



Oregon

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MEMORANDUM

TO: Water Resources Commission

FROM: Kenneth Smith, Information Technology Manager
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SUBJECT: Agenda Item M, February 26, 2016
Water Resources Commission Meeting

Kenneth Smith
BB

Routing Water Right Data on Stream Networks – A Sneak Peak at new GIS Services

I. Introduction

During this agenda item, staff will provide an update on the Department's efforts to map water rights using the National Hydrologic Data (NHD) digital stream network. This digital stream network provides advanced information such as direction of flow, stream confluences, and measures of distance. Staff will provide a historical look at the systems developed to associate water rights with specific streams; discuss new capabilities and advantages of using NHD; and demonstrate two pilot applications employing this technology. This item helps to fulfill Recommended Action 1C of the Integrated Water Resources Strategy.

II. History of the Process to Link Water Rights to Streams

In the past, the Department assigned codes to streams and tributaries so that they could be easily identified. These codes were based upon old basin maps, which were not very precise nor were they a complete representation of the stream network. While the codes make it easy to identify the list of tributaries for a stream, it is not possible to determine where along the stream those tributaries may exist. This means that under this method, it was not possible to easily query what water rights existed above or below a certain point. As a result, staff had to do additional research on stream reaches and water rights for Department activities relating to field responsibilities and water right transactions.

III. Move to National Hydrologic Data (NHD)

In 2012, the State adopted the NHD as a standard for mapping and coding a stream network. The Department started a project to move to this standard shortly thereafter. The Klamath Basin was used as the pilot for this data migration and was completed in 2014. Data migration for the rest of the state was completed on July 1, 2015.

Moving to the NHD provides users with the ability to determine direction of flow and distance along a stream network. Once a feature or point (e.g. point of diversion, dam, gage, etc.) is located on the NHD network, it is easy to identify items upstream and/or downstream along the stream network. Using this technology, staff can now run queries to answer questions such as:

- What junior rights are upstream from a point of diversion?
- What senior rights might be downstream from a point of diversion?
- What rights are in a certain stretch of a stream?
- What is the cumulative appropriation of diversions on a certain reach?

These questions are often asked in field activities and processing water right transactions. Being able to conduct these queries through our databases instead of having to conduct time consuming research will result in more efficient use of staff resources.

IV. New Applications

The Information Services Section has created two applications that demonstrate the use of this new technology. The first is an updated version of the Water Rights Query tool that allows users to perform water right queries and get a list of results based upon stream locations. The second is an Interactive Water Rights Mapping Tool that allows for water rights to be identified by stream reach. Users can pick points on the map to define the stream reach where they are interested in searching for water rights.

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