

PRESIDENT'S NOTES

by Rodney Sakrison, President, AWRA Washington Section

Happy World Water Day! I began these notes on Friday, March 22, the date that the United Nations Environment Program (UNEP) selected for World Water Day. I like the idea that for a single day the world could focus on the importance of addressing our common water problems. I took a moment to look for announcements on the Internet from the UNEP meeting on world water issues being held in Beijing, China. I found it by going to the EPA home page and clicking on UNEP. Maybe you saw the news story in the newspaper that the Chairman of the water conference cautioned that wars could be fought next century over disputed water supplies. It is distressing to consider such a future; however, giving attention to this issue *now* is important. You might be interested to know that the UNEP considers the "American West" to be one of the areas of potential difficulties.

In this issue of the Newsletter, we focus attention on the recent flooding that has occurred in western Washington and throughout the Pacific Northwest. It has been observed that the hydrology of urbanizing watersheds has vastly changed from previous conditions.¹ We are experiencing higher peak flows from greater amounts of impervious surfaces, and correspondingly lower base flows during the summer low-flow period. **Kelly Whiting** (Sr. Engineer, King County Surface Water Management), who was quoted in the Times article, writes here about the recent flooding and its implications for solid waste facility design. He also discusses the new King County runoff time series model. **Don Davis** (Deputy Executive Director, King County Master Builders Association) considers the impact of the new storm-water rules on the cost of housing. **Tim D'Acci** (Ecology) offers an account of recent flooding in our state. Rounding out this issue, **Ken Slattery** (Ecology) provides a digest of the water resources bills that were passed in this session of the State Legislature.

¹ Bill Dietrich, "From Deluge to Drought," Seattle Times, March 5, 1996.

In the Jan/Feb 1996 Newsletter, I said that my goal for the year was to encourage wider participation in the various committees that serve the Washington Section. I am pleased with the enthusiastic support we've gotten from members wishing to get involved with the committee planning for the Fall Conference. Their participation is appreciated and should not go without acknowledgment. The Board wants to thank the following individuals for getting involved: **Doug Beyerline** (Aqua Terra), **Jay Bower** (Geraghty & Miller), **Steve Foster** (Corps of Engineers), **Jeremy Freimund** (EA Engineering), **Kathy Kimbell** (Consultant), **John Kounts** (PUD Association), **Lorna Luebbe** (Geraghty & Miller), **Andy Lukas** (Brown and Caldwell), **Ed McCarthy** (Shapiro and Associates), **Chris Pitre** (Pacific Groundwater Group), **Fran Solomon** (King County SWM), **Pete Sturtevant** (HLA Infrastructure) and **Patricia Wickham** (Consultant).

If you were inadvertently overlooked in this list, do not despair that you will toil in anonymity — your involvement will be acknowledged. There are still openings for interested individuals on other committees. Please contact a board member if you are would like to join a committee.

Upcoming Events

**Tuesday,
April 30, 1996**

**Social Hour: 5:30 p.m.
Dinner: 6:15 p.m.**

**Event: Dinner Meeting
at the Latitude 47°
Restaurant
(Southwest shoreline
of Lake Union in
Seattle)**

**Menu: Petrale Sole or
Stuffed Chicken Breast**



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This newsletter is a publication of the Washington Section of the American Water Resources Association. It is published bi-monthly. This is a forum for members to share ideas and opinions; as such, opinions expressed in the AWRA Newsletter are those of the authors and do not necessarily represent the official position of the Washington Section of AWRA.

Announcements or articles are welcomed for the May/June edition of the newsletter. The editor reserves the right to make changes for reasons of length, grammar, legality or clarity. The submittal due date is May 13, 1996. Contact Teresa Platin at (206)-453-5000, or send submittals directly via the following methods:

FAX: 206-462-5957

Internet Mail:

tplatin@sea.ms.ch2m.com

(most document/graphic formats are acceptable)

APRIL DINNER MEETING

"Update of the King County Surface Water Manual - Technical and Policy Considerations"

Our next dinner meeting will be held in Seattle on **April 30, 1996** at the **Latitude 47° Restaurant**. Don't miss this one! We've got some great speakers lined up and have planned an outstanding meal in one of Seattle's most popular restaurants, featuring a nautical view of Lake Union. Socializing will begin at 5:30 p.m., with dinner starting at 6:15, followed by the presentation. Arrive early for best parking and some lively conversation with fellow members.

Our **featured speakers** for the evening will engage in a timely and provocative discussion of the newly revised Surface Water Manual and how it will affect local development. **Bruce Dodds** is the President of Dodds Engineers, Inc., and he will represent the views of the development community. Bruce was instrumental in defining the need, process and results of the cost study for the 1996 SWM Manual. He will discuss the development community's objectives for its participation in the Manual rewrite process and how well these objectives were achieved. To be sure, there are areas in which the development community is still at odds with the County.

Curt Crawford is the Supervising Engineer of the Local Drainage Services Unit of the King County Surface Water Management Division. Curt is also the Project Manager of the Surface Water Design Manual Update and will present information on the reasons for revising the Manual. He will address the key changes in the Manual: defining an easier and quicker process for small projects; more facility options for tailoring to site constraints; standards tailored to sensitivity of the resource; improved water quality control for lakes and streams; higher standards of protection for salmon in rural areas; and improved methodology for detention design. He will also comment on efforts to reduce cost impacts in urban and rural areas.

Reservations: Contact Alan Bennett at 821-2446 or Mike Wert at 624-9190 to indicate the number of attendees and meal preferences: **stuffed fresh Petrale Sole** with caper sauce, spinach, herbs, and shrimp baked with butter and wine, or **stuffed chicken breast Toscano** with pine nuts, spinach, cheese, tomatoes, herbs, and Northern Italian sauce—both served with fresh Caesar salad and scalloped potatoes. Space is limited so reserve early!

Payment: Please send a check for \$16 per person, payable to AWRA Washington Section, to Alan Bennett at 14422 120th Pl. NE, Kirkland, WA 98034-1153 by April 24. Indicate your preference for stuffed petrale sole or chicken breast Toscano with your check. Those registering at the door will be charged \$20.

Directions: Take 1-5 or Highway 99 to the Mercer Exit. At the intersection with Westlake, turn north and continue on Westlake for about 1/2 mile. The Latitude 47° is located on the right, along the southwest shoreline of Lake Union (1232 Westlake Avenue North).

RECENT STORMS DEMONSTRATE SHORTCOMINGS OF DESIGN STORMS IN SIZING RETENTION/DETENTION FACILITIES IN PUGET SOUND REGION

by Kelly Whiting, Senior Engineer, King County Surface Water Management

Between February 3 and February 9, 1996, Western Washington and King County experienced another significant winter storm which put the region's flood control and urban drainage systems to the test. Whenever a storm like this occurs, it raises questions: how well are existing stormwater control facilities performing under non-design conditions, and how is the design methodology being improved to incorporate lessons learned from actual storms and historical modeling?

The February storm was similar across much of the region, beginning with sporadic showers and building in intensity over several days, until the most intense precipitation occurred late in the storm after much of the natural and constructed storage capacity was full. Similar in magnitude and duration to the January, 1990 storm, the peak 24-hour rainfall volumes (3.0 inches at Seatac), for most areas of King County were at or below the 10-year recurrence interval. Looking at just 24-hour rainfall volumes, current detention facilities sized to a 10-year/24-hour design storm would not have been expected to overflow. However, the 72-hour peak rainfall volume (5.1 inches; 30-year at Seatac) and the 7-day peak rainfall volume (5.9 inches; 15-year at Seatac) demonstrate that these facilities experienced considerable pre-filling prior to the peak 24-hours occurring near the end of the 6-7 day storm. The result was that many facilities experienced overflow, due to higher than design inflow volumes. For more information on the magnitude of the February storm, as compared to other recent storms, visit our world wide web site at the address listed below. Flood summary reports can be found under SWM News and Events.

When analyzing storage reservoirs with historical records, the highest discharges from, and water levels in, reservoirs are generated by long-duration, high-volume storms, which contain more runoff volume than is generated by the commonly used 24-hour design storm. King County has investigated using other design storm distributions including a modified seven-day distribution. However, additional concerns over the limitations and applications of the event models lead SWM to look for alternative approaches. Event models do not allow analysis of high-flow durations, an important factor in controlling

erosive work on downstream channels. Also, event models inherently overestimate peak runoff rates from undeveloped areas, in part due to using surface flowpaths for characterizing runoff that is primarily a subsurface phenomena. This results in facilities that release runoff at rates higher than those actually existing prior to development. Some of these facilities did not overflow in February, despite the larger inflow volumes.

The King County Runoff Time Series (KCRTS) program is a new hydrologic modeling tool, developed by King County Surface Water Management in collaboration with the University of Washington and Northwest Hydraulic Consultants, that uses local historical rainfall records, producing more realistic runoff patterns. Utilizing research conducted by the University of Washington and the U.S. Geological Survey, HSPF-generated runoff time series were created from historical precipitation records for the Seatac and Landsburg gauges for different soil and landcover classes. From the full historical runoff record, a set of 8 complete water years were selected as having representative statistics of the full historical record. Each record ("runoff file") contains dozens of historical storms, ranging in duration and intensity, and includes a synthetic 100-year event based on the January, 1990 storm event. When sizing facilities, this approach more accurately predicts existing peak runoff conditions; it also predicts developed condition inflows to the facilities. Also, since KCRTS is a continuous model, direct measurements of high-flow durations will replace the current calibrated SBUH stream protection detention standards (recognizable by controlling a design storm to a percentage of the pre-developed 2-year flow). Surface Water Management is currently working on developing runoff files from other precipitation gauges within King County, with potential applications in other jurisdictions, especially in the Puget Sound region.

Copies of the KCRTS program and users guide can be obtained by contacting Surface Water Management at 296-1984 or 296-8327. For a demonstration copy visit our world wide web site at <http://splash.metrokc.gov/>. The KCRTS program, as well as the February DRAFT design manual can be found under SWM Resources.

HOUSING COST IMPACT TOPS NEW STORMWATER DESIGN MANUAL DEBATE

by Don Davis, Deputy Executive Director, The Master Builders Association of King and Snohomish Counties

After four years of staff preparation and study, a draft of a new Surface Water Management Design Manual is ready for review by the Metropolitan King County Council. This project has been depicted as one that will reduce flooding, cut red tape, and provide greater protection to salmon-bearing streams. The Master Builders Association of King and Snohomish Counties has been involved in this work from the start, helping County staff and consultants identify the potential cost impacts and trade-offs of the new manual.

The Master Builders Association, with 1,500 member companies in the two-county Seattle metropolitan area, is well suited for this work as its diverse membership includes builders, developers, architects, engineers, professional land planners, title experts, bankers, and many others with expertise. As this work goes forward, the Association is cautiously optimistic that King County can emerge with new and better water control runoff regulations and maybe hold the line on the cost of badly needed housing in the County.

Probably the most important event to occur while the new SWM Manual was being birthed was a project known as Benson Glen, near Renton. This project and the publication of "The Story of Benson Glen" demonstrated once and for all how tangled King County regulations had become. Benson Glen was a test involving a non-profit Board that included several members of the County Council, and they saw first hand how county regulations made affordable housing nearly impossible to achieve.

With that as background, the Association has been working with county staff to see if new and better techniques can be developed without adding cost to new housing. The spirit of public-private partnership has

gone far. There is agreement on the scientific basis that is being used for the design criteria and on the costs associated with the proposed changes. There is not agreement, however, on the level of protection that should be applied in urban areas if we are to obtain urban densities. It *is* the consensus that those costs should be disclosed in full detail to the elected officials who can then decide.

At issue is the level of protection future home buyers will have to purchase, and what it's going to add to the cost of housing. Does it make sense to require protection with costs approaching \$16,000 a lot in some instances? Would this kind of money be better spent on larger regional stormwater detention facilities than on pouring hundreds of thousands of dollars into site specific facilities that must be maintained by the County in perpetuity?

Although this will be a highly technical, scientifically-based manual, a significant challenge to its review and adoption will be to infuse other public policy debates into the discussion. More than five years into the adoption of the State Growth Management Act, how are we doing? Is growth being managed or has it gone somewhere else? Will the designated urban lands and the small amount of undeveloped land therein be sufficient to accommodate housing, population, and job goals that local jurisdictions have identified?

This is why a balanced approach to stormwater management is so vital. The real goal is to create development standards that will take up as little "net buildable land" as needed, provide a suitable level of protection for a clean Puget Sound, and allow affordable housing

choices at urban density levels to be available for ourselves and our children.

UNUSUAL CONDITIONS CREATE RECORD FLOODING

by Tim D Acci, Washington State Department of Ecology, Shorelands & Water Resources Program

Washington State experienced the most widespread and destructive flooding in this century during the period from November 1995 through February 1996. The winter flood season began in typical fashion with an early, though not extraordinary mountain snowpack. A series of warm storm systems, the "Pineapple Express," came ashore in November. Two rounds of flooding occurred primarily in northwest Washington — a scenario reminiscent of the epic November 1990 floods. Approximately 1,500 individuals requested assistance from FEMA. President Clinton declared the state a major disaster area in early January 1996.

Less than a month later a more powerful storm system swept across the southern half of the state causing damage that exceeded \$300,000,000, killing 3 people, and resulting in over 13,000 individuals requesting assistance from FEMA. (The November 1990 floods caused over 5,000 requests for assistance). A number of streams experienced record flood levels including the Nisqually, Black and Chehalis Rivers. The Yakima and Lewis Rivers

experienced levels that almost matched their floods of record from the 1933 flooding.

A series of antecedent conditions set the stage for the February flooding. The four-month period from November through February was the wettest on record for Seattle. The ground in western Washington was completely saturated and many levee systems were soft and weakened by the excess moisture and the serious flooding that had already stressed them. A severe cold spell in January produced solidly frozen ground conditions in eastern Washington and also produced a good amount of snow at low elevations. Finally, a major storm system impacted the southern portion of the state in three waves, culminating in a deluge on February 7th and 8th. In a 24-hour period during that last rainfall, Olympia recorded 3.1 inches of rain. While the snow level remained moderate, about 6,000 feet, snowmelt lower down yielded up to an additional 7 inches of water to the runoff. One difficulty in forecasting the amount of runoff from the February storm involved the lack of adequate sensing instruments to monitor changing snowpack below 6,000 feet.

1997 FELLOWSHIP ANNOUNCEMENT

The Washington Section of the American Water Resources Association (AWRA) is seeking nominations for a 1997 Fellowship Award. The Fellowship Award provides \$1,500 to support the work of a full-time student completing an advanced degree in an interdisciplinary water resources subject. In addition to the cash award, the Fellowship recipient will receive a one-year membership in both the National AWRA and the State Section, a one-year subscription to the Water Resources Bulletin, and admission to the State Section Fall Conference.

During the first week in April, information on the Fellowship was mailed to graduate schools and college and university departments having water resources-related programs. Section members are asked to encourage deserving students to apply for the Fellowship. Note: Nomination for consideration for the fellowship is to be made by the chair of the academic department where the graduate work will be performed. Information can be obtained from graduate schools or directly from the Washington State Section by contacting:

Stan Miller, Fellowship Committee Chair
Washington State Section, AWRA
1329 S. Ferris Court
Spokane, WA 99202
(509) 456-3600

1996 WATER RESOURCES LEGISLATION

by Kenneth Slatery, Senior Policy Analyst, Department of Ecology

Of the nearly forty bills addressing water resources introduced during the 1996 legislative session, 6 were passed by the legislature and are summarized below. Most water resource bills fell by the wayside due to the continuing policy stalemate on water. This included legislation on watershed planning, increased water right fees, water right process efficiency improvements, water right transfers and marketing, stronger linkage between growth management and water availability, governance, beneficial use and public interest criteria, and restoring state regulatory authority over water rights.

House Bill 2537 permits two or more irrigation districts and other irrigation entities to form a board of joint control for the purpose of entering cooperative projects including water conservation efforts. It allows conservation water savings to be transferred to lands under the jurisdiction of the board of joint control with only the board's approval. The bill would facilitate this form of semi-merger presently being contemplated by several irrigation districts in the Yakima basin.

House Bill 2738 authorizes the state irrigation district association (Washington State Water Resources Association) to enter contracts and to promote development of water for agricultural and power uses, including providing information to Congress and federal officials.

House Bill 2733 extends from 1996 to the year 2000 the expiration date of statutory provisions allowing the Department of Ecology to delegate portions of its well drilling enforcement authority to willing local governments. Presently eleven counties have taken delegation (and cost sharing grants) from Ecology and several more are interested.

House Concurrent Resolution 4424 establishes an eight-member Joint Select Committee of the Legislature to examine issues relating to water right transfers and requires a report to the Legislature by December 31, 1996. The bill is responsive to numerous bills considered over the last two years by the Legislature relating to water right transfers and marketing of water.

Senate Bill 6197 requires the Department of Ecology to consider the increased water supply, including ground water recharge, made available by proposed water developments that include water storage. This bill is consistent with current practice by Ecology.

Senate Bill 6427 enables unfinished nuclear facilities not on federal land to be turned over to local economic development authorities for purposes of use of the lands and facilities for economic development. It urges the Department of Ecology to facilitate a transfer of existing water rights to the facility within six months, or if that is not possible, to create a trust water right from an existing right for the facility. This bill is intended to facilitate use of the Satsop nuclear plant site for economic development in Grays Harbor County.

Although the Department of Ecology generally fared quite well in the **Supplemental Budget**, water resources programs did not. The Governor had requested supplemental budget funds for regional planning, basin assessments, data management and water rights processing. The final supplemental budget only includes the following water resources funding enhancements:

- \$250,000 for the Yakima basin water rights adjudication.
- \$300,000 to pay attorneys' fees awarded by the state Supreme Court to appellants in the Sinking Creek case.

FISH PASSAGE ENGINEERING DINNER MEETING DRAWS DIVERSE CROWD

The March Dinner Meeting at the Lakeside Coastal Grill featured a stimulating computer graphics slide show and discussion by Ed Zapel of the Seattle District, U.S. Army Corps of Engineers. The presentation highlighted the unique designs developed for the fish passage feasibility at the Howard A. Hanson Dam on the Green River in King County. The technical slides showed isometric views of the passage structure, intended to improve smolt survival, increase returning fish runs and restore viable fish production in the upper watershed above the dam. Representing public agencies, private consulting firms, and academia, twenty-six AWRA members and guests attended the meeting.

An Important Message About Membership

All members-in-good-standing (dues paid) for 1996 receive monthly newsletters. Courtesy copies of the newsletter are mailed to some individuals, including members from the past two years.

If you have not registered yet for 1996, but would like to ensure that you continue to receive this newsletter and other benefits of membership, please complete and mail the membership form at the end of this publication. If you would like to have your name removed from our mailing list, or a correction made to your mailing label, you may also use the membership application (with a short note detailing your request).

LOOKING AHEAD: NEW INITIATIVES

The Washington Section is in the planning stages for two exciting new ventures. These new initiatives have been discussed by the Board of Directors and have been given preliminary approval to go ahead with further planning. The two proposals are:

Joint Sponsorship of Regional Conference on the 1996 Floods. We have been contacted by the Oregon Chapter of the American Institute of Hydrology (AIH) with a request to jointly sponsor a regional conference, tentatively titled *"The 1996 Floods: Causes, Effects and Consequences."* The conference will be held in Portland, Oregon on October 7th and 8th at the Red Lion-Columbia River. The Oregon State Water Resources Research Center (Corvallis) is the administrative lead for conference planning. This is a great opportunity for AWRA Washington Section to get involved at a regional level, and to get attention for Washington speakers and issues. There will be a further announcement in our next newsletter. We want to get members involved who would be interested in participating in the conference planning. For more information call Rod Sakrison at (206) 649-7140.

Web Site for Washington Section. Planning for an AWRA Washington Section web site began a little over a month ago with a discussion of our needs for making the best use of the Internet. We researched the steps necessary to create our own web site. As we deliberated launching into the design of a home page, the AWRA National got their web site up and running. AWRA National put out an invitation for state sections to have a home page on their web site. Rather than undertake our own web site at this time, we have taken the interim approach of putting a home page up on the AWRA National web site as a first step to gaining broader attention through the Internet. Look for our home page on the AWRA National web site at <http://www.uwin.siu.edu/~awra>, listed under State Sections. We'll keep you posted on the direction this endeavor takes over the next few months.

The American Water Resources Association is a scientific and educational non-profit organization established to encourage and foster interdisciplinary communication among persons of diverse backgrounds working on any aspect of water resources disciplines. Individuals interested in water resources are encouraged to participate in the activities of the Washington Section.

Special thanks to CH2M HILL, Bellevue, for their word processing and graphics support on this newsletter.

**AWRA WASHINGTON SECTION
1996 MEMBERSHIP APPLICATION**

NAME:

ORGANIZATION:

ADDRESS:

Check if you would like to be actively involved on a committee during 1996. You will be contacted to determine what committee involvement you would like.

1996 Membership Dues (through October 1996): \$25.00. Please make check payable to **AWRA Washington Section**.

Mail to: American Water Resources Association Washington Section
c/o Alan Bennett
14422 - 120th Place NE
Kirkland, WA. 98034-1153

American Water Resources Association Washington Section
14422 - 120th Place NE
Kirkland, WA 98034-1153

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