

## V. COLUMBIA RIVER WATER MANAGEMENT GROUP

*Meetings Tour Ice Harbor Dam Kennewick Man, Tri-cities facilities  
Port of Benton Off-loading site Lower Monumental Dam Committees and Task Forces*

### A. MEETINGS

The Columbia River Water Management Group changed from monthly to quarterly meetings, beginning in January. At each meeting, agency representatives reported briefly on various events which occurred during the preceding month in their respective areas of water management interest: weather and flood summaries and runoff forecasts by the NWS-River Forecast Center; streamflow by the US Geological Survey; snow accumulation/melt by the US Natural Resources Conservation Service; energy usage and outlook by the Bonneville Power Administration; water supply in irrigation reservoirs by the Bureau of Reclamation; flood control operations and reservoir regulation by Reclamation and the Corps of Engineers; water quality by the Corps, Reclamation, and other agencies; fisheries by the Corps, National Marine Fisheries Service and other agencies; project licensing by the Federal Energy Regulatory Commission; state activities by the member states; and additional comments by other organizations present. The Hydromet Data, Water Quality, and Forecast Committees, and the Depletions Task Force, also reported on their water management activities.

#### 1. Meeting Summary

The following are highlights of significant items discussed or reported at the CRWVG meetings, not discussed elsewhere in this report.

! In the October meeting the activities of WY-98 were reviewed with the average basin precipitation being near normal in the Upper and Lower Columbia and slightly above normal in the Snake Basin, and the runoff for the Columbia at The Dalles was near normal. The RFC reported that their runoff volume forecasts were fairly good for the Columbia River at The Dalles and at Grand Coulee. The Snake Basin was more of a problem because of the heavy summer rainfall which always compounds the errors. All the flood control reservoirs essentially filled with the spring runoff and irrigation demands were met without adequate carryover. The Corps said that virtually all CAFÉ users had been transferred to the UNIX/Sun system; a change that brought the project communications up to current standards.

! In November, the year was beginning on the dry side of normal with only the Willamette Basin precipitation near normal, a trend followed by the streamflow. Oregon's SWSI, however, bucked the trend with a normal or better water supply. The exception was the north Oregon coast area, which has no significant reservoirs, had a low water supply. All flood control reservoirs were drafting with the Willamette reservoirs reaching their minimum flood control pools on November. Following a lengthy discussion of the pros and cons of various Group meeting schedules, it was agreed that the meeting schedule would be reduced to January, April, July and October, with other meetings scheduled on an as-needed basis. In discussions of updating the hydrologic normals, BPA was asked to examine the PNCA and other agreements that use these values, to help determine when they should be updated, the required period of updating, and who would do and pay for the work.

! In January it was reported that two major flood occurred in the basins west of the Cascades one after Thanksgiving and the second after Christmas. For more information on these events see the section on floods in Chapter II. The snowpacks in the interior basins were significantly above normal due to the moisture influx from the plethora of storms crossing the basin. The first runoff volume forecasts of the season, based on the January 1 hydrologic conditions and normal precipitation throughout the remainder of the forecast period, anticipated seasonal runoff on the larger tributaries to range from 102% to 115% of normal. The interior flood control projects continued to draft toward their April 1 targets while many of the westside flood control projects were evacuating the storage from the post-Christmas flood. BPA reported that data used in the 30-year depletions study resides at BPA

but that no one there knows how to work the program. The consultant that originally did the study is no longer in business and the one individual that had knowledge of the operation of the depletion programs, who no longer works for BPA, says the work may be fairly straight forward. A grad student at the University of Washington looked at the project but declined to take it on. The data for the 30-year updates used to reside on the Corps computer but in switching data bases, etc, the data tapes have been lost. (Good thing we have professionals working in the DP area).

! In April, it was reported that snowpacks had increased greatly since January 1 to above normal, and so did the runoff volume forecasts. Both flood control and irrigation reservoirs had been drafted sufficiently to store the runoff, unless a very hot spell really accelerated the snowmelt. The return of adult salmon has been delayed by the cool spring and is a concern for Fisheries. The Corps has expanded their web site to include more project data.

! In July, usual reports: most rivers reached their annual crest in either May or early June and most flood control reservoirs reached their maximum contents during June. The returns of some species of salmon have surpassed the counts of last year and also their 10-year averages. The USGS said that they will no longer present the unregulated flows in their monthly CRWMG reports, opting instead for the observed readings only. Most effected by this change will be the Willamette R at Salem and the Columbia River at The Dalles. The dam removal process for Condit and Elwha dams (and others) requires a substantial administrative process -- in addition to the political ones. The Group toured numerous sites on the mainstem Columbia and Snake rivers in the vicinity of the Tri-Cities.

## **2. Ice Harbor, Lower Monumental, Port of Benton, and Tri-cities Tour**

The purpose of visiting these sites was to obtain first-hand information on the unique characteristics on each of these sites and how they affect the operation of the Northwest reservoir system in managing the water resources of the Pacific Northwest.

**Ice Harbor Dam**, a run-of-river project constructed in 1956 at river mile 9.7 on the Snake River, is the most downstream dam on this tributary to the Columbia River. Between 1996 and 1998 flip-lips were installed on the ten spillways to reduce the **dissolved gas** concentrations below the project. During this trip all the spillways were in operation and, therefore, the flip-lips were not visible, although the high surface velocities were evident. During the flip-lip design, model tests showed that the higher velocities from these flip-lips would cause dangerous currents for vessels exiting the navigation lock so the Corps installed four **coffer cells** downstream of the guide wall to defuse these currents. These cells are each 80 ft in diameter, are made of sheet piling and filled with pit-run gravel. Migrating juveniles are moved around the powerhouse through **channels** and pipes into a **sorting station** for transporting or returning to the river. The navigation locks have a maximum lift of 103 ft, one of the highest single lock lifts in the world. Two fish ladders were in operation, one on the left bank and the other near the right bank, between the navigation lock and the spillway. The left bank ladder has two entrances, one on either end of the powerhouse.

In the control room were two computers with unique uses, one dedicated to operating the fish bypass system and the other to monitoring the Tri-Cities levee pumping system. The fish bypass computer used icons and mouse action to control the use of the features of the system. The “pumping“ computer displayed a map of the levee pumping system that uses clickable icons to display that operational and entrance alarm status of each station.

There are no juvenile fish transport facilities at Ice Harbor since there are no significant redds or hatcheries between this project and Lower Monumental Dam, the next upstream project which has juvenile transport capabilities.

Other sites visited in the banks of McNary pool in Kennewick, Washington, where the skeletal remains of the **Kennewick Man** were discovered in 1996. The remains have been tentatively dated (carbon and other dating methods) around 9200 years old. The remains are currently residing in the Burke Museum at the University of Washington in Seattle until the legal aspects of the disposition of the remains is resolved. The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) assumes that antiquities older than 500 years (prior to Columbus discovery of the ‘new’ world and the documented settlement by Europeans) are of native American origin and are required to be returned to native Americans, provided a link to modern tribes can be established. The

legal rub is that numerous scientists that have examined the remains say that the skeleton has many defining characteristics of a caucasoid, not of the classic mongoloid stock to which modern native Americans belong. Information on Kennewick man and his relationship to other anthropological discoveries in the western US can be found on the web by searching under Kennewick man.

A [pumping plant](#) visited in Richland was in a residential area and was within a block of one of the main traffic arterials through town. This plant was designed to remove water that accumulate behind the levee by [pumping](#) it into the Columbia River. Two of the pumps were directly connected to diesel emergency generators.

Columbia Park, located along the Columbia River in Kennewick, has been developed and improved by local interests. Unlimited hydroplane races on the river at the end of each July are a major event in the Tri-Cities and the Chamber of Commerce annually requests controlled flows on the days the hydroplanes are on the water.

At the request of local interests a one mile stretch of the Corps-built [levees in Pasco](#) were lower between 5 and 6 ft. The locals insisted that the degree of flood control provided by the levees was no longer needed because of additional flood storage at upstream projects that was not built or considered when the levees were constructed. After due study and with reservation, the Corps consented to the left bank levees being lowered, at the expense of the local interests. One of the reasons given for wanting the levees lowered was to provide wider room for a serpentine bicycle/jogging/walking path on the levee crest. It also provided the riverside homes an unobstructed view of the river, Columbia Park, and hydroplane race course.

Decommissioned nuclear reactors are barged up the Columbia River to the **Port of Benton** for off-loading and overland travel to their burial site on the nearby Hanford Nuclear Reservation. The Port of Benton facilities for unloading these reactors is located on the north end of Richland, Washington, consists of a gently sloping ramp to the edge of the Columbia River. At the site are stockpiles of concrete barriers for blocking the roads, several 176-wheel [trailers](#), two very, very [large trucks](#) to pull the loads, and other equipment. The need for maintaining constant river levels during off-loading was evident.

**Lower Monumental Dam** is part of the Lower Snake Project of four dams (including Ice Harbor) authorized by Congress in 1945. Located 22.2 river miles upstream of Ice Harbor Dam, "Lower Mon" has six generators, each with a nameplate rating of 135,000 kW, for a project total of 810,000 kW. The navigation lock, with a vertical lift gate downstream and a lowered radial gate on the upstream end, has a 103 ft vertical lift. The locks are 675 ft long, 86 ft wide and have a draft threshold of 16 ft. An up-bound barge and tug navigated the lock during this visit. The total time for the [tug and barge](#) to enter the lock, the lock to fill and then exit the lock was on the order of 40 minutes. Lock drainage is through conduits that discharges the water into the river below the stilling basin. The turbulence from this discharge was visible most of the way across the river. The fish examination/transportation facility is located on the right bank, across the river from the navigation lock, and below the stilling basin. The fish bypass system to move juvenile salmon around the dam and powerhouse is similar to that at Ice Harbor. Lower Mon has eight spillway bays, the middle six of which are equipped with flip-lips. Although there was no spilling the tailwater was high enough to obscure the flip-lips.

### **3. Hydromet Data Committee**

The Hydromet Data Committee (HDC) is a standing committee of the Columbia River Water Management Group that handles matters pertaining to hydrometeorological data. The work of this committee is directed mainly toward the coordination and development of the automated Columbia River Operational Hydromet Management System (CROHMS). To date, the major emphasis has been getting data into the CROHMS data bank facility and in the development of viewer-oriented data files for users of CROHMS data. Although emphasis will continue on entering data into the CROHMS data bank facility, a new emphasis is being applied to data transfers between computers, primarily in computer retrieval of data from the CROHMS data bank facility. There were no Committee activities this year.

### **4. Depletions Task Force**

The Depletions Task Force did not meet this year due to other work priority.

## **5. Forecast Committee**

The Forecast Committee did not meet this year due to other work priority.