



# Oregon

Theodore R. Kulongoski, Governor

## Water Resources Department

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### MEMORANDUM

**TO:** Water Resources Commission

**FROM:** Barry Norris, Administrator  
Technical Services Division

**SUBJECT:** Agenda Item N, August 11, 2006  
Water Resources Commission Meeting

### **Water Right Permitting in the Klamath Basin**

#### **I. Issue Statement**

The Water Resources Commission previously provided staff with direction regarding consideration of new water right applications in the Klamath Basin. Staff are looking to affirm their understanding of the direction.

#### **II. Background**

The Commission previously considered administrative action that would limit water right permitting in the Klamath Basin. The Commission accepted the Department's recommendation that flexibility was needed to deal with the uncertainties presented in the outcome of the adjudication process and finding solutions to the Endangered Species Act (ESA) issues. At that time, the Commission chose not to adopt new administrative limits, thereby maintaining the Department's flexibility in dealing with Klamath Basin water-related issues.

During their deliberative process of considering new administrative limits, the Commission offered direction to staff. Specifically, staff were asked to give careful consideration to any requests for irrigation of new land. The Commission noted that the water availability model demonstrates that surface water is not available at an 80% exceedance level in the Klamath River, and new water rights that effect flow in the Klamath River would exacerbate problems for existing users and ESA needs. A copy of the Water Availability Table for the Klamath River at the state line is provided as Attachment 1. Additionally, a copy of a report prepared by Jonathan LaMarche, Hydrologist located in the Bend Region Office, is provided as Attachment 2. This report summarizes findings related to the connection between ground water and surface water above Upper Klamath Lake.

In maintaining flexibility the Commission noted their desire was to put an emphasis on allocating remaining available water to projects that would not adversely impact other water rights, would benefit existing users, and would assist in solving ESA issues. Specifically mentioned as viable candidates for new permits were wintertime storage (where water is available), mitigated new uses, and supplemental ground water uses where there is no potential for substantial interference.

### **III. Discussion**

The Department continues to receive applications for water use in the Klamath Basin. In the act of processing an application, staff look at hydraulic connection between surface water and ground water and at water availability. According to our water availability model at 80% exceedance, there is no water available for new appropriations in the Klamath River at the state line. Ground water applications that are found to be hydraulically connected to the Klamath River cannot have the potential for substantial interference if they are to be permitted. Additionally, during the application review process, staff considers Commission direction that emphasizes protection for existing users.

### **IV. Director's Recommendation**

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

#### Attachments

1. Water Availability Table for Klamath River at State Line
2. Report on Ground Water/Surface Water Interaction by J. LaMarche

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**Water Availability Table for Klamath River at State Line**

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Water Availability as of 7/26/2006 for

KLAMATH R > PACIFIC OCEAN - AT STATE LINE

Watershed ID #: 70094 Basin: KLAMATH Exceedance Level: 80  
 Time: 10:51 Date: 07/26/2006

| Month    | Natural Stream Flow | Consumptive Use and Storage | Expected Stream Flow | Reserved Stream Flow | Instream Requirements | Net Water Available |
|----------|---------------------|-----------------------------|----------------------|----------------------|-----------------------|---------------------|
| 1        | 1500.00             | 578.00                      | 922.00               | 0.00                 | 1500.00               | -578.00             |
| 2        | 1570.00             | 974.00                      | 595.00               | 0.00                 | 1500.00               | -905.00             |
| 3        | 1770.00             | 1060.00                     | 709.00               | 0.00                 | 1500.00               | -791.00             |
| 4        | 2310.00             | 1230.00                     | 1080.00              | 0.00                 | 1500.00               | -421.00             |
| 5        | 2160.00             | 1380.00                     | 777.00               | 0.00                 | 1500.00               | -723.00             |
| 6        | 1700.00             | 1720.00                     | -26.10               | 0.00                 | 1500.00               | -1526.00            |
| 7        | 1200.00             | 1550.00                     | -348.00              | 0.00                 | 1500.00               | -1848.00            |
| 8        | 930.00              | 1140.00                     | -217.00              | 0.00                 | 1330.00               | -1547.00            |
| 9        | 848.00              | 879.00                      | -30.10               | 0.00                 | 1160.00               | -1190.00            |
| 10       | 830.00              | 341.00                      | 489.00               | 0.00                 | 1260.00               | -771.00             |
| 11       | 978.00              | 334.00                      | 643.00               | 0.00                 | 1500.00               | -857.00             |
| 12       | 1260.00             | 570.00                      | 690.00               | 0.00                 | 1500.00               | -810.00             |
| Stor-50% | 1550000             | 710590                      | 838000               | 0                    | 1040000               | 83400               |

## Attachment 2

### **Summary Report of Ground Water/Surface Water Interaction in the Upper Klamath Lake Basin**

Prepared by Jonathan LaMarche, PE, Hydrologist  
Oregon Water Resources Department

The quantity and location of ground-water discharge into the stream network of the Upper Klamath Basin was determined as part of the OWRD/USGS cooperative study (Gannet et al 2006, in review). This study is valuable in determining ground-water/surface water interactions in the basin as well as the ground-water flow system. Most of the analysis for the ground water discharge portion of the cooperative study was based on the Department's natural stream flow study (Cooper, 2004), which predominately uses discharge data collected at stream gages to characterizes typical monthly flows and gains in the major tributaries. Supplemental analysis was performed by collecting additional stream measurements at key locations at or near springs, as well as multiple sets of synoptic streamflow measurements and fieldwork performed from 1997 to present. Data from previous hydrologic studies (e.g., Leonard and Harris 1974, Grondin 2004) were used in the analysis as well.

One result of the cooperative study was the characterization of the hydrology and ground water discharge in all of the major tributaries in the Upper Klamath Basin, including those to Upper Klamath Lake (UKL). The hydrology of the streams above UKL can best be described as a combination of: 1) predominately runoff/snowmelt dominated streams in the volcanic upper watersheds, and 2) spring complexes and ground-water-dominated streams in the sediment filled valleys. Ground water discharge occurs at numerous locations above UKL (Table 1). Springs discharge roughly 370 cubic feet per second (cfs) of flow to the Sprague River, 560 cfs to the Williamson River, 600 cfs throughout the Wood River Valley, and approximately 350 cfs directly to UKL. The total discharge occurring into or above UKL is on the order of 1900 cfs, which is approximately equivalent to 75 % of annual inflows into the lake. Note that not all of this ground water discharge water reaches UKL, as consumptive use from agriculture, wetlands and open water evaporation can significantly reduce net inflows into the lake as well as observed streamflow at the mouth of major tributaries.