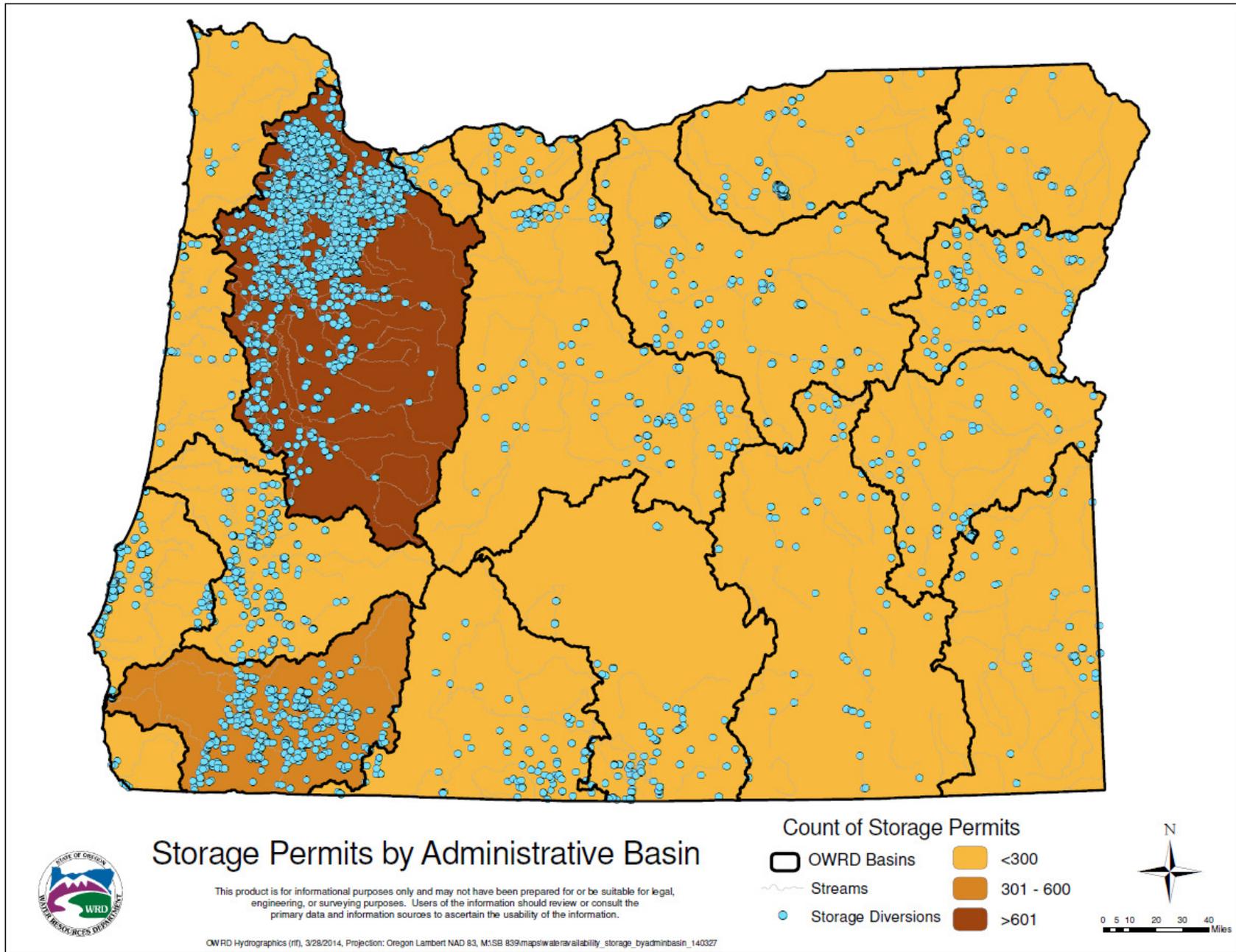


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Q16) How would the POF method be accounted for in the Water Availability program?

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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

Artificial Recharge and Aquifer Storage and Recovery

Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

A: Yes. Under SB 839 language, an ASR or AR project would be eligible for funding. The fund can pay for a variety of uses (see OR SB 839, section 3) including new or expanded water storage below ground. If an applicant plans to use an existing water right, then the ASR permit will be limited to the existing permit’s total volume.

Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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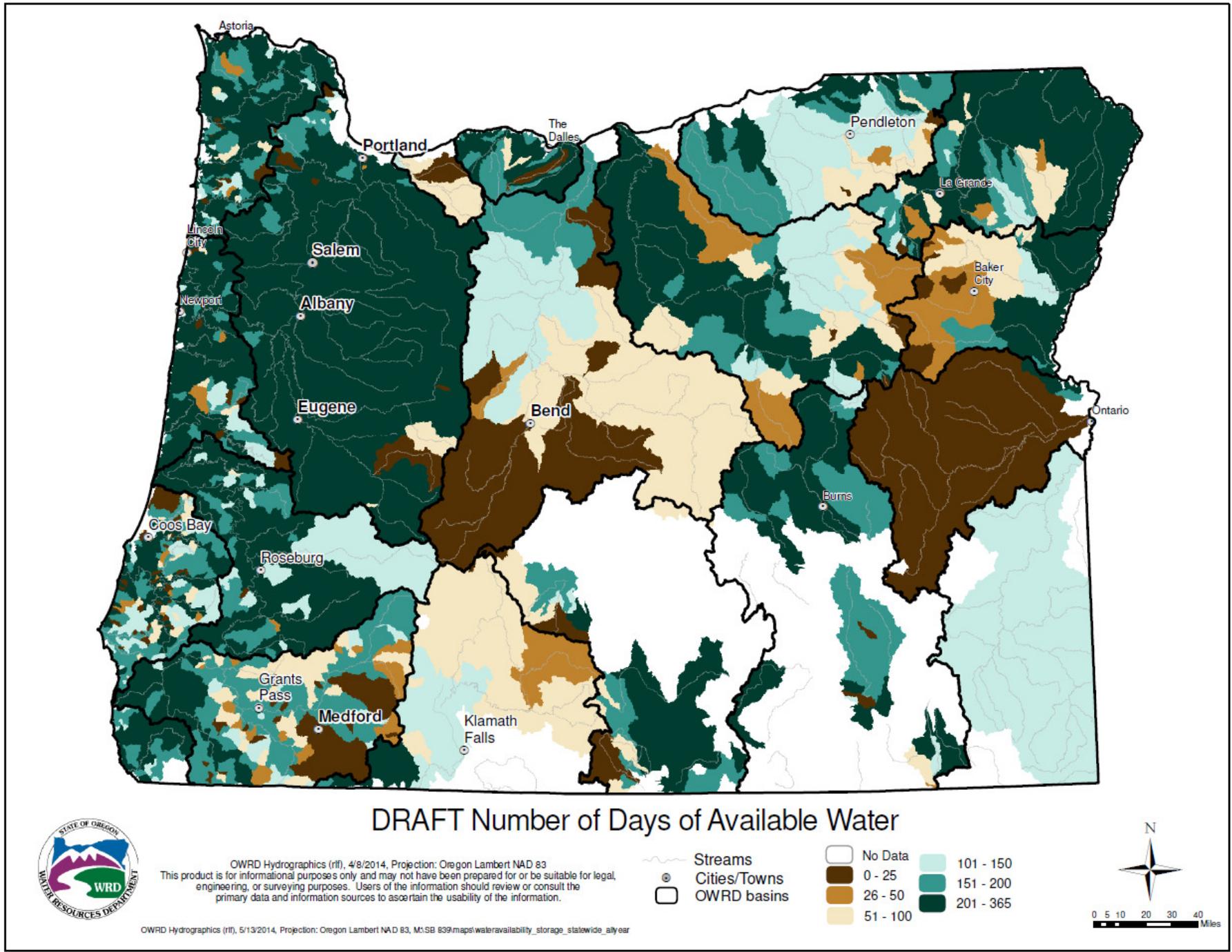


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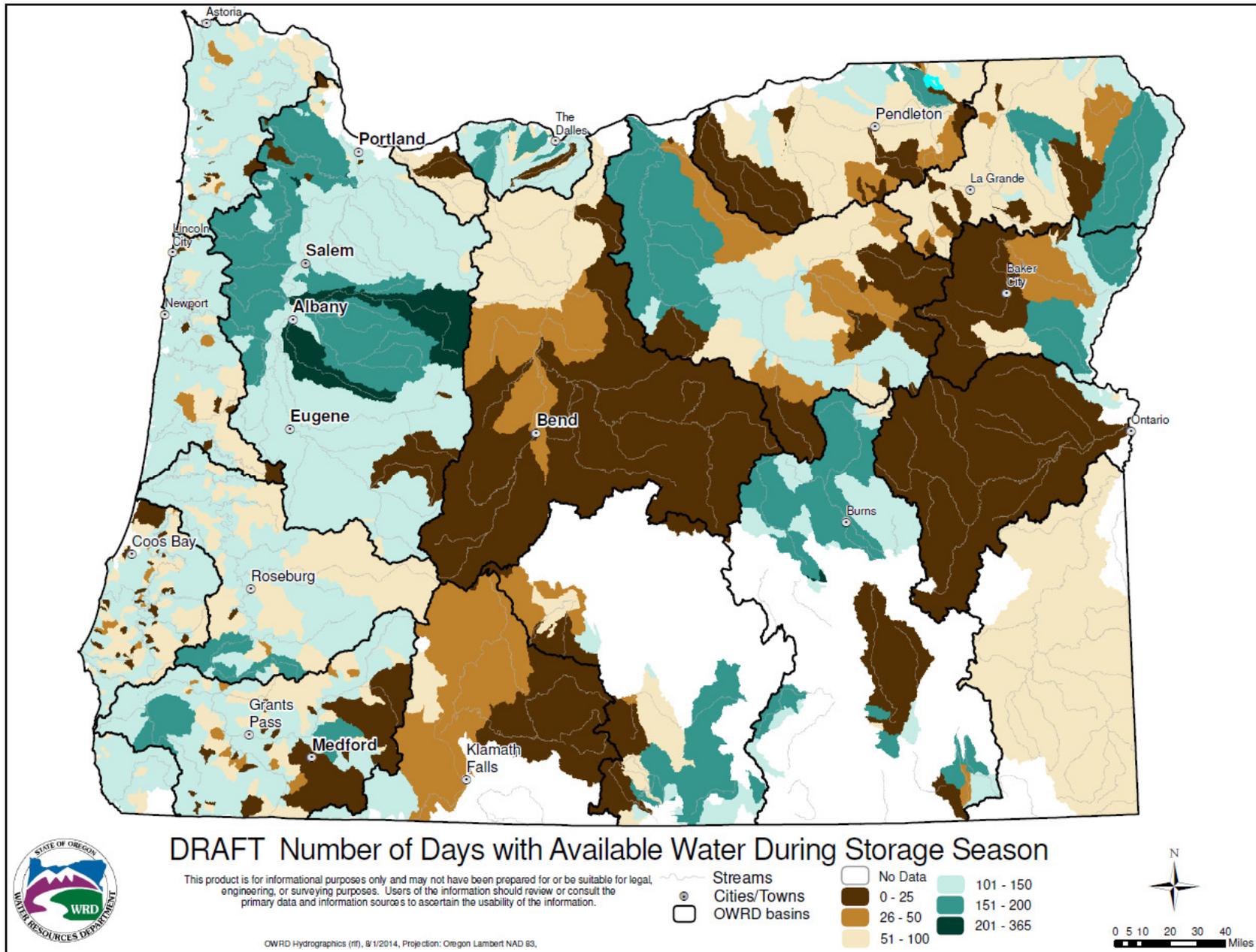


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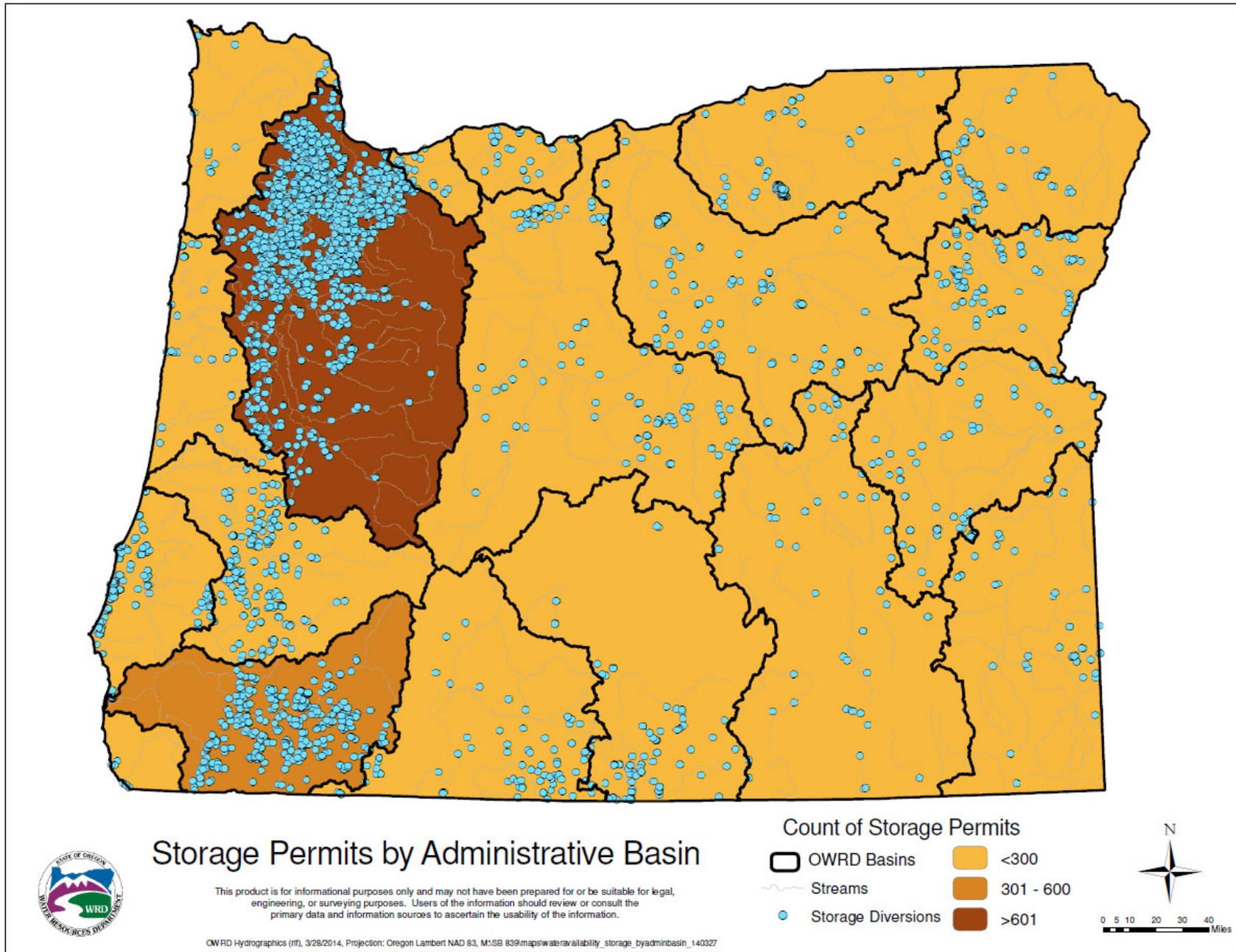


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

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The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

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Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

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A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

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Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

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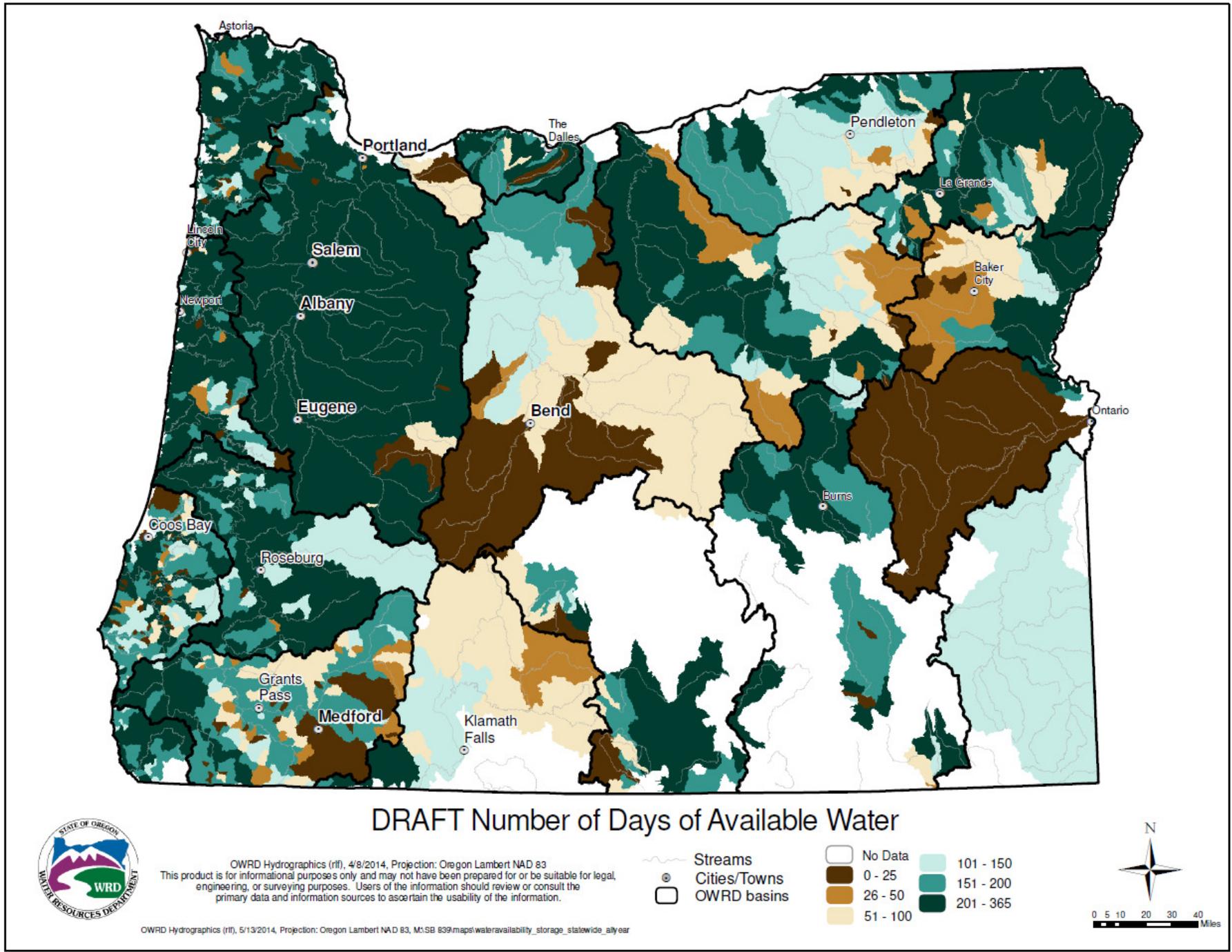


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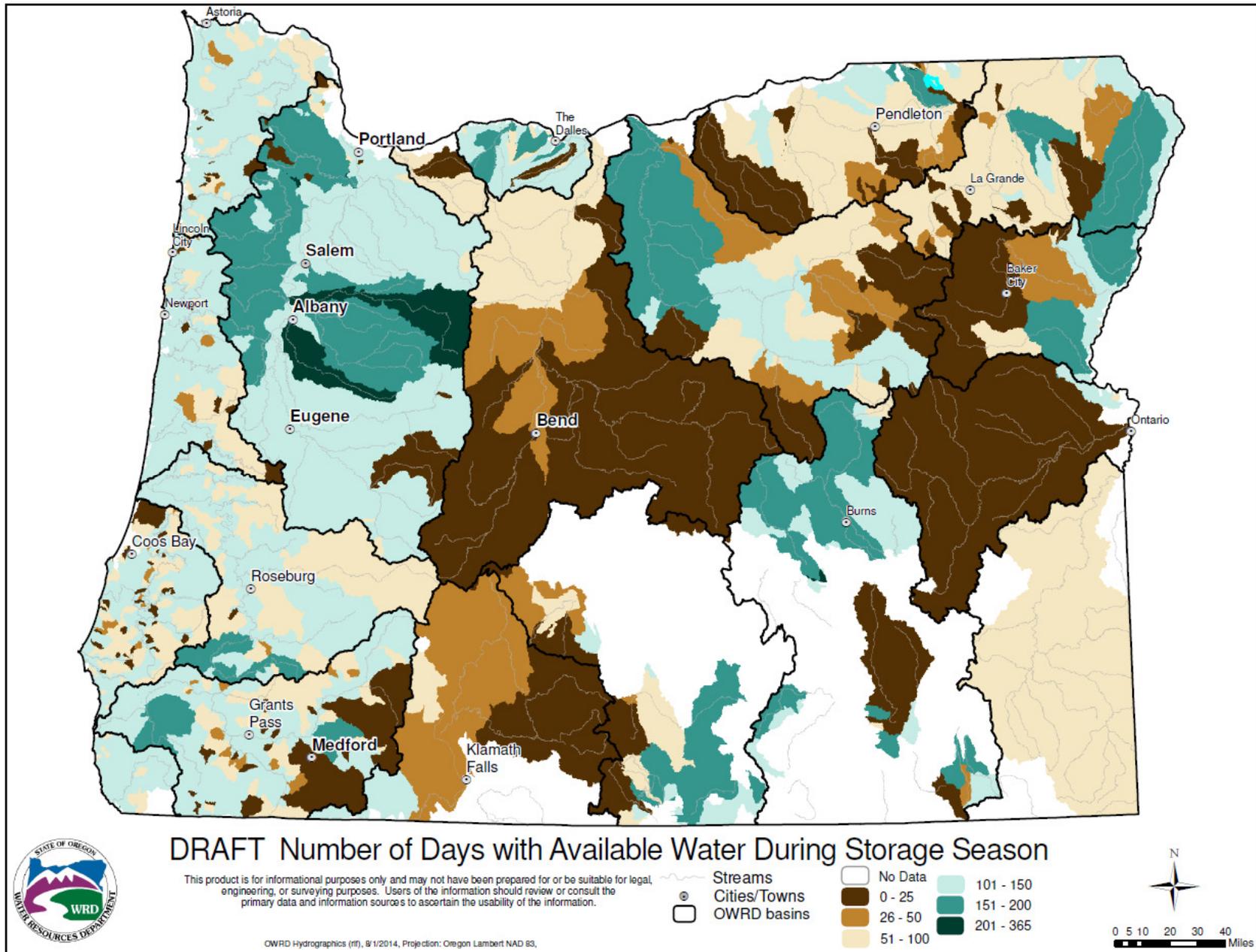


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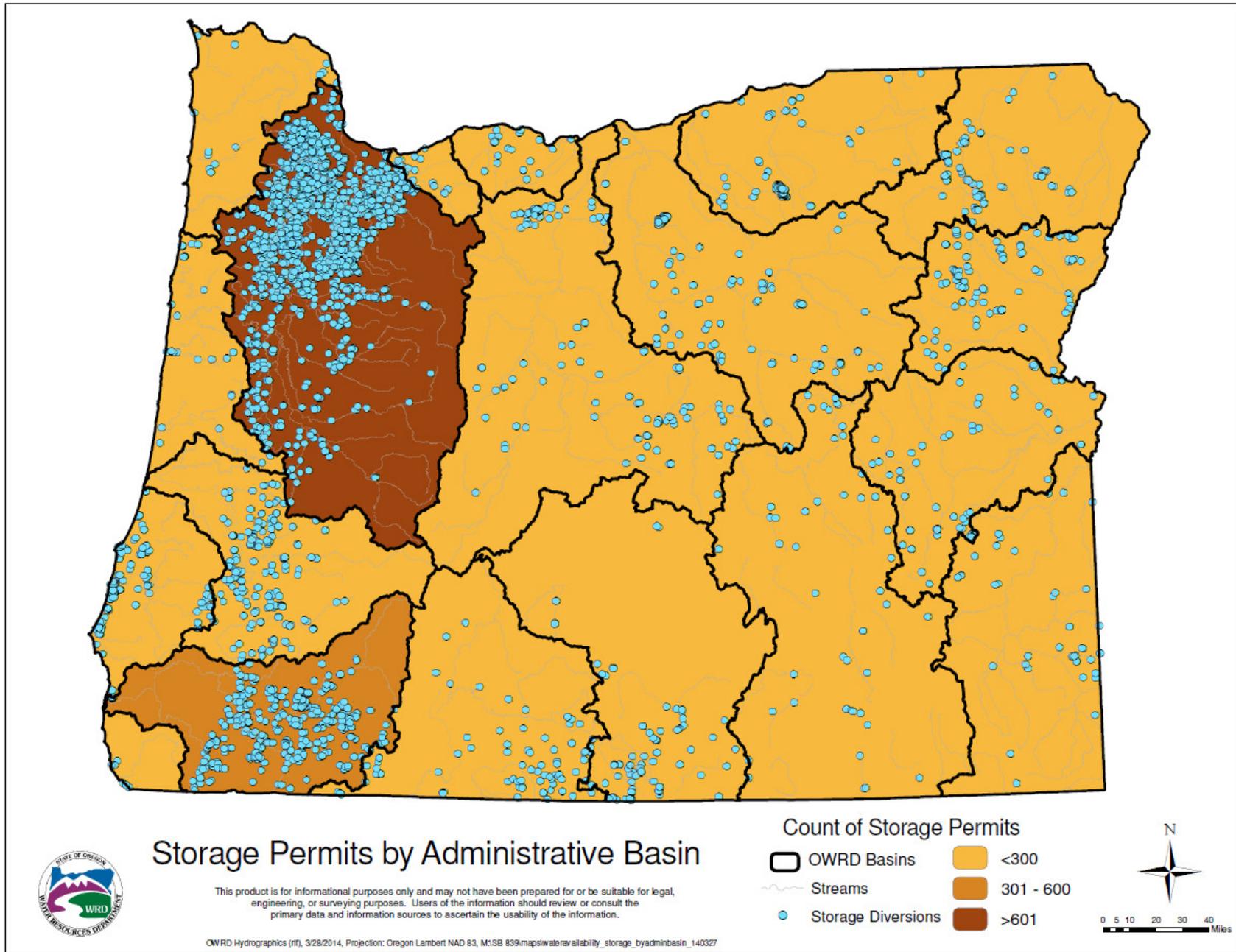


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In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

Artificial Recharge and Aquifer Storage and Recovery

Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

A: Yes. Under SB 839 language, an ASR or AR project would be eligible for funding. The fund can pay for a variety of uses (see OR SB 839, section 3) including new or expanded water storage below ground. If an applicant plans to use an existing water right, then the ASR permit will be limited to the existing permit’s total volume.

Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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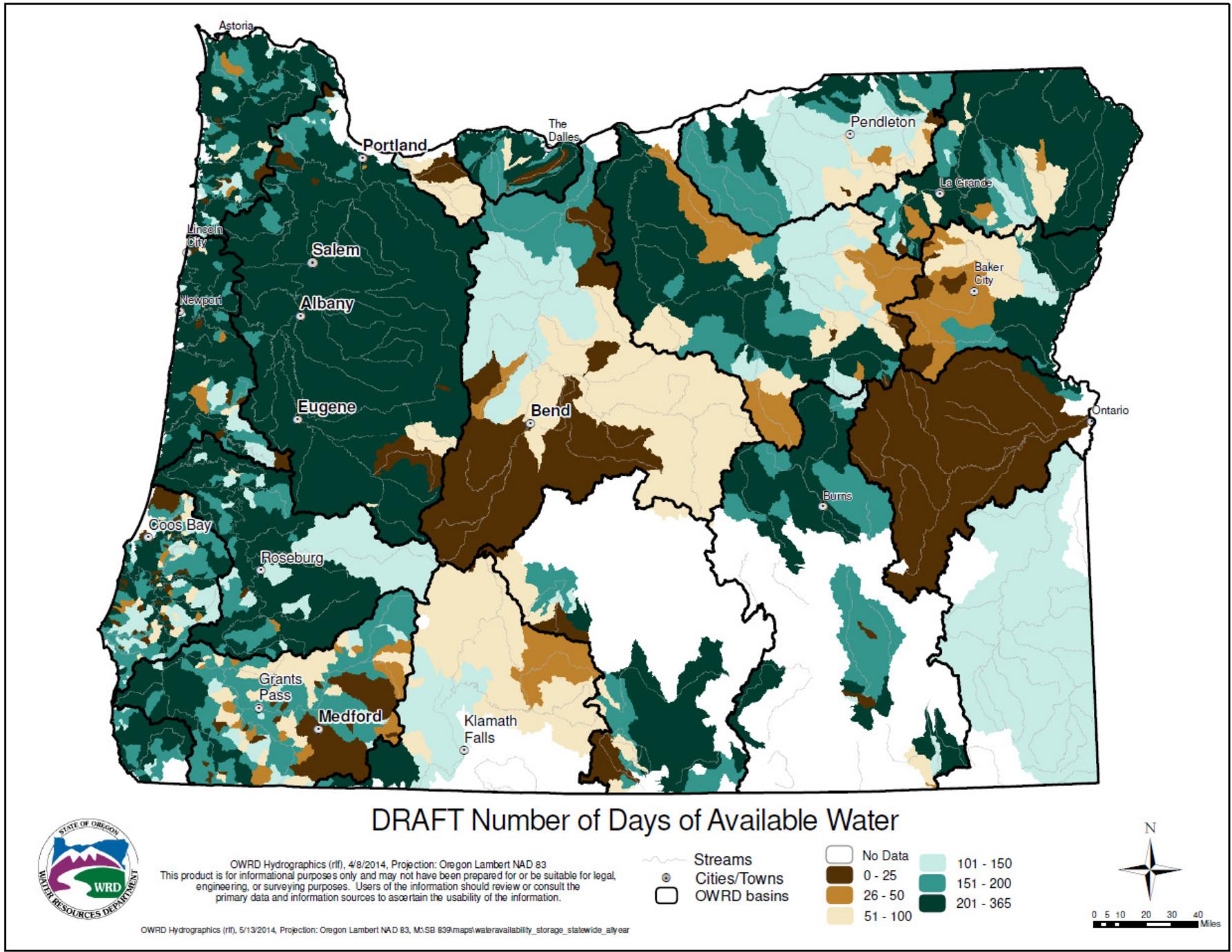


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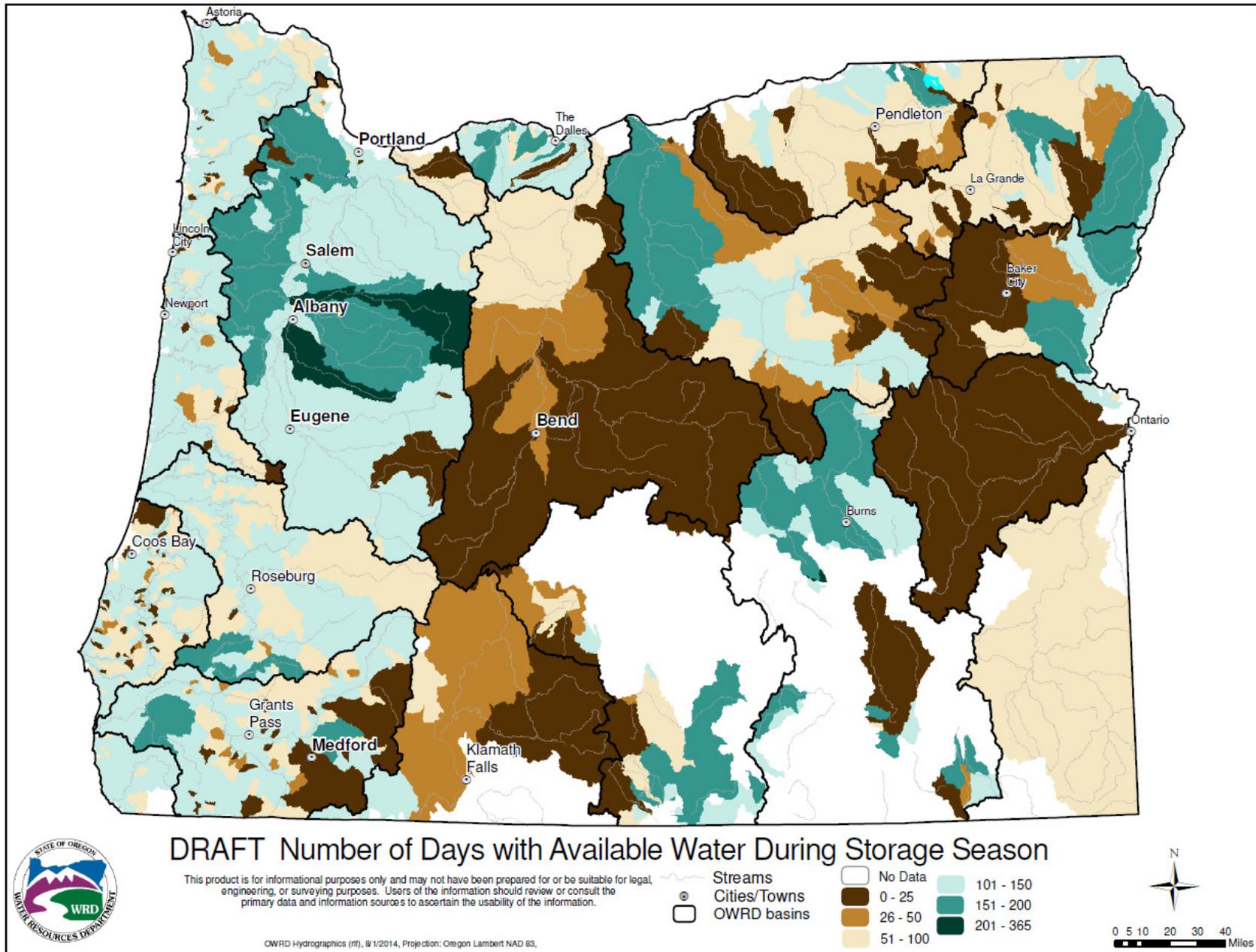


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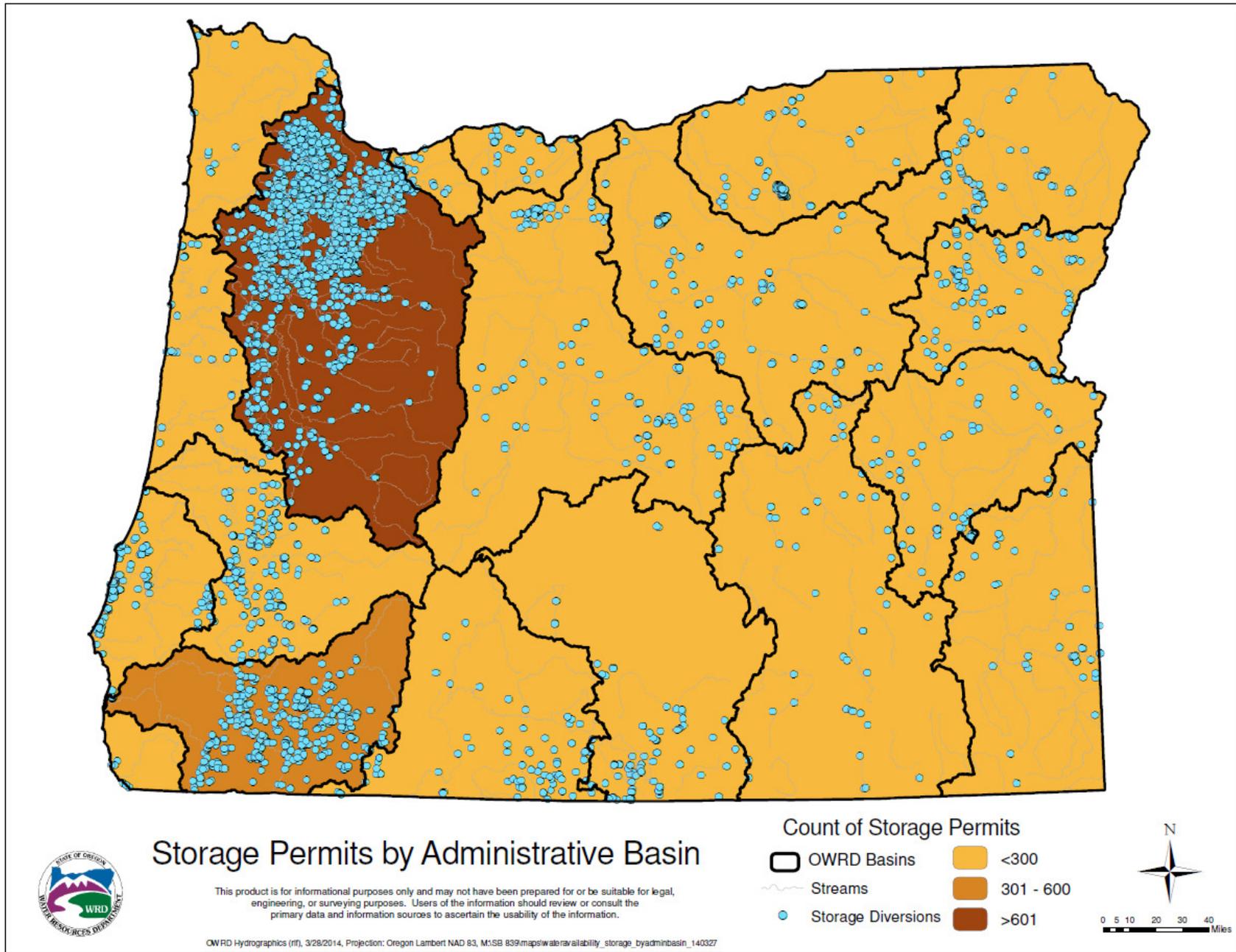


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

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The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

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A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

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A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

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Q11) What are the benefits of the proposed POF diversion method?

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Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

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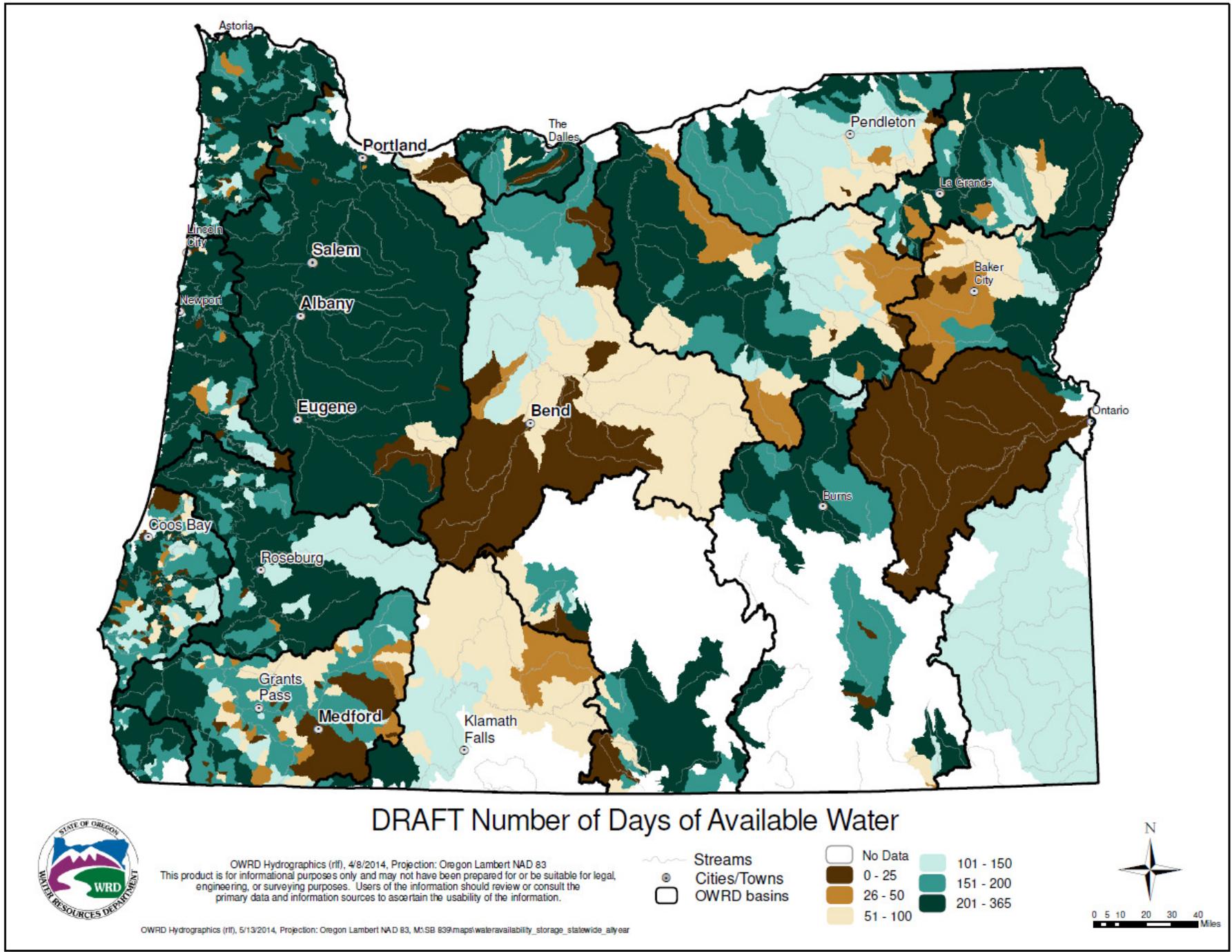


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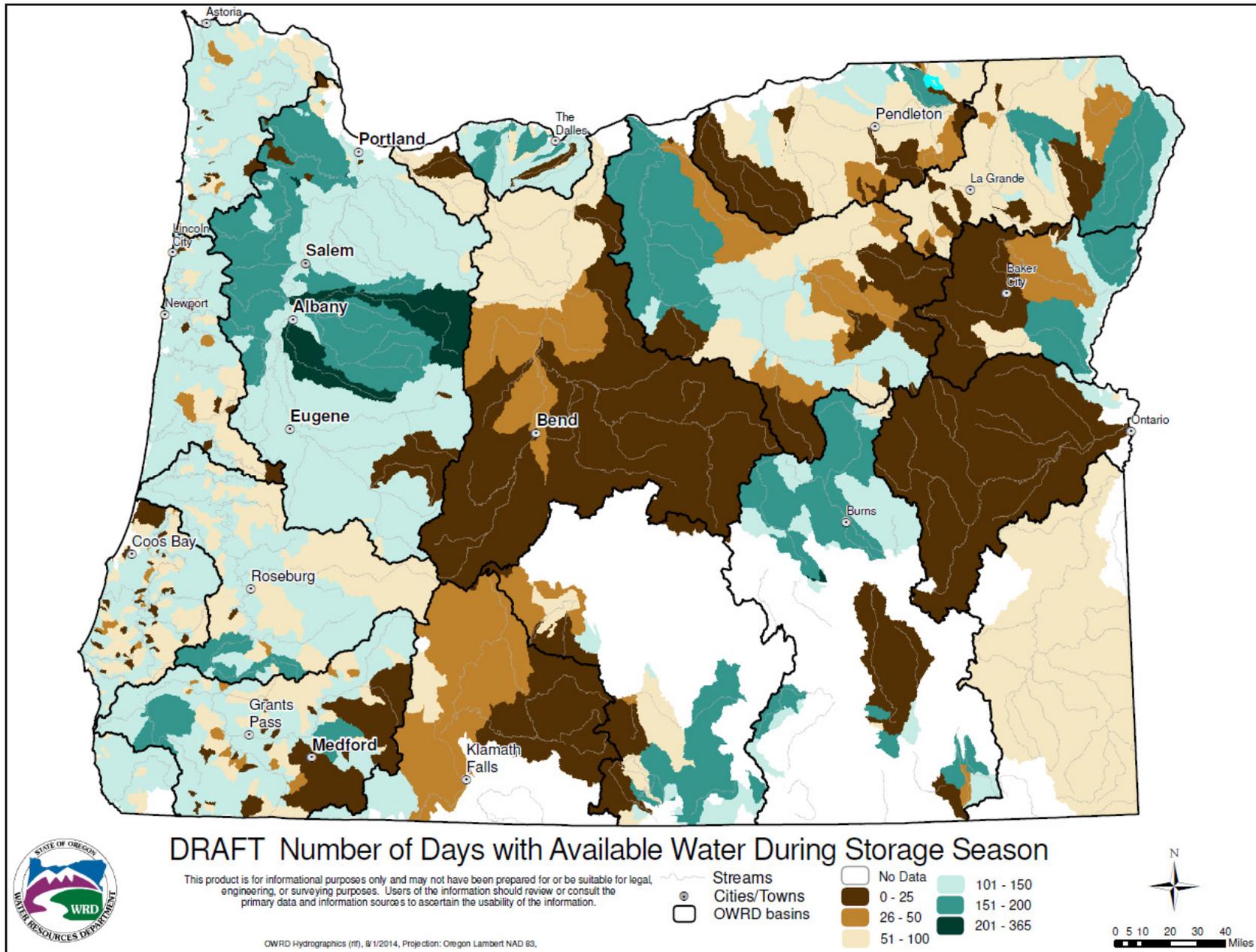


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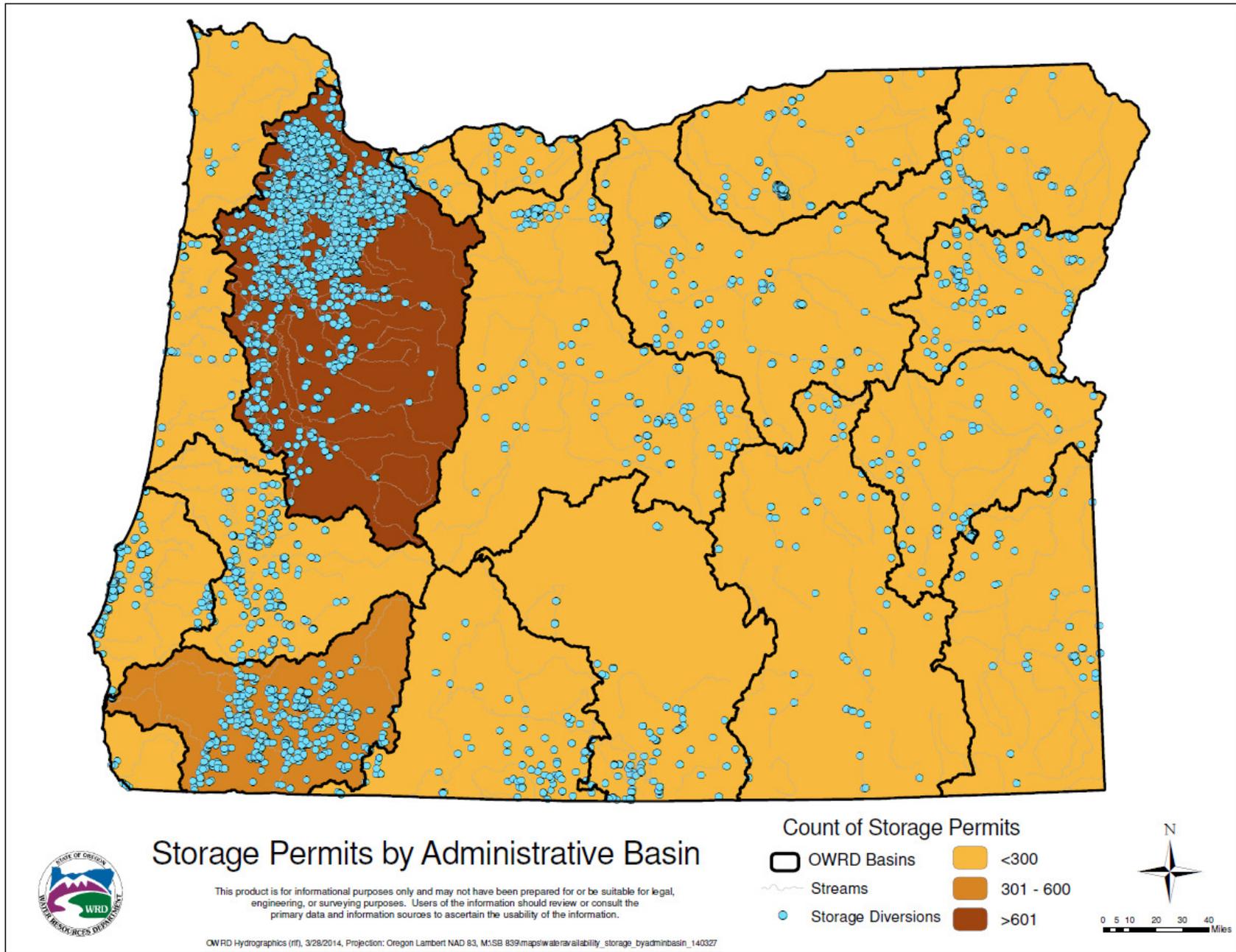


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Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

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Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
Artificial Groundwater Recharge (AR)	AR authorization appropriates source water and allows recharge. A secondary authorization allows recovery of stored water.	Diversion rate and volume identified in AR authorizations; SVF allocation methods do not apply	SVF allocation methods apply to diversion rate and maximum storage volume	Maximum storage volume set by existing right; SVF allocation methods apply to diversion rate
Aquifer Storage and Recovery (ASR)	Existing water rights allow diversion and end use; ASR authorization allows both storage and recovery	Diversion rate and volume identified in underlying water right; SVF methods do not apply	SVF allocation methods apply to diversion rate; water right would determine the maximum storage volume	Maximum storage volume set by existing right; SVF allocation methods apply to diversion rate

Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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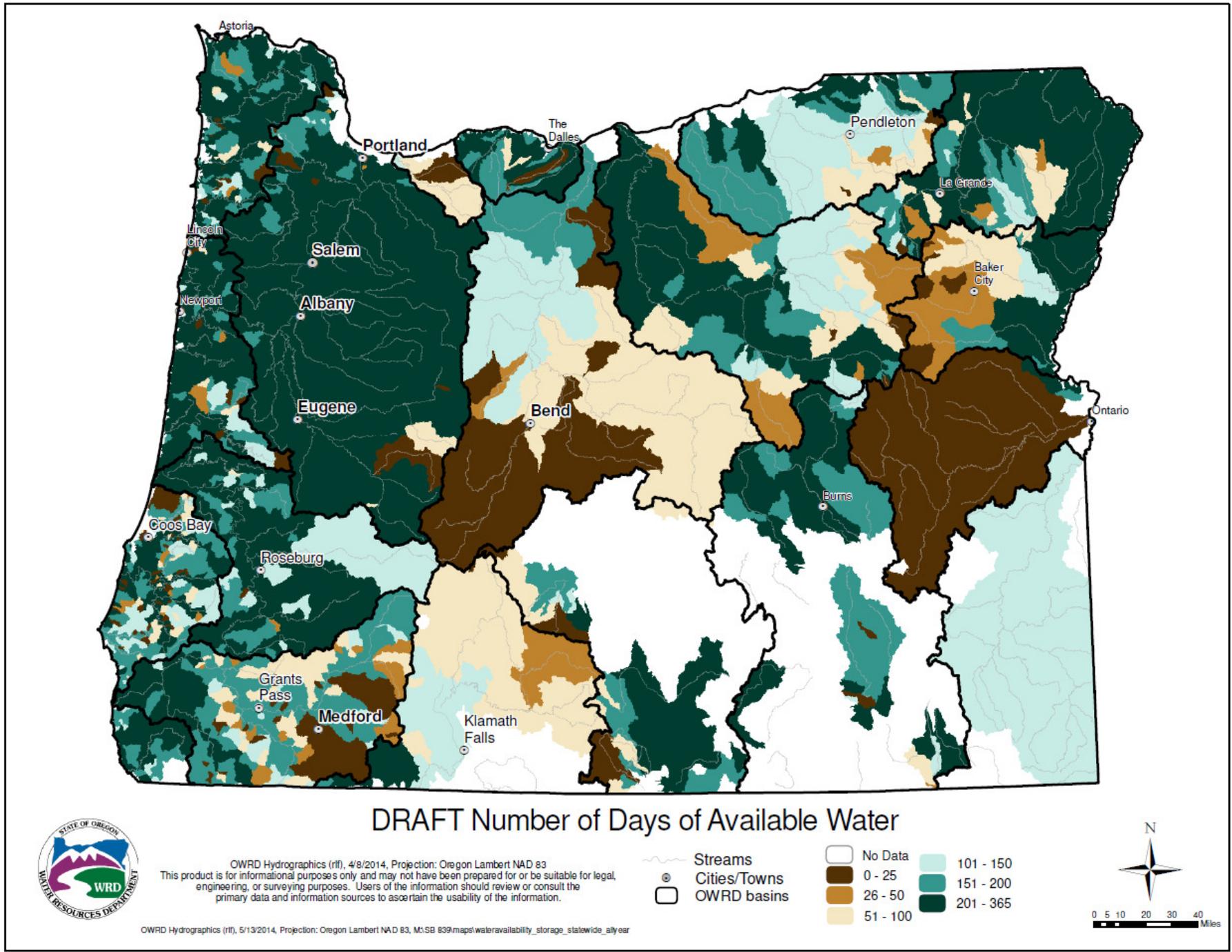


Figure 1: Number of days with available water for storage under the 50% exceedance criteria; statewide, annual.

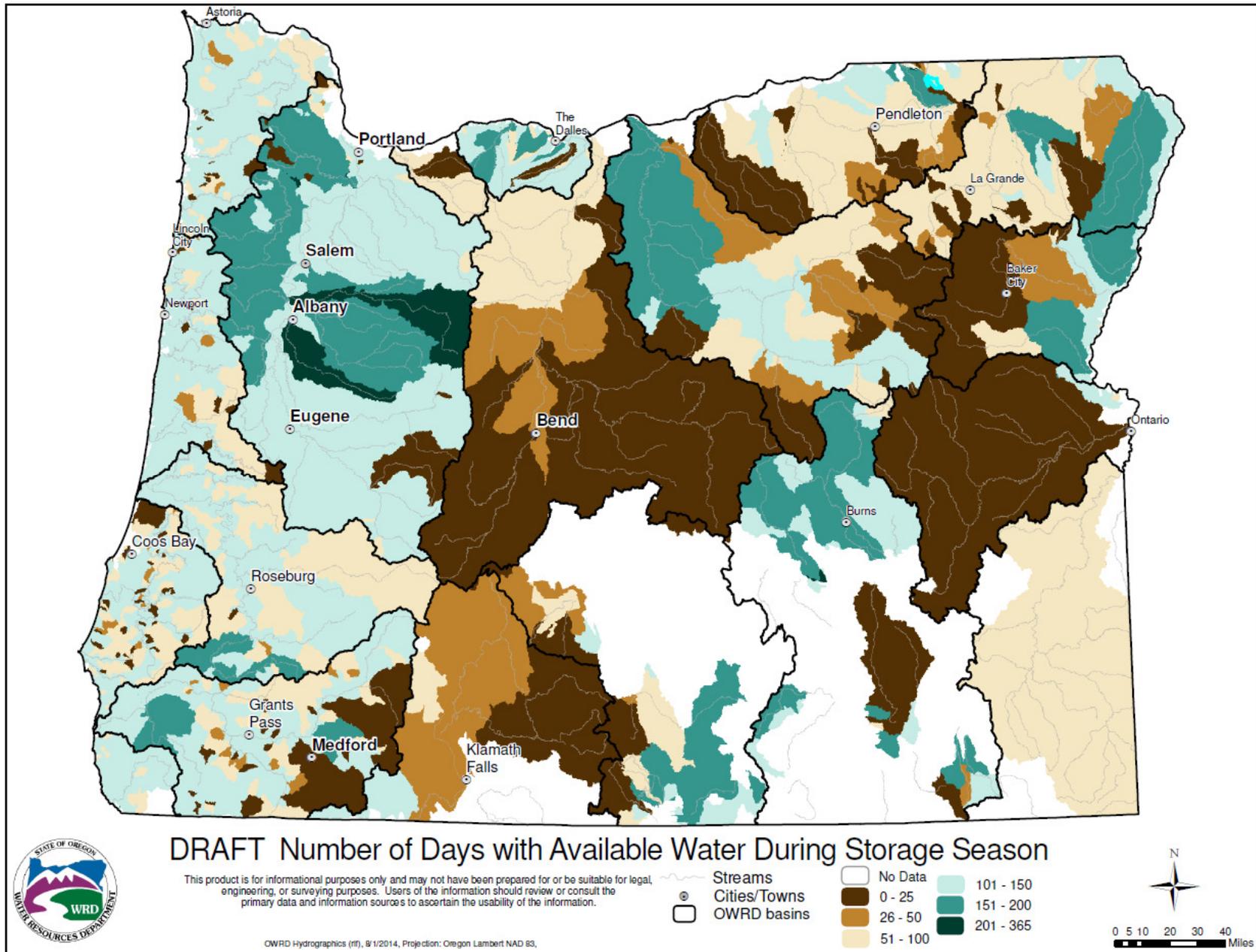


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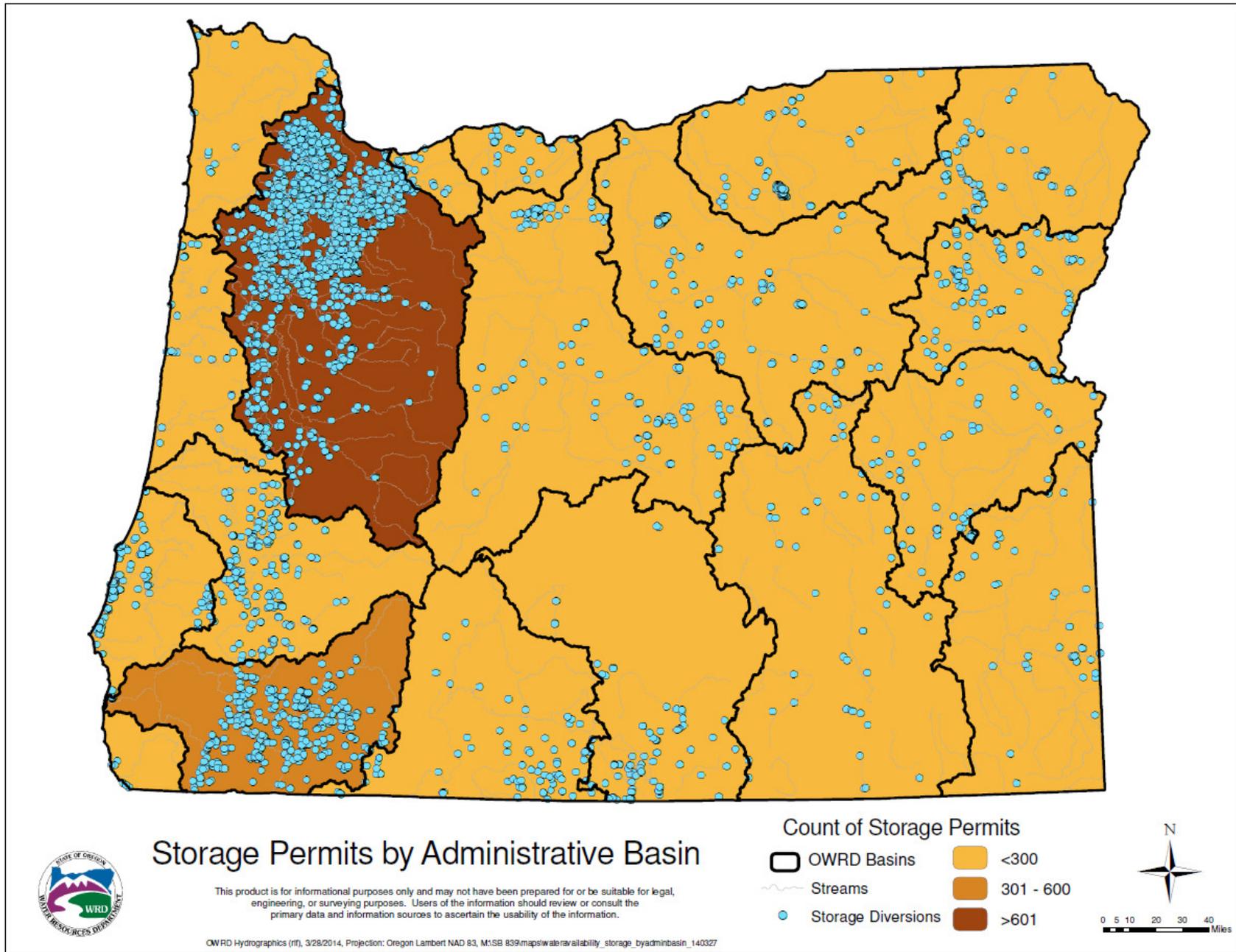


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

The specific storage season will be determined at the time of permitting. The initial screening criteria for these projects (whether there is water available under the 50% exceedance criteria) does give a general answer to the question of whether water will be available for storage. This information can be accessed at OWRD’s Water Availability website:
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A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

A: Yes; monitoring costs associated with the project are allowed for funding under the grant program. Monitoring requirements and plans for each project will be established based on existing gages, the location of the diversion, and prior appropriations in the basin. Under SB 839, the state is authorized to conduct or pay for studies to determine the seasonally varying flow requirements. Applicants may also pay for these costs if they so choose.

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Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

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Q11) What are the benefits of the proposed POF diversion method?

A: This method gives water users a relatively quick approach to access winter flows for storage purposes without expending much time or funds to determine SVF flows. Particularly useful in streams without existing allocations, this approach could also be used by water right reservation holders to develop needed water supplies.

Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

A: Yes. This POF method was proposed as a tool to allow users to access winter storm peaks in a way that protects ecologically important high water events. The Science Subgroup report provides a snapshot of water availability, storage seasons, storage potential, and examples of the POF method as applied at several sites.

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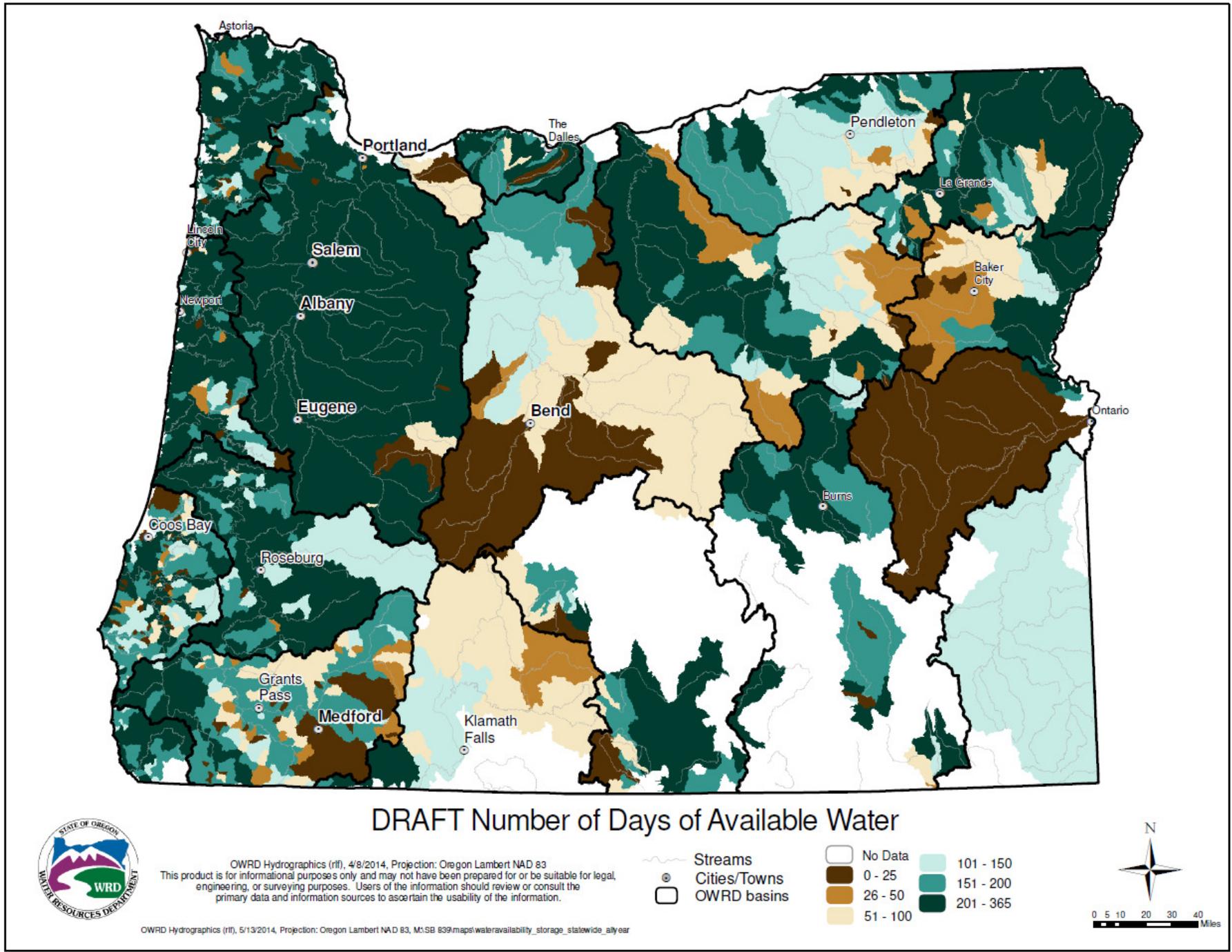


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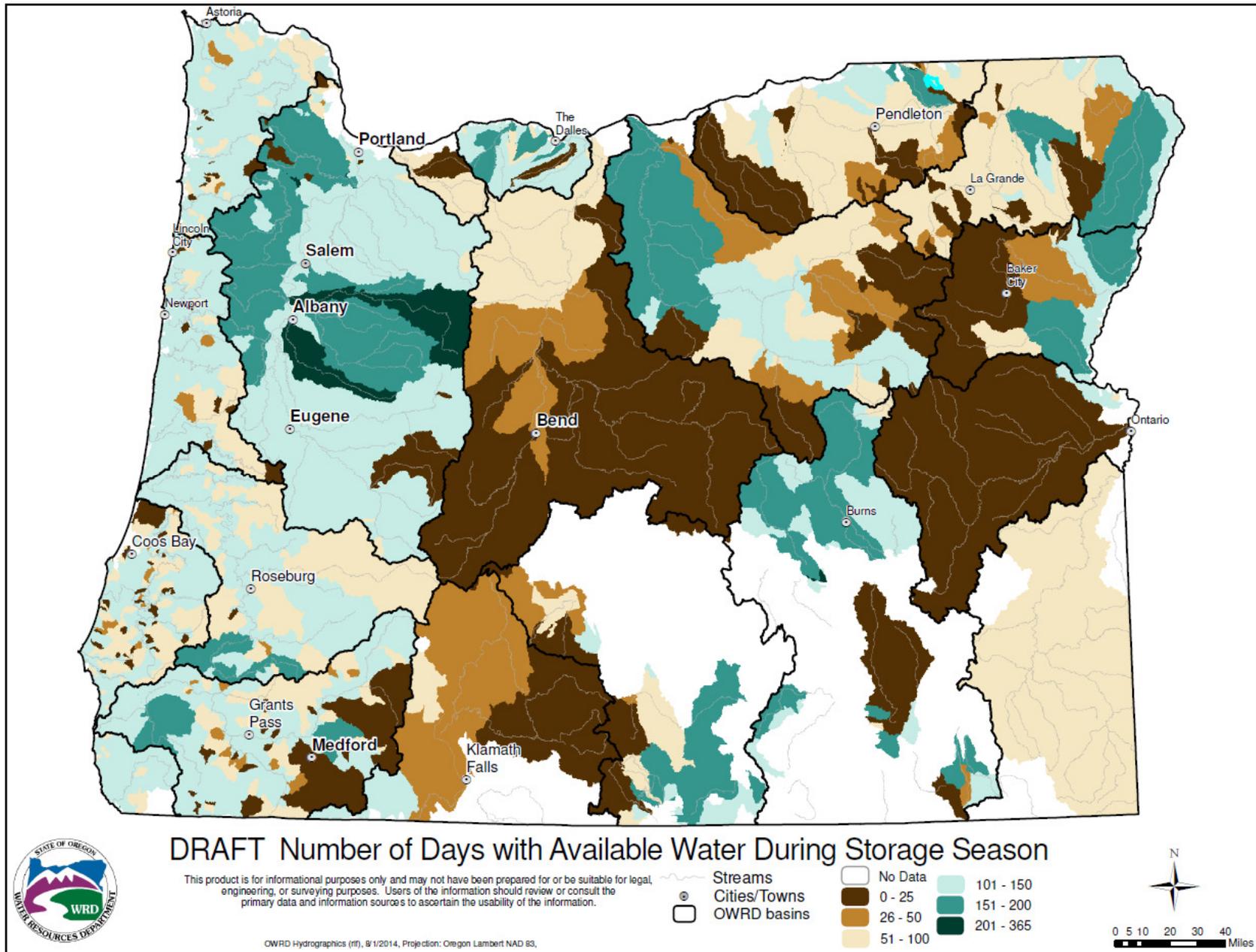


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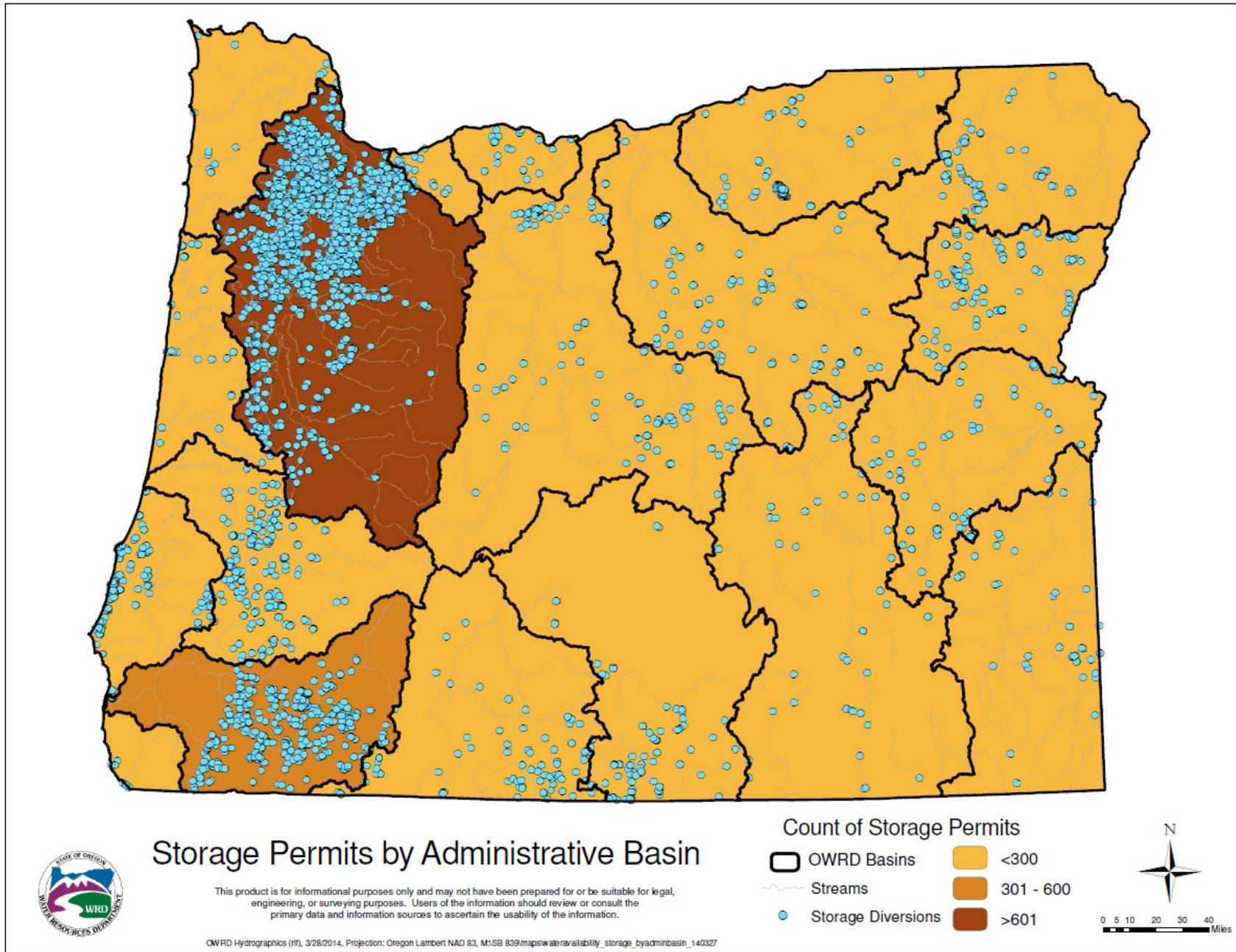


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Aquifer Storage and Recovery (ASR)	Existing water rights allow diversion and end use; ASR authorization allows both storage and recovery	Diversion rate and volume identified in underlying water right; SVF methods do not apply	SVF allocation methods apply to diversion rate; water right would determine the maximum storage volume	Maximum storage volume set by existing right; SVF allocation methods apply to diversion rate

Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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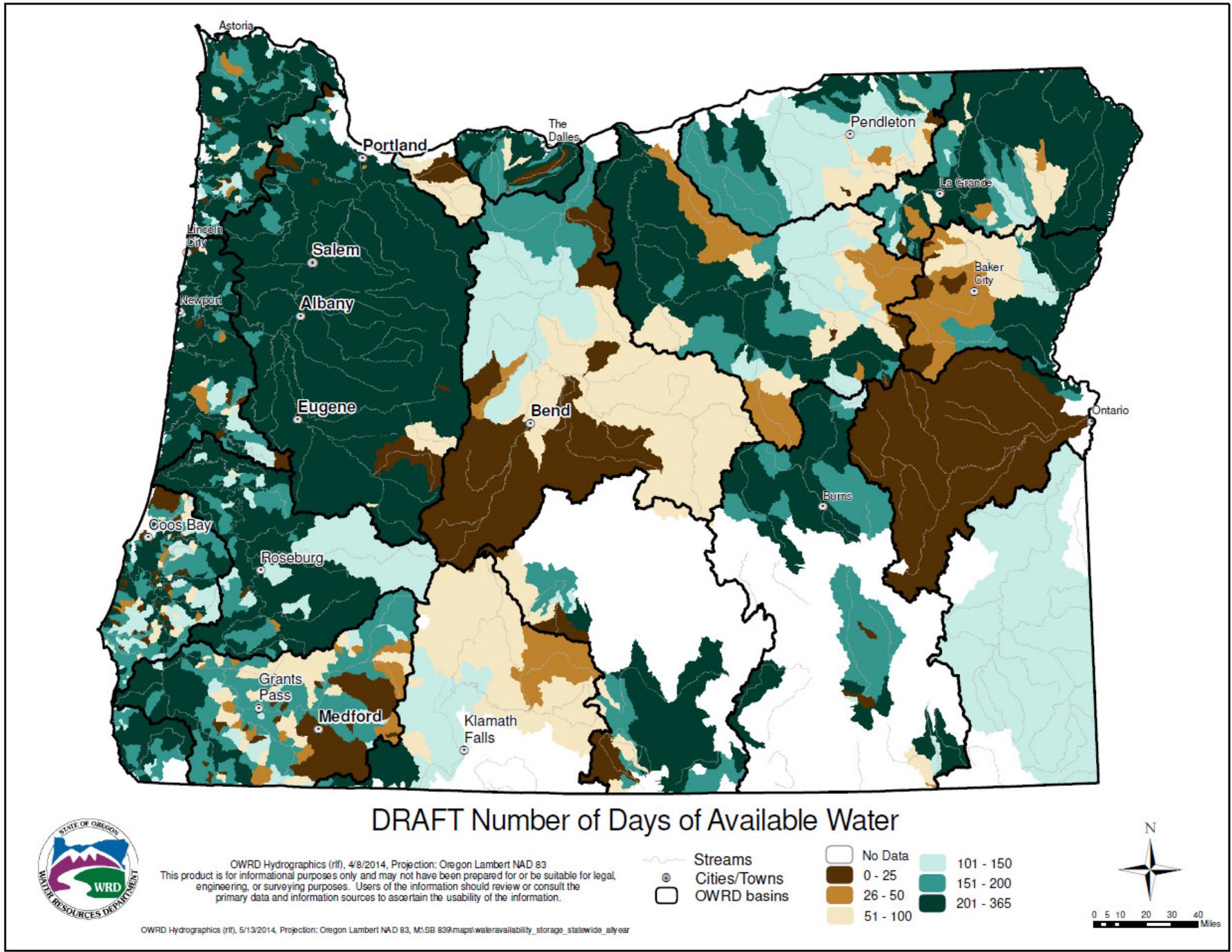


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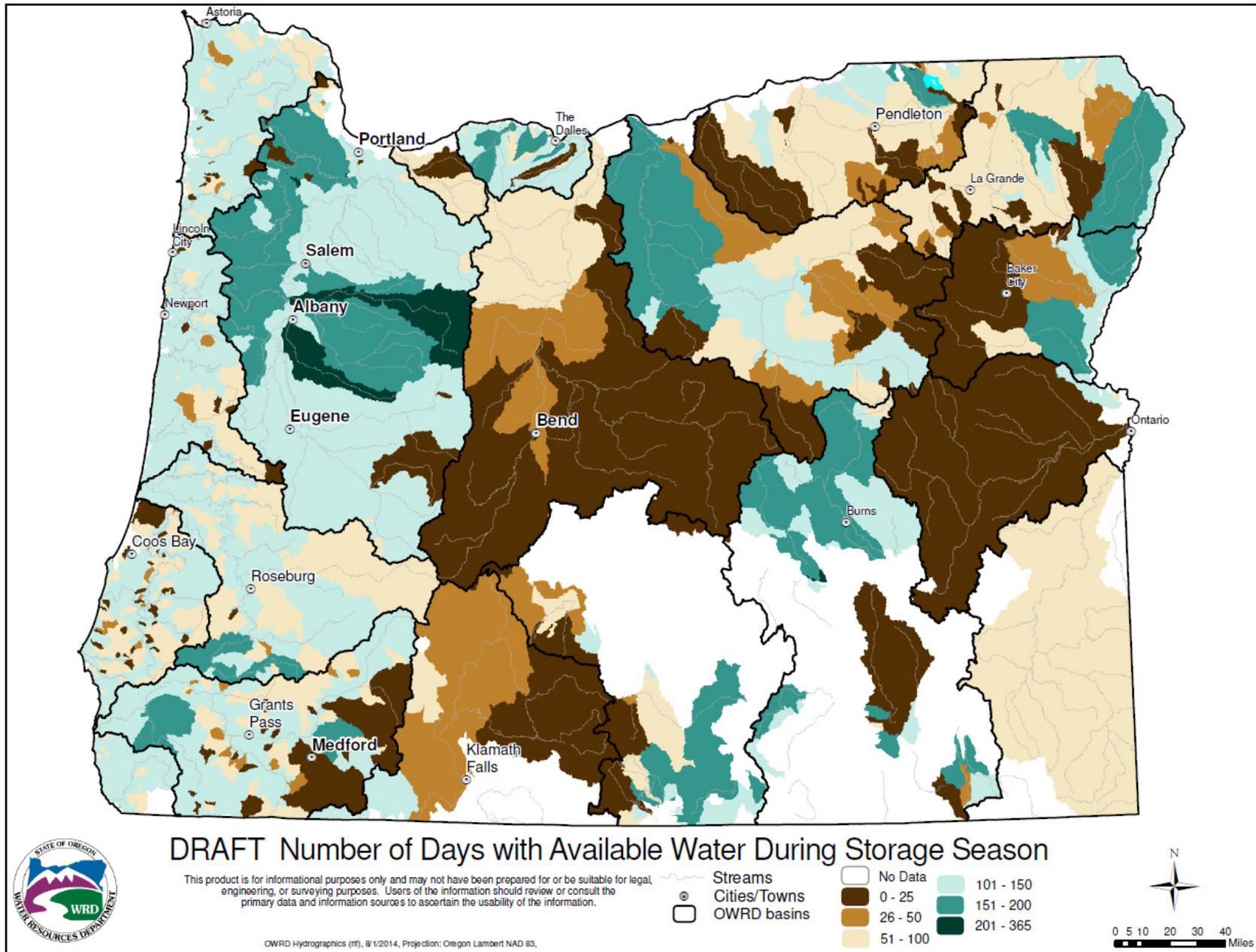


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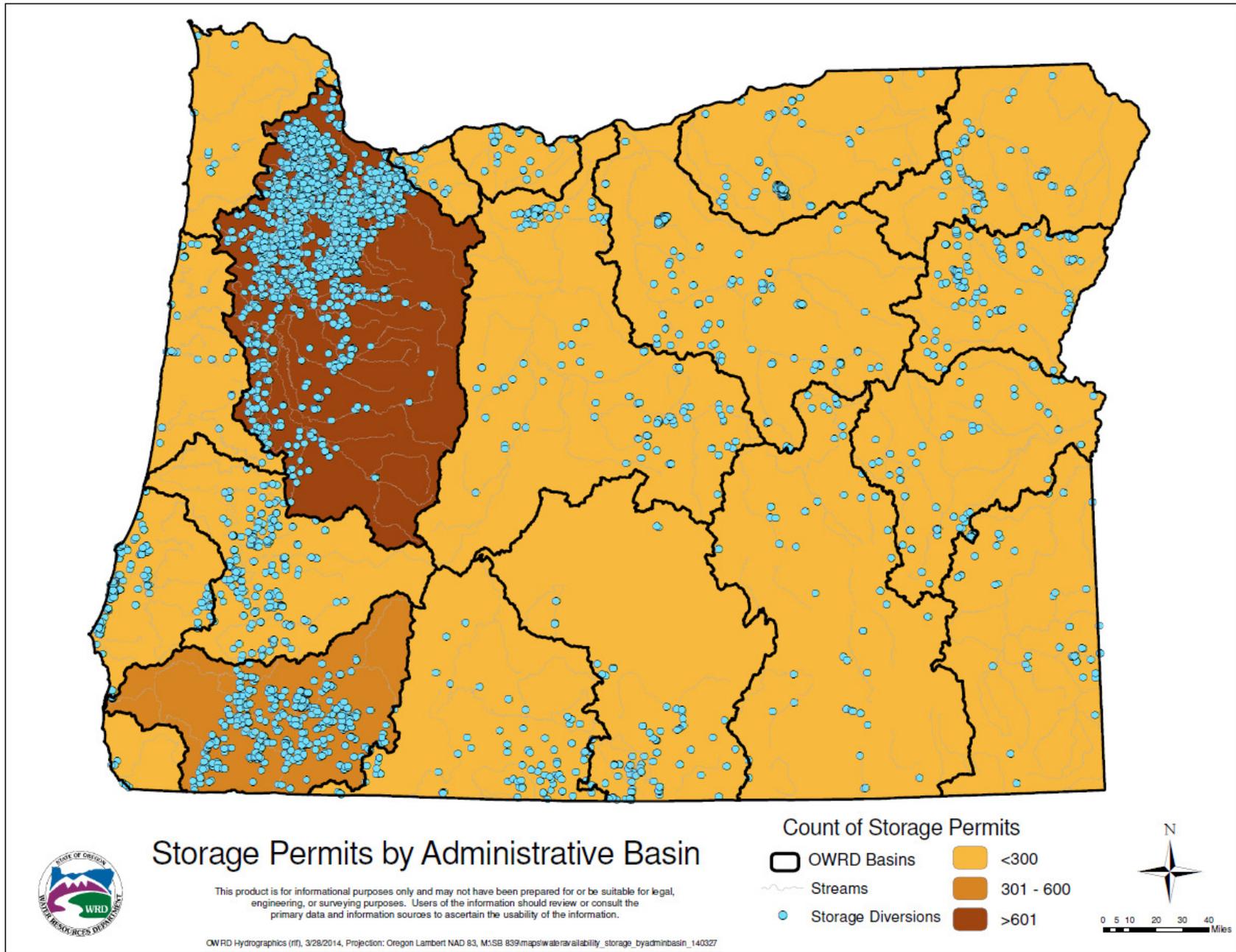


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

The specific storage season will be determined at the time of permitting. The initial screening criteria for these projects (whether there is water available under the 50% exceedance criteria) does give a general answer to the question of whether water will be available for storage. This information can be accessed at OWRD’s Water Availability website:

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Q7) What is the 50% exceedance criteria?

A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

A: Yes; monitoring costs associated with the project are allowed for funding under the grant program. Monitoring requirements and plans for each project will be established based on existing gages, the location of the diversion, and prior appropriations in the basin. Under SB 839, the state is authorized to conduct or pay for studies to determine the seasonally varying flow requirements. Applicants may also pay for these costs if they so choose.

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Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

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Q11) What are the benefits of the proposed POF diversion method?

A: This method gives water users a relatively quick approach to access winter flows for storage purposes without expending much time or funds to determine SVF flows. Particularly useful in streams without existing allocations, this approach could also be used by water right reservation holders to develop needed water supplies.

Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

A: Yes. This POF method was proposed as a tool to allow users to access winter storm peaks in a way that protects ecologically important high water events. The Science Subgroup report provides a snapshot of water availability, storage seasons, storage potential, and examples of the POF method as applied at several sites.

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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

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A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

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A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

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Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

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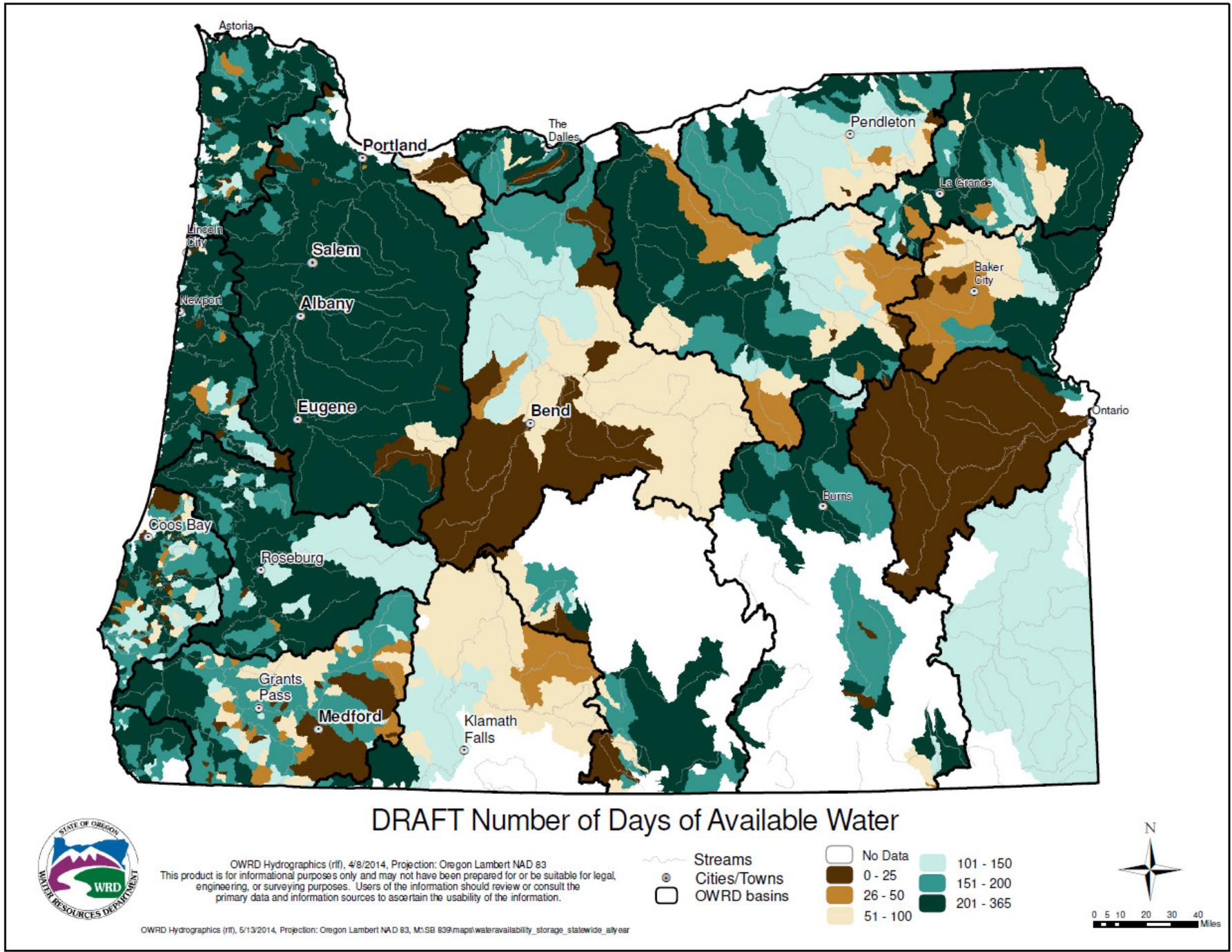


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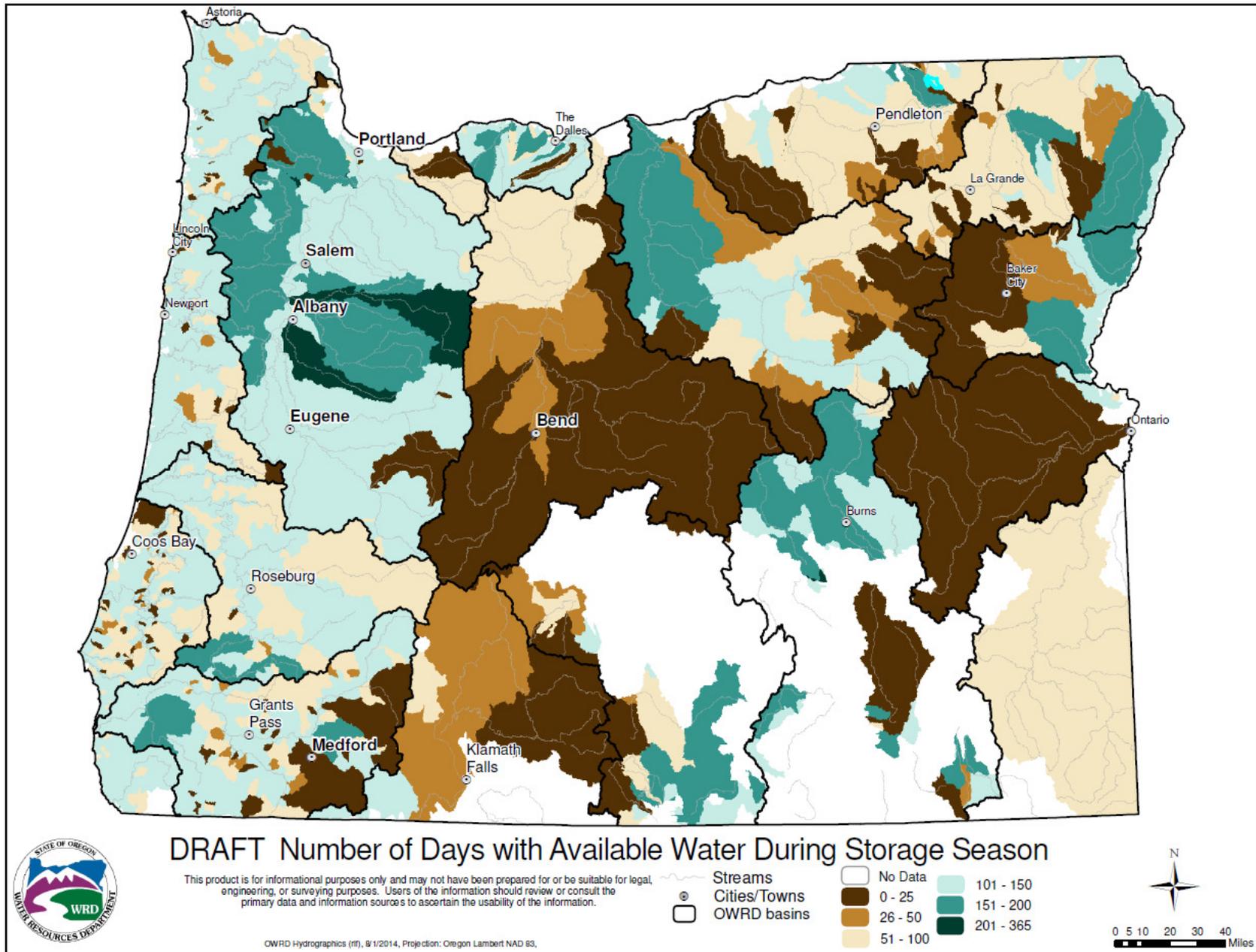


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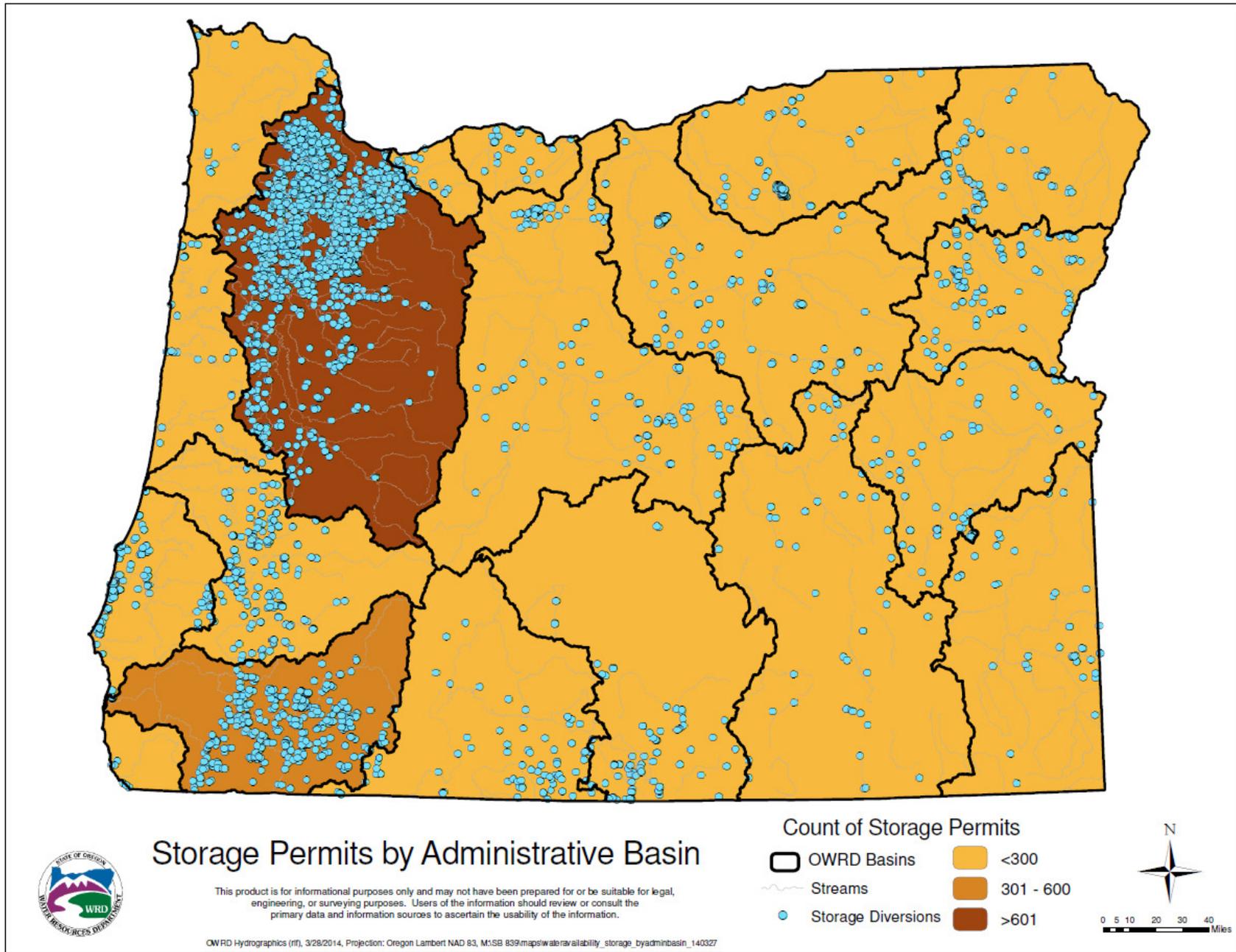


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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

Contact:

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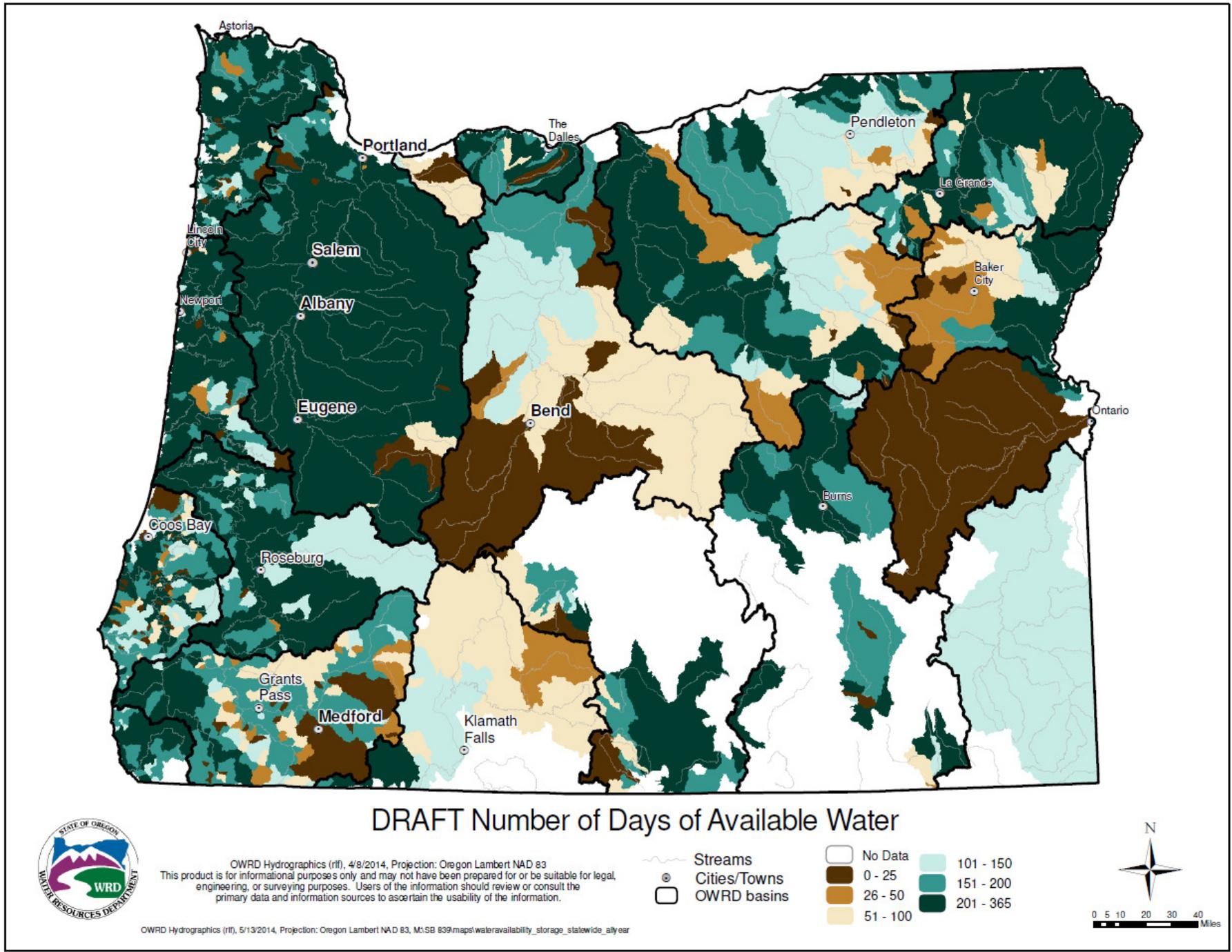


Figure 1: Number of days with available water for storage under the 50% exceedance criteria; statewide, annual.

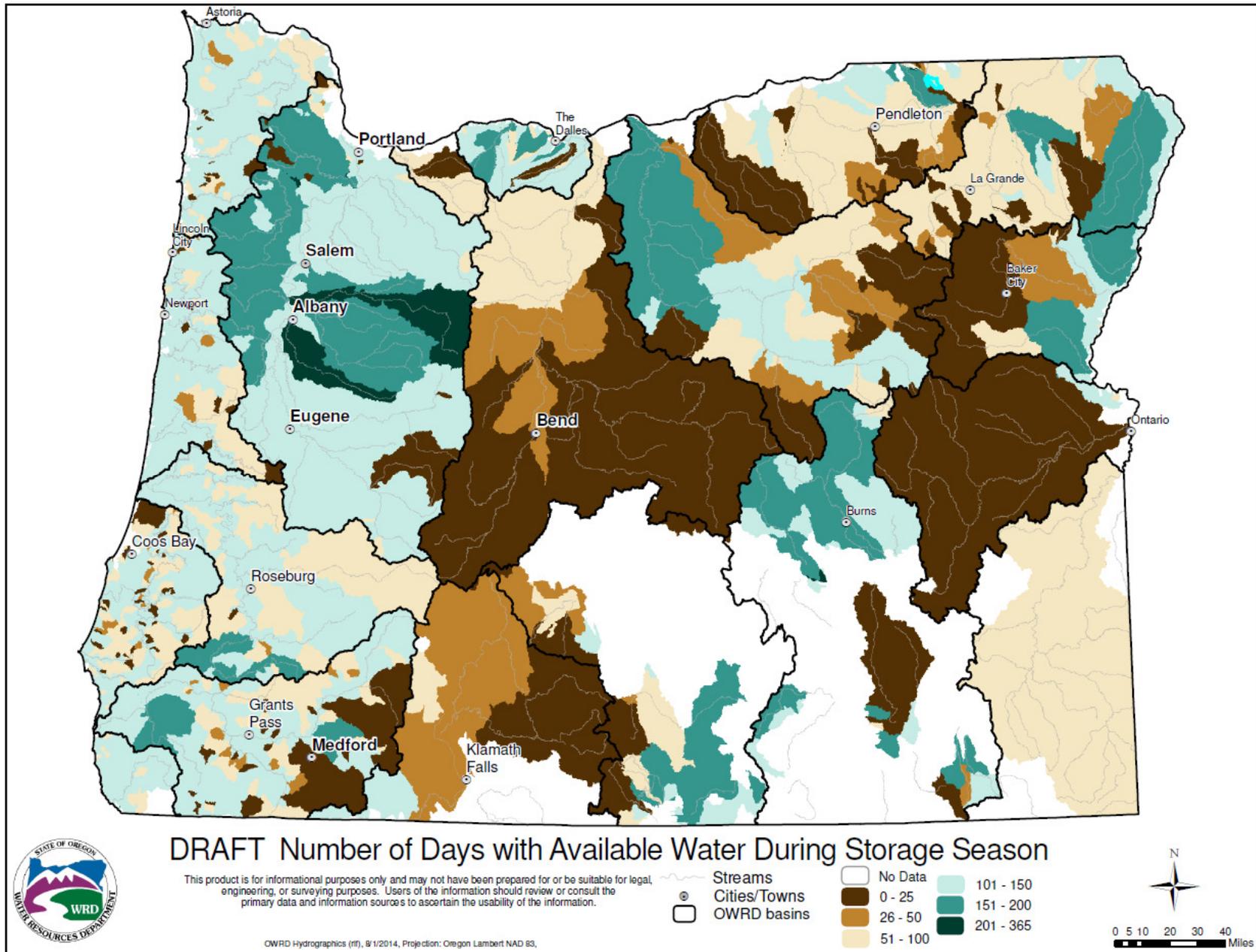


Figure 2: Number of days with water available for storage outside the irrigation season. Here, water availability is limited by SB 839 language defining “non-irrigation season” using decree and the default irrigation season dates. Additional basin plan rules will further limit where water is accessible.

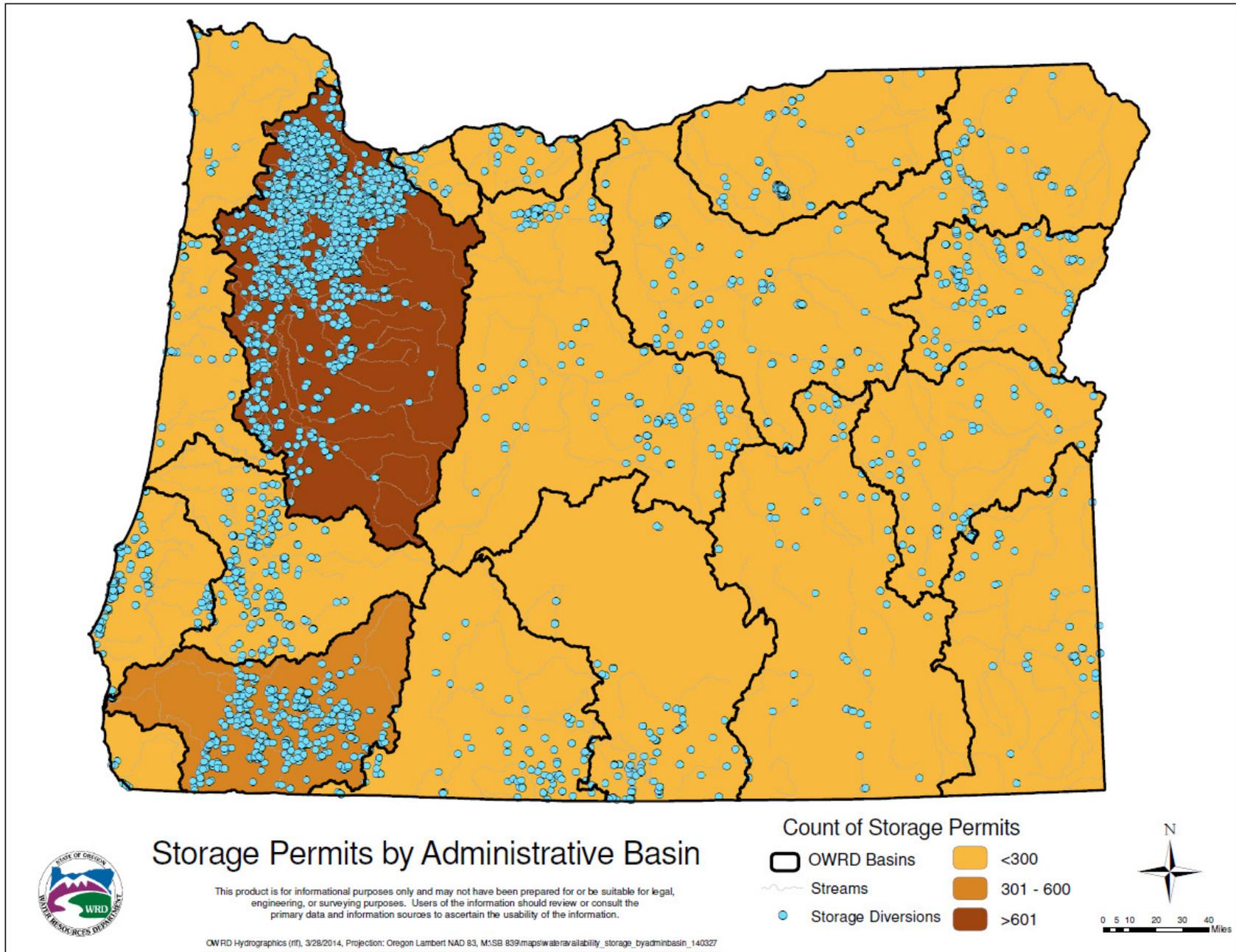


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

The specific storage season will be determined at the time of permitting. The initial screening criteria for these projects (whether there is water available under the 50% exceedance criteria) does give a general answer to the question of whether water will be available for storage. This information can be accessed at OWRD’s Water Availability website:
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Gage data can be used to characterize a basin’s historic flow regime. OWRD and its partners maintain a gage network of more than 500 gages across the state including historic data, flow duration curves and other hydrologic statistics:
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Flood frequency, along with watershed delineation (including exported .mdb of the basin) can be calculated using gage data and regional regression equations found using OWRD’s Peak Discharge mapping tool: http://apps.wrd.state.or.us/apps/sw/peak_discharge_map/.

A preview of existing basin water rights will tell you the total volume of water that has already been allocated by month, though more information is needed to estimate diversions on a shorter time step: <http://apps.wrd.state.or.us/apps/wr/wrinfo/Default.aspx> (look up tables) <http://apps.wrd.state.or.us/apps/gis/wr/Default.htm> (water rights mapping tool).

Q7) What is the 50% exceedance criteria?

A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

A: Yes; monitoring costs associated with the project are allowed for funding under the grant program. Monitoring requirements and plans for each project will be established based on existing gages, the location of the diversion, and prior appropriations in the basin. Under SB 839, the state is authorized to conduct or pay for studies to determine the seasonally varying flow requirements. Applicants may also pay for these costs if they so choose.

Q9) How will “baseflow” levels be determined for the SVF method?

A: Baseflow refers to a protective ecological flow which serves to protect minimum instream flow needs. When an SVF permit is processed, a baseflow level will be established as part of that permit using protocol decided upon by OWRD and ODFW. Like other permits, SVF permits would be subject to a public comment period. ODFW and OWRD have agreed upon the following approach for establish baseflow values for SVF projects:

- a. If there is an existing Instream Water Right (ISWR) within the reach of a proposed project, those values, already senior to the new project, will be used as the project’s baseflow conditions.
- b. If there is no existing ISWR and the applicant is proposing to use the POF approach, then ODFW will recommend a baseflow value calculated by looking at existing ISWRs in nearby basins (i.e., find the ratio of ISWRs in basin x to median flow in basin X and create a similar ratio in basin y).
- c. If there is no existing ISWR and the applicant wants more than the POF method will permit, then ODFW will perform an in-depth analysis to determine recommended baseflow levels using the same methods ODFW would use to establish an ISWR.

Percent-of-Flow Approach

Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

¹ Natural streamflow refers to the flow in rivers and streams that would have occurred in the absence of any man-made effects on, or regulation of, flow. In systems with human impacts, natural flow is a calculated value based on the recorded flows of contributing rivers, physical factors concerning the reach (for example, evaporation, channel losses), water diversions, consumptive use, and return flow. In pristine environments, natural flows equal recorded flows.

Q11) What are the benefits of the proposed POF diversion method?

A: This method gives water users a relatively quick approach to access winter flows for storage purposes without expending much time or funds to determine SVF flows. Particularly useful in streams without existing allocations, this approach could also be used by water right reservation holders to develop needed water supplies.

Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

A: Yes. This POF method was proposed as a tool to allow users to access winter storm peaks in a way that protects ecologically important high water events. The Science Subgroup report provides a snapshot of water availability, storage seasons, storage potential, and examples of the POF method as applied at several sites.

How is the POF (15%) different from the 25% described in the SB 839 language?

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Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

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Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

A: Yes. Under SB 839 language, an ASR or AR project would be eligible for funding. The fund can pay for a variety of uses (see OR SB 839, section 3) including new or expanded water storage below ground. If an applicant plans to use an existing water right, then the ASR permit will be limited to the existing permit’s total volume.

Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

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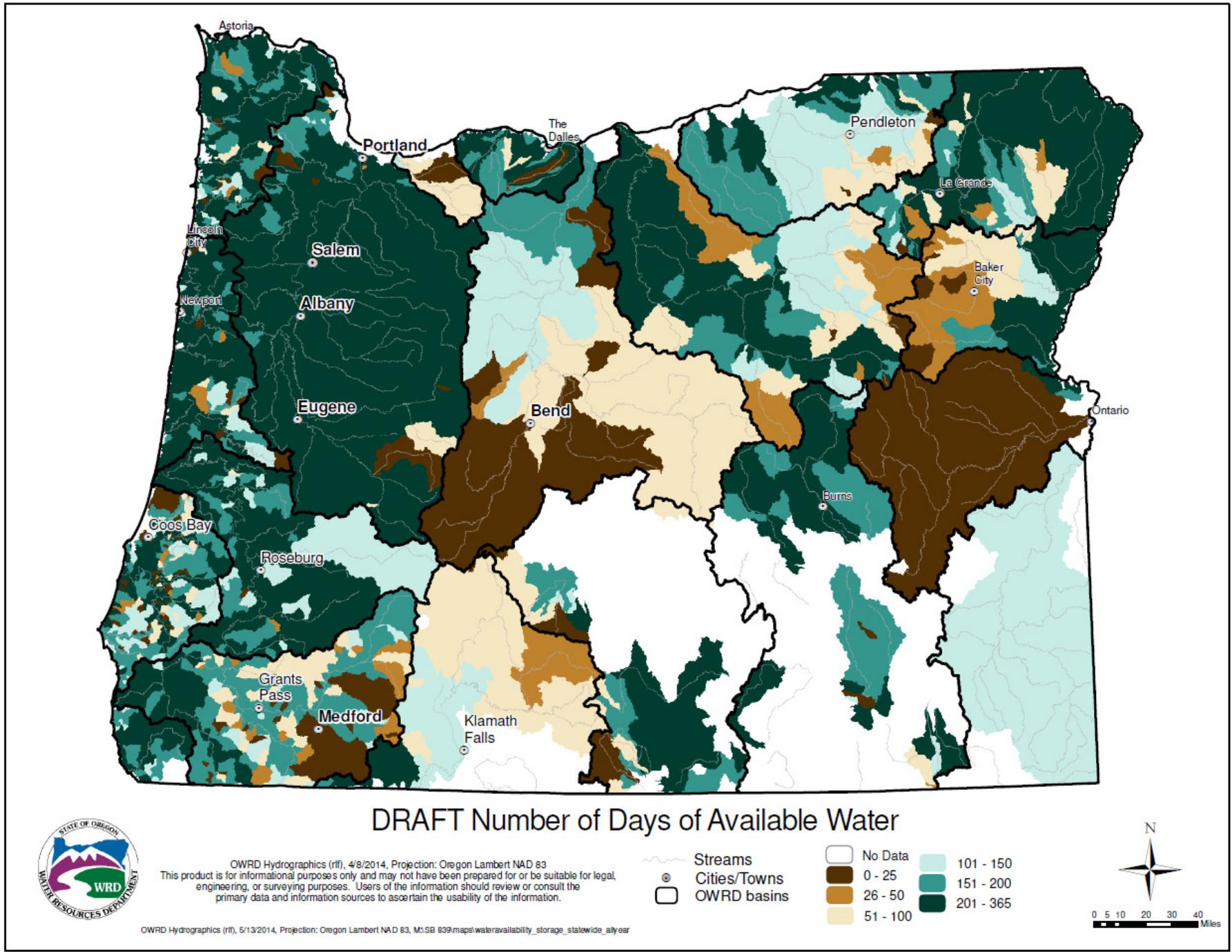


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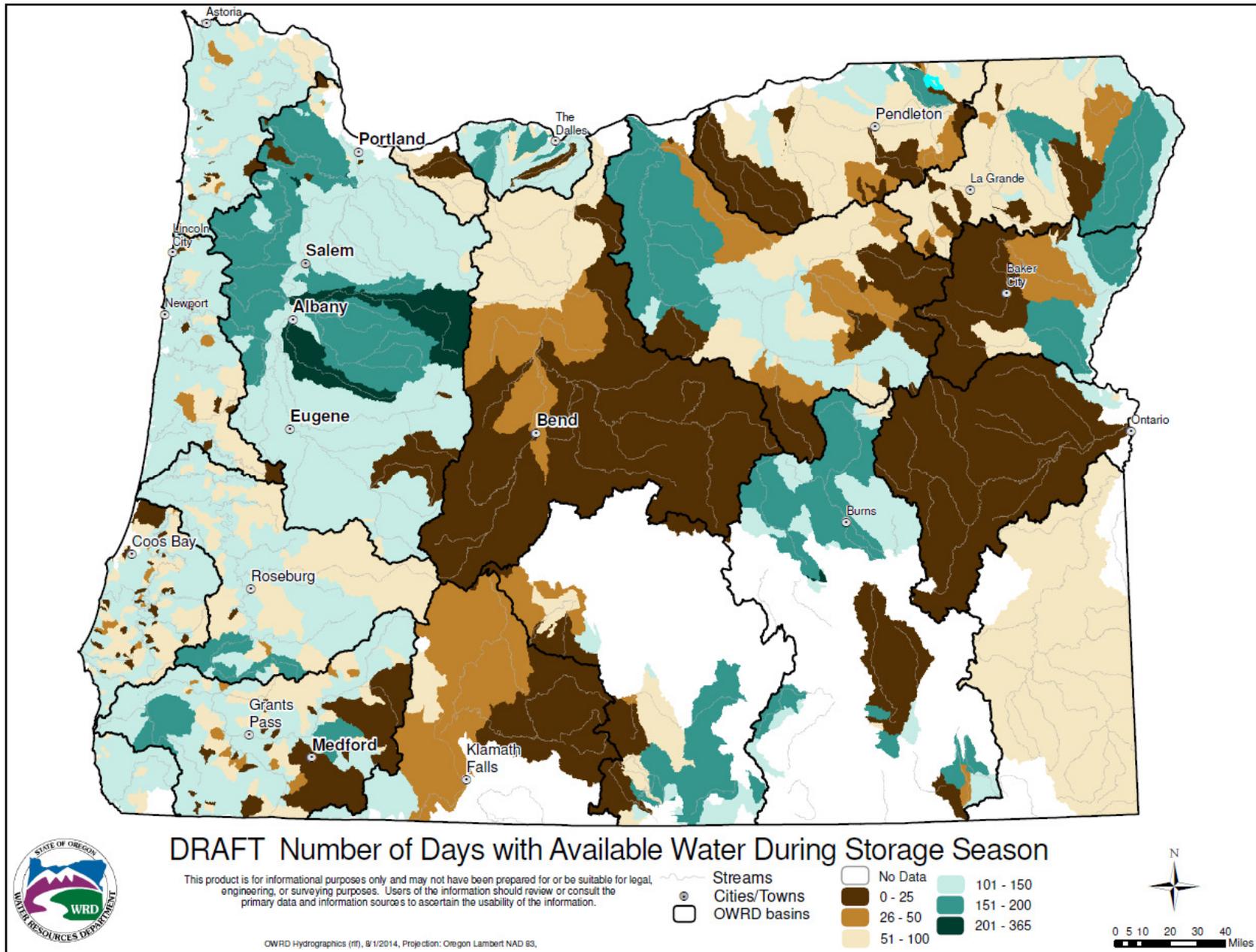


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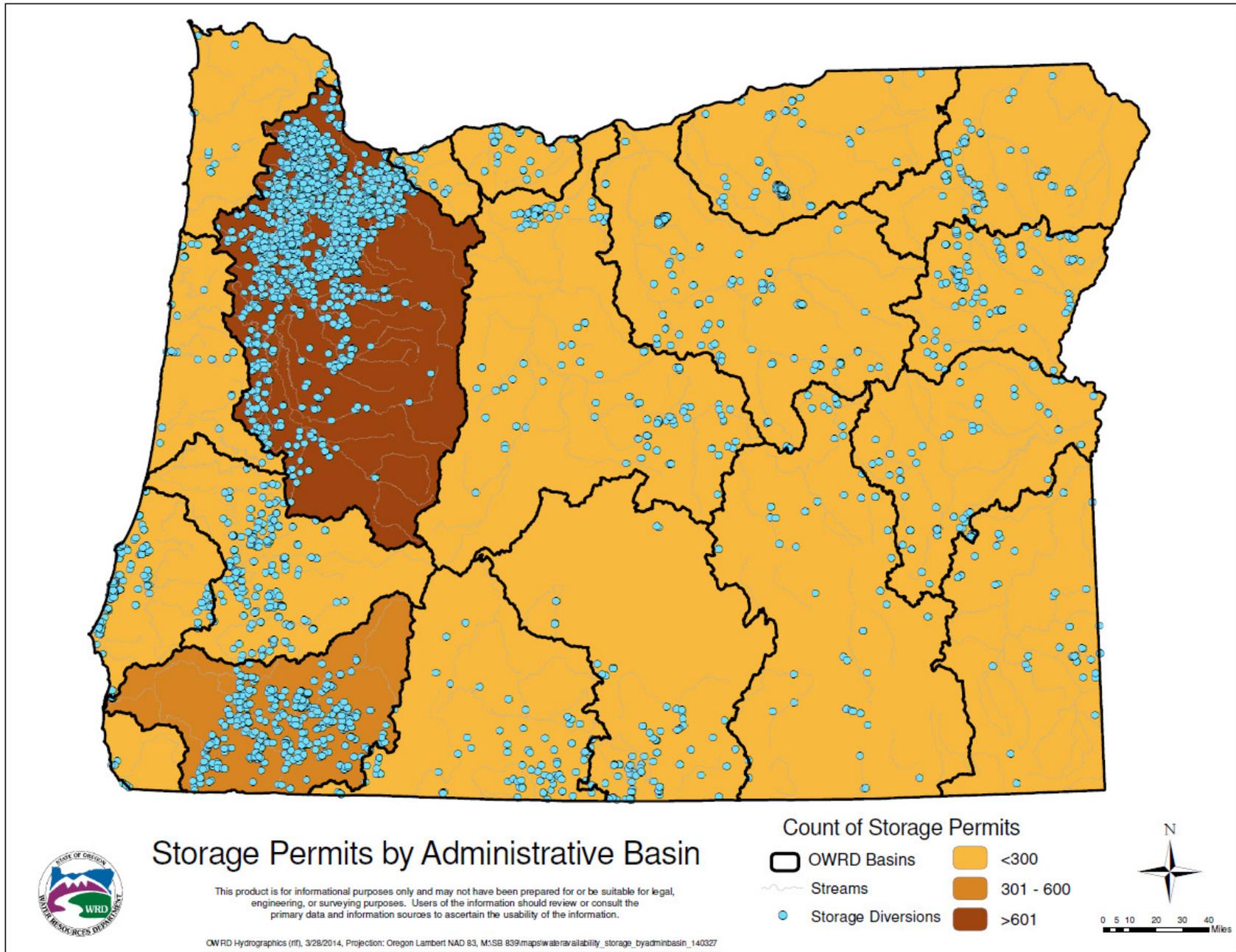


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A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
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Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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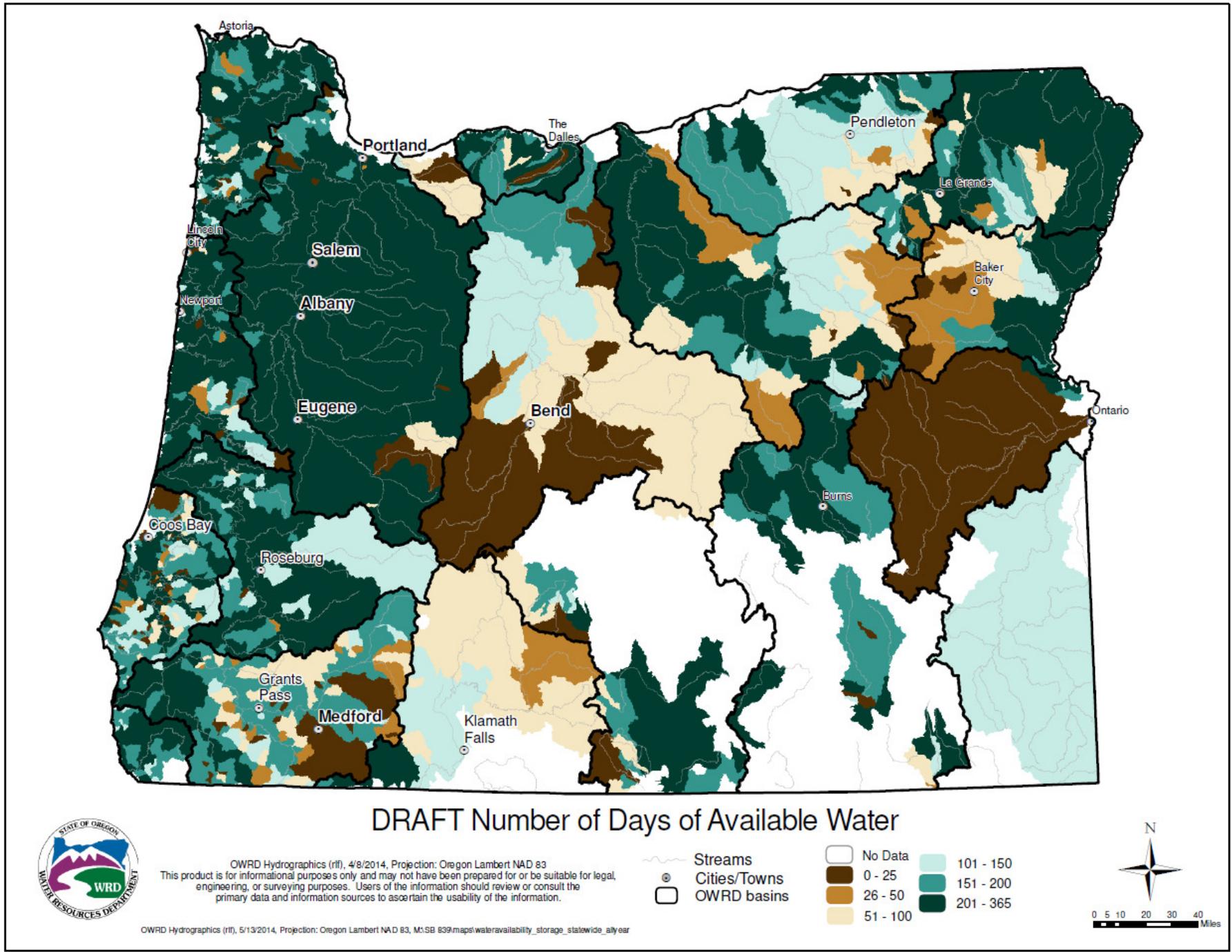


Figure 1: Number of days with available water for storage under the 50% exceedance criteria; statewide, annual.

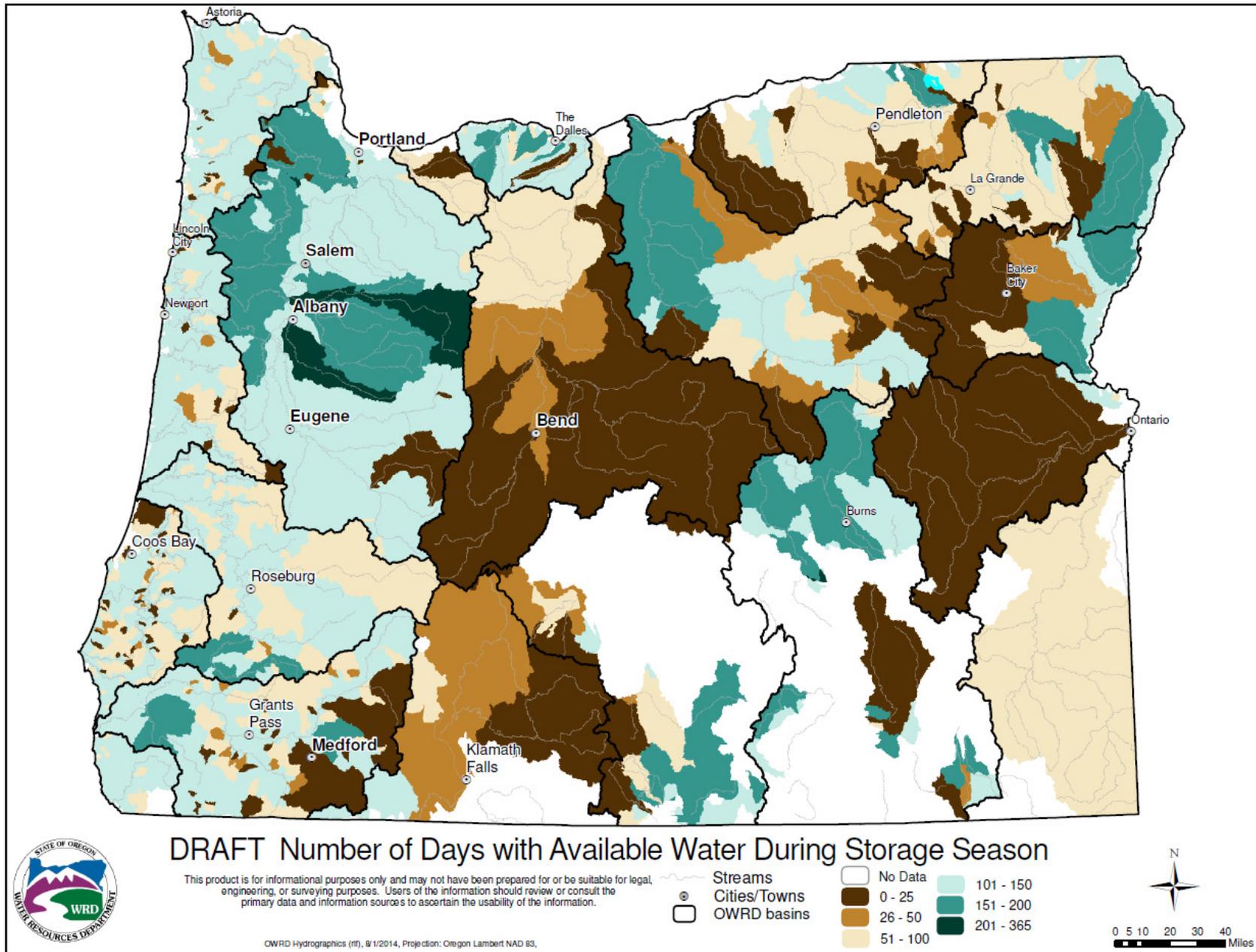


Figure 2: Number of days with water available for storage outside the irrigation season. Here, water availability is limited by SB 839 language defining “non-irrigation season” using decree and the default irrigation season dates. Additional basin plan rules will further limit where water is accessible.

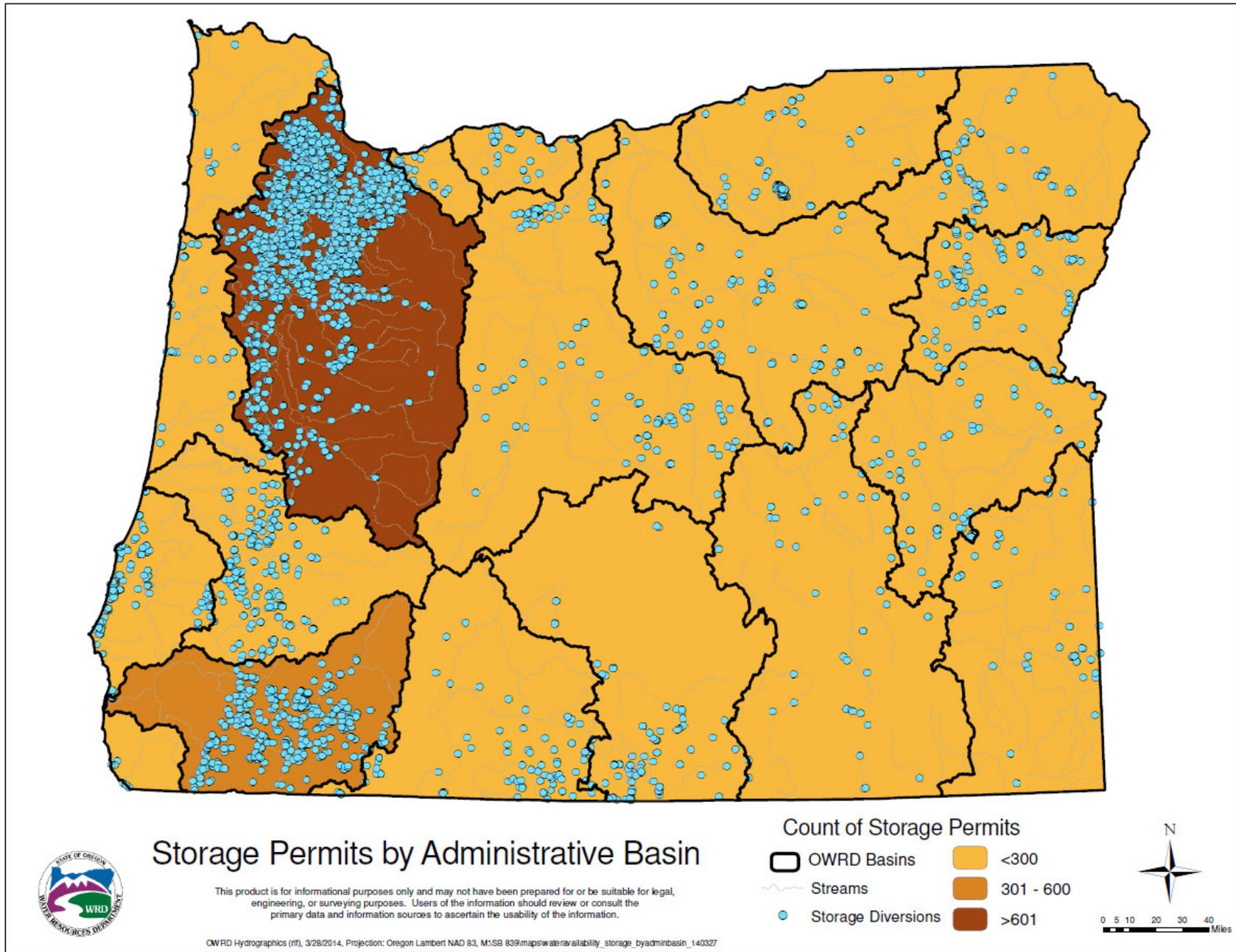


Figure 3: Map of the number of storage permits by administrative basin, statewide.



SB 839 Seasonally Varying Flow Q and A

The following series of questions and proposed answers relates to the Seasonally Varying Flows (SVF) approach described in, “A Proposed ‘Percent of Flow’ Approach for Water Storage Projects in Oregon” (Science Subgroup report). This Q and A, along with accompanying diagrams and map, explains how the state could manage and integrate an SVF approach alongside traditional allocation methods.

Recommended Actions for the Task Force to Consider:

- 1) Change the time period during which SVF projects may operate from the “outside the irrigation season” to “when water is available.”
- 2) Provide a clear path for reservations to access funds under the Water Supply Development Account.

Questions:

General Seasonally Varying Flow Approach

Q1) Who will pay for Senate Bill (SB) 839 SVF In-Depth Assessments?

A: SB 839 authorizes the state to pay to determine SVF flows. This money would come from the same fund that provides grants for SB 839 projects.

Q2) How will the SVF flow prescriptions influence ODFW Division 33 water right application reviews?

A: The SVF flow prescription could take the place of regular / peak flow prescriptions currently in use by ODFW. ← confirming with ODFW.

Q3) What projects must comply with the SVF component of SB 839?

A: Water users who are seeking a water right authorization AND whose projects are funded by the Water Supply Development Account AND whose project either a) impounds water on perennial streams, or b) Diverts water from a stream that supports state, or federally listed sensitive, threatened, or endangered species; or c) diverts more than 500 acre-feet of surface water annually (see Section 13).

Q4) Are there limitations on the time of the year when storage projects funded by this bill may divert water?

A: Yes. Per SB 839 language, water is only available using SVF methodologies outside the irrigation season (aka during a storage season). The irrigation season is set by a decree, a basin

plan, or other administrative rule. The storage season is assumed to be any time period outside of the irrigation season.

The default irrigation season for the state (March 1st to October 31st) is set under Division 250 rules. For basins that use the default irrigation season, the default storage season would be November 1st to February 29th. In basins in western Oregon, this “non-irrigation” window prevents the storage of low summer flows and provides storage projects access to peak events in the fall and winter. This is not true for many basins east of the Cascade Mountains where peak events occur in the spring (see example from the Grande Ronde in Figure 6).

The task force may want to revisit the term “outside the irrigation season” in order to make east-side spring peak events accessible. There are existing tools that already protect live flow diversion for irrigation in the summer low-flow period and prevent over appropriation.

Q5) How would these new diversions be managed alongside traditional diversion systems?

A: New diversions will be managed in a manner consistent with existing water rights. OWRD anticipates no changes for senior water rights holders within a basin where the SVF system is implemented. In the situation where the traditional diverter is senior to the SVF diverter, the junior diverter (or SVF in this case) could still be regulated off if senior users are not able to take all of the water they need. In addition, junior upstream of SVF diverters would be required to pass an agreed-upon flow rate to downstream senior users.

Q6) What information does OWRD provide that might be useful in determining the amount of water that can be diverted for my planned project?

A: The calculation for determining actual available water requires understanding of the river’s natural flow, the daily operations of existing diversions, the allowed storage season, and instream protection levels or likely baseflow protections.

The specific storage season will be determined at the time of permitting. The initial screening criteria for these projects (whether there is water available under the 50% exceedance criteria) does give a general answer to the question of whether water will be available for storage. This information can be accessed at OWRD’s Water Availability website:
http://apps.wrd.state.or.us/apps/wars/wars_display_wa_tables/search_for_WAB.aspx.

Gage data can be used to characterize a basin’s historic flow regime. OWRD and its partners maintain a gage network of more than 500 gages across the state including historic data, flow duration curves and other hydrologic statistics:
http://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/.

Flood frequency, along with watershed delineation (including exported .mdb of the basin) can be calculated using gage data and regional regression equations found using OWRD’s Peak Discharge mapping tool: http://apps.wrd.state.or.us/apps/sw/peak_discharge_map/.

A preview of existing basin water rights will tell you the total volume of water that has already been allocated by month, though more information is needed to estimate diversions on a shorter time step: <http://apps.wrd.state.or.us/apps/wr/wrinfo/Default.aspx> (look up tables) <http://apps.wrd.state.or.us/apps/gis/wr/Default.htm> (water rights mapping tool).

Q7) What is the 50% exceedance criteria?

A: To provide consistency with Oregon Administrative Rules 690-410-0070 (2)(c), the Water Resources Department generally evaluates water availability for storage using the median flow for any given month as a cap for allocation. This is a statistical calculation, based on historic data.

Q8) Will monitoring costs be allowed under the grant program? What about studies?

A: Yes; monitoring costs associated with the project are allowed for funding under the grant program. Monitoring requirements and plans for each project will be established based on existing gages, the location of the diversion, and prior appropriations in the basin. Under SB 839, the state is authorized to conduct or pay for studies to determine the seasonally varying flow requirements. Applicants may also pay for these costs if they so choose.

Q9) How will “baseflow” levels be determined for the SVF method?

A: Baseflow refers to a protective ecological flow which serves to protect minimum instream flow needs. When an SVF permit is processed, a baseflow level will be established as part of that permit using protocol decided upon by OWRD and ODFW. Like other permits, SVF permits would be subject to a public comment period. ODFW and OWRD have agreed upon the following approach for establish baseflow values for SVF projects:

- a. If there is an existing Instream Water Right (ISWR) within the reach of a proposed project, those values, already senior to the new project, will be used as the project’s baseflow conditions.
- b. If there is no existing ISWR and the applicant is proposing to use the POF approach, then ODFW will recommend a baseflow value calculated by looking at existing ISWRs in nearby basins (i.e., find the ratio of ISWRs in basin x to median flow in basin X and create a similar ratio in basin y).
- c. If there is no existing ISWR and the applicant wants more than the POF method will permit, then ODFW will perform an in-depth analysis to determine recommended baseflow levels using the same methods ODFW would use to establish an ISWR.

Percent-of-Flow Approach

Q10) What is the Percent-of-Flow (POF) Approach? How is the percent of flow calculated? How much water can I divert?

A: The POF diversion allowance be calculated as fifteen percent (15%) of the instantaneous natural flow¹ at the point of diversion or representative location. If an upstream, senior user is already diverting 5% of the instantaneous natural flow, the POF diversion may only withdraw up to 10% of instantaneous natural flow. See Figures 3, 6, 7, and 8 in “A Proposed ‘Percent of Flow’ Approach, Senate Bill 839” (Science Subgroup Report) for examples of the yield from the proposed allocation scheme.

¹ Natural streamflow refers to the flow in rivers and streams that would have occurred in the absence of any man-made effects on, or regulation of, flow. In systems with human impacts, natural flow is a calculated value based on the recorded flows of contributing rivers, physical factors concerning the reach (for example, evaporation, channel losses), water diversions, consumptive use, and return flow. In pristine environments, natural flows equal recorded flows.

Q11) What are the benefits of the proposed POF diversion method?

A: This method gives water users a relatively quick approach to access winter flows for storage purposes without expending much time or funds to determine SVF flows. Particularly useful in streams without existing allocations, this approach could also be used by water right reservation holders to develop needed water supplies.

Q12) Is there any place in the state where a storage project could divert 15 percent of the natural flow throughout the allowed storage period?

A: Yes. This POF method was proposed as a tool to allow users to access winter storm peaks in a way that protects ecologically important high water events. The Science Subgroup report provides a snapshot of water availability, storage seasons, storage potential, and examples of the POF method as applied at several sites.

How is the POF (15%) different from the 25% described in the SB 839 language?

A: Percent of Flow refers to the amount of water that can be diverted from the stream for storage during the winter/peak run-off period. It applies to certain SB 839-funded projects seeking a new water right permit, limited license, etc. for storage. The 25% requirement refers to the volume of stored water that must be released instream, likely during the summer months. It applies to certain SB 839-funded projects, whether or not they are seeking a new water right permit.

Q13) Can water continue to be allocated up to the 50 percent exceedance criteria once a POF permit has been issued within a basin?

A: Under current regulations for permits not requesting funding under SB 839, yes. For projects requesting permits and requisitions of SB 839 funding, use of the POF approach may mean that water users may have to stop short of diverting up to the 50% exceedance levels during low flow times. Once a POF permit has been issued in a basin, new rights issued under the 50 percent exceedance criteria would be junior to the POF permit despite the different allocation systems. The POF storage project volumes would, however, be included in the water availability calculation and therefore would be accounted for under the 50% exceedance criteria. Water availability is calculated at the water availability basin (WAB) level.

Q14) Why not use the 50 percent exceedance criteria as a limit to the total diversion amount?

A: The intent of the POF method is to allow for an acceptable degree of flow alteration, while still demonstrating protection of our aquatic ecosystems. The POF storage projects will allow for storage of high winter flows that are currently not available under the Department's existing allocation system, but in a way that is still protective of the ecological functions provided by seasonally varying flows. The 50 percent exceedance criteria, under the POF method, will be used to help identify and define the storage season, and POF project volumes will be accounted for in the 50% exceedance calculations within a WAB.

Q15) Can existing projects store additional water using the POF permit?

A: Neither SB 839 nor the Science Subgroup report address this; current regulations do allow adding additional allocations to existing storage projects. SB 839 funding as described in the Science Subgroup report would trigger either the use of a POF or an "In-Depth Assessment" approach.

Q16) How would the POF method be accounted for in the Water Availability program?

A: Similar to other storage projects, the POF storage permit will list a total volume of water for each storage project (i.e., the full capacity of the reservoir). These volumes, similar to other storage project allocations, will be taken into account in determining if water has been allocated up to the 50 percent exceedance level and therefore if additional water is available for future storage projects, POF or traditional. If the project is developing previously reserved water, no additional water would be debited to the Water Availability program, since reservations are already accounted for.

In-Depth Assessment Approach

Q17) What if I would like to store water during the storage season, but outside of the time designated by the water availability criteria?

A: Using the “In-Depth Assessment Framework,” other diversion approaches could be proposed, including the diversion of water during months where current allocations already meet the 50 percent exceedance criteria.

Q18) What if I want to store more than 15 percent of the natural flow?

A: If you would like to store more than is likely available through the 15 percent method, then you can apply to divert water using the “In-Depth Assessment Framework” approach outlined in Chapter 2 of the Science Subgroup Report

Artificial Recharge and Aquifer Storage and Recovery

Q19) Can I use the SB 839 water supply development account (WSDA) funds to develop aquifer storage and recovery (ASR) or artificial groundwater recharge (AR) projects?

A: Yes. Under SB 839 language, an ASR or AR project would be eligible for funding. The fund can pay for a variety of uses (see OR SB 839, section 3) including new or expanded water storage below ground. If an applicant plans to use an existing water right, then the ASR permit will be limited to the existing permit’s total volume.

Q20) If I receive funds for my project under the WSDA, how would the application process differ for ASR or AR from the current process?

A: The following table outlines current water right processes and terms for both ASR and AR as well as how the processes and terms of the water right would change if the associated project were to receive funding from the WSDA.

Administrative Process	Water Rights Required	New Diversion Right Without SB 839 Funding	New Diversion Right with SB 839 Funding	Existing Diversion Right with SB 839 Funding
Artificial Groundwater Recharge (AR)	AR authorization appropriates source water and allows recharge. A secondary authorization allows recovery of stored water.	Diversion rate and volume identified in AR authorizations; SVF allocation methods do not apply	SVF allocation methods apply to diversion rate and maximum storage volume	Maximum storage volume set by existing right; SVF allocation methods apply to diversion rate
Aquifer Storage and Recovery (ASR)	Existing water rights allow diversion and end use; ASR authorization allows both storage and recovery	Diversion rate and volume identified in underlying water right; SVF methods do not apply	SVF allocation methods apply to diversion rate; water right would determine the maximum storage volume	Maximum storage volume set by existing right; SVF allocation methods apply to diversion rate

Q21) How would the seasonally varying flow allocation methods work when implemented through ASR or AR?

A: For either ASR or AR, the rate of diversion would be set by either a) the percent of flow approach or b) an in-depth assessment approach. The percent of flow approach would allow an AR or ASR user to divert up to 15% of natural stream flow. The in-depth assessment approach allows for a variety of diversion rates as long the applicant can prove that seasonally varying flows are protected.

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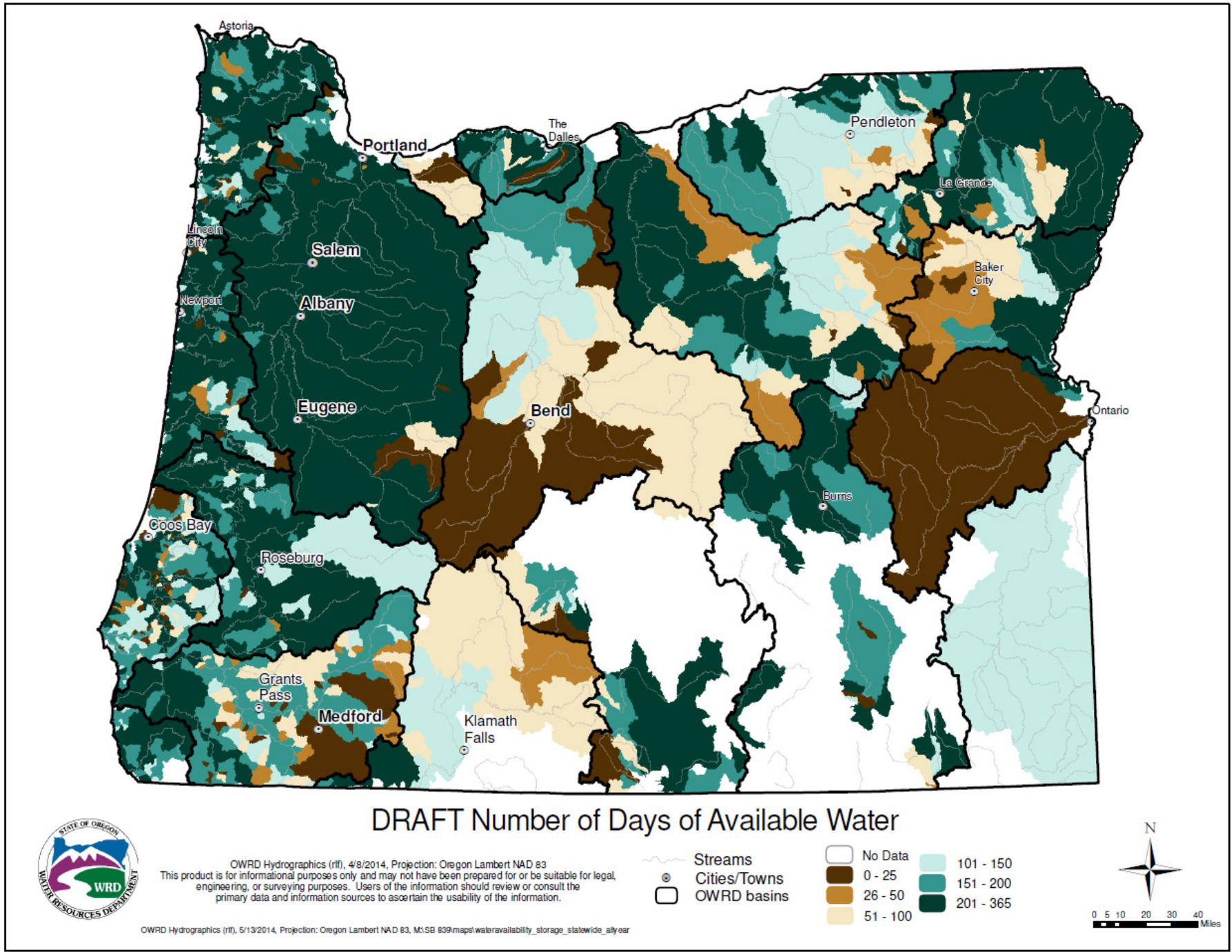


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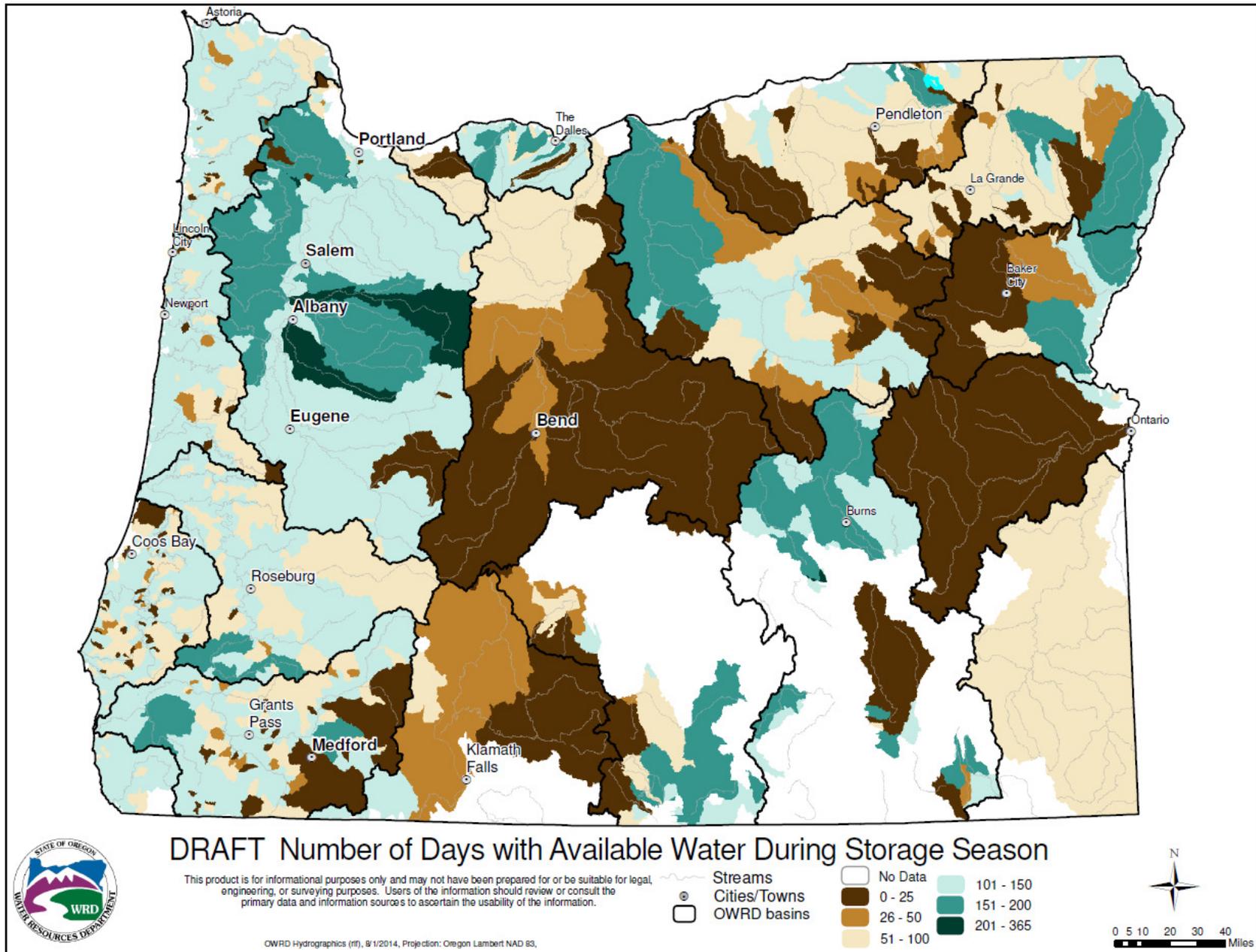


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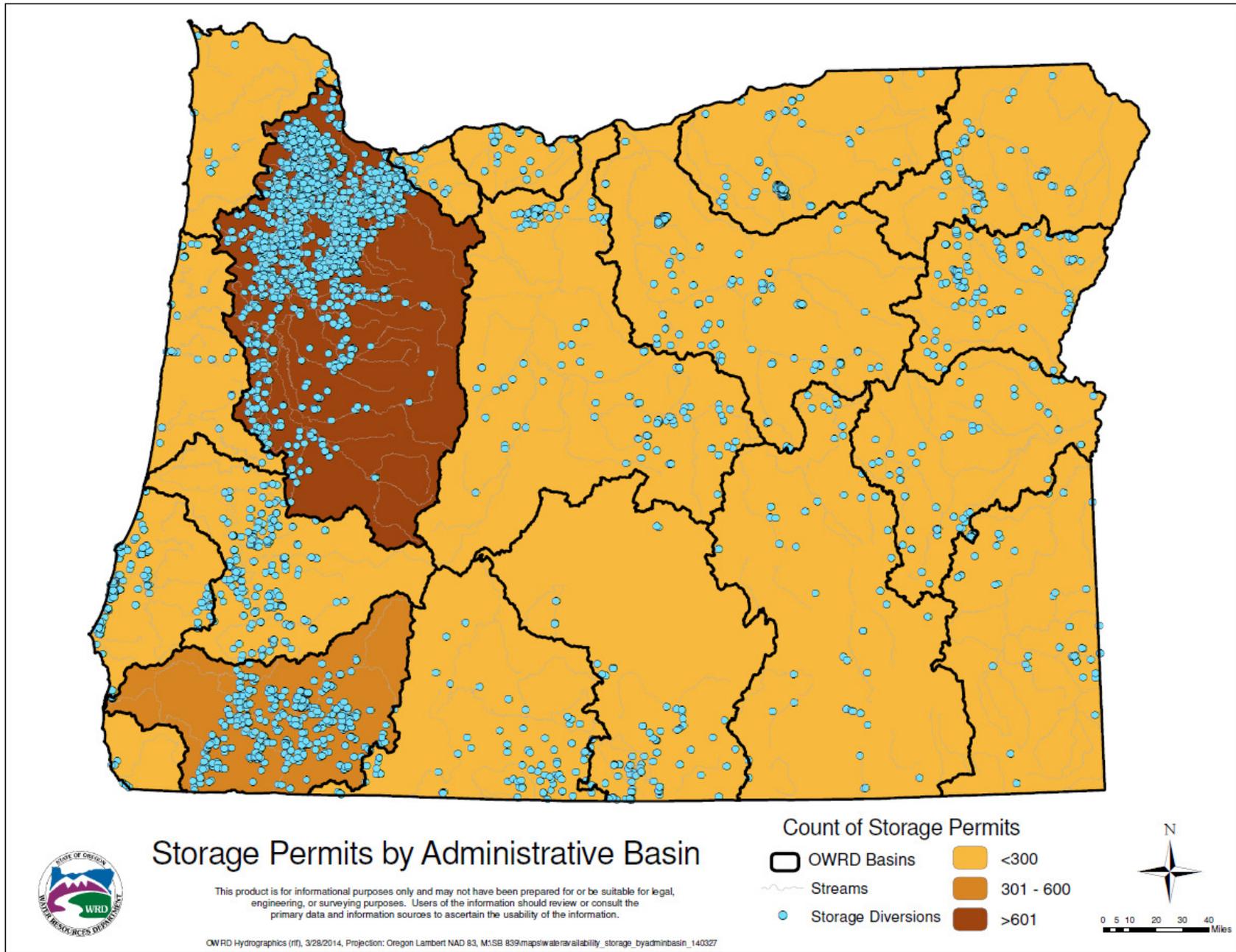


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