HYDRO STANDARD EXECUTIVE SUMMARY

INTRODUCTION

State agencies and their partners are making significant efforts to address the health of our watersheds. The Oregon Plan, Healthy Streams Partnership, Coastal Salmon Recovery Initiative, Willamette River Initiative, and the Oregon Watershed Enhancement Board are programs that are resulting in progress towards establishing a sustainable, healthy environment for Oregon's future. Along with these efforts there is a need from a multitude of other entities for detailed, high-resolution surface water data for analyses and mapping.

These programs share similar obstacles. Two of these are the lack of adequate data and the lack of tools to analyze data. Efforts are underway to collect data but we need a common foundation to bring the varying data sets together in a way that allows for effective analysis. The 1:24,000 scale digital hydrography data (24K hydro) will provide a common geographic reference within which disparate data sets can be combined.

Recognizing the need for this foundation the Oregon and Washington Hydrography Framework groups, and local and federal agencies, have spent four years developing a framework standard for the 24K hydrography. Development includes a model for a central clearinghouse in which to house the 24K hydrography data set. This has been an extensive effort that enables cooperators to pool resources to acquire and develop the hydrography map for the northwest. This standard was presented to the Oregon Geographic Information Council (OGIC) at their quarterly meeting on March 20, 2002. The OGIC endorsed this standard for ITEC approval at that meeting.

COMPONENTS OF THE MODEL

The hydrography data model is made up of the following feature types:

1. Water points
    a. Springs, seeps, and other hydrographic features with limited spatial extent.
2. Watercourses
    a. Streams, canals, flumes, pipelines and other linear hydrographic feature centerlines.
    b. Double lined features at the source scale will be represented in this layer by their centerline. This includes water bodies.
    c. All arcs must point downstream.
3. Water bodies
    a. Sounds, bays, lakes, ponds, reservoirs, inundation areas, the double lined portions of streams and other hydrographic features best represented as areas.

4. Shorelines
    a. One or more representations of the shoreline of each water body.
    b. Accommodates those instances where multiple shorelines based on different datum (e.g. mean high water, mean low water etc.) are useful, especially marine shorelines.

All of the feature types share the following characteristics:

1. A unique LLID (latitude-longitude) identifier.
2. Generalized classification of the hydrographic feature type (e.g. spring, stream, lake etc.).
3. Classification of the type of cartographic element. This is a more detailed classification of the feature useful for mapping or more detailed database queries.
4. Classification of seasonal, or periodic behavior of the water feature (e.g. perennial, intermittent or ephemeral).
5. Feature level metadata
    a. Input method (scanning, digitizing etc.).
    b. Interpretation (compilation) method (photogrammetric, photo interpretation, GPS, crenulation etc.).
    c. Source code (topographic map, field survey, orthophoto etc.).
    d. Modification codes (Add, Modify, Delete (orphaned event record)).

The model is built on the ARC/INFO GIS software, version 7.2.x, using its "Dynamic Segmentation" data structure.

FUTURE PATH

The hydrography data model should be treated as a "living" document, one that will evolve over time. In fact, in the last two years since Oregon and Washington compiled the *first* final draft minor tweaks—in the form of updates, corrections, and other modifications—have occurred. The basic structure remains the same, however.

On the horizon, the Federal Geographic Data Committee (FGDC) is organizing an effort towards creating a federal hydrography data standard. This will most likely be based on the National Hydrography Dataset (NHD) developed over the last decade by the U.S. Geological Survey (USGS) and the Environmental Protection Agency (EPA). The Oregon and Washington hydrography framework partners are participating in this process. If the NHD model is adopted as the national model we will determine what impact that will have on our own model and how to address it.

CONCLUSION

Endorsement of a single hydrography data standard will help eliminate the proliferation of disparate data sets describing the same geography. Time and money can now be focused on unique data sets that tie to hydrography instead of creating another hydrography data set.

In the meantime, Oregon and its partners in the Pacific Northwest have turned their attention to building a single, high-resolution hydrography theme that everyone can improve on with their contributions and, in turn, can add to the National Spatial Data Infrastructure (NSDI; Presidential Executive Order 12906).

OREGON HYDROGRAPHY FRAMEWORK GROUP PARTNERS (1997-2002)

- Oregon GIS Association (OGISA)
- Oregon Water Resources Department (OWRD)
- Oregon Watershed Enhancement Board (OWEB)
- Oregon Department of Forestry (ODF)
- Oregon Department of Fish & Wildlife (ODFW)
- Oregon Department of Environmental Quality (DEQ)
- Oregon Division of State Lands (DSL)
- Polk County
- CLAMS (US Forest Service coastal basins study team)
- U.S. Bureau of Land Management (BLM)
- U.S. Forest Service (USFS)
- U.S. Geological Survey (USGS)
- U.S. Natural Resource Conservation Service (NRCS)
- Interorganizational Resource Information Coordination Council (IRICC) & the Regional Ecosystem Office (REO)
- Oregon Geospatial Data Clearinghouse (OGDC)
- Washington Hydrography Framework Project and their partners